

A Study on Volatility of Gold And Silver Bullion Commodity Traded In India

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Abstract- Past states that, civilizations have stored value in precious metals. Gold has the benefit of practicality being a strong metal that has, factually, kept its demand. Investors of the precious metals market go back and forth on silver, repeatedly appreciating it as a store of value. Demand besides changes in government policies in gold and silver in India makes its price to fluctuate. A moving average analysis 5 days and 10 days is generally considered through time series data towards shorten the short-span variations and highlight longer-term movements or series.

Keywords- Gold, Silver, span, variations, movements, series

I. INTRODUCTION

Olden times states, that the societies have kept their values in precious metals. This is almost-widespread recognition that the value makes precious metals a excessive long-term investment. Investment in precious metals acts as safety against the aspects that range from inflation to civil conflict. Precious metals investment remains to be attractive to investors for many reasons. In India Gold and silver are traded as Precious Metal. Gold is considered to be a strong metal that has, historically, kept its demand. Investors belonging to precious metals market go towards Gold and Silver, consecutively valuing it as a stock of value. When investments such as bonds, real estate and the stock market goes down, people shift towards precious metals because these investments incline to increase its value in periods of disorder. If an investment is made during whiles of safe bet, investors can make an income by selling some of the investment when prices go up. The study's main approach is to examine the volatility of the key precious metals traded n India. To accomplish this task, we imply moving average method.

II. STATEMENT OF PROBLEM

Gold and silver are precious metals that may be used as a border against inflation, deflation or currency depression in India. The empirical validity of these predictions are not well determined. Volatility plays as the major risk factor in price determination. Moving average analysis is observed to

determine or predict the future risk factor and price trend in precious metal investment.

III. OBJECTIVES

1. To know the uses of Precious metals.
2. To study different factors affecting the Precious metals price
3. To examine how price of Precious metals fluctuate in Indian Commodity Market.

IV. RESEARCH METHODOLOGY

Moving average Analysis is generally considered to know the volatility or trends or cycles. Here we have used 5 days and 10 days moving average. Which depicts or gives idea to the investors or readers regarding volatility, fluctuations or price movements of precious metals. Here considered are Gold and Silver Precious metals commodity which are traded India.

Data

This study uses secondary data- Precious metals spot price from last 2 years (2016 – 2018). The precious metal considered here are Gold and Silver which are traded in India. The data is collected from MCX of both Gold and Silver.

V . REVIEW OF LITERATURE

1. **Jonathan A. Batten, Cetin Ciner, Brian M. Lucey (2010), The macroeconomic determinants of volatility in precious metals markets.** The paper models the monthly price volatilities of four precious metals (gold, silver, platinum and palladium prices) and its investigation through the macroeconomic determinants (business cycle, monetary environment and financial market sentiment) of these volatilities. However, there is partial evidence that the identical macroeconomic factors together impact the volatility processes of the four precious metal. The found results are reliable with the understanding that precious metals are too distinct to be considered a single asset class or else single index.

2. **Piyush Pandey (2014), Price discovery and volatility spillover in spot and future: An Empirical study of gold market in India, Tactful Management Research Journal**, through this study, we find that the price discovery and volatility spill over between spot and futures segments of gold market in India. Cointegration tool were used to study the price discovery process and suggested bidirectional causality between spot and futures. A bivariate EGARCH model was used to study volatility spill over and the results give out information transmission through volatility spillover. It suggest that the spot market which provides way for the futures
3. **Dr. Vipin Kumar Aggarwal, Silky Jain (2014), Silver Investment in India: Trends and Analysis**, the study determines the trend in silver trading in Indian stock market. In order to find the trend, the monthly closing spot prices of silver have been taken from April - 2005 to March - 2014. Procedure of simple moving averages and annual high and low has been used to know the trend. Both the methods used for the analysis pointed out the bullish trend in silver prices till the middle of 2011.
4. **Ludovico Zaraga (2014), Effects of Exchange Rate Regimes on Trade: The Case of Silver Standard India**, the study provides evidence that the decisions utilized to adopt the gold standard and the exchange rate, were exogenous to trade in this particular setup. It utilizes a gravity model to determine the effects of exchange rate volatility and depreciation on trade. It also helped in knowing the exchange rate volatility and it's on India's imports and exports.
5. **Sudarvel, R.Velmurugan and K.Kumuthadevi (2016)** in their study examines that in Indian stock market High mean returns were noticed during the Second half of the month (0.0216) and low mean returns were found during the First half of the month (-0.0662). While comparing the variance, high level of volatility was noticed on the First half of the month (0.157) and low level of volatility was noticed in Second half of the month (0.112).

Uses of Precious metals

In today's world, metals like gold, silver are used for anything from electronics to medical technologies. Here are some of the most common modern uses for precious metals.

Gold

The word "gold" is acclaimed with status and stature, and has been throughout the history. Gold's variability as an

element makes it highly valuable. Gold is frequently sought after for not only its aesthetic appeal but also its industrial value due to its unique qualities. Gold is pliable, conducts electricity, and easily merged with other metals.

The most common uses for gold in the modern day include:

- **Jewellery** – A majority of gold purchased by consumers is made into jewellery, and this has been the case over hundreds of years and across the country. Its durability and resistance to tarnishing makes it a durable and stylish metal.
- **Electronics** – Since gold is a great electricity conductor, small amounts of it can be found in a number of electronic devices, including cell phones, televisions and computers which is used daily.
- **Medicine** – Gold is used in a wide range of medical treatments, namely its isotopes for some radiation treatments. Additionally, crowns and other orthodontic fixtures are often made in gold since it is non-allergenic.
- **Space** – Gold is also used on the insides of space travel vehicles to help shield occupants from high heat or radiation.
- **Awards** – Gold's high industrial quality also contains aesthetic appeal. Some of the most recognizable awards are made of gold including Olympic medals and the Academy Awards.

6. Silver

Silver is a unique metal, but it is less rare and expensive than gold. Modern science has discovered numerous uses for its properties and has applied it to many modern day advancements. now days, silver is basically used for:

- **Solar and nuclear energy** – Silver is used to make solar panels. Silver acts as a aid in creating the current necessary to harness the sun's power. Silver is also utilized to slow the fission rate of nuclear reactors.
- **Cutlery** – While a classic use for silver, cutlery is still one of silver's most popular forms. Silver is a popular material for cutlery due to its natural corrosion resistance, ease to polish, and its ability to be alloyed with other metals.
- **Photography** – While digital photography has been on the rise for some time now, silver is still essential to the development of film images, including X-rays. Silver crystals, when exposed to light, record the image for development.

- **Antibiotics** – Silver’s non-toxicity and ability to kill bacteria through oxygen absorption makes it an efficient ingredient in antibiotic medicines. Silver is also used in hospitals to lessen the spread of harmful infections.
- **Electronics** – Silver is a natural thermal and electrical conductor and is therefore used in numerous electronics such as electrical switches, superconductors, batteries, televisions, etc.

Factors Affecting Precious Metal (Gold and Silver) Trading

Gold

Gold as a bullion commodity plays very important role in the cultural heritage of Indian. The factors that influence Gold price in India are as follows.

1. There is high demand for Gold in India due to its huge supply in jewellery market is the number one factor.
1. India is also world’s largest consumer. Presently there’s only one functioning gold mine in
2. India called Kolar that cannot physically please high demands of the country.
3. Rising population in India triggers even greater demand.
4. Payable to low interest rates, gold investment in India is a preferred
5. US dollar is one of the major factors affecting gold price in India today.
6. Government policy directly affects current gold prices in India.
7. Indians prefer to buy gold bullion or its investment to protect themselves from depression.

Silver

Demand

Silver always has a good demand in India. The demand is being generated by both the jewellery sector and industrial sectors. In the future, it will become tough to come by silver and the price may be driven up the limited supply thus putting long term investors in a very good financial position.

Common man's gold

Silver called as common man's gold. The purchase of silver is much easy when compared to gold. As silver prices

continue to rise, investor’s will get options to invest in silver, rather than bonds, real estate etc.

Timing the markets

Some of the most basic ways to time the market would be to wait for the wedding season or a festival. The demand for both silver and gold goes up.

No Bank accounts

In India, majority of the population is not familiar with banking and taxation. So it is difficult for them to invest in a number of instruments available. For them, silver is one of the places for investment.

Easy to store

There are many e-silver products that can be traded on the NSEL. That allows people to invest in silver without a worry about storing the metal.

Liquidity

Silver metal can help investors in the situations of emergencies. Even if the currency losses its value, Silver won’t.

MOVING AVERAGE ANALYSIS

Table 1- Gold Monthly Price (Jan 2016 to March 2018)

Month	Year	Total Value (In Lakhs)	5 Days MA	10 Days MA
JAN	2016	9292778.70		
FEB	2016	12746101.22		
MAR	2016	13095677.03		
APR	2016	9909018.21		
MAY	2016	11683003.01		
JUN	2016	13503051.40	49292355.21	
JUL	2016	12413030.61	50739969.89	
AUG	2016	10139753.92	50127238.64	
SEP	2016	8648578.82	49720642.58	
OCT	2016	7535387.65	47041015.35	
NOV	2016	8126262.45	41437361.28	100602879.74

DEC	2016	3991038.76	36932588.96	96328373.22
JAN	2017	5585361.62	30329218.46	87258692.53
FEB	2017	5862708.48	26967766.24	82616370.06
MAR	2017	6055257.92	25072448.84	76973474.01
APR	2017	5071539.88	23119619.27	69707685.37
MAY	2017	6256508.49	23373075.65	62257192.56
JUN	2017	5635434.81	24363087.09	58146619.46
JUL	2017	6120958.52	24191282.80	54984357.94
AUG	2017	6411655.59	24295493.28	53458609.70
SEP	2017	6538292.26	25438865.39	51803090.32
OCT	2017	4189570.90	25957642.88	53936821.45
NOV	2017	5054232.76	24387564.23	52700463.01
DEC	2017	3687433.64	23417943.21	51919721.98

MA- Moving Average
Source: MCX

Chart 1 - Gold Monthly Price (Jan 2016 to March 2018)

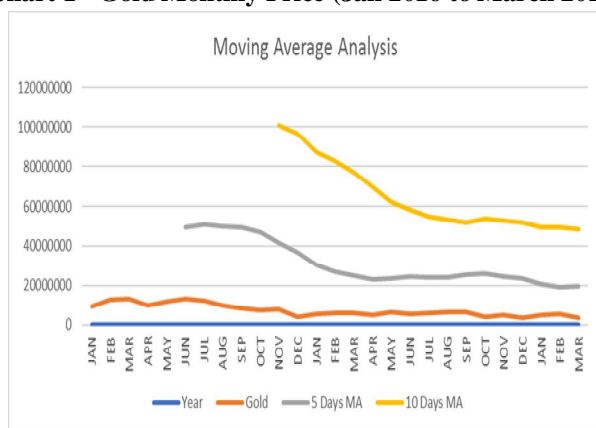


Table 2- Silver Monthly Price (Jan 2016 to March 2018)

Month	Year	Total Value (In Lakhs)	5 Days MA	10 Days MA
JAN	2016	4541803.47		
FEB	2016	5109362.34		
MAR	2016	4753025.09		
APR	2016	6203325.47		
MAY	2016	5705728.69		
JUN	2016	6357908.79	22679802.28	
JUL	2016	8837607.29	24041860.51	
AUG	2016	7123357.93	28055175.26	
SEP	2016	6328969.16	29265267.79	
OCT	2016	5335402.27	29788988.91	
NOV	2016	5221474.30	28896918.41	56208867.38
DEC	2016	3656522.11	25776725.12	56377735.22
JAN	2017	3558132.92	21967039.43	55245598.52
FEB	2017	3478849.91	19037325.43	52745436.01
MAR	2017	3284818.03	16982059.69	50468797.55
APR	2017	3304992.66	15022617.83	47460924.80
MAY	2017	4016529.28	14358097.94	42176280.02
JUN	2017	4406596.85	14796816.46	38898026.43
JUL	2017	4542354.09	15708706.80	36896215.25
AUG	2017	5587040.13	16927436.49	36003810.38
SEP	2017	4221770.84	19213518.88	36357983.41
OCT	2017	3109058.42	19561067.77	36766736.92
NOV	2017	4142926.35	18341542.85	36307823.50
DEC	2017	3039401.69	17969266.56	36963971.64
JAN	2018	3368395.34	15630565.33	36699152.11
FEB	2018	3986501.73	14504135.97	36764572.26
MAR	2018	2378614.16	15159036.79	36805698.37

MA- Moving Average
Source: MCX

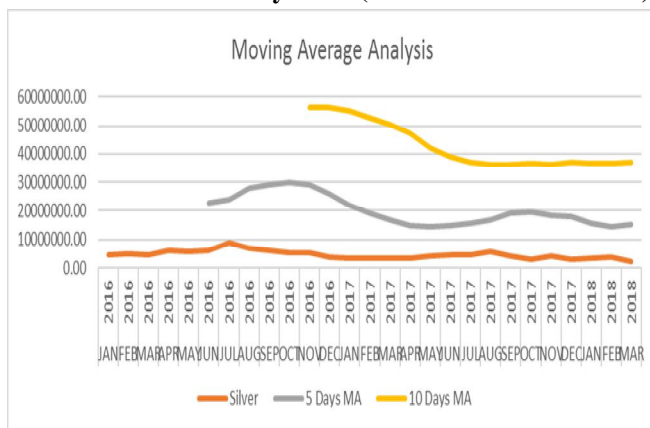
Chart 2 - Gold Monthly Price (Jan 2016 to March 2018)

Table 1 and Table 2 depicts that 5 days and 10 days moving average is calculated as apart of moving average analysis from Monthly price of gold and silver which brings out average of fluctuation happening in their prices monthly. US dollar value brings a change in gold price (i.e.) prices to move upward or downward. Similarly, India being second largest consumer of gold in the world and government policies inducted also brings the change in gold prices. Silver considered as common man's gold makes its price to volatile due to industrial demand, liquidity position and government regulation. This analysis depicts the risk and trend of gold commodity trading to traders.

VI. CONCLUSION AND IMPLICATION

This paper observed and analysed the volatility of both Gold and Silver using a Moving average (5 days and 10 day's analysis). The volatility in the gold and silver spot market could impact the futures market. However, the various parties that use precious metals as investment should observe the futures markets in order know if hedging precious metals price volatility is an appropriate risk management tool. Trader should always have a keen look at precious metal market price to know the changes.

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