# Portfolio Risk Analysis Report

## Risk Assessment Summary

**HIGH RISK (RED):** 33 Assets
**MEDIUM RISK (YELLOW):** 0 Assets
**LOW RISK (GREEN):** 17 Assets

# Executive Summary

This report presents a comprehensive risk analysis of a portfolio containing 50 assets with a combined market capitalization of $6530.1 billion. **Key Findings:** • 33 assets (66.0%) are rated as HIGH RISK (RED) • 0 assets (0.0%) are rated as MEDIUM RISK (YELLOW) • Average portfolio volatility: 30.7% • Maximum drawdown observed: -56.9% **Risk Concentration:** The analysis reveals significant risk concentration in 33 assets requiring immediate attention and potential portfolio rebalancing. **Sentiment Analysis:** • 16 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 |
|---|---|---|---|
| Technology | 6 | 1114.25 | 17.1% |
| Healthcare | 5 | 1112.10 | 17.0% |
| Real Estate | 4 | 732.17 | 11.2% |
| Materials | 8 | 709.58 | 10.9% |
| Consumer Discretionary | 5 | 696.06 | 10.7% |
| Financial Services | 6 | 666.26 | 10.2% |
| Industrial | 3 | 534.43 | 8.2% |
| Energy | 7 | 522.03 | 8.0% |
| Utilities | 4 | 305.95 | 4.7% |
| Consumer Staples | 2 | 137.25 | 2.1% |

# Risk Analysis Results

**Risk Distribution:**
• HIGH RISK (RED): 33 assets
• MEDIUM RISK (YELLOW): 0 assets
• LOW RISK (GREEN): 17 assets

## High Risk Assets

| Symbol | Sector | Risk Rating | Volatility | Max Drawdown | Risk Score |
|---|---|---|---|---|---|
| MQ | Energy | RED | 44.9% | -50.7% | 5 |
| CZBG | Materials | RED | 37.2% | -51.7% | 4 |
| RPI | Real Estate | RED | 43.7% | -50.1% | 4 |
| SK | Utilities | RED | 37.1% | -36.6% | 4 |
| MLP | Utilities | RED | 43.3% | -56.9% | 4 |

| | | | | | |
|---|---|---|---|---|---|
| BI | Materials | RED | 42.0% | -47.0% | 3 |
| ZLO | Industrial | RED | 32.3% | -33.2% | 3 |
| DKFY | Utilities | RED | 41.1% | -40.6% | 3 |
| XET | Technology | RED | 45.3% | -47.3% | 2 |
| PV | Financial Services | RED | 42.3% | -41.8% | 2 |
| MYX | Real Estate | RED | 26.4% | -33.6% | 2 |
| CDI | Technology | RED | 40.9% | -31.2% | 2 |
| PVG | Consumer Staples | RED | 41.3% | -32.3% | 2 |
| VOH | Materials | RED | 39.9% | -30.9% | 2 |
| RQE | Energy | RED | 38.7% | -29.0% | 2 |
| DW | Consumer Discretionary | RED | 22.6% | -29.0% | 2 |
| GCJ | Consumer Discretionary | RED | 41.3% | -20.5% | 2 |
| SDJG | Energy | RED | 20.0% | -32.8% | 2 |
| PWSO | Technology | RED | 35.8% | -39.3% | 2 |
| TIM | Financial Services | RED | 33.7% | -42.2% | 2 |
| BWC | Financial Services | RED | 21.0% | -39.8% | 2 |
| AN | Energy | RED | 16.3% | -21.8% | 2 |
| BOB | Materials | RED | 43.2% | -26.7% | 2 |
| GPP | Technology | RED | 31.1% | -26.5% | 1 |
| NGDK | Technology | RED | 40.0% | -42.8% | 1 |
| SPU | Consumer Discretionary | RED | 27.8% | -36.3% | 1 |
| PKIH | Energy | RED | 25.7% | -24.0% | 1 |
| DJEI | Real Estate | RED | 32.4% | -27.6% | 1 |
| AL | Real Estate | RED | 24.9% | -23.1% | 1 |
| GN | Materials | RED | 32.3% | -25.2% | 1 |
| NF | Healthcare | RED | 26.6% | -23.8% | 1 |
| VUJQ | Energy | RED | 29.5% | -21.2% | 1 |
| TPIO | Financial Services | RED | 33.4% | -30.6% | 1 |

# Machine Learning Analysis

Advanced machine learning techniques were applied to identify anomalies and predict future risk ratings. **Anomaly Detection Summary:**
• Total Anomalies Detected: 8
• Critical Anomalies: 1
• High Risk Anomalies: 7
• 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

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

## Critical Anomalies Detected

| Symbol | Sector | Anomaly Score | Severity | Recommendation |
|--------|--------|---------------|----------|----------------|
| MLP | Utilities | 100.0 | CRITICAL | Critical anomaly - Consider immediate po... |
| XRAK | Materials | 77.5 | HIGH | Significant anomaly - Conduct thorough d... |
| SK | Utilities | 72.4 | HIGH | Significant anomaly - Conduct thorough d... |
| MQ | Energy | 70.3 | HIGH | Significant anomaly - Conduct thorough d... |
| PVG | Consumer Staples | 68.0 | HIGH | Significant anomaly - Conduct thorough d... |
| NVFO | Financial Services | 66.6 | HIGH | Significant anomaly - Conduct thorough d... |
| BSC | Financial Services | 65.0 | HIGH | Significant anomaly - Conduct thorough d... |
| SDJG | Energy | 60.7 | HIGH | Significant anomaly - Conduct thorough d... |

## Top Risk Factors (Feature Importance)

1. Max Drawdown: 57.2% importance
2. Volatility: 11.0% importance
3. Rsi: 8.6% importance
4. Sharpe Ratio: 8.6% importance
5. Price Change 6M: 7.2% importance

## Sentiment Analysis

Sentiment analysis was conducted on 33 RED-flagged assets using financial news from the past 12 months. **Key Findings:**
- Average sentiment score: -0.312
- Assets with negative sentiment: 16/33
- Total news articles analyzed: 776

## Sentiment Analysis Results

| Symbol | Sentiment Score | Label | News Count | Trend | Key Themes |
|--------|-----------------|-------|------------|-------|------------|
| BOB | -0.515 | NEGATIVE | 18 | IMPROVING | financial_health, market_share, regulatory |
| PV | -0.471 | NEGATIVE | 16 | STABLE | financial_health, regulatory, earnings |
| GPP | -0.428 | NEGATIVE | 26 | IMPROVING | regulatory, financial_health, operations |
| RQE | -0.415 | NEGATIVE | 20 | DETERIORATING | regulatory, operations, financial_health |
| TIM | -0.407 | NEGATIVE | 22 | STABLE | regulatory, financial_health, earnings |

| | | | | | |
|------|--------|----------|----|---------------|-------------------------------------------|
| PWSO | -0.391 | NEGATIVE | 19 | STABLE | regulatory, operations, earnings |
| BI | -0.381 | NEGATIVE | 30 | STABLE | regulatory, financial_health, earnings |
| DJEI | -0.367 | NEGATIVE | 23 | STABLE | regulatory, earnings, management |
| MYX | -0.357 | NEGATIVE | 24 | IMPROVING | financial_health, operations, regulatory |
| RPI | -0.356 | NEGATIVE | 28 | DETERIORATING | regulatory, earnings, operations |
| NGDK | -0.329 | NEGATIVE | 26 | STABLE | earnings, regulatory, management |
| AL | -0.326 | NEGATIVE | 30 | IMPROVING | financial_health, regulatory, market_share |
| XET | -0.317 | NEGATIVE | 23 | IMPROVING | earnings, regulatory, operations |
| ZLO | -0.316 | NEGATIVE | 18 | DETERIORATING | regulatory, management, financial_health |
| DW | -0.313 | NEGATIVE | 27 | DETERIORATING | regulatory, financial_health, operations |
| MLP | -0.311 | NEGATIVE | 30 | STABLE | regulatory, financial_health, earnings |
| SDJG | -0.299 | NEUTRAL | 30 | STABLE | regulatory, financial_health, operations |
| SPU | -0.298 | NEUTRAL | 21 | DETERIORATING | regulatory, earnings, financial_health |
| TPIO | -0.297 | NEUTRAL | 29 | DETERIORATING | regulatory, earnings, market_share |
| VOH | -0.291 | NEUTRAL | 15 | IMPROVING | regulatory, earnings, operations |
| MQ | -0.280 | NEUTRAL | 27 | DETERIORATING | earnings, regulatory, financial_health |
| PKIH | -0.279 | NEUTRAL | 19 | IMPROVING | earnings, financial_health, operations |
| PVG | -0.277 | NEUTRAL | 21 | IMPROVING | financial_health, regulatory, earnings |
| AN | -0.267 | NEUTRAL | 30 | DETERIORATING | regulatory, earnings, financial_health |
| VUJQ | -0.257 | NEUTRAL | 29 | STABLE | earnings, regulatory, management |
| GCJ | -0.249 | NEUTRAL | 30 | IMPROVING | earnings, regulatory, management |
| DKFY | -0.246 | NEUTRAL | 18 | IMPROVING | earnings, regulatory, operations |
| BWC | -0.243 | NEUTRAL | 30 | DETERIORATING | earnings, financial_health, operations |
| NF | -0.232 | NEUTRAL | 17 | IMPROVING | financial_health, earnings, regulatory |
| GN | -0.217 | NEUTRAL | 20 | DETERIORATING | earnings, regulatory, market_share |
| CDI | -0.193 | NEUTRAL | 17 | IMPROVING | growth, management, financial_health |
| SK | -0.188 | NEUTRAL | 23 | DETERIORATING | regulatory, management, operations |
| CZBG | -0.185 | NEUTRAL | 20 | DETERIORATING | regulatory, earnings, financial_health |

# Detailed Asset Analysis

## Asset: MQ

**Sector:** Energy
**Current Price:** $64.83
**Market Cap:** $96.79B
**Risk Rating:** RED
**Risk Metrics:**
• Volatility: 44.9%
• Maximum Drawdown: -50.7%
• Beta: 0.07
• Sharpe Ratio: -1.16
• RSI: 26.8

**Performance:**
• 1-Month Return: -26.4%
• 3-Month Return: -19.0%
• 6-Month Return: -19.1%
**Risk Flags:**
• High Volatility, Extreme Drawdown, Severe Decline, Poor Risk Return, Momentum Breakdown
**Market Sentiment:**
• Sentiment Score: -0.280 (NEUTRAL)
• News Articles: 27
• Trend: DETERIORATING

## Asset: CZBG

**Sector:** Materials
**Current Price:** $180.60
**Market Cap:** $88.91B
**Risk Rating:** RED
**Risk Metrics:**
• Volatility: 37.2%
• Maximum Drawdown: -51.7%
• Beta: 0.00
• Sharpe Ratio: -0.72
• RSI: 34.6
**Performance:**
• 1-Month Return: -11.0%
• 3-Month Return: -28.4%
• 6-Month Return: -48.3%
**Risk Flags:**
• Extreme Drawdown, Extended Decline, Poor Risk Return, Momentum Breakdown
**Market Sentiment:**
• Sentiment Score: -0.185 (NEUTRAL)
• News Articles: 20
• Trend: DETERIORATING

## Asset: RPI

**Sector:** Real Estate
**Current Price:** $130.89
**Market Cap:** $169.30B
**Risk Rating:** RED
**Risk Metrics:**
• Volatility: 43.7%
• Maximum Drawdown: -50.1%
• Beta: -0.15
• Sharpe Ratio: -1.20
• RSI: 41.1
**Performance:**
• 1-Month Return: -14.7%
• 3-Month Return: -15.9%
• 6-Month Return: -9.1%
**Risk Flags:**
• High Volatility, Extreme Drawdown, Poor Risk Return, Momentum Breakdown
**Market Sentiment:**
• Sentiment Score: -0.356 (NEGATIVE)
• News Articles: 28
• Trend: DETERIORATING

## Asset: SK

**Sector:** Utilities
**Current Price:** $78.65
**Market Cap:** $98.77B
**Risk Rating:** RED
**Risk Metrics:**
• Volatility: 37.1%
• Maximum Drawdown: -36.6%
• Beta: -0.07
• Sharpe Ratio: -0.24
• RSI: 15.4
**Performance:**
• 1-Month Return: -23.7%
• 3-Month Return: -32.9%
• 6-Month Return: -27.1%
**Risk Flags:**
• Extreme Drawdown, Severe Decline, Extended Decline, Momentum Breakdown
**Market Sentiment:**
• Sentiment Score: -0.188 (NEUTRAL)
• News Articles: 23
• Trend: DETERIORATING

## Asset: MLP

**Sector:** Utilities
**Current Price:** $101.54
**Market Cap:** $133.02B
**Risk Rating:** RED
**Risk Metrics:**
• Volatility: 43.3%
• Maximum Drawdown: -56.9%
• Beta: 0.40
• Sharpe Ratio: -1.31
• RSI: 64.6
**Performance:**
• 1-Month Return: 15.2%
• 3-Month Return: -29.2%
• 6-Month Return: -48.0%
**Risk Flags:**
• High Volatility, Extreme Drawdown, Extended Decline, Poor Risk Return
**Market Sentiment:**
• Sentiment Score: -0.311 (NEGATIVE)
• News Articles: 30
• 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 33 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 16 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: 2025-10-14 10:38:39
• Analysis Period: 12 months
• Total Assets Analyzed: 50
• Pipeline Version: 1.0