Inventory analysis for crude: A method of valuation

There are many methods of valuation that shape the amount of inventory in terms of valuing barrels for sale. Brent Crude can also work on the methods of valuation to sell at prices, which bring more earnings to the sale. Here is an approach.

The methods used are LIFO, FIFO, simple average, MIFO, weighted average and moving average.

LIFO means last in and first out. FIFO means first in and first out. Simple average means non-weighted average, while moving average is the cumulative average. MIFO means middle in first out.

Let us assume that 1 million barrels are kept in a warehouse post sales and purchased at USD 72/ barrel. Similarly, let us assume that after a month, in February 2018, 1.5 million barrels are bought at USD 75/ barrel. Lastly, 2.5 million barrels are bought for warehousing at USD 73/ barrel.

Now, let us assume that 1.2 million barrels are quoted at USD 73/ barrel, while the next 0.8 million barrels are quoted at USD 72/ barrel, while 3.0 million barrels are quoted at USD 74/ barrels.

How can the inventory be valued at the spot price, and how can the inventory analysis be used for creating demands. Hence, the inventory valuation can be = 1*72 + 1.5*75 + 2.5*73 USD = 367 million USD. Now, here is a method for valuing inventory pre sales.

Methods of valuation	Step 1	Step 2	Step 3	Total
Baseline	**1 million x 72 = 72 million USD**	**1.5 million X 75 = 112.5 million USD**	**2.5 million X 73 = 182.5 USD**	**367 million USD**
FIFO	**1.2 million X 73 = 87.6 million USD**	**0.8 million X 72 = 57.6 million USD**	**3.0 million X 74 = 222 million USD**	**367.2 million USD**
Simple Average	**367.2 million USD X 1.0/ 3.0 = 122.4 million USD**	**367.2 million USD X 1.0/ 3.0 = 122.4 million USD**	**367.2 million USD X 1.0/ 3.0 = 122.4 million USD**	**367.2 million USD**
MIFO 1	**0.8 million X 72 = 57.6 million USD**	**1.2 million X 73 = 87.6 million USD**	**3.0 million X 74 = 222 million USD**	**367.2 million USD**
MIFO 2	**0.8 million X 72 = 57.6 million USD**	**3.0 million X 74 = 222 million USD**	**1.2 million X 73 = 87.6 million USD**	**367.2 million USD**
Moving Average	**1.2 million X 73 = 87.6 million USD**	**(87.6 + 57.6) X 0.8/ 2.0 = 58.08 million USD**	**(87.6 + 57.6 + 222) X 3.0/ 5.0 = 220.32 million USD**	**366 million USD**
Weighted Average	**1.2 million X 73 = 87.6 million USD**	**(1.2 X 73 + 0.8 X 72) X 0.8/ 2.0 = 58.08 million USD**	**(1.2 X 73 + 0.8 X 72 + 3.0 X 74) X 3.0 / 5.0 = 220.32 million USD**	**380.52 million USD**
LIFO	**3.0 million X 74 = 222 million USD**	**0.8 million X 72 = 57.6 million USD**	**1.2 million X 73 = 87.6 million USD**	**367.2 million USD**

The spot price valuation and the cumulative graph is given below.

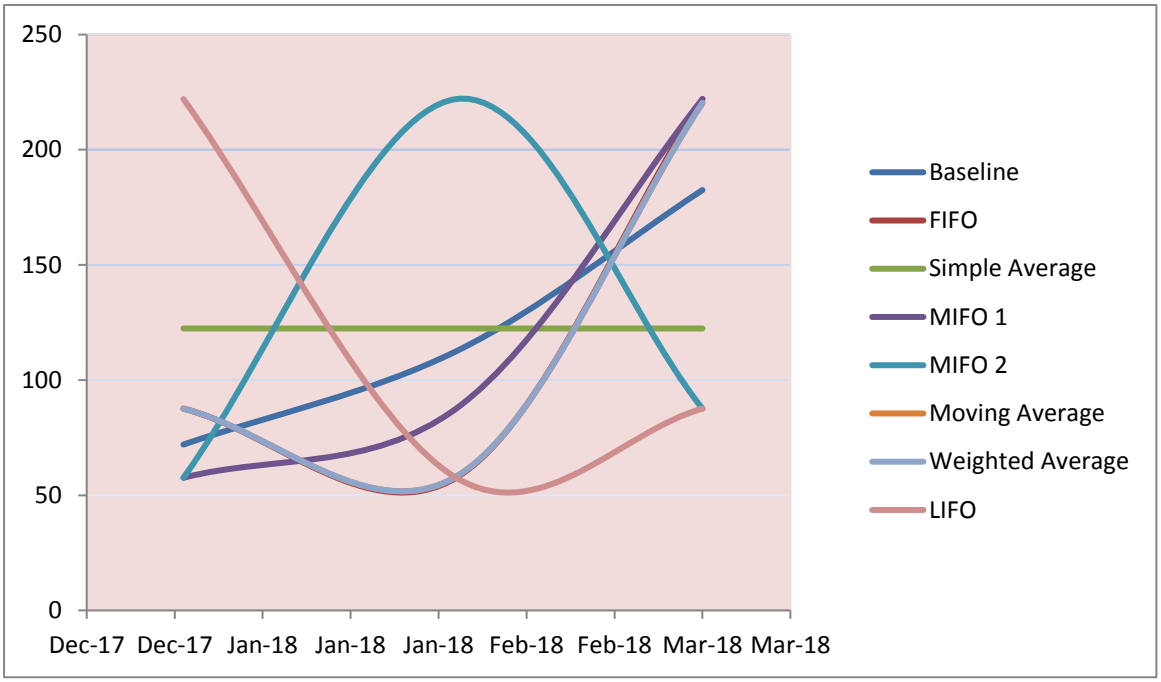

Figure 1- Weights on the methods of valuation with simple average taken as a trend line

The values used are the valuation in steps at the spot price. The steps 1, 2 and 3 are used to mark the methods of valuation.

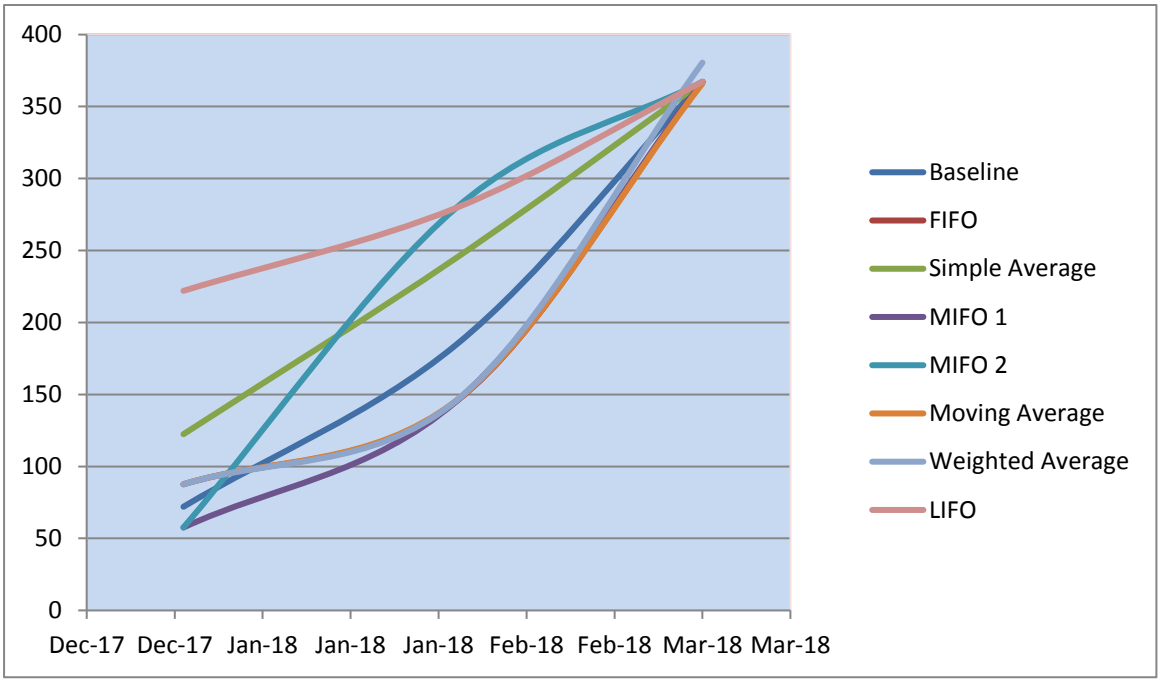

Figure 2- Cumulative value of inventory with the methods of valuation

The cumulative valuation is given. The valuation determines inventory as cumulative.

Hence, we see that a few methods of valuation can actually offset the valuation prices kept in the inventory. The crude prices are changing based on valuation. The effect is also noted.

Valuations using different methods provide an extra cushion to stockists and warehouse dealers who hold Brent post production, before refinery.

Weighted average, MIFO 1 and weighted average do not forecast well under these circumstances. Hence, the other methods of valuation are far better post production of Brent.