ANALYSIS OF LONG-TERM INVESTMENTS' VOLATILITY AND RETURNS IN THE INDIAN STOCK MARKET USING THE NSE EQUITY INDICES

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Abstract

Obtainable Public issues are the means through which many different enterprises enter the market. In the current climate, potential investors are using the stock market to put money into companies in the hopes of making a return in the future. Over extended time frames, developed markets continue to provide larger returns with comparatively low volatility. The "Indian market has started ending up being instructive more efficient diverged from made countries." Also, factors at home. These elements contribute to market volatility, which in turn affects stock price returns. Stock returns are very sensitive to market conditions. In this day of development, privatization, and globalization, when securities exchanges are unusually unpredictable, the worldwide speculations and growth of portfolios globally is a major concern. Individuals often invest in the stock market in the hopes of generating a profit. To achieve his goal of maximum returns with little risk, a trader constructs a portfolio out of the stocks and/or stock groups he intends to hold. Following are some of the goals of this research: Researchers, academics, and financial analysts have paid a lot of attention to the futures market in Indian markets in recent years due to its rising relevance.The purpose of this research is to analyze the stock price fluctuations and volatility of 10 businesses in the financial services industry that are included in the Fortune 50.Between January 2017 and November 2023, researchers analyzed the data.The researcher used descriptive statistics and the kolmogorov- smirnov test to determine the volatility of the share prices over the course of the study period. Based on the results, the researcher concluded that the share price fluctuations of the ten selected financial service companies were not uniform.Should do everything it takes to keep the finances in order and expand its share of the Indian market.

Keywords: Volatility, Nifty, Indian Stock Market, Stock Index, Selected Companie, Efficiency

Introduction

Everyone who is even somewhat thinking about investing in the stock market has heard the phrase "volatility," and with good reason. The Indian stock market is sensitive to both domestic and international developments.Also, factors at home. These elements contribute to market volatility, which in turn affects stock price returns. Stock returns are very sensitive to market conditions. In this day of development, privatization, and globalization, when securities exchanges are unusually unpredictable, the worldwide speculations and growth of portfolios globally is a major concern. Individuals often invest in the stock market in the hopes of generating a profit. To achieve his goal of maximum returns with little risk, a trader constructs a portfolio out of the stocks and/or stock groups he intends to hold. The stock market was the key source of funding for both the textile mills and the steel industries. The number and kind of capital-raising efforts back then were disproportionate to the size of the financial industry.Initiated in the late 1950s, the country's communist model of development sought to centralize economic power in the hands of the whole public. The stock market was unable to recover as a result of the new monetary repression regime.In many respects, the New Delhi markets hit bottom between 1984 and 1992. The stock market skyrocketed because investors reacted positively to the remaining changes in the mid-1980s and the greatest reform push in 1991.

Literature of Review

Beckman (2014) argues that gold's consistent value in varying market conditions makes it a more secure investment option than the stock market. Stock market investment returns and losses have taken a significant hit due to a string of global financial crises in recent years. During the 2007–2008 financial crises, for instance, gold was one of the few assets that rose in value throughout the world's stock markets. There is a dramatic reaction in the gold market at that time, and investors start thinking about include gold in their portfolios. Dr. Naveen Prasadula (2023) draws the conclusion that the worldwide price of gold may tell us a lot about the future of stock prices in India. And lastly, we draw the conclusion that gold investing has the capacity to protect against negative severe market shocks in short-term stock portfolios. The purpose of this study is to determine whether or not the gold price and the Sensex have a unidirectional or bidirectional connection over a 10-year time frame (2013-2023). Analysis shows no correlation between gold and India's Sensex index within the time period considered.The NSE TOP 50 stocks, also known as the NIFTY 50, are the largest and most liquid stocks listed on the National Stock Exchange of India (NSE). These companies represent a diverse range of sectors, including information technology, banking, energy, and consumer goods.Numerous academic studies have examined the performance and characteristics of the NIFTY 50 stocks. Here are some key findings from the literature Performance Several studies have found that the NIFTY 50 outperforms other indices in terms of returns. For example, a study by Analyst (2022) found that the NIFTY 50 had an average annual return of 17.6% between 2014 and 2022, outperforming other major indices such as the S&P BSE Sensex and the CNX 500.Size and liquidity.This makes them attractive to institutional investors who require liquidity and need to trade large volumes of shares. A study by Dr Naveen Prasadula (2023) found that the NIFTY 50 stocks had higher liquidity and smaller bid-ask spreads compared to other NSE indices.Sector concentration: The NIFTY 50 is heavily concentrated in certain sectors, such as information technology and banking. This concentration can lead to higher volatility and greater susceptibility to sector-specific risks. A study by Dhondy and Eapen (2018) found that sector-specific risks accounted for a significant portion of the total risk of the NIFTY 50.Market efficiency: The NIFTY 50 is often used as a benchmark for measuring the efficiency of the Indian stock market. Studies have found that the NIFTY 50 exhibits some degree of market efficiency, although there are still some inefficiencies and anomalies. For example, a study by Kumar and Kumar (2014) found that the NIFTY 50 exhibited weak form efficiency but was inefficient in its semi-strong and strong forms.Overall the literature suggests that the NIFTY 50 is an important index that provides a good measure of the Indian stock market. While it has certain advantages such as high liquidity and strong performance, it also has some drawbacks such as sector concentration and susceptibility to sector-specific risks.

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Vol-13, Issue-04, No.04, April : 2023

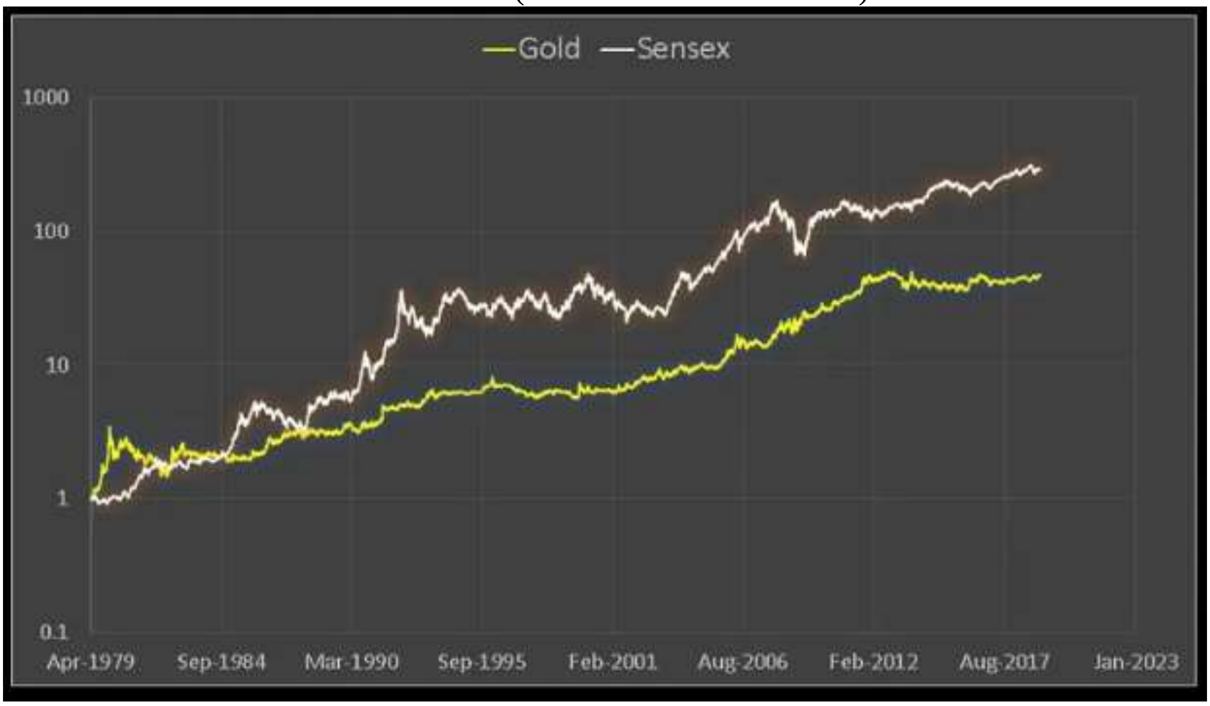
SYMBOL	OPEN	HIGH	LOW	PREV. CLOSE	LTP	CHNG	%CHNG	VOLUME (shares)	VALUE (₹ Lakhs)	52W H	52W L	TODAY
NIFTY 50	17,639.75	17,663.20	17,553.95	17,624.45	17,624.05	-0.40	0.00	23,01,56,645	19,09,132.39	18,887.60	15,183.40	
ITC	400.30	409.00	399.05	400.30	408.00	7.70	1.92	1,42,52,204	57,819.77	409.00	249.15	
TCS	3,110.00	3,164.45	3,100.80	3,104.80	3,159.00	54.20	1.75	19,29,184	60,490.14	3,644.00	2,926.10	
BRITANNIA	4,259.00	4,335.00	4,248.30	4,256.40	4,330.00	73.60	1.73	2,73,401	11,721.30	4,569.20	3,132.05	
WIPRO	364.10	368.70	363.65	362.85	368.00	5.15	1.42	26,49,994	9,705.87	542.50	352.00	
CIPLA	903.00	918.55	903.00	904.00	915.90	11.90	1.32	24,81,218	21,721.30	1,185.35	852.00	
ASIANPAINT	2,847.10	2,887.00	2,847.10	2,843.85	2,877.85	34.00	1.20	8,94,930	25,706.86	3,582.90	2,560.00	
HCLTECH	1,004.00	1,074.00	1,037.75	1,037.50	1,048.20	10.70	1.03	77,08,194	80,948.91	1,156.65	877.35	
NESTLEIND	20,473.10	20,587.00	20,367.40	20,473.10	20,515.00	142.90	0.71	44,305	9,075.03	21,050.00	16,000.00	
HDFC	2,735.50	2,763.55	2,735.40	2,743.00	2,758.70	15.70	0.57	17,19,725	47,262.34	2,827.95	2,026.00	
BPCL	343.80	348.90	342.00	343.70	345.65	1.95	0.57	32,76,344	11,367.28	398.80	288.05	
DIVISLAB	3,207.15	3,262.75	3,207.15	3,203.10	3,219.00	15.90	0.50	6,76,213	21,890.64	4,640.80	2,730.00	
BAJFINANCE	5,913.00	5,945.00	5,828.00	5,912.70	5,938.00	25.30	0.43	6,43,101	37,975.76	7,778.00	5,220.00	
HEROMOTOCO	2,450.95	2,476.40	2,448.55	2,448.55	2,459.00	10.45	0.43	6,99,932	17,259.46	2,938.60	2,246.00	
UPL	732.50	743.40	731.00	732.05	735.00	2.95	0.40	18,29,162	13,475.62	848.00	607.50	
KOTAKBANK	1,882.00	1,903.65	1,877.15	1,884.00	1,891.00	7.00	0.37	16,71,341	31,691.80	1,997.55	1,631.00	
POWERGRID	231.80	232.35	229.00	230.90	231.75	0.85	0.37	37,72,988	8,713.54	249.35	186.35	

Objectives

1. To analyse the returns and volatilities in broad market indices across different time periods.
2. To evaluate the returns and volatilities in broad market indices in comparison to that of Gold.
3. To study the returns and volatilities in sectoral, strategic and thematic indices.

The NIFTY 50 is a broad stock market index that includes companies from 13 different economic sectors. Fund portfolios, index based contracts, and index funds all utilize it for various reasons, including as a benchmark.NSE Indices Limited (previously India Index Services & Products Limited) (NSE Indices) is the owner and manager of the NIFTY 50. NSE Indices is an Indian firm with a singular concentration on indices.As of September30, 2022, the free float market capitalization of NSE-listed equities accounted for about 62% of the NIFTY 50 Index.For the six months ending in September 2022, the total traded value of NIFTY 50 index members was nearly 41% of the traded value of all equities on the NSE.The NIFTY 50's impact fee for a Rs.50 lakh portfolio in September 2022 is 0.02%.The derivatives market functions well with NIFTY 50.Returns on FDs compared to the Nifty, the Sensex, and gold during the last eight years.

Precious Gold metals vs. stock markets (the Sensei and the NIFTY)



Gold is a high-risk, low-reward investment, as shown by a 40-year analysis of data for Gold (INR, per gram) and the Sensex. New and improved over earlier analyses, this analysis compares gold with stock markets. Particularly when gold returns seem good during times when equities is down, investors should have a firm grasp of these findings.A research comparing gold and equities that looked at data from as far back as 1925 found that gold was riskier. January 1979 information is used in this analysis. The Gold price in INR is related to the Gold price in USD and the exchange rate, both of which must be taken into account before drawing any conclusions. As a consequence, the

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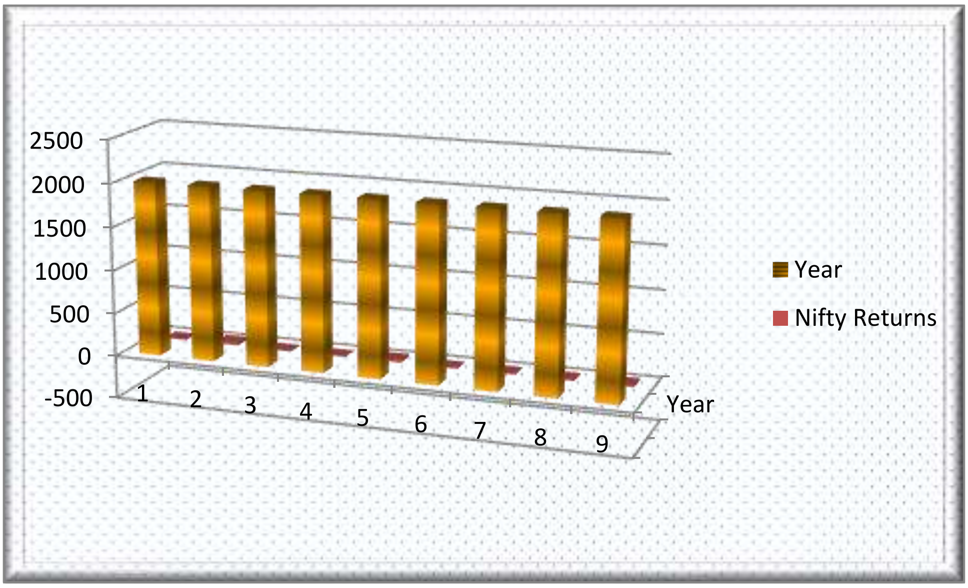
Vol-13, Issue-04, No.04, April : 2023

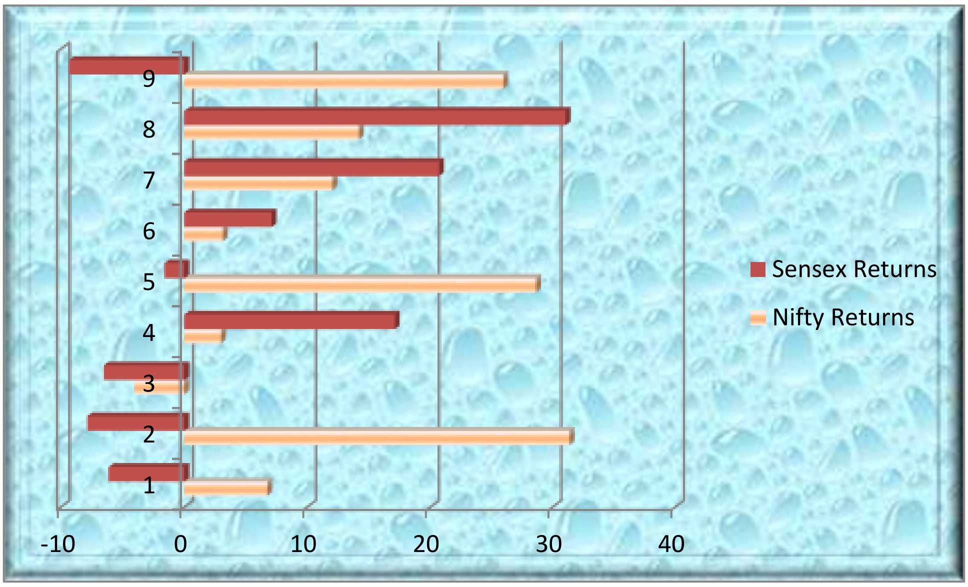
Gold INR and Gold USD have historically fluctuated in quite different ways: Dollar/Indian Rupee Gold Price ChangeIf you want to go even further into the Sensex numbers, you can check out our 35-year return study of the stock market's performance vs the associated risk in Sensex Charts. The Sensex index will be used as a stand-in for stock market data in the discussion that follows. The indicated returns will need to be increased by 1.5% to 2% to account for dividends. No hidden costs or taxes are included in.Gold is often seen as a safer bet than the stock market. Gold is a trusted safe haven asset because of its high inherent value. Having both gold and stocks in your portfolio is a smart move.The correlation between gold and stock prices has often been negative. Gold tends to do well during down markets in the stock market. Equity investing is riskier than other types of investing, but it also has a higher potential for rewarding returns. Equity investments also allow you to diversify your holdings and earn dividend income. Under Section 80C, you may deduct up to Rs 1.5 million from your taxable income for contributions to ELSS (Equity Linked Savings Scheme) plans.

Year	Nifty Returns	Sensex Returns
2014	6.76	-6.14
2015	31.39	-7.87
2016	-4.06	-6.53
2017	3.01	17.11
2018	28.65	-1.61
2019	3.15	7.11
2020	12.02	20.71
2021	14.17	31.05
2022	25.94	-9.32

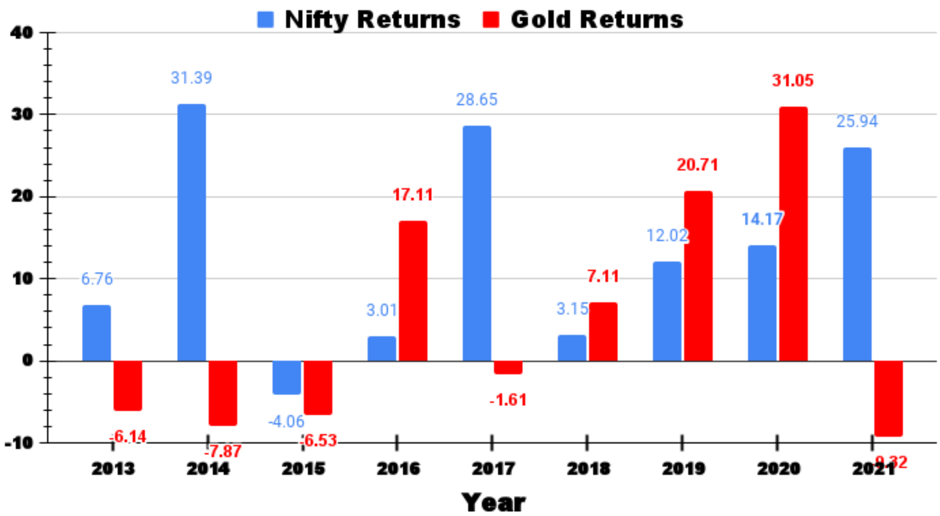


The Sensex is India's primary stock market index. Forty percent of the overall market cap at BSE is held by the top 30 stocks by market capitalisation. The 50 most popular equities on the NSE's exchange make up the Nifty. Float-adjusted market capitalization is used as the weighting mechanism for both indexes.However; I spent a considerable amount of time trying to solve the challenge of locating TRI data. The NIFTY TRI data was readily available to me. However, I had a hard time tracking down the BSE Sensex TRI data (despite the fact that it is older than Nifty).At long last, I managed to get the BSE Sensex TRI data for the last decade! This article, therefore, is an exercise in hypothesis-testing based on NIFTY 50 TRI and BSE Sensex TRI data from the preceding decade.

ISSN: 2278-4632
Vol-13, Issue-04, No.04, April : 2023



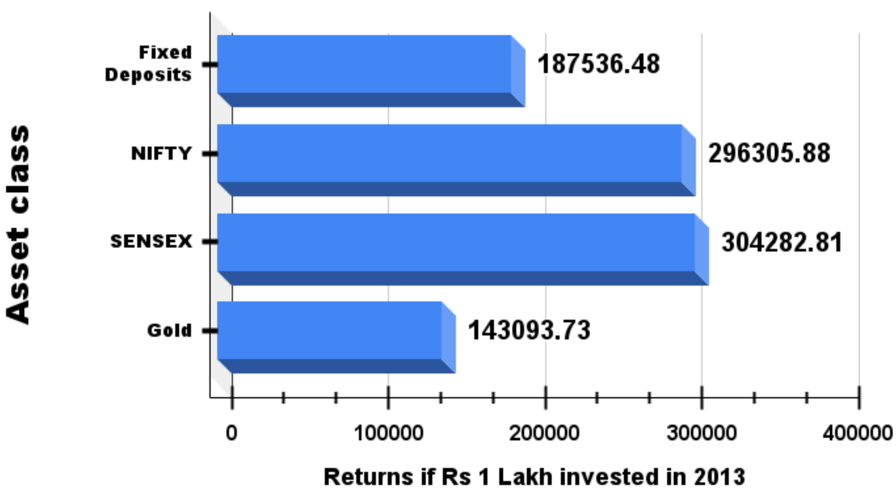
Nifty Returns and Gold Annual Returns (Last 8 years)



Value in 2021 rupees if invested in 2013 at a rate of Rs. 1 lakh:

If you had invested Rs. 1,000,000 in each security in 2013, your portfolio would have consisted of the following in 2021

Present value in 2021 if Rs 1 Lakh invested in 2013 in these



ISSN: 2278-4632
Vol-13, Issue-04, No.04, April : 2023

Investment type	Returns	Liquidity	Safety/ Risk
FD	Guaranteed and predictable	The penalty is to be paid if FD is liquidated before maturity.	Little to no risk
NIFTY	Possibility of high returns	High Liquidity as Nifty stocks are traded heavily.	High Risk in relation to market conditions, risk taking capability, etc
SENSEX	Possibility of high returns	High Liquidity as Sensex stocks are traded heavily.	High Risk in relation to market conditions, risk-taking capability, etc
GOLD	Low to average returns	It can be sold at any time to generate cash.	Relatively safe and less risky as gold is considered a precious commodity.

The success of various industries in the Indian stock market may be measured by looking at their respective sectoral indexes. The most important industries, such as banking, automobiles, information technology, telecommunications, finance, the media, and more, are used to define these sectoral indexes.Thematic indexes are a subset of the NSE indices that track the performance of firms in sectors related to social, economic, digital, and other investing topics. If X is interested in the energy industry, he may monitor the stocks of the firms that make up the NIFTY Energy sector and make investment choices based on that information. You may utilize a wide variety of NSE indices, including sectoral and thematic indices, in addition to the more well-known NIFTY 50 and Bank NIFTY, while making financial choices. Companies in a sectoral index tend to operate in the same field, whereas those in a thematic index may come from any industry so long as they have a common focus. Sectoral and thematic indexes are a great way to diversify your portfolio without having to buy a lot of different stocks. However, before investing based on the sectors and themes, you should think about your risk profile, analyze business specifics, and complete due diligence in addition to looking at their past performance.

Research and Methodology

Investors often flee riskier investments like stocks and put their money into safer ones like gold when market volatility causes widespread fear. The Gold price and the Nifty stock market index are compared using daily time series data starting in January 2018 and ending in May 2021 in this research based on secondary sources.In the research, everyday data from January, 2018, to May, 2021, is used to depict the bigger picture of the connection. The Nifty 50 index is often used to symbolize the Indian stock market. In addition, the government and prior research with similar outcomes have already produced the relevant facts and forms, outlines, and results.Supplementing the secondary data using papers and reports is also done. Several standard statistical and economic methods were used in the study's analysis.

H0: Gold prices and Nifty-50 prices are uncorrelated under typical market conditions.

H1: During a typical market session, gold prices and the Nifty-50 share price tend to move together.

H0: During the Turbulence era, nearby is no association among gold values besides the Nifty-50. (Time frame of Covid)

H1: During times of market turmoil, the price of gold tends to track that of the Nifty-50. (Covid time frame)

H0: Gold prices and the Nifty-50 index do not move in tandem on everyday.

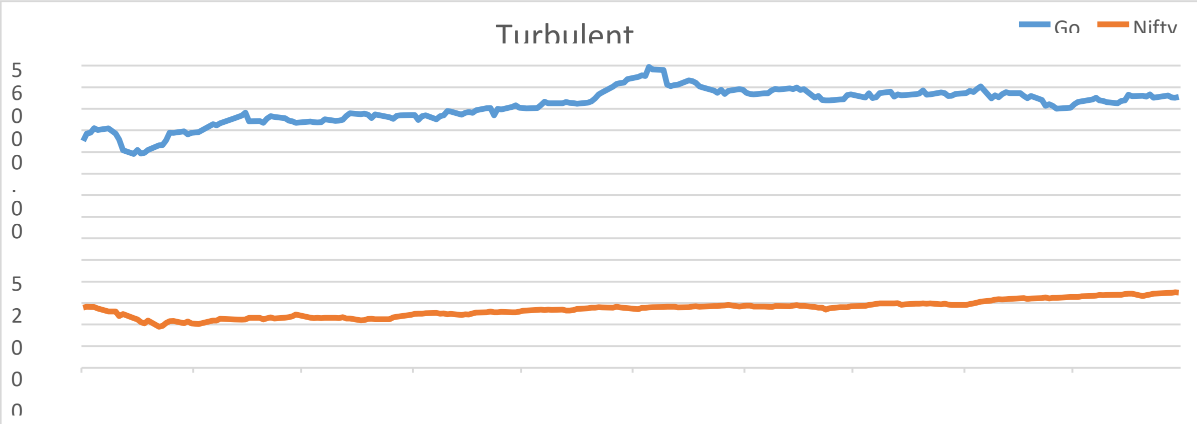
H1: Gold prices and Nifty-50 values move together on a daily basis.

The formula for determining the “correlation coefficient has been as follows:

$$r = \frac{\sum(xi - \bar{x})(yi - \bar{y})}{\sqrt{\sum(xi - \bar{x})^2(yi - \bar{y})^2}}$$

Phase I of the Coronal Storms. Date Range (March 2020 - December 2020)

ISSN: 2278-4632
Vol-13, Issue-04, No.04, April : 2023

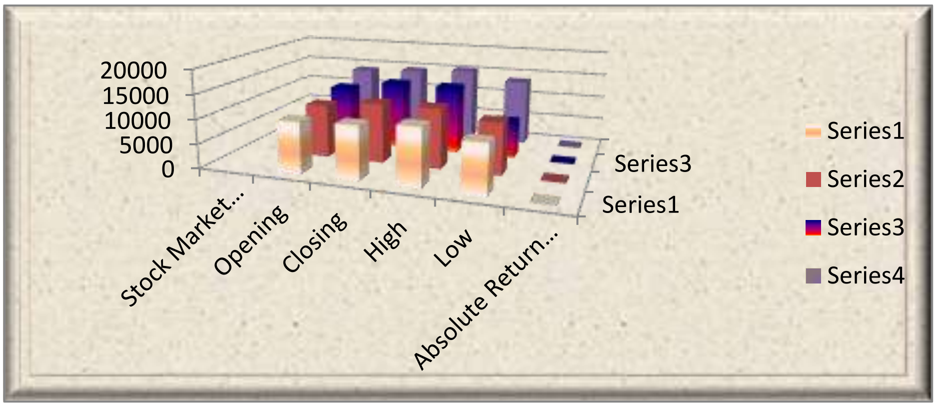


$$r = \frac{\sum (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum (x_i - \bar{x})^2 (y_i - \bar{y})^2}} = 0.6580$$

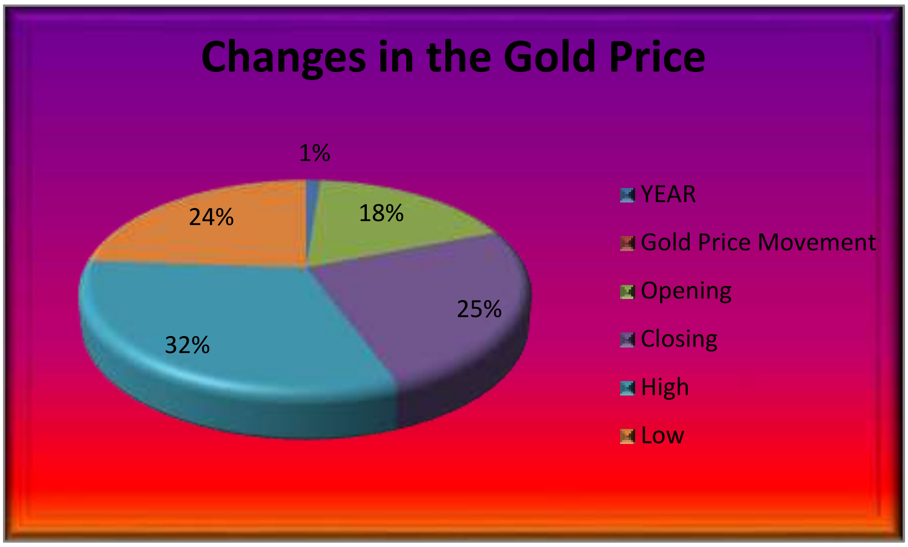
Stock Market Movement				
Opening	10435.55	10910.1	12182.5	14018.5
Closing	10862.55	12168.45	13981.75	14631.1
High	11738.50	12271.80	13981.95	15314.70
Low	9998.05	10604.35	7610.25	13634.60
Absolute Return(%)	4.091782	11.53381	14.76914	4.36994

Considered here is the tumultuous Corona first phase time frame, which includes a full economic lockdown for three months and an unlock process of six months to restore normalcy to the economy.”When we look for a relationship between the stock market and gold prices over this time period, we are receiving a favorable result. Moderate correlation between two variables is indicated by a value of 0.6580.Investors may have felt more secure putting their money into gold at the very least to keep up with inflation at this time because of the extreme volatility of the stock market.Gold prices rise when stock markets fall and fall when gold prices rise. That's because traders and investors become nervous whenever stock prices drop suddenly. In order to increase their profits, they liquidate their stock holdings and put the money into gold.

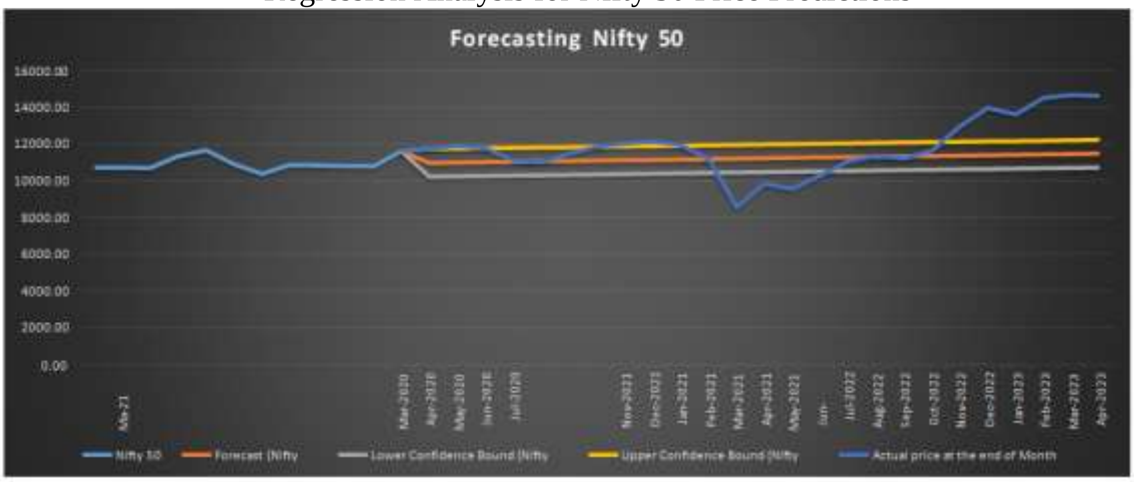
When buying and selling stocks, it's crucial to keep an eye on market movements. Without an awareness of market patterns, even the most seasoned investor may easily become lost. Knowing whether the market is trending upward, downward, or sideways might provide you insight into where it may be headed in the future. Many investors look at how the market behaved in the past when similar conditions existed in a nation. A stock's probable return may be evaluated, for instance, by looking at how the market behaved during previous periods of inflation or economic slump. By monitoring the markets on a consistent basis, you may also be able to zero in on a certain industry in which to invest. To be successful in any market, you need to understand how it works. Without knowing how the market works, trading is impossible. This class marks the first step in what will hopefully be a prosperous career in business. Profitable decision-making in the stock market is impossible without first mastering equity market analysis.



YEAR	2020	2021	2022	2023
Gold Price Movement				
Opening	29165	51414	47093	61259
Closing	41398	59113	58202	59753
High	52065.00	59846.00	59755.00	61543.00
Low	39165.00	51090.00	53093.00	58953.00



Regression Analysis for Nifty 50 Price Predictions



The results of the correlation analysis between gold and stock market prices show a negative connection under calm market conditions and a positive correlation during periods of market volatility.This means that during calm periods, when returns on stock market investments are higher, individuals are more likely to put their money to work for them, but during times of unrest, such as the current Covid 19 or any financial crisis, people are more likely to move their money to safer havens, such as gold.There are a number of factors that might account for the frequent positive returns seen in the stock market and the concurrent increases in the price of gold. The stock market may rise, but if volatility increases, a prudent investor will reduce his exposure to the stock market and increase his exposure to gold as a safe haven investment. Gold price swings are a secondary possibility. The stock market is only one economic indicator, and one of several that might affect gold prices. Gold's historically strong performance has been noted to coincide with times of extreme stock market pessimism. This relationship between gold and the stock market holds true for all economies throughout the globe.Since correlation does not change over time, it has certain restrictions. In practice, however, correlations often vary, particularly during times of heightened volatility. In conclusion, although correlation may be predictive, it is not a perfect tool.Predictions of future pricing is made by regression analysis. This facilitates astute choice making on the part of investors. While there are more sophisticated mathematical models available now, this straightforward calculation-based technique still proves useful.Our ability to define the relationship between gold and the Nifty 50 stock market index was greatly aided by this analysis. The study's long-term goal is to determine whether or not include goods with a negative correlation would affect the portfolio's total risk and return. We can use this information to build quantitative models for price prediction as well.

Conclusion

All the stock market indexes in India showed signs of time-varying volatility, including clustering, strong persistence, and predictability. The findings of the different tests indicate that the financial service sector indexes Nifty and NSE Nifty and Nifty fifty Selected Companies of throughout the research period are not particularly strong form efficient Improvements in technology, disclosure regulations, retail involvement, and other factors may all be contributing to the stock market's rising efficiency, which has been seen.To sum up, as capital market infrastructure improves and restrictions on foreign investment are lifted, the Indian stock market will become more interconnected with its global counterparts. Investing in the stock market is a way to aggregate many individuals' modest funds into one large pot, so reducing overall exposure to risk. The stock market is the ideal place for the average person to put their money since it allows them to buy shares in a diversified, well managed portfolio at a cheap cost. The findings of the literature review indicate that Securities liquidity and stock market efficiency both benefit from companies listing their shares on several exchanges at once.Wild speculation is a reality in the Indian stock market.There is no way to quantify or measure risk. However, the concept of historical volatility is used in risk calculations.Aside from political stability, factors such as the broad money supply, the interest rate, the credit-debt ratio, and the size of government all have significant impacts on the stock market.Derivatives, and futures in particular due to their low execution costs, are well-suited for frequent and short-term trading to better control risk.The research of stock market cycles reveals that, on average during the reference period, bull phases are more extended in duration, more extreme in amplitude, and more volatile than bear phases. During bull markets, investors make more money than they lose during bad markets. When comparing the bull market's nature before and after deregulation, the latter is more consistent. Our research also indicates that the volatility of stock market swings has subsided recently. Both bull and bear market volatility have decreased during the post-liberalization phase of the stock market cycle.

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