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# Concepts of Commercial Credit Scoring – A Decade Later

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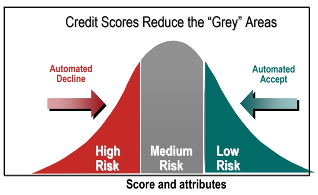


*Credit scoring models can help a lender improve its loan decisions by focusing underwriters' efforts on applications which fall into the "grey area."*

At Bank One, credit scoring has helped our small business lending area make more loans, improve efficiency, and improve performance, while ensuring that we treat all our customers fairly. Credit scoring has been around for many decades, but it's a relatively new concept in small business lending. Mid-size and larger financial institutions have experimented with pooled and custom commercial loan origination models that predict future payment performance. What's worked for us could work for smaller institutions, as well.

### *Tailored systems*

In credit scoring, one size does not fit all. Instead, the credit scoring model and approach you choose will be tailored to the industries your institution serves, the size of credit, and what you'd like the system to accomplish.

Your reliance on scores can range from using them as a guiding principal or making them the ultimate decision-making tool. Unlike their human counterparts, credit scoring systems are consistent. When accompanied by the correct policy and edit rules, they consistently out-perform exclusive reliance on well-intended judgmental decision makers. The financial industry's largest body of evidence shows credit scoring works well at or below $100,000. The Fair Isaacs pooled models, which use data from many lenders, are validated up to $250,000. At Bank One, we score everything that comes in the door regardless of loan size, but we do additional judgmental reviews with the higher loan amounts.

Credit scoring models can save your institution money on the front and back ends. They pass through loans that are "slam-dunks" as well as the "definitely nots," and identify the "maybes" — loans that require additional human review. Instant knowledge about creditworthiness is a powerful sales tool.

Once the loan is on your books, you can re-score the account regularly (at Bank One we do that every quarter) and flag potential trouble cases. You can then take remedial action on those accounts, such as capping availability on credit lines or reevaluating your current collateral positions. In addition, stronger accounts can be identified for new cross-sell opportunities.

The model Bank One uses for this early warning alert combines internal credit performance, deposit performance, personal credit bureau behavior and credit usage, business bureau behavior, and public record data.

If I still haven't sold you on credit scoring, consider one more benefit: since scoring systems deliver consistent, objective decisions, they appeal to your compliance and legal teams.

### *Scoring 101*

Credit scoring starts with the identification of a broad set of characteristics applied against known "good" and known "bad" accounts. A "good" account is an account you are glad you have in your portfolio and a "bad" account is one that creates heartburn because it is frequently delinquent, unprofitable, or creates loss.

The next step is to select the data characteristics that predict a defined outcome: a charge-off, a bankruptcy, or a delinquency. The data your system will use to predict these "bad" outcomes may come from internal sources (customer payment behavior and other credit and deposit performance information) or external sources (consumer credit bureau, business bureau, financial statements).

The model designer first looks for data that by itself exhibits a strong relationship to the outcome (e.g., poor credit score correlating to higher delinquency rates). He then uses that data to develop a model in which those chosen characteristics work together to more accurately predict the outcome. The key here is to pick robust variables (those that have a big influence) and to avoid having two variables that represent the same information value.

### *Check performance*

Once you have selected your data sources and created a preliminary model, you will check model performance on a sample of accounts that you used to develop the model, on accounts that you held out of the development sample and on data the model has not seen before.

At this point, your statisticians will measure the model's ability to separate what you know to be good accounts from known bad accounts, and how often it gives correct predictions versus false alarms.

### *Scoring what, where, when?*

Suppose you build a scorecard that predicts how often an 18- to-21-year-old customer will buy a big screen television. If you use it to measure how often a senior would buy skateboards, you're going to have trouble. The same applies to commercial credit models. You can make a scorecard for accounts that have plenty of tradelines, stable credit history, and home ownership and another scorecard for accounts that have thin credit files. High risk industries, such as bars and restaurants, can have a different scorecard or underwriting strategy than manufacturers and service businesses that have been around for decades.

Bank One currently has 18 unique strategies, based on loan purpose, product, collateral, geography and more that are underwritten using a two-dimensional score process (combination of business and personal scores). After acceptance, approved loans interface to the master billing system for booking.

The scorecard we use is based, in part, on how much borrower information we can gather. Is there a D&B rating? How many borrower tradelines? What collateral does the borrower have available to pledge? We use the scorecards with pre-set policies that define how we'll treat each score. With a low score from the model, we may buy deeper if the borrower offers more collateral and the industry is stable (not high-risk).

Not all institutions are going to have 18 different strategies**.** What you must have are clear policies and procedures to form a foundation for your empirically-based underwriting. Bank One has developed a proprietary system that accomplishes all this and also controls authorities, does automatic approvals, and declines as well as manages gray area segments.

One common pitfall for institutions in the early stages of transitioning from a judgmental approach to a scored, portfolio approach, is to trust the score only when the answer is yes. Typically, you'll book excessive low side overrides (saying yes when the system says no) and relatively few high side overrides (saying no when the system says yes) in the early stage. At Bank One, we require that all overrides be documented and we also carefully monitor the loan performance following those overrides.

***Sales vs. underwriting***

When you implement a new system, you really implement a cultural change. At Bank One, we did some parallel processing, letting the human underwriters see how the model would have scored their past accounts. It's compelling to have a vintage view that stacks the judgmental underwriter against the credit scoring model. As with John Henry and the steam engine, the scoring engine wins the contest every time.

Your loan officers also will be affected by this cultural change. When you put centralized credit personnel in charge of policy and parameters, you still have a sales force incented to sell.

A decade after the start of commercial credit scoring, it's still a challenge to have the sales staff understand all the nuances of a counter offer or decline out of headquarters. The loan officer will say, "I've known this customer forever and he's a good guy," but statistically his account represents a higher degree of risk.

***Left on the table***

The other way that scoring will change your business is that you're no longer going to think of lending in terms of cherry picking the best loans. To understand why, you need to understand a concept called odds-to-good, odds-to-bad. Let's say your model uses data characteristics that generate odds-to-bad of nine to one. That means that out of every 10 loans, nine will be good, and one will go bad — and let's say bad in this case means charged off. We wouldn't fish in that pond and neither should you. You can't afford that one charge off given the razor-thin margins in the business of banking. With modeling you don't cherry pick — you stick with known odds.

Keep in mind that scores are dynamic and measure propensity, not capacity. The system can also recommend moving a customer to a credit enhancement program, such as Small Business Administration loan guarantee program.

***Monitoring, reporting and behavioral scores***

Comprehensive reporting is important, from the point of application to payoff. A full suite of reports should include:

- Data on the number and type of loan applicants in each risk tier.
- Overrides of the scoring system's recommendations (we typically cap those at 3 percent to 5 percent), the reasons for each of those overrides and the loan performance following each of those

overrides.

- Delinquencies, roll rates, a full suite of scorecard performance reports, loss and forecast models.

***Look ahead***

Developing and deploying a model is only half the job. You still must monitor the model regularly, because it will deteriorate over time or become obsolete, at which point it is time to refresh or rebuild. There's no defined timeline when a model degrades, but usually the most common issue will be a large shift in your customer base. When your model stops predicting 18-year-olds wanting big screen TVs and more seniors buying skateboards, it's time to fine tune your model.

***Summing it up***

If all my advice overwhelms you, there is another option. You can use an off-the-shelf solution that is tailored to your institution's needs. Regardless of which path you choose, you must consider the influence this technology can have on your institution's bottom line. A properly installed, validated, implemented, and monitored credit scoring model will give you superior results at a fraction of the time and cost of traditional lending methods.

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# What's Ahead with Credit Scores

New capabilities are emerging within the commercial credit bureaus that should provide unprecedented access to predictive information, such as financial stability, public record and trade information. The newest business bureau, the Small Business Financial Exchange (http://www.sbfe.org/), is a member-owned, member-managed exchange, serviced by Equifax, which pools data from its contributing members. To date, nearly all of the largest U.S. banks and thrifts are contributing data. However, the power of the information is gaining momentum and more small and medium-sized institutions are joining to gain access to the vast resource of data. Other industry players are attempting to set up similar databases.