Retail Credit Portfolio Optimization under Risk

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Abstract:

The portfolio selection problem for retail credit is usually defined in terms of a cutoff score: a policy is adopted to accept all customers with scores above the cut-off score and reject the others, with the particular choice of cutoff score being determined by maximizing expected profit. This is inherently a risk-neutral approach. In this paper, we study portfolio selection under various risk-averse assumptions by characterizing reward and risk and considering the impact that explicit consideration of the tradeoff between these two quantities may have on the construction of a portfolio. We consider both portfolios generated by single cutoff policies and those that might be generated by more general policies. In addressing single cutoff policies, we treat risk as an objective in tradeoff curve parameterized by score cutoff. In addressing more general policies, we generalize the Markowitz approach so that it can be applied to risk-based retail credit portfolio selection, and consider several measures of risk, including variance, Value at Risk and expected shortfall.

Keywords: portfolio optimization, decision-making under risk, risk measures.