The Oil Market: From Boom to Gloom

Mine Yücel
Senior Vice President and
Director of Research
Federal Reserve Bank of Dallas
February 12, 2016

The views expressed are those of the speaker and should not be attributed to the Federal Reserve Bank of Dallas or the Federal Reserve System.
Oil prices plunge

Nominal price, dollars per barrel, weekly

$31.28

NOTE: Final data point is the average of daily prices from Monday 2/1/16 to Friday 2/5/16.
SOURCE: Energy Information Administration.
Current oil prices not a record low

Real prices of crude oil (December 2015 dollars)

Dollars per barrel

SOURCES: Bureau of Labor Statistics; Energy Information Administration; FRB Dallas calculations.
Supply/demand mismatch

Million barrels per day

- Implied change in inventories
- Petroleum consumption
- Petroleum production

Forecasts

SOURCE: Energy Information Administration.

Federal Reserve Bank of Dallas
U.S. and OPEC keep oil market oversupplied

Growth in oil production, January 2014-November 2015

Million barrels per day

<table>
<thead>
<tr>
<th>Country</th>
<th>Growth (Million barrels per day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S.</td>
<td>1.29</td>
</tr>
<tr>
<td>Iraq</td>
<td>1.24</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>0.41</td>
</tr>
<tr>
<td>Other OPEC</td>
<td>0.14</td>
</tr>
</tbody>
</table>

SOURCES: Energy Information Administration; Oil Market Report.
Why the recent slide in prices?

• Iran comes into the market
• U.S. output stronger than expected
• Concerns about Chinese demand
  – The big picture from the oil data: healthy consumer, sick manufacturing
• December unusually warm
  – Heating degree days (HDD) in the NE US were 33% below their 10-year average in December.
• Weather forecasts adding downside risk to prices
  – High likelihood of warm weather in various parts of the OECD through 2016Q1.
IMPACT ON U.S. ECONOMY
U.S. oil production

Million barrels per day


2015 average

SOURCE: Energy Information Administration.
U.S. crude oil production from shale

Thousand barrels per day

Jan 2010 | Nov 2015
---|---
Texas | 3,401
North Dakota | 1,169
Wyoming | 236
New Mexico | 786
Colorado | 1,652
Utah | 786
Montana | 786
Kansas | 786

SOURCE: Energy Information Administration.
Oil production levels off

Crude oil production

U.S. rig count

Million barrels per day

Rig count

Jan-13 May-13 Sep-13 Jan-14 May-14 Sep-14 Jan-15 May-15 Sep-15 Jan-16

SOURCES: Baker Hughes; Energy Information Administration.
Crude oil inventories at 80-year highs

Million barrels

5-year range
2015
2014
5-year average

SOURCE: Energy Information Administration.
Drilling investment falls with rig count

Private fixed investment in mining/exploration

SOURCES: Baker Hughes; Bureau of Economic Analysis.
Impact on U.S. economy

• The U.S. benefits from lower oil prices
• Boosts consumer disposable income
  – PCE growth: 3.6% in 2Q, 3.2% in 3Q and 2.2% in 4Q 2015
  – Auto sales up 9% in 2015
• Reduces the cost of energy to firms
• Reduces profitability of producing oil
  – Layoffs, capex declines and bankruptcies in oil patch
• A 50% fall in oil prices may lead to a 0.3% to 1.0% increase in GDP (depending on the model)
• Headline inflation falls
IMPACT ON STATE ECONOMIES
Low oil prices benefit most states
(Effect of a 50% decline in oil prices on employment)

Energy states doing well in 2014

Percent change (Dec/Dec)

Energy states lose jobs in 2015

Percent Change (year-to-date)

Rig counts still falling

NOTE: Final data points are for the week of February 5. SOURCE: Baker Hughes.
Initial jobless claims still high

Index, Jan. 5 '13 = 100, 4 WMA

North Dakota
Oklahoma
Texas
Louisiana
U.S.

Texas rig count and oil production continue to decline

Sources: Baker Hughes; Energy Information Administration.
Regional breakeven prices varied

January 2016 average WTI price: $32.65

NOTE: Bars show average breakeven prices by play. Bands show county-level max and minimums.

SOURCES: Bloomberg; Energy Information Administration.
Well completions dwindling

SOURCES: Railroad Commission of Texas; North Dakota Oil and Gas Division.
Some states rely heavily on oil and gas severance taxes
(Share of 2014 state tax revenues)

<table>
<thead>
<tr>
<th>State</th>
<th>% Taxes Collected</th>
</tr>
</thead>
<tbody>
<tr>
<td>AK</td>
<td>72.4</td>
</tr>
<tr>
<td>ND</td>
<td>53.8</td>
</tr>
<tr>
<td>WY</td>
<td>39.0</td>
</tr>
<tr>
<td>NM</td>
<td>18.5</td>
</tr>
<tr>
<td>TX</td>
<td>10.9</td>
</tr>
<tr>
<td>LA</td>
<td>8.9</td>
</tr>
<tr>
<td>OK</td>
<td>7.5</td>
</tr>
<tr>
<td>CO</td>
<td>2.1</td>
</tr>
<tr>
<td>CA</td>
<td>0.0</td>
</tr>
</tbody>
</table>

WHERE DO WE GO FROM HERE?
Crude price forecast

Dollars per barrel

- Historical spot price
- STEO price forecast
- NYMEX futures price
- 95% NYMEX futures confidence interval

Jan-15, Jun-15, Nov-15, Apr-16, Sep-16, Feb-17, Jul-17, Dec-17

SOURCE: Energy Information Administration.
Oil price outlook very uncertain

Annualized percentage points

OVX (WTI volatility)

VIX (equity volatility)

SOURCES: Chicago Board Options Exchange; Wall Street Journal.
Outlook

• “Lower for longer” outlook for oil prices
• Global GDP growth is expected to rise over time
• Uncertainties abound
• Oil price risks more on the downside in the short run
  – China, Iran, high inventories
• Energy importers such as the U.S. should continue to benefit from lower oil prices.
• Rough patch for energy-producing countries and states.
The Oil Market: From Boom to Gloom

Mine Yücel
Senior Vice President and Director of Research
Federal Reserve Bank of Dallas
February 12, 2016