

Bayesian Stock Market Instability Index

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Abstract

Recently, Kim et al. (2009) proposed a stock market instability index (*SMII*) using nonparametric model fitted to a stable period. But this *SMII* has failed to explain the 2008 global financial market crises since its data-driven approach excessively relies on the data from the stable period. To resolve this problem, this study develops Bayesian approach which employs parametric random walk model as well as the nonparametric model. Indeed *integrated stock market instability index* (*iSMII*) and its p-value are derived as posterior expectation of the two models. As an empirical study, *iSMII* and its related p-value are developed for the Korean stock market.

Keywords: Stock market instability index; Stable period; Random walk model;
Nonparametric model; Bayesian approach