Exploration and Production:

Keys to Success and Common Reasons for Failure

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22nd February 2005
Keys to Success and Common Reasons for Failure

- Understanding the EP business
  - Phases of the business and ‘best in class’ attributes

- Understanding Strategies of Integrated Companies
  - Key to independent EP company success

- Independent EP Strategies
  - Identifying opportunities and niches
Three Phases of Exploration and Production

1. Early Exploitation
   - NEW PLAY AND FRONTIER
   - Few competitors
   - Majors, acreage brokers
   - Risk takers
   - New technology
   - High upside
   - No Infrastructure
   - Generous tax terms
   - e.g. Deepwater

2. Main Exploitation
   - MAJOR DISCOVERIES
   - Many competitors
   - Majors, NOCs, EP companies
   - Main area of industry spend
   - Established technologies
   - Expensive entry
   - Low upside
   - Major asset trading

3. Mature
   - OVER-INVESTMENT
   - Many players
   - Majors, NOCs, EP companies
   - Low/negative returns
   - Reinvestment reduced
   - Little exploration activity
   - Infrastructure ownership hinders new entry

Adapted from Browne (1999), Halbout (2003)
Features of ‘Best In Class’

Goal: A Portfolio of assets that minimises complex managerial structure and focuses on projects that offer the best opportunity for high profitability and growth in the near and long term.

**MATERIALITY**
- Number of high impact discoveries
- Strategic focus
- Preservation of regional knowledge
- Optimised portfolio
- Clear access strategy

**CAPITAL EFFICIENCY**
- Finding costs
- Balances risk assessment
- Optimised development of reserves
- Clear exit strategy
- Constant investment reviews

**VALUE CREATION**
- Cycle time to commercialisation
- Realistic cycle times
- Optimal shareholder management

Adapted from Wood (2000)
Integrated Oils: How do they fit this picture?

1. Early Exploitation
2. Main Exploitation
3. Mature

TOTAL
BP
EXXON
ROYAL DUTCH
Early Exploitation: Integrated Oil Strategy

- Become a ‘basin master’
  - Gain insight into ‘hot exploration areas’
  - Leverage long-term relationships
  - First mover advantage

Example: Gulf of Mexico Deepwater

Example: Aggregate Position in ‘hot’ exploration areas*

* Angola, Caspian, GoM, Nigeria

Majors have flexibility to optimise the portfolio

- Average global success rate is 1 in 6
- Need to balance risk and reward

Source: After Wood (2000)
**Exploration: Majors Track Record**

- Only just replaced reserves annually since 1990
- Big difference between the various companies
- SEC reserves do not reflect actual performance

**Organic RR Ratio 90-03**

**Reconciling SEC versus Actual**

Source: Company Data

Exploration: Have the Majors Added Value?

- Majors have invested $50 billion from 1996-2001
- Only created $23 billion in value
- Only 13 out of 25 companies have added value

**Exploration spend vs NPV**

**Value Added vs Income**


Source: OIES (2005)
Exploration: Key Reasons for Failure

- Exploration spending fallen as a percentage of upstream capex
- Failure rates starting to rise as acreage positions diminish
- Rising cost pressure

Success Rates and Falling Capex

Finding and Dev Costs

Changes in Acreage Positions

Source: Company Data, CSFB (2004)
Exploration: Where next for the majors?

- Access is an issue for all companies
- Alliances with NOC are inevitable
- Further consolidation in the absence of growth

Undiscovered 500 mmbbl fields

<table>
<thead>
<tr>
<th>No. of Field</th>
<th>Remaining Giant Fields</th>
<th>High Accessible*</th>
<th>Medium Accessible**</th>
<th>Low Accessible***</th>
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EMV: Deepwater Attractive

Source: Deutsche Bank (2003)

* All others  ** China, Oman, Russia, Venezuela
*** Algeria, Iran, Kuwait, Libya, Mexico, Saudi Arabia, UAE

Source: USGS, JS Herrold
Mature Provinces: Majors Strategy

- Focus on cost reduction
- Focus on maximising margins
- Focus on portfolio optimisation

Volume of Reserves Traded

Production costs reduced

Earnings enhanced

Source: Company Data
Main Exploitation: ‘Cash Cow’ for Majors

- Main area of investment but...
- Internal and external constraints on growth
- More money now returned to shareholders than invested upstream

Majors Internally Financed and...

Cash Returned to Shareholders

Source: OIES, Company Data
Majors EP Strategy: Conclusions

To be successful a company has to spend enough money on new business to ensure it has a significant share of initial finds.

To be successful a company must know when it has reached the point where further investment would be unproductive.
What Determines EP Company Success?

WITHIN CONTROL

Operations
- Reserves Growth
- Production Growth

Finance
- Cash Flow Growth
- NAV Growth

TOTAL SHAREHOLDER RETURN
- Growth in Capital
- Return of Capital

OUT OF CONTROL

Equity Market
- Where in the cycle?
- Access to funding

Commodity Prices
- Oil/Gas Prices

WITHIN CONTROL

OUT OF CONTROL
EP Companies: Where do they fit?

1. Early Exploitation
   - e.g. Desire
   - e.g. Cairn, Lundin

2. Main Exploitation
   - e.g. Venture
   - e.g. Paladin

3. Mature
   - e.g. Acorn
EP Companies: How do they grow?

**EXPLORATION**
- Cost of access
- Technology
- Good Data
- People

**EXPLOITATION**
- Modelling
- Project Management
- Infrastructure Access

**REHABILITATION**
- Contract terms
- Reservoir modelling
- Project management

**ASSET DEALS**
- Correct deal analysis
- Strong technical diligence
- Financial strength

**CORPORATE**
- As left +
  - Finance
  - Communication
  - Integration Skills

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**ORGANIC GROWTH**

**ACQUISITIVE GROWTH**
EP Companies: Stated Strategies

- Stated strategies are very variable
- Value, growth and material positions require
- Actual strategy often varies from stated strategy

What is in the strategy statement

- Exploration
- Shareholder Value
- Materiality
- Production
- Op
- Acquisition
- Niche
- Growth
- Environment
- Financial Strength
- Technology

What they actually say they want

- Production
- PUDS
- Oil
- Op or Non-Op
- Non-Op
- Op
- Exploration
- Gas
- Mature
- Oil/Gas Mix

Source: OIES, Company Data
EP Companies: Strategic Differentiation

Despite offering balance strategies clear distinction between:
- Companies who have added all reserves through acquisitions
- Companies who have added all reserves through exploration

Additions through E or A

Capex is either E or A driven

Source: OIES, Company Data
EP Companies: Just how successful?

- Most of the growth in the sector comes through acquisitions (cheaper)
- Step change exploration success is rare (volatile)

Erratic FD track record

Cheaper to buy than explore

FD Cost 01-03 Hit or miss!

Capital Allocation 01-03

Source: OIES, Company Data
EP Companies: Only a short time to deliver

- Average life of project from 1st exploration to abandonment is 25 years
- Average life of EP company is less than 10 years
- Management has deliver outstanding results and quickly

US EP Companies to Survive 25 Years

Change in EP Company Numbers 97-04

Source: JS Herrold, Harrison Lovegrove
Source: Morgan Stanley
EP Companies Usually Capital Constrained

- Most EP companies rely on ‘Other Peoples Money’ to:
  - Finance the gap between cash flow and exploration
  - Run the business as a going concern
- Failure to maintain a robust balance sheet is common concern

Living Outside of Means (01-03)

A Fine Line between Success & Failure

Source: OIES, Company Data
There are periods when the equity market views the sector positively.
EP companies must refinance during these periods.
The high expectations are rarely fulfilled.

EP Sector and Market Opening

Source: OIES, Datastream

Source: London Stock Exchange

AIM: Value New Deals (£m)

AIM: Number of Issues

Source: London Stock Exchange
EP Companies: So who has succeeded?

- There is no consistent pattern
- Equity markets now discounting exploration success which is a risk

There is no consistent pattern
Equity markets now discounting exploration success which is a risk

TSR (Annualised) 01-04
EP Companies: Common Reasons for Failure

- ‘Scatter Gun’ approach to exploration
- Extremely diversified portfolio and failure to deliver projects
- Weak balance sheet
- No clear exit strategy

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<tr>
<th>Diversity</th>
<th>Size</th>
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<tr>
<td>Under-capitalised</td>
<td>Domestic</td>
</tr>
<tr>
<td>Niche</td>
<td>Diversified</td>
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Source: Harris, Jeffs (1993)
EP Companies: Common Reasons for Success

Focus:
- Offset the advantage of size through strategic differentiation

Competence:
- Recognise where in the chain you have competence and exploit it

Opportunistic:
- Be opportunistic and take advantage of deals where you have insight

Is there a cycle? Financial view

Is there a cycle? Industry view

Source: OIES
Even Fools are Lucky!

But to achieve consistency need to:

- Deliver above average results. This typically occurs when a niche is exploited.
- Remain entrepreneurial, flexible and opportunistic, keeping all options open.
- Remember that teams are usually too small to deal with more than a 3 core area strategy.

Remember that:

- The growth potential of an individual company that competently exploits a niche is significantly higher than all the factors that influence the entire group.
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