Predicting Issuer Credit Ratings Using a Semiparametric Method

by

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Abstract

This paper proposes a prediction method based on an ordered semiparametric probit model for credit risk forecast. The proposed prediction model is constructed by replacing the linear regression function in the usual ordered probit model with a semiparametric function, thus it allows for more flexible choice of regression function. The unknown parameters in the proposed prediction model are estimated by maximizing a local (weighted) log-likelihood function, and the resulting estimators are analyzed through their asymptotic biases and variances. A real data example for predicting issuer credit ratings is used to illustrate the proposed prediction method. The empirical result confirms that the new model compares favorably with the usual ordered probit model.