How COVID-19 is changing credit risk models

The global outbreak of the COVID-19 virus has sparked an unexpected test to almost every function of a bank — particularly credit risk management, which was already the second-most important immediate risk priority on CROs' and Boards' agendas, according to the most recent EY/IIF global bank risk management survey. Faced with the unprecedented pace and magnitude of economic disruption from the COVID-19 pandemic, risk modeling teams are challenged to develop a Now, Next and Beyond response:

▶ Current models in the prudential domain were built for an economic downturn, but not a sudden halt in both supply chains and demand side of economic activity. The acuteness of this impact is beyond anything in history, so risk modeling teams must carefully question how and when historical data can be relevant to forward-looking credit analysis.

▶ The varied social distancing policies implemented by governments and inherent attributes of COVID-19 that we still do not fully understand mean that this pandemic is developing in an asynchronous manner across the world. Consumers responses are partially guided by psychological fear, making it difficult to predict otherwise rational decisions, such as labor supply and consumption of services, involving close proximity to others. The impact of COVID-19 and the path to recovery will vary widely by sector and geography and will be further exacerbated by the interlinked character of the global economy. Sector and region dynamics are also influencing unemployment demographics, a critical driver for assessing consumer credit risk.

▶ Government stimulus activities that aim to alleviate both individual and business financial distress are without historical precedent. In the corporate credit space, government-backed lending programs may mitigate defaults in the short to midterm, but they will increase leverage, which in turn will further compound widespread downgrades. In the consumer space, payment holidays and new guidelines on forbearance are masking the traditional delinquency indicators such as the days-past-due metrics.

How COVID-19 is changing credit risk models

Why have credit models broken down in the COVID-19 environment?

Credit models for the last 10 years have undergone significant scrutiny and governance, driven by regulatory expectations and a determination that they are deemed 'fit for purpose' prior to their use. So why did they become 'unfit for purpose' in a matter of days?

Most of the models were built on historical data from the last decade, which is not representative of the current environment. Also, credit models generally presume a gradual impact of the environment on losses, with lags ranging from one to six months. The estimated model parameters will exacerbate predictions due to any sudden macroeconomic movements. Current economic volatility is likely to generate unintuitive or counterintuitive estimates if one relies heavily on the models.

Additionally, the payment holiday and forbearance interventions, along with the closure of asset markets, have clouded typical indicators, such as current delinquencies, that are often used to project future losses. Credit models rely on inputs about the presumed macro-economic forecasts that typically use traditional economic theory concepts of general or partial equilibrium at their core to project the future. Such forecasts may be completely unreliable as the artificial shut-down of many consumer goods and services markets has pushed the economy into a state of disequilibrium. To compound the economic forecasting problem, government interventions, such as temporary income replacement programs to mitigate unemployment, may not be fully factored into projected unemployment metrics challenging the credibility of the forecast. Clearly, there are sufficient limitations in the use of existing credit models in current environment.

> We believe there are areas that model owners should be exploring in order to ensure that the output of their models remains valid and robust under the current circumstances.

New macroeconomic scenario models with forward-looking relationships to credit drivers

Defining a baseline macroeconomic projection is one of the main focus areas for credit risk modeling. The severity of the local lockdown seems to be the simplest key driver impacting economic expectations in the short- and mid-term, while duration of the local lockdown is driving the longer-term effects. However, given the global nature of both today's economies and the pandemic, we must understand how shocks caused by lockdowns in different parts of the world can propagate across economies through global value chains in order to develop a medium or long-term macroeconomic scenario. We can already observe this in China, where in spite of the withdrawal of a majority of the social distancing measures, the economic activity remains subdued due to the outbreaks of the pandemic at China's main trading partners.

EY's experience suggests that we can apply a combination of macroeconomic approaches (general equilibrium and input-output) and pandemic Susceptible, Infected and Recovered (SIR) models, as well as bottom-up sector and geographic recovery perspectives, in order to generate scenarios accounting for lockdown risk, sectoral impacts, policy responses and international risk transmission. Given the abundance of daily published country-level pandemic statistics and the continuous flow of sectoral indicators from the exposure monitoring processes, such a modeling framework enables the necessary flexibility to update scenario outlooks daily.

Credit risk models will also need to be recalibrated to reflect a forward-looking impact of macroeconomic scenarios on structural credit factors, challenging where historical relationships hold – and applying new approaches where they don't. Once applied to the COVID-19 pandemic, the approach can also be leveraged and extended to other use-cases related to an external shock impact on credit portfolios. One good example is the capture and the understating of the forward-looking implications of climate change risk.
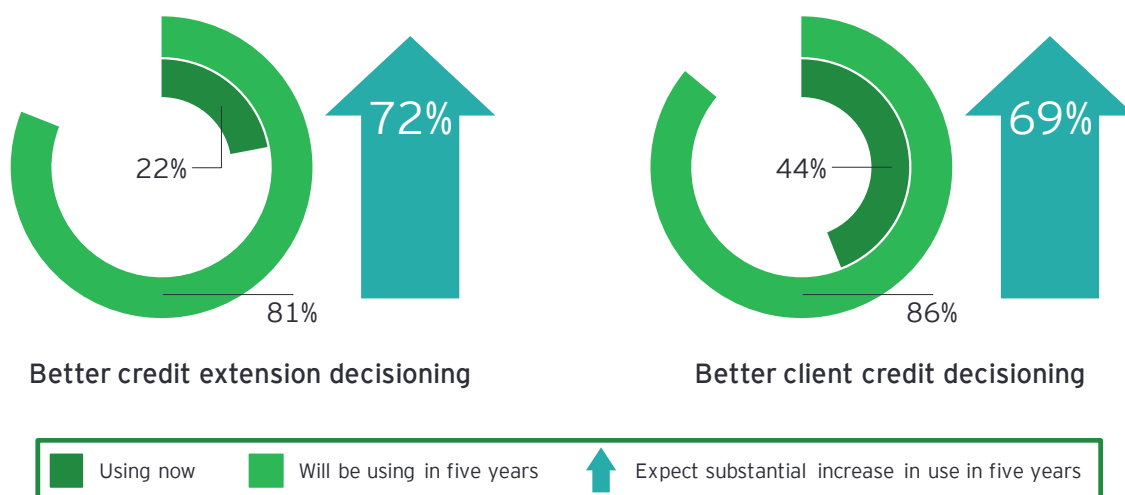
Quest for new data and early warning indicators

Credit risk models attempt to effectively discriminate healthy and distressed exposures. The traditional data sources they typically use (financial and behavioral) struggle to capture the complexity and pace of the current economic environment. Economic indicators and borrower financial information are often observed on a lagged basis, and certain current indicators are distorted by the private and public relief programs offered in response to COVID-19. Greater emphasis is needed on augmenting traditional data with inferences from alternative data sources.

Transactional data offers a highly accessible, real-time indicator of financial health in both retail and non-retail portfolios that can enhance various components of the credit life cycle. Analytics around the nature of incoming and outgoing payments can provide deeper insights on credit capacity, quality and behavioral changes, particularly across retail and micro business. Analysis of current transaction flow (level, frequency and volatility) against pre-COVID-19 levels can help track the performance (and risk) of SMEs and corporates during the recovery period and allow targeted intervention. In some cases, historical financial indicators could be supplemented or replaced with a transactional data based financial index. Going forward, banks should explore opportunities to gain better insights by using a range of other data sources including value chain linkage data, health/geolocation data, e-commerce and electronic tax filings.

This will raise questions around the suitability of current data management infrastructures. Institutions that, until now, were reluctant to invest in high-frequency big data platforms may now need to accelerate their technology spend as part of their Next and Beyond COVID-19-triggered change-the-bank initiatives. To gain access to untapped data sources, banks may need to expand their ecosystem and establish new relationships with external providers. The recent efforts to strengthen customer data protection and data integrity, as well as the broader third-party risk management agenda, should provide a necessary framework to facilitate this trend.

According to the EY/IIF global bank risk management survey, firms expected a significant increase in the application of these methods for credit decisioning over the next five years. Utilizing the broader range of accessible data, we believe the pandemic will accelerate this process and will act as a trigger to formulate complementary credit risk assessment frameworks that can also be used for new waves of challenges related to climate change, geopolitical risk or broader sustainability issues. It is critical to design approaches that do not follow the same over-reliance on historical trends that may not fit today's crisis, while also not inappropriately amplifying short-term correlations in current data.

While it is important to enhance the efficiency of the methodology for today's model risk management capabilities and approaches, the lack or distortion of data is fundamental.

Better credit extension decisioning   Better client credit decisioning

Legend: ■ Using now   ■ Will be using in five years   ⬆ Expect substantial increase in use in five years

The full impact of the COVID-19 pandemic on firms and banks is yet to be seen. We believe the pandemic will serve as a catalyst to fast-track data and technology advancements in credit risk modeling. We expect the most immediate changes will be introduced within the impairment and stress testing frameworks and will focus on providing benchmarks and informing overlays to account for previously untested forward-looking relationships to credit drivers. The next wave of changes will include front-office models supporting credit decisioning and exposure monitoring. These will be areas of strategic impact for banks and could bring a significant competitive advantage in the business and economic environment.

It is clear that the update of the risk models will not be a simple necessity, but it could be a way to have an immediate competitive advantage for those banks that will be able to adjust their model in the most efficient and precise way. This advantage will be to reduce potential future risks for the bank but also to attract and support the clients that emerge better from the current crisis. So the time to reaction will be crucial for the entire ecosystem.

For further information, please contact one of the EY authors:
Janusz Miszczak janusz.miszczak@pl.ey.com | Pawel Preuss pawel.preuss@pl.ey.com | Adam C Girling adam.girling@ey.com | Federico Guerreri federico.guerreri@it.ey.com | Mark D London mlondon@uk.ey.com | Liam Mackenzie liam.mackenzie@uk.ey.com | Bernhard Hein bernhard.hein@de.ey.com