Quarterly Oil Price Outlook: 2016-2018

Stratas Webinar

March 3, 2016
Webinar Agenda

• Overview of Short Term Outlook Service
• How Did We Get Here?
• Market Fundamentals Outlook
• Price Outlook
• Methodology
Short Term Service Overview
Short Term Outlook – Product Overview

- Global, integrated view, covering oil, oil products, petrochemicals, natural gas and NGLs
- Robust, analytical methodology
- Fully interactive data visualization and data downloads
- Quarterly forecast release with daily and weekly market commentary
# Short Term Outlook – Product Coverage

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<th>Global coverage</th>
<th>Crude oils</th>
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<td>- Middle East</td>
<td>- API and sulfur ranges</td>
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<th>Forecasts for 8 quarters</th>
<th>NGLs &amp; Feedstock</th>
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<th>Refined Products</th>
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<th>Forecasted margins</th>
<th>Base Petrochemicals</th>
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<td>- Refinery</td>
<td>- Olefins (Ethylene, Propylene)</td>
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How did we get here?
Global Oversupply

Last 10 Years – Shale Changed the Game

CAGR
- US Shale = 29.6%
- Other = 0.1%

Prices Start Climbing - 2005

Net Change
- Non-OPEC (ex. Shale & OS)
- OPEC (ex. Iraq & SA)

Canada

Iraq

Saudi Arabia

US Shale

2015 Estimate
Elevated Crude Stocks

U.S. crude stock overhang exceeding 100 million barrels

Weekly US Total Commercial Crude Stocks

Source: Stratas Advisors, Bloomberg, EIA
Market Sentiment

NYMEX (WTI) and Brent (ICE) combined

% of Short Positions

Source: Reuters, CFTC, NYMEX, ICE
Fundamentals Outlook
Economic Outlook

No recession predicted, but substantial risks to the downside

Annual GDP Growth % (PPP)

BRICs tell two very different stories
Markets experience slowdown in demand growth

**Demand Outlook**

- **Non-OECD**: Annual Growth (2015-2017): 1.4%
- **OECD**: Annual Growth (2015-2017): 0.0%
Global Oversupply

Next 2 Years – Closing the Gap

Production to increase ~0.5 MMBbls / d

Demand to increase ~1.9 MMBbls / d

A shrinking supply overhang will provide support for a recovering price scenario.
Supply, Demand and Stock Levels

Stock levels will peak in the third quarter of this year.
Pricing Outlook
Brent Price Outlook

How have previous Stratas price outlooks held up for the last 12 months?

Source: Bloomberg, Stratas Advisors
Brent / WTI Differential Will Remain Narrow

Arbitrage windows will exist, but not for long

Average $0.40 over next 24 months
Global Product Price Outlook

Gasoline prices to remain strong with increased global demand
Wildcards and Risk Factors
Wildcards

What are the key markers for disruption?

- Middle East supply disruption; Iran doesn’t come online, Saudi/Iran conflict; Libya peace process fails, etc

- China slowdown materializes; has knock on effects throughout developing world

- US shale producers face liquidity crisis as financial players choose to reduce oil patch exposure and not invest or extend credit lines to large producers
Barrels at Risk

Areas of potential supply disruption

% of Total Exports

Barrels at risk (mmb/d)

S. Arabia
Libya
Iraq
Iran
Algeria
Venezuela
Mexico
Colombia
Russia
Nigeria

2.3 million barrels per day

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2016-2017 Brent Price Sensitivities

Uncertainties are driving a wide range of potential price outcomes

- $65.72
- $50.04
- $34.25

Forecast
Key Price Drivers

What is the most likely outcome for key uncertainties?

- China slows down, but not substantially

- Global demand growth remains below 1 mmb/d for 2016, but no global recession

- Iranian production comes online as expected with roughly 750 mb/d of new barrels by the end of 2016

- No conflict inside of OPEC, involving Saudis or otherwise

- US shale producers see M&A and production cuts through 2017, but large bankruptcies do not materialize as banks keep major shale-exposed producers afloat

- Global supply excess is slowly eroded as market returns to equilibrium
Modeling Methodology
Methodology
Framework of the Short-term Price Forecast Modeling

Step 1: Select Key Drivers & Data Transformation

Crude Oil Price/Differential and Fundamental Drivers (Time Series)

Non-stationary

Unit Root Test / Data Transformation

Step 2: Diagnostic Tests

Optimal Lag Selection Test

Granger-causality Test

Stationary

Input Different Assumptions and “What if” Scenarios

Cointegration Test

Step 3: Apply Forecasting Model

Cointegration Vectors

No Cointegration Vectors

VECM Model (Vector Error Correction Model)

VAR Model (Vector Autoregression)

BVAR Model (Bayesian Vector Autoregression)

Step 4: Evaluate Outcomes

Out-of-Sample Forecasting

Evaluate Model Accuracy based on MAPE (Mean Absolute Percentage Error)