

# Portfolio Risk Analysis Report

**Report Date:** February 22, 2026  
**Portfolio Size:** 50 Assets  
**Analysis Period:** 12 Months  
**Generated by:** Automated Risk Analysis Pipeline

## Risk Assessment Summary

**HIGH RISK (RED):** 6 Assets  
**MEDIUM RISK (YELLOW):** 0 Assets  
**LOW RISK (GREEN):** 44 Assets

## Executive Summary

This report presents a comprehensive risk analysis of a portfolio containing 50 assets with a combined market capitalization of \$6271.1 billion. **Key Findings:** • 6 assets (12.0%) are rated as HIGH RISK (RED) • 0 assets (0.0%) are rated as MEDIUM RISK (YELLOW) • Average portfolio volatility: 42.7% • Maximum drawdown observed: -76.4% **Risk Concentration:** The analysis reveals significant risk concentration in 6 assets requiring immediate attention and potential portfolio rebalancing. **Sentiment Analysis:** • 3 RED-flagged assets show negative market sentiment • Average sentiment score for flagged assets: -0.279 • News coverage indicates heightened market concern for these positions

## Portfolio Overview

### Sector Allocation

Sector	Assets	Market Cap (\$B)	Percentage
Industrial	8	1043.99	16.6%
Consumer Discretionary	7	1024.16	16.3%
Real Estate	6	963.76	15.4%
Utilities	8	822.19	13.1%
Healthcare	2	668.35	10.7%
Energy	5	591.69	9.4%
Materials	3	506.49	8.1%
Financial Services	4	252.80	4.0%
Consumer Staples	4	237.27	3.8%
Technology	3	160.43	2.6%

## Risk Analysis Results

### Risk Distribution:

- HIGH RISK (RED): 6 assets
- MEDIUM RISK (YELLOW): 0 assets
- LOW RISK (GREEN): 44 assets

### High Risk Assets

Symbol	Sector	Risk Rating	Volatility	Max Drawdown	Risk Score
DGG	Utilities	RED	48.5%	-40.0%	5
ZR	Technology	RED	64.8%	-47.7%	5
CCNY	Healthcare	RED	42.4%	-47.9%	3
GVV	Energy	RED	68.8%	-58.1%	2
SGWB	Utilities	RED	127.4%	-76.4%	2

DPH	Utilities	RED	68.0%	-54.5%	2
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## 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: 3
- 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

- 3 assets show critical anomalous behavior requiring immediate review
- Anomaly detection identified 8 assets with unusual patterns
- Key risk drivers: Max Drawdown, Volatility, Sharpe Ratio

### Critical Anomalies Detected

Symbol	Sector	Anomaly Score	Severity	Recommendation
SGWB	Utilities	100.0	CRITICAL	Critical anomaly - Consider immediate po...
ZR	Technology	89.4	CRITICAL	Critical anomaly - Consider immediate po...
DGG	Utilities	82.3	CRITICAL	Critical anomaly - Consider immediate po...
CCNY	Healthcare	71.1	HIGH	Significant anomaly - Conduct thorough d...
GVV	Energy	64.5	HIGH	Significant anomaly - Conduct thorough d...
DPH	Utilities	63.8	HIGH	Significant anomaly - Conduct thorough d...

### Top Risk Factors (Feature Importance)

1. Max Drawdown: 29.4% importance
2. Volatility: 23.4% importance
3. Sharpe Ratio: 15.8% importance
4. Price Change 3M: 9.3% importance
5. Price Change 1M: 8.4% importance

### ML Validation Results

**Overall Validation Status:** WARNING

**Checks Passed:** 3 / 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:** PASS

features\_checked: 9, nan\_features: 0, total\_samples: 50

✓ **Feature Importance Validation:** PASS

total\_importance: 100.0, top\_feature: Max Drawdown, top\_importance: 29.4

**Validation Warnings (1):**

1. Suspiciously high accuracy: 100.0% (possible overfitting)

## Sentiment Analysis

Sentiment analysis was conducted on 6 RED-flagged assets using financial news from the past 12 months. **Key Findings:**

- Average sentiment score: -0.279
- Assets with negative sentiment: 3/6
- Total news articles analyzed: 148

## Sentiment Analysis Results

Symbol	Sentiment Score	Label	News Count	Trend	Key Themes
ZR	-0.323	NEGATIVE	24	IMPROVING	regulatory, operations, earnings
DGG	-0.322	NEGATIVE	30	IMPROVING	regulatory, earnings, operations
CCNY	-0.302	NEGATIVE	29	IMPROVING	regulatory, earnings, financial_health
SGWB	-0.256	NEUTRAL	24	DETERIORATING	earnings, market_share, financial_health
GVV	-0.251	NEUTRAL	23	DETERIORATING	financial_health, regulatory, management
DPH	-0.220	NEUTRAL	18	STABLE	earnings, financial_health, regulatory

## Detailed Asset Analysis

### Asset: DGG

**Sector:** Utilities

**Current Price:** \$102.24

**Market Cap:** \$86.05B

**Risk Rating:** RED

**Risk Metrics:**

- Volatility: 48.5%
- Maximum Drawdown: -40.0%
- Beta: -0.09
- Sharpe Ratio: -0.39
- RSI: 33.6

**Performance:**

- 1-Month Return: -15.8%
- 3-Month Return: -34.2%
- 6-Month Return: -19.1%

**Risk Flags:**

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

**Market Sentiment:**

- Sentiment Score: -0.322 (NEGATIVE)
- News Articles: 30
- Trend: IMPROVING

**Asset: ZR**

**Sector:** Technology

**Current Price:** \$53.31

**Market Cap:** \$13.31B

**Risk Rating:** RED

**Risk Metrics:**

- Volatility: 64.8%
- Maximum Drawdown: -47.7%
- Beta: -0.00
- Sharpe Ratio: -0.38
- RSI: 13.1

**Performance:**

- 1-Month Return: -44.7%
- 3-Month Return: -32.5%
- 6-Month Return: -8.5%

**Risk Flags:**

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

**Market Sentiment:**

- Sentiment Score: -0.323 (NEGATIVE)
- News Articles: 24
- Trend: IMPROVING

**Asset: CCNY**

**Sector:** Healthcare

**Current Price:** \$315.80

**Market Cap:** \$615.95B

**Risk Rating:** RED

**Risk Metrics:**

- Volatility: 42.4%
- Maximum Drawdown: -47.9%
- Beta: -0.17
- Sharpe Ratio: -0.55
- RSI: 78.8

**Performance:**

- 1-Month Return: 22.0%
- 3-Month Return: 30.5%
- 6-Month Return: 26.3%

**Risk Flags:**

- High Volatility, Extreme Drawdown, Poor Risk Return

**Market Sentiment:**

- Sentiment Score: -0.302 (NEGATIVE)
- News Articles: 29
- Trend: IMPROVING

**Asset: GVV**

**Sector:** Energy  
**Current Price:** \$140.98  
**Market Cap:** \$171.79B  
**Risk Rating:** RED  
**Risk Metrics:**

- Volatility: 68.8%
- Maximum Drawdown: -58.1%
- Beta: -0.00
- Sharpe Ratio: 0.02
- RSI: 73.7

**Performance:**

- 1-Month Return: 24.0%
- 3-Month Return: -10.1%
- 6-Month Return: 13.8%

**Risk Flags:**

- High Volatility, Extreme Drawdown

**Market Sentiment:**

- Sentiment Score: -0.251 (NEUTRAL)
- News Articles: 23
- Trend: DETERIORATING

## Asset: SGWB

**Sector:** Utilities  
**Current Price:** \$95.73  
**Market Cap:** \$179.52B  
**Risk Rating:** RED  
**Risk Metrics:**

- Volatility: 127.4%
- Maximum Drawdown: -76.4%
- Beta: -0.79
- Sharpe Ratio: 0.06
- RSI: 90.3

**Performance:**

- 1-Month Return: 89.2%
- 3-Month Return: 40.3%
- 6-Month Return: 1.2%

**Risk Flags:**

- High Volatility, Extreme Drawdown

**Market Sentiment:**

- Sentiment Score: -0.256 (NEUTRAL)
- News Articles: 24
- Trend: DETERIORATING

## Recommendations

Based on the comprehensive risk analysis, the following recommendations are provided:

**Immediate Actions (RED-flagged assets):**

1. Consider reducing position sizes for 6 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 3 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: 2026-02-22 19:33:29
- 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\_20260222\_193329.csv

**Risk Analysis CSV:** risk\_analysis\_20260222\_193329.csv

The tables below provide summary information for quick reference.

### Performance Metrics Data

Symbol	1M Return	3M Return	6M Return	Vol Decline	Sharpe Ratio
AFF	2.2%	4.5%	7.0%	1.6%	0.65
AIEI	-0.6%	7.2%	8.0%	2.6%	0.78
APD	2.0%	5.8%	10.9%	-1.6%	0.83
APH	-1.6%	3.5%	10.3%	0.8%	0.53
ARN	3.3%	5.2%	9.7%	2.7%	0.68
ASZG	-0.7%	7.5%	8.5%	-0.5%	0.72
AU	-0.1%	2.0%	9.0%	-0.8%	0.57
AU	4.2%	8.3%	8.5%	-1.4%	0.70
BAU	0.2%	5.3%	13.2%	-0.2%	0.80
BDG	1.5%	3.0%	8.9%	2.2%	0.56
BQ	2.6%	5.2%	8.8%	1.3%	0.43
BXCX	1.1%	6.8%	9.3%	-1.7%	0.74
CCNY	22.0%	30.5%	26.3%	-3.4%	-0.55
CHB	0.4%	0.9%	8.6%	0.7%	0.45
CHNG	0.5%	1.8%	6.4%	0.1%	0.56
DEC	2.2%	1.0%	9.0%	1.3%	0.41
DGG	-15.8%	-34.2%	-19.1%	-7.8%	-0.39
DH	-1.4%	2.3%	9.9%	0.1%	0.56
DHG	0.7%	1.8%	7.1%	0.8%	0.69
DIOV	2.2%	6.3%	10.6%	-0.9%	0.76
DP	-1.6%	5.7%	8.8%	0.1%	0.53
DPH	23.4%	-7.2%	19.0%	-3.8%	-0.24
DTY	3.8%	5.3%	9.3%	0.9%	0.55
GL	0.4%	2.5%	9.3%	1.7%	0.58
GOV	0.9%	3.3%	11.4%	-1.5%	0.67
GVV	24.0%	-10.1%	13.8%	-4.7%	0.02
GZ	2.3%	5.3%	9.3%	2.9%	0.48
MQOP	2.1%	6.6%	5.7%	-0.6%	0.58
NPK	-0.0%	5.9%	9.5%	1.3%	0.67
NRF	1.8%	4.4%	6.5%	0.2%	0.53

PLG	-0.7%	2.9%	7.7%	-0.3%	0.67
PX	1.5%	3.7%	14.4%	0.6%	0.68
SFN	-0.9%	2.2%	8.9%	3.7%	0.72
SGWB	89.2%	40.3%	1.2%	-1.5%	0.06
SPWB	-0.6%	0.7%	9.8%	0.2%	0.56
SQIJ	2.9%	1.8%	7.2%	0.7%	0.59
SSD	1.6%	3.0%	5.2%	5.1%	0.54
SVG	0.3%	3.2%	4.3%	0.3%	0.58
TAD	0.4%	2.0%	7.4%	0.6%	0.66
TFFK	1.0%	7.8%	11.8%	3.6%	0.80
TUL	0.4%	1.9%	9.7%	1.4%	0.49
TVC	2.4%	6.5%	7.0%	-1.8%	0.62
VCP	2.5%	5.8%	6.2%	1.5%	0.58
VCQX	3.3%	2.7%	9.1%	-0.6%	0.65
VU	0.2%	5.0%	7.0%	1.6%	0.61
XDQ	2.8%	6.9%	10.8%	0.5%	0.67
XLN	-0.7%	8.0%	11.1%	0.6%	0.70
XTFP	2.2%	2.5%	12.5%	1.1%	0.70
ZR	-44.7%	-32.5%	-8.5%	11.4%	-0.38
ZY	3.7%	4.3%	5.9%	0.6%	0.45

## Risk Flags Details

Symbol	High Vol	Ext. DD	Vol Collapse	Severe Dec	Ext. Dec	Poor Sharpe	Mom. Break
DGG	✓	✓	✗	✓	✓	✗	✓
ZR	✓	✓	✗	✓	✓	✗	✓
CCNY	✓	✓	✗	✗	✗	✓	✗
GVV	✓	✓	✗	✗	✗	✗	✗
SGWB	✓	✓	✗	✗	✗	✗	✗
DPH	✓	✓	✗	✗	✗	✗	✗
ARN	✓	✗	✗	✗	✗	✗	✗
VCQX	✓	✗	✗	✗	✗	✗	✗
DIOV	✓	✗	✗	✗	✗	✗	✗
SVG	✓	✗	✗	✗	✗	✗	✗
DP	✓	✗	✗	✗	✗	✗	✗
NPK	✓	✗	✗	✗	✗	✗	✗
DEC	✓	✗	✗	✗	✗	✗	✗
APH	✓	✗	✗	✗	✗	✗	✗
AU	✓	✗	✗	✗	✗	✗	✗
XDQ	✓	✗	✗	✗	✗	✗	✗

BXCX	X	X	X	X	X	X	X
BDG	X	X	X	X	X	X	X
PLG	X	X	X	X	X	X	X
XLN	X	X	X	X	X	X	X
SSD	X	X	X	X	X	X	X
GZ	X	X	X	X	X	X	X
SFN	X	X	X	X	X	X	X
DTY	X	X	X	X	X	X	X
VU	X	X	X	X	X	X	X
XTFP	X	X	X	X	X	X	X
DHG	X	X	X	X	X	X	X
BAU	X	X	X	X	X	X	X
BQ	X	X	X	X	X	X	X
ASZG	X	X	X	X	X	X	X
PX	X	X	X	X	X	X	X
NRF	X	X	X	X	X	X	X
MQOP	X	X	X	X	X	X	X
TFFK	X	X	X	X	X	X	X
GOV	X	X	X	X	X	X	X
CHB	X	X	X	X	X	X	X
SQIJ	X	X	X	X	X	X	X
CHNG	X	X	X	X	X	X	X
TAD	X	X	X	X	X	X	X
AFF	X	X	X	X	X	X	X
DH	X	X	X	X	X	X	X
TVC	X	X	X	X	X	X	X
AU	X	X	X	X	X	X	X
SPWB	X	X	X	X	X	X	X
VCP	X	X	X	X	X	X	X
GL	X	X	X	X	X	X	X
TUL	X	X	X	X	X	X	X
AIEI	X	X	X	X	X	X	X
ZY	X	X	X	X	X	X	X
APD	X	X	X	X	X	X	X

**Data Summary:**

- Total Assets: 50
- Data Generated: 2026-02-22 19:33:29
- 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.