



An Analytical Study on Gold Prices and its Impact on Stock Market

Shivam Aggarwal

AMITY University, Uttar Pradesh

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ABSTRACT

This dissertation presents an analytical study of gold prices and their impact on the stock market, focusing on the comparison between Sensex30 and SBI Gold ETF during significant events such as volatility in 2013, General Elections in 2014 and 2019, the Covid crash in 2020, and inflation worries in 2022. Daily price data were collected from the Bombay Stock Exchange and reputable financial websites, with analysis conducted using Microsoft Excel. Correlation coefficients were calculated to assess the relationship between gold prices and stock market performance, while returns analysis provided insights into the magnitude and direction of returns before and after each event. The findings suggest nuanced interactions between gold prices and stock market behaviour during different market conditions and events, offering valuable insights for investors and policymakers navigating financial markets.

1 - INTRODUCTION

1.1 INTRODUCTION

In the complex and dynamic landscape of financial markets, understanding the interplay between various assets is of paramount importance for investors, policymakers, and financial analysts. Among the myriad of assets, gold has long held a unique position as a store of value, a hedge against inflation, and a safe haven in times of economic uncertainty. Its price movements have often been scrutinized not only by gold enthusiasts but also by those seeking insights into broader market trends.

Concurrently, the stock market, as a primary avenue for investment and wealth creation, exerts a profound influence on global economies and individual investors alike. The performance of stock markets reflects not only the underlying fundamentals of companies but also broader economic conditions, investor sentiment, and geopolitical factors.

This dissertation aims to delve into the intricate relationship between gold prices and the stock market, seeking to analyse how fluctuations in gold prices impact stock market behaviour. While this relationship has been explored to some extent in the existing literature, there remains a need for a comprehensive analytical study that incorporates diverse methodologies and considers various market conditions.

1.2 BSE INDICATOR- SENSEX30

For the analysis of the stock market, the Sensex30 index, a benchmark index comprising 30 large-cap stocks listed on the Bombay Stock Exchange (BSE), will be utilized. This index is widely regarded as a barometer of the Indian stock market's overall performance, offering insights into the broader trends and sentiments prevailing in the market.

1.3 GOLD EXCHANGE TRADED FUNDS

In contrast, for the analysis of gold prices, the SBI Gold Exchange Traded Fund (ETF) will serve as the focal point. This ETF tracks the performance of gold prices and offers investors exposure to the underlying commodity without the need for physical ownership. By utilizing the SBI Gold ETF as a proxy for gold prices, this dissertation aims to capture the dynamics of the gold market and its interaction with the stock market.

Through a rigorous analysis of historical data and statistical techniques, this dissertation seeks to shed light on the complex relationship between gold prices and the stock market, providing valuable insights for investors, policymakers, and researchers navigating the intricacies of financial markets.

1.4 RESEARCH OBJECTIVES

The primary objective of this dissertation is to conduct an analytical study on gold prices and their impact on the stock market. Specifically, the research aims to:

- a) Investigate the historical relationship between gold prices and stock market indices.
- b) Analyze the short-term and long-term effects of fluctuations in gold prices on stock market behavior.
- c) Explore the underlying mechanisms driving the relationship between gold prices and the stock market.
- d) Assess the implications of this relationship for investors, policymakers, and financial markets.

2 - LITERATURE REVIEW

2.1 LITERATURE REVIEW

1. **Nader Trabelsi (et.al), 2021, Effects of Price of Gold on Bombay Stock Exchange Sectoral Indices: New Evidence for Portfolio Risk Management.**

This paper investigates the relationship between gold returns and seven sectoral indices on the Bombay Stock Exchange (BSE) using daily data from January 2000 to May 2018. It addresses portfolio selection issues in India by examining hedged robust portfolio problems and focusing on maximum return portfolio allocation, global minimum variance portfolio problem, and Markowitz portfolio allocation using various multiple generalized autoregressive conditional heteroskedasticity (GARCH) models. The findings indicate that gold returns are significantly independent of BSE sectoral indices returns. Additionally, gold returns can predict future returns of certain sectoral indices, such as Consumer Durables, Fast-Moving Consumer Goods (FMCG), and Oil & Gas. Furthermore, gold serves as a hedge against information technology stock index and offers robust portfolio diversification. These findings have implications for investors and risk management strategies.

2. **Dr. Nilam Panchal, 2021, A study on dynamic relationship between gold price and stock market price in India.**

The paper aims to examine the impact of gold prices on the Indian stock market, as represented by the Nifty-50 index. It explores how investors respond to market volatility by shifting investments from risky assets like stocks to safer assets like gold. The study utilizes secondary data and investigates the relationship between gold prices and stock market prices (Nifty) using daily time series data from January 2018 to May 2021.

3. **Dr. Naliniprava Tripathy, 2016, A study on dynamic Relationship between Gold price and Stock market price in India.**

The research investigates the relationship between gold prices and stock market prices (Nifty) using monthly time series data from July 1990 to April 2016. Employing unit root tests, correlation tests, Granger causality tests, and Johansson's co-integration test, the study reveals no short-term causal relationship between gold price and stock market price. However, it finds evidence of long-term co-integration, suggesting a sustained equilibrium relationship where both variables move together. CUSUM tests support the stability of coefficients, affirming the presence of a long-term relationship. The study suggests using stock market prices to predict gold prices, emphasizing the importance of portfolio stock selection strategies for global investors in India, albeit with limited short-term opportunities.

4. **Somnath Mukhuti (et.al), 2013, Is it true that Indian gold price influenced by Indian stock market reaction?**

The study examines the relationship between Indian gold prices and stock market indices (Sensex and Nifty) from January 2, 1991, to August 10, 2012, using daily time series data and bivariate and multivariate cointegration tests. During periods of national crisis, bank failures, rupee depreciation, and negative real interest rates, gold is perceived as a safe haven, leading people to invest in this precious metal due to uncertainties in stock investments. Bivariate cointegration test results indicate no cointegration relationship between gold prices and the two stock market indices individually. However, multivariate cointegration test results reveal a consistent cointegration relationship between gold prices and both stock market indices in India. This suggests that gold prices in India increased during the study period due to reactions in the stock market along with other macroeconomic factors.

3 - METHODOLOGY

3.1 METHODOLOGY

1. **Research Design:**

Quantitative Approach: Utilize quantitative research methods to analyse numerical data related to gold prices (SBI Gold ETF) and stock market performance (Sensex30).

2. **Data Collection:**

Secondary Data: Daily price data for SBI Gold ETF and Sensex30 will be collected from reliable sources such as the Bombay Stock Exchange (BSE) and reputable financial websites. Ensure consistency and accuracy in data collection.

3. **Event Selection:**

Identify significant events impacting financial markets, such as:

- a) Volatility in 2013

- b) General Elections in 2014
- c) General Elections in 2019
- d) Covid crash in 2020
- e) Inflation worries in 2022

4. **Data Analysis:**

Graphical Analysis: Plot daily price data for SBI Gold ETF and Sensex30 to visually observe trends and patterns over time, particularly around the identified events.

Correlation Analysis: Calculate correlation coefficients for different quarters to quantify the relationship between gold prices and stock market performance during specific time periods. Returns Analysis: Calculate returns generated by both assets before and after each event in the respective years to assess the magnitude and direction of returns for SBI Gold ETF and Sensex30 during each event.

5. **Statistical Techniques:**

Trend Analysis: Identify any long-term trends in gold prices and stock market performance and assess their significance.

6. **Software Tools:**

Utilize Microsoft Excel for data analysis and visualization, leveraging its functions and charting capabilities to analyze daily price data for SBI Gold ETF and Sensex30, calculate correlation coefficients, and conduct statistical analysis.

7. **Ethical Considerations:**

Ensure compliance with ethical guidelines for data collection and analysis.

Maintain data privacy and confidentiality protocols, especially when handling sensitive financial data.

8. **Limitations:**

Acknowledge potential limitations of the study, such as data availability, sample size, and the inherent limitations of quantitative analysis in capturing complex market dynamics.

9. **Validation:**

Cross-validate findings using alternative methodologies or datasets to enhance the robustness and reliability of the results.

10. **Conclusion:**

Summarize the methodology adopted for the study, highlighting its strengths and limitations. Provide insights into the relationship between gold prices and stock market performance during significant events based on the analysis conducted.

4 - RESULTS AND DISCUSSION

4.1 SENSEX30 VS SBI GOLD ETF IN THE YEAR 2013 (VOLATILE YEAR)

4.1.1 Data Visualisation

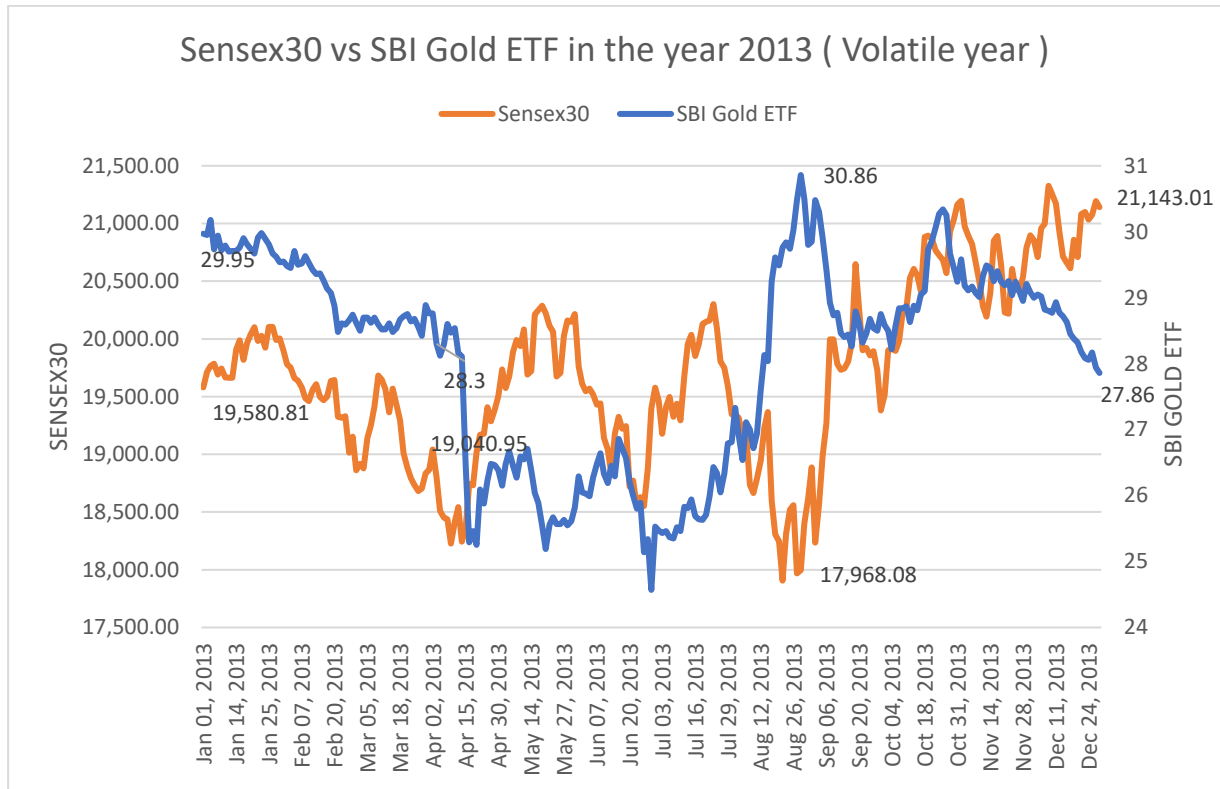


Fig. 1: Line chart for Sensex30 vs SBI Gold ETF prices with time for the year 2013

4.1.2 Data Interpretation

The year 2013 remain volatile between April 2013 to August 2013 where the correlation between Sensex30 and SBI Gold ETF is -0.67 i.e. both the assets are negatively correlated, during this period SBI Gold ETF generated positive returns of 9% as it moved from the levels of Rs 28.3 in April to Rs 30.86 in August whereas on the other hand Sensex30 drops by 5.6% as it declined from the levels of 19,040.95 to 17,968.08 in the same period. This could happen because of announcement from US Fed that it would reduce the volume of purchasing bond because of the risk of hyperinflation due to “quantitative easing, executed in the financial crisis of 2008 to maintain liquidity in economy and promote economic growth as balance sheet size of US Fed has tripled from \$1 trillion to around \$3 trillion”(The Investopedia team, Oct 12, 2020). As it was, at that time, is just an announcement and no actual sell had taken place, created a panic among investors. Also, “the rupee fell to all time low of 62 in August” (PTI, Aug 20, 2013). But the panic was unreal as markets touch levels of all time high of 21,143 generating a return of 8% in the year whereas SBI Gold ETF declined 7%. The correlation between the assets during the year is 0.14 i.e. they are positively correlated during the year.

4.2 SENSEX30 VS SBI GOLD ETF IN THE YEAR 2014 (GENERAL ELECTIONS)

4.2.1 Data Visualisation

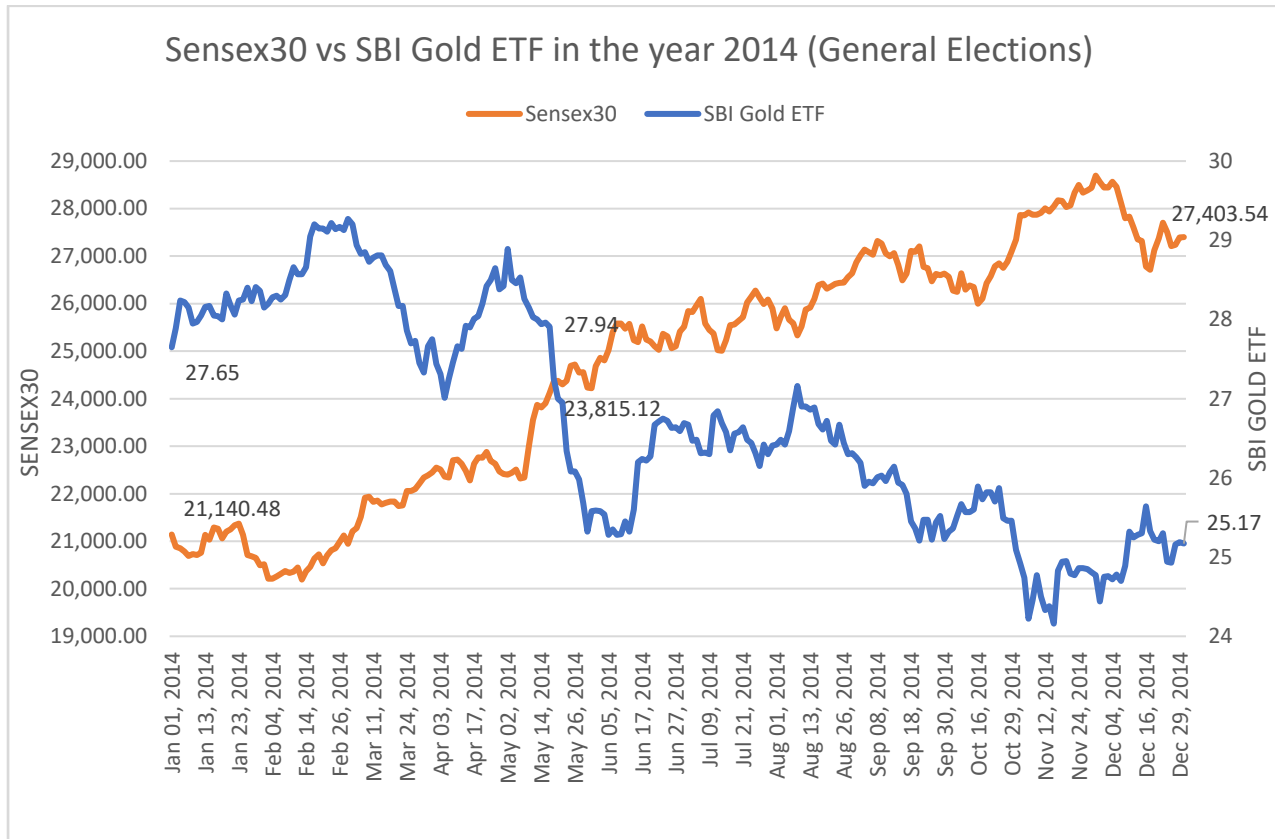


Fig. 2: Line chart for Sensex30 vs SBI Gold ETF prices with time for the year 2014

4.2.2 Data Interpretation

In the year 2014, UPA government got defeated by NDA government and Mr. Narendra Modi elected as a prime minister of India, the results were welcomed by stock market, and it moved up 15%, from the levels of 23,815.12 in May 2014 to 27,403.54 in December 2014, whereas SBI Gold ETF declined 10% in the same period. During this post-election results period, the correlation between Sensex30 and SBI Gold ETF is -0.73 i.e. both assets are negatively correlated during this period.

Before declaration of election results, Sensex30 moved up 13% from the levels of 21,140.48 in January 2014 to 23,815.12 in May 2014 whereas SBI Gold ETF moved from Rs 27.65 to Rs 27.94 and gained only 1% in the same period. The correlation between these two assets in the period is -0.40 i.e. both the assets are negatively correlated during this period.

In 2014, Sensex30 rose up by 29.6% and SBI Gold ETF declined by 9%. The correlation between the assets in the year 2014 is -0.92 i.e. they are strongly negatively correlated with each other during the year.

4.3 SENSEX30 VS SBI GOLD ETF IN THE YEAR 2019 (GENERAL ELECTIONS)

4.3.1 Data Visualisation

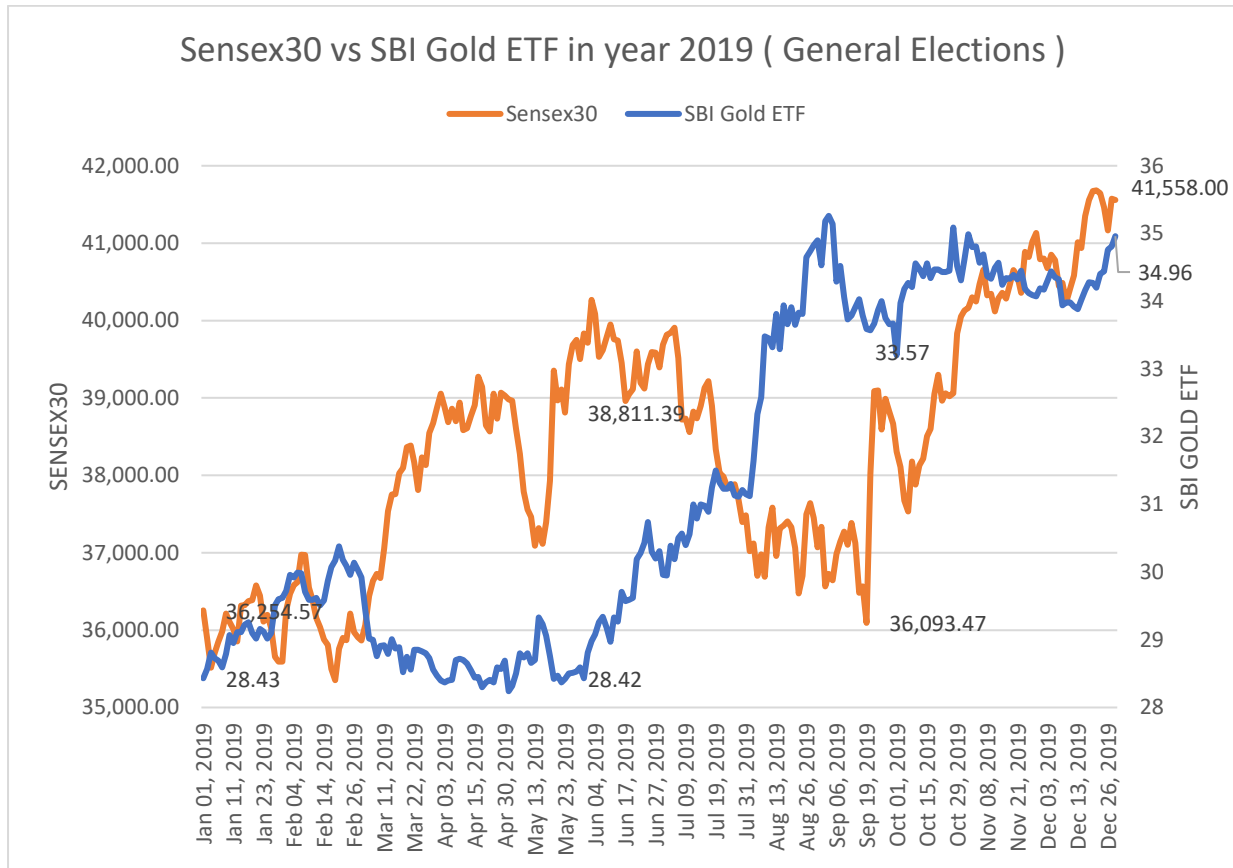


Fig. 3: Line chart for Sensex30 vs SBI Gold ETF prices with time for the year 2019

4.3.2 Data Interpretation

In year 2019, Mr. Narendra Modi re-elected as a Prime Minister of India, but the Sensex moved up from levels of 38,811.39 in May 2019 to 41,588 in December 2019 i.e. only by 7.1% after declaration of election results i.e. 24th May 2019. “This underperformance of market could be due to US-China trade war and US Federal Reserve continuous rate hikes in 2019” (Gurumurthy K, Feb 18, 2024) and market was still trying to recover after this economic slowdown. During this period, SBI Gold ETF moved up greatly by 23%. -0.0096 is the correlation between the two assets during this period i.e. they are negatively correlated.

“In September 2019, Finance Minister of India, Mrs. Nirmala Sitharaman announced a cut in base corporate tax from 30% to 22% for existing companies and 25% to 15% for new manufacturing firms incorporated after 1st October 2019” (PTI, Aug 08, 2023). After this announcement, Sensex30 rose up by 15% from levels of 36,093.47 in September 2019 to 41,558 in December 2019 whereas SBI Gold ETF rose up by 4%. Correlation between two assets during the period was 0.24 i.e. they are positively correlated.

Before declaration of election results, Sensex30 moved up 7% from the levels of 36,254.57 in January 2019 to 38,811.39 in May 2019, whereas SBI Gold ETF had generated nil returns. The correlation during this period is -0.74 i.e. they are negatively correlated during this period.

Sensex30 was up by 14.6% in the year 2019 and SBI Gold ETF rose up by 23% in the same year. The correlation between them was 0.349 in the same year i.e. they are positively correlated during the year.

4.4 SENSEX30 VS SBI GOLD ETF IN THE YEAR 2020 (COVID-19 PANDEMIC)

4.4.1 Data Visualisation

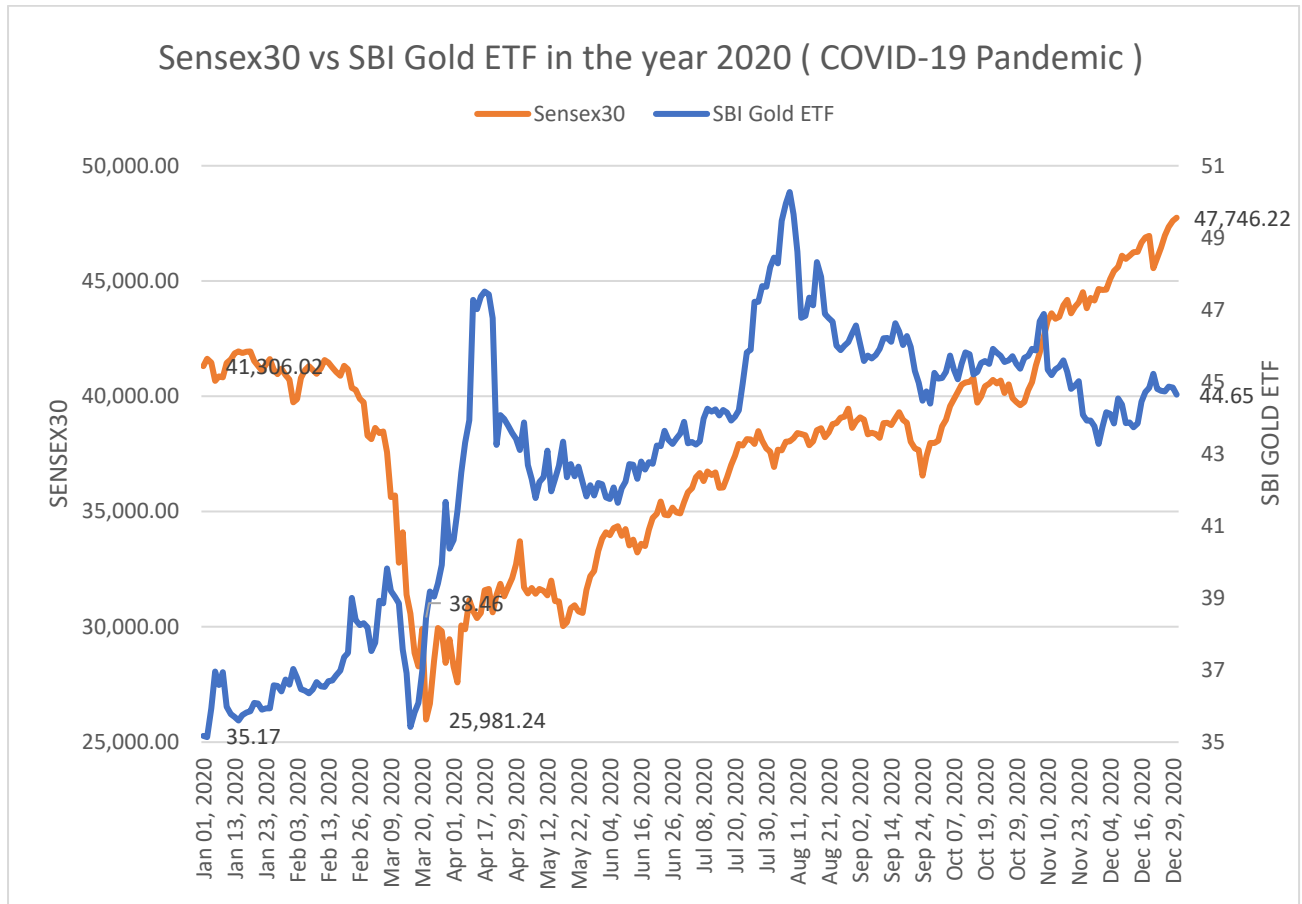


Fig. 4: Line chart for Sensex30 vs SBI Gold ETF prices with time for the year 2020

4.4.2 Data Interpretation

In the year 2020, COVID-19 hit the globe which results in forced lockdown in different countries, business operations were disrupted, supply chains were adversely affected, and corona virus had locked the people inside their homes. This adversely affects the markets brutally as Sensex30 falls massively by 37% from the levels of 41,306.02 in January 2020 to 25,981.24 in March 2020 on the other hand SBI Gold ETF went up by 9.3% from Rs 35.17 to Rs 38.46 in the same period. The correlation during this period between both the assets is -0.29 i.e. they are negatively correlated during this period.

As the situation stabilized and situations of medical treatment were under control, government lifted the lockdown in different phases, this regained the investors interest in the market, or we can say that investors found big opportunity in the market to generate wealth for themselves. The inflow of money into the market results not only the recovery of Sensex30 but touched all time high of 42,645 in the same year i.e. November 2020. Sensex generated the returns of 83.7% and runs from the levels of 25,981 in March 2020 to 47,746 in December 2020 whereas SBI Gold ETF is up by just 16% in the same period. The correlation during this period between both the assets is 0.45 i.e. they are positively correlated during this period.

During the year, Sensex30 rose up by 15.6% and SBI Gold ETF rose up by 27% in 2020. The correlation between them is 0.0467 i.e. they are positively correlated with each other in 2020.

4.5 SENSEX30 VS SBI GOLD ETF IN THE YEAR 2022 (RUSSIA-UKRAINE WAR)

4.5.1 Data Visualisation



Fig. 5: Line chart for Sensex30 vs SBI Gold ETF prices with time for the year 2022

4.5.2 Data Interpretation

In the first half of 2022, Sensex30 declined 10.4% as it plunges from the levels of 59,183.22 in January 2022 to 53,018.94 in June 2022 and SBI Gold ETF rose 5.5% during January to June. In the first quarter of 2022, due to Russia-Ukraine war, oil prices spiked and there was a sudden fall in the market as the Sensex30 tumbles 10.7% from the levels of 59,183.22 in January 2022 to 52,842.75 in March 2022. There was decline in Sensex30 in the first half of the year was when “Federal Reserve began raising interest rates in March to control high inflation” (Luis Melgar, Dec 27, 2022) and financial instability in rest of the world which results in fear of recession. “Indices of countries like US, China, Hong Kong, South Korea, Taiwan, Russia, and Europe were down by 9-39% in the same period. On the contrary, Sensex30 performed second best in 2022 and generated at least positive returns, after Brazil” (Vidya Sreedhar, Dec 31, 2022). SBI Gold ETF rose up by 10.4% during January to March period. The correlation between these two assets in first half of 2022 is -0.5 i.e. they are negatively correlated with each other.

In 2022, Sensex30 had moved up 2.8% and SBI Gold ETF had moved up 12.5%. The correlation between the assets in the year 2022 is 0.135 i.e. they are positively correlated with each other during the year.

5 – CONCLUSIONS

5.1 Conclusion

In conclusion, this study highlights the relationship between gold prices and the stock market, emphasizing that while there is no fixed relation between the two, they do exert influence on each other. The extent of this impact is determined by how investors react to specific events and news.

Historically, a lack of transparency between retail investors and the stock market favoured gold investment, as it provided tangible assets amidst uncertainty. However, with advancements in transparency and access to information, investors now have more avenues for informed decision-making. Consequently, gold investment is often utilized as a hedge to diversify portfolios and minimize risk.

Contrary to the notion of an inverse relationship between gold prices and the stock market, it's essential to view gold as a strategic investment for portfolio diversification. Events such as high inflation, interest rate fluctuations, geopolitical tensions, and crises like the COVID-19 pandemic can impact both asset classes differently.

The potential for generating returns exists in both assets, particularly when investing during corrections in respective markets. Given the volatility of both gold and the stock market, patience and strategic accumulation during corrections are advised to optimize returns.

Historical data suggests that thoughtful investments, backed by thorough research and study, can yield returns averaging between 12% to 15% in the stock market and 8% to 10% in gold investments. This underscores the importance of informed decision-making and portfolio management practices in navigating financial markets effectively.

In summary, investors can capitalize on the opportunities presented by both gold and the stock market by adopting a strategic approach and leveraging the unique characteristics of each asset class to optimize returns and minimize risks.

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