

## 33. THE CRUDE OIL PRICE CHANGES IN THE RECENT SCENARIO AND ITS IMPACT ON THE INDIAN ECONOMY

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### ABSTRACT

The crude oil is the major raw material for oil product production in the globalization era. Changes of price will affect country's economic growth and development. The aim of the study is to examine the Crude Oil Price changes and its impact on the Indian GDP in the recent scenario. To do the same, the study has applied secondary data, statistical tools like chart, the table, graph, correlation and descriptive analysis to show the changes of crude oil price and country's GDP during the study period. The study reveals that the annual percentage price of crude oil has been increased or decreased positively and negatively but the India's GDP seems to move forward constantly between 5% to 8% over the study period and the Correlation test conformed that the percentage of crude oil price and percentage change of GDP has moderate positive correlation. OPEC is widely seen as the most influential player in oil price fluctuations in the during the study periods.

### KEYWORDS

Crude Oil Prices, impact, causes, GDP, OPEC, global economy.

### INTRODUCTION

Crude oil is the raw natural resource. it has been extracting from the earth and refined into products such as

gasoline, jet fuel, and other petroleum products. Many economists agree that crude oil is the single most important commodity in the world as it is the primary source of energy production. Crude Oil is also a life blood of the all industrialized nations. Since the mid-1950, it has become the world's most important source of energy resources. Its products are underpinning modern society. it is mainly supplying energy to power industry, heat homes and provide fuel for vehicles and aeroplanes to carry goods and people all over the world. India is the 3rd largest oil importing nation and 7th largest economy in the world. After industrialization, oil has become an essential raw material to active industrial growth and economic growth as well as has become the domestic requirement of our country. In other words , There are many bi-product production depends on crude oil like lubricating oil, diesel fuel, jet fuel, petrol, chemicals, liquefied petroleum gas, waxes, polishes, bitumen for road and roofing, fuel for ships, factories & include plastics, alcohol, medicines, rubber etc. In addition, the upstream oil company like reliance, ONGC, GAIL etc and downstream oil company like HP, Indian oil and Bharat petroleum raw material highly depends on crude oil. In India, almost 80 % of oil requirements are imported. Out of 80% nearly 60% is crude oil which

makes it 2% full year GDP of the country. Thus, changes in the price of crude oil whether it raises or falls will affect our India economy. The impact would be like Fiscal deficit, changes of value on the country rupee, Current Account Deficit, Sensex changes in stock market and variations on the inflation rate in the economy. Hence, the government and business people have more concern about the crude oil price changes. Therefore, this study will explore the recent changes of crude oil price and impact on the Indian economy.

## OBJECTIVE AND METHODOLOGY OF THE STUDY

### Objective of the study

- To analysis the Crude Oil Prices changes and the impact on the Indian GDP in the recent scenario.
- To find out the general causes for rise and fall of the crude oil prices in the recent scenario.

### Methodology of the study

This study is based on the secondary

data which has collected from various reports like World Development Indicators 2019, Economic Time and other web sources. The period of the study is from 2005 to 2019. To analysis the crude oil price changes and its impact on Indian economy the available data have been processed and presented in suitable chart, graph and tables. Moreover, to examine the relationship between the crude oil price and India's GDP the study has applied the descriptive statistics and correlation test.

## ANALYSIS AND INTERPRETATION *Crude Oil Prices changes in the recent scenario*

The price of oil shown in table 1 is adjusted for inflation using the headline CPI and is shown by default on a logarithmic scale. The current month is updated on an hourly basis with today's latest value. The current price of WTI crude oil as of June 22, 2020 is \$40.68 per barrel. The below table explore the Crude Oil Prices - Historical Annual Data.

**Table -1 Crude Oil Prices**

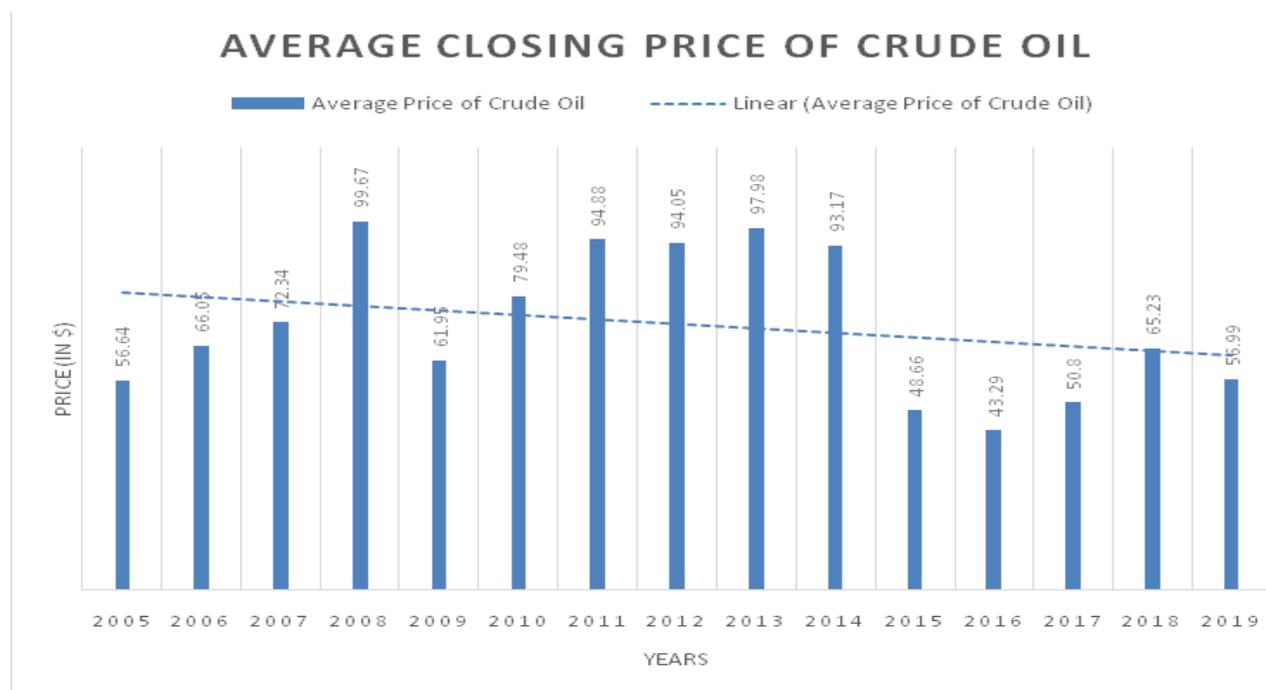
Crude Oil Prices - Historical Annual Data						
Year	Average Closing Price	Year Open	Year High	Year Low	Year Close	Annual % Change
2019	\$56.99	\$46.31	\$66.24	\$46.31	\$61.14	35.42%
2018	\$65.23	\$60.37	\$77.41	\$44.48	\$45.15	-25.32%
2017	\$50.80	\$52.36	\$60.46	\$42.48	\$60.46	12.48%
2016	\$43.29	\$36.81	\$54.01	\$26.19	\$53.75	44.76%
2015	\$48.66	\$52.72	\$61.36	\$34.55	\$37.13	-30.53%
2014	\$93.17	\$95.14	\$107.95	\$53.45	\$53.45	-45.55%
2013	\$97.98	\$93.14	\$110.62	\$86.65	\$98.17	6.90%
2012	\$94.05	\$102.96	\$109.39	\$77.72	\$91.83	-7.08%
2011	\$94.88	\$91.59	\$113.39	\$75.40	\$98.83	8.15%
2010	\$79.48	\$81.52	\$91.48	\$64.78	\$91.38	15.10%
2009	\$61.95	\$46.17	\$81.03	\$34.03	\$79.39	78.00%
2008	\$99.67	\$99.64	\$145.31	\$30.28	\$44.60	-53.52%
2007	\$72.34	\$60.77	\$99.16	\$50.51	\$95.95	57.68%
2006	\$66.05	\$63.11	\$77.05	\$55.90	\$60.85	-0.34%
2005	\$56.64	\$42.16	\$69.91	\$42.16	\$61.06	40.82%

Sources : <https://www.macrotrends.net/1369/crude-oil-price-history-chart>

In above table shows the Historical Annual Data of Crude Oil Prices since 2005 up to 2019. The Average Closing Price of crude oil was maximum of \$99.67 in the year 2008 and minimum of \$43.29 in year 2016. Rest of year's average closing price was above \$50 in most of the years. The Year Open price of crude oil was found to be maximum \$99.64 in the year 2008 and \$36.81 minimum in the year 2016. Over all, the year open price was just above \$40.00 throughout the years. In case of Annual Percentage Change it was found that -0.34% least changes in the year 2006 and 78.00% was the high percentage changes in the year 2009.

## Average closing crude oil price

**Chart-1 Average closing crude oil price**



The above bar chart-1 reveals that the average closing price of crude oil from 2005 up to 2019. The years like 2005, 2006, 2007, 2009, 2015, 2016, 2017 and 2019 have got less than \$ 65.23 where as the years like 2008, 2011, 2012, 2013, 2014 and 2018 have got above \$ 65.23. Particularly, in the year 2008, \$ 99.67 was reached maximum and the year 2015 and 2016 reached minimum of \$ 43.29 and \$ 48.66 respectively. The Overall average closing price of crude oil was almost above \$50.00 and then since 2015 the price has not gone up more than \$ 65.23 till 2019.

### **OPENING CLOSING, HIGHEST AND LOWEST PRICE OF CRUDE OIL**

The graph 1 shows the Opening Closing, Highest and Lowest Price of Crude Oil over a period of time. The y-axis indicates the crude oil price per barrel and the x-axis indicates the year. Over all, Opening Closing, Highest and Lowest Price have been flatted down since 2005 up to 2019. Particularly, the year's highest price was in 2008 which is above \$140.00. Then, it has declined to below \$80.00 and since 2010 it has

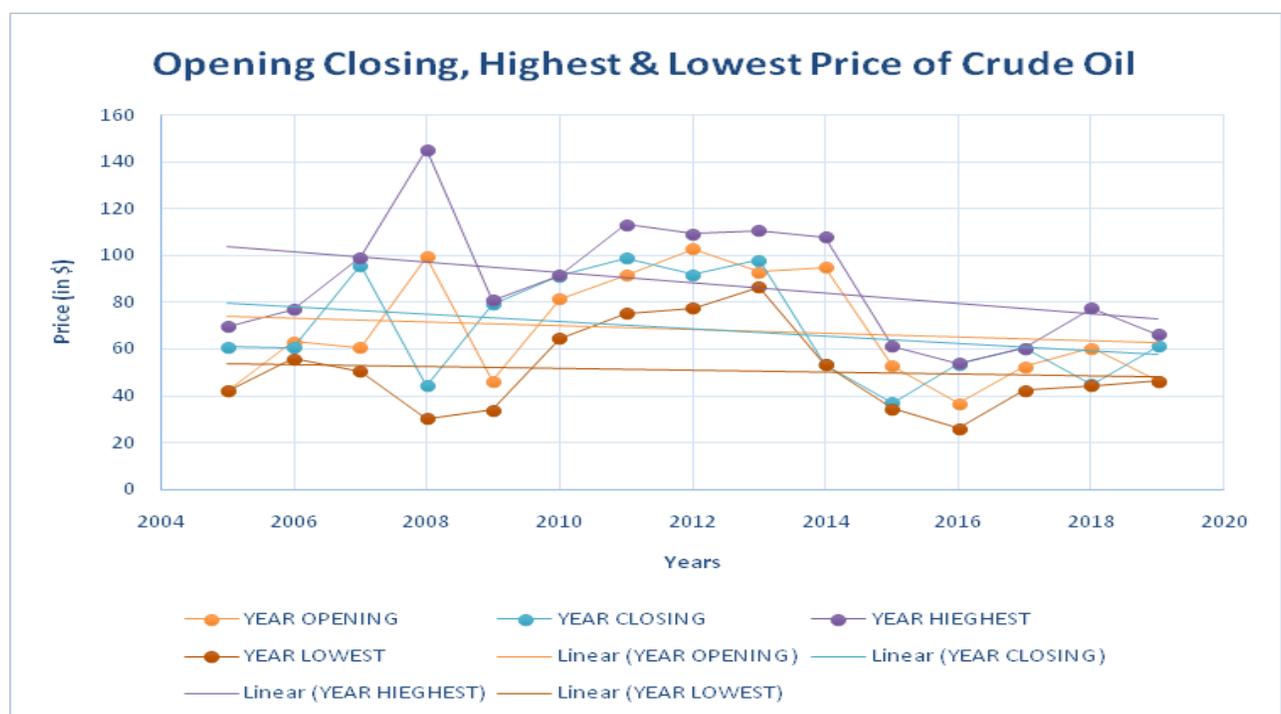
been increased to above \$100.00 till 2014. In the year 2014 beginning on words, highest price was decreased below \$80.00 and continues to 2015, 2016 and 2017. After 2017, the price was improved to almost \$ 100.00 and then it declined below \$80.00 per barrel. In the case of year lowest price, it was \$ 40.00 in 2005 and increased to above \$ 50.00 in the year 2006. Then, it has been declining below \$50.00 for

rest of the years like 2007, 2008 and 2009. After 2009, the price has been increased above \$ 60.00 up to 2013 year. In 2013 beginning on words, the years of lowest price was decreasing below \$40.00 in the year like 2015, 2016 and 2017. After 2018 onwards, the price was improved into above \$ 40.00 per barrel. Last one is that Opening and Closing price of Crude Oil. The movement of price changes between opening and closing were negative relation. Remarkably, the year of closing in 2007 was \$ 100.00 and then the price went on below \$ 50.00. Whereas, the year opening price was \$ 60.00 in 2007 and it

increased into \$100.00 then decreased to below \$ 50.00. Then, in 2008 years on wards both the year of opening and closing price have been increasing and decreasing with below \$ 100.00 until the year 2019.

Overall, this graph highlights the evidence that since 2005 onwards up to 2019 the price of crude oil Opening, Closing, Highest and Lowest have changed almost below \$100.00 except in the 2008. The future prediction is that the price of crude oil Opening, Closing, Highest and Lowest well be moving below \$80.00 in upcoming years like 2020 and 2021.

**Graph -1 Opening Closing, Highest and Lowest Price of Crude Oil**



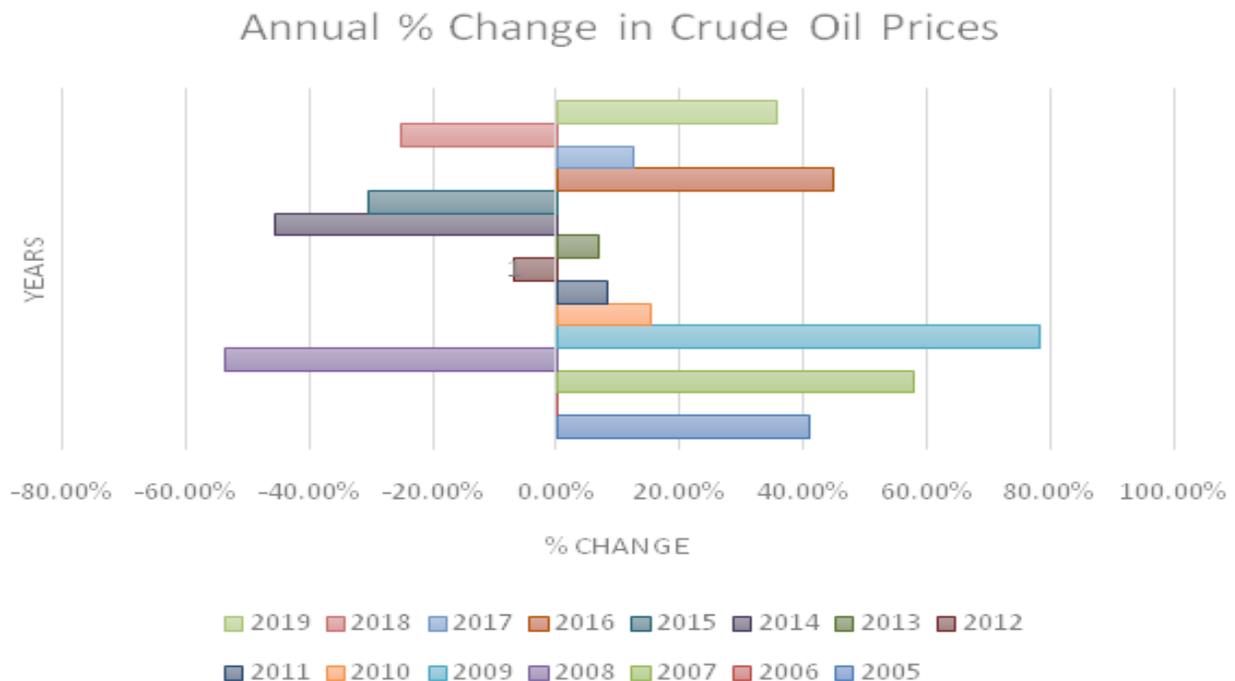
**Annual % Change Crude Oil Price**

The horizontal bar graph tells about the Annual % Change Crude Oil Price. The vertical axis represents the years. From the given horizontal bar graph, we can infer that on the right side represent nine positive price changes bar diagram with different colour. Year like 2005, 2007, 2009, 2016, 2019 are positive annual % price change with above 40% with colour blue,

light green, sky blue, light red and green. Particularly, in year 2009 price change 78% which was the highest percentages. In the case of year like 2010,2011,2013,2017 were got below 15.10% positive percentage change which indicates the colour like pink, blue, thick green and light blue among these years only 2011 was just 8% price change. On the contrast, the negative

On the contrast, the negative annual % price change were in the year like 2006,2008,2012,2014,2015,2018 had been getting below -2.32% up to -54% price changes throughout the year which indicates colours like light red, drake blue, red, blue, light blue and light pink. Remarkably, in the year 2008 almost -54% was the very highest negative annual percentage price change and -2% price changes was the very lowest in the annual price changes.

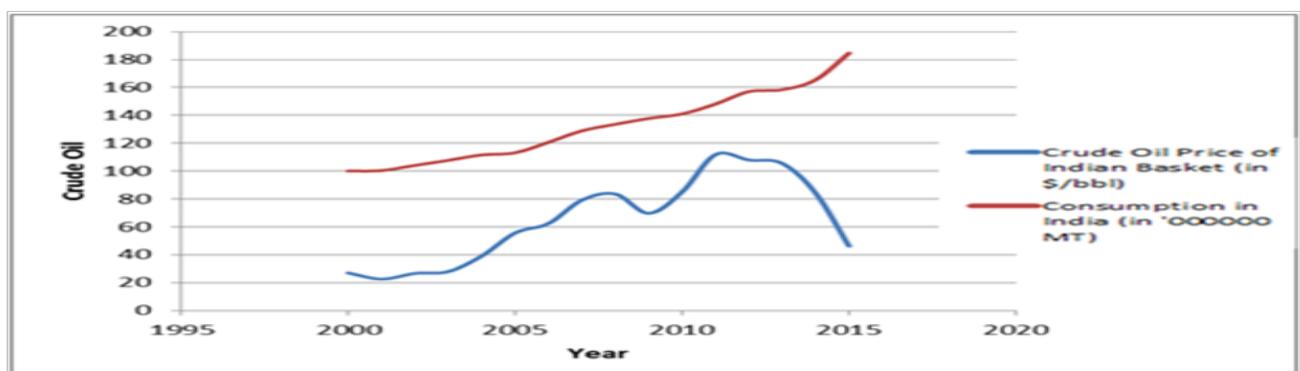
### Chart-2 Annual % Change Crude Oil Price



### The relationship between world % Change in Crude Oil Price and % Change in India's GDP

No doubt, the changes of crude oil prices will be influence the economy. In the recent scenario, falls of oil price had been supporting for the improvement of economic condition of net oil importer India. India is the country where almost 70 to 80% of oil is imported. In term of GDP and crude oil price in India, there was GDP \$2 trillion in 2015 which is the highest attainment so far. Due to the declining oil prices India's macro-economic indicators has been improved. On the back of contraction in the trade deficit, the CAD decreased to \$22.1 billion or 1.1 % of GDP \$ 26.8 billion .1.3 % of GDP, in 2014-15. Decline in crude oil price has been helping the government to handle its finances better as it translates into lower subsidies on petroleum products. As a result, there was a lower fiscal deficit in India.

### Graph -2 Crude oil price and consumption trend in India 2000 – 2016



Sources: <https://energy.economicstimes.indiatimes.com>

The above Graph -2 reveals the relation between crude oil price Indian basket and consumption in India. The consumptions of crude oil in India have been constantly increasing since 2000. However, the crude oil price has witnessed sharp decline since 2014.

**Table -2 world % Change in Crude Oil Price and % Change in India's GDP in recent scenario**

Year	Annual % Change in Crude Oil Price	% Change in GDP
2005	40.82	7.92
2006	-0.34	8.06
2007	57.68	7.66
2008	-53.52	3.08
2009	78.00	7.86
2010	15.10	8.49
2011	8.15	5.24
2012	-7.08	5.45
2013	6.90	6.38
2014	-45.55	7.41
2015	-30.53	7.99
2016	44.76	8.25
2017	12.48	7.04
2018	-25.32	6.11
2019	35.42	5.02

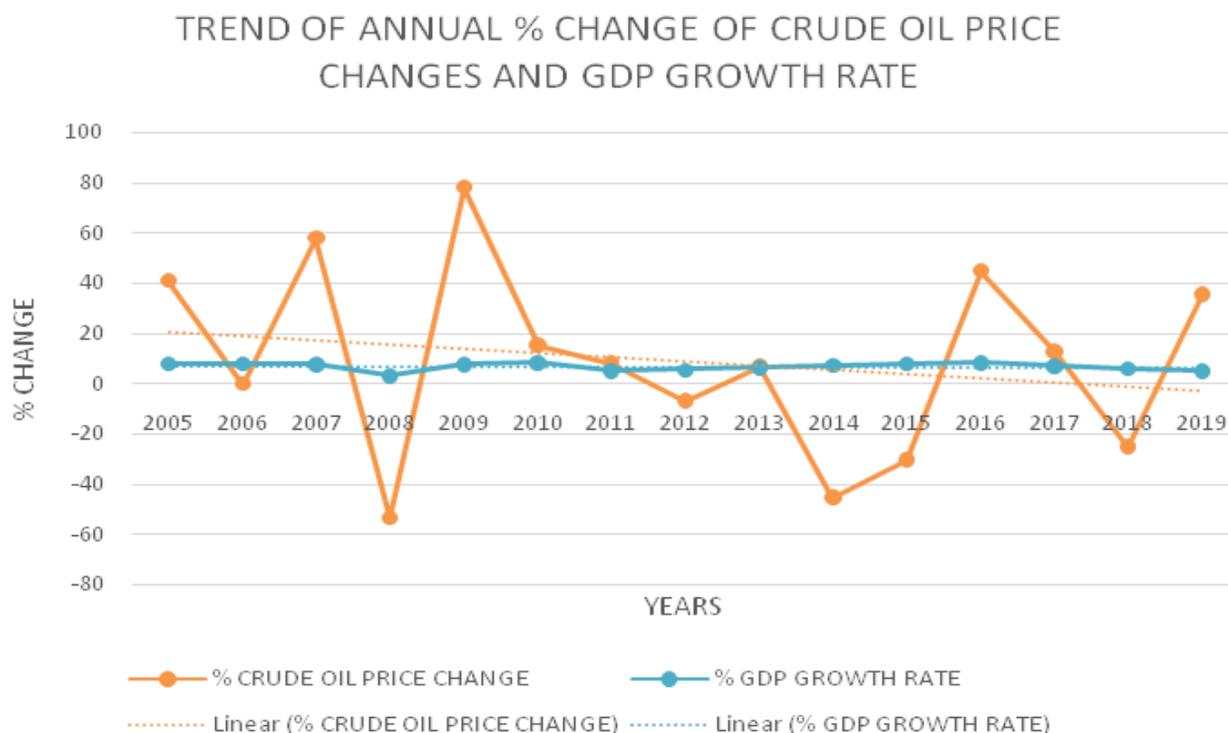
Source: World Development Indicators, World Bank Publications

The above table shows the relationship between annual percentage change and percentage changes GDP in India. In the Year 2005, 2007, 2009, 2016, 2019 have positive annual % price change with above 40%. For most part, in year 2009 price change 78% this was the highest percentage. In the case of year 2010,2011,2013,2017 were got below 15.10% positive percentage change among these years only 2011 was just 8% price change. On the other hand, the negative annual % price change were in the year 2006,2008,2012,2014,2015,2018 had been getting below -2.32% up to -54% price changes throughout the year. Surprisingly, in the year 2008 almost - 54% was the very highest negative annual percentage price change and -2% price changes was the very lowest in the annual price changes. On the side of India's GDP,

it has been constantly moving forward between 5% to 8% GDP since 2005 until 2019. Overall, this table highlight the evidence that since 2005 onwards up to 2019 the annual percentage price of crude oil has been rise and fall with positive and negative but the India's GDP constantly moving forward between 5% to 8% over the periods of time.

#### **TREND OF ANNUAL % CHANGE OF CRUDE OIL PRICE CHANGES AND GDP GROWTH RATE**

The graph 3 reveals that since 2005 up to 2019 the annual percentage price of crude oil has been rise and fall with positive and negative but the India's GDP constantly moving forward between 5% to 8% over the periods of time.

**Graph -3 Trend of annual % change of crude oil price changes and GDP growth rate****Table -3 Correlations between %Changes crude and %Changes GDP in India**

		%CHN.CRUDE	%CHN.GDP
% CHN.CRUDE % CHN.GDP	Pearson Correlation	1	.432
	Sig. (2-tailed)		.107
	N	15	15
	Pearson Correlation	.432	1
	Sig. (2-tailed)	.107	
	N	15	15

Although technically a positive correlation, the relationship between variables like percentage of crude price and percentage change of GDP is moderate correlation. The P-Value is .107551. The result is not significant at  $p < .05$ .

**Descriptive Statistics For India's GDP And Oil Price Changes**

	Mean	Std. Deviation	N
Crude oil price	9.1313	37.93319	15
GDP India	6.7973	1.54515	15

The above descriptive statistics shows the India's GDP mean value is 6.7 and STD. Deviation 1.5. On the other hand, the Oil Price Changes mean value is 9.13 and STD. Deviation 37.93 during the study periods.

## **GENERAL CAUSES FOR NEGATIVE AND POSITIVE CRUDE OIL PRICE CHANGES IN THE RECENT YEARS**

✓ The first general cause is the Organization of Petroleum Exporting Countries which influences the fluctuations in oil prices. As per as the 2018 statistics, OPEC has been controlling almost 80% of the world's supply of oil reserves in recent era. Moreover, this association will set production levels to meet global demand and will influence the price of oil and gas by rise or cut the production. Recent days in the year 2020, the oil prices has been collapsed due to the COVID-19 pandemic and economic slowdown. Hence, OPEC and its allies have agreed to historic production cuts to stabilize prices, but they dropped to 20-year lows.

✓ The second cause is that the nature of Supply and Demand condition. When supply exceeds the demand, the price of oil will fall and the inverse is also true when demand outpaces supply. In the recent year 2014, the price of oil has been decreased due to the lower demand for oil in the Europe and china, and coupled with a steady supply of oil OPEC. In addition, the more supply of oil was the cause to fall roughly \$60 per barrel as of December 2019.

✓ The third causes are that Natural Disasters and Politics Weigh. For instant in the year 2005, The Hurricane Katrina struck the southern U.S has been affecting almost 20% of the U.S oil supply, as the result the price per barrel of oil was to rise by \$13. In addition In May 2011, there was the flooding of the Mississippi River led to oil price rise and fall.

✓ The fourth cause is Production Costs and Storage. For example, oil in the Middle East is relatively cheap to extract where as the oil production in Canada is more costly. When the supply of cheap oil is exhausted, the

price will be conceivably rising if the only remaining oil is in the tar sands. Moreover, the U.S. production also directly could be affecting the price of oil. Whether the oversupply is in the industry or a decline in production, which will decreases and increases prices. In the year 2019, the U.S. was an average daily production level of 12 million barrels of oil. While volatile the average production, the trend was downward. As a result, the Consistent weekly drops were put upward pressure on oil prices. In addition, low oil storage which impacts the level of investments moving into the oil industry. Oil diverted into storage has grown exponentially .However, slowing production and pipeline network improvements will be reducing the chance that oil storage would reach its limits, which could help investors discard their fears of too much supply and a rise in oil prices.

✓ The Fifth causes is Interest Rate, it has some correlation between their movements, but is not correlated exclusively. Increase the interest rates will raise the consumers' and manufacturers' costs, which will reduces the amount of time and money people spend driving. As a result, the fewer people on the road translate to less demand for oil, which could the cause of oil prices to drop. So it will be called as an inverse correlation. However, when interest rates drop, consumers and companies will able to borrow and spend money more freely, it leads to rise up the demand for oil and The greater the usage of oil in the economy , which will makes the OPEC-imposed limits on production amounts, the more consumers bid up the price.

✓ The sixth cause is that strengthens and low the value of the dollar against the foreign currencies. The rising or high-interest rates will be helping to strengthen the dollar against other countries' currencies. If the dollar is strong, then American

oil companies can buy more oil with every U.S. dollar spent, eventually passing the savings on to consumers. Similarly, if the value of the dollar is low against foreign currencies, the relative strength of U.S. dollars means buying less oil than before. As a result, the contribution to oil will be becoming costlier to the U.S., which consumes almost 20% of the world's oil.

√ The final cause is Impact of geo-political events in the global economy. Traditionally, The Oil-producing countries have been influenced by political instability. For example, The Asian financial crisis in 1998 has brought the crude oil prices down to \$20 that went up post the financial crisis era in 2007-2009. Also in 2011-12, The Arab Spring has helped crude oil price to touch \$100 mark again. The fair argument is that the geo-political events is play a vital role in global crude oil trace and price determination of the globalization era.

### **FINDING OF THE STUDY**

- The study reveals that the average closing price of crude oil was almost above \$50.00 and since 2015 the price was not gone up more than \$ 65.23 until 2019
- The study graph highlights that since 2005 till 2019 the price of crude oil Opening, Closing, Highest and Lowest have changed almost below \$100.00 except in the 2008 and the future prediction of the price of crude oil Opening, Closing, Highest and Lowest well be moving below \$80.00 in upcoming years like 2020 and 2021.
- The study bar chart shows the percentage of annual price changes, in year 2009 price change 78% which was the highest percentages. In the case of year like 2010,2011,2013,2017 were got below 15.10% positive percentage change and among these years only 2011 was just 8% price change. On the contrast, the negative annual

percentage price change had been getting below -2.32% up to -54% price changes trough out the year. Remarkably, in the year 2008 almost - 54% was the very highest negative annual percentage price change and -2% price changes was the very lowest in the annual price changes.

- The study graph is indicating the consumptions of crude oil in India have been constantly increasing since 2000. Whereas, the crude oil price has witnessed sharp decline since 2014.
- The study graph reveals that since 2005 on words up to 2019 the annual percentage price of crude oil has been rise and fall with positive and negative but the India's GDP constantly moving forward between 5% to 8% over the periods of time.
- The study correlation test result reveals that the relationship between variables like percentage of crude price and percentage change of GDP is moderate positive correlation. In addition, the descriptive statistics shows the India's GDP mean value is 6.7 and STD. Deviation 1.5. On the anther hand, the Oil Price Changes mean value is 9.13 and STD. Deviation 37.93 during the study periods.
- The study has understood that OPEC is widely seen as the most influential player in oil price fluctuations. However, the basic supply and demand factors, production costs, political turmoil, and even interest rates have been played a major role to influence the price of oil in the during the study period.

### **CONCLUSION OF THE STUDY**

Crude Oil is a life blood of the industrial development and growth of the economy. In India, almost 80 % oil requirements had been imported. Out of 80%, nearly 60% is crude oil which makes it 2% full year GDP in the country. Thus, changes in the price of crude oil will affect the economy. During study periods, from 2005 up to 2019

the annual percentage price of crude oil has been rise and fall with positive and negative but the India's GDP constantly moving forward between 5% to 8% over the study periods of time. The Correlation test conformed that the relationship between variables like percentage of crude price and percentage change of GDP is moderate positive correlation. OPEC is widely seen as the most influential player in oil price fluctuations. Whereas, the basic supply and demand factors, production costs, political turmoil, and even interest rates have been played a major role to influence the price of oil in the during the study periods.

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