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Valuation of Odfjell Well Services

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Abstract

The objective of this valuation thesis is to estimate an enterprise value for Odfjell Well Services (OWS). OWS is a division of Odfjell Drilling (ODL) that went public on the Oslo Stock Exchange in the fall of 2013. OWS is a part of the oilfield services industry and is an international provider of Well Services. Their main market segments are Tubular Running Services, Rental, and Well Intervention.

An external analysis uncovers that the oilfield service industry is an attractive industry with prospects of excess returns. Whereas the internal analysis reveals that OWS is operating its resources and capabilities to capture value with a focus on quality. It is a capital intensive industry that is currently in a downturn. However, oil prices and investments are forecasted to bounce back starting from 2016.

The financial statement analysis exposes how OWS has generated high profits and margins. Whereas both the profitability- and liquidity analysis reveals that OWS is on par or above the peer group average in every category. Historic accounting data, together with the findings in the strategic analysis serves as the foundation for the cash flow forecasts.

The Discounted Cash Flow (DCF) model serves as the main valuation model. While the comparative company- and preceding transaction analysis complements the DCF model. A Monte-Carlo simulation shows that the enterprise value estimate is very sensitive to changes in the underlying variables.

The complementary valuations implies an enterprise value between USD 415M and USD 527M. A Monte-Carlo sensitivity analysis estimates the enterprise value, within 95% certainty, to be in the range of USD 322M and USD 619M. The DCF, which has been the main valuation model for this thesis, estimates OWS enterprise value at USD 457M.

Preface

This master thesis is the culmination of five years of study. We chose to write a valuation thesis based on the applied finance specialization of our master programme at the University of Stavanger.

We agreed on a petroleum related valuation, as we are both from a city where the oil industry dominates the local economy. We also found the cyclical part of the industry quite exciting, how firms operate differently with respect to the volatility of oil prices. We got an intriguing opportunity to write our thesis for OWS in a time where the oil service industry is facing a slow-down in the demand for their services.

OWS is a division of a public company, but there is no market price for debt or equity for OWS. This poses a new challenge compared to the valuations we performed during our master program, which focused solely on publically listed companies. This thesis has given us the opportunity to put theory into practice, and we would like to thank OWS for giving us the opportunity to base our thesis on their company.

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1 INTRODUCTION

1.1 PURPOSE

The purpose of this thesis is to apply the knowledge gained throughout five years of study. The valuation thesis is a summary of what we have learned during our studies. The choice of industry is linked to the regions history, and our personal ties to the oil service industry. The oil service industry is complex and is currently in a downward business cycle. These factors all contribute to making the process of writing of a valuation thesis exciting, difficult and fun.

1.2 PROBLEM STATEMENT

The goal of this thesis is to estimate the value of Odfjell Well Services (OWS), a division within Odfjell Drilling, by applying different valuation methods. The problem statement is as follows:

“What is the enterprise value of OWS at the beginning of 2015?”

1.3 MODELS, THEORY, AND DATA

A cooperation with the administration of OWS has enabled this valuation. OWS has opened their books, and shared the information necessary to complete the valuation. This is mainly historic accounting data, and value chain. They have not disclosed information on future earnings.

Sources are internal financial reports, year- and quarterly investor reports, market data from banks and public organizations, theory from academic books, articles, and financial literature. The most important source is the confidential accounting data and information regarding value chain given by OWS.

Generally, and especially in economics, articles and literature sources can be biased. Filtering biased sources and writing is vital for any thesis. A biased source can manipulate assumptions that can affect the results. In search of unbiased data, it was important asking the critical questions: is the source or data biased?

1.3.1 PESTEL

PESTEL is an acronym for Political, Economical, Sociocultural, Environmental, and Legal factors that affect the entire petroleum industry. This analysis reveals macro factors that directly and indirectly affects the operations of OWS.

1.3.2 PORTER'S FIVE FORCES

Porter's five forces is a strategic tool to identify an industry's attractiveness concerning profitability and competition. The model is explained in Figure 1.1. The five forces analysis helps identify an industry's weaknesses and strengths.

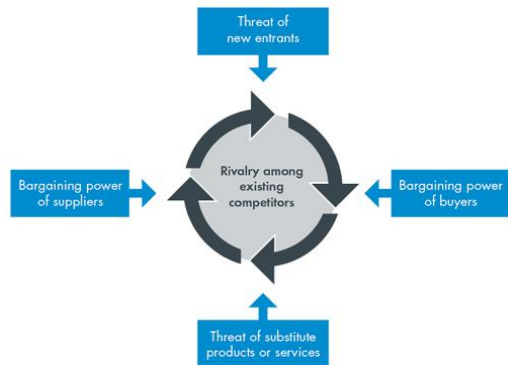


Figure 1.1: Porter's five forces

Source: Johnson & Scholes (2011)

1.3.3 VRIO Analysis

VRIO is an acronym for Value, Rarity, Imitability, and Organization. It is an analysis where the main internal resources and capabilities of a company are analysed. It will help to determine if the resources and capabilities of OWS will give a competitive advantage, by asking following questions:

- Is the resource valuable? (Value): Does the resource or capability give the company the possibility to utilize an external opportunity, and/or neutralize an external threat?
- Is the resource rare? (Rarity): are the resources rare among competitors?
- Is the resource imitable? (Imitability): Is there a big cost or disadvantage by trying to obtain the resource or capability?
- Is the resource utilized correctly? (Organization): Is the company organized in such a way, that it can take advantage of the resources and capabilities?

1.3.4 Financial Statement analysis

This section analyses OWS historic accounting data and compares it to a selected peer group. The breakdown of the data is based on the DuPont model. The model is illustrated in appendix 4.3.

1.3.5 SWOT

SWOT is an acronym for Strengths, Weaknesses, Opportunities, and Threats. Strengths and weaknesses are internal, while opportunities and threats are external. The SWOT analysis summarizes the strategic- and financial analysis of OWS.

1.3.6 Discounted Cash Flow Analysis

The Discounted Cash Flow model is a fundamental valuation method used in finance to value a company, business, division, or an asset. This is done by using the principles of time value of money; where all future free cash flows are estimated and discounted back with a discount rate to get their present value (PV). Summarizing all present values results in the net present value (NPV). The analysis result can be expressed in two ways: Enterprise Value (EV) and Value of equity. The Enterprise Value is used.

The value is determined by forecasting the next five years of the free cash flow (FCFF), and then adding the Terminal Value (TV) to determine enterprise value. The FCFF is discounted with a weighted average cost of capital (WACC). FCFF is calculated by following formula:¹

$$FCFF = NOPLAT + Depreciation - \Delta NWC - CAPEX$$

The Terminal Value (TV) is estimated using the Gordon's growth formula. The formula assumes a steady state in the projected period, where it will have a constant growth rate forever.² After obtaining both FCFF and Terminal Value, we can find the enterprise value:³

$$Terminal\ Value\ (TV) = \frac{FCFF_n * (1 + g)}{WACC - g}$$

$$Enterprise\ Value\ (EV) = \sum_{i=1}^n \frac{FCFF_i}{(1+WACC)^i} + \frac{TV}{(1+WACC)^n}$$

¹ Plenborg & Peterson (2012). Financial Statement Analysis, p. 176

² Rosenbaum, J. & Pearl, J. (2013). Investment Banking. Wiley. p. 132

³ Plenborg & Peterson (2012). Financial Statement Analysis, p. 216

1.3.7 Comparative Company Analysis (CCA)

Comparative Company Analysis is a widely used valuation tool by investment banks when valuing a company, business, division, or an asset. This valuation technique establishes a trading multiple based on a selected peer group. The multiple is then be used together with accounting data to establish an estimated value of a company. This thesis will focus on the Enterprise Value/Earnings before Interest Taxes Depreciation and Amortization (EV/EBITDA) multiple, but the Price / Earnings (P/E) and Price / Book (P/B) is also analysed.

Companies that share the same business characteristics and financial profiles will usually serve as a good comparable. Rosenbaum & Pearl divide these characteristics into key traits:⁴

Business Profile	Financial Profile
<ul style="list-style-type: none"> ■ Sector ■ Products and Services ■ Customers and End Markets ■ Distribution Channels ■ Geography 	<ul style="list-style-type: none"> ■ Size ■ Profitability ■ Growth Profile ■ Return on Investment ■ Credit Profile

Table 1.1: Business- and Financial Profile

Source: Rosenbaum & Pearl

1.3.8 Precedent Transaction Analysis (PTA)

The PTA looks on recent transactions in the oilfield services industry. Preferably, transactions featuring companies with similar financial structure and risk profile. In reality, it is hard to find a perfect match for the analysis. The PTA gives insight into sales multiples of companies within the oilfield services in recent years. It is expected that the PTA analysis yields a higher valuation multiple then the CCA analysis because buyers usually pay a control premium when acquiring a company. They do so to realize synergies or gain market share. The PTA gives an estimate of what buyers are willing to pay for companies, instead of implied market values.

1.3.9 Sensitivity analysis

The value estimate from the DCF valuation is based on subjective assumptions. Assumptions that are forward-looking, and might not always hold true. A sensitivity analysis is a good way for an analyst to stress-test different input variables. In reality, assumptions can and will often

⁴ Rosenbaum, J. & Pearl, J. (2013). Investment Banking. Wiley. p. 16

change over time, because the future is impossible to predict with any certainty. The forecast assumptions will be stress-tested, utilizing a Monte-Carlo simulation, to see how the different variables affect the enterprise value of OWS.

1.4 LIMITATIONS

- OWS is not publicly listed. The Financial data and information is mostly used from OWS' financial database.
- The last data used is the financial data from 2014 (Q4), for peers and OWS.
- There are only analyses of relevant geographic areas.
- There was no detailed segment data to predict better growth.

1.5 THESIS STRUCTURE

The following template explains the structure of the thesis. A strategic- and financial analysis of the current market situation and the historic accounting data will serve as the benchmark for the forecast period. Before arriving at a value, the cost of capital is analysed. The Precedent Transaction- and Comparable Company Analyses serves as complements to the Discounted Cash Flow model. The estimated enterprise value is stress-tested using a Monte-Carlo simulation.

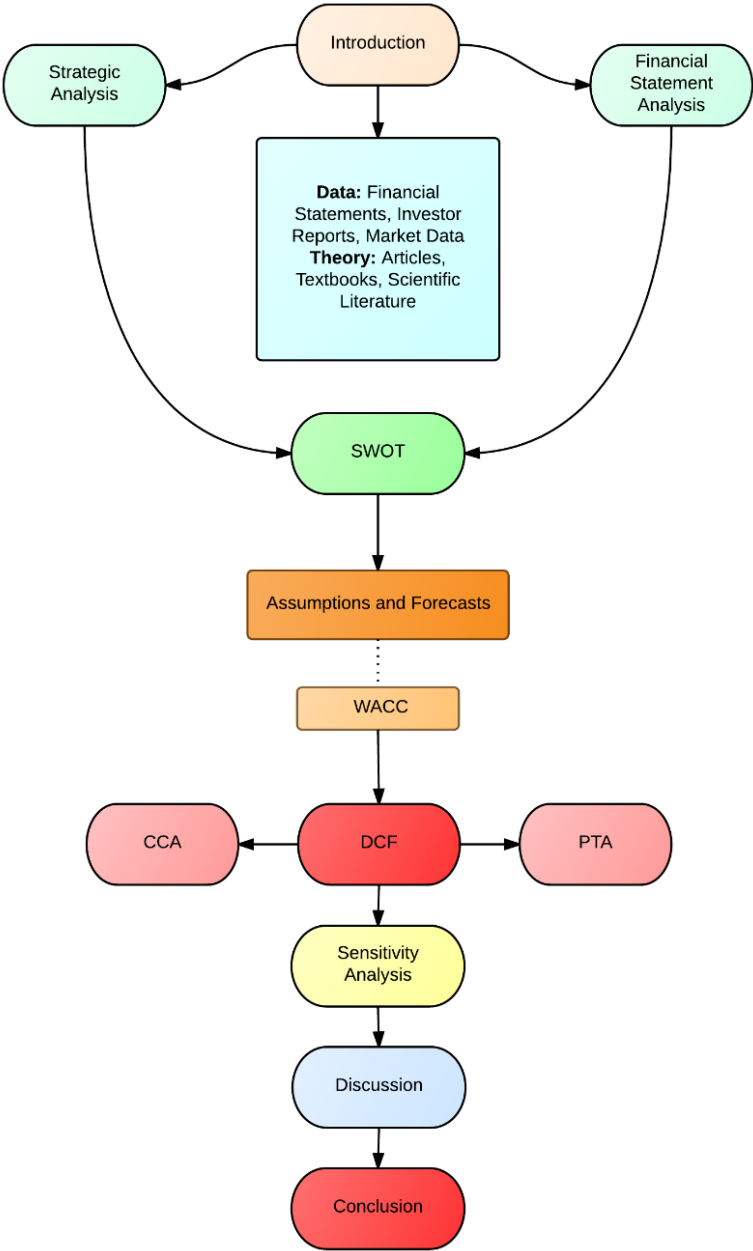


Figure 1.2: Thesis structure

2 ORGANISATIONAL OVERVIEW

2.1 OVERVIEW

Odfjell Well Services (OWS) is a division within the Odfjell Drilling group (ODL). The management and board of directors are the same for both. Although ODL is not the target of this thesis, it does share history and management with OWS. The overview gives an introduction to OWS and the oil service industry, followed by an introduction of ODL.

2.2 ODFJELL WELL SERVICES

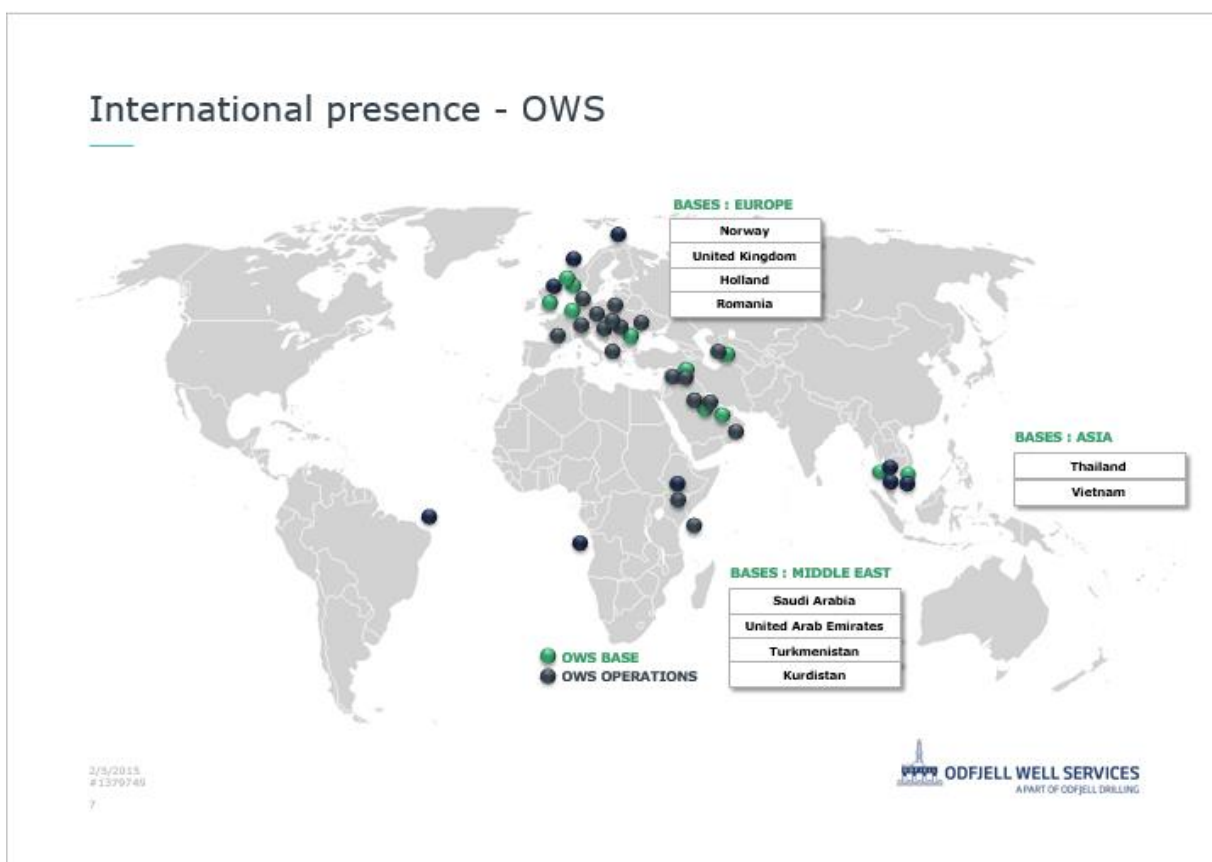


Figure 2.1: OWS International Presence

OWS company presentation

OWS history dates back to 1982. Today they have operations in Europe, the Middle East, South East Asia, and South America with over 500 employees. The company is a leading service provider for the oil and gas industry.

2.2.1 Market Segments

OWS administration divides operations into three segments: Rental, Tubular Running Service, and Well Intervention. The market segments are mainly offshore.

Well Intervention Services

This segment involves operations carried out on an oil or gas well, both during, or at the end of its productive life. Within this segment, OWS offers Wellbore Clean-Up, Fishing & Remedial, and Casing Exit.

Wellbore Clean-Up involves the removal of drilling fluid residue from the well. Fishing & Remedial is the process of recovering equipment lost in the oil- or gas well. Casing exit involves performing a complex change in drilling direction. The efficiency of Wellbore Clean-Up is reliant on the clean-up tools. OWS offers next generation equipment for this purpose.⁵ Fishing & Remedial hinges on expertise. The system OWS uses for casing exit is the “One trip Milling-Window System”.⁶ It allows for a faster completion of the exit, saving time and money, and increasing efficiency.

Rental

The Rental segment rents drilling equipment to E&P companies. OWS provides the highest quality drilling equipment.⁷ Rental categories are downhole equipment, tubular handling equipment, tubulars, well intervention products, and wellbore clean-up tools. OWS administration prides itself on a large product range and inventory, which results in fast servicing of orders. It saves both time and resources for OWS’ customers. OWS is one of the largest service providers of services of downhole equipment.

Tubular Running Services

Tubular is a general term for oilfield pipes. OWS offers Casings and Tubings. Tubing is a removable pipe that connects a completed well to the surface. These pipers vary in diameter,

⁵ OWS homepage. Well Intervention Services. Wellbore Clean Up.

⁶ OWS homepage. Well intervention services. Casing Exit.

⁷ OWS homepage. Rental Services.

and they carry produced fluids to the surface. Casing is a steel pipe installed in the well to prevent a wellbore collapse and fluid leakage between the outside environment and the well. OWS claims to have one of the safest and most efficient Tubular Running Services.⁸ They use radio-controlled, remote-operated tubular technology.⁹ OWS have a patent on high-torque tong system, which are remotely operated.¹⁰ OWS is one of the largest service companies within Tubular Running Services

2.2.1 Geographic Locations

OWS operates in five regions: The Norwegian Continental Shelf (NCS), Europe, Middle East, Asia, and Africa. The regions have different market prospects on investment, discoveries, and demand for oil services.

The Norwegian Continental Shelf (NCS)

The NCS is an offshore area within Norwegian borders. The offshore area is 6.5 times the size of Norway, but less than half of the area is open for petroleum extraction.¹¹ The open area in the NCS are rich in oil and gas. The NCS consist of the Barents Sea, the Norwegian Sea, and the North Sea. The Norwegian Petroleum Department (NPD) estimated, in 2015, a total recoverable petroleum resource of 14.1 billion sm³ including the 6.4 billion sm³ that has been sold and delivered.¹² The remaining 7.7 billion sm³ is an assessment from current reserves, undiscovered resources, contingent resources in findings and current fields. That means over half of the petroleum resources are still left in the NCS. The geographic market still stands strong.

The average water depth in the Barents Sea, North Sea and the Norwegian Sea is 230m, 94m, and, 1600m respectively. The water depth combined with rough sea, makes NCS a hard segment to operate in, as it requires more specialized competence and tools.

⁸ Odfjell well services. Tubular Running Services.

⁹ Odfjell well services. Tubular Running Services.

¹⁰ Odfjell well services. Tubular Running Services.

¹¹ Norwegian Petroleum Directorate. (2013). Resource report.

¹² Norwegian Petroleum Directorate. (2014) Resource report and analysis.

Middle East

The Middle East is a region centred in the western Asia and Egypt and contains 18 countries. The top oil exporters in this region are Saudi Arabia, Iraq, and Iran. Petroleum exports accounted for 85% of total Saudi Arabia's export in 2013.¹³ Saudi Arabia is the second highest producer of oil after USA with an 11.7M barrel production per day in 2013. Middle East countries are dependent on revenue from petroleum exports to balance their state budgets. Any cut in government spending can cause more civil unrest.¹⁴

Corruption is a big problem in the Middle East; five Arab states tops the most corrupt list.¹⁵ Challenges in the region includes political corruption, unstable government, unstable security situations, and armed conflicts. The political corruption is the most difficult problem, mainly because petroleum resources are country assets. Iran, Iraq, Syria, and Azerbaijan are examples of some of the most corrupt countries in the world. Saudi Arabia is one of the least corrupt countries in the Middle East and it ranks 55/175 in corruption.

South-East Asia

The petroleum industry in South-East Asia is not transparent. Problems in this region are corruption. OWS operations are in Thailand and Vietnam; both ranks 85/175 and 119/175 in corruption.

Africa

OWS operations are in Kenya, North-, and South Sudan. Problems in these countries are corruption, war, instability, and civil unrest. South Sudan is the among the top ten highest risk countries in the world.¹⁶ Civil unrest has been going on for 18 years; it is the longest ongoing civil war in the world. The country ranks 171/175 in corruption.

¹³ The U.S. Energy Information Administration. (n.d) Saudi Arabia analysis.

¹⁴ Evercore ISI. (2015). Global E&P Spending Outlooks.

¹⁵ Transparency International. (2014). Corruption perception index.

¹⁶ Verisk Maple Croft. (2015). Political Violence Index.

Europe (excluding Norway)

OWS operations are mainly in UK, Netherlands, and Romania. Europe in general does not suffer from corruption in the same degree as the Middle East, Africa, and Asia. Europe does however suffer from an economic slowdown, the countries in the Eurozone has taken up a lot of debt, and in fact, almost all European countries has increased government debt and is at an all-time high. Many of the European countries have utilized an expansive monetary policy, by turning down interest rates to counter act low inflation (deflation) and to increase economic growth. Europe is a stable geographic segment to invest in, especially in the Western Europe.

2.2.2 Organizational structure – OWS

The organizational structure of OWS is similar to that of ODL. An Executive Vice President is in charge of the company. OWS has divided its operations into geographical segments, with a Vice President in charge of each area. The organization has support staffs that operate across the geographical segments.

On paper, OWS does not own the equipment they deliver to customers. A legal company with offices in Bermuda called Odfjell Partner Invest (OPI) is legal owner of the equipment and it rents/sells equipment to OWS.

2.3 BUSINESS STRATEGY

OWS has developed an overall business strategy that encompasses their different market segments. When doing a valuation it is important to understand the business goals and strategy of the company. This thesis will conduct an internal and external analysis of OWS and the market in which it operates. The following business strategy is cited from OWS management:

Chosen for experience and expertise. As part of its strategic objective, OWS will be recognized as: An employer of choice, having competent and creative employees. A true international well service company providing world class customer service. The safest and most efficient provider of well services within its product lines, meeting the highest quality standards. A preferred partner for internal and strategic external clients.

Talks with OWS also revealed that they emphasize a high-assortment strategy. They believe it is vital to keep a large inventory at strategically located bases within their operating areas, to quickly serve their customers.

2.4 OIL SERVICE INDUSTRY

It is normal to divide the oil industry into three main segments: upstream, midstream, and downstream. OWS is a part of the offshore upstream industry. The oil services industry is dependent on the E&P investments from operators, which again relies on the current oil price. This relationship is explained further in the strategic analysis of OWS.

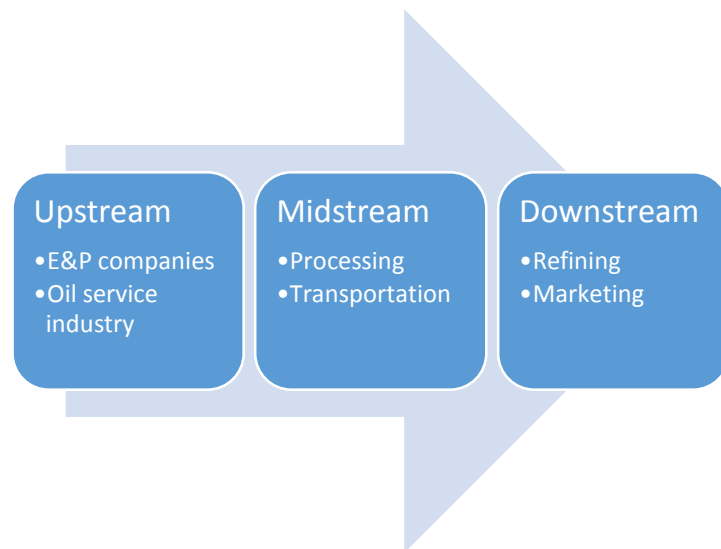


Figure 2.2: Value chain oil and gas industry

Source: Created by author

The industry is highly competitive¹⁷ and all the companies are price-takers.¹⁸ The offshore industry is demanding, compared to the land based industry. It is a capital-intensive business and requires advanced technology to drill wells in ultra-deep water, and meet the challenges of the varying climate at sea.

2.5 ODFJELL DRILLING GROUP

ODL has 40 years of experience in offshore and deep-water markets. The group consists of a MODU¹⁹ segment, a Well Services segment, and a Drilling & Technology segment. ODL has 3 100²⁰ employees and operate in over 20 countries around the globe.

2.5.1 History

ODL can trace its roots back to the early 1900s and the start-up of the shipping company Odfjell A/S. As the activity on the Norwegian Continental Shelf started increasing in the late 1960s, the Odfjell family ordered the construction of a semisubmersible drilling rig. Delivered in 1974, the rig started drilling operations on contract with ELF. This marked the breakthrough, and the

¹⁷ www.statoil.com

¹⁸ Only OPEC can influence prices, see five forces analysis

¹⁹ Mobile Offshore Drilling Units

²⁰ 2013 numbers

beginning of ODL. Over the years, the company has expanded operations across the world. Recently ODL have focused on renewing its fleet, with a focus on UDW capable rigs.²¹

In 2013, ODL entered into an IPO and went public on the Oslo Stock exchange. ODL has had a rapid decline in market value. The market value went from NOK 8.0B to NOK 1.4B in the period between the IPO and at the time of writing.²²

2.5.2 Organisational structure

ODL divides operations into three segments: MODU, D&T, and OWS. In the MODU segment, ODL operates drilling units, both owned by the group and by customers. They currently have three harsh environment semisubmersible rigs, two of which have UDW capabilities. The group also have a 40% interest in two sixth-generation drill ships, also with UDW capabilities. Drilling & technology offers production drilling and well completion on client’s rigs. They provide engineering services like design, project management, and operational support. Odfjell Well Services (OWS) provides Tubular Running Services, Rental, and Well Intervention.

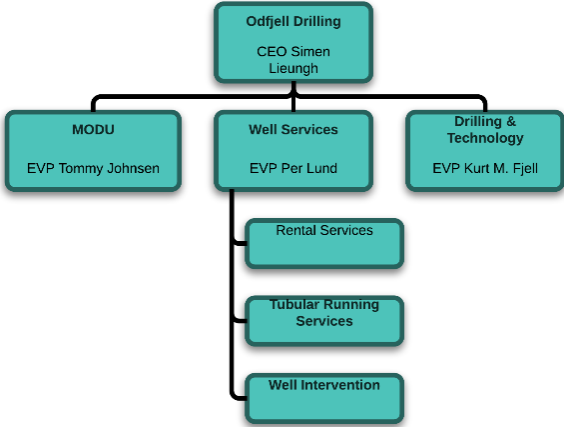


Figure 2.3: Organisational structure ODL

Source: ODL prospectus / created by author

provide engineering services like design, project management, and operational support. Odfjell Well Services (OWS) provides Tubular Running Services, Rental, and Well Intervention.

2.5.3 Board of directors and management – Odfjell Drilling

The board of directors consist of members that jointly oversee company activities. The board of Odfjell drilling consists of five members: Carl-Erik Haavaldsen, Helene Odfjell, Bengt Lie Hansen, Henry H. Hamilton III, and Kirk L. Davis. A short summary of the board members follows:

Carl-Erik Haavaldsen (born 1951) is the chairman of the board. He has held several executive positions in companies within shipping and commercial- and investment banking. He has served as chairman since 2013.

²¹ Ultra Deep-Water
²² 20.03.15

Helene Odfjell (born 1965) was elected director in 2013. She controls 70% of the shares in ODL. She is the daughter of Abraham Odfjell, who owned ODL until he left the company to his daughters Helene and Marianne Odfjell in 2007. Marianne Odfjell sold her share of ODL when the company went public in 2013.

Bengt Lie Hansen (born 1948) has 38 years of experience from the oil and gas industry. He has previously held positions in the Ministry of Petroleum and Energy, Statoil, Norsk Hydro, and Deminex Norway. He was elected director in 2013.

Henry H. Hamilton III (born 1959) was elected director in September 2013. He is currently chairman of TGS-NOPEC, where he previously served as CEO. He has also held positions in Shell Offshore and Schlumberger.

Kirk L. Davis (born 1953) was elected director in 2007 and is a chartered accountant of Bermuda. He is currently President and Director of Pin High Limited.

2.5.4 OWNERSHIP

ODL entered into an IPO in 2013, where they offered up 28% of the shares for sale. ODL owns 0.46% of its own shares because of a buy-back program initiated in September 2014. Helene Odfjell, through Odfjell Partners LTD, owns 71% and have majority control of the company. Other shareholders own the remaining 1%, where the CEO owns 0.48%.

ODL owns stakes in other companies through joint ventures. They hold a 50% ownership in Odfjell Galvão B.V, a joint venture with Galvão Oil and Gas Holding B.V, for the construction of a drillship in Brazil. The group also have 50% ownership interest in Ross Holding AS, which is the parent company of Ross Offshore AS. The joint venture came together after ODL sold Odfjell Well Management AS to Ross Offshore AS in 2011. Ross Offshore is a well and reservoir management services provider. The group has a 50% ownership interest in PSW Group AS, another subsea and well service provider. At last, a 40% ownership in Deep Sea Metro LTD. A joint venture with Metro Exploration, to buy two drill ships named Deepsea Metro I, and Deepsea Metro II.

2.6 DEFINING PEERS

The reason for using comparable companies in this thesis is to analyse the historic results of OWS. Peers will serve as a baseline for the strategic- and financial analysis. They also play a part in the comparative valuation.

When choosing peers, it is important to choose companies based on similar business- and financial profile. When the business- and financial profiles are similar, the risk and future prospect should be similar as well. Business profile includes sector, products & services, customers & end markets, distribution channels, and geography. While financial profile includes size, profitability, growth profile, return on investment, and credit profile.

OWS offers similar products and services to the same customers and markets as the peer group. They operate in similar geographic segments and have a similar distribution. OWS is a large division within ODL.²³ There is no market value for OWS. It has historic EBITDA margins ranging from 43-44%, low leverage, and excess returns. It would be impossible to find a peer with exactly the same financial profile.

To be able to analyse the comparable companies, they must have available public financial data. This means that only publicly listed companies were candidates. For the analysis to be insightful, preferably four years of data was required. OWS had four years available financial data.

The selected peers are Frank's International, Weatherford, Superior Energy Services, and Archer. They all operate in the offshore industry as pure plays and with similar risks and future prospects. They are all publicly listed international companies with more than four years of financial data. The exception is Superior Energy Services, which has undergone major changes between 2011 and 2012, for this reason only data from 2012 and onwards is eligible. A short introduction to each company in the peer group follows.

²³ The definition of size varies by country. Personnel in AUS, US, and EU consider it Large.

Frank's International (FI)

OWS management considers Frank's International their main competitor. They provide very similar services to that of OWS, mainly Tubular Running Services. FI operates in the same markets as OWS; with the exception of the United States. FI has 4,800 employees worldwide. It has a similar financial structure to OWS with low leverage, and high EBITDA margins. FI is listed on the New York Stock Exchange (NYSE).

Weatherford (WFT)

Together with FI, WFT is the main competitor of OWS on the NCS. This is the largest company in the peer group with 56,000 employees worldwide. WFT deliver equipment and services used in drilling and completion of wells. The company is listed on the NYSE.

Superior Energy Services (SPN)

SPN is a worldwide provider of oil & gas services. They have 14,300 employees. The main segments of SPN are Drilling Products and Services, Onshore Completion & Work-over Services, Production services, and Subsea & Technical solutions. Due to large acquisitions, the availability of relevant financial data for SPN begins from 2012 and onwards. SPN is listed on the NYSE.

Archer (archer)

Archer is a global oilfield service company with over 40 years of experience. They currently employ over 8,000 people worldwide. Their main operations involve production optimization, well integrity and intervention, and decommissioning. Archer is listed on the Oslo Stock Exchange.

3 STRATEGIC ANALYSIS

The strategic analysis is divided into two sections: external- and internal analysis. The external analysis are external factors that the division has little or no control over. The internal analysis are internal factors that the firm has control over.

External Analysis

The external analysis started with a PESTEL analysis to analyse the macro-environment, which is followed by Porter's five forces to evaluate the industry environment. Analysing the external factors are important in terms of profitability and risk.

3.1 PESTEL ANALYSIS

The PESTEL analysis is a strategic tool for a company or a division to help understand their external environment – it is an analysis of the macro-environment. A PESTEL²⁴ analysis consists of six categories:

3.1.1 Political factors

The political aspect has a great influence on the petroleum industry. Countries are the primary owners of petroleum resources around the world. Government control can severely affect a company's ability to do business. Controlling petroleum resources allows countries to sell petroleum concessions, which is a contractual right to explore or develop natural resources within a specified area and time. Naturally, this means that governments can favour national firms and exclude others within its borders.

Political risks can reduce investments in countries facing political instability, even if the current political atmosphere is favourable. Political risks involves corruption, war, terrorism, instability, and changes in regulations. These are common occurrences in oil rich countries around the world.

It is also possible that world leaders can pass acts to stimulate alternative energy sources, such as nuclear, wind, or solar power, to counteract climate changes.²⁵ Environmental treaties and agreements between countries can reduce the demand for oil and increase the cost of

²⁴ Political, Economic, Social, Technological, Environmental and Legal

²⁵ The current climate change that is affecting the world now is the global warming.

production. The most recent environmental agreement was between the US and China, where the U.S. pledged to reduce emissions by 17% within 2020 and by 28% within 2025. China pledged to increase the use of zero-emission energy sources to 20% by 2030.²⁶ The Kyoto Protocol is an example of an international treaty that formally binds participating countries to reduce greenhouse gas emissions. The oil- and gas industry are at the mercy of a changing political landscape.

3.1.2 Economic factors

This section will discuss the most important factors: price of oil and gas, E&P at global- and geographic level, and the industry cycle.

Oil prices

There are dozens of different types of crude oil extracted around the globe; each one is unique and has different properties. They differ by the composition of the four main hydrocarbons found within. Most of the crude oils are benchmarked to Brent Blend, West Texas Intermediate (WTI), or Dubai/Oman. See appendix 3.1 for a detailed map over benchmarks.

Brent Blend makes up around 2/3 of all crude oil contracts. It is the most quoted benchmark. WTI refers to oil extracted within the United States. Brent Blend is the oil extracted in the North Sea, UK, and Norway. Dubai/Oman refers to the Middle Eastern crude oil, which is a lower grade than Brent Blend and WTI.

There is a spread in the pricing between the different benchmarks; this spread is due to transportation costs and different supply/demand equilibrium. The price spreads between the crude oils in 2015 are small, and the price correlation is high.²⁷ The different crude oil prices affects the E&P capital expenditure the same way. For analysis purposes, crude oils are analysed under one benchmark: Brent Crude.

The price of crude oil is highly important to the oil industry. In recent years, the oil price has been historically high, starting its ascent at the end of the financial crisis of 2007-08. In July 2014, almost five years after the last big decline, a sharp drop in price of around 47% occurred.

²⁶ The Guardian. (2014). "China and U.S. make carbon pledge".

²⁷ Cunningham, N. (2015). The vanishing WTI/Brent Spread.

The price drop is illustrated in appendix 3.2. The International Monetary Fund (IMF) analysed the price drop:

July to October 2014, IMF estimated the decline from \$105 to \$82 per barrel was mostly attributed to a global decline in the demand for oil. The IMF model estimated the decline was attributable to a 96% weakening of global demand, and only 4% because of global supply.²⁸

October 2014 to January 2015, the IMF estimated that the decline from \$82 to \$50 per barrel originated from an oversupply of oil.²⁹ The increased production of US shale oil is the main cause of the current oversupply. The shale oil production has thrived on the high price of oil, and has seen high growth in recent years. The production at the time of writing is causing an oversupply of roughly 2 million barrels per day, with the oil price below USD 50 per barrel.³⁰ The US shale production requires large capital expenditures. Bernstein's research done in October 2014, estimated that 1/3 of shale production would not be profitable to produce if prices fell under USD 80 per barrel.³¹ In Table 3.1 a price forecast from different banks and organizations indicates a future price lower than USD 80 per barrel. Even though the price of oil has dropped, US shale oil production will not slow down in the first half of 2015, because of hedged production volumes.³² The oversupply cannot last indefinitely, and production with a high breakeven price, such as shale oil, will eventually slow down.

Normally when the market has seen a drop in the oil price, OPEC has intervened and cut production to keep prices up. As most oil-producing firms are price takers, they tend to keep their supply as high as possible because reducing their supply will not be enough to change market prices. OPEC, on the other hand, set production targets within the organisation and since they control much of the world's oil production, they can influence market prices by changing their joint supply of crude oil. The power that OPEC has over market prices depends on the amount of crude oil supplied by non-OPEC countries. As supply from non-OPEC countries go down, OPEC will have to increase their supply to maintain the supply / demand equilibrium of crude oil; often referred to as the "call on OPEC".³³ The higher the call on OPEC, the more

²⁸ Zumbun, J. (2015). Supply or Demand? The IMF breaks down the collapse of oil prices.

²⁹ Zumbun, J. (2015). Supply or Demand? The IMF breaks down the collapse of oil prices.

³⁰ DNB. (Jan 2015) DNB Oil Market Report

³¹ Reuters. (Oct. 2014) Breakeven oil prices for U.S. shale: analyst estimates.

³² DNB. (Jan 2015). Oil Market Update 2015

³³ U.S. Energy Information Administration (n.d). What drives crude oil prices?

influence the organisation have over market prices. OPEC decided not to cut production at their meeting in November 2014.³⁴

Bloomberg reported, in April 2015, different forecasts on the price of oil for 2015 and 2016. A summary is located below in Table 3.1. The consensus is an increase in the price of oil. It is also visible in the one-year oil futures.³⁵ The market for crude oil has moved from backwardation into contango. This is illustrated in appendix 3.3. When a commodity is in contango it is cheaper to buy it at spot price than to buy it forward – oil is cheaper now than in the future. Investors can buy crude oil at spot price and sell it forward for a profit, assuming the cost of storage does not eat away the profit.

Organization	Brent 2015	Brent 2016
UK Capital Economics	\$60	\$65
JP Morgan	\$59.3	\$61.8
US EIA	\$59	\$75
IEA	unk.	\$75.03
Saxo Bank	\$70	unk.
Rystad Energy	\$60	\$70
Source: Bloomberg / Created by author		

Table 3.1: Crude Oil Forecasts

Gas prices

Oil and gas can be substitutes for some consumers; this is dependent on the consumer having the technology to change between the commodities. There is a positive correlation between oil and gas in price movements.³⁶ When there are sharp drops in the oil price, and the outlook is pessimistic for oil, a production change will occur from oil to gas. It takes around 12-18 months lag for the production to switch from oil to gas.³⁷

³⁴ DNB. (Jan 2015). Fremtidsutsikter.

³⁵ 1-year future due April 2016. See appendix 3.4.

³⁶ Villar, J. & Joutz, F. (2006). The Relationship Between Crude Oil and Natural Gas Prices. p. 39.

³⁷ Villar, J. & Joutz, F. (2006). The Relationship Between Crude Oil and Natural Gas Prices. p. 39.

The prices for natural gas are fragmented. The prices vary and are dependent on location – it is dependent on the distance between the reservoir and the consumer. Pipelines and ships are the main transportation method, with pipelines as the safest and most efficient way. The forecasted price of natural gas is available in Figure 3.1.

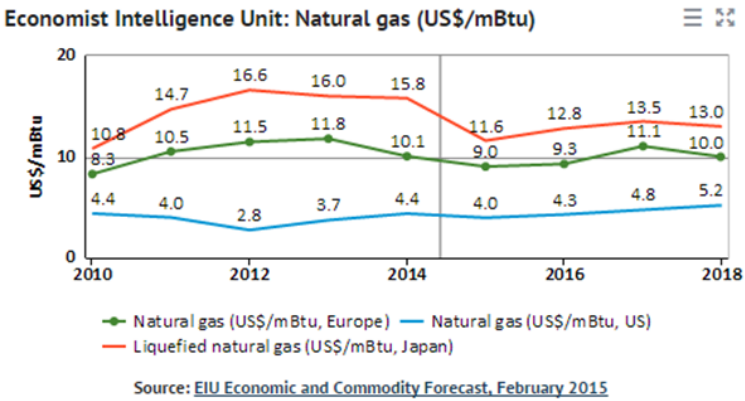


Figure 3.1: Natural Gas Forecasts

There is a correlation between oil and gas. They affect the E&P Company’s capital expenditure in the same way. Because of the similarities between oil and gas, it falls reasonable to analyse only Brent crude oil price’s effect on E&P budgets.

Global E&P Investments Forecasts

For the oil service industry the reduction in investments by the E&P companies means tougher times ahead. The market is already adjusting to the lower demand for oil services by downsizing

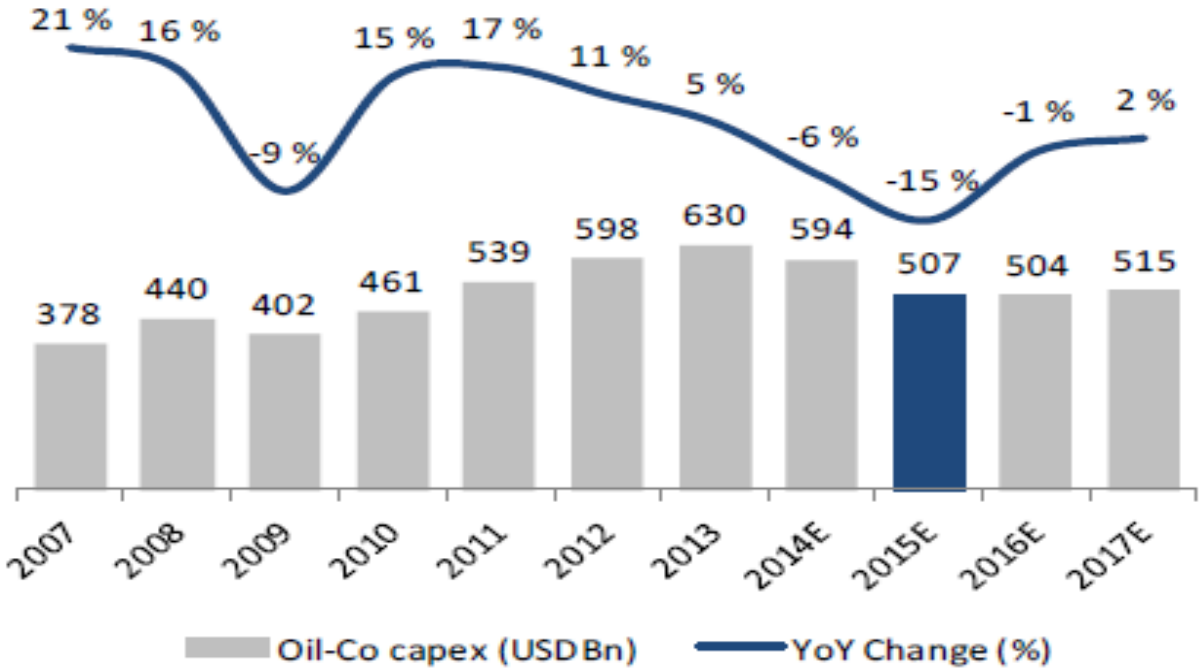


Figure 3.2: E&P Forecasts

and an increased focus on cost control.³⁸ Figure 3.2 illustrates the forecasted global capital expenditure.

A strong reduction in the price of crude oil reduces the profitability of projects, which causes a “lagged” reduction in E&P spending by the upstream oil and gas industry. This reduction directly reduces the

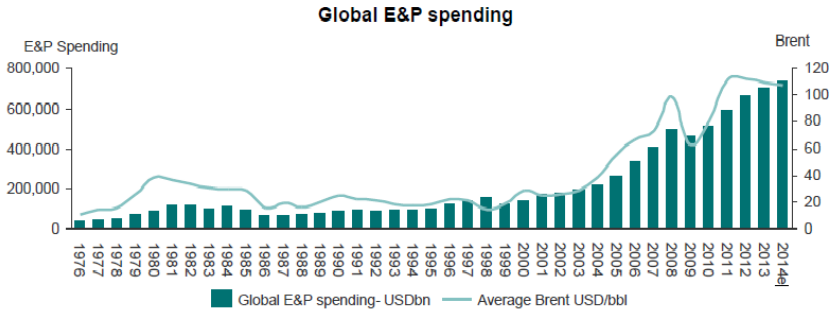


Figure 3.3: Brent and Global E&P

Source: DNB

demand for products and services in the oil industry. All projects in the E&P Upstream industry have a breakeven price. The breakeven price of a project is the average price of crude oil needed during its lifetime to be profitable. When the price of crude oil falls, the net present value of planned projects tumble and can become unprofitable. A rational firm would cancel such projects; assuming there are not very high fixed costs or hedged production volumes that would enable projects to stay alive. The rational firm would not undertake unprofitable projects in the future. Appendix 3.4 illustrates the breakeven price for all drilling projects in the world. Overall, a sharp and lasting drop in the price of crude oil reduces the profitability of current- and future projects. The core business for the E&P companies involves exploring and producing petroleum products. The same relationship is also observed as a correlation between the price of oil and E&P spending. A sharp and lasting drop in the price of crude oil reduces profitability of projects, which reduces E&P spending – it can force the industry into a period of contraction.

Geographic E&P Investments Forecasts

For analysis purposes, forecasting the segments that OWS operates in is advantageous. There is limited data available, and the entire forecast is therefore not complete. OWS divides

³⁸ Dagens Næringsliv. (2015). Schlumberger kutter 9000 jobber.

operations into three geographic segments: Norway (NCS), Europe (excluding Norway) and Middle East, Africa, & Asia.

NCS is the most important market for OWS as it counts for about 50 percent of the revenue. The European and the Middle East, Africa & Asia geographic markets count for about the same, around 25% each, or in total 50%.

A. Norwegian Continental Shelf (NCS)

There has been a decline in the oil production since 2000, while gas production has seen growth since 1995³⁹. Growth in investments have averaged 15% yearly from 2000 to 2013. The Norwegian Petroleum Directorate (NPD) projects a 15% drop in investments from 2014 to 2015 and by an additional 8% to 2017, and will then increase moderately from 2018.⁴⁰

B. Middle East, Africa & Asia

This geographic market segment has three regions: Middle East, Africa and Asia. For OWS these regions come together under one geographic market. However, each region can have different outlooks. They will also be analysed separately:

C. Middle East

Evercore ISI Global E&P Spending Outlook forecasts a 15.3% increase in investment in the same year. Barclay's analysts explain that the increased E&P spending in the Middle East is due to the large national oil companies of the region. It is difficult for them to shift spending from one year to the next. The countries in the region are also heavily dependent on oil revenues to balance their budgets.

³⁹ Norwegian Petroleum Directorate. (2014) Resource report.

⁴⁰ Norwegian Petroleum Directorate. (2014). News - The shelf in 2014.

D. Africa

Evercore ISI Spending Outlook forecasts African CAPEX to increase by 6%⁴¹. This is the capital investment assuming both Cameia project and total's zinnia phase two is not sanctioned.

E. Asia

Evercore ISI Spending Outlook forecasts the Asian CAPEX to decrease by 3%⁴², which is the first decline in spending since 2011.

Overall the geographic market for OWS: Middle East, Africa & Asia will be a growing market. This is in line with the administration of OWS, who sees it as a growing segment.

F. Europe (excluding Norway)

Evercore ISI Spending Outlook forecasts the European CAPEX to decrease by over 5%, however the size of the decrease depends on the investment decisions on big projects like Zidane, Bream, and Maria. This forecast however does include Norway, so in general both markets have an estimated negative growth.

Summary E&P spending

E&P Spending	2015	2016	2017	2018	2019
Global E&P	-15 %	-1 %	2 %	+	+
NCS	-15 %	-8 %	-8 %	-8 %	+
Europe	-5 %	unk.	unk.	unk.	+
Middle East	15.3%	+	+	+	+
Asia	-3 %	unk.	unk.	unk.	+
Africa	6 %	unk.	unk.	unk.	+
[+] indicates growth					
Source: Bloomberg & ISI Evercore / Created by author					

Table 3.2: E&P Forecasts Geographic Segments

⁴¹ Evercore ISI. (Jan 2015). Global E&P spending outlook.

⁴² Evercore ISI. (Jan 2015). Global E&P spending outlook.

Industry Cycle

The offshore service industry is a complementary and pro-cyclical industry segment to the oil exploring industry.⁴³ The offshore drilling and well industry is highly cyclical,⁴⁴ due to its correlation with the demand and supply of the E&P companies.⁴⁵ The price of oil determines the E&P budget. A lower oil price reduces the amount of profitable investments. Fewer investments leads to lower demand for oil related products and services. The price of oil determines the industrial cycles in the petroleum industry, and oil is a very volatile commodity.⁴⁶

The petroleum business cycles varies, and rough estimates is illustrated below in Figure 3.4: Industry Cycles. It shows that there has been five upturns and downturns in the last 39 years. Upturns are shown in the graph as black lines, and downturns as red lines. It is also important to note that changes in oil prices, does in fact change the investments of the exploration and production companies.⁴⁷ This is important because if it did not, the industrial cycle would occur less frequent in the petroleum market. The petroleum industry is currently in a downturn.⁴⁸ When an industry is facing a downturn, it reduces investments and unproductive assets, including human capital.

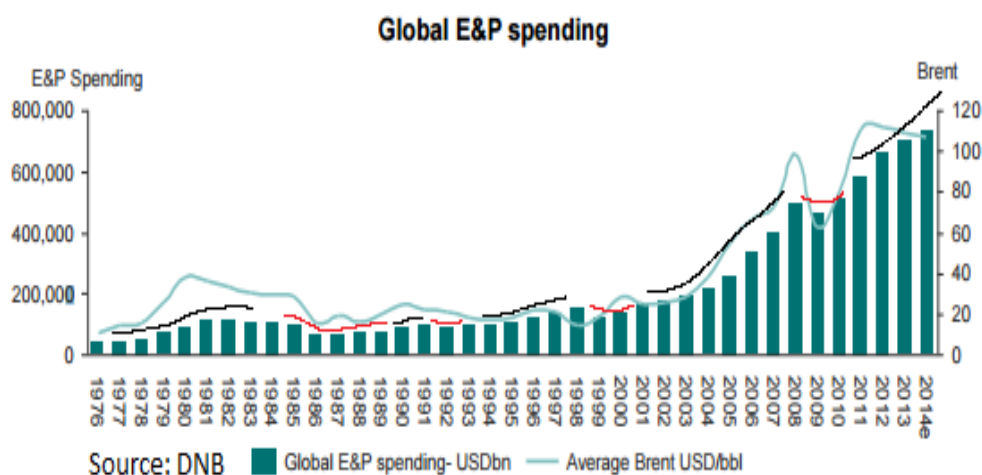


Figure 3.4: Industry Cycles

⁴³ Ramos, S. & Veiga, H. (2014) The Interrelationship between financial and energy markets. P. 9

⁴⁴ Slaughter, L. (1982). Financial Evaluation of an Offshore Drilling Rig Venture.

⁴⁵ Slaughter, L. (1982). Financial Evaluation of an Offshore Drilling Rig Venture.

⁴⁶ Watts, H. (Oct 2014) More Clarity needed in the most volatile commodity oil.

⁴⁷ Mathews, J. A. & Tan, H. (2008). Strategic dimensions of cyclical industrial dynamics: A study of the semiconductor industry. P. 3.

⁴⁸ Cheang, C. Y. (Mar 2015). Slow Year Ahead for Floating Production as Industry Downturn Bites.

3.1.3 Social factors

Lifestyles, values, and beliefs are all factors affecting the petroleum industry. These factors can shape energy preferences. Renewable Energy has grown from less than 9% market share in 2004 to 13% in 2013.⁴⁹ The forecasts on future renewable energy share of global energy consumption is fragmented. EIA estimates renewable energy to increase from 13% market share to 16% from 2014 to 2040, but offers scenarios of upwards of 24% - 27% market share. SUN DAY analysed the growth trend on renewable energy, and forecast 16% of total world energy consumption by 2018 will come from renewable energy. One thing seems clear; there is expectations of growth in renewable energy.

Approximately 97% of climate scientists agree that human activities are likely responsible for the climate-warming trends over the past centuries.⁵⁰ Global warming can cause a social trend to shift from carbon fuel to more clean energy sources. There is also continuous research on renewable energy. China invested USD 56.3B on renewable energy projects in 2013. Clean energy investments increased by 16% in 2014.⁵¹ The three social forces: lifestyles, values, and beliefs all affects future demand for oil and renewable energy sources.

Social responsibility in the petroleum industry affects operations, through reputation and image. Bad reputation can reduce the chance of a renewed petroleum concession, and the license to operate can be questioned by the people. A good image can reduce social- and reputation risk.

3.1.4 Technological factors

Technology is a crucial factor in an ever-changing landscape. It drives the petroleum industry. Small changes in technology can increase the petroleum supplies and reserves in depleted- and future wells.

New technology has made it possible to extract higher volumes from wells, and to resurrect exhausted oil fields. This allows for increased profitability and economic gain from oil fields. Currently, the industry is using enhanced oil recovery techniques to increase the amount of crude oil extraction. The techniques involves injecting thermal heat, gas, or chemicals into the

⁴⁹ U.S. Energy Information Administration. (2013). Annual Energy Outlook 2013.

⁵⁰ Cook, J., et al. (Jun 2013). Quantifying the consensus on anthropogenic global warming in the scientific literature. Environmental Research Letters Vol 8. No. 2

⁵¹ Downing, L. (2015) Clean Energy Investment Jumps 16%, shaking off Oil's Drop.

reservoirs. Innovations in the extraction process could drastically change profitability, oil supply, and reserves.

One of the biggest challenges for petroleum industry is ultra-deep water drilling. Historically, it has been associated with high development costs and limitations in technology. Technological advances have made breakthroughs in ultra-deep water reservoirs.⁵² These reservoirs requires full understanding of hydrocarbon mixtures as they move from deep rock formations, through subsea systems to surface facilities.⁵³ There are extreme variations in temperature and pressure. To access the reservoirs one must drill thousands of meter below the ocean floor, where both pressure and temperatures in the reservoirs are much higher. The ultra-deep water technology development has opened up new possible oil fields. Technologies that are currently under development are robotics and automated drilling.⁵⁴ There is also ongoing research in new procedures,⁵⁵ improvements on equipment, new processes, and offshore ultra-deep water optimization.⁵⁶

According to the 2014 EU industrial R&D scorecard the oil and gas industry places in the medium-low and low R&D intensity, which means they invest less than 2% of net sales into research and development. Even though low compared to pharmaceuticals and the auto-industry, technology is still an important aspect of the oil industry. Being at the forefront of technological innovation, especially in ultra-deep-water or arctic environments gives a competitive edge. Having new and modern assets is important as it could increase demand and rates for the products offered by players in the industry.

3.1.5 Environmental

There is a high focus on Health, Safety & Environment (HSE) in the upstream oil and gas industry. The ramifications of an incident or a blowout can be huge. The petroleum industry have been plagued by environmental disasters, and the largest offshore oil spill to date happened in 2010 in the Gulf of Mexico; where an estimated 4.9 million barrels were discharged into the sea. Such disasters has the power to improve on restrictions and safety regulations, which can

⁵² Depth greater than 1500 meters

⁵³ National Energy Technology Laboratory. (n.d) Deepwater Technology.

⁵⁴ IRIS. (n.d). Drilling & Well Technology.

⁵⁵ IRIS. (n.d). Drilling & Well Technology.

⁵⁶ Anderson, J. (Nov 2014). Going ultra-deep: GE opens \$500M subsea Oil and Gas R&D Center in Brazil.

make it less profitable and more difficult to operate in a given area. The clean-up cost for BP has been over 14 billion USD so far for the 2010 oil spill.⁵⁷

The focus on the environment also bring about changes in technology. In the US, they are expecting to reduce VOC emissions from new hydraulic fractured gas wells by 95%,⁵⁸ primarily by capturing natural gas that currently escapes into the air.

Climate change is also affecting the industry, with new oil fields opening up in the arctic due to the ice-edge moving further north.⁵⁹

3.1.6 Legal factors

The industry is subject to laws and legal regulations, which differ by country, and can range from imposition on drilling obligations, HSE, environmental compliances, petroleum laws etc. The E&P companies also have to pay high upfront concession fees and royalties to operate within country borders for E&P purposes. There is also special taxation rules on petroleum related products that are very high compared to other industries. Laws and regulations are constantly changed and improved, and can greatly affect operations and profitability. The legal costs affects the whole petroleum industry.

There has also been a shifting trend within the industry. A properly managed HSE department is seen as a competitive edge, and no longer a “required minimum”.⁶⁰ It is worth noting that many of the regulations that affect the industry are issued by local governments, and can therefore vary from region to region. This thesis will not go into detail on regulations in different regions. Many countries also face territorial disputes, which affects the geographic markets, some infamous examples, are the South China Sea dispute, the Persian Gulf dispute, and the Barents Sea conflict between Norway and Russia.

⁵⁷ BP. (n.d). Clean up cost after Macondo incident.

⁵⁸ US Environmental Protection Agency. (n.d) Oil and Natural Gas Air Pollution Standards.

⁵⁹ Norwegian Government. (Jan 2015). Oppdatering av iskanten I forvaltningsplanen for Barentshavet.

⁶⁰ DNV GL. (n.d). Challenging climates – The outlook for the oil and gas industry in 2014. P.20

3.1.7 Summary PESTEL Analysis

Political Factors	<ul style="list-style-type: none">• Government control petroleum resources.• Political Risks: instability, terrorism, wars, civil unrest, corruption• Environmental treaties and agreements.• Change in policy concerning renewable energy.
Economic Factors	<ul style="list-style-type: none">• Oil price declines reduces profitability on current projects.• Sharp Oil price declines reduces future investments of the E&P companies.• The oil service industry suffers from lower future investment from E&P companies.
Social Factors	<ul style="list-style-type: none">• Social Responsibility and Reputation risk: Need to show support of local economies and human capital.• Values, beliefs, and lifestyles shape preferences for energy. A slow change towards clean energy.
Technological Factors	<ul style="list-style-type: none">• Breakthrough in Ultra-Deep Water: Opens up new oil fields.• Technology driven and upstream improvement leads to increased oil extraction from wells and depleted wells, which increases profits.• Technology increases efficiency, productivity, and problem solving.
Environmental Factors	<ul style="list-style-type: none">• Plagued by environmental disasters. The damages are clean-up costs to investors which leads to lower profits.• High focus on Safety, Quality, and Environment.
Legal Factors	<ul style="list-style-type: none">• Territorial disputes.• Concession Fees and high tax.• Obligations to special laws and regulations.

Table 3.3: PESTEL Summary

3.2 PORTER'S FIVE FORCES

Porter's five forces helps to analyze the attractiveness of an industry, and hence its profitability. This section will help determine if there is potential for higher than normal profits in the oil service industry.

3.2.1 Threat of entry

The importance of identifying new market entries are vital. They can threaten market shares of existing competitors. An increase in entries leads to a higher capacity. A higher capacity can result in fiercer competition that drives prices down, or a higher cost for incumbents to maintain market share.

Factors that can affect barriers of entry are personnel competence, patent protection, experience, economies of scale, capital, and inventory. The services the industry provide is highly technical; it requires skilled personnel, experience, and advanced equipment. It also requires a large inventory to be able to service client's needs. Because of the scope of the industry, having stock in several locations worldwide is essential. This is both costly and logistically demanding. It requires large amount of capital.

The threat of entrants will also depend on where in the cycle the industry is. If the industry is expanding, the demand for personnel is increased and the availability of properly trained staff is low and expensive.

Companies that want to enter the industry can take advantage of the contracting industry cycle and employ skilled staff as the supply of personnel increases. They can also take advantage of spare capacity of the suppliers of the oil service industry, and stock up on equipment needed to operate within the industry. A contraction will also increase pressure from buyers to reduce prices, which can further reduce revenue. This can counter-act the willingness of firms to enter in an industry downturn.

Threat of entry: low

3.2.2 Threat of substitutes

Substitutes are other services that offer a similar benefit to current industrial services, but by a different process.⁶¹ The oil service industry delivers services for the oil- and gas industry; there currently exists no alternative substitutes for these services. New technology such as robots designed to substitute personnel, and welding of drill pipes instead of screwing them together might pose a threat.⁶² In the time of writing, such technology is still under development.

Threat from substitutes: Low

3.2.3 Bargaining power of suppliers

The oil service industry is dependent on suppliers. The suppliers bargaining power can affect a company's profitability. If the industry has few suppliers, then the suppliers will have higher bargaining power. This means they can demand higher prices for their products.

The most critical suppliers for OWS is in the Fishing, Rental, and Tubular Running Service; the equipment needed for these operations is not developed in-house. There are plenty of suppliers, and the oil service companies benefit from competition between suppliers. The cost of switching supplier is low.

Industry operators have to purchase both parts and raw materials. Raw materials include cement for wells, chemicals, metals, and other materials. In a market downturn, renegotiation of price concessions are possible, as there is weaker demand for oil services, and hence companies that mainly cater to the oil service industry will experience a fall in demand. This can help oil service companies to push down the margins of material suppliers.

Technology for Wellbore Cleanup and much of the Tubular Running Service segments are developed in-house, this is done across the industry. The production of the developed technology is outsourced to external suppliers. It is easy to switch between the outsourced suppliers.

Bargaining power of suppliers: Low

⁶¹ Johnson, G., Whittington, R., & Scholes, K. (2011) Exploring Strategy 9th Edition. Pearson Education Limited. p. 57

⁶² Odfjell Drilling is the largest shareholders in Robotic Drilling Systems AS which develops robotic drill-floor solutions

3.2.4 Bargaining power of buyers

The oil service companies are at the mercy of their buyers. They are their only source of income. E&P companies benefit from a high standardization of the oil service company's products. This enables them to both push down margins and choose contracts based on price.

Price is only one factor. Experience and personnel competence are also factors that differentiate oil service companies. Both can directly affect costs, by reducing delivery- and idle time. Geographic locations of bases are also important as the bases allow for reduced delivery time, which benefits all parties.

If rates are high, the danger of vertical integration will be higher. When the industry is in contraction the buyers will put more pressure on the suppliers to keep prices down, and the need for vertical integration is lower. E&P companies can even renegotiate current contracts to further drive prices down.

Bargaining power of buyers: High

3.2.5 Rivalry between established companies

There are many established companies in the oil service industry and the competition is fierce. The services and products are highly standardized, and competitive bidding drives prices and margins down. There are big firms with economies of scale advantage, such as Halliburton, Weatherford, and Schlumberger. These firms can increase market share further by lowering prices. As investments from the E&P companies go down, the competition for the coming contracts will be higher.

Rivalry between established companies: High

3.2.6 Summary of Porter's five forces

Strength	Low	Medium	High
Threat of entry	X		
Threat of substitutes	X		
Bargaining power of suppliers	X		
Bargaining power of buyers			X
Rivalry between established companies			X
Source: Created by author			

Table 3.4: Porter's Five Forces Summary

Created by author

Internal analysis

This section will analyse OWS' internal resources. The analyses will be on a firm level. The section will contain a value chain and a VRIO analysis. These tools will help determine how the division is utilizing resources to generate profits. The internal analysis starts with a value chain to identify core values.

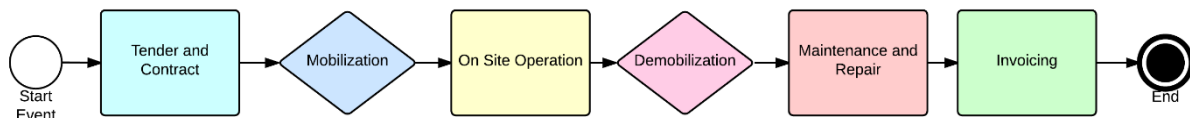


Figure 3.5: Value Chain

Created by author

3.3 VALUE CHAIN

Figure 3.5 above illustrates the core process for OWS. The different stages are explained in details below. The value chain is a strategic tool to help expose how revenues, margins, working capital, costs, and capital expenditure are created. The free cash flow method incorporates the company's entire value chain.⁶³ It is also a valuable tool to analyse if the products and services upholds quality.

Tender and contract

OWS will first receive a tender invitation for an event. Accepting or declining the tender invitation can depend on requirements, available equipment and/or personnel. If OWS accepts or declines the intent to bid, it will send back a notification to the customer. If accepted, OWS will start by appointing a tender team and start the tender process, which includes planning, legal review, prepare specs, prices, and review of the total package. The top management must approve the total package. If approved, OWS will submit a letter of intent. If the customer chooses OWS, it will start the contract process. This involves confirmation, verification, signing, registering, and filing. The contract is signed if both parties agree to terms and conditions. An audit of the contract takes place after both parties have signed.

⁶³ Priest, W. & McClelland, L. (2007). Free cash flow and shareholder yield. John Wiley & Sons. preface iii.

Mobilization

The mobilization stage starts after checking for available equipment and quotes; they adjust quotes according to the input and send it to the customer. Creating a work order will only happen if the customer accepts any differences in the equipment quotes. If accepted, OWS send a prepare order for the equipment it needs to their internal warehouse. This involves reservation, confirmation, and verifying shipment. The equipment undergoes dressing, makeup, and function testing. When all quality requirements are met, it is packed, updated, and load out checked in accordance with requirements. The delivery is then documented, and loaded for transport.

On site operations

On site operations starts when both crew and equipment arrives on site. They review the specific job information and notify the customer of their presence. The personnel rig up and function tests the equipment on site. If the equipment passes the different tests, then the job preparation phase is completed. They send job reports to their planner; this is how they register both work and experience. When the job is completed, they rig down equipment and demobilize it.

Demobilization

A list is generated to show the equipment that are on the rig, they discuss the equipment transfer and update the equipment list; some of the equipment will stay on the rig, while the rest will be shipped back. The equipment that stays behind are subject to cleaning and maintenance for the next job.

Maintenance and repair

The maintenance crew generates a work order when the equipment returns to base. The maintenance involves disassembling, cleaning, repairing, and testing the equipment. If the equipment passes the tests, it is ready for storage or a new load out. The maintenance crew generates a fault report if the equipment needs repair. There are three different routes for faulty equipment: salvage, repair, or discharge. The customer has to pay if they are to blame for the faulty equipment.

Invoicing

The billing departments collect all relevant information for an invoice. Unforeseen charges and/or recharges are analysed and added to the invoice. If the customer approves the invoice then the customer order status is closed. Crediting is analysed in accordance to contract or liquidity of the customer.

3.4 VRIO FRAMEWORK

The VRIO framework is a systematic tool to analyse different stages in the value chain. It analyses a firm's resources and capabilities. The framework makes it possible to examine if OWS has comparable advantages over competitors.

3.4.1 Physical Resources

Equipment

OWS' equipment is the main source for operational income. The NCS market is one of the most demanding technological markets in the industry. Some of the technological demand can be credited to Norwegian petroleum policy makers; they want to make the operations safer by reducing time spent on the drilling floor. In this segment, equipment generates positive margins, while work hours are breakeven.⁶⁴ In all other geographic segments, both equipment and work hours generate positive margins.⁶⁵

⁶⁴ OWS administration

⁶⁵ OWS administration

The utilisation of OWS equipment is not optimal;⁶⁶ the reason for this is a high assortment strategy. Equipment generally need regular maintenance and transits from base to site can be long. Improving this efficiency would increase margins, but could be at the cost of their business strategy of keeping a large inventory. OWS wants to keep a large stock of merchandise to attract more customers, even though this causes the utilisation rates on some of their equipment to be low. OWS' equipment is not hindered by depth levels, and they operate on everything from low depth to UDW. This is also true for their competitors.

The physical resources are up to date in technology. It is not rare, as competitors hold same or equal equipment. The equipment technology and drilling procedures are standardized. The equipment is up to date in technology.

Equipment resources are valuable, but not rare. The conclusion is competitive parity.

Geographic location

OWS has bases in key geographic locations. Figure 2.1 illustrates the base locations. OWS has located their bases strategically to ensure a lower transportation- and maintenance cost involved with operations. Correctly placed bases can be a basis for a temporary competitive advantage, it is however dependent on the locations of its peers. The location of peer's bases are not available. They do operate in the same regions, and the locations of competitors bases are presumed equal to OWS.

Geographic locations are valuable, but not rare. The conclusion is competitive parity.

3.4.2 Financial Resources

As mention earlier, OWS is a division under ODL. The parent company does not aid OWS financially. However, if the division is in financial trouble, it can acquire additional funds from its parent company.

In 2014, OWS had a book value of USD 1m in long-term debt. This means, that it is almost equity financed. OWS administration reports that it will not take up any loans in the near future.

ODL has taken up debt, where OWS serves as collateral for the loan. This limits OWS current ability to take up more debt. This explained in more details in Section 7.1.

OWS is a very profitable division. It has had solid cash flows from its operations. In 2014, OWS had a calculated Moody rating of A3. A3 rating means a strong payment capacity;⁶⁷ it is an investment grade rating. See appendix 7.4 for calculations. This would mean a low spread on a standard market corporate bond. A low spread will reduce the cost of debt, which can increase the enterprise value. The financial statement analysis shows how OWS has been creating excess profits during the analysis period. OWS outperforms or are on par with every company in the peer group, except Frank's International, on the analysed profitability measures. They have had high returns on investments and high margins. The findings in the five forces analysis suggest that entering the well services market is costly and difficult. This means OWS have been able to take advantage of excess profits.

The financial resources are valuable and rare. It is hard to imitate and organized to capture value. The conclusion is competitive advantage.

3.4.3 Human Capital

Human resources includes experience, education, training, and competence. In this section, employees will be analysed.

Safety and efficiency are in demand by customers. Experience and competence ensures both qualities. The human resources department has implemented procedures to ensure a transfer of experience between employees and departments within the company.

OWS' work accidents per million work hours were much lower in 2012-2013 than the Norwegian peer Archer, but slightly higher in 2011.⁶⁸ Archer reported three job related fatalities between 2011 and 2014.⁶⁹ There was no job related fatalities for OWS in the same period.⁷⁰

OWS had an average sick leave of 3.32% between 2008 and 2013. Archer had a similar sick leave. In Norway, the average in the same period across the economy was almost twice as high.⁷¹ The correlation between job satisfaction and sickness absence is statistically

⁶⁷ Cantor, R. & Packer, F. (1994). The Credit Rating Industry. p. 3

⁶⁸ Annual reports ODL 2012 & 2013. Annual reports Archer 2012 & 2013.

⁶⁹ Annual reports Archer 2011-2014

⁷⁰ Annual reports Archer 2011-2014

⁷¹ Statistics Norway. (Mar 2015). Labour market and earnings. Sickness absence.

significant.⁷² In 2013, ODL did a survey across the firm, with a response rate of 86%; it showed an average job satisfaction of five, on a scale from zero to six. There are conflicting viewpoints from research concerning job satisfaction relating to job performance. It does however play an important role for an employee in terms of health and wellbeing (Khaleque, 1981; Kornhauser, 1965). It is also relevant for productivity, efficiency, employee relations, absenteeism, and turnover (Locke, 1976; Vroom, 1964).

The personnel is valuable and a strength for OWS. Job satisfaction strengthens personnel resources. It is not rare among experienced competitors, but costly to reproduce. The personnel experience is an advantage over new firms entering the industry. OWS human capital is organized to capture value.

Human capital is valuable, but not rare. It is costly to imitate and organized to capture value. The conclusion is at parity with current competitors, but temporary competitive advantage over new competitors.

3.4.4 Organizational resources

OWS has operated in the market for over 40 years. The company is adaptable to changing environment; it has survived five downturns in the industry. OWS operates on the NCS, which is one of the strictest QHSE market segments in the world. OWS is a valuable brand with a superb reputation. They were the first company to land a contract with BP after the Macondo incident in 2010.⁷³

The experience OWS has built up during the last decades has been implemented in a company management system (CMS). The CMS contains information and guidelines of procedures that helps ensure quality, standardization, efficiency, and safety. The system is comprehensive, but easy to understand. The human resources department constantly updates the database on new government policies and requirements within the industry. It is valuable and rare. The CMS contains 40 years of experience, which makes it hard to imitate. It is organized to capture value.

The Organizational resources are rare and valuable. It is hard to imitate and organized to capture value. The conclusion is sustained competitive advantage.

⁷² Roelen, et al. (2008). Job satisfaction and sickness absence: a questionnaire survey.

⁷³ ODL IPO prospectus

3.4.5 VRIO summary

Resources	Disadvantage	Parity	Temporary advantage	Sustained advantage
Physical resources:		x		
<i>Equipment</i>		x		
<i>Geographic location</i>		x		
Financial resources				x
Human resources		x		
Organisational resources				x

Table 3.5: VRIO Summary

Created by author

3.5 STRATEGY SUMMARY

The oil price has plummeted. The call on OPEC failed. Many current- and future projects are no longer profitable. E&P companies are reducing their capital expenditure to counteract the lower cash flows caused by the sharp drop in the price of oil. The consensus is an increasing oil price in 2015 and 2016 but a decline in the E&P budgets in 2015 and 2016. The oil industry is in a downturn. The oilfield service industry is pro-cyclical, and a decline in current- and future revenues within the industry are unavoidable.

The financial statement analysis reveals that OWS has generated high growth and excess returns. Porter's five forces and the VRIO analysis emphasizes the same. The competition rivalry and bargaining power of the buyers are high, while the threat of new entrants are low. OWS are at parity with their competitors and have financial- and organizational resources that give them a competitive advantage. All resources are organized to capture value. The value chain reveals that the company is operating with quality in mind. A quality that ensures the company will not die out in the near future. The information obtained through the strategic analysis OWS will serve as inputs for the forecast period, together with findings in the financial statement analysis.

4 FINANCIAL STATEMENT ANALYSIS

A big part of the valuation of OWS is making a forecast and an estimation of future cash flows. Historic accounting data and the strategic analysis are the foundation of future estimates. It is important to note that most of the historic data are from a period of upturn in the industry.

OWS divested part of their business in 2012. It was possible to generate accounting data that excluded the divested division from 2011 and onwards. In an optimal setting, accounting data for an entire business cycle would be analysed. Unfortunately, the numbers are not available for such a period. For valuation purposes, four years of data should be adequate.

The balance sheet for OWS is unconsolidated, meaning it includes the effect of transfer pricing. To consolidate the balance sheet, removing liabilities and receivables affiliated with other divisions within OWS is necessary. OPI is the legal owner of the drilling equipment that OWS rents to customers; therefore, OWS has little long-term debt. The long-term debt of OPI has been included in the balance too accurately judge the financial leverage of OWS.

The income statement for OWS is in consolidated form, and no particular adjustment is necessary in regards to transfer pricing. The main issue with OWS' reported income statement is that it only reports pre-tax income. The tax cost is extrapolated by using the effective tax rate given by OWS financial managers.

4.1 REFORMULATED BALANCE SHEET

A firm consist of operating, financing, and investing activities. When companies report their financial statements, the definition of what they consider operational, financing, and investing is not always clear-cut. Reformulating the balance sheets and income statements helps to separate a company's core operations from its financial operations.⁷⁴ It also helps to analyse how a company creates value from its core operations, and how it stands financially. Financial ratios will compare OWS performance with its peers, and in the estimation of future cash flow. The DuPont model is utilized to break down the Return on Equity (ROE) and the Return on Invested Capital (ROIC).⁷⁵ The reformulated balance sheet separates the various accounts into operating assets and liabilities and financial assets and liabilities.

⁷⁴ Penman, S. (2012). Financial Statement analysis and security valuation. McGraw-Hill Irwin.

⁷⁵ Petersen, C. & Plenborg, T. (2012). Financial Statement Analysis. Prentice Hall. p. 94

Net Operating assets (Invested Capital)

The definition of invested capital is “The amount a firm has invested in its operating activities and which requires a return.”⁷⁶ Operating assets and liabilities are separated from financial assets and liabilities. The notes that accompany each financial statement vary in regards to the amount of information it contains. Generalizing the information is advantageous. Normally, cash & cash equivalents are separated into what is needed for day-to-day operations and what is held as reserves. The companies in the peer group have not stated how much cash reserves they require for day-to-day operations. It is usually a rather low percent of total cash reserves, and as such, cash & cash equivalents have been classified as part of financing activities for both OWS and its peers.⁷⁷ Income taxes reported on the balance sheet have been classified as part of operations. Investments that a company makes in joint ventures or similar, have been deemed part of operations or financing activities depending on its nature. If the investment is in a company/joint venture that performs the same type of service as the peer company, it is classified as an operational activity. Should the investment be separate from the core operations of the company, it is deemed a financial asset. Property, Plant & Equipment (PPE), goodwill & intangibles, and accounts receivable is recognized as part of operating activities.

The debt of each firm is separated into operational- and financial activities. Operational debt, or liability, is what the company owes in accounts payable, income taxes, and deferred revenue. Interest-bearing debt is classified as a financial liability.

Net Financial Obligation

The financing activities of the firm explains how its operations are financed. It is common for firms to finance their operations with debt. This shows as net financial obligations in the reformulated balance sheet. If a firm would finance operations through cash-on-hand or equity, they would be in a net financial asset position. The financial assets of the companies are cash & cash equivalents, derivative & financial instruments, loans to employees, and non-current assets to mention the most common. It can be discussed whether an item like derivatives should be part of operational or financial assets. Since the derivative instruments held by the peer group

⁷⁶ Petersen, C. & Plenborg, T. (2012). Financial Statement Analysis. Prentice Hall. p.74

⁷⁷ Petersen, C. & Plenborg, T. (2012). Financial Statement Analysis. Prentice Hall. p.77

mostly consists of interest rate swaps and similar trades, it has been classified as part of financing activities. In the financial statements, preferred stock is reported, in accordance with US GAAP, together with equity. However, preferred stock is a liability for the common shareholder,⁷⁸ and is therefore classified under financial liabilities in the reformulated balance sheet.

From the reformulated balance sheet net interest-bearing debt and net working capital is calculated. Net interest bearing debt is an important number, which is essential in the profitability analysis of OWS and the peer group. To calculate net interest-bearing debt one subtracts interest-bearing debt from interest-bearing assets.

The net working capital is the net of accounts receivable, inventory, other operating receivables, accounts payable, and other operating liabilities. These are all current items in the balance sheet, usually due within 12 months. The net working capital plays an integral role in calculating the free cash flow. An increase in net working capital from one year to the next is considered a negative cash flow, since it is not available to equity.

⁷⁸ Penman, S. (2012). Financial Statement analysis and security valuation. McGraw-Hill Irwin. p. 260

4.2 REFORMULATED INCOME STATEMENT

The reformulated income statement has been separated into core- and financial operations. Net Operating Profit Less Adjusted Tax (NOPLAT) measures core-operating profits. The discounted cash flow model uses NOPLAT as an input. It is a good way to measure the value created within a company, because it is independent of financing. The entire peer group reports by US GAAP accounting standards, yet the information about taxation in the notes of the financial statements are quite different. Adding tax shields of net financial expenses to reported taxes results in the operational taxes. It is possible to infer the NOPLAT by adjusting for operational taxes.

Due to the intricate nature of taxes, which could be a master thesis in itself, the tax shield on financial expenses has been calculated using the statutory rate of the origin country of each company. For the peer group this means a statutory tax rate of 35%, ignoring any added state tax; and 27% for OWS, which has base operations in Norway.

OWS reports only pre-tax income in their consolidated income statement. This makes establishing an operational tax for OWS difficult. After discussing taxation with OWS management, the consolidated effective tax rate of OWS is set to 20%. The operating tax rate has been extrapolated from the known effective tax rate and the tax shield on net financial expense.

4.3 FINANCIAL RATIOS

The DuPont model describes the structure of profitability analysis, and the link between the financial ratios.⁷⁹ The ratios are based on operating measures, and are retrieved from the reformulated financial statements. The main ratios are the ROE and the ROIC. To uncover the drivers of operation profitability, a second level breakdown will be performed on the ratios.⁸⁰ Numbers are based on end-of-year balance rather than an average between beginning of year and end of year. This is done in accordance with theory from Petersen & Plenborg.⁸¹ The calculations of the financial ratios are illustrated in appendix 4.3.

Return on Invested Capital

Return on Invested Capital is an important ratio. It measures a company's return on invested capital in operations. Holding all else constant, a higher ROIC ratio will lead to a higher value. The ratio is calculated before- and after tax.

$$ROIC \text{ before tax} = \frac{EBIT}{Invested \text{ Capital}}$$

$$ROIC \text{ after tax} = \frac{NOPLAT}{Invested \text{ Capital}}$$

To understand what drives profitability, the ROIC ratio is decomposed into a profit margin and turnover rate. This gives insight into whether profitability is driven by a better relation between revenue and expense, or by improved capital utilisation. As with ROIC, profit margin can be calculated before- and after tax.

$$Profit \text{ Margin before tax} = \frac{EBIT}{Net \text{ Revenue}}$$

$$Profit \text{ Margin after tax} = \frac{NOPLAT}{Net \text{ Revenue}}$$

⁷⁹ Petersen, C. & Plenborg, T. (2012). Financial Statement Analysis. Prentice Hall. p. 94

⁸⁰ Penman, S. (2012). Financial Statement analysis and security valuation. McGraw-Hill Irwin. p. 373

⁸¹ Petersen, C. & Plenborg, T. (2012.) Financial Statement Analysis. Prentice Hall. p. 155

The turnover rate of invested capital is a measure of a company's ability to utilise invested capital. It is calculated by dividing net revenue with invested capital. It is common to express the turnover rate in days. Companies strive for a high turnover rate and profit margins to increase their ROIC.

$$\textit{Turnover rate of Invested Capital} = \frac{\textit{Net Revenue}}{\textit{Invested Capital}}$$

$$\textit{Turnover rate (in days)} = \frac{365}{\textit{Turnover rate of Invested Capital}}$$

Because of the inherent relationship of these ratios, one can acquire the ROIC by multiplying the turnover rate with the profit margin, allowing for rounding errors. By applying this relationship to the ROIC, it makes it easier to establish if a company's return is generated by profit margins or high turnover.

$$\textit{ROIC} = \textit{PM} \times \textit{Turnover rate of Invested Capital}$$

Return on Equity

The ROIC focus on operating profitability, while the ROE explains the impact of financial leverage on profitability. ROE takes into account both operating- and financial leverage. The ratio is of high interest to shareholders, since it measures their accounting return on the investments they have made in the company. It is a ratio based on financial statements, which means it is in book value and not market value.

$$\textit{Return On Equity} = \frac{\textit{Net Income}}{\textit{Book value of equity}}$$

As with the ROIC ratio, the ROE can be decomposed to better show what drives the returns. Allowing for rounding errors, the following relationship will hold true. The relationship is as follows:

$$ROE = ROIC + (ROIC_{after\ tax} - NBC) \times \frac{Net\ Interest-Bearing\ debt}{Book\ value\ of\ equity}$$

$$Net\ Borrowing\ Cost = \frac{Net\ Financial\ Expense\ (after\ tax)}{Net\ interest - bearing\ debt}$$

Net Borrowing Cost (NBC) should not be mistaken as the effective borrowing cost of a company as it considers all financial expenses, including interest, derivatives and foreign currency gains or losses.

The second part of the ROE breakdown is often referred to as the “spread”; it shows the effect of financial leverage on profitability. If the difference between ROIC and NBC is positive, an increase in financial leverage will positively affect the company’s ROE.

Liquidity

Being solvent is essential for all companies. If a company has liquidity issues, they might have problems meeting their financial obligations. The worst-case scenario is bankruptcy. They will also have problems taking on new projects and profitable investments due to lack of capital. The liquidity cycle measures a company’s ability to pay off their short-term obligations. The liquidity cycle is a measure of how long a company needs to turn working capital into cash. Accounts receivable and inventory consumes cash, whereas accounts payable generates cash. For optimal liquidity, a low liquidity cycle ratio is optimal. Keeping a tight control over inventory, decreasing the days sale outstanding (DSO), or asking for longer supplier financing are ways to improve the ratio.

$$\text{Liquidity Cycle} = \frac{365}{\frac{\text{Costs of good sold}}{\text{Inventory}}} + \frac{365}{\frac{\text{Revenue}}{\text{Accounts Receivable}}} - \frac{365}{\frac{\text{Purchase, Material}}{\text{Accounts payable}}}$$

$$\text{Interest Coverage Ratio} = \frac{\text{Operating Profit (EBIT)}}{\text{Net Financial Expenses}}$$

The interest coverage ratio measures the company's long-term liquidity risk. It is a measure of how many times EBIT is able to cover net financial expenses. A higher ratio means lower long-term liquidity risk. As the ratio varies between industries, it is hard to give an exact number for how high it should be. OWS results will be compared to the peer group, which will serve as a benchmark.

Index- and common-size analysis

To further understand the development of the revenue/expense relationship and the capital utilisation efficiency over time, an index and common-size analysis have been performed on each company's income statement and balance sheet. The index analysis measures trend over time. It shows percentage gain/loss from a designated base year; however, it does not take into account annual growth. The index analysis is helpful in establishing trends, and will provide useful in the prognosis of future cash flow. It is also a good way to compare OWS year-on-year development compared to its peers.

The common-size analysis is a scaling tool. It simply scales every account in the income statement against operating revenue for each year. This means that operating revenue will show as 100%, and each account under it in the income statement will show as a percentage of net revenue. It reveals the developments of the EBIT/NOPLAT margins from year to year. The common-size analysis is an integral part of developing a reasonable prognosis for future cash flow. The analysis has also been done on the balance sheet. Instead of using a percentage scaling, each account on the balance sheet that makes up invested capital is measured in days on hand. By doing the analysis the importance and trend of each item is visible.

$$\text{Days on hand} = \frac{365}{\text{Turnover rate}}$$

4.4 ANALYSIS AND COMPARISON OF OWS

ROIC

The development of OWS ROIC ratio is illustrated in Figure 4.1. Figure 4.1: ROIC vs WACC. WACC is the weighted required return for both creditors and shareholder's capital. For comparison purposes, the calculated WACC for 2014 has been used for the entire period. The graph shows that OWS has been creating excess returns throughout the analysis period. The WACC calculations are explained in Chapter 7.

In Figure 4.2 it is clear that Frank's International has been creating returns on their invested capital far above the rest of the peer group. This is because Franks have been matching investment in capital with a growing EBIT throughout the analysis period. The strong growth is due to almost doubling their EBIT from 2011 to 2012. As inventories and Property, Plant and Equipment (PPE) build up and EBIT stabilizing, the graph shows a declining ratio. Archer has had a negative return due to negative EBIT during the period. The index and common-size analysis of the peer group will shed more light on the companies' developments throughout the analysis period.

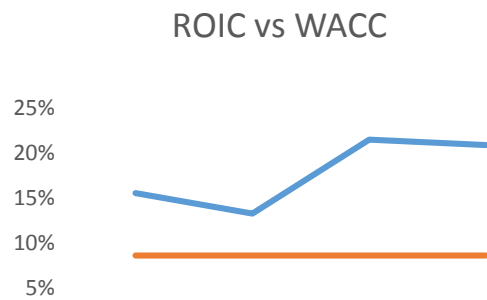


Figure 4.1: ROIC vs WACC

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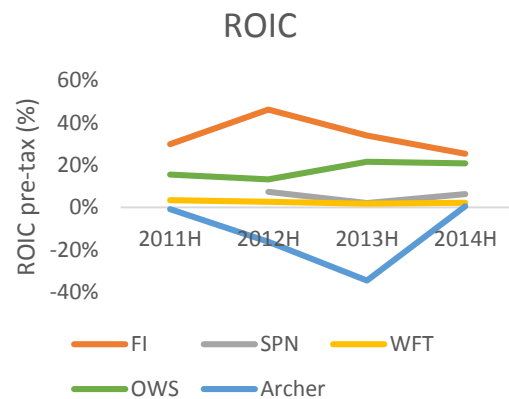


Figure 4.2: Peer ROIC

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Decomposition of the ROIC

The profit margin is the relationship between EBIT (pre-tax) and net revenue. To understand the development of the profit margin it is necessary to look at the revenues and costs during the analysis period.

During the analysis period, OWS have had a yearly operating revenue growth of 4%⁸². The peer group have had an average yearly growth of 6.3% throughout the period. It is worth noting that it is Frank's International which is pushing the average growth figures up, they have seen an annual revenue growth of 13%, while the other peer companies have had growth below OWS.

The revenue has been split per operating segment and geographical location. In regards to geography, the revenues are split into Norway, UK, Netherlands, Romania, and Middle East. The Asian operations are incorporated into the Middle East figures. The Well Intervention segment started to report as a single entity in 2014. Before 2014, it reported together with the Rental segment. When looking at Figure 4.3 and Figure 4.4 it is evident that Norway is the biggest market for OWS, but it has steadily decreased over the analysis period. In regards to rental revenue, the development has been quite stable. Romania doubled its revenue share from 2013 to 2014. The Middle East is seeing the largest increase in revenue share.

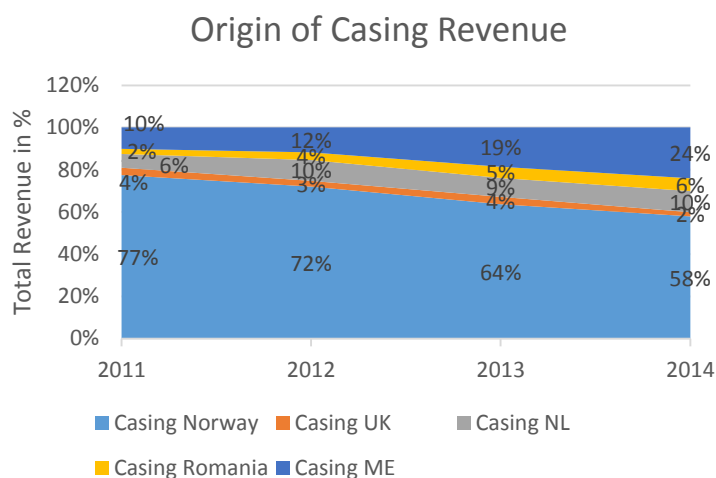


Figure 4.3: Origin of casing revenue

OWS monthly reports / created by author

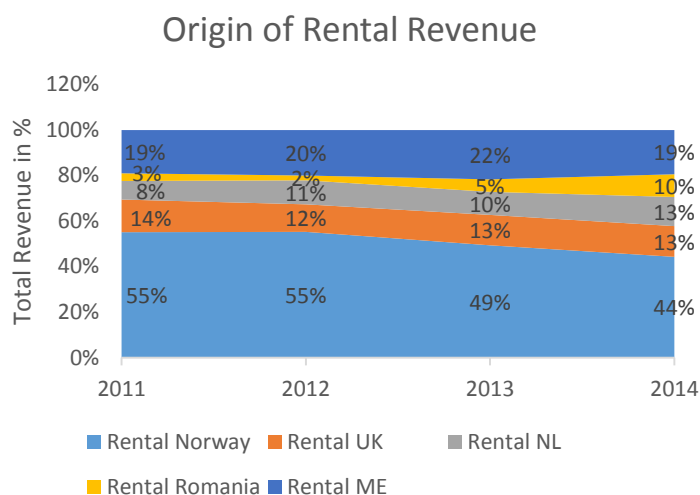


Figure 4.4: Origin of rental revenue

OWS monthly reports / created by author

⁸² Calculated using Compounded Annual Growth (CAGR)

When looking at the total revenues of OWS, disregarding geography, the split between Casing and Rental was roughly 50:50 in the beginning of the analysis period. During the period, Rental has seen an annual growth of 5% while casing revenue has had a growth of 6%. In 2014 the split was 53% casing, 41% Rental, and 5% Well Intervention. The

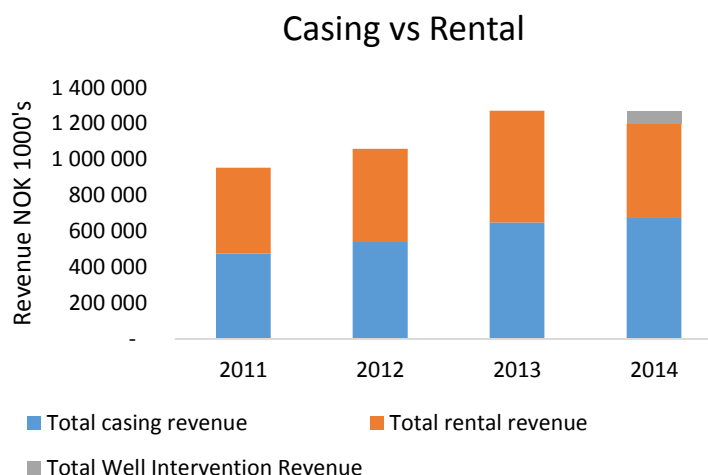


Figure 4.5: Casing vs Rental

Source: OWS monthly reports / created by author

increase in casing revenue comes mainly from increased activity in the Middle East, Netherlands and Romania which has seen an annual revenue growth of 18% - 33% during the analysis period. The numbers used in OWS monthly reports are denominated in NOK. To acquire correct annual growth numbers that are comparable with the rest of the thesis, they have been converted to USD using historical exchange prices.⁸³ Due to reporting in different currencies there is a small mismatch between the monthly report data and the annual report data. This is due to the use of average exchange differences over the entire year in the monthly reports. The margins are unaffected by currency year-to-year.

During the analysis period OWS have had an annual growth of 5% in OPEX, compared to a 4% annual growth in revenues. This includes operating expense and personell expense linked to operations, where administration costs have been excluded. The peer group have an average annual growth of 5.67% in OPEX during the same period.

⁸³ Norges Bank. (2015). Historical Exchange rates.

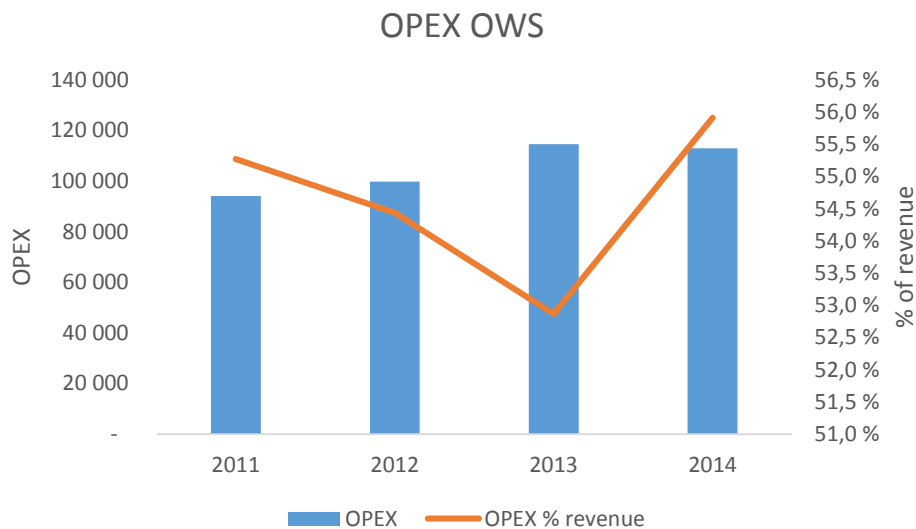


Figure 4.6: OPEX development

Source: OWS income statement / Created by author

Figure 4.6 above shows the development in OPEX in absolute numbers as well as a percentage of revenue. OPEX have been quite stable at 53-56% of revenue in the analysis period, with a small upswing in 2014. This is largely due to lower revenues for 2014 then the previous years.

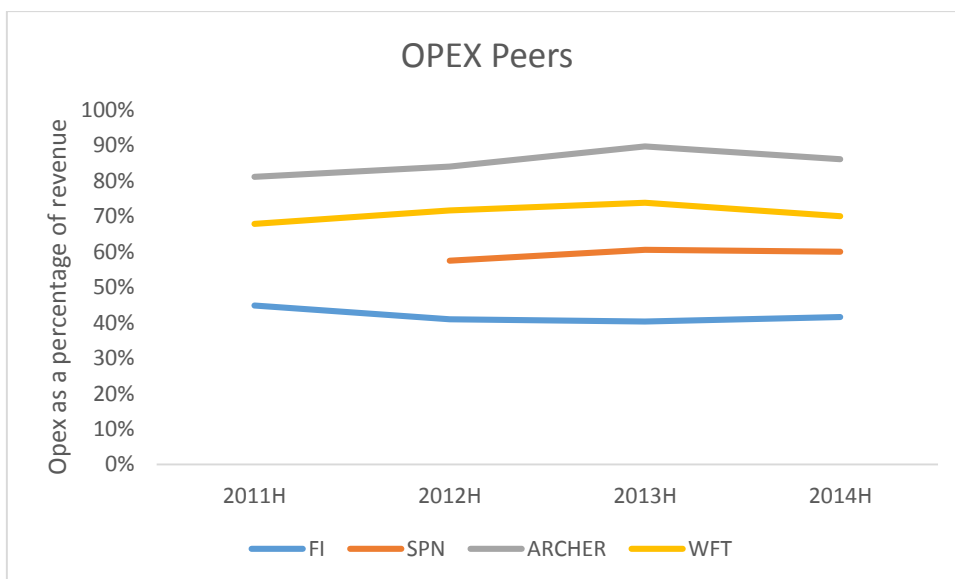


Figure 4.7: OPEX Peers

Source: Annual reports / Created by author

Figure 4.7 above illustrates the development of OPEX as a percentage of net revenue for the peer group. The group has had low volatility in OPEX for the analysis period, similar to that of OWS, but with an overall slight increase. This increase is visible in the EBIT margins of the peer group companies.

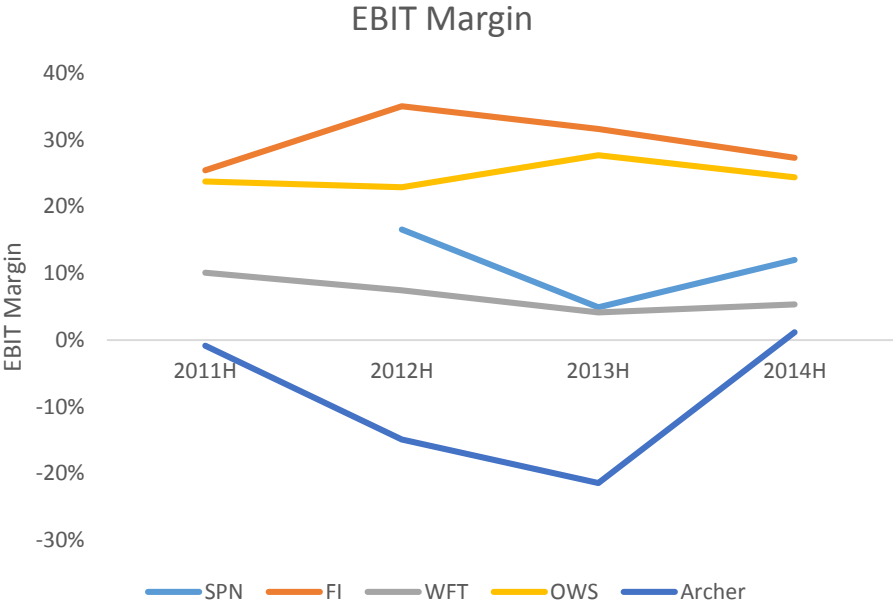


Figure 4.8: EBIT Margins

Source: Annual reports / Created by author

OWS margin have been steady from 2011 to 2012, with a marked upswing in 2013. The 2014 margin fell back to 2011 levels; this is due to lower activity, especially in the NCS segment. The dip in EBIT margin in 2013 for SPN and Archer is due to large write-downs of assets.

For the segments in OWS, only EBIT numbers are available for analysis throughout the period. EBIT is considered sufficient, as depreciation is handled equally within the organisation. The revenue is split between Rentals and Casing, separated by region. For analysis purposes, the margin is more relevant due to OWS reporting in different currencies.

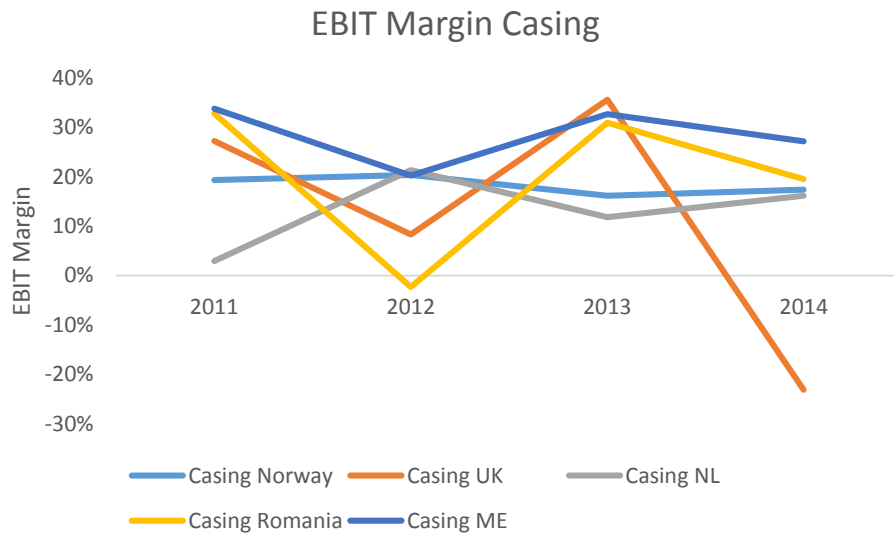


Figure 4.9: EBIT Margin Casing

Source: OWS monthly reports / Created by author

The casing segment has quite high volatility. Romania and UK are the two geographical regions that has seen the largest change in margin throughout the analysis period. In Romania's case, this is largely due to write-downs of accounts receivable. OWS started up several new projects for customers in 2011/2012 that they never received payment on, due to bankruptcy etc. In UK, during the analysis period, OWS had operations on one rig only. The low diversification effect by just having one operation in the region is reflected in the volatility of the profit margin.

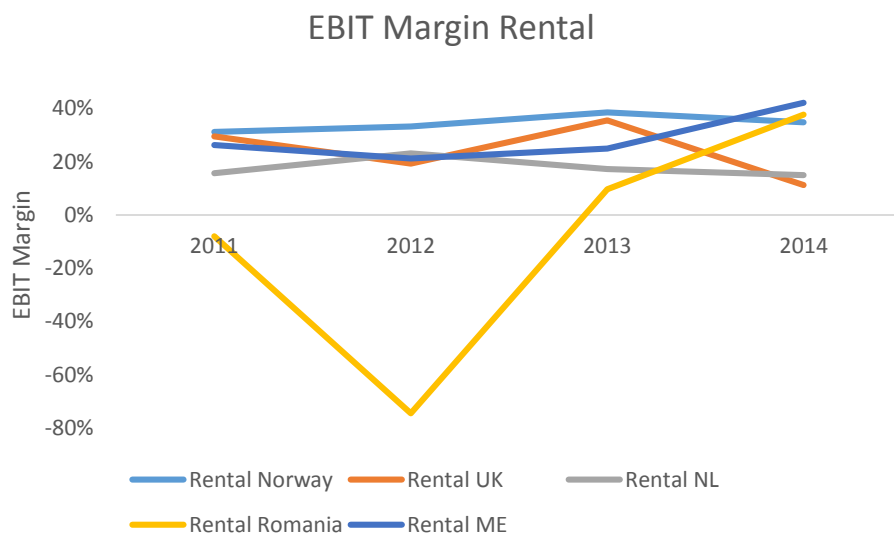


Figure 4.10: EBIT Margin Rental

Source: OWS monthly reports / Created by author

The EBIT margin for the Rental segment has been more stable compared to Casing. The only region that stands out is Romania. As with the casing segment in Romania, they have taken a large write down of accounts receivable in 2012 due to customers not fulfilling payment on undertaken projects.

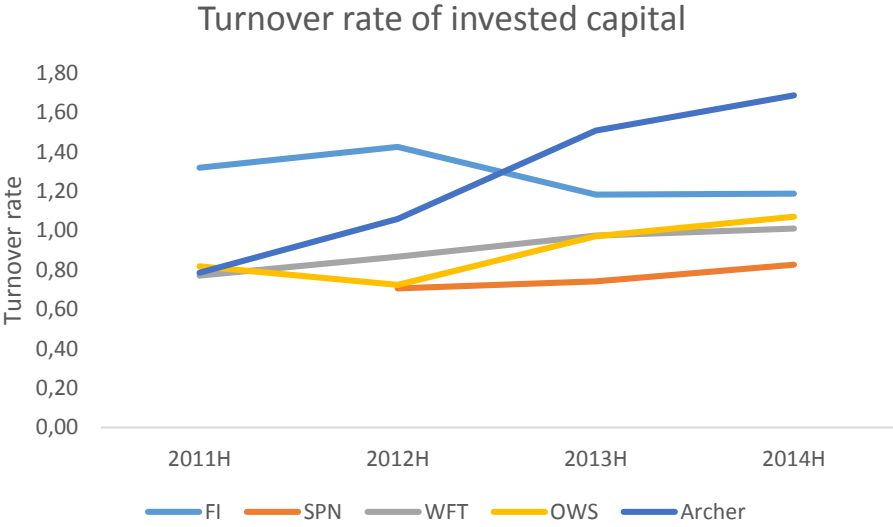


Figure 4.11: Turnover rate of invested capital

Source: Annual reports / created by author

Margins is only one part in what makes up the return on invested capital. The turnover rate plays an equally important part in determining profitability. Companies strive for high margins and high turnover rates to drive profitability. The rate measures how effective the company applies its capital. For all companies the turnover rate is increasing throughout the period with FI as the only exception. This is due to a large build-up of inventory and PPE, on FI’s part, during the analysis period. The increase in revenue during the period has not been enough to “keep up” with their capital investments.

OWS saw an increase in invested capital from 2011 to 2012, and a decrease for the rest of the analysis period. The book value of their tangible assets decreased from 2012-2014, while revenues grew by 4% annually, this is visible as an increased turnover rate from 2012 and onwards.

Index and common size analysis

The accounts making up the largest part of invested capital varies somewhat in the peer group. For FI accounts receivable, inventories and PPE makes up the bulk of their invested capital that amounts to USD 500-1,000M during the analysis period. For the larger firms like WFT, goodwill & intangibles makes up a larger percentage of invested capital. In the case of WFT, which is the largest peer company, invested capital ranges from USD 14,700 to 16,800M during the analysis period. OWS is the smallest company in regards to invested capital in absolute numbers, followed by FI, Archer, SPN, and WFT.

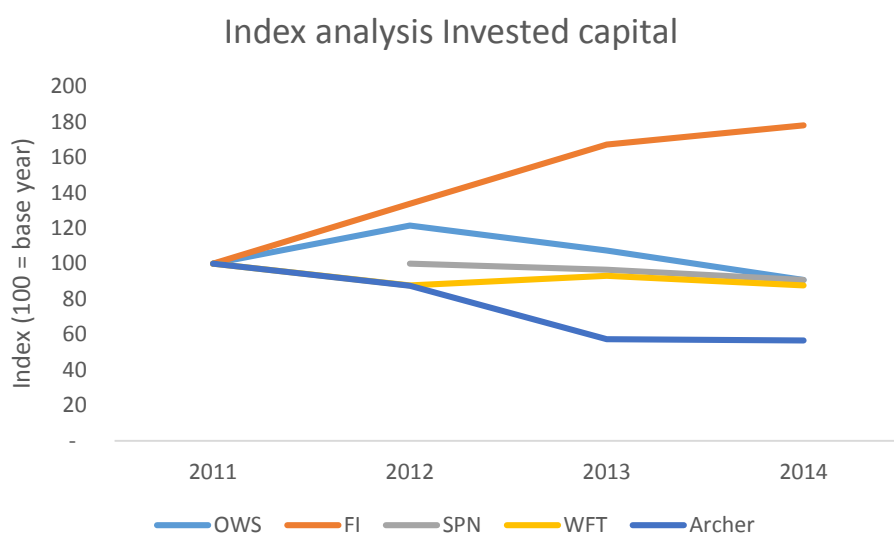


Figure 4.12: Index analysis of Invested Capital

Source: Annual reports / Created by author

Figure 4.12 shows the development of the peer groups invested capital during the analysis period. 2011 serves as a base year and developments through the period is a percentage increase/decrease from the base year. For most of the peer group, invested capital has gone down; the two exceptions are FI who has a marked increase and SPN who has kept their invested capital quite steady. In the case of FI, the increase is due to investments in PPE and inventories. When analysing the companies that have seen their invested capital decrease, this is usually because of PPE, goodwill, and intangibles being a large part of their invested capital. Due to these accounts being subject to various forms of depreciation and their size compared to other accounts, it will look like they are divesting (or rather, not investing) in operating assets.

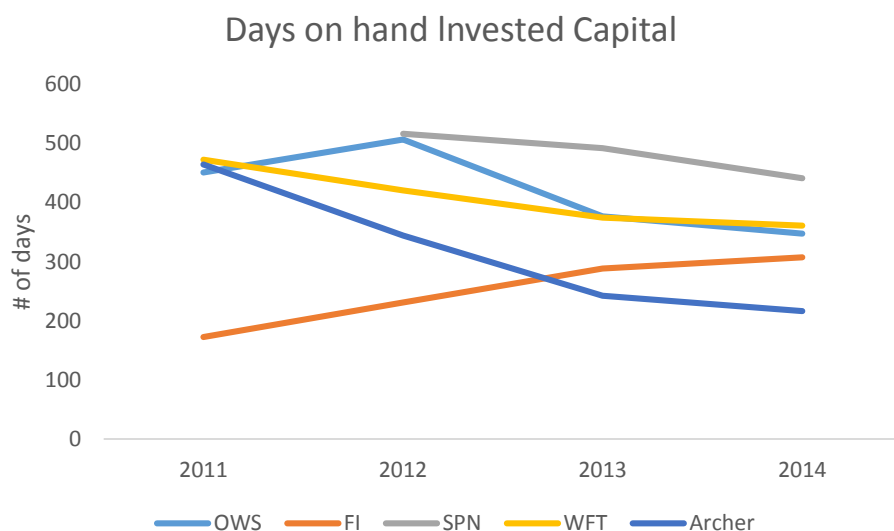


Figure 4.13: Days on hand invested capital

Source: Annual reports / Created by author

Days on hand express how many days an accounting item consumes cash.⁸⁴ A lower number of days is superior to a large number, and gives an insight into the effectiveness of management. A more detailed view on the days on hand for the accounts making up invested capital for OWS and the peer group can be found in appendix 4.5.

The relationship between the index analysis and days on hand analysis is quite clear. The companies that have made large capital investment (FI is the main one) have had an increase in the days on hand of invested capital. The overall trend is that PPE makes up a large percentage of the days on hand for the groups invested capital, as well as inventory. This is especially true for OWS, where in 2014 PPE had 264 days on hand of a total 341 days for invested capital.

⁸⁴ Petersen, C. & Plenborg, T. (2012). Financial Statement Analysis. Prentice Hall. p.115

For the firms it is clear that the time they get from creditors to pay their bills is short, with WFT being the exception. In the case of OWS, accounts payable are due within 5-18 days throughout the analysis period. When looking at accounts receivable, OWS is a top performer in collecting payment by their customers.

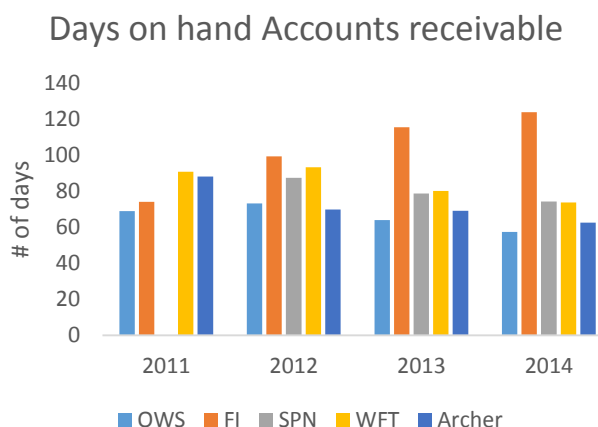


Figure 4.14: Days on hand accounts receivable

Source: Annual reports / Created by author

ROIC measures return on all the capital invested in the assets of a company, by

analyzing the Return On Equity (ROE) one focuses solely on the equity investments. This means that the net income is used in the numerator instead of EBIT. The ROE ratio for OWS and the peer group has been decomposed, similar to the ROIC, to see what drives the returns.

The leverage is calculated using net interest bearing debt. This means that any asset that provides interest (in most cases cash & cash equivalents) are subtracted from long term debt. Accounts payable are not considered interest bearing.

During the analysis period, OWS have gone from a high leverage ratio to being in a net financial asset position. Among the peer group this is uncommon; FI is the only other company being in a net financial asset position. This means OWS have gone from financing via debt to equity during the period. The reason for OWS low debt is that they do not invest more than their own earnings, and therefore do not rely on debt to fund operations.⁸⁵ The peer group, excluding FI, all have leverage ratios varying during the period from 0.3 to 1.3. Having low leverage is considered positive when the industry is a downturn.

⁸⁵ From OWS management

Return on Equity (ROE)

Financial leverage	2011H	2012H	2013H	2014H
Archer	0,82	1,31	1,15	1,48
FI	-0,18	0,85	-0,38	-0,38
WFT	0,84	0,99	1,27	1,11
SPN	-	0,44	0,41	0,35
OWS	1,48	1,21	-0,19	-0,23

Source: annual reports / created by author

Table 4.1: Financial Leverage

Financial leverage is the first of two factors included in the ROE. The second factor in the equation is the spread between the return on invested capital and the net borrowing cost. If the spread is positive, increasing leverage will increase the returns and vice versa. Net borrowing cost is not a good definition on actual rates paid on debt. It is more of a spread between lending and deposit rates. Other financial gains/losses besides interest costs are incorporated into the net borrowing cost as well.

Spread OWS	2011H	2012H	2013H	2014H
Net Borrowing Cost	0 %	1 %	33 %	-1 %
Spread (ROIC - NBC)	16 %	12 %	-11 %	22 %

Source: OWS reports / created by author

Table 4.2: Spread OWS

The large discrepancy in 2013 is due to OWS having net financial income instead of net financial expense, and very low net interest bearing debt. The financial income is the gain on the divestment of OWS mooring business. As OWS leverage has

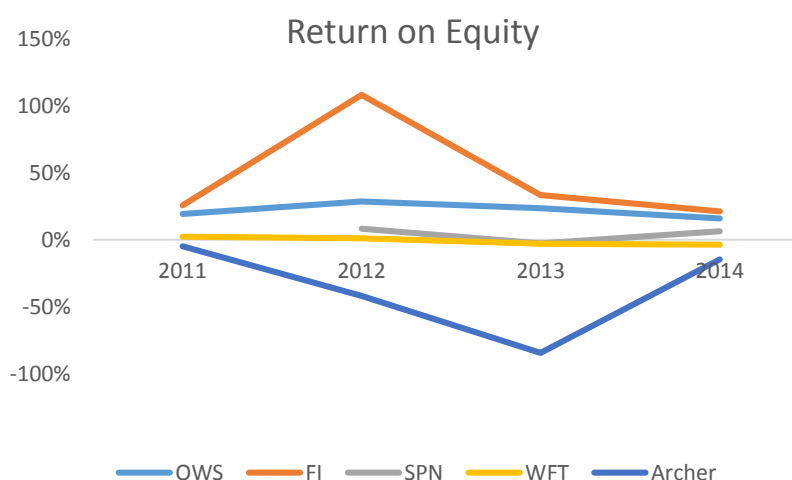


Figure 4.15: Return on Equity

Source: Annual Reports / created by author

decreased during the period, so has the spread. If OWS were to increase debt in 2014, this would positively affect the ROE.

The ROE has been quite stable for OWS, WFT, and SPN with Archer and FI as large outliers. The low ROE of Archer is due to their large write-downs during the period, which have caused negative net income. Frank's high ROE is due to the low equity to income ratio they had in 2012; this has stabilized during the period.

Short- & long-term liquidity

Liquidity is an essential part of operating a well-functioning business. Poor liquidity management means investment opportunities may fall through, and the risk of bankruptcy is present. For the purposes of this thesis, the liquidity of the firm have been measured in short- and long-term. The short-term liquidity gives insight into whether the company is able to meet its short-term liabilities. This is measured by how many days working capital consumes cash, less is better. The interest coverage measures the ratio between EBIT and the firm's net financial expense and gives insight into the solidity of the firm. A high EBIT to net financial expense ratio is preferred. The liquidity cycle is a benchmark for short-term liquidity, and the interest coverage ratio gives insight into long-term liquidity risks.

Liquidity cycle	2011H	2012H	2013H	2014H
Archer	45	33	36	33
FI	105	111	154	154
WFT	122	112	99	100
SPN	-	42	57	45
OWS	19	25	102	22
Source: Annual reports / created by author				

Table 4.3: Liquidity Cycle

OWS short-term liquidity is solid compared to the average of the peer group. The only year they have performed poorly is in 2013, due to large days on hand for accounts receivable. In 2013, OWS had particularly large receivables from group companies, which had a low turnover rate. Besides 2013, OWS have low volatility in their liquidity cycle during the analysis period. For a more detailed look on days on hand for balance sheet items, see appendix 4.5.

Interest coverage ratio	2011H	2012H	2013H	2014H
Archer	0	-10	-10	0
FI	-30	-19	-7	94
WFT	7	6	4	4
SPN	-	7	1	6
OWS	74	51	-4	129

Source: Annual reports / created by author

Table 4.4: Interest Coverage Ratio

It is important to note that the coverage ratio can be negative for two reasons. Reason number one is that the company have net financial income instead of net financial expense. This will show up as a negative coverage ratio, but this does not mean the company is in long-term liquidity risk, quite the contrary. The main problem is when the ratio is negative due to negative EBIT. To mark out the difference, numbers in red are due to negative EBIT. Negative numbers in black are due to net financial income. In the case of FI and OWS, their negative ratios are due to net financial income. Archer has negative EBIT during the period and is the company that have the worst coverage of the peer group. In general, OWS and FI are top performers; they have virtually no financial expense during the period. The large spike in 2014 is due to virtually no financial expense compared to EBIT. OWS has high liquidity both in short- and long-term compared to the peer group.

EBITDA Margin

The companies of the peer group have quite different depreciation (D&A) cost, as a percentage of revenue. To remove the differences in depreciation from the profitability measure one can look at the EBITDA margin.

Depreciation (% revenue)	2011H	2012H	2013H	2014H
Archer	15 %	25 %	29 %	9 %
FI	8 %	6 %	7 %	8 %
WFT	8 %	8 %	9 %	9 %
SPN	-	11 %	14 %	14 %
OWS	20 %	19 %	17 %	18 %
Average	11 %	11 %	12 %	10 %

Source: Annual reports / Created by author

Table 4.5: D&A peer group

The Figure 4.5 above paints a clear picture; there is a difference between the peer group in cost associated with depreciation. OWS, together with Archer, is on the high end of the scale with

depreciation costs well above the peer average. The high cost of depreciation has an impact on the EBIT margin of the companies, but does not play a part in the EBITDA margin.

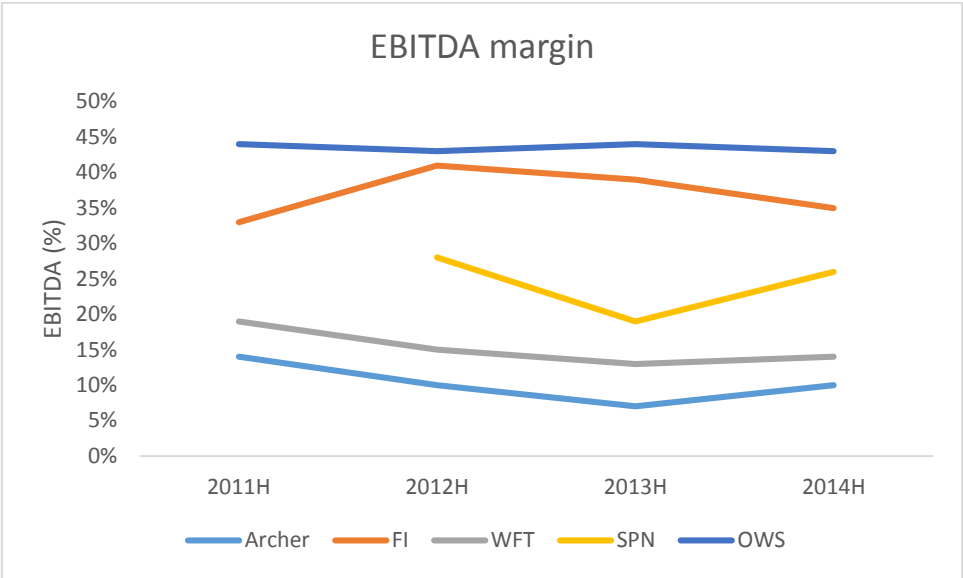


Table 4.6: EBITDA margin

Source: Annual reports / created by author

When removing the varying cost of D&A from the operating margin, it is clear that OWS together with FI are outperforming the rest of the peer group. The EBITDA margin will receive more focus in the Forecast and DCF Chapters of the thesis.

4.5 SUMMARY

The financial statement analysis shows how OWS is benefitting from high profit margins on their operations. Their turnover rate of invested capital is below average compared to the peer group, but the high margins boost their returns. In general, they outperform the averages of the peer group consistently, with FI being the only company that outperforms OWS.

The low turnover rate is due to the high assortment strategy of OWS. The main issue with this strategy is if their profit margins falls, their ROIC will fall as well and affect the value of the company. The sensitivity analysis shows the downside potential to the enterprise value if the margins fall.

Their liquidity is excellent, with virtually no debt. However, the ROE breakdown suggests OWS can benefit from increasing their leverage. This is analysed further in Chapter 7.

5 SWOT

The SWOT matrix serves as a summary of the internal and external analysis of OWS. SWOT is an acronym for Strengths, Weaknesses, Opportunities and Threats. In general, strengths and weaknesses are the internal factors that the firm has control over, while threats and opportunities are external factors of which OWS has little control over.

SWOT	Strengths	Weakness
E&P Budget		
Geographic location	OWS has located their bases strategically to ensure a lower transportation- and maintenance cost involved with operations.	OWS is not present in the North-, South America or Russia.
Financial resources	OWS is very solid compared to some of the peers in terms of debt and liquidity	Hard to obtain additional financing due to ODL collateral loan on OWS.
Organizational resources	Long history within the industry. A modern and up to date management system	
Operational assets	Large inventories. Able to deliver equipment fast.	Higher costs and lower utilization of equipment.
Division under ODL		
Human resources	Low sick leave and content employees	

Table 5.1: Strengths & weaknesses / Created by author

SWOT	Opportunities	Threats
E&P Budget	An increase in the E&P budget increases demand for OWS services.	A decrease in the E&P budget decreases the demand for OWS services.
Geographic location	Have begun operations in West Africa which is a growing market	Government regulations and corruption in the various regions.
Financial resources		As a division under ODL, OWS serves as collateral for debt to the entire group.
Organizational resources		
Operational assets		
Division under ODL		Other drilling companies are reluctant to hire OWS, as they see it as hiring the competitor.
Human resources		Regulations in certain regions that require the use of local labour.

Table 5.2: Opportunities & Threats / Created by author

6 FORECASTING

The forecast is the culmination of the strategic- and the financial statement analysis. Both the income statement and balance sheet accounts relevant to the DCF analysis will be broken down into details. The forecast horizon will span five years into the future.⁸⁶ The five-year period should be enough for the market to stabilize and OWS to reach their steady state. In 2020, the model assumes OWS will generate FCFs forever in a steady state; also known as a terminal value.

6.1 TERMINAL GROWTH

The terminal growth is the expected constant average growth rate after the five initial years of the forecast. The growth rate in the terminal value should reflect the expected growth rate in the area of OWS operations. As OWS has operations around the world, the expected global growth rate serves as proxy for terminal value growth. This is in line with the assumptions in the WACC calculations, where both the index and market risk premium are global. The forecasted growth rate in the terminal value is a mix of mature- and emerging markets. This is in line with OWS operating in both mature- and emerging markets. The expected global growth rate from 2020-2025 is estimated at 2.7%.⁸⁷

6.2 FORECASTING OF THE INCOME STATEMENT

The forecasting of the income statement is in accordance with the theory from Petersen & Plenborg.⁸⁸ The sales-driven forecasting approach serves as the benchmark for the forecast. This approach reflects changes in the various accounting items and its expected level of activity.

The common size analysis of the income statement breaks all the accounts down into percentage of operating revenue. The averages across the historical analysis period serves as a basis for the forecast in cooperation with the strategic analysis. Due to the common size analysis operating with percentage rates, the harmonic mean calculates the averages to get an accurate measurement across the analysis period.⁸⁹ As explained in the strategic analysis, the industry

⁸⁶ Petersen, C. & Plenborg, T. (2012). Financial Statement Analysis. Prentice Hall.

⁸⁷ The Conference Board. (Nov 2014). Global Economic Outlook 2015.

⁸⁸ Petersen, C. & Plenborg, T. (2012). Financial Statement Analysis. Prentice Hall.

⁸⁹ Petersen, C. & Plenborg, T. (2012). Financial Statement Analysis. Prentice Hall. p. 234

has recently entered a downward cycle. This means that historic averages do not serve as best predictors for the future. Therefore, the strategic analysis plays a vital role in the forecast. The table below shows the overall forecast of the income statement that makes up the NOPLAT. The detailed description of each account follows.

Forecast	Historical average	2015E	2016E	2017E	2018E	2019E
Growth in operating revenues	4% (CAGR)	-12 %	0 %	2.5%	2.7%	2.7%
OPEX (% of revenue)	55 %	61 %	60 %	59 %	58 %	58 %
Adm. Cost (% of revenue)	3 %	3 %	3 %	3 %	3 %	3 %
Gain on sale of assets (% of revenue)	1 %	1 %	1 %	1 %	1 %	1 %
Depreciation & Amortization (% of revenue)	18 %	18 %	18 %	18 %	18 %	18 %
Effective tax rate	20 %	20 %	20 %	20 %	20 %	20 %
Source: Created by author						

Table 6.1: Forecast

6.2.1 Growth in operating revenues

In 2014, OWS separated Well Intervention from Rental and Casing. It is hard to give any accurate forecast of the development of this business segment, as no prior data is available. It is also a very small percentage of total revenue. For the forecast to be as accurate as possible, Well Intervention revenue is included in Rental. The low total growth, compared to the high growth numbers in select regions, is due to the Norwegian Continental Shelf (NCS) segment accounting for nearly half the revenue stream of OWS operations.

Annual Growth (CAGR)	Rental	Casing
Norway	-3 %	1.4%
UK	1 %	-6.8%
Romania	34.8%	36.6%
Netherlands	14.7%	21.8%
Middle East & South East Asia	16.8%	35.6%
Total	6 %	5 %
Source: OWS monthly reports / Created by author		

Table 6.2: Annual growth

The NCS market has seen low growth in both segments during the analysis period. It is a mature market with high costs. The biggest operator on the NCS is Statoil; they began their STEP⁹⁰

⁹⁰ Statoil Technical Efficiency Program

program in 2014 to cut costs. This will affect the revenue stream for OWS in the future, as Statoil is one of their biggest clients. The decline in price of oil will increase the pressure on costs and competition in the coming years. If OWS is to keep growing it is likely they will have to do so outside of the NCS. They have already begun operations in several of the high growth areas. From the financial statement analysis, it is clear that the Middle East has grown rapidly during the analysis period, and likely will continue to do so. From 2013 to 2014 the overall operating revenues fell by 8%. This is more indicative of the future, as the period 2011-2013 has had high oil prices and activity.

In the strategic analysis the global E&P growth rates for 2015, 2016, and 2017 are -15%, -1%, and 2% respectively. The stabilizing global E&P budget from 2016 to 2017 are in line with the consensus of increasing oil prices in 2016. The geographic segments in Africa, Middle East, and Europe will experience lower decline. Both Africa and Middle East will experience growth in E&P in 2015. While NCS, the geographic market that earns the highest revenue for OWS, will decline in 2015, 2016, and 2017 by -15%, -8%, and -8% respectively. The strategic analysis findings also includes that the oilfield service industry is pro-cyclical. This means it correlates with the demand from the E&P companies, and a lower E&P translates to a lower demand, and hence a lower revenue for the industry. This is a generalization for an industry, and different companies might have different amount of backlog. OWS chose not to disclose their backlog, but they reported that they expected a revenue decline in 2015. The different market consensus are the basis for the forecast. The forecast for the revenue is -12% in 2015; 0% in 2016; 2.5% in 2017, and hit the growth rate for the overall economy in 2018. This is in line with the strategic analysis,⁹¹ market view, and the Rystad Energy revenue forecast for well services.⁹²

⁹¹ See PESTEL analysis

⁹² Rystad Energy. (Jan 2015). The comeback of oilfield services.

6.2.2 OPEX

The OPEX of OWS has been averaging at 55% of total revenue during the analysis period.

OPEX OWS	2011H	2012H	2013H	2014H	Average
Personnel	59 %	57 %	60 %	64 %	60 %
Operations	41 %	43 %	40 %	36 %	40 %

Source: OWS monthly reports / created by author

Table 6.3: OPEX OWS

OWS’ OPEX has been slowly building up during the analysis period, and in 2014 there has was a small decline in absolute costs. Due to market conditions and the slowdown on the NCS, it is likely that OWS will have to cut costs to stay competitive. The large chunk of costs associated with OPEX are personnel costs. OWS, in the time of writing, has started to reduce personnel cost by stopping all bonus payments to senior employees, and has begun layoffs of onshore- and offshore personnel.

There is no accurate details in the composition in the costs for the different geographical- and market segments. The financial data available for the geographical segments were only key data like revenue and EBIT.

Table 6.3: OPEX OWS 6.3 above shows the OPEX for the entire division. As payment to employees with bonus plans can amount to upwards of 30% of yearly salary, this should reduce the future personnel cost. OWS operate with longer term contracts; their operational expense linked to projects should remain stable as long as the contracts are still ongoing. With the low interest rates and low inflation of today’s economy, combined with the bleak short-term outlook for the industry, the yearly adjustment to wages should be low. OWS has stated that they will cut costs in an effort to maintain the same profitability as previous years. It is unlikely that they will be able to maintain the same high margins (in the forecasted period), because of the downturn of the industry and the high pressure on costs. Estimations of profitability levels suggest margins will fall for 2015. The financial statement analysis shows how the operational expense as a percentage of revenue spiked in 2014, and will likely stay at a higher percentage through the industry downturn.

6.2.3 Administration cost

The administration cost of OWS has been decreasing throughout the period, from 6% to 2% of total revenue. Compared to OPEX it is a small cost.

Administration cost	2011H	2012H	2013H	2014H	Average
Archer	4 %	3 %	6 %	5 %	4 %
FI	22 %	18 %	21 %	23 %	21 %
WFT	14 %	13 %	13 %	14 %	13 %
SPN	-	15 %	14 %	14 %	14 %
OWS	6 %	4 %	4 %	2 %	3 %

Source: Annual reports / created by author

Table 6.4: Adm. Cost

Compared to the peer group OWS has a low administration cost. FI, which has had the highest costs associated with administration has been expanding their business throughout the period. OWS on the other hand has not completed any major transactions during the period. As mentioned above, they did divest their mooring business in 2012, but all figures generated from OWS has excluded the mooring business entirely, so it should not have any effect on costs.

The low administration cost should continue throughout the forecast period. It is worth noting that what companies consider general & administration cost vary significantly. In the case of OWS, the cost is purely associated with renting and keeping office buildings up and running. This means IT, rent, office supplies, and similar costs. FI has the highest administration cost, as a percentage of revenue, among the peer group and it includes non-income based taxes in the administrative cost. Their annual report does not give a detailed description of the account, which makes it difficult to separate the general cost from the administrative costs.

6.2.4 Gain on sale of assets

A market for second hand tools and rental equipment does exist, but it is not as transparent as for example the second hand rig or ship market. The gain on sale of assets consist of repayments from customers who are liable for damaged equipment during OWS operations. The revenue associated with sale of assets have been low throughout the analysis period and is unlikely to

gain any traction for the forecasting period. It should remain at 1% of revenue, same as historical average, for the entire forecasting period.

6.2.5 Depreciation and amortization

Depreciation and amortization varies between the different asset types, and their estimated accounting lifespan. The depreciation and amortization cost has varied somewhat for OWS during the analysis period, between 16% and 20%. It is unlikely to see any large variations from the historical average. The depreciation and amortization account should remain at the historical average of 18%. This depreciation rate is among the highest in the peer group. Archer had similar depreciation costs, but they have performed asset impairments throughout the period.

6.2.6 Effective tax rate

OWS management have said the effective tax rate has been at roughly 20% historically, and they expect it to stay at the same rate. It is difficult to verify this when looking at the income statement for OWS, since it only reports pre-tax income. The tax rate for ODL has been analysed, and it has been varying a lot during the analysis period, from 20% to 50%. The tax calculations are rather crude, and have high aggregation. It is therefore a large possibility that the calculations do not reflect the real effective rate. The forecast will therefore use the 20% rate given by OWS management, as it should be closest to the actual effective tax rate. The 20% tax rate is the global rate for OWS operations. There is one weakness with this approach; it assumes the same distribution of historic- and future income. This would mean that the effective tax rates assume similar growth on all geographic segments. It was not possible to forecast tax rate development, due to the complex nature of taxes between borders and countries. The optimal way would probably involve forecasting growth in different geographic areas, and calculating the different taxation levels on different operational sites. This information was not available for analytical purposes.

6.2.7 Other financial income

Other financial income is below 1% of total revenues during the analysis period with the exception of 2013. This is mostly bank charges, profits, and loss from subsidiaries and similar items. For the forecasting period, the other financial income account is not likely to create large

revenue streams. The spike in 2013 is due to the sale of the mooring business. Even though revenue from the mooring section is not included in the operating income of OWS, the gain on the divestiture is listed as a financial income in 2013. The sale is a non-recurring item and have no impact on the forecast of this account.

6.3 FORECASTING THE BALANCE SHEET

The accounts in the balance sheet relevant to the DCF valuation is analysed and forecast. The most important accounts are the working capital and the capital expenditures. The historical average, as a percentage of revenue, and input from the strategic analysis will serve as a benchmark for the forecast.

6.3.1 Net working capital & CAPEX

The net working capital consist of current operating assets minus current operating liabilities. It is difficult to foresee how the different accounts that make up working capital will develop over the forecasting period. The aggregated historic average NWC will be the template for the forecasting period. The information on each account is limited and due to the number of years forecasted into the future, aggregating the numbers will give the best results.⁹³ A decrease in revenue leads to a decrease in working capital; this is because lower sales usually reduces account receivable and accounts payable. The historical average of 7% of revenue will serve as benchmark for the forecast period. This is close to the industry average of 7.98% in 2014.⁹⁴ The NWC calculations are located in appendix 6.1. In Table 6.5, the NWC decreases as in 2015, due to a decrease in revenue, and increases to the historic average in the steady state as revenue increases.

Forecast (% of revenue)	Historical average	2015E	2016E	2017E	2018E	2019E
Net Working Capital (NWC)	7 %	5 %	5 %	6 %	7 %	7 %
Tangibles & intangibles	99 %	99 %	99 %	99 %	99 %	99 %
Source: OWS historic balance sheet / Created by author						

Table 6.5: Forecast NWC & intangibles

⁹³ Petersen, C. & Plenborg, T. (2012). Financial Statement Analysis. Prentice Hall. p.183
⁹⁴ Damodaran data. (2015). Working capital requirements by industry sector. Global.

6.3.2 Tangibles & Intangibles

Tangibles and intangibles consist of PPE, investments in joint ventures, goodwill, and other intangibles. The yearly change in these accounts makes up investments in operating assets, also known as CAPEX. Adding back depreciation turns it into a cash investment only. The historic CAPEX serves as a benchmark for the forecast period.

In the internal analysis of OWS, it is clear they put a large emphasis on keeping a large inventory to serve new orders or projects quickly. The book value of tangibles & intangibles should remain at the historical average for the forecast period. See Table 6.5 above for developments in tangibles and intangibles.

To arrive at the company's free cash flow, one needs to calculate change in net working capital and the estimated capital investment. The calculations of both CAPEX and NWC is in accordance with Petersen & Plenborg.⁹⁵ CAPEX hits a low in 2015, and then starts regaining momentum as the industry recovers.

Forecast	2014H	2015E	2016E	2017E	2018E	2019E
Tangibles & intangibles end of period	176 725	172 699	172 699	177 016	181 796	186 704
Depreciation	-	31 400	31 400	32 185	33 054	33 946
Tangibles & intangibles beginning of period	-	176 725	172 699	172 699	177 016	181 796
Capital Expenditure (CAPEX)	-	27 374	31 400	36 502	37 833	38 855
Forecast	2014H	2015E	2016E	2017E	2018E	2019E
Net Working Capital	11 939	8 722	8 722	10 728	12 854	13 201
Change in Net Working Capital	-	-3 217	-	2 006	2 126	347
Source: Annual reports / Created by author						

Table 6.6: Forecast of investments & NWC at current margin

⁹⁵ Petersen, C. & Plenborg, T. (2012). Financial Statement Analysis. Prentice Hall. p.177 & 184

6.4 NOPLAT

The above paragraphs culminate in a forecast of the expected future NOPLAT of OWS. The basis of this forecast is that OWS' profitability will decline in 2015 and then increase as the market picks back up.

Forecast	2014H	2015E	2016E	2017E	2018E	2019E
Operating Revenue	198 231	174 443	174 443	178 804	183 632	188 590
OPEX	112 979	106 410	104 666	105 495	106 507	109 382
Administration cost	3 616	3 489	3 489	3 576	3 673	3 772
Gain on sale of assets	3 824	1 744	1 744	1 788	1 836	1 886
EBITDA	85 460	66 288	68 033	71 522	75 289	77 322
Depreciation and amortization	36 170	31 400	31 400	32 185	33 054	33 946
EBIT	49 290	34 889	36 633	39 337	42 235	43 376
Operating taxes	9 856	6 978	7 327	7 867	8 447	8 675
NOPLAT	39 434	27 911	29 306	31 470	33 788	34 701
		-29 %				
Forecast assumptions						
Revenue growth		-12 %	0 %	2,5 %	2,7 %	2,7 %
EBITDA Margin	43 %	38 %	39 %	40 %	41 %	41 %

Source: Annual reports / Created by author

Table 6.7: NOPLAT Forecast

6.5 EVALUATION OF THE FORECAST

The ROIC helps to evaluate the validity of the forecast. The base case is a reduction of OWS profitability in 2015 and then an increase during the period, before OWS hits its steady state in 2019. Findings from the financial statement analysis shows how OWS have created a ROIC above their WACC during the analysis period. The ROIC has been forecast lower than the historical return, but is still above the WACC. This means OWS will continue creating value for shareholders, but at a lower rate. The impact of the high returns is visible in the DCF model, where the terminal value is a large portion of OWS enterprise value. A Monte-Carlo simulation shows the impact of uncertainty surrounding the inputs of the terminal- and enterprise value.

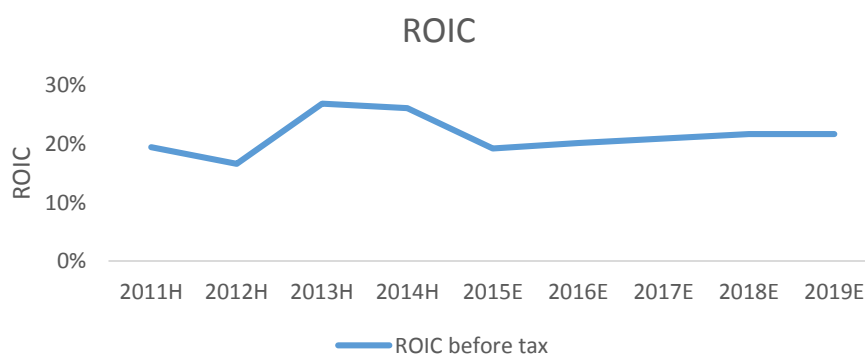


Figure 6.1: Historical and forecasted ROIC / Source: Created by author

7 WACC

7.1 ESTIMATING RATE OF RETURN

To be able to estimate the value of OWS future cash flows; a discount rate is required. The discount rate will correct for the time value of money and express shareholders and investors return on capital investments. The Weighted Average Cost of Capital (WACC) will serve as the discount rate. WACC is the weighted required return for both creditors and shareholder's capital.

The steady state and the forecast period has different WACC's. The reason for this is that OWS' current capital structure is suboptimal. ODL has taken up debt where OWS serves as collateral for the loan. The loan is USD 300M, and another revolving credit of USD 150M. The cost of debt of the loan is dependent on the performance of OWS. The loan can restrict the amount of debt OWS can borrow from the market. It affects the value of the division, by increasing the WACC, as it cannot achieve optimal capital structure. The loan amortizes by 2019. The loan poses extra risks with respect to subordinated debt. Creditors have subordinate status; which means they will have first priority in case of bankruptcy or liquidation. However, everything in the strategic- and financial analysis points to a very bright future. An Altman Z'-Score was calculated for OWS. The Z'-score is an indicator for probability of bankruptcy and a higher score is better. The Altman Z'-Score was calculated to be at approximately 104; it is a very high score and indicates that OWS is safe from bankruptcy. OWS has also a Moody Rating of A3 – which is considered an investment grade rating. The probability of bankruptcy or liquidation are considered nonexistent within the next four years. OWS does not pay for the loan in any way. The calculations are illustrated in appendix 7.1.

In 2014, OWS had a book value of USD 1M in long-term debt. OWS administration reports that it will not take up any loans in the near future. OWS will restructure their capital structure to minimize the WACC in the steady state. It is important to note that this is an assumption made by the authors of this thesis. Restructuring OWS' capital structure might not be optimal for ODL as whole. Information to calculate an optimal path was not available. The following formula used for WACC is:⁹⁶

$$WACC = r_e \frac{E}{D + E} + r_d \frac{D}{E + D} (1 - T)$$

⁹⁶ Rosenbaum, J. & Pearl, J. (2013). Investment Banking. Wiley. p. 125

7.2 COST OF EQUITY

There are many models and ways to calculate the cost of equity. The most used model is the Capital Asset Pricing Model (CAPM). CAPM will serve as the cost of capital. Bankers typically use CAPM,⁹⁷ and Professor Damodaran recommends it.⁹⁸ CAPM has many assumptions; discussing these assumptions are outside the scope of this thesis. The formula for CAPM is:⁹⁹

$$CAPM = r_f + \beta_L(r_m - r_f)$$

7.2.1 Risk-free rate

The first part of the CAPM is the risk-free rate r_f . The definition of risk-free rate is «The theoretical rate of return for an investment that has zero risk. The risk-free rate represents the expected return for an absolutely risk-free investment over a specified period». For an investment to be risk-free there must be no default-risk or re-investment risks.¹⁰⁰ Risk-free investments are not possible in practice, and the best approximation are government bonds in the same lifespan as the investment.

One can avoid both inflation- and currency risks by denoting it in the same currency as the cash flows.¹⁰¹ OWS cash flows are in U.S. dollars, and U.S. Government bonds have the same denotation. U.S. Treasury securities are exempt from state taxes and is in high demand from foreign central banks.¹⁰² This could make rates slightly lower than other equivalent commercial papers. Central banks have parked much of their currency reserves in US treasuries.¹⁰³ The US has top ratings from all the major country ratings such as Standard & Poor, Fitch, and Moody. It is also the world leading currency. Many consider US bonds the safest investment in the world.

The DCF model assumes an infinite lifespan in the valuation. There exist no U.S. treasury bonds with an infinite lifespan. The two treasury bonds with longest maturity are the U.S. 10- and 30-year t-bonds. The 30-year t-bond trades in low volumes, and is not as liquid the 10-year t-bond.

⁹⁷ Rosenbaum, J. & Pearl, J. (2013). Investment Banking. Wiley. p. 127

⁹⁸ Damodaran, A. (2012). Investment Valuation. Wiley. p. preface viii

⁹⁹ Rosenbaum, J. & Pearl, J. (2013). Investment Banking. Wiley. p. 128

¹⁰⁰ Damodaran, A. (2008). What is the riskfree rate? A search for the basic build block. p. 6

¹⁰¹ Damodaran, A. (2002). Estimating Risk Free Rates. p. 6

¹⁰² Titman, S., & Martin, J. (2010) Valuation 2nd edition. Pearson Education Limited. p. 113

¹⁰³ U.S Treasury. (May 2015). Major foreign holders of treasury securities.

The 10-year t-bond will be favored over the 30-year t-bond to serve as the proxy for the risk-free rate. Using zero coupon bonds will eliminate the re-investment risk.

The Zero Coupon 10-Year Treasury bond at the time of writing is 1.71%.¹⁰⁴

7.2.2 Systematic risk

The second part of the CAPM model is the beta, which measures the dependence of an asset to the market – the systematic risk of an asset.¹⁰⁵ The CAPM model use past prices of an asset to estimate a beta, but OWS is not listed on a stock exchange and has no past prices. The company beta, peer beta, and industry beta are candidates for a proxy for OWS' beta. Linear regression is the most used method for estimating a company together with peer beta.

Historical beta – Linear regression

Running a linear regression between stock returns and a market index will result in an intercept term and a beta coefficient. The beta coefficient shows the relationship between the stock and that market portfolio. The strength of the beta estimate depends on several factors, such as the time period, return interval, and the market index.¹⁰⁶

The industry standard time period for beta estimation is 2-5 years, and in many academic studies 5 years.¹⁰⁷ There will be used 5 years of data when calculating the peer beta; this is to uphold consistency with Damodaran's industry beta calculations. However, there was only available 15 months of data for ODL and Frank's International, and only 4 years of data for Archer.

Using monthly observations in the regression will reduce the problem with non-trading days,¹⁰⁸ which can affect correlations associated with the market index, and consequently the beta estimate. Non-trading days can make the beta biased, in terms of lower beta with lower illiquidity, and higher beta with higher liquidity. Professor Damodaran recommends monthly observations.¹⁰⁹

¹⁰⁴ Bloomberg Zero Coupon 10-year treasury bond (30.01.2015)

¹⁰⁵ Damodaran, A. (2009). Estimating risk parameters. p. 5

¹⁰⁶ Pratt, S. (2002). Cost of Capital 2nd edition. Wiley. p.82

¹⁰⁷ Christoffersen, P., et al. Forward-Looking Betas (2006). p.12

¹⁰⁸ Damodaran, A. (2009). Estimating risk parameters. p. 9

¹⁰⁹ Damodaran, A. (2009). Estimating risk parameters. p. 10

The S&P Global 1200 index will serve as a benchmark to obtain an international beta.¹¹⁰ It is a well-developed index reflecting movements in global equity. OWS is operating internationally and a global index should reflect their exposure to systematic risk. Odfjell Drilling and peers are influenced by oil prices and should be regressed on an index not affected by oil prices – this excludes the Oslo Stock Exchange. Using the S&P Global 1200 removes beta distortions caused by correlated movements in both index and stock prices from movements in the oil price.

Yahoo Finance supplied stock prices with adjustments for dividends, splits, and, rights offerings. Date mismatches was corrected with a VLOOKUP command in excel to ensure that the prices was matched with the same date. The VLOOKUP command was random sampled to double check it matched the dates. MSCI World Index only had available close prices for the end of the month; the above technique fixed this problem.

7.2.3 ODL Beta

Odfjell Drilling was regressed with 15 monthly observations on the S&P Global 1200 index benchmark, 13 of which had a negative monthly capital gain. The index is in USD and ODL is in NOK. To get an accurate regression, it was necessary to convert each monthly capital gain observation to USD with historical quotes. ODL had a beta of 2.05. The R^2 was 22%; which means it has a low association with the returns of the index. The standard deviation was high and around 1.04, this means it's hard to conclude with any certainty what the beta is; it is with a probability of 95% between the interval [-0.03 and 4.13].

The R^2 is too low, and the standard deviations too high for it to be a useful beta estimate for OWS. The crude oil price has also changed a lot in the short time of ODL's public listing. See appendix 7.2 for regressions.

7.2.4 Comparable Beta

Comparable beta is an average beta for companies with similar business- and financial profile. It is widely used for valuing private companies and divisions.

Frank's International and Archer were not included in this analysis because of less than 5 years of data. Superior Energy and Weatherford had an average beta of 0.27 the last 5 years. The

¹¹⁰ This is an aggregated index of the S&P 500® (US), S&P Europe 350, S&P TOPIX 150 (Japan), S&P/TSX 60 (Canada), S&P/ASX All Australian 50, S&P Asia 50 and S&P Latin America 40.

regressions had a low R^2 , high standard deviations, and was statistical insignificant. The average standard deviation was higher than the beta, and the R^2 was below 5% for both regressions, which means that the return of these firms bear little association with the market. The data output from the regression was surprisingly bad, mainly the R^2 and the standard deviations. To test the results, the same monthly stock returns were regressed on another global equity index named MSCI World Index, the regression output gave almost identical values.

The R^2 is too low, and the standard deviations too high for it to be useful. It has no explanatory power, and it would most likely result in a bad proxy beta. See appendix 7.2 for regressions.

7.2.5 Industry Beta

An industry beta is the average beta from key industry participants – it shows an estimated industry average beta. In 2015, Professor Damodaran calculated a global industry unlevered beta for the oil service and equipment industry to be 0.97.¹¹¹ The industry index consists of 586 global companies. The same companies had an average 4 years market debt/equity ratio of 40.40%. The last 4 years, the companies experienced 3 years of upturn, and the last current year of downturn. This is in line with the industry cycles, which has more years of upturn than downturns. See the PESTEL analysis for more details. This makes the capital structure and beta for the industry a very good proxy for the estimation of OWS beta and capital structure.

To use this beta, it must be re-levered to fit OWS' capital structure. OWS does not have a market value and has almost no debt. The current market capital ratio of ODL is not an optimal capital structure, as it has a higher debt to equity ratio than the overall industry. It falls natural to use the industry capital structure further, under the assumption that OWS will refinance to the industry capital structure in the steady state. This industry capital structure should be close to optimal capital structure. The levered beta for OWS is 1.28. See appendix 7.3 for calculations. The industry beta and capital structure are chosen for the WACC input.

¹¹¹ Damodaran, A. (2015). Homepage Dataset. "Levered and Unlevered betas by Industry". "Global".

7.2.6 Market Risk Premium

The third and final part of the CAPM is the market risk premium. The market risk premium is the return above the risk-free rate a risk averse investor would require to invest.

The different ways to calculate risk premiums have been up for academic debates for decades. Some prefer using long-term arithmetic averages, which measures the simple mean of annual returns (Brealey and Myers, 1991; Franks et al., 1985) others argue for a geometric average, which measures average compounded return (Copeland et al., 1991; Levy and Sornat, 1986). Statistically these methods provide very different results. If annual returns were uncorrelated over time the arithmetic averages would probably yield the most accurate result. Empirical studies indicates that returns on stocks are negatively correlated over time, which means that arithmetic averages might overstate the risk premium. Damodaran argues for the use of geometric average premiums in valuation and is favored over arithmetic average.¹¹² In 2015, Damodaran calculated a globally weighted average risk premium to be 7.18%.¹¹³

7.2.7 Cost of Equity

It falls natural to use the unlevered industry beta for the oil service and equipment industry, re-levering it to fit OWS debt to equity ratio. Mainly because of big standard deviations and low R^2 of the regressions.

Combining above findings: Risk-free rate from US 10-year t-bonds; global unlevered industry beta re-levered to OWS capital structure; and a globally weighted market risk premium. Inputting these numbers into the capital assist pricing model equation yields following:

OWS	Cost of Equity
Forecast period	8.73%
Steady state	10.93%
Source: Damodaran / Created by author	

Table 7.1: Cost of Equity

¹¹² Damodaran, A. (2012). Equity Risk Premiums (ERP): Determinants, Estimation and Implications. p. 26.

¹¹³ Damodaran, Aswath (2015). Homepage Dataset. "Risk Premium". "Global".

7.3 COST OF DEBT

A company’s cost of debt is the effective market rate the company pays on its debt portfolio. Cost of debt expresses creditors expected return by adjusting the risk-free rate with the risk of OWS not meeting its payment obligations. The premium above the risk-free rate compensates creditors for operational- and financial risk.

OWS currently has an A3 Moody Rating, and is set to maintain this rating throughout the next four years. However, when OWS takes up the average 4-year industry capital structure of D/E of 40.40% in the steady state, it will have a slightly lower moody rating of Baa2. The lowered rating will increase OWS spread over the risk free rate, increasing their cost of debt.

The Moody Rating A3 and Baa2 are expected to have 1.20% and 1.75% spread above the risk free rate respectively. The Baa2 Rating is contingent on taking up the 4-year average industry standard in the steady state, which is expected to be above 70% of debt to book value of OWS. This is one of the factors that are used to calculate a rating; it is based on the Global Oilfield Service Rating Methodology by Moody. The spreads are based on Professor Damodaran default spreads. A Study on historic spreads revealed that a Baa2 Moody rating from 1973-87 had an average of 1.66% spread.¹¹⁴ This is in line and close with the Professor Damodaran default spreads. See appendix 7.3 and 7.4 for cost of debt and rating calculations.

OWS	Cost of Debt
Forecast Period	2,91 %
Steady state	3,46 %
Source: Damodaran / Created by author	

Table 7.2: Cost of debt

7.3.1 Tax Rate

The cost of debt is tax-deductible and reduces financing costs related to debt. This is reflected in the WACC formula. Cash flows are calculated after tax, and hence tax shields must be included.

OWS is operating in different regions with different taxation rules. The best estimate for the tax rate will be the effective tax rate from OWS’ financial statement, because the effective tax

¹¹⁴ Cantor, R., & Packer, F. (1994). The Credit Rating Industry. P.10.

rate should be the weighted average tax for OWS operations. It does however rest on the assumption that the OWS' borrowing costs are distributed in the same way as the firms operating earnings,¹¹⁵ which is one weakness in this method. Findings in the PESTEL analysis suggests unstable governments in much of the oil rich countries, this makes this an uncertain estimate in the steady state. The effective tax rate for OWS is 20% for both forecasted- and steady state periods.¹¹⁶

7.3.2 Equity- and debt ratio

As mentioned above, there is no public market value for OWS, and it falls natural to use the industry capital structure as a proxy for the equity- and debt ratio. ODL's capital structure is not a good candidate, as it has a much higher debt ratio, and it would be unrealistic to assume this capital structure in the steady state. WACC calculations assumes a constant equity- and debt ratio in the infinite lifespan calculations. OWS takes up the average 4-year industry capital structure of D/(E+D) of 28.78%. It maintains roughly a 1% debt from 2015-2019 forecasted period. It is only slightly higher than current debt ratio and allows for a small increase.

OWS	Equity ratio	Debt ratio
Forecast period	99 %	1 %
Steady state	71,22 %	28,78 %
Source: Damodaran / Created by author		

Table 7.3: Equity & Debt ratio

¹¹⁵ Petersen, C. & Plenborg, T. (2012). Financial Statement Analysis. Prentice Hall. p. 265.

¹¹⁶ Reported by OWS administration.

7.4 THE WEIGHTED AVERAGE COST OF CAPITAL (WACC)

Combining above findings, and plugging them into the WACC formula yields following:

OWS	WACC
Forecast Period	8,67 %
Steady State	8,58 %
Source: Damodaran / Created by author	

Table 7.4: WACC

At first glance, it might seem that increasing debt further will reduce the WACC for OWS, this is however not true, increasing debt will both increase the cost of equity and the cost of debt. The Modigliani-Miller theorem suggests an indifference in financing in a perfect- and efficient market. The assumptions behind the theorem does not hold up, mainly because of tax shields. Some debt up to a certain level would be optimal.

The calculated WACCs for OWS' forecast period and steady state are 8.67% and 8.58% respectively. The difference between the WACCs in the forecast and the steady state is the capital structure and the cost of debt.

8 VALUATION

8.1 DCF VALUATION

A survey from 2006 (Peterson et al. 2006) shows that practitioners most commonly use the Discounted Cash Flow- (DCF) and multiple valuation methods when valuing privately held companies. The DCF method discounts the future free cash flow to the firm to attain an estimated market value of a company. The basis for future cash flow calculations come from historic financial data, and the outlook for future market conditions. The calculations are according to theory from Peterson & Plenborg.¹¹⁷ All numbers are denoted in USD thousands.

DCF (USD Thousands)	2015E	2016E	2017E	2018E	2019E
NOPLAT	27 911	29 306	31 470	33 788	34 701
+ Depreciation and amortization	31 400	31 400	32 185	33 054	33 946
- Δ NWC	-3 217	-	2 006	2 126	347
- CAPEX	27 374	31 400	36 502	37 833	38 855
FCFF	35 154	29 306	25 146	26 883	29 445
WACC	8,67 %	8,67 %	8,67 %	8,67 %	8,58 %
Discount factor	0,920	0,847	0,779	0,717	0,663
Present Value FCFF	32 349	24 817	19 595	19 277	19 512
Present Value FCFF forecast horizon	115 549				
Present value of FCFF in terminal period	340 896				
Estimated enterprise value	456 446				
Net interest bearing debt	-52 612				
Estimated market value of equity	509 058				
Source: Created by author					

Table 8.1: DCF valuation

The Free cash flow to the firm is the cash generated by the company after all expenses and investments. The Weighted Average Cost of Capital (WACC) discounts the FCFF, as it includes debt. The enterprise value of OWS today is the sum of the present value of the FCFF in the forecast period, plus the present value of the terminal value. It is important to note that ~75% of the value of OWS comes from the terminal period. A sensitivity analysis will show how changes in key variables affect the enterprise value.

¹¹⁷ Petersen, C. & Plenborg, T. (2012). Financial Statement Analysis. Prentice Hall

The DCF valuation assumes that OWS will keep operations going indefinitely. This might seem farfetched; but the discount factor goes towards zero over time and any cash flow after 30-40 years have little impact on value. The estimated market value of equity is larger than the enterprise value due to OWS' negative net interest bearing debt in 2015. In the WACC calculation, the overall oilfield services market D/E ratio functions as proxy for OWS. The steady state for OWS occurs in 2019, where they are able to restructure their financing to minimize the discount rate and maximize value. OWS enterprise value is estimated at USD 456M.

8.2 COMPARABLE COMPANY ANALYSIS

Comparative company analysis (CCA) is one of the primary valuation techniques when valuing a company or a division.¹¹⁸ The analysis reflects current valuation, which are dependent on market conditions and investor sentiments. The CCA can however skew a valuation, depending on irrational investor sentiments at the time of the analysis. It can be either too small, or too large. Because of investor sentiments, the CCA is a complementary valuation to the DCF. Large differences in calculated value using the different methodologies should be analysed, and assumptions revisited.¹¹⁹ Empirical studies shows that forward looking multiples predicts more accurately than historical multiples.¹²⁰ To acquire forward multiples access to financial databases with forecasts is important, at the time of writing the available databases does not include forecasts. Multiples calculated at end of year 2014 serves as the benchmark for OWS value.

A good analysis is dependent on using the correct multiples. Correct multiples vary across industries. This is because each multiple has advantages and disadvantages. A description of the different multiples follow.

¹¹⁸ Rosenbaum & Pearl. Valuation, leveraged buyouts, and M&A's. p. 11

¹¹⁹ Rosenbaum & Pearl. Valuation, leveraged buyouts, and M&A's. p. 12

¹²⁰ Kim, M. & Ritter, J. (1999). Valuing IPO's. Journal of Financial Economics; Liu, J., et al. (2002). Equity valuation using multiples.

EV/EBITDA

EV/EBITDA is an abbreviation for Enterprise Value/Earnings before interest, taxes, deprecations, and amortization. It expresses, in its simplicity, if a company is over or underpriced. The multiple is unaffected by a company's capital structure. This is advantageous, because it is possible to compare companies with different debt levels. The oil service industry is capital asset heavy. It is highly likely to be prone to different depreciation schedules; the depreciation on different capital assets are not transparent. EBITDA is used over EBIT and EBITA to eliminate the effect of different depreciation schedules. EBITDA does not take into account taxes or capital costs. Empirical study done by Gray & Vogel (2012) suggest that EV/EBITDA is the best performing valuation metric.¹²¹ This is going to be the key multiple to complement the DCF valuation.

P/B

P/B is an initialism for market price/book value. It expresses how much an investor pays for each dollar in net assets – it represents the total equity left for an investor if the company would immediately go bankrupt, after it has paid its liabilities. Traditionally, multiple valuation has relied more on book to market ratio (Fama and French, 1992). It is because book value is considered more stable than earnings. Differences in accounting methods can skew results. Inflation and technology change can cause a big difference in the book value and the asset's market value.

P/E

P/E is an initialism for Market Value/Earnings. It expresses an investor's willingness to pay per dollar of earnings. Earnings are subject to manipulation, and the quality of the ratio is linked to the quality of the earnings reporting. P/E reflects the future view of an investor in terms of growth. The ratio expresses, in its simplicity, if a company is over or underpriced. It can also indicate if the share is a growth- or value stock. Empirically, the P/E multiple is usable in stock valuation.¹²²

¹²¹ Gray, W. & Vogel, J. (2012). Analyzing valuation measures: A performance horse-Race over the past 40 years

¹²² Gottwald, R. (2012). The use of the P/E ratio to stock valuation. Grant journal.

Rosenbaum & Pearl recommends comparative companies to have the same business- and financial characteristics. The companies share very similar business characteristics, but differ slightly financially.

Empirically studies show that harmonic mean is the most precise estimates (Baker & Ruback, 1999; Liu et al, 2002a, 2002b). Harmonic mean will be used over geometrical, arithmetical, or weighted arithmetical mean.

Multiples	P/E	P/B	EV/EBITDA
Weatherford	-	1,30	7,64
SPN	11,30	0,70	3,57
Archer	-	0,59	4,19
Frank's International	16,20	2,10	5,78
Harmonic Average	13,31	0,92	4,86
Source: Annual reports & Gurufocus			

Table 8.2: CCA Multiples

OWS Value	EV/EBITDA	P/E	P/B
Enterprise Value	415 238	519 904	223 505
Source: Created by author			

Table 8.3: OWS Multiple Value

The multiples are compared to the DCF model as they all value OWS at the beginning of 2015/end of 2014. Forecasted multiples for 2015 would be a better comparison but they are unfortunately not available. Weatherford and Archer do not have a P/E ratio for 2014 due to both having negative net income. Further calculations on the multiples are available in the appendix 8.1.

As there is no market price for OWS, it is not possible to compare the multiple valuation to the market consensus. If compared to the DCF valuation, the P/B and EV/EBITDA suggests that the company is overpriced (only slightly in regards to the EV/EBITDA) and the P/E ratio suggests that OWS is under-priced.

Due to differences in the peer group’s capital structure, depreciation schedules, and tax levels the EV/EBITDA multiple is favoured over P/E and P/B

8.3 PRECEDENT TRANSACTIONS ANALYSIS

Precedent Transactions Analysis (PTA) is a similar analysis to the comparable company analysis (CCA). In the same way as CCA, PTA employs a multiple-based approach to get an implied valuation for a target company or division. The sale price of a company or division, often called enterprise value, is the basis for the analysis. Only the EV/EBITDA multiple will be used. Harmonic is favored over median, geometric- and arithmetic average.

Finding perfect transactions candidates was impossible, as no companies are alike. The best transactions are those who operate with the same business- and financial characteristics. In an optimal analysis, the transactions would have occurred recently and under similar market conditions. There were limited publically available transactions within the oilfield service industry, and finding companies with perfect financial characteristics was not possible. The chosen four transactions are Complete Production Services, Baker Hughes, Archer’s North- and Latin America division, and Nabors Completion & Production Services. The companies are all part of the oilfield service industry and similar risk exposure to change in E&P spending and the oil price.

There is an inherit expectation that the PTA analysis estimate a higher value for a company than the CCA. When buying a company or division, the buyer pays a control premium for the acquired company.¹²³ They are willing to pay above current market value, because they can realize synergies and/or increase market share. It is a good analysis to limit the DCF model as it is at mercy of assumptions. Small changes in the key assumptions changes the value drastically; this is observable in the upcoming sensitivity analysis.

The harmonic average EV/EBITDA multiple for the transactions is 6.17. OWS had an EBITDA of USD 85 460 thousands in 2014. This implies the estimated enterprise value of OWS at USD 527M. See appendix 8.2 for calculations

OWS Value	EV/EBITDA
Harmonic Average	6,17
Enterprise Value	527 288
Source: Created by author	

Table 8.4: Enterprise Value PTA

¹²³ Rosenbaum, J. & Pearl, J. (2013). Investment Banking. Wiley. p.71

9 SENSITIVITY ANALYSIS

The forecast of future cash flow is an estimation, and with estimation comes uncertainty. There are many assumptions that goes into the DCF valuation model and each one is subject to various degree of uncertainty. A Monte-Carlo simulation gives insight into how much variation each assumption contributes to the estimated value. Microsoft excel runs scenario simulations on the enterprise value using an add-in called “Oracle Crystal Ball”.

The Monte-Carlo simulation stress tests the different input variables of the DCF valuation. The variables are given a probability distribution and an expected value. The simulation software runs a large number of scenarios where it changes the value of the variables, within their given distribution, and plots their effect on the enterprise value. After running the scenarios, the simulation software gives a probable distribution of the enterprise value.

The Forecast Chapter of the thesis discuss the most likely values for each variable. A triangular distribution has been favoured over the normal distribution. Using the triangular distribution, each variable has an expected value, together with a minimum- and maximum value. The triangular distribution also makes it possible to give each input an asymmetric distribution, which is not possible using a normal distribution. The input variables of the Monte-Carlo simulation is discussed below. A print-out report of the results from the simulation is illustrated in appendix 9.1.

9.1 DISTRIBUTION OF THE DCF MODELS INPUT VARIABLES

WACC

The WACC of OWS is calculated using industry standards and is therefore subject to uncertainty. The triangular distribution of the WACC is symmetric with a minimum value of 7.4% and a maximum value of 10%. The variation comes from uncertainty in regards to the validity of industry standards for OWS, and the uncertainty of developments in the risk free rate, which is at an historical low at the time of writing.

Terminal growth

The terminal growth is set to 2.7% and is discussed in the Forecast Chapter of the thesis. The financial statement analysis show how revenue from the Middle East and South East Asia has

increased. This leads to the possibility that OWS can grow above the global rate, as long as the growth in revenue from Europe does not continue their downward trend. The best estimate for future growth is 2.7%, with a maximum of 4% and a minimum of 2%.

Factors that affect the cash flow in the forecast period

The factors that affect the cash flow in the forecast period are taxes, D&A, OPEX, administration costs, gain on sale of assets, and CAPEX. The change in Net Working Capital has been omitted due to difficulties simulating its effect on enterprise value. All percentages are in terms of operating revenue except tax rate, which is a percentage of EBIT.

OWS effective tax rate is difficult to estimate as their income statements only give pre-tax income. OWS management estimate the effective tax rate at 20%. This might change as the composition of the revenue stream changes, due to each country operating with different tax rates. The default value is 20% with a minimum value of 16% and a maximum value of 25%.

D&A has historically been around 18%, and will depend on the depreciation schedule on the various assets, and the composition of the different asset types. The simulation uses a base case of 18% with minimum value of 15% and maximum value of 21%.

OPEX has a high degree of uncertainty. As stated in the Financial Statement Chapter; OWS is cutting costs to maintain their margins. The simulation uses a base case of 58-61% during the five years of forecast with minimum values ranging from 52% to 55% and maximum values varying from 64% to 67%. The OPEX 2019 simulation runs a $\pm 6\%$ change from base case scenario of 58%.

Administration costs have been low during the analysis period, and there is no apparent reason to why it should increase or decrease significantly from the historic averages. The simulation uses a base case of 2% with a minimum value of 1% and a maximum value of 3%.

Gain on sale of assets have also been low for the entire analysis period, and has no apparent reason to deviate from the historic averages. The simulation uses a base case of 1% with a minimum value of 0% and a maximum value of 2%.

CAPEX has seen some variation during the analysis period. During the forecast period, it is expected to vary from 16% to 21%. The simulation runs a $\pm 3\%$ change from base case scenario for each year.

9.2 RESULTS OF THE MONTE-CARLO SIMULATION

500 000 simulations of the enterprise value of OWS were completed. Figure 9.1 provides insight into the probability distribution of OWS enterprise value. The simulation gives an expected enterprise value of USD 452M, which is just shy of the base case scenario of USD 457M.

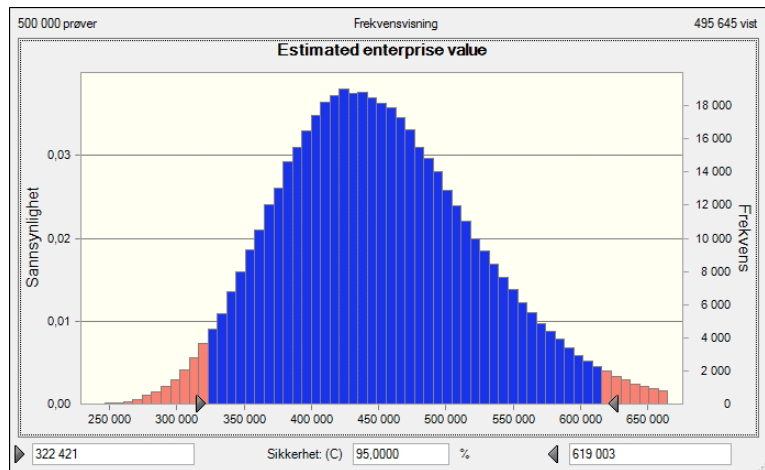


Figure 9.1: Simulation results

The minimum enterprise value is calculated at USD 211M, and the maximum is USD 942M. Within a 95% confidence interval OWS enterprise value should lie somewhere between USD 322M and USD 619M. The large distribution gives insight into the uncertainty surrounding the DCF valuation, which is why a CCA and PTA complements the DCF model.

Source: Created by author

Figure 9.2 shows each input variables contribution to the variance of the enterprise value. As expected the variables that effect the 2019 free cash flow contributes most to the variance of the value. These variables are all inputs in the terminal value, which is a big part of OWS total value. OPEX for 2019 contributes most, with WACC and terminal growth following. OPEX' large contribution to the variance of the enterprise value is due to the degree of uncertainty surrounding this cost beyond the forecasted period. The WACC for 2019 and the terminal growth rate was expected to play a big part in the variance of enterprise value, as these are the inputs that, together with the FCFF of 2019, calculates the terminal value.

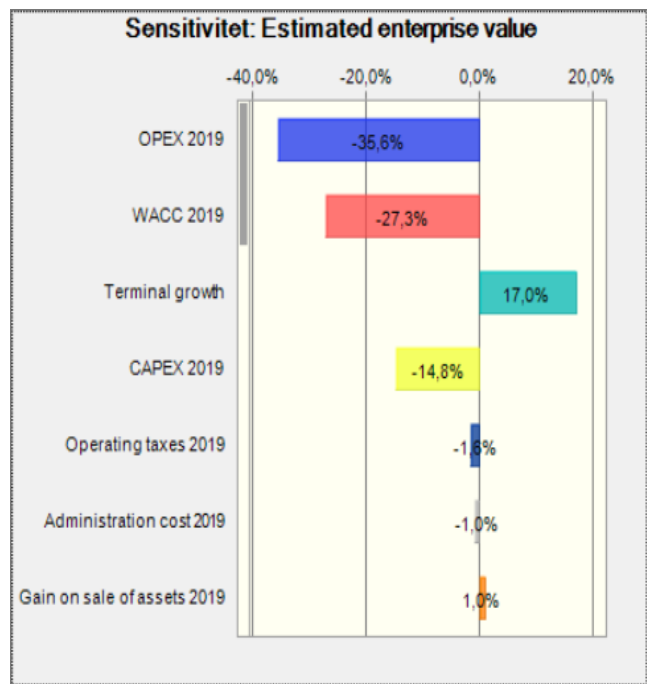


Figure 9.2: Variance contribution

Source: Created by author

10 DISCUSSION

In the valuation of a company or division, it is optimal to check if the liquidation value is higher than the DCF valuation. There was no market prices for OWS' assets available to establish a liquidation value. However, as OWS is benefiting from excess returns and high EBITDA margins; it is highly unlikely that the liquidation value is higher than the DCF valuation. Performing a Net Asset Valuation (NAV) was not possible.

OWS has a valuable resource combination that is rare among its peers. It has up to date technology and inventory. In addition, it has operated with competent and skilled labour that has enabled them to grow with its business strategy. It has increased the quality of operations and the systems to ensure it continues that way. Due to OWS being a total supplier of Well Services, it has been able to claim higher rates on their equipment compared to competitors. The strategy has served them well, and has enabled excess returns. The main issue with this strategy is if their profit margins falls, their ROIC will fall as well and affect the value of the company. If market forces push down the profit margins, OWS will have to revisit their high assortment strategy to stay competitive.

The calculated WACC might not be accurate, as OWS could have a slightly different risk profile than the industry. It can both be higher or lower; it is an unknown. A proxy is always uncertain, and using an unbiased correct WACC could result in a higher or lower valuation.

Assuming OWS holds the same course of action, it should benefit from the same margins and excess returns. It is normal in a valuation thesis to reduce the excess returns to equal the WACC in the long run; but OWS operations are extremely solid, and findings in the strategy analysis suggest it is difficult and costly for new players to enter the industry and take advantage of the excess returns. The analysed period has seen high investments and oil prices; this might skew the data and overstate the excess returns. One could argue that the oilfield service is at its peak, and is only going downwards. However, the strategic analysis and the market consensus expects demand of oilfield services to pick up. Downturns is an inherent risk of operating in a cyclical industry.

11 CONCLUSION

The objective of the thesis was to answer the following problem statement:

“What is the enterprise value of OWS at the beginning of 2015?”

OWS has operated in the Well Services for over 40 years. They have over 500 skilled and experienced workers split between three continents. OWS is one of the largest service companies within Tubular Running Services and the Rental Services of downhole equipment.

The most important profitability driver for OWS is the oil- and gas companies E&P budgets. The price of oil has great influence over the E&P budgets. In July 2014, almost five years after the last big decline, a sharp drop of around 47% over the period of July 2014 to January 2015 occurred. The drop originated from both a lack of demand and an oversupply. The low oil price means an expected drop in the E&P budgets by -15% in 2015. The market consensus is that the oil price recovers in 2015 and 2016. An increasing oil price will help stabilize the E&P budgets, and the consensus is a decrease in investments of 1% in 2016 and a 2% increase in 2017. The oil industry is currently in a downturn; this has affected operations and value negatively for OWS. With E&P gaining momentum from 2016, OWS can expect demand to pick up.

Developments in technology has opened up new oil fields and prolonging the life from mature, old, and, exhausted fields. The five forces analysis reveals an industry that is highly competitive with high bargaining power of suppliers and low threat of entry. This means the industry can benefit from excess returns, as it is difficult for new players to enter the market.

OWS' business strategy focuses on quality and high assortment of products; this has resulted in a ROIC higher than the WACC, which means that OWS has benefited from excess returns. The excess returns should continue through the forecast period, although at a lower rate than the historic return. In the forecasted period, market conditions resulted in an expected decline in revenues.

A risk evaluation of the division resulted in a WACC of 8.58% in the steady state and an 8.67% in the forecasted period. The differences in the WACCs are the capital structure and the cost of debt. It rests on the assumption that OWS will act rationally, by refinancing to industry 4-year average capital structure in 2019 to minimize the WACC and maximize enterprise value. Most of the key assumptions of the CAPM and WACC models were industry standards; they act as a proxy for OWS, as there is no market data available.

The DCF valuation resulted in an enterprise value of almost USD 457M. A precedent transaction analysis (PTA) and a comparable company analysis (CCA) complemented the DCF valuation. The CCA implied an enterprise value of USD 415M. The PTA implied an enterprise value of USD 527M; this means that the complementary analyses with EV/EBITDA multiples puts the value of OWS in the range between USD 415M and USD 527M. The complementary analyses served to check the DCF valuation. The difference between DCF and the EV/EBITDA of the CCA analysis is probably the downturn in the market and hence negative investor sentiments. While the higher EV/EBITDA ratio of the PTA is likely due to control premiums.

The sensitivity analysis shows that the enterprise value estimate is very sensitive to changes in the underlying variables. Different input variables were stress tested with a Monte-Carlo simulation. A triangular distribution was favoured over a normal distribution. The simulation estimates the enterprise value of OWS, with 95% certainty, to be in the range between USD 322M and USD 619M with an estimated average value of USD 452M.

The DCF method is favoured over the complementary analyses as it avoids investor sentiments. It puts OWS at an enterprise value of USD 457M.

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13 APPENDIX

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3.0 STRATEGY

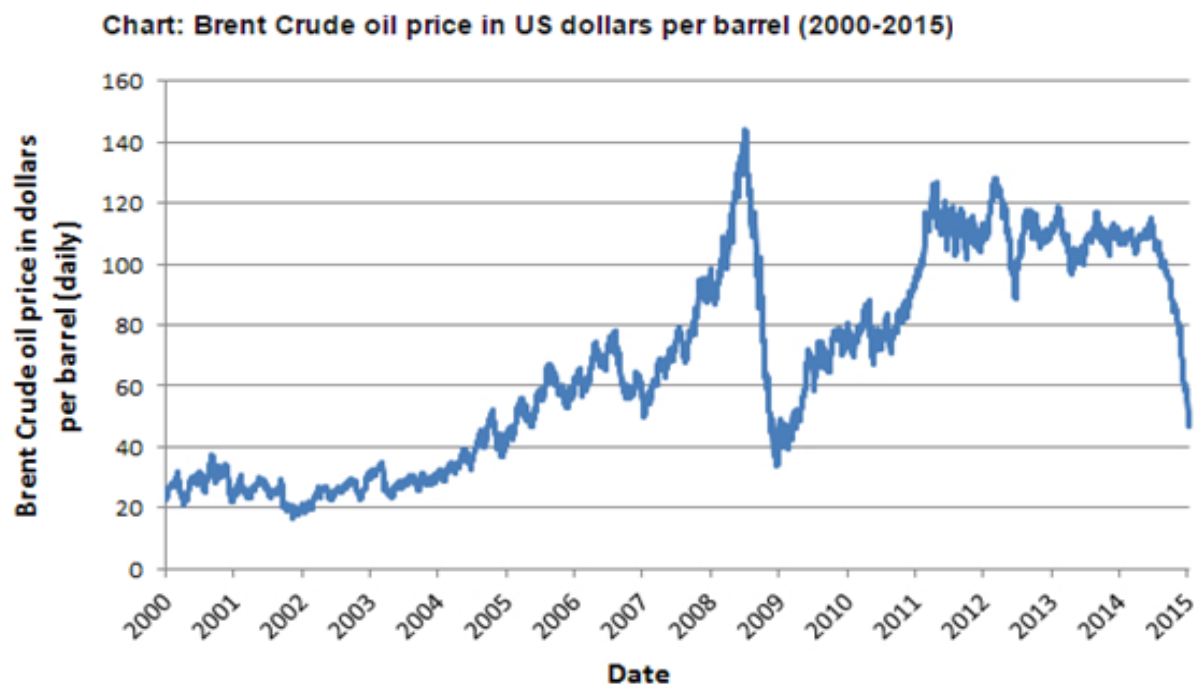
3.1 MAP OF MAIN OIL BENCHMARKS

Source: Intercontinental Exchange (ICE)



3.2 BRENT CRUDE OIL PRICE DEVELOPMENT

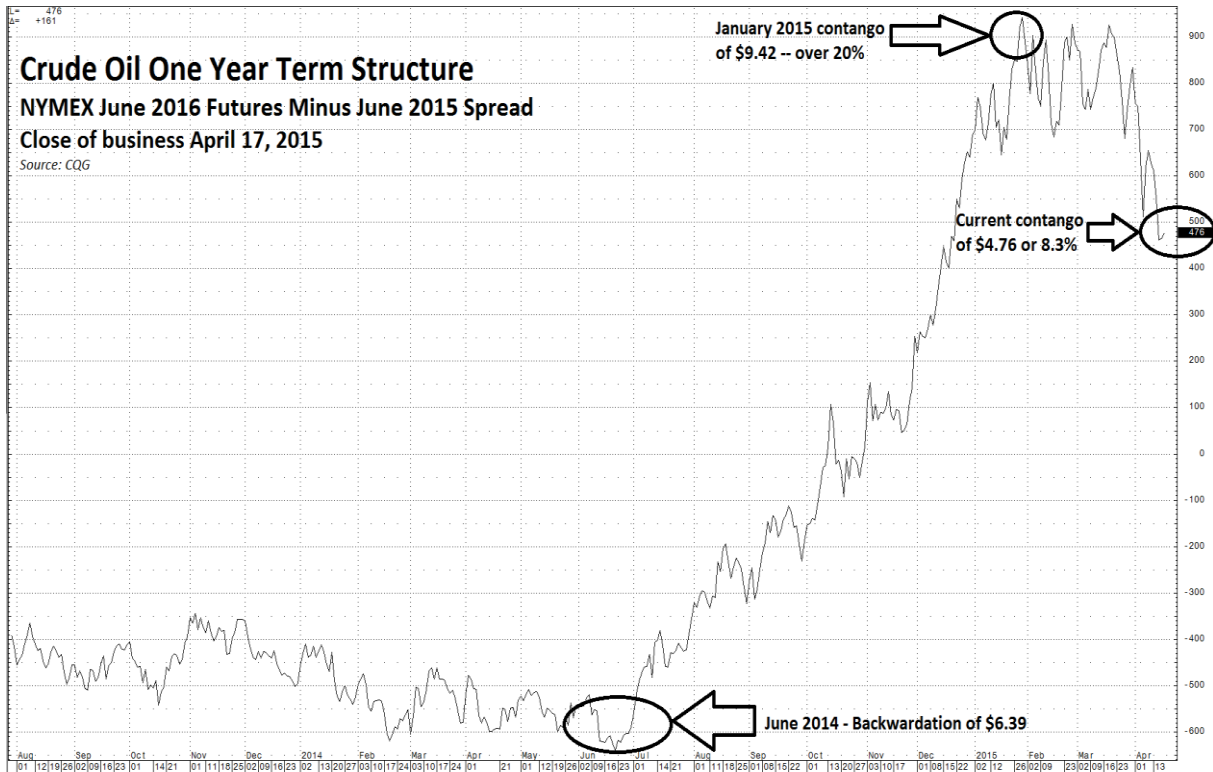
Source: Energy Information Administration (EIA)



The chart is compiled using the daily price from 4 January 2000 to 12 January 2015. Data from EIA.

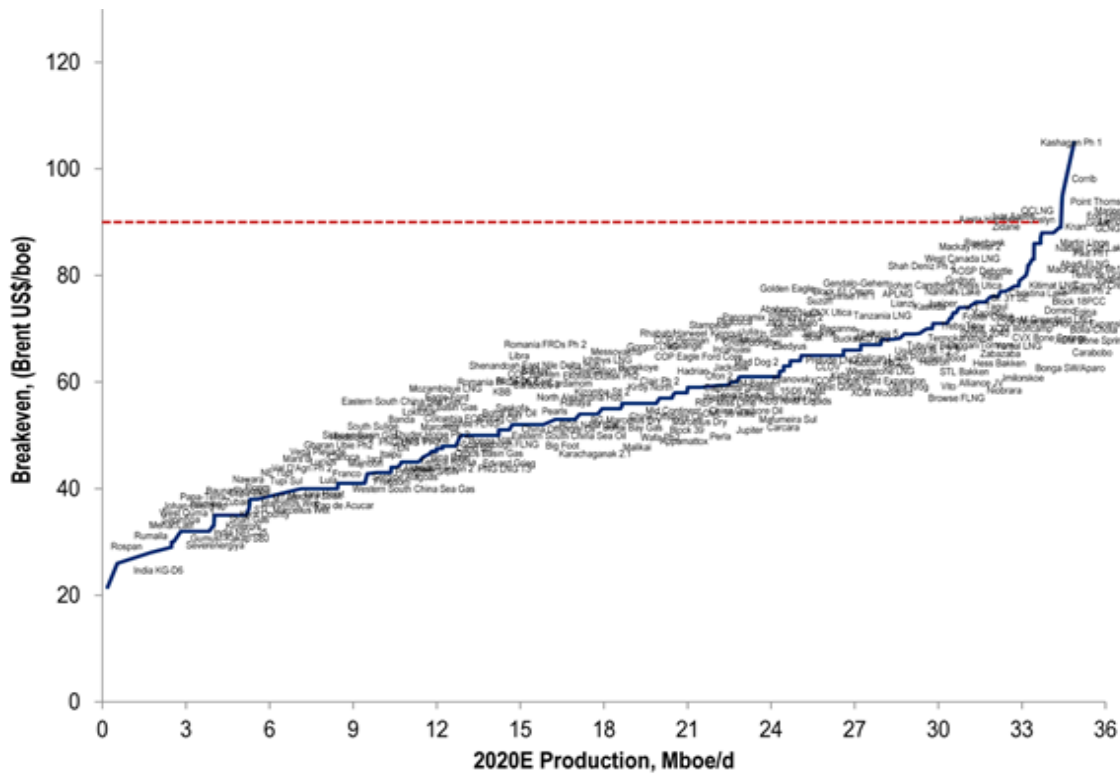
3.3 CRUDE CONTANGO

Source: Seeking Alpha / CQG



3.4 BREAKEVEN PROJECTED ALL DRILLING PROJECTS

Source: Business Insider / Ed Morse of Citigroup



4.0 FINANCIAL STATEMENT ANALYSIS

Source: All data for the financial statement analysis have been collected from Annual/Monthly reports from Odfjell Well Services, Archer Limited, Weatherford, Frank's International, and Superior Energy. All tables have been created by author.

4.1 REFORMULATED INCOME STATEMENTS

OWS Core Operations (USD thousand)	2011H	2012H	2013H	2014H
Operating Revenues	168 316	180 678	215 880	198 231
Share of profit joint ventures	-	-	-	-
Personell expense	55 191	56 626	68 846	72 618
Administration cost	2 169	6 503	6 327	3 616
Operating expense	38 876	43 174	45 778	40 361
Gain on sale of assets	1 873	2 646	942	3 824
Earnings Before Interest, Taxes, Depreciation & Amortization (EBITDA)	73 953	77 021	95 871	85 460
Depreciation & amortization	33 485	35 073	35 819	36 170
Earnings Before Interest and Taxes (EBIT)	40 468	41 948	60 052	49 290
Operating Taxes	8 094	8 390	12 012	9 856
NOPLAT	32 374	33 558	48 040	39 434
Financial Operations	2011	2012	2013	2014
Other income	-27	-46	23 880	130
Interest income	-607	-602	-2 601	413
Foreign currency gain	-112	-483	1 456	-1 067
Total financial expense	746	1 131	-22 735	524
Taxes on non-operating income	201	305	-6 138	141
Net financial expense after tax, before discontinued operations	545	826	-16 597	383
Income from discontinued operations	-	-	-	-
Net financial expense after tax and discontinued operations	545	826	-16 597	383
Net Income	31 829	32 732	64 637	39 051

Table 0.1: OWS reformulated income statement

OWS Tax	2011H	2012H	2013H	2014H
Reported taxes	7 893	8 085	18 150	9 715
tax shield on financial expense	201	305	-6 138	141
Tax on operating income	8 094	8 390	12 012	9 856
Effective tax rate	20 %	20 %	20 %	20 %
Statutory rate	27 %			

Table 0.2: OWS tax calculations

Archer Core Operations (USD million)	2011H	2012H	2013H	2014H
Operating Revenues	1 855	2 189	2 041	2 254
Cost of sales	1 505	1 840	1 833	1 941
General and administrative expense	92	133	61	81
Gain on sale of assets	-	-	-	-
Earnings Before Interest, Taxes, Depreciation & Amortization (EBITDA)	258	217	147	232
Depreciation & amortization	274	544	585	206
Earnings Before Interest & Taxes (EBIT)	-16	-327	-438	26
Operating taxes	2	9	28	18
NOPLAT	-18	-336	-466	8
Financial operations	2011	2012	2013	2014
Other income	-4	17	-23	-58
Interest income	-43	-60	-51	-44
Foreign currency loss	-	-	-	-
Total financial expense	47	43	74	102
Taxes on non operating income	2	9	28	18
net financial expense after tax, before discontinued operations	45	34	45	84
Income from discontinued operations	-	-	-	-
Net financial expense after tax and discontinued operations	45	34	45	84
Net Income	-63	-370	-512	-76

Table 0.3: Archer reformulated income statement

Archer Tax	2011H	2012H	2013H	2014H
Reported taxes	-15	-6	3	-18
Tax shield on financial expense	16	15	26	36
Tax on Operating income	2	9	28	18
Effective tax rate	1 %	4 %	19 %	8 %
Statutory rate	35 %			

Table 0.4: Archer tax calculations

Frank's International Core Operations (USD thousands)	2011H	2012H	2013H	2014H
Operating Revenues	719 412	1 039 054	1 077 722	1 152 632
Cost of sales	322 472	425 607	434 336	479 981
General and administrative expense	159 602	186 112	224 755	267 378
Gain on sale of assets	-47	-2 608	-122	289
Earnings Before Interest, Taxes, Depreciation & Amortization (EBITDA)	237 385	429 943	418 753	404 984
Depreciation & amortization	54 216	65 815	78 082	90 041
Earnings Before Interest & Taxes (EBIT)	183 169	364 128	340 671	314 943
Operating taxes	20 318	27 462	31 236	69 517
NOPLAT	162 851	336 666	309 435	245 426
Financial operations	2 011	2 012	2 013	2 014
Other income	3 786	12 189	9 460	6 735
Interest income	-661	260	-653	87
Foreign currency loss	-3 209	-450	-2 556	-17 041
Total financial income	-84	11 999	6 251	-10 219
Taxes on non operating income	-31	4 415	7 491	5 895
net financial expense after tax, before discontinued operations	115	-16 414	-13 742	4 324
Income from discontinued operations	7 989	6 684	42 635	-
Net financial expense after tax and discontinued operations	-7 874	-23 098	-56 377	4 324
Net Income	170 726	359 764	365 812	241 102

Table 0.5: Frank's International reformulated income statement

Frank's International Tax	2011H	2012H	2013H	2014H
Reported taxes	20 287	31 877	38 727	75 412
Tax shield on financial expense	-31	4 415	2 451	-3 782
Tax on operating income	20 318	27 462	31 236	69 517
Effective tax rate	11 %	8 %	9 %	22 %
Statutory rate	35 %			

Table 0.6: Frank's International tax calculations

Superior Energy Service Core Operations (USD Thousands)	2012H	2013H	2014H
Operating Revenues	4 293 276	4 350 057	4 556 622
Cost of sales	2 469 420	2 633 590	2 734 833
General and administrative expense	625 442	597 778	624 371
Reduction in value of asset	-	300 078	-
Earnings Before Interest, Taxes, Depreciation & Amortization (EBITDA)	1 198 414	818 611	1 197 418
Depreciation & amortization	488 061	604 441	650 814
Earnings Before Interest & Taxes (EBIT)	710 353	214 170	546 604
Operating taxes	265 628	94 967	197 818
NOPLAT	444 726	119 203	348 786
Financial operations	2 012	2 013	2 014
Other income	-4 611	-5 511	-7 681
Interest income	-116 479	-107 902	-96 374
Foreign currency loss	-	-	-
Total financial income	-121 090	-113 413	-104 055
Taxes on non operating income	-42 382	-39 695	-36 419
Income from discontinued operations	-17 982	-156 903	-22 973
Net Financial Expense	96 691	230 621	90 609
Net Income	348 035	-111 418	258 177

Table 0.7: Superior Energy Services reformulated income statement

Superior Energy Services Tax	2012H	2013H	2014H
Reported taxes	223 246	55 272	161 399
Tax shield on financial expense	42 382	39 695	36 419
Tax on operating income	265 628	94 967	197 818
Effective tax rate	37 %	44 %	36 %
Statutory rate	35 %		

Table 0.8: Superior Energy Services tax calculations

Weatherford Core Operations (USD million)	2011H	2012H	2013H	2014H
Operating Revenues	12 988	15 215	15 263	14 911
Cost of sales	8 823	10 912	11 267	10451
General and administrative expense	1 758	1 940	2 044	2017
Gain on sale of assets	-	-28	-24	-349
Earnings Before Interest, Taxes, Depreciation & Amortization (EBITDA)	2 407	2 335	1 928	2 094
Depreciation & amortization	1 100	1 200	1 300	1300
Earnings Before Interest & Taxes (EBIT)	1 307	1 135	628	794
Operating taxes	738	667	352	464
NOPLAT	569	468	276	330
Financial operations	2011	2012	2013	2014
Other income	-107	-100	-77	-17
Interest income	-453	-486	-516	-498
Foreign currency loss	-	-	-100	-245
Total financial income	-560	-586	-693	-760
Taxes on non operating income	-196	-205	-208	-180
Income from discontinued operations	-	-	-	-
Net financial Expense after tax	364	381	485	580
Net Income	205	87	-209	-250

Table 0.9: Weatherford reformulated income statement

Weatherford Tax	2011H	2012H	2013H	2014H
Reported taxes	542	462	144	284
Tax shield on financial expense	196	205	208	180
Tax on operating income	738	667	352	464
Effective tax rate	56 %	59 %	56 %	58 %
Statutory rate	35 %			

Table 0.10: Weatherford tax calculations

4.2 REFORMULATED BALANCE SHEETS

OWS reformulated balance sheet (USD Thousands)	2011H	2012H	2013H	2014H
Operating Assets				
Accounts receivable	31 766	36 494	37 892	31 211
Accounts receivable group companies	29 493	14 125	47 485	14 642
Inventories	3 076	2 900	3 438	3 158
PPE	171 399	210 057	135 544	146 134
Investment in joint ventures	25 279	27 618	25 297	27 400
Goodwill & intangible assets	2 501	2 436	1 995	3 191
Other current assets	3 376	3 269	4 362	4 250
Deferred tax asset	1 624	1 953	2 084	2 068
Total Operating Assets	268 514	298 852	258 097	232 054
Operating Liabilities				
Accounts payable	6 401	9 008	6 490	2 929
Current Income tax	2 825	6 190	7 781	3 549
Other current liabilities	11 844	15 976	17 148	14 033
Social security & other taxes	5 916	6 559	5 508	4 689
short term liabilities to group companies	33 525	8 341	-2 037	18 190
Deferred tax liabilities	-	-	-	-
Total Operating Liabilities	60 511	46 074	34 890	43 390
Net Operating Assets (invested capital)	208 003	252 778	223 207	188 664
Net Financial Assets				
Financial Assets				
Cash & cash equivalents	61 998	53 106	76 039	56 451
Derivative financial instruments	-	-	-	-
Subordinated loan to related parties	-	-	-	-
Other non current assets	-	-	-	-
Available for sale financial assets	-	-	-	-
Total Financial Assets	61 998	53 106	76 039	56 451
Financial Liabilities				
Long term liabilities	186 073	191 731	25 114	997
Total financial liabilities	186 073	191 731	25 114	997
Net Financial Obligations	124 075	138 625	-50 925	-55 454
Non controlling interest	-	-	-	-
Common shareholders equity	83 928	114 153	274 132	244 118

Table 0.11: OWS reformulated balance sheet

Archer reformulated balance sheet (USD Millions)	2011H	2012H	2013H	2014H
Net Operating Assets				
Operating Assets				
Accounts receivables	448	419	386	386
Inventories	58	64	65	98
PPE	1 044	1 059	800	870
Goodwill & intangible assets	1 102	836	357	266
Other current assets	80	81	77	95
Deferred Tax asset	2	8	6	9
Total Operating Assets	2 734	2 467	1 691	1 724
Operating Liabilities				
Accounts payable	-	-	-	138
Accrued and other current liabilities	358	363	325	240
Deferred Revenue	-	-	-	-
Deferred Tax liabilities	16	38	12	11
Total Operating Liabilities	374	402	337	388
Net Operating Assets	2 360	2 066	1 354	1 335
Net Financial Assets				
Financial Assets				
Cash & cash equivalents	51	70	66	45
Other Assets	7	2	10	6
Total Financial Assets	58	73	76	51
Financial Liabilities				
Current portion of long term debt	109	330	151	64
Current portion of notes payable	-	-	-	-
Long term debt	984	890	614	747
Notes payable	-	-	-	-
Other non-current liabilities	61	40	59	58
Preferred stock	-	-	-	-
Total Financial Liabilities	1 154	1 260	824	869
Net financial Obligations	1 096	1 187	748	819
Non-controlling interest	-	-	-	
Common Shareholders Equity	1 264	879	606	517

Table 0.12: Archer reformulated balance sheet

Reformulated Balance sheet Frank's International (USD thousands)	2011H	2012H	2013H	2014H
Net Operating Assets				
Operating Assets				
Accounts receivables	233 945	313 657	364 817	390 977
Inventories	92 073	108 543	185 589	204 008
PPE	324 881	426 500	511 199	580 142
Goodwill & intangible assets	18 500	17 071	14 814	14163
Other current assets	17 187	16 632	15 843	23 080
Deferred Tax asset	-	-	7 391	-
Total Operating Assets	686 586	882 403	1 099 653	1 212 370
Operating Liabilities				
Accounts payable	20 065	19 377	22 254	16 496
Accrued and other current liabilities	116 343	104 627	90 484	114 227
Deferred Revenue	-	23 172	62 610	76 112
Deferred Tax liabilities	5 178	6 575	13 114	35 321
Total Operating Liabilities	141 586	153 751	188 462	242 156
Net Operating Assets	545 000	728 652	911 191	970 214
Net Financial Assets				
Financial Assets				
Cash & cash equivalents	98 649	152 945	404 947	489 354
Other Assets	62 265	72 613	56 595	56 957
Total Financial Assets	160 914	225 558	461 542	546 311
Financial Liabilities				
Current portion of long term debt	5 264	6 317	376	304
Current portion of notes payable	567	323 476	-	-
Long term debt	3 940	1 051	-	-
Notes payable	3 051	145 087	-	-
Other non-current liabilities	25 964	30 586	38 325	114 227
Preferred stock	-	705	705	705
Total Financial Liabilities	38 786	507 222	39 406	115 236
Net financial Obligations	-122 128	281 664	-422 136	-431 075
Non-controlling interest	-	114 086	235 895	260 546
Common Shareholders Equity	667 128	332 902	1 097 432	1 140 743

Table 0.13: Frank's International reformulated balance sheet

Reformulated Balance sheet Superior Energy Services (USD thousands)	2012H	2013H	2014H
Net Operating Assets			
Operating Assets			
Accounts receivables	1 027 218	937 195	926 768
Inventories	214 630	258 449	185 429
PPE	3 255 220	3 002 194	2 733 839
Goodwill & intangible assets	3 042 471	2 908 976	2 888 769
Other current assets	93 190	75 953	74 750
Deferred Tax asset	34 120	8 785	32 138
Total Operating Assets	7 666 849	7 191 552	6 841 693
Operating Liabilities			
Accounts payable	252 363	216 029	225 306
Accrued and other current liabilities	592 755	376 049	403 960
Deferred Revenue		-	-
Deferred Tax liabilities	745 144	736 080	702 996
Total Operating Liabilities	1 590 262	1 328 158	1 332 262
Net Operating Assets	6 076 587	5 863 394	5 509 431
Net Financial Assets			
Financial Assets			
Cash & cash equivalents	91 199	196 047	393 046
Other Assets	44 838	23 708	142 650
Total Financial Assets	136 037	219 755	535 696
Financial Liabilities			
Current portion of long term debt	20 000	20 000	20 941
Current portion of notes payable	-	-	-
Long term debt	1 814 500	1 646 535	1 627 842
Notes payable	-	-	-
Other non-current liabilities	147 045	257 848	316 246
Preferred stock		-	-
Total Financial Liabilities	1 981 545	1 924 383	1 965 029
Net financial Obligations	1 845 508	1 704 628	1 429 333
Non-controlling interest		-	-
Common Shareholders Equity	4 231 079	4 158 766	4 080 098

Table 0.14: Superior energy services reformulated balance sheet

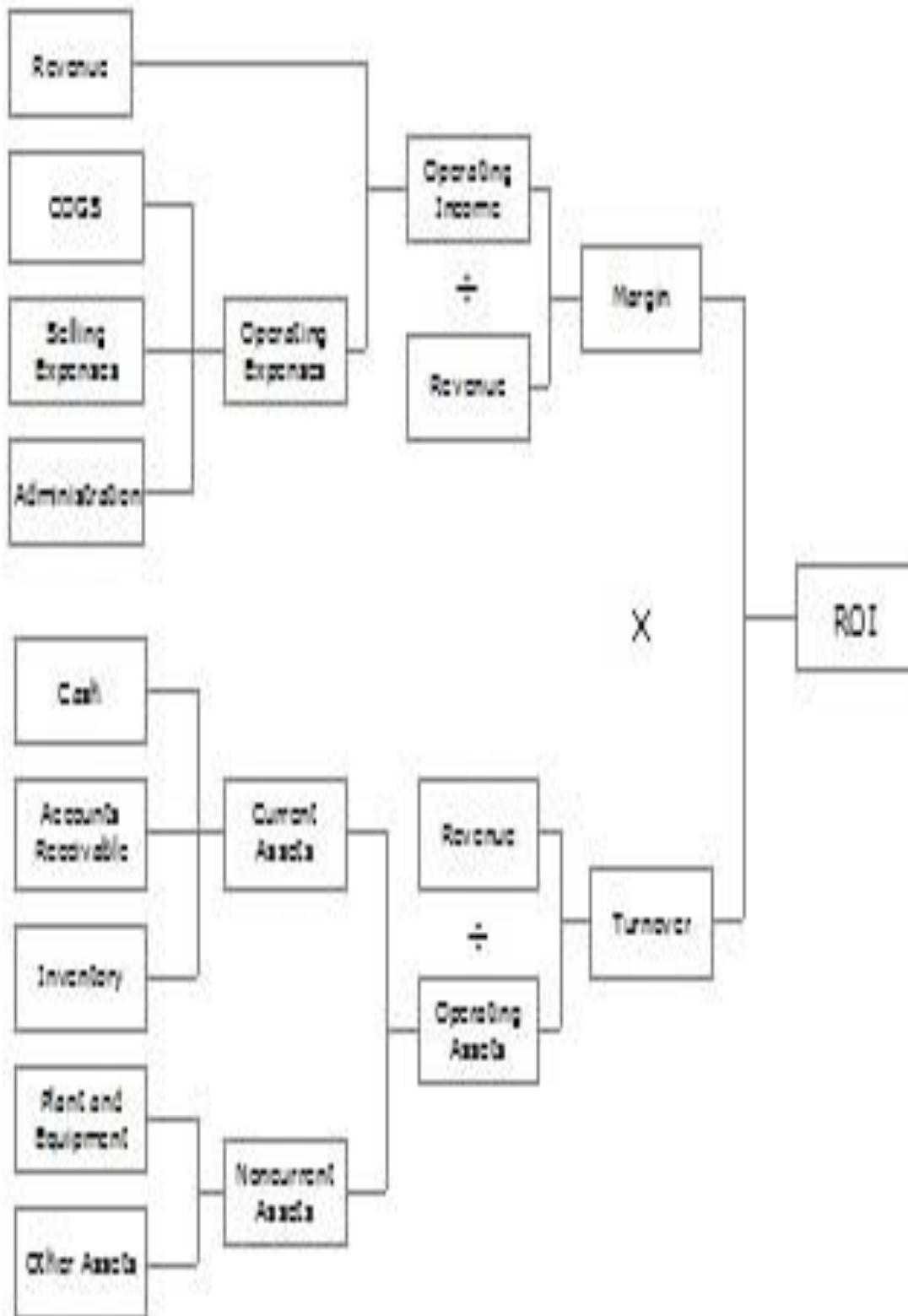
Reformulated Balance sheet Weatherford (USD millions)	2011H	2012H	2013H	2014H
Net Operating Assets				
Operating Assets				
Accounts receivables	3 233	3 885	3 351	3 015
Inventories	3 158	3 675	3 200	3 087
PPE	7 287	8 299	7 689	7 123
Goodwill & intangible assets	5 134	4 637	3 856	3451
Other current assets	695	793	1 052	1 065
Deferred Tax asset	274	376	292	303
Total Operating Assets	19 781	21 665	19 440	18 044
Operating Liabilities				
Accounts payable	1 571	2 108	1 918	1 736
Accrued and other current liabilities	1 184	1 569	1 558	1333
Billings in excess of costs and estimated earnings	30	281	127	1
Deferred Revenue	-	-	-	-
Deferred Tax liabilities	178	167	183	230
Total Operating Liabilities	2 963	4 125	3 786	3 300
Net Operating Assets (invested capital)	16 818	17 540	15 654	14 744
Net Financial Assets				
Financial Assets				
Cash & cash equivalents	371	300	435	474
Other Assets	695	830	498	371
Total Financial Assets	1 066	1 130	933	845
Financial Liabilities				
Current portion of long term debt	1 320	1 585	1 666	727
Current portion of notes payable	-	-	-	-
Long term debt	6 286	7 049	7 061	6 798
Notes payable	-	-	-	-
Other non-current liabilities	1 137	1 218	956	1 031
Preferred stock	-	-	-	-
Total Financial Liabilities	8 743	9 852	9 683	8 556
Net financial Obligations	7 677	8 722	8 750	7 711
Non-controlling interest	21	32	41	75
Common Shareholders Equity	9 120	8 786	6 863	6 958

Table 0.15: Weatherford reformulated balance sheet

4.3 FINANCIAL RATIOS

The financial ratios are based on the DuPont model.

Source: Institute of Management Consultants USA / DuPont Corporation



Return on Invested Capital

Table 0.16: ROIC before tax

ROIC after tax	2011H	2012H	2013H	2014H
FI	30 %	46 %	34 %	25 %
SPN	0 %	7 %	2 %	6 %
Archer	-1 %	-16 %	-34 %	1 %
WFT	3 %	3 %	2 %	2 %
OWS	16 %	13 %	22 %	21 %
Average	11 %	10 %	1 %	9 %

Table 0.17: ROIC after tax

Profit Margin

Table 0.18: PM before tax

Profit Margin after tax	2011H	2012H	2013H	2014H
FI	23 %	32 %	29 %	21 %
SPN	0 %	10 %	3 %	8 %
Archer	-1 %	-15 %	-23 %	0 %
WFT	4 %	3 %	2 %	2 %
OWS	19 %	18 %	22 %	20 %
Average	14 %	15 %	11 %	10 %

Table 0.19: PM after tax

Turnover rate of invested capital

Table 0.20: Turnover rate of invested capital

Turnover rate (days) of invested capital	2011H	2012H	2013H	2014H
FI	277	256	309	307
SPN	-	517	492	441
Archer	465	344	242	216
WFT	473	421	374	361
OWS	349	365	378	362
Average	372	361	340	319

Table 0.21: Turnover rate (days) of invested capital

Return on Equity

Return on Equity	2011H	2012H	2013H	2014H
FI	26 %	108 %	33 %	21 %
SPN	8 %	-3 %	6 %	0 %
Archer	-5 %	-42 %	-84 %	-15 %
WFT	2 %	1 %	-3 %	-4 %
OWS	38 %	29 %	24 %	16 %
Average	14 %	19 %	-5 %	4 %

Table 0.22: Return on Equity

Net Borrowing Cost

Net Borrowing Cost	2011H	2012H	2013H	2014H
FI	8 %	15 %	14 %	-1 %
SPN	6 %	16 %	8 %	0 %
Archer	4 %	3 %	6 %	11 %
WFT	6 %	6 %	7 %	9 %
OWS	0 %	1 %	33 %	-1 %
Average	6 %	6 %	8 %	4 %

Table 0.23: Net Borrowing Cost

Liquidity cycle

Liquidity cycle	2011H	2012H	2013H	2014H
Archer	45	33	36	33
FI	105	111	154	154
WFT	122	112	99	100
SPN	-	42	57	45
OWS	19	25	102	22
Average	43	45	70	44

Table 0.24: Liquidity cycle

Interest Coverage Ratio

Interest coverage ratio	2011H	2012H	2013H	2014H
Archer	0	-10	-10	0
FI	-30	-19	-7	94
WFT	7	6	4	4
SPN	-	7	1	6
OWS	74	51	-4	129
Average	13	7	-3	47

Table 0.25: Interest coverage ratio

4.4 INCOME STATEMENTS

OWS Common size analysis				
Core Operations	2011H	2012H	2013H	2014H
Operating Revenues	100 %	100 %	100 %	100 %
Share of profit joint ventures	0 %	0 %	0 %	0 %
Personell expense	33 %	31 %	32 %	37 %
Administration cost	1 %	3 %	3 %	2 %
Operating expense	23 %	24 %	21 %	20 %
Gain on sale of assets	1 %	1 %	0 %	2 %
Earnings Before Interest, Taxes, Depreciation & Amortization (EBITDA)	44 %	43 %	44 %	43 %
Depreciation & amortization	20 %	19 %	17 %	18 %
Earnings Before Interest and Taxes (EBIT)	24 %	23 %	28 %	25 %
Operating Taxes	5 %	5 %	6 %	5 %
NOPLAT	19 %	19 %	22 %	20 %
Financial Operations				
Other income	0 %	0 %	11 %	0 %
Interest income	0 %	0 %	-1 %	0 %
Foreign currency gain	0 %	0 %	1 %	-1 %
Total financial expense	0 %	1 %	-11 %	0 %
Taxes on non-operating income	0 %	0 %	-3 %	0 %
Net financial expense after tax, before discontinued operations	0 %	0 %	-8 %	0 %
Income from discontinued operations	0 %	0 %	0 %	0 %
Net financial expense after tax and discontinued operations	0 %	0 %	-8 %	0 %

Table 0.26: OWS common size analysis income statement

Archer Common Size analysis				
Core operations	2011H	2012H	2013H	2014H
Operating Revenues	100 %	100 %	100 %	100 %
Cost of sales	81 %	84 %	90 %	86 %
General and administrative expense	5 %	6 %	3 %	4 %
Gain on sale of assets	0 %	0 %	0 %	0 %
Earnings Before Interest, Taxes, Depreciation & Amortization (EBITDA)	14 %	10 %	7 %	10 %
Depreciation & amortization	15 %	25 %	29 %	9 %
Earnings Before Interest & Taxes (EBIT)	-1 %	-15 %	-21 %	1 %
Operating taxes	0 %	0 %	1 %	1 %
NOPLAT	-1 %	-15 %	-23 %	0 %
Financial operations				
Other income	0 %	1 %	-1 %	-3 %
Interest income	-2 %	-3 %	-2 %	-2 %
Foreign currency loss	0 %	0 %	0 %	0 %
Total financial expense	3 %	2 %	4 %	5 %
Taxes on non operating income	0 %	0 %	1 %	1 %
net financial expense after tax, before discontinued operations	2 %	2 %	2 %	4 %
Income from discontinued operations	0 %	0 %	0 %	0 %
Net financial expense after tax and discontinued operations	2 %	2 %	2 %	4 %

Table 0.27: Archer common size analysis income statement

Frank's International Common Size analysis				
Core operations	2011H	2012H	2013H	2014H
Operating Revenues	100 %	100 %	100 %	100 %
Cost of sales	45 %	41 %	40 %	42 %
General and administrative expense	22 %	18 %	21 %	23 %
Gain on sale of assets	0 %	0 %	0 %	0 %
Earnings Before Interest, Taxes, Depreciation & Amortization (EBITDA)	33 %	41 %	39 %	35 %
Depreciation & amortization	8 %	6 %	7 %	8 %
Earnings Before Interest & Taxes (EBIT)	25 %	35 %	32 %	27 %
Operating taxes	3 %	3 %	3 %	6 %
NOPLAT	23 %	32 %	29 %	21 %
Financial operations				
Other income	1 %	1 %	1 %	1 %
Interest income	0 %	0 %	0 %	0 %
Foreign currency loss	0 %	0 %	0 %	-1 %
Total financial income	0 %	1 %	1 %	-1 %
Taxes on non operating income	0 %	0 %	1 %	1 %
net financial expense after tax, before discontinued operations	0 %	-2 %	-1 %	0 %
Income from discontinued operations	1 %	1 %	4 %	0 %
Net financial expense after tax and discontinued operations	-1 %	-2 %	-5 %	0 %
Net Income	24 %	35 %	34 %	21 %

Table 0.28: Frank's International common size analysis income statement

Superior Energy Services Common Size analysis			
Core operations	2012H	2013H	2014H
Operating Revenues	100 %	100 %	100 %
Cost of sales	58 %	61 %	60 %
General and administrative expense	15 %	14 %	14 %
Reduction in value of asset	0 %	7 %	0 %
Earnings Before Interest, Taxes, Depreciation & Amortization (EBITDA)	28 %	19 %	26 %
Depreciation & amortization	11 %	14 %	14 %
Earnings Before Interest & Taxes (EBIT)	17 %	5 %	12 %
Operating taxes	6 %	2 %	4 %
NOPLAT	10 %	3 %	8 %
Financial operations			
Other income	0 %	0 %	0 %
Interest income	-3 %	-2 %	-2 %
Foreign currency loss	0 %	0 %	0 %
Total financial income	-3 %	-3 %	-2 %
Taxes on non operating income	-1 %	-1 %	-1 %
Income from discontinued operations	0 %	-4 %	-1 %
Net Financial Expense	2 %	5 %	2 %
Net Income	8 %	-3 %	6 %

Table 0.29: Superior Energy Services common size analysis income statement

Weatherford Common Size analysis				
Core operations	2011H	2012H	2013H	2014H
Operating Revenues	100 %	100 %	100 %	100 %
Cost of sales	68 %	72 %	74 %	70 %
General and administrative expense	14 %	13 %	13 %	14 %
Gain on sale of assets	0 %	0 %	0 %	-2 %
Earnings Before Interest, Taxes, Depreciation & Amortization (EBITDA)	19 %	15 %	13 %	14 %
Depreciation & amortization	8 %	8 %	9 %	9 %
Earnings Before Interest & Taxes (EBIT)	10 %	7 %	4 %	5 %
Operating taxes	6 %	4 %	2 %	3 %
NOPLAT	4 %	3 %	2 %	2 %
Financial operations				
Other income	-1 %	-1 %	-1 %	0 %
Interest income	-3 %	-3 %	-3 %	-3 %
Foreign currency loss	0 %	0 %	-1 %	-2 %
Total financial income	-4 %	-4 %	-5 %	-5 %
Taxes on non operating income	-2 %	-1 %	-1 %	-1 %
Income from discontinued operations	0 %	0 %	0 %	0 %
Net financial Expense after tax	3 %	3 %	3 %	4 %
Net Income	2 %	1 %	-1 %	-2 %

Table 0.30: Weatherford common size analysis income statement

4.5 BALANCE SHEETS

OWS common size analysis (Days on hand)				
Operating Assets	2011H	2012H	2013H	2014H
Accounts receivable	68	73	64	56
Accounts receivable group companies	63	28	80	26
Inventories	7	6	6	6
PPE	368	418	228	264
Investment in joint ventures	54	55	43	49
Goodwill & intangible assets	5	5	3	6
Other current assets	7	7	7	8
Deferred tax asset	3	4	4	4
Total Operating Assets	576	595	434	419
Operating Liabilities				
Accounts payable	14	18	11	5
Current Income tax	6	12	13	6
Other current liabilities	25	32	29	25
Social security & other taxes	13	13	9	8
short term liabilities to group companies	72	17	-3	33
Deferred tax liabilities				
Total Operating Liabilities	130	92	59	78
Net Operating Assets (invested capital)	446	503	376	341
Net Financial Assets				
Financial Assets				
Cash & cash equivalents	133	106	128	102
Derivative financial instruments				
Subordinated loan to related parties				
Other non current assets				
Available for sale financial assets				
Total Financial Assets	133	106	128	102
Financial Liabilities				
Long term liabilities	399	382	42	2
Total financial liabilities	399	382	42	2
Net Financial Obligations	266	276	-86	-100
Non controlling interest				
Common shareholders equity	180	227	461	441

Table 0.31: OWS common size analysis balance sheet

Archer Common Size analysis (days on hand)				
Operating Assets	2011H	2012H	2013H	2014H
Accounts receivables	88	70	69	63
Inventories	11	11	12	16
PPE	205	177	143	141
Goodwill & intangible assets	217	139	64	43
Other current assets	16	14	14	15
Deferred Tax asset	0	1	1	1
Total Operating Assets	538	411	302	279
Operating Liabilities				
Accounts payable				22
Accrued and other current liabilities	70	61	58	39
Deferred Revenue				
Deferred Tax liabilities	3	6	2	2
Total Operating Liabilities	74	67	60	63
Net Operating Assets	465	344	242	216
Net Financial Assets				
Financial Assets				
Cash & cash equivalents	10	12	12	7
Other Assets	1	0	2	1
Total Financial Assets	11	12	14	8
Financial Liabilities				
Current portion of long term debt	21	55	27	10
Current portion of notes payable				
Long term debt	194	148	110	121
Notes payable				
Other non-current liabilities	12	7	11	9
Preferred stock				
Total Financial Liabilities	227	210	147	141
Net financial Obligations	216	198	134	133
Non-controlling interest				
Common Shareholders Equity	249	147	108	84

Table 0.32: Archer common size analysis balance sheet

Frank's International Common size analysis (days on hand)				
Operating Assets	2011H	2012H	2013H	2014H
Accounts receivables	74	99	116	124
Inventories	29	34	59	65
PPE	103	135	162	184
Goodwill & intangible assets	6	5	5	4
Other current assets	5	5	5	7
Deferred Tax asset				
Total Operating Assets	217	279	348	384
Operating Liabilities				
Accounts payable	6	6	7	5
Accrued and other current liabilities	37	33	29	36
Deferred Revenue	-	7	20	24
Deferred Tax liabilities	2	2	4	11
Total Operating Liabilities	45	49	60	77
Net Operating Assets	173	231	289	307
Net Financial Assets				
Financial Assets				
Cash & cash equivalents	31	48	128	155
Other Assets	20	23	18	18
Total Financial Assets	51	71	146	173
Financial Liabilities				
Current portion of long term debt	2	2	0	0
Current portion of notes payable	0	102		
Long term debt	1	0		
Notes payable	1	46		
Other non-current liabilities	8	10	12	36
Preferred stock		0	0	0
Total Financial Liabilities	12	161	12	36
Net financial Obligations	-39	89	-134	-137
Non-controlling interest		36	75	83
Common Shareholders Equity	211	105	348	361

Table 0.33: Frank's International common size analysis balance sheet

Superior Energy Service Common size analysis (days on hand)			
Operating Assets	2012H	2013H	2014H
Accounts receivables	87	79	74
Inventories	18	22	15
PPE	277	252	219
Goodwill & intangible assets	259	244	231
Other current assets	8	6	6
Deferred Tax asset	3	1	3
Total Operating Assets	652	603	548
Operating Liabilities			
Accounts payable	21	18	18
Accrued and other current liabilities	50	32	32
Deferred Revenue			
Deferred Tax liabilities	63	62	56
Total Operating Liabilities	135	111	107
Net Operating Assets	517	492	441
Net Financial Assets			
Financial Assets			
Cash & cash equivalents	8	16	31
Other Assets	4	2	11
Total Financial Assets	12	18	43
Financial Liabilities			
Current portion of long term debt	2	2	2
Current portion of notes payable			
Long term debt	154	138	130
Notes payable			
Other non-current liabilities	13	22	25
Preferred stock			
Total Financial Liabilities	168	161	157
Net financial Obligations	157	143	114
Non-controlling interest			
Common Shareholders Equity	360	349	327

Table 0.34: Superior Energy Services common size analysis balance sheet

Weatherford Common size analysis (days on hand)				
Operating Assets	2011H	2012H	2013H	2014H
Accounts receivables	91	93	80	74
Inventories	89	88	77	76
PPE	205	199	184	174
Goodwill & intangible assets	144	111	92	84
Other current assets	20	19	25	26
Deferred Tax asset	8	9	7	7
Total Operating Assets	556	520	465	442
Operating Liabilities				
Accounts payable	44	51	46	42
Accrued and other current liabilities	33	38	37	33
Billings in excess of costs and estimated earnings	1	7	3	0
Deferred Revenue				
Deferred Tax liabilities	5	4	4	6
Total Operating Liabilities	83	99	91	81
Net Operating Assets (invested capital)	473	421	374	361
Net Financial Assets				
Financial Assets				
Cash & cash equivalents	10	7	10	12
Other Assets	20	20	12	9
Total Financial Assets	30	27	22	21
Financial Liabilities				
Current portion of long term debt	37	38	40	18
Current portion of notes payable				
Long term debt	177	169	169	166
Notes payable				
Other non-current liabilities	32	29	23	25
Preferred stock				
Total Financial Liabilities	246	236	232	209
Net financial Obligations	216	209	209	189
Non-controlling interest	1	1	1	2
Common Shareholders Equity	256	211	164	170

Table 0.35: Weatherford common size analysis balance sheet

4.6 INCOME STATEMENT

OWS Index analysis				
Core Operations	2011H	2012H	2013H	2014H
Operating Revenues	100	107	128	118
Share of profit joint ventures	-	-	-	-
Personell expense	100	103	125	132
Administration cost				
Operating expense	100	111	118	104
Gain on sale of assets	100	141	50	204
Earnings Before Interest, Taxes, Depreciation & Amortization (EBITDA)	100	104	130	116
Depreciation & amortization	100	105	107	108
Earnings Before Interest and Taxes (EBIT)	100	104	148	122
Operating Taxes	100	104	148	122
NOPLAT	100	104	148	122
Financial Operations				
Other income				
Interest income	100	99	429	-68
Foreign currency gain	100	431	-1 300	953
Total financial expense	100	152	-3 048	70
Taxes on non-operating income	100	152	-3 048	70
Net financial expense after tax, before discontinued operations	100	152	-3 048	70
Income from discontinued operations				
Net financial expense after tax and discontinued operations	100	152	-3 048	70
Net Income	100	103	203	123

Table 0.36: OWS index analysis income statement

Archer Index analysis				
Core operations	2011H	2012H	2013H	2014H
Operating Revenues	100	118	110	122
Cost of sales	100	122	122	129
General and administrative expense	100	144	67	88
Gain on sale of assets				
Earnings Before Interest, Taxes, Depreciation & Amortization (EBITDA)	100	84	57	90
Depreciation & amortization	100	199	214	75
Earnings Before Interest & Taxes (EBIT)	100	2 057	2 754	-163
Operating taxes	100	474	1 569	1 009
NOPLAT	100	1 895	2 633	-43
Financial operations				
Other income	100	-444	595	1 495
Interest income	100	140	118	103
Foreign currency loss				
Total financial expense	100	91	158	219
Taxes on non operating income	100	474	1 569	1 009
net financial expense after tax, before discontinued operations	100	76	101	187
Income from discontinued operations				
Net financial expense after tax and discontinued operations	100	76	101	187
Net Income	100	591	819	122

Table 0.37: Archer index analysis income statement

Frank's International Index analysis				
Core operations	2011H	2012H	2013H	2014H
Operating Revenues	100	144	150	160
Cost of sales	100	132	135	149
General and administrative expense	100	117	141	168
Gain on sale of assets	100	5 549	260	-615
Earnings Before Interest, Taxes, Depreciation & Amortization (EBITDA)	100	181	176	171
Depreciation & amortization	100	121	144	166
Earnings Before Interest & Taxes (EBIT)	100	199	186	172
Operating taxes	100	135	154	342
NOPLAT	100	207	190	151
Financial operations				
Other income	100	322	250	178
Interest income	100	-39	99	-13
Foreign currency loss	100	14	80	531
Total financial income	100	-14 285	-7 442	12 165
Taxes on non operating income	100	-14 396	-24 425	-19 222
net financial expense after tax, before discontinued operations	100	-14 314	-11 984	3 771
Income from discontinued operations	100	84	534	-
Net financial expense after tax and discontinued operations	100	293	716	-55
Net Income	100	211	214	141

Table 0.38: Frank's International index analysis income statement

Superior Energy Services Index analysis			
Core operations	2012H	2013H	2014H
Operating Revenues	100	101	106
Cost of sales	100	107	111
General and administrative expense	100	96	100
Reduction in value of asset	-	-	-
Earnings Before Interest, Taxes, Depreciation & Amortization (EBITDA)	100	68	100
Depreciation & amortization	100	124	133
Earnings Before Interest & Taxes (EBIT)	100	30	77
Operating taxes	100	36	74
NOPLAT	100	27	78
Financial operations			
Other income	100	120	167
Interest income	100	93	83
Foreign currency loss			
Total financial income	100	94	86
Taxes on non operating income	100	94	86
Income from discontinued operations	100	873	128
Net Financial Expense	100	239	94
Net Income	100	-32	74

Table 0.39: Superior Energy Services index analysis income statement

Archer Index analysis				
Operating Assets	2011H	2012H	2013H	2014H
Accounts receivables	100	94	86	86
Inventories	100	110	112	168
PPE	100	101	77	83
Goodwill & intangible assets	100	76	32	24
Other current assets	100	101	96	119
Deferred Tax asset	100	494	329	541
Total Operating Assets	100	90	62	63
Operating Liabilities				
Accounts payable				
Accrued and other current liabilities	100	102	91	67
Deferred Revenue				
Deferred Tax liabilities	100	235	71	70
Total Operating Liabilities	100	107	90	104
Net Operating Assets	100	88	57	57
Net Financial Assets				
Financial Assets				
Cash & cash equivalents	100	139	130	88
Other Assets	100	32	134	82
Total Financial Assets	100	125	131	88
Financial Liabilities				
Current portion of long term debt	100	303	139	59
Current portion of notes payable				
Long term debt	100	90	62	76
Notes payable				
Other non-current liabilities	100	65	96	94
Preferred stock				
Total Financial Liabilities	100	109	71	75
Net financial Obligations	100	108	68	75
Non-controlling interest				
Common Shareholders Equity	100	70	48	41

Table 0.40: Archer index analysis balance sheet

Frank's International Index analysis				
Operating Assets	2011H	2012H	2013H	2014H
Accounts receivables	100	134	156	167
Inventories	100	118	202	222
PPE	100	131	157	179
Goodwill & intangible assets	100	92	80	77
Other current assets	100	97	92	134
Deferred Tax asset				
Total Operating Assets	100	129	160	177
Operating Liabilities				
Accounts payable	100	97	111	82
Accrued and other current liabilities	100	90	78	98
Deferred Revenue				
Deferred Tax liabilities	100	127	253	682
Total Operating Liabilities	100	109	133	171
Net Operating Assets	100	134	167	178
Net Financial Assets				
Financial Assets				
Cash & cash equivalents	100	155	410	496
Other Assets	100	117	91	91
Total Financial Assets	100	140	287	340
Financial Liabilities				
Current portion of long term debt	100	120	7	6
Current portion of notes payable	100	57 050	-	-
Long term debt	100	27	-	-
Notes payable	100	4 755	-	-
Other non-current liabilities	100	118	148	440
Preferred stock				
Total Financial Liabilities	100	1 308	102	297
Net financial Obligations	100	-231	346	353
Non-controlling interest				
Common Shareholders Equity	100	50	165	171

Table 0.41: Frank's International index analysis balance sheet

Superior Energy Services Index Analysis			
Operating Assets	2012H	2013H	2014H
Accounts receivables	100	91	90
Inventories	100	120	86
PPE	100	92	84
Goodwill & intangible assets	100	96	95
Other current assets	100	82	80
Deferred Tax asset	100	26	94
Total Operating Assets	100	94	89
Operating Liabilities			
Accounts payable	100	86	89
Accrued and other current liabilities	100	63	68
Deferred Revenue			
Deferred Tax liabilities	100	99	94
Total Operating Liabilities	100	84	84
Net Operating Assets	100	96	91
Net Financial Assets			
Financial Assets			
Cash & cash equivalents	100	215	431
Other Assets	100	53	318
Total Financial Assets	100	162	394
Financial Liabilities			
Current portion of long term debt	100	100	105
Current portion of notes payable			
Long term debt	100	91	90
Notes payable			
Other non-current liabilities	100	175	215
Preferred stock			
Total Financial Liabilities	100	97	99
Net financial Obligations	100	92	77
Non-controlling interest			
Common Shareholders Equity	100	98	96

Table 0.42: Superior Energy Services index analysis balance sheet

Weatherford Index analysis				
Operating Assets	2011H	2012H	2013H	2014H
Accounts receivables	100	93	104	93
Inventories	100	98	101	98
PPE	100	98	106	98
Goodwill & intangible assets	100	67	75	67
Other current assets	100	153	151	153
Deferred Tax asset	100	111	107	111
Total Operating Assets	100	91	98	91
Operating Liabilities				
Accounts payable	100	111	122	111
Accrued and other current liabilities	100	113	132	113
Billings in excess of costs and estimated earnings	100	3	423	3
Deferred Revenue				
Deferred Tax liabilities	100	129	103	129
Total Operating Liabilities	100	111	128	111
Net Operating Assets (invested capital)				
	100	88	93	88
Net Financial Assets				
Financial Assets				
Cash & cash equivalents	100	128	117	128
Other Assets	100	53	72	53
Total Financial Assets	100	79	88	79
Financial Liabilities				
Current portion of long term debt	100	55	126	55
Current portion of notes payable				
Long term debt	100	108	112	108
Notes payable				
Other non-current liabilities	100	91	84	91
Preferred stock				
Total Financial Liabilities	100	98	111	98
Net financial Obligations				
	100	100	114	100
Non-controlling interest	100	357	195	357
Common Shareholders Equity	100	76	75	76

Table 0.43: Weatherford index analysis balance sheet

6.0 FORECAST

6.1 NET WORKING CAPITAL CALCULATIONS

Source: OWS monthly/annual financial reports. Created by author.

Net Working Capital	2011H	2012H	2013H	2014H	Average
Accounts Receivable	61 259	50 619	85 377	45 853	
+ inventories	3 076	2 900	3 438	3 158	
+ Other current assets	5 000	5 222	6 446	6 318	
-Accounts payable	6 401	9 008	6 490	2 929	
-Other current liabilities	20 585	28 725	30 437	22 271	
-short term liabilities to group companies	33 525	8 341	-2 037	18 190	
Net Working Capital	8 824	12 667	60 371	11 939	16 847
% of revenue	5%	7%	28%	6%	7%

Table 0.0.44: Net Working Capital calculations

7.0 WACC

7.1 ALTMAN Z-SCORE

Source: Altman, E. (1968). Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy. *Journal of Finance*. Created by author.

Altman Z'-Score	2014 (In thousands)
Revenue	198 231
Total Assets	232 054
Working Capital	11 939
Retained Earnings (Net Income)	39 051
Total Liabilites	997
Value of Equity	244 118
EBIT	49 290
Z-Score	104,53
Weight for private firm to calculate Z'-Score	
$0.717T_1 + 0.847T_2 + 3.107T_3 + 0.420T_4 + 0.998T_5$	
T ₁ = Working Capital/Total Assets	
T ₂ = Retained Earnings/Total Assets	
T ₃ = EBIT/Total Assets	
T ₄ = Value of equity/Total Liabilities	
T ₅ = Net Sales/Total Assets	
Altman Z'-Score Interpretation	
	Zone
Zones of Discrimination:	
Z > 2.99	Safe Zone
1.81 < Z < 2.99	Grey Zones
Z < 1.81	Distress Zones
Z > 2,99 (104,53)	No chance of bankruptcy

7.2 REGRESSIONS

Source: Company stock data from Yahoo Finance. MSCIW Index data from MSCI homepage. SP1200 Index data from SP homepage. Created by author. Regressions for Odfjell Drilling, Weatherford, and Superior Energy on SP1200 and MSCIW indices. Regressions performed in excel by author.

Odfjell Drilling regressed on SP1200								
<i>Regresjonsstatistikk</i>								
Multipel R	0,46901806							
R-kvadrat	0,21997794							
Justert R-kvadrat	0,15997625							
Standardfeil	0,10783602							
Observasjoner	15							
<i>Variansanalyse</i>								
	<i>fg</i>	<i>SK</i>	<i>GK</i>	<i>F</i>	<i>Signifikans-F</i>			
Regresjon	1	0,04263275	0,043	3,666	0,077791497			
Residualer	13	0,15117189	0,012					
Totalt	14	0,19380464						
	<i>Koeffisienter</i>	<i>Standardfeil</i>	<i>t-Stat</i>	<i>P-verdi</i>	<i>Nederste 95%</i>	<i>Øverste 95%</i>	<i>Nedre 95,0%</i>	<i>Øverste 95,0%</i>
Skjæringspunkt	-0,11348136	0,02819863	-4,024	0,001	-0,174400793	-0,05256192	-0,17440079	-0,052561924
X-variabel 1	2,04528417	1,06818348	1,915	0,078	-0,262385931	4,352954279	-0,26238593	4,352954279
Superior Energy regressed on MSCIW								
<i>Regresjonsstatistikk</i>								
Multipel R	0,2122407							
R-kvadrat	0,0450461							
Justert R-kvadrat	0,0279934							
Standardfeil	0,0436668							
Observasjoner	58							
<i>Variansanalyse</i>								
	<i>fg</i>	<i>SK</i>	<i>GK</i>	<i>F</i>	<i>Signifikans-F</i>			
Regresjon	1	0,0050369	0,005	2,642	0,10971575			
Residualer	56	0,1067803	0,002					
Totalt	57	0,1118172						
	<i>Koeffisienter</i>	<i>Standardfeil</i>	<i>t-Stat</i>	<i>P-verdi</i>	<i>Nederste 95%</i>	<i>Øverste 95%</i>	<i>Nedre 95,0%</i>	<i>Øverste 95,0%</i>
Skjæringspunkt	0,0055497	0,0057372	0,967	0,338	-0,00594335	0,0170428	-0,005943	0,01704277
X-variabel 1	0,0810882	0,0498914	1,625	0,110	-0,01885639	0,1810327	-0,018856	0,18103271

Superior Energy regressed on SP1200

Superior Energy regressed on SP1200								
<i>Regresjonsstatistikk</i>								
Multipel R	0,22961177							
R-kvadrat	0,05272157							
Justert R-kvadrat	0,036666							
Standardfeil	0,11197555							
Observasjoner	61							
<i>Variansanalyse</i>								
	<i>fg</i>	<i>SK</i>	<i>GK</i>	<i>F</i>	<i>Signifikans-F</i>			
Regresjon	1	0,04117267	0,041	3,284	0,075060913			
Residualer	59	0,7397729	0,013					
Totalt	60	0,78094558						
	<i>Koeffisienter</i>	<i>Standardfeil</i>	<i>t-Stat</i>	<i>P-verdi</i>	<i>Nederste 95%</i>	<i>Øverste 95%</i>	<i>Nedre 95,0%</i>	<i>Øverste 95,0%</i>
Skjæringspunkt	-0,0014299	0,01442243	-0,099	0,921	-0,030289113	0,02742932	-0,03028911	0,02742932
X-variabel 1	0,59328182	0,32740078	1,812	0,075	-0,061845621	1,248409258	-0,06184562	1,248409258

Weatherford regressed on SP1200

Weatherford regressed on SP1200								
<i>Regresjonsstatistikk</i>								
Multipel R	0,01632038							
R-kvadrat	0,00026635							
Justert R-kvadrat	-0,01667828							
Standardfeil	0,12319102							
Observasjoner	61							
<i>Variansanalyse</i>								
	<i>fg</i>	<i>SK</i>	<i>GK</i>	<i>F</i>	<i>Signifikans-F</i>			
Regresjon	1	0,00023855	0,000	0,016	0,900652208			
Residualer	59	0,8953856	0,015					
Totalt	60	0,89562416						
	<i>Koeffisienter</i>	<i>Standardfeil</i>	<i>t-Stat</i>	<i>P-verdi</i>	<i>Nederste 95%</i>	<i>Øverste 95%</i>	<i>Nedre 95,0%</i>	<i>Øverste 95,0%</i>
Skjæringspunkt	-0,00345524	0,01586698	-0,218	0,828	-0,035204998	0,028294512	-0,035205	0,028294512
X-variabel 1	-0,04515955	0,36019323	-0,125	0,901	-0,765904543	0,675585444	-0,76590454	0,675585444

Odfjell Drilling regressed on SP1200

Odfjell Drilling regressed on SP1200								
<i>Regresjonsstatistikk</i>								
Multipel R	0,46901806							
R-kvadrat	0,21997794							
Justert R-kvadrat	0,15997625							
Standardfeil	0,10783602							
Observasjoner	15							
Variansanalyse								
	<i>fg</i>	<i>SK</i>	<i>GK</i>	<i>F</i>	<i>Signifikans-F</i>			
Regresjon	1	0,04263275	0,043	3,666	0,077791497			
Residualer	13	0,15117189	0,012					
Totalt	14	0,19380464						
	<i>Koeffisienter</i>	<i>Standardfeil</i>	<i>t-Stat</i>	<i>P-verdi</i>	<i>Nederste 95%</i>	<i>Øverste 95%</i>	<i>Nedre 95,0%</i>	<i>Øverste 95,0%</i>
Skjæringspunkt	-0,11348136	0,02819863	-4,024	0,001	-0,174400793	-0,05256192	-0,17440079	-0,052561924
X-variabel 1	2,04528417	1,06818348	1,915	0,078	-0,262385931	4,352954279	-0,26238593	4,352954279

Superior Energy regressed on MSCIW

Superior Energy regressed on MSCIW								
<i>Regresjonsstatistikk</i>								
Multipel R	0,2122407							
R-kvadrat	0,0450461							
Justert R-kvadrat	0,0279934							
Standardfeil	0,0436668							
Observasjoner	58							
Variansanalyse								
	<i>fg</i>	<i>SK</i>	<i>GK</i>	<i>F</i>	<i>Signifikans-F</i>			
Regresjon	1	0,0050369	0,005	2,642	0,10971575			
Residualer	56	0,1067803	0,002					
Totalt	57	0,1118172						
	<i>Koeffisienter</i>	<i>Standardfeil</i>	<i>t-Stat</i>	<i>P-verdi</i>	<i>Nederste 95%</i>	<i>Øverste 95%</i>	<i>Nedre 95,0%</i>	<i>Øverste 95,0%</i>
Skjæringspunkt	0,0055497	0,0057372	0,967	0,338	-0,00594335	0,0170428	-0,005943	0,01704277
X-variabel 1	0,0810882	0,0498914	1,625	0,110	-0,01885639	0,1810327	-0,018856	0,18103271

7.3 WACC AND CAPM CALCULATIONS

Source: Rosenbaum & Pearl. Valuation, leveraged buyouts, and M&A's. p. 125, p. 128.

Created by author.

D/E	1,01 %	40,40 %
D/E+D	1,00 %	28,77 %
Levered Beta	0,9778	1,2835
Unlevered Beta	0,9700	0,9700
Current 10-Yr US T-Bond	1,71 %	1,71 %
Market risk Premium	7,18 %	7,18 %
Cost of equity (CAPM)	8,73 %	10,93 %
Tax Shield	20,00 %	20,00 %
Rating	A-	BBB+
Spread	1,20 %	1,75 %
Cost of Debt	2,91 %	3,46 %
WACC	8,67 %	8,58 %

7.4 MOODY RATING

Source: Moody's Rating Symbols & Definitions. Damodaran. Global Oilfield Services Rating Methodology. Created by author.

Rating with <5% debt/book capitalization. D/E of 1 %. Market Usually book value is worth much less than the market value of a firm.

Numbers used for weightings	Weights	1	3	6	9	12	15	18
		Aaa	Aa	A	Baa	Ba	B	Caa
Factor 1: Scale and business profile								
Assets	25 %	≥\$25 Billion	\$12 - \$25 Billion	\$8 - \$12 Billion	\$4 - \$8 Billion	\$2 - \$4 Billion	\$0.5 - \$2 Billion	<\$0.5 Billion
Business profile	20 %	<1.5	1.5 - 4.5	4.5 - 7.5	7.5 - 10.5	10.5 - 13.5	13.5 - 16.5	>16.5
Factor 2: Profitability and returns								
EBIT / Assets (historic average)	15 %	≥22%	15% - 22%	11% - 15%	8% - 11%	5% - 8%	2% - 5%	<2%
Factor 3: Financial strength								
EBIT / Interest (historic average)	20 %	≥16x	10x - 16x	7.5x - 10x	5x - 7.5x	2.5x - 5x	1.5x - 2.5x	<1.5x
Debt / EBITDA (historic average)	10 %	<0.25x	0.25x - 1x	1x - 2x	2x - 3x	3x - 4x	4x - 6x	>6x
Debt / Book capitalization	10 %	<5%	5% - 15%	15% - 25%	25% - 35%	35% - 55%	55% - 70%	>70%
	Capital Structure	Forecasted 5-y period	Rating	Spread				
Moody/S&P	D/E 1%	7,35	A3/A-	1,20 %				
Obligations rated A are considered upper-medium grade and are subject to low credit risk.								

Rating with >70% debt/book capitalization (D/E Market of 40.40%). Usually book value is worth much less than the market value of a firm.

Numbers used for weightings	Weights	1	3	6	9	12	15	18
	Aaa	Aa	A	Baa	Ba	B	Caa	
Factor 1: Scale and business profile								
Assets	25%	≥\$25 Billion	\$12 - \$25 Billion	\$8 - \$12 Billion	\$4 - \$8 Billion	\$2 - \$4 Billion	\$0.5 - \$2 Billion	<\$0.5 Billion
Business profile	20%	<1.5	1.5 - 4.5	4.5 - 7.5	7.5 - 10.5	10.5 - 13.5	13.5 - 16.5	>16.5
Factor 2: Profitability and returns								
EBIT / Assets (historic average)	15%	≥22%	15% - 22%	11% - 15%	8% - 11%	5% - 8%	2% - 5%	<2%
Factor 3: Financial strength								
EBIT / Interest (historic average)	20%	≥16x	10x - 16x	7.5x - 10x	5x - 7.5x	2.5x - 5x	1.5x - 2.5x	<1.5x
Debt / EBITDA (historic average)	10%	<0.25x	0.25x - 1x	1x - 2x	2x - 3x	3x - 4x	4x - 6x	>6x
Debt / Book capitalization	10%	<5%	5% - 15%	15% - 25%	25% - 35%	35% - 55%	55% - 70%	>70%
	Capital Structure	Forecasted 5-y period	Rating	Spread				
Moody/S&P	D/B>70%	9,05	Baa2/BBB	1,75%				

Obligations rated Baa are subject to moderate credit risk. They are considered mediumgrade and as such may possess certain speculative characteristics.

Grid-Indicated Rating	Aggregate Weighted Total Factor Score
Aaa	X < 1.5
Aa1	1.5 ≤ x < 2.5
Aa2	2.5 ≤ x < 3.5
Aa3	3.5 ≤ x < 4.5
A1	4.5 ≤ x < 5.5
A2	5.5 ≤ x < 6.5
A3	6.5 ≤ x < 7.5
Baa1	7.5 ≤ x < 8.5
Baa2	8.5 ≤ x < 9.5
Baa3	9.5 ≤ x < 10.5
Ba1	10.5 ≤ x < 11.5
Ba2	11.5 ≤ x < 12.5
Ba3	12.5 ≤ x < 13.5
B1	13.5 ≤ x < 14.5
B2	14.5 ≤ x < 15.5
B3	15.5 ≤ x < 16.5
Caa1	16.5 ≤ x < 17.5
Caa2	17.5 ≤ x < 18.0

For smaller non-financial service companies with market cap < \$ 5 billion

If interest coverage ratio is		Rating is	Spread is
greater than	≤ to		
12.5	10.0000	AAA	0.40%
9.5	12.499999	AA	0.70%
7.5	9.499999	A+	0.90%
6	7.499999	A	1.00%
4.5	5.999999	A-	1.20%
4	4.499999	BBB	1.75%
3.5	3.999999	BBB-	2.75%
3	3.499999	BB	3.25%
2.5	2.999999	B+	4.00%
2	2.499999	B	5.00%
1.5	1.999999	B-	6.00%
1.25	1.499999	CCC	7.00%
0.8	1.249999	CC	8.00%
0.5	0.799999	C	10.00%
-100000	0.499999	D	12.00%

8.0 VALUATION

8.1 CCA

Source: Annual/Monthly reports from Odfjell Well Services, Archer Limited, Weatherford, Frank's International, and Superior Energy. Created by author.

OWS	EV/EBITDA peers	2014 EBITDA	Expected Enterprise Value
Harmonic Average	4,86	85 460	415 238
Median	4,98	85 460	425 803
High	7,64	85 460	652 500
Low	3,57	85 460	304 746
OWS	P/E peers	2014 Earnings	Expected Price
Harmonic Average	13,31	39 051	519 904
Median	13,75	39 051	536 951
High	16,20	39 051	632 626
Low	-	39 051	-
OWS	P/B peers	2014 Book value	Expected Price
Harmonic Average	0,92	244 118	223 505
Median	1,00	244 118	244 118
High	2,10	244 118	512 648
Low	0,59	244 118	144 030
OWS Value	EV/EBITDA	P/E	P/B
Harmonic average	415 238	519 904	223 505

8.2 PRECEDENT TRANSACTION EV/EBITDA CALCULATION

Source: Ernst & Young: Global oil and gas transactions reviews (2011, 2012, 2013 and 2014). Archer Limited (2013 Q1). Halliburton. Complete Production Services (2011 Q4). Nabors announcement (2014, June 25). Created by author.

Date	Target	Acquirer	Value (\$m)	EBITDA (\$m)	EV/EBITDA
Feb. 7, 2011	Complete production services	Superior Energy Services	2 756,00	590 (1)	4,67
Nov. 17, 2014	Baker Hughes	Halliburton	38 000,00	4691,358 (2)	8,10
jun, 2013	Archer North America and Latin America Division	Clearlake Capital Group, L.P	244,00	45 (3)	5,42
Jun. 25, 2014	Nabors Completion & Production Services	C&J Energy Services	2 900,00	367 (4)	7,90
Har. Average				6,17	
Median				6,66	
High				8,10	
Low				4,67	

1. Complete production services quarterly report 2011 Q4.
2. Estimated, not yet released, 2014-consensus. Source: Halliburton
3. In 2012, these businesses generated approximately \$100 million in revenue and contributed approximately \$45 million in earnings before income taxes, depreciation and amortization (EBITDA). Archer Limited (ARCHER) First Quarter 2013 Results
4. Nabors announces agreement to combine its Completion & Production services business with C&J Energy Services.

9.0 SENSITIVITY ANALYSIS

9.1 MONTE-CARLO SIMULATION

Source: Method based on Stanislaw Ulam (1940) Monte-Carlo simulation. The simulation was run on an excel add-on called Crystal Ball. Simulation performed/created by author.

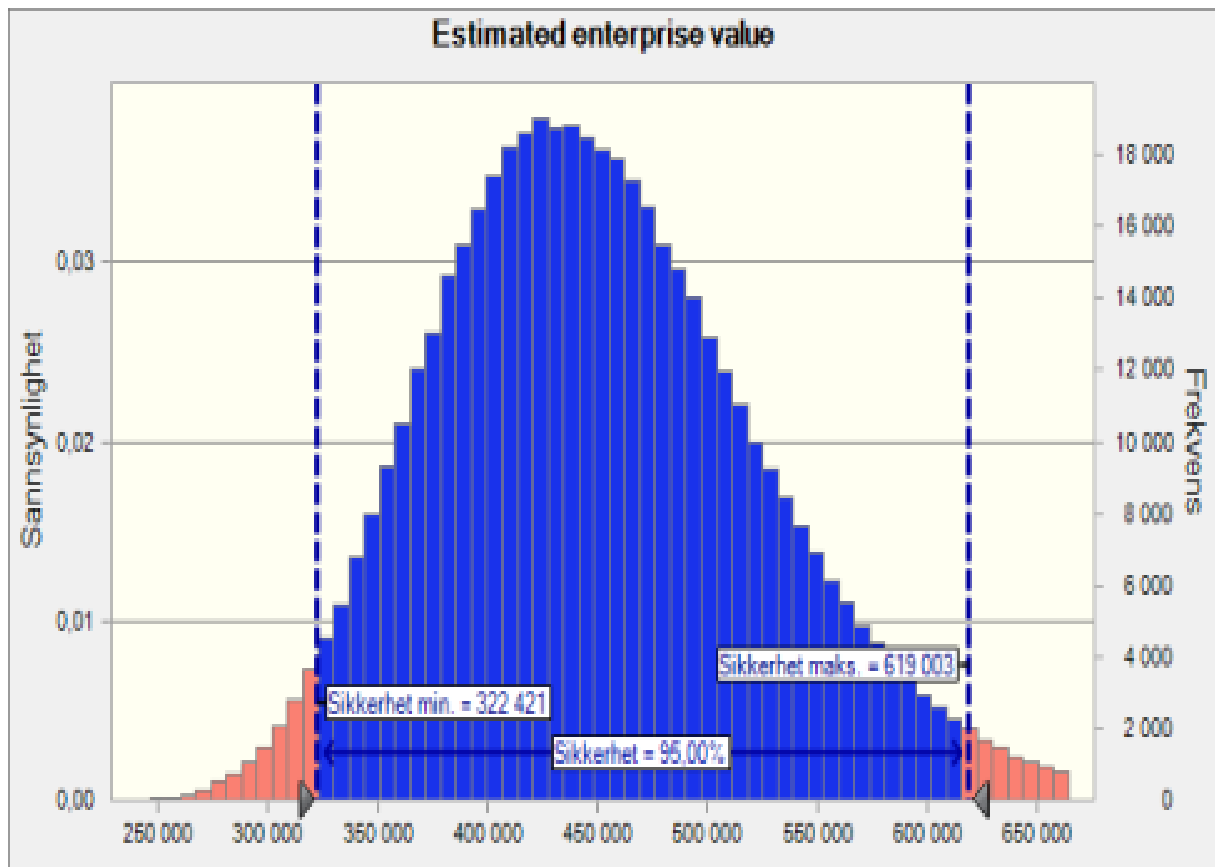
Kjøreprefranser:	
Antall prøver som er kjørt	500 000
Eks trem hast ighet	
Monte Carlo	
Tilfeldig seed	
Pres isjonskontroll på	
Konfidensnivå	95,00 %
Kjøretidsstatistikk:	
Total kjøretid (sek)	17,26
Prøver per sekund (gjennomsnitt)	28 966
Tilfeldige tall per sek	1 042 781
Crystal Ball-data:	
Forutsetninger	36
Korrelas joner	0
Korrelas jonsmatriser	0
Beslutningsvariabler	0
Prognoser	1
Sammendrag:	
Sikkerhetsnivå	95 %
Sikkerhetsområdet	322 421 til 619 003
Hele området	211 200 til 942 107
Basis tilfellet	456 313
Etter 500 000 prøver er standard	

Statistikk:	Prognoseverdier
Prøver	500 000
Basistilfelle	456 313
Gjennomsnitt	451 973
Median	445 371
Modus	---
Standardavvik	75 931
Varians	5 765 455 231
Skjevhet	0,5249
Kurtose	3,41
Varianskoeffisient	0,168
Minimum	211 200
Maksimum	942 107
Områdebredde	730 907
Gjennomsnittlig std.feil	107

Prognose: Estimated enterprise value

Persentiler:	Prognoseverdier
0 %	211 200
10 %	360 047
20 %	387 108
30 %	408 056
40 %	426 744
50 %	445 371
60 %	464 720
70 %	486 320
80 %	512 914
90 %	552 462
100 %	942 107

Estimated Enterprise value based on values

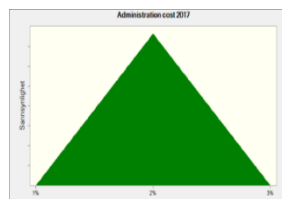


These are assumption for max/min range. This is a printout from the Monte-Carlo Simulation.

Forutsetning: Administration cost 2015

Triangulær fordeling med parametre:

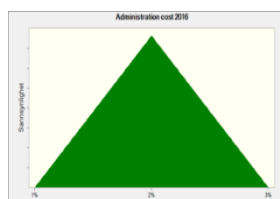
Minimum	1 %
Mest sannsynlig	2 %
Maksimum	3 %



Forutsetning: Administration cost 2016

Triangulær fordeling med parametre:

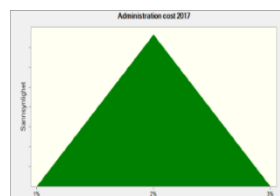
Minimum	1 %
Mest sannsynlig	2 %
Maksimum	3 %



Forutsetning: Administration cost 2017

Triangulær fordeling med parametre:

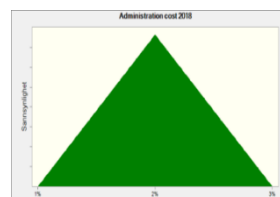
Minimum	1 %
Mest sannsynlig	2 %
Maksimum	3 %



Forutsetning: Administration cost 2018

Triangulær fordeling med parametre:

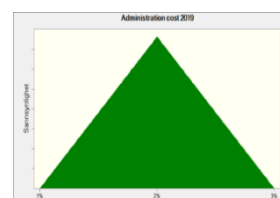
Minimum	1 %
Mest sannsynlig	2 %
Maksimum	3 %



Forutsetning: Administration cost 2019

Triangulær fordeling med parametre:

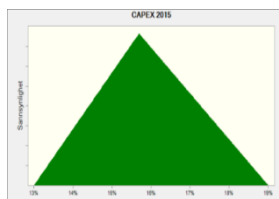
Minimum	1 %
Mest sannsynlig	2 %
Maksimum	3 %



Forutsetning: CAPEX 2015

Triangulær fordeling med parametre:

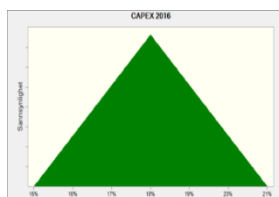
Minimum	13 %
Mest sannsynlig	16 %
Maksimum	19 %



Forutsetning: CAPEX 2016

Triangulær fordeling med parametre:

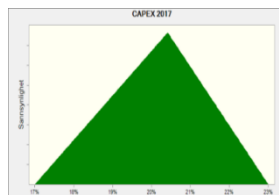
Minimum	15 %
Mest sannsynlig	18 %
Maksimum	21 %



Forutsetning: CAPEX 2017

Triangulær fordeling med parametre:

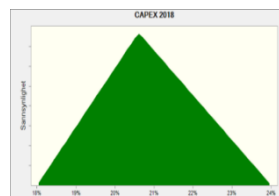
Minimum	17 %
Mest sannsynlig	20 %
Maksimum	23 %



Forutsetning: CAPEX 2018

Triangulær fordeling med parametre:

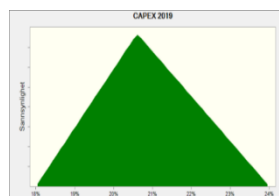
Minimum	18 %
Mest sannsynlig	21 %
Maksimum	24 %



Forutsetning: CAPEX 2019

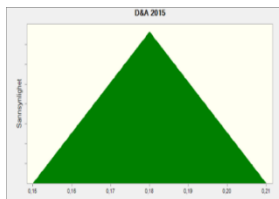
Triangulær fordeling med parametre:

Minimum	18 %
Mest sannsynlig	21 %
Maksimum	24 %



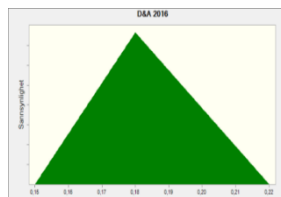
Forutsetning: D&A 2015

Triangulær fordeling med parametre:
Minimum 15 %
Mest sannsynlig 18 %
Maksimum 21 %



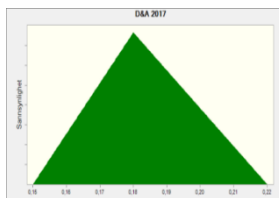
Forutsetning: D&A 2016

Triangulær fordeling med parametre:
Minimum 15 %
Mest sannsynlig 18 %
Maksimum 22 %



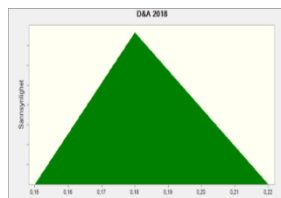
Forutsetning: D&A 2017

Triangulær fordeling med parametre:
Minimum 15 %
Mest sannsynlig 18 %
Maksimum 22 %



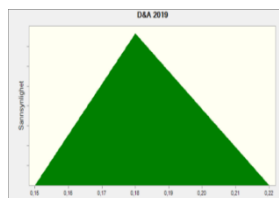
Forutsetning: D&A 2018

Triangulær fordeling med parametre:
Minimum 15 %
Mest sannsynlig 18 %
Maksimum 22 %



Forutsetning: D&A 2019

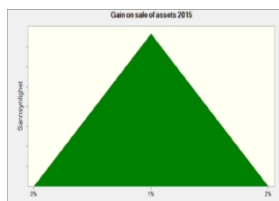
Triangulær fordeling med parametre:
Minimum 15 %
Mest sannsynlig 18 %
Maksimum 22 %



Forutsetning: Gain on sale of assets 2015

Triangulær fordeling med parametre:

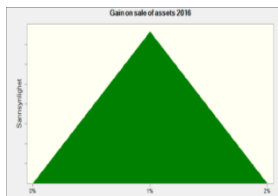
Minimum	0 %
Mest sannsynlig	1 %
Maksimum	2 %



Forutsetning: Gain on sale of assets 2016

Triangulær fordeling med parametre:

Minimum	0 %
Mest sannsynlig	1 %
Maksimum	2 %



Forutsetning: Gain on sale of assets 2017

Triangulær fordeling med parametre:

Minimum	0 %
Mest sannsynlig	1 %
Maksimum	2 %



Forutsetning: Gain on sale of assets 2018

Triangulær fordeling med parametre:

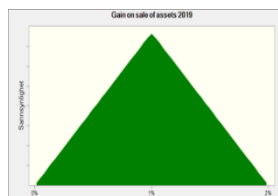
Minimum	0 %
Mest sannsynlig	1 %
Maksimum	2 %



Forutsetning: Gain on sale of assets 2019

Triangulær fordeling med parametre:

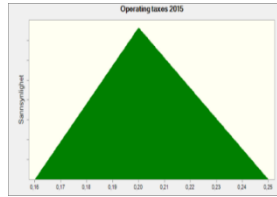
Minimum	0 %
Mest sannsynlig	1 %
Maksimum	2 %



Forutsetning: Operating taxes 2015

Triangulær fordeling med parametre:

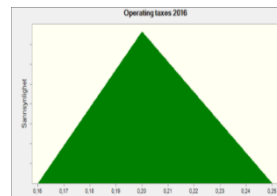
Minimum	16 %
Mest sannsynlig	20 %
Maksimum	25 %



Forutsetning: Operating taxes 2016

Triangulær fordeling med parametre:

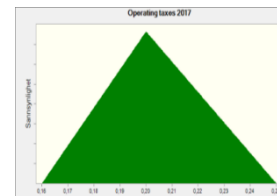
Minimum	16 %
Mest sannsynlig	20 %
Maksimum	25 %



Forutsetning: Operating taxes 2017

Triangulær fordeling med parametre:

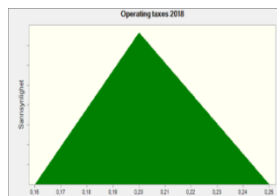
Minimum	16 %
Mest sannsynlig	20 %
Maksimum	25 %



Forutsetning: Operating taxes 2018

Triangulær fordeling med parametre:

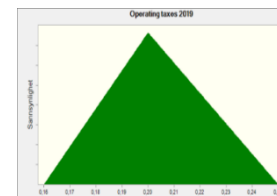
Minimum	16 %
Mest sannsynlig	20 %
Maksimum	25 %



Forutsetning: Operating taxes 2019

Triangulær fordeling med parametre:

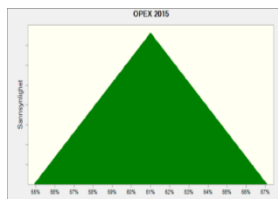
Minimum	16 %
Mest sannsynlig	20 %
Maksimum	25 %



Forutsetning: OPEX 2015

Triangulær fordeling med parametre:

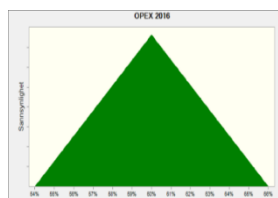
Minimum	55 %
Mest sannsynlig	61 %
Maksimum	67 %



Forutsetning: OPEX 2016

Triangulær fordeling med parametre:

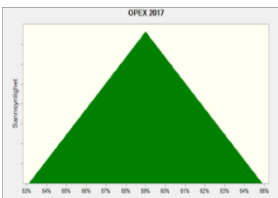
Minimum	54 %
Mest sannsynlig	60 %
Maksimum	66 %



Forutsetning: OPEX 2017

Triangulær fordeling med parametre:

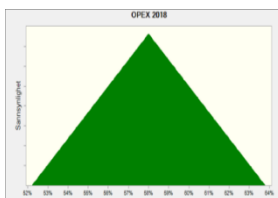
Minimum	53 %
Mest sannsynlig	59 %
Maksimum	65 %



Forutsetning: OPEX 2018

Triangulær fordeling med parametre:

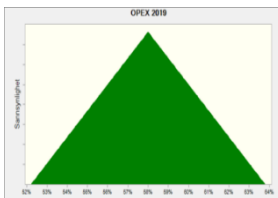
Minimum	52 %
Mest sannsynlig	58 %
Maksimum	64 %



Forutsetning: OPEX 2019

Triangulær fordeling med parametre:

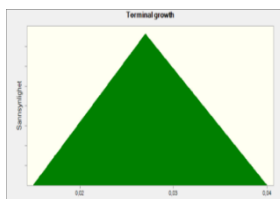
Minimum	52 %
Mest sannsynlig	58 %
Maksimum	64 %



Forutsetning: Terminal growth

Triangulær fordeling med parametre:

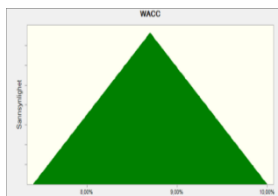
Minimum	2 %
Mest sannsynlig	3 %
Maksimum	4 %



Forutsetning: WACC

Triangulær fordeling med parametre:

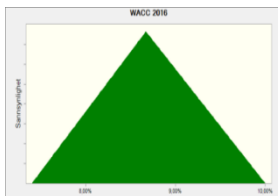
Minimum	7,4 %
Mest sannsynlig	8,7 %
Maksimum	10 %



Forutsetning: WACC 2016

Triangulær fordeling med parametre:

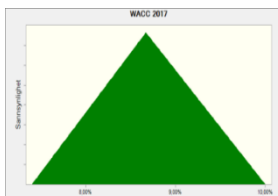
Minimum	7,4 %
Mest sannsynlig	8,67 %
Maksimum	10 %



Forutsetning: WACC 2017

Triangulær fordeling med parametre:

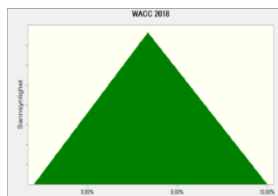
Minimum	7,4 %
Mest sannsynlig	8,67 %
Maksimum	10 %



Forutsetning: WACC 2018

Triangulær fordeling med parametre:

Minimum	7,4 %
Mest sannsynlig	8,67 %
Maksimum	10 %



Forutsetning: WACC 2019

Triangulær fordeling med parametre:
Minimum 7,4 %
Mest sannsynlig 8,58 %
Maksimum 10 %

