

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): 20 Assets

MEDIUM RISK (YELLOW): 0 Assets

LOW RISK (GREEN): 30 Assets

Executive Summary

This report presents a comprehensive risk analysis of a portfolio containing 50 assets with a combined market capitalization of \$28961.5 billion. **Key Findings:** • 20 assets (40.0%) are rated as HIGH RISK (RED) • 0 assets (0.0%) are rated as MEDIUM RISK (YELLOW) • Average portfolio volatility: 30.8% • Maximum drawdown observed: -58.3% **Risk Concentration:** The analysis reveals significant risk concentration in 20 assets requiring immediate attention and potential portfolio rebalancing. **Sentiment Analysis:** • 0 RED-flagged assets show negative market sentiment • Average sentiment score for flagged assets: 0.083 • News coverage indicates heightened market concern for these positions

Portfolio Overview

Sector Allocation

| Sector | Assets | Market Cap (\$B) | Percentage |
|------------------------|--------|------------------|------------|
| Technology | 15 | 10906.98 | 37.7% |
| Consumer Cyclical | 7 | 4756.82 | 16.4% |
| Communication Services | 3 | 4283.23 | 14.8% |
| Healthcare | 9 | 3257.33 | 11.2% |
| Financial Services | 5 | 2281.91 | 7.9% |
| Consumer Defensive | 3 | 1745.75 | 6.0% |
| Industrials | 5 | 1071.06 | 3.7% |
| Energy | 1 | 370.22 | 1.3% |
| Utilities | 1 | 198.87 | 0.7% |
| Real Estate | 1 | 89.31 | 0.3% |

Risk Analysis Results

Risk Distribution:

- HIGH RISK (RED): 20 assets
- MEDIUM RISK (YELLOW): 0 assets
- LOW RISK (GREEN): 30 assets

High Risk Assets

| Symbol | Sector | Risk Rating | Volatility | Max Drawdown | Risk Score |
|--------|------------|-------------|------------|--------------|------------|
| ORCL | Technology | RED | 74.0% | -58.3% | 6 |
| NOW | Technology | RED | 38.3% | -47.7% | 5 |
| INTU | Technology | RED | 34.8% | -48.6% | 5 |
| ADBE | Technology | RED | 30.7% | -32.9% | 4 |
| CRM | Technology | RED | 36.0% | -33.1% | 4 |

| | | | | | |
|------|------------------------|-----|-------|--------|---|
| MSFT | Technology | RED | 25.5% | -28.8% | 4 |
| ACN | Technology | RED | 34.1% | -30.5% | 4 |
| UNH | Healthcare | RED | 40.6% | -26.9% | 4 |
| IBM | Technology | RED | 37.3% | -28.7% | 3 |
| NFLX | Communication Services | RED | 30.6% | -39.9% | 3 |
| TMO | Healthcare | RED | 26.8% | -21.6% | 3 |
| INTC | Technology | RED | 70.7% | -21.8% | 2 |
| AMZN | Consumer Cyclical | RED | 31.5% | -21.7% | 2 |
| AVGO | Technology | RED | 48.3% | -25.3% | 2 |
| AMD | Technology | RED | 68.7% | -27.2% | 2 |
| NKE | Consumer Cyclical | RED | 34.6% | -25.2% | 2 |
| HD | Consumer Cyclical | RED | 22.1% | -21.5% | 1 |
| TXN | Technology | RED | 33.3% | -23.6% | 1 |
| QCOM | Technology | RED | 35.4% | -27.0% | 1 |
| BA | Industrials | RED | 29.9% | -24.5% | 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: 2
- 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

- 2 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... |
| ORCL | Technology | 99.3 | CRITICAL | Critical anomaly - Consider immediate po... |
| NOW | Technology | 77.2 | HIGH | Significant anomaly - Conduct thorough d... |
| INTC | Technology | 75.9 | HIGH | Significant anomaly - Conduct thorough d... |

| | | | | |
|----|-------------|------|------|---|
| DE | Industrials | 71.9 | HIGH | Significant anomaly - Conduct thorough d... |
|----|-------------|------|------|---|

Top Risk Factors (Feature Importance)

1. Max Drawdown: 52.1% importance
2. Volatility: 10.2% importance
3. Price Change 3M: 9.3% importance
4. Sharpe Ratio: 8.5% importance
5. Rsi: 7.5% importance

ML Validation Results

Overall Validation Status: **WARNING**

Checks Passed: 2 / 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:** WARNING

features_checked: 9, nan_features: 0, total_samples: 50

✓ **Feature Importance Validation:** PASS

total_importance: 100.0, top_feature: Max Drawdown, top_importance: 52.1

Validation Warnings (2):

1. Suspiciously high accuracy: 100.0% (possible overfitting)
2. Feature 'price_change_6m' has very low variance (0.000000)

Sentiment Analysis

Sentiment analysis was conducted on 20 RED-flagged assets using financial news from the past 12 months. **Key Findings:**

- Average sentiment score: 0.083
- Assets with negative sentiment: 0/20
- Total news articles analyzed: 180

Sentiment Analysis Results

| Symbol | Sentiment Score | Label | News Count | Trend | Key Themes |
|--------|-----------------|---------|------------|---------------|----------------------------------|
| TMO | -0.111 | NEUTRAL | 5 | IMPROVING | earnings, growth |
| NOW | -0.010 | NEUTRAL | 10 | STABLE | technology, growth |
| ACN | -0.002 | NEUTRAL | 10 | IMPROVING | technology, macro, growth |
| INTU | 0.014 | NEUTRAL | 10 | STABLE | technology, earnings, management |
| BA | 0.018 | NEUTRAL | 10 | DETERIORATING | earnings, technology, macro |
| IBM | 0.029 | NEUTRAL | 10 | STABLE | technology, earnings, macro |
| NFLX | 0.044 | NEUTRAL | 10 | STABLE | earnings |

| | | | | | |
|------|-------|---------|----|---------------|------------------------------------|
| ORCL | 0.076 | NEUTRAL | 10 | STABLE | technology, earnings, regulatory |
| UNH | 0.086 | NEUTRAL | 4 | IMPROVING | earnings |
| INTC | 0.086 | NEUTRAL | 10 | STABLE | technology, earnings, market_share |
| AVGO | 0.089 | NEUTRAL | 10 | STABLE | technology, earnings, regulatory |
| QCOM | 0.100 | NEUTRAL | 10 | STABLE | technology, earnings |
| NKE | 0.100 | NEUTRAL | 10 | STABLE | macro, technology, operations |
| TXN | 0.106 | NEUTRAL | 3 | DETERIORATING | growth |
| CRM | 0.127 | NEUTRAL | 10 | IMPROVING | technology, earnings, operations |
| AMZN | 0.143 | NEUTRAL | 10 | IMPROVING | earnings, technology, growth |
| HD | 0.168 | NEUTRAL | 10 | IMPROVING | earnings, macro, technology |
| ADBE | 0.175 | NEUTRAL | 8 | DETERIORATING | technology, macro, earnings |
| MSFT | 0.201 | NEUTRAL | 10 | IMPROVING | technology, earnings, growth |
| AMD | 0.221 | NEUTRAL | 10 | IMPROVING | technology, growth, earnings |

Detailed Asset Analysis

Asset: ORCL

Sector: Technology

Current Price: \$144.81

Market Cap: \$416.20B

Risk Rating: RED

Risk Metrics:

- Volatility: 74.0%
- Maximum Drawdown: -58.3%
- Beta: -0.45
- Sharpe Ratio: -1.09
- RSI: 43.5

Performance:

- 1-Month Return: -20.6%
- 3-Month Return: -27.0%
- 6-Month Return: 0.0%

Risk Flags:

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

Market Sentiment:

- Sentiment Score: 0.076 (NEUTRAL)
- News Articles: 10
- Trend: STABLE

Asset: NOW

Sector: Technology

Current Price: \$103.14

Market Cap: \$108.83B

Risk Rating: RED

Risk Metrics:

- Volatility: 38.3%
- Maximum Drawdown: -47.7%

- Beta: -0.04
- Sharpe Ratio: -3.02
- RSI: 42.1

Performance:

- 1-Month Return: -24.4%
- 3-Month Return: -36.6%
- 6-Month Return: 0.0%

Risk Flags:

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

Market Sentiment:

- Sentiment Score: -0.010 (NEUTRAL)
- News Articles: 10
- Trend: STABLE

Asset: INTU

Sector: Technology

Current Price: \$360.29

Market Cap: \$100.30B

Risk Rating: RED

Risk Metrics:

- Volatility: 34.8%
- Maximum Drawdown: -48.6%
- Beta: 0.32
- Sharpe Ratio: -3.51
- RSI: 23.6

Performance:

- 1-Month Return: -35.9%
- 3-Month Return: -45.6%
- 6-Month Return: 0.0%

Risk Flags:

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

Market Sentiment:

- Sentiment Score: 0.014 (NEUTRAL)
- News Articles: 10
- Trend: STABLE

Asset: ADBE

Sector: Technology

Current Price: \$255.36

Market Cap: \$106.89B

Risk Rating: RED

Risk Metrics:

- Volatility: 30.7%
- Maximum Drawdown: -32.9%
- Beta: -0.15
- Sharpe Ratio: -2.10
- RSI: 37.9

Performance:

- 1-Month Return: -16.2%
- 3-Month Return: -21.2%
- 6-Month Return: 0.0%

Risk Flags:

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

Market Sentiment:

- Sentiment Score: 0.175 (NEUTRAL)
- News Articles: 8
- Trend: DETERIORATING

Asset: CRM

Sector: Technology**Current Price:** \$185.37**Market Cap:** \$176.47B**Risk Rating:** RED**Risk Metrics:**

- Volatility: 36.0%
- Maximum Drawdown: -33.1%
- Beta: -0.20
- Sharpe Ratio: -1.67
- RSI: 40.2

Performance:

- 1-Month Return: -19.2%
- 3-Month Return: -18.2%
- 6-Month Return: 0.0%

Risk Flags:

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

Market Sentiment:

- Sentiment Score: 0.127 (NEUTRAL)
- News Articles: 10
- 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 20 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 0 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 18:07:06
- 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_180706.csv

Risk Analysis CSV: risk_analysis_20260224_180706.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 | 6.7% | 0.4% | 0.0% | 13.6% | 1.47 |
| ABBV | 3.6% | -2.4% | 0.0% | 10.9% | 0.94 |
| ACN | -28.6% | -20.4% | 0.0% | 32.0% | -1.37 |
| ADBE | -16.2% | -21.2% | 0.0% | 21.5% | -2.10 |
| AMD | -14.4% | 5.5% | 0.0% | 15.2% | 1.04 |
| AMT | 6.3% | 7.3% | 0.0% | -1.4% | -0.35 |
| AMZN | -12.1% | -5.0% | 0.0% | 36.7% | -0.56 |
| AVGO | 0.5% | -3.8% | 0.0% | -21.7% | 0.46 |
| BA | -6.1% | 29.9% | 0.0% | -10.4% | -0.00 |
| BLK | -3.1% | 7.6% | 0.0% | 11.7% | -0.21 |
| CRM | -19.2% | -18.2% | 0.0% | 35.3% | -1.67 |
| CSCO | 1.7% | 3.5% | 0.0% | 28.2% | 1.05 |
| CVX | 11.6% | 24.7% | 0.0% | 8.9% | 1.70 |
| DE | 24.2% | 32.1% | 0.0% | 21.7% | 1.98 |
| DIS | -4.2% | 2.9% | 0.0% | 20.1% | -0.66 |
| GE | 15.8% | 19.0% | 0.0% | 4.1% | 1.66 |
| GILD | 7.5% | 17.7% | 0.0% | 7.8% | 2.32 |
| GOOGL | -6.6% | 4.0% | 0.0% | 17.1% | 2.83 |
| GS | -2.6% | 17.9% | 0.0% | 2.8% | 1.60 |
| HD | 0.4% | 13.8% | 0.0% | -9.9% | -0.32 |
| IBM | -22.1% | -22.4% | 0.0% | 45.1% | -0.18 |
| INTC | 8.0% | 33.0% | 0.0% | -2.0% | 2.10 |
| INTU | -35.9% | -45.6% | 0.0% | 55.8% | -3.51 |
| ISRG | -6.7% | -12.1% | 0.0% | 12.2% | 0.35 |
| JNJ | 11.5% | 21.8% | 0.0% | 4.7% | 4.68 |
| JPM | -0.9% | 0.5% | 0.0% | -1.4% | 0.03 |
| KO | 10.8% | 11.0% | 0.0% | 12.9% | 2.23 |
| LLY | -1.0% | -0.8% | 0.0% | 14.0% | 2.23 |
| LOW | 0.6% | 19.8% | 0.0% | -3.1% | 0.85 |
| MA | -6.1% | -8.2% | 0.0% | 16.4% | -1.62 |

| | | | | | |
|------|--------|--------|------|--------|-------|
| MCD | 6.3% | 8.1% | 0.0% | 5.7% | 0.93 |
| MMM | 5.2% | -0.2% | 0.0% | 20.4% | 0.57 |
| MRK | 16.1% | 28.6% | 0.0% | -0.9% | 3.23 |
| MSFT | -17.6% | -17.9% | 0.0% | 45.2% | -2.15 |
| NEE | 11.7% | 14.3% | 0.0% | -1.3% | 2.98 |
| NFLX | -9.7% | -25.8% | 0.0% | -10.5% | -3.05 |
| NKE | -1.4% | 2.7% | 0.0% | -19.5% | -0.98 |
| NOW | -24.4% | -36.6% | 0.0% | 62.0% | -3.02 |
| ORCL | -20.6% | -27.0% | 0.0% | 8.9% | -1.09 |
| PFE | 5.5% | 10.9% | 0.0% | 3.6% | 1.15 |
| PG | 10.6% | 10.3% | 0.0% | 0.8% | 0.86 |
| QCOM | -6.6% | -11.2% | 0.0% | 23.1% | -0.45 |
| RTX | 2.3% | 17.0% | 0.0% | 22.7% | 1.91 |
| SBUX | -0.2% | 12.6% | 0.0% | 1.1% | 0.76 |
| TMO | -17.7% | -12.1% | 0.0% | 19.5% | 0.47 |
| TSLA | -6.7% | 3.8% | 0.0% | -9.6% | 0.92 |
| TXN | 8.1% | 33.3% | 0.0% | 22.7% | 0.41 |
| UNH | -22.0% | -13.8% | 0.0% | 47.7% | -0.26 |
| V | -6.3% | -6.2% | 0.0% | 11.7% | -1.19 |
| WMT | 8.0% | 20.9% | 0.0% | -11.9% | 2.50 |

Risk Flags Details

| Symbol | High Vol | Ext. DD | Vol Collapse | Severe Dec | Ext. Dec | Poor Sharpe | Mom. Break |
|--------|----------|---------|--------------|------------|----------|-------------|------------|
| ORCL | ✓ | ✓ | ✗ | ✓ | ✓ | ✓ | ✓ |
| NOW | ✗ | ✓ | ✗ | ✓ | ✓ | ✓ | ✓ |
| INTU | ✗ | ✓ | ✗ | ✓ | ✓ | ✓ | ✓ |
| ADBE | ✗ | ✓ | ✗ | ✓ | ✗ | ✓ | ✓ |
| CRM | ✗ | ✓ | ✗ | ✓ | ✗ | ✓ | ✓ |
| MSFT | ✗ | ✓ | ✗ | ✓ | ✗ | ✓ | ✓ |
| ACN | ✗ | ✓ | ✗ | ✓ | ✗ | ✓ | ✓ |
| UNH | ✓ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ |
| IBM | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ |
| NFLX | ✗ | ✓ | ✗ | ✗ | ✓ | ✓ | ✗ |
| TMO | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ |
| INTC | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ |
| AMZN | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ |
| AVGO | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ |
| AMD | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ |
| NKE | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ |

| V | X | X | X | X | X | ✓ | X |
|-------|---|---|---|---|---|---|---|
| DIS | X | X | X | X | X | ✓ | X |
| HD | X | ✓ | X | X | X | X | X |
| TXN | X | ✓ | X | X | X | X | X |
| MA | X | X | X | X | X | ✓ | X |
| QCOM | X | ✓ | X | X | X | X | X |
| TSLA | ✓ | X | X | X | X | X | X |
| BA | X | ✓ | X | X | X | X | X |
| RTX | X | X | X | X | X | X | X |
| CVX | X | X | X | X | X | X | X |
| NEE | X | X | X | X | X | X | X |
| AAPL | X | X | X | X | X | X | X |
| LOW | X | X | X | X | X | X | X |
| PFE | X | X | X | X | X | X | X |
| LLY | X | X | X | X | X | X | X |
| GE | X | X | X | X | X | X | X |
| CSCO | X | X | X | X | X | X | X |
| JPM | X | X | X | X | X | X | X |
| ISRG | X | X | X | X | X | X | X |
| GOOGL | X | X | X | X | X | X | X |
| GILD | X | X | X | X | X | X | X |
| PG | X | X | X | X | X | X | X |
| JNJ | X | X | X | X | X | X | X |
| WMT | X | X | X | X | X | X | X |
| ABBV | X | X | X | X | X | X | X |
| MMM | X | X | X | X | X | X | X |
| GS | X | X | X | X | X | X | X |
| AMT | X | X | X | X | X | X | X |
| DE | X | X | X | X | X | X | X |
| SBUX | X | X | X | X | X | X | X |
| KO | X | X | X | X | X | X | X |
| MCD | X | X | X | X | X | X | X |
| BLK | X | X | X | X | X | X | X |
| MRK | X | X | X | X | X | X | X |

Data Summary:

- Total Assets: 50
- Data Generated: 2026-02-24 18:07:06
- 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.