

Safe Heaven Vs Market Volatility: A Comparative Analysis of Sensex and Gold during Major Global Events in India

Dr. Alpa A. Thaker, Assistant Professor, City C.U. Shah Commerce College, Lal Darwaja, Ahmedabad, India. dralpaj@gmail.com

Dr. Mahendra Maisuria, Associate Professor, City C.U. Shah Commerce College, Lal Darwaja, Ahmedabad, India. mahendramaisuriya@gmail.com

Abstract - This study examines a comparative analysis of Gold and the BSE Sensex during significant global events, with the object of sympathetic their behaviour as investment assets in times of crisis. Using the COVID-19 pandemic (Dec.2020 to Dec. 2022), the Russia-Ukraine Crisis (February 2022 to December 2024) and the Iran-Israel conflict (April 2024 to April 2025), the study examines the changes in volatility, recovery patterns and optimal investment strategies. Gold historically considered as safe heaven assets, offering resilience and positive returns during the uncertainty. In contrast, the Sensex (India's equity benchmark) exhibited greater short time volatility, followed by strong recoveries driven by policy responses. Analysing historical data through paired sample t-test and Sharpe Ratio, the finding revealed that no significant difference in overall returns between Gold and Sensex across selected global events. The results suggested that BSE Sensex represented the Indian equity market validated adaptability, often catching up in the medium term.

Key Words: Global Events, Returns, BSE Sensex, Gold

I. INTRODUCTION

The global financial system is a frequently shaken by the major global events such as economic recessions, geopolitical conflicts, pandemics which often trigger volatility in capital markets. It is indisputable that the global economy has a significant effect on the Indian economy and that the country's development agenda may receive some support from global economies in the current and coming year¹. In such uncertain times, investors seek safe heaven assets to preserve their wealth and hedge against risks. Traditionally Gold has been considered one of the most reliable safe heaven assets while equities represented in India by the benchmark S & P BSE Sensex, tend to reflect the underlying market sentiments.

India, being one of the world's largest consumers of the Gold and home to growing stock market offers a unique ground for analysing the contrasting investment characteristics of these two asset classes. This study aims to investigate the performance and interrelationship of gold and the Sensex during major global events, including COVID-19 Pandemic, the Russia-Ukraine Conflict and Iran-Israel Conflict. By analysing historical prices, volatility patterns, correlation structures and risk adjusted returns, this study seeks to

determine whether gold has continuously acted as a hedge or safe heaven asset for Indian investors, and how the Indian equity market responded in comparison. In the wake of major global events such as the COVID-19 pandemic, investors often shift between equities and safe haven assets like gold. Studies such as Sharma & Mehta (2021)² highlight the inverse correlation between Sensex and gold during such turbulent times in India. An analysis of 20 years' INR returns finds both gold and Sensex yielded similar 12-13% compound annual returns, underscoring comparable long-term performance despite differing volatility profiles³. The findings will contribute to the broader aspects on asset behaviour during crisis and guide Indian investors to balance risk and return in their investment strategies.

II. REVIEW OF LITERATURE

Prajapati and Patel (2012) in their study evaluated the comparative performance of mutual funds of 5 top Asset management companies. BSE Sensex was taken as the benchmark index. The yield to maturity of 364 days T-bill was taken as the risk-free returns. They used Treynor's ratio, Sharpe Ratio, Jensen's Ratio and Fama's measure in the study for comparative analysis. The study revealed that HDFC and Reliance Mutual fund have performed well as

¹ United Nations Economic and Social Commission for Asia Pacific, Reinstantiate Domestic Demand to Revive Growth & Support Sustainable development, UNESCAP, January 14, 2016.

² Sharma, R., & Mehta, P. (2021). Comparative analysis of Sensex and gold returns during major global event crisis: Evidence from India. International Journal of Financial Studies.

³ Macro trends (February 2025), Financial Express

compared to the benchmark return. ICICI prudential and UTI mutual funds have lower level of Risk as compared to HDFC and Reliance Mutual fund. The values of Beta coefficient were less than one for all the selected mutual fund companies. Sharpe's Index of HDFC mutual fund was higher than others, hence it showed better performance than other mutual funds, the result of Treynor's index revealed that the HDFC and Reliance mutual fund offers better return than others for the same level of risk exposure.

Sarjid Ahmed and Neha Jain (2022) compared two financial instruments over two time periods will aid in the development of reasonable investment decision. Bitcoin which has the greatest market capitalization in the virtual asset category and Nifty 50 stocks, most popular benchmark index were taken for comparison. The main aim of their research was to look assets and compare monthly returns across two time periods. They concluded that although both Bitcoin and Nifty 50 stocks has a positive correlation in the both periods but when it comes to risk aversion in times of turmoil, an Indian investor should focus on Nifty 50 trading rather than crypto currencies.

Nikhita, Dr. Neetha and Dr. Charithra (2024) investigated the dynamic relationship between the Indian Gold Market and Equity market. Their study found statistically significant negative correlation ship between gold and stock market returns. The study revealed that the impact of gold price changes on stock market indices is relatively limited indicating the presence of other influential factors.

Dr. Chandra Shekar and Dr. Ravikumar (2024) examined the relationship between stock market performances and gold prices in India. Using correlation analysis, Granger Causality tests and integration techniques, the findings revealed that gold prices and stock market performance exhibit a complex, inverse relationship in economic uncertainty. Moreover the study explored the role of gold as a hedge against stock market volatility and its significance for Indian investors. Their paper found that the gold returns of the benchmark indices of BSE & NSE.

Sridevi Mutya and Dr.S. Raman (2025) in their research analysed of key financial assets over the past decades including stocks, bonds, forex and commodities that various global events such as the 2008 financial crisis, the COVID-19 pandemic, trade wars and environmental disasters have shaped the behaviour of significant financial assets. The study showed that such global events often trigger significant market volatility which disrupts investment flows and impacts market sentiment which in turn has resultant short term stocks and long term structural changes of financial markets. The study highlights the growing interconnectedness of financial markets and therefore the importance of diversification and risk management strategies in order to mitigate the economy and financial landscape of the world against periods of global uncertainty.

Sakthivel P., Veera Kumar K., G. Raghuram and Govindarajan (2014) studied the global financial crisis and

the effect of the crisis on stock market volatility by employing the GARCH model. Daily closing price of Indices of BSE and NSE were considered for the analysis. The duration was divided in two period, per and post crisis. It was found that the volatility of the mean returns had increased during the post crisis period as compared to pre-crisis period. The findings also suggested that financial crisis returns and volatility in the Indian stock market.

Dr. Hajira (2025) examined the performance of Gold and the Nifty 50 index during significant events of 2008 Financial Crisis, the Covid-19 pandemic, the Russia-Ukraine conflict and the Palestine-Israel conflict. Findings demonstrated that during crisis, gold prices tend to rise as investors seek refuge, while the Nifty 50 often experience significant volatility and declines. For instance, their findings suggested that leveraging observed correlations between gold and Nifty 50 index to maximize profits and minimize risks. The study provided insights into balancing risk and opportunities across assets classes during global economic uncertainties.

III. RESEARCH GAP

Despite of extensive body of literature exploring the performance of gold and stock markets as individual asset classes, there remains a significant gap in comparative studies that specifically assess the behaviour of Gold and the Sensex in the context of major global events as they impact the Indian economy. Prior studies often treats gold and equities as general safe-haven or risk assets, but limited studies systematically investigate their performance during key global disruptions such as financial crisis, geopolitical tensions, pandemics, and oil price shocks- especially from the perspective of Indian investors.

Objectives of the Study:

The main and primary objective of this study is to compare the performance of Gold and the Senses during major global events and examine their role as investment assets in India. Specifically, the study aims to:

- To compare volatility and return patterns of Gold and Volatility during selected global event.
- To determine which asset-gold or the Sensex-provides superior risk-adjusted returns during selected global events.
- To guide Indian investors and portfolio managers regarding the effectiveness of Gold and Equities for crisis-resilient portfolio.

Hypotheses

Performance Hypothesis

Ho: There is no significant difference in the returns of gold and the Sensex during selected global events.

Sharpe Ratio Hypothesis (Risk-adjusted Returns)

Ho: There is no significance different in the Sharpe Ratio between the Returns of Sensex and Returns of Gold during selected global events.

IV. METHODOLOGY

This study evaluates quantitative, event based and comparative analysis to assess the performance of the gold and the Sensex during selected global events that have impacted the Indian economy. Key global events that had direct or indirect impacts on the Indian economy are selected based on literature and historical impact. For this study time horizon has taken from 2020 to 2025 for selected global events of the COVID-19 pandemic (Dec.2020 to Dec. 2022), the Russia-Ukraine Crisis (February 2022 to December 2024) and the Iran-Israel conflict (April 2024 to April 2025). Daily closing prices of Gold (In INR 10 Grams) and daily closing values of the BSE Sensex were obtained from respective websites of MCX and BSE. Daily prices were converted to logarithmic returns to standardize comparison. For Sharpe Ratio, yield on Indian 10-year government bonds risk free rate was taken from Website of RBI. To test for statistical significance of differences in mean returns and volatility across different event phases, paired sample t-test were used by the researches. To compare the risk adjusted performance of BSE Sensex and gold, Sharpe Ratio was calculated which provided insight into how well asset compensates for risk during market shocks. For the analysis and visualization tools like Microsoft Excel and SPSS were used.

Limitations:

- The study focuses only on historical performance and may not capture forward looking.
- The study does not consider all economic variables that could impact the relationship between the Sensex and Gold.
- For the study only three major global events have been analysed. Other global events might influence the relationship between the BSE Sensex and Gold prices differently.

V. ANALYSIS AND INTERPRETATION

Ho: There is no significance different between the Returns of Sensex and Returns of Gold during the COVID-19 Pandemic (between Dec.2020 and Dec.2022)

Ho: There is no significance different between the Returns of Sensex and Returns of Gold during the Ukraine Crisis (between Feb.2022 and Dec.2024)

Ho: There is no significance different between the Returns of Sensex and Returns of Gold during the Iran-Israel crisis (between April 2024 and April 2025)

Table 1: Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	CROSEN	.0544	496	1.04977	.04714
	CROGOLD	.0201	496	.71879	.03227
Pair 2	RUCROSEN	.0502	474	.88932	.04085
	RUCROGOLD	.0610	474	.70755	.03250
Pair 3	IPWROSEN	.0362	268	.91758	.05605
	IPWROGOLD	.1302	268	.89586	.05472

Source: Computed from secondary data

Table 2: Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	CROSEN & CROGOLD	496	-.136	.002
Pair 2	RUCROSEN & RUCROGOLD	474	-.102	.026
Pair 3	IPWROSEN & IPWROGOLD	268	.048	.430

Source: Computed from secondary data

Table 3: Paired Samples Test

		Paired Differences				t	Df	Sig. (2-tailed)		
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference					
					Lower				Upper	
Pair 1	CROSEN	–	.03422	1.35031	.06063	-.08490	.15335	.564	495	.573
	CROGOLD									
Pair 2	RUCROSEN	–	-.01074	1.19165	.05473	-.11829	.09682	-.196	473	.845
	RUCROGOLD									

Pair 3	IPWROSEN IPWROGOLD	-	-0.09402	1.25099	.07642	-.24447	.05644	-1.230	267	.220
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COVID-19

Here the Mean of the Return on Sensex during the Corona is less than mean of the Return on Gold during the Corona, the t statistics is 0.564 but P Value is 0.573 which is greater than 0.05 therefore we could accept the null hypothesis that “There is no significance different between the Returns of Sensex and Returns of Gold during the COVID-19 Pandemic (between Dec.2020 and Dec.2022)”

After hypothesis testing we can see that gold rushed in early 2020 as a panic hedge. But after the liquidity injected by the government, markets rebounded quickly. While BSE Sensex crashed in early 2020 but then staged a strong comeback in ending with gains. Due to excess liquidity and low interest rates led similar full year returns for both.

Russia-Ukraine Crisis

Here the Mean of the Return on Sensex during the Ukraine Crisis is greater than mean of the Return on Gold during the Ukraine Crisis, the t statistics absolute value is 0.196 but P Value is 0.845 which is greater than 0.05 therefore we could accept the null hypothesis that “There is no significance different between the Returns of Sensex and Returns of Gold during the during the Ukraine Crisis (between Feb.2022 and Dec.2024)”

Initially, gold rallied due to fear of inflation but India benefited from cheap Russian oil, boosting the recovery balanced out gold’s gains. Similarly the conflict stabilized, Sensex also rebounded from early losses.

Iran-Israel Crisis

Here the Mean of the Return on Sensex during the Iran-Israel conflict is greater than mean of the Return on Gold during the Iran-Israel conflict, the t statistics absolute value is 1.23 but P Value is 0.220 which is greater than 0.05 therefore we could accept the null hypothesis that “There is no significance different between the Returns of Sensex and Returns of Gold during the Iran-Israel conflict (between April 2024 and April 2025)”

Due to short lived crisis Gold saw temporary spikes, but no sustained rally. While Sensex continued resilient due to strong domestic investors and FIIs’ confidence. We can say that market had already evaluated in geopolitical factors.

From all three situations it can be seen that over the time, the initial advantage of gold was eroded by the recovery Sensex returns. Both gold and Sensex were supported by global monetary policy.

Sharpe Ratio:

Ho: There is no significance different in the Sharpe Ratio between the Returns of Sensex and Returns of Gold during the COVID-19 Pandemic (between Dec.2020 and Dec.2022)

Table 4: Sharpe Ratio during COVID-19 Pandemic

	Sensex	Gold
Annual return	13.48%	4.99%
stdv of return	0.010498	0.007188
Annual stdev	0.233795	0.160082
Annual sharp Ratio	0.461952	0.310425
	<1 , Suboptimal : The Return is low relative to the risk	<1 , Suboptimal : The Return is low relative to the risk

Source: Computed from secondary data

Ho: There is no significance different in the Sharpe Ratio between the Returns of Sensex and Returns of Gold during the Russia-Ukraine Crisis (between Feb.2022 and Dec.2024)

Table 5: Sharpe Ratio during Russia-Ukraine Crisis

	Sensex	Gold
Annual return	11.90%	14.45%
stdv of return	0.008893	0.007075
Annual stdev	0.193823	0.154207
Annual sharp Ratio	0.465465	0.750046
	<1 , Suboptimal : The Return is low relative to the risk	<1 , Suboptimal : The Return is low relative to the risk

Source: Computed from secondary data

Ho: There is no significance different in the Sharpe Ratio between the Returns of Sensex and Returns of Gold during the Iran-Israel Crisis (between April 2024 to April 2025)

Table 6: Sharpe Ratio during Iran-Israel Crisis

	Sensex	Gold
Annual return	9.70%	34.90%
stdv of return	0.009176	0.008959
Annual stdev	0.150215	0.146658
Annual sharp Ratio	0.479113	2.208803
	Is <1 , Suboptimal : The Return is low relative to the risk	Is between 2.0 and 2.99, Very good : strong return with moderate risk

Source: Computed from secondary data

Above tables of Sharpe ratio compared the annual return, standard deviation and Sharpe ratio of Sensex and Gold during selected global events. The result of Table no. 4 indicate that Sensex delivered a significantly higher return (13.48%) than gold (4.99%). Gold showed lower volatility compared to Sensex. Both assets having Sharpe ratio less than 1, indicating suboptimal risk adjusted returns. From the Table no. 5, it can be seen that both assets indicate value of

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Sharpe ratio is less than 1, however the ratio of gold was relatively better in terms of return per unit of risk. There is a numerical difference in Sharpe ratio but both are less than 1 and categorized as suboptimal. From the above table no. 6 of Sharpe Ratio resulted that during Covid-19 and Russia-Ukraine Crisis ratio of Gold and Sensex both having the value less than 1 but during the Iran–Israel crisis, Gold’s Sharpe ration showing strong return per unit of risk with having the value more than 2. This indicated that gold provided a strong return for the risk undertaken, while the Sensex’s performance was suboptimal. During this sudden geopolitical shock gold saw a strong upward move with low volatility. During Iran-Israel Conflict both assets had similar risk levels, with gold being slightly less volatile. During this event Gold not only delivered higher absolute returns but did so more efficiently, generating significantly better returns per unit of risk. Indian investors rushed to gold due to fear of acceleration into a broader Middle East war. While the Sensex was not corrected significantly, this caused moderate returns with regular volatility. Meanwhile both Sensex and gold in earlier crises having higher volatility and less decisive returns led to Sharpe ratio less than 1.

VI. CONCLUSION

This study examined the comparative performance and risk-adjusted returns of Gold and BSE Sensex during selected global crises. Contrary to our traditional assumptions that gold consistently outperforms equities during major global events, the findings revealed that no significant difference in overall returns in both during these events. The analysis indicated that Gold acted as a safe haven in early phases of crises but lost its relative advantage as markets stabilized. The BSE Sensex rebounded strongly post-crisis due to corporate earnings, domestic economic resilience and foreign capital inflows. For more nuanced perspective Sharpe ratio showing risk adjusted returns. During COVID-19 and the Russia-Ukraine Crisis both assets exhibited ratio less than 1 suggesting suboptimal risk. In contrary during Iran-Israel crisis, Gold was having ratio exceeding 2 indicated exceptional risk-adjusted returns. Overall, the results suggested that gold remained strategic hedge during sudden geopolitical events in short lived while equity market demonstrated resilience and adaptability in the medium term. Portfolio diversification with gold can improve stability during global crisis.

VII. RECOMMENDATIONS

Regulators and financial advisors should educate retail investors on strategic asset allocation. In context to India investors should adjust their portfolio during uncertain times by adding gold. They can choose between physical gold and paper investment. The future of both assets will be influenced by new global hotspot, climate change and other global disruptions. So it is advisable to keep an eye on these factors is crucial for making wisely investment decisions.

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