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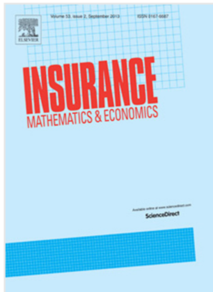

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Markov regime-switching quantile regression models and financial contagion detection

Wuyi Ye[a], Yangguang Zhu*[a], Yuehua Wu[b], Baiqi Miao[a]

[a] *School of management, University of Science and Technology of China*
[b] *Department of Mathematics and Statistics, York University, Toronto, Ontario, Canada*

Abstract

In this paper, we propose a Markov regime-switching quantile regression model, which considers the case where there may exist equilibria jumps in quantile regression. The parameters are estimated by the maximum likelihood estimation (MLE) method. A simulation study of this new model is conducted covering many scenarios. The simulation results show that the MLE method is efficient in estimating the model parameters. An empirical analysis is also provided, which focuses on the detection of financial crisis contagion between United States and some European Union countries during the period of sub-prime crisis from the angle of financial risk. The degree of financial contagion between markets is subsequently measured by utilizing the quantile regression coefficients. The empirical results show that in a crisis situation, the interdependence between United States and European Union countries dramatically increases.

Keywords: Risk analysis; Financial contagion; Markov regime-switching; Quantile regression; Laplace distribution

*Corresponding author. No. 96, Jinzhai Road, Hefei 230026, P.R. China. Email address: yanggzhu@mail.ustc.edu.cn(Y. Zhu)