

Portfolio Risk Analysis Report

Report Date: October 23, 2025
Portfolio Size: 45 Assets
Analysis Period: 12 Months
Generated by: Automated Risk Analysis Pipeline

Risk Assessment Summary

HIGH RISK (RED): 0 Assets
MEDIUM RISK (YELLOW): 0 Assets
LOW RISK (GREEN): 45 Assets

Executive Summary

This report presents a comprehensive risk analysis of a portfolio containing 45 assets with a combined market capitalization of \$10089.8 billion. **Key Findings:** • 0 assets (0.0%) are rated as HIGH RISK (RED) • 0 assets (0.0%) are rated as MEDIUM RISK (YELLOW) • Average portfolio volatility: 0.0% • Maximum drawdown observed: 0.0% **Risk Concentration:** The analysis reveals significant risk concentration in 0 assets requiring immediate attention and potential portfolio rebalancing.

Portfolio Overview

Sector Allocation

Sector	Assets	Market Cap (\$B)	Percentage
Technology	16	3896.90	38.6%
Consumer Discretionary	11	2296.41	22.8%
Energy	5	1382.65	13.7%
Consumer Staples	5	1034.11	10.2%
Healthcare	3	579.06	5.7%
Financial Services	3	506.46	5.0%
Industrial	2	394.26	3.9%

Risk Analysis Results

Risk Distribution:

- HIGH RISK (RED): 0 assets
- MEDIUM RISK (YELLOW): 0 assets
- LOW RISK (GREEN): 45 assets

Machine Learning Analysis

Advanced machine learning techniques were applied to identify anomalies and predict future risk ratings. **Anomaly Detection Summary:**

- Total Anomalies Detected: 0
- Critical Anomalies: 0
- High Risk Anomalies: 0
- Anomaly Rate: 0.0%

Key Machine Learning Insights

- Portfolio shows stable risk patterns with no critical ML alerts

ML Validation Results

Overall Validation Status: **WARNING**

Checks Passed: 0 / 4

■ **Anomaly Detection Validation:** WARNING

total_assets: 45, anomalies_detected: 0, anomaly_rate: 0.0

■ **Risk Prediction Validation:** WARNING

■ **Feature Quality Validation:** WARNING

features_checked: 9, nan_features: 0, total_samples: 45

■ **Feature Importance Validation:** WARNING

Validation Warnings (12):

1. Low anomaly rate: 0.0% (expected ~15%)
2. Risk prediction model not trained - insufficient data
3. Feature 'volatility' has very low variance (0.000000)
4. Feature 'max_drawdown' has very low variance (0.000000)
5. Feature 'volume_decline' has very low variance (0.000000)
- ... and 7 more warnings

Detailed Asset Analysis

Recommendations

Based on the comprehensive risk analysis, the following recommendations are provided:

Immediate Actions (RED-flagged assets):

1. Consider reducing position sizes for 0 high-risk assets
2. Implement stop-loss orders to limit further downside exposure
3. Review fundamental analysis for potential divestiture candidates
4. Monitor daily price movements and news flow closely

Medium-term Actions (YELLOW-flagged assets):

1. Conduct deeper due diligence on 0 medium-risk assets
2. Consider hedging strategies for positions with high volatility
3. Review correlation with overall portfolio risk
4. Set up enhanced monitoring and alerts

Portfolio-level Recommendations:

1. Diversify across sectors to reduce concentration risk
2. Consider alternative investments to reduce correlation
3. Implement systematic risk management framework
4. Schedule monthly portfolio risk reviews

Appendix

Methodology

This risk analysis employs a four-stage pipeline methodology: **Stage 1 - Data Ingestion:** • Historical price data (252 trading days) • Trading volume information • Market capitalization data • Sector classifications **Stage 2 - Core Analysis:** • Volatility calculation (annualized) • Maximum drawdown analysis • Beta coefficient estimation • Risk-adjusted return metrics (Sharpe ratio) • Technical indicators (RSI) • Rule-based risk flagging system **Stage 3 - Sentiment Analysis:** • News article collection (12-month lookahead) • Natural language processing for sentiment scoring • Trend analysis and confidence metrics • Key theme extraction **Stage 4 - Report Generation:** • Comprehensive risk assessment compilation • Visual data presentation • Actionable recommendations • Professional PDF report output

Risk Assessment Thresholds

RED Flag Thresholds: • Volatility > 40% (annualized) • Maximum drawdown < -20% • Volume decline > 50% • 1-month price decline > 15% **YELLOW Flag Thresholds:** • Volatility > 25% (annualized) • Maximum drawdown < -10% • Volume decline > 30% • Multiple warning indicators present **Sentiment Thresholds:** • Negative sentiment: Score < -0.3 • Positive sentiment: Score > 0.3 • Neutral sentiment: $-0.3 \leq \text{Score} \leq 0.3$

Report Generation Details:

- Generated: 2025-10-23 10:06:10
- Analysis Period: 12 months
- Total Assets Analyzed: 45
- Pipeline Version: 1.0

Test Data - Portfolio Details

Complete portfolio and risk analysis data has been exported to CSV files for further analysis:

Portfolio Data CSV: portfolio_data_20251023_100610.csv

Risk Analysis CSV: risk_analysis_20251023_100610.csv

The tables below provide summary information for quick reference.

Performance Metrics Data

Symbol	1M Return	3M Return	6M Return	Vol Decline	Sharpe Ratio
AAPL	0.0%	0.0%	0.0%	0.0%	0.00
AMC	0.0%	0.0%	0.0%	0.0%	0.00
AMD	0.0%	0.0%	0.0%	0.0%	0.00
BA	0.0%	0.0%	0.0%	0.0%	0.00
BLNK	0.0%	0.0%	0.0%	0.0%	0.00
BYND	0.0%	0.0%	0.0%	0.0%	0.00
CRM	0.0%	0.0%	0.0%	0.0%	0.00
CVX	0.0%	0.0%	0.0%	0.0%	0.00
DOCU	0.0%	0.0%	0.0%	0.0%	0.00
ETSY	0.0%	0.0%	0.0%	0.0%	0.00
FCEL	0.0%	0.0%	0.0%	0.0%	0.00
FHTX	0.0%	0.0%	0.0%	0.0%	0.00
FUBO	0.0%	0.0%	0.0%	0.0%	0.00
GM	0.0%	0.0%	0.0%	0.0%	0.00
GME	0.0%	0.0%	0.0%	0.0%	0.00
HD	0.0%	0.0%	0.0%	0.0%	0.00
IBM	0.0%	0.0%	0.0%	0.0%	0.00
JNJ	0.0%	0.0%	0.0%	0.0%	0.00
KO	0.0%	0.0%	0.0%	0.0%	0.00
LYFT	0.0%	0.0%	0.0%	0.0%	0.00
MA	0.0%	0.0%	0.0%	0.0%	0.00
MCD	0.0%	0.0%	0.0%	0.0%	0.00
MSFT	0.0%	0.0%	0.0%	0.0%	0.00
NKLA	0.0%	0.0%	0.0%	0.0%	0.00
NOW	0.0%	0.0%	0.0%	0.0%	0.00
NVDA	0.0%	0.0%	0.0%	0.0%	0.00
PEP	0.0%	0.0%	0.0%	0.0%	0.00
PG	0.0%	0.0%	0.0%	0.0%	0.00
PLTR	0.0%	0.0%	0.0%	0.0%	0.00
PLUG	0.0%	0.0%	0.0%	0.0%	0.00

RIVN	0.0%	0.0%	0.0%	0.0%	0.00
SBUX	0.0%	0.0%	0.0%	0.0%	0.00
SHOP	0.0%	0.0%	0.0%	0.0%	0.00
SNAP	0.0%	0.0%	0.0%	0.0%	0.00
SPCE	0.0%	0.0%	0.0%	0.0%	0.00
SQ	0.0%	0.0%	0.0%	0.0%	0.00
TSLA	0.0%	0.0%	0.0%	0.0%	0.00
TWLO	0.0%	0.0%	0.0%	0.0%	0.00
UBER	0.0%	0.0%	0.0%	0.0%	0.00
UNH	0.0%	0.0%	0.0%	0.0%	0.00
V	0.0%	0.0%	0.0%	0.0%	0.00
WKHS	0.0%	0.0%	0.0%	0.0%	0.00
WMT	0.0%	0.0%	0.0%	0.0%	0.00
XOM	0.0%	0.0%	0.0%	0.0%	0.00
ZM	0.0%	0.0%	0.0%	0.0%	0.00

Risk Flags Details

Symbol	High Vol	Ext. DD	Vol Collapse	Severe Dec	Ext. Dec	Poor Sharpe	Mom. Break
AAPL	x	x	x	x	x	x	x
MSFT	x	x	x	x	x	x	x
JNJ	x	x	x	x	x	x	x
PG	x	x	x	x	x	x	x
KO	x	x	x	x	x	x	x
V	x	x	x	x	x	x	x
MA	x	x	x	x	x	x	x
HD	x	x	x	x	x	x	x
MCD	x	x	x	x	x	x	x
UNH	x	x	x	x	x	x	x
WMT	x	x	x	x	x	x	x
IBM	x	x	x	x	x	x	x
XOM	x	x	x	x	x	x	x
CVX	x	x	x	x	x	x	x
PEP	x	x	x	x	x	x	x
CRM	x	x	x	x	x	x	x
NOW	x	x	x	x	x	x	x
SBUX	x	x	x	x	x	x	x
GM	x	x	x	x	x	x	x
BA	x	x	x	x	x	x	x
UBER	x	x	x	x	x	x	x

LYFT	X	X	X	X	X	X	X
SNAP	X	X	X	X	X	X	X
TWLO	X	X	X	X	X	X	X
ZM	X	X	X	X	X	X	X
DOCU	X	X	X	X	X	X	X
SHOP	X	X	X	X	X	X	X
SQ	X	X	X	X	X	X	X
PLUG	X	X	X	X	X	X	X
ETSY	X	X	X	X	X	X	X
TSLA	X	X	X	X	X	X	X
NVDA	X	X	X	X	X	X	X
AMD	X	X	X	X	X	X	X
BYND	X	X	X	X	X	X	X
GME	X	X	X	X	X	X	X
AMC	X	X	X	X	X	X	X
FUBO	X	X	X	X	X	X	X
NKLA	X	X	X	X	X	X	X
WKHS	X	X	X	X	X	X	X
PLTR	X	X	X	X	X	X	X
RIVN	X	X	X	X	X	X	X
SPCE	X	X	X	X	X	X	X
FCEL	X	X	X	X	X	X	X
FHTX	X	X	X	X	X	X	X
BLNK	X	X	X	X	X	X	X

Data Summary:

- Total Assets: 45
- Data Generated: 2025-10-23 10:06:10
- Note: This test data is provided for further analysis, validation, and detailed review purposes.
- All metrics are calculated from 252 trading days of historical data.