

# Portfolio Risk Analysis Report

**Report Date:** February 24, 2026

**Portfolio Size:** 50 Assets

**Analysis Period:** 12 Months

**Generated by:** Automated Risk Analysis Pipeline

## Risk Assessment Summary

**HIGH RISK (RED):** 33 Assets

**MEDIUM RISK (YELLOW):** 0 Assets

**LOW RISK (GREEN):** 17 Assets

## Executive Summary

This report presents a comprehensive risk analysis of a portfolio containing 50 assets with a combined market capitalization of \$26952.7 billion. **Key Findings:** • 33 assets (66.0%) are rated as HIGH RISK (RED) • 0 assets (0.0%) are rated as MEDIUM RISK (YELLOW) • Average portfolio volatility: 31.8% • Maximum drawdown observed: -60.1% **Risk Concentration:** The analysis reveals significant risk concentration in 33 assets requiring immediate attention and potential portfolio rebalancing. **Sentiment Analysis:** • 19 RED-flagged assets show negative market sentiment • Average sentiment score for flagged assets: -0.303 • News coverage indicates heightened market concern for these positions

## Portfolio Overview

### Sector Allocation

Sector	Assets	Market Cap (\$B)	Percentage
Technology	11	6634.77	24.6%
Communication Services	4	5879.40	21.8%
Financial Services	7	3460.37	12.8%
Consumer Cyclical	5	3114.68	11.6%
Healthcare	8	2973.99	11.0%
Consumer Defensive	5	2273.26	8.4%
Industrials	7	1526.91	5.7%
Energy	2	998.96	3.7%
Real Estate	1	90.40	0.3%

## Risk Analysis Results

### Risk Distribution:

- HIGH RISK (RED): 33 assets
- MEDIUM RISK (YELLOW): 0 assets
- LOW RISK (GREEN): 17 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
INTU	Technology	RED	36.3%	-55.3%	5
UNH	Healthcare	RED	50.8%	-60.1%	5
ADBE	Technology	RED	32.8%	-45.3%	4
NFLX	Communication Services	RED	32.9%	-43.4%	4

CRM	Technology	RED	34.5%	-41.7%	4
IBM	Technology	RED	33.8%	-28.7%	3
TMO	Healthcare	RED	32.2%	-27.5%	3
AMD	Technology	RED	64.0%	-31.9%	3
NVDA	Technology	RED	44.2%	-28.2%	2
LLY	Healthcare	RED	42.4%	-32.6%	2
TXN	Technology	RED	40.8%	-29.6%	2
NKE	Consumer Cyclical	RED	41.5%	-34.5%	2
ABT	Healthcare	RED	23.4%	-23.0%	2
INTC	Technology	RED	66.9%	-30.1%	2
CAT	Industrials	RED	33.4%	-21.8%	1
GS	Financial Services	RED	32.0%	-25.7%	1
MDLZ	Consumer Defensive	RED	22.3%	-25.9%	1
PG	Consumer Defensive	RED	18.4%	-20.1%	1
ABBV	Healthcare	RED	26.5%	-20.7%	1
AMT	Real Estate	RED	24.9%	-26.1%	1
JPM	Financial Services	RED	26.0%	-20.1%	1
GE	Industrials	RED	31.4%	-21.4%	1
BA	Industrials	RED	37.5%	-25.2%	1
DIS	Communication Services	RED	31.9%	-28.2%	1
MS	Financial Services	RED	31.5%	-25.0%	1
META	Communication Services	RED	39.6%	-28.0%	1
CVX	Energy	RED	25.1%	-20.6%	1
UPS	Industrials	RED	30.1%	-29.7%	1
AMZN	Consumer Cyclical	RED	35.2%	-21.9%	1
HD	Consumer Cyclical	RED	23.4%	-21.5%	1
QCOM	Technology	RED	39.3%	-27.0%	1

## Machine Learning Analysis

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

- Total Anomalies Detected: 8
- Critical Anomalies: 3
- High Risk Anomalies: 4
- 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 8 assets with unusual patterns
- Key risk drivers: Max Drawdown, Volatility, Price Change 3M

## Critical Anomalies Detected

Symbol	Sector	Anomaly Score	Severity	Recommendation
INTU	Technology	100.0	CRITICAL	Critical anomaly - Consider immediate po...
CAT	Industrials	85.7	CRITICAL	Critical anomaly - Consider immediate po...
INTC	Technology	82.9	CRITICAL	Critical anomaly - Consider immediate po...
UNH	Healthcare	74.8	HIGH	Significant anomaly - Conduct thorough d...
AMD	Technology	71.6	HIGH	Significant anomaly - Conduct thorough d...
NOW	Technology	66.2	HIGH	Significant anomaly - Conduct thorough d...
PYPL	Financial Services	65.7	HIGH	Significant anomaly - Conduct thorough d...

## Top Risk Factors (Feature Importance)

1. Max Drawdown: 58.8% importance
2. Volatility: 19.3% importance
3. Price Change 3M: 4.8% importance
4. Price Change 6M: 4.0% importance
5. Sharpe Ratio: 3.9% importance

## ML Validation Results

Overall Validation Status: WARNING

Checks Passed: 3 / 4

✓ **Anomaly Detection Validation:** PASS

total\_assets: 50, anomalies\_detected: 8, anomaly\_rate: 16.0

■ **Risk Prediction Validation:** WARNING

model\_accuracy: 100.0, predictions\_made: 50, rating\_changes: 0

✓ **Feature Quality Validation:** PASS

features\_checked: 9, nan\_features: 0, total\_samples: 50

✓ **Feature Importance Validation:** PASS

total\_importance: 100.0, top\_feature: Max Drawdown, top\_importance: 58.8

**Validation Warnings (1):**

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

## Sentiment Analysis

Sentiment analysis was conducted on 33 RED-flagged assets using financial news from the past 12 months. **Key Findings:**

- Average sentiment score: -0.303

- Assets with negative sentiment: 19/33
- Total news articles analyzed: 732

## Sentiment Analysis Results

Symbol	Sentiment Score	Label	News Count	Trend	Key Themes
LLY	-0.446	NEGATIVE	29	DETERIORATING	regulatory, financial_health, earnings
CVX	-0.441	NEGATIVE	21	IMPROVING	earnings, regulatory, operations
MS	-0.422	NEGATIVE	26	STABLE	earnings, regulatory, financial_health
IBM	-0.379	NEGATIVE	26	IMPROVING	earnings, financial_health, regulatory
META	-0.368	NEGATIVE	26	DETERIORATING	earnings, regulatory, financial_health
PYPL	-0.367	NEGATIVE	29	STABLE	earnings, financial_health, regulatory
GE	-0.361	NEGATIVE	18	DETERIORATING	earnings, regulatory, financial_health
NVDA	-0.361	NEGATIVE	15	DETERIORATING	regulatory, financial_health, operations
HD	-0.361	NEGATIVE	25	STABLE	financial_health, regulatory, earnings
ADBE	-0.358	NEGATIVE	15	STABLE	operations, earnings, market_share
NKE	-0.348	NEGATIVE	16	DETERIORATING	earnings, regulatory, financial_health
AMD	-0.347	NEGATIVE	27	STABLE	operations, management, earnings
QCOM	-0.341	NEGATIVE	30	STABLE	earnings, regulatory, financial_health
CAT	-0.341	NEGATIVE	30	DETERIORATING	earnings, regulatory, financial_health
PG	-0.339	NEGATIVE	18	IMPROVING	regulatory, earnings, market_share
DIS	-0.328	NEGATIVE	22	STABLE	regulatory, operations, earnings
AMZN	-0.328	NEGATIVE	18	STABLE	earnings, financial_health, regulatory
INTU	-0.317	NEGATIVE	20	STABLE	financial_health, regulatory, earnings
CRM	-0.309	NEGATIVE	29	STABLE	regulatory, earnings, financial_health
TMO	-0.294	NEUTRAL	22	IMPROVING	regulatory, earnings, financial_health
BA	-0.287	NEUTRAL	15	IMPROVING	regulatory, earnings, market_share
ABT	-0.284	NEUTRAL	26	IMPROVING	regulatory, earnings, financial_health
ABBV	-0.274	NEUTRAL	19	IMPROVING	operations, regulatory, management
AMT	-0.264	NEUTRAL	30	IMPROVING	earnings, regulatory, operations
TXN	-0.241	NEUTRAL	25	DETERIORATING	regulatory, earnings, market_share
NFLX	-0.239	NEUTRAL	19	DETERIORATING	earnings, regulatory, market_share
GS	-0.238	NEUTRAL	30	STABLE	regulatory, financial_health, operations
UPS	-0.221	NEUTRAL	15	DETERIORATING	regulatory, financial_health, operations
JPM	-0.207	NEUTRAL	20	IMPROVING	earnings, regulatory, management
NOW	-0.183	NEUTRAL	17	DETERIORATING	earnings, growth, regulatory
UNH	-0.166	NEUTRAL	17	IMPROVING	earnings, operations, regulatory
MDLZ	-0.136	NEUTRAL	20	IMPROVING	regulatory, earnings, growth
INTC	-0.118	NEUTRAL	17	IMPROVING	earnings, regulatory, financial_health

## Detailed Asset Analysis

### Asset: PYPL

**Sector:** Financial Services

**Current Price:** \$43.40

**Market Cap:** \$40.60B

**Risk Rating:** RED

**Risk Metrics:**

- Volatility: 40.9%
- Maximum Drawdown: -49.9%
- Beta: -0.04
- Sharpe Ratio: -1.18
- RSI: 57.3

**Performance:**

- 1-Month Return: -23.3%
- 3-Month Return: -28.3%
- 6-Month Return: -37.4%

**Risk Flags:**

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

**Market Sentiment:**

- Sentiment Score: -0.367 (NEGATIVE)
- News Articles: 29
- Trend: STABLE

### Asset: NOW

**Sector:** Technology

**Current Price:** \$103.61

**Market Cap:** \$109.32B

**Risk Rating:** RED

**Risk Metrics:**

- Volatility: 42.5%
- Maximum Drawdown: -51.9%
- Beta: -0.06
- Sharpe Ratio: -1.21
- RSI: 42.8

**Performance:**

- 1-Month Return: -24.0%
- 3-Month Return: -36.3%
- 6-Month Return: -41.1%

**Risk Flags:**

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

**Market Sentiment:**

- Sentiment Score: -0.183 (NEUTRAL)
- News Articles: 17
- Trend: DETERIORATING

### Asset: INTU

**Sector:** Technology

**Current Price:** \$363.66

**Market Cap:** \$101.24B

**Risk Rating:** RED

**Risk Metrics:**

- Volatility: 36.3%
- Maximum Drawdown: -55.3%
- Beta: 0.09
- Sharpe Ratio: -1.09
- RSI: 25.4

**Performance:**

- 1-Month Return: -35.3%
- 3-Month Return: -45.1%
- 6-Month Return: -44.4%

**Risk Flags:**

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

**Market Sentiment:**

- Sentiment Score: -0.317 (NEGATIVE)
- News Articles: 20
- Trend: STABLE

## Asset: UNH

**Sector:** Healthcare**Current Price:** \$273.79**Market Cap:** \$248.01B**Risk Rating:** RED**Risk Metrics:**

- Volatility: 50.8%
- Maximum Drawdown: -60.1%
- Beta: -0.12
- Sharpe Ratio: -0.75
- RSI: 42.6

**Performance:**

- 1-Month Return: -22.1%
- 3-Month Return: -13.9%
- 6-Month Return: -9.0%

**Risk Flags:**

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

**Market Sentiment:**

- Sentiment Score: -0.166 (NEUTRAL)
- News Articles: 17
- Trend: IMPROVING

## Asset: ADBE

**Sector:** Technology**Current Price:** \$254.58**Market Cap:** \$106.57B**Risk Rating:** RED**Risk Metrics:**

- Volatility: 32.8%
- Maximum Drawdown: -45.3%
- Beta: 0.01
- Sharpe Ratio: -1.60
- RSI: 37.2

**Performance:**

- 1-Month Return: -16.5%
- 3-Month Return: -21.5%
- 6-Month Return: -29.9%

**Risk Flags:**

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

**Market Sentiment:**

- Sentiment Score: -0.358 (NEGATIVE)
- News Articles: 15
- Trend: STABLE

## Recommendations

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

**Immediate Actions (RED-flagged assets):**

1. Consider reducing position sizes for 33 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 19 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 16:09:16
- Analysis Period: 12 months
- Total Assets Analyzed: 50
- 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\_160916.csv

**Risk Analysis CSV:** risk\_analysis\_20260224\_160916.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
ABT	5.3%	-10.1%	-12.3%	24.3%	-0.59
ADBE	-16.5%	-21.5%	-29.9%	21.1%	-1.60
AMD	-16.3%	3.2%	28.7%	14.0%	1.33
AMT	7.6%	8.6%	-6.9%	-1.8%	0.21
AMZN	-12.6%	-5.6%	-8.6%	36.2%	0.06
BA	-6.2%	29.6%	2.7%	-10.7%	0.82
BRK-B	1.7%	-2.5%	1.1%	3.6%	-0.10
CAT	21.5%	40.6%	79.6%	23.3%	2.63
COST	1.8%	10.7%	5.9%	-18.8%	-0.14
CRM	-19.2%	-18.2%	-24.9%	34.8%	-1.34
CSCO	1.8%	3.6%	18.2%	27.8%	0.94
CVX	11.4%	24.4%	19.2%	8.6%	0.85
DE	23.5%	31.4%	31.7%	21.3%	1.04
DIS	-4.6%	2.5%	-9.2%	19.6%	-0.01
GE	14.7%	17.9%	27.2%	3.7%	1.82
GILD	7.8%	18.1%	31.9%	7.1%	1.19
GOOGL	-6.9%	3.7%	49.1%	16.7%	1.88
GS	-3.7%	16.6%	22.8%	2.4%	1.29
HD	0.5%	13.9%	-3.9%	-10.4%	0.20
IBM	-20.6%	-20.9%	-1.2%	44.0%	-0.15
INTC	7.8%	32.8%	86.6%	-2.7%	1.25
INTU	-35.3%	-45.1%	-44.4%	55.1%	-1.09
JNJ	11.5%	21.9%	40.3%	4.3%	2.28
JPM	-2.0%	-0.5%	1.0%	-2.1%	0.60
KO	11.3%	11.4%	18.8%	12.4%	0.94
LLY	-0.8%	-0.5%	51.8%	13.6%	0.60
LOW	0.8%	20.1%	9.2%	-3.8%	0.79
MA	-6.6%	-8.7%	-16.8%	15.6%	-0.47
MCD	7.0%	8.9%	8.1%	5.3%	0.58

MDLZ	4.0%	7.7%	-0.1%	-0.8%	-0.16
META	-5.2%	7.3%	-15.3%	6.7%	0.03
MMM	5.5%	0.1%	8.5%	20.2%	0.61
MS	-7.5%	6.4%	14.7%	17.5%	0.99
NFLX	-10.9%	-26.8%	-37.3%	-10.9%	-0.68
NKE	-1.1%	3.0%	-17.9%	-19.9%	-0.32
NOW	-24.0%	-36.3%	-41.1%	61.6%	-1.21
NVDA	3.2%	7.6%	7.1%	1.3%	1.06
PFE	5.4%	10.7%	12.2%	3.3%	0.41
PG	11.0%	10.7%	7.7%	0.4%	-0.02
PYPL	-23.3%	-28.3%	-37.4%	59.8%	-1.18
QCOM	-6.1%	-10.7%	-6.3%	22.7%	-0.07
RTX	2.5%	17.2%	27.8%	22.4%	1.82
TMO	-17.1%	-11.5%	6.0%	19.3%	0.01
TXN	12.3%	38.6%	8.2%	21.4%	0.45
UNH	-22.1%	-13.9%	-9.0%	47.0%	-0.75
UPS	9.7%	23.9%	36.0%	17.9%	0.29
V	-7.2%	-7.1%	-12.5%	10.9%	-0.52
WMT	8.5%	21.5%	33.2%	-12.3%	1.31
XOM	11.5%	28.4%	35.7%	19.1%	1.37

## Risk Flags Details

Symbol	High Vol	Ext. DD	Vol Collapse	Severe Dec	Ext. Dec	Poor Sharpe	Mom. Break
PYPL	✓	✓	✗	✓	✓	✓	✓
NOW	✓	✓	✗	✓	✓	✓	✓
INTU	✗	✓	✗	✓	✓	✓	✓
UNH	✓	✓	✗	✓	✗	✓	✓
ADBE	✗	✓	✗	✓	✗	✓	✓
NFLX	✗	✓	✗	✗	✓	✓	✓
CRM	✗	✓	✗	✓	✗	✓	✓
IBM	✗	✓	✗	✓	✗	✗	✓
TMO	✗	✓	✗	✓	✗	✗	✓
AMD	✓	✓	✗	✓	✗	✗	✗
NVDA	✓	✓	✗	✗	✗	✗	✗
LLY	✓	✓	✗	✗	✗	✗	✗
TXN	✓	✓	✗	✗	✗	✗	✗
NKE	✓	✓	✗	✗	✗	✗	✗
ABT	✗	✓	✗	✗	✗	✓	✗
INTC	✓	✓	✗	✗	✗	✗	✗

CAT	X	✓	X	X	X	X	X
GS	X	✓	X	X	X	X	X
MDLZ	X	✓	X	X	X	X	X
V	X	X	X	X	X	✓	X
PG	X	✓	X	X	X	X	X
ABBV	X	✓	X	X	X	X	X
AMT	X	✓	X	X	X	X	X
JPM	X	✓	X	X	X	X	X
GE	X	✓	X	X	X	X	X
BA	X	✓	X	X	X	X	X
DIS	X	✓	X	X	X	X	X
MS	X	✓	X	X	X	X	X
META	X	✓	X	X	X	X	X
CVX	X	✓	X	X	X	X	X
UPS	X	✓	X	X	X	X	X
AMZN	X	✓	X	X	X	X	X
HD	X	✓	X	X	X	X	X
QCOM	X	✓	X	X	X	X	X
MA	X	X	X	X	X	X	X
COST	X	X	X	X	X	X	X
XOM	X	X	X	X	X	X	X
PFE	X	X	X	X	X	X	X
BRK-B	X	X	X	X	X	X	X
MMM	X	X	X	X	X	X	X
RTX	X	X	X	X	X	X	X
WMT	X	X	X	X	X	X	X
KO	X	X	X	X	X	X	X
JNJ	X	X	X	X	X	X	X
CSCO	X	X	X	X	X	X	X
GILD	X	X	X	X	X	X	X
MCD	X	X	X	X	X	X	X
DE	X	X	X	X	X	X	X
LOW	X	X	X	X	X	X	X
GOOGL	X	X	X	X	X	X	X

### Data Summary:

- Total Assets: 50
- Data Generated: 2026-02-24 16:09:16
- 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.