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When Bitcoin flirts with gold: insight, illusion or investment tool?

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In May 2010, Laszlo Hanyecz purchased two large pizzas from a franchised pizza shop for 10,000 Bitcoins to feed his family, commemorating the occasion with a photograph of his children. This event later became known as the famous Bitcoin Pizza Day*. At the time, it would have seemed laughable to ask how many ounces of gold a single Bitcoin could buy. Yet, seven years after Bitcoin Pizza Day, one Bitcoin was worth more than one ounce of gold**, motivating the introduction of the Bitcoin-to-Gold (BG) ratio as a measure of Bitcoin's purchasing power.

Although Bitcoin has been valued above one ounce of gold since 2017, this fact did not immediately draw widespread attention. It was not until the COVID-19 pandemic that U.S. institutional investors gradually began to embrace Bitcoin as part of their asset allocations, alongside traditional equities. As in 2017, this renewed interest revived a familiar question: how is Bitcoin's price related to the stock market?

This question, however, is not well posed. The stock market consists of thousands of individual securities, while Bitcoin prices are highly volatile. It is therefore unclear how one might meaningfully compare a single digital asset with such a broad and fluctuating market.

To address this issue, a group of researchers, Bouri et al. [1], proposed using the BG ratio to mitigate Bitcoin's price volatility by focusing on its purchasing power, and they adopted the S&P 500, one of the most representative U.S. equity indices, as a benchmark for the stock market.

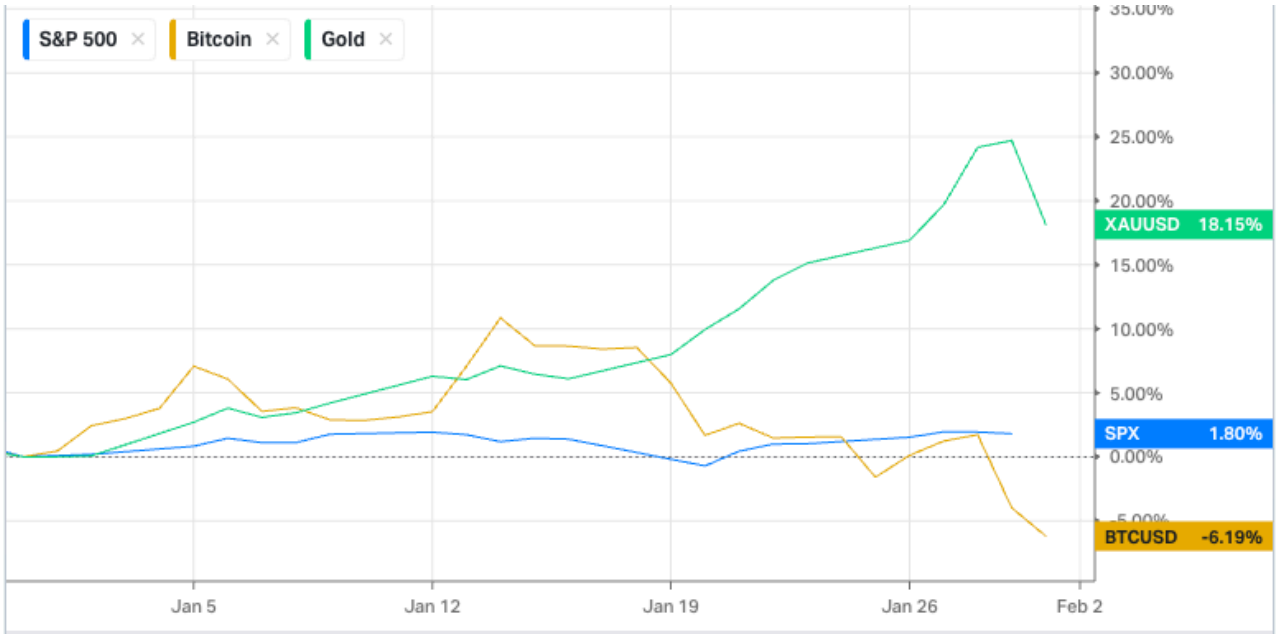
*:https://trakx.io/resources/insights/bitcoin-pizza-day/
**:https://www.visualcapitalist.com/short-history-bitcoin-reached-parity-gold/

Using linear regression, Bouri et al. [1] documented a positive correlation between the S&P 500 and the BG ratio during and after the COVID-19 pandemic, in contrast to a largely neutral relationship prior to the outbreak. Their modeling framework is well reasoned, incorporating several economically intuitive factors. The statistical analysis is comprehensive and provides strong support for their conclusions.

At this point, a natural question arises: if the two variables are positively correlated, can one be used to predict the other? While this possibility cannot be dismissed outright, several substantial obstacles must first be addressed.

Bouri et al. [1] analyzed data spanning from August 7, 2015, to December 30, 2024 and concluded some positive correlation between the stock market and BG ratio. Entering 2026, the persistence of this correlation is an immediate concern, particularly in light of the historic gold rally at the beginning of the year. A perfectly positive correlation between the S&P 500 and the BG ratio implies that when the S&P 500 rises, either Bitcoin appreciates, gold depreciates, or both. However, Figure 1, which shows the prices of gold, the S&P 500, and Bitcoin from January 1, 2026, to January 30, 2026, reveals a contrasting pattern: while the S&P 500 (blue line) registers modest gains, Bitcoin (yellow line) declines sharply, and gold (green line) remains significantly elevated relative to the other two. This short-term behavior runs counter to the previously identified positive correlation.

Figure 1: 2026 YTD change of Gold(green), S&P 500(blue) and Bitcoin(yellow)



Source: Koyfin.com

This observation does not invalidate the findings of Bouri et al. [1], whose conclusions are based on statistical relationships over a longer time horizon. Rather, it highlights a practical limitation: strict adherence to this correlation as a trading or investment strategy may incur substantial drawdowns during periods of heightened volatility, unless accompanied by a carefully designed risk-management framework.

A second limitation concerns the contemporaneous nature of the correlation examined by Bouri et al. [1]. Specifically, the authors compare the (logarithmic) returns of the S&P 500 and the BG ratio from day T−1 to day T. While informative, this approach is primarily explanatory rather than predictive. A more predictive framework would involve lagged relationships. For example, one could test whether the return of the BG ratio from day T−2 to day T−1 exhibits a statistically significant correlation with the return of the S&P 500 from day T−1 to day T, thereby assessing whether BG ratio movements contain forecasting power for equity markets.

Furthermore, the purity of the estimated correlation warrants scrutiny. Bouri et al. [1] propose two regression specifications: one regresses the S&P 500 return on day T against its own lagged return and the BG ratio on day T; the other augments this model with additional variables, including the volatility index, term spread, inflation rate, and stock market liquidity. A potential refinement would be to first regress the BG ratio on these additional control variables, extract the residual, and then regress the S&P 500 return on this residual. Such a procedure would remove the influence of the shared explanatory factors from the BG ratio, yielding a cleaner estimate of the direct relationship between the two primary variables.

Although only a year has passed since Bouri et al. [1] concluded their study, the geopolitical and macroeconomic environment has already shifted substantially. Gold, traditionally viewed as a safe haven, has shown signs of increased volatility and stronger co-movement with equity markets [2], suggesting that its role may be evolving. This raises important questions about the interpretation of the BG ratio itself. Has it effectively become a proxy for risk appetite? Does it remain correlated with the stock market, and if so, in what manner? Finally, can this contemporaneous co-movement be transformed into a robust forecasting tool? These questions point to a rich set of research opportunities that merit further investigation.

Bibliography

1. Bouri, E., Demir, E., 2025. Bitcoin-to-gold ratio and stock market returns. Finance Research Letters 81 (2025) 107456.
2. Faraj, H., McMillan, D., AL-Sabah, M., 2025. The diminishing lustre: Gold's market volatility and the fading safe haven effect. Global Finance Journal 67 (2025) 101145.

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