Oil: What’s a Reasonable Price?

Keith King
Managing Director, Moyes & Co.

$\$/BBL


Brent

WTI

www.moyesco.com
Main Points – Short Term Vs Long Term

Short Term – The Great “Glut”
• Price drop due to price war, OPEC reaction to US frackers
• World oil oversupplied by 2 to 3%

Long Term – Imbalances work themselves out
• Drilling and production lags behind price stimulus
• OPEC - historically low spare capacity, under stress
• New developments needed to replace 5% decline rate and accommodate 1+% demand increase
• Prices will increase to Marginal Supply Cost
• Long term challenge masked by short term

The Golden Sachs View, 11 Sept 15
1 mo - 38$ (20$)
3 mo - 42$
6 mo - 40$
12 mo - 45$

This a short term view

...OPEC aspirations

Exhibit 5: We continue to expect that the global oil market will remain in surplus until 4Q16...
Global supply minus demand (mb/d)
OPEC Aspires to Increase Market Share

- Increasing US production and other “expensive” production – Deep Water
- Flat to lower OPEC production

...why the panic
What Caused OPEC to Panic?

- 5 million bbls a day additional supply – 5% of global production
- World would have been 2 to 3 mm/d undersupplied without it

...slow response to price
Price, Activity, Production Lag - Four Months to Decades

- Conventional discovery to first production - 10 Years
- Conventional improved recovery – 6 to 18 months
- “Shale” (fracking) – 4 to 6 months

...fracking responds first
US Oil Production – Flattening?

- Accurate US production figures months old
- May and June saw decreased production

Data: EIA, Moyes Analysis

...we have seen this before
The Longer Term Perspective

- Imbalances self correcting – imbalances short lived

…OPEC’s role
OPEC Spar Capacity Now At Multi-Year Low

- Saudi increased production to 10.6 mb/d to gain market share
- Low OPEC Spare Capacity associated with rising price
- OPEC - 2 mb/d over quota

...OPEC under stress

Data IEA, Moyes Analysis

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OPEC Countries Not Stainable at Low Prices

- For most producers the question is not cost of production
- It’s supporting the national economy

![Bar chart showing years OPEC can last at low oil prices](chart.png)

Years OPEC can Last at Low Oil Prices

- Assumptions: current breakevens, national budgets, foreign reserves, and wealth funds
- **117 Breakeven Price**

Source: WoodMac, Telegraph, Gov Rpts, Sovereign Wealth Fund Instute, Moyes analysis

...conventional production
NAm Production responded to increased spend, international production declined despite increased spend...

...marginal cost
Future Projects Not Economic at Today’s Prices

- “Marginal Cost of supply” impacts future production
- “Cash cost” impacts current production
- Existing Production not significantly affected at current prices
- Future production is crushed at low prices!

Cash Cost (ex Finding and Development)

Marginal Cost of Supply (inc. Finding and Development)

...long term trends

Source: Citi, Rystad, Woodmac, Morgan Stanley
Long Term Oil Gets More Expensive

- Technology enables new production and may lower costs in the short run

...supply cost trends
Cost and Price Increase With Time

- MCoS allows production maintenance/growth
- MCoS may drop briefly, not permanently
- Delayed new production could drive prices higher than MCoS

Company Data, Bloomberg, Bernstein, Moyes Analysis

…build a model
Without Higher Prices – Production Will Decline

- World needs OPEC + US + production by 2025
Summary

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Other factors
- Iran
- Demand response
- Hedging
- Bank Loan Redetermination
- $ Strength
- China
Questions
Conventional: Gas Replacing Production, Oil is Not

- Discoveries decreasing since 1960’s
- Gas discoveries more robust

Comparison of Conventional Oil and Gas Discoveries and Production
(Billion BOEs Year)

...lag masking the long term
Drilling and completion costs account for the vast majority of capex included in these half cycle estimates. The estimates are post-tax, include a standard opex assumption, and a 10% discount rate. However, a producer would need a 25-30% return on a half cycle basis to earn the equivalent of a 10% return on a full cycle basis.

Source: WoodMackenzie, Barclays Research. Wood Mackenzie assumes a roughly 5.5% discount for WTI.