FICO

FICO® Economic Impact Service for Basel Analytics

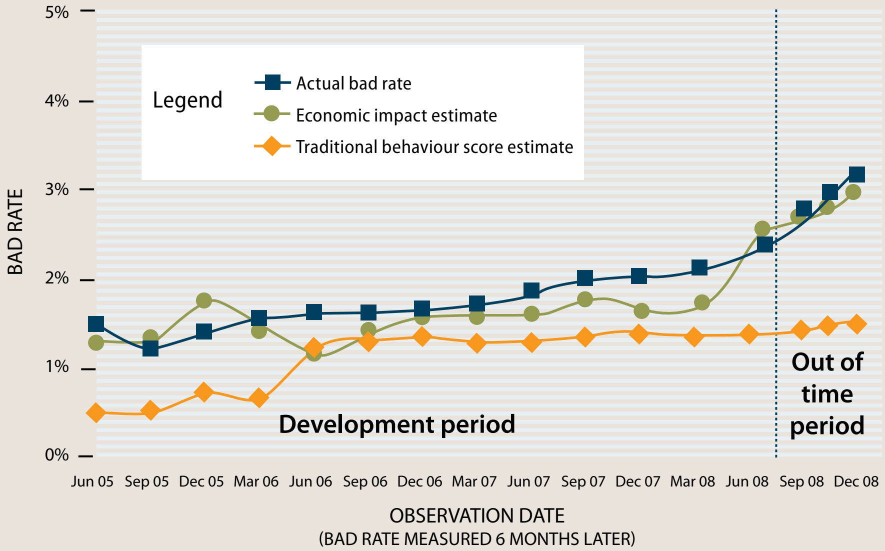
predictive analytics

Preparing for economic volatility

The FICO® Economic Impact Service addresses today's growing concern that risk prediction modelling should account for economic cyclical changes, a viewpoint reflected within Basel II modelling requirements. Economic Impact Service helps organisations comply with Basel's Advanced Internal Ratings Based Approach in three ways: Calculating Long-Run Estimates of Probability of Default over an economic cycle; Stress Testing of models under suppositional economic conditions; Supporting Use Tests with economic impact analytics incorporated in data-driven strategy development, decision modelling and optimisation.

More accurately predict default rates with analytics tuned to economic impact

Bad rate comparison: overall portfolio



FICO® Economic Impact Service analytics can be incorporated into lenders' data-driven strategies or modelling to generate more accurate estimates of risk fluctuations (bad rates) over time and economic cycles.

With recent Basel III recommendations, financial institutions have more reason than ever to adopt a Retail Credit Risk Advanced Internal Ratings Based (AIRB) approach for meeting capital allocation requirements. In step with the industry's prevailing concern over macroeconomic conditions impacting risk and capital management, the Basel II requirements have significantly raised the allocation percentage of institutions' risk weighted assets (and added buffers that regulators can require).

While there is validity—and great benefit—to anticipating and preparing for changing economic cycles, the new approach could weaken organisations' competitive power by limiting their lending capacity. However, lenders do have a good compliance alternative.

With FICO® Economic Impact Service used as a component of FICO's Basel analytic support, lenders can develop AIRB models and methodologies that account for economic cyclical changes and meet Basel II requirements reflecting the true long-term, "counter-cycle" concerns of model stability. In addition to meeting compliance, the service enables lenders to strike the right balance between mitigating risk and maximising lending capacity through a variety of macroeconomic changes.

» An Industry-Recognised Service

The Economic Impact Service adds a forward-looking element to capital and risk management decisions. On a customised basis, it enables institutions to examine how different future macroeconomic scenarios will impact their risk prediction models, scores and credit portfolios. Lenders rely on the service to generate accurate odds-to-score estimates based on differing economic scenarios, and to subsequently make account-level score adjustments across portfolios' risk bands.

FICO® Economic Impact Service Components and Benefits

The FICO® Economic Impact Service offers a more competitive approach to meeting Basel II's counter-cyclical concerns and increased risk-weighted asset requirements, with:

- Accurate Long Run Probability of Default estimates, even in the absence of historical data, to prepare for macroeconomic changes.
- Rigorous stress-testing of models under suppositional economic conditions.
- Use testing and incorporation of data-driven strategies, or decision modelling and optimisation, into daily operations.

The service was recently recognised with the Prize for Best Paper, "*Economic Impact Grade Migration Modelling–To Address Pro-Cyclicality in Current Risk Management Practice,*" at the Credit Scoring and Credit Control XII Conference in Edinburgh. With the industry's focus on countering point-in-time, pro-cyclicality risk management modelling with through-the-cycle modelling, FICO helps institutions apply Economic Impact Service to improve their on-going use of models and customer decisions. However, the service is also highly beneficial in meeting Basel II & III requirements.

FICO helps clients meet Basel AIRB model development requirements by applying our IP patented Economic Impact Service, as well as Grade Migration Model (GMM) prediction, in three areas: Long-Run Estimates in Probability of Default (PD) Modelling; Stress Testing of Models under suppositional economic conditions; and in Use Testing by applying economic impact analytics in data-driven strategy development, or in decision modelling and optimisation. Here's how:

» Developing Long-Run PD Estimates

Basel II requires an estimated long-run PD for each risk grade as one of the parameters of its risk-weighted-asset formula and regulatory capital calculation. However, many organisations don't have sufficient historical data to derive a long-run PD; the quantity of data may not be sufficient, or the data may not allow for a reflective downturn calculation. FICO® Economic Impact Service can compensate for this in several ways.

The service can create macroeconomic models to predict the relationship of log odds-to-scores under different economic conditions. A lender can then plug in the forward-looking estimate of various economic indicators in the models—such as unemployment rates, interest rates or home prices—to obtain the predicted odds-to-score relationship under those given conditions; the lender can then use the average score of each pool to obtain the predicted odds associated with that pool under the given macroeconomic conditions. That enables estimates of the PD at various points in the cycle based upon the "forward-looking" estimate of the economy. With that, a lender can then average those PD estimates to get a forward-looking, long-run PD.

In addition, FICO's PD scalar service can be an add-on to the Economic Impact Service models in the PD long-run estimate, taking into account the pool migration effects in the credit portfolio. FICO's Grade Migration Model (GMM) can be used in the PD scalar service to help lenders predict the distribution of accounts through the various pools within their portfolios under various economic conditions throughout an economic cycle.

» Stress Testing with the Service

Basel II Pillar 1 requires that banks using their internal models to meet compliance have in place "sound stress testing processes for use in the assessment of capital adequacy," and have the capital cushions above the regulatory minimum. However, many lenders lack the methodology and experience in building stress-testing models, and in conducting stress testing, for meeting compliance. FICO's economic impact analytics can help lenders overcome those challenges.

One way to stress PD is to integrate EIS models (or other econometric models such as panel regression when the EIS method is not applicable, e.g., no score available, log odds-to-score relationship is nonlinear) and Grade Migration Models (GMM). EIS predicts how the log odds-to-score relationship changes as a function of the macroeconomic conditions, so it depicts how PD within each pool will be impacted by economic conditions. On the other hand, GMM predicts the percentage of accounts within each pool, and it describes how the accounts are distributed across the pools when economic conditions vary. Together, EIS models and GMM can be integrated to give a full picture of how the economy can impact the portfolio under various economic scenarios. EAD and LGD can be stressed in a similar way.

» Use Test Improvements Through the Service

The "Use Test" requirement of Basel II ensures that institutions are using the advanced IRB ratings in their daily business operations, not merely for calculation of regulatory capital. In addition, they are required to submit a self-assessment to demonstrate how they have applied these metrics in the day-to-day decisioning. Account-level and portfolio-level strategy developments and decision optimisation based on Basel risk parameters and pooling are critical to drive profitability and reduce loss. In a post-crisis world, lenders need to be ready to adjust strategies that demonstrate robustness for different phases of future economic cycles in order to remain competitive, as well as meet Basel Use Test requirements.

FICO® Economic Impact Service can be seamlessly incorporated into either data-driven strategy development, or a more complicated decision modelling and optimisation framework, to adjust for changes in future economic conditions. This will help lenders generate economically calibrated, forward-looking strategies for applying through an economic cycle, while also complying with the Use Test.

FICO Analytic and Business Consultants can work with an institution to incorporate and leverage the Basel parameters across the Retail Credit lifecycle. FICO can also provide documentation to demonstrate guidance around this "Use Test." This enables clients to understand how the tools and ratings are being incorporated into their operations and strategies.

FICO™

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