

Crude Oil Price Volatility- Role of Speculation, Market Fundamentals and its effect on Indian Economy

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ABSTRACT

This paper aims to analyse the crude oil price trends witnessed in recent years along with the high level of volatility associated with it. The relationship between crude oil prices, market fundamentals and speculation has been analyzed. The overall impact of rapidly changing crude prices on India with respect to its inflation rate, external balances and overall growth has also been studied.

The empirical data ranging from 2000 to 2008 has been taken to establish the driving force behind crude price fluctuations especially the rise.

It has been established that the changes in demand and supply through this period cannot justify more than 100% increase in crude oil prices and hence speculative trading has acted as a major force behind crude price hike.

INTRODUCTION

Crude oil prices have been showing exceptional instability during last 5 years. This kind of volatility was not even witnessed during the past oil shocks (1973, 1979). During the oil embargo in Arab world prices fell from \$40/bbl to \$15/bbl. A variance of \$25/bbl. Likewise, after 9/11 incident the oil prices came down from about \$25/bbl to \$15/bbl, these changes were not drastic owing to the fact that huge Geo political incidents had taken place.

However in the last 3 years crude prices have been highly fluctuating. In 2007 the price of a barrel of crude was traded at less than \$60. During the spring of 2008 the oil prices crossed the threshold of \$100/bbl for the first time in history. It reached a record of \$147 per barrel in July 2008. Many experts (Goldman Sachs) were anticipating it to reach \$200/BL. It however reminded very high (around \$115/BL) but only for four months later it drastically dropped back to USD 45/BL on Dec 29, 2008. Through March and April 2009 oil was traded at about \$40/BL. By August, prices returned to \$70/BL and currently the spot price of crude /BL is \$77.

Oil price fluctuations heavily affect consumers, producers and the overall incentive to invest. It has been maintained that presently the price of crude oil does not seem to be amplified by traditional demand and supply relationships, but by dynamics of interlinked financial markets and changing Geopolitical landscape.

THE EFFECT OF MARKET FUNDAMENTALS

Oil prices traditionally have been changing with respect to changes in demand and supply conditions. We will be analyzing both sides separately

Supply Side of the equation

If the long term trends in the crude oil prices are analysed, the supply of crude oil has had a lot of impact on price changes. The 1973 Arab oil Embargo, 1977 Iranian revolution are the main examples of supply side incidents which led to oil shocks.

However recent fluctuations cannot be attributed to the supply. There is clearly no shortage of oil in the market. Global oil supply in 2009 rose by 635000 bl/day to 85.6 million bl/day, with both non-OPEC and OPEC supplies rising month on month, OPEC crude production rose by 110000 bl/day to 29 million bl/day in October 2009.

OECD Commercial oil stock remains above the 5 years average, with days of forward cover at a comfortable level of more than 53 days. US crude Inventories have increased (excluding those in

strategic petroleum reserve) by 2.1 million barrels. The inventory currently 339.9 million barrels of crude which are above the upper limit of the average range.

USA alone has the largest emergency stock of crude oil; the US Strategic Petroleum Reserve (SPR) currently holds more than 700 million barrels of crude oil. It was used by US during the Gulf War and Hurricane Katrina in a small proportion which was enough to prevent any crude oil price run away. All these facts are further proof that the recent crude price volatility is not due to any supply shocks.

Effect of Demand change:

Demand for Crude oil mainly depends upon the changing world economic Scenario. Various downturns like the Great Depression (1929-33), East Asian Crisis (1997) and the recent Financial Meltdown lead to considerable fall in Crude oil prices.

Recent financial Crisis and Subsequent Global downturn lead fall of prices from a peak of \$147/bl in June 2008 to less than \$50/bl by December 2008.

Global oil demand currently stands at an average of 84.8 million bl/day (-1.7% fall year on year). USA consumes about 25% of the total Global oil produced and is the largest consumer. The Global Demand has registered negative growth for 3 consecutive years.

YEAR	GLOBAL DEMAND	GROWTH
2006	84.9 Million bl/day	
2007	85.7 Million bl/day	1%
2008	85.2 Million bl/day	-0.2%
2009	84.8 Million bl/day	-1.7%

It is clear from the above data that the demand grew by only 1% from 2006 to 2007 and was negative during 2008 by -0.2%. However, the prices have increased by more than 100% during this period.

The prices were less than \$60/bl in 2008. This shows a certain mismatch between demand and price movements.

Some Economists maintain that growing demand from developing countries particularly China and India has lead to high crude oil prices. But it can be argued that, China and India growth story has not emerged suddenly in 2008, but it has been gradual since 90's. The demand for crude oil by India and China has been consistent over the years.

CRUDE OIL SUPPLY TO INDIA:

YEAR	DEMAND BL/DAY
2006	2.2 Million bl/day
2007	2.5 Million bl/day
2008	3 Million bl/day
2009	3.1 Million bl/day

SUPPLY TO CHINA:

YEAR	DEMAND BL/DAY
2006	6.56 Million bl/day
2007	7.5 Million bl/day
2008	7.9 Million bl/day
2009	8.8 Million bl/day

The increase in demand from China, India, though substantial can't justify more than 100% increase in crude oil prices as was witnessed during the period. It further points to the fact that forces beyond demand and supply theory are responsible for the sudden hike.

EFFECT OF SPECULATION

The price of crude oil highlighted in the media is determined in the future markets on two internationally working oil commodity exchanges- NYMEX in New York and ICE in London- where the bench mark prices are determined for two crude oil grades: West Texas intermediate and North Sea Brent. The Brent futures market price is used, in spot and long term contracts, as a basis of evaluating much of the crude produced globally.

There are thousands of oil transactions daily, but few of these shipments are delivered. Instead they are constantly re-traded, based on the market price at a specific moment. That is, the right to a single barrel of oil are bought and sold, many times over. The large purchase of crude oil futures by speculators have, in effect, created an additional demand for oil, driving up the price of oil for future delivery in the same manner. A US Senate Permanent Sub-Committee investigating the role of speculation noted "There is substantial evidence supporting the conclusion that the large amount of speculation in the current market has significantly increased the prices".

Since American futures (WTI) were introduced in ICE and traded in USA, Huge investments began pouring into oil futures. Since the investors were wary of investing into stocks due to financial crunch. They decided to invest in commodities mainly oil and gold. The Economist Article admits that some \$260 Billion have been invested in commodity funds, 20 times the level of 2003. Since margin requirements in most commodity markets are typically less than 10%, the funds could take positions in commodities equal to several trillion dollars- much of it on oil.

Another concept which supports speculation as the reason behind high crude prices is John Maynard Keynes's General Theory (1936, p 66-73) writing on the Marshallian concepts of user cost. Keynes argued that user cost links present production decision and future production decisions of profit maximizing organizations. This concept suggests that leaving more oil underground or in inventory especially by the large oil companies, may enhance total profits if the prices keep on changing due to unregulated international derivatives trading.

The commodities futures trading commission (CFTC), a U.S. Government agency, has the mandate to assure that the future prices of commodities do not reflect price manipulation or excessive speculation. In January 2006, however, CFTC decided to permit ICE to trade West Texas Intermediate as well as US gasoline and heating oil futures in London. Since this, the crude oil prices have more than doubled. User cost concept was further strengthened when Goldman Sachs indicated that the crude prices could reach \$200 per barrel.

EFFECT ON INDIAN ECONOMY

India is the world's 5th largest energy consumer. It imports about 75% of its requirements and accounts for about 3.5% of global consumption. Oil meets about 30% of India's commercial energy requirements. According to an IEA estimate, India will become the world's third largest importer after the US and China before 2025, with its energy demand expected to double by 2030. Crude oil imports on an average have a total share of 30% of total imports. India currently imports more than 2.5 million barrels of crude oil per day.

Owing to these huge numbers, any sudden shifts in crude prices will have a substantial effect on Indian economy. Effect on various macroeconomic indicators are analysed Below-

Effect on inflation rate-

Even though the adverse macro effects due to high crude Oil prices have been supported by the Government by keeping domestic oil price significantly lower, incurring a subsidy of more than 1.5% of GDP, inflation rates do soar due to sudden changes. According to a Morgan Stanley report, if crude prices move down or up by 10% for a year, it results in a direct impact on wholesale price inflation rising by 0.6- 0.7% points if the government passes the full impact to the consumers. This phenomenon was noticed last year. Inflation touched a 13 year peak of 11.05% in June 2008 mainly due to hike in crude oil prices which rose to \$147 per barrel during the same period. The correlation is further proved when inflation rate in India slowed to a two decade record low of 0.44% in March 2009, the crude oil prices during this period had also fallen below \$50 per barrel.

Effect on growth and external balances-

Crude price volatility has considerable effect on the growth prospects of Indian economy. The Government is providing huge subsidies to prevent price transfer to consumers. The major oil companies have been badly hit and their balance sheets have been in red for a considerable period of time. The RBI has been pursuing a contractionary monetary policy during the record price hike in crude which affected the overall growth prospects. According to one research, a \$5/bbl increase in crude prices results in lowering GDP growth by 0.20% points, if the full cost is passed to the consumers.

As far as external balances are considered, India is deep in red. It has been spending about 30% of foreign exchange on import of crude oil. Accordingly about a \$5/bbl increase or decrease in crude oil prices results in India's import bill and current account deficit reducing/rising by about \$7 billion per annum which is about 0.3% of GDP.

CONCLUSION

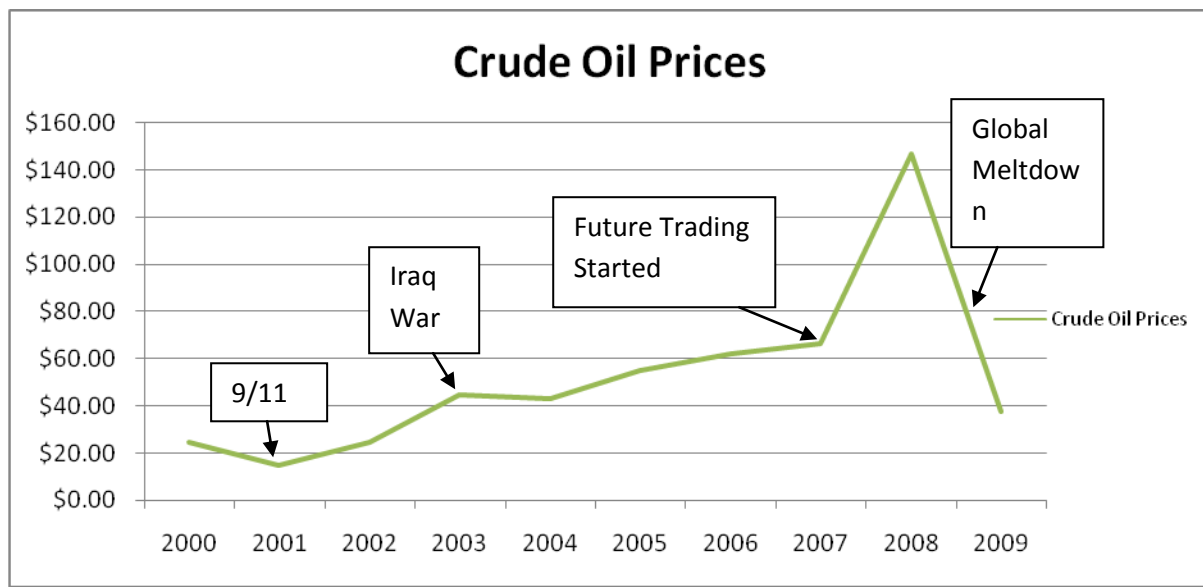
This paper analyses the relationship of crude oil prices with market fundamentals and speculation. Empirical data from 2005 to 2008 has been used, it shows that there has been a minute change in supply and demand conditions during this period which does not justify the more than 100% increase in crude oil prices, and hence speculation has been the main driver. The volatile crude prices affect Indian economy to a great deal. There is a positive relationship between the crude prices and Indian inflation rate which was apparent during this period. Also the external balances and over all growth position of India gets highly effected.

It is thus necessary that unregulated crude oil trading is checked and the role of commodity future trading commission (CFTC) is very important in this scenario. Crude oil prices have a negative correlation with the US dollar, since the dollar has lost its stability due to financial crisis, it is essential that the trading of crude oil through US dollars be checked. The possibility of trading crude oil through a basket of different currencies should also be worked out as an option.

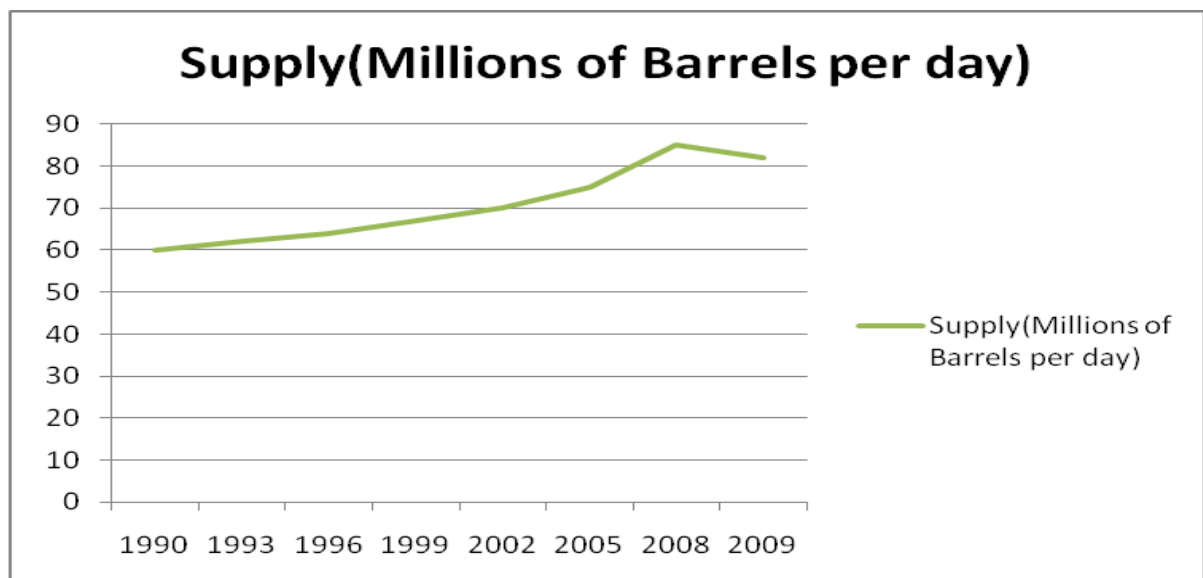
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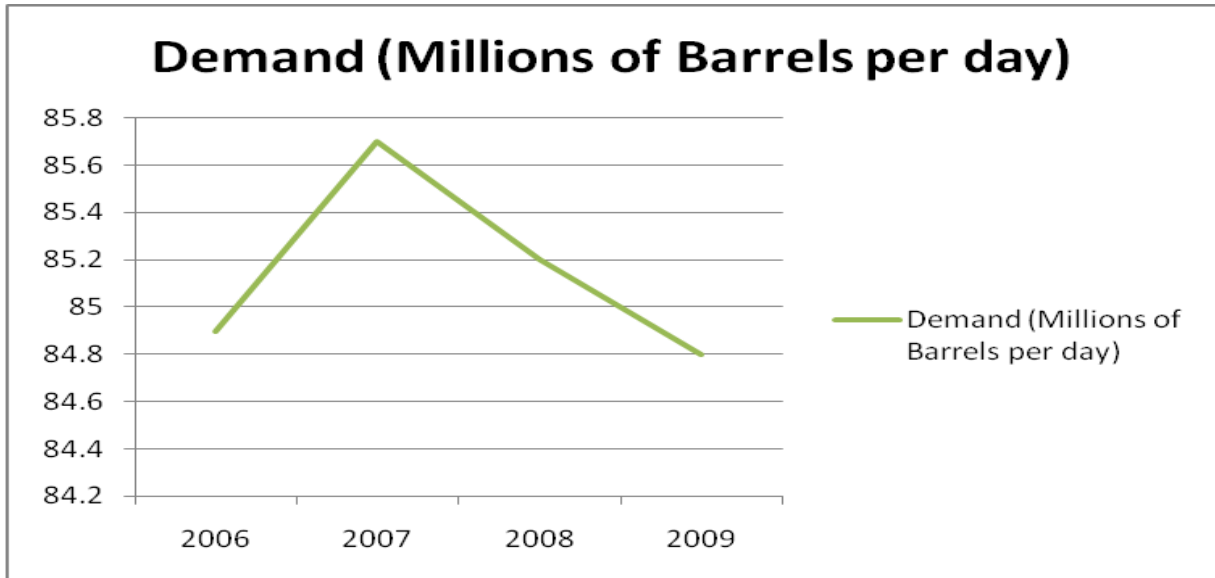
GRAPHS AND EXHIBITS:



Crude Oil Prices started to sky rocket when WTI futures started trading at ICE and ICE futures were being traded at NYMEX

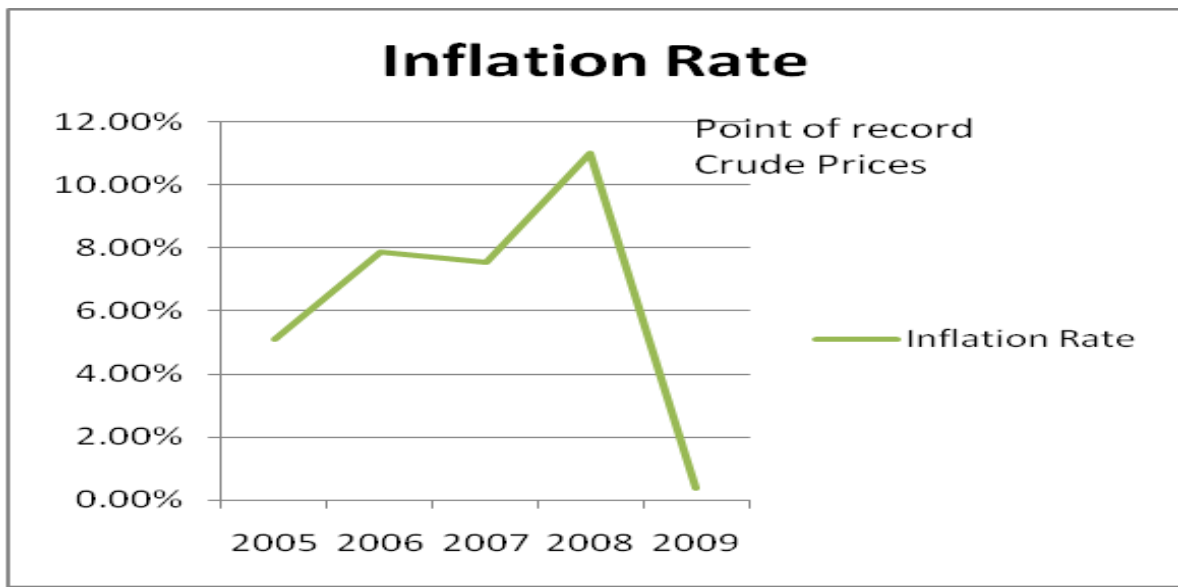


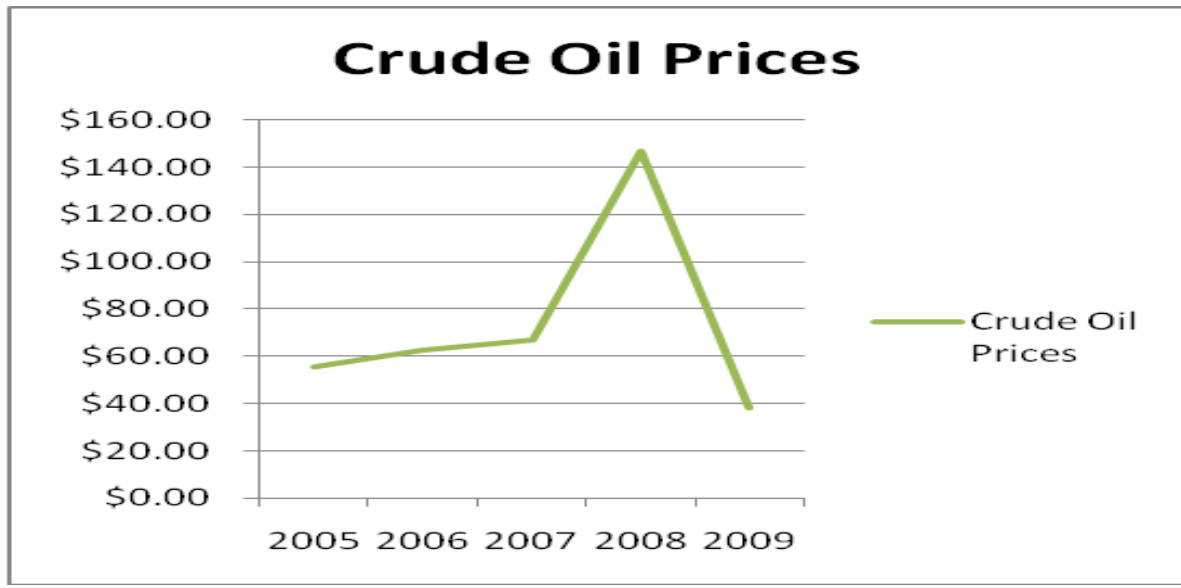
The supply has been growing at a constant rate.



The world demand has not increase beyond 86 million barrels per day during the concerned period and even negative growth was recorded in 2008 and 2009.

Relationship between Indian Inflation Rate and Crude Prices





***Source: The oil market report (2009, may 12) International Energy Agency**