3-1. Effect of Crude Oil Price Drop on the Global Energy Market

James Kendell
Vice President, APERC
Background
  - Crude oil prices declined sharply in mid-2014. Market fundamentals and psychology both played a role.

Outline
  Effect on:
  - The global economy
  - Oil producing countries
  - Major oil companies
  - The natural gas market
  - Other energy sectors
  - Conclusions
  - Policy implications for APEC economies
Why has crude oil price dropped?

- Weaker supply-demand fundamentals
  - Slower demand increase after 3Q 2013
  - Faster supply increase after 2Q 2013
- Bearish sentiment among the market players

**Changes of Crude Oil Prices**

(\$/bbl)

- Peak of Brent 115.19 (Jun 19)
- Peak of WTI 107.95 (Jun 20)
- The 1st bottom of Brent 45.13 (Jan 13)
- The 1st Bottom of WTI 44.08 (Jan 28)
- The 2nd bottom of Brent and WTI 41.59/38.22 (Aug 24)

**Quarterly Change in Oil Demand**

\[
\text{Others} \quad \text{China} \quad \text{Europe} \quad \text{N.America} \quad \text{Total}
\]

**Quarterly Change in Oil Supply**

\[
\text{Others} \quad \text{OPEC} \quad \text{FSU} \quad \text{N.America} \quad \text{Total}
\]

Source: EIA, Spot prices for crude oil

Source: IEA, Oil Market Report, Table-1
“Even if non-OPEC countries reduced oil production, Saudi Arabia would not reduce oil production in order to maintain the country’s share.”  
(Dec. 22, 2014/Saudi)

“If a sanction to Iran due to the doubt about nuclear weapon is lifted, there will be no change in the plan to increase oil production and promote exports even if the crude oil price will drop to $30/bbl. “  
(Nov. 17, 2015/Iran)

“American shale oil is now playing the role of production adjustment on behalf of OPEC. If the crude oil price goes up, production of shale oil will rapidly increase.”  
(Feb. 11, 2015/IEA)

Many elements support oversupplied condition.
- Weaker demand growth.
- Stronger supply, and major suppliers seemed to accept oversupplied condition.

<table>
<thead>
<tr>
<th>($/bbl)</th>
<th>World Oil Outlook 2014</th>
<th>World Oil Outlook 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>110.0</td>
<td>105.7</td>
</tr>
<tr>
<td>2020</td>
<td>110.0</td>
<td>95.4</td>
</tr>
<tr>
<td>2030</td>
<td>139.6</td>
<td>98.5</td>
</tr>
<tr>
<td>2040</td>
<td>177.4</td>
<td>101.6</td>
</tr>
</tbody>
</table>

Major international organizations (IEA, EIA, OPEC, World Bank, IMF) revised down their crude oil price forecasts. “Lower price may be prolonged”

Projection of OPEC Basket Price
Source : OPEC, World Oil Outlook 2015
1. Global economy (mainly OECD)

**World Economic Growth Rate**

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEO in Oct. 2014</td>
<td>3.3%</td>
<td>3.3%</td>
<td>3.8%</td>
<td>4.0%</td>
</tr>
<tr>
<td>Revise in Jan. 2015</td>
<td>3.1%</td>
<td>3.5%</td>
<td>3.7%</td>
<td></td>
</tr>
<tr>
<td>WEO in April 2015</td>
<td></td>
<td>3.5%</td>
<td>3.8%</td>
<td></td>
</tr>
<tr>
<td>Revise in July 2015</td>
<td>3.3%</td>
<td>3.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WEO in Oct. 2015</td>
<td></td>
<td>3.1%</td>
<td>3.6%</td>
<td></td>
</tr>
</tbody>
</table>


- Declining crude oil prices not only squeezed oil-producing economies, but adversely affected economies that both consume and produce oil.

**Monthly Change Rates of CPI in Major Advanced Economies**

- Consumer price indexes in major advanced economies declined in the middle of 2014, as crude oil prices dropped.

Source: Ministry of International Affairs and Communications, Japan, Change Rates of CPI in Major Countries
### 2. Oil producing countries (1)

#### Review of Economic Growth Outlook in Major Oil-Producing Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>WEO 10/2014</th>
<th>Review 1/2015</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saudi Arabia</td>
<td>4.4% 4.4%</td>
<td>2.8% 2.7%</td>
<td>-1.6% -1.7%</td>
</tr>
<tr>
<td>UAE</td>
<td>4.5% 4.4%</td>
<td>3.6% 3.6%</td>
<td>-0.9% -0.8%</td>
</tr>
<tr>
<td>Iran</td>
<td>2.2% 2.2%</td>
<td>0.6% 1.3%</td>
<td>-1.6% -0.9%</td>
</tr>
<tr>
<td>Nigeria</td>
<td>7.3% 7.2%</td>
<td>4.8% 5.2%</td>
<td>-2.5% -2.0%</td>
</tr>
<tr>
<td>Russia</td>
<td>0.5% 1.5%</td>
<td>-3.0% -1.0%</td>
<td>-3.5% -2.5%</td>
</tr>
</tbody>
</table>

Source: IMF, World Economic Outlook 10/2014, review 1/2015

- Economic growth outlook in major oil-producing countries deteriorated because of reduced export revenue.

- Oil export revenues were estimated to decline from $821 billion in 2013 to $446 billion in 2015, assuming Brent crude oil price dropped from $109/bbl in 2013 to $68/bbl in 2015.

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### OPEC Revenue from Net Oil Exports (excluding Iran)

![Graph showing OPEC revenue from net oil exports excluding Iran](chart.png)

- Source: EIA, Short-Term Energy Outlook, December 17, 2014
2. Oil producing countries (2)

Oil-Producing Countries’ Financial Equilibrium Crude Oil Price

- Kuwait is the only country that can balance its budget at a crude oil price of $57/bbl.

Fiscal Balance / Current Balance in the Middle East Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Fiscal Balance (Proportion of GDP, %)</th>
<th>Current Balance (Proportion of GDP, %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saudi Arabia</td>
<td>1.1</td>
<td>-10.1</td>
</tr>
<tr>
<td>UAE</td>
<td>6.0</td>
<td>-3.7</td>
</tr>
<tr>
<td>Kuwait</td>
<td>21.9</td>
<td>11.1</td>
</tr>
<tr>
<td>Qatar</td>
<td>9.2</td>
<td>-1.5</td>
</tr>
<tr>
<td>Oman</td>
<td>-1.4</td>
<td>-16.4</td>
</tr>
<tr>
<td>Bahrain</td>
<td>-5.4</td>
<td>-12.1</td>
</tr>
</tbody>
</table>

Source: IMF, Regional Economic Outlook Update, Jan. 21, 2015

- Fiscal balance and current account balance of the oil producing countries will be worse than 2014.
- To supplement these financial deficits, countries may spend down reserve funds, or sell overseas assets.
3. Major oil companies

### Oil Majors’ Account Settlement in 2nd Quarter in 2015

<table>
<thead>
<tr>
<th></th>
<th>Profit ($mn)</th>
<th>Upstream ($mn)</th>
<th>Downstream ($mn)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2Q2015</td>
<td>2Q2014</td>
<td>%</td>
</tr>
<tr>
<td>ExxonMobil</td>
<td>4,190</td>
<td>8,780</td>
<td>-52</td>
</tr>
<tr>
<td>Chevron</td>
<td>571</td>
<td>5,665</td>
<td>-90</td>
</tr>
<tr>
<td>Shell</td>
<td>3,361</td>
<td>5,147</td>
<td>-35</td>
</tr>
<tr>
<td>Total</td>
<td>2,797</td>
<td>3,024</td>
<td>-8</td>
</tr>
<tr>
<td>BP</td>
<td>-6,266</td>
<td>3,182</td>
<td>na</td>
</tr>
</tbody>
</table>

Source: Petroleum Argus, July 31, 2015, August 7, 2015

**How did they respond to tougher business environment?**

- **Oil producing country**
  - Reduce energy consumption
  - Reduce costs
  - Reduce subsidies

- **Oil Majors**
  - Postpone and cancel projects
  - Reduce costs
  - Sell assets

- **Shale oil producer**
  - Delay well completions
  - Hedge prices
  - Take low-interest loans

Uncertainty about investment in new production capacity to can meet future oil demand.
4. Natural gas market

**Lower prices**
- Importing countries are enjoying lower natural gas prices because of:
  - Growing unconventional gas supply in United States.
  - Price formulas that link natural gas and oil prices in Asia and Europe.

**Future concerns**
- Underinvestment reflecting lower gas price in:
  - Upstream sector may create tighter supply-demand market after 2020.
  - Midstream sector may create congestion of transportation capacity, and thus may possibly affect supply in the future.

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**Crude Oil Price and Major Natural Gas Prices**

Source: Trade Statistics of Japan, EIA, Energy Intelligence
5. Other energy sectors

- The coal price is not affected by the crude oil price drop. Its change is basically dominated by its fundamentals.

- Policy has greater effect on introduction of renewable energy than market mechanism. Therefore, it has not been affected by lower crude oil price.

- Nuclear power and oil-fired power have a totally different role and use in electricity supply. Therefore, nuclear power has not been affected by lower crude oil price.

- Higher oil consumption driven by lower crude oil prices will push up CO₂ emissions.

  However, changes in the economic growth rate have a greater impact on the increase or decrease in CO₂ emissions than changes in the crude oil prices.

  (by EIA, Annual Energy Outlook 2015).

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Forecast of CO₂ emissions in each case

Source: EIA, Annual Energy Outlook 2015
Conclusions

Effect on Trade Account
- Lower oil prices benefit all consumers.
- In oil exporting countries, lower oil prices result in large losses to the trade account.
- The same can be said for natural gas importing and exporting countries where the natural gas price is linked to oil price.

Effect on Energy Choice
- Electricity and renewables are not much affected.

Effect on Energy Security
- Less investment may affect mid- to long-term energy security.
Policy implications for APEC economies

Continue to strengthen efforts to diversify energy and economy

- Crude oil importing economies should further strengthen efforts to diversify energy supply to enhance energy security.
- Crude oil exporting economies should further strengthen efforts to diversify their economic base.

Adhere to policies to act against climate change

- Lower oil prices will lead to higher demand for oil. Member economies are encouraged to continue efforts to implement climate change mitigation policies.
- Low oil prices are a good opportunity to remove energy price subsidies.
Thank you for your kind attention

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