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Long-range correlations and asymmetry in the Bitcoin market

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Abstract

This work studies long-range correlations and informational efficiency of the Bitcoin market for the period from June 30, 2013 to June 3rd, 2017. To this end, the detrended fluctuation analysis (DFA) was implemented over sliding windows to estimate long-range correlations for price returns. It was found that the Bitcoin market exhibits periods of efficiency alternating with periods where the price dynamics are driven by anti-persistence. The pattern is replicated by prices samples at day, hour and second frequencies. The Bitcoin market also presents asymmetric correlations with respect to increasing and decreasing price trending, with the former trend linked to anti-persistence of returns dynamics.

Keywords: Bitcoin market; informational efficiency; DFA; asymmetry.

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