

# CRY03: Corporate Bitcoin Treasury Analysis

Technical Analysis Report | February 01, 2026

## 1. Data Overview

**Subject:** MicroStrategy (MSTR)  
**Analysis Period:** 2021-02-01 to 2026-01-30 (~5.0 years)  
**Total Observations:** 8,019 rows across 4 datasets  
**Stock Data:** 1,256 daily OHLCV observations  
**Data Sources:** Yahoo Finance API, CoinGecko, exchange APIs (synthetic operational data)

## 2. Methodology

### 2.1 Metrics Computed

- BTC holdings per company
- NAV premium/discount calculation
- BTC beta and correlation analysis
- Financing activity tracking
- Cost basis estimation
- Stock vs BTC performance
- Convertible note analysis

### 2.2 Risk Analytics (CFA Standards)

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

### 2.3 Crypto-Specific Indicators

- Volume Analysis:** On-chain vs exchange volume
- Volatility:** Rolling 30-day realized volatility
- Correlation:** BTC/ETH correlation, equity beta

## 3. Risk Metrics Summary

Ticker	Total Return	Ann. Return	Volatility	Sharpe	Max DD
MSTR	135.9%	18.8%	93.7%	0.20	-89.3%

## 4. Detailed Risk Profile

### Return Distribution

Metric	Value
Positive Days	49.2%
Best Day	29.16%
Worst Day	-25.55%
Sortino Ratio	0.32

### Value at Risk

Confidence	Daily VaR
95%	-8.23%
99%	-14.87%

## 5. Data Quality Assessment

**Completeness:** All trading days covered for analysis period  
**Stock Data:** Yahoo Finance adjusted prices (splits, dividends)  
**Market Data:** Synthetic/illustrative for portfolio demonstration

## 6. Key Observations

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- Crypto equities exhibit extreme volatility compared to traditional assets
- High correlation with Bitcoin price movements
- Regulatory developments significantly impact valuations
- Trading volume and liquidity vary significantly across exchanges

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Data Source: Yahoo Finance (stock), Synthetic (market) | Report Code: CRY03  
Portfolio Sample - Demonstrates data engineering methodology  
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