

I. STRATEGY OVERVIEW

Project BWC is a regime-aware quantitative portfolio tracking engine. Built to test structural alpha decay, hierarchical risk parity bisection, and topological model fusion on out-of-sample data. It employs strictly mathematical implementations (DuckDB, Polars, GraphicalLassoCV) to observe algorithmic behavioral bypass and track geometric degradation natively terminating in May 2026.

Report generated: 2026-03-17 12:07 UTC
Initial capital: \$1,000,000 | Benchmark: SPY

II. RISK & RETURN ANALYTICS

Metric	Portfolio	Benchmark (SPY)
Annualized Sharpe	-1.14	0.95
Annualized Sortino	-0.99	1.30
Calmar Ratio	-3.12	1.80
Maximum Drawdown	-3.7%	-22.1%
Cornish-Fisher VaR (5%)	-1.23%	-3.88%
Conditional VaR (5%)	-1.35%	-4.50%
Tail Ratio	0.55	0.85
Annualized Return	-11.00%	+10.5%
Annualized Volatility	10.26%	18.0%
Total Return	-1.01%	+22.0%

III. CONFIDENCE-FILTERED SIGNAL ENGINE

The signal engine operates as a monitoring layer that gates signals through a dual-threshold filter:

- Confidence minimum: 0.65
- Fused score minimum: 0.35
- Dynamic accuracy penalty: threshold increases when historical accuracy drops below 70%, making it harder for unreliable tickers to generate actionable signals.

The engine tracks realized vs. expected returns per ticker and uses exponentially-weighted rolling accuracy to ensure only high-quality signals reach the portfolio allocator.

IV. FAMA-FRENCH FACTOR ATTRIBUTION

Factor	Loading	Interpretation
Market (MKT-RF)	0.85	Moderate market exposure
Size (SMB)	0.30	Slight small-cap tilt
Value (HML)	0.65	Significant value tilt
Momentum (UMD)	0.22	Mild momentum exposure

V. PORTFOLIO HOLDINGS

Ticker	Name	Sector	Qty	Avg Cost	Mkt Val	Weight
SPY	SPDR S&P 500 ETF	Broad Market	295	\$684.89	\$197,363.86	21.6%
TSM	Taiwan Semiconduct	AI Infrastru	230	\$363.94	\$78,252.90	8.6%
MU	Micron Technology	AI Memory	15	\$408.82	\$6,627.00	0.7%
PLTR	Palantir Technolog	AI Software	388	\$131.48	\$59,255.36	6.5%
AMZN	Amazon.com	E-commerce/C	250	\$200.87	\$52,935.00	5.8%
NVDA	NVIDIA Corporation	AI Infrastru	274	\$184.04	\$50,202.28	5.5%
ITA	iShares U.S. Aeros	Defense/Aero	100	\$231.91	\$23,281.00	2.5%
NBIS	Nebius Group	AI Infrastru	135	\$124.80	\$17,529.75	1.9%
LMT	Lockheed Martin	Defense/Spac	120	\$651.62	\$77,424.00	8.5%
TGT	Target Corporation	Defensive Re	610	\$116.98	\$71,400.50	7.8%
XLP	Consumer Staples S	Staples	440	\$89.52	\$37,391.20	4.1%
PG	Procter & Gamble	FMCG Defensi	235	\$162.45	\$35,748.20	3.9%
JNJ	Johnson & Johnson	Healthcare	260	\$244.64	\$63,229.40	6.9%
XLU	Utilities Select S	Utilities	800	\$45.45	\$37,808.00	4.1%
IONQ	IonQ Inc	Quantum/Spec	800	\$33.60	\$26,632.00	2.9%
XLE	Energy Select SPDR	Energy	60	\$57.95	\$3,474.00	0.4%
XOM	Exxon Mobil	Energy	75	\$159.75	\$11,792.25	1.3%
IBB	iShares Biotechnol	Healthcare	120	\$167.12	\$20,056.80	2.2%
ORCL	Oracle Corporation	Software	161	\$155.76	\$25,111.17	2.7%
SIEGY	Siemens AG	Industrials/	150	\$126.70	\$19,000.50	2.1%

VI. WALK-FORWARD BACKTEST RESULTS

Metric	naive_equal_wei	topological_hrp	delta
total_return	0.0531	0.0523	N/A
annualized_sharpe	1.3409	1.3211	N/A
annualized_sortino	2.7490	2.7046	N/A
max_drawdown	-0.0939	-0.0942	N/A