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The Benchmark

Note WP-04 · The same instrument, pointed at a market nobody controls



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The Benchmark
The same instrument, pointed at a market nobody controls — and the cost comparison that decides the venue question

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The same instrument, pointed at a market nobody controls — and the cost comparison that decides the venue question

Courage Garikai · WP-04 · Version 1.0

Abstract

Every number in WP-01 through WP-03 was measured against generated ground truth, because a synthetic OTC feed has an unknown generator and guessing is all one can do. This note supplies the missing denominator: **the most liquid, most heavily arbitraged, best-instrumented market in the world, measured with the identical apparatus.**

30.6 days of 1-minute BTC/USD bars (44,000 observations) from Bitstamp's public endpoint. Four results:

1. **The real market is not a random walk.** The battery returns H1 serial dependence: runs test z = −4.31 (p < 1e-4), Ljung–Box on returns p = 0.021, volatility clustering at p < 1e-4.
2. **And none of it is exploitable at a 60-second horizon.** The out-of-sample predictability ceiling is **49.90%** [49.24, 50.57] — below a coin flip, against a 52.08% break-even at a 92% payout.
3. **Searching 545 rules finds nothing.** Best out-of-sample 50.40% [49.26, 51.55]; the search-adjusted threshold was 54.16%.
4. **There is no exploitable lag between venues at minute granularity.** Bitstamp vs Coinbase correlate 0.9855 contemporaneously and 0.04–0.06 at ±1 minute.

Result 1 and result 2 together are the whole thesis of this series, stated by the market itself: **detectable structure and tradeable structure are different objects, and the gap is not a property of synthetic feeds — it is a property of prices.**

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1. Why a benchmark was needed

WP-01 could say a feed needs a tick-level coefficient near φ ≈ 0.43 before a 60-tick expiry becomes tradeable. What it could not say is whether that bar is high or low in absolute terms, because there was nothing to compare it to. A benchmark answers "52.08% of what?"

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2. Data

venue	symbol	bars	span	endpoint
Bitstamp	BTC/USD	44,000	30.6 days	`api/v2/ohlc/btcusd/?step=60`

Sample provided free for review. The complete work is available at https://library.coldcode-si-labs.workers.dev/