EXPLORING THE INTERRELATIONSHIP BETWEEN GOLD PRICES AND INFLATION

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St. Teresa's College (Autonomous), Ernakulam

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In partial fulfilment of the requirement for the degree of

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BY

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ST. TERESA'S COLLEGE (AUTONOMOUS),

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THE FEAR OF THE LORD IS THE BEGINNING OF WISDOM

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DECLARATION

I hereby declare that the Project titled ***"EXPLORING THE INTERRELATIONSHIP BETWEEN GOLD PRICE AND INFLATION"*** submitted by me for the M.A. Degree in Economics is my original work and this work has not been previously formed the basis for the award of other Academic qualification, fellowship of other similar title of any other University or board.

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CHAPTER 1
INTRODUCTION

1.1 INTRODUCTION

Gold, a chemical element, has long been regarded as a precious metal of intrinsic value, serving both as a medium of exchange and as a store of wealth across civilizations. It is considered not only as a luxury good, but also as a stable asset that symbolizes financial strength of the economy at times of uncertainty. Its major characteristic features including its perpetual durability, universal acceptance, increasing demand, scarcity, etc. multiply its importance in every economy. It is immersed in India, both in economical and cultural aspects symbolizing power, wealth and financial stability. Therefore, it occupies high relevance and significance in the growth of our country.

Gold in India is considered more than a cultural asset and hence India remains one among the largest consumers of gold. Beyond a cultural treasure that is ingrained in rituals and traditional practices, it acts as a stable asset symbolizing wealth, prosperity, and financial security. Rising demand of gold in India amidst of its leaping price is driven by its versatile nature. Gold, both in financial and digital form is widely used as symbol of prosperity and good fortune, jewellery, family wealth, power, financial strength, saving instrument, etc. Therefore, gold possess exceptional position in India. It acts as economic, social, and cultural preference by Indian households, markets, investors, and government.

From an economic frame of reference, physical gold and its role is relevant in Indian economy. India, a rising economic power encounter with recurring bouts and threats of global fluctuations and macroeconomic shocks. Hike in Inflationary pressure, fluctuating crude oil prices, depreciation of Indian currency, high demand of gold with shortage in supply, etc. elevates the worth of gold. In the context of these uncertain events, and constantly rising prices, demand for gold is escalating. Even at the time of financial instability, demand for gold rises, reveal it as a safe haven asset. Therefore, gold exhibits itself as an effective hedge against inflation, at the time of global uncertainty and macroeconomic shocks. Since India is a growing, large economy, gold as a financial stabilizer holds high significance.

Though gold is highly rooted into Indian economy and its culture, magnitude of its significance cannot be fully analyzed without examining the major macroeconomic challenge, Inflation. Inflation, closely associated with gold and its prices in general is described as persistent rise in the general price level of goods and services in an economy. As Inflation result in the continuous rise in general price level, it is often regarded as a threat to the growth of the economy. Inflation in India is distinguished in two- demand driven inflation and supply or cost driven Inflation. These dualistic characteristics of inflation if neglected, can induce high pressure on households, markets, investors and government and ultimately suppress the economy in long run. Therefore, Inflation in India has long been a pressing economic concern that threatens the stability of households, markets, investors, policymakers, and government.

Since India is a consumption driven economy and a significant portion of India still depends on agricultural outputs, fertilizers, and energy imports, etc. induces vulnerability to long term inflationary trends. India’s dependence on crude oil imports results in import Inflation. Currency depreciation, global volatility, geopolitical tensions intensify the impacts of inflation. Long run leap of inflation rate erodes real income, deteriorate purchasing power, and depreciate the value of money. Hence, households and investors are forcing individuals and investors to seek for alternative avenues to safeguard their wealth. Therefore, inflationary pressure tends to compel economic agents to transfer their wealth and savings to tangible assets like gold and real estates.

Inflation is therefore a substantial macroeconomic complication that act as a hindrance to balanced growth of an economy. International conflicts, geopolitical tensions, currency depreciation, global economic volatility, altered monetary policy, etc. lead to the hike in inflation. Diligent tracing and proper management of inflation is therefore necessary for an emerging economy like India. The Government of India and the Reserve Bank of India, together monitor and systematically manage Inflation in our country. Since it is one among the major economic concern that hinder the growth of the economy, both authorities systematically monitor and manage Inflation rate fluctuations. Amidst these macroeconomic challenges like, international conflicts, supply disruptions and structural challenges, complicates the management of fluctuating inflation rate. RBI plays an integral role in monitoring and managing Inflation in the economy. Inflation targeting is one among the major steps by RBI. Since 2016, RBI policy regime targets inflation rate to fall within a favorable limit between 2% to 6%. India successfully managed to maintain inflation within the safe band except at the times of global uncertainties like COVID-19 Pandemic, Russia- Ukraine war, and sudden crude oil price hike. Important reason behind the inflation limit band is to protect the purchasing power of households and to increase investments.

The study on interrelationship between inflation rate and gold prices is therefore significant in emerging economies like India. India is one among the rapidly industrializing market in the world and is driven by demand. Steadily expanding demand for gold as an investment amidst of escalating inflation rate is unusual according to the law of demand. Gold being a luxury good that act both as cultural and economic symbol holds everlasting significance in Indian economy. Though inflationary pressure increases its price, households and investors demand more of it. Even at the times of global market turbulences and economic downturns investments in gold show no downfall. And this increases its value. India even witnessed investors switching their investment preferences to gold as a part of risk aversion at the time of recession.

When long run inflation acts as a complex phenomenon in the economy, it results in the hike of price of goods and services. Inflation and other economic factors result in the escalation of gold price. Demand remains high proving gold as a safe haven asset and an effective hedge against inflation. When Inflation shrinks the real income purchasing power of households, and the value of currency, gold became the most preferred asset in the market as it safeguard the wealth of investors.

Price of gold is generally influenced by a number of varied economic and cultural factors like traditional practices, jewellery demand, shortages in supply, global economic fluctuations, crude oil price hike and currency depreciation. In India, gold price fluctuation is incessantly influenced by inflation rate. The economic literature indicates a weak but positive dependence of gold price on inflation rate. The moderate positive relationship between the two variables reveals the existence of interdependence. The positive correlation between the variables underscore the necessity of systematically exploring the interrelationship between gold prices and inflation in the Indian context, where socio-cultural demand drivers overlap with macroeconomic forces. Hence the stability of economy can be restored at the times of uncertain geopolitical risks, economic volatility and help maintaining balanced economic growth.

1.2 REVIEW OF LITERATURE

1. *'What determines the gold inflation relation in the long run?'* is a research article by **Satish Kumar (2017)** that tries to examine and explain the long-term dynamic relationship between gold rate and inflation. Using different indices, the author measured trends in inflation over the study period. He reported no cointegration between the variables. But he highlighted a significant interdependence between the variables in long run.

   The author therefore used both the Johansen's cointegration technique and time-varying regression method. Using Kalman filter technique in econometrics studied the variables and proved the long run relationship between gold and inflation. The result thus explains that gold is sensitive and can be examined by effective exchange rate and interest rates.

2. *'The Relationship Between Inflation and Gold Price: Evidence from Sri Lanka'* written by **Anandasayanan, Sarathadevi and Thevananth, Janani and Amaresh, Mathuranthy (2019)** is an article that studied the interrelationship between inflationary pressures and gold price. It evaluated whether gold price and inflation are dependent on each other. The study conducted highlights the fact that gold is one among best investment options existing to preserve both purchasing power and wealth. The study also highlights the results proving gold as an effective hedge. Even though gold price depends on inflation, there are many other economic and cultural factors that affect the fluctuating prices of gold.

   Therefore , the major objective helps in exploring the interrelationship between gold rate and inflation, examine the correlation, and explain reasons for the strong and positive correlation between the same.

3. *'An Empirical Study on Factors Influencing Gold Rate in India'* is an article by **Ravi Kumar Bommisetti, Sree Lakshmi Moorthygari, K Rajesh Kumar, Sirisha Charugulla, & Shaiku Shahida Saheb. (2024)** which aim to identify and study, the major factors that continuously and consciously affect the change in price of gold in Indian markets. The authors used a comprehensive methodology that combines both market-specific and macroeconomic data and analyze the trends and evolution in gold price in Indian context by pinpointing the crucial elements like inflation, global market trends, interest rates, governmental regulations, local demand trends, etc.

The authors specially mentioned the possessive nature of Indians towards gold as a treasured possession and the treatment of gold as an inevitable asset of Indian homes due to its high value, increasing price and tuneless worth. Since, India is one among the largest customer of gold, the gold market in India is prone to get affected easily by both domestic and global trends.

4. *'Gold and inflation(s) – A time-varying relationship'* is a journal article published in Economic Model by **Brian M. Lucey, Shafik S. Sharma, and Samuel A. Vigne (2017)** and it clearly mentions the relationship between the gold rate and inflation, measures towards inflation rate, and the stability trends among the same. Examining three powerful countries of the world, they applied a formal test of time variation for extracting the interrelationship between the two variables.

   They also mentioned theoretically two possibilities that could happen if gold is treated either as an international currency or just as a regular asset. The study also indicates that if inflation result in rising cost of extraction of gold, gold rate also rises proportionally at same rate and hedge inflation.

5. *'A study on various factors impact on the gold price in India'* is a peered reviewed journal article published in Asian Journal of Economics, Business and Accounting by **Nisarga, M., & Marisetty, N. (2023)** Particularly aimed at examining the major elements that influence gold price in our country. According to them, gold being a cultural symbol of India, it is important to understand the leading causes and study the variables causing changes in gold price pattern. The study examined various other factors like governmental influences, change in demand patters, seasonal influences etc.

   The major objectives of the authors were to examine the descriptive statistics of abovementioned variables and to study the correlation and other relations among variables. Additionally, they evaluated the performance and trends among Indian Stock Market platforms which in turn indicated a complex relation with gold rate in India and even highlighted the fluctuations in bank rates set by the apex body, RBI.

6. *'Gold Price and Inflation Relationship in India: Empirical Study'* by **Ramesh Kumar (2023)** is an article that conducted an empirical study investigating the interrelationship between inflation and gold rates in Indian context. According to him, in India, Gold is considered both as asset and as a cultural symbol. Since Gold holds a unique position in

India market as well as in Indian culture, the article tries to explore the changes in gold price due to inflation and global economic trends. The study also involves some key indicators like exchange rates, trade deficits, change in crude oil prices, etc. to analyze the relationship between gold rate and inflation.

The study thus reveals the complex and multifaceted relationship between gold and inflation in India by highlighting the factors like economic variables, cultural indicators, etc. The study concludes by highlighting the importance of gold, its cultural importance and also, its role as hedge against inflation.

7. *'Investigating gold investment as an inflationary hedge' by* **Narinder Pal Singh and Navneet Joshi (2019)** is a research paper published in a peer-reviewed academic journal named Business Perspectives and Research. The article highlights the association of Indian culture and gold. Gold being the favored investment avenue that provides liquidity, India is one among the largest consumer of gold.

   Within the sample period 2011-2017, the study intended the investigation of relation between gold and inflation and analyzed the possibility of gold to hedge against inflation. Using the tools like consumer price index (CPI), Johansen's cointegration approach, using vector error correction model (VECM) and Wald test, etc., it investigates gold investment as an inflationary hedge.

8. *'Forecasting gold price and inflation for India and US: An analysis of ARIMA and Holt Winters models'* by **Khetan et al. (2024)** is an article that tried to forecast the relation between gold rate and inflation in India and US using ARIMA and Holt Winters Models. It evaluated the continuous rising pattern of gold rates has resulted from the global uncertainties like international conflicts, pandemics, wars and supply chain disruptions etc. The study integrated the interdependence of the variables with the help of official data from year 1960 to 2020. Using the autoregressive methods it also helps to analyze the gold price fluctuations of both developing and developed countries like India and United States. Therefore they explained the fluctuations in price and helped in forecasting the variables. They concluded gold as the vest possible tangible investment in India.

9. *'Monetary policy uncertainty and gold price in India: Evidence from Reserve Bank of India's Monetary Policy Committee (MPC) review'* is a review written by **Imlak Shaikh**

and Pratyush Vallabh (2022). It examines the importance, effects and consequences of monetary policies implemented by the RBI. The review observed nearly 100 monetary policy committee meetings, government implemented policies and monetary regulations for 15 years from the year 2005 to 2020. They also highlight the importance of INR/USD exchange rates. The negative relationship between Indian gold market and rise in policy rates were evident from MCX futures and spot markets.

The study observed nearly 100 monitory policy announcements along with daily fluctuating gold rates and attempted to analyze the interrelationship of Indian gold market and monetary policies. The statistical results highlight that policy rates affect gold prices and hence a strict policy can lead to the decrease in gold price.

10. *'Gold as a strategic prophecy against inflation and exchange rate'* by **Samveg A. Patel (2013)** is a peer reviewed research article which investigates the interrelationship between gold price and inflation and considers gold as a strategic prophecy against exchange rates. The study also examined whether gold act as a hedge against uncertain exchange rates and inflation. With the help of monthly data collected from the database of the Reserve Bank of India on Indian economy examined the long run relation between gold and inflation. The study concludes with the negative relation between gold and inflation which indicates gold as hedge against inflation.
11. *'Impact of Inflation on the Price of Gold Through the Years in India',* is a research article by Dwija **Ghande and Arshad Bhat**. It mentions Gold in India, as both economic and traditional asset that maintains its importance as prestigious, valuable and expensive metal over the years. Applying Distributive Lag Models with annual data of 23 years from 2000 to 2023, the study establishes a strong long term relationship between inflation rate and gold prices in our country. The study also mentions the macroeconomic indices like Per Capita Income, exchange rate fluctuations, etc. as the factors that has influences on this long run positive relation between the variables.

   Therefore, the study proves the positive correlation between gold prices and inflation rate in India and hence establishes the reliability of gold as an effective hedge at the time of inflation al pressures.

12. *'Investigating gold investment as an inflationary hedge'* is an empirical research article authored by **Narinder Pal Singh and Navneet Joshi** published in Business perspective

and Research. It explored the reliability of gold as an effective hedge and proved the longterm causality between gold price and inflation. The study used Johansen's cointegration approach, Vector error correction methods along with Wald test with annual data from 2011 to 2017.

Though study emphasize low causality between the variables in short run, they proved that in long-run, gold is a safe investment that acts as an effective hedge against inflation.

13. *'Gold as an inflation hedge?'* by **Dipak Ghosh, Eric J. Levin, Peter Macmillan and Robert E. Wright** is a journal article, published in Studies in Economics and Finance examined both short-term and long-term effectiveness of gold as safe hedge against inflation. They analyzed monthly data from 1976 to 1999, using various econometrics measures like covariance, cointegration analysis, regression analysis, and error correction models and infer the existence of long-term, strong, positive interrelationship of gold with inflation.

    The result of the study therefore suggests a reliable long-term relationship between the variables , making gold as a safe investment option.

14. '*Gold as inflation and exchange rate hedge: The case of India'* by **Amrendra Kumar and Vikash Gautam** is a research article that examines the effectiveness of gold as a hedge against inflation and exchange rate. The study analyzed both short-term and long-term relationship between gold price and inflation using time series data and econometric techniques like cointegration analysis, regression analysis, etc.

    Therefore, authors concluded gold as a leading choice as risk hedge against inflationary pressures and hence proved the effectiveness of investment in gold under economic uncertainties.

15. **Tripathi, Parashar and Singh** in 2014, authored their study titled *'Global Factors and Gold Price in India: A Causal Study'* which identified and examined the influence of global economic variables and their fluctuations on gold price over the years in Indian Economy. The objectives of the study extend to determine the causal impacts of macroeconomic indices on gold price fluctuations.

    The statistical techniques like correlation, regression and causality analysis revealed a long-term string linkage between gold prices and global economic factors. Therefore, the analysis highlights the influence of global factors that affect gold prices, other than domestic demand.

1.3 STATEMENT OF THE PROBLEM

Gold has long been regarded as a safe haven asset, valued for its ability to preserve wealth in times of uncertainty. In India, the significance of gold extends beyond culture and tradition, reflecting its role as a key financial instrument in safeguarding household savings and providing a sense of security against inflationary pressures. However, despite this widespread belief, the evidence on whether gold consistently functions as a hedge against inflation remains inconclusive. The volatility of global markets, speculative demand, and policy interventions often distort the gold–inflation relationship, raising important questions about its reliability in both short-term and longterm contexts.

This study aims at examining the interrelationship between gold prices and inflation in India, with particular focus on both short-term fluctuations and long-term trends. It further aims at evaluating the hedging effectiveness of gold, seeking to determine whether it provides consistent protection against inflation or only under specific economic conditions. By addressing this problem, the study contributes not only to academic discourse but also offers valuable insights for investors, households, and policymakers. In doing so, it seeks to bridge the gap between theory and practice, providing a clearer understanding of gold's role in India's evolving financial landscape.

1.4 OBJECTIVES:

1. To examine the short-term and long-term relationship between gold prices and inflation rates.
2. To evaluate the hedging effectiveness of gold against inflation.

1.5 THEORETICAL FRAMEWORK

1. Keynesian Liquidity Preference theory

Liquidity preference theory propounded by John Maynard Keynes is an important theory in economics that explains why individuals and the investors always prefer to hold liquid assets over other non liquid ones specially during the time of uncertainties. Theory assume that investors prefer to invest in the most liquid investments like cash or gold. When monetary policies expand inflationary pressure will rise beyond the limit and the general price level in the economy increases reducing the purchasing power of these agents. When the economic agents lose their confidence in paper currency as its declined purchasing power they shifts their preference towards tangible physical assets like gold . This is because of the low effectiveness of gold and other metals toward inflation compared to cash. Therefore according to Keynesian theory, increased demand for gold lead to higher inflation and hence economic uncertainties can arise in economies.

2. Quantity Theory of Money

Quantity Theory of Money developed by Irving Fisher and Milton Friedman also called the monetarists theory. According to this theory, increase in supply leads to increase in the general price level of that economy. Therefore, increase in inflation rate in an economy results from increase in money supply. And when inflation increases it reduces the value of money. Therefore the currency of the home country depreciates. When money value depreciates investors change their preference of investment towards tangible assets like gold. Hence the price of gold increases as Inflation rise.

3. Purchasing Power Parity Theory

Purchasing power parity theory, one among the important theory that explains about the exchange rate determination. It shows how exchange rate between different currencies are fixed and explains how inflation between countries influence both inflation and price of goods using purchasing power of a country. Theory help to compare the relative value of different currencies based on the idea that two currency have same purchasing power for same good in two countries where there is different inflationary pressures.

4. Modern Portfolio Theory

   Modern Portfolio Theory developed by Harry Markowitz is also called the portfolio diversification theory. It explains about the strategic move of investors to diversify their portfolios as a part of risk aversion. It therefore shows how investment options are diversified by economic agents, in order to maximize the returns for the expected level of risk. The theory mention gold as both an important diversifying asset and an effective hedge against inflation. The theory also highlight the positive correlation of gold with inflation in long run proving it as a effective hedge against inflation.

5. Demand pull inflation

   Demand pull Inflation is a type of inflation arising from increase in demand. It can be applied to the price of gold. When there is uncertainties in the economy, investors change their preference to gold as it is a safe haven asset. When the demand of gold increases the price of gold also increases creating Inflation in the economy.

1.6 SIGNIFICANCE OF THE STUDY

Both gold rate and inflation holds vital importance in an economy and therefore the study holds great significance as it examines how fluctuations in inflation rates influence gold price and hence an economy. India being an economy, where gold gains high importance in both cultural and economic aspects, the study serves as an effective understanding about the interrelationship between gold rate and inflation. Since this interrelationship between two factors are significant, understanding this interconnection is crucial for economic growth.

In addition, the study provides profound understanding for investors, policymakers, government, financial institutions, economists, etc. and therefore, helps in assessing the role of gold as an inflationary hedge. These insights provides a deeper understanding in designing monetary policies and fiscal strategies. Moreover, the study invokes knowledge for both investors and households to protect their purchasing power.

1.7 METHODOLOGY

The study adopts a quantitative methodology and have made use secondary data obtained from official data, reports and research articles from official websites of Reserve Bank of India, and the Ministry of Statistics and Programme Implementation. The study is a descriptive paper that has deeply analyzed monthly data of both the variables gold price and inflation rate in India for 10 years from 2015 to 2025. Both data on monthly and average values of both variables are taken from the website report of RBI. The variables inflation was measured using data on CPI Inflation from official websites. And the values of gold price was measured using data on monthly market price.

These collected data is analyzed and interpreted with the help of three methods of interpretation and they are graphical representation, correlation analysis and regression analysis. Graphical representation used to illustrate trends and movement in both inflation and gold prices during the study period. Through visual explanation the trend and direction of variables are observed. To satisfy both objectives and to analyze the relationship between the variables, correlation and regression techniques is applied. Gold price was regarded as the dependent variable and Inflation was treated as single explanatory variable. To explore the interrelationship between the variables, econometric tool like correlation and regression techniques are applied. Correlation analysis used to estimate the strength and direction of dependence between inflation rate and gold prices.

This method of using multiple interpretation methods including both graphical interpretation and econometric tools assisted in quantifying the interrelationship between inflation and gold prices and helped to determine the statistical dependence between them. The study therefore provide with reasonable relationship between the variables and meaningful conclusions of weak but positive significance of inflation on gold price in India.

CHAPTER 2

AN OVERVIEW

2.1 INTRODUCTION

Gold, in India has long been regarded as a leading precious metal with intrinsic value, serving both as an economic asset with store of value and as a cultural asset associated with traditional practices. It has long been regarded as a medium of exchange and therefore, standard for many currencies as gold standard. Apart from its basic characteristics like durability, scarcity and universal acceptance, the intrinsic characteristics include value, purity, royalty, luxury, etc.

Gold in India exist not merely as an economic asset, but occupies an unparalleled position over all other metals as it is deeply connected to Indian traditional practices. Since gold is deeply ingrained in India's tradition, culture and economy, it remains as a symbol of wealth, prosperity, luxury, and even as financial security. Despite the colonial rule and strict restrictions on imports of gold, Gold occupies an ambiguous position in India, its political economy, societal practices, as well as financial practices.

Gold is therefore a noble metal and has successfully acquired a unique position in Indian economy and households. India have been fascinated with the idea of possessing gold since ancient times. Since very long time in history, India has been the largest consumers of gold in the world. Being the most liquid asset, gold continue being the backbone of all the economies as wealth, power, reserves, and security. It has been a safe investment since then, leading to high demand and hike in price.

The average price of 22 carat gold in 2005 were approximately Rs. 5500 per 10 grams. 10 years later in 2015, it was approximately Rs. 26000 and in 2025 it was inflated to Rs. 77300. These historical hike in price of gold indicates continuous increase in the monetary demand of gold in Indian market. The major reasons including increasing demand for gold, decreasing supply of gold, inflationary pressures, currency fluctuations, geopolitical tensions, financial crises, etc. led to historical hike in gold price. The records indicate continuous and steep rise in gold even today, making it an effective hedge against inflation.

Gold has long been regarded as a long-term inflation hedge, where inflation has been defined generally as continuous rise in general price level in the economy. Natural relationship between gold price and general price level is therefore important. Whenever interest rate tends to fall, gold price tends to have a steep. Therefore, inflation rate and gold price have positive relation showing respective increase in gold price as inflation increases.

Inflation is the continuous rise in general price level in an economy and in India, it remains as the most pressing economic concern over the years. In India, inflation is measured using Consumer Price Index (CPI) and Wholesale Price Index (WPI), where CPI measures the changes in general price level of retail prices of goods and services over time, and WPI measures average of wholesale prices of goods in the economy. Though Indian economy is affected by a number of economic factors, inflation remains as the major one effecting the rhythm of our economy. High inflation negatively effect the economy, its growth and even households. Since growth rate of the economy is highly influenced by inflation, Government of India and Reserve Bank of India often take measures to monitor the level of inflation and investigate the trade-off between inflation and growth rate.

The growth rate of Indian economy is evaluated using the indices like GDP, CPI Inflation, etc. which ultimately assess the health of the economy. Since inflation has negative effects on the economy, high inflationary pressure could result in adverse consequences in long run. High inflation could hinder long-term growth level, exports costlier, reduce investment level, effect international trade and finance, etc. Major measures by RBI to control inflation includes both monetary measures and liquidity measures. Monetary measures including Cash Reserve Ratio (CRR), Repo Rate (RR), Reverse Repo Rate (RRR), Bank Rate (BR), etc. and liquidity measures including Statutory Liquidity Ratio hold high influence in the growth of Indian economy.

As a dynamic, developing and a consumption driven economy, inflation remain as the most pressing economic concern of Indian, as it shapes household consumption, investment patterns, overall growth, and stability. India’s vulnerability towards inflationary pressures resulting from the dependence on agriculture, imports of commodities, and other instabilities indicates the need of proper management of Inflation.

While gold act both as an economic and cultural asset, fluctuations in its price cannot be fully understood without being analyzing the most associated macroeconomic factor, inflation. The interrelationship between gold price and inflation is not merely coincidental but helps us to tackle the economic vulnerability within an economy. In the context of steady increase in gold price in India, investor preference towards gold is increasing uncontrollably. As inflation lowers the value of currency and reduces the purchasing power, investors and households are forced to switch their investment portfolios towards the assets that hold high and real values. Hence the economic agents are pushed to prefer gold over other volatile investments. This hike in demand scarcity of gold supply, which ultimately enhancing the power of gold as wealth and make it the most effective hedge against inflation.

Interlinked factors that effect the relationship between gold price and inflation does not change proportionally, but identifying, evaluating and analyzing each factor is important. And hence, healthy growth of the economy, and strong financial stability can be ensured.

2.2 EVOLUTION OF GOLD IN INDIA

India is rich in traditions and cultural practices. This laid the foundation of gold's significance in Indian economy. Gold jewellery and goldsmiths were even mentioned in Vedic literature. Indian tradition of wearing gold jewellery is as old as India. And the concept of wearing gemstones increased the demand of gold jewellery. Apart from the fashion, gold jewellery studded with stone gained significant role in Indian household. Hence India became the largest consumers of gold in the world.

Since ancient times, gold played crucial role in India's economic and cultural traditions. It has evolved through different stages from symbolizing power of the state, to store of value, fashion statement, and a metaphor for financial stability. However, today it also act as an effective hedge against inflation. Therefore, gold continues its position in Indian economy as the most stable investment, liquid asset, cultural symbol, traditional wealth, and as a part of fashion.

2.3 GOLD AS AN INVESTMENT

Both investors and households since very long time been fascinated by the tempt of deep yellow precious metal, gold. More than economic, it is engraved with power, tradition, and religious regard. Gold, in India has long been considered as symbol of wealth, prosperity, power and financial security. Gold has been proven both as an economic and cultural asset in India. It is deeply embedded with Indian culture. It also acts as a powerful economic asset with high value, financial security, reserves, and as an effective hedge against inflation. In economic terms, gold has been regarded as stable asset with high value, an effective hedge against inflation, and as real form of wealth. Hence, Investors and households invest in gold for risk aversion.

Therefore, from cultural perspective, gold hold immense demand in India as it is influenced by cultural and religious practices. It has high demand for auspicious ceremonies like weddings, gifting it as a symbol of blessings and good fortune, etc. it extends it demand as the representation of wealth, financial and social security. From economic perspective, gold in India holds high demand and has long been proven as the most valuable metal, resilient asset, and an effective hedge against inflation. Therefore, the multifaceted characteristics of gold in India make it an irreplaceable asset and dominant investment.

Gold is therefore considered to be the profitable, lucrative and stable investment influenced by both economic, cultural and psychological aspects. Since it is embedded with promised return, it has steadily increased demand in Indian economy. Though, its high demand results in exploding prices, Investors seems it as a worthy investment.

2.4 INVESTMENT CHOICES IN GOLD

Since gold is long proven safe haven asset and an effective inflationary hedge, India still is one among the largest consumers of gold. The use of gold is multifaceted and varies from traditional use to economic use. In a developing country like India, investment choices in gold varies from traditional to contemporary choices.

a. Investment in physical gold
b. Gold ETFs (Exchange Traded Funds)
c. Gold Mutual Funds
d. Digital Gold.
e. Gold Schemes
f. Sovereign Gold Bonds (SGBs)

2.5 IMPACTS OF GOLD PRICE FLUCTUATIONS IN INDIAN ECONOMY

India has been witnessing historical rise in price of gold is one among the economic issues faced by Indian market, Investors and households. The average price of 22 carat gold in 2005 were approximately Rs. 5500 per 10 grams. 10 years later in 2015, it was approximately Rs. 26000 and in 2025 it was inflated to Rs. 77300. This steep hike in price over the years increased the value of gold in Indian market. Gold price and its fluctuations have significant impact on economic growth. Continuous change in price affects the economy in many different ways:

a. Current Account Deficit (CAD): Gold imports have direct impacts on the current account. When gold prices rise, imports become costlier, which will be resulted in a deficit account. And high CAD can adversely affect the economy.
b. Imports become costlier: When gold price fluctuates and increase continuously, imports become costlier. And to maintain a healthy import pattern, government impose fiscal measures through tariffs and quotas.
c. Household savings and investments: Fluctuations in gold price led to uncertainty in the economy. Uncertainty force Investors and households to save more and spend less, which ultimately reduces money circulating in the economy.
d. Inflation and purchasing power: Rising gold price is associated with inflationary pressure. Inflation decreases the purchasing power, which negatively affects the consumption pattern of the economy.
e. Value of currency and depreciation: Increased gold price and inflation tends to decrease the value of Indian Rupee, which results in the depreciation of home currency.
f. Economic growth: Continuous rise in gold price and inflation could hinder economic growth. Though inflation is a macroeconomic factor which influence economic growth, excessive inflation and investment in gold may limit economic growth.

2.6 ADVANTAGES OF INDIAN GOLD. INVESTMENTS

a. Liquidity: Liquidity is one of the significant features of gold. Hence investing in gold ensures liquidity to the Investors. Therefore, gold can be easily bought and sold in market.

b. Traditional and cultural value: Gold in India acts more than an economic asset. It is associated with traditional, cultural and psychological value which creates high demand for gold in Indian market.
c. Stable, and resilient asset: Demand for gold keeps increasing as it has long veen proven as the stable investment option amongst other metals. This makes gold an irreplaceable investment option. Therefore, gold is a safe haven asset.
d. Effective hedge against inflation: During the times if economic instability, gold has been acted as effective hedge in long run. Which makes it a safe haven asset.
e. Diversifying portfolios: Investment in gold helps in diversify investment portfolios and helps in diversify the risks.
f. Symbolizes wealth, power, and financial security: Gold being a safe haven asset and an effective hedge against inflation, it offers financial stability and security.
g. Long-term value appreciation: Since India witness historical fluctuations on gold price, investment in gold offers long-term appreciation and profits.

2.7 FACTORS INFLUENCING PRICE OF GOLD IN INDIA

India has been witnessing historical rise in price of gold is one among the economic issues faced by Indian market, Investors, and households. The average price of 22 carat gold in 2005 were approximately Rs. 5500 per 10 grams. 10 years later in 2015, it was approximately Rs. 26000 and in 2025 it was inflated to Rs. 77300. This steep hike in price over the years are affected by many different factors:

a. Inflation in India: Inflation in India remain as a pressing economic concern over the years. Inflationary pressure negatively influences the purchasing power on the economic agents which affects the consumption pattern of the economy. This rise in general price level influence gold price to increase.
b. Inflationary Hedge: inflationary pressure force the investors to switch the investments to gold to reduce risks, which increases the demand of gold, and hence its price.
c. Fluctuations in currencies and exchange rates: When inflation increases, home currency tends to depreciate. When gold is traded at international level at high inflation in India,

gold price tends to increase creating uncertainty. But, if Indian currency appreciates, gold prices get lowered.

d. Decrease in supply of gold: since gild act as the safe haven asset, necessarily at the time of economic uncertainty, demand for gold increases which would ultimately lead to shortage in supply to meet the increased demand.
e. Geopolitical tensions: Whenever there is political instabilities prevailing, investors opt to avert risk through investing in gold. This results in gild price to fluctuates.
f. Financial market instability: financial crises and unstable economic conditions force the investors to invest in gold in order to minimize the risks of loss.
g. Government policies and import duties: At the time of high inflation and economic instability, government interfere through fiscal policies. Therefore, Import duties and taxes on gold make imports costlier and this increases price of gold.
h. International gold prices: gold is extensively used as an international asset. Therefore, overall economic concerns effect the price of gold in India.

2.8 INTRODUCTION TO INFLATION

Inflation is generally defined as the continuous rise in general price level in an economy. It is therefore, a significant economic indicator that represents continuous leap in price of goods and services in an economy. It is an unpredictable monetary phenomenon that is present in every economy, but consistent high inflation rate negatively effects the economy, its growth and even daily life of its households. It creates uncertainty and hindrance in both growth potential and stability of economies and therefore, it remains as the most pressing economic concern of many developing economies.

As inflation increases, cost of producing goods and services increases, purchasing power decreases, rate of saving falls, ultimately effecting the stability of the economy. Therefore, inflation have influence on purchasing power, consumption pattern, cost of living, investment decisions, financial planning, and overall growth of the economy.

Since growth rate of the economy is highly influenced by inflation, it is necessary to control inflation within a healthy limit. Control of inflation to the prescribed limit can be achieved through different measures and policy controls adopted by authorities of each economy. Through these measures, supply of money, interest rates, consumption etc. are controlled. In India, government and RBI impose control measures using various policies like fiscal and monetary policies. Government imposes fiscal measures altering public spending, tax rate, production, etc. the central bank use monetary measures altering economic tools like bank rate, repo rate, reserve ratios, etc. Hence, controlling Inflation within a limit is crucial for balanced and sustainable economy.

2.9 INFLATION IN INDIAN ECONOMY

Indian economy is influenced by several economic factors. Inflation is the major economic concern that effect the economy of India. It results in continuous increase of general price level. This is an ongoing concern as it reduces both value of currency and the purchasing power of economic agents. Though it is a monetary phenomenon that is present in all economy, high inflation rate creates uncertainty in the economy. High inflationary pressure suppresses the economy by rising general price level, low purchasing power, low investments and savings, leading to slow and unstable growth of economy. Since growth rate of the economy is highly influenced by inflation, controlling Inflation within a limit is crucial for balanced and stable India.

India, there exists different sections of people, rich and poor and different levels of consumption patterns. Therefore, Inflation in India affects different households differently. Inflation related to the necessities affect the poor eroding their ability to our purchase. While inflation related to lifestyle affects rich sections rather than poor sections. The inflation as an overall economic phenomenon fall hard on the poor, rather the rich as it erodes the purchasing power of weaker section. Therefore, the need to control inflation rate within the target limit is important. An unpredictable leap in Inflation rate affects all the economic agents tragically, which would ultimately affect the growth and stability of the economy. During such uncertainties, authorities like government and central bank take policy implications to ensure and restore economic stability and sustainability.

In India, Inflation control is managed by Government of India and the Reserve Bank of India jointly. Government, by altering fiscal measures like public spending, tax rate, production, etc. and the central bank, by altering monetary measures using economic tools like bank rate, repo rate, reserve ratios, etc., maintain Inflation rate within prescribed level. Indian government strive for a favorable Inflation rate between 2- 6 percent per year. The major reasons behind favoring Inflation rate between such low limit is to maintain a satisfactory level of consumer purchasing power and to increase investments.

Inflation is measured using Consumer Price Index (CPI) and Wholesale Price Index (WPI), where CPI measures the changes in general price level of retail prices of goods and services over time, and WPI measures average of wholesale prices of goods in the economy.

2.10 INFLATION TRENDS IN INDIA DURING THE PERIOD OF STUDY

Indian economy is affected by several economic factors, and inflation remains as the major economic concern. Inflation control in India is managed by Government of India and the Reserve Bank of India jointly using various policies, and they strive for a favorable Inflation rate between 2- 6 percent per year. And have partially successful in achieving the target keeping Inflation within the limit with temporary deviations at the time of global uncertainties.

During 2015-2025, the period of study, Inflation trend in India showed moderate fluctuations with some sudden and noticeable hike during sudden global uncertainties like COVID-19 Pandemic. During the initial stage of study period, two years of average headline inflation around a rate between 4% to 5% followed by low average headline inflation was seen. In 2017, India experienced the lowest rate when it hit 3.3%. In 2020, the tragic uncertainties, sudden transport restrictions, supply chain disruption, unemployment, healthcare emergencies followed by the outbreak of COVID-19 Pandemic, resulted to a sudden hike in inflation and crossed 6%. In 2022, inflation took another sudden leap to 6.8%, with increase in crude oil price and supply chain disruption, due to the outbreak of Russia- Ukraine War. During 2024-2025, inflation rate declined within the target limit, and remained relatively stable throughout the year.

2.11 TYPES OF INFLATION

Inflation in India is caused by a number of factors and therefore, it will be wise and beneficial to distinguish between each type:

2.11.1 Based on causes:

a. Demand-Pull Inflation: Demand driven Inflation occurs when aggregate demand exceeds aggregate supply in the economy. Rising income in the hands of households, create excess demand and shortage in supply, creates demand induced Inflation.

b. Cost-Push Inflation: Cost driven Inflation occurs when the cost of input in the market increases steadily. To make up the cost, producers pass the additional costs on to the consumers, allowing the Inflation to rise.

c. Currency Inflation: Currency Inflation results in an economy when there is excess printing of currency notes.

d. Deficit Induced Inflation: It results from the deficit existing in the economy and the economy to meet this gap will avail additional currency printed.

e. Credit Inflation: Profit making institutions like commercial banks sanctions excess amount of loans to its customers aiming to multiply its profit. This creates excess supply of money within the economy and creates price level to shoot up.

2.11.2 Based on intensity of inflation:

a. Creeping Inflation: It is mild Inflation in which the rate falls below 3% and therefore, it supports economic growth.

b. Walking Inflation: It is moderate Inflation higher than creeping inflation, and the rate falls between 3% and 6%. Since the rates are high, economy should be monitored.

c. Galloping Inflation: It is a condition of severe inflation rate that lies above 14%.

2.11.3 Based on government control:

a. Open Inflation: Where prices rise without any control and management by government.

b. Suppressed Inflation: As Inflation rise, government take actions to keep Inflation within the target limit.

2.12 CAUSES OF INFLATION IN INDIA

Inflation in India is caused by a number of economic factors, macroeconomic imbalances, etc. Analyzing the causes lead to efficient control of inflation, which helps in stable growth of the economy.

a. Demand-Pull Inflation: Demand driven Inflation occurs when aggregate demand exceeds aggregate supply in the economy. Rising income in the economy increases the purchasing power of the consumers, this creates excess demand with shortage in supply, creating demand-based Inflation.
b. Cost- Push Inflation: Cost driven Inflation occurs when the cost of input in the market increases steadily. This high cost is passed on to the consumers through price and quantity of goods.
c. International lending and national debts: expansionary policy, increased public spending, excess printing of notes, government borrowing, etc. lead to the increase of general price level.
d. Rise in tax and duties: Taxes are extra burden for the households leading to the fall in purchasing power.
e. Global commodity price inflation: India depends global nations for fertilizers, edible oil, etc. When global market price increases, import price increases causes high domestic price.
f. Global supply chain disruption: During the time of uncertainties like COVID-19 Pandemic, Russia-Ukraine war, supply chain disruption causes inflation to rise.

2.13 EFFECTS OF INFLATION

Inflation is generally defined as the continuous rise in general price level in an economy. When Inflation rate increases, goods and services become expensive. It leads to the fall of both purchasing power and value of money. Continuous increase in Inflation rate cause purchasing power to fall. High inflationary pressure therefore suppresses the economy by rising general price level, low value of money, low purchasing power, low investments, and savings, leading to slow and unstable growth of economy. Therefore, long run inflation brings varied negative effects on economy.

a. Hike in general price level: goods and services become expensive.
b. Reduction in the purchasing power: purchasing power falls when there is aa rise in general price level. People tends to spend less as real income falls.
c. High interest rates: As Inflation increases, interest rate will show an upward trend. High interest rate result in high savings rather than spending
d. Currency depreciation: Inflation reduces the value of money, reducing its value.
e. High inequality: Difference in income creates high poverty levels.
f. Unemployment: High inflation results in slow development and growth of the economy. This creates unemployment.
g. Effects on fixed income group: As real income falls while nominal income remains the same creates burden on the households.
h. Increase public spending: To revive from the uncertainty of inflation government increase public expenditure.
i. Balance of payment deficit: When exports decreases while imports become cheaper, economic growth slows down.
j. High cost of living: Rise in general price level leads high cost of living.
k. High demand for gold: As gold is an effective hedge against inflation, investors change their preference towards gold to avert risk.
l. Fall in growth rate: Inflation negatively impact the economy as it slows down the growth.

2.14 ROLE OF RBI IN INFLATION CONTROL

The Reserve Bank of India, as the apex bank of India plays a vital role in controlling and maintaining economic stability and sustainable growth of the economy. Therefore, it plays a crucial role in controlling Inflation, maintaining Inflation rate within the target limit. In India, the RBI strive to maintain a favorable Inflation rate between 2- 6 percent per year. The major reasons behind favoring Inflation rate between such low limit is to maintain a satisfactory level of consumer purchasing power and to increase investments. RBI control inflation mainly using monetary policies:

1. Monetary policy implementation: Monetary Policy is a major measure taken by RBI to control inflation within the target. Supply of money in circulation, interest rate, purchasing

power, etc. can be restored using monetary policy. It can either be expansionary monetary policy or contractionary monetary policy. Tools used are:

   a. Repo (repurchase) Rate: Repo rate is a rate at which RBI lends money to commercial backs.
   b. Reverse Repo Rate: RRR is a rate at which RBI borrows money from commercial banks.

2. Liquidity Management:
   a. Cash Reserve Ratio: It is the ratio of deposits at which the bank has to keep maintain with RBI as reserve.
   b. Statutory Liquidity Ratio: It is the ratio of deposits that a bank must maintain with themselves as liquid asset.
   c. Open Market Operations: OMO relates to the buying and selling of government securities by RBI.
3. Inflation Targeting: In India, RBI targets Inflation rate between 2% to4%
4. Exchange Rate Management: RBI involve in stabilizing home currency.

2.15 MEASURES TO CONTROL INFLATION IN INDIA

Inflation is the major economic concern that effect Indian economy, that result in continuous upsurge of general price level and growth of the economy. High inflationary pressure suppress the economy and effects the economy in many ways. Therefore, it is necessary to control inflation within a favorable target limit prescribed by the Government of India and the Reserve Bank of India jointly. Two broad ways to control inflation are:

1. Monetary measures: The Reserve Bank of India, as the apex bank of India plays a vital role in controlling and maintaining economic stability and sustainable growth of the economy. Therefore, it plays a crucial role in controlling Inflation, maintaining Inflation rate within the target limit. Monetary measures include:
   a. Bank Rate policy.
   b. Cash Reserve Ratio

c. Open Market Operations

2. Fiscal measures: Fiscal measures are Inflation control measures by Government authority, by altering public spending, tax rate, production, etc.
    a. Reduction in public expenditure
    b. Increasing taxation

3. Promotes Market Competition: Market Competitions are important factor of economic growth and market monopolies creating price manipulations can be minimized by promoting healthy competition.

4. Improved supply chain management: Inflation sometimes is caused by supply chain disruptions and inefficiencies followed by international issues. And these can be controlled by improving supply chain management. Encouraging domestic production, better transport and efficient storage are important measures.

5. Export Growth: Inflationary pressure lead to deficits which hinder economic growth. Trade deficits can be minimized by encouraging exports rather than imports.

6. Encourage Savings: As savings increases, spending falls. This helps economy to curb excess money circulating the economy.

2.16 INTERRELATIONSHIP BETWEEN GOLD AND INFLATION

Gold, in India has long been regarded as the most precious metal with intrinsic value, serving both as an economic asset with store of value and as a cultural asset associated with traditional practices. India is therefore, one among the largest consumers of gold. Inflation is the continuous rise in general price level in an economy and in India, it remains as the most pressing economic concern over the years. The official records on gold prices indicates continuous and steep rise in gold even today, making it an effective hedge against inflation. Therefore, Gold Price is highly influenced by Inflationary pressure and act as effective hedge against inflation. There exists a natural relationship between gold price and general price level. Therefore, analyzing and interpreting the interrelationship between gold price and inflation rate in India hold high importance. Whenever interest rate tends to fall, gold price tends to have a steep. Therefore, inflation rate and gold price have positive relation showing respective increase in gold price as inflation increases.

Economic theories suggest, though weak, but a positive linear relationship between gold prices and inflation. According to the inflation hedge theory in economics, gold is explained as an effective hedge against inflation in long run maintaining its purchasing power over time. When inflation increases, the value of currency tends to fall which result in the switch of investor preference towards gold as a part of risk aversion. This causes gold price to rise.

In India, the interrelationship between gold price and inflation has been observed continuously and efficiently. Though sharp deviations are observed at the time of global uncertainties, Indian government and the RBI strive to keep Inflation within a target level. Therefore, the interrelationship between gold price and inflation is not merely coincidental but helps us to tackle the economic vulnerability within an economy. Therefore, interlinked factors effecting the dependence of gold price and inflation does should be identified, evaluated, and analyzed. And hence, healthy growth of the economy, and strong financial stability can be ensured.

CHAPTER 3

DATA ANALYSIS AND INTERPRETATION

3.1 INTRODUCTION

This chapter deals with data analysis and interpretation. It explains collected data sources, presents period of study, describe variables, reveals analytical techniques used and examine the interrelationship between the two variables, gold rate and inflation. Since the study aims at analyzing the short term and long-term relationship between both, a time series framework of ten years from 2015 to 2025 is adopted. The chapter also summarize the methodology used to analyze the hedging effect of gold. The study is both analytical and empirical, and it relies exclusively on the secondary data from the official sources of The Reserve Bank of India and the Ministry of Statistics and Programme Implementation.

Appropriate analytical techniques like graphical analysis, descriptive statistics, along with correlation analysis and regression analysis are employed to explain both the short term and longterm relationship between the variables and to assess the hedging effectiveness of gold against inflation.

3.2 DATA DISCRIPTION AND SOURCES

The entire study is based purely on the secondary data collected from authentic and publically available sources of official institutions. Data on monthly gold prices and inflation rates in India were collected from official publications of the Reserve Bank of India (RBI), Ministry of Statistics and Programme Implementation (MoSPI).

To address both the objectives correctly, both monthly data and yearly average dada were used in different forms-

3.2.1 Average values for graphical analysis and interpretation

Objective 1 is interpreted graphically and hence the yearly average values of gold prices and inflation rates were observed. The average values of variables reflect the short-term volatility and highlights the broad trend of long-term movement between gold prices and inflation. These average values were exclusively used for graphical and tabular analysis to visually examine the co-movement and long-run association between the variables.

3.2.2 Logarithmic Values for Econometric Analysis

For correlation and regression analysis, the original series of gold prices and inflation rates were transformed into their natural logarithmic (log) form. The logarithmic transformation was applied to reduce heteroscedasticity, stabilize variance, and allow for meaningful interpretation of proportional changes between variables. Using log-transformed values is a standard econometric practice, particularly in macroeconomic and financial studies, as it improves the statistical properties of the data and enhances the reliability of results.

3.3 VARIABLES USED IN THE STUDY

Dependent variable: Gold Price (₹ per 10 gms)

Independent variable: Inflation Rate (CPI All India General Index)

To assess the objective 2, hedging effectiveness of gold against inflation regression analysis is used and hence gold price is treated as dependent variable and inflation rate as the explanatory variable.

3.4 TECHNIQUES OF ANALYSIS USED

1. Descriptive statistics (Average values)
2. Graphical representation
3. Correlation analysis
4. Regression analysis

3.5 DATA ANALYSIS AND INTERPRETATION

OBJECTIVE 1: ANALYSIS OF SHORT-TERM AND LONG-TERM RELATIONSHIP BETWEEN GOLD PRICE AND INFLATION

3.5.1 GRAPHICAL ANALYSIS

SL. NO.	YEAR	AVG GOLD RATE	AVG INFLATION RATE
1	2015-16	26,534.26	4.9
2	2016-17	29,665.28	4.5
3	2017-18	29300.08	3.6
4	2018-19	31193.41	3.4
5	2019-20	37017.91	4.8
6	2020-21	48723.26	6.2
7	2021-22	47999.25	5.5
8	2022-23	66931.24	6.7
9	2023-24	105450.51	5.4
10	2024-25	75,841.87	4.6

The table shows the yearly average values of gold prices and inflation for 10 years from 2015 to 2025. It supports the interpretations on objective 1 and shows the comparative movements of both gold price and inflation across the study period.

Though the relationship between gold price and inflation appears weak and inconsistent in short run, an increase in average inflation is accompanied by an increase in average gold prices, supporting the existence of a long-term relationship. Therefore, the yearly average values suggests that short-term gold price movements are influenced by factors beyond domestic inflation.

To examine both short term and long-term relationship between gold price and inflation, graphical analysis and correlation analysis have been employed separately. While graphical interpretation helps in explaining the short-term fluctuations and long-term trends, correlation analysis provides econometrics support to the relationship.

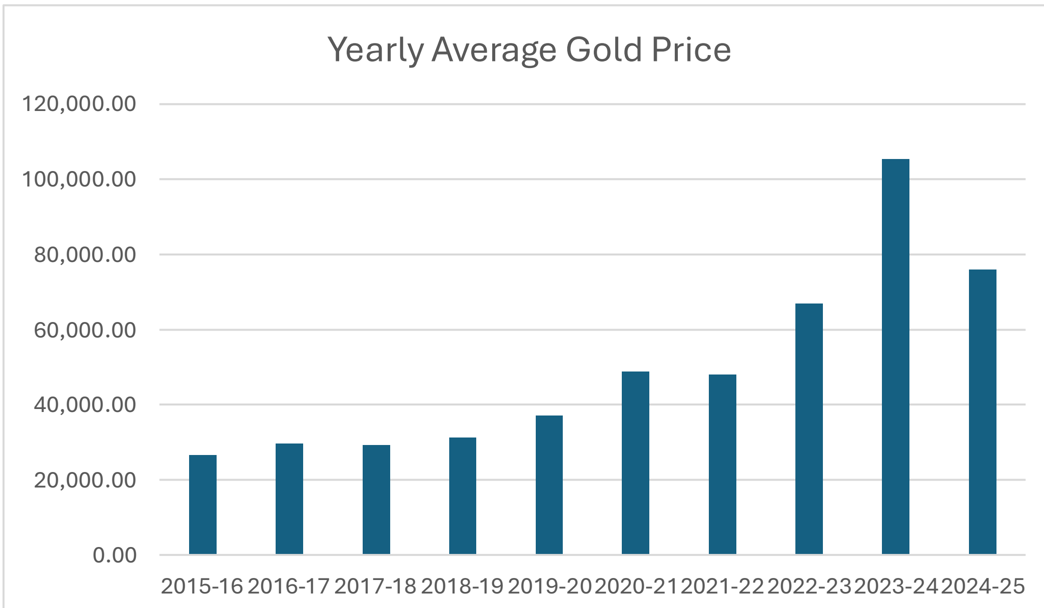

Fig. 3.1 Yearly average gold price in India over a ten-year period from 2015 to 2025

The increasing trend clearly indicates a long-run upward movement in gold prices, though the increase is not uniform across all years.

In the initial years, gold prices exhibit moderate growth with corresponding fluctuations, indicating normal market conditions and gradual changes in global demand and prices. However, during the later years, particularly during the pandemic period from 2019 to 2021, the graph shows a sharp fluctuations and notable surge in average gold prices. This period coincides with intensified global uncertainties, economic slowdown, high inflationary pressures, and financial market volatility, which increased global demand for gold as a safe-haven asset.

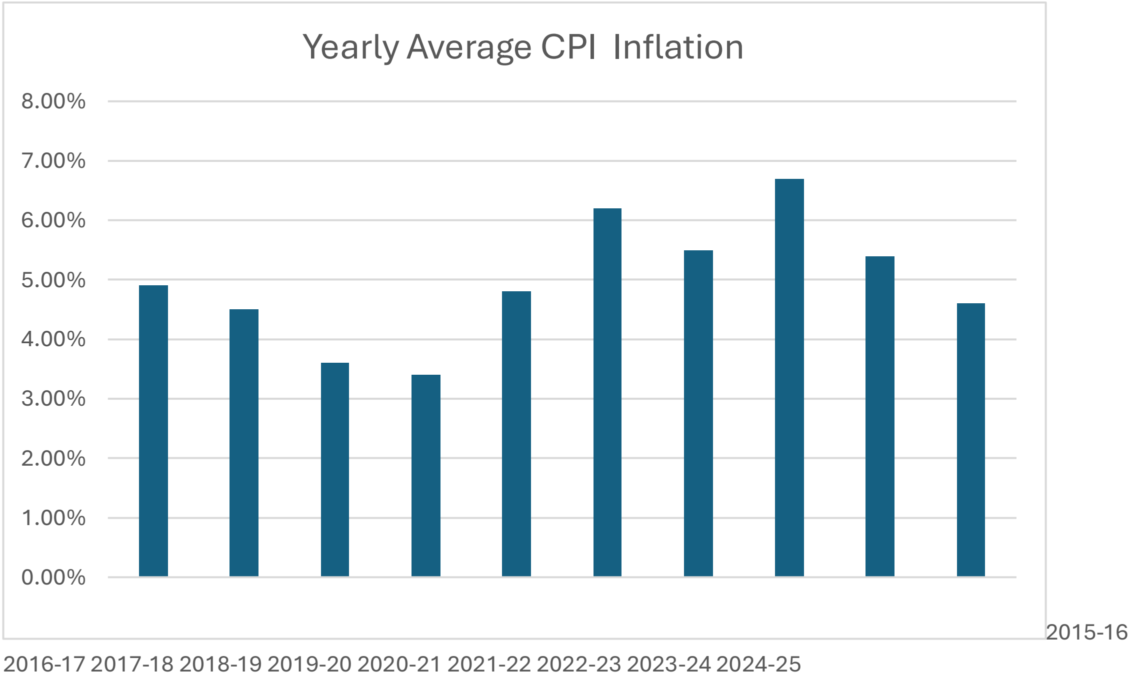

Fig 3.2 Yearly average CPI inflation in India over a ten-year period from 2015 to 2025

Unlike gold prices, inflation does not follow a steadily increasing or decreasing pattern. Instead, it shows noticeable year-to-year fluctuations, reflecting the dynamic nature of price levels in the economy.

Being a critical macroeconomic variable, fluctuations indicate its instability, where high inflation exhibits expansionary fiscal and monetary policies, supply side shocks, increased fuel prices, etc., comparative low inflation can ne attributed to favorable policy implications by RBI, low global commodity prices, better supply conditions, etc.

Significant fluctuations in overall inflation showcased during both COVID-19 pandemic years (2019–2021) and post- pandemic years indicates the volatile nature of inflation.

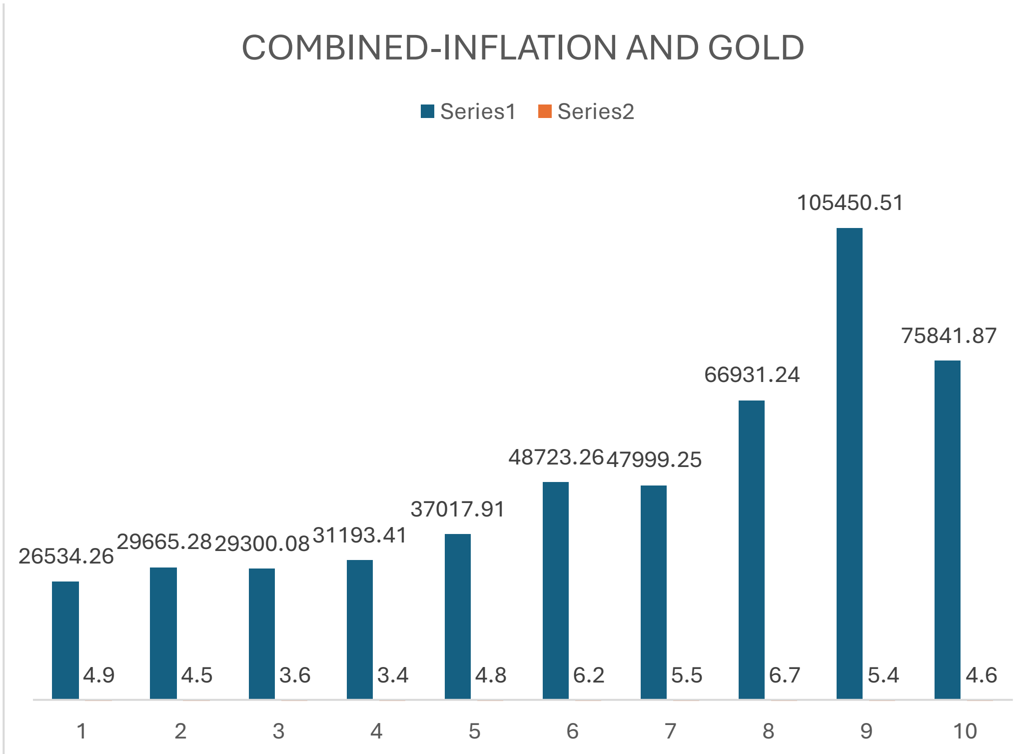

Fig 3.3 Combined Graph of Gold Price and Inflation Rate (Log Values of Yearly Averages)

Since the use of logarithmic transformation enables a better comparison of two variables measured in different units and scales, the combined graph express gold prices and inflation rates in their respective logarithmic form using the yearly average values.

It is evident from the graph that the inflation rate shows periodic ups and downs. But gold prices display a continuous upward-moving trend with no downfall. It evident that each increase n inflation rate is followed by an increase in gold prices, suggesting a positive co-movement between the two variables. Though the correlation is weak in short run, long run trend proves the positive interrelationship between the variables.

Though the authorities in India strive hard to keep the inflation comes within the favorable limit band. But often during the global pandemic years COVID-19, volatile movements and sharp fluctuations can be observed in both variables. Inflation exhibits volatility due to many external reasons like supply disruptions and poor policy responses. But gold prices on the contrary increase sharply, reflecting heightened uncertainty, mainly due increased preference for safe assets during uncertainties. The study suggests that though the relationship is weak in short run it is string evident in long run. Since gold has the tendency to respond positively to inflationary pressure, it is important as a partial hedge against inflation.

3.6 CORRELATION ANALYSIS

While the graphical interpretation provides a visual knowledge about short term and long-term movements in gold prices and inflation over the study period, it does not quantify the relationship between the variables statistically.

To supplement this flaw of graphical analysis, and to obtain an econometric measure of association, we use correlation analysis. Correlation analysis therefore helps in measuring the degree and direction of linear relationship existing between the variables under study.

The value of correlation lies between -1 (Negative correlation) and +1 (Positive correlation) and 0 indicates no linear relationship between the variables. The degree of correlation is explained as high (0.75 1), moderate (0.25 0.75), and low (0-0.25).

PURPOSE: TO QUANTIFY THE RELATIONSHIP BETWEEN GOLD PRICE AND INFLATION

	Column 1	*Column 2*
Column 1	1	
Column 2	0.370223093	1

Column 1: Yearly Average Gold Price (₹ per 10 gms)

Column 2: Yearly Average Inflation Rate (CPI All India General Index)

The correlation analysis between gold price and inflation rate results with the correlation coefficient of 0.370223093, which indicates a moderate positive correlation between the two variables under consideration. Therefore, the result suggests that gold prices and inflation are positively related, hence they tend to move in the same direction, though the relationship is not very strong.

A moderate positive correlation coefficient between the extreme values (-1 and + 1) implies positive relation between the variables. Therefore, as inflation increases, gold prices also tend to move in increasing direction, supporting the idea that gold acting as a partial protection against heightened price levels. However, the magnitude of the correlation indicates that gold prices are not only influenced by inflationary pressures, but also by other factors such as global market conditions, fluctuating supply conditions, exchange rates, investor attitudes, and geopolitical uncertainties, etc.

Therefore, the correlation result provides preliminary evidence of positive association between gold and inflation in India, and it serve the idea of gold as a partial hedge in the short term, while there is a positive long term relation between the variables.

3.7. REGRESSION ANALYSIS

OBJECTIVE 2: EVALUATION OF HEDGING EFFECTIVENESS OF GOLD AGAINST INFLATION

Regression Statistics	
Multiple R	0.3702231
R Square	0.1370651
Adjusted R	0.1297521
Standard E	0.1857406
Observatic	120

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regressior	1	0.646613487	0.64661	18.7427	3.1544E-05
Residual	118	4.070949948	0.0345		
Total	119	4.717563436			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	4.2890798	0.084505464	50.7551	5.3E-82	4.121736	4.456424	4.121736	4.4564236
X Variable	0.5306044	0.122561867	4.32928	3.2E-05	0.28789856	0.77331	0.28789856	0.7733103

To evaluate the hedging effectiveness of gold against inflation in India, regression analysis has been carried. The regression analysis is conducted using the logarithmic values of monthly gold prices and monthly inflation rates over a period of ten years, resulting in 120 observations. Since the use of log transformed values enables us to analyze and interpret the proportional changes in their statistics.

Gold price being the dependent variable and inflation as the explanatory variable, the regression statistics demonstrate the response of gold price to change in inflation, reflecting the effectiveness of gold as a hedge against inflation.

The probability value (p-value) indicating the significance level of the variables associated with inflation is obtained as a positive value of 0.0000315, which is less than the 5 per cent level of significance (0.05). This low, positive p-value shows a significant impact of inflation on gold prices.

The regression coefficient of inflation is resulted as 0.530604, which implies that a 1 per cent increase in inflation may leads to an average increase of approximately 0.53 per cent in gold prices, keeping other factors constant.

The R-squared value obtained is 0.137065. It clearly indicates that around 13.7 per cent of the variation in gold prices over time is resulted by changes in inflation. The Adjusted R-squared value of 0.129752 further confirms both the hedging effectiveness of gold and the consistency of the regression model.

The F-statistic value of 18.74265 with a corresponding Significance F value of 0.0000315 confirms statistical significance of the overall regression model indicating that inflation, as an explanatory variable, plays a meaningful role in explaining variations in gold prices.

Since gold prices are highly influenced by multiple factors like exchange rates, global uncertainties, international gold prices, investor attitude, demand and supply uncertainties, fluctuations in crude oil prices, etc. influence of inflation is limited to a certain extent. Although financial time-series data expects only low explanatory power to the model, the result obtained from the analysis is positive and approving. Therefore, weak but positive significant coefficient value indicates the tendency of gold prices to rise as inflation increases, and thereby validates the effective and certain role of gold as a safe hedge against inflation in our economy.

CHAPTER 4

FINDINGS, RECOMMENDATIONS AND CONCLUSIONS

4.1 INTRODUCTION

In India, as an emerging economy, gold functions not merely as a traditional asset, but also serves as a crucial financial asset, though its value is intrinsically linked to the persistent challenge of inflationary pressures. While chapter 3 focused on detailed analysis of the data using econometric techniques, this chapter integrate the empirical results of the study, its findings, and recommendations.

The relevance of the study is pinned by the widespread perception of gold as a safe hedge and the persisting increasing trend of inflation in long run. By examining the relationship between the variables using monthly data of 10 years including the years of COVID-19 pandemic, the study resulted providing clear evidence regarding the weak but positive relationship between the variables in short term, long term upward trend in gold price, and a moderate but statistically significant impact of inflation on gold. Hence the study confirms the hedging effectiveness of gold against inflation, particularly over long run.

4.2 MAJOR FINDINGS OF THE STUDY

The studies conducted using three statistical tools including graphical interpretation, correlation analysis, and regression analysis, exhibits satisfactory results for both the objectives. Key findings are as follows:

1. The study covers monthly data over a period of ten years from 2015 to 2025, resulting in a total of 120 observations. This period includes phases of normal economic conditions as well as abnormal events of economic and social disruption due to COVID-19 pandemic and international conflicts. Hence it makes the analysis comprehensive and capable of seizing both stable and unstable economic environments.

2. The graphical interpretation of yearly average gold prices plotted using the yearly average gold price and inflation clearly indicates a weak but positive trend in short run and strong long-term upward trend in gold prices in India. This indicates that gold has maintained its role of value and continue as a safe haven asset, especially during periods of economic uncertainties.
3. The graphical analysis of inflation using yearly average data reveals significant yearly variations, reflecting the volatile nature of price levels influenced by exchange rates, supply-side shocks, policy measures, and external economic conditions, political tensions etc.

4. Both gold prices and inflation exhibited observable fluctuations during the COVID-19 pandemic years from 2020 to late 2022. Gold prices exhibits sharp hike due to heightened uncertainties, financial market volatility, and increased demand for safe-haven assets, while inflation showed unstable volatility due to supply chain disruptions and changes in consumption patterns, economic uncertainties, etc.

5. The result of correlation analysis between gold price and inflation analysis is a mild positive correlation value of 0.37022093. The positive value below 0.5 indicates that when inflation increases, gold price increases. This shows the positive relation between the variables where gold prices and inflation tend to move in the same direction. Though the relationship is not very strong in the short run, but only weak.

6. The regression analysis resulted in a significant p-value of 0.0000315. As the inflation coefficient is less than the 5 per cent level of significance, indicates the statistically significant impact of inflation on gold prices.

7. The regression analysis conducted using log values showed a significant regression coefficient. It also shows a positive value that indicating that variables move in same direction. Statistically significant regression coefficient for inflation obtained is 0.530604. The positive value thus implies that an increase in inflation leads to a proportionate increase in gold prices. And this result supports the idea of gold acting as an inflation hedge.

8. The R-squared value obtained is positive value of 0.137065 which indicates that the influence of inflation on gold price is 13.7 per cent suggesting the influence of economic and social factors on gold price other than inflation.
9. The F-statistic value of 18.74265 with corresponding significance level confirm that the overall regression model is statistically valid and appropriate for evaluating the hedging effectiveness of gold against inflation.

10. The studies confirm the tendency of gold prices to rise as inflation increases in long run showing a weak but positive significant coefficient value between the variables. Therefore, the empirical findings suggest that gold though it may not serve as a perfect hedge in short run, it reflects partial hedging effectiveness against inflation in the long run.

4.3 RECOMMENDATIONS

Based on the empirical findings resulted from the study and keeping an eye on the theoretical role of gold and inflation, the following recommendations are proposed:

1. In India inflation show a continuous rise over years. And this trend is driven by geopolitical tensions, international conflicts, increasing global food prices, fuel price. The study resulted a positive significant value. So, the investors prefer gold as a long-term hedging instrument to protect their wealth and their purchasing power. The positive and statistically significant regression coefficient confirms the same.

2. Investors are always advised to diversify their portfolios as to adverse risks. The R-squared value of 13.7 per cent suggests inflation as only a partial hedge against gold prices. Therefore, diversification of investment will help in minimizing the risk. That is, investment on gold should be combined with securities, equities, debt instruments and risk can be managed.

3. Gold is proven as an effective hedge and a haven asset. Policymakers are advised to utilize the role of gold as an effective risk managing asset during uncertainties and global shocks.

4. The moderate positive correlation between the variables implies that gold does not respond immediately to inflationary changes. Therefore, Investors are advised to adopt a long-term investment horizon, particularly during periods of economic uncertainties.

5. According to today's financial condition of Indian economy, policymakers adopt financial inclusion to promote balanced economic growth.

6. Investors should consider more investing option that give protection of hedging properties. And policymakers should continue promoting regulated gold investment instruments such as gold exchange traded fund, Sovereign gold bonds, etc.

7. The findings highlight the fact that inflation is not the sole determinant of gold price fluctuations in India suggesting the influence of other macroeconomic factors like exchange rates, geopolitical tensions, increasing global demand, variations in interest rates, etc.

4.4 CONCLUSIONS

The study successfully examined the interrelationship between gold prices and inflation in India, with a specific focus on analyzing the short term and long-term trends and evaluating the hedging effectiveness of gold against inflation. Estimating the monthly data for a period of ten years from 2015 to 2025, comprising 120 observations, the study incorporated graphical analysis, correlation analysis, and regression analysis to capture both short-term fluctuations and long-term trends.

The combined results of graphical interpretation, correlation and regression analysis provide clear evidence regarding the weak but positive relationship between the variables in short term, long term upward trend in gold price, and a moderate but statistically significant impact of inflation on gold. Though partially, the study confirms the hedging effectiveness of gold against inflation, particularly over long run.

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