

Portfolio Risk Analysis Report

Report Date: October 15, 2025
Portfolio Size: 25 Assets
Analysis Period: 12 Months
Generated by: Automated Risk Analysis Pipeline

Risk Assessment Summary

HIGH RISK (RED): 17 Assets
MEDIUM RISK (YELLOW): 0 Assets
LOW RISK (GREEN): 8 Assets

Executive Summary

This report presents a comprehensive risk analysis of a portfolio containing 25 assets with a combined market capitalization of \$3166.3 billion. **Key Findings:** • 17 assets (68.0%) are rated as HIGH RISK (RED) • 0 assets (0.0%) are rated as MEDIUM RISK (YELLOW) • Average portfolio volatility: 26.8% • Maximum drawdown observed: -45.9% **Risk Concentration:** The analysis reveals significant risk concentration in 17 assets requiring immediate attention and potential portfolio rebalancing. **Sentiment Analysis:** • 13 RED-flagged assets show negative market sentiment • Average sentiment score for flagged assets: -0.331 • News coverage indicates heightened market concern for these positions

Portfolio Overview

Sector Allocation

Sector	Assets	Market Cap (\$B)	Percentage
Technology	3	1071.70	33.8%
Healthcare	3	581.54	18.4%
Materials	3	450.95	14.2%
Consumer Discretionary	4	388.26	12.3%
Consumer Staples	4	280.12	8.8%
Financial Services	1	115.55	3.6%
Real Estate	3	102.29	3.2%
Industrial	2	95.52	3.0%
Utilities	2	80.37	2.5%

Risk Analysis Results

Risk Distribution:

- HIGH RISK (RED): 17 assets
- MEDIUM RISK (YELLOW): 0 assets
- LOW RISK (GREEN): 8 assets

High Risk Assets

Symbol	Sector	Risk Rating	Volatility	Max Drawdown	Risk Score
DS	Consumer Discretionary	RED	33.0%	-38.8%	3
AYR	Technology	RED	28.8%	-43.6%	3
GN	Real Estate	RED	17.6%	-29.9%	2
DJX	Technology	RED	29.9%	-45.8%	2
CUIO	Materials	RED	28.6%	-38.5%	2
GA	Consumer Staples	RED	19.3%	-25.1%	2

TVP	Industrial	RED	41.7%	-33.9%	2
DHRS	Consumer Discretionary	RED	19.7%	-36.5%	2
TUK	Consumer Staples	RED	31.3%	-45.9%	2
BFL	Industrial	RED	21.7%	-35.3%	2
DB	Consumer Discretionary	RED	31.4%	-25.2%	1
CW	Consumer Discretionary	RED	28.5%	-28.7%	1
TI	Real Estate	RED	25.9%	-23.8%	1
CQH	Utilities	RED	35.5%	-20.1%	1
PKH	Healthcare	RED	37.9%	-40.5%	1
DXRC	Real Estate	RED	38.9%	-37.5%	1
VYRV	Consumer Staples	RED	25.3%	-35.9%	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: 87.5%
- Rating Changes Predicted: 1
- Assets Predicted to Deteriorate: 0
- Assets Predicted to Improve: 1

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, Sharpe Ratio, Price Change 3M

Critical Anomalies Detected

Symbol	Sector	Anomaly Score	Severity	Recommendation
DS	Consumer Discretionary	100.0	CRITICAL	Critical anomaly - Consider immediate po...
NQWM	Healthcare	92.1	CRITICAL	Critical anomaly - Consider immediate po...
AYR	Technology	81.9	CRITICAL	Critical anomaly - Consider immediate po...
PKH	Healthcare	78.4	HIGH	Significant anomaly - Conduct thorough d...
CW	Consumer Discretionary	75.1	HIGH	Normal behavior pattern - Continue monit...
DQJ	Utilities	74.1	HIGH	Normal behavior pattern - Continue monit...

Predicted Risk Rating Changes

Symbol	Current Rating	Predicted Rating	Confidence	Trend
CQH	RED	GREEN	62.0%	IMPROVING

Top Risk Factors (Feature Importance)

- 1. Max Drawdown: 48.8% importance
- 2. Sharpe Ratio: 14.5% importance
- 3. Price Change 3M: 8.8% importance
- 4. Price Change 6M: 7.8% importance
- 5. Volatility: 7.2% importance

ML Validation Results

Overall Validation Status: **PASS**

Checks Passed: 4 / 4

- ✓ **Anomaly Detection Validation:** PASS
total_assets: 25, anomalies_detected: 4, anomaly_rate: 16.0
- ✓ **Risk Prediction Validation:** PASS
model_accuracy: 87.5, predictions_made: 25, rating_changes: 1
- ✓ **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: 48.8

Sentiment Analysis

Sentiment analysis was conducted on 17 RED-flagged assets using financial news from the past 12 months. **Key Findings:**

- Average sentiment score: -0.331
- Assets with negative sentiment: 13/17
- Total news articles analyzed: 384

Sentiment Analysis Results

Symbol	Sentiment Score	Label	News Count	Trend	Key Themes
CQH	-0.428	NEGATIVE	19	DETERIORATING	regulatory, financial_health, earnings
DS	-0.423	NEGATIVE	28	IMPROVING	earnings, regulatory, management
PKH	-0.406	NEGATIVE	25	STABLE	financial_health, regulatory, management
DB	-0.400	NEGATIVE	30	STABLE	earnings, regulatory, operations
DJX	-0.378	NEGATIVE	24	DETERIORATING	regulatory, financial_health, management
DHRS	-0.375	NEGATIVE	28	DETERIORATING	regulatory, earnings, financial_health
AYR	-0.364	NEGATIVE	26	IMPROVING	earnings, financial_health, regulatory
DXRC	-0.352	NEGATIVE	17	IMPROVING	earnings, regulatory, management

TI	-0.326	NEGATIVE	18	IMPROVING	earnings, financial_health, operations
TVP	-0.325	NEGATIVE	23	DETERIORATING	operations, earnings, regulatory
CW	-0.322	NEGATIVE	23	DETERIORATING	earnings, regulatory, financial_health
TUK	-0.316	NEGATIVE	15	IMPROVING	regulatory, financial_health, earnings
VYRV	-0.308	NEGATIVE	30	STABLE	regulatory, financial_health, earnings
BFL	-0.258	NEUTRAL	17	DETERIORATING	regulatory, financial_health, earnings
CUIO	-0.240	NEUTRAL	21	STABLE	earnings, regulatory, operations
GN	-0.226	NEUTRAL	16	IMPROVING	regulatory, earnings, growth
GA	-0.169	NEUTRAL	24	IMPROVING	financial_health, regulatory, operations

Detailed Asset Analysis

Asset: DS

Sector: Consumer Discretionary
Current Price: \$58.67
Market Cap: \$91.78B
Risk Rating: RED
Risk Metrics:

- Volatility: 33.0%
- Maximum Drawdown: -38.8%
- Beta: 0.13
- Sharpe Ratio: -0.26
- RSI: 36.3

Performance:

- 1-Month Return: -14.8%
- 3-Month Return: -31.4%
- 6-Month Return: -24.3%

Risk Flags:

- Extreme Drawdown, Extended Decline, Momentum Breakdown

Market Sentiment:

- Sentiment Score: -0.423 (NEGATIVE)
- News Articles: 28
- Trend: IMPROVING

Asset: AYR

Sector: Technology
Current Price: \$305.93
Market Cap: \$587.68B
Risk Rating: RED
Risk Metrics:

- Volatility: 28.8%
- Maximum Drawdown: -43.6%
- Beta: -0.15
- Sharpe Ratio: -1.54
- RSI: 67.7

Performance:

- 1-Month Return: 4.0%
- 3-Month Return: -28.0%
- 6-Month Return: -20.8%

Risk Flags:

- Extreme Drawdown, Extended Decline, Poor Risk Return

Market Sentiment:

- Sentiment Score: -0.364 (NEGATIVE)
- News Articles: 26
- Trend: IMPROVING

Asset: GN

Sector: Real Estate

Current Price: \$145.61

Market Cap: \$16.68B

Risk Rating: RED

Risk Metrics:

- Volatility: 17.6%
- Maximum Drawdown: -29.9%
- Beta: -0.02
- Sharpe Ratio: -1.80
- RSI: 39.4

Performance:

- 1-Month Return: -5.5%
- 3-Month Return: -16.7%
- 6-Month Return: -7.4%

Risk Flags:

- Extreme Drawdown, Poor Risk Return

Market Sentiment:

- Sentiment Score: -0.226 (NEUTRAL)
- News Articles: 16
- Trend: IMPROVING

Asset: DJX

Sector: Technology

Current Price: \$319.03

Market Cap: \$117.58B

Risk Rating: RED

Risk Metrics:

- Volatility: 29.9%
- Maximum Drawdown: -45.8%
- Beta: -0.02
- Sharpe Ratio: -1.46
- RSI: 35.6

Performance:

- 1-Month Return: -5.3%
- 3-Month Return: 12.0%
- 6-Month Return: 10.7%

Risk Flags:

- Extreme Drawdown, Poor Risk Return

Market Sentiment:

- Sentiment Score: -0.378 (NEGATIVE)
- News Articles: 24
- Trend: DETERIORATING

Asset: CUIO

Sector: Materials

Current Price: \$157.41

Market Cap: \$299.53B

Risk Rating: RED

Risk Metrics:

- Volatility: 28.6%
- Maximum Drawdown: -38.5%
- Beta: 0.12
- Sharpe Ratio: -1.13
- RSI: 61.4

Performance:

- 1-Month Return: -4.2%
- 3-Month Return: -23.3%
- 6-Month Return: -7.5%

Risk Flags:

- Extreme Drawdown, Poor Risk Return

Market Sentiment:

- Sentiment Score: -0.240 (NEUTRAL)
- News Articles: 21
- 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 17 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 13 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 lookahead) • 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: 2025-10-15 07:44:40
- 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_20251015_074440.csv

Risk Analysis CSV: risk_analysis_20251015_074440.csv

The tables below provide summary information for quick reference.

Performance Metrics Data

Symbol	1M Return	3M Return	6M Return	Vol Decline	Sharpe Ratio
AYR	4.0%	-28.0%	-20.8%	6.1%	-1.54
BFL	9.2%	2.4%	4.0%	13.6%	-1.41
CLN	1.1%	5.1%	-2.9%	-3.9%	0.39
CQH	7.2%	-2.2%	12.5%	8.5%	0.79
CUIO	-4.2%	-23.3%	-7.5%	13.0%	-1.13
CW	7.5%	18.7%	41.1%	-9.4%	0.52
DB	-6.5%	1.1%	9.6%	-3.0%	0.39
DHRS	3.6%	14.6%	9.1%	-0.4%	-0.86
DJX	-5.3%	12.0%	10.7%	-1.5%	-1.46
DKC	-3.2%	-8.4%	-7.6%	8.2%	1.11
DQJ	-10.0%	-0.1%	24.6%	9.2%	1.62
DS	-14.8%	-31.4%	-24.3%	1.6%	-0.26
DXRC	-0.0%	-9.4%	6.2%	-5.3%	-0.12
GA	-3.0%	9.2%	-4.3%	7.4%	-0.54
GN	-5.5%	-16.7%	-7.4%	-2.9%	-1.80
GXL	2.5%	-0.7%	13.8%	-6.3%	0.71
NQWM	18.6%	19.5%	28.3%	4.7%	1.41
PKH	17.8%	31.2%	26.8%	6.7%	-0.32
ST	3.2%	-5.5%	-6.1%	3.2%	-0.31
TI	0.0%	-12.0%	-12.2%	6.5%	-0.49
TUK	11.7%	0.1%	-7.1%	-2.1%	-1.09
TVP	2.3%	7.2%	22.3%	-6.1%	0.49
VUE	4.5%	17.2%	14.4%	3.5%	0.69
VYRV	4.3%	-16.5%	-16.5%	7.1%	0.17
ZWL	2.8%	-1.2%	6.0%	-4.7%	-0.07

Risk Flags Details

Symbol	High Vol	Ext. DD	Vol Collapse	Severe Dec	Ext. Dec	Poor Sharpe	Mom. Break
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DS	X	✓	X	X	✓	X	✓
AYR	X	✓	X	X	✓	✓	X
GN	X	✓	X	X	X	✓	X
DJX	X	✓	X	X	X	✓	X
CUIO	X	✓	X	X	X	✓	X
GA	X	✓	X	X	X	✓	X
TVP	✓	✓	X	X	X	X	X
DHRS	X	✓	X	X	X	✓	X
TUK	X	✓	X	X	X	✓	X
BFL	X	✓	X	X	X	✓	X
DB	X	✓	X	X	X	X	X
CW	X	✓	X	X	X	X	X
TI	X	✓	X	X	X	X	X
CQH	X	✓	X	X	X	X	X
PKH	X	✓	X	X	X	X	X
DXRC	X	✓	X	X	X	X	X
VYRV	X	✓	X	X	X	X	X
NQWM	X	X	X	X	X	X	X
GXL	X	X	X	X	X	X	X
ST	X	X	X	X	X	X	X
DKC	X	X	X	X	X	X	X
VUE	X	X	X	X	X	X	X
DQJ	X	X	X	X	X	X	X
CLN	X	X	X	X	X	X	X
ZWL	X	X	X	X	X	X	X

Data Summary:

- Total Assets: 25
- Data Generated: 2025-10-15 07:44:40
- 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.