

Price References in Oil: Fundamentals and Other Factors

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Relationship between Oil Benchmarks and Fundamentals-- Background

- Continuation from article in *Oxford Energy Forum Issue 94* (January 2014): “Fundamentals, Markets, and Price Discovery. The *Forum* is published by the Oxford Institute of Energy Studies.
- Also, Presented Follow-Up Results At FEEM Workshop in June 2014
- First: summarize those findings. Second: Observations
- Identified and Evaluated Influence of Fundamental Market Data on Price Discovery in Major Crude Oil price References
- Series of Media Reported Pronouncements on Benchmarks Dating Back to 2007 Had Not Addressed this
- General Cataloging of Important Information and Observed Impacts
- Matching of Catalog With Impacts and Price References
- Updated (at that time) Empirical Results on Fundamentals and Price Movements.

Oil Benchmarks and Fundamentals-- Overview

- Focused on WTI and Brent;--mostly Dated Brent amongst the family of various BFOE Mechanisms– i.e. Forwards, Partial, CFDs, Futures and Dated
- Trove of Official and Highly Reliable, Public, US Government Data on Oil Markets– Unparalleled Quantity, Quality and Timeliness of Fundamental Oil Market Information; Some of this is Released with 3 Business Day Lag. Directly Relevant to WTI Mechanism
- Brent has Limited Public Fundamental Information Available and it is Released With a 2-3 Month Delay; One Notable Exception. (BTW, CME Group offers Brent Futures)
- Series of Regressions Testing Responsiveness of Market Prices to Fundamentals– Performed Several Occasions During 2009-14

Reprise from Oxford Article-- WTI is Commonly Viewed By Oil Industry as Driven By Fundamentals

- Very Active Forward Market for multiple streams and Futures Market Terminating Obligation is Physical Delivery. Outside of Credit Arrangements, Forward and Futures for “WTI” are Largely Indistinguishable– Futures Deliveries are Subset of Physical Market; Robust Convergence Mechanism.
- US Govt– EIA– Provides Weekly Data on National, Regional and Local Inventories; Refinery Utilization, Imports and Exports– Within 3 Business Days (Virtually *Real Time*)
- EIA also Provides Monthly Information with 2 Month Lag or Less– International Production Interruption, Movements of Oil Between PADDs, Much Other.
- Underlying Physical Market has Thousands of Regular Customers and Hundreds of Active Customers
- Delivery is Uncomplicated– As Little as Hundreds of Barrels are Schedulable (Even Less)
- Opinion: WTI Subjected to Sweeping Theories, Largely Because it is Commonly Accepted as Driven by Fundamentals, Delivery is Perceived as Easy and There is so much Reliable and Timely Public Information

Reprise From Oxford Article Continued-- How responsive is Brent to Fundamentals?

- There is Limited Public Information Relevant to BFOE on a Timely Basis– Monthly Loading Programs are Public; Other Fundamental Monthly Data Are Reported Preliminarily 6 Weeks After-Fact and Subject to Material Revision at 10 and 14 Weeks. Is There Non-Public Information on Supply and Demand?
- Clearly, There is Published as well as Non-Published Transaction and Market Information Regarding BFOE Mechanisms; And Futures Prices are Public and Timely.
- A Suite of Brent Mechanisms– Forwards, Partial (Mostly Swaps), CFDs (Swaps), Physical– *Dated, Futures*; Several Venues– OTC, *Platts* Window, Futures. These mechanisms and venues are not necessarily connected through either arbitrage or convergence.
- *Platts Dated* is Used to Price Many Physical Barrels; There is no Evident Convergence Mechanism Between *Platts Dated* and Other BFOE Mechanisms. *Platts Dated* is structured as purely cash-settled with *possible and occasional* forward market obligation.
- *Platts Dated* Appears to Be Price Discovery Independent of Robust Connection to Other BFOE Mechanisms—In other Words, it Appears to Be Pure Negotiation Mechanism, Heavily Endorsed (By Observation of Industry Reliance on it).
- Certainly Conceivable that Other BFOE Mechanisms Respond to *Platts Dated* and Follow its Lead in Price Discovery; or even More Complex Ricochet Relationship.

Empirically Evaluating Benchmark Responsiveness to Reported Fundamentals

- Previously Tested Some Basic Microeconomic Principles– Does the Forward Price Curve Respond to Changes in Market Fundamentals and, if so, How?
- Previously, Evaluated Responsiveness of “Backwardation” in Benchmarks– i.e. The First Nearby Price Minus the Second nearby Price– to Changes in Inventories– Weekly US, PADD 2, Cushing; Monthly OECD.
- Looked at Other “Independent” Variables (Depending on Weekly vs Monthly): Weekly Net Imports to US, Crude Imports US, US Petroleum Product Exports, PADD 3 Crude Oil Imports and Inventories in PADD 3. For Monthly, Unplanned Production Reductions By International Producers, Movements of Oil From PADD 2 to 3, Movements of Oil From PADD 3 to 2
- Independent Variables Were the WTI “Backwardation”; Brent “Backwardation”; and the WTI Minus Brent Price
- Generally, WTI was responsive to fundamentals; earlier time frame, Brent not so much. Later time frame – 2H13-1H14, Brent was more responsive

Brent (*BFOE*) Suite

- Brent Cash-Forward Cargos
- Brent *Dated* Cargos
- Brent Partial Forwards Swaps
- Brent Partial Forwards *Platts* (Predominantly Cash-settled)
- Brent CFDs *Dated-to-Frontline* (*Cash-settled*)
- Brent Futures– CME Group Offers Brent Futures and Options
- 15-day; 21-day; 25-day; 30-day (Really Calendar Month)
- Convergence
- Cash-Market Reporting– *across all streams* (including non-Brent)– Governed by Self-selection; Any Alternative Runs Risk of Limited Reporting and/or Limited Transacting
- *Yin and Yang*

Reflections

Thank you

