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2021 Market Analysis: Bitcoin vs. S&P 500 Performance Review

Executive Summary: The objective of this analysis was to evaluate Bitcoin's viability as a strategic addition to a traditional investment portfolio by comparing its behavior against the S&P 500 throughout 2021.

Key Analytical Findings:

Superior Growth Performance: Bitcoin demonstrated exceptional upside potential, ending the year with a total growth of 39.23%, significantly outperforming the S&P 500's steady 26.60% increase.

Volatility & Risk Exposure: While the returns were higher, the risk profile was substantially more aggressive. Bitcoin experienced a major mid-year correction, dropping to 40% of its peak value. In contrast, the S&P 500 remained resilient, with its deepest dip reaching only 76% of its high.

Operational Dynamics: A critical distinction observed is the 24/7 nature of the crypto market versus the traditional exchange's weekend closures. While this offers constant liquidity, it also demands more intensive monitoring compared to the structured schedule of the stock market.

Strategic Recommendation: Bitcoin serves as a high-reward growth engine for investors with a high risk tolerance. To achieve a balanced and optimized portfolio, it is best utilized as a supplementary asset to boost returns, anchored by the long-term stability and lower volatility of the S&P 500.

Data Source: Historical market data from Yahoo Finance (Jan 2021 - Dec 2021).

Full data and calculations are available on my GitHub

Change Log

Date	Column/Field	Issue Description	Action Taken
1/12/2026	Date	Dates were in text format, preventing chronological sorting.	Converted text to Date format.
1/12/2026	Symbol	Column contained special characters (e.g., "!").	Cleaned symbols using Find & Replace and created "Symbol_Clean".
1/12/2026	High	BTUSD entry for 3/1/21 was missing value.	Imputed missing value using the daily average price.
1/12/2026	High	BTUSD value for 5/1/21 was an outlier (\$300,000).	Removed outlier to avoid skewing the analysis.
1/12/2026	Formatting	Values were raw numbers without currency context.	Formatted all price columns to Currency (\$).
1/12/2026	Organization	Monthly data was not grouped for easy analysis.	Created "Month_Clean" column to aggregate data in Pivot Tables.
1/12/2026	Entire Dataset	Checked if any rows were repeated by mistake.	Scanned dataset; confirmed no duplicates found.
1/12/2026	S&P 500 Dates	Noticed gaps in dates for stock market data.	Verified that missing dates correspond to weekends/holidays.
1/12/2026	Analysis	Raw prices alone didn't show the risk clearly.	Created 'Spread' and 'Upside' formulas for better comparison.
1/12/2026	Visuals	Default charts looked cluttered and hard to read.	Removed gridlines and fixed axis titles for a clean look.
1/12/2026	Final Check	Preparing file for portfolio presentation.	Review of all numbers, formatting, and spelling.

Daily Trends

2021 Daily Highs Comparison: Bitcoin vs. S&P 500



This dual-axis chart compares daily highs, highlighting Bitcoin's extreme volatility vs S&P 500's steady growth. Note the gaps in SP500, representing weekend market closures.

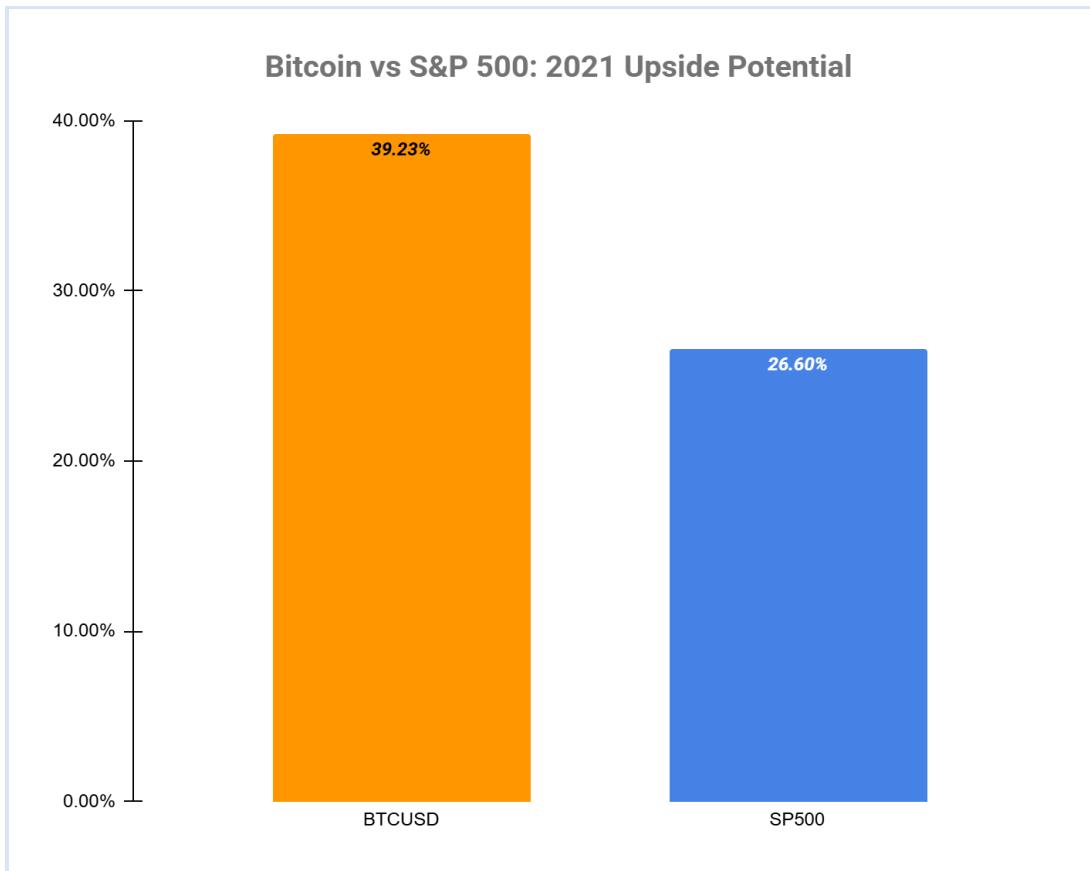
Exploratory Data Analysis

Date - Month	Avg Price	Symbol	
	BTCUSD	SP500	
Jan	\$34,835	\$3,794	
Feb	\$46,419	\$3,883	
Mar	\$54,756	\$3,911	
Apr	\$57,054	\$4,141	
May	\$46,392	\$4,168	
Jun	\$35,718	\$4,238	
Jul	\$34,428	\$4,364	
Aug	\$45,619	\$4,454	
Sep	\$46,034	\$4,446	
Oct	\$58,090	\$4,461	
Nov	\$60,356	\$4,667	
Dec	\$49,300	\$4,675	

The color scale highlights Bitcoin's major price recovery in the late months (Oct-Nov) and the significant cooling period during the summer months (June-July).

Upside

Symbol	First Open (Jan 2021)	Last Close (Dec 2021)	Percentage Change
BTCUSD	\$33,617	\$46,807	39.23%
SP500	\$3,765	\$4,766	26.60%

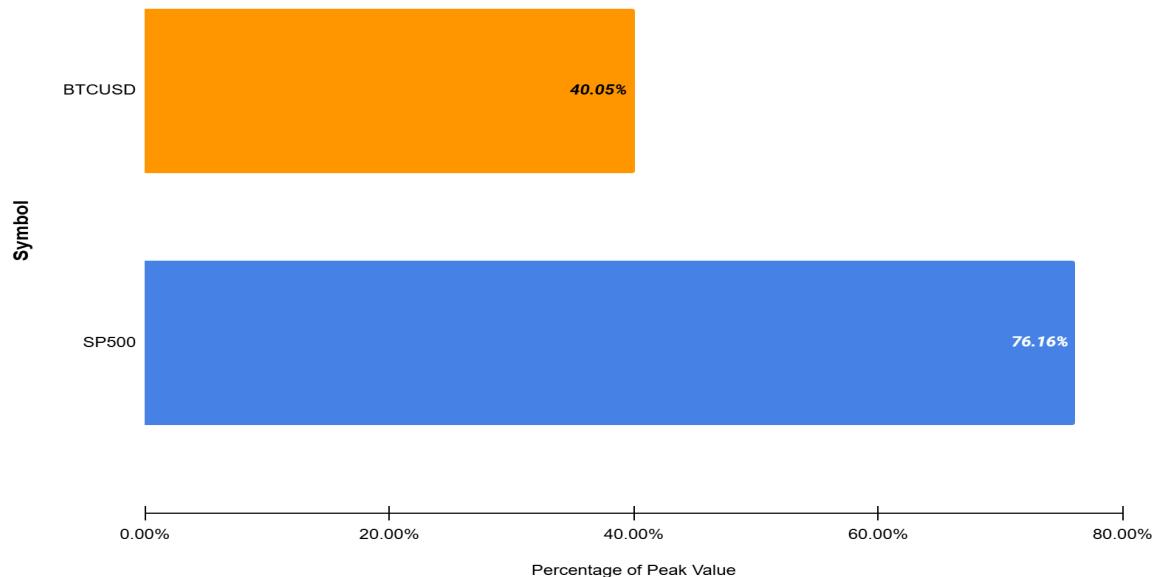


Bitcoin significantly outperformed the S&P 500 in 2021, delivering an upside potential of 39.23% compared to the index's 26.60% growth.

Spread

Symbol	Max High	Min Low	Low as % of High
BTCUSD	\$69,000	\$27,632	40.05%
SP500	\$4,809	\$3,663	76.16%

Volatility Risk: Lowest Price as % of Peak High (2021)



Key Takeaway: Bitcoin showed significantly higher volatility risk in 2021, dropping to nearly 40% of its peak value, whereas S&P 500 remained much more stable, only dipping to 76% of its high.