CRUDE OIL PRICES AND ITS ROLE IN ECONOMY

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ABSTRACT

US is one of the major consumer of Oil in the world, and after US, China, Japan and then India come on second, third and fourth position respectively. Out of the total demand of the oil in the world 60% oil is consumed by only 10 countries namely US, China, Japan, India, Russia, Brazil, Saudi Arabia, Germany, Korea and Canada. It indicates the dependency of economies on the oil. Crude oil has become an important input in almost each and every unit that are running in the country including farming, mining and manufacturing. Health of all the developed and developing countries is depended heavily on the price of crude oil price. Crude Oil has been traded throughout the world and there prices are behaving like any other commodity as swinging more according to demand and supply. In the short term, prices of crude oil is influenced by many factors like socio and political events, status of financial markets whereas, from medium to long run it is influenced by the fundamentals of demand and supply which thus results into self price correction mechanism. Crude oil plays an important role in the economy of every country. Present study is attempted to discuss the importance of crude oil price and it's role in the economy. The study also highlighted the current trends of overall demand and supply of the crude oil in the world.

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INTRODUCTION

The key driver of oil demand has been vigorous global economic growth, particularly in developing economies. World's Gross Domestic Product (GDP) growth (with countries weighted by oil consumption shares) has averaged close to 5 percent per year since 2004, marking the strongest performance in two decades. In addition to the velocity of world economic activity, oil demand has been further supported by the composition of growth across countries. The industrialized countries are the largest oil consumers but until 1998 had not been the most important growth markets for some years. The countries of the Organization for Economic Cooperation and Development (OECD), for instance, account for almost 2/3 of worldwide daily oil consumption. In contrast, however, oil demand in the OECD grew by some 11 percent over the 1991-97 periods, while demand outside the OECD (excluding the Former Soviet Union) grew by 35 percent. The Former Soviet Union presents a special case. The collapse of the Russian economy that accompanied the collapse of Communism led to a decline in oil consumption of more than 50 percent over the 1991-98 periods. Table given below depicted top ten oil consumers in the world (Source: International Energy Agency).

Top-10 Oil Consumers
(thousand barrels per day)

	Demand			Annual Chg (kb/d)			Annual Chg (%)		
	Nov-12	2012	2013	Nov-12	2012	2013	Nov-12	2012	2013
US50	18,625	18,651	18,651	-455	-299	0	-2.4	-1.6	0.0
China	10,270	9,600	9,984	836	367	385	8.9	4.0	4.0
Japan	4,641	4,723	4,550	39	259	-173	0.8	5.8	-3.7
India	3,765	3,652	3,750	48	137	98	1.3	3.9	2.7
Russia	3,530	3,366	3,516	71	114	150	2.1	3.5	4.4
Brazil	3,171	3,016	3,093	203	123	77	6.8	4.2	2.6
Saudi Arabia	2,808	3,009	3,128	-122	135	119	-4.2	4.7	3.9
Germany	2,496	2,351	2,324	49	-49	-27	2.0	-2.0	-1.2
Korea	2,423	2,268	2,268	171	38	0	7.6	1.7	0.0
Canada	2,345	2,311	2,308	69	22	-3	3.0	0.9	-0.1
% global demand	60%	59%	59%						

Above table shows that US is one of the major consumer of Oil in the world, and after US, China, Japan and then India come on second, third and fourth position respectively. Out of the total demand of the oil in the world 60% oil is consumed by only 10 countries namely US, China, Japan, India, Russia, Brazil, Saudi Arabia, Germany, Korea and Canada. In the year 2012, Korea was at 9th numbers among the top 10 oil consumer countries but by the end of third quarter of 2013 (Sept. '2013), Canada has secured 9th position and Korea shifted to 10th position due to improved economic conditions of Canada.

The developed economies use oil much more intensively than the developing economies (like India). Canada and the United States stand nearly alone in their consumption of oil per capita as oil utilization in the United States and Canada is equals to almost 3 gallons per day per capita. Oil utilization in the rest of the OECD equals 1.4 gallons per day per capita. Outside of the OECD, oil consumption equals 0.2 gallons per day per capita. Regionally, the largest

consuming area remains North America (dominated by the United States), followed by Asia (with Japan the largest consumer), Europe (where consumption is more evenly spread among the nations), and then the other regions and Asia was the region with the fastest growth in the demand until the 1998 economic crisis in East Asia.

The United States and Canada use oil more for transportation than for heat and power, but the opposite pattern holds for most of the rest of the world as most regions use more oil for heat and power than for transportation. As a result, global demand for oil is highest in the Northern hemisphere's cold months. It is observed that there is a swing of 3-4 million barrels per day (some 5 percent) between the 4th quarters of the year, when demand is highest, to the 3rd quarter, when it is lowest. Demand for crude oil is derived from the demand for the finished and intermediate products that can be made from it. In the short-term, however, demand for crude oil may be mismatched with the underlying demand for petroleum products. This misalignment occurs routinely as a result of stock changes, the need to build stocks to meet seasonal demand, for instance, or the desire to reduce stocks of crude oil for economic reasons. In the longer term, blending non- petroleum additives into petroleum products (such as ethanol or other oxygenating agents into gasoline) can also reduce crude oil demand relative to demand for finished products.

The Table showing detailed information about he "World Oil Supply and Demand" clearly indicating that there is no big change in the oil demand of America, it was 23.7 million barrels per day in the year 2009 and it is 23.8 million barrels per day by the third quarter of the year 2013. There is significant change in the Non OECD countries demand during the last 4 years as it was merely 39.1 million barrels per day by the end of 2009 which is more that 45.1 million barrels per day by the end of Sept. ' 2013. It is noticeable that although, there is remarkable change in the demand of Non OECD countries during last four years (2009 to 2013), but on the other side in case of supply, this change is not recorder significantly, as by the end of 2009, approx. 51.4 million barrels per day oil was supplied to non OECED countries, which is now increased to 54.4 million barrels per day by the end of third quarter of 2013.

The growth in global economic activity has been followed by relative growth in world oil consumption. Since 2003, world oil consumption growth was averaged at around 1.8 percent per year, representing an estimated more than 90 million barrels per day in 2013. Non-member countries of the OECD, especially China, India, and the Middle East, represent the largest part of this growth. Despite higher prices, growth in world oil consumption remains strong because of increase in industrialisation. The high demand economies of crude oil are putting excessive pressure on the obtainable natural resources. The major mismatch that exists between production and consumption of crude oil is driving the price curve of crude oil to rise in upward direction.

WORLD OIL SUPPLY AND DEMAND

(million barrels per day)

	2009	2010	1Q11	2Q11	3Q11	4Q11	2011	1Q12	2Q12	3Q12	4Q12	2012	1Q13	2Q13	3Q13	4Q13	2013
OECD DEMAND																	
Americas[1]	23.7	24.1	24.2	23.7	24.2	24.0	24.0	23.5	23.8	23.8	23.9	23.8	23.6	23.6	23.8	24.0	23.8
Europe[2]	14.7	14.7	14.3	14.2	14.7	14.1	14.3	13.7	13.8	13.8	13.8	13.8	13.4	13.3	13.7	13.7	13.5
Asia Oceania[3]	8.0	8.1	8.6	7.4	8.0	8.6	8.1	9.1	8.0	8.2	8.7	8.5	9.1	7.9	8.0	8.4	8.3
Total OECD	46.3	46.9	47.0	45.3	46.8	46.7	46.4	46.3	45.5	45.9	46.3	46.0	46.1	44.7	45.5	46.1	45.6
NON-OECD DEMAND																	
FSU	4.0	4.2	4.2	4.4	4.6	4.6	4.4	4.5	4.5	4.7	4.7	4.6	4.6	4.6	4.8	4.9	4.7
Europe	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.7
China	7.9	8.8	9.0	9.3	9.2	9.3	9.2	9.3	9.4	9.6	10.1	9.6	9.9	9.8	9.9	10.3	10.0
Other Asia	10.3	10.9	11.1	11.1	10.8	11.2	11.0	11.3	11.4	11.2	11.6	11.4	11.6	11.7	11.4	11.8	11.6
Latin America	5.7	6.0	6.1	6.3	6.5	6.4	6.3	6.3	6.5	6.6	6.7	6.5	6.4	6.6	6.9	6.8	6.7
Middle East	7.1	7.3	7.0	7.4	7.9	7.4	7.4	7.2	7.8	8.1	7.5	7.6	7.3	7.9	8.3	7.7	7.8
Africa	3.4	3.3	3.3	3.3	3.2	3.3	3.3	3.4	3.4	3.4	3.4	3.4	3.5	3.5	3.5	3.6	3.5
Total Non-OECD	39.1	41.2	41.4	42.4	42.8	42.9	42.4	42.6	43.7	44.3	44.7	43.8	43.9	44.9	45.6	45.8	45.1
Total Demand[4]	85.4	88.1	88.4	87.7	89.6	89.6	88.8	88.9	89.2	90.2	91.0	89.8	90.0	89.6	91.1	91.9	90.7
OECD SUPPLY																	
Americas[1,7]	13.6	14.1	14.3	14.3	14.5	15.3	14.6	15.6	15.5	15.7	16.5	15.8	16.6	16.6	16.7	17.1	16.8
Europe[2]	4.5	4.1	4.0	3.7	3.5	3.7	3.8	3.8	3.6	3.2	3.3	3.5	3.4	3.2	3.1	3.3	3.2
Asia Oceania[3]	0.6	0.7	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.6	0.6	0.6	0.5	0.5	0.6	0.6	0.5
Total OECD	18.8	18.9	18.9	18.6	18.6	19.6	18.9	19.9	19.7	19.4	20.4	19.8	20.6	20.3	20.4	21.0	20.6
NON-OECD SUPPLY																	
FSU	13.3	13.5	13.6	13.6	13.5	13.6	13.6	13.7	13.6	13.6	13.8	13.7	13.8	13.7	13.4	13.6	13.6
Europe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
China	3.8	4.1	4.2	4.2	4.0	4.0	4.1	4.2	4.1	4.2	4.3	4.2	4.2	4.3	4.2	4.2	4.2
Other Asia[5]	3.6	3.7	3.7	3.5	3.6	3.6	3.6	3.6	3.5	3.5	3.6	3.6	3.6	3.5	3.5	3.5	3.5
Latin America[5,7]	3.9	4.1	4.2	4.2	4.2	4.3	4.2	4.3	4.1	4.1	4.2	4.2	4.2	4.2	4.3	4.3	4.3
Middle East	1.7	1.7	1.8	1.7	1.7	1.5	1.6	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Africa[5]	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4
Total Non-OECD	29.0	29.8	30.2	29.8	29.8	29.7	29.9	29.8	29.2	29.3	29.8	29.5	29.8	29.6	29.5	29.7	29.6
Processing Gains[6]	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2
Global Biofuels[7]	1.6	1.8	1.5	1.9	2.2	1.8	1.9	1.6	1.9	2.1	1.9	1.9	1.6	2.0	2.3	2.1	2.0
Total Non-OPEC[5]	51.4	52.6	52.7	52.4	52.7	53.2	52.8	53.4	52.8	53.0	54.2	53.4	54.1	54.1	54.4	55.0	54.4
OPEC																	
Crude[8]	29.1	29.2	29.9	29.4	29.9	30.3	29.9	31.3	31.7	31.5	30.9	31.4					
NGLs	4.9	5.4	5.8	5.7	5.8	5.9	5.8	6.0	6.1	6.3	6.3	6.2	6.3	6.3	6.6	6.6	6.4
Total OPEC[5]	34.0	34.6	35.7	35.1	35.6	36.2	35.7	37.4	37.8	37.8	37.2	37.5					
Total Supply[9]	85.4	87.3	88.4	87.5	88.3	89.4	88.4	90.8	90.6	90.7	91.4	90.9					
STOCK CHANGES AND MISCELLANEOUS																	
Reported OECD																	
Industry	-0.1	0.1	-0.5	0.5	-0.2	-0.7	-0.2	0.5	0.4	0.4	-0.5	0.2					
Government	0.1	0.0	0.0	0.0	-0.4	0.1	-0.1	0.0	0.0	0.0	0.0	0.0					
Total	0.0	0.1	-0.5	0.5	-0.5	-0.6	-0.3	0.5	0.4	0.5	-0.5	0.2					
Floating Storage/Oil in Transit	0.3	-0.2	0.2	-0.2	-0.2	0.0	-0.1	-0.4	0.2	-0.1	0.1	0.0					
Miscellaneous to balance[10]	-0.3	-0.7	0.3	-0.4	-0.5	0.5	0.0	1.7	0.9	0.2	0.8	0.9					
Total Stock Ch. & Misc	0.0	-0.8	0.0	-0.1	-1.3	-0.2	-0.4	1.8	1.4	0.5	0.4	1.0					
Memo items:																	
Call on OPEC crude + Stock ch.[11]	29.1	30.0	29.9	29.5	31.2	30.5	30.3	29.5	30.3	31.0	30.5	30.3	29.7	29.1	30.1	30.4	29.8
Adjusted Call on OPEC + Stock ch.[12]	28.8	29.3	30.2	29.1	30.7	31.0	30.2	31.2	31.1	31.1	31.3	31.2	30.1	29.6	30.6	30.8	30.3

1 As of August 2012 OMR, OECD Americas includes Chile.
2 As of August 2012 OMR, OECD Europe includes Estonia and Slovenia.
3 As of August 2012 OMR, OECD Asia Oceania includes Israel.
4 Measured as deliveries from refineries and primary stocks, comprises inland deliveries, international marine bunkers, refinery fuel, crude for direct burning, oil from non-conventional sources and other sources of supply.
5 Other Asia includes Indonesia throughout. Latin America excludes Ecuador throughout. Africa excludes Angola throughout. Total Non-OPEC excludes all countries that were members of OPEC at 1 January 2009. Total OPEC comprises all countries which were OPEC members at 1 January 2009.
6 Net volumetric gains and losses in the refining process and marine transportation losses.
7 As of the July 2010 OMR, Global Biofuels comprise all world biofuel production including fuel ethanol from the US and Brazil.
8 As of the March 2006 OMR, Venezuelan Orinoco heavy crude production is included within Venezuelan crude estimates. Orimulsion fuel remains within the OPEC NGL and non-conventional category, but Orimulsion production reportedly ceased from January 2007.
9 Comprises crude oil, condensates, NGLs, oil from non-conventional sources and other sources of supply.
10 Includes changes in non-reported stocks in OECD and non-OECD areas.
11 Equals the arithmetic difference between total demand minus total non-OPEC supply minus OPEC NGLs.
12 Equals the "Call on OPEC + Stock Ch." with "Miscellaneous to balance" added for historical periods and with an average of "Miscellaneous to balance" for the most recent 8 quarters added for forecast periods.

THE IMPACT ANALYSIS

The crude oil impacts key aspects of the economy

Import bill

The increasing import bills widen trade balance, which is export minus import, which has perpetually running at a deficit and possibly wipe out current account surplus, which is trade balances minus trade invisibles. Higher trade balance adversely impact the financial deficit, which in turn affects the interest rates.

Inflation

Inflation is the general increase in the price of goods and services in the economy. Since petroleum products are key constituents of wholesale and consumer price inflation index. Higher import bill directly and indirectly impacts the rupee, while inflation impacts interest rates, and hence evens the rupee. These factors affect our GDP growth rates. The price of oil and inflation are over and over again seen as being connected in a cause and effect relationship. As oil prices increases or decreases, inflation also shows the same trend. The rationale why this happens is that oil is a major input in the economy (industries), it is used in almost everything such as fuelling transportation and heating homes - and if input costs increases, so the cost of end products also increases. For example, if the price of oil rises, then it will cost more to make plastic, and a plastics company will then pass on some or all of this cost to the consumer, which raises prices and thus inflation.

The direct relationship between oil and inflation was evident in the 1970s in US, when the cost of oil rose from a nominal price of $3 before the 1973 oil crisis to around $40 during the 1979 oil crisis. This helped cause of consumer price index (CPI), a key measure of inflation, prices rose significantly i.e. more than double from 41.20 in early 1972 to 86.30 by the end of 1980. Let's put this into perspective: while it had previously taken 24 years (1947-1971) for the CPI to double, during the 1970s it took about eight years.

However, this relationship between oil and inflation started to deteriorate after the 1980s. During the 1990's Gulf War oil crisis, crude prices doubled in six months from around $20 to around $40, but CPI remained relatively stable, growing from 134.6 in January 1991 to 137.9 in December 1991. This detachment in the relationship was even more apparent during the oil price run-up from 1999 to 2005, in which the annual average nominal price of oil rose from $16.56 to $50.04. During this same period, the CPI rose from 164.30 in January 1999 to 196.80 in December 2005. Judging by this data, it appears that the strong correlation between oil prices and inflation that was seen in the 1970s has weakened significantly.

From the monthly data, we can observe that in March price of crude oil increased from 86.64 to 96.94 $ and inflation in that month also shown the same trend, it rose from .75 to 1.48. And the same we can observe in October 2010, March 2009 and in September 2009. And now also we can see that prices of crude oil are increasing and as well as inflation in India. Inflation rate in India has increased from 10.90 in 2009-10 to 11.70 in 2010-2011 and the crude oil prices average is also presenting the same trend it has increased from 62.45 $ to 75.35$ from 2009-10 to 2010-2011.

PRICE-INELASTIC SUPPLY AND DEMAND

Crude oil has Price-Inelastic Supply and Demand. The short-run demand for oil is more or less price inelastic, meaning the quantity required does not change much in response to the price changes (a very big price increase is required to reduce the quantity demanded significantly). In the short run, the supply of oil is also inelastic: the quantity supplied is not responsive to changes in market price, due to low spare capacity, the inability to bring new supplies online immediately, and reasonably low inventories to draw down. If both supply and demand are not very receptive to prices, it takes large price fluctuations to return markets to equilibrium if they get out of proportion.

As observed previously, world oil production has remained comparatively same in recent past years as globally economy is growing at a faster rate and has kept demand strong. As a result, oil prices are rising to keep world oil consumption matching with production (the two must be equal apart from changes in inventories). As oil requirement is not very sensitive to changes in oil prices in the near future, the rise in oil prices has been disproportionately big in order to offset the strong, income-driven increase in demand. An implication of these structural features of the oil market is that big and prompt movements in oil prices are not, by themselves, evidence that prices are behaving in a manner that is not consistent with the demand and supply basics. Indeed, in such tight market conditions, comparatively little adjustments in demand and supply should be expected to lead to large price sways. This shows that there is a certain degree of uncertainty regarding the true state of market fundamentals at any point in time.

IMPACTS OF HIGH OIL PRICES ON THE ECONOMY

Demand for crude oil arises from demand for the products that are made from it—especially gasoline, diesel fuel, heating oil, and jet fuel; and changes in crude oil prices are passed on to consumers in the prices of the final petroleum products. Increases in crude oil prices affect the economy in five ways:

- When the prices of petroleum products increase, consumers use more of their income to pay for oil-derived products, and their spending on other goods and services declines. The extra amounts spent on those products go to foreign and domestic oil producers and, if wholesale margins increase, to refiners. Domestic producers may pay higher dividends and/or spend more on oil discovery, production, and distribution.

- Oil is also a vital input for the production of a wide range of goods and services, because it is used for transportation in businesses of all types. Higher oil prices thus increase the cost of inputs; and if the cost increases cannot be passed on to consumers, economic inputs such as labour and capital stock may be reallocated. Higher oil prices can cause worker layoffs and the idling of plants, reducing economic output in the short term.

- Higher oil prices affect the purchasing power of citizens and national income through their impact on the international terms of trade. The increased price of imported oil forces businesses to devote more of their production to exports, as opposed to satisfying domestic demand for goods and services, even if there is no change in the quantity of foreign oil consumed.

- Changes in oil prices can also cause economic losses when macroeconomic frictions prevent rapid changes in nominal prices for final goods (due to the costs of changing

"menu" prices) or for key inputs, such as wages. Because there is resistance on the part of workers to real declines in wages, oil price increases typically lead to upward pressure on nominal wage levels. Moreover, nominal price "stickiness" is asymmetric, in that firms, unions, and other organizations are much more reluctant to lower nominal prices and the wages they receive than they are to raise them. When a nominal increase in oil prices threatens purchasing power, the adjustment process takes more time, with multiplier effects throughout the economy.

- Finally, higher oil prices cause, to varying degrees, increases in other energy prices. Depending on the ability to substitute other energy sources for petroleum, the price increases can be large and can cause macroeconomic effects similar to the effects of oil price increases.

DISCUSSION AND CONCLUSION

In the economy of any country, changes in the crude oil prices plays an important role, therefore in all the countries including India, policy makers put an attention on the volatility in the crude oil prices. If price increases are large and sudden, their impacts on short-term growth may be much larger than if they are gradual, because sudden oil price shocks scare households and firms and prevent them from making optimal decisions in the near term. In the beginning of the February' 2013, Crude oil futures prices breached almost last more that nine month high due to positive signal from all the major economies including China and the US. The main reason behind this tremendous change is miracle development in financial market activity and colder temperatures in the Northern Hemisphere buoyed market sentiment. Although, market is going into positive direction in China, India and the US, poor macroeconomic conditions are forecast to keep overall oil demand growth capped at around 840 kb/d in 2013, to 90.7 mb/d.

On the potential output side, sudden large price increases create widespread uncertainty about appropriate production techniques, purchases of new equipment and consumer durable goods like automobiles, and wage and price negotiations. As firms and households adjust to the new conditions, some plant and equipment will remain idle, some workers will be temporarily unemployed, and the economy may no longer operate along its long-run production-possibility frontier. Although it is easy to differentiate gradual from rapid price increases on a conceptual basis, empirical differentiation is more difficult.

In terms of the state of the economy, if the economy is already suffering from high inflation and unemployment, as in the late 1970s, then the oil price increases have the potential to cause severe damage by limiting economic policy options. Many analysts assert that it was the monetary policy undertaken in the 1970s that really damaged the U.S. economy. The economic policies that are followed in response to a combination of higher inflation, higher unemployment, lower exchange rates, and lower real output also affect the overall economic impact of higher oil prices over the longer term. Sound economic policies may not completely eliminate the adverse impacts of high oil prices described above, but they can moderate them. Conversely, inappropriate economic policies can exacerbate the adverse impacts. Over concretionary monetary and fiscal policies to contain inflationary pressures can worsen the recessionary effects on income and unemployment; expansionary monetary and fiscal policies may simply delay the fall in real

income necessitated by the increase in oil prices, stoke inflationary pressures, and worsen the impact of higher prices in the long run.

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