FICO Decisions

EXECUTIVE BRIEF

Score Validation: Building the Business Case for Change

Executive brief on evaluating a newer FICO® Score

Best practices in evaluating a new, more predictive model:

- Align your validation strategies with your business goals
- Assess score performance and impact to your portfolios
- Evaluate the new model against your current risk strategies
- Make FICO a trusted advisor for validation, financial impact work, strategy integration plan and ongoing model maintenance

A FICO® Score is used in 90% of all US lending decisions. Odds are high that you are already using the industry-leading credit score every day as a part of every underwriting decision. Given the criticality of the FICO® Score in your processes, have you given thought to when your credit risk strategy or score performance was validated? Do you know which version of the FICO® Score you are using, and do you understand the impact to your business when using an outdated model?

Quantify the value of upgrading to a more predictive and current score

FICO® Scores play a critical role in billions of decisions each year for measuring risk in the banking, mortgage, credit card, auto and retail industries. Originally released in the US more than 25 years ago, FICO® Scores are now deployed in over 20 countries and more are being added every year. All financial institutions can benefit from predictive scores, but it can be a challenge to evaluate and decide when it is time to adopt a more recently developed broad-based or industry-specific score.

Generally, a FICO® Score validation consists of examining the score's ability to rank order the actual performance of your portfolio of accounts. Various reports are analyzed to identify the effectiveness of the new score as well as to determine initial score cut-off strategies for decisions to be made on prospects, applicants or existing accounts. The key steps lenders need to take in the evaluation process include determining organization goals, appropriate validation design, performing a thorough validation, and then assessing the financial impact of the FICO® Score on the portfolio.

Validation objectives aligned with goals

Before defining the tactical aspects of conducting a score validation, you need a discussion and agreement on organizational objectives to ensure you are evaluating what really counts for your business. This will enable you to design a more effective FICO® Score validation and provide meaningful results on the potential future impact on your portfolios. Your management goals will influence your validation design and create the strongest business case for change.

A validation simulates the environment in which the FICO® Score will be implemented. So the performance measurements are most relevant to your organization. For example, are you trying to maximize profit, keep charge-off rates below a certain level, increase revenue or increase your client base in a particular segment? Is your focus on account management and growing customer value? Or approaching a new consumer segment? Adding a new business line? To illustrate, the following table lists examples:

Your organization may have several objectives for a given portfolio, and these goals may sometimes be in conflict. For example, an objective to maximize revenue may be in conflict with one to reduce charge-off rates, if the population segments with high charge-off rates contribute a high amount of revenue. In this case, you might combine these objectives by evaluating how well the FICO® Score would reduce charge-off losses while minimizing impact to revenue streams.

Management Goal	Validation Design
Lower charge-offs on specific portfolios	Compare FICO® Score versus current score on overall populations as well as by population segment on existing accounts (e.g., those with high-revenue potential, or by portfolio or product type)
Forecast bad rates for the next six months and year for financial projections	Evaluate performance on more than one time window (e.g., for 6 months and 12 months)
Cost-justify the use of a score	Use statistical measures of FICO® Score effectiveness and translate results into bottom-line dollar measures

Identifying other validation objectives

You may have other business objectives that will also affect the validation design. For example, if one goal is legal compliance, you can construct an odds-to-score relationship to demonstrate that the FICO® Score rank-orders your population by risk. If the purpose is to determine strategies for optimal usage of the FICO® Score, validations can be used to simulate alternative strategies used for implementing the score. To cost-justify an additional analytic tool, a cost-benefit analysis can determine how the dollar value of any improvements derived would compare with the cost of the FICO® Score and its implementation. A cost-benefit analysis is also important when comparing competing scores for use in your organization. Keep in mind that this test must be designed to:

- **Be objective, compare all scores on an equal basis.** For example, an independent validation sample should be used so that no one score is favored. Common scores to compare include a prior version of the FICO® Score, bureau-provided or internally developed score.
- **Simulate the environment in which the FICO® Score will be implemented.** This includes the populations to which it will be applied, the context of strategies into which it will be incorporated and the performance measures most relevant to your organization.

Evaluating the bottom-line impact

When comparing the FICO® Score against another score, using dollar-amount assumptions about good and bad accounts can help convert differences between scores into bottom-line benefits that are meaningful to your organization. This analysis can be particularly useful when one of the purposes of the validation is to justify the purchase to value of the FICO® Score or to justify the effort of implementing a new score.

Actual or estimated values for revenues and expenses, as well as information in your performance reports or summary statistics, can be translated into profitability results. For example, you can use information derived from validation data plotted on a trade-off curve to do this type of analysis (see Figure 1). Assumptions can be made about losses on bad accounts, revenues on good accounts and total fixed or variable costs.

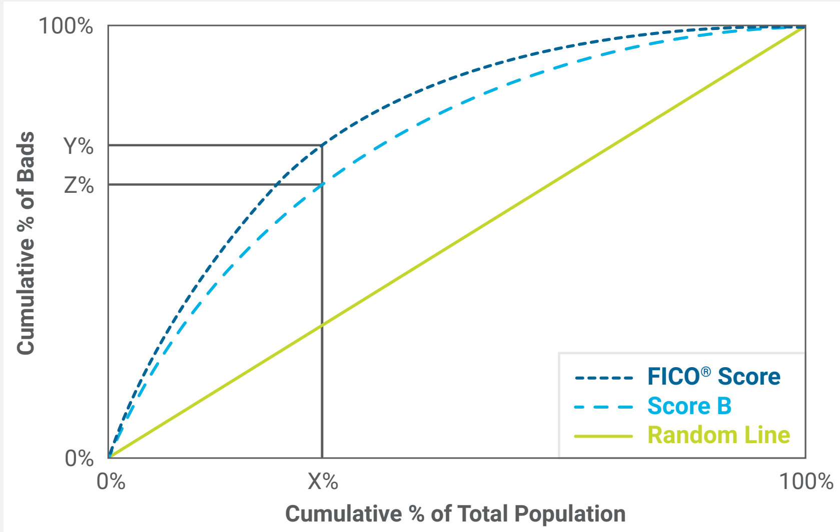
These can then be applied in simple strategies. A lender could also apply the financial figures in a more sophisticated manner — for example, varying the revenue or loss amounts by score range. However, many institutions have difficulty accessing complete financial data, particularly allocating overhead expenses. The accuracy in estimating these figures will influence how well you can estimate the FICO® Score's contribution to your bottom-line results.

The trade-off curve plots the ascending accumulation of one group of accounts vs. another group of accounts. It is also often known as Lorenz curve, good/bad trade-off curve or lift curve. This report is useful for visually comparing the FICO® Score against an existing score's effectiveness at a particular operating point or across the spectrum of the score distribution. It is independent of the score scale, allowing for equal comparison of two different scores. For example, in Figure 1, at X% of the cumulative total population, the FICO® Score identifies Y% of cumulative bads, and Score B identifies Z% of cumulative bads. Thus, the FICO® Score is the more effective score as it identifies a greater percentage of bads. However, when comparing two scores with trade-off curves that overlap several times, it's often difficult to assess which score is better.

It is important to stress that when comparing scores, variations in K-S, divergence and other performance measures may seem small, but may translate into a substantial impact on your volumes and bottom line.

Kolmogorov-Smirnov statistic (K-S) is the measure of the maximum difference between the cumulative percentage of two groups of accounts (e.g., goods and bads) by FICO® Score. Divergence is a summary metric measuring the separation between distributions of two groups of accounts by the FICO® Score. The better score is able to better separate the two populations, thus having a higher divergence.

Figure 1 Trade-Off Curve



Evaluate implementation strategies

Be sure to examine validation results in the context of possible implementation strategies, not just on a standalone basis. In reality, the FICO® Score is likely to be used as one of several decision criteria. A score that proves superior on a standalone basis may not be superior when incorporated into possible strategies.

In addition, do not evaluate score performance according to an isolated measure. A validation may present the effectiveness of a score based on one measure — K-S, for example — as if it were the only factor to consider. However, you should take into account how the score might perform when implemented in your environment.

When comparing two or more scores, validation results often indicate which score is superior across the entire distribution of accounts. However, you need to also evaluate the score in the operating areas of your organization, where the score will be used for decisioning. A score that performs well on your overall population may not necessarily be the one that is superior at your operating threshold; for example, your score cutoff points.

You should assess the cost of implementing a new score into your automated processing systems, as well as the cost of product maintenance. This may influence your decision on which score you select for your environment. Implementation costs include your information systems group's time and resources to program the score or the interface to it. In addition, if score ranges are different from your previous score, standard monthly management reports will have to be reconfigured to accommodate the change.

With a broad-based risk score that is backward compatible like FICO® Score, US lenders can more consistently and precisely assess the risk of new applicants and existing accounts while minimizing operational hurdles associated with adoption and compliance.

Performance over time

There are several less quantitative yet important considerations when validating and evaluating a score. A validation should ideally consider multiple points in time to ensure the FICO® Score will continue to be robust and perform well over time. Therefore, if time and resources allow, consider conducting a retrospective analysis to validate and compare the FICO® Score performance at two or more points in time. In addition, once you have adopted the score, it is best practice to continue to track the FICO® Score's robustness regularly. The initial validation conducted on the FICO® Score can be established as a benchmark point for future comparisons.

FICO® Score Validation Service can provide the expert analytic resources and proven methodology you need to overcome resource constraints and quickly realize the benefit of the latest FICO® Score for your business. For lenders that want faster adoption but have limited analytic staff or need greater analytic guidance on the best validation design, FICO expert resources can help with:

- **Validation:** Analyze the predictive lift provided by the FICO® Score 9 on your portfolios
- **Strategy Impact:** Quantify the incremental business impact of using FICO® Score 9 within the context of your existing strategies
- **Strategy Design:** Determine how FICO® Score 9 should be integrated into your decisioning strategies

Key deliverables focus on providing lenders with a clear picture in terms of the predictive improvement they can gain by moving from their existing score to the newer FICO® Score.

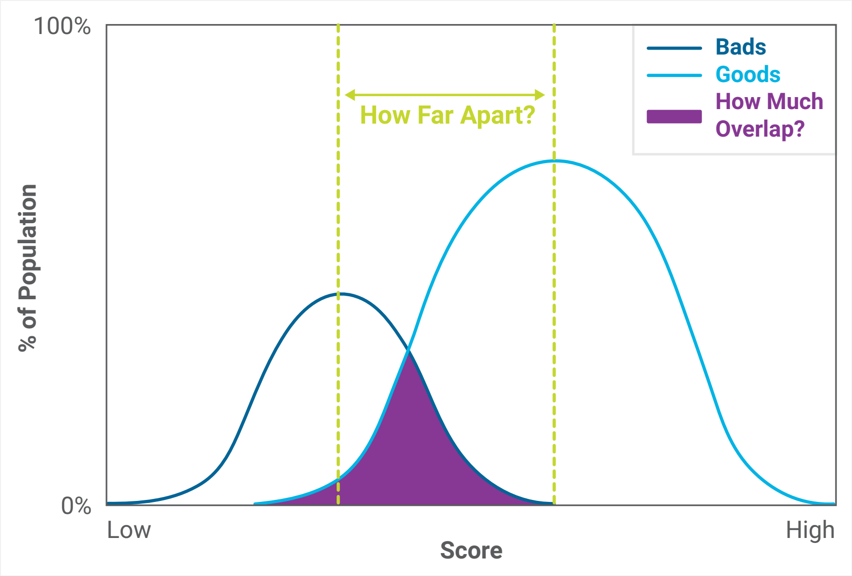
Have the time and resources?

For lenders choosing to conduct the evaluation themselves, FICO provides its clients with the **FICO® Score Validation Guide**, which lays out a best practice design framework to successfully assess the value of the newer FICO model.

The guide starts out by providing key objectives you need to outline for your organization. It discusses how to turn those objectives into an appropriate validation design — to accurately assess the predictive improvement FICO® Score 9 can bring to their portfolio. FICO provides step-by-step instructions on how to conduct the validation as well as how to interpret key reports. Lastly, the guide provides you with guidance on how to translate the score's predictive improvement to bottom-line financial impact, in the context of existing strategies and scores. A copy can be requested from scoressupport@fico.com.

FICO® Score Support (https://community.fico.com/) also provides a secure community to find answers to your FICO® Score questions and resources such as performance charts specific to each Credit Reporting Agency (CRA). Designed for and open only to FICO® Score clients in the US and Canada, the repository of helpful reference material can aid in the appropriate use of the FICO® Score and assist in addressing questions from examiners.

Figure 2 K-S Divergence



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