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An Empirical Study on Performance of Gold ETFs in India - Post Crash Period

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ABSTRACT
India being gold-centric, investors and coporates moved from buying and saving concept of gold to Investment and returns concept, a paradigm shift that brought forth many investment options in gold too. With booming capital market mitigating risk and maximizing returns became greatest challenge for any investment option. Mutual funds couldn't live up to this challenge, thus new option, exchange traded funds (ETF) evolved, as underlying asset was Index, instead of single asset. As ETF's fared well at bourses Gold ETF's were also launched by large firms and were listed on stock exchange of India. Against this backdrop, the current study aims to study the performance of gold ETFs for the last five years (post-crash period) and also tries to evaluate the relationship of gold ETF's to spot Gold prices and gold ETF's to Nifty by using regression and correlation techniques. Out of the five gold ETFs selected in the study, GOLDSHARE is found to be more correlated to the spot gold price followed by GOLDBEES. The study also finds that the relationship of gold ETF's to Nifty is inverse, meaning that as Nifty decreases gold ETF's perform better, which is a unique phenomenon observed mostly in India.
Keywords: Exchange Traded Funds, gold ETF's, Nifty 50, performance of gold ETF's and spot gold prices.

Statement of Originality

I hereby declare that the above mentioned research paper is my original work and is submitted exclusively to be published in Research Journal of Finance and Accounting. This paper has not been submitted or published elsewhere or is not under consideration for publication elsewhere. I have identified the sources of all information whether quoted verbatim or paraphrased and all quotations with citations and reference listings. Nothing in this research study violates copyright, trademark, or other intellectual property laws.

- Mrs. E.Madhavi

1. Introduction

India is a one of the countries which is Gold-centric from times immemorial. Gold has traditionally been extremely popular with Indians as they love to have this metal in plenty. Almost every household possess Gold in one form or the other and it is a method of investment by women in India, in form of ornaments, which is passed down the generations and is proved to be good investment with enduring benefits for Indian households. For centuries Gold remained as an auspicious gift in for Indians. Gold is purchased and saved more by women population of India from their regular and petty savings for securing their future or children's future which acts as a major investment in case of emergencies or crises, an investment that protects them from market fluctuations and ensures portfolio stability. Hence people usually hoard gold in India compared to their counterparts in other countries.

Gold is used as a liquid asset and also as an investment commodity. Significantly gold is often brought as an investment in terms of liquidity and to counter losses that may occur from other types of investments. Diversification helps in the reduction of unsystematic risk and promotes the optimization of returns for a given level of risk in a portfolio, hence a best viable investment in a portfolio.

Portfolios containing gold are generally regarded as more robust and less volatile compared to other equity or debt based portfolios. Usually investors in India are risk-averse and thus concentrate on those investments where there is less volatility and less risk comparatively. As gold is less volatile than other commodities or equities they tend to invest majority, in gold. This type of investment actually proved to hold true as can be seen in post-crash period in India where all other types of investments in equities, funds, fund of funds failed to give good returns to the investors.

Exchange Traded Fund (ETF)

ETF is a security that tracks an Index, a Commodity or a basket of assets like an Index Fund, but trades like a Stock on any exchange. An ETF is a basket of securities that are traded, like individual stocks CNX Nifty, BSE Sensex or the sectorial indices like banking index on an exchange. Unlike regular open-end mutual funds, ETFs can be bought and sold throughout the trading day like any stock. Exchange Traded Funds are essentially Index Funds that are listed and traded on exchanges like stocks.

An ETF's trading value is based on the net asset value of the underlying stocks that it represents. It is similar to a stock or mutual fund that can be bought and sold in real-time at prices that change during the trading session. They enable investors to gain broad exposure to entire stock markets in various sectors and across countries with relative ease on a real-time basis and at a lower cost than many other forms of investing. The minor difference in returns between the Net Asset Value (NAV) and the Benchmark Indices is due to the cost involved in managing the ETF. This is commonly referred as tracking error.

The objective and the characteristics of ETF are similar to Index Funds managed by Investment Management Companies. So, by owning an ETF, an investor get the diversification of an index fund as well as the ability to sell short, buy on margin and purchase as little as one share. Another advantage is that the expense ratios for most ETFs are lower than those of the average mutual fund and are equally tax efficient.

Because of its distinct advantages, ETF has emerged as one of the most popular Asset Classes amongst the Investor community across globe, including India. ETF's can be used as hedging vehicle because they can be borrowed and sold short. The smaller denominations in which ETFs trade relative to most derivative contracts provide a more accurate risk exposure match, particularly for small investment portfolios.

There are four types of ETFs being traded on NSE with four different underlying assets are Equities (Bank Indices and CNX Nifty), Gold, Debt and World Indices to take advantage of returns by hedging risk through diversification. The three popular ETFs in India are Index ETFs, Commodity ETFs and Liquid ETF's. Most ETFs in India are index funds that hold securities and attempt to replicate the performance of a stock market index. Nifty Bees, Junior Bees, Gold Bees, Bank Bees and Hang Sang Bees are some of the ETFs traded in India. Among the commodity ETFs, gold ETFs are actively traded in India. The following tables gives details of various ETF's that follow its underlying asset.

Table 1: Underlying Assets of ETF's being traded on NSE:

EQUITY	GOLD	DEBT	WORLD INDICES
a) BANK:	GOLBEES	LIQUIDBEES	**N100** -follows NASDAQ 100 ETFs -from Motilal Oswal
RELBANK - on CNX Bank Index	GOLDSHARE		
BANKBEES - on CNX Bank Index	KOTAKGOLD		
PSUBANKBEES - on CNX PSU Bank Index	RELGOLD		
KOTAKPSUBK - on CNX PSU Bank Index	SBIGETS		
b) NIFTY:	AXISGOLD		
NIFTYBEES	HDFCMFGETF		**HNGSNGBEES** - follows Hangseng ETF -from Goldman Sachs
QNIFTY	IPGETF		
KOTAKNIFTY	RELIGAREGO		
M 50	BSLGOLDETF		
BSLNIFTY	IDBIGOLD		
NIFETF	MGOLD		
RELGRNIFTY	CRMFGETF		

Gold ETF's:

Buying Gold ETF is purchasing gold in electronic form. It can be brought just like stock of any company from a broker. Gold ETFs are exchange traded funds that are meant to track closely the price of physical gold. Gold ETF's are units representing physical gold which maybe in paper or dematerialized form. Gold ETF makes it easier to invest in gold. The investment objective of Gold ETFs is to provide returns that closely correspond with the domestic price of real gold.

Each Gold ETF unit is roughly equal to the price of 1 gm of gold and it is easy to buy each unit at a time and over time a strong gold portfolio can be built. These units are traded on exchanges like any other stock of a company. Gold ETF's are intended to offer investors a means of participating in the gold bullion market without the necessity of taking physical delivery of gold.

There are 14 gold ETF's listed with NSE. Out of those, four ETF's are launched in year 2007 and another four ETF's were introduced in 2010. For the current study following 5 ETF's are taken in order to monitor their performance for five years 2010 -2014 on daily basis. Table 2 provides a brief overview of the launch dates of the early five ETF's listed on NSE along with their Assets under Management (AUM) values, which is the market value of assets that an investment company manages on behalf of investors. Assets under management (AUM) is a measure of success against the competition and consists of growth or decline due to both capital appreciation or losses and new money inflow and outflow.

Table 2: Gold ETFs listed on NSE:

SYMBOL	AMC	UNITs	Launch Date	AUM	Tracking Error
GOLBEES	Benchmark Mutual Fund	1 Gram	19-Mar-07	3334.33	0.2033563
GOLDSHARE	UTI Mutual Fund	1 Gram	17-Apr-07	735.57	0.1931710
KOTAKGOLD	Kotak Mutual Fund	1 Gram	8-Aug-07	44.17	0.1960830
RELGOLD	Reliance Mutual Fund	1 Gram	2-Nov-07	3040.47	0.2556504
SBIGETS	SBI Mutual Fund	1 Gram	28-May-09	1336.62	0.2318336

Tracking error is a metric commonly used to characterise the risk associated with a portfolio. A purely index-tracking portfolio, is a good choice of risk metric. For an active portfolio, it is a less reliable measure of risk as it does not take into account the quality of the returns of the active portfolio. Tracking error is a measure that calculates the difference between the returns of a portfolio and the returns of an appropriate benchmark.

As tracking errors vary from ex-ante and ex-post tracking error, the study takes ex-post tracking error based on the historical data, as ex-ante is only for the purpose of predictions. Tracking errors are reported as a standard deviation percentage difference, which measure the difference between the return an investor receives and that of the benchmark it attempts to imitate. Tracking error helps us to know the probability of dramatic shortfall or the dramatic outperformance of a fund.

From table 2 it can be observed that tracking error of GOLDSHARE of UTI is very less (0.1931710) compared to RELGOLD of Reliance with large tracking error(0.2556504). The ETF with higher tracking error means that it is outperforming the underlying Asset, which is Gold in this scenario than the ones with lower tracking error. Lower tracking error is indicative of more consistency in the periodic deviations between the return of the fund and
that of its benchmark

Investment Management Companies (IMC) or the Mutual Fund Companies are the companies that manage these Gold ETF's along with other ETF's. Inorder to manage these funds they charge fees to park assets with them safely. This involves the fund management fee, agent commissions, registrar fees, and selling and promoting expenses. All this falls under a single basket called ***expense ratio or annual recurring expenses*** that is disclosed every March and September and is expressed as a percentage of the fund's average weekly net assets. Different funds have different expense ratios. The lower the expenses the better it is because it leaves more on the table for investors.

From table 3 it is observed that SBI gold ETF has lowest expense ratio and Kotakgold have highest expense ratio. Goldbees proved its superiority consistently over the five year period with high volume purchases thereby its impact cost is less comparatively.

Table 3: Expense Ratio and Components of Expense Ratio of GOLD ETF's:

EXPENSE RATIOS OF GOLD ETFs		Expense Ratio Involves following Costs to AMC
Gold ETF Fund	**Total Recurring Expense Ratio**	Investment Management & Advisory Fee
Gold BeES	0.25% - 1%	Custodial Fees; Marketing & Selling
UTI Gold ETF	0.99%	Registrar & Transfer Agent Fees; Investor Communication
Kotak Gold ETF	1% - 1.5%	Brokerage and Transaction cost
Reliance Gold ETF	1.09%	Audit Fees/ Fees and expenses of trustees
SBI Gold ETF	0.96%	Cost of fund transfer & Other Expenses

2. Performance of Gold ETF's:

Since all Gold ETF's in India rack underlying asset as gold, the returns would be almost same. 3 things to keep in mind while investing in Gold ETF's are

(1) Performance of Gold ETF's
(2) Assets under management (AUM) and
(3) Expense Ratio of Gold ETF's.

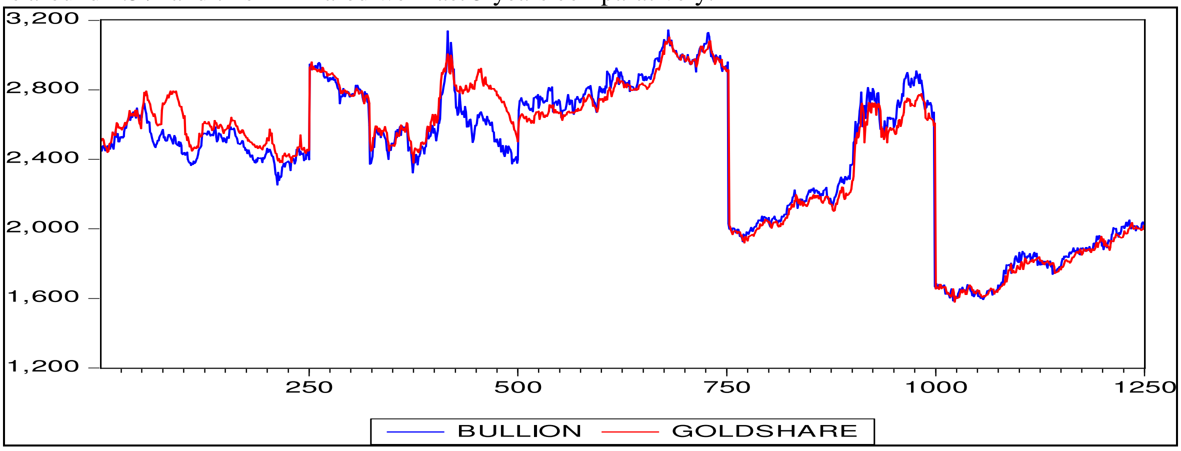
- **Performance of Gold ETF's**: ETF's are to be monitored for atleast 3-5 years to know their performance to be considered for investment.
- **Assets under Management (AUM):** Higher the amount invested by investors the better, as it reflects the confidence investors have in an ETF.

- **Expense Ratio of Gold ETF**: Usually it is around 1% of their AUM, i.e., 1% of returns would be reduced from investors' returns to meet expenses for management. So lesser expense ratio the better.

Five ETF's in Detail:

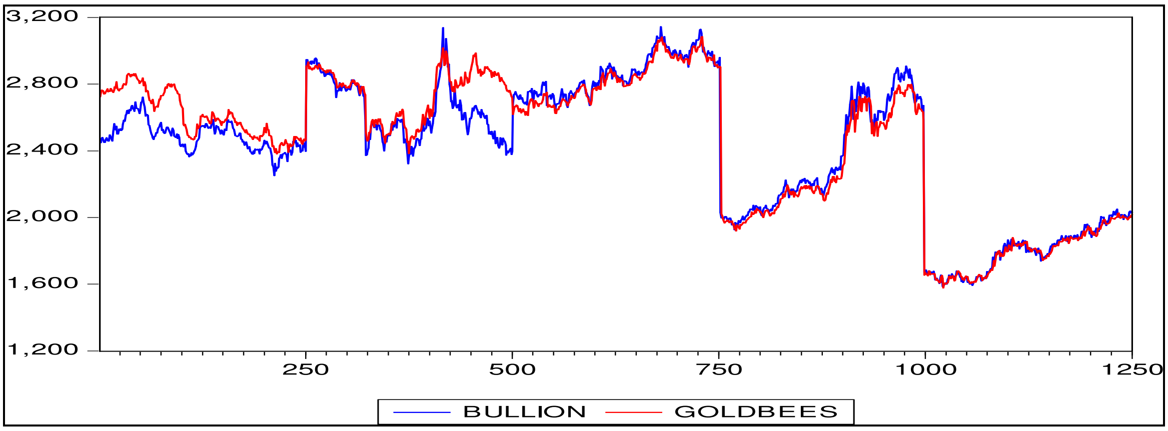
GOLDSHARE (UTI GOLD Exchange Traded Fund):

It is the Second Gold ETF launched in India after Goldbees, on April 7th, 2007.To endeavor to provide returns that, before expenses, closely track the performance and yield of Gold. However the performance of the scheme may differ from that of the underlying asset due to tracking error. There can be no assurance or guarantee that the investment objective of UTI-Gold ETF will be achieved. Unit size is equal to 1,000 units. The expense ratio is around 1.5% and this ETF fared well last 3 years comparatively.



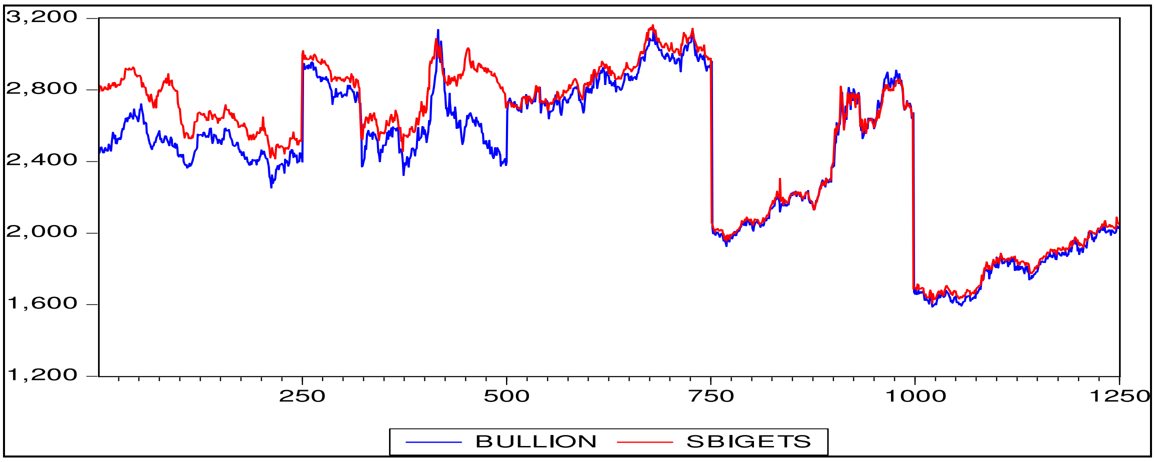
GOLDBEES (Goldman Sachs Gold BeES ETF):

It is the first ever GOLD ETF launched in India on March 19th 2007. The investment objective of Gold Benchmark Exchange Traded Scheme (Gold BeES) is to provide returns that, before expenses, closely correspond to the returns provided by domestic price of gold through physical Gold. However, the performance of Scheme may differ from that of the domestic prices of Gold due to expenses and certain other factors. Minimum lot size is 1 gram of gold and unit size is 1000 units or 1 kg of gold. The expense ratio of this ETF varies between 0.25% - 1.7%. It is managed by Goldman Sachs Assets Management (India) private limited.

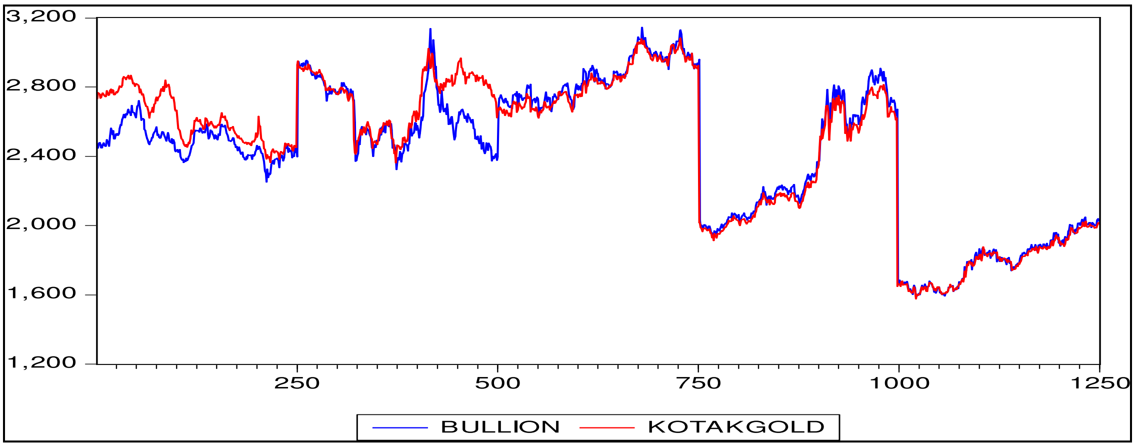


SBIGETS (SBI Gold Exchange Traded Scheme):

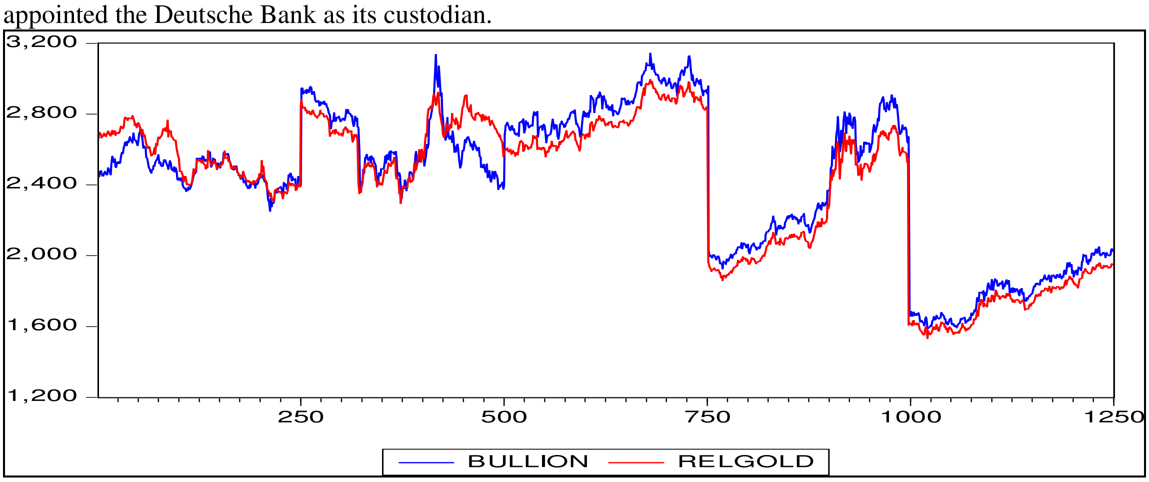
The investment objective of the fund is to seek to provide returns that closely correspond to returns provided by price of gold through investment in physical Gold. However the performance of the scheme may differ from that of the underlying asset due to tracking error. This scheme is opened on March 30, 2009. Unit size is equal to 1,000 units of SBIGETS. The price of the Gold is the Benchmark.NAV of SBIMF GETS declared on every working day. Its expense ratio when launched was 2.5% and now it has come down to less than 1% after SEBI's intervention on all Gold ETF's which were charging high expense ratios. The Bank of Nova Scotia is the custodian of this fund.



KOTAKGOLD (Kotak Gold ETF):
The investment objective of Kotak Gold ETF is to generate returns that are in line with the returns on investment in physical gold, subject to tracking error. The NAV of the units is closely related to the value of gold held by the scheme.



RELGOLD (R*Shares Gold ETF):
The investment objective is to seek to provide returns that closely correspond to returns provided by price of gold through investment in physical gold (and gold related securities as permitted by regulators from time to time). However, performance of the scheme may differ from that of the domestic prices of gold due to expenses and/or other related factors. This scheme is launched on Nov 2nd, 2007. All the gold bullion held in scheme's allocated account is of 995 parts per 1000 (99.5%) purity or higher. The total expense ratio came down to 1.5% from 2.5% when SEBI intervened and stopped this high expenses being charged by mutual funds. The Trustee appointed the Deutsche Bank as its custodian.



3. LITERATURE REVIEW:

Goetzmann and Massa (1999), analyze the relationship between individual index funds and asset prices. They use three S&P500 index funds to investigate relation between fund in - flows and S&P market returns. They found strong contemporaneous positive (negative) correlation between fund inflows (outflows) and S&P market returns.

Poterba and Shoven (2002), made reference to the introduction of ETF's operation and how tax efficient ETF's are if invested in them. They compared the pre-tax and post-tax returns on the largest ETF, the SPDR trust that invests in the S&P500, with the returns on the largest equity index fund, the Vanguard Index 500. The results suggest that between 1994 and 2000, the before- and after-tax returns on the SPDR trust and this mutual fund were very similar. Both the after-tax and the pre-tax returns on the fund were slightly greater than those on the ETF. These findings suggest that ETFs offer taxable investors a method of holding broad baskets of stocks that deliver returns comparable to those of low-cost index funds.

Engle and Sarkar (2002), studied pricing of ETFs and deviation of price from Net Asset Value in various ETF products.

Anna Agapova (2007), conducted a comparative study on mutual index funds and ETF's. the study is conducted to examine the implications of substitutability of two similar investment vehicles: conventional index mutual funds and exchange traded funds (ETFs) ad concluded that the coexistence of both instruments can be explained by a clientele effect that segregates the two vehicles into different market niches.

Ashok Khurana (2009), conducted a study on Bank ETF's to know the risk-return perspective of all banks in India with the help of mean, standard deviation, beta, R-squared statistics, Sharpe and Treynor ratio. The study concludes that the bank ETFs are cost effective and moderately aggressive in nature. The performance of the Bank BeES is notable on the basis of its risk-return perspective.

4. RESEARCH METHODOLOGY:

Objectives

- To track the performance of five Gold ETF's post-crash period of five years.
- To evaluate relationship of Gold ETF's and spot Gold price movement on daily basis for last five years.
- To explore the relationship and impact of Gold price movements and NIFTY, if any.

Data & Design

This study is done on five ETF's listed on National Stock Exchange (NSE). The study is based on secondary data obtained from various sources including NSE, Moneycontrol.com, Bullion market daily data, Yahoo & Rediff finance, etc., for a time period of five years taken from 2010-2014 (post-crash) period on daily basis. The performance of the five gold ETF's is monitored along with Gold price movement and NIFTY and their respective tracking errors.

Results & Analysis

The empirical part of the work was developed using a sample of five gold exchange traded funds (GETF's) which are listed on Indian National Stock Exchange for a period of five years. As both ETF's and gold are traded on bourses daily gold price and daily ETF's price is taken for the five year period, with a total of 1250 observations. To understand this aspect better the following tables and charts give us the details of the Gold ETF's and Gold Price movement of each ETF separately.

Descriptive Statistics

Descriptive statistics gives us the central value of the variable (Mean of the variable) and the spread of the data from the central value (i.e., variance and standard deviation). Table 3 summarizes the statistical characteristics of the data on six variables used in the current study. Mean, Median, Standard Deviation, Skewness, Kurtosis and Range are reported. Standard Deviation (SD) explains the volatility of the distribution. Skewness tells us if the distribution is normal or not. If not to which side it is skewed much.

This information helps us to know if the given data point would be higher or lower than the mean. Skewness with value zero is said to be normally distributed. Kurtosis gives us the trends in the chart for the data points plotted on a graph. A high kurtosis value gives us a flat and even distribution with fat tails and a low kurtosis value gives us a peak distribution with skinny tails. Range is also a statistical tool which gives us the difference between lowest to highest values in the variables used.

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Table 3: Descriptive Statistics

DAILY GOLD PRICE AGAINST ETFS						
	BULLION	**GOLDBEES**	**GOLDSHARE**	**KOTAKGOLD**	**RELGOLD**	**SBIGETS**
Mean	2429.445	2459.971	2441.415	2457.686	2390.242	2512.997
Median	2513.19	2595.7	2577.375	2593.4	2525.15	2654.625
Std. Dev.	401.3989	417.1464	408.6611	418.393	408.2122	431.3035
Skewness	-0.490539	-0.646755	-0.611899	-0.633819	-0.642761	-0.647168
Kurtosis	2.166914	2.063619	2.116809	2.055445	2.05834	2.057659
Observations	1250	1250	1250	1250	1250	1250

From table 3, the mean value is highest for SBI gold ETF (SBIGETS) 2512.997 and with highest standard deviation 431.3035. It tells us that this ETF is highly unstable and is more volatile. Lowest Mean value 2390.242 is seen for Reliance gold ETF RELGOLD with standard deviation 408.2122 which suggests that this ETF is stable and less volatile.

Chart 1 clearly shows that, each gold ETF move along intricately with the movement of gold price. These gold prices are spot gold prices taken on daily basis. This helps us to understand that buying a gold ETF is equivalent to buying gold in physical form and that the investors need not worry that there would be greater variation in price and its volatility from daily gold price movement.

Chart 1: Five Gold ETF's and Gold Price movements:

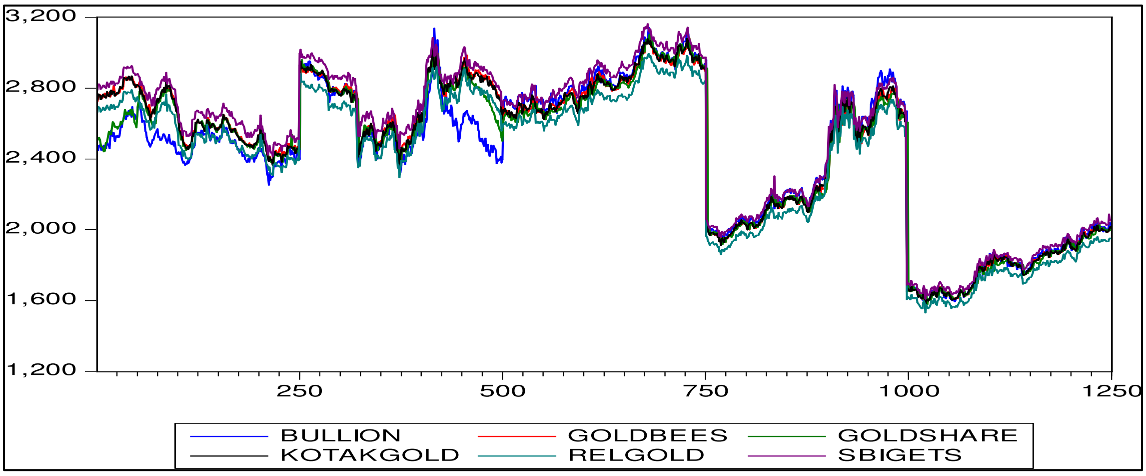

Chart 2 shows us clearly that NIFTY daily movements do not gel or sync with Gold price movements. But usually the trend followed in India, India being gold-centric the investors buy gold when nifty falls to hedge their portfolios from maximum losses. Gold is a stable commodity and investing in it mitigates risk to a larger extent hence we see rise in gold purchase when NIFTY falls and vice versa as can be seen in the following chart 3.

Chart 2: NIFTY movements and Five Gold ETF's movements:

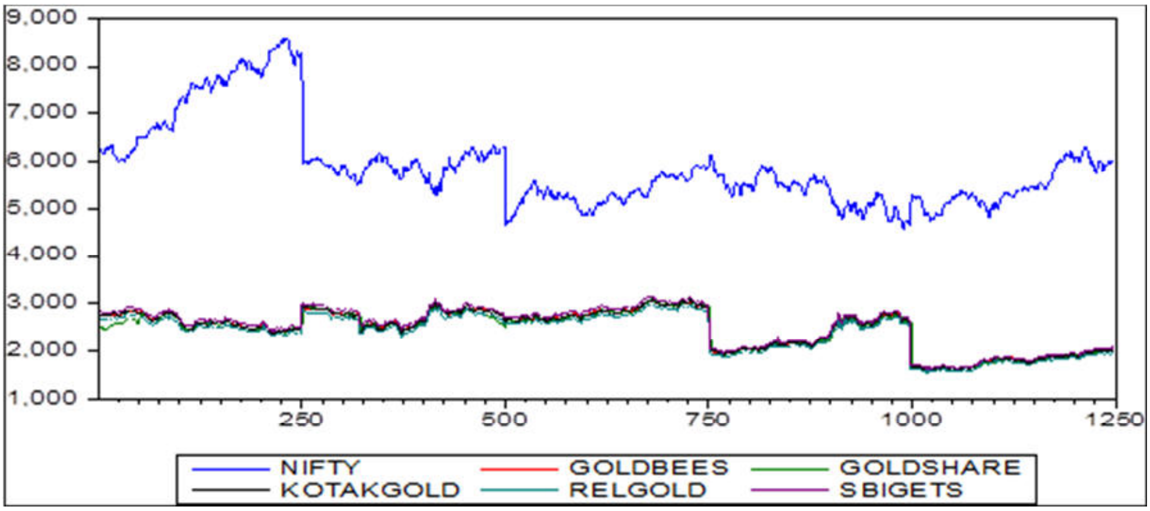

Chart 3 gives us the movement of gold price along with NIFTY on daily basis for the span of 5 years. The observations are around 1250. If we look keenly a unique phenomenon is observed, whenever Nifty decrease or falls there is an increase in gold price, though small in size. This scenario is very typical in Indian market and we do not mostly observe this trend anywhere globally. The underlying reason is that if NIFTY falls then Indian investor who are fond of gold invest in Gold thus increasing the price rise in gold. This scenario holds good to an extent only because gold price movements are based on global market cues and fluctuations.

Chart 3: Gold price movements and Nifty movements:

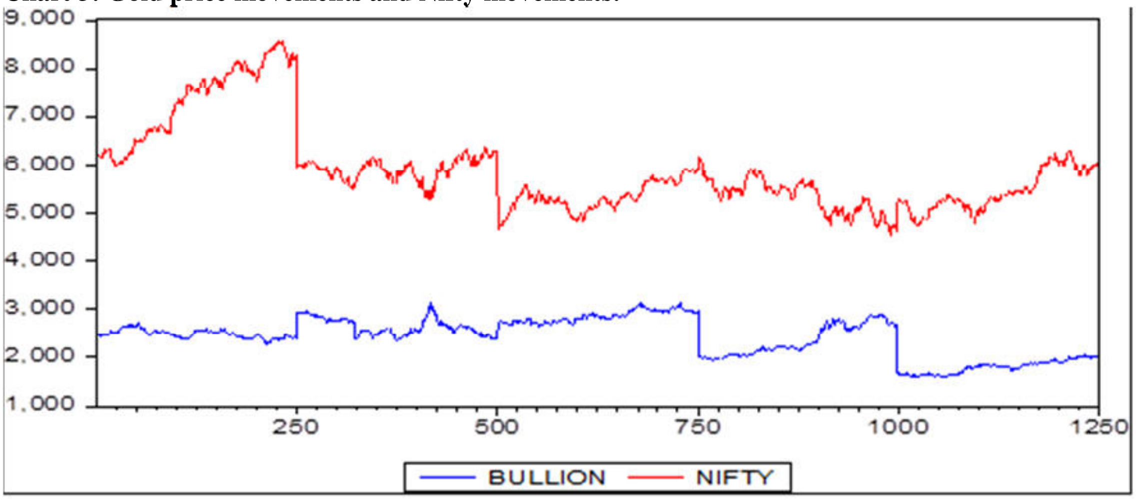

Table 4: Correlation between Gold ETF's and spot Gold price:

	BULLION	GOLDBEES	GOLDSHARE	KOTAKGOLD	RELGOLD	SBIGETS
BULLION	1	0.96583	**0.974663**	0.964326	0.964137	0.965385
GOLDBEES	0.96583	1	0.990665	0.990759	0.990727	0.991105
GOLDSHARE	0.974663	0.990665	1	0.981943	0.981945	0.98278
KOTAKGOLD	0.964326	0.990759	0.981943	1	0.999601	0.999295
RELGOLD	0.964137	0.990727	0.981945	0.999601	1	0.999238
SBIGETS	0.965385	0.991105	0.98278	0.999295	0.999238	1

As can be observed from table 4 GOLDSHARE of UTI (0.974663) is, highly positively correlated to spot Gold price, followed by GOLDBEES (0.96583) of Goldman Sachs and SBIGETS (0.965385) from SBI. Least positive correlation with Spot Gold prices is seen for RELGOLD (0.964137) of Reliance Industries, followed by KOTAKGOLD (0.964326) of Kotak Securities.

Table 6: Regression Values for 5 ETF's:

BULLION	Alpha	Beta	R-square	Adj.R-Square	T-stat	Std.Err	sig. level
GOLDBEES	0.92937	143.2226	0.932828	0.932774	8.131233	0.00706	99%
GOLDSHARE	0.957342	92.17589	0.949967	0.949927	5.987526	0.006219	99%
KOTAKGOLD	0.925157	155.6995	0.929924	0.929868	8.687476	0.007189	99%
RELGOLD	0.948045	163.3886	0.92956	0.929503	9.121134	0.007387	99%
SBIGETS	0.898450	171.643100	0.931969	0.931914	9.797065	0.006871	99%

Multiple Regression is done on three parameters as per the objectives defined above. Firstly, Regression done on all ETF's against spot Gold price. Secondly,all ETF's against nifty and finally, all ETF's against Nifty. As ETF's are more correlated to spot Gold price R-square values the table 6 gives the values from that paramter only. From table 6 it can be observed that GOLDSHARE at 94.99% is more related to spot gold price and is leading amongst other ETF's which is followed by GOLDBEES at 93.28%. The ETF that has least relation with spot Gold price out of the sample taken is RELGOLD at 92.95% preceeded by KOTAKGOLD at 92.99% and then by SBIGETS at 93.19%. This model hold goodness-of-fit as all ETF's are significant at 99% significance level.

5. CONCLUSION

The current study evaluates the performance of Gold ETF's post-crash period and observed that their performance is better and superior to many other mutual funds, funds of funds and other ETF's in this period. This study concludes by asserting that investing in gold in Indian scenario is a better investment option comparatively. It is felt that Gold should be a part of one's portfolio investment management in order to hedge or mitigate risks that arise due to fluctuations of any kind in the market or economy.

6. Limitations of the Study

This study is mainly focused to monitor the performance of gold ETF's post-crash period for a period of 5 years. First limitation observed is, few out of the total 14 GETF's launched in India, many of these Gold ETF's are launched recently and analysis of 5 year period cannot be done on these GETF's they are left out as a minimum of 5 year period helps us to study the performance of these ETF's for one business cycle.

Second limitation is along with Gold ETF's of India the study can be spread out on all GOLD ETF's of major exchanges across the globe as it help us to monitor the price movement of the gold post-crash period. Third and finally, the limitation is also seen on the time period study of gold price movements which can be done for prior crash period and post-crash period to know exactly the gold price movements based on which projections for future period can be predicted or drawn upon.

7. Scope for further research:

As Gold price movements depend on global cues and many other factors, an in-depth study in gold prices and Gold ETF's across major exchanges of the world would help us not only to monitor the performance of gold and Gold ETF's across the globe but also helps us to know the consumption patterns of investors in Gold globally.

Also, the study can further be improved by taking other major and macro factors that influence the price of gold both in Indian and global market. This helps us to know those macro factors that cause or influence the gold price movement.

A study can be made between performance of other types of ETF's and Gold ETF's and also Index funds and ETF's as a comparative or comprehensive study either in Indian scenario or across the globe for a five year period or for longer time frames

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