

# 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): 22 Assets**  
**MEDIUM RISK (YELLOW): 0 Assets**  
**LOW RISK (GREEN): 3 Assets**

## Executive Summary

This report presents a comprehensive risk analysis of a portfolio containing 25 assets with a combined market capitalization of \$3055.4 billion. **Key Findings:** • 22 assets (88.0%) are rated as HIGH RISK (RED) • 0 assets (0.0%) are rated as MEDIUM RISK (YELLOW) • Average portfolio volatility: 32.4% • Maximum drawdown observed: -62.2% **Risk Concentration:** The analysis reveals significant risk concentration in 22 assets requiring immediate attention and potential portfolio rebalancing. **Sentiment Analysis:** • 13 RED-flagged assets show negative market sentiment • Average sentiment score for flagged assets: -0.312 • News coverage indicates heightened market concern for these positions

## Portfolio Overview

### Sector Allocation

Sector	Assets	Market Cap (\$B)	Percentage
Energy	5	710.76	23.3%
Consumer Discretionary	4	427.31	14.0%
Financial Services	2	369.24	12.1%
Technology	4	367.83	12.0%
Healthcare	3	331.16	10.8%
Materials	1	308.50	10.1%
Utilities	2	253.94	8.3%
Consumer Staples	3	243.69	8.0%
Industrial	1	42.98	1.4%

## Risk Analysis Results

### Risk Distribution:

- HIGH RISK (RED): 22 assets
- MEDIUM RISK (YELLOW): 0 assets
- LOW RISK (GREEN): 3 assets

### High Risk Assets

Symbol	Sector	Risk Rating	Volatility	Max Drawdown	Risk Score
XHL	Consumer Staples	RED	36.1%	-45.5%	4
GT	Consumer Discretionary	RED	44.2%	-62.2%	4
NUAH	Energy	RED	36.5%	-23.6%	3
ZKC	Utilities	RED	27.2%	-37.1%	3
RHM	Energy	RED	37.6%	-51.8%	3
TJZ	Consumer Discretionary	RED	35.6%	-30.5%	3

AJB	Financial Services	RED	33.3%	-31.1%	3
TG	Healthcare	RED	40.3%	-44.1%	3
RE	Consumer Staples	RED	25.1%	-31.2%	3
AMWZ	Utilities	RED	44.5%	-24.3%	3
CF	Consumer Staples	RED	41.4%	-23.4%	2
AZA	Technology	RED	43.6%	-42.9%	2
ADIX	Industrial	RED	42.3%	-28.1%	2
RPP	Energy	RED	25.9%	-43.3%	2
CHR	Energy	RED	28.4%	-31.8%	2
SRH	Consumer Discretionary	RED	21.0%	-46.2%	2
MP	Technology	RED	35.7%	-35.3%	1
XZ	Healthcare	RED	18.2%	-26.1%	1
BU	Consumer Discretionary	RED	32.6%	-30.6%	1
PLK	Technology	RED	20.0%	-21.6%	1
DUQ	Materials	RED	23.3%	-23.4%	1
MXN	Technology	RED	28.9%	-31.3%	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: 4
- High Risk Anomalies: 2
- Anomaly Rate: 16.0%

### Risk Prediction Model:

- Model Accuracy: 87.5%
- Rating Changes Predicted: 1
- Assets Predicted to Deteriorate: 1
- Assets Predicted to Improve: 0

## Key Machine Learning Insights

- 4 assets show critical anomalous behavior requiring immediate review
- 1 assets predicted to deteriorate in risk rating
- Anomaly detection identified 4 assets with unusual patterns
- Key risk drivers: Max Drawdown, Rsi, Sharpe Ratio

## Critical Anomalies Detected

Symbol	Sector	Anomaly Score	Severity	Recommendation
AMWZ	Utilities	100.0	CRITICAL	Critical anomaly - Consider immediate po...
AZA	Technology	92.4	CRITICAL	Critical anomaly - Consider immediate po...
PLK	Technology	85.0	CRITICAL	Critical anomaly - Consider immediate po...

RHM	Energy	83.4	CRITICAL	Critical anomaly - Consider immediate po...
XHL	Consumer Staples	70.4	HIGH	Normal behavior pattern - Continue monit...
GT	Consumer Discretionary	67.3	HIGH	Normal behavior pattern - Continue monit...

Predicted Risk Rating Changes

Symbol	Current Rating	Predicted Rating	Confidence	Trend
PXF	GREEN	RED	63.0%	DETERIORATING

Top Risk Factors (Feature Importance)

- 1. Max Drawdown: 38.2% importance
- 2. Rsi: 14.7% importance
- 3. Sharpe Ratio: 11.9% importance
- 4. Price Change 1M: 9.4% importance
- 5. Price Change 3M: 8.2% 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: 38.2

Sentiment Analysis

Sentiment analysis was conducted on 22 RED-flagged assets using financial news from the past 12 months. **Key Findings:**

- Average sentiment score: -0.312
- Assets with negative sentiment: 13/22
- Total news articles analyzed: 506

Sentiment Analysis Results

Symbol	Sentiment Score	Label	News Count	Trend	Key Themes
XHL	-0.474	NEGATIVE	20	IMPROVING	regulatory, financial_health, earnings
RHM	-0.441	NEGATIVE	25	STABLE	operations, market_share, regulatory

RE	-0.430	NEGATIVE	17	DETERIORATING	regulatory, financial_health, earnings
RPP	-0.391	NEGATIVE	26	IMPROVING	operations, regulatory, earnings
BU	-0.390	NEGATIVE	17	STABLE	regulatory, earnings, management
AJB	-0.369	NEGATIVE	26	IMPROVING	regulatory, financial_health, management
MP	-0.336	NEGATIVE	26	IMPROVING	earnings, regulatory, operations
AZA	-0.321	NEGATIVE	30	IMPROVING	regulatory, financial_health, earnings
TG	-0.319	NEGATIVE	24	IMPROVING	regulatory, earnings, financial_health
CF	-0.318	NEGATIVE	28	IMPROVING	regulatory, earnings, financial_health
TJZ	-0.316	NEGATIVE	18	IMPROVING	earnings, financial_health, market_share
XZ	-0.306	NEGATIVE	29	IMPROVING	earnings, regulatory, financial_health
CHR	-0.304	NEGATIVE	29	DETERIORATING	earnings, financial_health, regulatory
MXN	-0.299	NEUTRAL	24	IMPROVING	earnings, regulatory, financial_health
ZKC	-0.288	NEUTRAL	18	STABLE	regulatory, financial_health, operations
DUQ	-0.288	NEUTRAL	21	IMPROVING	regulatory, financial_health, operations
NUAH	-0.271	NEUTRAL	16	IMPROVING	earnings, financial_health, operations
GT	-0.229	NEUTRAL	27	IMPROVING	earnings, regulatory, market_share
AMWZ	-0.229	NEUTRAL	28	IMPROVING	management, earnings, operations
PLK	-0.228	NEUTRAL	15	IMPROVING	operations, management, market_share
SRH	-0.203	NEUTRAL	27	DETERIORATING	earnings, financial_health, regulatory
ADIX	-0.105	NEUTRAL	15	DETERIORATING	earnings, regulatory, financial_health

Detailed Asset Analysis

Asset: XHL

**Sector:** Consumer Staples  
**Current Price:** \$47.00  
**Market Cap:** \$24.87B  
**Risk Rating:** RED  
**Risk Metrics:**

- Volatility: 36.1%
- Maximum Drawdown: -45.5%
- Beta: -0.12
- Sharpe Ratio: -1.64
- RSI: 22.0

**Performance:**

- 1-Month Return: -17.0%
- 3-Month Return: -20.2%
- 6-Month Return: -36.6%

**Risk Flags:**

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

**Market Sentiment:**

- Sentiment Score: -0.474 (NEGATIVE)
- News Articles: 20
- Trend: IMPROVING

## Asset: GT

**Sector:** Consumer Discretionary

**Current Price:** \$86.02

**Market Cap:** \$17.49B

**Risk Rating:** RED

**Risk Metrics:**

- Volatility: 44.2%
- Maximum Drawdown: -62.2%
- Beta: 0.15
- Sharpe Ratio: -1.28
- RSI: 30.4

**Performance:**

- 1-Month Return: -19.8%
- 3-Month Return: -1.6%
- 6-Month Return: 17.0%

**Risk Flags:**

- High Volatility, Extreme Drawdown, Severe Decline, Poor Risk Return

**Market Sentiment:**

- Sentiment Score: -0.229 (NEUTRAL)
- News Articles: 27
- Trend: IMPROVING

## Asset: NUAH

**Sector:** Energy

**Current Price:** \$105.07

**Market Cap:** \$209.95B

**Risk Rating:** RED

**Risk Metrics:**

- Volatility: 36.5%
- Maximum Drawdown: -23.6%
- Beta: 0.05
- Sharpe Ratio: 0.62
- RSI: 31.4

**Performance:**

- 1-Month Return: -15.3%
- 3-Month Return: -13.4%
- 6-Month Return: -10.8%

**Risk Flags:**

- Extreme Drawdown, Severe Decline, Momentum Breakdown

**Market Sentiment:**

- Sentiment Score: -0.271 (NEUTRAL)
- News Articles: 16
- Trend: IMPROVING

## Asset: ZKC

**Sector:** Utilities

**Current Price:** \$87.54

**Market Cap:** \$121.00B

**Risk Rating:** RED

**Risk Metrics:**

- Volatility: 27.2%
- Maximum Drawdown: -37.1%
- Beta: 0.03
- Sharpe Ratio: -0.39
- RSI: 28.8

**Performance:**

- 1-Month Return: -16.3%
- 3-Month Return: -11.1%
- 6-Month Return: -29.6%

**Risk Flags:**

- Extreme Drawdown, Severe Decline, Momentum Breakdown

**Market Sentiment:**

- Sentiment Score: -0.288 (NEUTRAL)
- News Articles: 18
- Trend: STABLE

## Asset: RHM

**Sector:** Energy

**Current Price:** \$92.80

**Market Cap:** \$150.34B

**Risk Rating:** RED

**Risk Metrics:**

- Volatility: 37.6%
- Maximum Drawdown: -51.8%
- Beta: -0.01
- Sharpe Ratio: -1.47
- RSI: 40.0

**Performance:**

- 1-Month Return: -4.6%
- 3-Month Return: -31.7%
- 6-Month Return: -31.7%

**Risk Flags:**

- Extreme Drawdown, Extended Decline, Poor Risk Return

**Market Sentiment:**

- Sentiment Score: -0.441 (NEGATIVE)
- News Articles: 25
- 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 22 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 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: 2025-10-15 07:39:48
- 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\_073948.csv

**Risk Analysis CSV:** risk\_analysis\_20251015\_073948.csv

The tables below provide summary information for quick reference.

### Performance Metrics Data

Symbol	1M Return	3M Return	6M Return	Vol Decline	Sharpe Ratio
ADIX	-3.2%	-19.7%	1.2%	-0.3%	0.18
AJB	-16.1%	-19.5%	12.3%	6.7%	-0.45
AMWZ	-18.7%	2.7%	37.5%	-6.5%	2.61
AYA	6.3%	-1.3%	5.5%	-3.1%	0.51
AZA	19.4%	30.9%	8.7%	-7.3%	0.77
BU	9.8%	11.6%	-12.3%	8.1%	-0.17
CF	-9.8%	-10.9%	23.4%	1.4%	0.40
CHR	-3.5%	-10.7%	-9.8%	-1.5%	-1.20
DUQ	5.4%	-0.3%	17.5%	2.0%	-0.35
GT	-19.8%	-1.6%	17.0%	2.0%	-1.28
MP	3.4%	-12.5%	-8.1%	-3.8%	0.01
MXN	-4.5%	10.5%	16.0%	7.8%	-0.33
NUAH	-15.3%	-13.4%	-10.8%	5.0%	0.62
PLK	12.1%	24.8%	32.2%	-7.2%	0.53
PXF	-0.2%	-5.6%	-1.7%	-9.0%	0.31
RE	-10.1%	-12.2%	-0.3%	-2.1%	-1.07
RHM	-4.6%	-31.7%	-31.7%	-12.4%	-1.47
RPP	-6.5%	10.1%	-10.5%	3.2%	-1.01
SRH	7.2%	5.4%	-8.2%	-0.3%	-2.03
TG	-5.6%	-12.0%	-23.1%	-9.1%	-0.66
TJZ	-16.2%	-23.9%	-9.1%	3.1%	0.19
XHL	-17.0%	-20.2%	-36.6%	-3.3%	-1.64
XZ	8.1%	2.7%	-8.4%	-5.4%	0.19
ZDYU	6.0%	13.6%	18.9%	-3.8%	1.08
ZKC	-16.3%	-11.1%	-29.6%	-5.5%	-0.39

### Risk Flags Details

Symbol	High Vol	Ext. DD	Vol Collapse	Severe Dec	Ext. Dec	Poor Sharpe	Mom. Break
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XHL	X	✓	X	✓	X	✓	✓
GT	✓	✓	X	✓	X	✓	X
NUAH	X	✓	X	✓	X	X	✓
ZKC	X	✓	X	✓	X	X	✓
RHM	X	✓	X	X	✓	✓	X
TJZ	X	✓	X	✓	X	X	✓
AJB	X	✓	X	✓	X	X	✓
TG	✓	✓	X	X	X	✓	X
RE	X	✓	X	X	X	✓	✓
AMWZ	✓	✓	X	✓	X	X	X
CF	✓	✓	X	X	X	X	X
AZA	✓	✓	X	X	X	X	X
ADIX	✓	✓	X	X	X	X	X
RPP	X	✓	X	X	X	✓	X
CHR	X	✓	X	X	X	✓	X
SRH	X	✓	X	X	X	✓	X
MP	X	✓	X	X	X	X	X
XZ	X	✓	X	X	X	X	X
BU	X	✓	X	X	X	X	X
PLK	X	✓	X	X	X	X	X
DUQ	X	✓	X	X	X	X	X
MXN	X	✓	X	X	X	X	X
AYA	X	X	X	X	X	X	X
ZDYU	X	X	X	X	X	X	X
PXF	X	X	X	X	X	X	X

#### Data Summary:

- Total Assets: 25
- Data Generated: 2025-10-15 07:39:48
- 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.