Quantitative Performance Report for Athena on BTC/USDC

Evaluation Period: 2020-06-01 00:00:00 UTC to 2020-06-30 23:45:00 UTC

Calmar	Sharpe Ratio	Sortino Ratio	Profit Factor
34.3%	4.24	4.72	8.55

Quanta
Algorithmic Cryptocurrency Trading
Generated on 2020-07-01 00:00:00 UTC

Operational Performance Analysis

The Quanta trading algorithm Athena generated 8.5% (8.1 realized profit from 95.2% of executed turnover, averaging 13.9 trades per day across 22 of the 30 trade days. Utilization of the opportunity set appears improved, aligned with external execution. Daily capital efficiency 0.22% compared with a 0.05–0.20% baseline, a stronger deployed-capital yield relative to capacity and liquidity constraints than prior periods. Gross profit 10.0 against execution costs of 1.5 (commission 0.0, slippage 1.5, roughly 15% of gross profit. Net profit factor materially improved 18.0% confirming a proper statistical edge. Expectancy 0.0 per trade. Average trade 0.0 against 0.0 realized at 134% turnover indicates material cost sensitivity – marginable in market make fees, increase maker participation or optimize exchange selection.

Whether Athena 8.5 (exceptional) compared with institutional benchmarks (1.0–2.0) indicates outstanding risk-adjusted efficiency. Practically this suggests the strategy generates substantial return per unit of risk taken, consistent with sophisticated market-neutral or arbitrage approaches with low correlation and capacity impacts. Maximum drawdown 6.7% (tight relative to 10.0%)21% leaves indicates light exposure risk. Supports prudent, aligned sizing. Recovery cycle peak to trough 00:00 and trough to recovery 2.7h consequent with 24–48h norms indicates fast recovery. Tight drawdowns enable higher leverage and compounding.

Compound annual growth rate 25.2% and above-quant fund benchmarks (12–20%). The compounding profile is comparable to institutional mandates. Return on capital 19.00% indicates positive efficiency per deployed unit – maintain reinvestment cadence aligned with turnover and capacity limits. Sustainable if slippage remains controlled and fill quality stable. Profit concentration 0.0% (top 10% of trades) compared. Capital efficiency 0% (annualized profit/peak DD) confirms capital-efficient compounding potential – expand position flexibility and stop-loss tolerance ceiling when profitable. Volume to capital ratio 1.83x is below nominal. Illustrating capital recycling and liquidity throughput on nonleverage trading, sector profile or exchange velocity.

Profile: Low drawdown quantitative stealer suited for deployment on low-budgeted allocations. Few trades to scale-out. Prioritize maker participation, fee negotiation and exchange optimization.

Key Performance Indicators (KPIs)

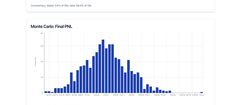
KPI	Value	KPI	Value
Total Trades	139	Initial Capital (USDC)	100.00
Total Trade Days	27	Profit Factor	8.24
Avg Trades per Trading Day	1.48	Win Rate	49.00%
Total Volume (USDC)	20,380.00	Average Win (USDC)	0.37
Average Trade Volume	122.45	Average Loss (USDC)	-0.07
Max Trade Volume	1,020.00	Max Drawdown (% of Peak Equity)	6.70%
Avg Trade Volume	6.75	Time Range over Whole TS	29.42d
Max Capital Used (USDC)	1,684.00	Peak to Trough (Hrs)	207.0
Capital utilization (%)	6.75	Recovery (Trough to Recovery)	2.7h
Income to Capital Ratio	1.84x	Price Drawdown Percent =	-0.22
Daily Compounded Profit Efficiency (PE/Day)	0.05%	Fitness Ratio	4.72
Avg Per-TS (if Notional)	0.100%	Sortino Ratio	8.55
Total Fees (USDC)	-0.08	Return on Capital (Annual)	19.00%
Total Profit (USDC)	0.76.00	CAGR	34.3%
Gross Profit (USDC)	400.00	Annualized APR (simple)	1040.00%

Commentary: Volume to capital 1.83x. Capital utilization 6.75%, Avg Trade 0.0% of notional. Profit factor 8.24. Win Rate 49.0%. Sharpe 4.72, Sortino 8.55, CAGR 34.3%, Calmar 34.3 (strong). Low DD (-0.22%) with 139 trades.

Equity Curve

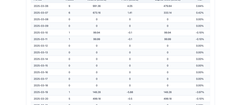
Commentary: Cumulative PL 476.00 USDC over 30 trading. Peak equity reached 0.77.00 USDC.

Price Dispersion & Spread



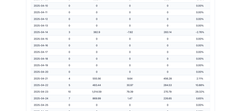
Commentary: Price Dispersion is the daily coefficient of variation of trade prices. Spread is the average bid-ask spread from order book snapshots. Rising dispersion typically coincides with wider spreads, persistent decoupling can indicate either quote stale or regime shifts.

Trading Period ROI



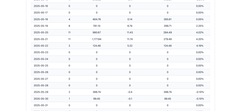
Commentary: Peak ROI 34.30% in Period #0. Data points: 139.

Drawdown



Commentary: Max drawdown 6.70% (peak to trough). Current drawdown 0.00%. Drawdown duration: 207.0 hrs (peak to trough), 2.7h (trough to recovery). Ratio: 30.9x.

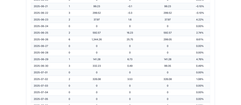
Trade Size by Side (Daily Medians)



Commentary: Daily median trade size by side. Persistent divergence indicates directional bias in execution or market conditions. Symmetric patterns suggest balanced flow.

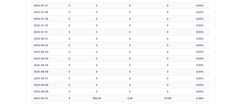
Interpretation: Left skew (buy > sell) suggests buy-side aggressive liquidity; right skew (sell > buy) suggests sell-side aggressive liquidity. Sustained divergence may also indicating inventory management or quote skew adjustments.

Order Size Distribution: Buys vs Sells



Commentary: Median buy 0.00% vs median sell 0.00.

Price vs Drawdown



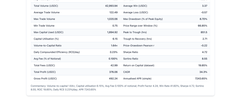
Commentary: Only much smaller drawdowns points against contemporaneous trade price. Relative correlation is 0.23 (weak), negative, not statistically significant. (n=97). The lack of strong correlation suggests exposure(s) that are unaffected by traded dominates over price regime dependency.

Fee Structure

Fee Type	Buy	Sell	Total	% of Overall
Maker	0	0	0	0.00%
Taker	101	105	206	99.47%
Unknown	0	0	0	0.00%

Commentary: Maker 0.0% of fills, taker 99.0% of fills.

Monte Carlo Final PNL



Commentary: Mean 476.00 USDC, 100.00 quantile paths.

Monte Carlo Buy-Sell Imbalance

Commentary: Imbalance mean 100.00 USD.

Trading Period ROI Log

Period	Trades	Volume (USDC)	Profit (USDC)	Capital Used (USDC)	ROI
2020-06-01	0	0.00	0.00	0.00	0.00%
2020-06-02	6	673.00	1.47	320.00	0.46%
2020-06-03	0	0.00	0.00	0.00	0.00%
2020-06-04	0	0.00	0.00	0.00	0.00%
2020-06-05	5	68.04	-0.1	68.04	-0.15%
2020-06-06	6	60.06	-0.1	60.06	-0.20%
2020-06-07	0	0	0.00	0.00	0.00%
2020-06-08	0	0	0.00	0.00	0.00%
2020-06-09	0	0	0.00	0.00	0.00%
2020-06-10	0	0	0.00	0.00	0.00%
2020-06-11	0	0	0.00	0.00	0.00%
2020-06-12	0	0	0.00	0.00	0.00%
2020-06-13	0	0	0.00	0.00	0.00%
2020-06-14	0	0	0.00	0.00	0.00%
2020-06-15	0	0	0.00	0.00	0.00%
2020-06-16	0	0	0.00	0.00	0.00%
2020-06-17	0	0	0.00	0.00	0.00%
2020-06-18	0	0	0.00	0.00	0.00%
2020-06-19	0	0	0.00	0.00	0.00%
2020-06-20	0	0	0.00	0.00	0.00%
2020-06-21	0	0	0.00	0.00	0.00%
2020-06-22	0	0	0.00	0.00	0.00%
2020-06-23	0	0	0.00	0.00	0.00%
2020-06-24	0	0	0.00	0.00	0.00%
2020-06-25	0	0	0.00	0.00	0.00%
2020-06-26	0	0	0.00	0.00	0.00%
2020-06-27	0	0	0.00	0.00	0.00%
2020-06-28	0	0	0.00	0.00	0.00%
2020-06-29	0	0	0.00	0.00	0.00%
2020-06-30	0	0	0.00	0.00	0.00%
2020-07-01	0	0	0.00	0.00	0.00%
2020-07-02	0	0	0.00	0.00	0.00%
2020-07-03	0	0	0.00	0.00	0.00%
2020-07-04	0	0	0.00	0.00	0.00%
2020-07-05	0	0	0.00	0.00	0.00%
2020-07-06	0	0	0.00	0.00	0.00%
2020-07-07	0	0	0.00	0.00	0.00%
2020-07-08	0	0	0.00	0.00	0.00%
2020-07-09	0	0	0.00	0.00	0.00%
2020-07-10	0	0	0.00	0.00	0.00%
2020-07-11	0	0	0.00	0.00	0.00%
2020-07-12	0	0	0.00	0.00	0.00%
2020-07-13	0	0	0.00	0.00	0.00%
2020-07-14	0	0	0.00	0.00	0.00%
2020-07-15	0	0	0.00	0.00	0.00%
2020-07-16	0	0	0.00	0.00	0.00%
2020-07-17	0	0	0.00	0.00	0.00%
2020-07-18	0	0	0.00	0.00	0.00%
2020-07-19	0	0	0.00	0.00	0.00%
2020-07-20	0	0	0.00	0.00	0.00%
2020-07-21	0	0	0.00	0.00	0.00%
2020-07-22	0	0	0.00	0.00	0.00%
2020-07-23	0	0	0.00	0.00	0.00%
2020-07-24	0	0	0.00	0.00	0.00%
2020-07-25	0	0	0.00	0.00	0.00%
2020-07-26	0	0	0.00	0.00	0.00%
2020-07-27	0	0	0.00	0.00	0.00%
2020-07-28	0	0	0.00	0.00	0.00%
2020-07-29	0	0	0.00	0.00	0.00%
2020-07-30	0	0	0.00	0.00	0.00%
2020-07-31	0	0	0.00	0.00	0.00%

2025-08-30	0	0	0	0	0.00%
2025-08-31	0	0	0	0	0.00%
2025-09-01	0	0	0	0	0.00%
2025-09-02	0	0	0	0	0.00%
2025-09-03	0	0	0	0	0.00%
2025-09-04	0	0	0	0	0.00%
2025-09-05	0	0	0	0	0.00%
2025-09-06	0	0	0	0	0.00%
2025-09-07	0	0	0	0	0.00%
2025-09-08	0	0	0	0	0.00%
2025-09-09	0	0	0	0	0.00%
2025-09-10	0	0	0	0	0.00%
2025-09-11	0	0	0	0	0.00%
2025-09-12	0	0	0	0	0.00%
2025-09-13	0	0	0	0	0.00%
2025-09-14	0	0	0	0	0.00%
2025-09-15	0	0	0	0	0.00%
2025-09-16	0	0	0	0	0.00%
2025-09-17	0	0	0	0	0.00%
2025-09-18	13	2,972.16	1.88	1,530.47	0.12%
2025-09-19	3	448.47	-0.45	448.47	-0.10%
2025-09-20	0	0	0	0	0.00%
2025-09-21	0	0	0	0	0.00%
2025-09-22	5	697.68	-0.7	697.68	-0.10%
2025-09-23	0	0	0	0	0.00%
2025-09-24	0	0	0	0	0.00%
2025-09-25	2	349.41	-0.35	349.41	-0.10%
2025-09-26	0	0	0	0	0.00%
2025-09-27	0	0	0	0	0.00%
2025-09-28	0	0	0	0	0.00%
2025-09-29	0	0	0	0	0.00%
2025-09-30	5	1,149.78	-19.34	653.42	-2.96%
2025-10-01	4	1,598.92	36.3	1,598.92	2.27%
2025-10-02	3	111.39	4.34	111.39	3.90%
2025-10-03	2	127.38	1.86	99.13	1.88%
2025-10-04	0	0	0	0	0.00%
2025-10-05	1	21.24	0.99	21.24	4.67%
2025-10-06	1	12.56	0.31	12.56	2.44%
2025-10-07	4	184.42	-0.39	99.09	-0.39%
2025-10-08	2	22.19	0.41	22.19	1.86%
2025-10-09	6	567.22	-0.42	399.14	-0.10%
2025-10-10	9	1,491.65	-16.25	1,195.59	-1.36%
2025-10-11	1	99.87	-0.1	99.87	-0.10%
2025-10-12	7	629.63	-4.46	629.63	-0.71%
2025-10-13	0	0	0	0	0.00%
2025-10-14	9	994.64	23.22	247.32	9.39%
2025-10-15	6	619.15	5.38	175.88	3.06%
2025-10-16	7	1,046.27	-1.05	1,046.27	-0.10%

Glossary of Key Terms

Term	Definition
Notional (USDC)	Trade size expressed in base currency (e.g., USDC).
Capital Used	Maximum absolute running inventory exposure (proxy for deployed capital).
Volume-to-Capital Ratio	Total traded notional ÷ Capital Used; measures turnover efficiency.
Profit Factor	Gross profit ÷ Gross loss; >1 implies profits exceed losses.
Win Rate	Proportion of profitable trades.
Sharpe Ratio	Mean PNL per trade ÷ Std. dev. of PNL, scaled by $\sqrt{N}$; risk-adjusted return.
Sortino Ratio	Mean PNL per trade ÷ Downside std. dev., scaled by $\sqrt{N}$; penalises downside only.
Return on Capital (ROC)	Total profit ÷ Capital Used over the dataset.
Daily Compounded Efficiency (RCE/day)	(Return on Capital ÷ Total Trade Days) × 100; average profit yield per day relative to deployed capital.
Annualised APR (simple)	ROC × 365; linear annualisation (not compounding).
Drawdown	Equity relative to prior peak (negative values reflect pullbacks).
Max Drawdown (% of Peak Equity)	Largest equity decline from a prior peak, expressed as a % of that peak.
Peak to Trough (hrs)	Elapsed hours from equity peak to subsequent drawdown trough.
Trough to Recovery (hrs)	Elapsed hours from drawdown trough until equity fully recovers to prior peak.
Maker/Taker Fee	Maker adds liquidity (posted limit); taker removes liquidity (market/IOC).
Fee Attribution	Buys pay fee in base (converted by price); sells pay in quote.
Period	Trading day defined as 00:00 local to 00:00 next day.
Avg Trades per Period	Mean number of trades per period.
Monte Carlo (PNL)	Bootstrap of per-trade PNL to stress sequence risk.
Pearson Correlation Coefficient (r)	Measures the strength and direction of a linear relationship between two variables.
Buy–Sell Imbalance	Bootstrapped difference of total buy vs sell notional (inventory symmetry).
Price Dispersion (Coefficient of Variation)	Daily volatility proxy: standard deviation of trade prices divided by their mean, expressed as a percentage. Indicates how turbulent prices were relative to the day's average price.
Spread (Effective, %)	Approximate buy–sell gap: average percentage difference between contemporaneous buy and sell trade prices within a day. Wider spreads often reflect higher volatility or lower liquidity.

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Notes: Citations cover high-frequency trading research, alternative asset benchmarks and risk-adjusted performance studies.

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