Recent Development of World Oil Demand and Supply

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Huei-Chu Liao & Shu Chuan Lin
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Introduction (1)

Crude oil price collapses recently

- less demand from sluggish world economy
- the increasing shale oil production in USA,
- the ease of geographic tension in Middle East & Iran Reenter Market
- and the appreciation of US dollars.
World Oil Price Trend (1986~)

Data Sources: http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=RWTC&f=D
Introduction(2)

QUESTION???

• the recent oil price collapse will persist for a long while as the situation in 1986 OR

• just a temporary price adjustment similarly in the period during the end of 2008 and 2009.
Recent World Oil Price (2014~)

Cushing, OK WTI Spot Price FOB (Dollars per Barrel)
Literature Review

- Pindyck (1999) found a long term stationary trend for crude oil price by using 127 yearly data. Not suitable for short-run oil price movement.
- More recent papers found oil price is very volatile in some period of time (Regnier, 2007; Narayan and Narayan, 2007; Larsson and Nossman, 2011; Salisu and Fasanya, 2013).
• Askari and Krichene (2008) found oil price is very sensitive to the oil demand and supply in this period.
• Du, Yu and Hayes (2011) oil stock is one of the important factors to invoke the crude oil price volatility.

analyze the oil demand and oil supply evolution.
Data

• **Data Sources:**
  
  EIA Energy Information Agency) of DOE (Department of Energy).

• **observed period :**

  • all the oil consumption and oil production data are collected from 1980 to 2013, but some countries has less observations
3 MAIN OIL PRODUCERS
Russia/US/Saudi Arabia

Petroleum and other liquid fuels production
million barrels per day

- United States
- Russia
- Saudi Arabia

Note: Total petroleum and other liquid fuels include crude oil and lease condensate, natural gas plant liquids, other liquids, and refinery processing gain.
Oil Import of World Top 15 Countries
Net Exports of World Top 15 Countries
Russia export a lot of crude oil to more countries in recent years.
Findings: demand

• The permanent decreasing consumption trend: Germany, France, and Japan.
• China and India is the main driver for the increasing oil demand in past few years.
• US’s oil import decreases apparently.
Findings: supply

• significant oil production increase in Saudi Arabia and Russia.
• Except Norway, most top oil export countries have increasing net export.
• US’s significant increasing oil production is the main cause of its apparent decreasing oil import
More Findings

Less demand

• Yan (2014), China’s oil demand will be slow down before 2020.
• US keeps slow growth of shale oil production

More supply

• Iraq and Iran are more likely to produce more than the production quota in 2013
Figure 2

2009年起中國彌補了美國進口需求的降低而拉拔了BRENT的價格。

2013年起中國進口成長力道已失，抑制美國生產成長力道以穩住美國進口需求才是維持國際供需新均衡之道，因此國際油價下滑至另一新低(60美元上下)。伊朗與其他的不確定性造成價格上下起伏波動。
Figure 2 shows the trend of oil import (kb/d) by US and China from the first month of 2002 to September 2015.

- positive relationship between the import of China and the world oil price before 2008.
- the import of US is also increasing at the period before 2007.
- After 2009, the import increased by China and the significant strategic oil production cut by Saudi Arabia pull the oil price back to the high price again.
Figure 3
The significant crude oil production increased by US and more crude oil produced by Saudi Arabia results the price collapse in the Mid-year of 2014.

More oil production results in the significant decrease of the oil import of US.

Although the import increased by China makes up most of the import decreased by US (see Figure 2), crude oil price is still collapse in the second half year of 2014.
IMPORT (US deducts China) (kb/d)

Data Sources: https://www.jodidata.org/
Conclusions

- most OPEC members tend to maintain its members’ production quota
- keep the OPEC production at the level of 30 million b/d.
- We believe these fundamental market demand and supply would help the world oil price to persist in a lower level for a while
Thank You for Your Attention!
Top 16 Crude Oil Production (kb/d)

Data Sources: https://www.jodidata.org/
Note: the use of JODI should be careful for missing data.
Top 20 Crude Oil Demand (kb/d)

Data Sources: https://www.jodidata.org/
Top 10 Crude Oil Demand (kb/d)

Data Sources: https://www.jodidata.org/
Top 20 Crude Oil Export (kb/d)

Data Sources: https://www.jodidata.org/
Top 10 Crude Oil Export (kb/d)

Data Sources: https://www.jodidata.org/
Top 10 Crude Oil Import (kb/d)

Data Sources: https://www.jodidata.org/