

GAM03: Open World Gaming Economics

Technical Analysis Report | February 01, 2026

1. Data Overview

Subject: Take-Two (TTWO)

Analysis Period: 2016-02-03 to 2026-01-30 (~10.0 years)

Total Observations: 13,740 rows

Stock Data: 2,513 daily OHLCV observations

Data Sources: Yahoo Finance API (yfinance), synthetic operational metrics

2. Methodology

2.1 Risk Analytics (CFA Standards)

- Sharpe Ratio:** $(\text{Return} - \text{Rf}) / \text{Volatility}$ ($\text{Rf} = 0$)
- Sortino Ratio:** $\text{Return} / \text{Downside Deviation}$
- Value at Risk (VaR):** Historical 95% and 99% confidence
- Maximum Drawdown:** Peak-to-trough decline

2.2 Technical Indicators

- Moving Averages:** SMA/EMA (20, 50, 200 day)
- Volatility:** Rolling standard deviation (20, 60, 252 day)
- Momentum:** RSI-14, Price momentum (20-252 day)

3. Risk Metrics Summary

Ticker	Total Return	Ann. Return	Volatility	Sharpe	Max DD
TTWO	571.0%	21.0%	33.9%	0.62	-56.1%

4. Detailed Risk Profile

Return Distribution

Metric	Value
Positive Days	52.8%
Best Day	14.03%
Worst Day	-13.76%
Sortino Ratio	0.83

Value at Risk

Confidence	Daily VaR
95%	-3.10%
99%	-5.97%

5. Data Quality Assessment

Completeness: All trading days covered

Adjustments: Prices adjusted for splits/dividends

Validation: Stock data from Yahoo Finance

Processing: Pandas/NumPy calculations

Disclaimer: Operational metrics are synthetic/illustrative

6. Key Observations

- Sector volatility characteristics relative to market indices
- Risk-adjusted return profile (Sharpe, Sortino)
- Drawdown behavior during market stress periods
- Volume and liquidity patterns

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Data Source: Yahoo Finance (stock), Synthetic (operational) | Report Code: GAM03

Portfolio Sample - Demonstrates data engineering methodology | Generated: 2026-02-01 00:57:54