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Commerce

A STUDY ON IMPACTS OF INFLATION RATE ON CRUDE OIL PRICE

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KEYWORDS :

INTRODUCTION:

Petroleum, also known as crude oil and oil, is a naturally occurring, yellowish-black liquid found in geological formations. It is commonly by means of distillation. Petroleum mainly consists of hydrocarbons as well as traces of other organic compounds. The name petroleum covers both naturally occurring unprocessed crude oil and petroleum product that are made up of refined crude oil .A fossil fuel , petroleum is formed when large quantities of dead organisms, mostly zooplankton and algae, are buried underneath sedimentary rock and subjected to both prolonged heat and pressure.

More than 4000 years ago, according to Herodotus and diodrous siculus, asphalt was used in construction of the walls and towers of Babylon; there were oil pits near ardericca. And a pitch spring on zacynthus. The use of petroleum in ancient china dates back more than 2000 years ago.

OBJECTIVES OF THE STUDY

- Inflation data for the past 10 years.
- Impact of inflation on crude oil.
- Comparison of Inflation and Crude oil rate over the last decade.

SCOPE AND IMPORTANCE OF THE STUDY:

As far as the importance of the study is concern on the changes that occur In the wholesale price index, consumer price index, thus it is highly important to study whether the crudeoil price is affected and if to what extent due to inflation.

LIMITATION:

- Lack of availability of confidentiality of data.
- Inflation rate highly varies month to month,even day to day and also between various geographies.
- Crude oil prices are not the same around every corner of the world.

RESEARCH METHODOLOGY:

Research is a systematic method finding solutions to a problem. It gives a structured picture for the management process like decision making and planning in accordance with data collection. It may be understood as all those method or techniques that are used for used for conduction of research. Methodological gives true path to find solution to a certain problem.

Stages	Purpose	Tools	Output
1.	To find out the variations	Unit Rot Test	Three years Repo rate (RBI) and lending rate
2.	Co integration between Repo rate and Lending rate of banks	To Find the Co integration	Co integration of Three years Repo rate and Lending rate
3.	Granger Causality Test	To find out the goodness of the test	Repo rate influences in Lending rate

(Note: The method of calculating lending rate changes in every five accounting years, at 2010 -31 march 2016 it is known as BASE RATE, 1st April 2016 onwards it is known as MCLR)

SOURCES OF DATA

- Data collection from Secoundary sources
- Annual reports
- Data published on wedsites
- Journals
- websites

REVIEW OF THE LITERATURE:

Usman Rianse (2016): This study aims to investigate the dynamics of the effects of world crude oil prices and world rice prices on Indonesia's inflation rate in the period between January 2004 and September 2015. Monthly time series data spanning from January 2004 to September 2015 are analyzed using difference equation model as the econometric tool. Test result shows that there existed a dynamic effect of world oil crude prices and world rice prices on inflation rate in Indonesia. The World crude oil prices positively affected the inflation rate in that each 1% increase (decrease) in the world crude oil prices caused the inflation rate to go up (drop) by 0.33%. The world rice prices also positively affected the inflation rate, where each 1% increase (decrease) in world rice prices was followed by a 0.52% rise (fall) of the inflation rate.

Kaushik Bhattacharya (2001):

This paper attempts to study the transmission mechanism of an increase in petroleum prices on the prices of other commodities and output in India. The paper also examines the nature and the extent of 'feedback' in such a transmission mechanism and obtains evidence of bidirectional causality between oil and non-oil inflation in India

Akash Malhotra (2015):

Understanding the empirical linkage between oil prices and inflation is imperative as all monetary authorities attempt to keep inflation under check. This paper examines the time-varying correlations between crude oil prices and two major macroeconomic variables, inflation and interest rates in India. A dynamic conditional correlation GARCH analysis is applied to study the impact of oil price fluctuations on Indian Economy. Results of DCC-GARCH show that correlation between WPI (Wholesale price index) and international crude oil prices remains positive and close to one for majority of period except during the subprime mortgage crisis of 2007-09 when these two become negatively correlated. The results from DCC-GARCH suggest that global crude oil prices have significant effect on inflation but no direct effect on interest rates. However, results from Granger causality test indicates that oil prices will be able to affect interest rates at appropriate lag levels.

B Mahammad Rafee (2015):

India meets 70% of its energy needs by crude oil imports. The Price of Petroleum (per barrel of Crude oil of 159 liters) at the international market influences the prices of domestic petrol and diesel (domestic prices linked to International energy derivative market). Any fluctuations in the international crude oil price influence all other macro economic variables and Inflation too. CPI (consumer price Index) is said to be a perfect measure of inflation by the economist.

So, for the accurate prediction of the relationship between petroleum price and inflation, the CPI inflation is considered for the analysis. The study proposes to use Augmented Dickey-Fuller Test (ADF) unit root test and Granger Causality test. Crude oil price and CPI Inflation monthly data from 2011 to 2014were used to find the exact relationship. Apart from that the paper focuses on the petroleum pricing policy of India in brief. The study confirms with the empirical analysis that the consumer price Inflation is not influenced by the hike in crude oil price.

G Singh, (2012): An empirical analysis is used to compare the effects of crude oil price on Indian economy because India's imports of oil are increasing. Our import dependence has reached 80 per cent and is likely to keep growing. At the same time 2008 saw an unprecedented rise in oil price on the world market. Oil price volatility has also increased. Though future oil prices are difficult to predict, they are generally expected to rise. The oil prices have started rising significantly since the initiation of the twenty first century. Theoretically, one can judge the impact of an oil price shock. The immediate effect of the oil price shock is the increased Cost of production due to increased fuel cost. Whenever there is an overall inflation in the economy, the cost of production would also rise causing a decrease in supply. On the other hand, inflation implies a fall in the purchasing power of people. In short, oil price fluctuation has adverse effects on the economy. The paper seeks to find out the impact on the Indian economy.

ANALYSIS:

Unit Root Test (Significance Level – 0.05)
HO-has a unite (<0.05)
H1-has no unite root (>0.05)

Table Showing Unit Root Test For Inflation Rate And Crude Oil Rate:

YEARS	2022-2021	2020-2019	2018-2017	2016-2015	2014-2013
INFLATION RATE	0.6270	0.2062	0.0176	0.9311	0.9933
CRUDE OIL RATE	0.7321	0.1951	0.5437	0.6142	1.0000

Interpretation:
In the table given above all the variables used in the imperial analysis have a statistics that exceed the critical value of the test at the 5% significance level. As the highlighted value of probabilities is lower than 0.05, the null hypothesis is accepted and the other values are greater than 0.05, the null hypothesis is accepted and the other values are greater than 0.05, so the null hypothesis is rejected

Johansen Co-integration
CRUDE OIL is C0-integration with the inflation rate
H0 - Has 1 co-integration (<0.05)
H1- Has 2 co-integration (>0.05)

Table Showing Johansen Co-integration Test For Crude Oil Rate And Inflation Rate:

YEARS	2022-2021	2020-2019	2018-2017	2016-2015	2014-2013
CRUDE OIL RATE WIH INFULATION RATE	2	2	2	2	2

Interpretation:
In the above table 2 denotes it has two co-integration and rejection of the hypothesis at the >0.05 significance level

Granger Causality Test
HO – Accepted (<0.05)
H1 - Rejected (>0.05)

Table Showing Granger Causality Test For Crude Oil Rate And Inflation Rate For The Year 2018-2017

Null Hypothesis	obs	F-statistic	Prob
Inflation rate does not granger cause crude oil rate	22	1.01868	0.3821
Crude oil does not granger cause inflation rate		1.81917	0.1923

Interpretation:
Like the table shown above, the hypothesis of crude oil rate and inflation rate, every year is rejected as the variables are independent to each other because the values are greater than0.05 significance level.

FINDINGS:

Repo rate and lending rate of 2 years are compared.
- (2021,2022)
- (2019, 2020)
- (2017,2018)
- (2015,2016)
- (2013,2014)

Unit Root Test (Significance Level – 0.05)
- H0 - has a unit root (<0.05)
- H1 - has no unit root (>0.05)

Johansen Co-Integration
- H0 – has 1 co integration (<0.05)
- H1 – has 2 co integration (>0.05)

Granger Causality
- H0 – accepted (<0.05)
- H1- rejected (>0.05)

SUGGESTION:

- The oil cartels that run underworld against the law, manipulating the prices must be dealt with to stabilize the oil supply.
- The crude oil being the essential for almost all the households, mechanisms has to be put in place to deliver oil at a lower price to the retailers.
- Inflation data must be compiled daily in accordance to the crude oil prices that the retailers buy. By this we can know the effect of crude oil on wholesale and retail inflation, daily.
- The inflation should not be passed on to the consumer by reducing tariffs and duties.
- If the inflation is so high, the taxes can be increased slightly to cushion the economic effects of high inflation.
- The supply chain infrastructure of crude oil must be watched and updated carefully every time.
- The countries should rely on multiple sources for fulfilling their requirements. Relying only on one source will have severe implications for the future.
- When the supply of crude oil is stabilized, the inflation would also be in the contained area.
- Triggers of crude oil inflation doesn't only rely on production, but also on the political decisions on supplying the crude oil by oil producing nations. The oil producing countries should be more transparent about the supply of crude oil to prevent any supply shocks.
- The crude oil stocks should be increased to all time levels to sustain any rampant demand movement in future.

CONCLUSION:

In the face of rising oil costs and inflation, a sustained rise in crude oil prices will have a negative influence on the economy's overall growth. If oil prices remain above $110 per barrel for an extended period, the Central Bank will be forced to raise interest rates.

In the post-COVID international system, the oil price and its relationship with economic recovery, bond prices, and inflation will be crucial. Inflation and oil prices are inextricably related. This is because oil has a multiplier effect as it moves through markets: it is an inescapable cost for enterprises that operate cars, which then pass it on to customers by raising the price of their goods and services.

Oil price fluctuations can have an economic influence on both the micro and macroeconomic levels. As previously noted increasing oil prices can make it considerably more expensive for businesses to produce and transport commodities or provide services at the macroeconomic level. Rising oil prices can boost the costs of production, transportation, and heating for enterprises, increasing the cost of output. Producers may then opt to pass those costs on to consumers. However, as many customers are aware, increased prices at the pump and in stores can cut into discretionary spending that could otherwise be spent on new technology, clothes, or a vacation. Higher pricing for consumer goods and services can decrease demand over time, resulting in slower economic growth or even recession. Oil price surges preceded the last three recessions. To address the continued rise in the prices of refined petroleum products as well as subsidy, it was high time that the government stopped the petrol subsidy regime, as well as fixed the country's refineries and the government.