

# On Sovereign Credit Ratings Classification and Evaluation

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## Abstract

Credit rating is an important indicator for evaluation of the credit risk of a debtor. In spite of credit ratings are announced by credit ratings agencies, it may not have enough adequacy for some specific financial purpose. In this study, we take sovereign credit ratings for an example. Since exchange rates are closely related to sovereign credit ratings, an adequate sovereign credit ratings can help us invest in exchange rates. A new sovereign credit ratings are created by classifying exchange rates with some macroeconomics variables. Furthermore, because of the specific linkage between sovereign credit ratings and exchange rates, we evaluate the result by VaR estimates of exchange rates. Moreover, in order to derive the distribution of exchange rates of a specific rating, which the forward value can not be calculated directly, we proposed some modified CreditMetrics<sup>TM</sup> methods to estimate the VaR, including historical rating simulation method and time series-based method. Since we consider 46 countries from 1997 to 2017 as empirical application in this study, modeling and forecasting the panel data with time series analysis is also proposed. The results indicate that the proposed method has satisfactory performance.