CRUDE OIL SHOCKS ON INDIAN ECONOMY

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Abstract

To correct inflation & to hold accelerated economic growth crude oil plays a pivotal role in VUCA (volatility, uncertainty, complexity, and ambiguity), market where in the global market, India is positioned 3rd largest consumer of crude oil by importing 4,930 **(bbl/day - est.)per day** of the total import. Crude oil is a price decisive among various commodities, since increase or decrease in price have an direct impact on various commodities price and society as a whole. Even cutback of one-dollar in price of crude oil impacts threefold effect in the economy ie., saves the country about 50 billion rupees. The downward range of fall in oil prices nearly 57 percent since June 2015 evidences the reason of oversupply from OPEC & US. India has recently adopted a rating mechanism for its crude oil merchandise that reflects the world crude costs. This paper highlighted the impact of crude oil price on the Indian economy by comparing the relevant inputs like Gross Domestic Product (GDP), Consumer Price Index (CPI)and Crude Oil Price for the period of 18 years (2001 – 2018). The projected model to research the linkage among the key variables is done by using Regression model.

Keywords: Gross Domestic Product (GDP),) and), Consumer Price Index (CPI),

Introduction

Magic word like Oil always make news and heard daily. there's few nation that doesn't request this indispensable resource. A nation that as of now has unrefined petroleum needs more. They battle to investigate it at practically any expense. The basic man does not think a lot about this peculiar mineral oil in spite of the fact that in pretty much every nation he bears the weight of the cost of investigation of oil or its import. Oil could be a very important input for the assembly of a large vary of products and services, as a result of it's used for transportation in business of all kinds. Higher oil costs therefore increase the value of inputs; and final product price will increase cause inflation, if the price will increase cannot be passed on to customers, economic inputs like labor and capital stock could also be reallocated. Higher oil costs will cause employee layoffs and therefore the inactivity of plants, reducing economic output within the short term. in an exceedingly web bourgeois of oil economy like Republic of India, higher oil costs shrink foreign reserves of the economy, have an effect on the getting power of the economy in terms of International trade. The accrued worth of foreign oil forces the companies to devote additional of their production to exports, as opposition satisfying domestic demand for merchandise and services, thus cause inflation, notwithstanding there's no amendment within the amount of foreign oil consumed Oil or crude oil is outlined in an exceedingly form of ways in which by geologists, chemists, refiners, engineers and lawyers. There is, therefore, no uniformity or full agreement. Since, it's a natural product forming an area of rocks, earth science definition finds additional general acceptance. The word crude oil springs from 2 Latin words petra suggests that rock and oleum suggests that oil. crude oil is loosely known as „rock oil‟ or „crude oil‟. it's a generic term covering a large vary of gear comprising hydrocarbons, that area unit present molecules of carbon and element.

Global Primary Energy Consumption

The global primary energy consumption at the tip of 2011 is corresponding to 12274.6 Million tonnes oil equivalent. The share of oil is that the largest at 4059.1 Million tones oil equivalent; i.e. oil: 33.06%; followed by coal: thirty.34 %, natural gas: twenty three.67%; hydroelectricity: six.45%; nuclear energy: four.88%; renewable: one.59% severally. The demand for gas in future can increase as industrial countries take robust action to chop greenhouse gas emissions. World primary energy consumption is projected to grow by one.6% p.a. over the amount 2010 to 2030, adding thirty ninth to world consumption by 2030. the expansion rate has declined from two.5% p.a. over the past decade, to 2.0% p.a. over subsequent decade, and 1.3% p.a. from 2020 to 2030. the majority (96%) of the expansion is in non-OECD countries. By 2030 non-OECD energy consumption is sixty nine higher than the 2010 level, with growth averaging two.7% p.a. (or 1.6% p.a. per capita), and it accounts for sixty fifth of world consumption (compared to fifty four in 2010). OECD energy consumption in 2030 is simply four-dimensional on top of in 2010, with growth averaging zero.2% p.a. to 2030.

OECD energy utilization per capita is on a declining pattern (- 0.2% p.a. 2010-30).The International Energy Agency (IEA) defines energy security primarily in terms of stable provides of oil and gas. A broader definition of energy resource portfolio and provide of energy services for the specified level of services that may sustain economic process and impoverishment reduction. Energy security covers several issues linking energy, economic process, setting and government.

Effects of Falling oil costs in India Oil is one amongst the foremost necessary commodities in recent times. a lot of of the economy depends on oil. this can be why costs of oil pertain nearly each economy. international fossil fuel costs area unit down nearly 22% this. This has caused a crisis in countries like Russia, that depends on oil exports.

In the oil imports, India having largest current account balance i.e.80% of world oil imports. This accounts for 33% of its total oil imports. Therefore, the cost of oil influences India’a economic activities. A fall in cost would drive down the estimation of its imports.. This helps thin India's present record deficiency- India owes to the globe in foreign currency. According to a report by Livemint, A fall in oil costs by $10 per barrel helps cut back the present account deficit by $9.2 billion and this is accounted for in terms of amounts upm to 0.47% of the India’s GDP.

Every economy in the world is not free from inflation of oil price, particularly in transportation of goods and services. Due to multiplier effect a rise in oil price causes to increase in prices of all goods and services and as a result, inflation rises, which hampered the purchasing power of people in the country and this become bad for an economy. It likewise influences organizations straightforwardly in light of an ascent in information costs and in a roundabout way through a fall in the demand. Moreover the fall in global crude prices comes as a boon to republic India.

The Economic Survey 2018 estimates that every $10 per barrel increase in the price of oil reduces growth by 0.2-0.3 percentage points.

Fuel price given fixed at subsidized rate by government, which enabled companies to compensate for any loss from selling fuel products at lower rates, which leads to a rise in fiscal deficit and as result if any time , a fall in oil prices reduces fiscal deficit. However, since diesel was recently deregulated, the autumn in oil costs can probably have less result on the government's business deficit. Moreover, the govt still should acquire previous under-recoveries. Any enjoy the autumn are going to be offset by payments for the past under-recoveries

Rupee exchange rate

The value of a free currency like Rupee depends on its demand **within the** currency market. This is the reason it depends, all things considered, on the present account deficit. A high deficiency implies the nation needs to offer rupees and purchase dollars to pay its bills. This diminishes the estimation of the rupee. A fall in oil costs is, along these lines, useful for the rupee. However, the drawback is that the dollar strengthens each time the worth of oil falls. This nullifies any advantages from a fall in current account deficit

Petroleum producers

The fall in worldwide oil costs might be helpful to India, however it likewise has its drawbacks. Straightforwardly, it influences the exporters of oil makers in the nation. Any fall in oil costs contrarily impacts exports. When India is running an exchange shortage - high imports and low fares, any fall in fares is terrible news.. A fall in oil cost may affect their economy, and hamper interest for Indian items.

Literature Review

Oil costs matter to the strength of an economy,, despite a standardized fall in international oil intensity; oil remains a vital goods and events within the oil market and continues to play a big role in shaping international economic and political development. oil is that the world economy’s most significant supply of energy and is so, essential to economic process. the worth of crude in international market is actually driven by provide and demand. The performance of world economy normally and therefore the world‟s largest economies like U.S., Japan and recently China have a big impact on the demand for oil and contrariwise. the assorted technique developed by UN agency, World Bank(WB) and OECD have calculable that ten dollar increase in oil costs would result in a decline of world production of products and services by 5%.

Later Hamilton (2000) detailed clear proof of nonlinearity in oil price increments is significantly more imperative than oil price diminishes. An alternative translation was proposed dependent on the estimation of a direct useful frame utilizing exogenous interruptions in oil supplies as an instrument. His investigation demonstrates that oil stuns assume an essential job in deciding macroeconomic conduct since they disturb spending by customers and firms. Hamilton expanded his examination work (2003, 2005, and 2009) and has exhibited experimental proof proposing that oil value stuns have been one of the fundamental driver of recessions in the United States.

Others, including Barsky and Kilian (2004), contend that the impact is little and that oil stuns alone can't clarify the U.S. stagflation of the 1970s. Taking an increasingly halfway position, Bernanke et al. (1997) contend that an imperative piece of the impact of oil value stuns on the U.S. economy results not from the adjustment in oil costs in essence, yet from the subsequent fixing of money related strategy.

In the same line of analysis, Blanchard and Gali (2007) gift proof showing that the dynamic impact of oil shocks has slashed significantly over time, because of a mixture of enhancements in financial policy, a lot of versatile labor markets, and a smaller share of oil in production. Their results indicate that a ten p.c increase within the value of oil would, before 1984, have reduced U.S. value by concerning zero.7 p.c over a 2–3 year amount, whereas once 1984 the loss would be solely concerning zero.25 percent. In distinction to the intensive literature on the impact of oil costs on the U.S. economy, there has Outside the U.S., studies of the link between oil costs and therefore the macro-economy have virtually completely been confined to alternative OECD members, with results suggesting that they have a tendency to be affected in loosely identical approach because the U.S. however less powerfully.

Kaushik Bhattacharya et al. (2005) examined the effect of increment in oil cost on inflation. They contemplated the instrument of increment in the costs of oil based goods on the costs of different items and the outout in India. In February 1999, from an untouched low of 11 U.S Dollars for each barrel, it expanded to a pinnacle of 35 dollars in the primary seven day stretch of September 2000. Because of this, all oil bringing in nations confronted the risk of oil stun; India, being a noteworthy oil merchant, was especially influenced. Truly, there have been four oil stuns in the previous thirty years. Regardless of this, low inflationary weight has been helping the created nations in moderating the hazard related with oil stuns. In spite of this, creating nations are influenced more in view of the nonappearance of trend setting innovation to moderate oil. Writing uncovers that most scientists concur with the way that expansion recessionary affects oil costs.

Hedayeh Samavati and David Dits in their paper "Petroleum Prices and their impact on Aggregate Economic Activity: Greasing the Skids?" (2007), explained the effect of oil price on US GDP components. Their study examined the period from 1986 to 2006 to determine oil prices impact on consumption, government expenditure, investment and net exports. According to them, consumption, investment and government expenditure were positively associated with oil prices.

In case of developed economies, case of Japan is also interesting. Most of the studies that examined oil supply shocks in major industrialized countries, obtained similar conclusions: the typical response to an oil shock is a decrease in the real GDP growth rate and real wage, leading to inflation and so on. This performance is often called stagflation.

On the international level, Francois lescarous and Velerie Mignon in their paper "On the Influence of Oil Prices on Economic Activity and Other Macroeconomic and Financial Variables" (2008), with an analysis of short run and long run interaction, showed the existence of various relationships between oil prices and macroeconomic variable with a special focus on the linkages between oil prices and share prices in the short run for three groups of countries, that is, OECD members, oil importing countries and oil exporting countries.

Gap Analysis

Crude oil prices acted a vital role in considerably reducing economic growth in any economy of the world whether it is developed or developing. Global demand for crude oil is derived demand and changes in crude oil prices are passed on to consumers in the prices of the final petroleum products. Increasing prices of petroleum products causes to decrease the demand of other product because have to pay for oil-derived products. Higher the oil prices cause increases in other petroleum goods prices that is why energy is the prime pusher in the economy. The supply and demand gap of crude oil must be bridge over through import to full fill the country‟s requirement, therefore crude oil price is an crucial factor in determination of foreign reserve position and trade balance of payment. Crude oil prices in not free from inflation and with the increase of inflation general public capacity to purchase goes down and outlay increases result in decreasing saving finally economic activities become slow down and thus reduces GDP growth of the country. So decrease of increase of crude oil price create multiplier effect in the economy.

Research Problem

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Objectives of the study

- To find out the impact of crude oil price on CPI and GDP
- To analyze the linkage between differential change rate of crude oil prices and Inflation , also between inflation and GDP growth of Indian economy
- To find out the impact of Crude Oil Prices on Indian Economy.
- To find out is there any correlation between CPI and Crude Oil price.

Hypotheses

1. There is no significant difference between Crude Oil price and GDP,
2. There is no significant difference between CPI and GDP,

Research Methodology

- Types of research- Analytical
- Data Set- From 2001- 2018
- Data Source- Secondary from RBI, OPEC, WORLD BANK, IMF
- Research tools- SPSS
- Research Method-Regression and correlation

Results and Discussions

Table No. 1 Regression Analysis

Model Summary-Table-1					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.932	0.872	0.851	0.15005	0.267

Since R value .932 indicates, the model is best fitted to predict the movements between CPI and GDP and Crude oil. The adjusted R square value is 0.872.,which shows that the two independent variables (CPI and Crude oil) accounted for a 87.2% variance in the dependent variable i.e. GDP.

The Durbin-Watson statistic is always between 0 and 4. A value of 2 means that there is no autocorrelation in the sample. Values from 0 to less than 2 indicate positive autocorrelation and values from more than 2 to 4 indicate negative autocorrelation.

Table 02: Coefficient

Model		Unstandardized Coefficient		Standardized Coefficient	t	Sig	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
	(Constant)	4.757	1.048		4.535	0.002		
	CRUDE	0.824	0.149	1.014	5.575	0	0.29	2.134
	CPI	-.098	0.180	-.098	-.543	0.594	0.29	2.134

Dependent Variable: GDP

The information in the table above also shows multicollinearity in our multiple linear regression models. Tolerance value is greater than > 0.1 (or VIF < 10) for all variables, which they are for the entire variable, showed that there exists multicolinearity between Crude and CPI.

Least Square Equation Model is Y = 4.757 GDP +.824Crude oil-.098CPI

Table 03: Inter Correlation Matrix between CPI and CRUDE Oil Price

Model			CPI	CRUDE
1	Correlations	CPI	1.001	-.824
		CRUDE	-.824	1.001

We infer from the above table that there is an inter correlation between CPI and Crude oil price as CPI increases Crude oil price decreases and vice versa

Hypothesis Testing:

1. Since at 5% level of significance, Crude Oil price is less than 0.05, that is why null hypothesis is rejected.So It is conclude that there is significant difference between Crude Oil price and GDP.
2. Since the value of Consumer Price Index is greater than 0.05, null hypothesis is accepted at 5% level of significance. So it is conclude that there is significant difference between CPI and GDP.

Conclusion

In current scenario, India's dependency on oil have reached to more than 82% and still increasing. India's oil import bill is probably going to bounce by a quarter to USD 87.7 billion in the current monetary year which closes this end of the week as worldwide oil costs have flooded. India had imported 213.93 million tons (MT) of unrefined petroleum 2016-17 for USD 70.196 billion or Rs 4.7 lakh crore.For 2017-18, the imports are pegged at 219.15 MT for USD 87.725 billion (Rs 5.65 lakh crore), as per the most recent information accessible from oil service's Petroleum Planning and Analysis Cell (PPAC). India depends more than 80 percent on imports to meet its oil needs.During initial 11 months of current monetary (April 2017 to February 2018), the nation imported 195.7 MT raw petroleum for USD 63.5 billion.

In this way, to take care of the developing demand for unrefined petroleum, diesel and oil and so on over the long haul, India should take different measures for effectiveness enhancement in vitality utilize. India additionally needs to all the more enthusiastically seek after the utilization of sustainable power sources like hydro, wind, sun based, bio-powers, atomic, and so on., as the Western European nations have done. India should take measures to build fares to have the capacity to meet its developing future oil import necessities. Watchful wanting to guarantee that future oil necessities can be met will be significant in continuing fast monetary development later on.

This is conclude that there is an inter correlation between crude oil price and CPI and vice versa.. It was also found that there was significant difference between crude oil price and GDP and there is no significant difference between CPI and GDP.

References

Akansha. S.J, Nitish S.P (2015), Crude oil prices and its impact on Indian economy, International Journal of Social Science and Humanities Research, 3(20): 562-572

Bhattachary, Kaushik and Bhattachery (2005), Impact of increase in oil prices on inflation and output in India, Economic and Political Weekly, 36(51): 401-410

Dr. A.Sharma, G.Singh, P. Gupta (2012), Impact of crude oil prices on Indian economy, International Journal of Social Science and Interdisciplinary Research, 4(4): 96-97

Dr. Kapil Jain (2013), Oil price vitality and its impact on the selected economic indicators in India, International Journal of Management and Social Science Research, 2(11): 64-73

M. Anadan, S. Ramaswamy, S, Sridhar (2013), Crude oil price behavior and its impact on Macroeconomic variable: A case of Inflation, 13(6): 148-160

Summit .G, N. Sivakumar (2015), Beta clustering of impact of crude oil price on Indian economy, Journal of Applied Management and Investment, 4(1): 25-33