CARMA 2026

8th Int. Conf. on Advanced Research Methods and Analytics
1-3 July 2026, Valencia, Spain

Arbitrage Dynamics in Cryptocurrency Markets: Evidence from Cross-Exchange Price Deviations

Quynh Nguyen[1]

[1]Faculty of Business, Hoa Sen University, Vietnam

How to cite: Nguyen, Q.P. (2026). Arbitrage Dynamics in Cryptocurrency Markets: Evidence from Cross-Exchange Price Deviations. In: 8th International Conference on Advanced Research Methods and Analytics (CARMA 2026). Valencia, 26–28 June 2026. https://doi.org/10.4995/CARMA2026.2026.21845

Abstract

Cryptocurrency markets offer a unique laboratory for testing market efficiency due to their fragmented structure across multiple exchanges, 24/7 trading, and minimal regulatory barriers. This paper investigates arbitrage dynamics by analysing 100,000 cross-exchange price deviations across eight major cryptocurrencies and six global exchanges over 2023–2024. Using five machine learning methods—Double/Debiased ML, Causal Forests, LASSO, Sieve estimation, and Neural Networks—we document substantial price deviations averaging 0.63%, yet only 23.6% of apparent opportunities remain profitable after accounting for realistic transaction costs, execution latency, and capital requirements. We find significant heterogeneity: Bitcoin and Ethereum exhibit 65% profitability rates, while smaller altcoins show near-zero profitability. Machine learning methods outperform OLS benchmarks by 20–30% in out-of-sample predictive accuracy, demonstrating the value of AI and big data tools in analysing fragmented digital asset markets. Our findings support Shleifer and Vishny's (1997) limits-to-arbitrage framework.

Keywords: *cryptocurrency; arbitrage; market efficiency; machine learning; predictive analytics; cross-exchange trading; big data; execution constraints.*

Article in Press

This work is licensed under a Creative Commons License CC BY-NC-SA 4.0
Editorial Universitat Politècnica de València