

# Falklands oils

Kicking up a storm in the South Atlantic

Oil & gas sector

February 2012



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### Ian McLelland



Ian moved to Edison following a 20 year international career with BP where he worked in the refining and petrochemicals sectors in a range of technical and engineering management positions. Upon returning to BP's London headquarters he took up roles advising the group's executive committees on issues such as strategy development, financial planning and performance management. Ian is a qualified chemist and holds an MBA from the University of Edinburgh Business School.

### Peter Dupont



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Neil is a qualified accountant (PwC) with nine years' experience as an equities analyst at Goldman Sachs. As Goldman's building and materials analyst in London, he was ranked second by both Institutional Investor and Reuters. He left Goldman Sachs to help set up the specialist trading hedge fund, Tusker Capital. As well as being director of research, Neil still covers a number of stocks.

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Krisztina has over 15 years' experience in emerging markets. She started in Eastern European corporate finance, moved onto research and worked as an emerging market analyst for Natwest Markets and Deutsche Bank. During her seven years at Deutsche Bank Krisztina specialised in the oil and gas sector. In 2007 she joined E2 Research, an independent emerging market research house, where she worked for two and a half years before joining Edison as a member of the oil and gas team.

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Elaine has 14 years' experience in the oil industry, starting her career as a petroleum engineer in the North Sea with Texaco, where she worked on both exploration prospects and producing fields. She then spent eight years with Shell in Oman and the Netherlands, where her final position was senior production technologist in the Exploration Business Unit.

### Colin McEnery



Colin has joined Edison from BP, where he spent three years working across the oil trading, exploration and refining segments as part of BP's graduate scheme. Colin is a chartered accountant, is working towards the Investment Management Certificate and holds an economics degree from the University of Nottingham.

### Jackie Ashurst



Jackie works closely with Neil Shah (director of research) to ensure our research is of the highest quality. She has a wealth of experience in the City, having worked at Hoare Govett, James Capel and, more recently, Goldman Sachs, where she was head of the pan-European chemical team. She was the number one ranked analyst in her sector in both Institutional Investor and Reuters surveys.

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## Kicking up a storm in the South Atlantic

Northern Basin drilling in 2010 and 2011 bore fruit for Rockhopper, with its Sea Lion discovery looking set to be developed. In 2012, the focus shifts firmly to the Southern Basin explorers where success for FOGL or B&S will be a game changer for the region. Rockhopper and FOGL offer the most compelling upside for investors. The biggest winner, however, could be the Falklands itself, with a near \$180bn potential prize in royalties and tax on the horizon if 2012 drilling proves successful.

### High-impact 2012 exploration in the south

The drill bit is already turning in the first of four wells in the unexplored deepwater plays of the Southern Basin and the next six months will provide a wealth of newsflow from the region. With every prospect holding potential resources an order of magnitude greater than those in the Northern Basin, we see a clear opportunity for upside in the coming months for both Borders and Southern Petroleum (B&S) and Falklands Oil & Gas (FOGL).

### Progression of first development in the north

Rockhopper's discovery and appraisal of Sea Lion was the great success story of the Northern Basin drilling campaign. With robust economics and potential partners invited to the table we believe the field will be developed and expect value to be crystallised as the route to development is progressed.

### Tense political situation

The recent ramp up in rhetoric has reignited the debate over sovereignty of the Falklands, which we expect to intensify in the coming months as the 30th anniversary of the Falklands War approaches. Meanwhile, the potential prize from tax revenues could weigh heavily on relations if 2012 exploration is successful.

### Companies to focus on

The Falklands offers a bit of everything for investors at the moment. Rockhopper provides relatively low-risk development upside, while FOGL is the most compelling of the exploration plays, although B&S remains very attractive. Desire and Argos are the least attractive with no near-term activity, but both could still benefit from regional euphoria in the event of 2012 discoveries.

16 February 2012

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#### COMPANIES IN THIS REPORT

Argos Resources  
Borders & Southern  
Desire Petroleum  
Falkland Oil & Gas\*  
Rockhopper Exploration

\*Edison Investment Research client

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## Investment summary: Falklands oils

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### Introduction: Pivotal year in 2012

After a brief and mainly unsuccessful foray in 1998, the Falklands remained untouched by oil and gas exploration until drilling began again in 2010. Despite an intensive drilling campaign conducted throughout 2010 and 2011, the area remains vastly underexplored. It is likely that 2012 will be a key year for the region as drilling commences for the first time in the large deepwater prospects of the Southern Basin, while Rockhopper Exploration looks to progress the development of the island's first oil discovery, Sea Lion.

The acreage in this frontier area is currently held by five independent companies. In this report we highlight the risks of operating in the Falklands and identify the companies we believe are in the best position to unlock potential for the investor.

With drilling activity at an end in the Northern Basin for the near term, it is possible to take stock of the situation here. The drilling programme highlighted the East Flank area as holding hydrocarbon bearing prospects, most notably Rockhopper's Sea Lion. A \$2bn development is expected to bring the field on-stream in 2016, with funding likely to come from a farm down or through corporate disposal. To this end, Rockhopper has opened a data-room and is in discussion with several well-heeled companies in search of a deal. The de-risking of the East Flank area also brought benefits for Desire Petroleum, which gained a share of the Sea Lion extension and part of further Rockhopper discovery Casper. In spite of this, Desire and remaining North Basin operator Argos Resources are facing a period of inactivity, as a lack of funds prevents any further work.

However, as near-term operations draw to a close in the Northern Basin, a new and potentially even more exciting opportunity could be opening up in the Southern Basin. Both Borders & Southern (B&S) and Falklands Oil & Gas (FOGL) will drill two wells each in the first half of 2012, targeting resources that are potentially an order of magnitude bigger than the targets normally found in the Northern Basin. The Southern Basin is totally unexplored, with none of the deepwater prospects having been drilled to date. The largest prospect in the Southern Basin, Loligo, contains estimated resources of 4,700mmbbl, making it the largest drill target anywhere in the world in 2012 and over 10 times the size of the estimated gross 448mmbbls discovered to date at Sea Lion.

### Political risk is the big unknown

As with all investments, however, there is always downside risk. Despite years of sceptics throwing bricks at Rockhopper and its near neighbours, citing issues from reservoir size to commerciality thresholds, these have all been largely answered through the Sea Lion appraisal programme. The proverbial spanner in the works that remains is the ongoing political dispute between Britain and Argentina regarding sovereignty of the Falklands. Recent months have seen a marked ramp up in diplomatic tensions over the area, with ever-increasing combative language being used between Buenos Aires and London. Latin American neighbours appear to be rounding in support of Argentina and it remains unclear how the US and the UN will ultimately side. With 2012

commemorating the 30th anniversary of the Falklands War the region is sure to feature prominently in the headlines.

Within the context of oil and gas, any ground-breaking discovery in the Southern Basin would radically change the islands' royalty and tax revenues, potentially adding up to \$167bn over the years if the 2012 drill targets prove successful. Even without this we expect the islands to benefit to the tune of around \$10.5bn from the development of Sea Lion alone. With current tax and fishing incomes in the region of \$40m, the islands look set to be transformed by the oil industry. As such, any major newsflow involving either the 2012 exploration programme or a corporate deal involving Rockhopper is likely to be scrutinised carefully by politicians and investors alike.

### Asset base: Evaluation differs by basin

The companies operating in the Falklands can be split into two distinct geographical groups, with the early movers in both 1998 and in recent years having been most active in the North Falkland Basin, whereas 2012 is set to focus on the elephant hunters exploring for oil and gas in the South Falkland and Falkland Plateau Basins.

**Exhibit 1: Falkland Islands oil and gas companies and areas of activities**

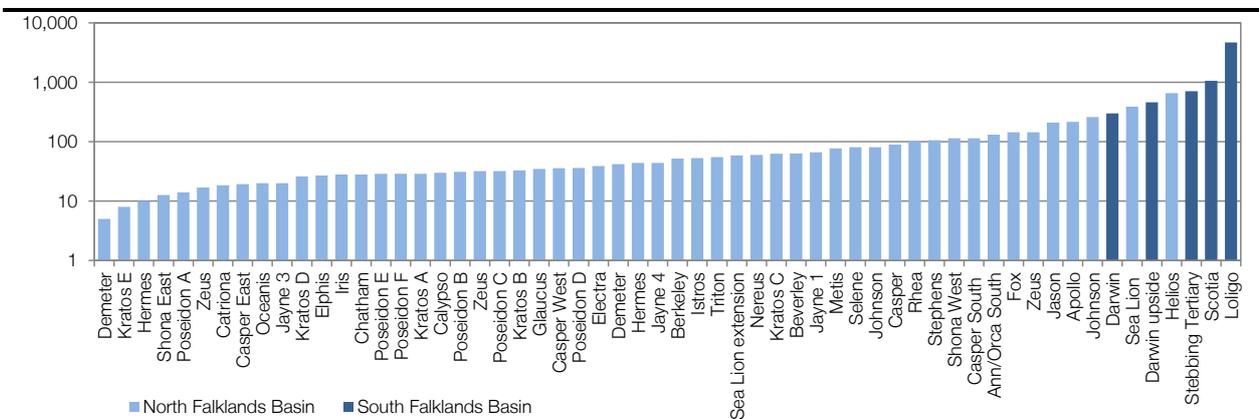
Basin Activities	
North Falkland	South Falkland and Falkland Plateau
Rockhopper Exploration	Borders and Southern Petroleum
Desire Petroleum	Falkland Oil and Gas
Argos Resources	

Source: Edison Investment Research

Although we conveniently split the companies on geographical grounds, the underlying reason for doing this is because the challenges and opportunities facing companies in each of the basins are distinctly different. Each basin has radically different geology, meaning target prospects can vary massively in size and even in the way they can be identified from seismic data. The two basins are at very different stages of exploration and development, while the challenges of drilling and proximity to infrastructure are also markedly different.

**Exhibit 2: Falklands unrisks resources by prospect**

Note: Resources plotted on a logarithmic scale.



Source: Edison Investment Research

Prospects in the North Falkland Basin are generally an order of magnitude smaller than those found in the South Falkland Basin. For example, of the prospects identified in competent persons reports and in the current drill programme, five of the seven largest prospects – as determined by unrisked mean resource potential – are in the South Falkland and Falkland Plateau Basins (Exhibit 2).

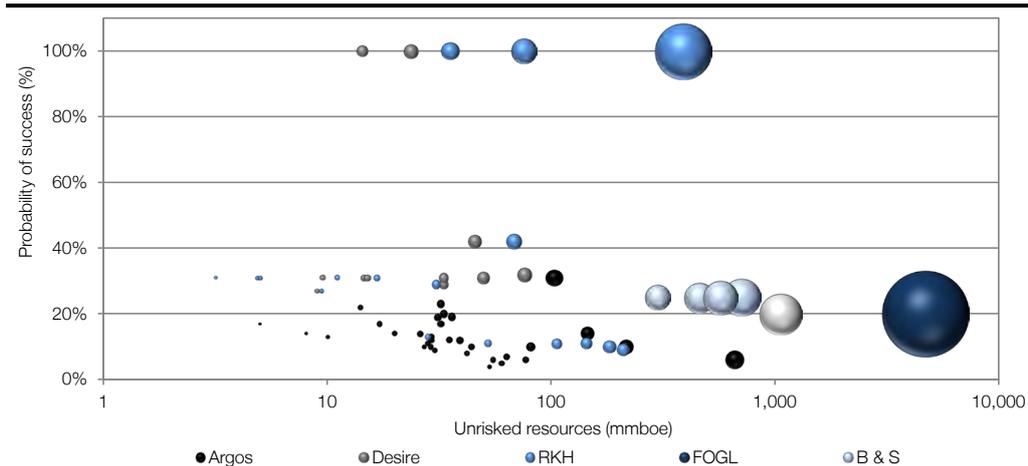
However, size is not everything. Since the breakthrough Sea Lion discovery made by Rockhopper in 2010, the degree of understanding of the Eastern Flank of the North Basin has much improved, both from a seismic and drill perspective. This means that both Rockhopper and Desire enjoy the benefit of having other prospects in their portfolio that, as partial analogues to Sea Lion, have already been significantly de-risked geologically, while Argos can enjoy a degree of comfort from having potential mirror image assets to Sea Lion on the Western Flank of the Northern Basin.

Operators in the South Falkland and Falkland Plateau Basins face a different set of challenges. Out here the drill targets are located in deep water where maritime conditions are notoriously difficult. As such, B&S and FOGL have had to secure a harsh-weather late generation drilling rig to be able to explore their most attractive prospects. Drill times are longer (typically 45-60 days) with costs running to double those of the North Basin targets. However, all these barriers will undoubtedly be worth it if oil is discovered in significant quantities in the South Falkland and Falkland Plateau Basins during the 2012 drill campaign.

Pulling this together we are therefore left with a distinctly different picture of risk/reward for investors. Many of the North Falkland Basin targets have been either partially or completely de-risked geologically, while the South Falkland players offer the rewards of bigger targets but with significant geological and commercial risks. We can see this best when looking at how each company's risked resources look on a comparative chart (Exhibit 3).

### Exhibit 3: Falklands' resources

Note: Bubble size denotes risked resources (unrisked resources multiplied by geological probability of success).



Source: Edison Investment Research

When factoring in geological probability of success, with the exception of FOGL's Loligo target that is four times larger than anything else in the region, the most prospective field on a risked resource basis is the Sea Lion discovery. Ultimately, investors have options to buy into both de-risked and high-risk exploration targets, and for this we need to turn to valuation potential.

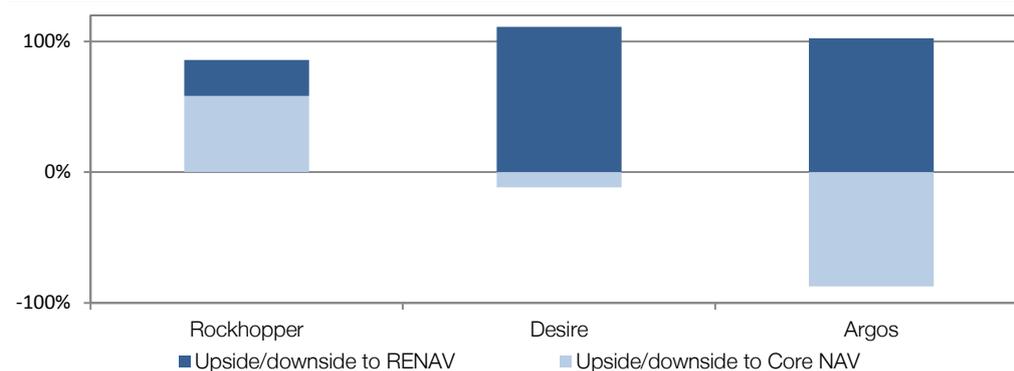
## Valuation: Rockhopper and FOGL offer most balanced upside

Since its discovery in 2010, Rockhopper has drilled seven appraisal wells and carried out two flow tests on its Sea Lion discovery. This has given the company, and us, access to a wealth of information that can now be used to help define a concept field development plan for the main field as well as potential satellite developments in and around the East Flank of the North Falkland Basin. As Rockhopper opened a data-room at the end of 2011 to invite funding partners (and potentially acquisitive companies) to the table, we are of the opinion that development of Sea Lion is largely inevitable, bar any political opposition. As such, we can view most assets in the North Falkland Basin on a fundamental basis, where their prospective value to an investor is based on a combination of likelihood of drilling (in the near-term), geological risk, proximity of the field to the Sea Lion 'hub' and, ultimately, the size of the resource potential.

Based on current discoveries and potential next exploration targets we summarise the upside potential/downside risk of the North Falkland Basin players in Exhibit 4. From the perspective of core NAV, Rockhopper is clearly in the driving seat with around 50% upside available to investors, which we consider to be relatively low risk given the likelihood, barring political opposition, that the Sea Lion field will be developed. At current prices we see largely downside risk in both Desire and Argos, the only potential catalyst for increases being continued successful newsflow from other Falklands operators. Investments in these stocks therefore only really make sense from an exploration upside perspective. Both companies do offer decent upside to current share price when they can get the exploration drill bit spinning again. However, based on current plans it is unlikely that there will be another drilling rig in the North Falkland Basin before 2015, and we would suggest there are more interesting stocks available in the near term that can provide exploration upside.

### Exhibit 4: North Falkland operators' valuation

Note: Share prices as at 1 February 2012.

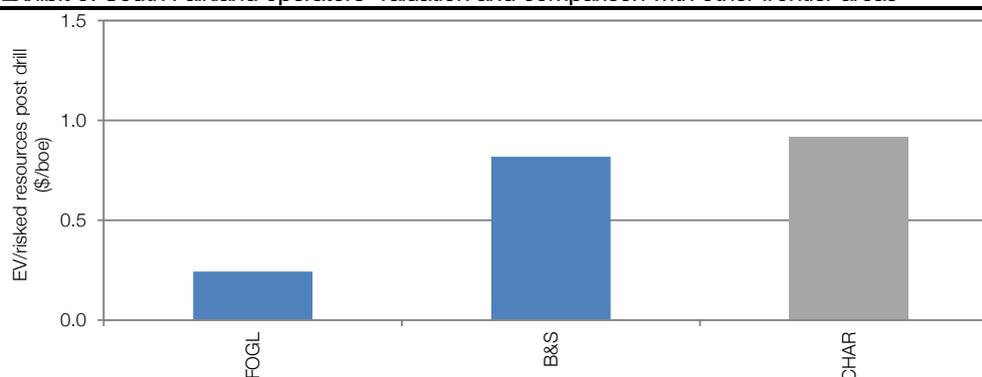


Source: Edison Investment Research

With deepwater drilling only now beginning in the Southern Basin it is not yet clear as to what potential development economics could look like in order to value B&S and FOGL on a fundamental basis. Instead, as 'elephant hunters' it is more appropriate (for now) to compare these stocks with similar frontier exploration plays on a resource potential basis. To do this we have compared the market value to resource (using enterprise value (EV) to risked prospective resource)

for the Falkland players with a high profile frontier explorer, Namibia based Chariot Oil & Gas. Results of this analysis are shown in Exhibit 5.

**Exhibit 5: South Falkland operators' valuation and comparison with other frontier areas**



Source: Edison Investment Research

We understand that management estimates of probability of success for both the B&S and FOGL 2012 wells are in the 20-25% range. By means of a comparison, this is broadly consistent with Chariot's two planned 2012 wells in Namibia. However, this resource potential is not necessarily being recognised by the market, with FOGL in particular trading at a discount to the other frontier explorers.

In reality, the FOGL discount to B&S is probably not significant, with both likely to see substantial gains in the event of a meaningful oil discovery during 2012. For example, Rockhopper was trading at an EV of \$1.4/boe of risked prospective resources when it made its Sea Lion discovery in 2010, with the company enjoying a six-fold increase in share price over the following month from 45p to 290p before it raised funds to appraise and prove up its discovery.

## Summary

- Rockhopper offers compelling upside with low technical and commercial risk from development of its Sea Lion field. We expect this value to be unlocked either through ongoing farm-out discussions or a corporate deal during 2012 or early 2013.
- FOGL offers the best absolute exploration upside potential although drilling success in 2012 is equally likely to be transformational for B&S.
- We see little scope for Argos and Desire in the short term, outside of being a low cost entry into potential Falklands investor euphoria.
- The main downside risk for investors is escalation of political tension between Britain and Argentina. Tax and royalty income is set to transform the islands' coffers and we would expect any significant discoveries in 2012 to only add to the tension between the two countries.

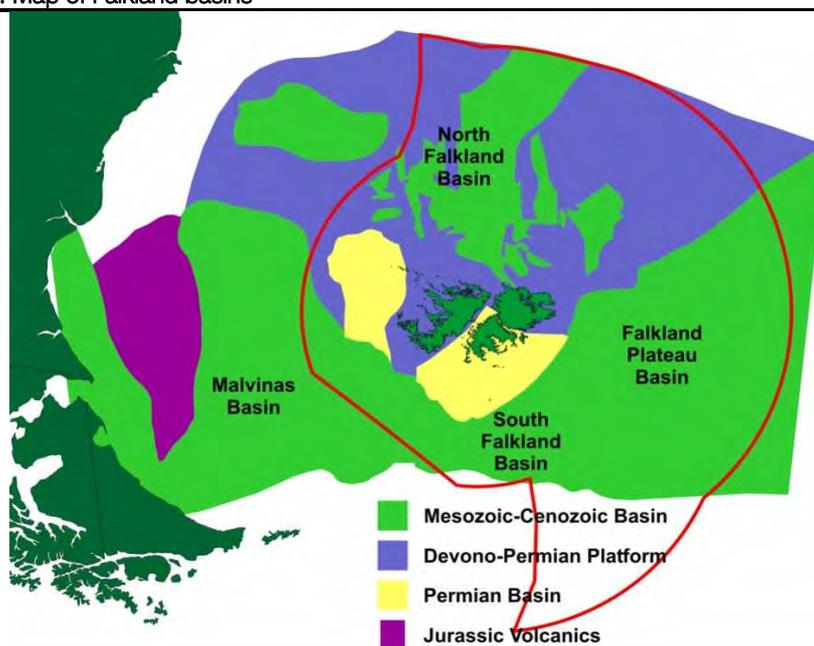
## The Falkland Islands: An overview

Exploration and appraisal activity in the Falklands is still in its infancy. A brief foray into the area in the 1990s left evidence of the existence of hydrocarbons, but it was not until 2010 that activity returned to the area in the form of a drilling campaign of almost two years, resulting in an economic discovery. Rockhopper shareholders were rewarded with just under a 1,000% share price increase in the months following its Sea Lion discovery in May 2010, although the bear market that swept through the global oil sector in 2011 has somewhat deflated interest in the region. However, 2012 is set to be another key year for the area, with drilling underway for the first time in the deepwater prospects of the Southern Basin, with its potentially game changing outcomes, and Rockhopper reported to be in active discussions with a number of companies that may farm in or even take over the independent. In addition, political tensions between Argentina and Britain, never far below the surface, are coming to the fore in 2012, the 30th anniversary of the Falklands War, with any new oil discoveries likely to figure significantly in how these rising tensions play out.

### Setting

The Falkland Islands lie at the western end of the Falkland Plateau. The islands are surrounded by four major sedimentary basins: the Falkland Plateau Basin to the east, the South Falkland Basin to the south, the Malvinas Basin to the west, and the North Falkland Basin to the north.

**Exhibit 6: Map of Falkland basins**



Source: Falkland Islands Department of Mineral Resources

Exploration activity is divided between two key areas, each with its own distinctive geology:

- The North Falkland Basin, which has seen the most extensive drilling to date and where Rockhopper Exploration, Argos Resources and Desire Petroleum have licences. Six wells were also drilled here in 1998.
- The South Falkland and Falkland Plateau basins, with only one oil exploration well to date, where Borders & Southern and Falkland Oil & Gas have licences.

## Exploration history

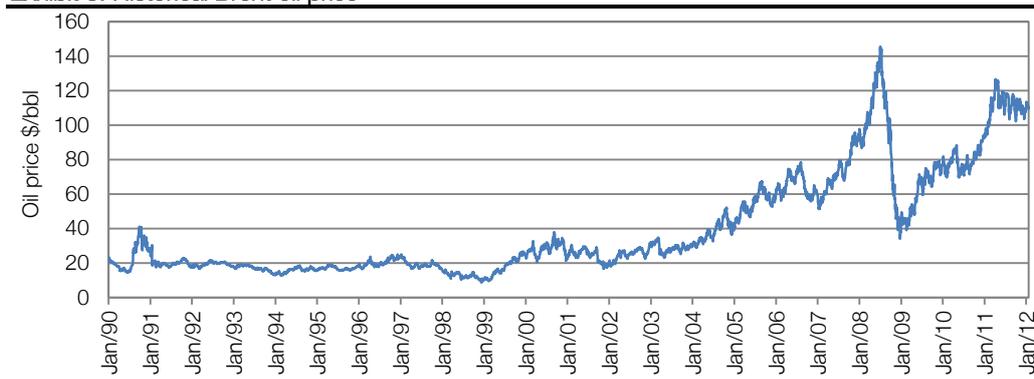
Drilling began offshore the Falklands in 1998, when four large companies, Shell, Amerada, Lasmo and Lundin, drilled six wells in the North Falkland Basin. Five of these wells established the presence of oil or gas, and all were plugged and abandoned. However, oil prices at the time were at the lowest of the last 25 years, and oil companies were looking at how to economise across their operations. Without significant encouragement from the initial wells, the Falklands fell victim to the prevailing economic conditions and all the operators in the area pulled out.

**Exhibit 7: North Falkland Basin 1998 well results**

Well	Operator	TD (m)	Shows
14/5-1A	Shell	4,525	Oil shows and gas
14/10-1	Shell	3,005	Live oil 27° API
14/9-1	Amerada	2,590	Oil stains
14/9-2	Amerada	2,345	Oil stains
14/13-1	Lasmo	1,475	Dry hole
14/24-1	Lundin	2,914	Oil stains

Source: RPS CPR April 2009, Edison Investment Research

**Exhibit 8: Historical Brent oil price**



Source: Bloomberg

All of the 1998 wells targeted the mid-Cretaceous sands, but, in spite of disappointing shows, they did prove the presence of a very thick sequence of high quality source rock. Subsequent data analysis from these wells indicates that only the lower portions of the source rock entered the hydrocarbon generation window, with the upper portion acting as a seal between the deeper mature portion and the shallower reservoirs that were the main targets of this campaign. The deepest well drilled, Shell's 14/15-1 well, discovered gas in the deeper section of the well, although this had not been drilled to target any known structure, but to gather stratigraphic information on the basin. This well now sits in Rockhopper's acreage and is known as the Johnson gas discovery.

With access to current 3D seismic technology it is likely that the 1998 campaign would have achieved a more successful outcome with, for example Shell's 14/5-1A well sitting less than 5km to the west of Sea Lion appraisal well 14/10-6, a remarkably close 'near-miss' in the context of frontier oil exploration.

With the benefit of hindsight, anything other than a groundbreaking oil discovery was likely to signal a premature end to drilling activities in 1998. With oil prices in the previous years around the \$20/bbl mark there was significant interest from large oil companies to seek exploration upside.

However, this changed abruptly in the final years of the decade as crude prices slumped to a near-record (in real terms) low of \$9/bbl. All but the biggest and simplest discoveries would fall foul to unattractive development economics, but as oil prices have recovered over the past decade, attention has once again shifted back to the area. This time, however, the participants are all independent companies. The intervening years have seen a burgeoning number of independents operating in underexplored areas around the world, with the majors largely content to sit back and enter once these new areas have been significantly de-risked.

In February 2010, drilling recommenced in the Northern Basin, with the Ocean Guardian rig continuously drilling for Rockhopper and Desire, together with one well in the Southern Basin drilled for BHPB/FOGL, until the rig was eventually released in January 2012. Both Northern Basin operators concentrated on drilling wells below the sealing source rock to ensure the targeted reservoirs had access to hydrocarbon migration, and, although there are several play types present in the basin, activity has focused on the channel/fan prospects in the wake of Rockhopper's Sea Lion discovery in May 2010. A key element in the recent campaign's successful discoveries has been the more widespread use of 3D seismic acquisition and developments in its interpretation. This is important in identifying stratigraphic traps such as Sea Lion, which cannot be properly seen on 2D seismic.

**Exhibit 9: Ocean Guardian drilling rig**



Source: Rockhopper Exploration

**Exhibit 10: Leiv Eiriksson drilling rig**



Source: Falkland Oil & Gas

Exploration in the South Falkland Basin has been extremely limited, with one well, Toroa, drilled by FOGL in 2010 (with BHP/Billiton as operator), and two wells drilled to the east of FOGL's licences as part of the Deep Sea Drilling Project in the 1970s. Toroa was drilled using the Ocean Guardian rig from the North Falkland Basin as it lay in shallow waters and, as such, was atypical of the deepwater prospects that dominate the prospect portfolio of both B&S and FOGL. The real drilling campaign begins in earnest in 2012, with the Leiv Eiriksson harsh-conditions deepwater rig.

## North Falkland Basin

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The North Falkland Basin is a north-south trending rift graben approximately 50km wide and 230km long, containing in excess of 5km of sedimentary infill. It is a deep lacustrine or lake deposited basin filled with lower cretaceous highly organic shales and turbidites. The lake deposits of the basin can be compared to similar basins in Uganda and Rajasthan so, notably, comparisons are with onshore fields, and not with discoveries in the rest of Atlantic basin. Comparisons with these analogues led to a mindset within the industry that it would be difficult to find fields in excess of 100mmbbls and that flow rates would be too low for economic development in the Falklands. In addition, crude from lacustrine source rocks have a tendency to be waxy which requires additional engineering in order to mitigate its effect.

### Exhibit 11: North Falkland Basin licence locations

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Source: Edison Investment Research

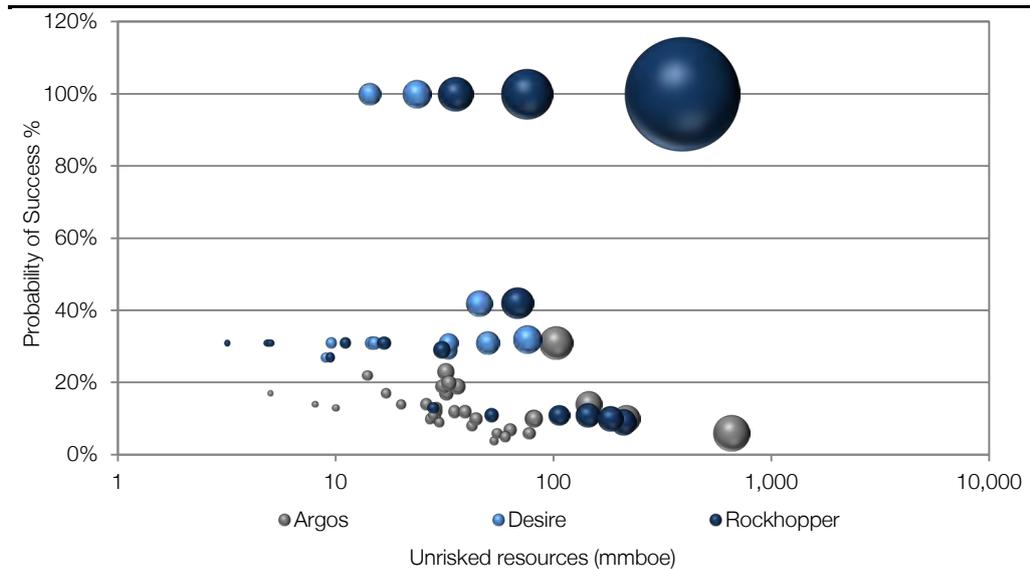
Based on regional evidence, the US Geological Survey estimates the basin has the potential to contain up to 40 hydrocarbon accumulations, of which 10 fields could potentially exceed 64mmbbls of recoverable reserves. To give us a more detailed look at the prospectivity of the accumulations in the basin, each of the three companies operating in the Northern Basin has commissioned competent persons reports (CPR). Of these, two are current with Argos and Desire both publishing reports by Senergy (GB) Limited in October 2011. For Rockhopper we are currently limited to using management estimates and data from an older CPR commissioned in 2009. However, we do expect a revised CPR to be published in H1 12 covering at least some of Rockhopper's portfolio of discoveries and prospects.

The Desire and Rockhopper portfolios predominantly consist of those prospects in the vicinity of Sea Lion, although Desire intends to publish a CPR covering the remainder of its acreage in 2012. The Argos portfolio covers 28 prospects, six being structural and identified on 2D seismic, with 22 additional structural/stratigraphic prospects identified from 3D seismic. With the benefit of the CPRs and analysis around the geological risks associated with reservoir quality, trap, seal etc we are able to look at the region from the perspective of hydrocarbon prospectivity, both on a risked and unrisked basis.

Exhibit 12 lays out the identified prospects from management estimates and CPRs for all the North Falkland Basin players. The chart shows the distribution of the size of different prospects in each company's portfolios against the geological chance of success. The size of the individual circles denotes the size of the risked resources.

**Exhibit 12: North Falkland Basin resources**

Note: Bubble size denotes risked resources (unrisked resources multiplied by geological probability of success).



Source: Edison Investment Research

It can be seen from this analysis that Rockhopper occupies the low risk/high reward (top right) corner of the chart, with the Sea Lion and Casper discoveries. In particular we also see that the Sea Lion discovery is, with the exception of one of Argos' prospects, significantly larger than all the other prospects in the basin.

Of the remaining larger prospects (100mmmbbls plus), most sit in the higher risk area of the chart with chances of success of 15% or less. Desire's prospects, although generally smaller, have geological chances of success in the 30% to 50% range, reflecting the de-risking of these prospects as a result of their proximity to Sea Lion. Like Desire, the majority of Argos' prospects, with the notable exception of Helios at 658mmmbbls, are also less than 100mmmbbls; however the geological chances of success are broadly lower here than for Desire's prospects at 20% or less, reflecting the untested acreage and its position away from the successful wells in the east.

It remains to be seen if the Sea Lion, at more than 400mmmbbls, remains atypical or if further prospects in the Northern Basin can be proven up to similar sizes. For this we will have to await further drilling activity although, with no plans for a rig to return to the area until development drilling begins on Sea Lion in 2015, we may have to wait some time to find this out.

### RKH: Rockhopper confounds sceptics

Rockhopper's first well, 14/10-2, resulted in the first oil discovery in the basin, Sea Lion. The company has successfully undertaken an intensive appraisal programme on the prospect during which the resource estimate has increased from 170mmmbbls pre-drill to 389mmmbbls in its 100% interest PL032 licence (448mmmbbls gross including the Sea Lion extension in PL004), thereby proving that larger accumulations can and do exist in the basin. A resource upgrade is likely once the results from the later 14/10-8 and 9 wells are included together with the 14/15-4 well results. This latter well was drilled by Rockhopper to test the southern extension of the field and was made possible by Rockhopper farming into the Desire licence into which it extended; Rockhopper now

holds 60% and is operator. The company benefited initially from investor enthusiasm on the back of the Sea Lion discovery, however this dropped off as the appraisal campaign progressed, most likely due to political and, largely unfounded, technical concerns. We believe that Rockhopper remains undervalued as investors look to see how the field development will be funded. Recent media speculation has identified a number of companies as potential partners, including Anadarko Corp, Cairn Energy, Premier Oil and Noble Energy.

In addition, the company also holds the Johnson gas discovery, which at over 300km<sup>2</sup> is the largest structural closure in the basin. The estimate of its resource potential is 3-30Tcf, so work is required to refine this further. Rockhopper does not currently have any firm plans to drill a well here, although if volumes on the upper side of estimates are proven, there is clearly long-term potential for LNG development.

#### **Further discoveries are good news for basin**

The North Falklands campaign was a one-discovery story for 19 months. However the further discovery of Casper by Rockhopper in November 2011 was followed a month later by the Beverley and Casper South discoveries in the 14/15-4 well which was drilled with Desire as partner, primarily to target the southern extension of Sea Lion. Beverley encountered wet gas, and Casper South will require appraisal down dip to determine the extent of the oil, having encountered gas and oil in the discovery well. However, the fact there is clearly more to the basin than Sea Lion is greatly encouraging and can only improve confidence in the prospectivity of the area. It remains to be seen if the post Sea Lion discoveries conform to the predicted trend of 100mmbbls or smaller, or if greater resource estimates can be delivered.

#### **DES: East Flank focus for Desire**

As the company to secure the drilling contract with the Ocean Guardian, Desire was considered the frontrunner when activity returned to the North Falkland Basin in 2010. The company drilled six exploration wells as operator on its acreage during the campaign, with all but one well drilled in its northern licences. The first well, Liz, encountered oil shows and gas, but poor reservoir quality. The Rachel, Rachel side track and Rachel North wells all targeted fans on trend with Sea Lion, but despite finding good quality sands and oil shows, only water samples were recovered. These three wells were drilled back to back in an attempt to replicate the Sea Lion success and in hindsight suffered from having to make real-time decisions without time for analysis. Remaining well Ninky, to the south of Rachel, also found poor quality reservoir, and the only southern well, Dawn/Jacinta, encountered no hydrocarbons.

The company has subsequently focused on its East Flank acreage, sitting immediately to the south of Sea Lion. The Rockhopper discovery and appraisal wells have shown that the best quality sands are to be found towards the east of the structure, in line with the fact that the fan system was fed by sand entry points coming from the east. To concentrate on this known area of higher sand quality, Desire acquired 1,416km<sup>2</sup> of infill 3D seismic during 2011. This was merged with Argos and Rockhopper surveys to the north and resulted in the identification of several new prospects, including Beverley and Jayne, as well as the southern extension of Sea Lion, resulting in net

prospective resources of 322mmbbls. This was confirmed in a CPR published in October 2011, and is the data we have used in Exhibit 12.

#### **Farm-out and late discoveries could signal a change of fortune**

Unfortunately for Desire, toward the end of 2011 and despite identifying attractive prospects to drill in the East Flank acreage, the company had depleted its cash reserves and was faced with trying to go back to the equity markets to fund additional exploration activity. The urgency of the situation was exacerbated by the fact that Rockhopper had concluded its appraisal of the Sea Lion acreage and that the Ocean Guardian rig was to be released at the latest by 1 March 2012. Given the need to try and take advantage of a diminishing drill window and with difficult capital markets, in October 2011, Desire agreed to farm out two areas of its PL004 licence to Rockhopper in return for an exploration cost carry.

Area 1 of the farmed out area contains the southern extension of Sea Lion and, for a full carry on the recent 14/15-4 appraisal well, Desire retained 40% interest with Rockhopper becoming operator. In addition to confirming the southern limits of Sea Lion and Casper, the well discovered wet gas in Beverley and oil and wet gas in Casper South. The main prospect in Area 2 is Jayne, containing net resources of 98mmbbls and in which Desire now holds 75% with Rockhopper holding the remaining 25%. Although it was not successful in its operated wells, Desire has exited the campaign with tangible assets – in the form of its share of the Sea Lion and Casper extensions – and de-risked its prospects in the vicinity of Sea Lion. However, in the absence of sufficient funds we see little scope for catalysts in the near term.

#### **ARG: No progress for Argos**

Argos Resources holds 100% of Licence PL001 immediately to the west of Sea Lion. The only company to yet drill in the Northern Basin, its strategy was to drill its prospects once the area had been de-risked by Rockhopper and Desire. While this seemed prudent and could have paid off, the company's prospect portfolio suffers from the fact that it sits to the west of Sea Lion, when all drill evidence to date is pointing to the best quality reservoirs being in the east. Sea Lion is optimally positioned to receive oil charge due to its proximity to the main source kitchen area. For Argos, its prospects are further away from this area, with deeper prospects such as Rhea and Poseidon requiring the shortest oil migration route, while the more western prospects such as Zeus and Apollo require a longer migration route. A programme of 3D seismic acquisition in 2011 identified 22 stratigraphic prospects in addition to the previously known six structural prospects, which was confirmed in a CPR in October 2011. Although the majority of individual prospects here are smaller, the company believes that several could be targeted in one well, so for example, Rhea, Poseidon C and Selene could all be drilled with one exploration well targeting 216mmbbls. The company also has one larger target in Helios, although the likelihood of this being a drill priority is reduced by the fact that it is a high risk target with only a 6% chance of geological success.

### **Lack of funding leaves Argos short of options**

Argos had hoped to drill several wells as part of the recent Ocean Guardian campaign, but was unable to raise sufficient funds. Discussions with potential farm-in partners could not be concluded in time to keep the rig in the area and drill more than one well. We suggest that it may have been preferable to have drilled at least this one well in order to begin the process of de-risking PL001, especially given that there are currently no plans for a rig to return to the area until development drilling begins on Sea Lion in 2015.

### **North Falkland Basin summary**

- An active drill schedule from February 2010 to January 2012 resulted in the discovery of Sea Lion, Casper, Casper South and Beverley, all of which are operated by Rockhopper.
- Rockhopper has successfully demonstrated that Sea Lion is economic and we believe it will be developed. We expect this will be funded either through a farm down or outright sale, with several potential partners believed to be interested.
- The remaining discoveries could be tied back to Sea Lion if they do not support a standalone development. With Casper South and Beverley encountering oil and gas and wet gas respectively, additional work will be necessary to evaluate these further.
- All the discoveries sit in the East Flank of the basin, so that prospects in this area have been de-risked by the drilling campaign.
- Desire's prospect portfolio has benefited from this de-risking, however the company lacks funds to capitalise on this. By farming out part of its acreage to Rockhopper it has gained access to a share of all of Rockhopper's discoveries.
- Argos has yet to drill on its acreage and its portfolio of 28 prospects lies to the west of Sea Lion, in an area that has not been de-risked. In the absence of funding we believe that drilling here is unlikely in the near term.

## South Falkland Basin

The Southern Basin is greatly underexplored with only one well drilled in the B&S and FOGL acreage, which covers a combined area of over 69,000km<sup>2</sup>. Two wells were drilled to the east of FOGL's licence as part of a scientific research Deep Sea Drilling Project in the 1970s, and these wells, which were cored across their entire length, proved the presence of an extensive regional source rock. Recent drilling activity has been limited by the availability of the deep water rigs required to drill here, however the Leiv Eiriksson rig began drilling the first of two wells for B&S at the end of January 2012, followed by two wells for FOGL expected around May 2012. One shallow water well, Toroa, was drilled by BHP/Billiton with FOGL in the Springhill play in 2010, but this did not encounter hydrocarbons and was subsequently plugged and abandoned.

### Exhibit 13: South Falkland Basin licence locations

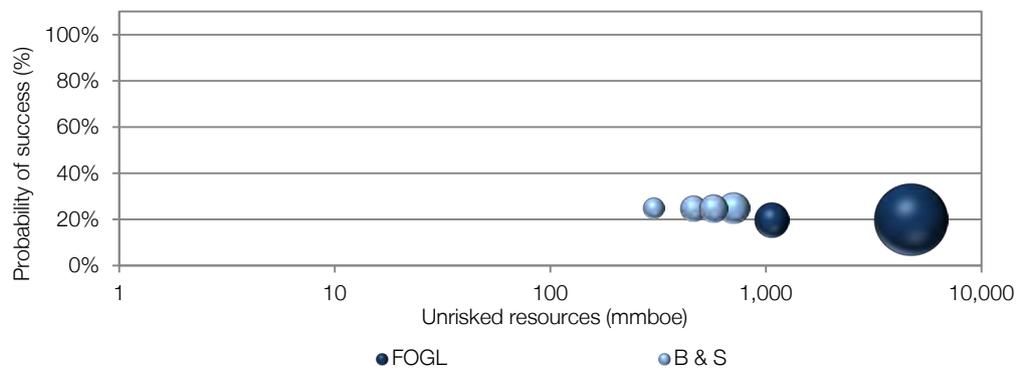


Source: Edison Investment Research

In contrast to the lake deposited North Falkland Basin, the South Falkland Basin is known as a passive margin, with sediment deposited in a marine environment. As a result, any discoveries here will be an order of magnitude larger than those found in the North: Exhibit 12 had shown that the majority of prospects in the Northern Basin are at or below 100mmbbls, with Sea Lion being somewhat abnormal at 448mmbbls. However, as shown in Exhibit 14 the prospects to be drilled in 2012 by B&S and FOGL are much larger, ranging from 760mmboe to 4,700mmboe.

### Exhibit 14: South Falkland Basin unrisks resources

Note: Bubble size denotes risked resources (unrisks resources multiplied by geological probability of success).



Source: Edison Investment Research

While the North Falkland Basin analogues are onshore oilfields, the Southern Basin can draw analogues from across the Atlantic. The giant prospects that sit at the upper end of this scale can

seem unrealistic, however, it is important to recognise that exploration and appraisal of similarly large prospects is occurring across the South Atlantic, from west coast Africa across to Brazil.

There are four main types of play in the Southern Basin: the Tertiary Fold Belt play, the Tertiary Channel play, the Mid-Cretaceous fan play and the Springhill play. Under current drilling plans, each of these play types will be penetrated by one well. In addition to the standard fold belt play, analogues for the other 2012 South Falkland Basin drill targets are:

- **Tertiary channel play:** The Campos Basin offshore Brazil, with the Marlim field, for example, producing 620,000bopd from a reservoir with an estimate of more than 1bn barrels recoverable.
- **Mid-Cretaceous play:** Tullow's Jubilee field offshore Ghana, with recoverable reserves of more than 370mmbbls and upside potential of 1.8bnbbls, and the Zaedyus discovery offshore French Guiana with P10 prospective resources of 700mmbbls.
- **Springhill Play:** This is the main productive play of the Magallanes Basin, Argentina, to the west and estimated to contain 6bnboe.

There is then much to play for in the Southern Basin, however the challenges in proving up a working petroleum system in such an underexplored area should not be underestimated. In comparison, Cairn has spent 2010 and 2011 drilling eight wells in its 102,000km<sup>2</sup> acreage offshore Greenland with little success. And while Cairn still holds \$1.2bn in cash, both FOGL and B&S will not have enough funds to drill any wells beyond the current four well programme.

## BOR: Borders ready to go

B&S holds 100% of five licences covering just under 20,000km<sup>2</sup>. With no wells drilled to date, the company will drill two prospects, with the 61/17-1 well on Darwin spudded on 31 January 2012 to be followed by Stebbing.

### Full 3D available over different play types

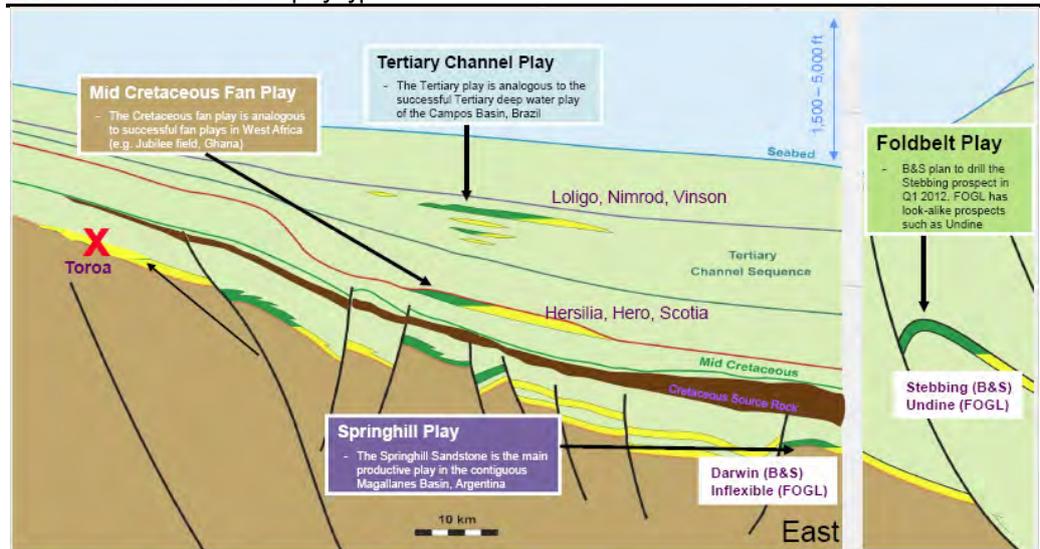
Darwin will target the Springhill play, which is the main play in the Argentinian Magallanes Basin. The structure is a tilted fault block originally found on 2D seismic while 3D seismic has provided greater definition, with a flat spot believed to indicate a hydrocarbon contact that also correlates to good sands found in the Magallanes Basin and in FOGL's Toroa well. The prospect is estimated to contain 300mmbbls if the hydrocarbon contact is oil, and 760mmbbls if there is a gas cap and oil down to the spill point. The company has not given official guidance regarding the chance of success, however we understand it is believed to be around 25%, making it a reasonable risk for a frontier basin. The key risks for the prospect are reservoir quality and uncertainty regarding the hydrocarbon phase.

Stebbing is targeting the shallower Tertiary main target, and the Upper Cretaceous. It is completely independent to Darwin, so there will be no correlation between the geological results in the two wells. Again, it has been chosen due to the presence of amplitude anomalies from the 3D seismic. The recoverable resource estimate for the combined reservoirs is 1,280mmboe and, like Darwin, carries a 25% chance of success.

**Stable funding has given plenty of time to prepare**

B&S raised \$195m in 2009 and is fully funded to drill both wells at an estimated cost of \$50m each. If either well is successful, the company will need to raise further funds in order to carry out an appraisal programme. It is likely that such a programme would not occur for at least a year after Darwin and Stebbing, giving B&S time to properly analyse the well results. The company has a portfolio of around 14 additional prospects spread across the full range of play types in the basin.

**Exhibit 15: Southern Basin play types**



Source: Falkland Oil & Gas

**FOGL: FOGL’s fluid plans**

FOGL will also drill two wells following on from B&S, and is currently expected to commence its campaign in May 2012.

**Giant structures with exciting analogues**

The first of these wells will be the giant 4,700mmboe Loligo field. This is a large Tertiary channel structure seen clearly on 2D seismic, and as such we believe that the absence of 3D seismic here is not an issue at this stage. The company will drill a 4,000m deep Loligo well penetrating all reservoirs: T1, T1 Deep, Trigg, Trigg Deep and Three Bears, at a cost of \$65m and known as Loligo Deep. Loligo is, in fact, the second largest exploration prospect to be drilled in recent years anywhere in the world, with only the 7.9bn barrel Libra discovery offshore Brazil in 2010 exceeding its resource potential.

FOGL previously planned to drill a shallower well targeting only T1 and T1 Deep due to funding limitations. However, a recent £48.5m placement in January 2012 has ensured that the company is now fully funded to drill Loligo Deep.

We understand that management estimates the chance of success of finding hydrocarbons at Loligo to be around 20%. However, although seismic indicates the presence of hydrocarbons, there is still uncertainty regarding the phase of any hydrocarbons encountered, so that each reservoir could contain oil or gas, with the chance of oil increasing with depth. By drilling a deeper

well, FOGL is therefore maximising the chance of encountering oil, although this means that the well trajectory may not be optimally positioned for each and every horizon.

Following the Loligo Deep well, FOGL is keeping its options open for the second and final well in its 2012 campaign. If Loligo Deep is successful, FOGL may drill an appraisal well on Loligo or in other Tertiary Channel prospects such as Nimrod or Vinson. However, the Mid Cretaceous fan prospect, Scotia, is the company's preferred choice for the second well. Analogues for the 1,062mmboe Scotia include Tullow's Jubilee field offshore Ghana and the Zaedyus discovery offshore French Guiana. As in Loligo, only 2D seismic is available across the prospect. While this is not an issue with Loligo, we believe that the stratigraphic nature of Scotia would benefit from 3D seismic as was shown to be so critical in the identification of stratigraphic traps in the Northern Basin and subsequent success in Sea Lion. FOGL has prioritised the prospect based on a good Amplitude Versus Offset (AVO) response seen on reprocessed seismic data and the presence of thick high-quality Mid Cretaceous sands in its Toroa exploration well, proving the play for Scotia. Toroa was drilled in 2010 with a primary target in the Springhill play. The well was not considered to be a high priority target, but could be drilled with the Ocean Guardian rig due to its shallower water depth. Although the reservoir was of reasonable quality, no hydrocarbons were encountered, with the seismic anomaly that had led to the well being selected found to have been caused by the presence of coals. It is not expected that this seismic interpretation issue is likely to occur in Loligo and Scotia, as they exhibit different classes of AVO response to Toroa and each other, and also sit in a completely different depositional environment.

#### **Little can be read into Toroa failure**

Prior to the 2012 campaign, the only well to be drilled in the South Falkland Basin was the Toroa F61/5-1 exploration well on FOGL's acreage. Toroa was drilled by FOGL's then partner and operator BHP Billiton (BHPB). In 2007, BHPB farmed into FOGL's licences by agreeing to pay \$13m and 68% of all exploration costs to earn a 51% interest and become operator. Toroa was the first of two commitment exploration wells, however following on from the Toroa results, BHPB decided to exit from the agreement in March 2011. It is thought this was a political and strategic move rather than a technical one. BHPB holds significant mining assets in South America and may have decided to avoid jeopardising these by antagonising Argentina with its activities in the Falklands. In addition, the company has recently shifted its focus to shale gas in the US with 2011's purchase of Petrohawk Energy and assets from Chesapeake Energy.

#### **Recent fundraise allows for drill options**

FOGL held \$133m in cash at the end of 2011. The company raised a further \$77.6m in January 2012 through a placing of 112.8m shares at £0.43 each, a discount of 16% to the share price. The placing ensures that FOGL is fully funded to drill Loligo Deep at \$65m and Scotia at \$75m, taking into account the rig mob/de-mob costs. The company has been in active discussion with a number of potential farm in partners, however it does not believe that a suitable offer will be made in time to guarantee funding for the drilling campaign and so has undertaken the equity fundraising. We understand that all the companies involved are from North America and Europe, with no interests in South America, making a repetition of the BHPB experience unlikely. A successful farm out before

the completion of the drilling schedule could allow a third drill slot to be secured, pending the availability of the Leiv Eiriksson. The rig is contracted to start drilling in the North Sea and Norway from Q412/Q113, so a third well is feasible based on the current drill schedule.

We expect that if Loligo is successful, the company would look to raise \$150m to acquire 3D seismic over the prospect in Q412, with appraisal drilling not earlier than Q413. Success in either prospect or in B&S's wells will de-risk a number of prospects in FOGL's portfolio, with 13 additional prospects identified across all four play types and carrying total mean prospective resources of over 10bnboe.

## South Falkland Basin summary

- The South Falkland Basin is vastly underexplored. Wells here are deeper and more expensive than in the Northern Basin and require a specialised rig to handle the deepwater drilling.
- The potential upside from exploration drilling is huge, with giant prospects that have analogues from across the South Atlantic.
- Drilling is already underway, with four wells targeting each of the four play types in the basin planned. Success in any play will de-risk further prospects.
- Newsflow can be expected from the area from now into the second half of 2012.
- Both B&S and FOGL are fully funded for drill schedule.

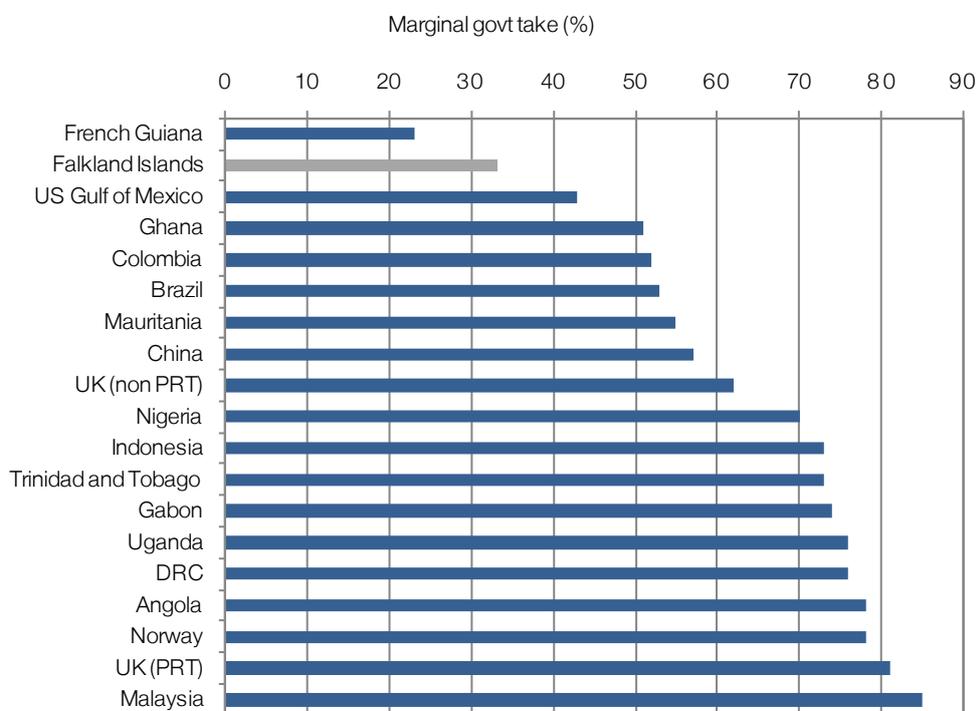
## Economics

Finding hydrocarbons is, of course, only the first step to being able to prove commerciality for an oil and gas industry in the Falklands. Turning these resources into economically viable projects requires us to look at the costs and returns that can be expected from the development of different types of oil and gas finds in the waters around the Falklands.

### Tax and royalty benefits

The Falkland Islands fiscal regime is considered to be one of the most attractive in the world. A combined take of 33% from corporation tax of 26% and an overlying production royalty of 9% are very low and can be favourably compared to the UK and other countries, as seen in Exhibit 16. While such a low take is attractive to the oil companies, the Falkland Islands is still in line to benefit financially on a scale that will dwarf its current tax revenues.

**Exhibit 16: Comparison of global government takes**



Source: Falkland Oil and Gas, Wood Mackenzie

Based on Sea Lion expected resources, the Falkland Islands should expect to see \$3.9bn in royalties and \$6.6bn in tax revenues over the life of the field. This is a massive increase given that the islands only received \$16m in revenues from tax and earned \$23m from its main income source of fishing in the 2009/2010 tax year. However, the upside for the islands does not stop there.

The Southern Basin drill targets for 2012, just shy of 8bn bbls, amount to three times the current UK oil reserves. Although obviously unproven at this stage, if these were to be proved up the islands could be looking at tax revenue of as much as \$177bn. Even the need for the islands to start paying its own defence costs of around £60-65m a year is not going to make a dent in such a large

figure. Clearly, with so much potential money at stake it is not surprising that we are witnessing so much sabre rattling between the UK and Argentina.

Meanwhile, the overall prize for both the islands and oil companies in the region could be yet bigger again. Some press reports have suggested the region could contain up to 60bnbbbls. This dwarfs the 21bnbbbls thought to be remaining in the UK sector of the North Sea. None of these figures have of course been proven, although we do know that Sea Lion is already approaching the size of the single largest field discovered in the UK North Sea this century, namely the Buzzard field where total recoverable reserves of more than 550mmbbls have been estimated.

## Development economics

As the only appraised discovery in the Falklands, Rockhopper's Sea Lion is likely to become the first development in the region. The company has outlined development plans utilising subsea wells tied back to a leased FPSO, with first production in 2016 and an estimated associated cost of \$2bn. Product off-take would be by means of a long distance shuttle tanker.

Assuming a \$80/bbl Brent price deck and 12% discount rate (a lower cost of capital would be more appropriate if a well heeled partner took on the development) we estimate the Sea Lion 'hub' development, as is, would netback around \$9.3/bbl on an unrisks basis, returning a project value based on the estimated resources of Sea Lion and the southerly extension of \$4.2 bn. Based on these numbers we are confident the Sea Lion development will be attractive to a wide range of oil and gas companies. It is for this reason that we consider it almost certain that the field will be developed, either by Rockhopper in partnership with another party, or in the event that Rockhopper is ultimately acquired.

Prior to the return of explorers to the Falklands in 2010, many sceptics cited the expected relatively small prospects as being a barrier to commerciality. Rockhopper has clearly refuted these sceptics by proving up estimated Sea Lion resources to in excess of 400mmbbls recoverable. However, our economics indicate that the Sea Lion project would be able to break even with only 90mmbbls recoverable, demonstrating that much smaller prospects can readily be commercially developed on a standalone basis. We expect, however, that yet smaller accumulations will become economic when tied back to existing developments such as Sea Lion, and expect this to be the preferred development concept for satellite fields such as Casper.

In the event that any discoveries in the Southern Basin are gas, a significantly different development scenario would be required. In Loligo for example, with mean prospective gas resources of 25tcf a liquefied natural gas (LNG) development could easily be justified. However, such a development would require an LNG terminal to be built onshore, with a subsea pipeline to transport gas, and shuttle tankers for the condensate. FOGL has stated that under these circumstances it would sell Loligo to an LNG player for development.

## Risks: Political tensions set to increase

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There are a number of risks facing companies operating in the Falkland Islands, however we highlight the current political situation as holding the greatest risk to derailing development of an oil and gas industry in the region.

### Political tensions

Britain and Argentina continue to disagree over the sovereignty of the Falkland Islands. Although drilling in the Northern Basin was largely unaffected by this, the discovery of oil in the area and the approaching 30th anniversary of the Falklands War in 2012 have resulted in a significant increase in tension and rhetoric in recent months.

Argentinean military action is considered unlikely, but the Argentinean government continues to push for a diplomatic resolution to the dispute and may resort to legislation in international courts. This outcome has received some support from the US, which has called for negotiations between the two countries. As tensions have risen, newly re-elected Argentinian President, Cristina Kirchner, is threatening to cancel permission for the only commercial flight to Port Stanley to overfly Argentina, and in December 2011 the Mercosur bloc, which includes Argentina, Brazil and Uruguay, agreed to close its ports to ships flying the flag of the Falkland Islands. Demonstrations have also occurred in Buenos Aires, with UK flags being burnt outside the British Embassy.

With feelings running high, UK Prime Minister David Cameron has taken several steps to indicate that Britain is not prepared to compromise on this issue. Most notably, the announcement that a state-of-the-art Type 45 destroyer, HMS Dauntless, will be deployed to the area from the end of March 2012 makes the British government's intentions clear, and has been denounced as an 'attempt to militarise the conflict' by Kirchner. The recent deployment of Prince William to the islands ahead of a tour of duty as an RAF search and rescue pilot has also caught the headlines. We expect that these tensions will intensify throughout 2012 and particularly as the commemoration of Liberation Day in the Falklands on 14 June approaches.

With the drilling activity in the Southern Basin occurring alongside these developments, there is potential that the discovery of any hydrocarbons here could exacerbate the situation. Further heightening of the dispute could, in the worst-case scenario, result in the situation becoming too difficult for any field developments to be executed.

### Funding

Funding is a key issue in today's difficult financial climate. With companies unable to secure the same high levels of debt funding as prior to 2008, the shortfall needs to be raised through higher levels of equity financing. For the Falklands, these issues can be seen most clearly in Argos and Desire's inability to raise funds to keep the rig onsite and drill their wells, despite having independently verified resources in the vicinity of the Sea Lion discovery.

And now Rockhopper is looking for a partner to partly or wholly fund its \$2bn Sea Lion development. This, however, is a different proposition, with the company's appraisal programme

having successfully demonstrated commerciality and a number of companies thought to be in discussion with Rockhopper.

Activity in the Southern Basin is fully funded to the end of the current drilling programme, however any activity beyond this will require additional funding. To this end, FOGL is known to be in discussion with potential partners, while B&S has stated that it will go to the market in the event that either of its wells is successful.

## **Environmental**

An oil spill in the Falklands would be damaging for any company involved. From BP's Macondo well blowout to Greenpeace's protests against Cairn Energy offshore Greenland, care of the environment is an issue that affects all oil companies today. Most recently, Chevron's oil spill from its Frade well offshore Brazil in November 2011 has resulted in the company being banned from drilling for three months and the threat of a \$10.6bn lawsuit. It should be noted that the Falklands' most likely development to date, Sea Lion, sits in shallow waters and is normally pressured. These factors suggest that a spill here would be relatively easy to contain. The company's independently prepared Environmental Impact Statement concludes that any spill would not reach the Falklands coastline where the most damage would occur. Any spill in the Southern Basin would, however, require more careful planning to control, due to the deeper waters found here. The political fallout from any environmental damage would be toxic, with damage to a relatively untouched area containing diverse wildlife adding to the already difficult political situation with Argentina.

Finally, the frontier nature of the Falklands could make it a target for environmentalists, although no such protests occurred during the North Falkland campaign, perhaps as a result of the remote location.

## Valuation: Opportunities aplenty at different risk levels

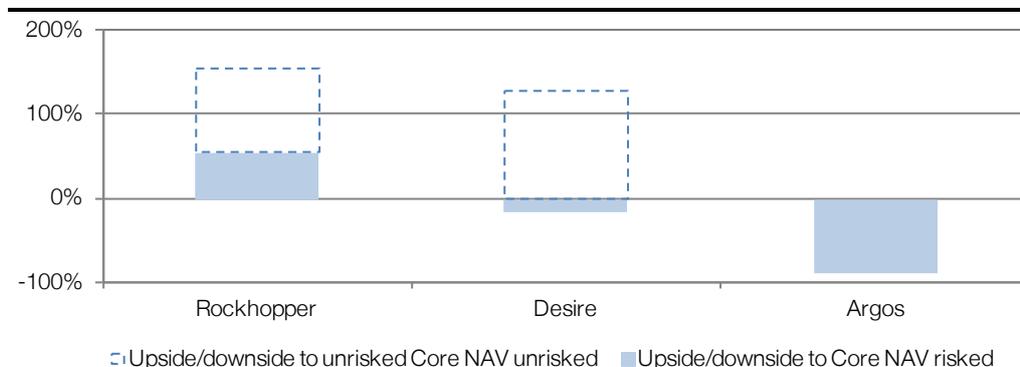
With each basin covering different geologies and stages of exploration, the Falklands offer investors a choice of stocks covering different levels of risk. With Sea Lion de-risked and shown to be economic, we believe that Rockhopper will crystallise value here as the route to funding and development progresses. Meanwhile, the ongoing frontier deepwater exploration in the Southern Basin has the potential to result in significant uplift for FOGL and B&S, in the event of a commercial discovery in the 2012 drilling campaign.

### Sea Lion demonstrates core NAV fundamentals for Northern players

Through Rockhopper's appraisal and pre-development modelling of Sea Lion we are able to calculate a discounted cashflow (NPV<sub>12%</sub>) of \$9.3/bbl of unrisksed contingent resources. Based on 424mmboe of net resource across the main Sea Lion field and the southerly extension, and adjusting for net cash and administration spend, this equates to a sizeable core NAV of \$4.0bn, or 881p per share on an unrisksed basis. Even with a relatively conservative 60% chance of success consistent with our recent research note<sup>1</sup> on Rockhopper, this equates to a core NAV of \$2.4bn, or 534p per share. With Rockhopper trading at around 360p, this means there is currently around 50% upside to the risksed core NAV. Critically, barring any political intervention, we consider this a low-risk development, hence adding support to our conviction that the field will be developed, either by Rockhopper itself or by a new player in the region with the balance sheet available to fund the c \$2bn development.

#### Exhibit 17: North Falkland operators' valuation with CoreNAV upside/downside

Note: Share prices as at market close on 10 February 2012.



Source: Edison Investment Research

As well as providing decent line of sight for Rockhopper, the Sea Lion development also provides indicative economics for development of extensions and satellite fields to the main Sea Lion hub. This means that, for Desire Petroleum which enjoys a now diluted 40% interest in the southern Sea Lion extension, we can value the company on a core NAV risksed basis at \$142m or, 26p per share. In effect this means that investors in Desire are getting exploration upside in for free at the current share price, but Desire lacks the low-risk development upside that exists within the Rockhopper share price.

<sup>1</sup> [Fans of the Falklands](#), 8 November 2011.

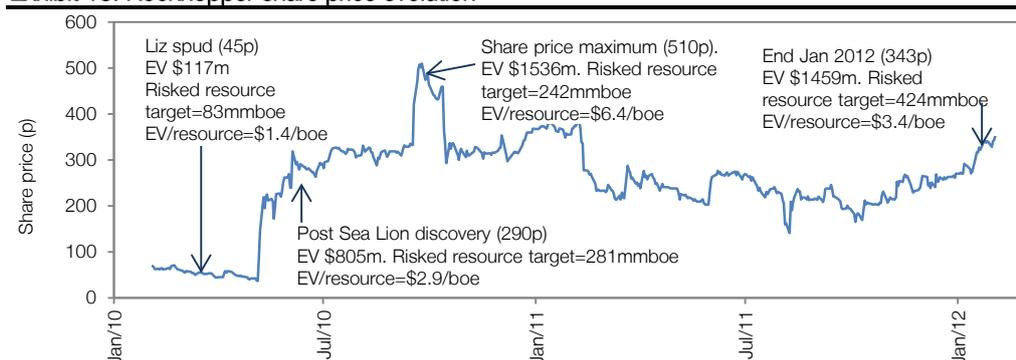
Unfortunately for Argos Resources it missed the boat to drill in 2010 and 2011 and hence has no discoveries to develop within a core NAV valuation. Argos is, like B&S and FOGL in the south, a pure play exploration company, although any sort of significant upside, outside of general Falklands euphoria, is unlikely to materialise until a suitable rig returns to the Northern Basin.

## Southern Basin players lead the exploration proposition

Given the non-operational risks associated with the Falklands (ie political, environmental etc), investors are as likely to be drawn to the re-rating potential that comes from high-impact exploration drilling as they will be to the relatively low-risk development upside available in our core NAV analyses. To assess the exploration upside potential in more detail we can look at the 'ride' that investors in Rockhopper have enjoyed from its success with Sea Lion.

In 2010, prior to Rockhopper making its Sea Lion discovery, it was targeting a relatively modest 83mmboe of net resources across its interests in Liz, Sea Lion, Ernest, Ann and Ninky. Having come up short with its minority, non-operated 7.5% interest in Liz, the company was drilling its first targets as operator. With a share price of 45p and c \$65m cash in the bank (just sufficient cash to fund its planned exploration drilling programme) the company was rolling a dice offering investors a post-drill enterprise value of \$117m in return for a chance of making a commercial discovery. The market was in effect valuing the company at a not unreasonable \$1.4/boe of risked resources. In the month after the Sea Lion discovery and prior to a well timed fund-raising to capitalise on the share price gain, the stock had gained 644% to 290p. Even before any appraisal work, or exhausting the original funds for drilling, the market had re-rated the valuation of Rockhopper to \$2.9/boe of risked resources. It is important to highlight the fact that even though Rockhopper had effectively only de-risked geologically its Sea Lion prospect with its discovery, the market in effect was further rewarding the company for prospective upside over and beyond the geological risk. This is not uncommon and forms the basis for what we can expect the other Falklands explorers to do if they have equally encouraging discoveries.

**Exhibit 18: Rockhopper share price evolution**



Source: Edison Investment Research

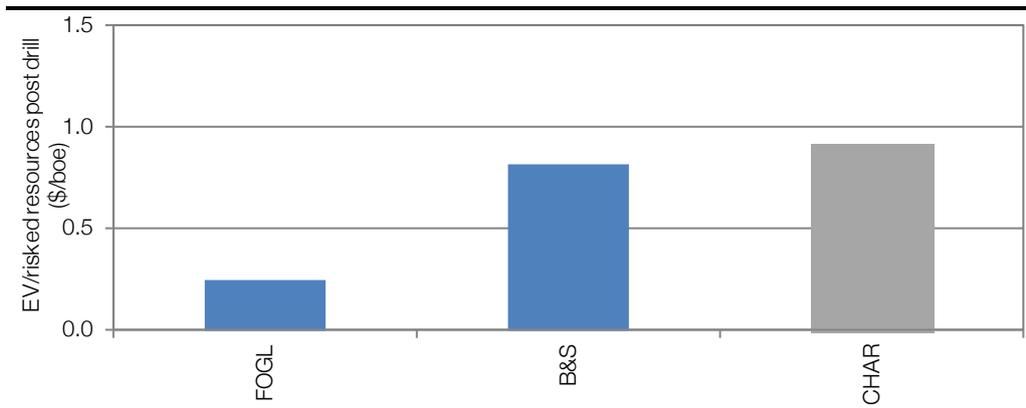
By September 2010, and having raised £48.5m in additional raises in a strong bull market, the share price peaked at 510p, consistent with an EV/risked resource of \$6.4/boe of Sea Lion estimated resources. This has since softened to \$3.4/boe, in part as a result of a bearish market, but largely because successful appraisal drilling has increased net resource estimates of the Sea Lion complex up to today's estimate of 424mmboe.

Although Rockhopper has been the runaway success of the Falklands stocks so far, all the companies operating in the islands offer exploration upside. However it is in the Southern Basin that the real re-rating potential exists. As the drill-bit begins to spin, both B&S and FOGL are currently rated at significantly below the relative market valuation ascribed to Rockhopper prior to it starting its exploration campaign. Based on B&S targeting risked resources of 510mmboe assuming a 25% geological chance of success(GCoS), and FOGL targeting risked resources of 1150mmboe based on a 20% GCoS, the companies today trade at \$0.8/boe and \$0.2/boe of risked resources respectively (compared with \$1.4/boe for Rockhopper ahead of its Sea Lion discovery). Consistent with Rockhopper, it is therefore not unreasonable to assume that share price gains running in excess of 500% could be possible with both companies if there are encouraging drill results. However, this does not answer the question as to whether the South Falklands explorers offer some of the best investment opportunities for those seeking elephant hunter upside globally.

To answer this, we have analysed the market valuations for the South Falkland explorers along the same lines as we did for Rockhopper above, and compared these with the valuations currently being ascribed by the market to another frontier explorer with assets concentrated in only one pure exploration play. The results of this analysis we summarise in Exhibit 19.

#### **Exhibit 19: South Falkland operators EV/risked resources post drill**

Note: Share prices as at market close on 10 February 2012.



Source: Edison Investment Research

Chariot, with assets offshore Namibia is, like FOGL and B&S, planning to drill two high impact wells in 2012 and, with an EV/risked resources of \$0.9/boe, trades at market values a little above B&S. Unlike the South Falklands operators, Chariot has in part mitigated its downside risk with farm-outs, most recently to BP. Other than this, however, the companies are broadly similar from a pure exploration perspective.

In reality the discounting of the South Falklands stocks can be attributed to a number of reasons. Firstly there have been no wells drilled in the deepwater plays in the south so it remains something of an unknown proposition to investors. The large size of the prospects, particularly FOGL's huge Loligo target, are also of a magnitude that are difficult for investors to comprehend, while the pulling out of FOGL's ex-partner BHP Billiton has resulted in some negative speculation as to why it would do so. However, we address these concerns in the main body of the report and believe that

both FOGL and B&S offer significant upside value at a reasonable chance of success for a frontier basin.

## Northern Basin exploration adds upside to core NAV

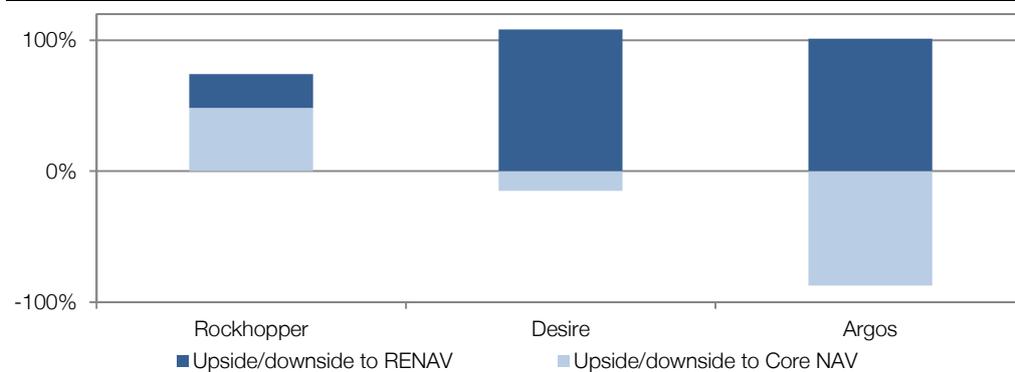
Although the largest exploration upside clearly exists in the South Falklands, the companies operating in the Northern Basin can still provide investors with more than just core NAV. However, any notion of significant exploration fuelled RENAV must be caveated with the fact that these are longer-term outlooks given there are currently no plans for a drilling rig to be operating in the Northern Basin until probably 2015.

The Rockhopper RENAV upside of an additional 26% to current share price is based on the appraisal and development of the Casper field. Although drilling of the eastern part of this field proved to be water wet, a successful oil discovery within the western part of the field offers investors some additional upside, albeit the main value proposition for Rockhopper remains the proving up and value crystallisation of the Sea Lion field.

Our evaluation of the Desire and Argos RENAV's both offer c 100% upside to current share price. In the case of Desire this comes from the appraisal and potential development to the Casper extension (in which Desire now has a 40% interest) along with exploration activity on the 98mmboe unrisks net prospective resource Jayne prospect. The only upside in the Argos stock, from a fundamental basis, comes from a proposed multi-target well to intercept the Rhea, Poseidon C and Selene prospects, targeting 216mmboe of unrisks net prospective resources. However, both Argos and Desire are unlikely to be able to generate much value from this upside potential until a rig is secured for further drilling in the Northern Basin. At present this looks likely to be in 2015 when Rockhopper expect to start development drilling on Sea Lion, although both Argos and Desire will obviously hope to mobilise a rig earlier than this if funding can be secured. Any early access to funding is most likely going to be linked to success in the Southern Basin, boosting the confidence of investors in the region and offering the opportunity for Argos and Desire to raise equity at more attractive share prices.

### Exhibit 20: North Falkland operators' valuation with RENAV upside

Note: Share prices as at market close on 10 February 2012.



Source: Edison Investment Research

# Company profiles

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# Argos Resources

## Investment summary: Missed opportunity?

As part of the Amerada Hess consortium that drilled in the basin in 1998, Argos is one of the original Falklands players. The company had intended to drill several wells as part of the recent Ocean Guardian campaign; however, it was unable to raise sufficient funds for this and chose to reject funding for one well in favour of waiting to be able to drill several wells together. It could be some time before any future drilling is possible, with a rig currently not planned to return to the Northern Basin until 2015.

### Assets: Large prospect portfolio

3D seismic carried out during 2011 has added 22 prospects to the six already identified from 2D seismic, taking prospective resources from 747mmbbls to 2,107mmbbls, all independently confirmed by a CPR from Senergy. The portfolio includes structural and stratigraphic traps spread across the Eastern and Western Graben, and contains several prospects with similar seismic anomalies to Rockhopper's Sea Lion discovery.

### Challenges: No activity in sight

Argos is now the only North Falklands operator without any prospects drilled. Experience from peers Rockhopper and Desire has highlighted the productivity of sands in prospects along the east of its block. However, the company will have to drill its more westerly prospects in order to demonstrate the potential there. Funding in today's equity markets remains difficult and the company is currently sitting with no near-term catalysts and little cash. A rig is not scheduled to return to the Northern Basin until Rockhopper begins development drilling in 2015, so there are few near-term specific catalysts to point to.

### Management and strategy

MD John Hogan brings significant industry and Falklands experience, having been COO of LASMO plc and MD of LASMO North Sea for 11 years during the period that LASMO was active in the Falklands. Founder and Executive Chairman Ian Thomson and FD Andrew Irvine have in-depth knowledge of the Falklands, with both being on the board of a number of other Falklands companies. Argos's strategy of waiting it out seems for the moment to have been unsuccessful. However, the company intends to farm out in 2012 and is actively pursuing further funding options.

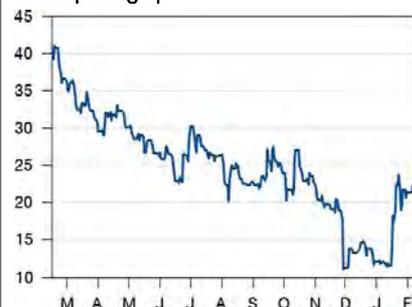
### Valuation and financials

Argos raised \$32m cash in 2010 and held \$12.7m at end June 2011. However, the company was unable to raise additional funds in 2011 to drill its preferred programme of two or more wells and decided not to pursue an option to drill one well only. Our RENAV of 24.7p assumes the drilling of one well to intercept the Rhea, Poseidon C and Selene prospects. However, this valuation offers only a slight premium to the current share price. Argos's share price has seen significant gains in January 2012 as investors look for a cheap route into Falklands stocks, and we see continued success among peers as the most likely catalysts for any further gains in the absence of specific activity from Argos.

Price\* 21.75p  
Market Cap £47m

*\*As at 10 February 2012*

#### Share price graph



#### Share details

Code	ARG
Listing	AIM
Sector	Oil & Gas
Shares in issue	216m

#### Price

52 week	High	Low
	43p	11p

#### Balance Sheet as at 30 June 2011

NAV per share (c)	16.5
Net cash (\$m)	12.7

#### Business

Argos Resources is an oil and gas exploration and appraisal company focused on the North Falkland basin in the southern Atlantic.

#### Newsflow catalyst

2012: potential farm down

#### Analysts

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oilandgas@edisoninvestmentresearch.co.uk	

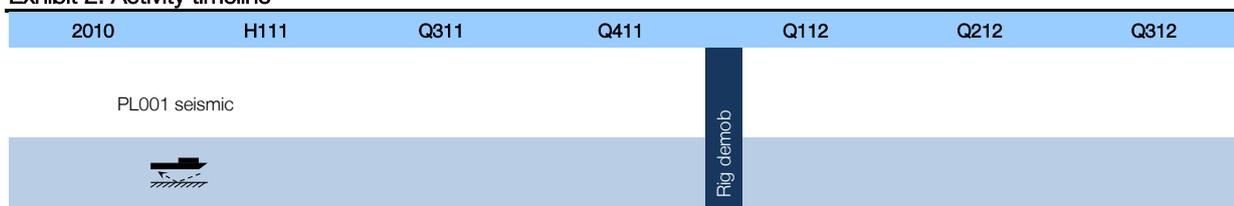
**Exhibit 1: Evaluation criteria**

Risk potential based on ★ low risk/key strength, ★★ medium risk, ★★★ high risk/weakness.

	Exposure	Comment
Management & partners	★★	Strong E&P board experience from MD John Hogan complemented by in depth Falklands knowledge. Holds 100% WI in licence.
Subsurface understanding/complexity	★★	Strong geology credentials are backed up with recent 3D and increased understanding of basin from other operators; however, not yet proven with no activity to date.
Portfolio balance/upside potential	★★	Portfolio contains 28 prospects of different types and locations within the licence. Most prospects are < 80mmbo, though possible to target several in one well. Western prospects have lower POS.
Monetisation routes	★★★	No development possible without any exploration drilling. Development of any discovery likely to be with FPSO so simple infrastructure. May need to tie back to other operator facilities unless any discovery is large,
Financial strength/discipline	★★★	Lack of funds leaves company as the only operator not to drill in recent campaign.

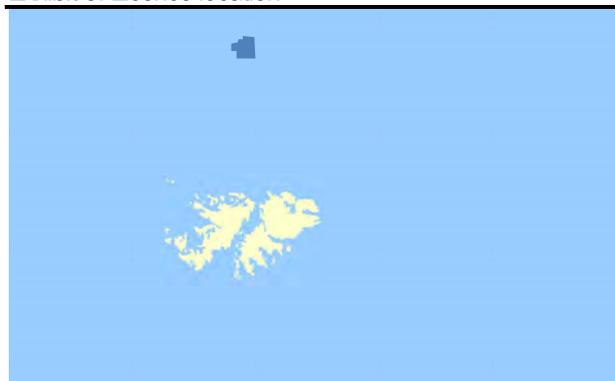
Source: Edison Investment Research

**Exhibit 2: Activity timeline**

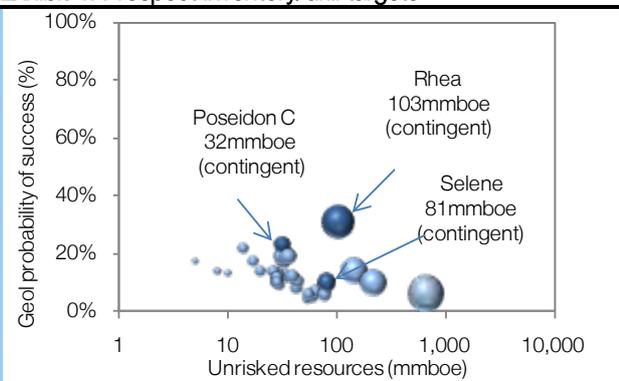


Source: Edison Investment Research

**Exhibit 3: Licence location**



**Exhibit 4: Prospect inventory/drill targets**



Source: Edison Investment Research

**Exhibit 5: Valuation**

FD shares	216.0									
\$/£	1.60									
					Unrisked		Netback			
<b>Assets</b>	<b>Country/licence</b>	<b>WI %</b>	<b>Hydroc. fluid</b>	<b>Geol/Comm CoS %</b>	<b>reserves/resources Gross mmboe</b>	<b>Net mmboe</b>	<b>NPV/boe \$/boe</b>	<b>EMV \$m</b>	<b>Value/sh (p)</b>	
Net cash								12.7	3.7	
G&A								(3.3)	(0.9)	
<b>Core NAV</b>							<b>Total</b>	<b>9.4</b>	<b>2.7</b>	
<b>Exploration/appraisal</b>										
Rhea/Poseidon C/Selene		100%	Oil	8%	216.0	216.0	6.0	76.1	22.0	
<b>RENAV</b>							<b>Total</b>	<b>85.5</b>	<b>24.7</b>	

Source: Edison Investment Research

# Borders & Southern Petroleum

## Investment summary: Near-term catalysts

Borders & Southern (B&S) commenced drilling the first of its two wells in the southern basin at the end of January 2012. We expect keen market interest as the two well programme is executed in this greatly underexplored basin. Both wells are fully funded and offer significant upside opportunity.

### Assets: High-impact prospects

B&S spudded well 61/17-1 on the Darwin prospect on 31 January 2012, with drilling expected to take 45 days and this will be followed by Stebbing. Both prospects were identified on 2D seismic, with further definition coming from 3D. Darwin is a tilted fault block with estimated prospective resources of 300mmbbl for the amplitude anomaly alone, rising to 760mmbbl if the structure is filled to the spill point. Stebbing is a thrust cored anticline with resources of 710mmbbls in the main Tertiary target and 570mmbbls in the Upper Cretaceous. There is no shortage of prospects in the portfolio, with 14 other drill prospects available.

### Challenges: Wait on well results

With both wells fully funded at \$50m each and near-term drilling secured, the hard work is now done and it is a case of waiting for the Darwin and Stebbing results. The result of each prospect is independent of the other, but, whatever the outcome, we expect B&S to take its time in analysing the results before returning either to appraise or continue exploring.

### Management and strategy

The management team, led by CEO Howard Obee, has predominately come from BHP Billiton, with the drilling team having extensive deepwater experience. The strategy to target high-risk/high-reward projects in unproven or emerging basins is due to be tested for the first time as the first prospects are drilled, and the period of analysis following the drilling programme will give the company time to effectively plan further work.

### Valuation and financials

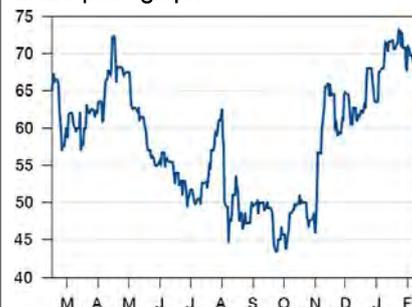
Having raised a net \$184m in 2009, B&S is fully funded to drill both Darwin and Stebbing, with ample contingency. Trading at an EV/risked resources of \$0.81/boe, the company offers investors plenty of upside in the event of drilling success. We would expect investor anticipation to drive up the stock during drilling of Darwin, although a dry hole here could deflate optimism for the Stebbing well, even though the two prospects are geologically totally different. There are cheaper exploration barrels available to invest in, not least with Southern Basin neighbour FOGL, but with full 3D across its two target prospects and a clearly defined drill programme, investors to date have rewarded B&S with a stronger share price ahead of its pioneering drill programme.

Price\* 69.5p

Market Cap £298m

*\*As at 10 February 2012*

#### Share price graph



#### Share details

Code	BOR
Listing	AIM
Sector	Oil & Gas
Shares in issue	428.6m

#### Price

52 week	High	Low
	76p	42p

#### Balance Sheet as at 30 June 2011

NAV per share (c)	57
Net cash (\$m)	197.2*

*\*includes restricted cash of \$35.5m.*

#### Business

Borders & Southern is an oil and gas exploration and appraisal company focused on the South Falkland basins in the southern Atlantic.

#### Newsflow catalysts

February 2012: Darwin well

March 2012: Stebbing well

#### Analysts

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Ian McLelland	020 3077 5756
oilandgas@edisoninvestmentresearch.co.uk	

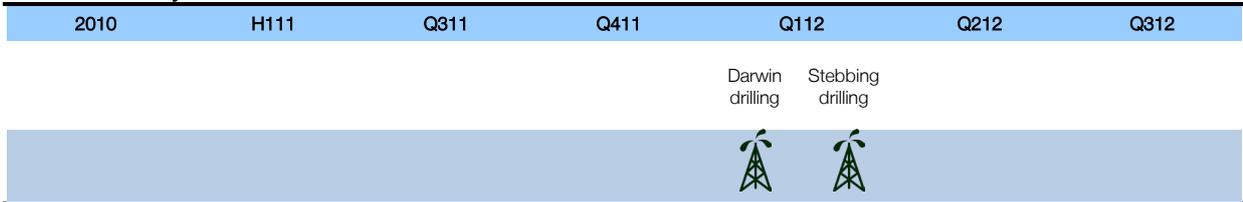
**Exhibit 1: Evaluation criteria**

Risk potential based on ★ low risk/key strength, ★★ medium risk, ★★★ high risk/weakness.

	Exposure	Comment
Management & partners	★★	CEO Howard Obee has 20 years' industry experience with most of the team having worked extensively for BHP Billiton. Holds 100% WI of its licences.
Subsurface understanding/complexity	★★	Extensive technical knowledge from the team must now prove its credentials with well results.
Portfolio balance/upside potential	★	Portfolio contains 14 further prospects to upcoming wells spread across a range of play types.
Monetisation routes	★★	Large prospect sizes should make development of any discovery economic. Gas discovery would require a pipeline to the Falklands and an LNG plant.
Financial strength/discipline	★	Cash of c \$195m is more than sufficient to meet the drilling programme costs.

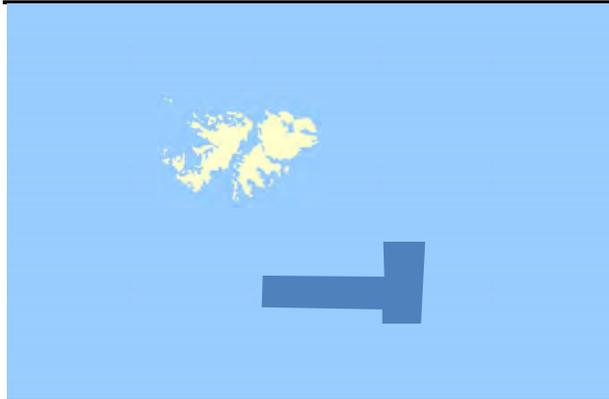
Source: Edison Investment Research

**Exhibit 2: Activity timeline**

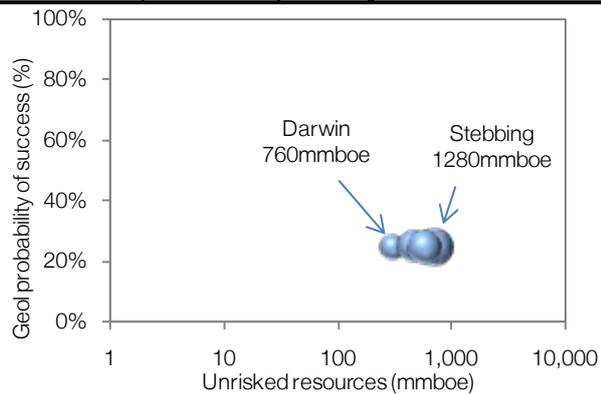


Source: Edison Investment Research

**Exhibit 3: Licence location**

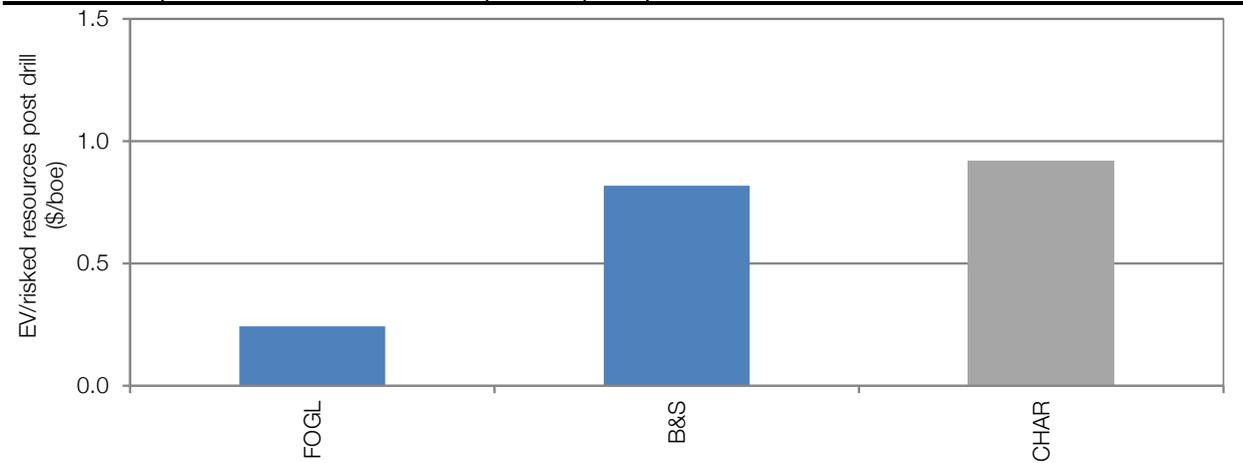


**Exhibit 4: Prospect inventory/drill targets**



Source: Edison Investment Research

**Exhibit 5: Comparison of EV/riskd resources post drill (\$/boe)**



Source: Edison Investment Research

# Desire Petroleum

## Investment summary: Farm out delivers results

Desire operated six exploration wells in 2010 and 2011, by far the most extensive exploration campaign by a company so far in the Falklands. However, results have been disappointing, with a gas/condensate discovery in Liz and the remaining wells unsuccessful. A farm down of part of its northern acreage to Rockhopper has proved up the southern extent of Sea Lion and Casper at no cost to Desire and resulted in the discoveries Beverley and Casper South. However, a lack of funds means the company cannot at present capitalise on these developments.

### Assets: East flank fairway

Most prospectivity is expected to come from the East flank fairway, which has been so successful for Rockhopper. Recent 3D acquisition focused on this area and resulted in an October 2011 CPR identifying six new prospects in Licences PL003 and PL004 and a re-evaluation of one prospect on the western margin of the licences with total recoverable resources of 322mmbbls net to Desire. A CPR covering the remaining licence areas is planned for 2012.

### Challenges: No activity in sight

Desire had hoped to drill at least one further well as part of the Ocean Guardian drilling campaign most likely in Area 2 of Licence PL004, containing Jayne and the remainder of Beverley, and in which Rockhopper recently increased its working interest to 25%. The company was, however, unable to raise funds to achieve this, so at present has no near-term catalysts. There are currently no plans for a rig to return to the area until 2015, when development drilling is due to begin on Rockhopper's Sea Lion field.

### Management and strategy

CEO Dr Ian Gordon Duncan brings extensive oil industry experience both as a geologist and as a director at Clyde Petroleum. The strategy of drilling several exploration wells in quick succession may have been to the detriment of the programme outcome as Desire needed to react to new data over short time periods. The recent farm out and 3D seismic results brought success with the Rockhopper-operated 14/15-4 well; however, funding remains an issue in today's difficult financial climate and the departure of the Ocean Guardian rig makes near-term activity unlikely.

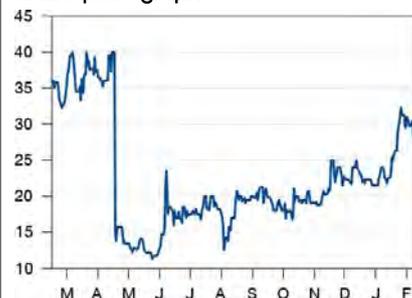
### Valuation

A cash position of \$13.9m at end June 2011 left Desire unable to rejoin the Ocean Guardian drilling campaign; however, a successful farm down of part of its acreage to Rockhopper did result in a share of the Sea Lion and Casper extensions and allowed the company to exit the campaign with some discoveries. Our core NAV of 26.5p is very close to the current share price; however, if we include a contingent well on Jayne in our RENAV calculation, it highlights upside of twice the current share price in the event that a well can be drilled, with five times uplift possible in the event of drilling success.

Price\* 30.5p  
Market Cap £104m

*\*As at 10 February 2012*

#### Share price graph



#### Share details

Code	DES
Listing	AIM
Sector	Oil & Gas
Shares in issue	342m

#### Price

52 week	High	Low
	50p	11p

#### Balance Sheet as at 30 June 2011

NAV per share (c)	56
Net cash (\$m)	13.9

#### Business

Desire Petroleum is an oil and gas exploration and appraisal company focused on the North Falkland basin in the southern Atlantic.

#### Newsflow catalysts

2012: CPR on non East flank fairway prospects.

#### Analysts

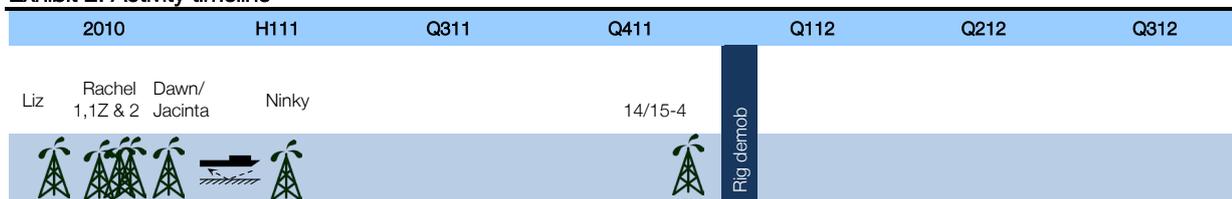
Elaine Reynolds	+44 (0)20 3077 5700
Ian McLelland	+44 (0)20 3077 5756
oilandgas@edisoninvestmentresearch.co.uk	

**Exhibit 1: Evaluation criteria**

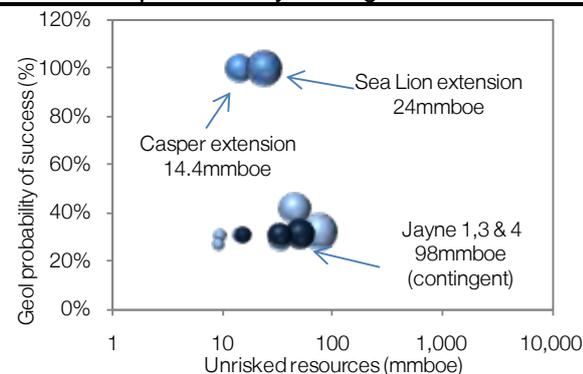
Risk potential based on ★ low risk/key strength, ★★ medium risk, ★★★ high risk/weakness.

	Exposure	Comment
Management & partners	★★	Strong E & P experience comes from CEO Dr Ian Gordon Duncan and Exploration Director Ken Black. Has successfully farmed down part of its licences to Rockhopper, with costs for 40% of Sea Lion extension well fully carried.
Subsurface understanding/ complexity	★★	Exploration success to date has been disappointing, but updated 3D and focus on East Flank brought gains at campaign end.
Portfolio balance/ upside potential	★★	Latest CPR identifies a number of prospects, mostly <100mmbbls but with reasonable CoS for exploration targets. Further prospects will be identified in the 2012 CPR.
Monetisation routes	★★	Small prospects still likely to be economic if they can be tied back to future Sea Lion development. Identified prospects are close to Sea Lion.
Financial strength/ discipline	★★★	Lacks funds to drill any further wells.

Source: Edison Investment Research

**Exhibit 2: Activity timeline**

Source: Edison Investment Research

**Exhibit 3: Licence location****Exhibit 4: Prospect inventory/drill targets**

Source: Edison Investment Research

**Exhibit 5: Valuation**

FD shares	342.0									
\$/£	1.60									
Assets	Country/ licence	WI %	Hydroc. fluid	Geol/Comm CoS %	Unrisked reserves/resources		Netback			
					Gross mmb	Net mmb	NPV/boe \$/boe	EMV \$m	Value/sh (p)	
<b>Under development</b>										
Sea Lion extension		40.0%	Oil	60%	59.0	23.6	9.3	131.8	24.1	
Net cash								13.9	2.5	
G&A								(3.7)	(0.7)	
<b>Core NAV</b>								<b>Total</b>	<b>142</b>	<b>25.9</b>
<b>Exploration/appraisal</b>										
Casper extension		40.0%	Oil	60%	35.9	14.4	9.3	80.2	14.7	
Jayne		75.0%	Oil	19%	130.7	98.0	6.0	100.4	18.3	
<b>RENAV</b>								<b>Total</b>	<b>323</b>	<b>59.0</b>

Source: Edison Investment Research

# Falkland Oil & Gas

## Investment summary: Near-term catalysts

FOGL will test its deepwater plays for the first time when it drills two wells in 2012, including the huge Loligo prospect. A discovery in either well would unlock significant value, and bring into play a comprehensive portfolio of prospects. Having raised \$78m in January 2012 the company is now fully funded for all possible drill scenarios. We expect growing interest in the stock in coming weeks as activity begins for Borders & Southern and FOGL in this untested area.

### Assets: Potential game changers

FOGL will first drill Loligo Deep targeting 4,700mmbbls in the Tertiary channel play, with Scotia as the preferred second well, targeting 1,062mmbbls in the Mid Cretaceous fan play. In the event of success in either well, the portfolio contains several other prospects in these plays as well as a number of prospects in the Springhill play and Tertiary foldbelt, which will be tested by Borders & Southern's programme.

### Challenges: Wait on well results

Having secured the rig slots and raised the finance, it is now a question of waiting on results for FOGL. By deciding to drill Loligo Deep (there was a cheaper option to only drill a shallower Loligo well) FOGL is increasing the number of target prospects with its two wells, although a multi-target well means that well placement may not be optimal. The company has had some interest from potential partners and a successful farm out would increase confidence in future development of the acreage.

### Management and strategy

CEO Tim Bushell and Chairman Richard Liddell are extremely experienced. A farm out to BHP Billiton validated the quality of the portfolio, with BHPB's subsequent pull out felt to be politically motivated, and the company's involvement estimated to have saved FOGL \$128m. The upcoming drill programme will be followed by a period of analysis, giving the company plenty of time to effectively plan further work.

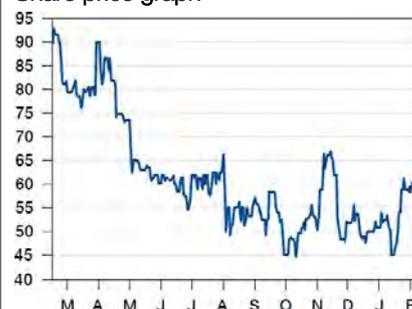
### Valuation and financials

FOGL raised \$51m in April 2011. However, a cash position of \$133m in December 2011, including a BHP settlement of \$40m, was not enough to drill Loligo Deep at \$65m, the deeper Scotia prospect at \$75m and cover rig de-mob costs. To meet the shortfall the company raised c \$78m in January 2012 and this fully funds the 2012 drill programme. However, any significant further activity deemed necessary as a result of the programme will require additional funds. The sheer size of Loligo, together with the pull out of ex-partner and operator BHP Billiton, has led to an element of general cynicism and we feel the stock has been overly discounted. FOGL trades at \$0.23/boe on an EV/unrisked resources basis, making it the cheapest stock in the Falklands. With two identified catalysts imminent, there is clear potential to unlock significant value in 2012.

Price\* 61.5p  
Market Cap £197m

*\*As at 10 February 2012*

#### Share price graph



#### Share details

Code	FOGL
Listing	AIM
Sector	Oil & Gas
Shares in issue	320m

#### Price

52 week	High	Low
	99p	42p

#### Balance Sheet as at 30 June 2011

NAV per share (c)	91
Net cash (\$m)*	211

*\*Estimated post January 2012 equity issue*

#### Business

Falkland Oil & Gas is an oil and gas exploration and appraisal company focused on the South and East Falkland basins in the southern Atlantic.

#### Newsflow catalysts

March/April 2012: possible farmout  
May 2012: Loligo well  
July 2012: Scotia/other well

#### Analysts

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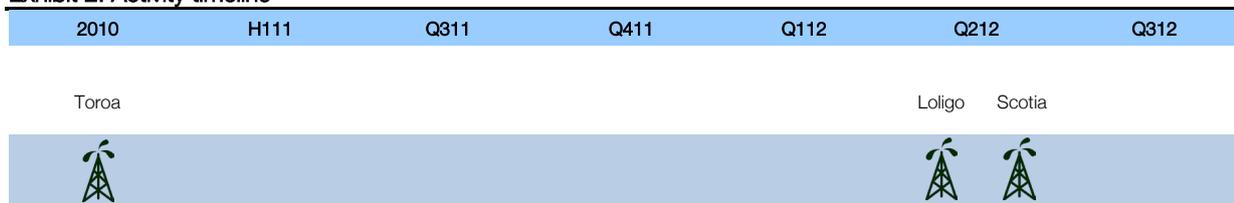
**Exhibit 1: Evaluation criteria**

Risk potential based on ★ low risk/key strength, ★★ medium risk, ★★★ high risk/weakness.

	Exposure	Comment
Management & partners	★★	A wealth of experience on the board with Tim Bushell (CEO) and Richard Liddell (Chairman) both with over 20 years' industry experience. Attracted BHP Billiton as a partner, although it subsequently pulled out.
Subsurface understanding/complexity	★★	A strong technical team at FOGL now needs results from the drilling campaign to demonstrate its worth.
Portfolio balance/upside potential	★	Holds extensive portfolio of large prospects across all play types with potential for significant upside in case of success.
Monetisation routes	★★	Large prospect sizes should make development of any discovery economic. Gas discovery would require a pipeline to the Falklands and an LNG plant.
Financial strength/discipline	★	Ability to farm out acreage to BHP allowed the bulk of previous exploration costs to be carried and \$40m contribution to Loligo well. Fully funded for drill programme.

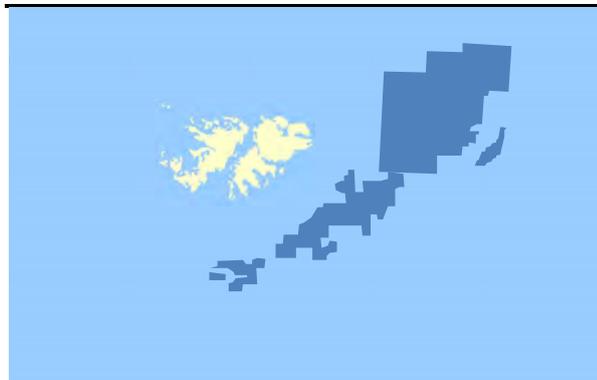
Source: Edison Investment Research

**Exhibit 2: Activity timeline**

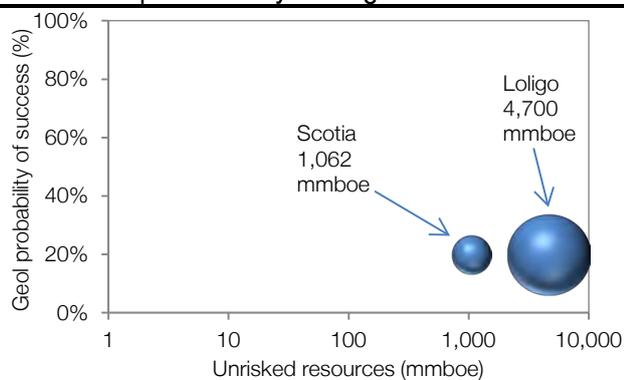


Source: Edison Investment research

**Exhibit 3: Licence location**

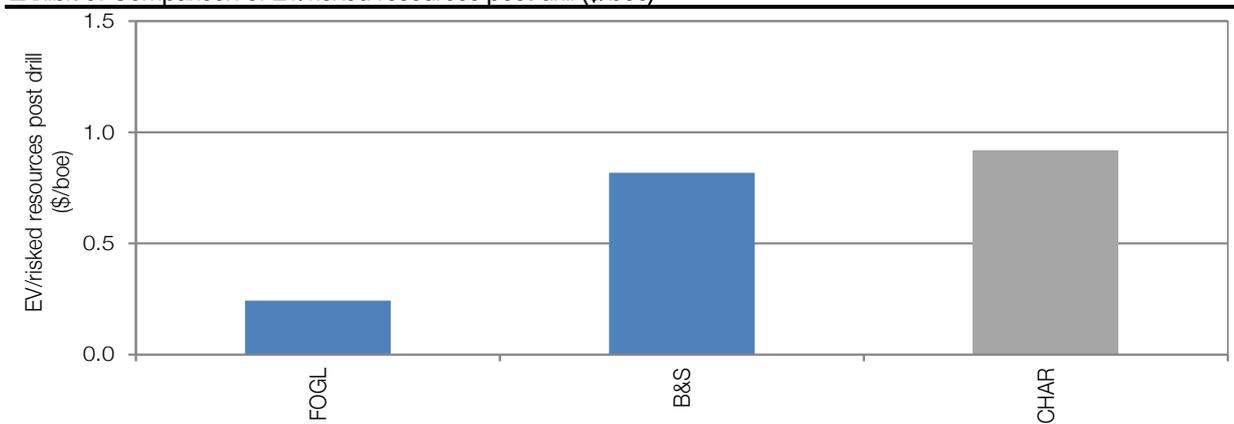


**Exhibit 4: Prospect inventory/drill targets**



Source: Edison Investment Research

**Exhibit 5: Comparison of EV/risked resources post drill (\$/boe)**



Source: Edison Investment Research

# Rockhopper Exploration

## Investment summary: First mover

As a 100% holder of the first discovery in the area, Rockhopper has taken full advantage of its first mover status and upgraded resource estimates for Sea Lion to almost 400mmbbls as a result of an intensive appraisal campaign over the last 18 months. The field is robustly economic, yet the shares remain significantly undervalued, dampened by a combination of political and largely unfounded technical concerns. With development of the field highly likely, we expect value to be crystallised through a farm down and funding or through an industry acquisition prior to FDP submission in early 2013.

### Assets: Sea Lion keeps getting bigger

Sea Lion is Rockhopper's core asset and the focus of activity since its discovery in May 2010. The appraisal campaign together with 3D seismic has allowed an upgrade in resources from a pre-discovery estimate of 170mmbbls to 389mmbbls, with upside targeted in the southern extension into licence PL004b where the company has farmed in and assumed operatorship. The drilling campaign ended in January 2012, with a CPR to follow in early 2012. A \$2bn concept development plan envisages subsea wells tied back to an FPSO with first oil in 2016. Casper, Casper South and Beverley were also discovered, with additional work required to establish commerciality for the latter two, as Beverley encountered wet gas and Casper South found oil and wet gas.

### Challenges: Bringing Sea Lion to development

As first mover in a frontier basin, Rockhopper has had to bear the brunt of the technical and political concerns surrounding the North Falkland basin. Its solid technical work has shown the majority of these concerns to be unfounded, with commercial volumes and flow rates clearly demonstrated. Rockhopper must now crystallise the value of Sea Lion either through a farm down and funding, or an industry acquisition.

### Management and strategy

CEO Sam Moody's financial background is complemented by experienced oil man Chairman Dr Pierre Jungels, who was chief executive of Enterprise Oil for five years. Since the discovery of Sea Lion, the company has significantly strengthened its team of senior technical managers, giving it the technical ability to bring the field to development. To realise the value of Sea Lion, funding to first oil is now the top priority.

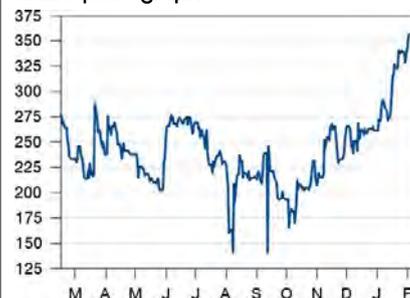
### Valuation and financials

Rockhopper successfully funded its extensive Sea Lion appraisal programme and estimates net cash of \$100m at the end of December 2011. We assign a core NAV of 546p to the company, a significant premium to the current share price. Originally driven by political and largely unfounded technical concerns, the shares remain cheap as the market looks to see how the \$2bn development will be funded, with recent press speculation raising Anadarko Corp, Cairn Energy, Premier Oil and Noble Energy as potential partners/buyers.

Price\* 360p  
Market Cap £1,023m

\*As at 10 February 2012

#### Share price graph



#### Share details

Code	RKH
Listing	AIM
Sector	Oil & Gas
Shares in issue	284m

#### Price

52 week	High	Low
	365p	135p

#### Balance Sheet as at 30 September 2011

NAV per share (c)	126
Net cash (\$m)*	100

\*estimated as at 31 December 2011.

#### Business

Rockhopper Exploration is an oil and gas exploration and appraisal company focused on the North Falkland basin in the southern Atlantic.

#### Newsflow catalysts

Early 2012: CPR  
2012: Potential farm out  
April 2013: FDP submission deadline

#### Analysts

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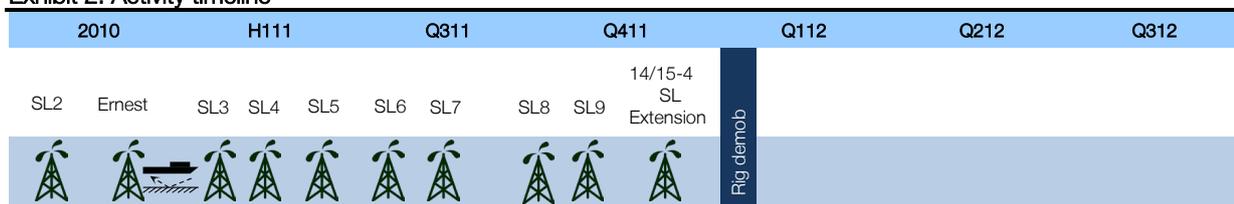
**Exhibit 1: Evaluation criteria**

Risk potential based on ★ low risk/key strength, ★★ medium risk, ★★★ high risk/weakness.

	Exposure	Comment
Management & partners	★	Dr Pierre Jungels brings impeccable industry credentials as an ex chief executive of Enterprise Oil. Successfully farmed in to Desire acreage, becoming operator and gaining access to Sea Lion southern extension.
Subsurface understanding/complexity	★	Sea Lion appraisal demonstrated good reservoir understanding with wells coming in close to prognosis and more than doubling resource estimates in the process. Added Casper, Casper South and Beverley discoveries.
Portfolio balance/upside potential	★★	Sea Lion comfortably economic, with ability to tie back other smaller discoveries to the Sea Lion development. Johnson gas discovery also has potential for future development.
Monetisation routes	★	Sea Lion development economically robust via an FPSO.
Financial strength/discipline	★★	Successfully funded full exploration and appraisal programme. Must now attract partners to fund \$2bn development.

Source: Edison Investment Research

**Exhibit 2: Activity timeline**

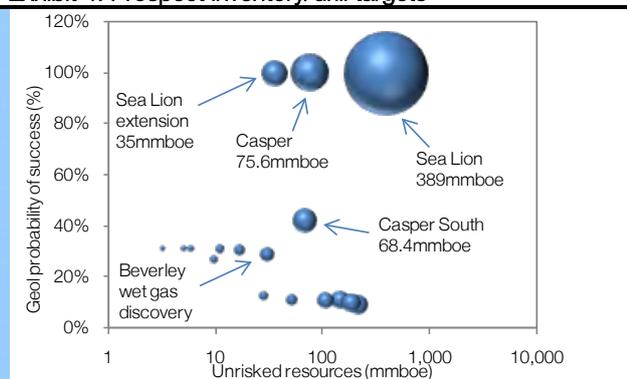


Source: Edison Investment Research

**Exhibit 3: Licence locations**



**Exhibit 4: Prospect inventory/drill targets**



Source: Edison Investment Research

**Exhibit 5: Valuation**

FD shares	284.2									
\$/£	1.60									
Assets	Country/licence	WI %	Hydroc. fluid	Geol/Comm CoS %	Unrisked reserves/resources		Netback		EMV \$m	Value/sh (p)
					Gross mmboe	Net mmboe	NPV/boe \$/boe			
<b>Under development</b>										
Sea Lion		100.0%	Oil	60%	389.0	389.0	9.3		2,173.0	477.9
Sea Lion extension		60.0%	Oil	60%	59.0	35.4	9.3		197.7	43.5
Net cash									100.0	22.0
G&A									(44.0)	(9.7)
<b>Core NAV</b>								<b>Total</b>	<b>2,427</b>	<b>533.8</b>
<b>Exploration/appraisal</b>										
Casper core		100.0%	Oil	60%	54.1	54.1	9.3		302.2	66.5
Casper extension		60.0%	Oil	60%	35.9	21.5	9.3		120.3	26.5
<b>RENAV</b>								<b>Total</b>	<b>2,849</b>	<b>626.7</b>

Source: Edison Investment Research

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