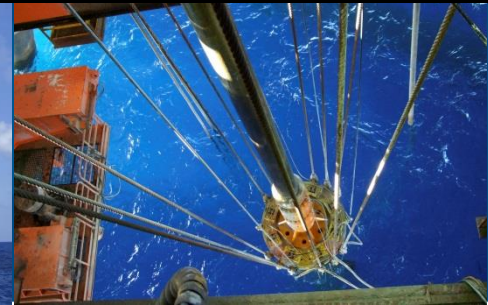


Creating value
across the natural
resources sector



Company Winners and Losers in Africa

CONFIDENTIAL • January 2015

Summary

Winners likely to be

- Large companies with low operating and financial gearing. Cash rich or well backed junior oil companies.
- Companies with good licence fiscal terms relative to geologic and surface risks
- Companies following drill bit success. In particular companies that are about to appraise recent significant discoveries
- Companies with a portfolio of licences

Losers likely to be

- Companies that have funded growth using significant debt. Cash poor junior oil companies.
- Companies with unfunded work commitments.
- Companies whose only prospects are in deep water Frontier basins.
- Single licence junior companies

Assumptions

Oil Prices

- The Brent forward curve
- Long dated Brent should reflect the marginal cost of oil
- How far is the marginal cost likely to fall

Industry reaction to this oil price scenario

- Upstream discretionary spending cut first.
(ie cut exploration spending before appraisal spending and cut appraisal spending before development spending).
- Capital intensive service companies will cut prices substantially as volumes shrink

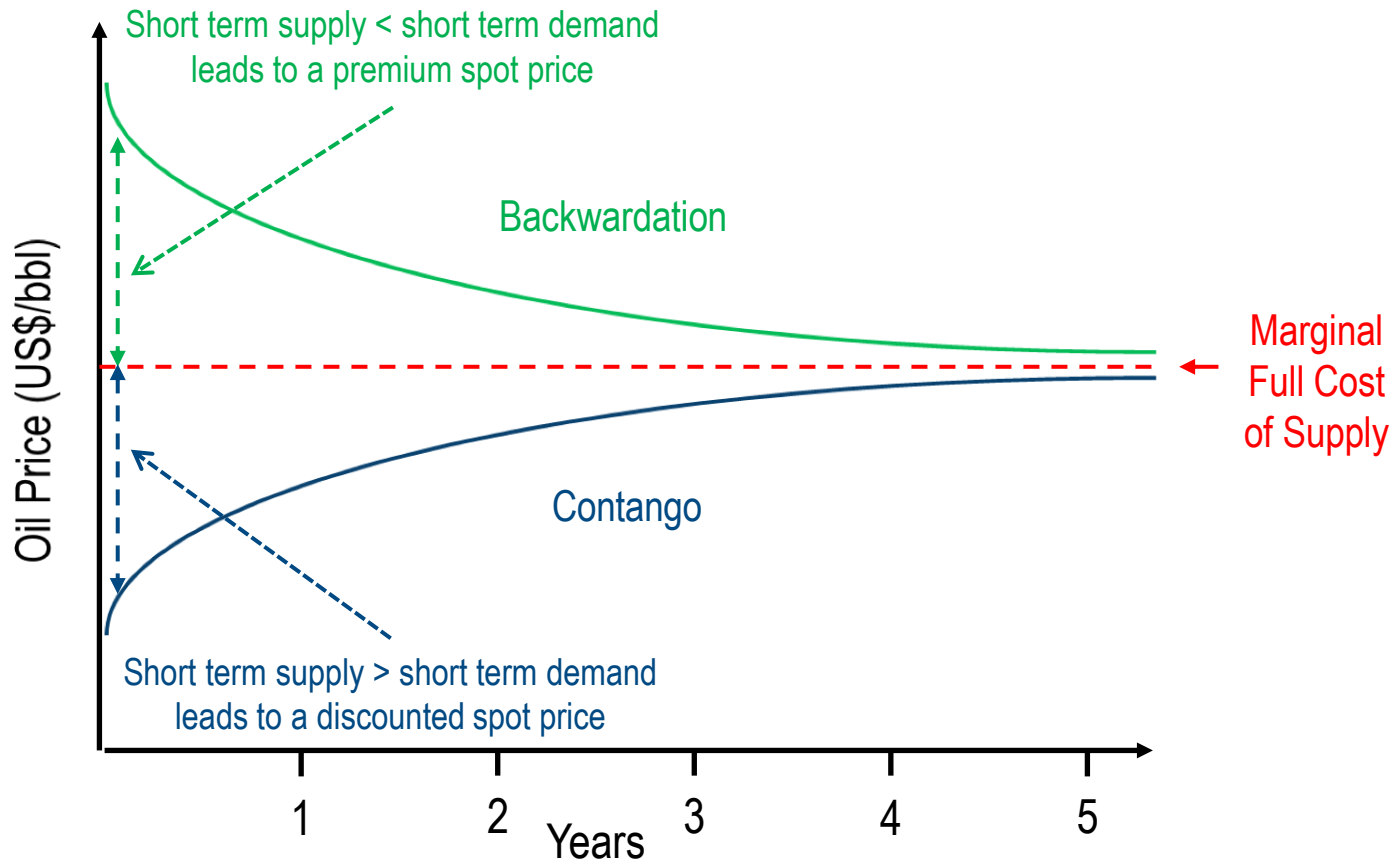
Government reactions to this oil price scenario

- More flexible about work commitment obligations?
- New licences likely to have less harsh fiscal terms and/or less onerous work commitments

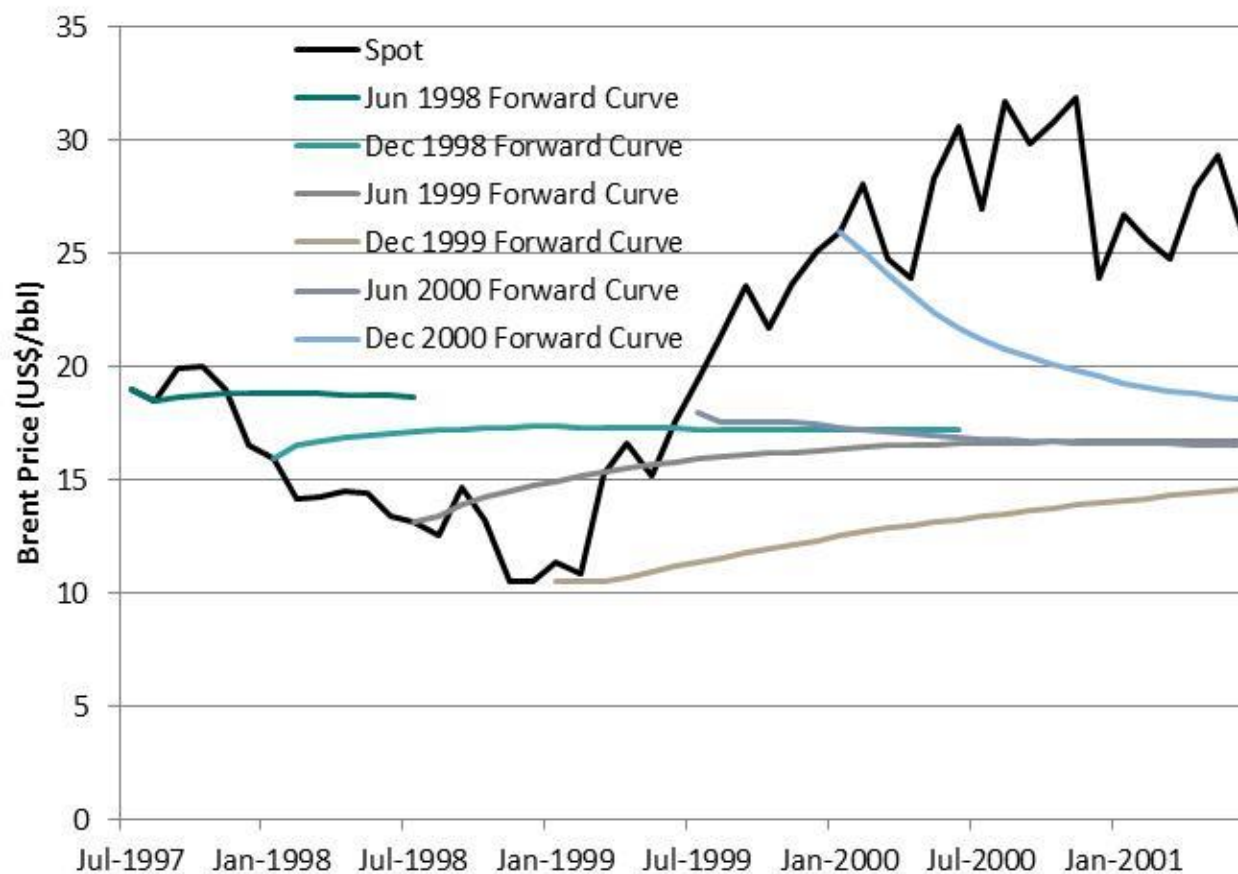
Technology

- No step change in productivity from new technology. Continued incremental improvements

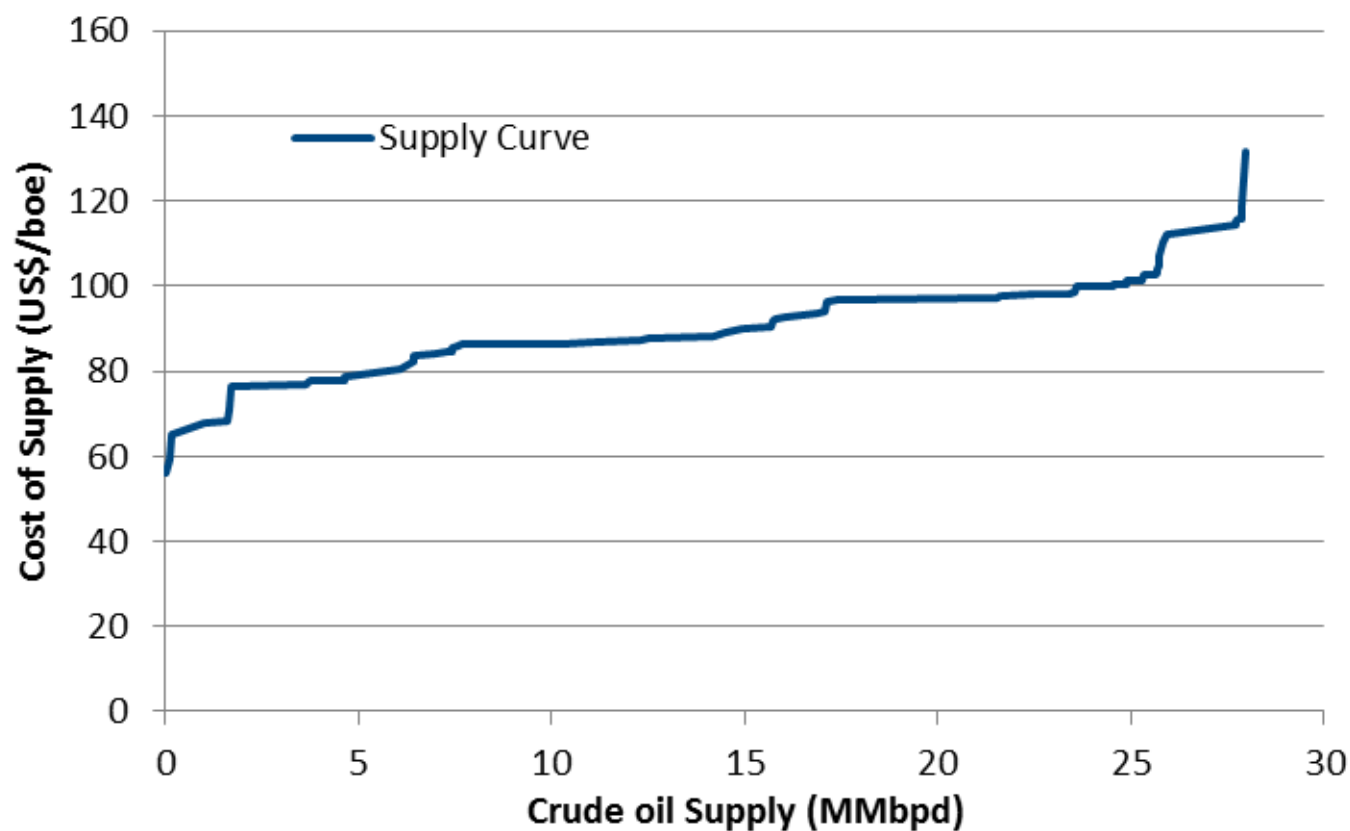
Oil Price Formation: Spot Prices And The Forward Curve



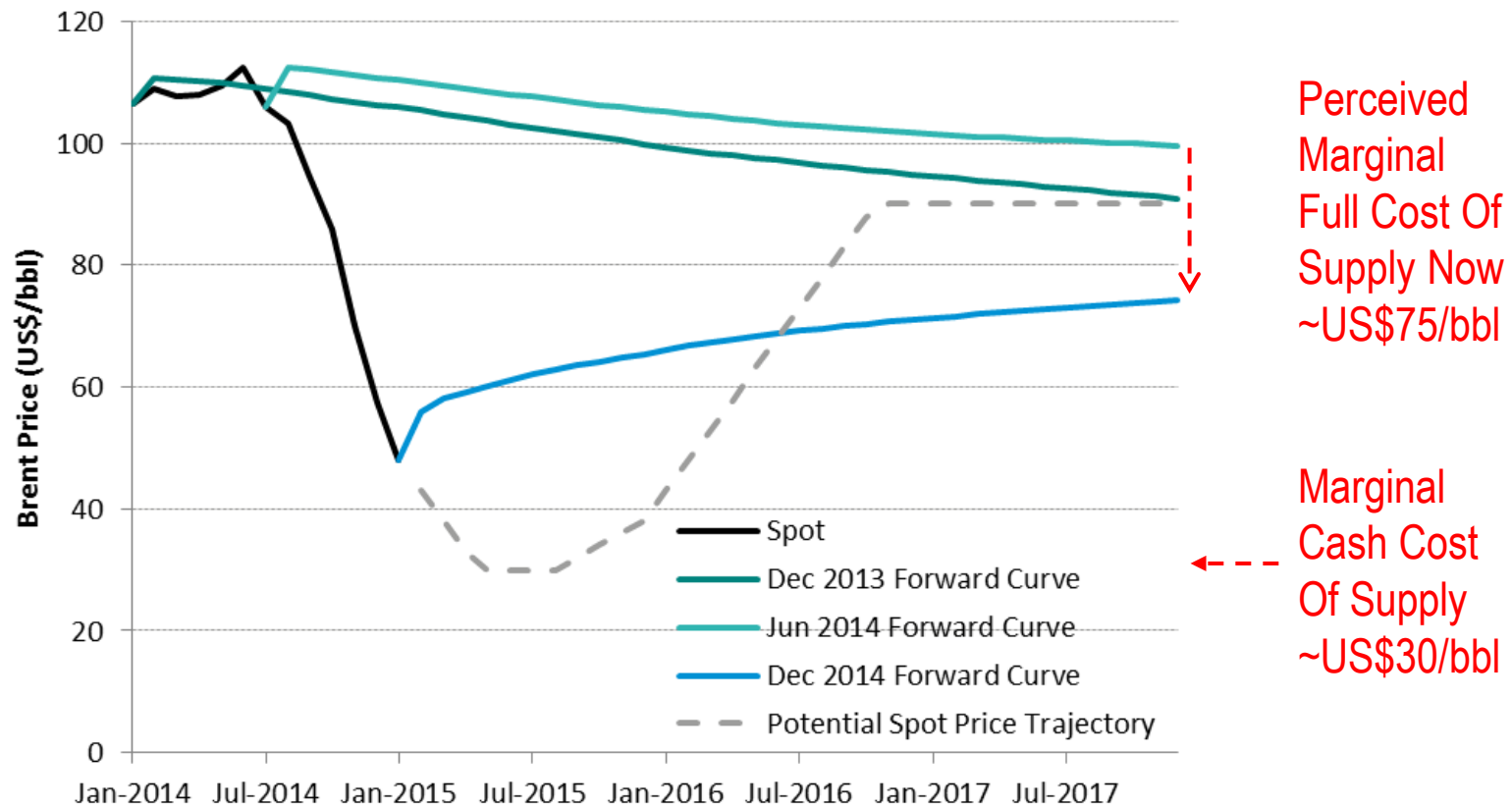
Brent Prices 1997 -2001: Spot and Forward Curves



2013 Marginal Cost of Crude Oil Supply

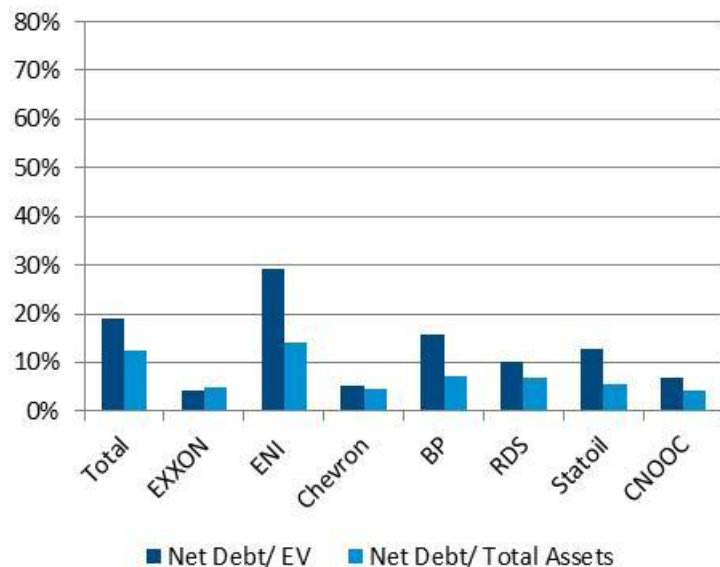


Brent Prices 2014 -2017: Spot and Forward Curves

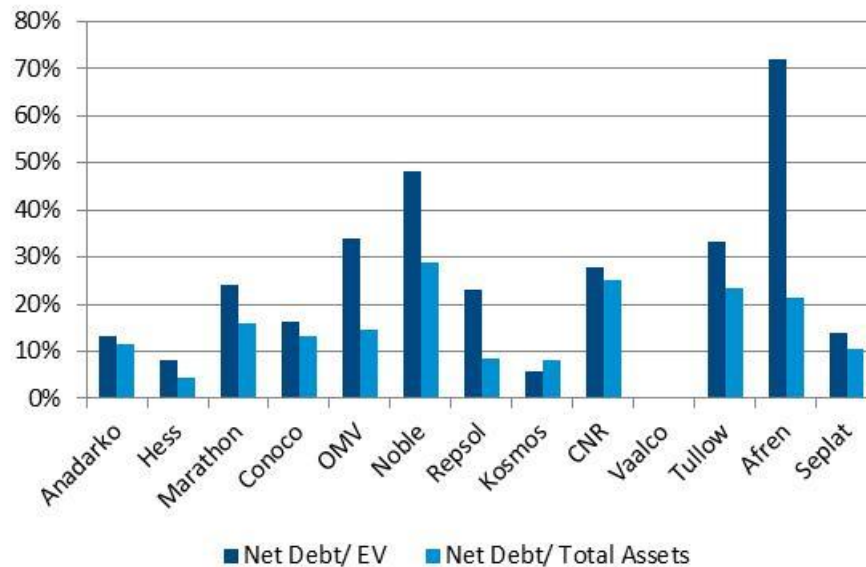


Selected Production Company Leverage

Majors' Company Leverage

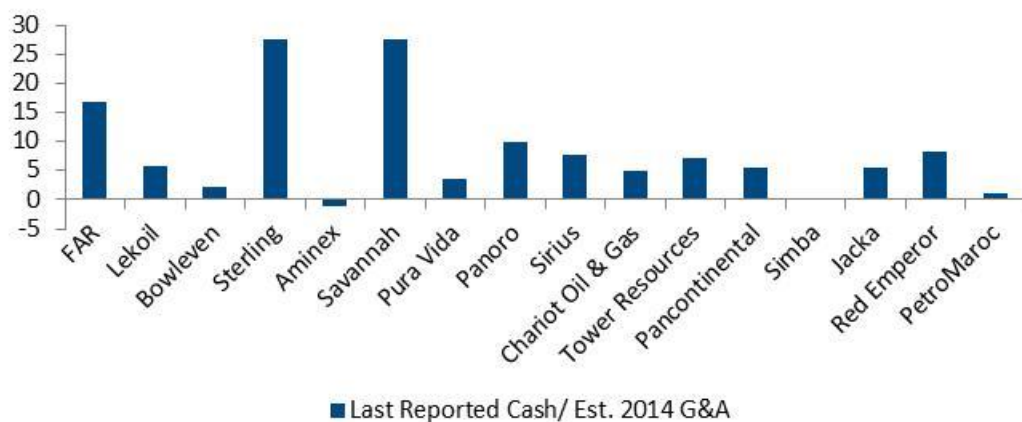
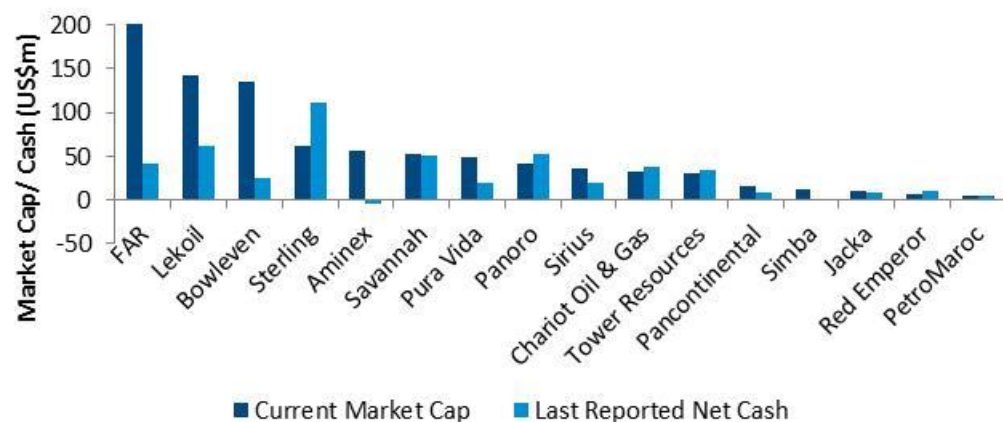


Mid-Caps' Company Leverage



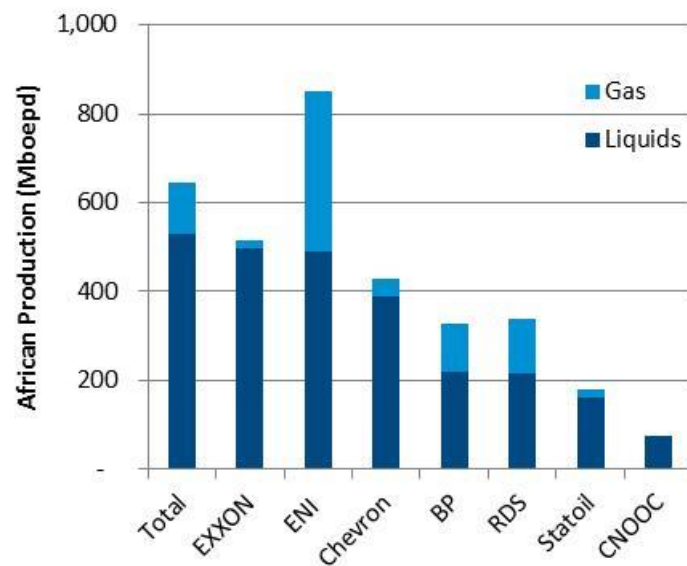
Selected Exploration Company Cash position

Exploration Company Cash Position

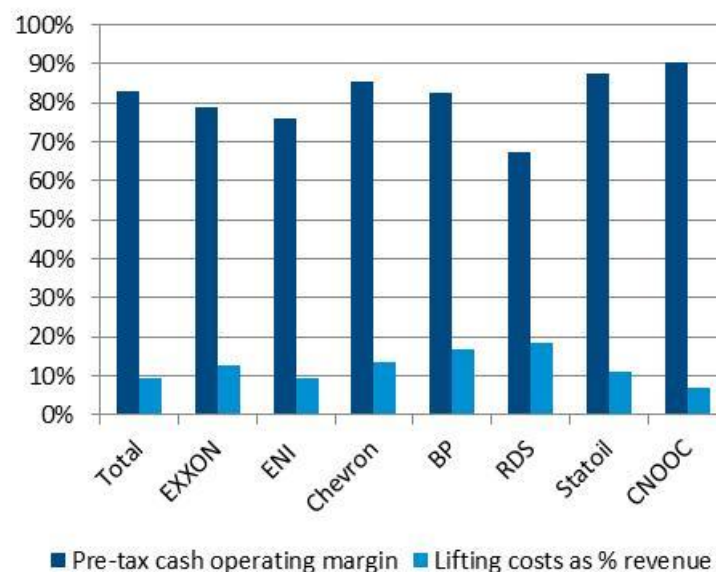


Majors' African Production & Operating Margins

2013 African Petroleum Production

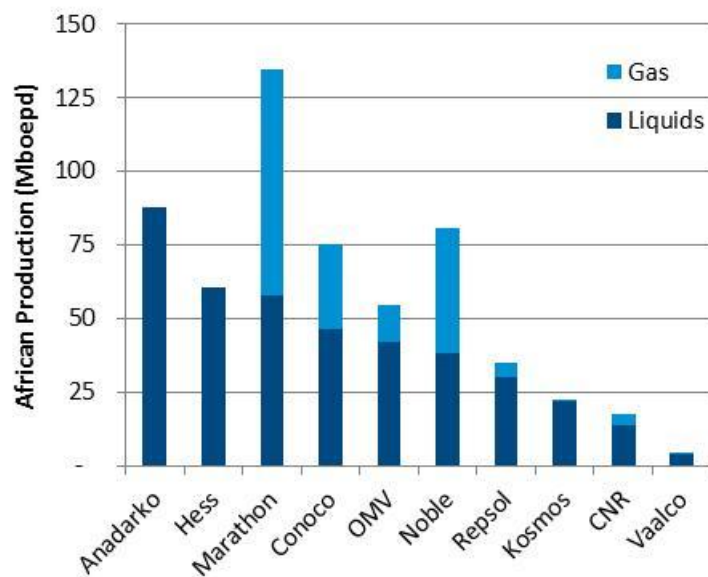


2013 African Operating Margins & Lifting Costs

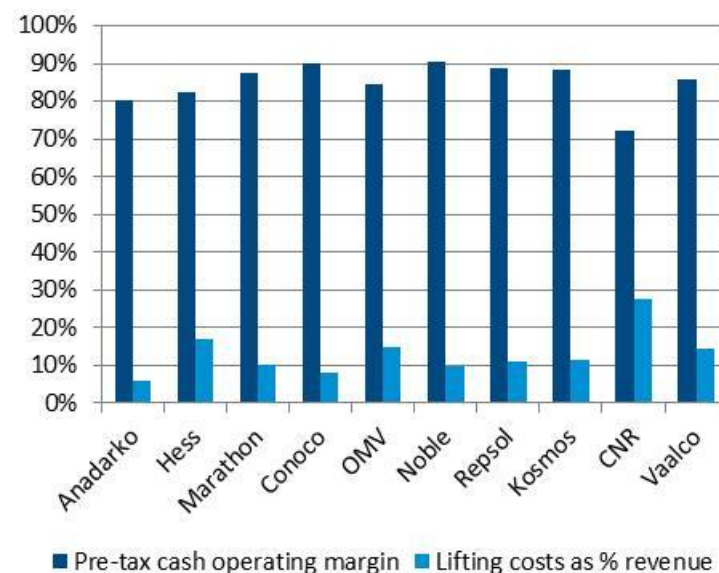


Independents' African Production & Operating Margins

2013 African Petroleum Production

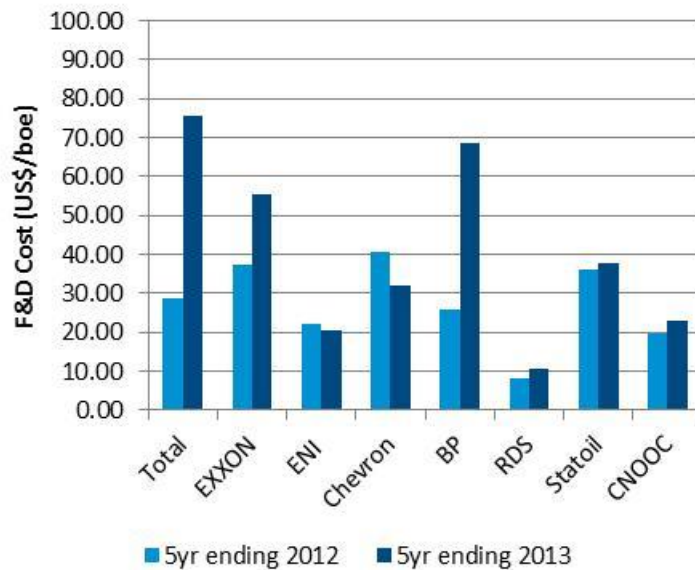


2013 African Operating Margins & Lifting Costs

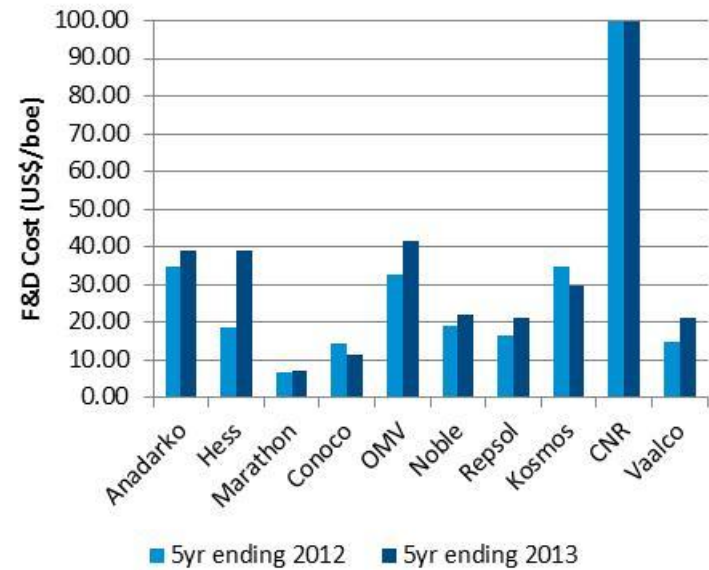


African Finding and Development Costs

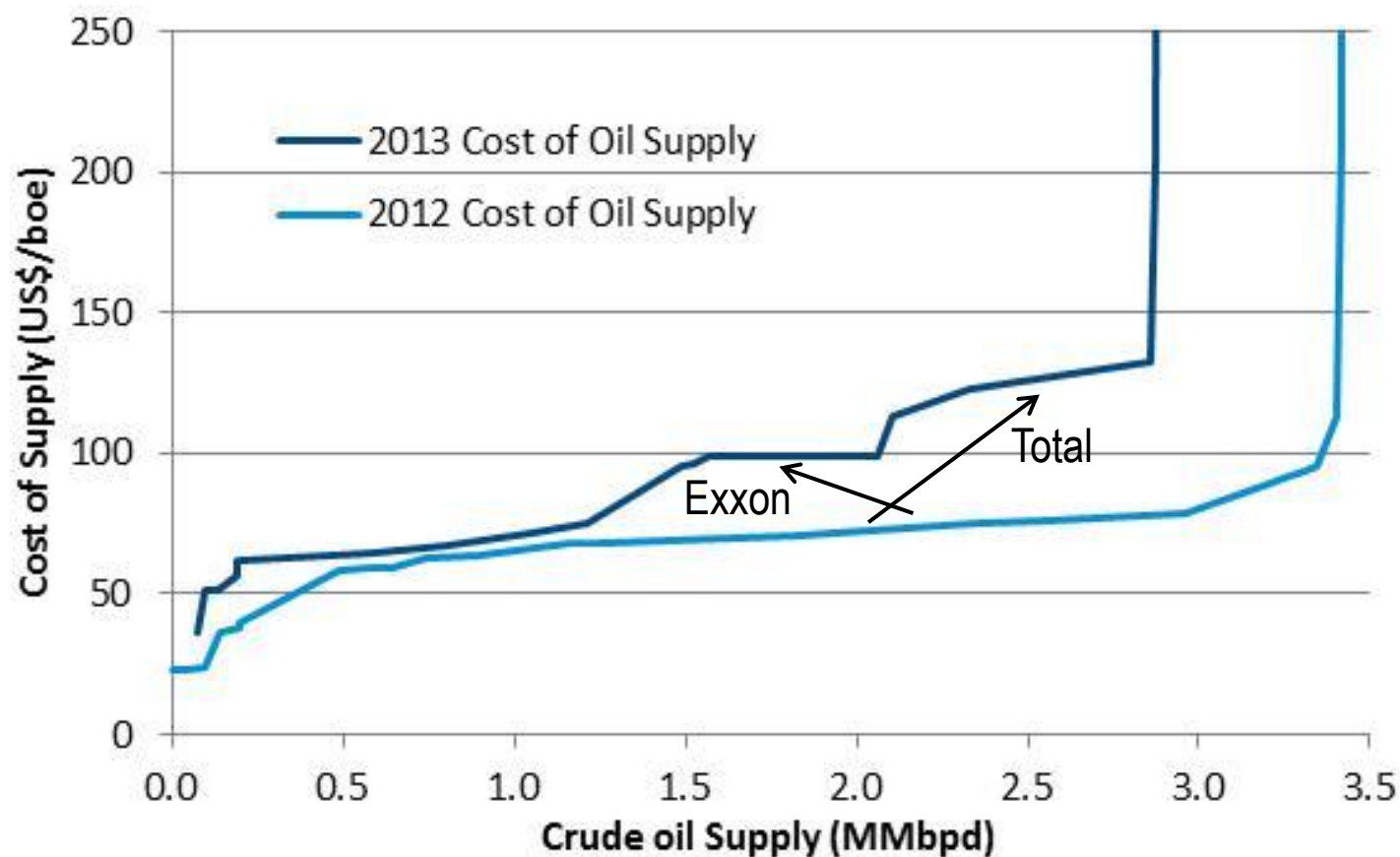
Majors' African
5 Year Av. Finding & Development Costs



Mid-Caps' African
5 Year Av. Finding & Development Costs

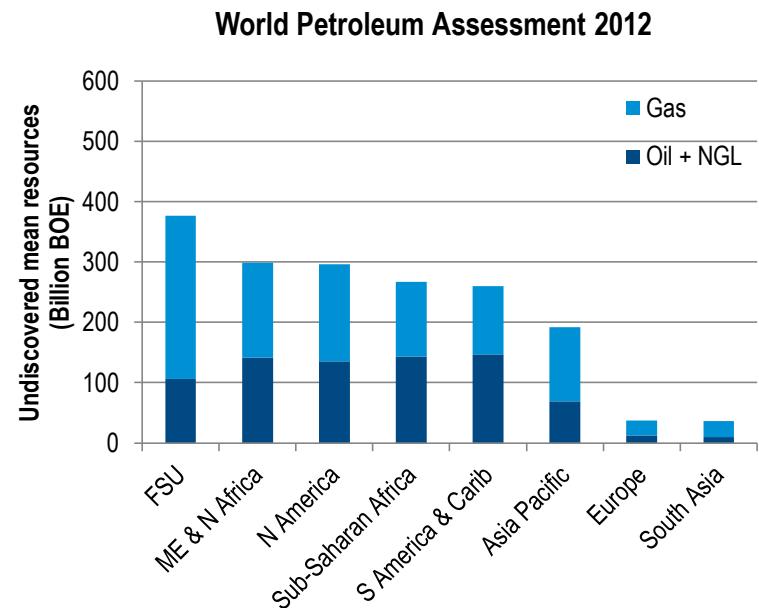
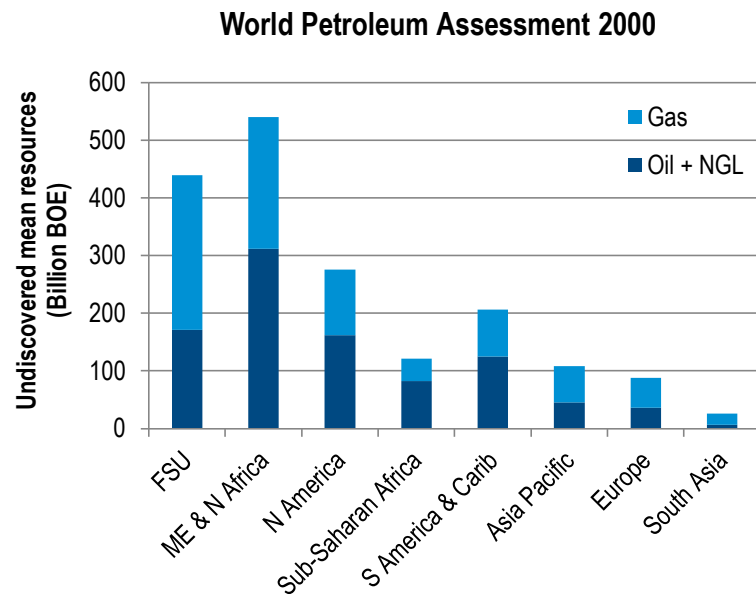


2012/ 2013 African Cost of Crude Oil Supply



Sub-Sahara Africa Still Has Good Conventional Exploration Potential

- In 2012, the USGS increased its est. of Sub-Saharan undiscovered resources by 2.2x from their 2000 level
- New technology (WATS 3D seismic/ FTG surveys) has de-risked certain play types
- “Surface issues” have caused the region to be less explored than geologic potential warrants

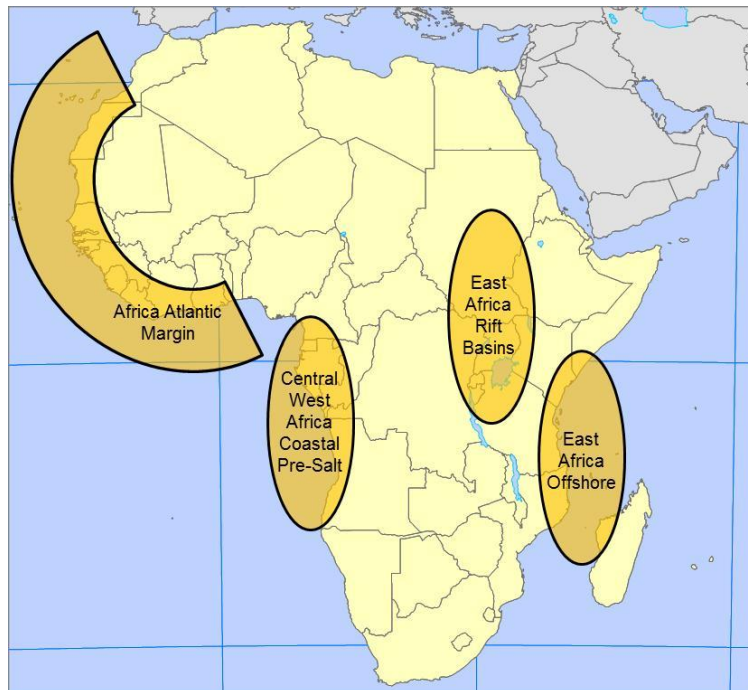


Source: USGS

Sub-Saharan Africa Exploration Play Types

Sub-Saharan Exploration Selected Companies Exposure to Five Successful Play Types

Sub-Saharan Successful Play Types

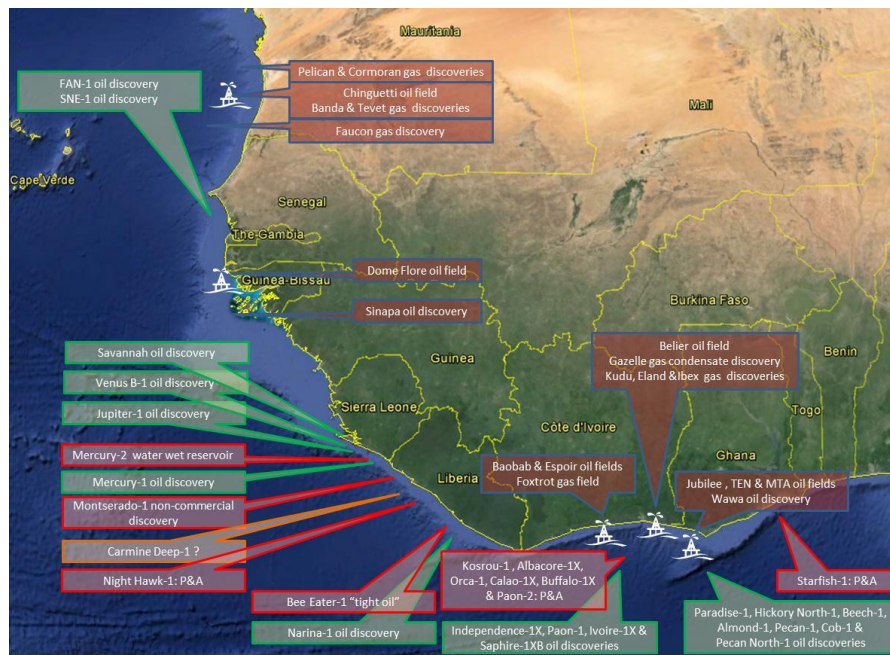


- West African Transform Margin and Mid-Atlantic Margin Late Cretaceous Turbidite Fan Systems
 - Anadarko
 - Cairn
 - Kosmos
 - Tullow
- West African Mid-Atlantic Margin Shelf Clastics
 - Cairn
 - Kosmos
- West African Pre-Salt Basins
 - Cobalt
 - Statoil
 - Total
- East African Rift Basins
 - Africa Oil Corp.
 - Tullow
- East Africa Offshore
 - Anadarko
 - BG
 - ENI
 - Ophir

West African Transform Margin & Mid-Atlantic Margin

West African Transform Margin and Mid-Atlantic Margin: Late Cretaceous Turbidite Fan Systems

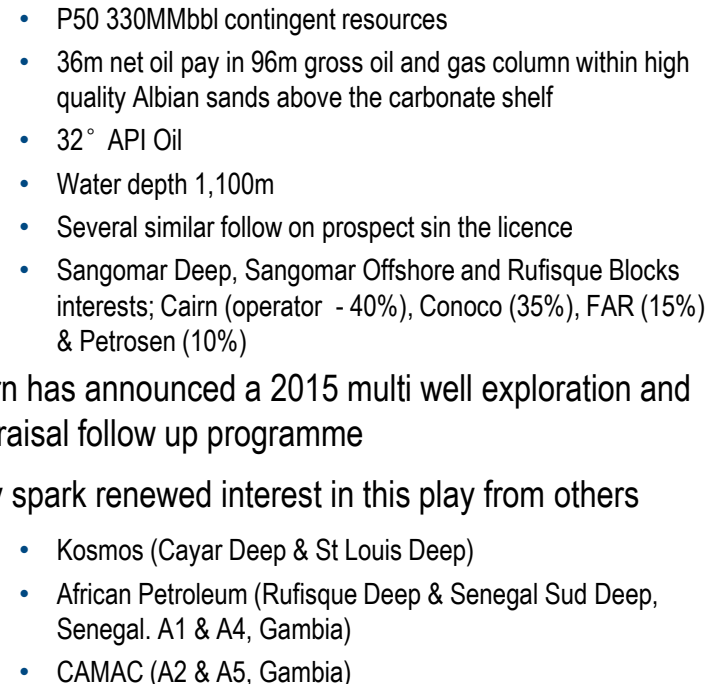
Atlantic Margin Oil & Gas Fields and Exploration Wells



- Jubilee was the play opener
 - Discovered 2007. P50 700MMbbl oil reserves
 - TEN Project (P50 360MMboe reserves) has been sanctioned
 - Hess also made several oil discoveries in the Deepwater Tano Basin, Ghana, over the last couple of years
- However, since 2007 there have been many dry holes and non-commercial oil discoveries by companies chasing this play offshore Africa and S. America
 - Wells that penetrated thick sands, only had oil shows (breached traps)
 - Wells that found oil reservoirs, did so only in thinly bedded sands with low net/gross ratios
- Jubilee trap not well understood by industry as a whole?
 - Jubilee is a combination structural-stratigraphic trap
 - Up-dip faults provide a vital part of the trap
 - Faults are syn-depositional, which led to thick sand reservoir
 - Some recent wells chasing this play just had stratigraphic traps – more prone to being breached, and not providing thick sand reservoirs

West African Transform Margin and Mid-Atlantic Margin: Shelf Clastics

- SNE-1 commercial oil discovery in 2014



Central West African Pre-Salt

Central West Africa: Angola & Gabon Pre-salt Discoveries/ Prospects

Gabonese & Angolan Licences



■ Angola

- Licences dominated by Sonangol and large integrated players. This play has not lived up to expectations for many
 - Petrobras – Ogonga (Block 26) dry hole
 - Maersk – Azul (Block 23) discovery but is it commercial?
 - ENI – Ombovo (Block 35) dry hole
 - Statoil – Dilolo (Block 39) and Jacare (Block 38) dry holes
 - Repsol –Locosso (Block 22) disc. but is it commercial?
 - Conoco – Kamoxi (Block 36) dry hole
 - Total – Umbundu (Block 40) currently drilling
- The main exception is Cobalt Intl which has had a string of pre-salt discoveries in Blocks 20 & 21
 - Orca – 400 to 700MMbbl of light oil
 - Cameia – 300 to 500MMbbl oil, first oil 2017?
 - Bicuar – 150 to 300MMbbl oil
 - Lontra – 700 to 1,100MMboe (55-65% gas)
 - Mavinga – <100MMbbl oil. No sustained flow rate test
 - But recent Loengo (non-commercial) and Mupa dry hole

■ Congo

- ENI shallow water discoveries: 3,500MMboe of HIP
 - Litchendjily gas condensate discovery.
 - Nene Marine oil discovery.

■ Gabon

- ENI: Nyonie Deep gas and condensate discovery
- Total –Diaman-1B gas & condensate discovery
- Ophir – 2 dry holes (Okala and Paddouck Deep)
- Vaalco & Harvest have some small shallow-water disc's.

East Africa's Rift Basins

East Africa Onshore: Tertiary Rift Basins

Tullow's Ugandan, Kenyan & Ethiopian Licenses

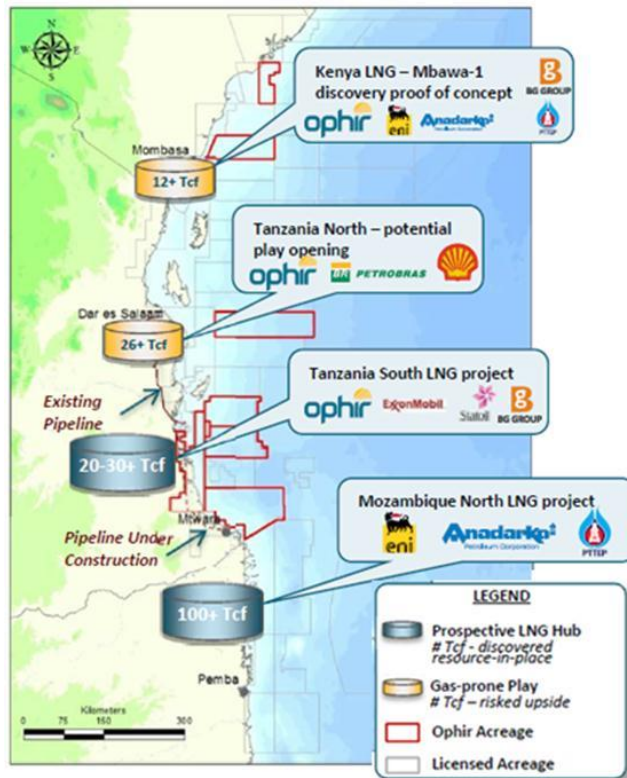


- Tullow has led the way in Uganda
 - First discovery 2007
 - In 2012, it farmed down 2/3 of interest to Total and CNOOC for US\$2.9bn
 - Estimates cur. gross recoverable resources of 1.7Bbbl oil
 - Project sanction due in 2016, first oil 2019
- Tullow, along with main partner Africa Oil Corp, is again leading the way in Kenya and Ethiopia
 - 7 exploration wells have already discovered >600MMbbl in the South Lokichar Basin
 - Project sanction due in 2015/ 2016, first oil 2018/ 2019
 - Although the South Omo, Chew Bahir, North Kerio and Central Kerio Basins have all disappointed with just petroleum shows
 - Several more basins will be tested in the next few years (Turkana and Kerio Valley basins this year)
- East African rift basins extend south into Rwanda, Burundi, Tanzania, Malawi and Mozambique and west into the DRC and Zambia.

East Africa Offshore

East Africa Offshore: Tertiary and Cretaceous Fan and Channel Complexes

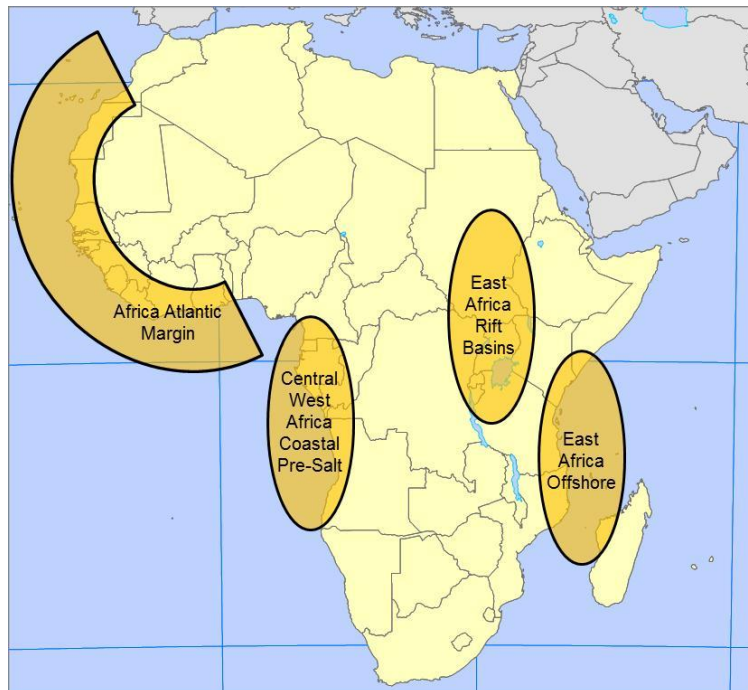
East African Potential LNG Hubs



- Anadarko has led the way in Mozambique
 - Windjammer discovery in 2010 (Area 1)
 - Area 1 (Anadarko) and Area 4 (ENI) now have total recoverable gas resources of 60 -120Tcf
 - Anadarko sold 10% stake in Area 1 for US\$2.64bn in 2013
 - LNG facilities being planned for 50MM tonnes pa (10 trains of LNG!) First gas planned in 2018.
- ENI has had similar spectacular success (85Tcf of GIP) in Area 4, with some fields straddling the two licences
- BG/ Ophir and Exxon/ Statoil have made significant gas discoveries offshore Tanzania
 - Blocks 1, 3 & 4 have 17.1Tcf of 2C contingent gas resources
 - Further exploration planned in 2014 (Taachui, Kamba)
 - Block 2 has 17 -20Tcf of gas in place
- Kenya thought to be more oily than further south
 - BG's Sunbird prospect (L10A) found to have non-commercial oil and gas

Fewer Exploration Wells, More Focus On Shallow Water/ Onshore

Sub-Saharan Successful Play Types



Focus of Near Term Exploration

- East African Rift Basins (onshore)
- West African Shelf Clastics (shallower water)
- West African Pre-Salt Basins (shallower water)
- East Africa Offshore (shallower water)
- West African Transform Margin and Mid-Atlantic Margin Late Cretaceous Turbidite Fan Systems









































Consolidation will pick up

- Lower profits and cash flow will renew management's focus on cost cutting and the benefits of consolidation
 - Large-cap/ Mid-cap merger synergies
 - Spread of “Best Practice” across merged firm (procurement savings)
 - Fixed cost General & Administration savings per boe
 - More effective prioritisation/ high grading of licences
 - Value destruction from too many small junior oil and gas companies
 - General & Administration cost to investors is huge relative to firm value
 - Inability to prioritise/ high grade a large portfolio of licences
- And as usual most.....
 - Acquiror management will win all the plaudits in the press
 - Acquiree shareholders will make the best short run returns














































Criteria for picking winners and losers

- **Large-cap/ Mid-cap Production Companies**
 - Low financial leverage
 - Low operating cost / high margin production
 - Good licence terms relative to geologic/ surface risks
 - Following drill bit success. In particular companies about to perform significant appraisal of recent discoveries
 - Committed to Africa: Relatively high proportion of upstream assets in Africa
- **Junior/ Private Exploration Companies**
 - Cash rich or backed by Private Equity/ Sovereign Wealth Funds
 - Partnered with leading larger companies. Carried interests in work programmes
 - Good licence terms relative to geologic/ surface risks
 - Following drill bit success. In particular companies about to perform significant appraisal of recent discoveries.
 - Portfolio of licences, including those covering shallow water and onshore



















































Winners and Losers Amongst the Majors

Company	<i>ENI</i>	<i>Exxon</i>	<i>Statoil</i>	<i>Chevron</i>	<i>RDS</i>	<i>Total</i>	<i>BP</i>	<i>CNOOC</i>
Financial Leverage								
Operating Leverage								
Licence Terms vs. Risks								
Appraisal of Recent Disc's								
Committed to Africa								

Winners and Losers Amongst the Independent African Producers

Company	<i>Conoco</i>	<i>Anadarko</i>	<i>Hess</i>	<i>Marathon</i>	<i>Repsol</i>	<i>OMV</i>	<i>Tullow</i>	<i>Noble</i>	<i>Afren</i>
Financial Leverage									
Operating Leverage									
Licence Terms vs. Risks									
Appraisal of Recent Disc's									
Committed to Africa									

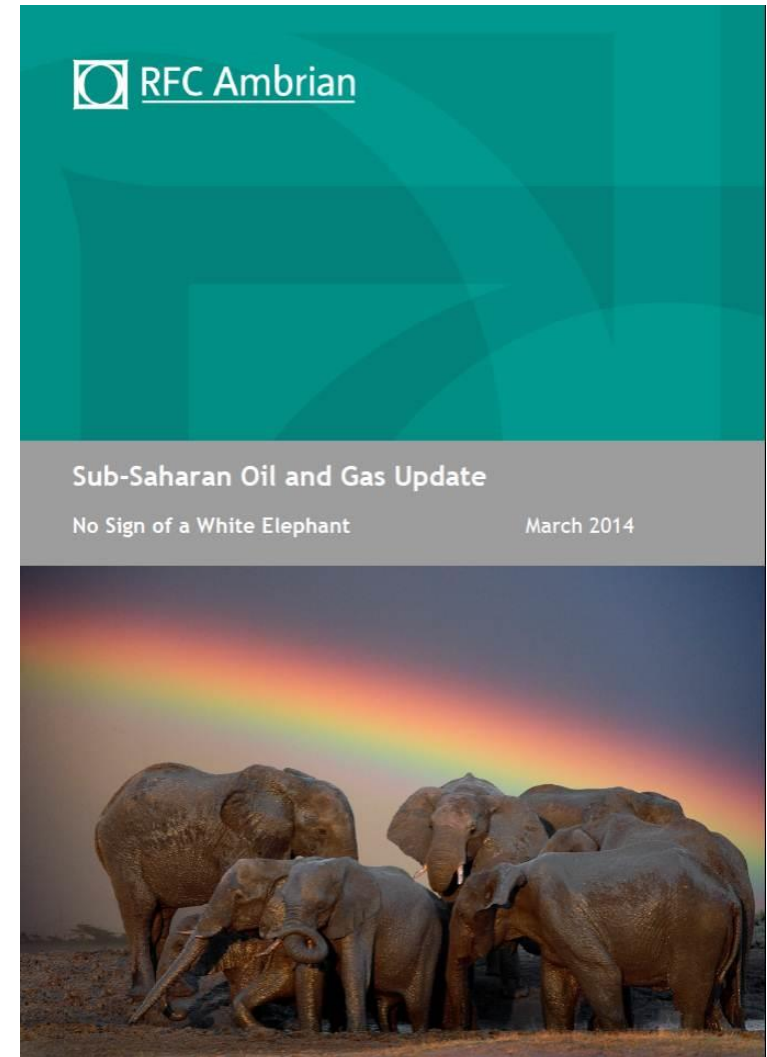
Winners and Losers Amongst Selected Exploration Companies

Company	<i>New Age</i>	<i>Cairn</i>	<i>FAR Ltd</i>	<i>Chariot</i>	<i>Impact</i>	<i>Lekoil</i>	<i>Pancon</i>	<i>Petromaroc</i>	<i>Red Emper.</i>	<i>Simba</i>
Cash Rich / Well Backed										
Good Partners/ Carried Interest										
Licence Terms vs. Risks										
Appraisal of Recent Disc's										
Portfolio of Licences										

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