

A Portfolio Optimization Model of Credit Risky Bonds with Simulated Credit Ratings

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Abstract

The past few years have witnessed very much increase in interest of researchers in portfolio credit risk management. Thus the credit market has also grown rapidly. Therefore investors in market need good portfolios to invest.

In this research work, we propose a model for obtaining an optimal portfolio of credit risky bonds. The proposed model is an improvement of the models developed by Cai et al. [Management Science, Vol. 46, PP. 957 - 972, 2000] and Young [Management Science, Vol. 44, No. 5, May 1998] with new definition of risk measure. To get the required input parameters for the proposed model, the dynamics of credit rating of credit risky bonds are needed. This dynamics is generated by Monte Carlo simulation technique. Further pricing of bonds, according to their generated future credit rating, is done based on pricing methodology given by Kijima and Komoribayashi [The journal of derivatives, 1998]. From the comparison of optimization models, we observe that, our proposed model is outperforming with respect to the return of credit risky bonds.

Keywords: Portfolio optimization, Credit risk, Credit ratings, Monte Carlo simulation.