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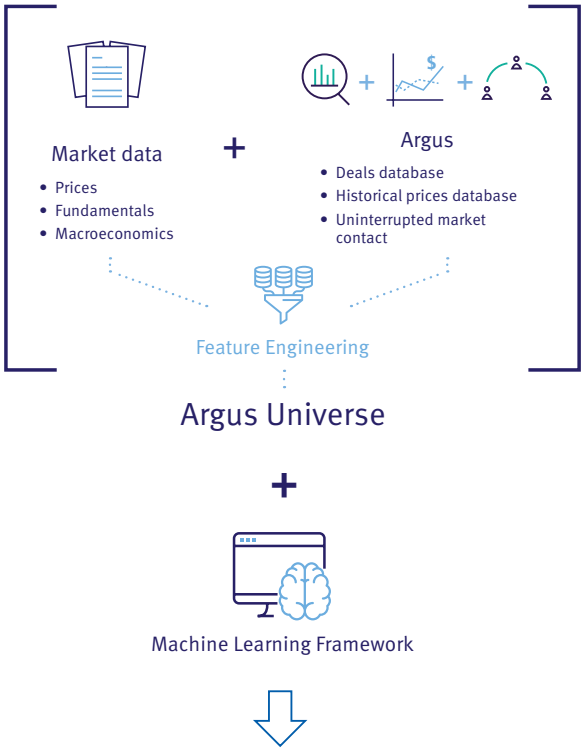
Argus Possibility Curves

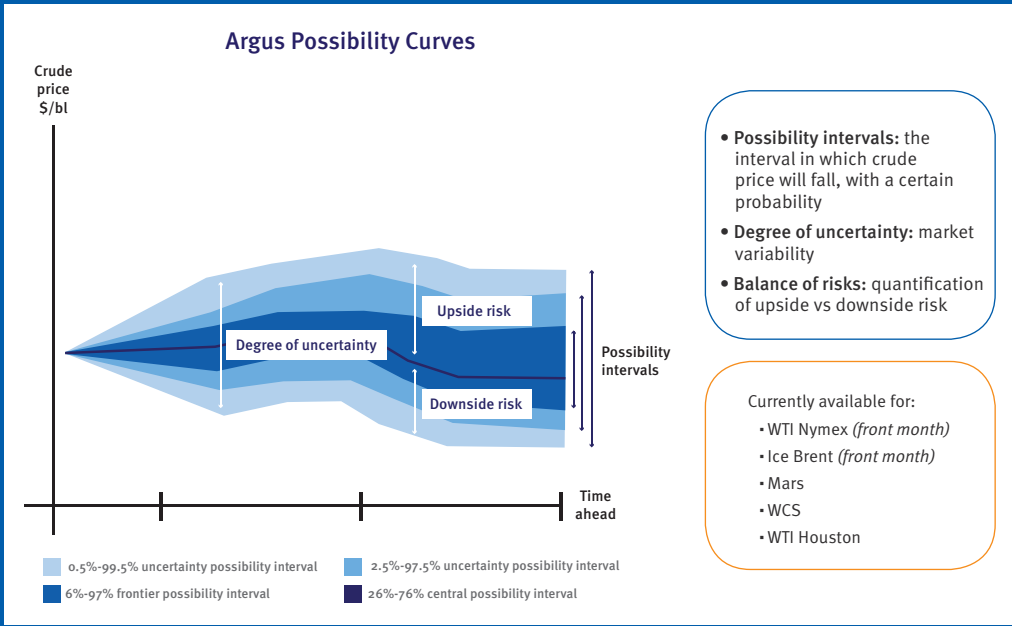
Pairing unique data and market knowledge, with data science expertise

Applied machine learning and artificial intelligence have the potential to profoundly change trading, risk management and hedging strategies. To unleash new actionable insights, Argus can now pair access to unique datasets and decades of market knowledge with data science expertise.

Argus Possibility Curves help you to understand the crude market by estimating the possibility of what range oil prices will trade in and the balance of risk (asymmetry in the upside or downside risk). Argus Possibility Curves have been developed using the most complete data set of actual deals and historical prices in US crude markets, as well as financial and macroeconomic drivers.

The use of Argus crude prices in over 90pc of physically-indexed trade and virtually all swaps contracts in the US Gulf coast and at Cushing keeps us closely aligned with the market, giving us qualitative insight to pair with data science expertise.





- **Possibility intervals:** the interval in which crude price will fall, with a certain probability
- **Degree of uncertainty:** market variability
- **Balance of risks:** quantification of upside vs downside risk

Currently available for:
- WTI Nymex *(front month)*
- Ice Brent *(front month)*
- Mars
- WCS
- WTI Houston

Understand your exposure to oil price volatility and balance your risk with the most complete data and uninterrupted market insight available.

Contact AI@argusmedia.com for more on *Argus Possibility Curves*.

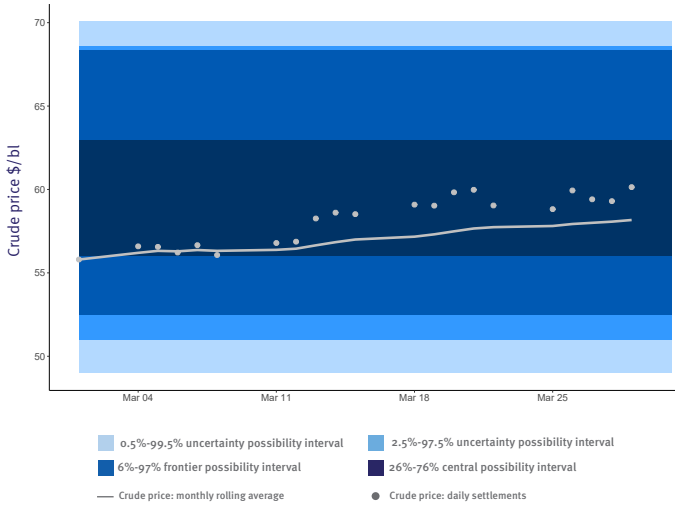
How does it work?

Argus Possibility Curves are developed with the leading feature engineering, feature selection and model diagnostics processes, building on decades of market expertise and machine learning algorithms.

The machine learning framework

By pairing unique data and knowledge of crude market dynamics with data science expertise, we have developed and applied an interpretable and explainable machine learning (ML) framework to extract actionable insights for crude markets. To connect and bring synergies to numerous potential drivers for crude markets, the key features of our ML framework include the use of linear and non-linear relationships, interactions between market drivers and the power to handle relatively small or sparse datasets. Our framework also includes a suite of model diagnostics to dynamically monitor the performance of the possibility curves and better capture changes in crude markets.

Argus Possibility Intervals



Our modelling framework goes 'beyond expectations'[1] to better inform decisions for trading, risk management and hedging activities by providing metrics for:

- Possibility intervals: the interval in which the crude price will fall, within a certain probability
- Degree of uncertainty: market variability
- Balance of risks: quantification of upside vs downside risk

The data and determining key drivers

Our curves utilise Argus' proprietary deals and pricing data, in order to train the machine learning algorithm. We also use publicly-available fundamentals, financial and macroeconomic data filtered through our market-informed feature engineering process to augment Argus' deals and prices datasets for differentiated actionable insights.

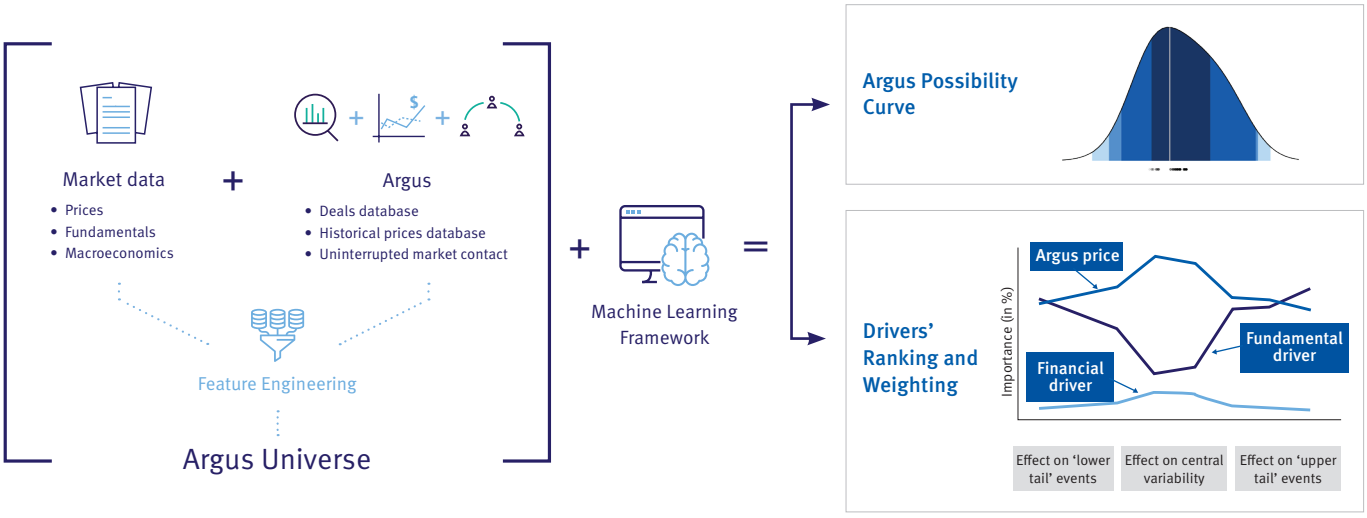
In a constantly changing market, it is essential to reflect the most important and relevant variables. The model's key drivers are reassessed and listed to our clients daily.

The results

Evolve data from a combined machine and human approach into actionable insights to illuminate trading, risk assessment and hedging activities.

Our machine learning framework estimates an array of possibilities as a primary output. Key features of the outputs are:

- More accurate possibility intervals for prices. For example, there is a 50pc chance that the price is between $53.00/bl and $54.50/bl.
- Better quantification of balance of risk. For example, changes in the asymmetry of upside or downside risk based on prevailing market conditions.



1 *Beyond expectation: modelling not just the expected mean but all of the parameters (location, scale, shape) of the probability density function for crude prices to a set of fundamentals and market drivers.*

Meet Argus' data science team at:

Argus Global Crude - Geneva

14-16 October 2019 | Four Seasons Hotel des Bergues

New!** Data science breakfast briefing **15 October

Discover more at: www.argusmedia.com/global-crude