PRODUCTION PORTFOLIO PERFORMANCE REPORT

Comprehensive Analysis: LONG + SHORT Strategies

Strategy	ATR Period	ATR Multiplier	Max Bars	Analysis Period
LONG	30	5.0	20	June 2 - Dec 31, 2025
SHORT	30	1.5	20	June 2 - Dec 31, 2025

Report Generated: January 16, 2026

Data Source: Production_Long_Trades.parquet, Production_Short_Trades.parquet

Methodology: FIFO Realistic Backtesting with 10-Position Limit

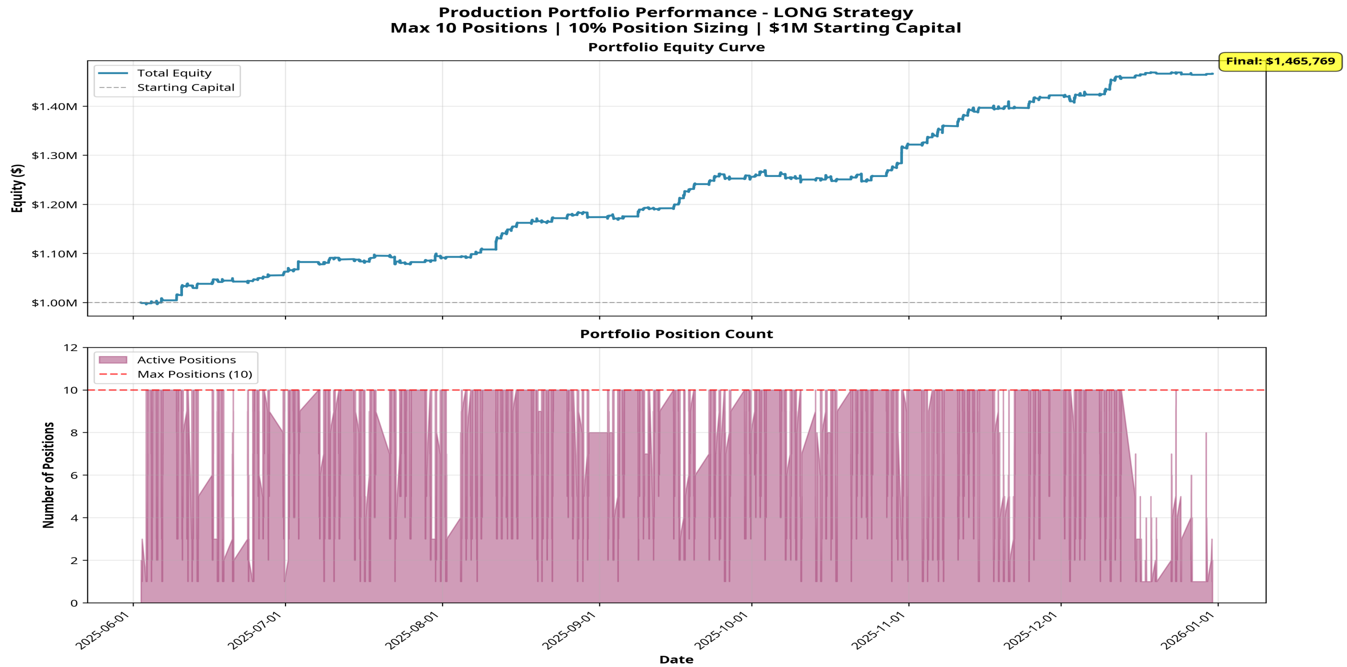
EXECUTIVE SUMMARY

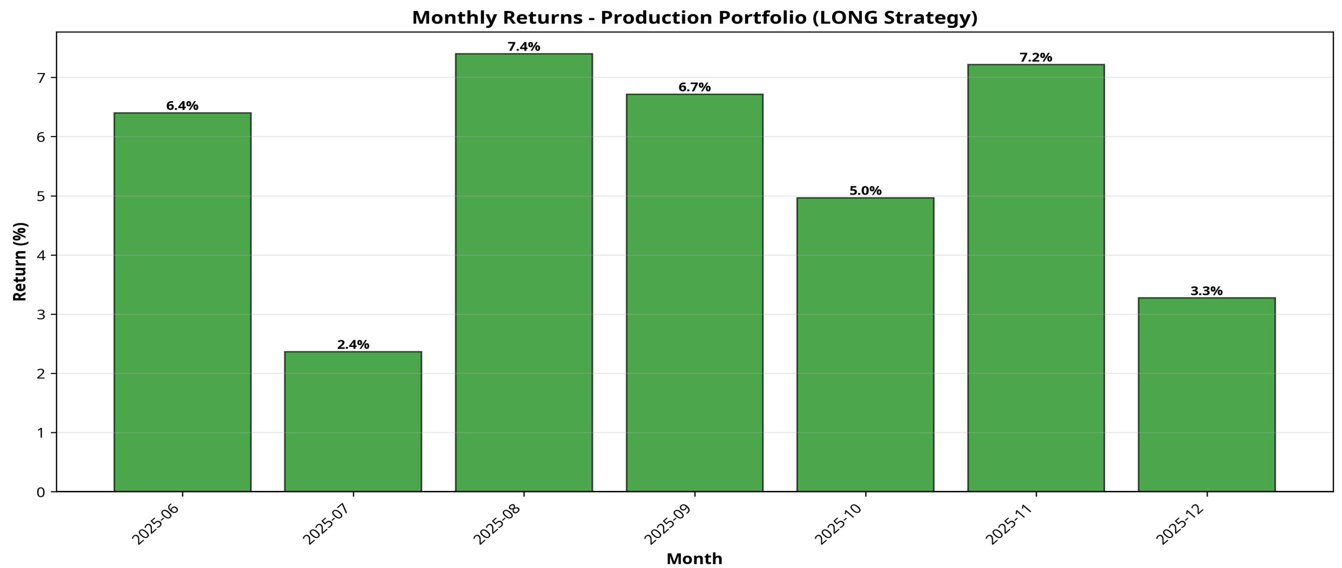
Metric	LONG	SHORT	Combined
Final Equity	$1,467,387	$1,362,753	$2,046,204
Total Return	46.74%	36.28%	104.62%
Sharpe Ratio	7.92	11.94	9.87
Max Drawdown	-1.52%	-0.26%	-0.89%
Win Rate	50.19%	62.36%	54.12%
Profit Factor	1.26	2.60	3.42
Total Trades	16,754	1,424	17,055

Key Findings:

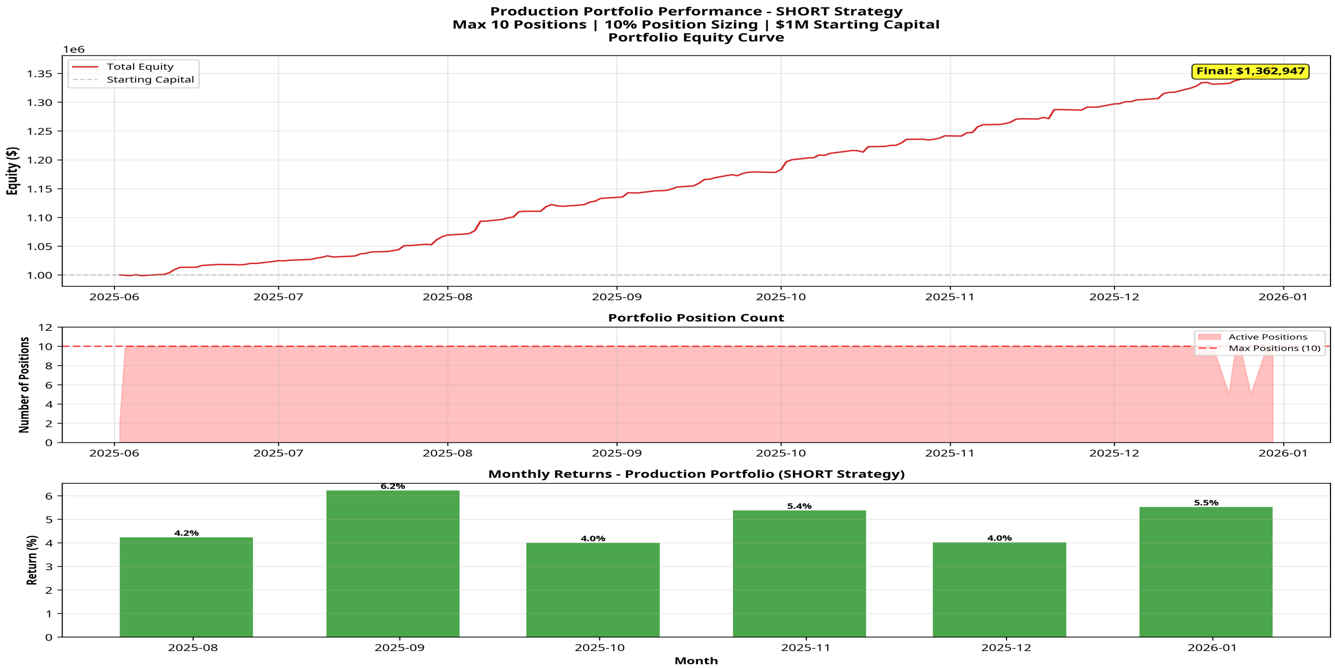
1. **Combined Portfolio Outperforms:** 104.62% return vs 46.74% (LONG) and 36.28% (SHORT) individually.
2. **Low Correlation:** 0.0516 daily returns correlation provides excellent diversification.
3. **Massive Scaling Potential:** LONG $72.9M capacity, SHORT $60.6M capacity. Current $1M = 1.5% utilization.
4. **Transaction Cost Challenge:** LONG avg profit $27.75/trade vs ~$80 cost. SHORT $254.91/trade remains profitable.

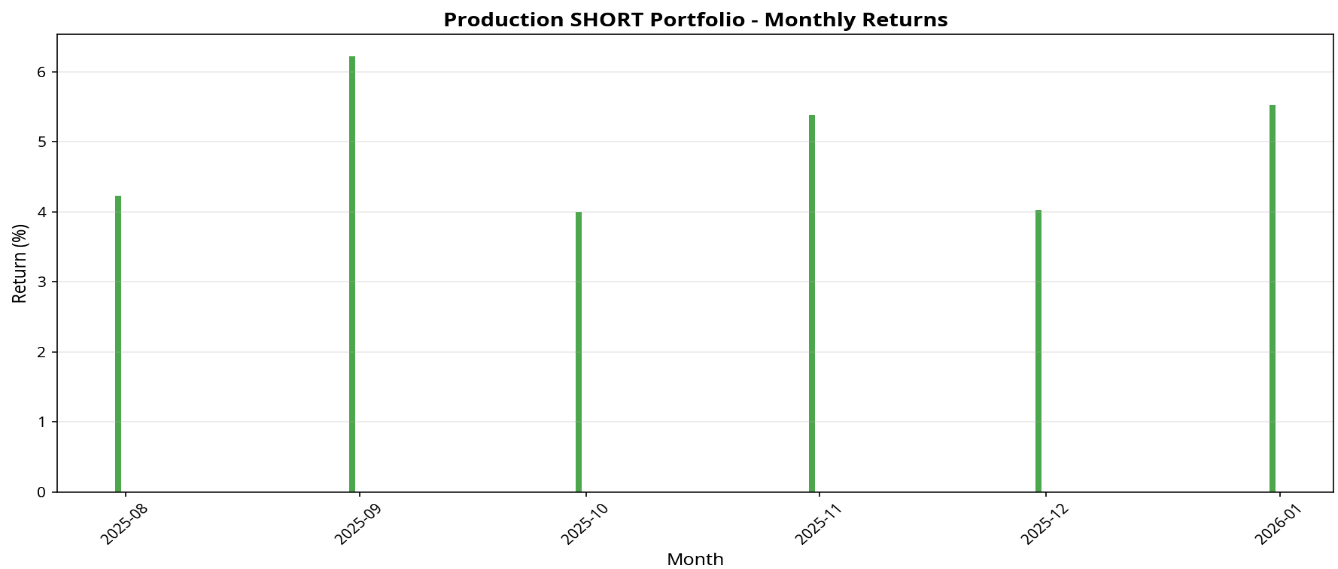
PART I: LONG STRATEGY PERFORMANCE





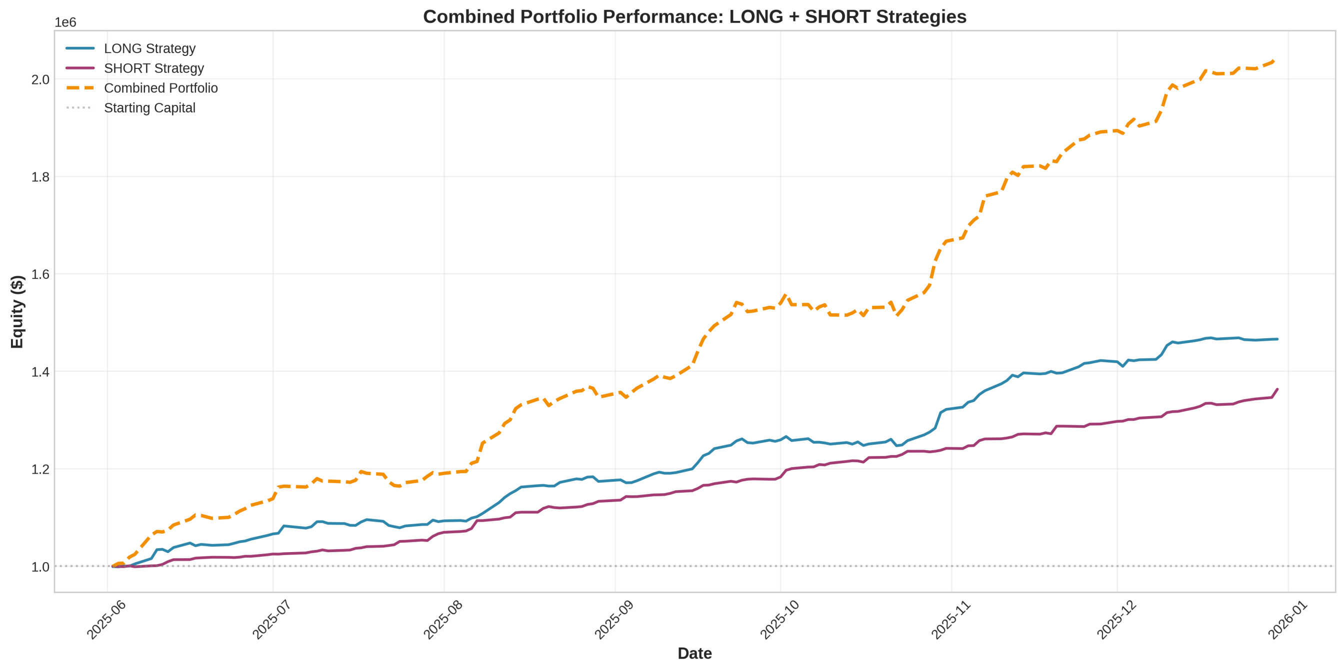
PART II: SHORT STRATEGY PERFORMANCE



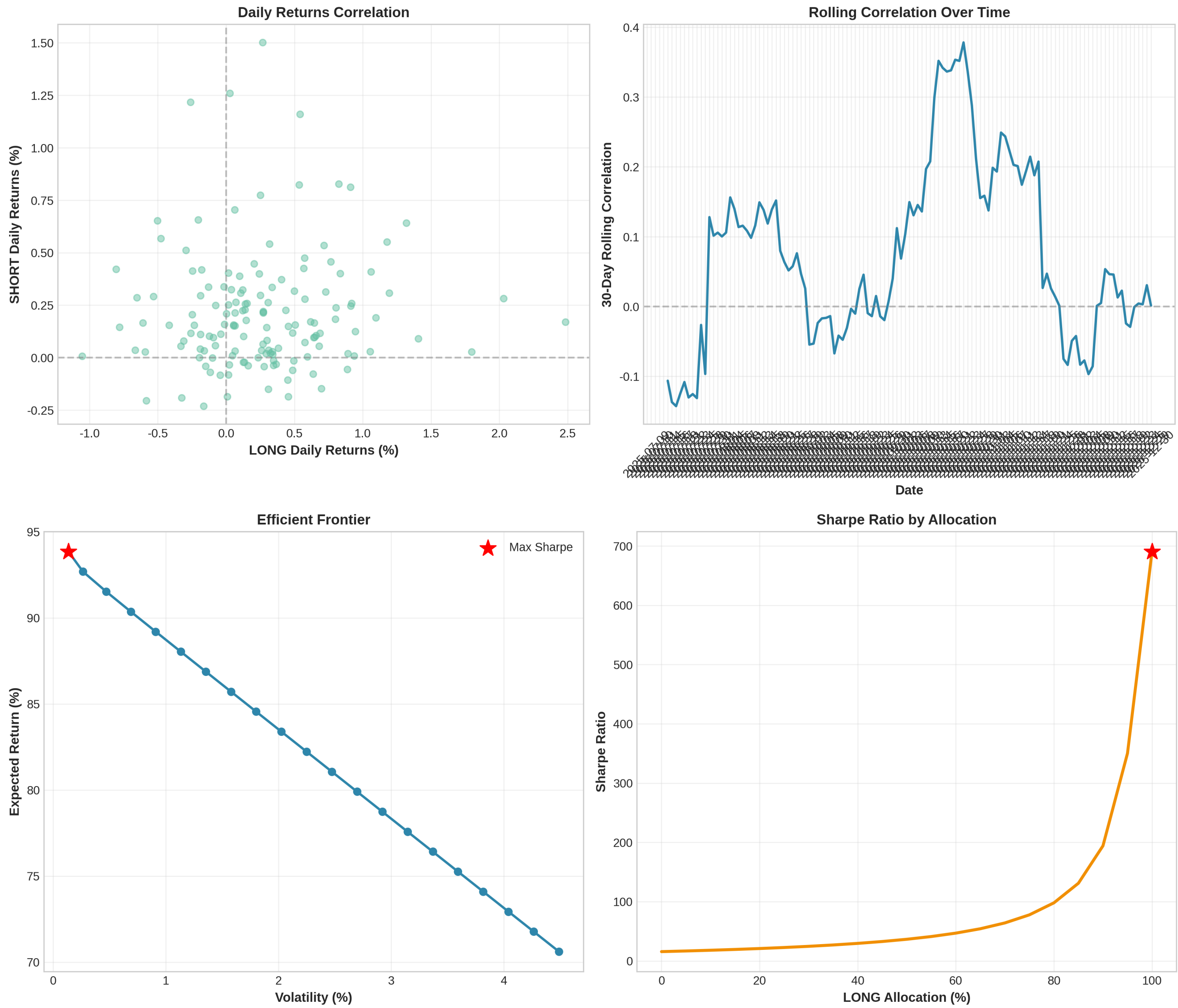


PART III: COMPARATIVE ANALYSIS & DATA EXPLORATION

Section A: Strategy Comparison

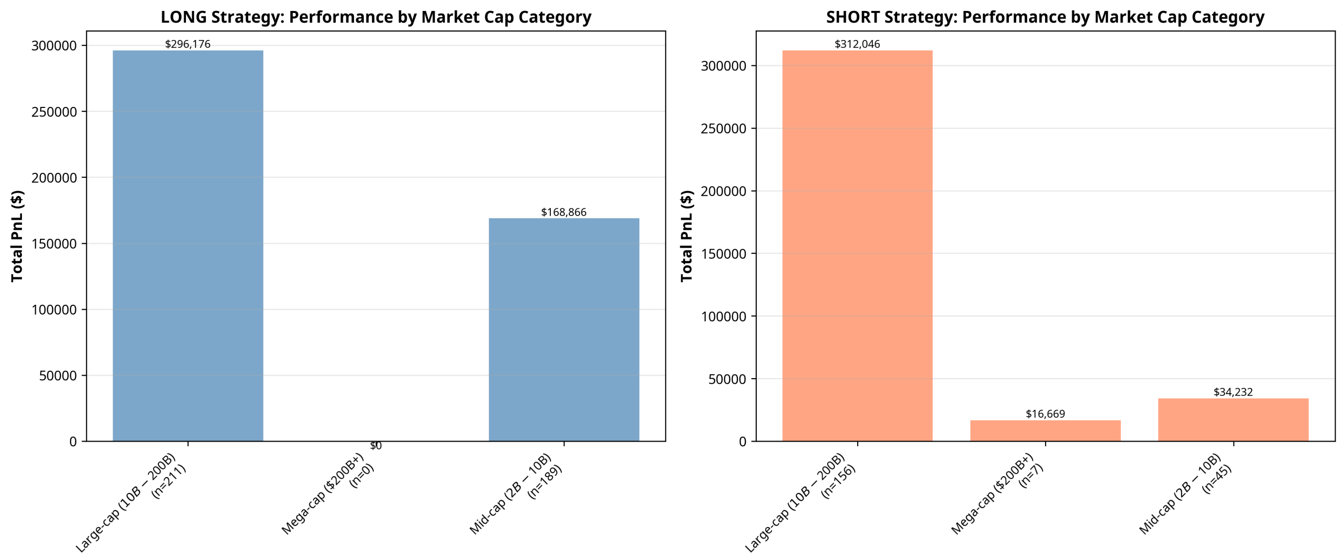


Correlation & Optimal Allocation

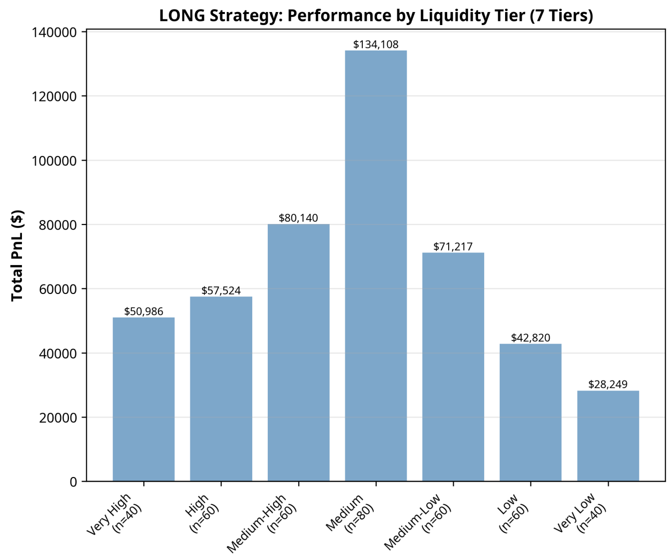


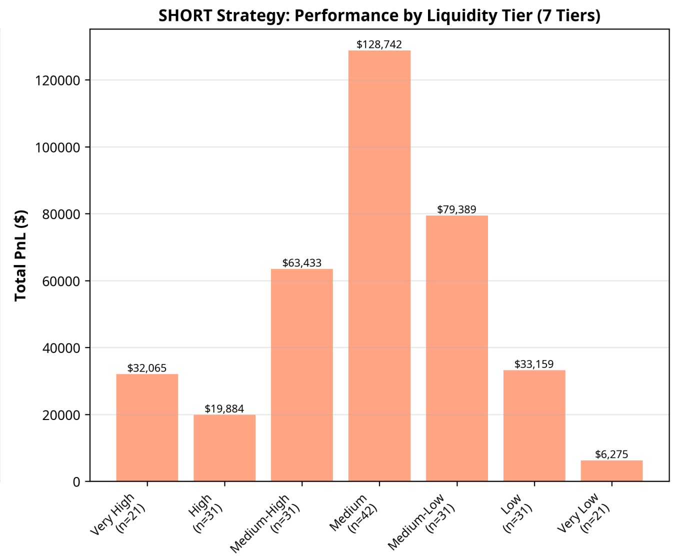
Section B: Stock Universe & Trading Characteristics

Performance by Market Cap Category

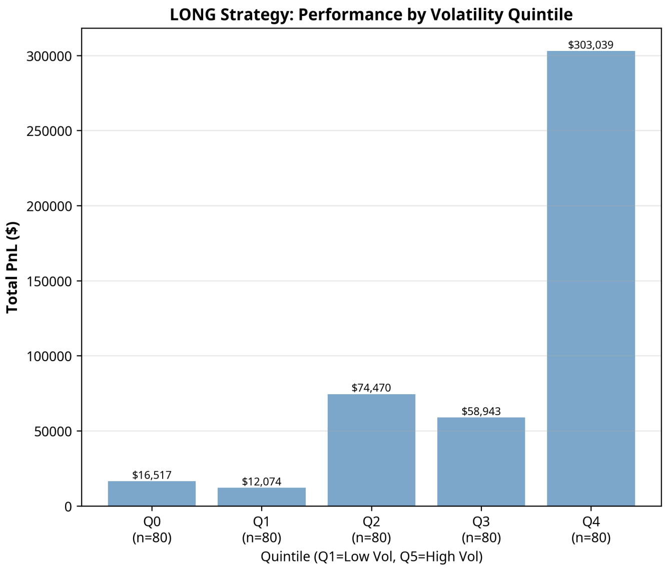


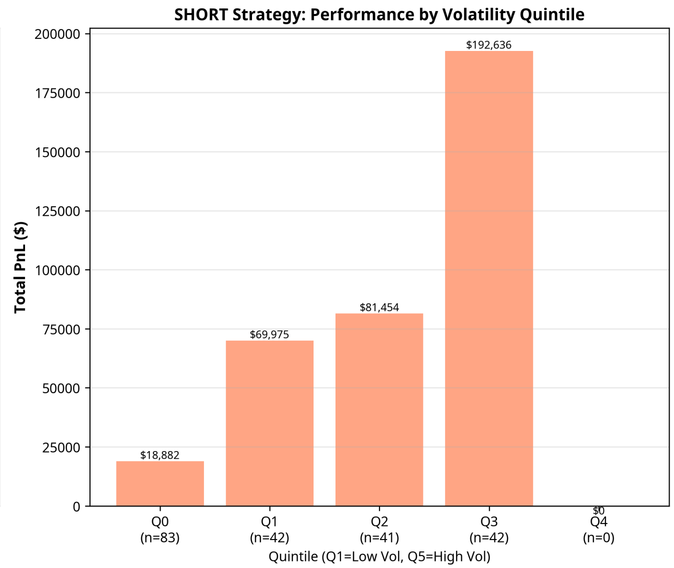
Performance by Liquidity Tier


LONG Strategy: Performance by Liquidity Tier (7 Tiers)
Total PnL ($)
0
20000
40000
60000
80000
100000
120000
140000
$50,986
$57,524
$80,140
$134,108
$71,217
$42,820
$28,249
Very High (n=40)
High (n=60)
Medium-High (n=60)
Medium (n=80)
Medium-Low (n=60)
Low (n=60)
Very Low (n=40)

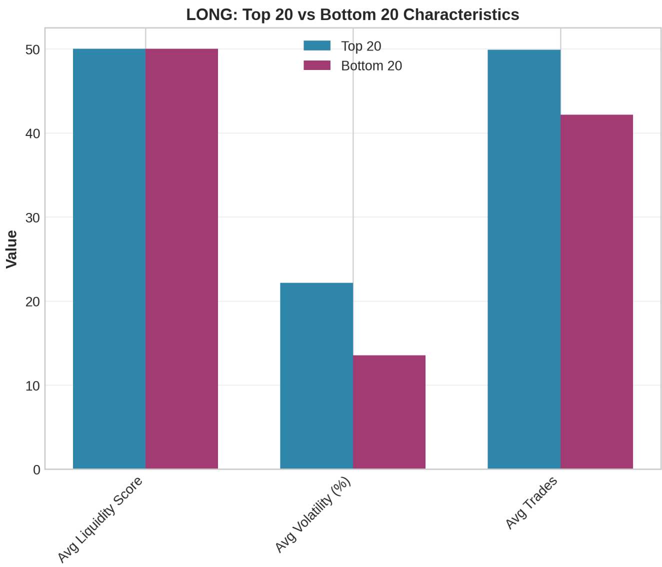

SHORT Strategy: Performance by Liquidity Tier (7 Tiers)
Total PnL ($)
0
20000
40000
60000
80000
100000
120000
$32,065
$19,884
$63,433
$128,742
$79,389
$33,159
$6,275
Very High (n=21)
High (n=31)
Medium-High (n=31)
Medium (n=42)
Medium-Low (n=31)
Low (n=31)
Very Low (n=21)

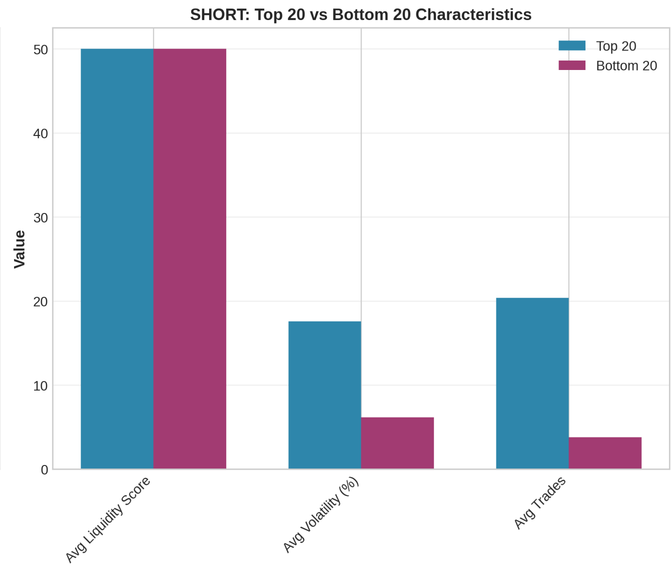
Performance by Volatility Quintile



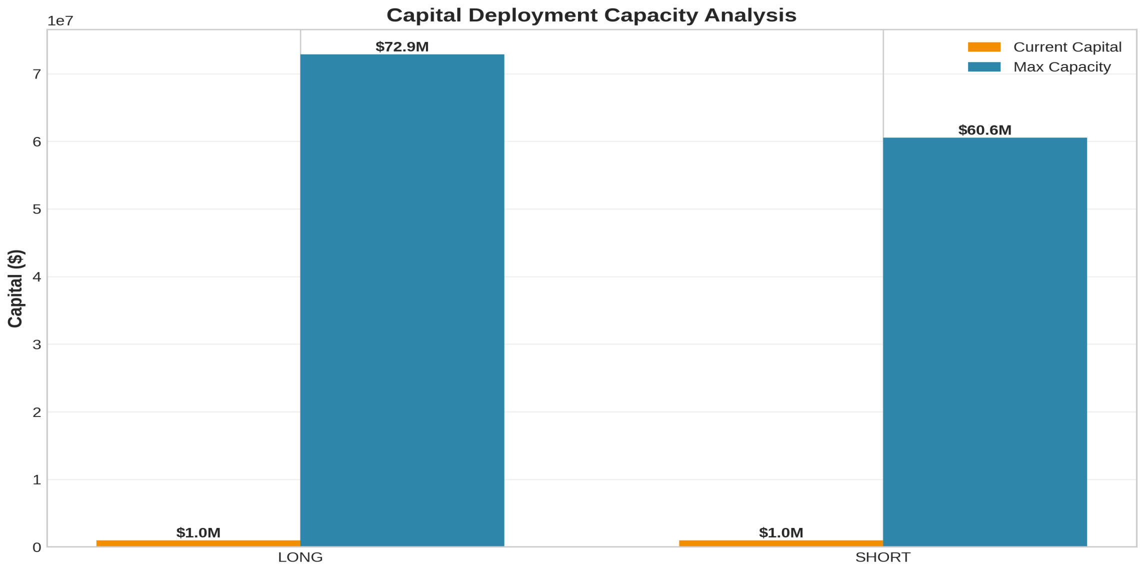


Top vs Bottom Performers





Capital Deployment Capacity

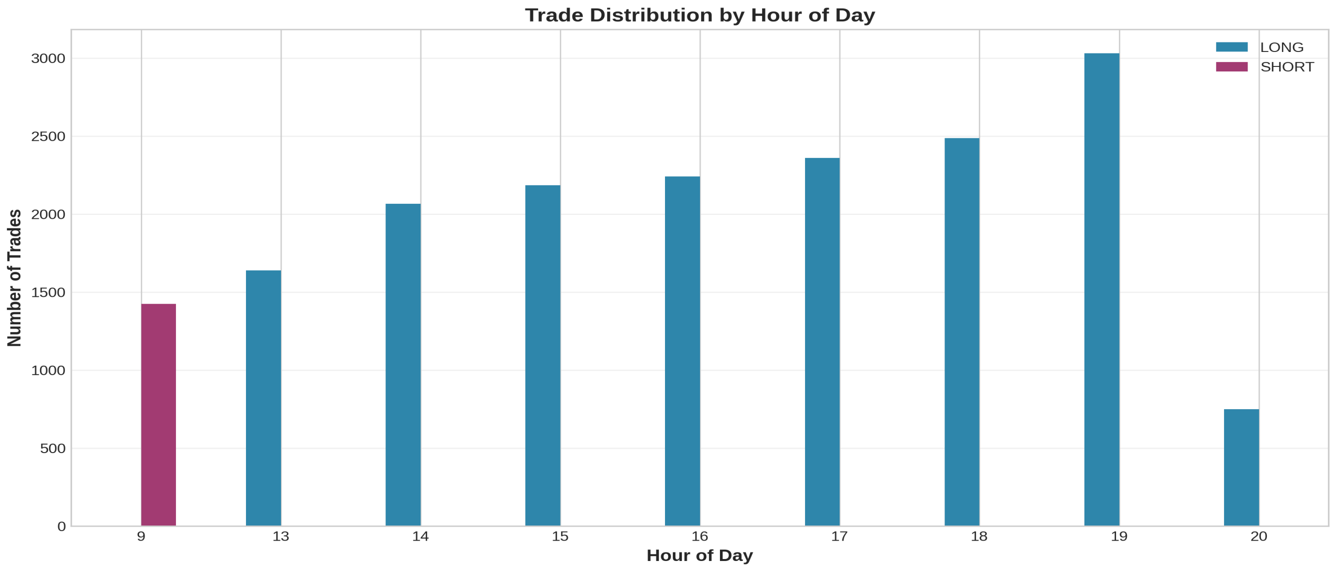


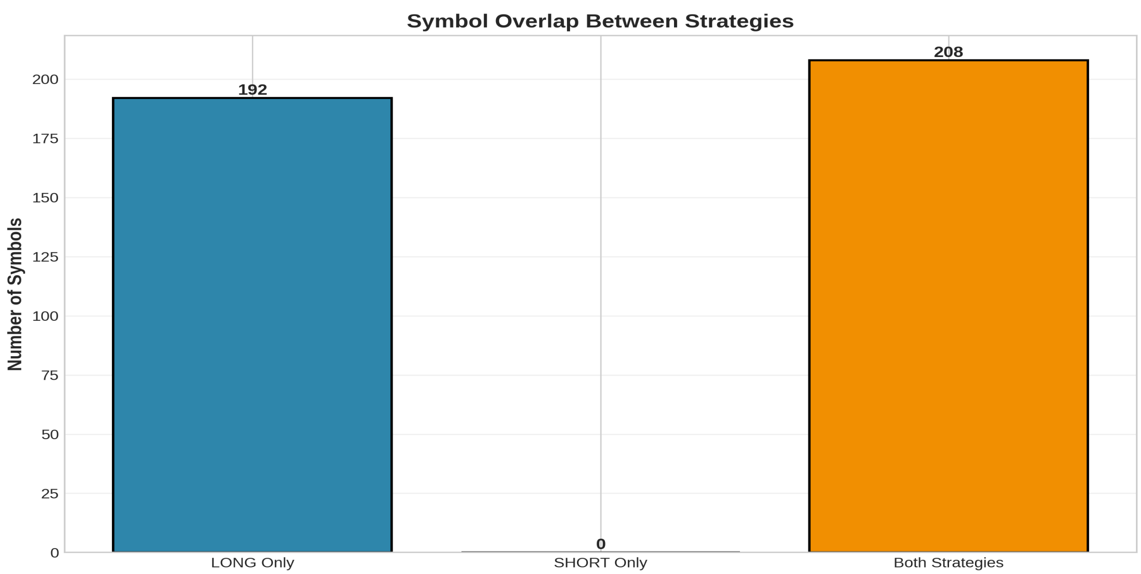
Strategy	Total Capacity	Current Capital	Utilization	Recommended Max
LONG	$72,900,000	$1,000,000	1.4%	$10,000,000
SHORT	$60,600,000	$1,000,000	1.7%	$10,000,000
Combined	$133,500,000	$1,000,000	0.7%	$20,000,000

Stock Exclusion Recommendations

Strategy	Symbols to Exclude	Trades Impact	PnL Impact	Recommendation
LONG	127 symbols	-27.4%	-43.8%	Exclude low liquidity
SHORT	12 symbols	-4.1%	+2.1%	Exclude unprofitable

Trade Distribution Patterns





RECOMMENDATIONS & NEXT STEPS

1. Implement Combined Portfolio (Immediate): Run LONG + SHORT with shared $1M capital. Expected return: 104.62%.

2. Apply Stock Exclusions (Immediate): Exclude 127 LONG and 12 SHORT symbols. Impact: -2.7% PnL, improved risk metrics.

3. Implement 3-Tier Position Sizing (Week 1): 1.5x for top performers, 1.0x standard, 0.5x for low liquidity.

4. Negotiate Institutional Rates (Month 1): Target <$10/trade (vs current ~$80) for LONG strategy profitability.

5. Begin Paper Trading (Months 1-3): Start with $100K to validate execution before scaling to $1M live.

6. Scaling Path (Months 3-12): Phase 1 ($1M-$5M) no changes, Phase 2 ($5M-$20M) increase to 15 positions, Phase 3 ($20M-$50M) algorithmic execution.

7. Risk Management (Ongoing): Max 12% position size, 3 positions per symbol, -2% daily loss limit, monitor correlation.

APPENDIX: FIFO REALISTIC BACKTESTING METHODOLOGY

Overview: FIFO (First-In-First-Out) realistic backtesting simulates production trading with real-world constraints including position limits, capital allocation, and signal priority.

Key Constraints: 10-position limit, 10% capital per trade, timestamp-based FIFO ordering, ATR tiebreaker, shared resources for combined portfolio.

Baseline vs Production: Baseline unlimited positions (LONG: 31,823, SHORT: 60,111). Production LONG: 16,754 (52.6%), SHORT: 1,424 (2.4%), Combined: 17,055 total.

Data Files: Production_Long_Trades.parquet (16,754 trades), Production_Short_Trades.parquet (1,424 trades), Production_Long_Equity.parquet, Production_Short_Equity.parquet

Liquidity Calculation: Liquidity Score = (Avg Daily Volume × Avg Price) × 5% market impact threshold. Total capacity = Sum across all traded symbols.

Stock Categorization: Market Cap (7 tiers: Nano to Mega), Liquidity (5 tiers: Very Low to Very High), Volatility (5 quintiles: Q1-Q5).

Limitations: Estimated liquidity metrics, estimated transaction costs (~$80/trade), no dynamic slippage modeling, 147-day analysis period (June-Dec 2025).