Nigeria briefing

Increasing independent presence

Nigerian E&P introduction

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Nigeria is Africa's major oil producing country, with 2013 volumes of 2.3mmb/d. By far the largest producer in Africa and with the second largest reserves, Nigeria has the potential to grow much further if exploration and development can be encouraged. Civil unrest and thefts have hit investment in the country over the last decade and despite incidents declining, the country still has problems on these fronts, key reasons given for the divestment programmes announced by many of the majors.

Nigeria's long-awaited Petroleum Industry Bill (PIB) has been delayed since its initial introduction in 2008. We think passing of the bill is unlikely in 2014, given the electoral pressure in 2015 and the widespread criticisms across many of the stakeholders. The PIB is meant to be a consolidation and improvement of many of the existing multiple rules and regulations, encouraging investment while increasing transparency and community involvement. Instead it has often been the focus of wider arguments over taxes, state powers and political disagreements. We hope that the law can be clarified and passed as the uncertainty is almost certainly reducing investment in the sector.

In this report, we hope to introduce the Nigeria petroleum sector to investors; we discuss the geology and politics and provide brief summaries of the Nigerian sector, from Afren down to micro-caps.

Many of the companies' shares have performed very well over the last 12 months, with a big oil find by **Afren** and **Lekoil** buoying exploration sentiment, while a successful IPO for **Seplat** in 2014 has brought increasing focus on the existing development stories of **Mart**, **Eland** and **CAMAC**. The very experienced management team of **Oryx** has assets across Africa and elsewhere. In addition to the acquisition of Nigerian-focused **Heritage Oil**, private **Seven Energy** has drawn private equity capital, showing the rounded capital that Nigerian companies are able to attract.

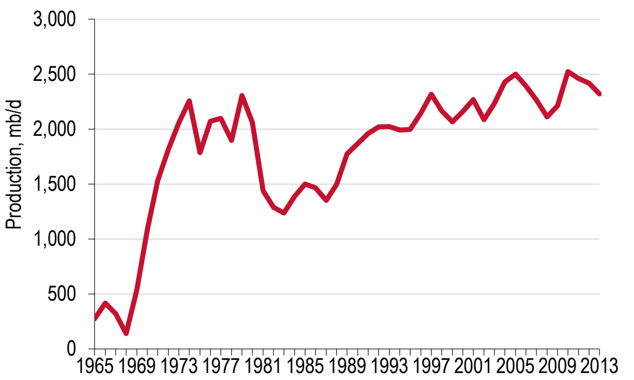
Elsewhere, smaller companies in the country are represented by **SacOil** and **Sirius Petroleum**.

Nigeria represents an ever growing investment opportunity in our view. With this in mind, and in conjunction with **Instinctif Partners,** we look forward to welcoming **Century Group, Sea Trucks Group, Seven Energy, Seplat and Control Risks Group to a Nigeria-focused investor day on Tuesday 8 July at our London office.**

Nigeria – Production and reserves

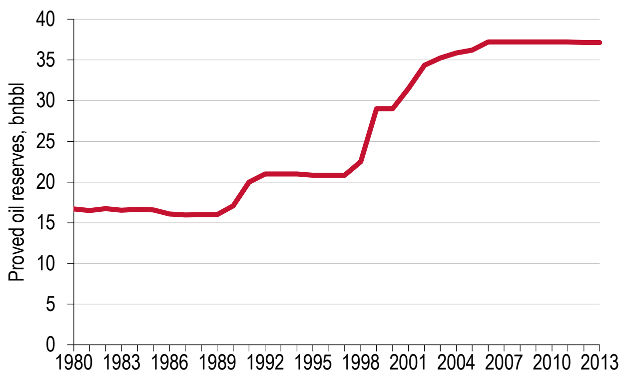
Nigeria is the largest oil producer in Africa and second only to Libya on reserves. The country holds the 11th largest proven oil reserves in the world at over 37bnbbl, according to the BP Statistical Review (2013 data). Production peaked at 2.5mmb/d in 2005, and declined to around 2.1mmb/d before recovering to a level of around 2.3mmbd/d in 2013. Oil production has been hampered for a number of years by security issues and supply disruptions, which have led to major international players selling their interests in onshore oil projects. Well publicised problems such as corruption, theft and civil unrest coupled with regulatory uncertainty have dissuaded companies from exploring, leading to plateauing proven oil reserves.

Exhibit 1: Nigerian oil production



Source: BP Statistical Review

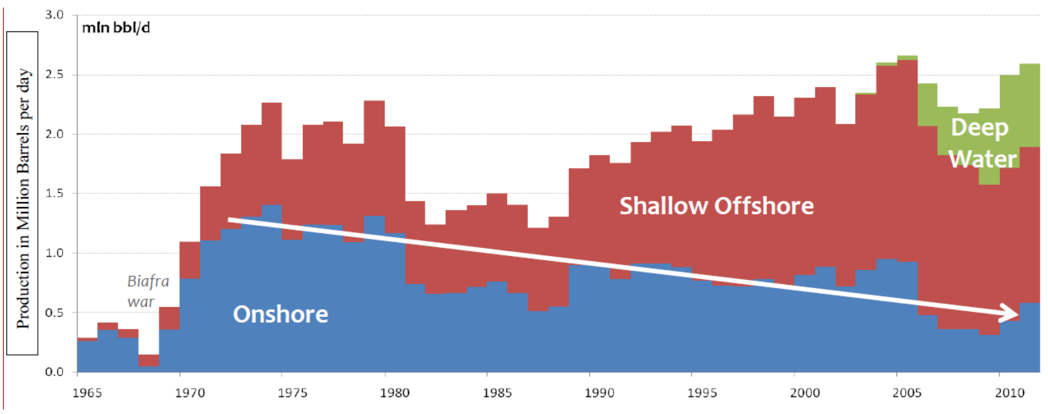
Exhibit 2: Nigerian oil reserves over time



Source: BP Statistical Review

The move away from onshore projects by the majors has resulted in a decreasing contribution to total oil production from onshore with the deficit being made up from greater production from shallow offshore fields and, since 2003, an increasing contribution from deepwater projects. Although several planned oil and gas projects are scheduled to come online within the next 10 years, the start-up dates for many of the deepwater oil projects have been pushed back, which has mainly been attributed to regulatory uncertainty. However, the decision by the majors to focus on the offshore acreage has also provided an opportunity for independent and indigenous companies to move into the onshore market.

Exhibit 3: Oil production by terrain



Source: DPR Nigeria

At 5.1tcf, Nigeria is also the largest holder of proven natural gas reserves in Africa and the ninth largest holder in the world. Despite this, a lack of infrastructure has limited the country's ability to monetise gas and this has resulted in Nigeria becoming the second largest gas flaring nation in the world after Russia. According to the World Bank, Nigeria flared 14.6bcm in 2011, which equates to over 20% of gas production. This is roughly equivalent to twice the gas demand of Italy in 2013 and accounts for 10% of the total amount flared globally. This represents a major opportunity.

Exhibit 4: Estimated flaring volume from satellite data

Volumes in bcm	2007	2008	2009	2010	2011	Change from 2010 to 2011
Russia	52.3	42	46.6	35.6	37.4	1.8
Nigeria	16.3	15.5	14.9	15	14.6	-0.3
Iran	10.7	10.8	10.9	11.3	11.4	0
Iraq	6.7	7.1	8.1	9	9.4	0.3
US	2.2	2.4	3.3	4.6	7.1	2.5

Source: World Bank

Nigerian oil thefts are concentrated on inland, onshore sources, with many producers losing very significant percentages of their production. Shell has talked about 8% losses while Mart Resources has quoted losses at well above 20% for its oil.

Nigerian geology

Hydrocarbon production in Nigeria predominantly comes from the Niger Delta, a geological province situated in West Africa in the Gulf of Guinea. The delta contains the Tertiary Niger Delta Petroleum System, which is one of the world's largest such Tertiary delta systems, covering an area of 300,000km^2 and with a sediment thickness of over 10km in places. The basin formed at the site of a triple rift junction following the break-up of the African and South American plates during the Late Jurassic and continuing into the Cretaceous period.

Exhibit 5: Extent of Nigeria oil/gas discoveries

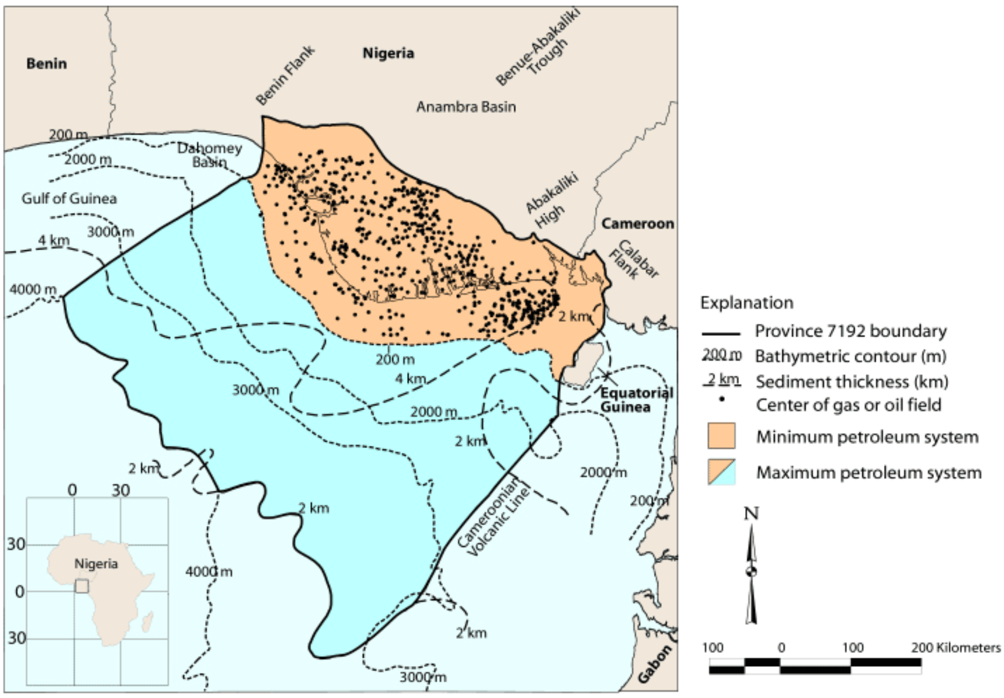
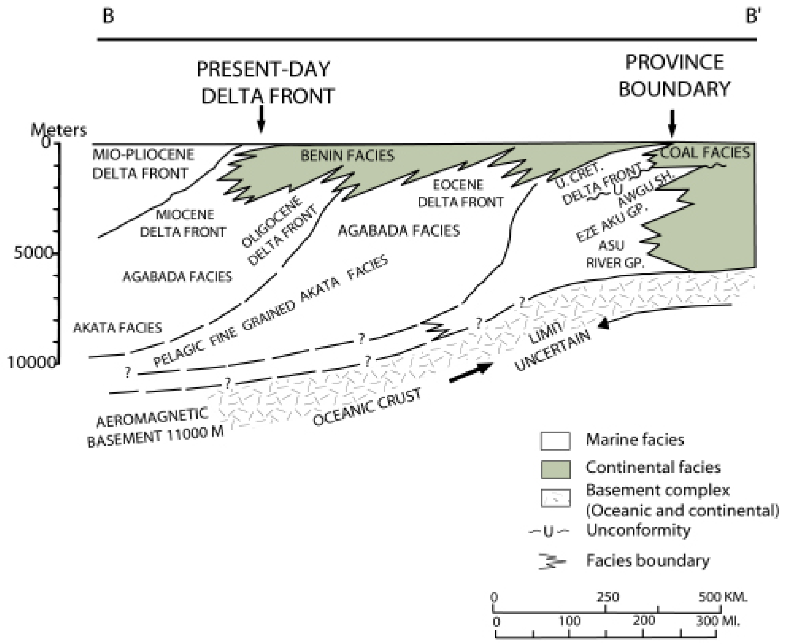


Figure 1 Index map of Nigeria and Cameroon. Map of the Niger Delta showing Province outline (maximum petroleum system); bounding structural features; minimum petroleum system as defined by oil and gas field center points (data from Petroconsultants, 1996a); 200, 2000, 3000, and 4000 m bathymetric contours; and 2 and 4 km sediment thickness.

Source: USGS

The delta has been fed by the Niger, Benue and Cross rivers and is made up of three major lithostratigraphic units: the Akata, Agabada and Benin formations. Deposition of these three formations occurred in five sedimentation cycles known as depobelts. Each depobelt is a discrete unit created from the interplay of subsidence and supply rates during deposition. These sands exhibit a high degree of channelling and form the reservoir zones of the Akata-Agabada petroleum system.

Exhibit 6: Schematic Niger Delta cross section



Source: USGS

The Akata Formation is a continuous marine shale unit underlying the entire basin and is the assumed source rock. Most wells have not drilled the formation, however it is estimated to be up to 7,000m thick and is typically overpressured. The overlying Agabada Formation is a sequence of alternating sandstones and shales. These were deposited in equal proportions in the Lower Agbada, however the upper portion is mostly sand with minor shale interbeds. Oil and gas production in the Niger Delta is concentrated in the Agabada sandstone reservoirs. The primary seal rock is the interbedded shale within the formation. Reservoirs are often stacked and range in thickness from less than 15m to greater than 50m in around 10% of reservoirs. Edwards and Santogrossi (1990) describe the primary Niger Delta reservoirs as having a porosity of 40% and permeability of 2 Darcys. These high porosities and permeabilities contribute to the flow potential of the reservoirs, but also mean that the sands are unconsolidated and sand control techniques are often necessary. The lateral variation in reservoir thickness is controlled by growth faults, and most of the larger accumulations occur in rollover anticlines in the hanging walls of these faults where they may be trapped in dip or fault closures. The properties of the oil produced from the Niger Delta are highly variable, with gravities ranging between 16° and 50° API, although 56% of oils have an API gravity between 30° and 40°, and only 15% of oils have a gravity less than 25° API. Recovery rates are therefore high relative to international comparisons. Exploration has a high success rate, with Eland Oil estimating a 75-90% CoS.

The Petroleum Industry Bill (PIB)

Objectives of the PIB

The PIB is intended to be an all-encompassing solution to the numerous existing rules and regulations covering the petroleum industry in Nigeria. This includes establishing a new legal framework (including fiscal tax take on oil developments), reforming the national oil company and creating a communities fund, which aims to reduce unrest in the population and give the population some stake in oil developments. The government hopes a clear format will encourage investment in oil exploration and development while giving Nigerians fair compensation.

The PIB has been a long-awaited clarification and update to the numerous laws and regulations currently in force. The bill, initially introduced to the National Assembly in 2008, has been in committee or discussion since then. While all sides recognise the need to pass the bill, we are not optimistic that it will be passed this year; unease with many parts of the bill, the falling approval ratings of the president, displeasure with the petroleum minister and the looming 2015 electoral campaign all mean that it is likely to be postponed yet again.

Objections

Under the current PIB draft, the personal powers of the petroleum minister would be kept and may be enhanced. While ministers have always held some discretionary power, there is concern that decisions may not be as transparent as required. Given Nigeria’s reputation for corruption, the transparency of the process is key, while the case for discretionary powers (allowing expeditious decision making for example) is not necessarily fully balanced by the potential for abuse (or perception of abuse). Reports suggest that the president would be able to award blocks without competitive bidding.

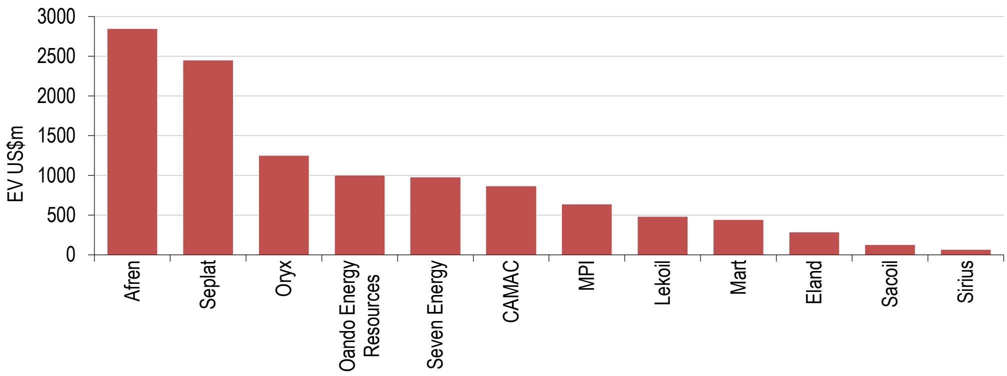
Corporates, especially those represented by the Oil Producers Trade Section (OPTS) such as Shell, Chevron, Total and ENI, have repeated their opposition to the terms of the PIB, maintaining that higher fiscal take will result in lower investment and ultimately lower revenues for the government. The head of Exxon’s Nigeria unit has stated that production could fall by 25% if the PIB is implemented. The PIB draft envisions the government take from oil production to rise from 61% to around 73% (according to the petroleum minister), while Exxon said that the take may be 96%. Gas take may increase from 30% to 80%. Companies are concerned about the stature of existing contracts.

The third objection is over the Petroleum Host Communities Fund (PHCF), which is to address development of communities within oil producing areas. It is not clear at this stage how this 10% tax will be met by oil producing states that already receive around 13%, nor how such funds will be administered.

Nigerian companies

Many Nigerian companies are locally focused, with the majority listed below having interests in only one or two assets. With the expected divestment of assets by supermajors however, we expect many of these companies to expand their portfolios over time.

Exhibit 7: Nigerian companies

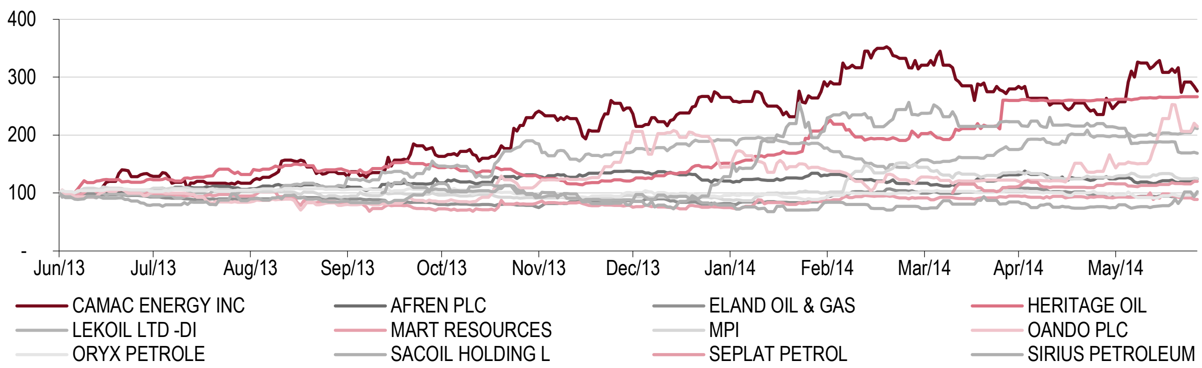


Source: Bloomberg, Edison Investment Research. Note: Seven Energy is private (market value implied by recent equity deal, does not include cash).

Bespoke indices: Nigeria special

We have generated a set of over 70 bespoke indices of oil companies listed across the UK, US, Canadian and Australian exchanges. Each index is focused on a particular geography or theme, and includes only companies that we believe have significant exposure to that theme (as a percentage of value). We then compare these to our Global Universe, which attempts to replicate oil stocks as a whole (it includes c 200 IOCs, services, E&Ps and refining companies). The indices are rebased for the last 12 months and are market-cap weighted. In this Nigeria special issue, we only examine the performance of the Nigerian E&P companies against world peers, but we can supply these indices on request.

Exhibit 8: Performance of exploration and production companies operating in Nigeria



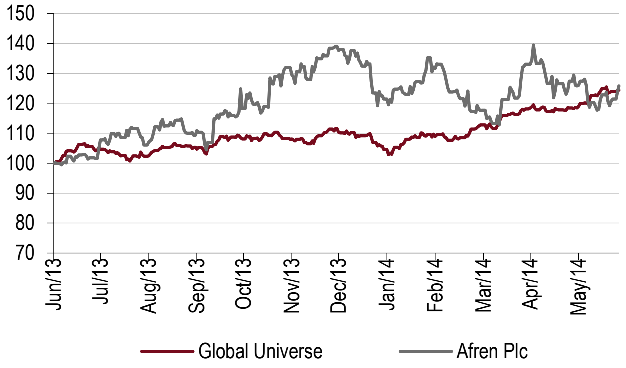
Source: Edison Investment Research, Bloomberg. Note: Priced at 2 July 2014.

Company profiles

Afren

Afren is one of the largest operators in Nigeria, holding interests in seven blocks. In 2013, Afren generated revenues of $1.6bn from production of 47.1mboe/d. It also holds acreage in Congo, Ethiopia, Ghana, Kenya, Kurdistan, Madagascar, Seychelles, South Africa and Tanzania.

Exhibit 9: Afren vs Global Universe, indexed 12 mths

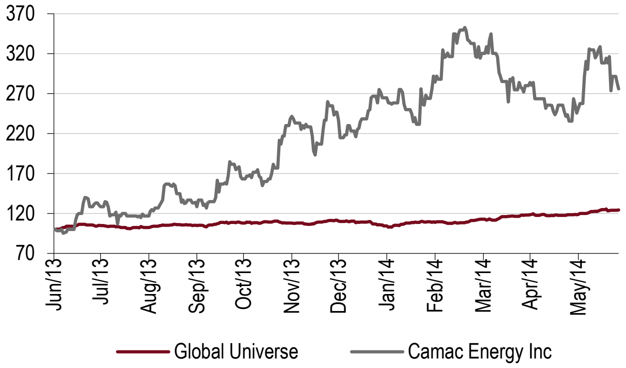


Source: Edison Investment Research, Bloomberg. Note: Priced at 2 July 2014.

CAMAC Energy

CAMAC Energy is an independent oil and gas exploration and production company with assets in Gambia, Ghana, Kenya and Nigeria. The company expects Nigerian production to be 14mb/d by end-2014 and 25mb/d by end 2015 from its 100% WI in OML120 and OML121 offshore. To facilitate this, the company is aiming to spend around $190m in 2014. The Oyo field is believed to hold 9.9mmbbl, 18.3mmbbl 2P and 35.1mmbbl (1P,2P,3P respectively).

Exhibit 10: CAMAC vs Global Universe, indexed 12 mths

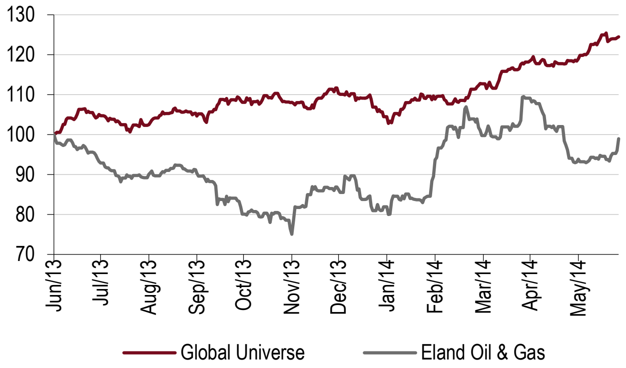


Source: Edison Investment Research, Bloomberg. Note: Priced at 2 July 2014.

Eland Oil & Gas

Eland Oil & Gas is an oil and gas exploration and production company with a focus on developments within Nigeria and other locations in West Africa. It holds a 45% interest in the Elcrest joint venture, which itself holds a 45% interest in OML40 onshore. OML40 holds an estimated 81.8mmbls of 2P reserves and Eland expect to have year-end gross production of 7mb/d.

Exhibit 11: Eland vs Global Universe, indexed 12 mths

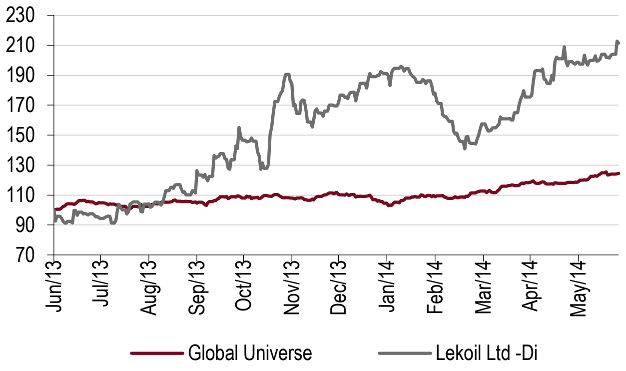


Source: Edison Investment Research, Bloomberg. Note: Priced at 2 July 2014.

Lekoil

Lekoil explores and develops properties in Nigeria and offshore Namibia. The company owns a 30% interest in OPL 310, which holds net contingent resources of 232mmboe (P50). It is also acquiring a 40% stake in the Otakikpo field, which provides it with 14mmbbl of 2C.

Exhibit 12: Lekoil vs Global Universe, indexed 12 mths

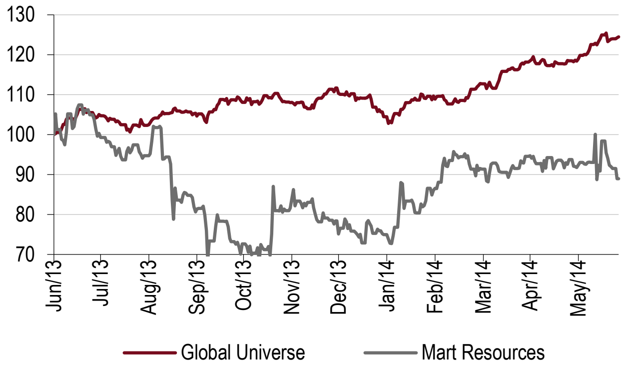


Source: Edison Investment Research, Bloomberg. Note: Priced at 2 July 2014.

Mart Resources

Mart Resources explores for oil and natural gas, with assets in Alberta and Nigeria. Through a risk-sharing agreement, and in return for funding development costs, Mart holds economic interests in the production from the Umusadege field. The company gains 50-82.5% of its revenues from the field depending on the state of cost recovery. The company does not directly own an interest in OML56, which contains Umusadege. Umusadege net production was around 7mb/d in Q114.

Exhibit 13: Mart vs Global Universe, indexed 12 mths



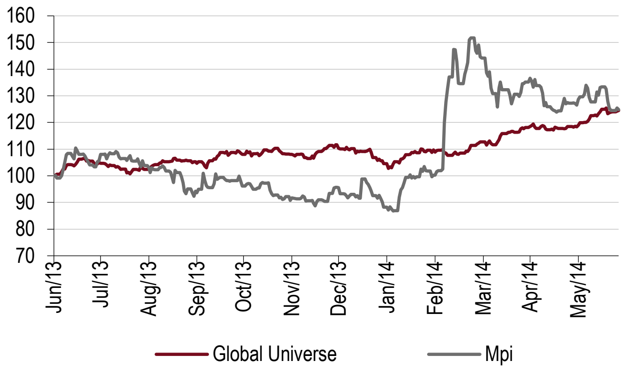
Source: Edison Investment Research, Bloomberg. Note: Priced at 2 July 2014.

MPI

MPI is an oil and gas exploration company, focused on assets in Nigeria, Myanmar and Canada. MPI owns 21.76% of Seplat and through that it owns interests in a wide range of Nigerian assets. MPI had €196m of net income in 2013 and held cash of €226m on 31 December.

Through its ownership of Seplat, the company owns 14% of OML 4, 38 and 41, and 12% of OML56. Based on Seplat reserves, MPI holds 48mmboe of 2P reserves with 17mmboe of 2C reserves.

Exhibit 14: MPI vs Global Universe, indexed 12 mths



Source: Edison Investment Research, Bloomberg. Note: Priced at 2 July 2014.

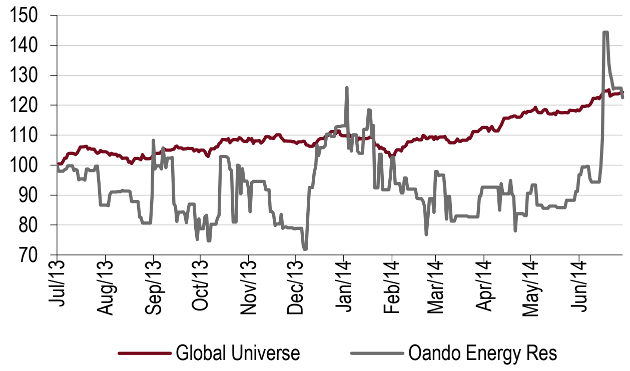
Oando Energy Resources

Oando Energy Resources owns interests in nine licences in Nigeria, EEZ and Zambia. The company owns a 15% interest in OML125 (offshore) and OML134 with a 45% interest in OML 56 (onshore). Additionally, it holds 30% of OML90, 5-12% of OML122 and 30% of OPL321/323.

The company agreed to purchase a bundle of assets from Conoco. The remaining balance to pay is $1.2bn.

Net production in Q114 was 4.5mb/d from the company's interests in OML125 (offshore) and OML 56 (onshore).

Exhibit 15: OER vs Global Universe, indexed 12 mths

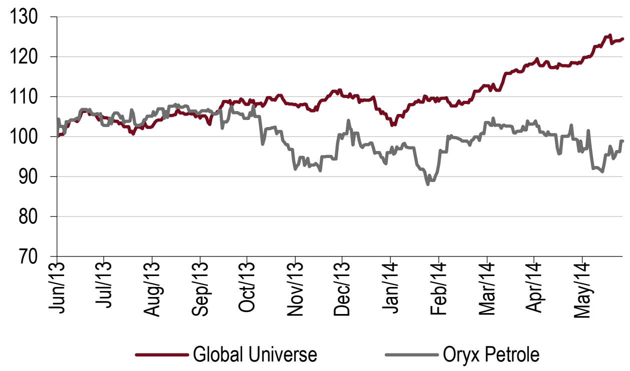


Source: Edison Investment Research, Bloomberg. Note: Priced at 2 July 2014.

Oryx

Oryx Petroleum is an international oil exploration company focused on Africa and the Middle East. It holds 65% interests in the Hawler and Wasit blocks in Kurdistan where it has net contingent resources of 213mmbbl. The company also holds interests in two blocks in the Republic of Congo. Oryx holds 80% in AGC Shallow in Senegal/Guinea Bissau. Finally, Oryx has a 38.67% interest in OML141, a shallow water block with a possible appraisal well in 2014.

Exhibit 16: Oryx vs Global Universe, indexed 12 mths

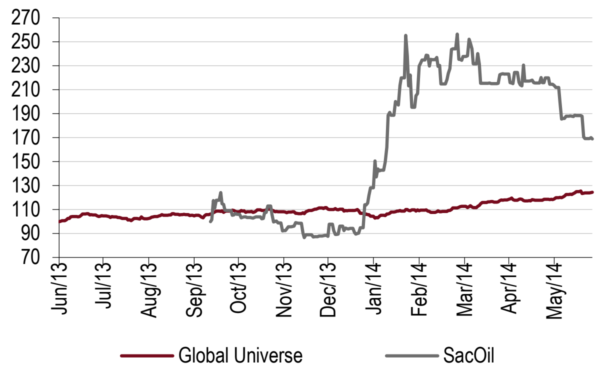


Source: Edison Investment Research, Bloomberg. Note: Priced at 2 July 2014.

SacOil

SacOil holds 20% net interests in OPL 233 and OPL 281 in Nigeria, which hold gross contingent resources of 118mmbbl. The company also holds a 12.5% interest in Block III in the DRC. With partner Total, the DRC block is currently undergoing early evaluation work. The company also holds some acreage in nascent Malawi and Botswana.

Exhibit 17: SacOil vs Global Universe, indexed 12 mths

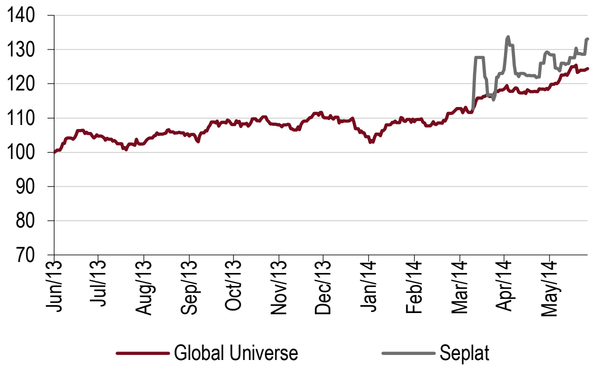


Source: Edison Investment Research, Bloomberg. Note: Priced at 2 July 2014.

Seplat Petroleum

Seplat Petroleum is an independent oil and gas exploration and production company incorporated and operating in Nigeria with a strategic focus on Nigeria. The company has interests in a number of OMLs including a 45% stake in OML4, 38 and 14. The company had net production in 2013 of 30.6mboe/d. It is targeting 2014 exit oil gross production of 72mb/d with larger, long-term potential given its net 197mmboe 2P reserves (implying 16 years' 2P reserve life on 2014 exit production). It had a successful IPO in 2014, raising $535m.

Exhibit 18: Seplat vs Global Universe, indexed 12 mths



Source: Edison Investment Research, Bloomberg. Note: Priced at 2 July 2014.

Seven Energy (private)

Seven Energy has interests in field upstream assets in Nigeria, of which three are in production. It holds a 40% interest in the Uquo field, 51% in Stubb Creek and 55% of OMLs 4, 38 and 41. It also has interest in Matsugo and OPL 905. Together, 2P+2C total 354mmboe with gas making up 64%.

Exhibit 19: Seven

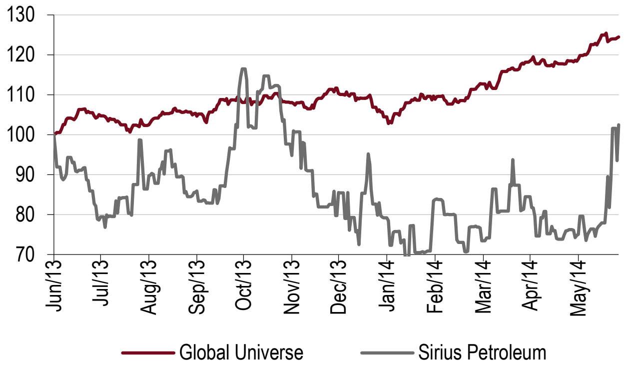
- Seven is private, but a recent equity financing valued 26% of the company for $255m, implying a gross value of $981m.

Source: Edison Investment Research, Bloomberg. Note: Priced at 2 July 2014.

Sirius Petroleum

Sirius Petroleum has entered into a services agreement for a proposed investment in the Ororo marginal oil field (OML 95). It will fund development in return for preferential cash flows and holds a 40% interest. It has an offtake agreement with Glencore. It continues to examine other opportunities in Nigeria. A CPR put Ororo contingent reserves at 10mmbbl (P50).

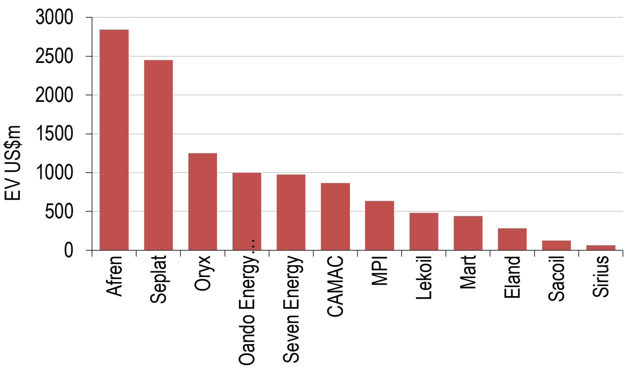
Exhibit 20: Sirius vs Global Universe, indexed 12 mths



Source: Edison Investment Research, Bloomberg. Note: Priced at 2 July 2014.

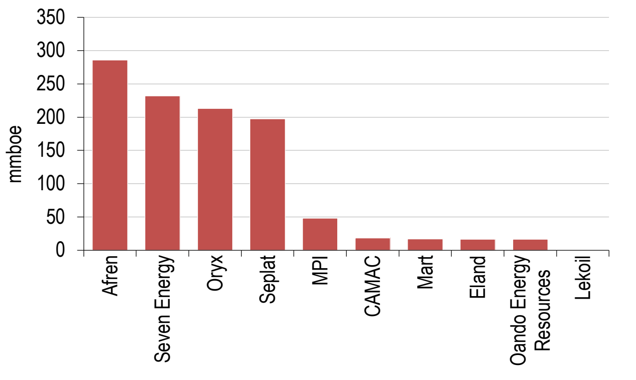
Nigerian comparisons

Exhibit 21: EV of Nigeria E&Ps



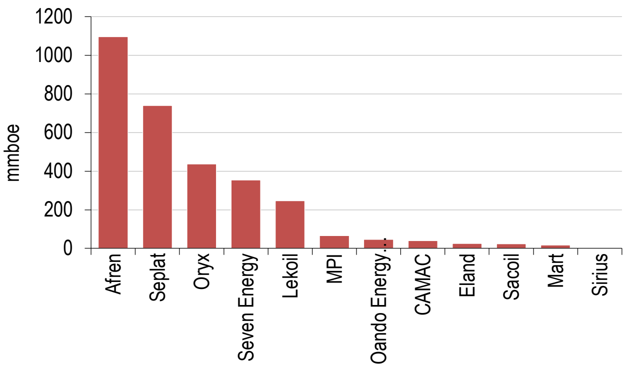
Source: Bloomberg, Edison Investment Research. Note: Seven Energy is private and EV is implied by recent equity investment.

Exhibit 22: 2P reserves of Nigerian E&Ps



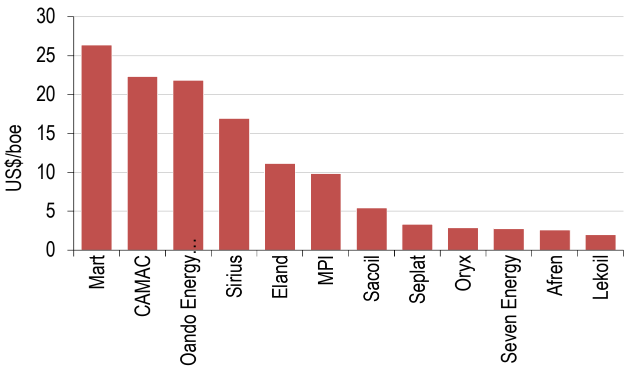
Source: Bloomberg, Edison Investment Research

Exhibit 23: 2P+2C reserves of Nigerian E&Ps



Source: Bloomberg, Edison Investment Research

Exhibit 24: EV/2P+2C reserves of Nigerian E&Ps



Source: Bloomberg, Edison Investment Research. Note: Seven Energy is private and EV is implied by recent equity investment.

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