Lecture 5: Resource Nationalism and Market Power

- Is OPEC a Cartel? Will it be in 15 years?
- This part of the world (Middle East) will become even more important than it is right now in the global energy balance
- Saudi Arabia (SA) has the largest oil reserves by far
- The world is going to become even more dependent on the Persian Gulf states for oil than it is now
  - Other areas of world will probably peak in the near future
- IEA world energy outlook
- Methodological issues
  - Look at three sets of risks
    - Resource Risk
    - Production Risk
    - Geostrategic Risk

Resource Risks

- Those factors that could variably effect the resource base of a producing company
- Uncertainty about reserves
  - Two components to reserve estimate
    - How much oil geologists estimate is there
    - Engineers will estimate based on current price and technology how much of the oil will be producible/recoverable
  - Statements can change
    - Sometimes people find more oil
    - Some people say that they have new technologies
    - SCC have lots of rules for US companies regarding these
    - Rules only cover around 40% of world reserves
    - 60% Of oil estimates have no 3rd party oversight
      - Saudi Arabia has no oversight
  - Depletion Rate
    - How are you assessing that and how does that affect the resource picture
  - Rate and size of new discoveries
- Iran
  - Has discovered sizable new oil fields in last 20 years
  - How does that factor in?

Production Risks
- Those factors that can variably affect a country's ability to exploit reserves
- How much can a given country produce over a given time period
- Depletion rates $\rightarrow$ productions levels
  - Can a country cope with depletion by maintaining current production levels or does the production level deplete as well
- Impact of price
  - If price of oil is really high, then alternative methods of oil production become viable
  - Saudi oil will always be producible
    - Other countries might not have the best conditions
      - Off shore drilling
      - Sketchy areas
- Investment
  - Size and sustainability of investment flows
  - CRITICAL
    - Production levels are a function of investment
- National decision-making
  - Policy

Geostrategic Risks
- Internal to the country
  - Basic political stability
    - Authority and power
  - Internal security
    - How secure are the facilities from terrorists/dissidents
- External to the country
  - Embargos
  - Military strikes
- Key Middle Eastern Oil Producing States $\rightarrow$ Saudi Arabia
  - Big kid on the block
  - Oil production
- Could produce 11 million barrels a day
- Currently producing 10 million barrels a day
  - 8.7 million in December
- Worlds largest proven oil reserves
  - 262 billion barrels
- Considerable holdings of natural gas
  - Barrels of oil equivalent $\rightarrow$ added to other total
- 302 Billion barrels of oil $\rightarrow$ largest hydrocarbon holdings in the world
- Surplus capacity
  - What they could produce-$ what they are currently producing
- Only country in the world that has sustained a steady surplus capacity
- Not beholden to shareholders
- In past the Saudis have wanted to maintain 1.5-2.0 million bpd in surplus capacity
- Extremely important strategic asset on several different levels
  - Let Saudis discipline the market when they wanted to do that
    - Flood the market to drop prices when they wanted to
  - Costs of production are so low that they can still make money
  - Population of Saudi Arabia is pretty low compared to other places
  - Easier to still provide social services and by off dissent within SA
  - Maintain OPEC discipline on production quotas
- US might ask them to put more oil on the market for various reasons
  - US goes into Iraq, other oil reserves going offline
  - Net increase on crude oil prices due to Iraq war is about $9 a barrel
  - Could have been a lot more
- Saudi’s Capacity ability to expand given the three risks discussed earlier
  - Production risk is only concern for Leverett
  - Areas not that concerned about
  - Resource Risk
  - There is an ongoing debate about what the Saudi resource base is
- Matt Simmons
  - Texas investment banker
  - Twilight in the Desert
  - Serious resource risks in Saudi Arabia
  - Saudis have systematically over estimated their reserves
  - Saudis are depleting their reserves at faster rates than they are acknowledged
    - Going to start to affect production in a serious way
  - Saudis have relied for decades on a small number of large oil fields for their production
    - Dawar field
      - Roughly half of the kingdom’s oil production
    - Largest off-shore oil field in the world
    - 100 oil fields discovered
      - 30 in production
      - of those 30, 10 are giant fields that account for more than 90% of oil production
    - fields are old and getting older
    - production in these fields has peaked or about to peak, and we will see a serious decline in Saudi oil production in the near future

- Response
  - After nationalization, SA decided to no longer use SEC guidelines for oil reserve estimates
    - SA uses much larger fields than anyone else
  - Several points in last century SA has raised reserve statements several times
    - Increase in reserve statements comes at “strategic times” that would benefit SA
  - Parts of kingdom are underexplored, but nonetheless SA have not explored and still raise reserve statements
- The Saudis have had significant technological gains in upstream production
- Other production companies believe statements about 50%+ recovery rates are plausible
- 1% increase in recovery rates = 1 year's production in given production area
- Simmons talks about the water cut rate a great deal
  - As reserve ages, the water cut rate starts to rise
  - At some of the old large fields the water cut rate has been rising
  - At Dawar reached 37% in 2001
    - 31% in 2004
    - Saudis are actually managing the water cut rate better now

- Geostrategic Risk
  - Probably not going to be a big issue
  - Jihadists have said a lot about attacking oil
    - Saudi's have gone through a lot of trouble to add redundancy to all of their systems in case of an attack
    - If they were successful at taking out a key facility, the consequences would be big

- Production risks could be an issue
  - How is it organized? Who makes decisions?
    - Supreme Petroleum Council (King) → Oil Ministry → Saudi Aramco
      - Supreme petroleum council has lots of ministers along with crowned prince (son of king)
      - Oil Minister
        - Ali Naimi
        - Former CEO of Aramco
        - Worked for Aramco since he was 12
          - Aramco sent him to US for education
          - King made him oil minister in the '90s
      - Aramco is not just an instrument of the royal family, but has its own interests and agendas
Those preferences and interests did not always line up with royal family

- In 90s the royal family wanted to open up some upstream production to investors
  - Originally envisioned oil and gas, but ended up just pushing for gas
- Wanted to monetize gas productions
  - Needed to pay for infrastructure for public services
- Abdullah wanted to exploit some of natural resources for economic diversification within country
  - Abdullah faced a great deal of opposition
    - From family and from Aramco/oil ministry
      - What was their agenda?

- Extremely proud of their nationalized oil production company in the world
  - Invested incredibly in technology and r&d
  - Pay really really well
  - Say they have more supercomputing capacity than NSA
  - Buy highest technology on the market at any given time
  - Aramco Patriotism – in their own world, and have own compounds and cultures separate from the rest of Saudi Arabia
  - Proud of what they do and don’t want to do it with other international companies
    - Oil and gas initiative ran up against that
      - Abdullah lost completely on opening up oil sector
    - Gas initiative did try to open up gas, but Aramco really resisted, and the initiative fell by the wayside
      - In last couple of years, Saudis have opened up gas concessions to a handful of international companies

- Why Saudis won’t produce more than 15 mbpd
  - Saudis are exemplar of prospective where you are trying to maximize the long term value
    - Alternative is publicly traded companies that want a return on capital for investors
    - Inherent conservatism in business model
- Capability constraint
  - If they wanted to produce 15 mbpd+ they would have to do more tertiary recovery on some of their older fields that they are not really experienced in
    - Gas injection
    - Steam injection
    - They would have to bring in outside companies, which Aramco would not like
  - Saudis are more likely to be less of a swing producer which is going to be changing the world oil dynamics