

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 \$14699.3 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: 33.3% • Maximum drawdown observed: -58.3% **Risk Concentration:** The analysis reveals significant risk concentration in 16 assets requiring immediate attention and potential portfolio rebalancing. **Sentiment Analysis:** • 8 RED-flagged assets show negative market sentiment • Average sentiment score for flagged assets: -0.297 • News coverage indicates heightened market concern for these positions

Portfolio Overview

Sector Allocation

Sector	Assets	Market Cap (\$B)	Percentage
Technology	6	5461.77	37.2%
Communication Services	2	4084.96	27.8%
Consumer Cyclical	3	1780.13	12.1%
Consumer Defensive	3	1059.38	7.2%
Industrials	4	979.84	6.7%
Healthcare	3	763.18	5.2%
Financial Services	3	480.16	3.3%
Real Estate	1	89.86	0.6%

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
PYPL	Financial Services	RED	40.9%	-49.9%	6
NOW	Technology	RED	42.5%	-51.9%	6
ORCL	Technology	RED	61.6%	-58.3%	5
NFLX	Communication Services	RED	32.9%	-43.4%	4
IBM	Technology	RED	33.8%	-28.7%	3
MSFT	Technology	RED	26.4%	-28.8%	3
AVGO	Technology	RED	50.3%	-31.1%	2

TSLA	Consumer Cyclical	RED	61.3%	-26.7%	2
GS	Financial Services	RED	32.0%	-25.7%	1
BA	Industrials	RED	37.5%	-25.2%	1
PG	Consumer Defensive	RED	18.4%	-20.1%	1
ISRG	Healthcare	RED	35.6%	-26.1%	1
AMT	Real Estate	RED	24.9%	-26.1%	1
GE	Industrials	RED	31.4%	-21.4%	1
SBUX	Consumer Cyclical	RED	34.4%	-31.3%	1
ABBV	Healthcare	RED	26.5%	-20.7%	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: 2
- High Risk Anomalies: 1
- 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

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

Critical Anomalies Detected

Symbol	Sector	Anomaly Score	Severity	Recommendation
ORCL	Technology	100.0	CRITICAL	Critical anomaly - Consider immediate po...
NOW	Technology	84.9	CRITICAL	Critical anomaly - Consider immediate po...
PYPL	Financial Services	76.0	HIGH	Significant anomaly - Conduct thorough d...

Top Risk Factors (Feature Importance)

1. Max Drawdown: 47.8% importance
2. Volatility: 18.5% importance
3. Price Change 3M: 12.7% importance
4. Price Change 1M: 5.7% importance
5. Price Change 6M: 5.2% 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: 47.8

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: -0.297
- Assets with negative sentiment: 8/16
- Total news articles analyzed: 349

Sentiment Analysis Results

Symbol	Sentiment Score	Label	News Count	Trend	Key Themes
BA	-0.402	NEGATIVE	19	IMPROVING	earnings, regulatory, financial_health
AVGO	-0.370	NEGATIVE	29	DETERIORATING	regulatory, financial_health, earnings
NFLX	-0.369	NEGATIVE	20	DETERIORATING	earnings, regulatory, financial_health
TSLA	-0.363	NEGATIVE	18	DETERIORATING	operations, regulatory, management
GS	-0.349	NEGATIVE	30	STABLE	regulatory, financial_health, earnings
MSFT	-0.339	NEGATIVE	20	DETERIORATING	regulatory, financial_health, operations
PG	-0.324	NEGATIVE	15	IMPROVING	financial_health, regulatory, market_share
GE	-0.306	NEGATIVE	21	DETERIORATING	regulatory, earnings, financial_health
ORCL	-0.280	NEUTRAL	24	IMPROVING	regulatory, operations, earnings
IBM	-0.275	NEUTRAL	25	IMPROVING	regulatory, management, financial_health
ISRG	-0.269	NEUTRAL	22	STABLE	regulatory, earnings, financial_health
PYPL	-0.257	NEUTRAL	20	IMPROVING	operations, regulatory, financial_health
AMT	-0.250	NEUTRAL	22	IMPROVING	regulatory, earnings, management
NOW	-0.213	NEUTRAL	27	DETERIORATING	financial_health, regulatory, earnings
ABBV	-0.204	NEUTRAL	20	IMPROVING	financial_health, regulatory, management
SBUX	-0.181	NEUTRAL	17	DETERIORATING	management, operations, earnings

Detailed Asset Analysis

Asset: PYPL

Sector: Financial Services

Current Price: \$43.44

Market Cap: \$40.66B

Risk Rating: RED

Risk Metrics:

- Volatility: 40.9%
- Maximum Drawdown: -49.9%
- Beta: -0.10
- Sharpe Ratio: -1.18
- RSI: 57.5

Performance:

- 1-Month Return: -23.3%
- 3-Month Return: -28.3%
- 6-Month Return: -37.3%

Risk Flags:

• High Volatility, Extreme Drawdown, Severe Decline, Extended Decline, Poor Risk Return, Momentum Breakdown

Market Sentiment:

- Sentiment Score: -0.257 (NEUTRAL)
- News Articles: 20
- Trend: IMPROVING

Asset: NOW

Sector: Technology

Current Price: \$103.26

Market Cap: \$108.95B

Risk Rating: RED

Risk Metrics:

- Volatility: 42.5%
- Maximum Drawdown: -51.9%
- Beta: 0.04
- Sharpe Ratio: -1.22
- RSI: 42.3

Performance:

- 1-Month Return: -24.3%
- 3-Month Return: -36.5%
- 6-Month Return: -41.3%

Risk Flags:

• High Volatility, Extreme Drawdown, Severe Decline, Extended Decline, Poor Risk Return, Momentum Breakdown

Market Sentiment:

- Sentiment Score: -0.213 (NEUTRAL)
- News Articles: 27
- Trend: DETERIORATING

Asset: ORCL

Sector: Technology

Current Price: \$144.51

Market Cap: \$415.33B

Risk Rating: RED

Risk Metrics:

- Volatility: 61.6%
- Maximum Drawdown: -58.3%
- Beta: -0.43
- Sharpe Ratio: 0.01
- RSI: 43.3

Performance:

- 1-Month Return: -20.8%
- 3-Month Return: -27.1%
- 6-Month Return: -38.3%

Risk Flags:

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

Market Sentiment:

- Sentiment Score: -0.280 (NEUTRAL)
- News Articles: 24
- Trend: IMPROVING

Asset: NFLX

Sector: Communication Services

Current Price: \$76.57

Market Cap: \$324.97B

Risk Rating: RED

Risk Metrics:

- Volatility: 32.9%
- Maximum Drawdown: -43.4%
- Beta: -0.02
- Sharpe Ratio: -0.67
- RSI: 40.7

Performance:

- 1-Month Return: -10.7%
- 3-Month Return: -26.6%
- 6-Month Return: -37.1%

Risk Flags:

- Extreme Drawdown, Extended Decline, Poor Risk Return, Momentum Breakdown

Market Sentiment:

- Sentiment Score: -0.369 (NEGATIVE)
- News Articles: 20
- Trend: DETERIORATING

Asset: IBM

Sector: Technology

Current Price: \$233.05

Market Cap: \$217.81B

Risk Rating: RED

Risk Metrics:

- Volatility: 33.8%
- Maximum Drawdown: -28.7%
- Beta: -0.01
- Sharpe Ratio: -0.16
- RSI: 23.2

Performance:

- 1-Month Return: -20.9%
- 3-Month Return: -21.2%
- 6-Month Return: -1.6%

Risk Flags:

- Extreme Drawdown, Severe Decline, Momentum Breakdown

Market Sentiment:

- Sentiment Score: -0.275 (NEUTRAL)
- News Articles: 25
- 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 8 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 16:20:13
- 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_162013.csv

Risk Analysis CSV: risk_analysis_20260224_162013.csv

The tables below provide summary information for quick reference.

Performance Metrics Data

Symbol	1M Return	3M Return	6M Return	Vol Decline	Sharpe Ratio
ABBV	3.5%	-2.5%	11.8%	10.5%	0.61
AMT	6.9%	7.9%	-7.4%	-1.8%	0.18
AVGO	0.0%	-4.3%	10.8%	-22.0%	1.12
BA	-6.0%	30.0%	3.0%	-10.6%	0.83
BLK	-4.2%	6.4%	-4.6%	11.1%	0.57
COST	1.9%	10.8%	6.0%	-18.8%	-0.14
CSCO	1.8%	3.6%	18.1%	27.8%	0.94
DE	23.3%	31.2%	31.5%	21.4%	1.03
GE	14.7%	17.9%	27.3%	3.7%	1.82
GILD	7.6%	17.9%	31.7%	7.2%	1.19
GOOGL	-6.7%	3.8%	49.3%	16.8%	1.88
GS	-3.3%	17.0%	23.3%	2.4%	1.31
IBM	-20.9%	-21.2%	-1.6%	44.1%	-0.16
ISRG	-6.7%	-12.2%	5.3%	11.9%	-0.39
LOW	1.0%	20.3%	9.5%	-3.7%	0.80
MSFT	-17.7%	-18.0%	-23.1%	44.9%	-0.09
NFLX	-10.7%	-26.6%	-37.1%	-10.8%	-0.67
NOW	-24.3%	-36.5%	-41.3%	61.7%	-1.22
ORCL	-20.8%	-27.1%	-38.3%	8.6%	0.01
PEP	15.5%	16.3%	15.9%	11.5%	0.60
PG	10.7%	10.4%	7.4%	0.4%	-0.03
PYPL	-23.3%	-28.3%	-37.3%	59.9%	-1.18
RTX	2.6%	17.4%	28.0%	22.4%	1.82
SBUX	-0.4%	12.4%	12.6%	0.9%	-0.31
TSLA	-7.3%	3.2%	16.4%	-10.1%	0.60

Risk Flags Details

Symbol	High Vol	Ext. DD	Vol Collapse	Severe Dec	Ext. Dec	Poor Sharpe	Mom. Break
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PYPL	✓	✓	✗	✓	✓	✓	✓
NOW	✓	✓	✗	✓	✓	✓	✓
ORCL	✓	✓	✗	✓	✓	✗	✓
NFLX	✗	✓	✗	✗	✓	✓	✓
IBM	✗	✓	✗	✓	✗	✗	✓
MSFT	✗	✓	✗	✓	✗	✗	✓
AVGO	✓	✓	✗	✗	✗	✗	✗
TSLA	✓	✓	✗	✗	✗	✗	✗
GS	✗	✓	✗	✗	✗	✗	✗
BA	✗	✓	✗	✗	✗	✗	✗
PG	✗	✓	✗	✗	✗	✗	✗
ISRG	✗	✓	✗	✗	✗	✗	✗
AMT	✗	✓	✗	✗	✗	✗	✗
GE	✗	✓	✗	✗	✗	✗	✗
SBUX	✗	✓	✗	✗	✗	✗	✗
ABBV	✗	✓	✗	✗	✗	✗	✗
COST	✗	✗	✗	✗	✗	✗	✗
DE	✗	✗	✗	✗	✗	✗	✗
BLK	✗	✗	✗	✗	✗	✗	✗
GILD	✗	✗	✗	✗	✗	✗	✗
CSCO	✗	✗	✗	✗	✗	✗	✗
PEP	✗	✗	✗	✗	✗	✗	✗
LOW	✗	✗	✗	✗	✗	✗	✗
RTX	✗	✗	✗	✗	✗	✗	✗
GOOGL	✗	✗	✗	✗	✗	✗	✗

Data Summary:

- Total Assets: 25
- Data Generated: 2026-02-24 16:20:13
- 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.