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Impact of Crypto currency on Indian Stock Exchange: A Qualitative analysis

Mr. Shubham Gaur ,Department of Management Assistant Professor, Delhi Institute of Advance Studies,Rohini,New Delhi

Abstract:

This qualitative analysis investigates the potential systematic risk of the crypto market on the Indian stock market. The study focuses on the relationship between the NIFTY 50 index, representing the Indian stock market, and six major crypto-currencies. Using Granger causality, Pearson correlation, and multivariate regression analysis, the study examines volatility, returns, and interconnections between the two markets. The findings reveal that crypto-currencies exhibit higher volatility and returns compared to the stock market, but there is a low positive correlation and no significant Granger causality. Consequently, the study concludes that the crypto market does not pose a substantial systematic risk to the Indian stock market.

Keywords: Crypto-currency market, Indian stock market, systematic risk, NIFTY 50 index, volatility, returns, Granger causality.

Overview:

The trend of investing in emerging avenues instead of traditional low-return options is gaining momentum. Crypto currency, a digital currency based on block chain technology, has become a hot topic, attracting attention from academia, investors, and the business community. Recent developments such as crypto bans and regulations in certain countries, as well as the legalization of cryptocurrency trading in a few nations, have further fueled interest in cryptocurrencies. India has emerged as the country with the highest number of cryptocurrency traders, with over 100 million investors, followed by the USA with around 27 million traders. Bitcoin, introduced in 2008 by the pseudonymous programmer Satoshi Nakamoto, is the most prominent cryptocurrency due to its significant market capitalization and the involvement of banks, hedge funds, and investment companies. The popularity of Bitcoin and other cryptocurrencies is growing in India, with an increasing number of investors showing interest. Researchers have found that economic and psychological factors have a significant impact on cryptocurrency prices. The cryptocurrency market is also known for its irrational behavior, with investors often reacting in contradictory ways to news about price levels.

The Indian stock market is an emerging market experiencing substantial growth. Macroeconomic factors have a strong influence on the Indian stock market, and psychological factors and investor sentiment also play a significant role. There is a high correlation between the prices of Bitcoin and other cryptocurrencies, indicating that the stock market and the crypto market are influenced by similar economic and psychological factors.

Given the robust performance of both the NIFTY 50 index (the National Stock Exchange's benchmark index) and cryptocurrencies, investors often struggle to make informed decisions. Therefore, an academic examination of the relationship between the Indian stock market and the crypto markets, as well as an analysis of their performance, would be beneficial for investors and policymakers. This study aims to investigate the relationship between cryptocurrencies and the NIFTY 50 index, analyzing various aspects such as linearity, co-movement, predictability, returns, risk, and volatility of both stocks and cryptocurrencies.

The findings of the study reveal that there is no significant relationship between the crypto market and the Indian stock market, suggesting that the crypto market does not pose a systematic risk to the Indian stock market. This information provides valuable insights for Indian investors, helping them better understand cryptocurrency scenarios and supporting their decision-making process in stock market investments

Literature Review

2.1 Influence of Macroeconomic Policies on Crypto currency

Professor Shaen Corbet has made significant contributions to the understanding of the economic aspects of cryptocurrency. One important aspect is the connection between macroeconomic surprises and Bitcoin returns, which can be attributed to the psychological effects on investor behavior (Nakamoto, n.d). Corbet et al. (2020) conducted an analysis of the impact of macroeconomic news on Bitcoin price fluctuations. They found that Bitcoin prices were correlated with news related to macroeconomic factors such as GDP, CPI, and unemployment. Positive news about macroeconomic indicators led to a positive equity return and a negative Bitcoin return, and vice versa. This suggests that investors' reactions to macroeconomic news significantly affect the dynamics of the cryptocurrency market. Corbet et al. (2017) also found that international monetary policies influenced the return of Bitcoin. Changes in global monetary policies have a notable impact on the performance of Bitcoin, indicating the interconnectedness between macroeconomic policies and the cryptocurrency market. In addition to global factors, national monetary policies have specific effects on the value and volume of major cryptocurrencies. The Chinese monetary policy has been found to significantly influence the cryptocurrency market, shaping the value and trading volume of cryptocurrencies (Nguyen et al., 2019). However, the US monetary policy was found to have no impact on cryptocurrency volatility (Fama et al., 2019), highlighting the differential influence of monetary policies across countries. Yen and Cheng (2021) investigated the relationship between China's Economic Policy Uncertainty (EPU) index and cryptocurrency volatility. They found a significant association between China's EPU index and the volatility of cryptocurrencies. However, no such relationship was observed with the EPU indices of the US, Japan, and Korea, suggesting country-specific influences on the cryptocurrency market. Shaikh (2020) offered a modified perspective, suggesting that global Monetary Policy Uncertainty (MPU) and Economic Policy Uncertainty (EPU) indices of the US, China, and Japan do have an impact on cryptocurrency returns. This highlights the importance of considering global economic and monetary policy factors when analyzing the performance of cryptocurrencies

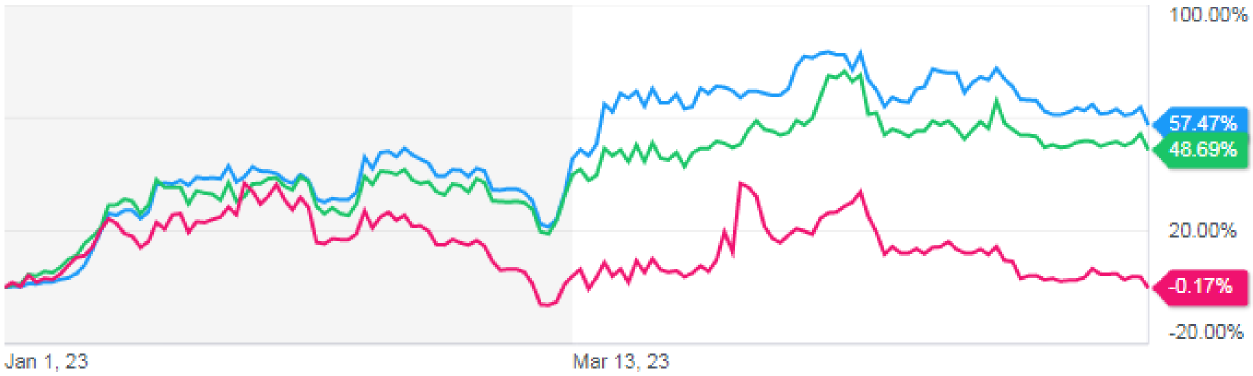
The study aims to address the following research questions:

A. Does the crypto market pose a systematic risk to the Indian stock market?

B. Is there any discernible relationship, whether positive or negative, between the Indian stock market and the cryptocurrency market?

C. How do the risk-return characteristics of the crypto market relate to those of the Indian stock market?

Exploring the impact of the crypto market on the Indian stock market is crucial for investors, policymakers, and market participants. This study fills the research gap by providing valuable insights into their dynamics. Data from the Yahoo Finance database, covering until 2023, were used. Despite challenges like banking crises, rising interest rates, and regulatory issues, cryptocurrencies continue to rise. Bitcoin rose by 69% and ether by 51% in the three months ending March 31. Bitcoin is currently trading at around $28,000, while ether surpassed $1,900 per coin. Notably, even Dogecoin surged by 30% when Elon Musk changed Twitter's logo but declined when the logo was reverted.



Comparative Data Analysis:

This study aims to provide valuable insights to Indian investors on the stability, volatility, and returns of cryptocurrencies and NSE stocks. By conducting a comprehensive analysis, comparing various aspects of markets, and analyzing collected data, investors can make informed decisions. Market capitalization, the total value of shares and stocks, is calculated by multiplying the price of an individual stock by the number of outstanding shares. In cryptocurrencies, market capitalization represents the value of all mined coins in circulation, determined by multiplying the total number of coins by their current market price.

Factors Fueling the Surge: Crypto-currency Market Capitalization Soars by 55% in 2023

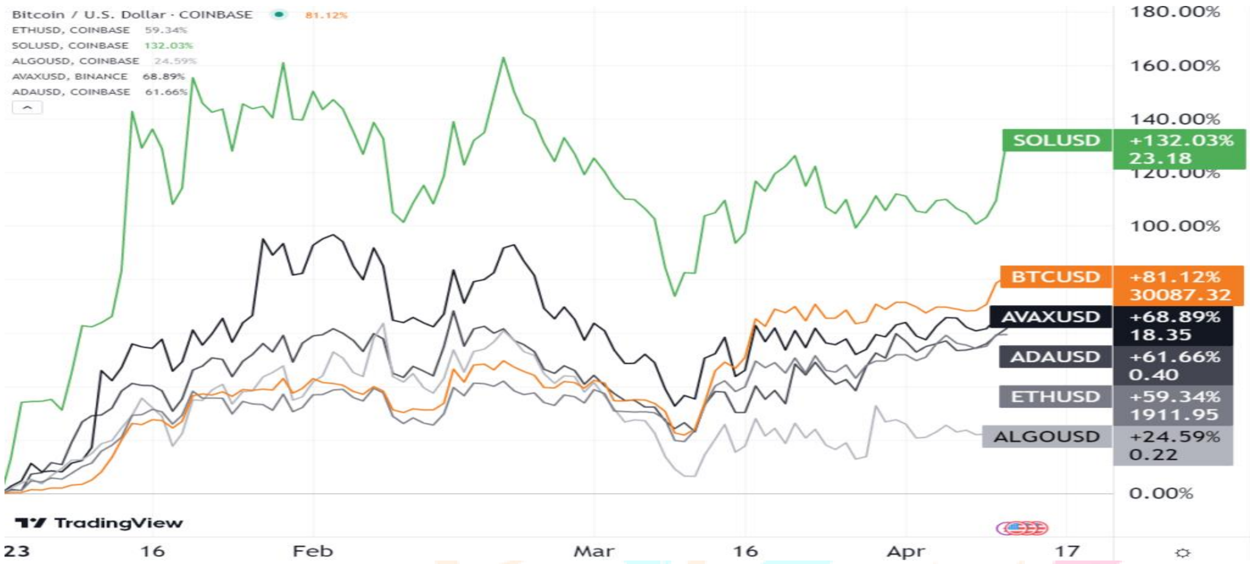
Comparative Performance: Bitcoin versus Major Proof-of-Stake Chains in 2023. Image credit: Trading View.

In total, the cryptocurrency market has experienced significant growth, increasing by 55% since the beginning of the year, from $795 billion to $1.2 trillion. The future trajectory of altcoins may be influenced by the success of the upcoming Shapella upgrade for Ethereum, which could potentially build upon Bitcoin's breach of the $30,000 mark.

Given this context, it raises the question of whether the current macro liquidity situation is conducive to a sustained crypto rally or if it is merely a temporary phenomenon that will fade away soon.

Information	**Value**
Crypto currency market growth	55%
Beginning of the year market cap	$795 billion
Current market cap	$1.2 trillion
Influence on altcoin trajectory	Ethereum's Shapella upgrade and Bitcoin's breach of $30,000 mark
Research question	Is the current macro liquidity situation conducive to a sustained crypto rally or a temporary phenomenon?

Author calculation



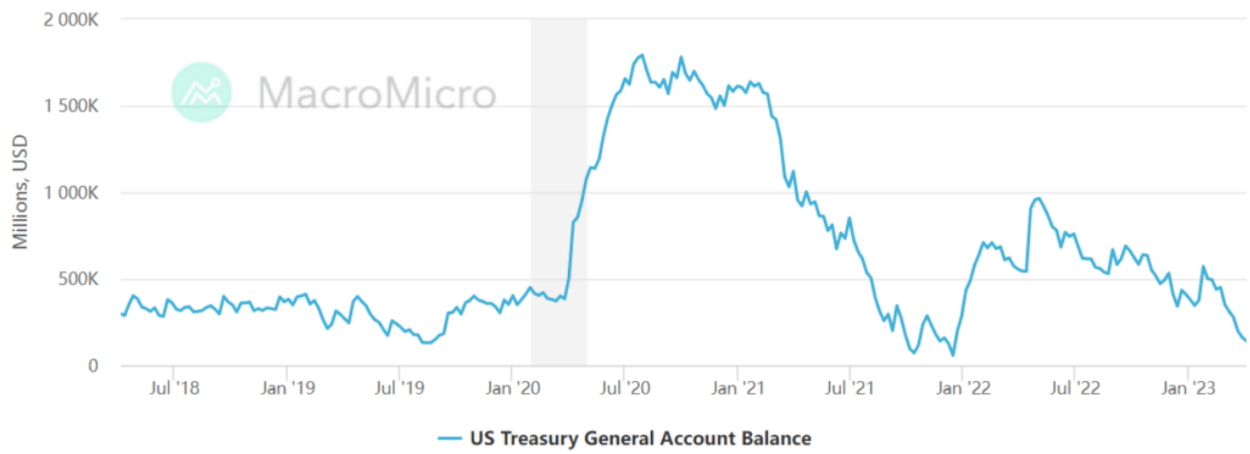
Source- www.investing.com

The Role of the Federal Reserve:

The crypto market's peak at $2.9 trillion in November 2021 was primarily influenced by the Federal Reserve's actions. The central bank significantly increased the M2 money supply by 39% and maintained near-zero interest rates, leading to a stock and crypto asset bubble. To control inflation, the Federal Reserve implemented the fastest cycle of interest rate hikes in four decades. However, market expectations suggest a potential shift from quantitative tightening (QT) to quantitative easing (QE) in November. Currently, the Treasury General Account (TGA) is at its lowest level since the end of 2021, standing at $140.6 billion, requiring the establishment of another debt ceiling.

Information	Value/Description
Previous peak market cap	$2.9 trillion
Primary cause of the market peak	Actions of the Federal Reserve
Increase in M2 money supply by the Federal Reserve	39%
Interest rate environment during the peak	Near-zero interest rates
Formation of stock and crypto asset bubble	Result of the increased money supply and low interest rates
Federal Reserve's actions after the peak	Fastest cycle of interest rate hikes in four decades
Expected reversal from quantitative tightening (QT) to quantitative easing (QE)	Starting in November
Anticipated interest rate hikes in the interim	Minor or no interest rate hikes
Treasury General Account (TGA) current level	$140.6 billion
Purpose of issuing Treasury securities	Replenishing the TGA and addressing the debt ceiling

Author calculation



Source- www.investing.com

The relationship between the policies of the Federal Reserve and the US Treasury is closely intertwined, as evidenced by the balance of the Treasury General Account (TGA) during the Federal Reserve's monetary injections. Image credit: MacroMicro.

According to projections from the non-partisan Congressional Budget Office (CBO), it is likely that the debt ceiling will be raised in the fourth quarter of 2023. Failure to do so would result in the federal government being unable to meet its obligations. This is one of the reasons why the market anticipates the conclusion of the Federal Reserve's hiking cycle.

During the hiking cycle, when the Federal Reserve increases borrowing costs, it also raises the borrowing costs for the US Treasury to finance the TGA. Conversely, rate cuts would make it easier for the US Treasury to issue new Treasury securities and fund the TGA balance.

Information	Description
Relationship between the Federal Reserve and the US Treasury	Closely intertwined
Balance of the Treasury General Account (TGA)	Influenced by the Federal Reserve's monetary injections
Debt ceiling projections	Likely to be raised in the fourth quarter of 2023 according to the Congressional Budget Office (CBO)
Consequences of not raising the debt ceiling	Federal government would be unable to meet its obligations
Market anticipation of the Federal Reserve's hiking cycle conclusion	One of the reasons behind the anticipation
Impact of Federal Reserve's hiking cycle on borrowing costs	Increases borrowing costs for both the Federal Reserve and the US Treasury
Impact of Federal Reserve's rate cuts on borrowing costs	Eases the issuance of new Treasury securities and funding the TGA balance for the US Treasury

Bullrun or Bull Trap?

While long-term macro conditions suggest a positive outlook for Bitcoin, the question remains: Is the current rally sustainable

As mentioned earlier, the recent Bitcoin rally has been primarily driven by American investors, who have been influenced by the US banking crisis that now appears to be under control. However, for various reasons, it is unlikely that we will see a sustained bull run similar to previous years.

Bitcoin liquidity is currently lower compared to the same period last year, resulting in more significant price disparities across major exchanges.

Source- www.investing.com

The shutdown of banks serving the crypto industry, like Silvergate and Signature, led to this outcome. The upcoming Consumer Price Index (CPI) report holds significant anticipation. If the reported inflation figures exceed expectations, the Federal Reserve must reinforce their commitment to higher interest rates. Fact Set estimates the March CPI at 5.2%. To prompt earlier interest rate hikes, the CPI must be considerably lower. In this case, Bitcoin's rally could gain further momentum. Conversely, if the CPI falls short, Bitcoin may drop below $30,000 again

CPI Figures | |	Anticipated CPI	Bitcoin's Value |
March	5.20%	Potential Rally
March	Below 5.2	Increased Rally
March	Above 5.2	Value Drop

Anticipated CPI of 5.20% in March: If the Consumer Price Index (CPI) for March matches the anticipated figure of 5.20%, there is a potential for a rally in Bitcoin's value.

CPI below 5.20% in March: If the CPI for March is lower than the anticipated figure of 5.20%, it is likely to result in an increased rally in Bitcoin's value. This suggests that investors may show more interest in Bitcoin.

CPI above 5.20% in March: If the CPI for March exceeds the anticipated figure of 5.20%, it could lead to a drop in Bitcoin's value. This indicates that higher inflation may negatively affect investor sentiment towards Bitcoin.

These conclusions highlight the potential relationship between CPI figures and the impact on Bitcoin's value. However, it's important to note that actual market behavior can be influenced by various factors and may deviate from these anticipated outcomes

The Influence of Psychological Factors on the Crypto Market:

Psychological factors play a crucial role in cryptocurrency pricing alongside macroeconomic factors. Goczek and Skliarov (2019) highlight popularity as a key determinant, surpassing traditional demand and supply factors. Kapar and Olmo (2021) found a positive impact of the S&P 500 index on Bitcoin value, indicating a correlation with traditional stock markets. They also observed negative influences from the fear index and gold price, suggesting market sentiment and safe-haven assets affect cryptocurrency valuation. These findings emphasize the importance of considering psychological factors, popularity, sentiment, and the interaction between traditional and crypto markets for a comprehensive understanding of cryptocurrency dynamics.

The Impact of Macroeconomic and Psychological Factors on Indian Stock Market Indices:

Studies by Dimic et al. (2016), Jareño and Negrut (2016), and Mensi et al. (2017) demonstrate the influence of macroeconomic factors on stock prices, including inflation, monetary policy, consumer price index, oil price, and gold price. Similar findings are observed in the Czech Republic (Vychytilova et al., 2019) and share returns are influenced by inflation, interest rates, currency trade, and market evolution (Geambasu et al., 2014). Sentiments and psychological factors also shape stock prices, as highlighted by Czapkiewicz and Choczyńska (2021), Evbayiro-Osagie & Chijuka (2021), and Hassan Chowdhury et al. (2021). Exploring the relationship between crypto market factors and Indian stock market indices is vital, requiring further research to enhance understanding and prediction.

The interrelationship between cryptocurrency and stock markets:

The interrelationship between cryptocurrency and stock markets has been subject to extensive research. Akyildirim et al. (2020) conducted a study on the US and European stock markets, establishing a connection between cryptocurrency returns and stock market volatility. Hachicha and Hachicha (2021) observed that various international stock market indices move in sync with the cryptocurrency market. Lahiani et al. (2021) specifically examined the BSE 30 index and its predictive power over the cryptocurrency market, while Gil-Alana et al. (2020) and Corbet et al. (2018) found no evidence of connectedness between the two markets based on their empirical research. Additionally, Handika et al. (2019) argued that the Asian stock market does not closely follow the cryptocurrency market.

Stock market role with systematic risk in India:

Systematic risk, or market risk, affects the entire market and is influenced by macroeconomic and psychological factors beyond investors' control. Previous research identified factors like oil prices, exchange rates, and monetary policy as systematic risks. Both the stock market and the cryptocurrency market are influenced by these factors. However, limited research focuses on the relationship between cryptocurrencies and a quality index like the NIFTY 50 in India. Addressing this gap, our analysis aims to examine the association between the NIFTY 50 and cryptocurrencies as a systematic risk for the Indian stock market. No prior empirical study has explored this specific research area, making our study unique..

Conclusion:

Based on the conducted qualitative analysis, it is concluded that the crypto market poses minimal systematic risk to the Indian stock market. The study examined the relationship between the NIFTY 50 index and six major cryptocurrencies, using statistical analyses such as Granger causality, Pearson correlation, and multivariate regression.

The findings indicate that although cryptocurrencies have higher volatility and returns compared to stocks, there is a low positive correlation and no significant predictive causality between the two markets. This suggests that movements in the crypto market do not significantly impact or predict movements in the Indian stock market.

The literature review emphasizes the impact of macroeconomic policies, international monetary policies, and economic policy uncertainty on cryptocurrency performance. However, in the Indian context, the study found no significant relationship between the stock market and the crypto market.

The study provides valuable insights for Indian investors and policymakers, indicating that cryptocurrencies can be considered as an alternative investment with minimal systematic risks to stock market investments. Nonetheless, it is crucial for investors to conduct thorough research and exercise caution due to the inherent risks and volatility of the crypto market.

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