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Commodity Trading Strategy:

Utilizing Trade Data to Access Volatility and Forecast Trends

The use of bilateral trade data within a commodity trading strategy has frequently come up in traders' discussion, with some starts making use of this data point within their analytical systems.

In a recent research paper, the Maritime & Trade business division have leveraged Bilateral Trade data (Global Trade Atlas - GTA) to examine its relationship with commodity trading through a study to India, China and the United States – with each focusing on selected commodities to analyse statistical relationships against spot prices, and discuss potential applications within forecasting to provide short-term indications. In brief:

- The Harmonised system codes used to report statistical trade data by National Statistical Authorities is successfully mapped against more traditional named 'Commodities'.

- The statistical trade data concept analysis revealed that Unit Price (Unit Price = Value ÷ Quantity) concepts are highly correlated to spot prices (such as soybeans having a 0.95R2).

- Due to the extended history of the GTA data as well as visible seasonality within some commodity markets, it could be used in statistical modelling to forecast commodity market direction (ETS Forecast revealed 0.24% mean variance from actual for sorghum).

- Data revision analysis over a 12-month period showed that the percentage change, in contrast to what changes is very small, with little evolution on period-to-period, leading to a 99% confidence to the data as a whole. 12 months after publication Value revision percentage changes by direction averages at 0.35% with quantity averaging at 0.67%.

Correlation Coefficient – Spot Prices: Case Study of China PVC Trade

Mapped against Financial Markets - Unit Price in GTA is a highly correlated concept to spot prices and depending on the reliance of imports/exports of a country, import or export could be more highly correlated.

Below charts shows a comparison of China PVC trade – unit price in GTA vs its spot price has a high degree of accuracy.

Correlation of China PVC Trade

$y = 0.8918x + 203.44$
$R^2 = 0.7189$

Source: IHS Markit.
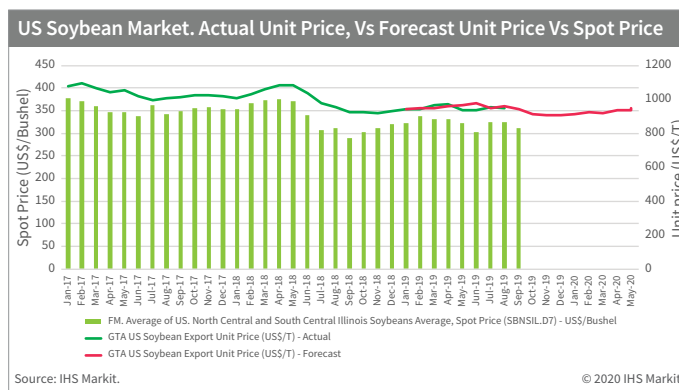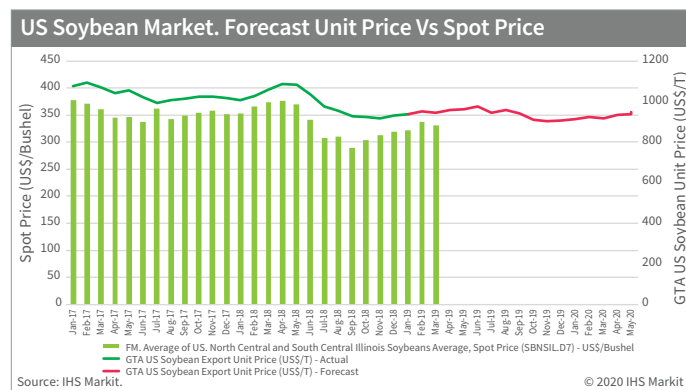© 2020 IHS Markit

China PVC Trade

GTA China Export PVC Unit Price - US$/T
China PVC (Acetylene Based) Spot, Average - Delivered China, South [US$ per Metric Ton (converted)]

Source: IHS Markit.
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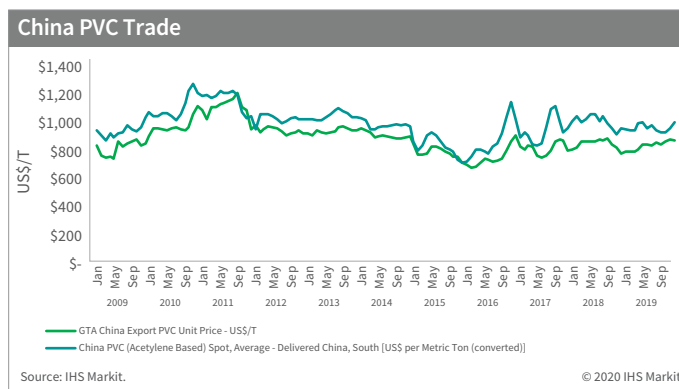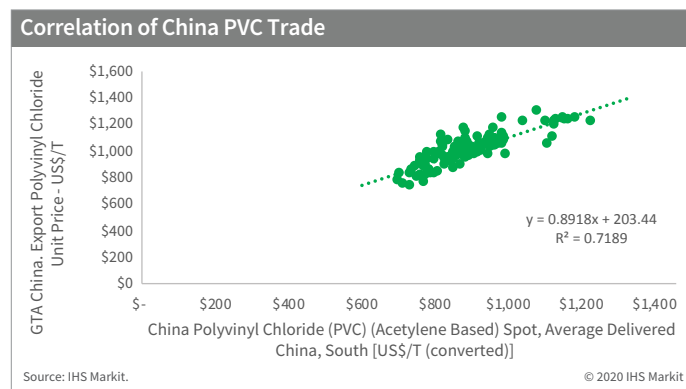
Exponential Smoothing Forecast – Case Study of US Soybean Market

We conducted over a historical period as a form of back testing, as to assess the accuracy of the forecasted GTA figures to the Actual GTA figures.

The below forecast estimated a decrease in unit price between July and September of 2019 in GTA Unit Price, which is reflected in the actual data, as well as the spot price, demonstrating how the GTA historical data could potentially be used to provide insights into the short-term evolution of markets.

US Soybean Market. Forecast Unit Price Vs Spot Price

FM. Average of US. North Central and South Central Illinois Soybeans Average, Spot Price (SBNSIL.D7) - US$/Bushel
GTA US Soybean Export Unit Price (US$/T) - Actual
GTA US Soybean Export Unit Price (US$/T) - Forecast

Source: IHS Markit.
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US Soybean Market. Actual Unit Price, Vs Forecast Unit Price Vs Spot Price

FM. Average of US. North Central and South Central Illinois Soybeans Average, Spot Price (SBNSIL.D7) - US$/Bushel
GTA US Soybean Export Unit Price (US$/T) - Actual
GTA US Soybean Export Unit Price (US$/T) - Forecast

Source: IHS Markit.
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Further analysis could be conducted to understand how quantity and value variance by Partner Country affects unit price, or how unit price fluctuates depending on number of trade partners as to develop scenarios and understand the potential impacts to the market.

For more in-depth analysis, access the full research paper here:
Global Trade Atlas (GTA) Research Paper - Case Study of Commodity Trading for Financials

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