Impact of Ongoing COVID-19 Pandemic Scenario on Gold Metal -A Comprehensive Study

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ABSTRACT - Gold is one of the most fascinating and enduring metal since ages. The value of gold is derived from the standard currencies and hence being influenced by many factors. The factors which are influenced with the yellow metal are foreign exchange rates, inflation, GDP and a like. The market forces are quite prominent which keeps the metal provoking to create rally each time it is traded. Since the periods of depression and recession, the country has always seen a galloping swings in terms of the price movements. The projection of gold price is very sensitive at the same time helps easily in understanding the trends, since it has seen a sharp increase over the last decades. The attributes that ass positive outlook towards the glittering metal is that it is regarded as the safe investment avenue among the investors, financial institutions and also form government bodies. Financial crises have been evident that the gold prices have seen a drastic movement. Gold has already entered into the most attractive bull market, since than the prices are on rise. Gold, unlike any other commodities has been constantly providing a good yield to its investors. In India, gold has been traditionally used in jewellery and safety and hedges against the financial risks.it was long thought as an invest option by ancestors also hedging financial risks. Nonetheless, gold from its traditional perspectives have become a prospect investment option among the investors since 2001.The paper discusses the trend of gold metal in the black swan pandemic event of COVID-19,its behaviour in stock market and projections of gold prices in the years to come. The gold prices have been sourced from secondary data. The factors influencing gold have also been analysed. Statistical tests like regression, correlation and Anova has been adopted to understand the trends. The findings suggest that the gold price is projected to rise further. And the gold prices are highly correlated with the forex rates. Primary data is also analysed to find the opinion of the investors on the trends for the present scenario.

Keywords: Inflation, Foreign exchange rates, COVID-19, Gold prices

I. INTRODUCTION

Gold is one of the most fascinating and enduring metal since ages. The value of gold is derived from the standard currencies and hence being influenced by many factors "Gold has been mesmerizing for centuries. It is one of the most attractive metals on earth. It is one of the most precious metals found till date and also the most liquid asset too. Gold is backbone of all economies since its inception. It is the best investment for common people. In present era also it is used by investors as an instrument to hedge their portfolio investment. The monetary demand of gold has been on roll during last decade as well as non-monetary demand. All the countries in the world use gold as their mode of transaction for international trade. It has also been observed that countries with large gold reserves backed and is a metal which is internationally acceptable. Gold prices are on steep rise during the last decade and continues to rise."

Gold has long been considered one of the most precious metals, and its value has been used as the standard for many currencies (known as the gold standard) in history. It is used as a symbol for purity, value, royalty, and particularly roles that combines these properties. It is used in international transactions. Gold consumption observed a sharp acceleration during the 1990s amidst liberalization of gold import policy, strong economic growth and favourable movements in gold prices. Gold is now being used as an alternative for dollar since its collapse.

Gold, in the times of COVID-19, is of no exception. Its demand has shown no fall even in the recent times. But, during the times of pandemic it has brought in a large number of changes in the stock market as a whole. In specific, it has largely affected the bullion market too. The yellow metal as predicted by stock market experts is going show a rally, since the demand and consumption of Gold does show a bullish trend. In India, gold has been traditionally used in jewellery, but it was long thought as an invest option by ancestors also hedging financials risks. It is believed, gold prices will steeply rise in coming years of time. The role of gold in

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investment has drawn more attention since the transformational economic crisis began to unfold in 2008.

Gold is now widely traded in the form of Sovereign Gold Bonds by the Government of India, which are the free from risk and provide best option to the investor as it is the best avenue of investment.

II. RESEARCH METHODOLOGY

The study is based on evaluation of changes in the price of gold due to ongoing situation of COVID-19 pandemic. The changes in price of gold over the period of last 10 years is studied and analysed. In this paper, efforts are made to know whether external factors like GDP, Inflation, and Forex influence the gold prices to increase or decrease. The study of the relationship between gold price and GDP, Inflation, and Forex statistical tool is conducted using statistical tools like correlation and regression.

Objectives of the study

- To know the impact of COVID 19 on Gold metal.
- To study present situation of gold market and its price movements in Indian economy.
- To explore the factors affecting gold prices
- To study the factors contributing towards the increase in the gold prices.
- To evaluate the impact of external factors like GDP, Inflation and Forex on the gold prices.

Data Representation

- The data coverage for data analysis is considered for the period of 10 years.

1. Primary Data:

- Data is collected from customers who make gold as investment and know their perception towards gold- Google forms were used as well questionnaire was given to collect the responses.
- Data is collected from the jewellers to find their perception of Gold demand with special reference to the impact of COVID 19 on their business.

2. Secondary Data includes:

- 10 years historical gold prices (2010-2019).
- 3 months gold prices for the period of COVID-19 times i.e., (March-May2020).
- GDP rates for last 10 years (2010-2019).
- Inflation rates for last 10 years (2010-2019).
- Forex rates for last 10 years.
- References from various research articles.
- Websites.

.Sample size

- Secondary data
  The study is undertaken by using gold prices for the period of last ten years and the information relevant to this was also calculated for ten years.
- Primary data
  The primary data was collected from the 60 respondents through questionnaire regarding investment avenues in gold and from ten well known jewellers to know the impact of COVID 19 on their business.

Research Questions and Statement of hypotheses

i. Is there any significant relationship between GDP and Gold prices?
   H_0 1: There is no significant relationship between GDP and gold prices.
   H1: There is a significant relationship between GDP and gold prices.

ii. Is there any significant relationship between Inflation and Gold prices?
   $H_0$2: There is no significant relationship between Inflation and gold price.
   H2: There is significant relationship between Inflation and gold price.

iii. Is there any significant relationship between Forex and Gold price?
   $H_0$3: There is no significant relationship between Forex and gold price.
   H3: There is significant relationship between Forex and gold price.

The variable discussed above form the part of discrete variable that are dependent and independent variables. The dependent variables in the study considered as the Gold prices. The independent variables considered in this study are GDP, Inflation, and Forex rates.

III. REVIEW OF LITERATURE

Though the prices of gold in India are largely dependent on large number of factors such as its production, demand, substitute investment avenues etc. yet there also exists influence of different global macroeconomic factors on the prices of gold in India. Keeping in view the significance of the global economic factors on the prices of gold, number of studies has been carried out across the world , thus there is an availability of ample literature in this regard.

1 Prerana Baber, Ruturaj Baber and Dr. George Thomas, found the existence of association between gold price and inflation rate which can be utilized by investors for hedging and other activities in investments.

2 Dr. M. Nishad Nawaz and Mr. Sudindra employed multiple regression study and explored the important determinants of gold prices and found tension index, interest rate, the US trade weighted exchange rate, the GDP, the excess liquidity and the unanticipated inflation are significant determinates of gold price with serial autocorrelation. When he tried to overcome it some variables like tension index become insignificant while other like unanticipated inflation became insignificant.

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3. Devanshi Mittal in his several empirical studies found that gold has explanatory power in predicting movements in exchange rates in addition to the movements in monetary fundamentals and other variables that enter stock market standard models.

4 Fergal. A O'Connor, Brian M. Lucey and Jonathan A Batten, examined the relationship between the gold prices and foreign exchange market for the period 1982-1990 wherein they found significant influence of changes in European currency on the prices of gold but observed less influence of US dollar. They also found that among major currencies fluctuations in the real exchange rates explain almost half of the variation in the gold price.

5 V. Vinoth Balaji and S. Mahalingam found that both domestic and global gold prices are closely interrelated. They also examined the nature of changes due to the factors affecting international gold prices during the last two decades wherein they found that short-run volatility in international gold prices are the traditional factors such as international commodity prices, US dollar exchange rates and equity prices.

IV. INTRODUCTION

Introduction to the core Research Topic

Impact of Coronavirus on gold prices in India

After the coronavirus or COVID 19 became a global pandemic, investors are turning to gold globally considering it the safest option to curb the economic distress. Gold price have remained steady since the last week of March in India. Investors are now shifting to cash by selling off their assets due to the pandemic and due to this, the price of gold had dipped considerably in the last month.

The investors in the country are investing in the bullion market for its safe-haven demand due to global economic distress. The price of gold in the country opened at Rs.4,253 per gram for the month of April and remained steady until the end of the first week of the month at Rs.4,253 per gram.

India is the largest consumer of gold in the world and accounts for a quarter of the world's total consumption of gold. India uses gold primarily in the form of jewellery and secondarily for investments. Gold rates in India change on a daily basis depending on many factors. These include the demand and supply, global market conditions and currency fluctuations in the country.

Gold in India is a solid instrument even before the pandemic arrived. Traders in India invest in gold bullion as it is considered a safe option. Gold prices have reached an all-time high in India due to the pandemic, but a large part of this has been driven by depreciating rupee and increased import duty. It must be noted that gold prices in India include 12.5% import duty and 3% GST. On the other hand, international gold prices are much lower than the all-time high price.

When the markets are shut and the world is facing an economic slowdown, the Government of India will open subscriptions starting 20 April for the people to invest in Sovereign Gold Bonds. The Reserve Bank of India will issue the SGBs on behalf of the Government of India. The SGBs will be issued in six tranches from April to September. This will allow the investors an alternative to investing in gold with a fixed interest of 2.5% per annum.

Impact of COVID 19 on Gold metal in India

The impact of COVID 19 on gold industry has already made the market very uncertain. Most of the investors are left in doubt as they seen an unfixed movement in the gold industry. In today's time, everyone is suffering from the invincible and epidemic COVID 19 viruses. We all know that the first report of this virus emerged in Wuhan, a city in eastern China. But now, COVID 19 is that deceitful virus which is increasing at a very high momentum across the world. The world as a whole is fighting against the epidemic COVID 19, and day-by-day, many economic sectors are being affected by the impact of coronavirus.

COVID 19 has not only become a reason for infections and deaths, but it has also inflicted chaos on the global economy on a large scale. As a result, it is destroying many livelihoods, business, industries, employment, and the entries economy. We can see the impact of COVID 19 on the IT sector, the automobile sector, the gold industry, and many more sectors. The saddest part is that the impact result is not so good. Many companies have also started postponing their IPOs as a result of the impacted economy from COVID 19 in India. We can analyse the impact of COVID 19 on one of the most demanded sectors, i.e., the gold industry. Let's understand how COVID 19 has impacted the Gold industry and is remodelling the Indian economy by forcing the investors to think twice before investing.

The gold jewellery industry is facing a sturdy challenge by several elements such as low rate of consumer demand, and unstable rise of the gold price, slowing economic growth faltering rural output and vigilance lending source due to the impact of COVID 19 on the gold industry.

The massive effects of the COVID 19 world have created clamour in the stocks and retail markets of every nation, including India. In India, purchasing of gold metals or gold jewellery is a most demanding tradition through the year. It's on the peak on almost all significant occasions such as festive seasons, especially, Akshaya Tritiya. Buying gold is believed as auspicious in Indian tradition. But the appearance of COVID 19 has hugely affected the gold industry, and buying activity had decreased. People have transferred their buying activity of gold from physical gold to e-gold, but still, there is a lot of decrease in the gold sales, if compared to the previous years. And in the upcoming years, like two to three years, people will have more tendencies to sell their gold rather than to invest in it. The reason is simple, i.e., due to COVID 19, they will suffer more from a financial crisis. In

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that case, they would like to sell their gold in stocks, to survive their living near future.

Why gold prices have been rising before and during COVID 19- A Debate

Much before COVID 19's impact reverberated across economies and led to a crash in global stock markets, gold prices had started their upward glide since May 2019 to culminate into a nearly 40% jump in less than a year, from$1250 (an ounce) to around $1700 (an ounce) plus now. The present gold price in India are even higher, as they jumped from around Rs.32,000 per 10 grams to nearly Rs.46,000 per 10 grams during the same period, a nearly 45% return. Since gold is mostly imported commodity into India, the depreciated of the rupee vis-à-vis the US dollar of around 7% since last September pushed the gold price in India even higher.

Last year, there have been intermittent report based on economic indicators suggesting that the US economy could enter into recession after a record 11 years of economic surge since the global financial crisis of 2008. This expectation of recession sowed the seeds of the gold rally, and the COVID 19 impact, which has virtually led to a shutdown of major economies across the world, added momentum to the rising gold prices as a major global recession now look certain. The nearly 40% crash in benchmark equity indices in the US and India, forced the US fed to announce a record amount of liquidity injection and bond buying programme of more than $3 trillion, and the promise to do more. On March 27, the Reserve Bank of India too cut its key policy rate by 75 basis points and announced liquidity injection of Rs.3.74 lakh crore in the financial markets. Any expansion in the paper currency tends to push up gold price. Apart from this, major gold buying leading central banks of China and Russia over the last two years supported higher gold prices. While stock prices have risen over 20% from March crash levels, supported by record easing by the central banks, gold has resumed its uptrend after falling initially from $1700 an ounce on March 09 to $1450 on March 20. This happened as an extreme reaction of investors to move towards cash.

Is there a trend in rising gold prices?

While gold by itself does not produce any economic value, it is an efficient tool to hedge against inflation and economic uncertainties. It is also more liquid when compared with real estate and many debt instruments which come with a lock-in period. After any major economic crash and recession gold prices continues their upward run.

Analyst in market feel that gold could now overtake the previous peak of around $1900 per ounce. The empirical findings suggest that gold prices fall with a rise in equity prices. Gold prices also move in tandem with heightened economic policy uncertainty, thereby indicating the safe haven feature of the assets, the RBI said in its latest Monetary Policy Report. After the collapse of Lehman Brothers in September 2008 in the US, which led to a worldwide economic crisis, gold prices jumped from around $700 an ounce in October 2008 to peak at around $ 1900 an ounce in September 2011. In the next four years, gold was a steady decline and crashed to nearly $1000 an ounce in December 2015. Between 2015 and 2019, gold in a range of $1000 an ounce and $1350 an ounce, after which it started its steady run.

Figure 1: Where are Gold Prices headed? Combination of Global x Local INR

Gold $/Troy Oz.	USD/INR			
	76	80	84	85
1700	48,025	50,530	53,060	53,690
1800	50,845	53,510	56,180	56,845
2400	67,800	71,340	74,905	75,800
3000	84,750	89,175	93,625	94,750

Source: Quantum AMC

The above figure, helps in predicting the future price of gold.

When the price of gold $/Troy Oz. (31 grams) was $1700 and USD/INR Rate was 76 the gold price was Rs.48,025. When the price of gold $/Troy Oz. will be 1800 and USD/INR 84, the price of gold may be Rs. 56,180. If the price of gold reaches 2400 and the USD/INR reaches 85, the gold price may hit Rs. 75,800.

Here are the reasons for a strong rally in the gold prices:

- Safe-haven appeal
- US-China trade tensions
- Massive stimulus measures from central banks
- Weak US data
- Mining production
- Exchange rate

Factors affecting gold prices

1. **Exchange rate:** An exchange rate is the price of nation's currency in terms of another currency. In other words, it is the rate at which one currency can be exchanged for another.
   Throughout history, many governments used gold to back their currencies, creating a gold standard. However, today, while governments maintain hoards of the yellow metal, none uses it to back their paper money. The U.S. dollar is the benchmark pricing mechanism for the gold. Therefore, there is a special relationship between the price of gold and the value of the currency of the United States.
   Gold is an asset. As such, it has intrinsic value. However, that value can fluctuate over time, sometimes in a volatile fashion. As a rule, when the value of the dollar increases relative to other currencies around the world, the price of gold tends to fall in U.S. dollar terms. It is because gold becomes more expensive in other

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currencies. As the price of any commodity moves higher, there tend to be fewer buyers, in other words, demand recedes. Conversely, as the value of the U.S. dollar moves lower, gold tends to appreciate as it becomes cheaper in other currencies.

Presuming that dollar price of gold remains constant, the price of gold in Indian Rupee increases when Indian Rupee depreciates (exchange rate = INR/USD rises) and if the Rupee appreciates (exchange rate = INR/USD falls), the price of gold decreases. This means that if the international price of gold remains constant, the gold price in INR has an inverse relation with INR or we can say a direct relationship with the exchange rate. Also, as shown by numerous studies done previously, gold prices generally move up when USD depreciates against other currencies.

Therefore, gold prices have a negative relationship with the domestic currency (here, INR), or in other words gold prices bear a positive relationship with the exchange rate.

2. **Inflation:** Inflation is defined as a sustained increase in the price of goods and services. Over time, it erodes the value of a nation's currency. In other words, it erodes purchasing power. For years, gold has been considered a store of value. As a physical commodity, it cannot be printed like money, and its value is not impacted by interest rate decisions made by a government. Because gold has historically maintained its value over time, it serves as a form of insurance against adverse economic events.

Therefore, theoretically speaking, it can be said that rising inflation drives up demand for gold, which in turns increases gold prices.

3. **Interest Rates:** Many people believe that the price of gold is inversely related to interest rates. However, it is only partially true. In fact, gold prices are driven not by nominal rates (which are not adjusted for inflation), but by real rates (which are nominal rates adjusted for inflation).

4. **Personal Disposable Income**: According to a report by the World Gold Council, annual data from 1990 to 2015, revealed two significant factors affecting gold consumer demand (jewellery, and bar and coin combined) over the long-term. "All else being equal, gold demand is driven firstly by, income i.e. gold demand is seen to rise with income levels. For a 1 percent increase in income per capita gold demand rises by 1 percent and secondly, gold price level i.e. higher prices deter gold purchases. For a 1 percent increase in prices, the demand for gold by 0.5 percent."

5. **BSE SENSEX**: There exists an inverse relationship between Sensex and gold prices. Logically speaking, when investors perceive a bullish trend the stock market, they choose to invest more in stocks to benefit from even higher stock prices in the future. Because of this shift in preference, the demand for gold falls, thus bringing down gold prices. Conversely, when the stock market declines and investors expect this bearish trend to continue for some time, they prefer to invest their surplus funds in safe haven assets like gold, thus driving up the demand for gold and pushing up gold prices. It implies that there is an inverse relationship between gold prices and Sensex.

6. **Demand & Supply:** Gold price is much dependent on the demand and supply pattern of gold in India. When the demand for gold increases the price also increases and vice versa. In India gold is one such scare commodity whose demand has consistently been high since past so many years which is the main reason for increase in price of the yellow metal.

7. **International price of gold:** India being the second largest consumer of gold in the world imports around 800-900 tonnes of gold every year. Therefore, the international price of gold, which is dependent on various global factors, will directly affect the price of gold in India as well.

8. **Import duty:** we do not produce gold therefore it is imported from abroad. Fluctuations in gold price in India is also due to the change in import costs. This year, the hike in import duties on gold to curb the imports by Indian government has made the yellow metal more expensive in India.

9. **Government reserve:** Government holds reserve in the form of both paper currency and gold. When RBI start holding gold reserves and procuring more gold, the price of gold goes up. This is because the flow of cash in the market is increased while the supply of gold goes down. Gold Reserves in India remained at 557.77 tonnes in the second quarter of 2017.

10. **Seasonality:** in India, demand for gold during festivals, marriages and other auspicious occasions is higher. Therefore, prices tend to be higher during these times.

V. RESEARCH DESIGN

A descriptive type research combined with exploratory study the **"Impact of Ongoing COVID 19 Pandemic Scenario on Gold Metal"** defines the study is based on evaluation of changes in the price of gold due to ongoing situation. This study also evaluates the change in price of gold over the period of last 10 years. In this report efforts are made to know that whether external factor like GDP, Inflation, and Forex influences the gold price to increase or decrease. So, to check the relationship between gold price and GDP, Inflation, and Forex statistical tool is used like correlation and regression

- To study the demand for gold in Indian stock market.
- To study and analyse the impact of external factors like GDP, Inflation and Forex on gold prices.

SAMPLE SIZE

- Secondary data

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The study is undertaken by using gold prices for the period of last ten years and the information relevant to this was also calculated for ten years.

- Primary data

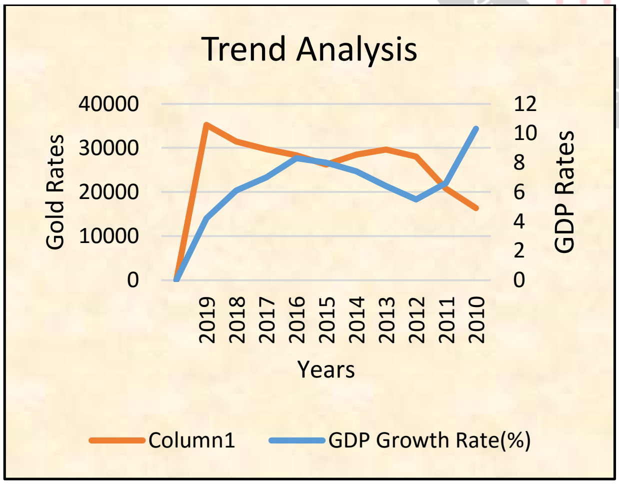
  The primary data was collected from the 60 despondences through questionnaire regarding investment avenues in gold and from ten jewellers to know the impact of COVID 19 on their business.

DATA ANALYSIS AND INTERPERTATION

Table 1 Showing GDP growth and Gold price

Year	GDP Growth Rate (%)	Gold Prices(10gram,24Karat)
	X(Independent)	Y(Dependent)
2010	10.3	16,320
2011	6.6	20,775
2012	5.5	28,040
2013	6.4	29,610
2014	7.4	28,470
2015	8	26,245
2016	8.3	28,340
2017	7	29,667
2018	6.1	31,438
2019	4.2	35,220

Graph 1 : Trend analysis for GDP and Gold price



The graph above, shows a negative correlation between GDP and Gold prices is -0.76;

The r calculated value is compared with Pearson Correlation Table value which is 0.60, for df (i.e., n-1 =10-1) and at 0.05 level of significance. Therefore, r calculated value is less (negative) than the table value the null hypothesis is accepted and hence conclude that there is a negative correlation between GDP rates and gold prices.

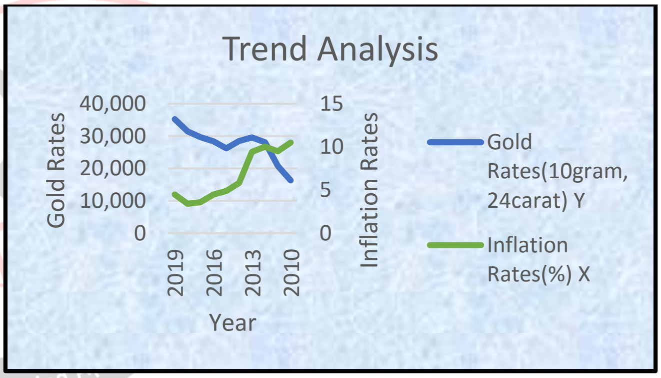
The regression show a value of 0.57 which indicates 1 % change in Gold prices affects the GDP by 57%. The ANOVA shows that there is no significant correlation between Gold price and GDP. The calculated value is 10.95 and table value is 19.38 for (2, 9) and at 0.05 level of significance. Hence, the null hypothesis is accepted.

INFLATION RATE

Table 2: Showing Inflation rates and Gold prices

Year	Inflation Rates (%)	Gold Rates(10gram,24Karat)
	X	Y
2019	4.5	35,220
2018	3.4	31,438
2017	3.6	29,667
2016	4.5	28,340
2015	4.9	26,245
2014	5.8	28,470
2013	9.4	29,610
2012	10	28,040
2011	9.5	20,775
2010	10.5	16,320

Graph 2: Trend analysis for Inflation rates and Gold price



CORRELATION

	X	Y
X	1	
Y	-0.656538533	1

In the above graph, it is observed that there is a negative correlation between GDP and Gold prices is -0.76;

The r calculated value is compared with Pearson Correlation Table value which is 0.60, for df (i.e., n-1 =10-1) and at 0.05 level of significance. Therefore, r calculated value is less (negative) than the table value the null hypothesis is accepted and hence conclude that there is a negative correlation between GDP rates and gold prices.

The regression analysis shows a value of 0.57 which indicates 1 % change in Gold prices affects the GDP by 57%.

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The ANOVA shows that there is no significant correlation between Gold price and GDP. The calculated value is 10.95 and table value is 19.38 for (2, 9) and at 0.05 level of significance. Hence, the null hypothesis is accepted.

INFERENCE:

- The correlation between Inflation and Gold prices is -0.65;
- r = -0.65
- Inflation rate is negatively correlated with gold prices with the influence of -0.65, it shows the reverse relation between the factors.
- Hypothesis for correlation

  From the correlation analysis performed it was found that the calculated value is -0.65, which is negative correlation.

  The r calculated value is compared with Pearson Correlation Table value which is 0.60, for df (i.e., n-1 =10-1) and at 0.05 level of significance. Therefore, when the r calculated value is less than the table value the null hypothesis is accepted and hence conclude that there is a less correlation between Inflation rates and gold prices.

Regression

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.656538533
R Square	0.431042845
Adjusted R Square	0.359923201
Standard Error	4282.800905
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.11E+08	1.11E+08	6.060813	0.039204
Residual	8	1.47E+08	18342384		
Total	9	2.58E+08			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	35481.11824	3546.238	10.00529	8.45E-06	27303.48	43658.76	27303.48	43658.76
X	-1220.668418	495.8294	-2.46187	0.039204	-2364.05	-77.2838	-2364.05	-77.2838

INFERENCE

- R square = 0.4310

  The R^2 value 0.6565 indicates that Inflation influences the Gold prices by 43.10%
- Multiple R = 0.6565

  Here the value of Multiple R shows that (0.65) which is more than 0.5 shows that there is significant relation between Inflation rate and Gold price.

  This analysis also shows that change in inflation rate accounts 43.10% for the variation in gold prices. In addition, it should be noted that increase in inflation rate accounts for increase in investment in gold, as it is an inflation hedge.
- regression Equation Y=1220.6684X + 35481.118
- Inference for Hypothesis using Anova Test

  H0: There is no significant relationship between Inflation rates and Gold prices.

  H1: There is significant relationship between Inflation rates and Gold prices.

  From the Anova analysis performed it was found that the calculated value is 6.06 the f calculated value is compared with the F Distribution table value is 19.38 for table (2,9) and at 0.05 level of significance. Therefore, when the f calculated value is less than the F Distribution table value the null hypothesis is accepted.

- **FOREIGN EXCHANGE RATES (US DOLLAR)**

When the price of gold depreciates the investors outside US will benefited because the dollar price of the gold will increase.

Table 3: Showing Forex rates and Gold prices

Year	Forex Rates (%)	Gold Rates(10gram,24karat)
	USD/INR	
	X	Y
2019	74.18	35,220
2018	70.42	31,438
2017	68.44	29,667
2016	65.12	28,340
2015	67.19	26,245
2014	61.02	28,470
2013	58.63	29,610
2012	53.43	28,040
2011	46.67	20,775
2010	45.72	16,320

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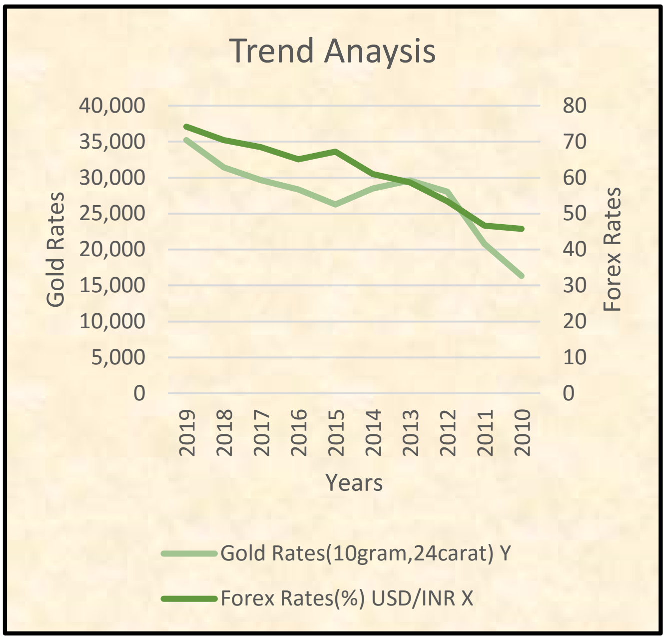
Graph 3: Trend Analysis for Forex rates and Gold price



CORRELATION

	X	Y
X	1	
Y	0.860788	1

INFERENCE

- The correlation between US dollar and Gold price is = 0.86
- r = 0.86
- This means that there is a strong positive correlation between US dollar and Gold price.
- From the correlation analysis performed it was found that the calculated value is 0.86 which shows a very strong and positive correlation.

  The r calculated value is compared with PEARSON CORRELATION TABLE value which is 0.60, for df (i.e., n-l = 10-1) and at 0.05 level of significance.

  Therefore, when the r calculated value is more than the table value the null hypothesis is rejected and hence, we accept the alternative hypothesis and conclude that there is a strong correlation between Forex rates and Gold prices. The Global gold market is directly correlated with Indian Gold market.

REGRESSION ANALYSIS

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.860787918
R Square	0.74095584
Adjusted R Square	0.70857532
Standard Error	2889.848042
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.91E+08	1.91E+08	22.88277	0.001384
Residual	8	66809774	8351222		
Total	9	2.58E+08			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-1136.722672	6037.714	-0.18827	0.855353	-15059.7	12786.27	-15059.7	12786.27
X	467.3917467	97.70725	4.783593	0.001384	242.0784	692.7051	242.0784	692.7051

INFERENCE

- R square = 0.74

The R^2 value 0.74 indicates that US dollar influencing the Gold price by 74%.

- Multiple R = 0.86

  Here Multiple R (i.e., Correlation coefficient) is positive.

  This R value (0.74) which is more than 0.5 shows that correlation is significant.

  Here the value of Multiple R shows that there is significant correlation between the US dollar and Gold price. This tells us that the current scenario of the US dollar does affect the gold price.
- Regression Equation Y= 467.3914X-1136.7226.
- Hypothesis for Anova Test

  H0: There is no significant relationship between Forex Rates and Gold prices.

  H1: There is significant relationship between Forex Rates and Gold prices.

  From the Anova analysis performed it was found that the calculated value is 22.88 the f calculated value is compared with the F Distribution table value is 19.38 for table (2,9) and at 0.05 level of significance. Therefore, when the f calculated value is more than the F Distribution table value, null hypothesis is rejected.

DATA ANALYSIS AND INTERPERTATION FOR THREE MONTHS FROM THE PERIOD OF COVID 19

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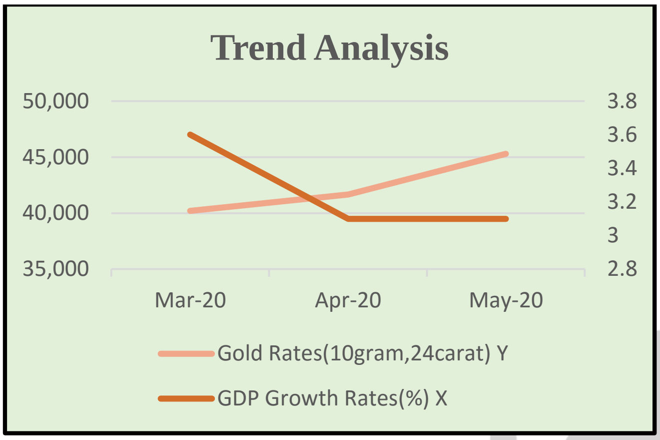
1. GDP

Table 4: Showing GDP and Gold prices for 3 months

Month	GDP Growth Rates (%)	Gold Rates(10gram,24karat)
	X	**Y**
Mar-20	**3.6**	**40,200**
Apr- 20	**3.1**	**41,670**
May-20	**3.1**	**45,300**

Graph4.: Trend analysis of GDP and Gold prices for 3 months



CORRELATION

	X	Y
X	1	
Y	-0.72248	1

INFERENCE

- The correlation between the GDP and Gold price is -0.72
- This means that there is a negative and poor correlation between the GDP and Gold price.
- Hypothesis for correlation

  From the correlation analysis performed it was found that the calculated value is -0.72 which is negative correlation.

  The r calculated value is compared with Pearson Correlation Table value which is 0.60, for df (i.e., n-1 =10-1) and at 0.05 level of significance. Therefore, when the r calculated value is less than the table value the null hypothesis is accepted and hence conclude that there is a less correlation between GDP rates and gold prices.

REGRESSION

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.722477237
R Square	0.521973358
Adjusted R Square	0.043946715
Standard Error	2566.797616
Observations	3

ANOVA

	Df	*SS*	*MS*	*F*	*Significance F*
Regression	1	7194150	7194150	1.091934	0.486007
Residual	1	6588450	6588450		
Total	2	13782600			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	63852	20592.05	3.100808	0.198604	-197795	325498.8	-197795	325498.8
X	-6570	6287.344	-1.044996	0.486007	-86458.3	73318.29	-86458.3	73318.29

INFERENCE

- R Square = 0.52

The R^2 value 0.52 indicates that GDP influencing the Gold price by 52%.

- Multiple R = 0.72

Here Multiple R (i.e., correlation coefficient) is positive

R is 0.72 which shows that there is correlation between GDP and Gold price but is more than 0.5 which shows that correlation is significant.

- Regression Equation Y= -6570X+63852.

INFLATION RATES

Table 5: Showing Inflation rates and Gold prices for 3 months

Month	Inflation Rates (%)	Gold Rates(10gram,24karat)
	X	**Y**
Mar-20	**5.5**	**40,200**
Apr-20	**5.45**	**41,670**
May-20	**5.1**	**45,300**

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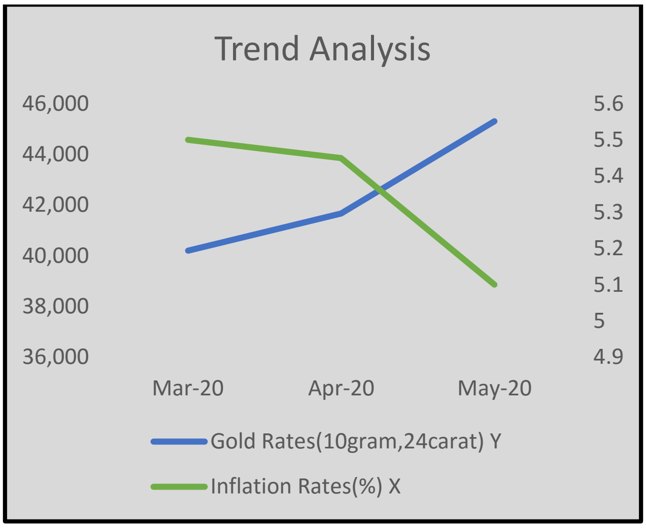
Graph 5 :Trend analysis for Inflation rates and Gold prices for 3 months



CORRELATION

	X	*Y*
X	1	
Y	-0.9857839	1

- The correlation between Inflation and Gold price is -0.98
- r = -0.98
- This means that there is a negative and poor correlation between the Inflation and Gold price.
- Hypothesis for correlation
  From the correlation analysis performed it was found that the calculated value is -0.98 which is negative correlation.
  The r calculated value is compared with Pearson Correlation Table value which is 0.60, for df (i.e., n-1 =10-1) and at 0.05 level of significance. Therefore, when the r calculated value is less than the table value the null hypothesis is accepted and hence conclude that there is a less correlation between Inflation rates and gold prices.

VI. REGRESSION

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.9857839
R Square	0.971769898
Adjusted R Square	0.943539795
Standard Error	623.7661505
Observations	3

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	13393516	13393516	34.42318	0.107473
Residual	1	389084.2	389084.2		
Total	2	13782600			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	105914.2	10833.13	9.776881	0.064889	-31733.7	243562.2	-31733.7	243562.2
X	-11873.7	2023.765	-5.867113	0.107473	-37588.1	13840.68	-37588.1	13840.68

INFERENCE

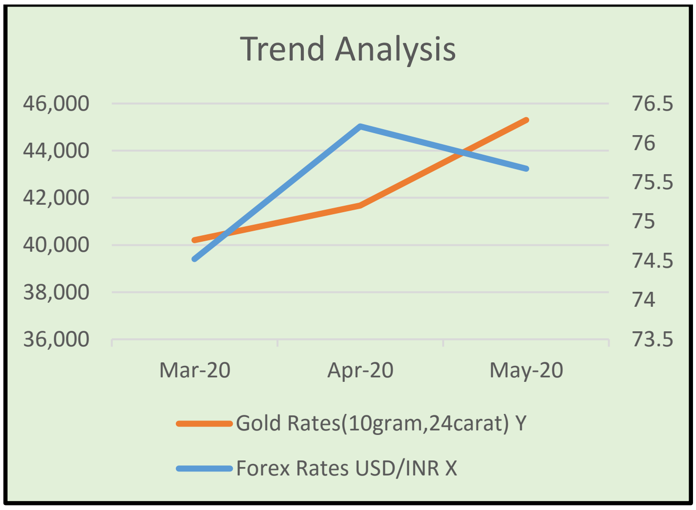
- R Square = 0.97
  The R^2 value 0.97 indicates that Inflation influencing the gold price by 97%
- Multiple R = 0.98
  Here the value of Multiple R shows that (0.98) there is a significant relation between Inflation and Gold price. This analysis also shows that change in Inflation rate accounts 97% for the variation in gold price.
- Regression Equation Y= -11873.7X+105914.2.

3. FOREX RATES

Table 6 : Showing Forex rates and Gold prices for 3 months

Month	Forex Rates	Gold Rates(10gram,24carat)
	USD/INR	
	X	Y
Mar-20	74.52	40,200
Apr-20	76.21	41,670
May-20	75.67	45,300

Graph 6 : Trend analysis for Forex rates and Gold prices for 3 months



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INFERENCE

- The correlation between US dollar and Gold price is = 0.46
- r = 0.46
- This means that there is a weak positive correlation between US dollar and Gold price.
- Hypothesis for correlation
  From the correlation analysis performed it was found that the calculated value is 0.46 which is negative correlation.
- The r calculated value is compared with Pearson Correlation Table value which is 0.60, for df (i.e., n-1 =10-1) and at 0.05 level of significance. Therefore, when the r calculated value is less than the table value the null hypothesis is accepted and hence conclude that there is a less correlation between Forex rates and gold prices

REGRESSION

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.469948
R Square	0.220851
Adjusted R Square	-0.5583
Standard Error	3276.995
Observations	3

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	3043905	3043905	0.283452	0.688545
Residual	1	10738695	10738695		
Total	2	13782600			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-65471.9	202603.5	-0.32315	0.801018	-2639794	2508850	-2639794	2508850
X	1429.265	2684.559	0.532402	0.688545	-32681.3	35539.82	-32681.3	35539.82

INFERENCE

- R square = 0.22

The R^2 value 0.22 indicates that US dollar influencing the Gold price by 22%.

- Multiple R = 0.46
  Here Multiple R (i.e., Correlation coefficient) is positive.
  Here the value of Multiple R shows that there is significant correlation between the US dollar and Gold price. This tells us that the current scenario of the US dollar does affect the gold price.
- Regression Equation Y= 467.3914X-1136.7226.

VII. FINDINGS

Part 1: Findings related to primary data:

- It was found that there is the positive correlation between Forex rates and Gold prices which denotes about the positive relationship between the factors, in other words it can be consider like whenever market increase the gold price also increases.
- Though the correlation analysis has indicated a negative relationship between Inflation rates and gold prices, regression analysis confirms that there is very significant relationship between the two.
- Gold rates have negative relationship with GDP, this denotes that to whatever extent the GDP rates had been, it does not affect the price of gold.
- The correlation between Forex rates and gold prices resulted to be the highest among other factors; this is because of usual relationship between currency and gold.
- GDP have moderate influence; it will contribute to the gold price changes but the influences will be less compared then the market factors.
- Inflation influencing the gold price less compared then other factors.
- Hypothesis Assumed for correlation ($H_0 1$):
  i. Gold prices do not depend upon GDP rates.
  ii. Gold prices do not depend upon Inflation rates.
  iii. Gold prices depend upon US dollar.
- Hypotheses Assumed for Anova test (H01):
  i. Gold prices do not depend upon GDP rates.
  ii. Gold prices do not upon Inflation rates.
  iii. Gold price depend upon US dollar.

Part 2: Findings for secondary data:

- 66% of respondents (consumer of gold) say that COVID 19 is affecting their decision making in purchase of gold.
- 45% of respondents say that due to COVID 19 their investment in gold has drastically come down.
- 41% of respondents think that external factors have affected the gold price.
- 20% of respondents say Forex influence the gold prices.
- 50% of jewellers say that their business is affected by the ongoing COVID 19 Pandemic.

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- 60% of jewellers say that the ongoing COVID 19 Pandemic may still have larger impact on their business in coming days.
- 40% of jewellers say that due to COVID 19 Pandemic there is variation in gold prices.

VIII. CONCLUSIONS

The study explores the critical analysis made by the stock market experts regarding the trend of gold market, the reasons to highlight as to what are the reasons to exhibit as to why the gold prices can be head higher in future.

The experts have exhibited 4 reasons to explain the heading of gold prices higher:

The first reason is associated to ongoing pandemic COVID 19 due to which the world slips into a recession period, economic slowdown, destruction of jobs, interest rate slashes. Unprecedented money printing by Central banks is leading to currency debasement which is bullish for gold.

The second reason is the weakening of dollar, which has, in turn led to many problems, causing soaring global debt making the dollar more vulnerable. Many experts also predict that there would be, to some extent end in dollar dominance. The Central Banks have been strategically bolstering their gold reserves since 2009 and reduce their higher reliance on the US dollar. Gradually it is observed that banks in US are moving away from dollar towards gold.

The third reason is a long-term rupee depreciation. Due to the sluggish economy, the rupee has been depreciating for long. To compensate this, central bank is managing higher reserves in form of holding more US dollar as a backing.

The fourth reason is that not only Central Bank Government is indulged in providing a platform for investing in gold, investors are partnering in investing gold.. Since, there is a bright opportunity in gold investment through various avenues like Gold ETFs and Sovereign Bonds. Investors and Government can enhance the investments in gold and infuse money into the stock market with wise decisions. The pitfall that gold remains an under-owned asset needs to be overcome.

These are the reasons for increase in gold prices as rightly put by stock market experts:

- Economic slowdown causing investors to look for safe havens
- Impact of rupee-dollar equation
- Global Recession
- Change in crude oil price
- Investors cautious on equities
- Key interest rates remain low

The overall learning experience of the study is focussed on 3 major areas:

1. To understand the scenario of gold market in global world.
2. To understand the gold prices over the past for ten years.
3. During the pandemic how did the gold price react in the Indian stock market?

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