

Portfolio Risk Analysis Report

Report Date: February 24, 2026
Portfolio Size: 25 Assets
Analysis Period: 12 Months
Generated by: Automated Risk Analysis Pipeline

Risk Assessment Summary

HIGH RISK (RED): 16 Assets
MEDIUM RISK (YELLOW): 0 Assets
LOW RISK (GREEN): 9 Assets

Executive Summary

This report presents a comprehensive risk analysis of a portfolio containing 25 assets with a combined market capitalization of \$13397.5 billion. **Key Findings:** • 16 assets (64.0%) are rated as HIGH RISK (RED) • 0 assets (0.0%) are rated as MEDIUM RISK (YELLOW) • Average portfolio volatility: 31.2% • Maximum drawdown observed: -48.8% **Risk Concentration:** The analysis reveals significant risk concentration in 16 assets requiring immediate attention and potential portfolio rebalancing. **Sentiment Analysis:** • 9 RED-flagged assets show negative market sentiment • Average sentiment score for flagged assets: -0.316 • News coverage indicates heightened market concern for these positions

Portfolio Overview

Sector Allocation

Sector	Assets	Market Cap (\$B)	Percentage
Technology	2	4353.06	32.5%
Communication Services	1	3738.82	27.9%
Consumer Cyclical	3	1672.65	12.5%
Financial Services	3	1257.78	9.4%
Healthcare	3	864.48	6.5%
Energy	3	753.91	5.6%
Industrials	3	383.07	2.9%
Utilities	3	264.97	2.0%
Consumer Defensive	3	94.94	0.7%
Real Estate	1	13.79	0.1%

Risk Analysis Results

Risk Distribution:

- HIGH RISK (RED): 16 assets
- MEDIUM RISK (YELLOW): 0 assets
- LOW RISK (GREEN): 9 assets

High Risk Assets

Symbol	Sector	Risk Rating	Volatility	Max Drawdown	Risk Score
AMD	Technology	RED	64.0%	-31.9%	3
CMG	Consumer Cyclical	RED	39.4%	-48.8%	2
TSLA	Consumer Cyclical	RED	61.3%	-26.7%	2
NKE	Consumer Cyclical	RED	41.5%	-34.5%	2
KHC	Consumer Defensive	RED	25.8%	-27.2%	2

GIS	Consumer Defensive	RED	24.4%	-31.9%	2
AAPL	Technology	RED	32.4%	-30.2%	1
VRTX	Healthcare	RED	34.1%	-28.7%	1
JPM	Financial Services	RED	26.0%	-20.1%	1
C	Financial Services	RED	32.8%	-27.3%	1
GS	Financial Services	RED	32.0%	-25.7%	1
PH	Industrials	RED	31.2%	-22.6%	1
EOG	Energy	RED	29.6%	-20.4%	1
VLO	Energy	RED	37.8%	-22.4%	1
KDP	Consumer Defensive	RED	26.6%	-28.0%	1
HST	Real Estate	RED	30.0%	-21.1%	1

Machine Learning Analysis

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

- Total Anomalies Detected: 4
- Critical Anomalies: 3
- High Risk Anomalies: 3
- 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

- 3 assets show critical anomalous behavior requiring immediate review
- Anomaly detection identified 4 assets with unusual patterns
- Key risk drivers: Max Drawdown, Volatility, Volume Decline

Critical Anomalies Detected

Symbol	Sector	Anomaly Score	Severity	Recommendation
AMD	Technology	100.0	CRITICAL	Critical anomaly - Consider immediate po...
NKE	Consumer Cyclical	89.8	CRITICAL	Critical anomaly - Consider immediate po...
JCI	Industrials	88.3	CRITICAL	Critical anomaly - Consider immediate po...
CMG	Consumer Cyclical	74.3	HIGH	Significant anomaly - Conduct thorough d...
TSLA	Consumer Cyclical	68.7	HIGH	Normal behavior pattern - Continue monit...
GOOGL	Communication Services	67.6	HIGH	Normal behavior pattern - Continue monit...

Top Risk Factors (Feature Importance)

- 1. Max Drawdown: 49.3% importance
- 2. Volatility: 21.2% importance
- 3. Volume Decline: 6.5% importance
- 4. Sharpe Ratio: 6.5% importance
- 5. Price Change 1M: 5.7% importance

ML Validation Results

Overall Validation Status: WARNING
Checks Passed: 3 / 4

✓ **Anomaly Detection Validation:** PASS
total_assets: 25, anomalies_detected: 4, anomaly_rate: 16.0
■ **Risk Prediction Validation:** WARNING
model_accuracy: 100.0, predictions_made: 25, rating_changes: 0
✓ **Feature Quality Validation:** PASS
features_checked: 9, nan_features: 0, total_samples: 25
✓ **Feature Importance Validation:** PASS
total_importance: 100.0, top_feature: Max Drawdown, top_importance: 49.3

Validation Warnings (1):
1. Suspiciously high accuracy: 100.0% (possible overfitting)

Sentiment Analysis

Sentiment analysis was conducted on 16 RED-flagged assets using financial news from the past 12 months. **Key Findings:**

- Average sentiment score: -0.316
- Assets with negative sentiment: 9/16
- Total news articles analyzed: 374

Sentiment Analysis Results

Symbol	Sentiment Score	Label	News Count	Trend	Key Themes
KHC	-0.471	NEGATIVE	21	IMPROVING	regulatory, operations, earnings
VRTX	-0.399	NEGATIVE	19	IMPROVING	earnings, regulatory, management
CMG	-0.394	NEGATIVE	26	STABLE	regulatory, financial_health, management
KDP	-0.364	NEGATIVE	16	IMPROVING	regulatory, earnings, management
GIS	-0.354	NEGATIVE	22	STABLE	financial_health, regulatory, earnings
PH	-0.353	NEGATIVE	28	DETERIORATING	earnings, regulatory, financial_health
NKE	-0.349	NEGATIVE	24	IMPROVING	regulatory, earnings, management
TSLA	-0.326	NEGATIVE	28	IMPROVING	regulatory, earnings, financial_health
HST	-0.313	NEGATIVE	20	DETERIORATING	financial_health, regulatory, market_share
AMD	-0.299	NEUTRAL	29	STABLE	regulatory, earnings, operations
GS	-0.281	NEUTRAL	20	IMPROVING	earnings, financial_health, regulatory
AAPL	-0.262	NEUTRAL	27	IMPROVING	regulatory, financial_health, earnings

VLO	-0.239	NEUTRAL	20	DETERIORATING	regulatory, growth, earnings
C	-0.231	NEUTRAL	23	STABLE	earnings, regulatory, financial_health
JPM	-0.228	NEUTRAL	25	IMPROVING	earnings, operations, regulatory
EOG	-0.186	NEUTRAL	26	DETERIORATING	earnings, regulatory, financial_health

Detailed Asset Analysis

Asset: AMD

Sector: Technology

Current Price: \$210.87

Market Cap: \$343.46B

Risk Rating: RED

Risk Metrics:

- Volatility: 64.0%
- Maximum Drawdown: -31.9%
- Beta: 0.10
- Sharpe Ratio: 1.33
- RSI: 36.5

Performance:

- 1-Month Return: -16.1%
- 3-Month Return: 3.5%
- 6-Month Return: 29.1%

Risk Flags:

- High Volatility, Extreme Drawdown, Severe Decline

Market Sentiment:

- Sentiment Score: -0.299 (NEUTRAL)
- News Articles: 29
- Trend: STABLE

Asset: CMG

Sector: Consumer Cyclical

Current Price: \$36.76

Market Cap: \$48.61B

Risk Rating: RED

Risk Metrics:

- Volatility: 39.4%
- Maximum Drawdown: -48.8%
- Beta: 0.06
- Sharpe Ratio: -0.69
- RSI: 40.2

Performance:

- 1-Month Return: -7.5%
- 3-Month Return: 16.2%
- 6-Month Return: -14.0%

Risk Flags:

- Extreme Drawdown, Poor Risk Return

Market Sentiment:

- Sentiment Score: -0.394 (NEGATIVE)
- News Articles: 26
- Trend: STABLE

Asset: TSLA

Sector: Consumer Cyclical

Current Price: \$407.38

Market Cap: \$1528.48B

Risk Rating: RED

Risk Metrics:

- Volatility: 61.3%
- Maximum Drawdown: -26.7%
- Beta: 0.07
- Sharpe Ratio: 0.61
- RSI: 42.3

Performance:

- 1-Month Return: -6.4%
- 3-Month Return: 4.2%
- 6-Month Return: 17.5%

Risk Flags:

- High Volatility, Extreme Drawdown

Market Sentiment:

- Sentiment Score: -0.326 (NEGATIVE)
- News Articles: 28
- Trend: IMPROVING

Asset: NKE

Sector: Consumer Cyclical

Current Price: \$64.55

Market Cap: \$95.57B

Risk Rating: RED

Risk Metrics:

- Volatility: 41.5%
- Maximum Drawdown: -34.5%
- Beta: 0.13
- Sharpe Ratio: -0.31
- RSI: 59.7

Performance:

- 1-Month Return: -0.7%
- 3-Month Return: 3.4%
- 6-Month Return: -17.5%

Risk Flags:

- High Volatility, Extreme Drawdown

Market Sentiment:

- Sentiment Score: -0.349 (NEGATIVE)
- News Articles: 24
- Trend: IMPROVING

Asset: KHC

Sector: Consumer Defensive

Current Price: \$24.52

Market Cap: \$29.03B

Risk Rating: RED

Risk Metrics:

- Volatility: 25.8%
- Maximum Drawdown: -27.2%
- Beta: -0.11
- Sharpe Ratio: -0.68
- RSI: 57.6

Performance:

- 1-Month Return: 4.0%
- 3-Month Return: -1.5%
- 6-Month Return: -8.7%

Risk Flags:

- Extreme Drawdown, Poor Risk Return

Market Sentiment:

- Sentiment Score: -0.471 (NEGATIVE)
- News Articles: 21
- 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 16 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 9 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: $-0.3 \leq \text{Score} \leq 0.3$

Report Generation Details:

- Generated: 2026-02-24 15:39:18
- Analysis Period: 12 months
- Total Assets Analyzed: 25
- 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_153918.csv

Risk Analysis CSV: risk_analysis_20260224_153918.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	6.9%	0.6%	20.3%	12.9%	0.42
AMD	-16.1%	3.5%	29.1%	13.6%	1.33
C	-4.8%	10.7%	15.7%	-4.1%	1.18
CMG	-7.5%	16.2%	-14.0%	3.8%	-0.69
DTE	6.5%	7.3%	6.1%	2.2%	0.68
EOG	13.2%	15.0%	2.3%	18.7%	-0.11
GIS	1.5%	-4.9%	-5.7%	2.3%	-1.00
GOOGL	-7.3%	3.2%	48.5%	16.6%	1.87
GS	-3.9%	16.2%	22.4%	2.3%	1.28
HON	10.8%	29.0%	18.6%	0.2%	1.00
HST	5.7%	15.9%	20.8%	21.4%	0.94
JCI	25.9%	27.6%	36.2%	-2.6%	1.98
JNJ	11.4%	21.8%	40.3%	4.2%	2.28
JPM	-2.4%	-1.0%	0.5%	-2.4%	0.58
KDP	10.9%	11.7%	0.5%	-14.3%	-0.22
KHC	4.0%	-1.5%	-8.7%	10.5%	-0.68
NEE	11.0%	13.6%	27.7%	-2.4%	1.28
NKE	-0.7%	3.4%	-17.5%	-20.1%	-0.31
PH	9.9%	22.2%	37.3%	19.1%	1.54
SYK	6.8%	3.8%	-2.0%	16.2%	-0.01
TSLA	-6.4%	4.2%	17.5%	-10.4%	0.61
VLO	8.1%	14.3%	35.6%	-10.0%	1.22
VRTX	2.1%	14.1%	25.2%	3.1%	0.15
WEC	5.5%	4.2%	9.1%	17.0%	0.73
XOM	10.9%	27.7%	34.9%	19.0%	1.34

Risk Flags Details

Symbol	High Vol	Ext. DD	Vol Collapse	Severe Dec	Ext. Dec	Poor Sharpe	Mom. Break
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AMD	✓	✓	✗	✓	✗	✗	✗
CMG	✗	✓	✗	✗	✗	✓	✗
TSLA	✓	✓	✗	✗	✗	✗	✗
NKE	✓	✓	✗	✗	✗	✗	✗
KHC	✗	✓	✗	✗	✗	✓	✗
GIS	✗	✓	✗	✗	✗	✓	✗
AAPL	✗	✓	✗	✗	✗	✗	✗
VRTX	✗	✓	✗	✗	✗	✗	✗
JPM	✗	✓	✗	✗	✗	✗	✗
C	✗	✓	✗	✗	✗	✗	✗
GS	✗	✓	✗	✗	✗	✗	✗
PH	✗	✓	✗	✗	✗	✗	✗
EOG	✗	✓	✗	✗	✗	✗	✗
VLO	✗	✓	✗	✗	✗	✗	✗
KDP	✗	✓	✗	✗	✗	✗	✗
HST	✗	✓	✗	✗	✗	✗	✗
GOOGL	✗	✗	✗	✗	✗	✗	✗
JNJ	✗	✗	✗	✗	✗	✗	✗
SYK	✗	✗	✗	✗	✗	✗	✗
JCI	✗	✗	✗	✗	✗	✗	✗
HON	✗	✗	✗	✗	✗	✗	✗
XOM	✗	✗	✗	✗	✗	✗	✗
DTE	✗	✗	✗	✗	✗	✗	✗
NEE	✗	✗	✗	✗	✗	✗	✗
WEC	✗	✗	✗	✗	✗	✗	✗

Data Summary:

- Total Assets: 25
- Data Generated: 2026-02-24 15:39:18
- 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.