

A STUDY ON PERFORMANCE ANALYSIS OF SELECT CRYPTO CURRENCIES IN INDIA

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Abstract:

Many activities in our everyday lives have been integrated online and have become more flexible and effective due to the rapid growth of information and communication technologies. In order to make financial transactions like buying, selling, and trading easier, there has been a significant increase in the number of online users. This has activated virtual word concepts and produced a new economic phenomenon called crypto currency. In recent years, the use of virtual currency has extended throughout numerous systems. Most nations have not accepted virtual currency into their economic operations since it is not fully regulated and managed. This paper presents the Journey of Crypto currencies in India, whether there is any relationship exists in between Gold and select crypto currencies in India and what type of investment risk exist in between Bitcoin, Ethereum, USDT-INR, XRP and Gold in India. The study used t-Test: Two-Sample Assuming Equal Variances to analyse what type of investment risk in between Bitcoin, Ethereum, USDT-INR, and XRP with Gold in India and correlation coefficient is applied to know whether there is any relationship exists in between crypto currencies such as Bitcoin (BTC), Tether(USDT), Ripple (XRP) and Ethereum with Gold prices from 2018 to 2022. The study finds that there is a significant difference between in changing the values of gold and Bitcoin, Ethereum, USDT-INR, and XRP

Keywords: Crypto currency, Bitcoin (BTC), Ethereum (ETH) , Tether (USDT), Ripple (XRP) and Gold.

1. Introduction

As technology advances, crypto currencies are becoming more at ease for investors who value their privacy and the ability to create wealth. As more people show interest in purchasing crypto currencies like Bitcoin, Ethereum, Tether, Ripple, Binance, Solana,

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Polkadot and Litecoin, avalanche and others are currently trending in the financial market. On the other hand there are a greater population at a confused state of mind with regards to the overall performance of crypto currency.

2. Review of Literature:

Varun., S. Manoj Kumar Misra, & Atul Chaturvedi (2023). The authors concluded that, the trading of crypto currencies in India would cease if a 30% tax were imposed on them. The RBI could introduce its own digital money in India to avoid this.

AKM Global Tax Consulting Outsourcing. (2022). Crypto Currency transactions must be reported as business income, and if kept as investments, as capital gains. In FY 2020–21, if reported as business income, an individual will be allowed to utilise the ITR-3 form; but, if reported as capital gains from investments, an individual will need to use the ITR–2.

Dr Mubarak., & Manjunath, H. (2021). The authors concluded that to have a well-diversified portfolio, investors do not necessarily need to invest in bitcoin. To speculate on bitcoin, investors should only use a modest, single-digit percentage of their assets.

Dr. Anil Kumar, V. & Swathy. (2019). The authors concluded that, the major issue with crypto currency systems is thought to be the absence of laws.

Jaideep JP., & Prashanth, J. (2019). The authors concluded that a potential replacement for the current monetary system is crypto currency. This stage of crypto currency must first develop and accept a safe network of currency exchange in order to be adopted.

James., B. & Manjari,. (2018). The authors concluded that, the use of crypto currency in India is expanding quickly, the Indian government should act responsibly right now to regulate it. There is a glimmer of hope for the future of crypto currencies in India.

Shailak, J. (2018). She concluded that Crypto currency provides a new, practical, and attractive payment method model that can increase business and operator revenue. In addition to real money, it offers various payment methods that make it simple for users to conduct financial transactions like buying, selling, transferring, and exchanging.

Sunilkumar,. D. (2020). The authors found that, big investors are more optimistic about the future of crypto currencies in India than small investors. In India, metropolitan investors are more supportive of crypto currencies than rural investors.

Vladimir, N., Soloviev, P. & Yevtushenko, P. (2019). The authors observed that it is crucial to watch and foresee any key changes on both the stock market and the crypto currency market.

3. Research Gap

Many academicians and researches have undertaken research on which countries accepted dealing with crypto currencies as legal or illegal, Bit coin trading in India, how it operates, how it was evolved in India, players who are involving in this transaction. However, no researchers have looked into is there any relationship exist between gold price and crypto currencies in India and is there any investment risk in between gold price and crypto currencies in India. The present study is an effort to look into is there any relationship exist between gold price and crypto currencies in India and is there any investment risk in between gold price and crypto currencies in India

4. Objective of the Study

- To study whether there is any relationship exists between Gold and select crypto currencies in India
- To compare investment risk in between Bit coin, Ethereum, USDT-INR, XRP and Gold in India.

5. Research Methodology:

5.1.Sources of Data:

The secondary data is collected through various Websites, Magazines, Books, Journals etc.

5.2.Period of the study

The study period covers average year value of select crypto currency and gold average year value from Jan 2018 to Dec 2022.

5.3.Scope of the study

From Bit coin and Ethereum to Dogecoin and Tether, there are thousands of different crypto currencies are there. But for the study top 4 crypto currencies are considered .

5.4.Tools of data analysis

t-Test: Two-Sample Assuming Equal Variances and Karl Pearson correlation test was applied with the help of MS- excel.

6. Testing of Hypothesis

Ho: There is no significant difference in the volatility of values of Bitcoin, Ethereum, Tether, and XRP with Gold in India.

7. The Journey of Crypto currencies in India

In India, the development of crypto currencies has not been without its ups and downs. The virtual asset has faced a number of dangers, from being banned to currently being on the edge of tight controls. 2008- Inception of Crypto currencies In 2008, a developer named by the

alias Satoshi Nakamoto published a paper titled "Bitcoin: A Peer to Peer Electronic Currency System," which marked the beginning of the crypto currency revolution. 2010: First Sale Using Crypto currencies. Two years later, 10,000 Bitcoin was exchanged for two pizzas to mark the first Bitcoin transaction. For the first time, this gave crypto currencies a monetary worth. The digital asset soon gained popularity as new crypto currencies like Litecoin, Namecoin, and Swiftcoin started to appear.

2013: RBI Issues First Circular Regarding Crypto currencies

The Reserve Bank of India (RBI) released a circular in 2013 alerting consumers to the potential security-related dangers associated with the usage of virtual currencies as crypto investments increased in India as well and exchanges like Zebpay, Pocket Bits, Coinsecure, Koinex, and Unocoin started to emerge.

2016-2017: Demonetization and RBI's Banking Ban on Crypto currencies

The experiment with demonetization increased the inclination for digital payments, which unintentionally boosted crypto currency investments by attracting tech-savvy clients to the virtual asset. As long as Indian banks were still allowing transactions on crypto currency exchanges, the RBI would issue another circular in 2017 to express its concerns about virtual currency. Finally, by the end of 2017, the RBI and the finance ministry issued a warning stating clearly that virtual currencies are not a form of legal money.

In March 2018, the Central Board of Digital Tax (CBDT) presented the finance ministry with a draught plan to outlaw virtual currencies in March 2018. About a month later, the RBI issued a circular prohibiting bank, NBFCs, and payment system providers from working with virtual currencies and offering their services to virtual currency exchanges. As a result, trade volumes on crypto currency exchanges collapsed by 99%.

In April 2018, people were warned that virtual currencies in India are not considered legal money. A committee was established by the finance ministry to draught a bill regarding crypto currencies in India.

In 2019 A bill prohibited crypto currency mining, keeping, selling, issuing, transferring, and use. It was discovered that those who broke the legislation would have to pay a high fine or threat of up to 10 years in prison

In March 2020, the Indian Supreme Court was removed the ban.

In November 2021, the Rajya Sabha, finance minister Nirmala Sithraman brought up the subject of crypto currencies. She claimed that although the RBI and SEBI will raise awareness, the government had not yet taken any decisive action to outlaw crypto currency promotions in India.

Union Budget 2022-23

The Indian government decided to impose a 30% tax on all virtual assets after recognizing crypto currencies. The launch of a CBDC termed the digital rupee was also announced by the finance minister.

8. Analysis of Data

A) Crypto Currency Name: Bitcoin

Ticker Symbol: BTC

Inception: 2009

Table-1: Relationship Between Gold Price and Bitcoin (BTC)

Year	Gold Price (Rs)	%change	Bitcoin (BTC) Price (Rs)	%change
2022	51054.33	0.08	27795.81	-0.41
2021	47105.83	-0.01	47000.08	2.82
2020	47491.58	0.35	12310.25	0.68
2019	35091.42	0.15	7325.84	0.02
2018	30553.67	0.05	7183.13	0.67
2017	29062.00		4,299.76	
Mean	40059.81		17652.47833	
Correlation Coefficient		0.66		

Interpretation:

From the table-1 **Relationship between Gold Price and Bitcoin:** It is clear that the % change in gold and **Bitcoin (BTC)** was highest in 2020 but the percentage change in Bitcoin is more than the Gold price. Karl Pearson Correlation value is 0.66. Which is above 0.6, it indicates that there is a moderate positive correlation in between Gold and Bitcoin (BTC) price in India during the study period.

Hypothesis-1: There is no significant difference in the volatility of values of Bitcoin and Gold value in India.

Table-2: t-Test: Two- Sample Assuming Equal Variances

Gold and Bitcoin (BTC)		
	Variable-1	Variable-2
	40060.62501	18454.825
Variance	73309796.55	367830933.4

Observations	4	4
Pooled Variance	220570365	
Hypothesized Mean Difference	0	
df	6	
t Stat	2.057366996	
P(T<=t) one-tail	0.042683498	
t Critical one-tail	1.943180274	
P(T<=t) two-tail	0.085366997	
t Critical two-tail	2.446911846	

Interpretation:

From the table-2 it is observed that in one tail test Calculated T value (0.04) is lesser than the P value 0.05 and in two tailed test Calculated T value (0.08) is more than the P value 0.05. So alternative hypothesis has been accepted means there is a significant difference between in changing in the values of gold and bit coin.

B) Crypto Currency Name: Ethereum**Ticker Symbol: ETH****Inception Year :2015****Table-3: Relationship Between Gold Price and Ethereum (ETH)**

Year	Gold Price (Rs)	%change	Ethereum (ETH)	%change
2022	51054.33	0.08	1938.0425	-0.32
2021	47105.83	-0.01	2830.2	7.34
2020	47491.58	0.35	339.33	0.90
2019	35091.42	0.15	178.225	-0.61
2018	30553.67	0.05	454.64	0.81
2017	29062.00	-	251.5	-
Mean	40059.81		998.66	
Correlation Coefficient			0.61	

Interpretation:

Form the table-3It is clear that the % change in gold was highest i.e. 0.35% in 2020 and % change in **Ethereum (ETH)** was highest i.e. 7.34% in 2021. % change in Ethereum (ETH) was more than the Gold price throughout the study period.Karl Pearson Correlation coefficient value is 0.62. Which is above 0.6, it indicates that there is a moderate positive correlation in between Gold and Ethereum (ETH) price in India during the study period.

Hypothesis-2: There is no significant difference in the volatility of values of Ethereum (ETH) and Gold in India.

Table-4: t-Test: Two- Sample Assuming Equal Variances

	Variable-1	Variable-2
	51054.3333	1938.0425
Mean	40060.62501	950.59875
Variance	73309796.55	1583028.878
Observations	4	4
Pooled Variance	37446412.72	
Hypothesized Mean Difference	0	
df	6	
t Stat	9.03853399	
P(T<=t) one-tail	0.000051382	
t Critical one-tail	1.943180274	
P(T<=t) two-tail	0.000102766	
t Critical two-tail	2.446911846	

Interpretation: Above table-4, showing that in one and two tail test calculated T value (0.00) is less than the P value 0.05. So alternative hypothesis has been accepted means that there is a significant difference between in changing in the values of gold and Ethereum.

C) Crypto Currency Name: Tether

Ticker Symbol: USDT

Inception Year: 2015

Table-5: Relationship Between Gold Price and Tether

Year	Gold Price (Rs)	%change	Tether (USDT) (Rs)	%change
2022	51054.3333	0.08	78.15	0.06
2021	47105.8333	-0.01	73.82	0.00
2020	47491.5833	0.35	74.05	0.05
2019	35091.4167	0.15	70.54	0.04
2018	30553.6667	0.05	67.84	0.04
2017	29062		64.99	
Mean	40059.8056		71.565	
Correlation Coefficient			0.956314394	

Interpretation:

Form the table-5 It is clear that the % change in gold and Tether was highest in same year i.e. 2022. % change in gold was more than the Tether during the study period. But, % change in Tether is minimum throughout the year. Calculated Karl Pearson Correlation value is 0.95. Which is above 0.8, it indicates that there is a strong positive correlation in between Gold and Tether (USDT) price in India during the study period.

Hypothesis-3: There is no significant difference in the volatility of values of **Tether (USDT)** and Gold in India.

Table-6: t-Test: Two-Sample Assuming Equal Variances between Tether (USDT) and Gold price in India.

Mean	40060.62501	71.5625
Variance	73309796.55	8.728825
Observations	4	4
Pooled Variance	36654902.64	
Hypothesized Mean Difference	0	
df	6	
t Stat	9.340931461	
P(T<=t) one-tail	0.0000426631	
t Critical one-tail	1.943180274	
P(T<=t) two-tail	0.0000853269193	
t Critical two-tail	2.446911846	

Interpretation:

Above table-6, showing that in one and two tail test Calculated T value (0.00) is less than the P value 0.05. So alternative hypothesis has been accepted. It means that there is a significant difference between in changing in the values of gold and Tether.

D) **Crypto Currency Name:** Ripple

Ticker Symbol: XRP

Inception Year: 2012

Table-7: Relationship Between Gold Price and Ripple (XRP)

Year	Gold Price (Rs)	%change	Ripple (XRP) (Rs)	%change
2022	51054.33	0.08	0.50	0.44
2021	47105.83	-0.01	0.89	2.40
2020	47491.58	0.35	0.26	0.13
2019	35091.41	0.15	0.30	0.47
2018	30553.66	0.05	0.57	0.89
2017	29062		0.3	
Mean	40059.80		0.47	
Correlation Coefficient			0.13	

Interpretation

Form the table-7, it is clear that the % change in gold was highest in 2020 i.e. 0.35% and % change in **Ripple (XRP)** was highest in 2021 i.e. 2.40 %. % change in **Ripple (XRP)** was more than the Gold price throughout the study period. Calculated Karl Pearson Correlation

value is 0.13. It indicates that there is a slight positive correlation in between Gold and XRP price in India during the study period.

Hypothesis-4: There is no significant difference in the volatility of values of **Ripple (XRP)** and Gold in India

Table-8:

t-Test: Two-Sample Assuming Equal Variances between Ripple (XRP) and Gold price in India.

Mean	40060.62501	0.504511667
Variance	73309796.55	0.083572642
Observations	4	4
Pooled Variance	36654898.32	
Hypothesized Mean Difference	0	
df	6	
t Stat	9.357530246	
P(T<=t) one-tail	0.0000422364	
t Critical one-tail	1.943180274	
P(T<=t) two-tail	0.0000844728	
t Critical two-tail	2.446911846	

Interpretation:

Above table-8, showing that in one and two tail test Calculated P value (0.00) is less than the P value 0.05. So alternative hypothesis has been accepted means there is a significant difference between in changing in the values of gold and Ripple (XRP).

Conclusion:

Tether is a stable coin, in contrast to various other kinds of crypto currencies. Because Tether's value is predicted to be more stable than that of other crypto currencies. More than 1.5 to 2 crore Indians have invested in a variety of crypto currencies, according to data from several domestic crypto currency exchanges. The growing number of crypto currency adopters suggests a shift in the investment paradigm in the country that is known to invest more frequently in gold and other safer assets.

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