

## Decoding ABIOP

To decode the Atlantic Basin Iron Ore Pellet Prices as indicated in the Platts Report [SB01095] it would be important to understand the following terms:

### A) IODEX:

The S&P Global/ Platts Report serves as an important source of benchmark iron ore prices. One of the most important index for iron ore prices in the world is the IODEX. IODEX is recognized as a benchmark assessment of the spot price of physical iron ore. The assessment is based on a standard specification of iron ore fines with 62% iron, 2.25% alumina, 4% silica and 0.09% phosphorus, among other gangue elements. Since the breakdown of annually negotiated prices in 2010, IODEX has been the primary physical market pricing reference for seaborne iron ore fines delivered into China, the biggest importer of the steelmaking ingredient. The assessment is published on a CFR Qingdao basis, but is used by steelmakers, traders and mining companies globally to price long-term and spot contracts. Ores delivered on quality, location and timing dimensions differing from those underlying the IODEX are normalized using impurity penalty/premia differentials, which are updated to reflect prevailing market values for different impurities. The Platts IODEX is coded as IODBZ00.

### B) 1% Fe Differential

The Platts report also includes an index for 1% Fe differential that is generally valid between the range of 62% Fe and 63.5%. The Platts 1% Fe differential is reflective of the value of 1% Fe in fines within the 60-63.5% Fe range. Its value is determined by comparing spot transactions of fines within the 60-63.5% Fe range [IOMGD00].

Example:

If IODEX = \$60/t;

And 1% Fe Differential = \$1.5/t;

Then the indicative price for a 63.5% Iron Ore Concentrate = \$60/t + (63.5-62)x1.5 = \$62.25/t.

The above validates the recent market trend of rewarding producers with higher quality of iron ore. Earlier, a price of a 63.5% Fe iron ore concentrate would have been calculated as below:

$\text{IODEX} \div 62 \times 63.5 = \$61.45/\text{t}.$

### C) IODEX netback Brazil Capesize \$/DMt [IONBB03]

The Platts Report also indicates a Freight rate between Qindao and Tubarao.

### D) Atlantic Basin Iron Ore pellet premium (USD/t) [IOBFP00]

This is a monthly assessed value reflecting a provisional pellet premium contract settlement price for iron ore blast furnace pellets typically sold in term contracts, to steel mills primarily in Europe. This value reflects an additional charge, over the quality adjusted iron ore fines. The Pellets are assumed to be of 65% Fe.

### What is therefore the Pellet Prices at Brazil (fob Tubarao)?

From the above discussion the theoretical FOB Brazil price (on a dry metric ton basis) of Blast Furnace Grade Pellet may be determined as follows:

#### Assumptions

IODEX	\$60/t
1% Fe Differential	\$1.5/t
IODEX netback Brazil Capesize	\$15/t
Atlantic Basin Iron Ore pellet premium	\$58/t

The price of Blast Furnace Grade Pellet (FOB Brazil) is therefore determined as:

$$60 + (65-60) \times 1.5 - 15 + 58 = \$110.5/t.$$

Here, it is interesting to note another index named ABIOP or Atlantic Basin Iron Ore Pellet expressed as US cents/Dry Metric Tonne Units [SB01095].

This monthly calculated value reflects a provisional contract settlement price for iron ore blast furnace pellets typically sold in term contracts, to steel mills primarily in Europe. It is published on the first business day of each month and then throughout that month in Steel Markets Daily and accessible on the SBB price analyzer. The calculated formula for the assessment takes the monthly average netback to Brazil [IONBB03] of the previous month, as its pricing basis. The quality is adjusted to 65% Fe, as a basis for pellet pricing, by adding (x3) 1% Fe differential monthly average [IOMGD03] also for the previous month. Additionally each month Platts editors assess a pellet premium [IOBFP00] in US\$, reflecting an additional charge, over the quality adjusted iron ore fines. This is part of the total calculated value. A cent/ferrous unit price is calculated by dividing the sum value by 65.

#### Relevance of ABIOP (US cents/DMTU) in North America.

The ABIOP has always been important for European Steel consumers sourcing Pellets. The freight adjustment between Brazil and Rotterdam (Europe) is generally the only adjustment done in such cases. That is to say, if the ABIOP (Cents/dmtu) is 220, Pellet quality is standard 65% and the C2 tariff is \$8/t (say), then the Pellet Price to European customers would be  $220 \times 0.65 + 8$  or \$151/t.

However, the ABIOP (cents/dmtu) is poised to be the new normal for setting the prices of merchant pellets in the US market.

The US pellet market is generally dominated by Cleveland-Cliffs ("Cliffs") that caters to 90 to 95% of the merchant pellet market. The prices commanded by Cliffs varies from customer to customer. It is understood that there is no standard formula to determine the pricing mechanism followed by Cliffs. However, it is known that the factors that influence the pricing of Cliffs iron ore pellets are mainly:

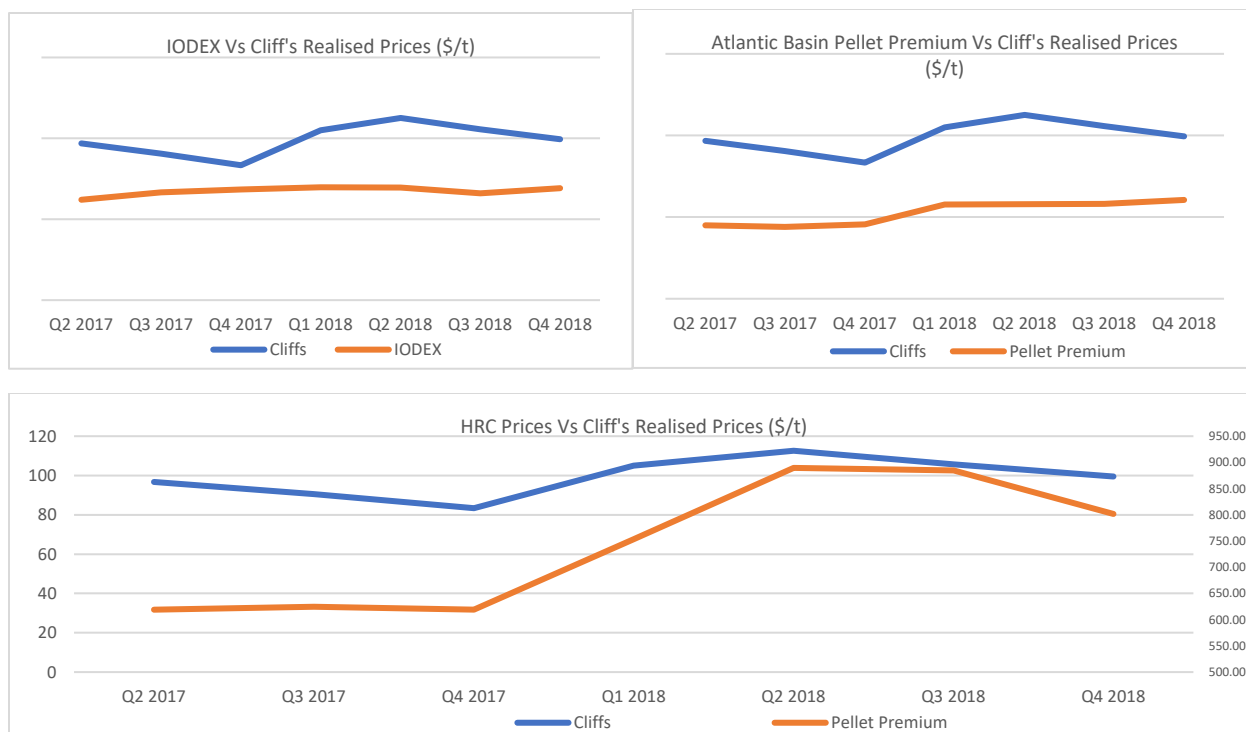
- a) IODEX;
- b) Pellet Premiums;
- c) Hot Rolled Coil Prices; and
- d) Customer discounts.

Individually, it is difficult to see a correlation between the above factors and the realized prices of Cliffs as is shown below:

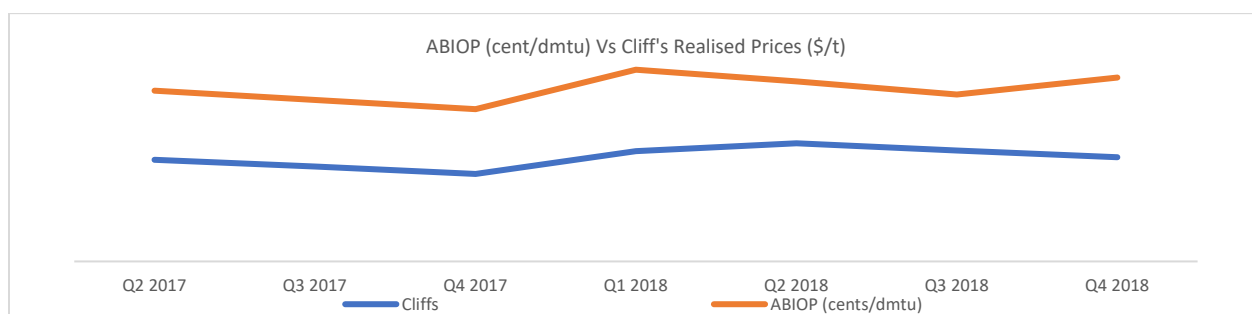
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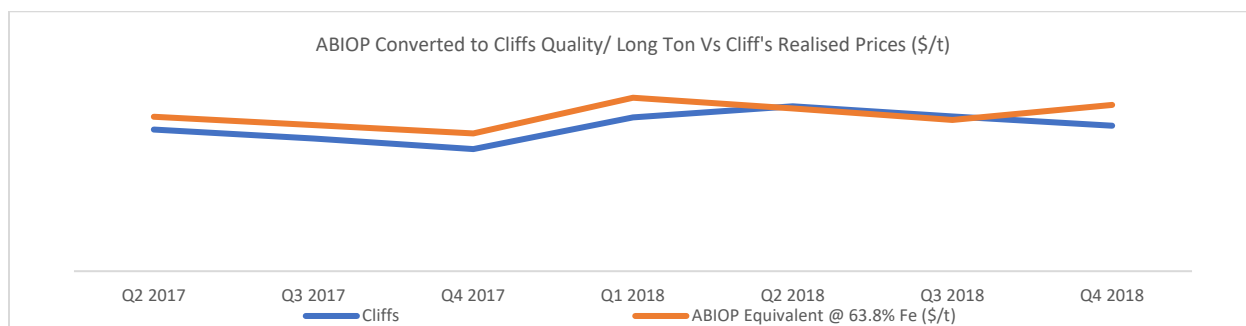
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However, the most striking correlation is found when we compare the ABIOP (Cents/dmtu) with the Cliffs prices:



If we convert the ABIOP (cents/dmtu) to 63.8% iron content Pellets per Long Ton basis, we will get the following graph:



Statistically there is a very high correlation between ABIOP and Cliffs Prices with  $R^2 > 95\%$ .

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We have therefore established that despite the other factors like HRC prices, IODEX, etc., that influence the pricing of Cliffs, the ABIOP (cents/dmtu) could be used to benchmark the Cliffs' prices. The ABIOP shall enable us to predict as closely possible to the market prices of iron ore pellets in the US Market.

### **The silly challenge of forecasting Cliffs Prices:**

Often some of us who are obsessed with the trends of iron ore prices try to find empirical formulae to test the understanding. As discussed above, there are so many factors that influence the average Cliffs Prices, that, as an outsider it is impossible to have an accurate prediction. A few factors that were not listed above include, inflation indices, Freight Net back to Brazil, etc.. While it is not the intention to propose an empirical formula, some of us might find interesting to test the following formula:

$$0.24 \times \text{IODEX} + 0.17 \times \text{Atlantic Basin Pellet Premium} - 0.01 \times \text{HRC Prices} - 1.41 \times \text{Freight Netback to Brazil} + 112$$

The Q4 2018 Report of Cliffs tries to predict the prices to be realized and a small comparison as to what the formula (considering \$18/t as Brazil freight) above throws up is as follows:

IODEX (As per Cliffs Report) (\$/t)	HRC Prices (\$ / Short Ton (As per Cliffs Report)	Pellet Premium (\$/t) as per Cliffs Report	HRC Prices (\$ / Metric Ton	Indicative Price as per Cliffs (\$/t)	Result as per our formula (\$/t)
76	694	67.5	765	102 to 107	110
90.50	683	67.50	752	111 to 116	114

### **But why is ABIOP so closely correlated to the market price of Pellets in the US market?**

The reason lies behind the insular nature of the US market. The logistics pose a challenge for importers to import pellets. The nearest source of pellets being Brazil, the importer will need to incur a freight cost of 1.52x to source pellets, which otherwise could be sourced from the monopoly player Cliffs. Cliffs therefore has a large headroom to negotiate the prices, perhaps at times sharing some of the freight advantages.

### **Summary:**

Atlantic Basin Iron Ore Pellet Index (ABIOP) has become the new reference point to assess the market prices in USA on a spot basis. In view of the barriers to import, ABIOP serves as the insulator to the IODEX. For the consumer, the alternative landed cost of the pellet would be the ABIOP plus the freight to transport the pellet to his mill – a key benchmark in comparing prices of Cliffs. For the Pellet producer, the ABIOP would be the best point of reference.

End of Report

## Bibliography:

1. Quarterly Reports of Cleveland-Cliffs Inc;
2. S&P Global / Platts - Methodology and specifications guide - Iron ore
3. S&P Global / Platts - Methodology and specifications guide – Freight
4. Industry Reports