Price and Volume Dynamics in the Stock Market
- From a Perspective of FBP Model -

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Keyword: Econophysics, Financial Market, Market Dynamics

1 FBP model in a foreign exchange market

While mathematical modeling of price dynamics in the financial markets as Brownian motion or Wiener process has long history, in the study of a foreign exchange market Yura et al. revealed that this analogy is generalized to that of the order book dynamics in a financial market and the origin of a Brownian particle motion in physics [1, 2]. In physics Brownian particles collide with smaller particles of the solvent randomly, and in financial markets price dynamics is driven by creation and annihilation processes of limit orders and market orders on the order book. The authors of [1, 2] named their model Financial Brownian Particle model (FBP model) emphasizing this situation.

2 Stock market case

We analyzed data of stocks listed on Tokyo Stock Exchange and observed the similar nature with a foreign exchange market. Stock markets open and close in each day, while foreign exchange markets open continuously in a week. This complicates treatment of time series in stock markets, but we can compare more time series of brands than in foreign exchange markets.

References

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