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A Study on Indian Gold price and Stock Market Volatility

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Abstract

Gold has multiple attributes and its price is affected by various factors in the market. The Indian stock market is highly volatile. The effect of one market on another market is not new. However, the variations in the degree of impact and co-movement between the market need to be examined. Given the importance of gold in India, there are significant issues in a portfolio selection in the country. The Stock market price can be used to predict the gold price. This study examines the gold price volatility and the causal relationship between gold prices and stock market returns in India. Taking into consideration the domestic gold prices and stock market returns based on NSE and BSE, the study investigates the simple relationship between gold price, BSE and NSE for the period from 2013-14 to 2023-24. Indians have started considering gold not only as jewellery but also an important mode of investment like investment in bonds, equities and shares. The analysis concludes that there is no short-term causal link between the price of gold and the price of stocks. Nonetheless, the co-integration of the gold price and the stock market price suggests a long-term relationship and their mutual movement.

Keywords: *BSE; Gold Price; NSE; Return; Stock Market Price*

1. Introduction

Stock market is one of the top preferred investment avenues for investors, since it gives fair return on investment in equity market. Primary nature of share market is fluctuation; investors make money through fluctuation in stock market. Market movement can be understood with the help of index system. Bombay Stock Exchange (BSE) and National Stock Exchange (NSE) are the leading stock exchanges in India with the share. Gold is a tradeable financial asset (Joy, 2011) and a centerpiece of the world monetary system. Globally, gold occupies a strategic place as it maintains its purchasing power and is highly reliable in terms of politically and economically uncertain events. Gold is an alternative investment in the bearish or highly volatile stock market. Most of the countries use gold as security against loans at the time of balance of payment difficulties (Mishra & Singh, 2012). In the realm of finance and in our society, gold is significant. Investing in gold is possible at any time, regardless of the state of the financial market. Complete security is provided by gold as long as central banks hold onto it. Gold does not carry any credit risk. Second, even in times of disaster like severe global inflation or political unrest, gold is able to hold onto its value. Sensex of BSE and Nifty of NSE are the popular indices and they include 30 and 50 companies respectively [1-5]. These stock exchanges maintain broad based indices also, among them BSE500 and NSE500 are popular and wide based indices with including top 500 companies in terms their market capitalization.

2. Review of Literature

Using daily time series data, Dr. Karamjeet Kaur (2018) investigated the relationship between the price of gold in India and the Sensex, the index of the Indian stock market, for the period of January 2010 to December 2015. According to the analysis, neither the gold return nor the Sensex return causes or influences the gold rates and returns. The study's conclusion investigates the lack of a long-term relationship between gold prices and Sensex returns. The author of Lakshman Raj Kandel (2018)

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attempted to examine the link between risk and return for two particular commercial banks that are listed on the Nepal Stock Exchange. The data was gathered over a five-year period, and the analysis was done using t-test, portfolio analysis, SD, correlation, and covariance. They concluded that the stock prices were excessive and that both banks have large significant percentages of unsystematic risk. Thus, they came to the conclusion that it was better for the investors. Manamani Sahoo (2021), researched about the day-of-the-week effect was empirically investigated using daily closing data for various Nifty indices, both before and during the COVID-19 health crisis from April 1, 2005, to May 14, 2020. The research employed dummy variable regression and the Generalized Autoregressive Conditional Heteroscedasticity (GARCH) model. Results indicate a negative return on Mondays during the COVID-19 crisis, while it was positive before the pandemic. Additionally, Tuesdays exhibited a statistically significant and positive effect on index returns during the COVID-19 crisis Tripathy (2016) used month-to-month time series data from July 1990 to April 2016 to investigate studies on the special relationship between gold prices and stock market prices in India. To evaluate their link, the Granger causality test, the correlation test, the unit root test, and the Johansson's co-combination test were used. The investigation revealed that there is no short-term causal relationship between the price of gold and the price of securities exchanged. Furthermore, there is a long-term equilibrium and movement between the gold and stock exchange rates due to their cointegration. The CUSUM test explicitly states the strength of the coefficient and indicates the existence of a long-term relationship between gold and stock exchange rates. The analysis suggested that in order to increase the value of their investments in India, foreign investors must adhere to the portfolio stock selection technique due to the integration of the gold and securities exchange rates. But in the medium term, these opportunities are limited in scope [6–9]. From January 1995 to October 2015, Rejeb and Arfaoui (2016) looked into the correlations between the prices of stocks, gold, oil, and the US currency. There has been discussion on how gold becomes more in demand and appreciates in value when business cycles reflect declines and the currency and stock markets move down. Furthermore, it has been found that fluctuations in US currency, stock markets, and oil prices all affect gold prices. However, US oil net imports and default premium also play a role. Narang and Singh (2013) recommended looking into the significant relationship between gold prices and returns in India's secondary stock market. Throughout the process, an attempt has been made to investigate whether there is a unidirectional or bidirectional relationship between gold rates and the Sensex over a ten-year period (2002-2012). The study's conclusions demonstrate that there is no correlation between the Sensex and the gold rate. The study was carried out by Nitin Sethi & Sonia Gupta (2012) with the aim of determining the type of link between nifty and Sensex. This research paper was an attempt to consider the moving trend of Nifty and Sensex are correlated or not. The research design of the paper was casual in nature. For 24 months the data was collected and monitored by the researcher. Data was collected from different journals, magazines, and websites. Thus, the data analysis proved that there was positive correlation between Nifty and Sensex. Shubham Kumar kiran kumar (2016) stated that comparative study between BSE and NSE during five years. He talks about the economy is reflected by the growth of stock market and the impact of important happenings on the Indian Stock Exchange. It represents out which one is performing better financially on various basis, which would help in different countries to take investment decisions while investing in different markets.. In 2016, Dr. Pramod Kumar Patjoshi examined the risk and return evaluations of four particular equities that have been listed on the BSE for a duration of fifteen years. The correlation between the risk and returns of bank equities and the Sensex served as the foundation for the study. For the study, methods and instruments like regression, t-test, and correlation were employed. According to the analysis, the Sensex outperformed the chosen equities, with a few exceptions, in terms of returns. Few equities correlated positively with the

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performance of the Sensex, and even fewer correlated negatively. They came to the conclusion that the trend of movement in the Sensex and banking stocks was identical. Shumbhamkumar Kirankumar (2019), revealed about the comparative study between BSE and NSE for a period of Five years. Entrepreneurs needed money for long term whereas investors demanded liquidity the facility to convert their investments into cash at any given time. To light with this research paper is a comparative study of Bombay Stock Exchange and National Stock Exchange during 2013 – 2018. This is especially relevant in the current scenario when the financial markets across the globe are getting integrated into one big market and the impact of one market on the other markets. The present study is to find out that out of these two stock exchanges which one is performing better financially on various basis. The study of the stock exchanges in countries would definitely help the future investors to take investment decisions while investing in different markets. Bhunia and Mukhuti, (2013). To reduce or completely remove systematic risk, many investors choose to invest in both gold and stocks. Purchasing gold and using it as a hedging tool are also regarded as forms of risk insurance. In 2017, Amal Vijay A K and Dr. M. Muthu Gopalakrishnan made an effort to examine the risk-return characteristics of ten pharmaceutical businesses that are listed on the NSE. The study was conducted using the following tools: covariance, alpha, beta, standard deviation, correlation, and mean [10–13]. The five years that the data was gathered, from 2012 to 2015, were covered. Through their analysis of these businesses, they were able to conclude that, in order for an investor to achieve high returns, it is critical to take the stocks' risk and return characteristics into account.

3. Objectives of the Study

- To study the stock market fluctuations.
- To know about the changes of gold market in India.
- To study the impact of gold price movement of Indian stock market (NSE & BSE).
- To analyze causal relationship between gold price and Indian stock market indices (SENSEX & NIFTY).

4. Research Methodology

The present study deals with examining the impact of gold price on the movement of Indian stock market. For this purpose, Indian gold price has been taken and Indian stock market in terms of broad-based indices BSE500 of Bombay Stock Exchange (BSE) and NSE500 of National Stock Exchange (NSE) have been taken. Gold price and indices data were collected for the period of 10 years. The data of BSE500 was collected from official website of BSE (www.bseindia.com) and the data of NSE500 was collected from official website of NSE (www.nseindia.com). The data of gold price was collected from the financial website of www.investing.com.

i. Area of study – The area of the study is Indian stock market and gold market.
ii. Period of the study -The Data is collected for a period of 10 years for the purpose of to know about the stock and gold market during the period from 2013-2014 to 2023-2024.
iii. Data type – The study is purely based on secondary data.
iv. Tools and Techniques – Different chart, graph, has been used for data analysis.

5. Brief Discussion of Indian Gold and Stock Market Volatility in Different Phases

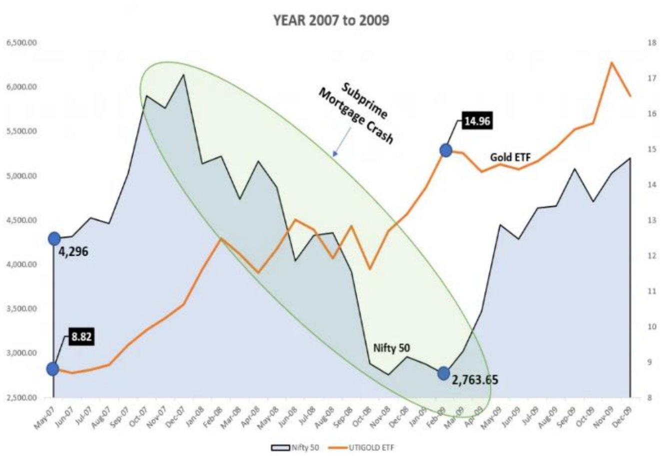

Figure 1 The Year 2007-2009 (Market Crash)

Due to the subprime mortgage crisis, the index (Nifty50) plummeted in February 2009. The index dropped from 4,296 levels to 2,763 levels, a nearly -

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35% decline. The gold ETF increased by 69% over that time, from 8.82 to 14.96 levels. Here is an illustration of gold's over performance (69% Up) during a panicked stock market. 2008–09 saw one of the worst stock market meltdowns ever. All investors—domestic and foreign—were inclined to sell. Pessimism and panic seized the stock market. Figure 1 During such periods, gold investment performs the best. The same is shown in the above chart of gold price vs stock market.

Figure 2 The Year 2010 to 2013 (Volatile Market)

There was continued volatility in the stock market between 2010 and 2013. The Nifty 50 continued to fluctuate over these four years. By January 2011, it has risen to 6,157 levels from 5,232 levels in January 2010. That is a 17.7% increase. Between January and December of 2011, the following year, the Nifty dropped to 4,544 levels. The decline was -26.2% over a 12-month period. The Nifty50's wild rollercoaster over the past two years has improved performance for the GOLD ETFs. Between January 10 and December 11, the gold ETF had an increase, rising from 16.52 to 26.38 levels. That was a 59.8% increase in just two years. The stock market was extremely volatile from January to December of 2012. It is the volatility that unnerves investors. These investors may include retail investors, DIIs, or FIIs. They take comfort in investing in safe havens like gold during these difficult times. Because of this, the price of gold exchange-traded funds (ETFs) increased from 26.38 to 29.92 levels (up 13.4%) between January and August of 2013. Yet even the price of gold ETFs started to fluctuate at these points. Figure 2 illustrates how the market might have believed the ETF was overpriced at these price points. 2014 was a significant year for India. The results of the general elections were announced on May 14. The Modi administration took over from Manmohan Singh's administration.

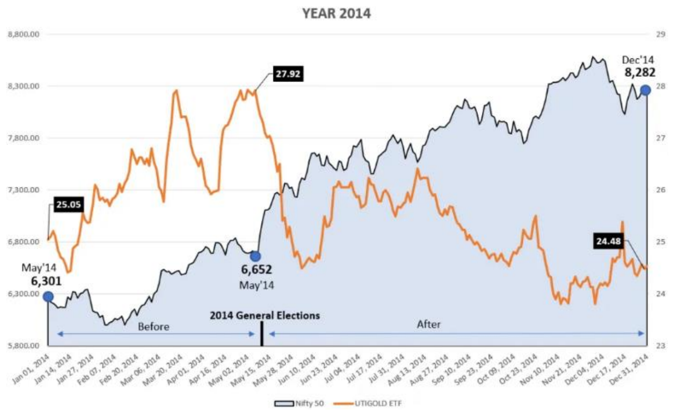

Figure 3 The Year 2014 (Stock Market Bullish)

Since the stock market viewed Modi as a pro-growth figure, the move was well received. In 2014, there are two distinct components to be aware of. The period before the general election results ran from January 14 to May 14. The nation's mood indicated that the shift was unavoidable. Nonetheless, the result remained ambiguous. As a result, even though the Nifty was gradually rising from 6,301 levels to 6,652 levels (up 5.5%), gold continued to be optimistic. In just five months, the Gold ETF increased by 11.45%, from 25.05 to 27.92. It did not perform as well as the Nifty. Why? When political or economic uncertainty enters the market, gold performs better. This is how gold typically behaves. Following May 14, India's new prime minister, Modi, was chosen. The stock market felt more assured with the new PM in charge of things. The funds that were kept in gold were now redeemed and put towards stock market investments. As a result, the Nifty50 increased by 23.7%, from 6,652 levels in May 2014 to 8,232 levels in December 2014. Figure 3 depicts the corresponding decline in the gold ETF, which went from levels of 27.92 to 24.48 (a drop of -12.3%).

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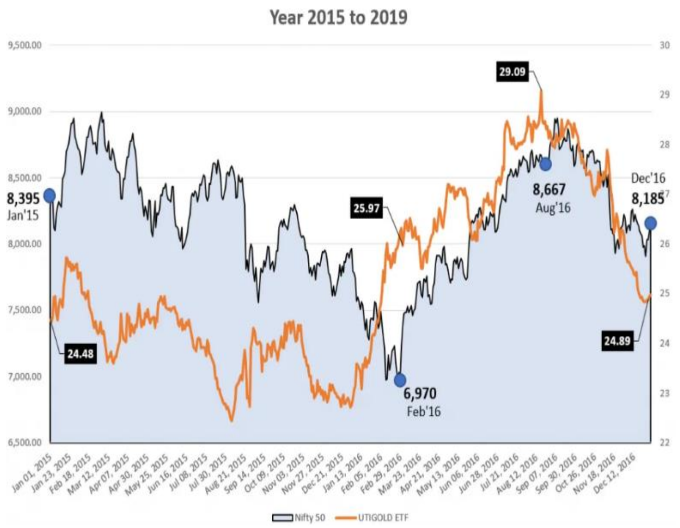

Figure 4 **The Year 2015 to 2016 to 2019 (A Rare Sync)**

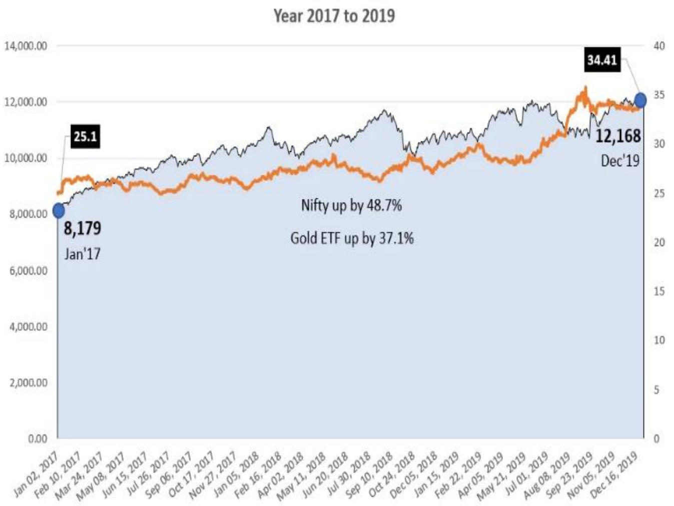

Figure 5 **A Similar Synced Movement was Observed Between the Years 2017 and 2019 as Well**

Figure 4 It is a widely held assumption that there is an inverse link between equities and gold. There are exceptions to the rule, even though it holds true the majority of the time. A comparable instance was noted in 2015 and 2016. The Nifty50 dropped from 8,395 levels to 6,970 levels between January 15 and February 16. It is a -16.9% decline. Gold ETF increased from 24.48 to 25.97 levels within that same time frame. There was a 6.1% increase. Given that the index saw a -16.9% correction, the gold market's performance was quite poor. As you can see from the price chart above, gold was actually moving in tandem with the Nifty most of the time. In the month of February, the Nifty increased from 6,970 to 8,185 levels. It is an increase of 17.4%. The gold ETF went from levels of 25.97 to 24.89 within that same time frame. There was a 4.1% decline. Given that the Index increased by 17.4%, the decline in gold may have been more severe. However, it was able to resist more. Figure 5 The Nifty increased from 8,179 to 12,168 levels during this time, from January 2017 to December 2019. In three years, there has been an absolute growth of 48.7%. Gold ETF prices increased from 25.1 to 34.41 levels within that same time frame. In just three years, there was a growth of 37.1%. Although gold and the stock market are currently advancing in tandem, this is not a typical occurrence.

Figure 6 **The Year 2020 (Covid Crash)**

The index was supposed to correct during the last five years, from 2015 to 2019, however that did not happen. Investors waited five years for a crash they had been waiting for. COVID-19 was the cause of the 2020 crash. The Nifty dropped by 37%, from 12,100 to 7,600 levels. Even though the index improved by March 2020, the COVID-19 infections caused anxiety that persisted until the first few months of 2021. Given that it was a historically unusual event, the market is still quite erratic, at least through September 2020. Following then, there was some news regarding the production of vaccines. However, the entire world was in lockdown up until that point.

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Gold is a better investment option when things are unclear. From March 2020 to September 2020, the gold ETF experienced a 49.5% increase, rising from 34.51 to 51.59 levels. This is an obvious illustration of the inverse relationship between gold and equity. However, after September 2020, the world learned that vaccines are being created and that the "work from home" model is effective. Despite the fact that some people lost their employment, many managed to adjust and make money throughout the lockdown [14–19]. During this time, the stock market's optimism increased even further. It was receiving enormous financial investments. Gold ETFs' decline in popularity during this time was not shocking. The price of the gold ETF dropped by -12.8%, from 51.59 to 45 levels. Figure 6 once more displayed the inverse swings of the gold price in relation to the stock market.

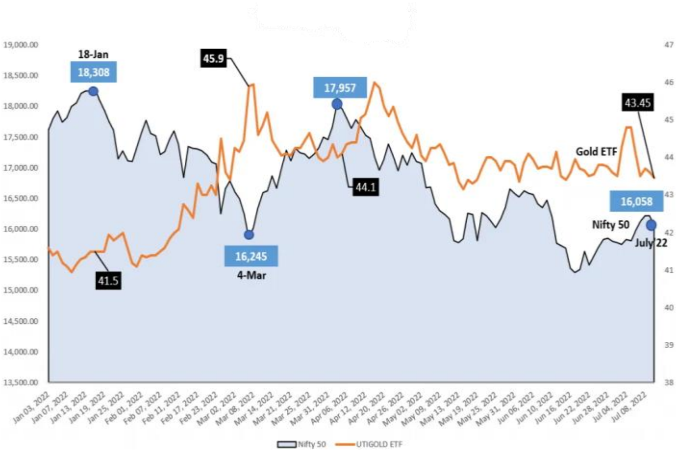

Figure 7 The Year 2022 (Inflation Worries)

The concerns about inflation materialised by the year 2022. The stock market slump occurred between January and March, resulting in a -12.7% decline in the Nifty from 18,308 to 16,245 levels. Once more, the gold rush was upon us. The price of the gold ETF increased by 10.6%, from 41.5 to 45.9 levels. The market enters its volatile phase when there is inflation. Uncertainty brought about by frequent ups and downs is advantageous to gold. From March 22 to July 22, there is volatility in the index. However, the tendency is primarily negative. The Nifty50 index is currently trading at 16,058. In a tumultuous stock market, the gold ETF has held onto the 43.45 mark. In general, gold performs much better if inflationary fears persist. Following COVID, lower interest rates were permitted globally to stimulate expenditure. An increase in inflation was inevitable since there was too much currency in circulation. When there is currency weakness due to inflation, gold becomes the safe haven. As a result, I believe that gold will perform well as an investment vehicle in the upcoming years, as seen in Figure 7.

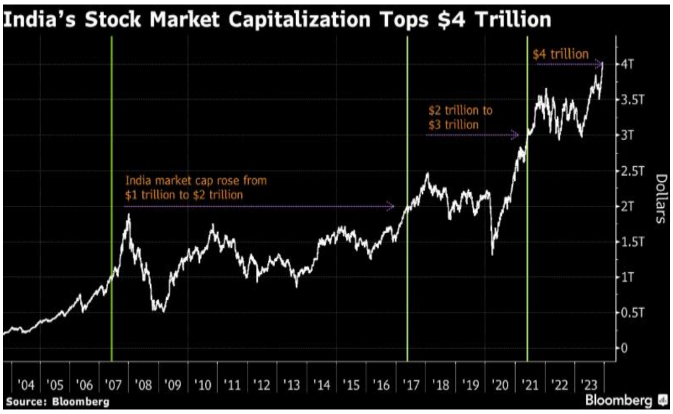

Figure 8 The Year 2023 (A Year of Records)

India's stock market has reached a new peak, surpassing a $4 trillion market value for the first time. This marks a significant milestone, positioning India as the world's fifth-largest equity market Figure 8. The market capitalization of companies listed on Indian exchanges has grown by $1 trillion in under three years, according to Bloomberg. India's key stock benchmarks have hit all-time highs, recording a rise of over 13% this year. Foreign investors injected over $15 billion into India's stocks on a net basis, while domestic funds contributed more than $20 billion. India's efforts to enhance investment in its capital markets and industrial production have attracted significant foreign investor interest. In the Nifty 50, out of the 50 stocks, 48 have shown positive growth, with only two – Adani Enterprises and UPL – experiencing declines of 27% and 19%, respectively. Notable gains have been seen in stocks like Tata Motors and NTPC, which surged 87% and 82%, respectively. 27 stocks in the Nifty 50 have gained over 20%, and 40 have increased by more than

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10%. Most of the index's gains occurred post-October, with only a modest 5% increase recorded until October 31. After a drop in October, the Nifty 50 achieved a 5.5% gain in November and continued to rise by 6% in December. Nifty 50's rebound can be attributed to the return & bullishness of foreign portfolio investors (FPIs), influenced by the easing of US bond yields and the perception that interest rates may have peaked. NSDL data reveals a significant turnaround in FPI activity. After two months of net selling, FPIs injected approximately ₹24,546 crore into the Indian financial market in November, followed by an even larger investment of about ₹77,388 crore in December. Gold prices in India in 2023 have fluctuated. When compared to 2022, the prices of gold have jumped significantly. Over the first six months of the year, the prices of the yellow metal have increased by around Rs.3,000, seeing a gain of almost 6.5%. The Russia-Ukraine war, US Fed rate increase, and inflation have played a role in gold rates increasing. The increase in the demand for gold has seen the equities market fall since the beginning of the year, Figure 9. Gold proved its timeless allure in 2023, reaching a record high of Rs. 64,460 per 10gm and outshining major indices like Nifty and Sensex for most of the year. Prices surpassed the previous record high of around $2081 per ounce, entering uncharted territory toward $2,148 per ounce. Though Nifty edged ahead with an 18% year-to-date gain by year's end, gold still remained buoyant and delivered a respectable near 13 per cent return." Foreign Portfolio Investors (FPIs) were net sellers to the tune of Rs 12,436 crore -- the highest single day selling by them. The broader Nifty Midcap 100 and Nifty Small cap 100 fell by 7.8 and 8.2 per cent respectively. In the run-up to the elections, Prime Minister Modi and several senior ministers had assured investors of a clear majority to the ruling combine, and market rally after the declaration of the results. This market descent was the most severe since March 23, 2020, when the two benchmark indices had plunged 13 per cent in the wake of the spreading Covid-19 pandemic. The sharp selloff also stirred memories of the post-2004 election fallout when the National Democratic Alliance (NDA) had suffered a shock defeat. On a closing basis, Tuesday's decline was the worst-ever election result day fall since at least 1999. The India (VIX) THE VOLATILITY INDEX, a barometer of market volatility, surged by 27 per cent — its highest single-day gain in two years — to 26, hinting at more turbulence on the horizon.

Figure 9 The Year 2024 (Impact of Lok Sabha Election)

Lok Sabha elections result in India do not have a direct impact on gold prices because India is a gold price taker.Experts predict that in 2024, the price of gold will probably reach Rs.70,000 per 10 gram. On 31 December 2023, 10 gram of 22 karat gold was sold at Rs.58,550 while 24 karat gold was trading at Rs.63,870 per 10 gram. Due to conflict in the Middle East, the price of gold surged earlier this month. Gold prices on the international markets reached a record high of Rs.61,845 per 10 gram and $2,083 per ounce on 4 May 2023. On 16 November 2023, Director of Commtrendz Research Gnanasekar Thiagarajan revealed that the gold rates attained a new all-time high of Rs.61,914 [20-23]. According to Thiagarajan, it is anticipated that gold price will ultimately reach $2,400 in the upcoming year. He further stated that gold is expected to hit the Rs.70,000 levels if the rupee remains stable. The upcoming general elections may cause Foreign Institutional Investors (FIIs) to reduce their investment portfolios, which could support domestic gold rates and cause the rupee to weaken. Higher domestic prices in China and India could be a hindrance to retail jewellery purchases, according to Ravindra Rao, vice president and head

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of commodity research at Kotak Securities. The chairman of the All India Gem and Jewellery Domestic Council, Saiyam Mehra, stated that the weak rupee will cause gold prices to soar, with estimates reaching $2,250–2,300 and Rs.68,000 to Rs.70,000 in 2024 due to the US Federal Reserve's rate cut and geopolitical issues. The business is expected to remain at the same level as in 2023, but the high price of gold will have an even greater impact on sales in 2024, Figure 10.

6. Data Analysis and Interpretation

Table 1 Gold Price Movement

Year	Open	High	Low	Avg Price
2023-2024	**59,750**	**67,870**	55,913	Rs.65,330.00
2022-2023	51,531	60,320	48,888	Rs.52,670.00
2021-2022	44,500	55,428	44,500	Rs.48,720.00
2020-2021	**42,854**	**56,499**	42,800	Rs.48,651.00
2019-2020	31,588	44,881	31,101	Rs.35,220.00
2018-2019	30,580	34,400	**29,184**	Rs.31,438.00
2017-2018	28,607	30,947	27,620	Rs.29,667.50
2016-2017	**28,410**	32,357	**26,980**	Rs.28,623.50
2015-2016	26,122	30,147	24,470	Rs.26,343.50
2014-2015	28,432	**31,495**	25,123	Rs.28,006.50
2013-2014	29,452	34,549	24,830	Rs.29,600.00

Source:https://in.investing.com/commodities/gold-historical-data?interval_sec=monthly https://www.bankbazaar.com/gold-rate/gold-rate-trend-in-india.html

Figure 10 Movement Analysis

Table 2 Past 10 Years Gold Price

Year	Avg Gold Price (24 Karat/ 10g)	Avg Gold Price (22 Karat / 10g)
2023	₹65,330.00	₹63,203
2022	₹52,670.00	₹55,017
2021	₹48,720.00	₹48,099
2020	₹48,651.00	₹50,151
2019	₹35,220.00	₹39,108
2018	₹31,438.00	₹31,391
2017	₹29,667.50	₹29,156
2016	₹28,623.50	₹27,445
2015	₹26,623.50	₹24,931
2014	₹28,006.50	₹26,703
2013	₹29,600.00	₹28,422

Source: https://www.bankbazaar.com/gold-rate/gold-rate-trend-in-india.html

Figure 11 Gold Price Analysis

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Interpretation: From the above table (Table no.1 & Table.2) it is observed that average gold price of 24 carat /10g of the year 2013 is ₹29,600.00 and from 2014 there is a slowly increasing trend of gold price. Similar trend has been followed in in case of 22 carat / 10g gold till the year 2019 thereafter from 2020 a huge change in gold price both 24carat as well as 22carat till the final year 2023, shown in Figure 11.

Table 3 BSE Sensex Return Vs Gold Return

Year	Sensex Return	Gold Return
2023	18.7%	9.84%
2022	4.4%	5.74%
2021	22.0%	4.28%
2020	15.8%	13.68%
2019	14.4%	21.12%
2018	5.9%	3.54%
2017	27.9%	-1.69%
2016	1.9%	12.70%
2015	-5.0%	-1.22%
2014	29.9%	13.38%
2013	8.5%	-30.92%

Source: https://premium.capitalmind.in/sensex-pe-ratio/https://curvo.eu/backtest/en/market-index/gold-bullion?currency=eur

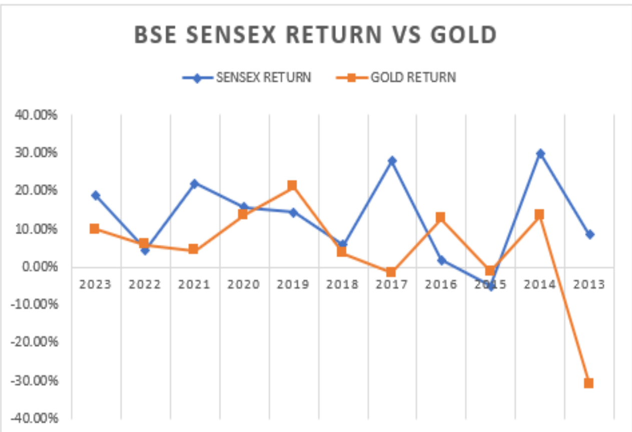

Figure 12 BSE Sensex Return Vs Gold Return Analysis

Interpretation: As per the above table (Table no. 3) it can be said that in the year 2013 the Sensex return is 8.5% whereas the gold is -30.92%. Here it seems that there is a fluctuation in both Sensex and gold till 2023. In the year 2015 the Sensex return deep down to -5.0% whereas gold deeps down to the -1.22%, here it can be said that gold return fall more than Sensex return. It can be said that demand for the yellow metal is expected to rise despite any uncertainties, shown in Figure 12.

Table 4 Nifty Return Vs Gold Return

Year	Nifty Return	Gold Return
2023	19.42%	9.84%
2022	4.32%	5.74%
2021	24.12%	4.28%
2020	14.90%	13.68%
2019	12.02%	21.12%
2018	3.15%	3.54%
2017	28.65%	-1.69%
2016	3.01%	12.70%
2015	3.01%	-1.22%
2014	31.39%	13.38%
2013	6.76%	-30.92%

Source: https://primeinvestor.in/nifty-50-returns/

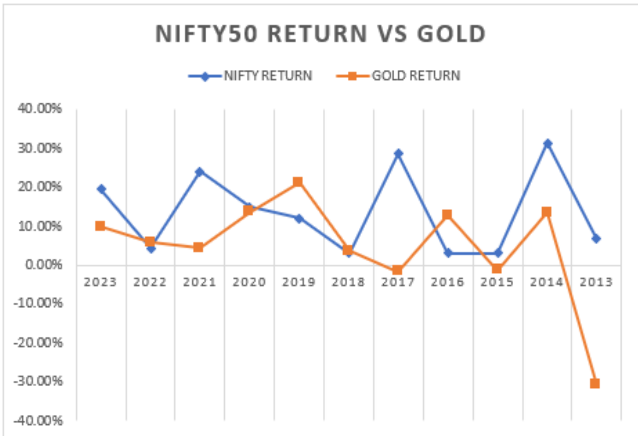

Figure 13 Nifty50 Return Vs Gold

Interpretation: From the above table 4 it is observed that the table is following fluctuation trend in both the market returns. In the year 2015 the Nifty return deep down to 3.01% whereas gold deeps down to the -1.22%, here it can be said that gold return fall more than Sensex return. It can be said that gold can lie low for long periods of time and then compensate through

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spectacular results, gold is also prone to extremes (up and down) Figure 13. Volatility in gold vs Nifty is notable. However, over longer time periods, the high returns will even out the sub-par ones. It has a higher probability of negative returns than equity in the short to medium term. Gold tends to perform best when other asset classes such as equity are under stress.

Table 5 Nifty 50 Return vs Sensex Return Vs Gold Return

Year	Nifty Return	Sensex Return	Gold Return
2023	18.7%	19.42%	9.84%
2022	4.4%	4.32%	5.74%
2021	22.0%	24.12%	4.28%
2020	15.8%	14.90%	13.68%
2019	14.4%	12.02%	21.12%
2018	5.9%	3.15%	3.54%
2017	27.9%	28.65%	-1.69%
2016	1.9%	3.01%	12.70%
2015	-5.0%	3.01%	-1.22%
2014	29.9%	31.39%	13.38%
2013	8.5%	6.76%	-30.92%

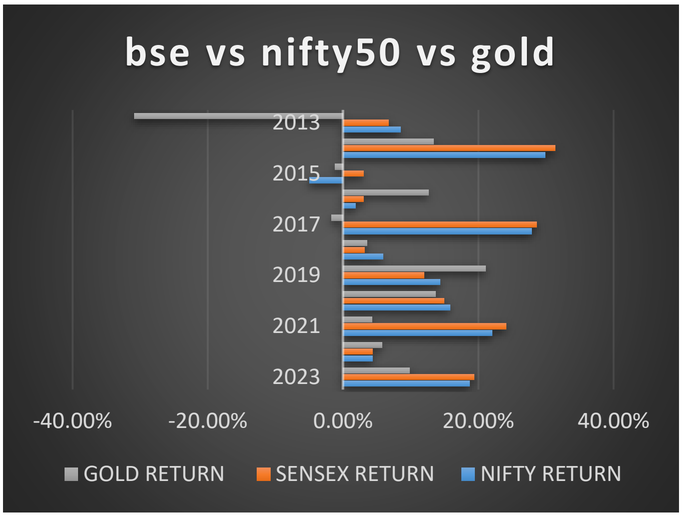

Figure 14 BSE vs Nifty 50 vs Gold

Interpretation: It is observed from table no. 5 that it is following fluctuation trends among all three markets. In the year 2013 both the index NIFTY and BSE reflects positive return by 8.5% and 6.76% whereas the Gold reflects negative return by -30.92%. After that in the year 2015 both the NIFTY and Gold returns fall whereas BSE reflect positive return. Thereafter all three markets show a positive return, shown in Figure 14.

Table 6 Sensex Closing Vs Gold Closing

Year	Sensex	Gold
2023	73651.35	₹65,330.00
2022	58991.52	₹52,670.00
2021	58568.51	₹48,720.00
2020	49509.15	₹48,651.00
2019	29468.49	₹35,220.00
2018	38672.91	31,438.00
2017	32968.68	₹29,667.50
2016	29620.50	₹28,623.50
2015	25341.86	₹26,343.50
2014	27957.49	₹28,006.50
2013	22386.27	₹29,600.00

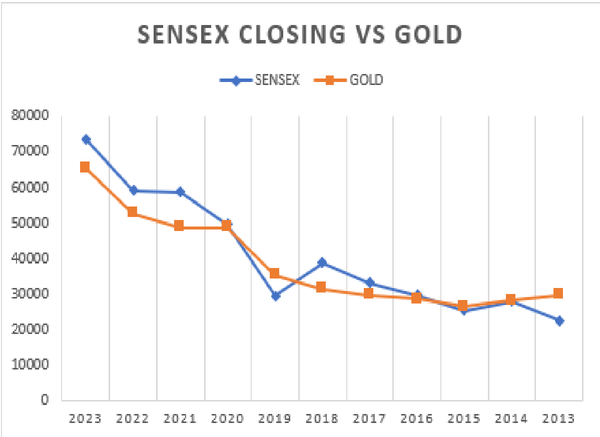

Figure 15 Sensex Closing Vs Gold

Interpretation: The last decade saw decent return on both gold and the stock market. But gold has marginally outshone the latter in terms of performance related to an increase in value. The BSE Sensex cumulatively appreciate by 73651.35 however gold by 65,330.00. From the Table 6 it is seems that, the period ending in the year 2019, the Sensex is 29468.49. On the other hand, in the same time period, gold reached ₹35,220.00 per 10 grams, shown in Figure 15.

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Table 7 Nifty 50 closing vs Gold Closing

Year	Nifty50	Gold
2023	22,326.90	₹65,330.00
2022	17,359.75	₹52,670.00
2021	17,464.75	₹48,720.00
2020	14,690.70	₹48,651.00
2019	8,597.75	₹35,220.00
2018	11,623.90	₹31,438.00
2017	10,113.70	₹29,667.50
2016	9,173.75	₹28,623.50
2015	7,738.40	₹26,343.50
2014	8,491.00	₹28,006.50
2013	6,212.25	₹29,600.00

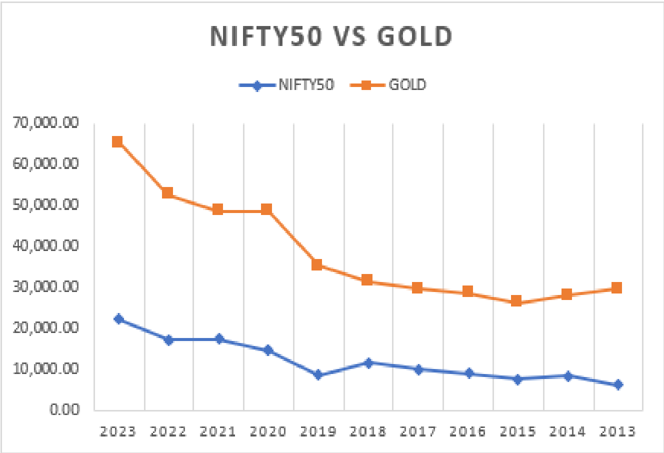

Figure 16 Nifty50 vs Gold

Interpretation: From the above table 7 it seems that NIFTY50 is following increasing trend from 2013 to 2018 and its deep down in year 2019 by 8,597.75 because of pandemic Covid19 and again follow the same increasing trend whereas the Gold is reflecting positive trend and strong performance in the market. Even as Gold has hit an all-time high, the yellow metal has failed to beat the returns of equity indices such as Nifty consistently over the longer run but it is observed from the above table that in the last five years, gold has outperformed Nifty,Figure 16.

Table 8 BSE vs Nifty50 vs Gold

Year	BSE	Nifty50	Gold
2023	73651.35	22,326.90	₹65,330.00
2022	58991.52	17,359.75	₹52,670.00
2021	58568.51	17,464.75	₹48,720.00
2020	49509.15	14,690.70	₹48,651.00
2019	29468.49	8,597.75	₹35,220.00
2018	38672.91	11,623.90	₹31,438.00
2017	32968.68	10,113.70	₹29,667.50
2016	29620.50	9,173.75	₹28,623.50
2015	25341.86	7,738.40	₹26,343.50
2014	27957.49	8,491.00	₹28,006.50
2013	22386.27	6,212.25	₹29,600.00

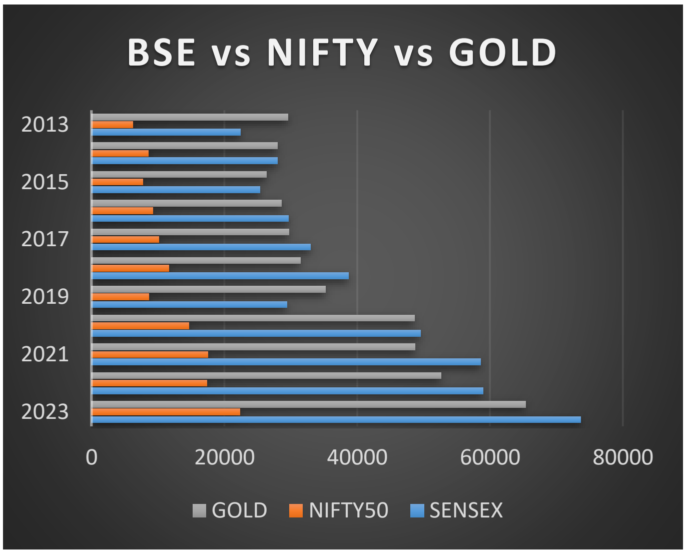

Figure 17 BSE vs Nifty Vs Gold

Interpretation: It is observed from table no. 8 that the average indices of BSE and NIFTY is 22,386.27 and 6,212.25 and gold price is 29,600.00. In the year 2019 both BSE and NIFTY are decline huge whereas gold price has increased by 3782.00, that's why gold market is steady market compared with stock market. So, it is clear that despite all these, gold have outshined the indices of the Indian stock market, shown in Figure 17.

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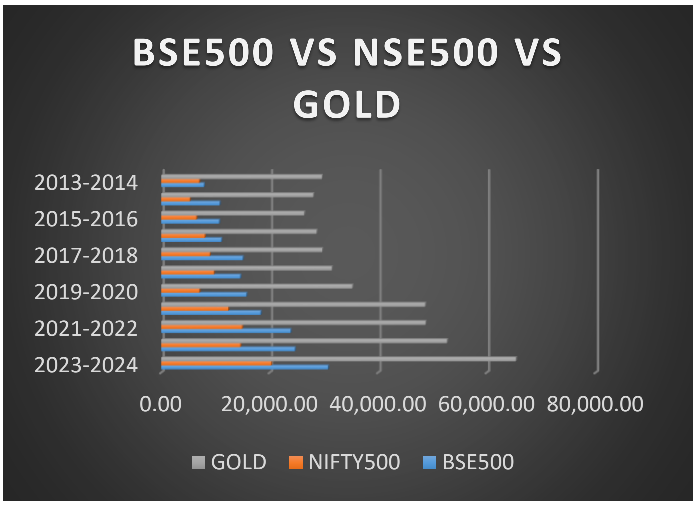

Figure 18 **BSE500 vs NSE500 vs Gold**

Interpretation: From the table 9 it can be said that BSE500, NSE500 and gold is reflecting positive trend. The average closing for the year2013-2014 of BSE500 is 7828.34 NSE500 is 6978.14 and gold is ₹29,600.00. in the year 2019-2020 the BSE500 and gold increase a huge whereas the NSE500 decline drastically by 2,666.95, After that in the year 2023-2024 BSE500, NSE500 and gold reflects positive trend but gold give more returns than the others, shown in Figure 18.

Table 9 **BSE500 VS NSE500 VS GOLD**

Year	BSE500	NSE500	Gold
2023-2024	30,720.28	20,255.15	₹65,330.00
2022-2023	24,605.78	14,557.85	₹52,670.00
2021-2022	23,811.00	14,894.50	₹48,720.00
2020-2021	18,300.10	12,313.70	₹48,651.00
2019-2020	15,667.44	6,996.75	₹35,220.00
2018-2019	14,540.39	9,663.70	₹31,438.00
2017-2018	15,002.73	8,912.10	₹29,667.50
2016-2017	11,036.44	7,995.05	₹28,623.50
2015-2016	10,634.22	6,452.15	₹26,343.50
2014-2015	10,721.62	5,224.84	₹28,006.50
2013-2014	7,828.34	6,978.14	₹29,600.00

Conclusion

The study intended to analyze the impact of gold prices on the movement of the Indian stock market. During the period of global financial crisis, stock markets crashed but gold price continues to increase in India. Unlike stock, the extent of holding of gold in India is widespread, though retail participation in the Stock Markets has gone up in the last few years. Gold price has a significant positive impact on the movement of Indian stock market, but the quantum of impact is very low since many factors are responsible for the movement of the stock market, the gold price is one among them. the gold price and Indian stock market in terms of both BSE500 and NSE500 are not moving together and they are moving independently in their own direction since they do not have a co-integration. The current study is limited only to BSE Sensex and gold prices, further scope of including more variables like commodity prices, Mutual funds and Futures, Options, Interest rate Derivatives etc.

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