Credit Risk Scorecard Design, Validation and User Acceptance

- A Lesson for Modellers and Risk Managers

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1. Introduction

Credit risk scoring has gone a long way since Fair Isaac introduced the first commercial scorecard to assist banks in making their credit lending decisions over 50 years ago. It now becomes the cornerstone in modern credit risk management thanks to the advancement in computing technologies and availability of affordable computing power. Credit scoring is no longer only applied in assessing lending decisions, but also on-going credit risk management and collection strategies. Better designed, optimally developed and hence more powerful credit risk scorecard is a key for banks and retail finance companies alike to achieve competitive advantage in today's competitive financial services market under the tough economic environment with severe consumer indebtedness. Several books have been published which serve as a good introduction to credit management and scoring. [1-4]

Scorecard development methodology has evolved over the years too. Starting from the divergence based scorecard method used by FICO which dominated the industry for the first a couple of decades, it has now diversified into a spectrum of methodologies from which researchers, practitioners and consultancy firms may choose for their scorecard development, such as logistic regression, decision trees, mathematical programming, neutral network [5], genetic algorithm [6], survival analysis modelling [7,8], support vector machine [9] and graphical models [10,11], etc. Some seminal work has been done in applying double hurdle modelling technique to credit risk scoring problem [12]. Among all these, logistic regression is now the most commonly used method for scorecard building.

Compared to the on-going exploration of new modelling techniques for credit scoring, there has been much less focus (at least much less reported case studies) on the practical side of scorecard design, validation and user acceptance which is equally important to credit industry if not more. This paper illustrates and discusses a fairly common situation where newly developed credit risk scorecard may appear to perform better on the development sample and validation sample, but deteriorates significantly when being assessed on out-of-time sample or in real implementation.

We shall describe the problem in section 2, followed by more detailed investigation into the underlining root causes in section 3, and finally summarise the major findings and the general implications to both modellers and risk managers.

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