Researchers unveil key predictors of bitcoin returns

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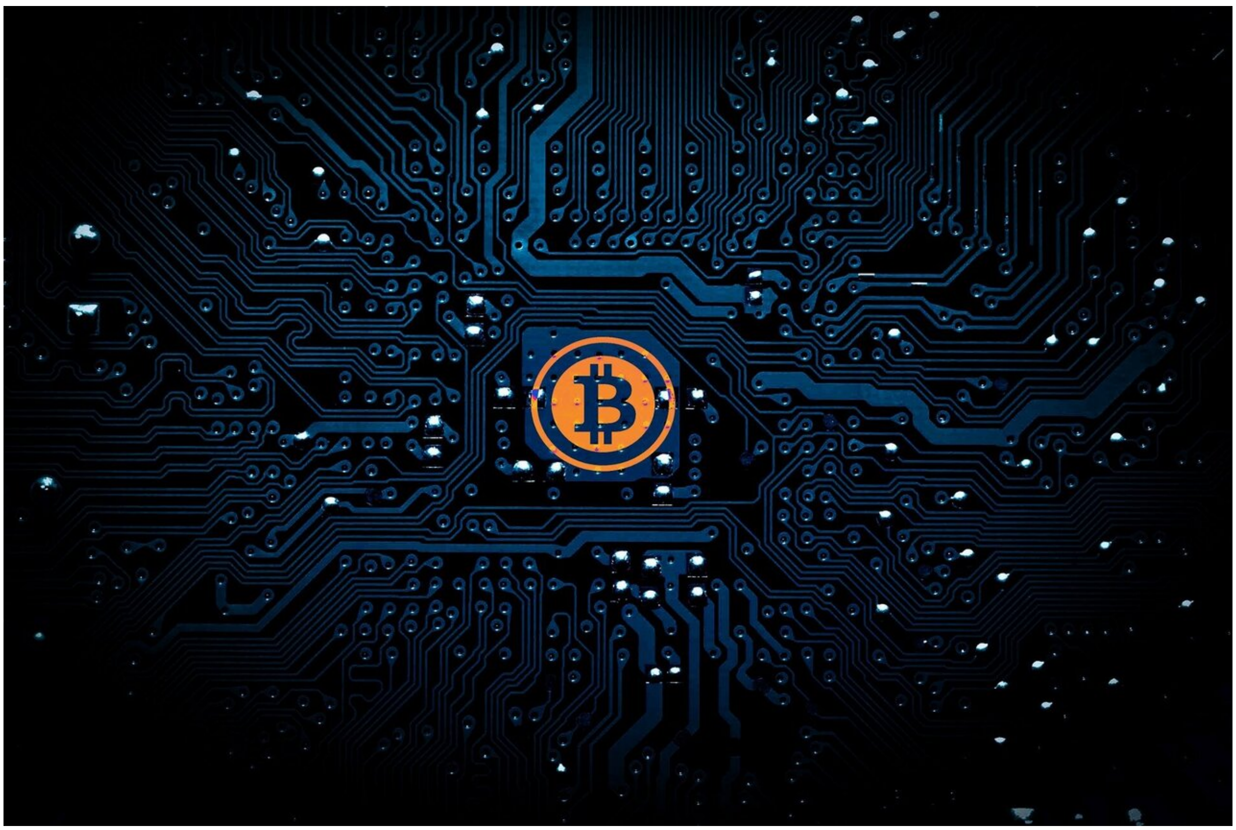

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Blockchain technology, investor sentiment, and economic stress levels are significant predictors of bitcoin returns, according to a groundbreaking paper from Illinois Institute of Technology researchers that provides empirical evidence to help guide investors, economists, and academics.

Sang Baum "Solomon" Kang, associate professor of finance at Illinois Tech's Stuart School of Business and co-author of the paper, also found that the cryptocurrency is detached from economic fundamentals and therefore may not effectively serve as a diversifier or safe-haven asset. Additionally, Kang reported that returns on commodities, securities, and other assets do not predict bitcoin returns well.

The paper, titled "What Information Variables Predict Bitcoin Returns? A Dimension-Reduction Approach," was published in *The Journal of Alternative Investments*. Kang co-wrote the paper with two of his former doctoral students: Yao Xie (M.S. Finance '15, Ph.D. MSC '21), an associate quantitative analyst at Morningstar Inc., and Jialin Zhao (Stuart Ph.D. MSC '17), associate professor of quantitative management at St. Mary's University in San Antonio.

The team used predictive analytics techniques and dimension-reduction models on data from January 2011 to January 2020, analyzing 25 information variables under the categories macroeconomics, blockchain technology, other assets, stress level, and investor sentiment.

"We find that blockchain technology, investor sentiment, and stress level have predictive power for bitcoin returns," says Kang. "Similar to traditional assets, bitcoin shows higher return predictability with longer return horizons. These findings support the dual nature of bitcoin as a technical artifact and speculative asset."

Key findings include:

- Increased difficulty in mining Bitcoin positively predicts returns. This supports the theory that as blockchain technology

requirements increase, bitcoin's supply is reduced, thus increasing its return.
- Bitcoin returns are positively driven by investor sentiment, indicating the speculative nature of the cryptocurrency as an asset.
- Higher stress levels or financial turmoil in the economy cause a decrease in future bitcoin returns, underscoring the risks associated with holding bitcoin as an asset.

According to the researchers, bitcoin has functioned in three different economic roles over time: as a form of currency, as a speculative security, and as a safe-haven commodity due to its scarcity and mining costs.

"In academia, there is a research methodology called the asset return predictability study," says Kang. "An underlying principle is that variables predicting the future movement of an asset price may be important in the economic system. So understanding what those variables are is important not only to traders who want to take a position in bitcoin, but also to economists who want to understand the nature of bitcoin."

More information: Sang Baum Kang et al, What Information Variables Predict Bitcoin Returns? A Dimension-Reduction Approach, *The Journal of Alternative Investments* (2023). DOI: 10.3905/jai.2023.1.187

Provided by Illinois Institute of Technology

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