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Dynamical Structures of High-Frequency Financial Data
KYUNGSIK KIM, Department of Physics, Pukyong National University, Pusan 608-737, Korea, SEONG-MIN YOON, Division of Economics, Pukyong National University, Pusan 608-737, Korea, SOO YONG KIM, Department of Physics, Korea Advanced Institute of Science and Technology, Daejeon 305-701, Korea, YUP KIM, Department of Physics, Kyung Hee University, Seoul 130-701, Korea — We study the dynamical behavior for high-frequency data of the Korean stock price index (KOSPI) using the movement of returns in Korean financial markets. It is shown that the dynamical behavior for a binarized series of our models is not completely random. The conditional probability are numerically estimated from a return series of tick data in the KOSPI. Non-trivial probability structures can be constituted from binary time series of the autoregressive (AR), logit, and probit models for which the Akaike Information Criterion (IC) value shows a minimum value at the 15th-order. From our result, the value of correct match ratio for the AR model is found to relatively have slightly larger than calculated findings of other models.

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