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## Sector structure

### Integrated players

- **Europe**
  - RD Shell
  - BP
  - Total
  - ENI
  - Repsol
  - OMV

- **Emerging markets**
  - Gazprom
  - Petrobras
  - Rosneft
  - Lukoil
  - Tatneft
  - Surgutneftegaz
  - MOL

- **Asia**
  - Petrochina
  - Sinopec
  - Reliance Industries
  - PTT

- **US**
  - ExxonMobil
  - Chevron
  - Texaco

### Independent players

- **Europe**
  - BG
  - Statoil
  - Tullow
  - Ophir Energy
  - Premier Oil
  - Cairn Energy
  - Gulf Keystone
  - Genel Energy

- **Emerging markets**
  - Novatek
  - OGX
  - CNOOC
  - ONGC
  - Cairn India
  - US ConocoPhillips
  - Apache
  - EOG Resources
  - Devon Energy
  - Marathon Oil

### Oilfield services (OFS)

#### Upstream (E&P)

- **Europe**
  - Afren
  - EnQuest
  - Soco International
  - Salamander Energy
  - Heritage Oil
  - JXX
  - Exillion
  - Melrose

- **Emerging markets**
  - Kazmunaigas EP
  - Dana Gas
  - PTT E&P
  - Santos
  - Woodside Petroleum
  - Encana
  - Talisman Energy
  - Cheasapeake Energy
  - Nexen
  - Newfield Exploration

#### Downstream (R&M)

- **Europe**
  - Neste
  - ERG
  - Saros
  - Petroplus
  - Statoil Fuel & Retail

- **Emerging markets**
  - Karmunaiagis EP
  - Dana Gas
  - PTT E&P
  - Santos
  - Woodside Petroleum
  - Encana
  - Talisman Energy
  - Cheasapeake Energy
  - Nexen
  - Newfield Exploration

#### Seismic

- CGGVeritas
- Schlumberger
- PGS
- TGS Nopec
- Ion
- Polarcus
- Fugro
- BGP/CNPC
- Technip
- Saipem
- KBR
- Fluor
- CB&I
- Petrofac
- Kentz
- Kvaerner
- Subsea 7
- McDermott

#### Drilling

- Transocean
- Noble
- Diamond
- Seadrill
- Ensco
- Rowan
- North Atlantic Drilling
- COSL
- Nabors
- Hercules
- Seahawk
- Saipem
- Fred Olsen Energy
- North Atlantic Drilling
- Ocean Rig

#### E&C

- Technip
- Saipem
- KBR
- Fluor
- CB&I
- Petrofac
- Kentz
- Kvaerner
- Subsea 7
- McDermott

#### Subsea & offshore equipment

- FMC
- Cameron
- Aker Solutions
- Dhi-Quip
- Technip
- National Oilwell Varco
- GEVetco
- Nexans
- Prysmian
- Oceaneering
- Ezra Holdings
- Subsea 7
- McDermott
- Saipem
- Fugro

### Diversified

- Saipem
- Technip
- Aker Solutions
- National Oilwell Varco
- China Oilfield Services
- Tenaris
- Vallourec
- Fugro

**Source:** HSBC
Sector price history: Global oil sector PE and PE relative to market (IBES year 2 consensus)

1997 Asian financial crisis
The Asian Financial Crisis combined with a 10% quota increase by OPEC resulted in lower oil price through December 1998

1999 Series of OPEC cuts (4.2Mmbbl/d) supported oil price rise

2003 Iraq war
The American-led invasion of Iraq resulted in cut in OPEC spare capacity

2005 Hurricanes Katrina & Rita
SPR released 9.8mmbbl

2008 (end) Onset of recession

2009 (beginning) OPEC cut of 4.2mmbbl/d helped oil price to stabilise

2010 (end) Spring

2011 (end) Iran threat

2016 Lebanon war
After Israel launched attacks on Lebanon, oil prices reached a new high of USD115/bbl

Source: Thomson Reuters Datastream, HSBC
Asset turnover versus net margin: 2005-11 average

Source: Company data, HSBC
Sector description

The value chain of the oil and gas sector includes the production of oil and gas, transport, refining, petrochemicals and the marketing of oil and gas products. It can also include power generation. While integrated players tend to operate across the entire value chain, the independents often only focus on parts of it.

Upstream is the key value generator

Integrated international oil companies (IOCs) view the upstream industry as a key value generator. It normally accounts for around 70% of their value, but tends to attract more than its fair share of growth capex. The industry is fairly mature. Annual growth in demand is 1% to 2% for oil and 2% to 3% for gas. Growth tends to be higher in non-OECD regions and can be flat or even negative in parts of the OECD (Organisation for Economic Co-operation and Development). As the existing production base declines on average by 3-5% a year, the industry needs to add new productive capacity equivalent to 5% to 7% of existing production in order to achieve growth in net capacity of 1% to 2% annually. Development of this new capacity often involves long lead times, typically 5-10 years from discovery to first production. For larger projects, the lead time can be considerably longer. The industry is also capital-intensive, with some of the majors spending in excess of USD25bn a year. We estimate that the industry spends around USD1trn a year on maintenance and growth capital expenditure. Oil companies also face tightening fiscal regimes and the threat of resource nationalism as host governments seek to maximise their return from oil and gas discoveries. Because of their size, the international oil companies tend to focus on very large projects such as integrated gas (such as LNG) or tar sands. The capital-intensive nature of these can reduce project returns. In contrast, the independents are more focused on conventional plays. They are also more ready to exit projects by selling or farming-down should capital requirements prove challenging. This can mean that the independents have a better return on capital than the majors.

Downstream – oversupply a problem

Following the decline in demand in 2008, the refining industry has suffered from oversupply, which has been exacerbated by capacity additions in Asia over the past two years. The industry’s reaction has been to reduce capacity in the OECD through closures (some temporary) and disposals. Most of the investment in this sector is in growth regions, such as Asia, or in countries with advantaged feedstock, such as Saudi Arabia.

Oil services – cyclical but a distinction in exposure to long and short cycles

Oilfield services are diverse; some are asset-heavy, some asset-light. The main sub-sectors are seismic, drilling, engineering and construction, subsea/offshore equipment and construction, supply vessels, floating production, and well services. One distinction between the different parts of the sector is cyclicality. All areas are cyclical, but some have longer cycles (related to capex), others shorter cycles (related to operating expenditure and exploration activity). The equity-listed structure of the global oilfields services sector is, unsurprisingly, more developed in the Western world, but it is likely to become increasingly important (as a traded sector) in emerging markets, particularly Latin America and Asia. The oil service industry is a large-cap sector in the US and a mid-cap sector in Europe. In Europe, the sector has high exposure to capex trends (long cycle) and to offshore activities, which drive 75% to 80% of earnings. In the US, the sector is weighted more towards well services (onshore and offshore) and drilling.
Key themes

Access to resources
With most of the world’s easily accessible hydrocarbon basins already licensed, the competition for new oil and gas acreage has intensified over the past decade. National oil companies (NOCs) often have priority access to domestic acreage and are also seeking to expand internationally. This often limits the acreage that international oil companies (IOCs) can access. This has meant that the IOCs have begun to take greater risks with their exploration and also increased their focus on unconventional oil and gas projects, areas in which the NOCs have less experience.

Move to unconventional oil and gas
Unconventional gas plays such as coal bed methane (CBM) and shale gas offer low exploration risk but can face challenging economics. In the US, the depressed gas price has meant most shale gas projects are marginal at present. With CBM, the challenge is to get the gas to market, often necessitating major pipeline projects or an LNG plant. Production from unconventional oil plays, such as shale oil or tar sands, is rather more straightforward but can prove very capital-intensive should an upgrading unit be needed to raise the quality of the heavy oil.

Higher risk exploration
The oil majors and independents have increased the level of risk in their exploration programmes over the past two to three years by increasing the scale of their acreage applications. They have also moved into more challenging areas where costs are commensurately higher, such as ultra-deep water and the Arctic. This strategy has had mixed results, with successes in Brazil, East and West Africa and Northern Norway but failures in Greenland, Namibia and Cuba.

Portfolio rationalisation to improve returns and growth prospects
Most international oil majors find it difficult to deliver material growth due to their size. Independents find it much easier to deliver growth as a single discovery can be material for the smaller players. Some of the larger majors have chosen to rationalise their portfolios with some of the proceeds being returned to shareholders in the form of dividends or share buybacks. As well as increasing shareholder returns, it also reduces the size of the company, leveraging any growth that is delivered. This strategy is known as shrink-to-grow and, in some cases, has led to a re-rating of the companies that pursue it.

Long-term cyclicality
Although demand for oil products and gas can change quite quickly, the long lead times (5-10 years) for new production or refining capacity in the oil industry can mean incremental supply often lags increases in demand. The cyclical behaviour this can produce is more pronounced in the refining industry. There is also cyclical behaviour in the upstream part of the industry, as seen in 2008 and 2009, but the presence of OPEC (the Organisation of Petroleum Exporting Countries) helps keep the oil price stable for much of the time.

Refining: OECD versus non-OECD
OECD refiners face flat to declining demand for oil products and the potential impact of carbon pricing. They also tend to be higher cost. In contrast, Middle East refiners have the advantage of access to own crude oil and those in non-OECD Asia have easy access to growth markets. Asian and Middle East refineries tend to be lower-cost operations due to greater scale and lower personnel costs in those regions.
Sector drivers

Realisation and margin are key drivers
For most companies, realisations for oil and gas together with refining and marketing margins are more important drivers of earnings than volume growth. For most companies, short-term movements in their share prices are influenced by the oil price. The degree of sensitivity to the oil price varies among different types of companies. For example, the shorter-cycle service companies and independent exploration companies tend to be more sensitive to moves in crude and gas prices than the majors.

Oil prices – OPEC remains in a position to control prices
Although growth in demand in 2011 and so far in 2012 has remained well below normal levels, we believe it will recover in 2013 and grow at around 1.6-1.7 million barrels a day each year. Crude supplies from non-OPEC are likely to increase at around two-thirds of this rate, meaning that OPEC will be called upon to make up the shortfall. It will add new capacity over the next several years, much of it in Iraq. This should enable OPEC to maintain a reasonable level of spare capacity. Saudi Arabia has already demonstrated its willingness to act as swing producer to try and stabilise oil prices. It has indicated that it sees prices around USD100/barrel as acceptable, but we calculate that instability in the Persian Gulf and North Africa has, at times, resulted in a political premium of up to USD25/barrel. A price of USD100/barrel is high enough to meet the financial needs of most OPEC countries but low enough to avoid further destabilising world economies. It is also below the economic threshold for unsubsidised alternative-energy projects (a threat to OPEC).

Gas price – oil price linkage to remain outside the US
Globally, around 40% of natural gas is exposed to gas-to-gas competition (primarily in the US market), 40% is regulated and only 20% has a direct or indirect link to oil prices (Europe and Asia). Although the proportion of spot sales has increased in Europe due to soft demand, we believe Europe’s gas prices will retain some degree of oil linkage although the element of spot pricing is likely to gradually rise. We also believe gas prices in Asia are likely to retain their link to oil prices because of the need for long-term projects to ensure security of supply. We believe the US is likely to remain a low-price market due to rising shale-gas production. Shale gas exists elsewhere in the world but the lack of a US-sized oil service industry (land rigs and fracturing) means it is unlikely to see the same rate of growth as the US. Also, in some countries with high population densities, protests have led to bans on fracturing activity.

Refining – oversupply
We do not expect the current overcapacity in the market to be eroded in the next five years unless large-scale closures take place. For the balance of the decade, we believe increases in demand will be met from new capacity additions, mainly in Asia and the Middle East. We expect OECD refining profitability to remain at the low end of its normal range, while Asian and Middle Eastern refiners should benefit most from rising non-OECD demand growth.

Service sector – capex trends the key
For the service sector, the key is the trend in oil industry capital expenditure. Much of the increase in spending during 2006-08 was driven by inflation rather than activity. There is, therefore, the potential for further ‘capex catch-up’. Offshore activity is driven mainly by areas like Brazil, West Africa, the North Sea, Australasia and the US Gulf. Onshore is driven more by the Middle East and Australasia for capex-related work, and the existing oil-producing areas North/South America, the Middle East/North Africa and parts of Asia/FSU for opex-related work.
Valuation

Short-term sentiment
As oil and gas prices are a major influence on earnings and cash flow, it should be no surprise that movements in realisations have a material influence on the sector’s performance. In the longer term, the level of the sector’s cash flow and earnings relative to those of the rest of the market has more influence on its relative performance. (For example, it is possible for industry earnings to fall despite rising oil prices should costs or taxes increase sharply.) The sector is seen by some investors as defensive due to its above-average yield and predictability of future production volumes, which can mean it outperforms during weak markets.

Valuation approaches
There are significant differences in the approaches followed to value integrated large players and small independent players.

Integrateds – earnings and cash-flow multiples
The large integrated players tend to be valued using traditional multiples (PE, EV/NOPAT, P/CF, EV/DACF multiples). After-tax valuations are used because the rates of tax can vary markedly from country to country. One of the key variables in valuations is the oil price. Some investors prefer to use the price indicated by the futures market, but others prefer to use their own forecasts. The most common valuation approach used is PE-based, in our view. The long-run PE for the sector is around 80% relative to the market. Given the tangible nature of oil industry assets, the price-to-book (PB) ratio is also a useful check to valuation, especially during periods of market weakness.

Sum-of-the-parts (SOTP) valuations are also used, especially for companies with a material proportion of undeveloped reserves. Upstream assets tend to be valued using discounted cash flow (DCF) analysis or by using comparable transaction values. Downstream assets are valued using per barrel approaches based on market transactions adjusted for complexity, size and location. Other assets, such as marketing, can be valued on a multiple basis – either earnings or cash-flow based – using comparable companies as a reference point.

Upstream companies – per barrel valuations or DCF
Upstream companies tend to be valued using net asset values. This can involve a DCF valuation of the existing assets or could use a simple per barrel valuation of reserves based on comparable companies or recent transactions. Exploration assets can be valued on a similar basis but with a risk factor to reflect the likelihood of success and the difficulty of commercialisation.

Downstream companies – SOTP and multiples
Downstream companies are normally valued on a multiple or SOTP basis. Unlike for the majors, pre-tax multiples such as EV/EBIT or EV/EBITA can be used as there is less variation amongst tax rates in different countries than there is in the upstream.

Oil service – SOTP and multiples
Given the diversity of the service sector, the range of valuation approaches is also diverse. For the asset-based companies (such as rig owners), the SOTP methodology is often used, with individual assets being valued at the replacement cost or by using comparable companies as reference. For asset-light companies, multiple-based approaches can be employed, both pre-tax and post-tax. For companies with highly cyclical businesses, mid-cycle valuation approaches can be used.
## Oil & gas sector: growth and profitability

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012e</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Growth</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sales</td>
<td>27%</td>
<td>-31%</td>
<td>23%</td>
<td>27%</td>
<td>-9%</td>
</tr>
<tr>
<td>EBITDA</td>
<td>17%</td>
<td>-27%</td>
<td>23%</td>
<td>26%</td>
<td>-5%</td>
</tr>
<tr>
<td>EBIT</td>
<td>18%</td>
<td>-38%</td>
<td>32%</td>
<td>37%</td>
<td>-6%</td>
</tr>
<tr>
<td>Net profit</td>
<td>12%</td>
<td>-38%</td>
<td>32%</td>
<td>32%</td>
<td>-4%</td>
</tr>
<tr>
<td><strong>Margins</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EBITDA</td>
<td>19%</td>
<td>21%</td>
<td>20%</td>
<td>20%</td>
<td>21%</td>
</tr>
<tr>
<td>EBIT</td>
<td>15%</td>
<td>13%</td>
<td>14%</td>
<td>15%</td>
<td>16%</td>
</tr>
<tr>
<td>Net profit</td>
<td>9%</td>
<td>8%</td>
<td>9%</td>
<td>9%</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Productivity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capex/sales</td>
<td>10%</td>
<td>14%</td>
<td>11%</td>
<td>10%</td>
<td>11%</td>
</tr>
<tr>
<td>Asset turnover (x)</td>
<td>1.2</td>
<td>0.8</td>
<td>0.8</td>
<td>0.9</td>
<td>0.8</td>
</tr>
<tr>
<td>Net debt/Equity</td>
<td>22%</td>
<td>27%</td>
<td>24%</td>
<td>22%</td>
<td>16%</td>
</tr>
<tr>
<td>ROE</td>
<td>23%</td>
<td>13%</td>
<td>16%</td>
<td>18%</td>
<td>15%</td>
</tr>
</tbody>
</table>

Note: Based on all HSBC coverage of Oil & Gas Sector in Europe and Emerging Europe (excludes upstream mid-cap independents)

Source: Company data, HSBC estimates
Sector snapshot

Key sector stats

MSCI Europe Energy Dollar Index 12.55% of MSCI Europe US Dollar

Trading data
5-yr ADTV (EURm) 2,778
Aggregated market cap (EURm) 782
Performance since 1 Jan 2000 Absolute 36%
Relative to MSCI Europe US Dollar 44%
3 largest stocks RD Shell, BP, Total
Correlation (5-year) with MSCI Europe US Dollar 0.95

Source: MSCI, Thomson Reuters Datastream, HSBC

Top 10 stocks: MSCI All Country World Index Energy Dollar Index

<table>
<thead>
<tr>
<th>Stock rank</th>
<th>Stocks</th>
<th>Index weight</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>ExxonMobil</td>
<td>13.6%</td>
</tr>
<tr>
<td>2</td>
<td>RD Shell</td>
<td>7.0%</td>
</tr>
<tr>
<td>3</td>
<td>Chevron</td>
<td>6.9%</td>
</tr>
<tr>
<td>4</td>
<td>BP</td>
<td>4.2%</td>
</tr>
<tr>
<td>5</td>
<td>Total</td>
<td>3.3%</td>
</tr>
<tr>
<td>6</td>
<td>Schlumberger</td>
<td>3.1%</td>
</tr>
<tr>
<td>7</td>
<td>BG</td>
<td>2.4%</td>
</tr>
<tr>
<td>8</td>
<td>Occidental</td>
<td>2.3%</td>
</tr>
<tr>
<td>9</td>
<td>ConocoPhillips</td>
<td>2.3%</td>
</tr>
<tr>
<td>10</td>
<td>Gazprom</td>
<td>1.7%</td>
</tr>
</tbody>
</table>

Source: MSCI, Thomson Reuters Datastream, HSBC

Country breakdown: MSCI All Country World Index Energy Dollar Index

<table>
<thead>
<tr>
<th>Country</th>
<th>Weights (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>47.4</td>
</tr>
<tr>
<td>UK</td>
<td>14.8</td>
</tr>
<tr>
<td>Canada</td>
<td>10.6</td>
</tr>
<tr>
<td>Russia</td>
<td>4.0</td>
</tr>
<tr>
<td>France</td>
<td>3.8</td>
</tr>
<tr>
<td>China</td>
<td>3.7</td>
</tr>
<tr>
<td>Brazil</td>
<td>2.9</td>
</tr>
<tr>
<td>Italy</td>
<td>2.4</td>
</tr>
<tr>
<td>Australia</td>
<td>1.9</td>
</tr>
</tbody>
</table>

Source: MSCI, Thomson Reuters Datastream, HSBC

Core industry drivers: OPEC spare capacity (LHS, million barrels/day) and Brent price (RHS, USD/bbl)

Source: US Energy Information Administration, HSBC

PE band chart: MSCI All Country World Index Energy Dollar Index, Year 2 forward

Source: MSCI, Thomson Reuters Datastream, HSBC

PB (LHS) and ROE (RHS): MSCI All Country World Index Energy Dollar Index, Year 1 forward

Source: MSCI, Thomson Reuters Datastream, HSBC