Randomness for Asset Prices Constrained by Price Limit Regimes: A Malaysian Case Study

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Abstract

Empirical works testing randomness of stock prices are abundant. Such findings, however, can be challenged if time-series datasets examined are subjected to price limits, which, ex vi termini, enforce bounded movements. This article examines the random walk hypothesis for the Malaysian equity market under three price limit regimes from January 1994 to September 2017. Price limits have been active in Malaysia's solitary bourse since 1989 with periodic revisions. Identifying a sample of 407 actively traded instruments that triggered limits on 5,843 occasions, the authors use parametric (Ljung-Box, Lo and MacKinlay, and Chow-Denning) and nonparametric (Wald-Wolfowitz runs and Broock-Decher-Scheinkman independence) tests to investigate whether prices under different circuit breaker regimes follow a random walk path, an indicator of market efficiency. Upon comparison with the composite FBMKLCI index and sectoral indexes-the bulk of which reject the random walk hypothesis-the study finds considerable support for randomness across all regimes for upper and lower limit-hit stocks. Moreover, progressive tightening of the price limit appears to correspond with a lower proportion of limit-hit stocks following a random path. The findings carry implications for regulators and academia. First, the unusually wide price band in Malaysia appears to outperform the tighter limits studied earlier. Second, the findings furnish direct evidence of price randomness and price discovery in the financial economics literature and provide indirect evidence of circuit breaker efficacy to market microstructure literature. Third, econometric issues arising from disparate results of various tests are indicated, with ramifications for methodological developments. The article concludes with suggestions for future research.

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