

# 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 \$2767.2 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: 32.1% • Maximum drawdown observed: -45.2% **Risk Concentration:** The analysis reveals significant risk concentration in 20 assets requiring immediate attention and potential portfolio rebalancing. **Sentiment Analysis:** • 11 RED-flagged assets show negative market sentiment • Average sentiment score for flagged assets: -0.309 • News coverage indicates heightened market concern for these positions

## Portfolio Overview

### Sector Allocation

Sector	Assets	Market Cap (\$B)	Percentage
Industrial	7	1035.02	37.4%
Healthcare	3	404.59	14.6%
Technology	2	377.47	13.6%
Consumer Staples	3	261.76	9.5%
Consumer Discretionary	2	253.08	9.1%
Real Estate	2	148.83	5.4%
Materials	1	111.26	4.0%
Energy	1	103.12	3.7%
Financial Services	4	72.10	2.6%

## 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
MY	Healthcare	RED	37.9%	-34.9%	4
MMO	Consumer Staples	RED	45.8%	-34.8%	4
MRZX	Consumer Staples	RED	42.6%	-41.5%	4
VS	Industrial	RED	28.1%	-45.2%	2
RBG	Healthcare	RED	23.0%	-29.1%	2
DV	Consumer Discretionary	RED	40.9%	-22.1%	2

RMB	Industrial	RED	43.5%	-37.1%	2
CO	Technology	RED	35.5%	-40.2%	1
XS	Consumer Discretionary	RED	35.7%	-25.8%	1
MLH	Financial Services	RED	23.8%	-20.0%	1
NEAR	Real Estate	RED	36.0%	-34.5%	1
ROL	Energy	RED	29.8%	-29.1%	1
SDB	Financial Services	RED	26.5%	-38.7%	1
NVM	Industrial	RED	33.6%	-31.8%	1
XLG	Industrial	RED	36.8%	-30.7%	1
RJA	Financial Services	RED	37.4%	-21.8%	1
VXW	Technology	RED	32.8%	-20.1%	1
XBY	Real Estate	RED	29.3%	-27.4%	1
PIPI	Financial Services	RED	38.2%	-35.1%	1
PKX	Materials	RED	17.3%	-26.6%	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: 1
- 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, Sharpe Ratio, Volatility

## Critical Anomalies Detected

Symbol	Sector	Anomaly Score	Severity	Recommendation
MY	Healthcare	100.0	CRITICAL	Critical anomaly - Consider immediate po...
MMO	Consumer Staples	68.9	HIGH	Significant anomaly - Conduct thorough d...

## Predicted Risk Rating Changes

Symbol	Current Rating	Predicted Rating	Confidence	Trend
DCY	GREEN	RED	65.0%	DETERIORATING

## Top Risk Factors (Feature Importance)

1. Max Drawdown: 51.4% importance
2. Sharpe Ratio: 11.0% importance
3. Volatility: 10.8% importance
4. Price Change 6M: 6.9% importance
5. Price Change 3M: 6.8% 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: 51.4

## Sentiment Analysis

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

- Average sentiment score: -0.309
- Assets with negative sentiment: 11/20
- Total news articles analyzed: 420

## Sentiment Analysis Results

Symbol	Sentiment Score	Label	News Count	Trend	Key Themes
XBY	-0.456	NEGATIVE	16	IMPROVING	regulatory, earnings, management
RMB	-0.452	NEGATIVE	20	IMPROVING	earnings, regulatory, management
VS	-0.423	NEGATIVE	20	STABLE	regulatory, financial_health, earnings
VXW	-0.393	NEGATIVE	27	DETERIORATING	regulatory, financial_health, operations
PIPI	-0.392	NEGATIVE	18	IMPROVING	regulatory, market_share, financial_health
RJA	-0.335	NEGATIVE	19	IMPROVING	operations, regulatory, earnings
XLG	-0.321	NEGATIVE	17	IMPROVING	regulatory, earnings, financial_health
PKX	-0.320	NEGATIVE	20	STABLE	earnings, regulatory, financial_health

CO	-0.319	NEGATIVE	18	DETERIORATING	regulatory, financial_health, earnings
MMO	-0.302	NEGATIVE	23	DETERIORATING	earnings, regulatory, financial_health
RBG	-0.301	NEGATIVE	28	IMPROVING	regulatory, earnings, financial_health
SDB	-0.293	NEUTRAL	23	STABLE	earnings, operations, regulatory
NVM	-0.284	NEUTRAL	19	STABLE	management, earnings, regulatory
ROL	-0.264	NEUTRAL	27	IMPROVING	regulatory, financial_health, operations
MLH	-0.263	NEUTRAL	15	IMPROVING	market_share, financial_health, operations
NEAR	-0.224	NEUTRAL	19	DETERIORATING	regulatory, earnings, market_share
DV	-0.216	NEUTRAL	26	STABLE	earnings, regulatory, market_share
MRZX	-0.214	NEUTRAL	19	DETERIORATING	earnings, regulatory, management
MY	-0.209	NEUTRAL	26	IMPROVING	regulatory, earnings, growth
XS	-0.198	NEUTRAL	20	DETERIORATING	regulatory, earnings, management

## Detailed Asset Analysis

### Asset: MY

**Sector:** Healthcare

**Current Price:** \$326.68

**Market Cap:** \$175.04B

**Risk Rating:** RED

**Risk Metrics:**

- Volatility: 37.9%
- Maximum Drawdown: -34.9%
- Beta: -0.18
- Sharpe Ratio: 0.77
- RSI: 14.7

**Performance:**

- 1-Month Return: -21.3%
- 3-Month Return: -34.7%
- 6-Month Return: -11.3%

**Risk Flags:**

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

**Market Sentiment:**

- Sentiment Score: -0.209 (NEUTRAL)
- News Articles: 26
- Trend: IMPROVING

### Asset: MMO

**Sector:** Consumer Staples

**Current Price:** \$97.98

**Market Cap:** \$119.51B

**Risk Rating:** RED

**Risk Metrics:**

- Volatility: 45.8%
- Maximum Drawdown: -34.8%
- Beta: 0.17
- Sharpe Ratio: -0.22
- RSI: 26.7

**Performance:**

- 1-Month Return: -18.2%
- 3-Month Return: -12.5%
- 6-Month Return: -25.5%

**Risk Flags:**

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

**Market Sentiment:**

- Sentiment Score: -0.302 (NEGATIVE)
- News Articles: 23
- Trend: DETERIORATING

## Asset: MRZX

**Sector:** Consumer Staples

**Current Price:** \$86.15

**Market Cap:** \$100.86B

**Risk Rating:** RED

**Risk Metrics:**

- Volatility: 42.6%
- Maximum Drawdown: -41.5%
- Beta: 0.08
- Sharpe Ratio: -0.48
- RSI: 38.4

**Performance:**

- 1-Month Return: -16.7%
- 3-Month Return: -14.4%
- 6-Month Return: 1.5%

**Risk Flags:**

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

**Market Sentiment:**

- Sentiment Score: -0.214 (NEUTRAL)
- News Articles: 19
- Trend: DETERIORATING

## Asset: VS

**Sector:** Industrial

**Current Price:** \$152.98

**Market Cap:** \$83.75B

**Risk Rating:** RED

**Risk Metrics:**

- Volatility: 28.1%
- Maximum Drawdown: -45.2%
- Beta: -0.00
- Sharpe Ratio: -1.09
- RSI: 66.7

**Performance:**

- 1-Month Return: 5.2%
- 3-Month Return: 8.1%
- 6-Month Return: -15.5%

**Risk Flags:**

- Extreme Drawdown, Poor Risk Return

**Market Sentiment:**

- Sentiment Score: -0.423 (NEGATIVE)
- News Articles: 20
- Trend: STABLE

## Asset: RBG

**Sector:** Healthcare

**Current Price:** \$147.67

**Market Cap:** \$35.59B

**Risk Rating:** RED

**Risk Metrics:**

- Volatility: 23.0%
- Maximum Drawdown: -29.1%
- Beta: -0.05
- Sharpe Ratio: 1.52
- RSI: 39.1

**Performance:**

- 1-Month Return: -0.6%
- 3-Month Return: -29.1%
- 6-Month Return: -9.6%

**Risk Flags:**

- Extreme Drawdown, Extended Decline

**Market Sentiment:**

- Sentiment Score: -0.301 (NEGATIVE)
- News Articles: 28
- 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 11 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 07:38:03
- 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\_073803.csv

**Risk Analysis CSV:** risk\_analysis\_20251015\_073803.csv

The tables below provide summary information for quick reference.

### Performance Metrics Data

Symbol	1M Return	3M Return	6M Return	Vol Decline	Sharpe Ratio
AVH	-1.4%	-0.8%	5.9%	-2.8%	1.33
CO	4.5%	6.7%	32.1%	10.6%	-0.14
DCY	-0.1%	-8.0%	-7.1%	1.4%	0.17
DV	-2.5%	11.4%	12.0%	-8.1%	1.15
MLH	-0.6%	-2.1%	-8.3%	1.1%	0.11
MMO	-18.2%	-12.5%	-25.5%	-4.3%	-0.22
MRZX	-16.7%	-14.4%	1.5%	-5.1%	-0.48
MY	-21.3%	-34.7%	-11.3%	-10.9%	0.77
NEAR	-6.3%	-16.3%	-6.1%	-2.3%	-0.40
NVM	7.5%	0.0%	-13.9%	-13.9%	0.02
PIPI	-10.1%	0.0%	7.3%	7.8%	-0.06
PKX	-6.3%	-15.5%	-14.7%	2.1%	0.15
RBG	-0.6%	-29.1%	-9.6%	-1.9%	1.52
RJA	6.9%	-3.9%	0.9%	-5.8%	0.95
RMB	0.7%	55.1%	13.0%	-0.3%	1.53
ROL	-0.8%	10.2%	-0.7%	6.4%	1.06
SDB	10.3%	32.0%	7.7%	7.3%	-0.20
SEZE	-2.3%	14.3%	9.8%	-0.2%	0.78
TH	2.4%	28.0%	33.6%	3.4%	1.44
VS	5.2%	8.1%	-15.5%	-2.4%	-1.09
VXW	-8.1%	-1.0%	14.5%	2.9%	0.63
XBY	-3.2%	-14.0%	-12.8%	-7.4%	0.10
XIH	7.1%	15.3%	7.0%	2.5%	-0.07
XLG	5.4%	59.9%	30.9%	1.9%	0.97
XS	6.4%	29.3%	9.3%	12.7%	1.03

### Risk Flags Details

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

MY	x	✓	x	✓	✓	x	✓
MMO	✓	✓	x	✓	x	x	✓
MRZX	✓	✓	x	✓	x	x	✓
VS	x	✓	x	x	x	✓	x
RBG	x	✓	x	x	✓	x	x
DV	✓	✓	x	x	x	x	x
RMB	✓	✓	x	x	x	x	x
CO	x	✓	x	x	x	x	x
XS	x	✓	x	x	x	x	x
MLH	x	✓	x	x	x	x	x
NEAR	x	✓	x	x	x	x	x
ROL	x	✓	x	x	x	x	x
SDB	x	✓	x	x	x	x	x
NVM	x	✓	x	x	x	x	x
XLG	x	✓	x	x	x	x	x
RJA	x	✓	x	x	x	x	x
VXW	x	✓	x	x	x	x	x
XBY	x	✓	x	x	x	x	x
PIPI	x	✓	x	x	x	x	x
PKX	x	✓	x	x	x	x	x
XIH	x	x	x	x	x	x	x
AVH	x	x	x	x	x	x	x
SEZE	x	x	x	x	x	x	x
DCY	x	x	x	x	x	x	x
TH	x	x	x	x	x	x	x

#### Data Summary:

- Total Assets: 25
- Data Generated: 2025-10-15 07:38:03
- 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.