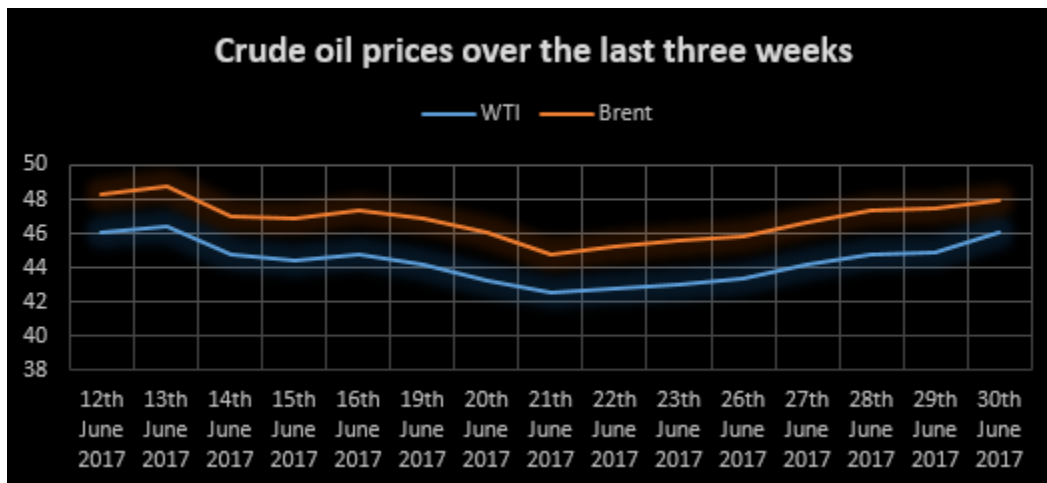
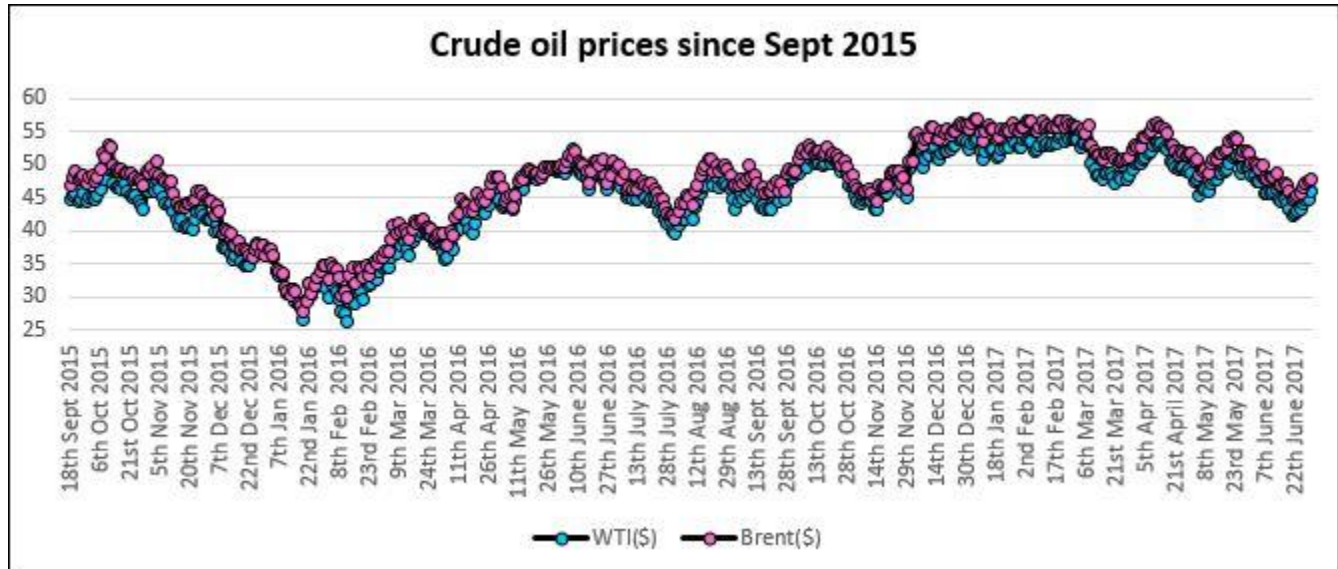


[www.chopr seismic.com](http://www.chopr seismic.com)  
Calgary, Canada

Some of the news items for this week are as follows:



- After the slide in oil prices last week, this week saw them edging higher, for no particular reason, except some bargain hunting at the end of Q2. The market may be taking a breather, as other indicators (US oil production higher than last year and expected to go even higher, production in Libya, Nigeria, North Sea is higher, and the demand is not going to increase significantly) are for prices to drop.
- In stock trading, when the stock prices go up, there are indicators that reflect such trends. When such a market trend continues, and the value of rises by at least 20%, we hear people say that it is a *bull* market. A bull market shows confidence in the stock trading. On the contrary, when the stocks fall by more than 20%, then the market is said to have entered *bear* market. A bear market shows lack in confidence in stock trading. So, the oil prices entered the bear market last week. All the hard work done by the oil companies at reducing spending, laying off people, and service

companies becoming efficient and offering reasonable prices for their services so as to remain profitable seems to have borne no fruit. With prices in the \$40 and \$45 range, there is not enough wiggle room or incentive for oil companies to increase investment. And the painful thing is that it is not looking good for the next few quarters.

- The past week has been observed as the 'Energy Week' by the US Department of Energy, where President Trump, and the US Energy Secretary, Rick Perry, delivered speeches focusing on the fact that US is no longer in an era of energy of scarcity, but rather in one of energy abundance, and describing how the export of US natural gas, oil and coal would help strengthen the country's influence globally, enhance international alliances and help stabilize global markets. Former President Barack Obama had lifted a decades old ban on most US crude exports in December 2015, and since then US has exported over 157 mb of crude to countries other than Canada, which was excluded from the export ban. As part of his plan for energy dominance, President Trump announced the approval of a 46-mile-long NuStar Energy LP's New Burgos Pipeline, a new petroleum pipeline to Mexico. This pipeline would displace fuels that are hauled across the US-Mexico border in tanker trucks.
- The US is looking forward to exporting energy to India that includes major long-term contracts to purchase US natural gas. India's Gas Authority of India Ltd. (GAIL) and Cheniere of US had signed a contract in 2011 for supply of 5.8 million tonnes of LNG per annum for 20 years, estimated at \$22 billion. At the current prices, the landed cost of the LNG in India is not very attractive, and GAIL is trying to renegotiate the prices, something that Cheniere is not willing to entertain.
- South Korea seems to be interested in US LNG. This became clear last week during the 'Energy Week', where South Korea's energy companies announced four partnerships with US companies to explore opportunities in the US natural gas business. South Korea is already one of world's biggest importers of LNG, and has bought eight cargoes of US LNG from Cheniere's Sabine Pass terminal in Louisiana. South Korea is looking to transition away from coal and nuclear power in favour of cleaner natural gas-fired electricity generation. Sales of LNG to Korea will also help ease disputes over unbalanced trade between the two countries.
- Libya's oil production has risen to 1.012 mb/d for the first time 4 years, as per a Libyan oil industry source. This has been achieved by an interim deal with Germany's Wintershall to resume production amid a contract dispute.
- Brazil has been going through a recession that has led to a slump in its domestic oil consumption. At the same time the country's oil production has grown, thanks to the offshore oil fields that are producing from the pre-salt regions. Consequently, Brazil's oil exports have grown, and is likely to become the second-biggest source of non-OPEC supply in the second half of 2017, after US. This is another worry for OPEC, to see its efforts at rebalancing the market becoming ineffective.

So much for the industry news this week.

### *For the lighter side this week*

What happens when radiation is released from a nuclear disaster such as at Chernobyl in 1986, or when a nuclear accident happens, such as the Fukushima reactor meltdown in 2011, and people are exposed to the ionizing radiation fall out from those accidents. Some immediate symptoms are vomiting, headache, fever and diarrhea.

The amount of radiation absorbed by the body is measured in Greys (Gy) and defined as a Joule of energy absorbed in one kilogram of body tissue. When a person is exposed to less than 2 Gy, the symptoms can be watched and treated, and the patient may live. Exposure over 8 Gy can be fatal, but for levels between 2 and 8, treatment can be provided based on the levels of radiation exposure. But it usually takes several days to understand and determine the level of exposure.

DNA is a nucleic acid that carries the genetic instructions used in the development and functioning of all known living organisms. The shape of a DNA molecule is that of a double helix and a twisted ladder. It is an important molecule with a long chain of nucleotides. Radiation exposure to human body damages the DNA and higher levels of radiation exposure can wipe out a person's blood and immune systems leading in some cases to bone marrow failure, and in the long-term risk of cancer. Bone marrow is a jelly like substance made of fat, blood and stem cells that turn in various kinds of blood cells. Once it is made, the blood cells seep from the marrow, through the bones, into the blood and then the blood stream.

The symptoms can take days or weeks to develop. The current treatments for radiation exposure are aimed at shoring up the blood and immune systems before the damage sets in. More recent advancement has been the development of a simple blood test to determine the exposure of a patient to ionizing radiation that can be carried out in the field with a hand-held analyzer. Thus, in the case of an accident, blood tests could be carried out on thousands of affected people and results quickly provided so as to provide adequate treatment. A special enzyme DNA ligase has been developed that encircles the DNA helix and tends to repair the broken DNA strands.

Researchers have identified DNA genes in the human blood that respond in a characteristic way to large doses of radiation, and respond differently to inflammation as might be caused by an injury or infection. With a blood test these genes can be quickly identified and thus persons exposed to radiation identified.

Based on tests carried out on mice, more recent advance is that now researchers look for changes in small molecules called microRNAs that circulate in the blood. RNA stands for ribonucleic acid which is a form of genetic material similar to DNA. RNA comes in different shapes and sizes. RNA strands are continuously made, broken down and reused. Such microRNA analysis can distinguish between different radiation dosages within 24 hours of exposure. Such quick diagnosis immediately after a nuclear fallout or accident can come in very handy for assessing treatment options.

### *Did you know?*

We are all aware that mosquitoes are more active at biting when the sun goes down. Did you know that when they are exposed to bright light and then left in the dark they tend to bite less?

A study has been carried out at the University of Notre Dame, where one group of mosquitoes were left in the dark for the entire night, and another group was first exposed to bright light for about 10 minutes, and then left in the dark. The scientists regularly checked at two-hour intervals, and found that the propensity to bite volunteers' arms of the light-exposed group was significantly less than the group left in the dark throughout.

Similarly, as part of the study, a group of mosquitoes was exposed to bright light every two hours, and it was found that their biting got suppressed for most of the night. The scientists believe that this observation could have important applications in countries where mosquito-borne diseases are more prevalent. If bright light sources are intermittently shone, mosquito biting could be suppressed. More

studies are being carried out to find if light of other wavelengths could be as effective, as bright light could disrupt peoples' sleep.

I hope you find these interesting.

So much for this week! Till the next post, stay safe and happy!