

Portfolio Risk Analysis Report

Report Date: February 24, 2026

Portfolio Size: 75 Assets

Analysis Period: 12 Months

Generated by: Automated Risk Analysis Pipeline

Risk Assessment Summary

HIGH RISK (RED): 9 Assets

MEDIUM RISK (YELLOW): 0 Assets

LOW RISK (GREEN): 66 Assets

Executive Summary

This report presents a comprehensive risk analysis of a portfolio containing 75 assets with a combined market capitalization of \$10224.5 billion. **Key Findings:** • 9 assets (12.0%) are rated as HIGH RISK (RED) • 0 assets (0.0%) are rated as MEDIUM RISK (YELLOW) • Average portfolio volatility: 44.6% • Maximum drawdown observed: -82.1% **Risk Concentration:** The analysis reveals significant risk concentration in 9 assets requiring immediate attention and potential portfolio rebalancing. **Sentiment Analysis:** • 3 RED-flagged assets show negative market sentiment • Average sentiment score for flagged assets: -0.247 • News coverage indicates heightened market concern for these positions

Portfolio Overview

Sector Allocation

Sector	Assets	Market Cap (\$B)	Percentage
Technology	7	2330.47	22.8%
Healthcare	7	2157.92	21.1%
Financial Services	13	1286.74	12.6%
Energy	13	1273.88	12.5%
Materials	9	786.22	7.7%
Consumer Discretionary	6	572.93	5.6%
Real Estate	6	562.05	5.5%
Industrial	5	511.27	5.0%
Consumer Staples	5	385.63	3.8%
Utilities	4	357.36	3.5%

Risk Analysis Results

Risk Distribution:

- HIGH RISK (RED): 9 assets
- MEDIUM RISK (YELLOW): 0 assets
- LOW RISK (GREEN): 66 assets

High Risk Assets

Symbol	Sector	Risk Rating	Volatility	Max Drawdown	Risk Score
VDD	Utilities	RED	42.2%	-45.1%	4
MURL	Energy	RED	65.6%	-40.8%	4
MLN	Materials	RED	66.2%	-55.5%	4
XG	Energy	RED	66.8%	-69.4%	2
TG	Energy	RED	50.4%	-42.8%	2

SFO	Consumer Discretionary	RED	43.6%	-30.6%	2
NW	Consumer Staples	RED	161.8%	-67.6%	2
BT	Financial Services	RED	97.4%	-67.7%	2
NCR	Healthcare	RED	179.1%	-82.1%	2

Machine Learning Analysis

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

- Total Anomalies Detected: 12
- Critical Anomalies: 5
- High Risk Anomalies: 2
- Anomaly Rate: 16.0%

Risk Prediction Model:

- Model Accuracy: 100.0%
- Rating Changes Predicted: 0
- Assets Predicted to Deteriorate: 0
- Assets Predicted to Improve: 0

Key Machine Learning Insights

- 5 assets show critical anomalous behavior requiring immediate review
- Anomaly detection identified 12 assets with unusual patterns
- Key risk drivers: Max Drawdown, Sharpe Ratio, Volatility

Critical Anomalies Detected

Symbol	Sector	Anomaly Score	Severity	Recommendation
NCR	Healthcare	100.0	CRITICAL	Critical anomaly - Consider immediate po...
NW	Consumer Staples	89.0	CRITICAL	Critical anomaly - Consider immediate po...
XG	Energy	88.5	CRITICAL	Critical anomaly - Consider immediate po...
VDD	Utilities	84.8	CRITICAL	Critical anomaly - Consider immediate po...
BT	Financial Services	80.5	CRITICAL	Critical anomaly - Consider immediate po...
MURL	Energy	69.3	HIGH	Significant anomaly - Conduct thorough d...
MLN	Materials	69.2	HIGH	Significant anomaly - Conduct thorough d...

Top Risk Factors (Feature Importance)

- Max Drawdown: 36.8% importance
- Sharpe Ratio: 25.8% importance
- Volatility: 24.6% importance
- Price Change 3M: 3.5% importance
- Price Change 6M: 3.0% importance

ML Validation Results

Overall Validation Status: **WARNING**

Checks Passed: 3 / 4

✓ **Anomaly Detection Validation:** PASS

total_assets: 75, anomalies_detected: 12, anomaly_rate: 16.0

■ **Risk Prediction Validation:** WARNING

model_accuracy: 100.0, predictions_made: 75, rating_changes: 0

✓ **Feature Quality Validation:** PASS

features_checked: 9, nan_features: 0, total_samples: 75

✓ **Feature Importance Validation:** PASS

total_importance: 100.0, top_feature: Max Drawdown, top_importance: 36.8

Validation Warnings (1):

- Suspiciously high accuracy: 100.0% (possible overfitting)

Sentiment Analysis

Sentiment analysis was conducted on 9 RED-flagged assets using financial news from the past 12 months. **Key Findings:**

- Average sentiment score: -0.247
- Assets with negative sentiment: 3/9
- Total news articles analyzed: 213

Sentiment Analysis Results

Symbol	Sentiment Score	Label	News Count	Trend	Key Themes
SFO	-0.350	NEGATIVE	21	STABLE	regulatory, financial_health, operations
BT	-0.337	NEGATIVE	29	IMPROVING	earnings, regulatory, financial_health
MURL	-0.326	NEGATIVE	26	DETERIORATING	earnings, regulatory, operations
NW	-0.296	NEUTRAL	23	DETERIORATING	earnings, operations, regulatory
MLN	-0.274	NEUTRAL	24	IMPROVING	earnings, financial_health, regulatory
XG	-0.268	NEUTRAL	26	IMPROVING	regulatory, financial_health, earnings
VDD	-0.182	NEUTRAL	22	DETERIORATING	regulatory, financial_health, earnings
TG	-0.137	NEUTRAL	23	IMPROVING	financial_health, regulatory, earnings
NCR	-0.055	NEUTRAL	19	DETERIORATING	earnings, financial_health, regulatory

Detailed Asset Analysis

Asset: VDD

Sector: Utilities

Current Price: \$69.29

Market Cap: \$124.30B

Risk Rating: RED

Risk Metrics:

- Volatility: 42.2%
- Maximum Drawdown: -45.1%
- Beta: -0.07
- Sharpe Ratio: -0.60
- RSI: 38.3

Performance:

- 1-Month Return: -10.5%
- 3-Month Return: -23.8%
- 6-Month Return: -39.1%

Risk Flags:

- High Volatility, Extreme Drawdown, Poor Risk Return, Momentum Breakdown

Market Sentiment:

- Sentiment Score: -0.182 (NEUTRAL)
- News Articles: 22
- Trend: DETERIORATING

Asset: MURL

Sector: Energy**Current Price:** \$100.24**Market Cap:** \$144.82B**Risk Rating:** RED**Risk Metrics:**

- Volatility: 65.6%
- Maximum Drawdown: -40.8%
- Beta: 0.02
- Sharpe Ratio: -0.01
- RSI: 22.9

Performance:

- 1-Month Return: -31.4%
- 3-Month Return: -19.0%
- 6-Month Return: -9.3%

Risk Flags:

- High Volatility, Extreme Drawdown, Severe Decline, Momentum Breakdown

Market Sentiment:

- Sentiment Score: -0.326 (NEGATIVE)
- News Articles: 26
- Trend: DETERIORATING

Asset: MLN

Sector: Materials**Current Price:** \$73.99**Market Cap:** \$122.92B**Risk Rating:** RED**Risk Metrics:**

- Volatility: 66.2%
- Maximum Drawdown: -55.5%
- Beta: -0.13
- Sharpe Ratio: -0.02
- RSI: 59.4

Performance:

- 1-Month Return: -12.4%
- 3-Month Return: -33.2%
- 6-Month Return: -19.5%

Risk Flags:

- High Volatility, Extreme Drawdown, Extended Decline, Momentum Breakdown

Market Sentiment:

- Sentiment Score: -0.274 (NEUTRAL)
- News Articles: 24
- Trend: IMPROVING

Asset: XG

Sector: Energy**Current Price:** \$67.36**Market Cap:** \$134.59B**Risk Rating:** RED**Risk Metrics:**

- Volatility: 66.8%
- Maximum Drawdown: -69.4%
- Beta: -0.23
- Sharpe Ratio: 0.03
- RSI: 67.4

Performance:

- 1-Month Return: 35.0%
- 3-Month Return: 87.3%
- 6-Month Return: 102.9%

Risk Flags:

- High Volatility, Extreme Drawdown

Market Sentiment:

- Sentiment Score: -0.268 (NEUTRAL)
- News Articles: 26
- Trend: IMPROVING

Asset: TG

Sector: Energy**Current Price:** \$141.14**Market Cap:** \$250.46B**Risk Rating:** RED**Risk Metrics:**

- Volatility: 50.4%
- Maximum Drawdown: -42.8%
- Beta: 0.19
- Sharpe Ratio: -0.15
- RSI: 48.7

Performance:

- 1-Month Return: 5.9%
- 3-Month Return: 10.7%
- 6-Month Return: 3.5%

Risk Flags:

- High Volatility, Extreme Drawdown

Market Sentiment:

- Sentiment Score: -0.137 (NEUTRAL)
- News Articles: 23
- Trend: IMPROVING

Recommendations

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

Immediate Actions (RED-flagged assets):

1. Consider reducing position sizes for 9 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

Sentiment-based Actions:

1. Monitor news flow for 3 assets with negative sentiment
2. Consider contrarian opportunities if fundamentals remain strong
3. Assess impact of market sentiment on price movements
4. Review analyst coverage and institutional positioning

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 lookback) • 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 ≤ Score ≤ 0.3

Report Generation Details:

- Generated: 2026-02-24 14:36:35
- Analysis Period: 12 months
- Total Assets Analyzed: 75
- 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_20260224_143635.csv

Risk Analysis CSV: risk_analysis_20260224_143635.csv

The tables below provide summary information for quick reference.

Performance Metrics Data

Symbol	1M Return	3M Return	6M Return	Vol Decline	Sharpe Ratio
AL	-0.8%	6.2%	9.8%	2.0%	0.58
AQO	4.1%	2.9%	6.2%	-0.1%	0.64
ATSQ	-0.2%	2.1%	10.0%	1.2%	0.80
AUR	-0.1%	5.0%	3.7%	0.7%	0.46
BAX	4.3%	4.4%	8.4%	-0.8%	0.57
BDI	2.8%	2.4%	7.2%	2.5%	0.74
BE	-0.9%	5.3%	8.5%	3.1%	0.68
BHJD	-0.1%	4.9%	8.8%	2.1%	0.48
BSS	-0.1%	7.0%	7.8%	-0.2%	0.58
BT	55.6%	28.2%	19.1%	16.4%	0.18
BX	-1.3%	1.0%	9.1%	2.4%	0.45
CDKN	3.3%	4.8%	8.7%	0.6%	0.48
CEG	1.1%	6.1%	11.4%	0.5%	0.66
CF	0.5%	8.6%	12.9%	-0.9%	0.73
CGR	0.3%	3.6%	7.9%	3.8%	0.73
CKF	1.8%	4.5%	9.0%	-1.6%	0.58
CKU	-0.9%	4.4%	4.3%	0.3%	0.48
CQ	-1.6%	4.9%	10.5%	-1.8%	0.58
CQY	0.1%	7.0%	10.2%	1.3%	0.69
CWW	4.0%	5.5%	12.5%	-0.6%	0.70
CXG	1.0%	5.9%	8.6%	-0.7%	0.62
CXS	-0.1%	5.5%	15.4%	-0.4%	0.81
DC	3.2%	4.8%	8.1%	-0.7%	0.69
DHUG	2.9%	2.9%	7.6%	0.8%	0.58
DWZ	2.7%	6.1%	6.8%	1.7%	0.67
GOH	1.5%	2.9%	13.6%	-0.6%	0.78
GQWW	-0.6%	2.6%	6.5%	2.2%	0.59
GVV	1.7%	6.3%	9.8%	1.9%	0.68
MF	1.1%	3.2%	5.8%	2.8%	0.49
MGWH	2.1%	4.6%	9.8%	1.0%	0.68

MH	-0.2%	4.4%	8.7%	0.4%	0.59
MHR	1.4%	2.8%	11.4%	1.9%	0.71
MLK	3.8%	5.7%	14.9%	0.9%	0.75
MLN	-12.4%	-33.2%	-19.5%	-6.7%	-0.02
MURL	-31.4%	-19.0%	-9.3%	-0.7%	-0.01
NCR	256.9%	124.6%	24.5%	13.9%	0.30
NJN	-0.8%	4.3%	6.6%	2.3%	0.48
NJNZ	-0.6%	5.3%	10.3%	0.3%	0.80
NQR	0.0%	0.7%	6.0%	5.3%	0.48
NUH	1.2%	5.3%	14.1%	-0.4%	0.83
NW	167.0%	63.7%	47.4%	5.9%	0.38
PCSK	3.2%	4.8%	3.7%	-0.0%	0.46
PFOM	1.9%	6.2%	9.4%	2.7%	0.47
PJI	-0.9%	6.1%	5.9%	0.7%	0.56
RTOW	3.7%	6.3%	7.0%	-0.1%	0.48
RY	-1.4%	5.9%	8.3%	1.9%	0.51
RZO	4.4%	2.4%	13.0%	0.3%	0.60
SCNZ	0.3%	2.6%	13.7%	0.9%	0.69
SFO	-4.8%	-7.7%	3.5%	3.1%	-0.08
SHO	2.9%	2.8%	9.2%	2.4%	0.61
SMM	3.6%	1.4%	6.9%	-0.5%	0.43
SNA	-0.3%	5.3%	6.2%	2.9%	0.58
SPI	1.3%	7.2%	12.0%	0.4%	0.74
SPM	0.3%	4.8%	9.9%	1.7%	0.76
SQ	3.3%	1.9%	8.8%	2.1%	0.62
TBP	2.2%	5.1%	7.5%	0.9%	0.61
TCUM	3.8%	0.7%	2.8%	-0.6%	0.48
TG	5.9%	10.7%	3.5%	-1.1%	-0.15
TGLO	0.4%	2.6%	11.8%	-0.2%	0.76
TQJ	2.8%	6.4%	10.1%	1.7%	0.75
TUH	4.7%	7.2%	12.7%	1.0%	0.60
TY	0.9%	4.0%	8.1%	1.3%	0.57
VAKT	1.4%	6.5%	12.8%	2.4%	0.80
VBZ	2.3%	1.1%	5.9%	0.2%	0.52
VDD	-10.5%	-23.8%	-39.1%	-17.9%	-0.60
VE	3.7%	1.6%	10.9%	2.7%	0.60
VHN	0.5%	8.6%	8.4%	0.8%	0.80
VYM	0.5%	4.4%	7.4%	-0.4%	0.55
XAG	1.1%	3.5%	8.8%	0.3%	0.57
XB	-1.5%	4.7%	11.4%	-2.2%	0.64
XG	35.0%	87.3%	102.9%	-9.2%	0.03

XIAG	0.9%	3.9%	10.1%	-1.4%	0.79
ZDA	1.2%	0.6%	5.1%	1.7%	0.48
ZNI	3.3%	5.3%	7.2%	1.6%	0.41
ZQSA	1.3%	7.7%	11.3%	-1.8%	0.77

Risk Flags Details

Symbol	High Vol	Ext. DD	Vol Collapse	Severe Dec	Ext. Dec	Poor Sharpe	Mom. Break
VDD	✓	✓	✗	✗	✗	✓	✓
MURL	✓	✓	✗	✓	✗	✗	✓
MLN	✓	✓	✗	✗	✓	✗	✓
XG	✓	✓	✗	✗	✗	✗	✗
TG	✓	✓	✗	✗	✗	✗	✗
SFO	✓	✓	✗	✗	✗	✗	✗
NW	✓	✓	✗	✗	✗	✗	✗
BT	✓	✓	✗	✗	✗	✗	✗
NCR	✓	✓	✗	✗	✗	✗	✗
VBZ	✓	✗	✗	✗	✗	✗	✗
SCNZ	✓	✗	✗	✗	✗	✗	✗
ZNI	✓	✗	✗	✗	✗	✗	✗
TUH	✓	✗	✗	✗	✗	✗	✗
TBP	✓	✗	✗	✗	✗	✗	✗
AL	✓	✗	✗	✗	✗	✗	✗
XB	✓	✗	✗	✗	✗	✗	✗
BX	✓	✗	✗	✗	✗	✗	✗
SPI	✓	✗	✗	✗	✗	✗	✗
ZDA	✓	✗	✗	✗	✗	✗	✗
CDKN	✓	✗	✗	✗	✗	✗	✗
GVV	✓	✗	✗	✗	✗	✗	✗
CEG	✓	✗	✗	✗	✗	✗	✗
MH	✓	✗	✗	✗	✗	✗	✗
BAX	✓	✗	✗	✗	✗	✗	✗
CXG	✓	✗	✗	✗	✗	✗	✗
NQR	✗	✗	✗	✗	✗	✗	✗
XIAG	✗	✗	✗	✗	✗	✗	✗
RY	✗	✗	✗	✗	✗	✗	✗
AUR	✗	✗	✗	✗	✗	✗	✗
MF	✗	✗	✗	✗	✗	✗	✗
GOH	✗	✗	✗	✗	✗	✗	✗
DC	✗	✗	✗	✗	✗	✗	✗

CF	x	x	x	x	x	x	x
PCSK	x	x	x	x	x	x	x
VAKT	x	x	x	x	x	x	x
PFOM	x	x	x	x	x	x	x
BE	x	x	x	x	x	x	x
NUH	x	x	x	x	x	x	x
TGLO	x	x	x	x	x	x	x
CGR	x	x	x	x	x	x	x
RZO	x	x	x	x	x	x	x
NJNZ	x	x	x	x	x	x	x
NJN	x	x	x	x	x	x	x
TQJ	x	x	x	x	x	x	x
CKF	x	x	x	x	x	x	x
SMM	x	x	x	x	x	x	x
BSS	x	x	x	x	x	x	x
TY	x	x	x	x	x	x	x
CQY	x	x	x	x	x	x	x
TCUM	x	x	x	x	x	x	x
BHJD	x	x	x	x	x	x	x
MHR	x	x	x	x	x	x	x
ZQSA	x	x	x	x	x	x	x
RTOW	x	x	x	x	x	x	x
SPM	x	x	x	x	x	x	x
AQO	x	x	x	x	x	x	x
CKU	x	x	x	x	x	x	x
VHN	x	x	x	x	x	x	x
GQWW	x	x	x	x	x	x	x
CXS	x	x	x	x	x	x	x
VYM	x	x	x	x	x	x	x
SHO	x	x	x	x	x	x	x
DWZ	x	x	x	x	x	x	x
SNA	x	x	x	x	x	x	x
ATSQ	x	x	x	x	x	x	x
PJI	x	x	x	x	x	x	x
VE	x	x	x	x	x	x	x
CWW	x	x	x	x	x	x	x
MLK	x	x	x	x	x	x	x
XAG	x	x	x	x	x	x	x
CQ	x	x	x	x	x	x	x
MGWH	x	x	x	x	x	x	x
SQ	x	x	x	x	x	x	x

BDI	x	x	x	x	x	x	x
DHUG	x	x	x	x	x	x	x

Data Summary:

- Total Assets: 75
- Data Generated: 2026-02-24 14:36:35
- 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.