

A STUDY ON THE FALL IN INTERNATIONAL CRUDE OIL PRICE DURING COVID-19 AND ITS IMPACT OF RUPEE DOLLAR EXCHANGE RATE AND FOREX RESERVES ON INDIA

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Abstract—Corona Virus (COVID-19) includes fear and instability, affecting the globe economy and increasing the volatility of financial markets. The oil price reaction to covid-19 has been slowly accommodated until march09, 2020 when 49 days world health organization (WHO) publication of its first corona virus monitoring survey, Saudi Arabia is flooding the oil market, as a result, I single day, market rates fell by more them 20%. The introduction of COVID-19 during the first quarter of 200 has proven be very harmful to the social as well-being and economic conditions in many countries. Saudi Arabia had boosted its oil production significantly in early March, when the outbreak was still a pandemic, plaguing the oil prices. Throughout this context, this study explores long-and short-term relationship with Macro Economic variables, as well as with crude oil prices, between the exchange rates pf three oil exporting and two oil importing countries. The result of the ARDL estimates indicates that the exchange rate and Macro economic variables were closely related in the case of two countries.

Keywords—Brent Crude Oil, Economic Policy, Financial Volatility, Foreign exchange Reserve, Oil Prices.

1. INTRODUCTION

The International Energy Agency (IEA) predicted oil solicitation to drop by more than 20 million barrels per annum per year as more than 3 billion people were generally barred from traveling and remained at home due to impotence following the Covid-19 pandemic. Saudi Arabia has a comprehensive increase in oil-creation potential to 12.3 million barrels per day in the month of April despite the fall in the breaking point having terminations. Nevertheless, Saudi Arabia stands up to inconvenience in selling foul oil as handling plants generally cut their creation limit; in April, Neste (Finland) suspended crude oil purchases, Indian treatment offices delayed crude oil imports, and US preparation plants reduced the proportion of crude oil purchased. The G20 countries decided to imbue more than US\$ 5 trillion to adapt to the money-related effects of the Covid-19 outbreak, while the US offered a \$2.2 trillion package-deemed the greatest fiscal adjustment initiative ever-to ease the financial effect of Covid-19. Benzene fuel prices, on the other hand, increased with Dubai crude oil after China expanded benzene imports. In any case, oil demand was still under strain from the Covid-19 pandemic.

At the other hand, the cost of diesel fuel increased with Dubai crude oil as the market encouraged concerns after several countries offered steps to improve the economy in time of the Covid-19 pandemic effect.

Goldman Sachs expressed in a note: "The breakdown of oil demand from the spreading coronavirus continually looks sharp."

Greater economies are set to release trillions of dollars to lessen the Covid-19 outcome of the eruption. Different nations are also compelling social constraints of levels unthinkable since World War II.

Economy means the use and development activities of all individuals in a country within one year. And all that is present on the earth impacts the economy while the world 's monetary master scarcely reminds the economy of something while

Khan (2016) said that everything that is present in the universe and has a few manifestations on singular inspection is called money-related issues and the analysis of the economy is likewise called budgetary viewpoints. Thus, every action of the world and every aspect of the world are fused in economy. COVID-2019 approaches for the coronavirus disease that started in Wuhan City Province Hubei China from December 2019. From where it spread across the globe and killed many countless people in various countries. Checking the scale of COVID-2019, which reduced the use of oil on the world, was made certain and costs were declined \$2.175 per gallon. The economies of oil-producing countries have been heavily impacted given how they primarily rely on oil exchanges. Among those world countries are America, Russia, Saudi Arabia, Iran, Nigeria, and Germany, etc. China is consuming 20 per cent of the world's crude. Made sure that has not quite recently reduced the oil cost thus closing down the vital partnerships and large areas of the world economy as well. Human capitals were damaged, and this virus executed the greater part of Doctors and originator. Furor and fear spread across the whole world. Coronavirus was passed on to individuals affected by sugar and heart because of the dread of a larger part of the circulatory strain. On the earth, the air terminal and road were closed down and all of the world's constraints set. Since 2020 on the planet about 2 groups have been kicked the pail by coronavirus along these lines. The number of cases in America, Spain, Iran, Germany, the United Kingdom, and Italy was more comprehensive than the world's different countries. WHO approved unusual jobs for all plans in this free when this craze is still going on in different countries around the world? Regarding the control level of coronavirus, social isolation, separation, and the way of thinking condition were added.

2. AN OVERVIEW OF LITERATURE ON A STUDY ON THE IMPACT OF STEEP FALL IN CRUDE OIL PRICES DUE TO COVID-19

Weizhen Tan (2020) told that Saudi Arabia signaled no breakthrough in the oil price war with Russia, saying it was not in talks with Russia to stabilize the oil market despite Washington pressuring both sides to end the price war. In early March, OPEC, and non-OPEC allies, sometimes referred to as OPEC+, failed to agree on the terms of deeper supply cuts.

Reuters News Agency (2020) reported that Brent crude oil rebounded from two days of losses and US futures surged on Wednesday, bolstered by tentative discussions of additional supply cuts from OPEC producers and US inventory builds that were less dire than some anticipated. Oil trading has been more volatile than ever in recent days, as the market has become overwhelmed by a growing supply glut and catastrophic declines in demand as governments order people to stay at home, restricting travel and halting daily life, to stop the spread of the coronavirus.

Farnaz Fassihi (2020) told that the country has been hit with a triple-whammy: raging coronavirus, American sanctions and, now, oil so cheap that it is barely profitable. Selling Iran's oil in defiance of an American embargo was already a risky and complicated venture for Iranian brokers. Then came the precipitous plunge in prices because of the global coronavirus clampdown, which has shrivelled demand. At first, Iranian brokers and many others in the country watched with amusement as U.S. oil prices briefly plunged below zero on Monday — meaning sellers had to pay buyers to take the oil away.

Sanjay Kumar Kar (2020) Global level travel bans along with grounding of international flight leads to heavy reduction in consumption of aviation of turbine fuel and impacted on economy progress of India. And further curtailed industrial and commercial activities will be have reduced consumption of fuel. In India due to the extension of lockdown all public transports and suspended and to reduce in demand for oil and fuel.

Agencies, (2020) reported. that LONDON: Oil prices saw a dip on Thursday, ending three sessions of gains, as movement curbs worldwide to contain the coronavirus destroyed demand and overshadowed expectations that a US \$2 trillion emergency stimulus will bolster economic activity. Brent crude LCOc1 futures fell 55 cents, or 1.9%, to \$26.84 a barrel by 1055 GMT.

Research Methodology:

The data analysis of the study has been categorized as descriptive and inferential analysis for the study variables like foreign exchange reserves of India, Brent international crude oil price and exchange rate of RS against dollar. First the descriptive statistic of the dataset has been calculated to know the variability. Based on the variability the dataset features have bent presented in form of tables and graphs. For inferential statistics, the stationary testing has been conducted to see the variables adequate to carry out regression modelling so Augmented Dickey Fuller test has been conducted. At the level, the data found to be non-stationery and stationery has been brought using first differencing. Finally, regression modelling carried out to know the exact relationship between International Crude oil Prices, Forex Reserves of India, and Rupee dollar exchange rate from 6/3/2020 to 2/6/2020.

3. NEED OF THE STUDY

During the lock-down due to the corona pandemic, the entire world economy has come to a halt as crude oil demand has dropped nearly nil because of crude oil and it has affected industry and government revenues. The significant fact regarding crude during the lockout was that oil-producing countries like Saudi Arabia and Russia began to produce oil, which also led to dropping crude oil prices as a result of which oil prices were exchanged in negative at one point and negative transactions were made via commodity exchange. . In order the understand the effect of this falling prices of crude, the need to study this subject aroused to know more facts. Hence the study.

4. OBJECTIVE OF THE STUDY

The objectives of the study are as follows

- To understand weather the fall in crude oil prices will benefit the Indian economy due to the COVID-19
- To offer policy suggestion

5. SCOPE OF THE STUDY

Supply and demand of crude oil leads to rise and fall of the oil prices. The oil importing countries with its increase in technology, population, Industrialization and increase in use of sophisticated vehicles like cars, motor bikes etc., and leading to increase in demand of oil. If the supply meets the demand, then the prices will remain constant. In case of supply is less than demand then prices will rise and vice versa. If the oil prices fall down it may be beneficial for the countries who are importing oil resources in a short run. They may be affected in the long run. This is because if the oil prices fall down, the growth of oil exporting countries will result in the decline in their economic growth which affect the importing countries in the long run.

The corona virus has shaken the economies of the world. As we all know that crude oil is an important source to run the wheels of industry across the world economies and used for many purposes, but the world economies have been shut now because of the covid-19 pandemic. Because of the covid-19 pandemic, the study 's perspective focuses on the effects of the sharp decline in crude oil prices in the last few months.

6. DATA ANALYSIS AND INTERPRETATION

Data analysis is a methodology for exploring, cleaning, changing, and displaying data with the goal of discovering important information, prompting finishes, and supporting dynamics.

DATA OF FOREX RESERVE'S, EXCHANGE RATE AND BRENT CRUDE OIL

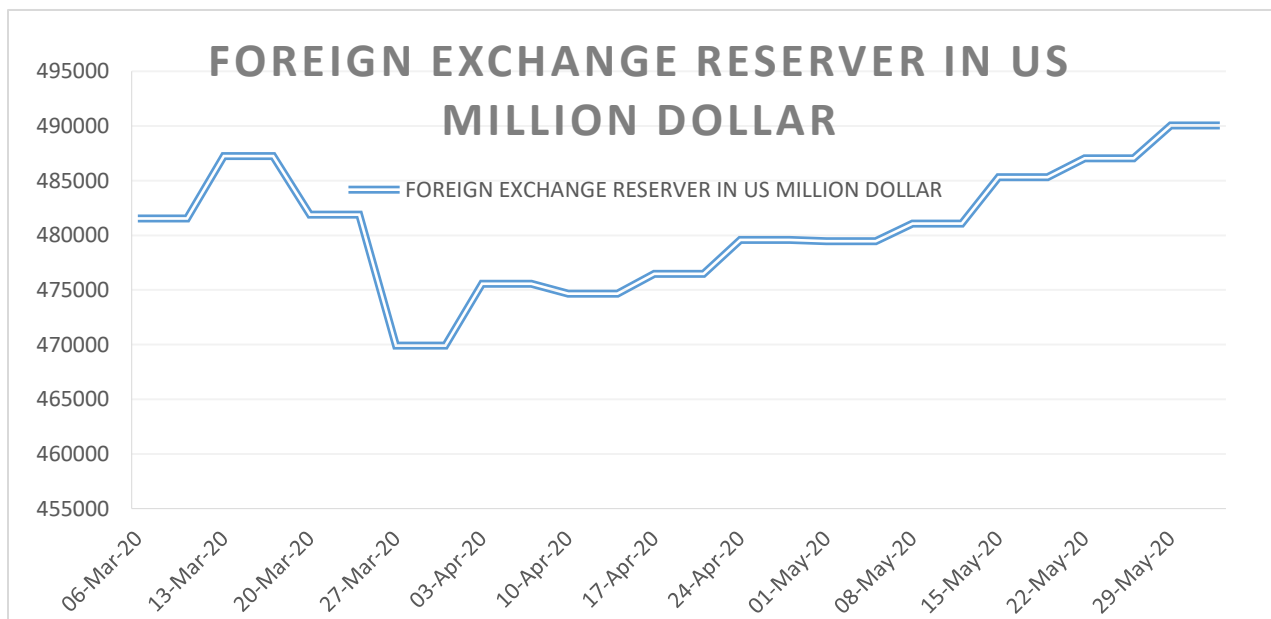
DATE	FOREIGN EXCHANGE RESERVER IN US MILLION DOLLAR	EXCHANGE RATE OF RUPEE AGAINST DOLLAR	BRENT CRUDE OIL PRICES
6-Mar-20	481540	73.66	45.27
7-Mar-20	481540	73.66	45.27
8-Mar-20	481540	73.66	45.27
9-Mar-20	481540	73.95	34.36
10-Mar-20	481540	73.81	37.22
13-Mar-20	487237	74.07	33.85
14-Mar-20	487237	74.07	33.85
15-Mar-20	487237	74.07	33.85
16-Mar-20	487237	74.27	30.05
17-Mar-20	487237	74.03	28.73
20-Mar-20	481892	75.01	26.98

21-Mar-20	481892	75.01	26.98
22-Mar-20	481892	75.01	26.98
23-Mar-20	481892	75.88	27.03
24-Mar-20	481892	76.15	27.15
27-Mar-20	469909	74.84	24.93
28-Mar-20	469909	74.84	24.93
29-Mar-20	469909	74.84	24.93
30-Mar-20	469909	75.35	22.76
31-Mar-20	469909	75.39	22.74
3-Apr-20	475561	75.83	34.11
4-Apr-20	475561	75.83	34.11
5-Apr-20	475561	75.83	34.11
6-Apr-20	475561	75.83	33.05
7-Apr-20	475561	75.84	31.87
10-Apr-20	474660	75.84	31.87
11-Apr-20	474660	75.84	31.87
12-Apr-20	474660	75.84	31.87
13-Apr-20	474660	76.36	31.74
14-Apr-20	474660	76.36	29.6
17-Apr-20	476475	76.54	28.08
18-Apr-20	476475	76.54	28.08
19-Apr-20	476475	76.54	28.08
20-Apr-20	476475	76.63	25.57
21-Apr-20	476475	76.65	19.33
24-Apr-20	479568	76.42	21.44
25-Apr-20	479568	76.42	21.44
26-Apr-20	479568	76.42	21.44
27-Apr-20	479568	76.13	19.99
28-Apr-20	479568	76.37	20.46
1-May-20	479455	76.37	26.44
2-May-20	479455	76.37	26.44
3-May-20	479455	76.37	26.44
4-May-20	479455	75.79	27.2
5-May-20	479455	75.57	30.97
8-May-20	481078	75.44	30.97

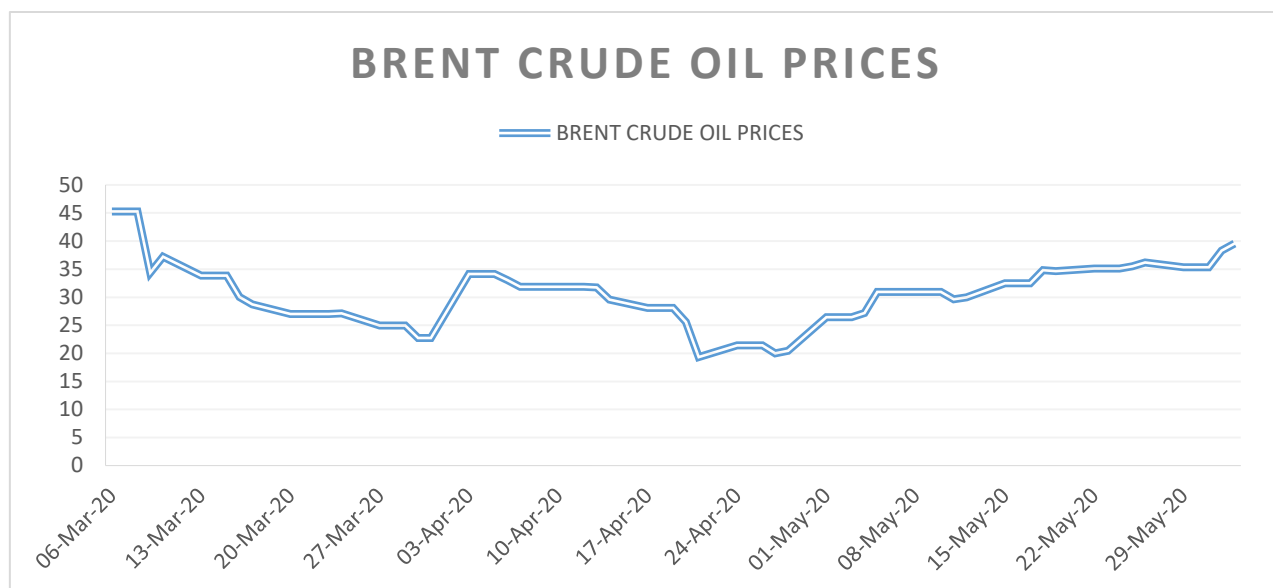
A study on the fall in International Crude Oil Price during Covid-19 and its Impact of Rupee Dollar Exchange Rate and Forex Reserves on India

9-May-20	481078	75.44	30.97
10-May-20	481078	75.44	30.97
11-May-20	481078	75.68	29.63
12-May-20	481078	75.79	29.98
15-May-20	485313	75.56	32.5
16-May-20	485313	75.56	32.5
17-May-20	485313	75.56	32.5
18-May-20	485313	75.93	34.81
19-May-20	485313	75.66	34.65
22-May-20	487039	75.79	35.13
23-May-20	487039	75.79	35.13
24-May-20	487039	75.79	35.13
25-May-20	487039	75.79	35.53
26-May-20	487039	75.64	36.17
29-May-20	490044	75.64	35.33
30-May-20	490044	75.64	35.33
31-May-20	490044	75.64	35.33
1-Jun-20	490044	75.48	38.32
2-Jun-20	490044	75.48	39.57

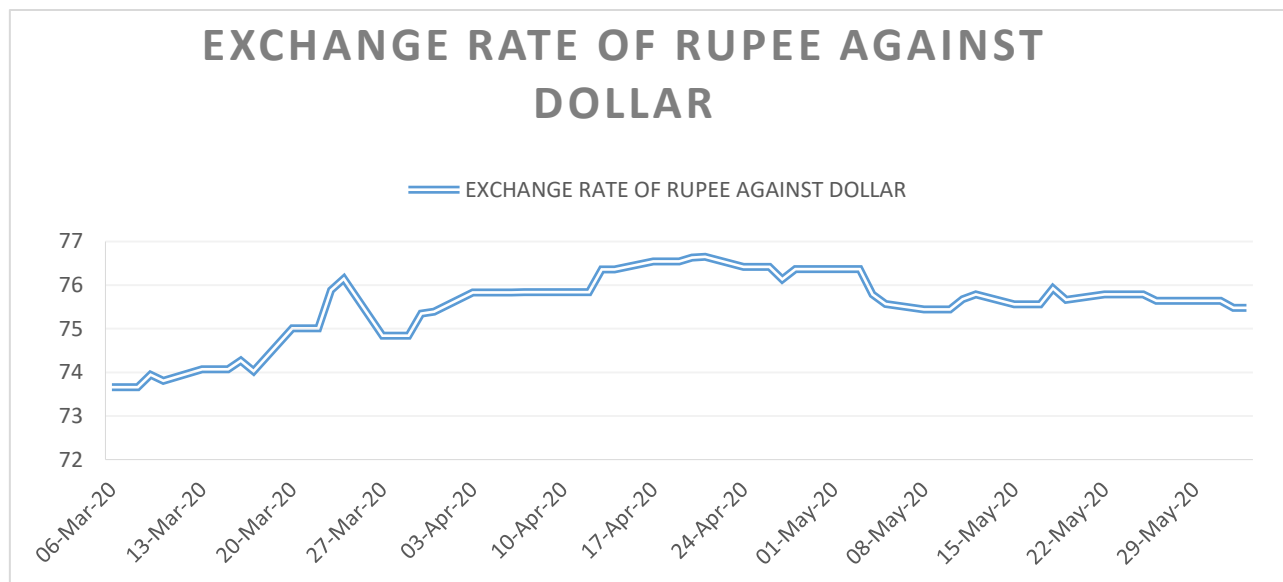
FOREIGN EXCHANGE RESERVER IN US MILLION DOLLAR:-



BRENT CRUDE OIL PRICES



EXCHANGE RATE OF RUPEE AGAINST DOLLAR:-



DESCRIPTIVE STATISTICS:-

	<i>BRENT CRUDE OIL PRICE</i>	<i>FOREX RESERVES OF INDIA</i>	<i>EXCHANGE RATE OF RS AGAINST \$</i>
Mean	30.75662	480751.6	75.52062
Median	30.97000	481078.0	75.68000
Maximum	45.27000	490044.0	76.65000
Minimum	19.33000	469909.0	73.66000

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Std. Dev.	5.790210	5546.387	0.818375
Skewness	0.254638	-0.139364	-0.896730
Kurtosis	3.224667	2.304584	2.971418
Jarque-Bera	0.839144	1.520166	8.713560
Probability	0.657328	0.467628	0.012820
Sum	1999.180	31248855	4908.840
Sum SqDev.	2145.698	1.97E+09	42.86318
Observations	65	65	65

In this table it is found that maximum Brent crude oil price \$45.27 from 6/6/2020 to 8/6/2020, after lockdown the transportation has been stopped automatically the price of crude oil also reduced to minimum \$1 9.33 in the month of 21/4/2020.

And found that maximum Forex Reserves during the study period found to be 490044.0 million dollars in the month from 29/5/2020 to 2/6/2020. Due to lockdown the export and import activity had come to grinding halt.so the forex reserve of the country has become stagnant during the study period and found to be an increase in the end of May 2020.it is may be due to inflow of foreign capital (a deal signed by JIO and FACEBOOK worth of 5.7 BILLION DOLLARS)

When it come for exchange rate exchange rate of rupees against dollar the maximum exchange rate of Rupees against dollar was 76.65000 rupees in the month of 21/4/2020 and also reduced minimum exchange rate of rupees against dollar was 75.68000 in the month of 2/6/2020

REGRESSION EQUATION FOR FOREX RESERVES:-

Regression Equation for Forex reserves $1d=C+Brent1d+Exchange\ rate1d$

Dependent Variable: FOREXRESERVES1

Method: Least Squares

Date: 06/05/20 Time: 10:41

Sample (adjusted): 3/07/2020 6/02/2020

Included observations: 64 after adjustments

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Prob.</i>
C	84.21772	243.5831	0.345745	0.7307
BRENT1	227.2497	93.14859	2.439647	0.0176
EXCHANGERATE1	2422.741	828.5294	2.924147	0.0048
R-squared	0.186143	Mean dependent var		132.8750
Adjusted R-squared	0.159459	S.D. dependent var		2114.561

S.E. of regression	1938.651	Akaike info criterion	18.02311
Sum squared resid	2.29E+08	Schwarz criterion	18.12431
Log likelihood	-573.7396	Hannan-Quinn criter.	18.06298
F-statistic	6.975873	Durbin-Watson stat	1.986194
Prob(F-statistic)	0.001869		

INTERPRETATION OF THE REGRESSION MODELING RESULT:

As per the above equation the relationship between forex reserves, Brent international crude oil price and exchange rate of rupee against dollar has been put into regression equation. The forex reserves of India considered as depended variable and Brent international crude oil price, exchange rate of rupee against dollar are explanatory variables. At the model result says that a one dollar hike in Brent crude oil will bring a change in forex reserve up to 227.24 million.

As like the same the exchange rate of rupees that is depreciation needs to 2422.741 million dollar worth of change in forex reserve.

As per the R square value the changes in forex reserve is being explained by international crude oil price, exchange rate of rupee up to 15%.

As per the methodology the model found to be statically fit based on F-statistic and probability

7. FINDINGS:-

The examination found that raw petroleum costs decreased due to covid-19 as because there is fall in utilization request of raw petroleum over the globe. As we probably are aware during the primary quarter of 2020, the spread of the COVID-19 ends up being exceptionally negative to numerous nations' social prosperity and monetary conditions. As we can see the value contrasts in consistently in view of covid-19. The forex stores of India considered as depended variable and Brent global unrefined petroleum value, conversion scale of rupee against dollar are informative variables. At the model outcome says that a one dollar climb in Brent raw petroleum will get a switch forex hold up to 227.24 million.

As like the equivalent the conversion scale of rupees that is devaluation needs to 2422.741 million dollar worth of progress in forex save.

According to the R Square worth the progressions in forex hold is being clarified by global raw petroleum value, conversion standard of rupee up to 15%.

According to the procedure the model saw as statically fit based on F-measurement and likelihood.

As though now there is no creation of raw petroleum so the representative and producer of the unrefined petroleum are enduring more misfortunes in view of this GDP will diminished.

8. CONCLUSION:-

The examination inferred that corona virus has expanded the secured down the plant and secured has diminished the utilization of the planet which has upset the economy of the oil nations on the planet and make their financial plans shortages. Among these nations, America, Saudi Arabia, Iran, Nigeria, and Russia are the famous nations on the planet. These nations economy for the most part rely upon the oil creation. The complete utilization of the oil was 100 million barrels for every day on the planet which declined to 10.5 million barrels on the planet. One barrel is equivalent to 42 gallons while gallon is equivalent to 3.8 litres and now daily the cost of gallon is 2.175 dollars so the absolute income from oil of all the oil creating nations were declined which have influenced their economy seriously and greater part nations financial development was seriously influenced. The Russia and Saudi Arabia has talked about the issue for slicing the oil supplies to worldwide markets for value security while the understanding was fizzled while it will be examined later on week for setting the value level of oil among the OPEC and Non OPEC nations of the world. Every single world economy has seriously influenced. Joblessness issues were raised, and the settlement come back to their house was diminished. So, the conversation shows that no economy of the world have been gotten away from crown infection impact on the planet and secured has positive relationship with the world economy declined. On the off chance that the

crown infection was not constrained by world, at that point very soon downturn will be begun as like extraordinary Britten since 1929. The investigation suggests that Social separation among world network is required for crown infection controlling; Care about Health is first and afterward the security of others things of the world; Unity on the planet for secured is required; Positive reasoning is required for insurance of world economy; Help those nations of the world whose economies are the beneath destitution line on the planet; World generally center around crown infection how to control the crown infection on the planet; At this time not think for the monetary improvement of a nation; Focus on food just and clinical offices for controlling the crown infection when crown infection will control then consequently the secured down on the planet will be finished and when it finished then financial advancement of the nations of the world will be begun; So the primary objective is the crown infection controlling , in any case the getting away of the world economy is inconceivable; Strict activity ought to be trailed by all nations for secured down on the planet; Locked down is the main hotspots for controlling the crown infection on the planet; All world limits ought to be secured on the planet; All air terminals of the world ought to be shut; Mostly remain at their home; One equation ought to be utilized at world level for crown infection controlling; This is the crown infection which has upset the economy of the world, so first is the control of crown infection and afterward the monetary improvement of the world. So, crown infection controlling is first required for getting away from the world economy.

9. SUGGESTION :-

As India a chief import of an essential commodity with price inelastic demand it is likely to be affected by the imports of crude oil. Almost 85% of energy need or met through imports. So, the imports and consumption oil create a cascading effect on all spheres of the economy. Hence for the analysis during covid-19 pandemic the research study attempted to find exact relationship between the chosen variable that is forex reserve, Brent international crude oil and exchange rate of rupees against dollar by collecting a daily data for the analysis. The descriptive statistic carried out to know the minimum, maximum, average, and standard deviation of this variables.

Finally, regression modelling is carried out and the result says the extent to which the forex reserve country diminishes due to changes in international crude oil price and exchange rate of rupees.

A one-dollar hike in Brent crude oil will bring a change in forex reserve up to 227.24 million. As like the same the exchange rate of rupees that is depreciation needs to 2422.741million dollar worth of change in forex reserve. So, India as to develop the alternative source of energy like EV (electronically vehicle), not much depending on non-removable energy source like crude oil. Consumption of which deteriorates the countries and hard and forex reserve and decrease the exchange rate of Rupee against major currencies and reduces balance of payments position of India.

BIBLIOGRAPHY

- [1] *Corona virus COVID-19:US crude oil falls to 17 years low amid lockdowns* . (2020, MARCH 18). Retrieved march 18, 2020, from offshore technology : <http://www.offshore-technology.com/news/us-crude-lockdown-oil-prices-coronavirs/>
- [2] Dacio Villarreal. (2020, may 5). Covid-19,oil price, and exchange rate:A Five -coudency Examination. SSRN, 22.
- [3] HINDU, T. (2020, APRIL 23). *WHY OIL PRICES PLUNGES, AND ITS IMPACT ON INDIA* . Retrieved APRIL 23, 2020, from THE HINDU : [http://www-thehindu-com.cdn.ampproject.org/v/s/www.thehindu.com/business/watch-why-oil-prices-plunges-and-its-impact-on-india](http://www.thehindu-com.cdn.ampproject.org/v/s/www.thehindu.com/business/watch-why-oil-prices-plunges-and-its-impact-on-india)
- [4] sabarwal, h. (2020, may 13). *Stock, Oil prices fall globally as fear of second Covid-19 wave intensifies* . Retrieved may 13, 2020, from Hindustantimes : <http://m-hindustantimes-com.cdn.ampproject.org/v/s/m.hindustantimes.com/business-news/stock-oil-prices-fall-globally-as-fear-of-second-covid19-waves-intenfiles/story>
- [5] team, W. (2020, MAY 10). *CORONA VIRUS COVID-19*. Retrieved MAY 10, 2020, from WORLD HEALTH ORGANIZATION : <http://www.who.int/health-topic/coronavirus>
- [6] Times, T. E. (2020). *Oil steady despite surge in Covid-19 Infection*. MUMBAI: THE ECONOMIC TIMES .
