

# CMP04: Bank Compliance Analysis

Technical Analysis Report | February 01, 2026

## 1. Data Overview

**Subject:** Major Banks (JPM)  
**Analysis Period:** 2016-02-03 to 2026-01-30 (~10.0 years)  
**Total Observations:** 28,881 rows  
**Stock Data:** 0 daily OHLCV observations  
**Data Sources:** Yahoo Finance API (yfinance), synthetic operational metrics

## 2. Methodology

### 2.1 Risk Analytics (CFA Standards)

- Sharpe Ratio:**  $(\text{Return} - \text{Rf}) / \text{Volatility}$  ( $\text{Rf} = 0$ )
- Sortino Ratio:**  $\text{Return} / \text{Downside Deviation}$
- Value at Risk (VaR):** Historical 95% and 99% confidence
- Maximum Drawdown:** Peak-to-trough decline

### 2.2 Technical Indicators

- Moving Averages:** SMA/EMA (20, 50, 200 day)
- Volatility:** Rolling standard deviation (20, 60, 252 day)
- Momentum:** RSI-14, Price momentum (20-252 day)

## 3. Risk Metrics Summary

Ticker	Total Return	Ann. Return	Volatility	Sharpe	Max DD
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## 4. Detailed Risk Profile

### Return Distribution

Metric	Value
Positive Days	0.0%
Best Day	0.00%
Worst Day	0.00%
Sortino Ratio	0.00

### Value at Risk

Confidence	Daily VaR
95%	0.00%
99%	0.00%

## 5. Data Quality Assessment

**Completeness:** All trading days covered  
**Adjustments:** Prices adjusted for splits/dividends  
**Validation:** Stock data from Yahoo Finance  
**Processing:** Pandas/NumPy calculations  
**Disclaimer:** Operational metrics are synthetic/illustrative

## 6. Key Observations

- Sector volatility characteristics relative to market indices
- Risk-adjusted return profile (Sharpe, Sortino)
- Drawdown behavior during market stress periods
- Volume and liquidity patterns

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Data Source: Yahoo Finance (stock), Synthetic (operational) | Report Code: CMP04

Portfolio Sample - Demonstrates data engineering methodology | Generated: 2026-02-01 00:57:59