How Credit Scoring Systems Help in Managing CREDIT RISK

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Credit scoring is frequently used on consumer credit application and loans. Credit risk is the uncertainty in obtaining the returns from investing in account receivables. You invest in account receivables when you allow consumer credit sales to your customers.

What is the difference between consumer credit and business credit?

Consumer credit includes loans, credit cards, mail orders, overdrafts, hire purchases, mortgages; it is a form of commerce in which an individual obtains money, goods or services with a condition of a promise to repay money/goods/services and a fee payable to the lender.

On the other hand, business credit refers to credit facilities extended to businesses to help them manage their working capital and invest in major projects. As business credit is the extension of credit facilities to businesses to smoothen and spur commercial activities, it is a very profitable venture for financial intermediaries and suppliers. It is very beneficial for corporations and businessmen who need to "roll" their money and maintain their cash flow. It is very crucial for lenders and creditors to assess their credibility first before approving credit facilities as this helps to minimise the probability of delinquent debtors and non-performing loans. As the saying goes, "prevention is better than cure," managing credit risk is far easier than the monitoring and collection of doubtful debt.

What is Meant by a Credit Scoring Model?

It is a system or programme that can be constructed by using sophisticated statistical methods to analyse the payment records of many past customers *(Douglas Emery, John Finnerty & John Stowe in Principles in Financial Management)*.

It can be a manual system or a computer programme that helps the credit personnel assess the credibility of an applicant to a certain extent. Such models offer several advantages.

They enable the creditor to accept the clearly, good customers and reject the clearly, bad customers very quickly. The creditor then can devote costly evaluation talent to analysing the "close calls."

This procedure should be complied with in order to ward off any attempt by the personnel concerned who give "favours" to a third party in wanting credit. Therefore, they are "objective" and can help the company avoid bias or discrimination.

The usage of such models in decision-making allows different loan processors to apply consistent standards across all credit applicants. They also make changing standards easy. The company could change the cut-off from 25 to say 28. This change would then apply equally to all loan applicants.

For a credit card application the following scoring sheet called a weighted application is often used. A simple credit-scoring sheet would be as shown in Table 1 below.

TABLE 1

Handphone/Telephone	Yes No	4 points 0 point
Salary/Income	Above RM40,000 RM20,000 – RM40,000 below RM20,000	3 points 2 points 0 point
Tenure	More than 3 years with current employer 1-3 years with current employer Less than 1 year with current employer Self-employed Unemployed	3 points 2 points 1 point 1 point 0 point
Home	Own Rent More than 3 years at current address 1-3 years at current address 0-1 year at current address	3 points 1 point 2 points 1 point 0 points
Past track payment record	Good Fair Bad None	10 points 4 points 5 points 0 point

CONSUMER CREDIT SCORING MODEL?

Suppose Maria Abdullah is applying for a credit card. After graduating with a degree in information communication technology, Maria has a new job earning RM45,000 per year. She has just moved to her new job, has rented an apartment. Her telephone is connected, and she has a good record of repayment. What is her credit score?

Telephone	4 points
Income	3 points
Employment	1 point
Residence	1 point
Credit report	10 points
Total score	**19 points**

If the cut-off is 15, Maria qualifies for the credit card.

BUSINESS CREDIT SCORING MODEL?

Z-Score Model

This is a model that is used to assess a company's overall "health" and the probability of insolvency of firms based on their financial reports and accounting information. It usually involves a number of ratios that are combined to give a single index. The result of such a 'run' after plugging in the necessary variables would denote a firm's financial condition based on a scale running from a healthy organisation through indifferent status to potential failures.

There are a number of Z-Score models.

1. Altman's Z-Score Model

$$Z = 0.012R1 + 0.014R2 + 0.033R3 + 0.006R4 + 0.010R5$$

Where,

R1 = working capital/total assets
R2 = retained earnings/total assets
R3 = earnings before interest and tax/total assets
R4 = market value of equity/book value of debt
R5 = sales/total assets

Cut-off point = Z – score of 2.675

If the result is more than 2.675 points, it means the probability of failure of the firm in business is higher.

2. Taffler and Tishaw Z-Score Model, UK.

$$Z = ko + C1R1 + C2R2 + C3R3 + C4R4$$

where,

ko = a constant
C1-C4 = ration weights
R1 = profit before tax/current liabilities
R2 = current assets/total liabilities
R3 = current liabilities/total assets
R4 = 'no credit' interval

Source : Article by Altman in the *The Journal of Finance.*

How to Count Credit Scores?

We can calculate credit scores using the following model that calculates the total credit score, S.

$$S = 2.0X_1 - 0.3X_2 + 0.1X_3 + 0.6X_4$$

e.g. The following client intends to obtain credit facilities. Client A's details are as below :

$S = 2.0X_1 - 0.3X_2 + 0.1X_3 + 0.6X_4$	Client A
X_1 = net working capital/sales (%)	15%
X_2 = debt/assets (%)	40%
X_3 = assets/sales (%)	105%
X_4 = net profit margin (%)	12%

For client A

$S = 2.0(15) - 0.3(40) + 0.1(105) + 0.6(12) = 35.7$

Assumption;

The cut-off point is 26 points. If the customer earns more than 26 points, the credit application will be approved and credit facilities will be extended.

Pros and Cons of Using a Credit Scoring System

In short, using the credit scores models help a credit personnel assess the credit worthiness of an applicant by being objective and efficient, while exercising management control over credit granting processes that promote better understanding of your customers.

There are important disadvantages of credit-scoring models, too.

1. The models are only as good as the payment records used to construct the models. Many samples do not have a rich enough set of bad loans to build an effective scoring model. In addition, the models have to be updated occasionally. When the model is updated with a new sample, there is some "inbreeding" whereby the new model is built on data that eliminated many bad customers.
2. Credit-scoring models work best when applied to large populations of loan applicants. Consumer loan databases often include many thousands of loans, and credit – scoring models can be built readily. Unfortunately, the number of business loans in a database is often too small to be statistically reliable. Consequently, credit-scoring models are more often used for evaluating consumer credit than for evaluating business credit, which more often relies on judgmental methods.

Note : This Is the Second Part to the Section on "Managing Your Account Receivables" *Akauntan Nasional*, July 2001.