

# 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):** 20 Assets  
**MEDIUM RISK (YELLOW):** 0 Assets  
**LOW RISK (GREEN):** 5 Assets

## Executive Summary

This report presents a comprehensive risk analysis of a portfolio containing 25 assets with a combined market capitalization of \$3227.8 billion. **Key Findings:** • 20 assets (80.0%) are rated as HIGH RISK (RED) • 0 assets (0.0%) are rated as MEDIUM RISK (YELLOW) • Average portfolio volatility: 31.7% • Maximum drawdown observed: -53.6% **Risk Concentration:** The analysis reveals significant risk concentration in 20 assets requiring immediate attention and potential portfolio rebalancing. **Sentiment Analysis:** • 15 RED-flagged assets show negative market sentiment • Average sentiment score for flagged assets: -0.338 • News coverage indicates heightened market concern for these positions

## Portfolio Overview

### Sector Allocation

Sector	Assets	Market Cap (\$B)	Percentage
Technology	4	968.62	30.0%
Healthcare	2	582.89	18.1%
Real Estate	2	579.01	17.9%
Industrial	5	293.78	9.1%
Utilities	3	253.60	7.9%
Consumer Staples	3	190.43	5.9%
Consumer Discretionary	1	136.30	4.2%
Materials	2	116.46	3.6%
Financial Services	3	106.74	3.3%

## Risk Analysis Results

### Risk Distribution:

- HIGH RISK (RED): 20 assets
- MEDIUM RISK (YELLOW): 0 assets
- LOW RISK (GREEN): 5 assets

### High Risk Assets

Symbol	Sector	Risk Rating	Volatility	Max Drawdown	Risk Score
XQ	Technology	RED	42.3%	-42.8%	5
MWPC	Industrial	RED	31.5%	-49.5%	2
NQ	Materials	RED	37.1%	-53.6%	2
GB	Industrial	RED	17.8%	-23.7%	2
GE	Technology	RED	17.4%	-20.0%	2
ZL	Industrial	RED	33.8%	-40.7%	2

DWQ	Financial Services	RED	44.0%	-34.6%	2
TTIH	Real Estate	RED	18.4%	-29.8%	2
CEY	Utilities	RED	40.9%	-46.1%	2
GCF	Consumer Staples	RED	26.3%	-21.5%	1
TPZU	Consumer Staples	RED	37.3%	-27.1%	1
ZLW	Utilities	RED	34.7%	-31.7%	1
DXY	Financial Services	RED	38.6%	-36.4%	1
RMI	Consumer Staples	RED	17.4%	-21.3%	1
DOCN	Financial Services	RED	36.4%	-29.4%	1
SLZ	Materials	RED	38.8%	-28.1%	1
MNM	Technology	RED	33.5%	-20.3%	1
PRD	Technology	RED	30.5%	-24.5%	1
XGMR	Healthcare	RED	30.6%	-28.6%	1
PRU	Industrial	RED	32.0%	-21.6%	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: 1
- High Risk Anomalies: 3
- 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

- 1 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, Price Change 3M

## Critical Anomalies Detected

Symbol	Sector	Anomaly Score	Severity	Recommendation
XQ	Technology	100.0	CRITICAL	Critical anomaly - Consider immediate po...
SOZ	Utilities	74.0	HIGH	Significant anomaly - Conduct thorough d...
MWPC	Industrial	61.2	HIGH	Significant anomaly - Conduct thorough d...
PRU	Industrial	60.0	HIGH	Significant anomaly - Conduct thorough d...

## Predicted Risk Rating Changes

Symbol	Current Rating	Predicted Rating	Confidence	Trend
PZF	GREEN	RED	54.0%	DETERIORATING

## Top Risk Factors (Feature Importance)

1. Max Drawdown: 47.5% importance
2. Rsi: 9.9% importance
3. Price Change 3M: 9.1% importance
4. Price Change 6M: 8.2% importance
5. Volatility: 6.0% 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: 47.5

## Sentiment Analysis

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

- Average sentiment score: -0.338
- Assets with negative sentiment: 15/20
- Total news articles analyzed: 459

## Sentiment Analysis Results

Symbol	Sentiment Score	Label	News Count	Trend	Key Themes
DOCN	-0.447	NEGATIVE	28	STABLE	regulatory, earnings, operations
MNM	-0.430	NEGATIVE	20	IMPROVING	regulatory, financial_health, operations
ZLW	-0.425	NEGATIVE	15	DETERIORATING	earnings, regulatory, financial_health
GB	-0.404	NEGATIVE	20	STABLE	financial_health, regulatory, management
SLZ	-0.383	NEGATIVE	30	STABLE	financial_health, regulatory, market_share
GE	-0.378	NEGATIVE	17	IMPROVING	regulatory, earnings, financial_health
PRU	-0.370	NEGATIVE	17	IMPROVING	regulatory, earnings, financial_health

MWPC	-0.359	NEGATIVE	23	IMPROVING	earnings, financial_health, operations
NQ	-0.344	NEGATIVE	30	STABLE	financial_health, regulatory, earnings
CEY	-0.339	NEGATIVE	29	STABLE	financial_health, regulatory, earnings
TPZU	-0.334	NEGATIVE	22	IMPROVING	regulatory, earnings, market_share
RMI	-0.333	NEGATIVE	17	IMPROVING	financial_health, earnings, regulatory
DXY	-0.330	NEGATIVE	22	DETERIORATING	regulatory, market_share, earnings
XGMR	-0.315	NEGATIVE	15	IMPROVING	earnings, regulatory, management
TTIH	-0.306	NEGATIVE	24	IMPROVING	financial_health, regulatory, operations
GCF	-0.282	NEUTRAL	29	IMPROVING	operations, earnings, financial_health
DWQ	-0.281	NEUTRAL	24	STABLE	regulatory, earnings, financial_health
PRD	-0.273	NEUTRAL	25	IMPROVING	financial_health, regulatory, market_share
ZL	-0.268	NEUTRAL	22	IMPROVING	earnings, management, regulatory
XQ	-0.151	NEUTRAL	30	IMPROVING	regulatory, earnings, financial_health

## Detailed Asset Analysis

### Asset: XQ

**Sector:** Technology

**Current Price:** \$258.44

**Market Cap:** \$153.27B

**Risk Rating:** RED

**Risk Metrics:**

- Volatility: 42.3%
- Maximum Drawdown: -42.8%
- Beta: 0.15
- Sharpe Ratio: 0.07
- RSI: 18.6

**Performance:**

- 1-Month Return: -20.6%
- 3-Month Return: -42.1%
- 6-Month Return: -29.5%

**Risk Flags:**

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

**Market Sentiment:**

- Sentiment Score: -0.151 (NEUTRAL)
- News Articles: 30
- Trend: IMPROVING

### Asset: MWPC

**Sector:** Industrial

**Current Price:** \$51.87

**Market Cap:** \$5.01B

**Risk Rating:** RED

**Risk Metrics:**

- Volatility: 31.5%
- Maximum Drawdown: -49.5%
- Beta: -0.02

- Sharpe Ratio: -1.97
- RSI: 40.8

**Performance:**

- 1-Month Return: -6.4%
- 3-Month Return: -10.8%
- 6-Month Return: -17.8%

**Risk Flags:**

- Extreme Drawdown, Poor Risk Return

**Market Sentiment:**

- Sentiment Score: -0.359 (NEGATIVE)
- News Articles: 23
- Trend: IMPROVING

## Asset: NQ

**Sector:** Materials

**Current Price:** \$78.79

**Market Cap:** \$59.81B

**Risk Rating:** RED

**Risk Metrics:**

- Volatility: 37.1%
- Maximum Drawdown: -53.6%
- Beta: 0.21
- Sharpe Ratio: -1.66
- RSI: 38.6

**Performance:**

- 1-Month Return: 1.6%
- 3-Month Return: -2.4%
- 6-Month Return: -29.4%

**Risk Flags:**

- Extreme Drawdown, Poor Risk Return

**Market Sentiment:**

- Sentiment Score: -0.344 (NEGATIVE)
- News Articles: 30
- Trend: STABLE

## Asset: GB

**Sector:** Industrial

**Current Price:** \$35.37

**Market Cap:** \$64.13B

**Risk Rating:** RED

**Risk Metrics:**

- Volatility: 17.8%
- Maximum Drawdown: -23.7%
- Beta: -0.06
- Sharpe Ratio: -0.73
- RSI: 38.9

**Performance:**

- 1-Month Return: -4.8%
- 3-Month Return: -14.0%
- 6-Month Return: -20.1%

**Risk Flags:**

- Extreme Drawdown, Poor Risk Return

**Market Sentiment:**

- Sentiment Score: -0.404 (NEGATIVE)
- News Articles: 20

- Trend: STABLE

## Asset: GE

**Sector:** Technology

**Current Price:** \$116.27

**Market Cap:** \$186.32B

**Risk Rating:** RED

**Risk Metrics:**

- Volatility: 17.4%
- Maximum Drawdown: -20.0%
- Beta: 0.07
- Sharpe Ratio: -0.63
- RSI: 37.8

**Performance:**

- 1-Month Return: -5.1%
- 3-Month Return: 11.3%
- 6-Month Return: -1.6%

**Risk Flags:**

- Extreme Drawdown, Poor Risk Return

**Market Sentiment:**

- Sentiment Score: -0.378 (NEGATIVE)
- News Articles: 17
- 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 15 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: 2025-10-15 07:43:59
- 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\_074359.csv

**Risk Analysis CSV:** risk\_analysis\_20251015\_074359.csv

The tables below provide summary information for quick reference.

### Performance Metrics Data

Symbol	1M Return	3M Return	6M Return	Vol Decline	Sharpe Ratio
BOKO	3.8%	5.6%	23.8%	-2.6%	0.43
CEY	-6.1%	12.4%	53.7%	-6.5%	0.02
DOCN	12.2%	3.6%	25.7%	1.8%	1.12
DWQ	8.7%	37.7%	28.9%	-2.3%	0.52
DXY	2.9%	3.0%	11.7%	-0.6%	0.11
GB	-4.8%	-14.0%	-20.1%	2.6%	-0.73
GCF	4.1%	1.0%	11.8%	9.6%	0.11
GE	-5.1%	11.3%	-1.6%	2.8%	-0.63
MNM	-2.2%	4.2%	5.2%	-7.9%	1.25
MWPC	-6.4%	-10.8%	-17.8%	22.6%	-1.97
NQ	1.6%	-2.4%	-29.4%	8.7%	-1.66
PRD	3.7%	30.3%	33.0%	0.1%	0.93
PRU	17.3%	23.3%	30.1%	-5.0%	2.27
PZF	-0.4%	7.4%	15.1%	-2.5%	0.89
RMI	4.0%	1.2%	-1.2%	2.3%	-0.49
SLZ	4.5%	11.9%	10.4%	-1.3%	0.18
SOZ	19.4%	43.2%	43.3%	-5.9%	1.55
TPZU	7.2%	-1.9%	15.3%	6.9%	1.26
TTIH	-1.5%	-3.4%	-22.3%	-6.9%	-1.01
VFS	-7.2%	-3.6%	31.3%	13.7%	0.92
XGMR	-3.8%	-2.0%	11.1%	1.3%	-0.13
XQ	-20.6%	-42.1%	-29.5%	8.9%	0.07
ZB	2.8%	19.5%	20.0%	4.3%	0.37
ZL	-7.4%	-1.6%	16.3%	16.1%	-0.56
ZLW	12.3%	40.9%	45.9%	1.3%	1.15

### Risk Flags Details

Symbol	High Vol	Ext. DD	Vol Collapse	Severe Dec	Ext. Dec	Poor Sharpe	Mom. Break

XQ	✓	✓	✗	✓	✓	✗	✓
MWPC	✗	✓	✗	✗	✗	✓	✗
NQ	✗	✓	✗	✗	✗	✓	✗
GB	✗	✓	✗	✗	✗	✓	✗
GE	✗	✓	✗	✗	✗	✓	✗
ZL	✗	✓	✗	✗	✗	✓	✗
DWQ	✓	✓	✗	✗	✗	✗	✗
TTIH	✗	✓	✗	✗	✗	✓	✗
CEY	✓	✓	✗	✗	✗	✗	✗
GCF	✗	✓	✗	✗	✗	✗	✗
TPZU	✗	✓	✗	✗	✗	✗	✗
ZLW	✗	✓	✗	✗	✗	✗	✗
DXY	✗	✓	✗	✗	✗	✗	✗
RMI	✗	✓	✗	✗	✗	✗	✗
DOCN	✗	✓	✗	✗	✗	✗	✗
VFS	✓	✗	✗	✗	✗	✗	✗
SLZ	✗	✓	✗	✗	✗	✗	✗
MNM	✗	✓	✗	✗	✗	✗	✗
PRD	✗	✓	✗	✗	✗	✗	✗
XGMR	✗	✓	✗	✗	✗	✗	✗
PRU	✗	✓	✗	✗	✗	✗	✗
BOKO	✗	✗	✗	✗	✗	✗	✗
SOZ	✗	✗	✗	✗	✗	✗	✗
PZF	✗	✗	✗	✗	✗	✗	✗
ZB	✗	✗	✗	✗	✗	✗	✗

#### Data Summary:

- Total Assets: 25
- Data Generated: 2025-10-15 07:43:59
- 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.