Critical Factors in Acquisition Case Histories

Gavin Ward, RISC Partner & London Office General Manager
Institute of Directors, London, 2 October 2018
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- The information contained in this document is confidential.

2018 Analysis using Public Data
Now & What’s Next?

- 1 November 2017: Regulatory changes to reserves booking guidelines. Geoff Salter & Adam Borushek
- 26 February 2018: Latest LNG issues from an “AustralAsian” perspective: Qatar, Australia, USA…where next? Martin Wilkes
- 6 June 2018: Acquisition Due Diligence. Is it as good as it seems? Peter Stephenson
- 2 October 2018: Critical Factors in Acquisition Due Diligence Gavin Ward

Introduction to new Commercial Advisor - Terry Wells

PRMS 2018 introduction - Adam Borushek

Status → Calibration → Case Histories* → Value Histories* → Conclusions

Calibration is King’ for continuous improvement
1. Question your assumptions
2. Focus on the BIG assets
3. Consider/Flag Black Swan* events
4. RANGES are critical (including Low side) – Banks and Auditors are Sometimes Right
5. Treat Contingent/to be developed fields with extra care

*Analysis using Public Data
Status: Valuations

- Net Book Value
- EBITDA multiple
- Earnings per share
- Benchmarked $/Boe
- Discounted Cash Flow & WACC

**IMPORTANT:** Valuation is not the same as the price paid through negotiation
Status: M&A and Project Failures

28 January 2015
According to collated research and a recent Harvard Business Review report, the failure rate for mergers and acquisitions sits between 70% and 90%.

A McKinsey survey of almost 90 M&A professionals conducted in mid 2009 showed new interests and attitudes toward mergers. Nearly half of those surveyed believed the deals they manage would “increase in transaction value” over the next three years. Even now, this approach produces M&A failure rates of 66% and 75%.

➢ Larger deals involve many more moving parts, and therefore scope for breakdown
➢ Including internal issues and external difficulties such as a regulatory hitch or a failure to secure financing.
➢ The only way to address these problems is for companies to prepare early and thoroughly.

From a dataset of 7,059 acquisitions, only one out of every three cases, the price paid by the acquirer was passed on to the investor, by means of an increase in share value.

Worse still, in 39% of the deals, the market cap decreased by more than 10% between the rumour/announcement and the closing dates.

7 February 2018
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### Status: Pre FID schedule performance

**16 August 2017**  
*Project Performance: Outcomes, Why? and How to Improve?*  
Simon Whitaker

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**Operators are overly optimistic about how long it will take to mature the project.**

<table>
<thead>
<tr>
<th>Project</th>
<th>Target FID</th>
<th>Actual FID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pluto 1, Woodside</td>
<td>2007</td>
<td>August 2007</td>
</tr>
<tr>
<td>QC LNG, BG Group</td>
<td>Early 2010</td>
<td>November 2010</td>
</tr>
<tr>
<td>GLNG, Santos/Petronas</td>
<td>Mid 2010</td>
<td>January 2011</td>
</tr>
<tr>
<td>APLNG, Origin/CoP (Train 1)</td>
<td>End 2010</td>
<td>July 2011</td>
</tr>
<tr>
<td>Wheatstone, Chevron</td>
<td>End 2011</td>
<td>September 2011</td>
</tr>
<tr>
<td>Ichthys, Inpex/Total</td>
<td>End 2010</td>
<td>January 2012</td>
</tr>
<tr>
<td>Browse</td>
<td>Mid 2012</td>
<td>TBA</td>
</tr>
</tbody>
</table>

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Publicly announced targeted FID for recent LNG projects and when FID actually occurred. Australian projects only  
Almost everyone misses their target FID date and this is not just restricted to Australian projects  
Only Wheatstone & Pluto met targets

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**Analysis shows that 10 months schedule overrun is the mean (23%)**

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Status: M&A Success, and Practicalities of Prediction

Ravenspurn North Gas Field Life of Field Forecast

(Arthur Andersen, Deloitte, I.H.S)

1996, 2006 and 2016 publications

Historic
1995 Forecast for 1996
2006 Actual
2006 Actual
2005 Forecast for 2006
2016 Actual

Gross Production (mmcf/d)

Ref: SPE (The Practicalities Of Optimizing the Bottom Line For Mature Fields)
CONCLUSIONS

1. Be prepared
   - Where to focus, what can be left unaudited?

2. Select the best evaluation methodology
   - Thorough G&G review for undeveloped fields

3. Challenge the key results
   - What are the key risks/opportunities and have they been adequately captured?

Ref: http://riscadvisory.com/conference-papers/
Calibration: Volume Prediction & Exploration Portfolio Valuation (35 wells)

Onshore, Gulf of Mexico, USA

‘Expect’ approximately four to seven 6’s with thirty five rolls of the die

Cumulative Value

1 Year

>90% of Total Predicted MMBoe

Ref: AAPG 2006 (Basics are Boring – The Essentials of Good Portfolio Management at Independent Oil and Gas Companies)
Calibration: Sum of the Parts & Know Your Assumptions

Test assumptions: On budget for portfolio but not individual business units

Key
- Deepwater GOM
- Offshore Shelf GOM
- Onshore USA
- International

Ref: AAPG 2006 (Basics are Boring – The Essentials of Good Portfolio Management at Independent Oil and Gas Companies)
Case History: Test Assumptions & Know Your Process

Forecast Prices Drilling Costs Project Delays Project Type Initial Production Rates Base Case Realisation

100% 32% 1% 1% 27% 73% %Loss/Gain in NPV Economics Post Mortem Resources on Target

Ref: AAPG 2006 (Basics are Boring – The Essentials of Good Portfolio Management at Independent Oil and Gas Companies)
Centrica plc paid £1.3 bill

<table>
<thead>
<tr>
<th>Venture Petroleum</th>
<th>Lowside Scenario (£ mill)</th>
<th>Base Scenario (£ mill)</th>
<th>Upside Scenario (£ mill)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserves</td>
<td>1,742</td>
<td>2,209</td>
<td></td>
</tr>
<tr>
<td>Contingent &amp; Prospective</td>
<td>160</td>
<td>225</td>
<td></td>
</tr>
<tr>
<td>Other assets</td>
<td>8</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1,910</td>
<td>2,442</td>
<td></td>
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2018 Analysis & Look Back using Public Data

20 Producing Fields
26 Discovered Non-Producing
> 50 Prospects & Leads

Greater Kittiwake Area
Trees Area

Value Histories: Venture Production 2009 Portfolio in 2018
Value Histories: £1.3 Billion Acquisition 2009

2018 Analysis & Look Back using Public Data

- RISC reviewed over 80% of Ventures assets on a 2P reserves basis.
- Contingent & Prospective resources valued using a unit value method ($/Boe).
- Effective date = 1 July 2009.
- No Lowside: only Base & Upside requested*

![Graphs and charts showing production and probabilities](image)

- Cumulative Probability Distribution (MMBoe)
- Goscinder Field (Boe)
- Cygnus Field Forecast Production (Bcfe)
- Ophir CPR (August 2018) p39

### Total Portfolio - Calculated from Profiles

![Graph showing production (Boe)](image)

- Upside
- Base
- Lowside #1
- Lowside #2
- Lowside #3
- Actual
- Shifted Reality

### Cygnus Field Forecast Production (Bcfe)

- Cygnus Actual Gas units
- Cygnus Base Gas units

First Gas = 15 Dec 2016
2016 = 0.75 Bcfe, 2017 = 38.99 Bcfe

### Table: Ventures

<table>
<thead>
<tr>
<th>Venture</th>
<th>Petroleum</th>
<th>Reserves (£ mill)</th>
<th>Base Scenario (£ mill)</th>
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</table>

*Lowside production volume from Normalised type curves based on Base and Upside cases

(Ref: Production data from OGA & Netherlands [https://www.nlog.nl/en/data](https://www.nlog.nl/en/data))

*Lowside does not have to be ‘Normally distributed’ especially for Contingent production

![Graph showing production trendline](image)

First Gas = 15 Dec 2016
2016 = 0.75 Bcfe, 2017 = 38.99 Bcfe
Value Histories: Price Prediction

**Brent Oil Price**

- Historic Brent Oil ($/Bbl)
- Valuation forward Base Price Model

**Actual v Forecast Gas Price**

- Month Beginning Actual UK Gas Spot Price ($/therm)
- Valuation Forward Base Price Model

**Reserves Portfolio**

(218 MMBoe)

- Oil: 51.2 Gt, 23.5%
- NGL: 5.5 Gt, 2.5%
- Gas: 161.2 Gt, 74.0%
## Value Histories: £1.3 Billion Acquisition 2009 (Base Valuation = £ 1.9 Bill)

<table>
<thead>
<tr>
<th>Area</th>
<th>Gain/(Shortfall)</th>
<th>Actual</th>
<th>Variance</th>
<th>%Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cygnus Delay</td>
<td></td>
<td>£1,750 mill</td>
<td>(£-160) mill</td>
<td>-8.3%</td>
</tr>
<tr>
<td>Oil Price Change</td>
<td></td>
<td>£1,985 mill</td>
<td>£75 mill</td>
<td>3.9%</td>
</tr>
<tr>
<td>Uncontracted Gas Price Change</td>
<td></td>
<td>£1,469 mill</td>
<td>(£-441) mill</td>
<td>-23.1%</td>
</tr>
<tr>
<td>FX £:$</td>
<td></td>
<td>£1,935 mill</td>
<td>£25 mill</td>
<td>1.3%</td>
</tr>
<tr>
<td>Volume</td>
<td></td>
<td>TBA</td>
<td>TBA</td>
<td>TBA</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>£1,409</td>
<td>(£-501) mill</td>
<td>-26.4%</td>
</tr>
</tbody>
</table>

### Reserves Portfolio (218 MMBoe)

- **Venture Petroleum**
  - **Lowside Scenario (£ mill)**:
    - Reserves: 1,275
    - Contingent & Prospective: 95
    - Other assets: 8
    - Total: 1,378
  - **Upside Scenario (£ mill)**:
    - Reserves: 1,742
    - Contingent & Prospective: 160
    - Other assets: 8
    - Total: 2,209

### Value Histories:

- **Gain/Loss in Value (2009 – 2017)**
  - Base Value: £1,910
  - Oil Price: 75
  - FX: 25
  - Cygnus Delay: 160
  - Uncontracted Gas Price Change: 441
  - Total: 1,409

- **Venture Concedes and accepts Centrica bid**

- **Reserves Portfolio**
  - Oil: 51.2%
  - Gas: 23.5%
  - NGL: 74.0%
  - Gas: 2.5%
Conclusions?

‘Calibration is King’ for continuous improvement

1. Question your assumptions (eg: New owner/acquirer uses same investment plan)
2. Focus on the BIG assets
3. Consider/Flag Black Swan* events
4. RANGES are critical (including Low side) – Banks and Auditors are Sometimes Right
5. and...............Treat Contingent/to be developed fields with extra care

*Black Swan event is a metaphor that describes an event that comes as a surprise, has a major effect, and is often inappropriately rationalized after the fact with the benefit of hindsight. (Cygnus field?)