A Study on Inflation Effect on Economy

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ABSTRACT

One of the main financial worries of the twenty-first century is inflation. In late 2009, surveys of the general people listed inflation as India's top issue. Even while the rate of inflation has decreased since late 2012, it is still there, and many investors believe that it will soon return to higher levels. A greater effort is being made to find and assess investments that will shield investors from inflation as a result of the ongoing concern about inflation. Liability inflation hedges are generally assets that have the capacity to shield investors from the consequences of inflation. One of the greatest inflation hedges in previous years has been thought to be gold.

There is currently no research on gold as an inflation hedge, despite previous studies examining this idea and some recent studies utilizing just corporate real estate. This study looks at the economic variables that cause inflation to rise as well as the variables that inflation affects both favorably and unfavorably.

Key Words : BDI, DOLLER, GDP, GOLD, MSCI and WORLD INFLATION

INTRODUCTION:

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Inflation is the one word that central bankers fear the most. Inflation, which is defined as a general rise in prices or as a decline in the purchasing power of money, causes issues for parties other than central bankers. Inflation impacts all members of the economy. The impact of inflation affects people, corporations, and governments. Excessive demand or rising prices per unit for producers are the two main causes of inflation, which is maintained by an excess of money in circulation. If inflation is not controlled, it can lead to catastrophic outcomes for a community.

The German Weimar Republic experienced severe inflation in the 1920s. The government started printing money in order to fund its purchases, rather than taxing or borrowing. Hedonistic inflation was the outcome. Some historians believe that Hitler's ultimate ascent to power was sparked by the inflationary period and the subsequent decline in faith in the Weimar Republic.

An economy can experience a range of repercussions from inflation, both beneficial and harmful at the same time. Increased opportunity costs associated with holding money, lack of confidence in future inflation that could deter savings and investment, and shortages of goods if inflation picks up speed enough to cause consumers to start hoarding goods out of fear that prices will rise in the future are all negative effects of inflation. Benefits include enabling real interest rate adjustments by central banks and promoting investment in non-monetary capital projects.

Most economists concur that an excessive expansion of the money supply is the root cause of high rates of inflation and hyperinflation. Diverse opinions exist about the elements that contribute to low to moderate rates of inflation. Low or moderate inflation can be caused by changes in the money supply, changes in the real demand for goods and services (such as during scarcities), or variations in the supply of goods and services. On the other hand, most people agree that a protracted period of sustained inflation results from the money supply expanding more quickly than the pace of economic expansion.

The rise is expressed as a percentage per year. A smaller portion of an item or service can be purchased with each dollar you own as inflation increases. When there is inflation, the value of a dollar fluctuates. The real, concrete commodities that money may purchase are what are used to measure the value of a dollar. The purchasing power of money decreases as inflation increases.

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OBJECTIVES:

- To understand how the Baltic Dry Index is affected by inflation.
- To understand how gold will function as a tool for inflation hedging.
- To determine how global inflation affects global growth.
- To understand how global inflation affects global equity (MSCI)

LIMITATIONS:

- In this investigation, secondary data was utilised. Primary data are not included in this analysis.
- The data was collected over a 5-year period, thus it might not accurately depict the situation.
- Because so many different items are used to calculate inflation (goods and services). List is not set in stone.
- Not every nation will compute inflation using the same formula.

REVIEW OF LITERATURE:

- **Janak Raj & Sangita Misra:** A great deal of research has been done on the characteristics of core inflation measurements both locally and abroad. Research on core inflation has been done globally for a number of countries using both statistical measures and exclusion-based criteria. According to the OECD (2005),
- **Bryan and Cecchetti (1993)** popularized the use of weighted median or trimmed mean techniques for computing core inflation, and they suggested using the structural vector auto regression (SVAR) method to estimate core inflation.
- **Armour, Lafleche, 2006**: Generally speaking, the components that are excluded include energy costs, mortgage interest payments, and fresh food products. Wynne (1999) acknowledged that each of these measures has advantages and disadvantages and noted that, regardless of how core inflation is calculated, in order for them to be helpful in formulating monetary policy, they must be computeable in real time and possess some degree of inflation prediction ability.

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- **Mohanty (2000):** excluded energy, many fresh food items, and a few manufactured goods connected to primary articles in order to conduct a thorough investigation of the three main inflation measures: trimmed mean, weighted median, and exclusion-based. They found that an appropriate core inflation metric for India was the 20% trimmed mean WPI. Examining a few current research projects on the topic.
- **Kar (2009):** Concentrated only on statistical measures of core inflation, Das, and examined some statistical measures like mean-SD, trimmed mean, median, reweighing, HP filter, Wavelet filter, and structural VAR measures. Additionally, the study examined both exclusion-based measures, excluding food articles and fuel group, separately and collectively. Kar's research revealed that weighted percentile and geometric exponential smoothing were the best methods for treating core inflation.
- However, Das (2009) discovered that no single measure of core inflation could be deemed to be better than any other. The 1993–1994 WPI series served as the foundation for both of these investigations.

DATA BASE - METHODOLOGY:

Skewness: In distribution analysis, skewness is a metric that indicates asymmetry and a departure from a normal distribution. When the skewness is greater than zero, the distribution is rightly skewed, focusing on the left side of the mean with extreme values to the right; when the skewness is less than zero, the distribution is leftly skewed, focusing on the right side of the mean with extreme values to the left; and when the skewness is zero, the distribution is symmetric.

$$\begin{aligned}\gamma_1 &= \mathrm{E}\left[\left(\frac{X-\mu}{\sigma}\right)^3\right] \\ &= \frac{\mathrm{E}[X^3] - 3\mu\,\mathrm{E}[X^2] + 3\mu^2\,\mathrm{E}[X] - \mu^3}{\sigma^3} \\ &= \frac{\mathrm{E}[X^3] - 3\mu(\mathrm{E}[X^2] - \mu\,\mathrm{E}[X]) - \mu^3}{\sigma^3} \\ &= \frac{\mathrm{E}[X^3] - 3\mu\sigma^2 - \mu^3}{\sigma^3}\,.\end{aligned}$$

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Kurtosis: It is a metric used in distribution analysis to indicate whether a distribution is flattering or peaked; for example, if kurtosis is three, it indicates a leptokurtic distribution, which is sharper than the normal distribution; if kurtosis is less than three, it indicates a platykurtic distribution, which is flatter than the normal distribution; and if kurtosis is three, it indicates a mesokurtic distribution. it indicates a normal distribution.

A standard normal distribution has a kurtosis of 3. Because of this, some sources define kurtosis as "excess kurtosis" in the following way.

$$\text{kurtosis} = \frac{\sum(X-\mu)^4}{N\sigma^4} - 3$$

Correlation: A correlational study is a type of research paper that looks for patterns of causality that connect one occurrence to another or to other events that precede the event.

Slabs: 0 -0.3 slightly correlated,

0.3-0.7 moderately correlated,

0.7-1 strongly correlated

Regression: a statistical measure used to assess the degree of correlation between a series of other variable changes (referred to as independent variables) and a single dependent variable, typically indicated by.

Y=a+bx

a= the intercept

b= the slope

x= the variable that are using to predict y

y= the variable that are trying to predict

Empirical Investigation:

In this analysis we have dealt with correlation, regression, kurtosis, mean and T-test for the following: **Crude oil, $ vs. Rupee, BDI, World Inflation, MSCI, Gold and world GDP**

DATA ANALYSIS and INTERPRETATION:

Table I: **An Analysis on World Inflation to Gold Prices.**

Year	Months	World Inflation	Gold Prices
2009	Jan-Mar	-0.036666667	21059625.25
2009	Apr-June	-1.15	13161643.05
2009	July-Sep	-1.623333333	10261758.21
2009	Oct-Dec	1.46	17182703.96
2010	Jan-Mar	2.36	16726146.97
2010	Apr-June	1.77	19760307.96
2010	July-Sep	1.176666667	18906374.06
2010	Oct-Dec	1.27	17898765.6
2011	Jan-Mar	2.14	15988228.86
2011	Apr-June	3.43	15347617.31
2011	July-Sep	3.756666667	44664048.29
2011	Oct-Dec	3.293333333	28904556.77
2012	Jan-Mar	2.816666667	25124244.36
2012	Apr-June	1.886666667	25541376.21
2012	July-Sep	1.696666667	26489065.97
2012	Oct-Dec	1.886666667	24736127.64

Analysis Output:

Correlation	0.620907659	
Kurtosis	-0.026308438	
T-Test	1.30465E-11	2.145 (a)
Regression	24429165.25	

Interpretation: Investing in gold can act as a hedge against inflation in general. During the four years of the 2009–2012 investigation, there was a moderately positive association between global inflation and international gold prices. The inflation and gold kurtosis study is leptokurtic,

with values of less than three, or -0.0263. Applying regression analysis to gold in conjunction with inflation has revealed that gold is predicted to decline, with a value of Y 24429165.25, which is lower than the value of 24736127.64 from December 2012. The hypothesis regarding inflation and gold has been accepted by the t-test, with a significant value of 1.30465. This suggests that during the analysis period, gold investments are more influenced.

Table II: An Analysis on World Inflation with MSCI.

Year	Months	World Inflation	MSCI
2009	Jan-Mar	-0.036666667	28.97666667
2009	Apr-June	-1.15	34.67333333
2009	July-Sep	-1.623333333	34.80666667
2009	Oct-Dec	1.46	34.92333333
2010	Jan-Mar	2.36	33.35666667
2010	Apr-June	1.77	33.46333333
2010	July-Sep	1.176666667	36.97333333
2010	Oct-Dec	1.27	35.51666667
2011	Jan-Mar	2.14	36.29
2011	Apr-June	3.43	31.79333333
2011	July-Sep	3.756666667	30.56666667
2011	Oct-Dec	3.293333333	31.88
2012	Jan-Mar	2.816666667	30.89
2012	Apr-June	1.886666667	28.99666667
2012	July-Sep	1.696666667	22.23333333
2012	Oct-Dec	1.886666667	16.67666667

Analysis Output:

Correlation	-0.184794168	
Kurtosis	-1.969017162	
T-Test	9.86208E-20	2.145(r)

Interpretation: For the five years of the study, there has been a minor negative association between the global equity index MSCI and world inflation, according to the correlation analysis above. Kurtosis analysis yields a value of <3, or -1.969017, for the leptokurtic distribution. The T-test rejects the hypothesis in cases where the computed result does not fall within the

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significance range. In the global economy, inflation is a threat, and the MSCI serves as a global economic barometer.

Table III: An Analysis on World Inflation to Baltic Dry Index (BDI).

Years	Months	World Inflation	Baltic Dry Index
2010	Jan-Mar	2.36	3323.050877
2010	Apr-June	1.77	2353.838384
2010	July-Sep	1.176666667	2355.373294
2010	Oct-Dec	1.27	1358.531884
2011	Jan-Mar	2.14	928.847619
2011	Apr-June	3.43	10319.64206
2011	July-Sep	3.756666667	1915.628427
2011	Oct-Dec	3.293333333	877.9601276
2012	Jan-Mar	2.816666667	1016.549344
2012	Apr-June	1.886666667	840.805863
2012	July-Sep	1.696666667	928.9570487
2012	Oct-Dec	1.886666667	796.3491028

Analysis Output:

Correlation	0.38537858	
Kurtosis	14.79247258	
T-Test	0.007894182	2.228(a)

Interpretation: The Baltic Dry Index shall be regarded as a global economic metric. The world inflation rate and the BDI analysis have a weak correlation of 0.385, suggesting that the economy has changed over the past five years. Examination. Kurtosis analysis between the

aforementioned analyses is >3, or 14.79, making it leptokurtic. The relationship between global inflation and the BDI is more pronounced. Since the estimated value of the t-test falls inside the significant zone, the hypothesis that inflation will have an impact on the economy is accepted.

Table IV: An Analysis on World Inflation to World GDP.

Year	World Inflation	World GDP
2008	8.4	3.8
2009	10.9	8.5
2010	12	10.5
2011	8.9	6.3
2012	9.3	5

Analysis Output:

Correlation	0.960327905	
Kurtosis	-0.558719742	
T-Test	0.056131748	3.182(a)
Regression	10.4328	

Interpretation: Over the course of the five-year analysis period, global inflation has had no impact on the global GDP. With a score of 0.9603, the correlation between GDP and inflation has demonstrated a positive and robust relationship. When the value of the Kustosis analysis is less than three, it suggests that the distribution of global inflation and GDP is platykurtic. Regression research indicates that global GDP will decline and global inflation will rise. World inflation will continue to have a significant impact on global GDP even in the future, according to a T hypothesis test application analysis comparing world inflation with GDP, which reveals that the computed value is falling within the significance region.

FINDINGS:

1. 1. It is observed that, with the aid of analysis, gold investors took inflation into account when making investment decisions.

2. 2. The Morgan Stanley all countries index is a global equity measure that reflects the performance of equity markets worldwide. Global inflation has an impact on equity markets worldwide. Correlation values between MSCI and inflation have turned negative. Gold is an international commodity in which investors and speculators from all countries will participate in determining its value.

3. 3. The Baltic Dry Index will be regarded more highly than MSCI as a global economic indicator. wherein the cost of shipping will be exchanged for BDI. Throughout the analyzed period, there is a minor positive association between the world inflation rate and the BDI. It suggests that the global economy was unaffected by inflation.

4. Throughout the analysis period, there was a substantial positive association between the world GDP and global inflation. The computed correlation, 0.9603, is close to 1, meaning that an increase in inflation did not have an impact on the global economy; rather, the GDP increased in tandem with inflation. The computed value of -0.5587 is derived from a leptokurtic, normally distributed kurtosis analysis for the inflation with the world GDP of <3. The T-test hypothesis was utilized to examine the relationship between inflation and global GDP, with the assumption being that inflation has an impact on GDP during study. The world GDP has been impacted by global inflation over the past five years, as indicated by the T-table computed value that is below the acceptable region.

CONCLUSION:

Based on this analysis, I've come to the conclusion that inflation is a major factor in the economy, since the cost of numerous goods and services varies depending on a variety of factors. The prime minister must take the required action to limit inflation if it increases from the average person to themselves. A country's ability to grow depends on its inflation rate, yet a greater inflation rate will impede economic expansion. Elevated inflation rates will impact every category of assets. Conversely, low inflation does not mimic business activity. After doing this analysis, I've come to the conclusion that more research is needed to determine how to calculate inflation more accurately and which sectors are having a good and negative impact.

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