



Credit Risk Scoring Analytics

“ We cannot direct the wind... but we can adjust the sails ”

Increasing money supply and availability of huge volumes of credit report data are giving rise to a new branch of analytics: credit risk analytics. Credit risk scoring analytics is concerned with attaching a credit worthiness score to a borrower by performing statistical procedures. A credit score rates how risky a borrower the person is- the higher the score, the less risk the person poses to creditors.

Credit scoring models are developed by analyzing statistics and picking out characteristics that are believed to relate to creditworthiness. Different scoring models are used for different purposes. For example, Auto financing could employ a different model than installment loans.

What information does credit scoring models use to calculate a score?

Credit score is determined by a complex formula that takes into account many different factors. Credit scoring models compute a person's score primary from information contained in his credit report. The models might also take information from credit applications into consideration, including the person's occupation, length of employment, and whether the person owns a home. The person's payment history reflects the various accounts that he has, including credit cards, mortgage loans, and retail accounts. Collections, foreclosures, lawsuits, and other collection items also fall into this factor. Each factor is given a weight.

Statistical Methods Employed by Scoring Models:

Several statistical methods are used to develop credit scoring systems like linear probability models, log it models, probity models, and discriminate analysis models. The first three are statistical techniques for estimating the probability of default based on factors like loan performance and characteristics of the borrower. The linear probability model assumes the probability of default varies linearly with the factors; the log it model assumes that the probability of default is logistically distributed; and the probity model assumes that the probability of default has a (cumulative) normal distribution. Discriminate analysis differs in that instead of estimating a borrower's probability of default, it divides borrowers into high and low default-risk classes.

Challenges With Credit Scoring Methods:

Vicious cycle



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We provide decision-making solutions to improve operational efficiency and business responsiveness. Our consulting services employ our strengths in industry knowledge, conceptual rigor, and information technologies. Developed using concepts from decision theory; our solutions use robust optimization, simulation, and statistical engines adapted to our client's focus areas.

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We analyze business processes and transactional data to identify underlying patterns, unravel hidden

Individuals with higher credit scores are offered different services than those with lower scores. Individuals with lower credit scores are targeted with sub prime loans with higher interest rates. If an individual has a sub prime loan on their credit report, it can damage their credit score. The lower score, in turn, attracts more sub prime loans, resulting in a vicious cycle.

Cascading effect of the use of credit scores

More and more services are using credit scoring to evaluate their customers. As such, individuals with low credit scores are finding it more difficult to obtain good services.

Inaccuracies in Credit Reports

Since credit scores are so important, it is imperative that the scores be based on accurate information. However, inaccuracy problems continue to hurt individuals' credit scores.

New Frontiers in Credit Risk Scoring Analytics:

Credit risk analytics is no more confined to consumer lending, it is being extended to commercial lending also. Two newer methods beginning to be used in estimating default probabilities include options pricing theory models and neural networks. Commercial loans tend to be more heterogeneous than consumer or mortgage loans, making the traditional statistical methods harder to apply. Options-pricing theory models start with the observation that a borrower's limited liability is comparable to a put option written on the borrower's assets, with strike price equal to the value of the debt outstanding. Some future period, the value of the borrower's assets falls below the value of its outstanding debt, the borrower may default. The models infer the probability a firm will default from an estimate of the firm's asset-price volatility, which is usually based on the observed volatility of the firm's equity prices.

Neural networks are artificial intelligence algorithms that allow for some learning through experience to discern the relationship between borrower characteristics and the probability of default and to determine which characteristics are most important in predicting default. This method is more flexible than the standard statistical techniques, since no assumptions have to be made about the functional form of the relationship between characteristics and default probability or about the distributions of the variables or errors of the model, and correlations among the characteristics are accounted for.

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We use advanced time-series and regression techniques for forecasting behavior of critical business variables that allows our clients to plan for their resources intelligently.