HIGH-ORDER CORRELATIONS OF FINANCIAL MARKETS

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In this work, we graft the volatility clustering observed in empirical financial time series into the Equiluz and Zimmermann (EZ) model [1], which was introduced to reproduce herding behaviors of a financial time series. In particular, the original EZ model failed to reproduce the empirically observed power-law exponents of real financial data. Usually, the EZ model produces a fatter tail compared to real data. The long-ranged correlation of absolute returns which underlie the volatility clustering. To this end, a modified EZ model introduced by Zheng et al [2]. However, it is not appropriate to capture the empirically observed correlations. We apply the sorting method to incorporate the nonlinear correlation structure of a real financial time series into the generated returns from a naive EZ model. By doing so, we observe that the slow convergence of distribution of returns is well established for returns generated from an EZ and its modi.ed version. Also, the modified EZ model leads to a less fat tail.

Keywords
autocorrelation function, herding model, KRW-USD exchange rate

References
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