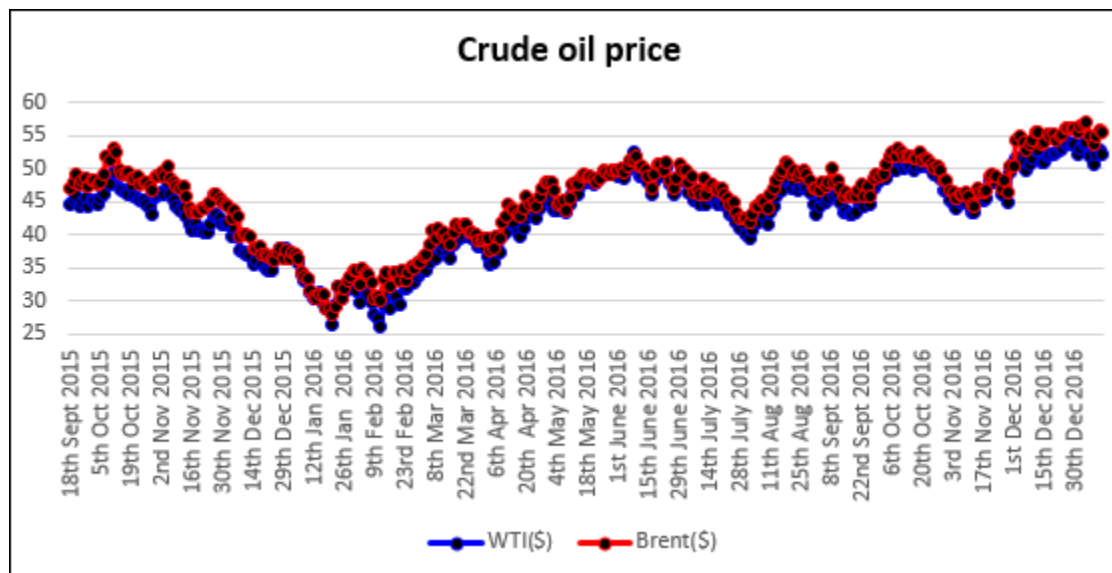


www.chopraseismic.com
Calgary, Canada

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



- The crude oil fluctuated this week amidst concerns about the prevailing world oversupply of oil. The high crude production from Iran and Iraq entering the market could possibly undermine the effort made by OPEC/non-OPEC countries to reduce their production. Iraq's oil exports from its southern ports in the Gulf had reached a record high in December. Besides, the US commercial crude oil inventories excluding the strategic Petroleum Reserves increased 4.1 mb during the week ended January 6th, from the previous week according to US EIA. The prices looked up on Thursday following reports that Saudi Arabia has cut production by more than what it had agreed to earlier. Finally, the rig count dropped by 6 to 659 during the week ended Jan 13th, as per Baker Hughes data
- The Saudi Energy Minister, Khalid Al-Falih, has said that his country has already reduced production by more than its targeted level, and that it will consider renewing its commitment to cut crude oil production in six months. The Kuwaiti Oil Minister, Essam Al-Marzouk, said at a conference in Abu Dhabi, that his country has cut 133,000 b/d from its production, which now stands at 2.7 mb/d. Earlier, the OPEC Secretary General, Mohammad Barkindo had said that with all the proposed cuts, the global oil inventories will begin to fall by the second quarter. He also said that he had met with the Iraqi Energy Minister, who had reassured him that Iraq will implement its part of the deal. Meanwhile, Russia and Kazakhstan have trimmed their production by 130,000 b/d and 20,000 b/d respectively in the first 10 days in January 2017. This represents 27% of the promised non-OPEC reduction. A Committee of OPEC and non-OPEC producers that had been set up to monitor compliance with the cuts will meet on January 22nd at Vienna, which will be followed by the bi-annual OPEC meeting in Vienna in June. So far the OPEC/non-OPEC strategy seems to be going in the right direction.

- According to the UAE Energy Minister, Suhail Al Mazrouei, the present price of crude oil at \$50 or so may be low for many oil producing countries. He said while complying with the agreed output cuts, UAE will work on boosting its present production level of 3.15 m/d to 3.5 mb/d. According to IMF, many members of the Gulf Cooperation Council will need the price to be higher than \$50 to balance their budgets in 2017. UAE will need a price of around \$60, but Kuwait has been able to balance its budget at \$50.
- As a result of its agreed production cuts, Saudi Arabia is planning cutbacks to the Asian market, which has been its largest and most-valued market, but which will be smaller than the other regions including US and Europe. For January sales, supply to SE Asia and South Asia including India have been reduced, while buyers in North Asia have been spared. This picture could change. Also as part of its commitment for cutting its share of production, Saudi Arabia plans to reduce its production of Arab Medium and Arab Heavy grades of oil, so that it still stays in the battle for market share by continuing to pump oil grades similar to US and African supply.
- Nigeria's oil union suspended its planned strike after the government mediated and struck a deal between the workers and the oil companies including Chevron and ExxonMobil. This will hopefully prevent any disruption in the oil supply from Nigeria, especially after the fire in the Shell pipeline that I mention in my last post.
- The oil industry lost over 440,000 jobs by the end of 2016, according to industry consulting firm Graves and Co., and more than 75% of these jobs were from oil service providers, drilling contractors and equipment makers. To take advantage of the oil price above \$50 a barrel, oil companies have started to hire back workers as rigs are being added in the shale patch. More than 100 rigs have been added in the US since September 2016.
- According to Wood Mackenzie, the Edinburgh-based consulting firm, the quantity of oil discovered in 2016 has been the lowest since the 1950s. Oil companies found only 3.8 billion barrels of conventional crude in 2016, which is 14% less than the previous year, and the lowest since 1952. The spending on exploration may drop further this year. But operators are getting more for their money now as now the operations are more efficient, the focus is on easy targets and fees paid to contractors are lower. The renewed industry optimism could serve as the turning point and there may be a lag of a year or so. On account of that the spending on exploration in 2017 may be lower this year, and lower budgets could also mean fewer wells drilled. But going forward, the effects of the downturn will be shaken off as companies start again and begin development projects.

So much for the industry news this week.

For the lighter side this week

When a patient loses a lot of blood after a serious accident or injury, and is in a life-threatening condition, the doctors administer donated blood to the patient. Similarly, if a patient has a blood-related condition, again donated blood is given to flush out the old blood with the fresh one. For this to be done, the doctors have to test the type of blood (A, B, AB or O) the patient has, and a similar type of blood is then given to the patient. Also, the blood that has been donated by volunteer donors is collected and as and when required is administered to needy patients. Donated blood cannot be stored indefinitely as it has

a finite shelf life of a month or so, after which it starts disintegrating. It is therefore in short supply and that is why many times the doctors ask one of the family members to donate blood and save the life of the patient. What if artificial blood could be produced? The first question that comes to mind is: is it really possible to produce artificial or synthetic blood? Yes, you read it right, synthetic blood!

For this we need to understand the composition of the human blood. Our blood is composed of white cells, red cells, platelets and plasma.

The plasma is the yellowish extra cellular stuff made of water, salts and proteins that along with platelets, makes the blood to clot. The proteins in the blood react with the air to harden, and so prevent bleeding.

The white blood cells fight the invading organisms and so prevent infection.

The platelets rush to the spot where the blood vessel is cut, and give off chemicals that combine with the proteins to seal the spot from where blood is bleeding. Platelets are thin and flexible, but can change shape and can grow into long fibers and thus help in plugging the cube.

The red cells in the blood that give blood red colour are responsible for transporting oxygen and carbon dioxide in our body. Haemoglobin refers to the protein molecules in the red blood cells that carries oxygen from the lungs to the body tissues and returns carbon dioxide from carbon dioxide to the lungs. The proteins on the membranes of the red cells, make the type of the blood for each human body, which it recognizes as its own, and can receive only a similar type that is compatible.

Synthetic blood is likely to have a huge market, as it is anticipated that within the US alone, it could have sales of over \$7b annually.

So, what are desirable qualities of synthetic blood?

The synthetic blood should be compatible with the human body, should not get distinguished in terms of blood types, and should be stable in terms of shelf-life. If this happens then it should be possible to process such blood for removal of disease-causing agents.

The national health departments of many countries have been researching on the synthetic blood synthesis and the clinical trials for synthetic blood will occur in 2017.

So this year we will hear about the advancements in this area. The aim of developing synthetic blood is not to have a complete replacement for the human blood, but to have a replacement in terms of the component of the blood responsible for transportation of oxygen, i.e. the red cells.

Two significantly different products as blood substitutes are being worked on, and differ in the way they carry oxygen. One is the perfluorocarbons, and the other is the haemoglobin based products.

The perfluorocarbons are biologically inert chemicals, insoluble in water, carry 50 times more oxygen than blood plasma, and are inexpensive. Combined with emulsifiers, tiny particles of PFC can be suspended in the blood. They however carry less oxygen than the haemoglobin-based product.

The synthetic blood based on haemoglobin takes advantage of the fact that it carries oxygen from the lungs to the other tissues in the body. There are different ways in which haemoglobin-based synthetic products can be produced. One of them is by way of harvesting haemoglobin from an E coli bacteria strain. The other one is to isolate haemoglobin from human blood typically that is past its expiry.

Research is in full swing to produce a product that could be used as a partial replacement for the human blood.

I hope you will find this interesting.

Did you know?

Have you ever wondered why polar bears live in the North Pole, and not on the South Pole?

Answer: The North Pole is in the Arctic, which is a mass of frozen sea with no land underneath. Polar bears have descended from the bears found on continents, and over a period of time have evolved with their fur coats as white. As Arctic has a lot of seasonal ice, polar bears can go on ice, and where it is not very thick, can hunt seals that come to the surface for air.

The South Pole is in Antarctica, which is a continent. What this means is that there is land under the masses of snow and ice. The South Pole is far inland and high up. There are no living animals at the South Pole as it is too cold to support any life. At the edge of the Antarctica continent, where the land meets sea water, there are penguins and seals that go under water.

The North Pole is not as cold as the South Pole as the water there has a moderating effect. The South Pole being far inland has no water to tone up the temperatures, and hence remains very cold. So, polar bears will not be able to survive on the South Pole.

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

(If you wish to read the older posts, please go to '[Facebook/blog Posts Archive](#)' under **About Me**)