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Continuous-time trading and the emergence of volatility

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Abstract

This note continues investigation of randomness-type properties emerging in idealized financial markets with continuous price processes. It is shown, without making any probabilistic assumptions, that the strong variation exponent of non-constant price processes has to be 2, as in the case of continuous martingales.

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Bibliography

- Michel Bruneau. Sur la *p*-variation des surmartingales. Séminaire de probabilités de Strasbourg 13, 227-232, 1979. Available free of change at Numdam. Math. Review MR0544794
- 2. Yasunori Horikoshi and Akimichi Takemura. Implications of contrarian and one-sided strategies for the fair-coin game. *Stochastic Process. Appl.*, to appear, doi:10.1016/j.spa.2007.11.007. arXiv version. Math. Review number not available.
- 3. Masayuki Kumon and Akimichi Takemura. On a simple strategy weakly forcing the strong law of large numbers in the bounded forecasting game. *Ann. Inst. Statist. Math.*, to appear, doi: 10.1007/s10463-007-0125-5. arXiv version. Math. Review number not available.
- Masayuki Kumon, Akimichi Takemura, and Kei Takeuchi. Game-theoretic versions of strong law of large numbers for unbounded variables. *Stochastics* 79, 449-468, 2007. arXiv version. Math. Review MR2356520
- 5. Dominique Lepingle. La variation d'ordre *p* des semi-martingales. *Z. Wahrscheinlichkeitstheorie und Verw. Gebiete* 36, 295-316, 1976. Math. Review MR0420837
- 6. Paul Lévy. Le mouvement brownien plan. Amer. J. Math. 62, 487-550, 1940. Math. Review MR0002734
- 7. Glenn Shafer and Vladimir Vovk. *Probability and Finance: It's Only a Game!* Wiley, New York, 2001. Math. Review MR1852450
- 8. Kei Takeuchi. *Mathematics of Betting and Financial Engineering (in Japanese)*. Saiensusha, Tokyo, 2004. Math. Review number not available.
- 9. Kei Takeuchi, Masayuki Kumon, and Akimichi Takemura. A new formulation of asset trading games in continuous time with essential forcing of variation exponent. Technical Report arXiv:0708.0275 [math.PR], arXiv.org e-Print archive, August 2007. Math. Review number not available.
- 10. Vladimir Vovk and Glenn Shafer. A game-theoretic explanation of the sqrt(dt) effect. The Game-Theoretic Probability and Finance project, Working Paper 5, January 2003. Math. Review number not available.
- Vladimir Vovk. Continuous-time trading and the emergence of randomness. The Game-Theoretic Probability and Finance project, Working Paper 24, December 2007. To appear in *Stochastics*. Math. Review number not available.

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