Risk Management at Apache Corporation

Outline
◆ Factual information
◆ Major Risks and Their Classification
◆ Measurement of Risks
◆ Goal and Value of Risk Management
◆ Tools for Risk Management

Sources:
Factual Information: History

◆ 1954, founded by T. Anderson, R. Plank and C. Arnao = APA-che
◆ 1956, Arnao leaves
◆ Plank’s principles
  – Transparency: “the investor would have the operator of the wells working directly for him, sharing an identity of earnings interest with him and providing visible, regularly recurring, accurately reported results”.
  – Sufficient Liquidity: “sufficient money would be raised by us to fund such a professional approach”.
  – Risk Management: “[drilling] the risk would be spread over a number of drilling opportunities, rather than all-or-nothing deals”.
◆ < 1960, limited profitability, diversification of other businesses: Real estate, agriculture, cattle and dude ranching, lumber, steel, plastics, auto supplies, aerosol cans, telephones, utilities.
◆ 1963, executive disagreement on policies leads to departure of Anderson.
◆ 1967, first major oil discovery (1200 barrels/day) in Wyoming’s Powder River Basin
◆ 1969, listing as ASA in NYSE.
◆ 1971, Apexco (Apache Exploration Company) founded
◆ 1977, Apexco values more than its parent APA; APA sells Apexco, invests proceeds in Anadarko (gas) Basin (TX panhandle-OK). Another owner of acreage from this basin, B. Hefner successfully lobbies Congress to deregulate natural gas prices. APA’s holding gain value and APA divests from real estate, industrial and agricultural businesses.
◆ 1980, APA acquires non-operating interest in Gulf of Mexico.
◆ 1981, Apache Petroleum Company (APC) created as an MLP (master limited partnership).
◆ 1986. APA becomes an operator in Gulf of Mexico after acquiring assets from Occidental Petroleum.
◆ 1987, MLPs loose tax advantages, APA offers to exchange APC units with APA units or Key Production Company. APA moves headquarters from Minneapolis to Denver.
Factual Information: History

- 1990s, adopt “acquire and exploit” strategy – better managing and incentivizing of production and exploration activities in old as well as new fields. Management introduces systems to optimize production from existing wells.
- 1991, headquarters move to Houston and acquires interests in Permian Basin from Amoco.
  - Sales contract protects APA if commodity prices fall and provides profit-sharing with Amoco if prices rise.
- Throughout 1990s, Apache buys oil interests and companies in Canada.
- First in 1993 and afterwards in 1996, acquires interests in Qarun and Khalda concessions, Egypt.
- 1997, listed by S&P 500, attesting size and capitalization of APA
- 1997, first drilling experimentation in Granite Wash, not very successful
- 1999, acquires Gulf of Mexico assets from Shell. Later continues to buy more from BP, Occidental, Anadarko, Devon to build a large operating portfolio.
- 2001, more purchases in Egypt: Qasr area, Faghur basin, more interests in Khalda concessions, Apache becomes the largest oil producer in Egypt.
- ????
Factual Information:
North America Production

- Activities: Exploration and Production.
- North America: Permian, Central; Canada; GC Onshore
Factual Information:
Offshore and International Production
### Factual Information:
**Global Oil, Non-Gas Liquids, Natural Gas Production**

<table>
<thead>
<tr>
<th>Region</th>
<th>2013 Pro Forma Production</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Oil (MBBLS/D)</td>
</tr>
<tr>
<td>Central</td>
<td>23</td>
</tr>
<tr>
<td>Permian</td>
<td>72</td>
</tr>
<tr>
<td>Gulf Coast</td>
<td>11</td>
</tr>
<tr>
<td>Canada</td>
<td>17</td>
</tr>
<tr>
<td>NA Onshore</td>
<td>122</td>
</tr>
<tr>
<td>Egypt w/o Tax</td>
<td>43</td>
</tr>
<tr>
<td>Australia</td>
<td>19</td>
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<tr>
<td>North Sea</td>
<td>64</td>
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<tr>
<td>International</td>
<td>126</td>
</tr>
<tr>
<td>GOM</td>
<td>7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>256</strong></td>
</tr>
</tbody>
</table>
Factual Information:
Profit=Revenue-Cost
Major Risks and Their Classification

- Operational Risk:
  - Dry hole.

- Supply Chain Risk

- Market (price and demand) Risk

- Insufficient cash (credit or cash flow) Risk

- Environmental Risk

- Legal Risk

- Other types of risk?
Measurement of Risks

Risk is proportional to likelihood of an adverse outcome and consequence (cost) of the outcome. Risk increases both in likelihood and consequence. How would you measure the likelihood and consequence for the risk categories?

- **Operational Risk**
  - Dry hole: Likelihood of a dry hole and cost of drilling.

- **Supply Chain Risk**

- **Market Risk**

- **Insufficient cash (credit or cash flow) Risk**

- **Environmental Risk**

- **Legal Risk**

- **Other types of risk?**
Goal and Value of Risk Management

The goal of risk management to evaluate keep the risk exposure of a company and keep it at a desirable level. What value do we drive from keeping the risk exposure low or high?

- Be risk seeking and keep risk exposure high? What does “wildcatter” mean in the oil business?

- Be risk averse and keep risk exposure low
Tools for Risk Management

How do we manage each of the following risks?

- **Operational Risk**
  - Dry hole: To reduce risk drill in known fields. Acquire known fields and exploit them.

- **Supply Chain Risk**

- **Market Risk**

- **Insufficient cash (credit or cash flow) Risk**

- **Environmental Risk**

- **Legal Risk**

- **Other types of risk?**
Summary

- Factual information
- Major Risks and Their Classification
- Measurement of Risks
- Goal and Value of Risk Management
- Tools for Risk Management