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RESEARCH February 2011

Brent and West Texas Intermediate Crude Oil

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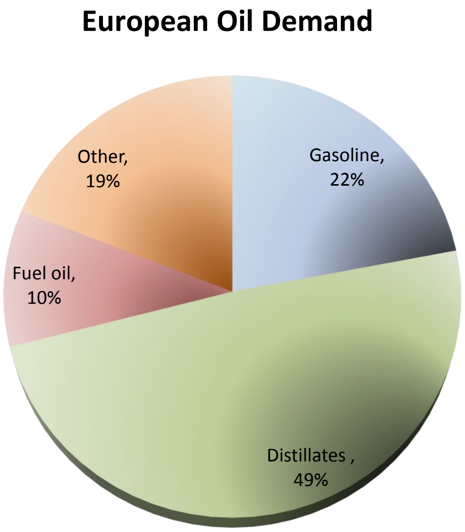
Global appetite for crude oil is undeniable, with Non-OECD consumption projected to outpace OECD consumption in 2019. Light, sweet crudes have historically functioned as pricing benchmarks, yet these marker crudes face challenges. Not only do more sour crudes dominate global trade, but local market logistics and local market nuances have the ability to dislocate any given crude from the global market. Today's two dominant light, sweet marker crudes are Brent and West Texas Intermediate and their relationship is volatile. However, their relationship exists within a larger framework of global trade.

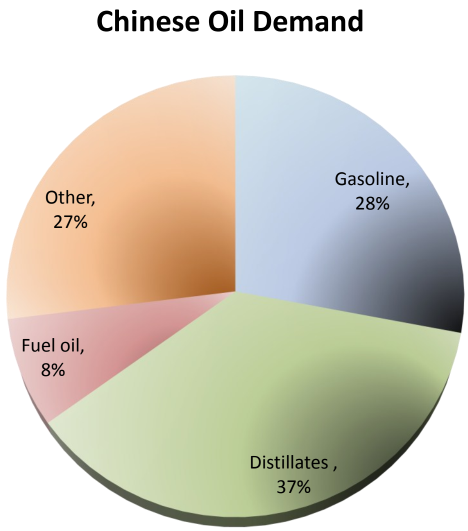
Brent Crude Oil

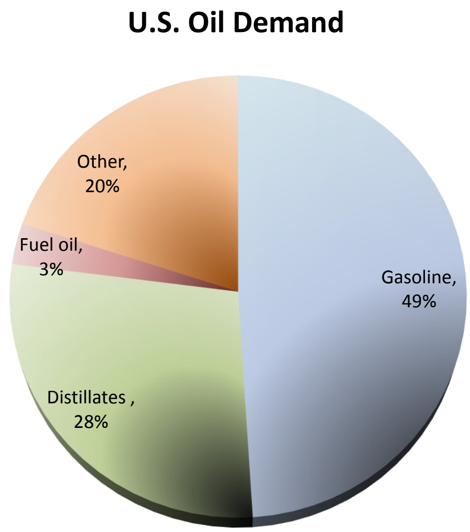
- A specific grade of light, sweet U.K. crude and a moniker that now includes other light, sweet crudes from the North Sea
- Waterborne cargo market with multiple delivery points
- Marker crude for majority of global trade

West Texas Intermediate Crude Oil

- A grade of light, sweet U.S. crude and a term used to describe for the crude deliverable against the Nymex Light Sweet Crude future
- Land-locked pipeline market at the mid-continent Nymex future sole delivery point (Cushing, OK)
- Export challenges may further confine benchmark status to U.S.







Source: BP Statistical Review of World Energy, 2010

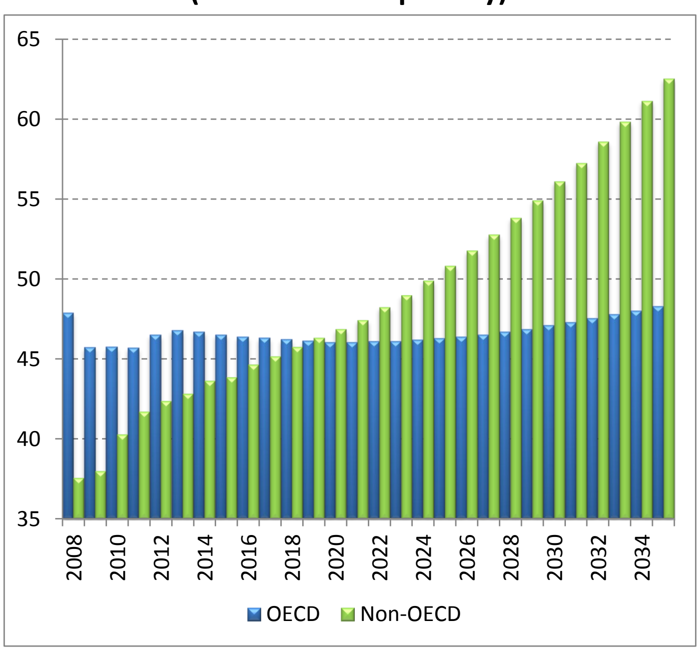
CRUDE RELATIONSHIPS

The global crude oil marketplace consists of hundreds of individual grades, varying in their density and sulfur content. Buyers and sellers rely on benchmarks in order to facilitate trade. Marker crudes are always subject to change and vulnerable to local market conditions. Marker crudes need not be of ample supply, but of ample security with numerous producers in order to be relevant. Of today's exchange traded crudes, the two dominant marker crudes are Brent (light, sweet) and West Texas Intermediate (light, sweet), with Oman (medium, sour) competing as a benchmark for Asia and some middle-eastern crudes. Additional marker crudes are likely to arise in the future and compete for share, just as they have in the past. In particular, Eastern Siberia-Pacific Ocean (ESPO) crude may play a heightened Asian Pacific role in the coming years, amidst volume concerns. Nevertheless, the global crude market is a fragmented export-driven market that is anticipating acceleration of Non-OECD demand. Geopolitical, OPEC, and depletion concerns are always lurking and ready to spring to the forefront. Although no crude exists in isolation, relationships between crudes are intrinsically unstable and often rooted in the logistics of physical markets.

BRENT CRUDE

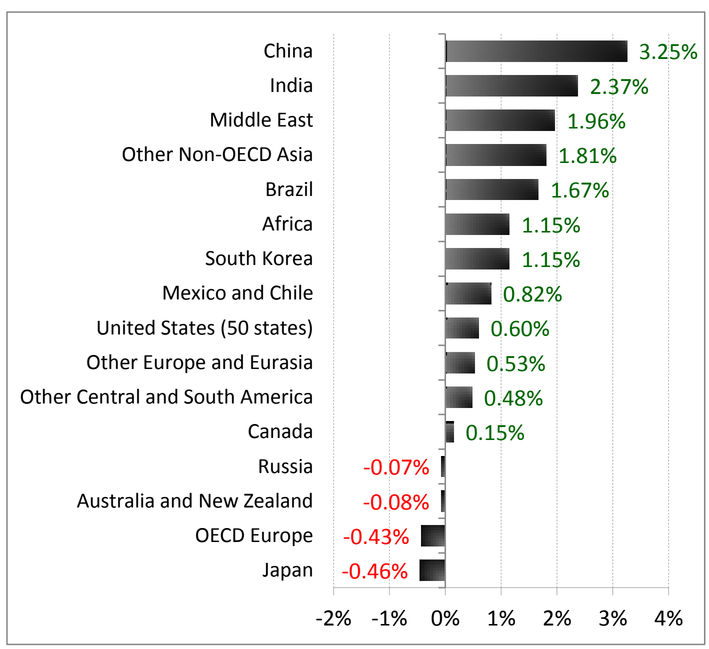
Brent crude was once solely defined as crude from the Brent oilfield in the North Sea. However, declining North Sea production, the buildup of the U.S. Strategic Petroleum Reserve, and pricing instability concerns spurred the inclusion of additional regional crudes in the Brent moniker. The Brent benchmark price is now based on a per barrel price of a blend of North Sea cargoes of Brent, Forties, Oseberg, and Ekofisk crudes. Brent's cargo market has multiple delivery points and the number of cargoes may ebb and flow based on North Sea oil fields' production and disruptions. Cargoes consist of 600,000 barrels whose large deliveries may not fully accommodate marginal changes in supply or demand. With no central delivery point, Brent's waterborne market makes it more of an export market (although the area is a net importer) than many landlocked crudes with more sensitivity to geopolitical risk. Brent is particularly vulnerable to distortions from the pull (or lack thereof) of competing crudes towards Asia, especially in the European market. Although Brent's proportion of the world's oil production is very small, it is the leading marker crude in the world today with approximately two thirds of the world crude trade benchmarked against it.

EIA Crude Oil Consumption Outlook (million barrels per day)



Source: EIA Annual Energy Outlook 2011

EIA Consumption Growth Rate (2009-2035)



Source: EIA Annual Energy Outlook 2011

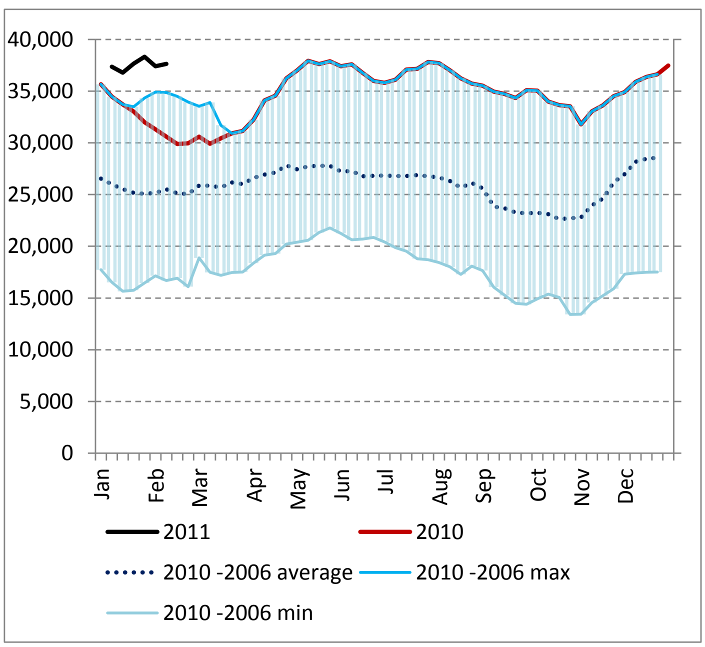
WEST TEXAS INTERMEDIATE CRUDE

In early 2011, the price of West Texas Intermediate crude oil (Nymex Light Sweet Crude Oil Future) suffered an acute dislocation. High inland inventory levels in and around Cushing, Oklahoma and pipeline logistics cause much consternation. Cushing is the delivery point for the Nymex future contract, however it is not a sole distribution point for U.S. crude. Cushing inventories swell with both Canadian and American crude, most recently from North Dakota. However, West Texas Intermediate's light, sweet characteristics exacerbate concerns of representativeness, especially as a marker crude for U.S. imports (the majority of which are not light, sweet). For example, from 1994 to 2009, Saudi Aramco used West Texas Intermediate as its pricing benchmark for U.S. deliveries and the benchmark was dropped in favor of a more representative medium, sour index that includes three U.S. Gulf coast crudes. Whether Aramco's switch was a result of high Cushing stocks or not is a matter of debate. Nevertheless, the West Texas Intermediate futures contract, which trades on the Nymex, has a degree of liquidity and price-discovery that is unmatched in the commodity space. Based on its futures market, breadth of deliverable crudes, and quality, West Texas Intermediate will continue to be relevant as a marker crude in the U.S., albeit with a grain of caution until logistical constraints subside.

BRENT-TI SPREAD

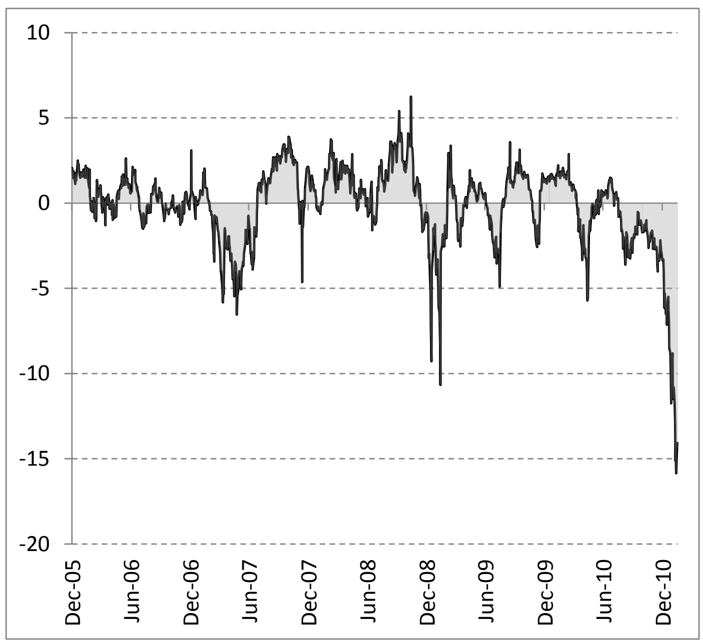
Market observers who point to the quality of West Texas Intermediate over Brent and the cost of freight from the North Sea to the U.S. may expect Brent to be discounted. However, Brent is rich in distillates and may be more sensitive to Non-OECD demand on the basis of distillates alone. The valid concerns of the U.S. pipeline market and influx of Canadian crude to the U.S. will continue to influence the pricing as will the waterborne and cargo-priced nature of Brent. However tempting it may be to portray the "Brent-TI Spread" as one-sided, it is rarely so. West Texas Intermediate will likely trade at a premium to Brent again, however the process will take time given the projected global crude demand composition, U.S. pipeline infrastructure, and U.S. export policies on domestic crudes. However, a collapse, or overestimation, of Non-OECD demand would expedite the process. On February 16, 2011 Brent for April delivery was priced $15.94 more than the corresponding West Texas Intermediate. The magnitude will likely wane but the favored crude will likely persist. There is a larger framework to consider that includes China.

DOE Cushing Oklahoma Crude Oil Total Stocks Data ('000 barrels)



Source: Pelagos Capital, Bloomberg

Bloomberg First Month Nymex WTI Cushing Crude Oil – ICE Brent Spread ($/barrel)



Source: Bloomberg

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