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The Safe Heaven Appeal of Gold: A Comparative Analysis of Gold Price and Nifty50 Index during Financial Crises

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Abstract

The historical view of gold as a trustworthy investment has made it a popular choice as a place of refuge resource during seasons of financial strife. This study looks at how the bullion market responds to financial crises and how the perceived safety of gold during a period of uncertainty affects market behaviour. This research looks at how gold prices, investor actions, and market liquidity have changed throughout various economic downturns, like the Coronavirus pandemic and the 2008 monetary emergency. The paper evaluates the effect of gold's safe-haven status on market performance and investor trust using both quantitative and qualitative methods. The findings show that although demand for gold rises during times of crisis, other factors like market speculation, fluctuations in interest rates, and changes in currency values also have an impact on price movements of gold. The study highlights the complex relationship that exists between the market dynamics of gold and its role as a protective asset, providing a comprehensive understanding of the metal's behaviour during financial instability. These findings offer insightful guidance for investors and policymakers navigating economic downturns and add to the larger discussion on asset diversification and risk management techniques.

Keywords: *Gold, Nifty50 Index, Financial Crises, COVID-19, Safe Investment.*

1. INTRODUCTION

The use of gold dates back to the Copper Age, with artifacts discovered from as early as the 5th millennium BC. The earliest known gold-producing regions were established during Egyptian and Nubian times around 2600 BC, coinciding with the emergence of rudimentary gold mines that considered local geological features. The mythical Golden Fleece may have represented a technique of using animal hides to capture minute gold particles from water sources.

During the Roman era, gold extraction expanded, leading to the development of new methods like hydraulic mining. Romans utilized aqueducts to process gold ore in a manner similar to modern trough systems. The most significant Roman-era gold deposits and mines were located in Hispania (Spain) and Dacia (Balkans). Pliny the

Elder provided detailed descriptions of numerous extraction techniques towards the end of the first century AD.

A primary motivation for European exploration of the Americas was the reports of gold adornments worn by Native Americans. While Central and upper South American cultures viewed gold as a divine product, North American peoples did not share this perspective and instead valued objects based on their practical utility.

As the most coveted precious metal, gold is obtained worldwide for its aesthetic appeal, liquidity, investment potential, and industrial applications. Investors typically regard gold as a financial asset that preserves its worth and purchasing capacity during times of inflation.

The history of gold usage spans a wide array of industries and applications, showcasing its versatility. Because of its excellent properties, for example, being profoundly recyclable, having a high liquefying point, and being quite possibly of the most mouldable metal, gold shines in every application. It is highly favoured in the fields of dentistry and medical due to its biocompatibility. Additionally, gold has just come to light as an important nanomaterial. The four main uses for gold on a worldwide scale are in jewellery, investments, reserves held by central banks, and technological applications.

Risk management is of the utmost importance for all parties involved in the gold value chain, including mining corporations, processors, gold merchants, jewelers, and even governments that depend on bullion consumption and trade income. Modern methods of risk management, such as the use of market-based financial products like gold futures, may boost productivity and competitiveness.

1.1 Financial Crises:

Amidst a monetary emergency, resource values dive, organizations and people can't cover their bills, and monetary foundations experience an absence of liquidity. At the point when there is a monetary emergency, financial backers frequently auction their resources or pull out their assets from bank accounts in a frenzy or bank run since they are apprehensive their cash will lose esteem in the event that they keep it in the bank.

Fig.1 Financial Crises

Quite a few occasions might be ordered as monetary emergencies, including securities exchange crashes, sovereign defaults, theoretical monetary air pocket explodes, and money emergencies. A financial crisis may impact a single bank, an entire nation, or even the whole global economy.

- The worldwide economic downturn of 2007 and 2008. This financial crisis was the second most devastating to the economy, after the securities exchange breakdown of 1929. The subprime contract loaning emergency, what began in 2007, turned into an overall monetary calamity when trading company Lehman Siblings fell in September 2008.A worldwide recession ensued after massive bailouts and other efforts to contain the crisis failed.
- The worldwide spread of the COVID-19 virus. A worldwide stock market meltdown began in February 2020. More than 30% of the Nifty50's value was lost between February 20, 2020, and March 23, 2020. This was brought on by the COVID-19 pandemic, which raised concerns about the state of the world economy and caused widespread fear. The global pandemic proved to be severe, but markets and national economies recovered swiftly. In early April 2020, the Nifty50 started a significant uptrend, surpassing its pre-pandemic high in August 2020.

The reason for this paper is to add to the ongoing writing by concentrating on gold's job as a fence against monetary vulnerability and monetary emergencies previously. It will look at the value conduct of gold during various monetary emergencies, like the Coronavirus pandemic and the 2008 Worldwide Monetary Emergencies, and it will offer investors insights into the strategic value of gold for protecting their portfolios and mitigating risk.

The research hypothesis for the present study includes both a null hypothesis and an alternate hypothesis.

H_0: There is no significant impact on gold as safe investment at the time of financial crises.

H1: There is significant impact on gold as safe investment at the time of financial crises.

2. LITERATURE REVIEW

Boubaker et al. (2020) The study investigates gold's function as a secure investment during worldwide crises, utilizing data spanning more than 750 years. The outcomes show that gold is consistently a place of refuge during questionable times, which is great news for investors thinking about the future. This study demonstrates that gold's value can be preserved even in the face of economic instability.

Akhtaruzzaman et al. (2020) examine if the COVID-19 epidemic makes gold a safe refuge or a hedge. Their study shows that gold was the primary crisis-era safe-haven asset, protecting investors against falling markets and other forms of extreme financial turmoil.

Choudhry, Hassan, and Shabi (2015) This examination utilizes modern nonlinear causality investigation to check out at what the worldwide monetary emergency of 2008 meant for the connection among gold and stock costs. The outcomes show solid nonlinear connections, which demonstrate that gold is a support against securities exchange crashes, especially when the economy is unsound.

Madhavan & Sreejith (2022) investigate the role of gold in connection to international monetary crises. Using a massive, worldwide dataset, the research looks at whether gold is a good investment for when the economy is unstable. The discoveries recommend that the situation with gold as a crisis asset differs between regions and is influenced by specific market conditions. Also included in the research is the topic of gold's reaction to different types of financial instability.

Tanin et al. (2021) investigate the impact of volatility indexes like the VIX on gold's situation as a place of refuge previously and during the Coronavirus pestilence. The research found that during pandemics, increasing volatility makes gold less appealing as a safe haven. The research highlights how investor behavior and market volatility affect gold's protective impact.

Beckmann, Berger, & Czudaj (2018) look at how economic uncertainty affects the price of gold. By using a mathematical approach, they show how susceptible gold prices are to global market changes. Whether gold is a decent place of refuge speculation relies upon the nature and degree of the vulnerability, both in the short and long haul.

Cheema, Faff, & Szulczyk (2020) analyze the adequacy of putting resources into places of refuge during the Coronavirus pestilence and the 2008 Worldwide Monetary Emergency. Customary place of refuge resources, like gold, U.S. Depository bonds, and the Swiss franc, performed well during the financial crisis, but they underperformed during the epidemic, according to the research. This highlights the ever-changing nature of how the market responds to emergencies.

Junttila, J., Pesonen, J., & Raatikainen, J. (2017) The study's overarching goal is to ascertain the efficacy of crude oil and gold as crisis-era hedges against stock market declines. During uncertain times, the writers analyze how commodity and stock prices are related. Research indicates that safe havens can be created by both crude oil and gold. The type of financial crisis they face, though, affects how well they hedge. The protection provided by gold is usually more reliable.

Ji, Q., Zhang, D., & Zhao, Y. (2020) This examination investigates the quest for place of refuge resources during the Coronavirus pestilence by dissecting how different resources acted notwithstanding worldwide financial unrest. Albeit a few products and digital forms of money had terrible exhibitions, the place of refuge resources of gold and government securities were worried. The findings show that gold's reliability as an asset maintained its worth even when circumstances were tough.

Wu, C., & Chiu, J. (2017) The authors study general financial markets and gold's asymmetric price behaviour and informational efficiency. They find that there is a sizable asymmetry in the price movements of gold when compared to other financial markets, especially when finances are tight. According to the study, gold's price range and volatility provide important data for hedging strategies and economic assessments.

3. METHODOLOGY

This research utilized information exclusively gathered from online resources, including websites, financial platforms, and digital publications. To examine the hypothesis regarding the significance and influence of gold prices on the Nifty 50 Index during the financial crises of 2008 and 2020, the study employed the statistical methods correlation analysis and t-test. To performing this statistical analysis during 2008 & 2020 the sample size would take as 12 months in the year and to prove gold as safe investment in long-term for that purpose researcher would take last 16 years as sample size.

4. RESULTS & DISCUSSIONS

Table.1 During 2008 Financial Crises Period

Year 2008	Gold Price (₹)	Change in Percentage	Nifty50 Index	Change in Percentage
January	₹ 11,707	10.46%	5,137.45	-16.31%
February	₹ 12,396	5.89%	5,223.50	1.67%
March	₹ 11,920	-3.84%	4,734.50	-9.36%
April	₹ 11,370	-4.61%	5,165.90	9.11%
May	₹ 12,199	7.29%	4,870.10	-5.73%
June	₹ 12,879	5.57%	4,040.55	-17.03%
July	₹ 12,618	-2.03%	4,332.95	7.24%
August	₹ 11,895	-5.73%	4,360.00	0.62%
September	₹ 13,192	10.90%	3,921.20	-10.06%
October	₹ 11,630	-11.84%	2,885.60	-26.41%
November	₹ 13,125	12.85%	2,755.10	-4.52%
December	₹ 13,630	3.85%	2,959.15	7.41%

Source:* *www.investing.com

Table.2 Correlation between Gold Price and Nifty50 Index

	Gold Price	*Nifty50 Index*
Gold Price	1	
Nifty50 Index	-0.553688685	1

Table.3 t-test analysis for Percentage change between Gold Price and Nifty50 Index

	Gold Price	*Nifty50 Index*
Mean	0.023966667	-0.052808333
Variance	0.006102152	0.012313148
Observations	12	12
Hypothesized Mean Difference	0	
df	20	
t Stat	1.959841968	
P(T<=t) one-tail	0.032048968	
t Critical one-tail	1.724718243	

Statistical analysis was conducted on the collected data, as shown in Table 2. The correlation analysis revealed a correlation coefficient of -0.56 between gold price and Nifty 50, indicating a negative correlation. This relationship is clearly demonstrated in Table 1, where an increase in gold price corresponds to a decrease in the Nifty 50 Index. Table.3 shows that the percentage changes in the price of gold and the Nifty 50 were tested using a t-test, and the resultant p-value is 0.033, which is not exactly the importance level of 0.05. The probability of the invalid speculation being valid is under 5% when the p-esteem is under 0.05. Along these lines, we may without hesitation embrace the elective speculation and reject the invalid speculation. Thusly, gold is a place of refuge venture during financial slumps, as indicated by the discoveries.

Table.4 During COVID-19 Financial Crises Period

Year 2008	Gold Price (₹)	Change in Percentage	Nifty50 Index	Change in Percentage
January	₹ 41,000	4.84%	11,962.10	-1.70%
February	₹ 41,397	0.97%	11,201.75	-6.36%
March	₹ 43,255	4.49%	8,597.75	-23.25%
April	₹ 44,906	3.82%	9,859.90	14.68%
May	₹ 46,654	3.89%	9,580.30	-2.84%
June	₹ 48,762	4.52%	10,302.10	7.53%
July	₹ 53,828	10.39%	11,073.45	7.49%
August	₹ 51,701	-3.95%	11,387.50	2.84%
September	₹ 50,404	-2.51%	11,247.55	-1.23%
October	₹ 50,699	0.59%	11,642.40	3.51%
November	₹ 47,792	-5.73%	12,968.95	11.39%
December	₹ 50,151	4.94%	13,981.75	7.81%

Source:* *www.investing.com

Table.5 Correlation between Gold Price and Nifty50 Index

	Gold Price	*Nifty50 Index*
Gold Price	1	
Nifty50 Index	0.287136135	1

Table.6 t-test analysis for Percentage change between Gold Price and Nifty50 Index

	Gold Price	*Nifty50 Index*
Mean	0.021883333	0.016558333
Variance	0.00204232	0.009999968
Observations	12	12
Hypothesized Mean Difference	0	
df	15	
t Stat	0.168095363	
P(T<=t) one-tail	0.434376875	
t Critical one-tail	1.753050356	

Statistical analysis was conducted on the collected data, as shown in Table 5. The correlation analysis revealed a correlation coefficient of 0.29 between gold price and Nifty 50, indicating a positive correlation but not strongly positive. Organized in Table 4 shows the connection between's the Clever 50 File and the cost of gold, which develops pair with the cost of gold. Table.6 shows that the rate changes of the gold cost and the Clever 50 were exposed perfectly test, with a p-worth of 0.43 (higher than 0.05). The probability of the invalid speculation being valid is higher than 5% when the p-value is bigger than 0.05. This emphatically proposes that the elective speculation is bogus, thus we may accept the null hypothesis and reject it. Consequently, the results indicate that gold has no significant impact as a safe investment during periods of financial crisis.

Table.7 Year wise Percentage changes in Gold Price and Nifty50 Index

Year	Gold Price (₹)	Nifty50 Index
2008	10.74%	-16.31%
2009	4.99%	-2.85%
2010	-1.13%	-6.13%
2011	-6.11%	-10.25%
2012	11.08%	12.43%
2013	-0.82%	2.20%
2014	3.12%	-3.40%
2015	8.03%	6.35%
2016	5.30%	-4.82%
2017	5.18%	4.59%
2018	2.58%	4.72%
2019	3.43%	-0.29%
2020	4.25%	-1.70%
2021	-2.36%	-2.48%
2022	-1.76%	-0.08%
2023	6.51%	-2.45%

***Source:* www.investing.com**

Table.8 t-test analysis for Percentage change between Gold Price and Nifty50 over a 16 Years

	Gold Price	*Nifty50 Index*
Mean	0.03314375	-0.0127938
Variance	0.00228802	0.00455686
Observations	16	16
Hypothesized Mean Difference	0	
df	27	
t Stat	2.220979	
P(T<=t) one-tail	0.0174656	
t Critical one-tail	1.70328845	

Table 8 shows that the t-test discoveries are genuinely huge with a p-worth of 0.01 (not exactly the importance level of 0.05). There is under a 5% opportunity that the invalid speculation is right when the p-value is under 0.05, as expressed in the theory. This emphatically proposes that the elective speculation is right and the invalid theory is offbase. Therefore, the results show that gold is a great secure investment all the time, not only in times of financial crisis.

Research indicates that during financial crises, gold prices typically increase or remain constant, while stock markets such as the Nifty50 often experience significant drops. The credibility of gold as a store of significant worth is further supported by this. Gold prices tend to move in the opposite direction of equity indexes like the Nifty50 when the economy is in a tailspin. This might mean that investors are fleeing the falling stock markets and putting their money into gold instead.

The 2008 Global Financial Crisis exemplified this trend. As the Nifty50 index underwent a major decline, gold prices rose considerably, demonstrating investors' tendency to seek refuge in gold when equity markets plummet. In 2020, when the COVID-19 epidemic brought financial instability, a similar trend arose. The Nifty50 was very unstable and lost a lot of money, but gold prices went through the roof, so it was even more of a safe haven.

In the immediate wake of crises, gold prices often spike rapidly, while equity indices plunge dramatically. However, during the recovery phase, the Nifty50 may rebound over time, whereas gold prices might stabilize or slightly decrease. Over extended periods, gold tends to outperform during prolonged uncertainty or inflation, maintaining its status as a hedge against economic instability. In contrast, equity markets like the Nifty50 exhibit more fluctuation in response to signs of economic recovery.

5. CONCLUSION

Gold has been seen as a reliable store of significant worth, especially during economic turmoil when conventional financial markets often struggle. This research aims to support this long-held assumption by investigating the correlation between changes in the Nifty50 index and gold prices throughout significant financial crises. Examining data from major economic crises, like the Coronavirus pandemic and the 2008 Worldwide Monetary Emergency, the study finds a discernible pattern that caused market instability. As the Nifty50 index frequently experiences sharp declines, gold prices tend to climb, serving as a safeguard against the depreciation of other financial assets. This contrasting behaviour underscores gold's capacity to safeguard wealth when equity markets underperform. Moreover, the findings indicate that gold exhibits greater stability and less volatility compared to equities, offering a more secure investment alternative.

Nevertheless, the study recognizes that gold is not entirely impervious to market forces. While its value typically rises during crises, there have been occasions when global liquidity constraints or deflationary pressures have temporarily dampened its price. Gold continues to be seen as a safe-haven asset, despite these occasional declines, since its price tends to climb during financial crises.

In the end, the review affirms that gold is a place of refuge venture, especially for the Indian market since the Nifty50 index reacts badly to worldwide financial shocks. Gold's steady performance during economic turbulence provides investors with a dependable option for wealth preservation, demonstrating its significance as a strategic investment during uncertain times. For risk-averse investors, including gold in their portfolio offers a valuable means of diversification and protection against equity market volatility.

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