Photo: Deep Sea Supply

# Valuation of Deep Sea Supply Plc.



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## Executive summary

Deep Sea Supply is an international ship owner, operating offshore supply vessels (OSV) in the main global OSV markets. The company was listed on Oslo Stock Exchange in 2006 and has within a short period manifested itself as an important actor in the OSV market. The current fleet consist of 27 vessels located in Brazil, the North Sea, Asia and West Africa, with Brazil standing out as the main area of focus. Recently, Deep Sea Supply established a joint venture with the Brazilian investment bank BTG Pactual, which is part of their ambitious expansion plans. Within 2014 the fleet is expected to grow to 40 vessels.

The current global OSV market is characterised by increasing E&P spending as well as an increasing number of oil-rigs entering the market. Based on this the demand for OSV services are expected to strengthen in the years to come, which effectively should increase utilization ratios and freight rates. The growth is estimated to be strongest for large, modern OSVs due to most oil discoveries being made in the deep-water segment. However, the supply of OSVs is expected to increase significantly, especially for the large PSVs, indicating a potential threat of oversupply. Overall, we believe that the OSV market is in a recovery phase after years with poor revenues for the ship owners, and expect that the global OSV market will experience growth in both the AHTS and PSV segment going forward.

Deep Sea Supply's financial performance in recent years has been marked by volatile markets triggered by the financial crisis and an oversupply of OSVs, which effectively has increased the company's liquidity risk. However, we argue that the performance of Deep Sea Supply is expected to improve as the company is well positioned to exploit the positive market sentiment going forward.

Through the DCF and EVA models we estimated the fundamental market value of equity per 31th of May 2013 to be USD 344.5m, which represents a share price of NOK 15.9. This indicates an upside of 70% when comparing to the current share price of NOK 9.35 per 31th of May. Hence, we recommend a strong buy on Deep Sea Supply.

## Contents

# 1. Introduction

The Master's Thesis represents the final stage in our graduate program, MSc International Business at Copenhagen Business School.

The thesis aims to obtain the fundamental value of the Norwegian offshore supply vessel (OSV) company Deep Sea Supply Plc (DESSC), which is listed on Oslo Stock Exchange. We have chosen the respective topic, as we believe it will contribute to our academic specialisation, as well as providing us with an unique opportunity to combine the different courses and knowledge accumulated during our education. Valuations represent a central role in the field of business and economics and we believe the ability to estimate fair values of projects, companies and the alike is a valuable take away from the graduate program. For us, as International Business students, it was also essential that our thesis offered the right balance between the strategic and financial aspects, which we do believe the valuation provides.

The choice of industry was carefully evaluated, and based on our ambitions for a potential future career within the chosen industry. Considering our Norwegian heritage, the oil and gas industry has always been appealing and relevant to us. Combined with a genuine interest for shipping, we decided to choose the OSV industry, which combines elements of both. The OSV companies provide the oil and gas industry with services which lie beyond the oil companies' core business, such as transportation of equipment to oil-rigs and anchor handling.

After choosing the industry of interest we started to look at potential companies to analyse. We decided to limit our search to the Norwegian OSV industry, which has since the development of the Norwegian petroleum sector in the 1970s, emerged to become one the world leading OSV industries. DESSC caught our attention due to their announced expansive growth strategy, with high ambitions to establish itself as a major player in the industry. In addition we found it highly interesting that several brokers interviewed in Norwegian newspapers argued that Norwegian OSV companies were trading at a discount on the Oslo Stock Exchange. This further triggered our motivation to value Deep Sea Supply.

## 1.1 Problem statement

The purpose of this thesis is to determine the fundamental value of DESSC. In order to do so we need to perform a comprehensive analysis of the market as well as company, which allows us to assess the potential future profitability. This will enable us to consider whether or not the share is currently priced in accordance with the company's future outlook, and based on this give recommendation to either sell, hold or buy the share. Our outlined problem statement is:

*What is the fundamental value of Deep Sea Supply per 31th of May 2013, and does the current share price reflect the future outlook of the company?*

## 1.2 Methodology

This section will describe the methodology that has been applied in the thesis, focusing on data collection, research design and delimitations of the thesis.

### 1.2.1 Data collection

Based on our problem statement, the thesis is structured with respect to the equity-oriented stakeholder. Hence, we have limited the data used to include only public available information. Due to the nature of the thesis, both qualitative and quantitative data will be gathered.

The information relating to the company and peer group will mainly be collected from annual reports and webpage of the respective company. When assessing the OSV industry we rely on market reports and research papers, compiled by market experts such as RS Platou, Clarksons and IHS Petrodata. Financial and statistical data will be gathered through Damodaran, Bloomberg Professional, Investext Data, Norges Bank, Oslo Stock exchange as well as others. In addition, newspapers and journals will be used as supplement in our discussions.

The valuation literature applied in the thesis is mainly derived from books written by Petersen & Plenborg, Kotter et. al and Penman.

All sources and data have been subject to critical evaluation regarding reliability and validity.

### 1.2.2 Research design

The thesis is following a case study approach, with a structure designed to be as intuitive as possible, aiming to optimize the visible linkage between the different chapters leading up to the conclusion. The structure follows the theoretical framework of Penman called the process of fundamental analysis presented in figure 1.1[1]. In addition, the thesis starts off with an introduction to the industry and company, followed by a description and discussion on the different theories, frameworks and models applied in the thesis.

**Figure 1.1 – The process of fundamental analysis**

Strategic analysis → Financial analysis → Forecasting → Valuation → Recommendation
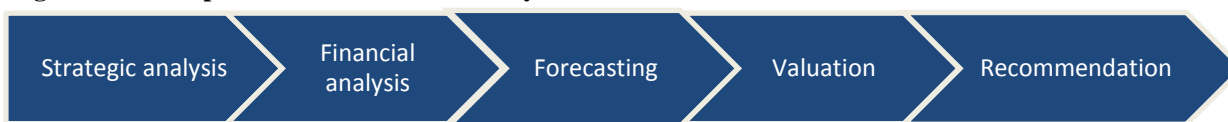
The strategic analysis intends to identify the external and internal factors affecting the company. Furthermore, we will in the financial analysis rearrange the financial statements of DESSC, as well as assessing important financial ratios which will provide us with an in depth understanding of the historical performance and liquidity risk of the company. The findings accumulated from the strategic and financial analysis are then applied in the forecasting chapter where we choose our value drivers, which enable us to develop our pro forma statement and forecasts. Finally, the forecasts will be implemented into the valuation models, providing us with an estimated fundamental value of Deep Sea Supply.

### 1.2.3 Delimitations

In order to perform our valuation and maintain focus on key elements we have found it necessary to implement some limitations to the thesis:

- The valuation cut-off date is set to 31th of May 2013 - any new information after this date has not been incorporated in the thesis.
- The data utilised is limited to public information.
- The analysis of the regional OSV markets is limited to the markets in which Deep Sea Supply operates.

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[1] Penman, Financial Statement Analysis and Security Valuation, 2012,3rd ed., page 85

- The OSV segments analysed are limited to include the segments in which Deep Sea Supply operates, being the PSV and AHTS market, excluding other segments.
- Due to the limited size of the thesis we have found it necessary to incorporate the new Brazilian joint venture using a simplified method. Alternatively we could value both Deep Sea Supply and the joint venture separately. However, we believe that the method used is appropriate and provides us with a realistic value estimate.
- When assessing the financial performance of the peer companies we have limited the historical horizon to include the last seven years, which is the same historical horizon as DESSC.
- We have not included any analysis on currency or interest rate risk factors.

# 2. The offshore supply vessel market

## 2.1 Norway – Shipping and oil nation

Norway, with its sweeping coast, is strategically positioned with regards to maritime industries. This has resulted in a nation that has developed into one of the world's leading shipping countries, where a knowledge network has evolved, which spreads competence within the industry[2].

With the Ekofisk oil discovery in 1969, the Norwegian oil adventure really began and production from the field started in June 1971. In the following years a number of discoveries were made, and in 1972, the state-owned oil company Statoil, was established. Petroleum activities have contributed significantly to economic growth in Norway and to the financing of the Norwegian welfare state. Through over 40 years of operations, the industry has created values in excess of NOK 8,000bn, and the industry accounts for approximately 20% of the value creation in Norway, which is three times as much as the manufacturing industry[3]. In late February 2013, the Norwegian oil fond reached NOK 4,000 bn, which is the biggest fund in the world[4].

## 2.2 The OSV market

In line with the development of the petroleum industry, a business sector called the *offshore supply vessel (OSV)* industry emerged. The OSV market provides supporting services to the offshore industry,

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[2] http://rederi.no/nrweb/english.nsf
[3] http://www.regjeringen.no/en/dep/oed/Subject/Oil-and-Gas/norways-oil-history-in-5-minutes.html?id=440538
[4] http://offshore.no/sak/37166_oljefondet_passerer_4000_milliarder

which lie beyond the oil companies' core business. OSV companies deliver many different types of services, including anchor handling, transportation of supplies to oil rigs, and construction, maintenance and repair work on offshore installations. The demand for vessels providing these services are naturally strongly correlated with the petroleum market, and are thus affected by the demand for oil[5].

## 2.3 Historical growth in the OSV market

The years up to 2003 were characterized by poor results for the OSV market in general, before the demand for oil started to increase at the end of 2003 (figure 2.1). A strong increase in the oil price resulted in big oil related investments, which led to strong demand for the OSV industry's services. A strong market in favour of the ship owners took place until the financial crisis hit the markets in 2008. Both the oil and the shipping industry are quite capital intensive and shortage of credit led to delays in offshore projects, and in many cases cancellations. The growth in the world economy stagnated and many countries experienced a recession. The oil price fell and the petroleum companies had to cut costs. This was reflected in the market for OSVs, which experienced declining rates. Due to the strong growth up until the financial crisis, a lot of ship owners ordered new vessels, but many of these vessels were not delivered until 2009 and 2010, which increased the fleet and further deteriorated the OSV rates. The financial markets began to stabilize in 2009 and the oil companies' exploration and production (E&P) investments began to rise. Consequently, the OSV market turned in 2010 and continued to grow in 2011 and 2012[6]. In figure 2.1 the historical OSV rates are illustrated with global yearly average AHTS and PSV freight rates.[7]

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[5] www.tradewindnews.com
[6] RS Platou report, Offshore Supply Vessel Market, 2012, page 23
[7] Appendix 1.1 presents the calculation of the average global AHTS and PSV freight rates

**Figure 2.1 – Historical OSV rates**
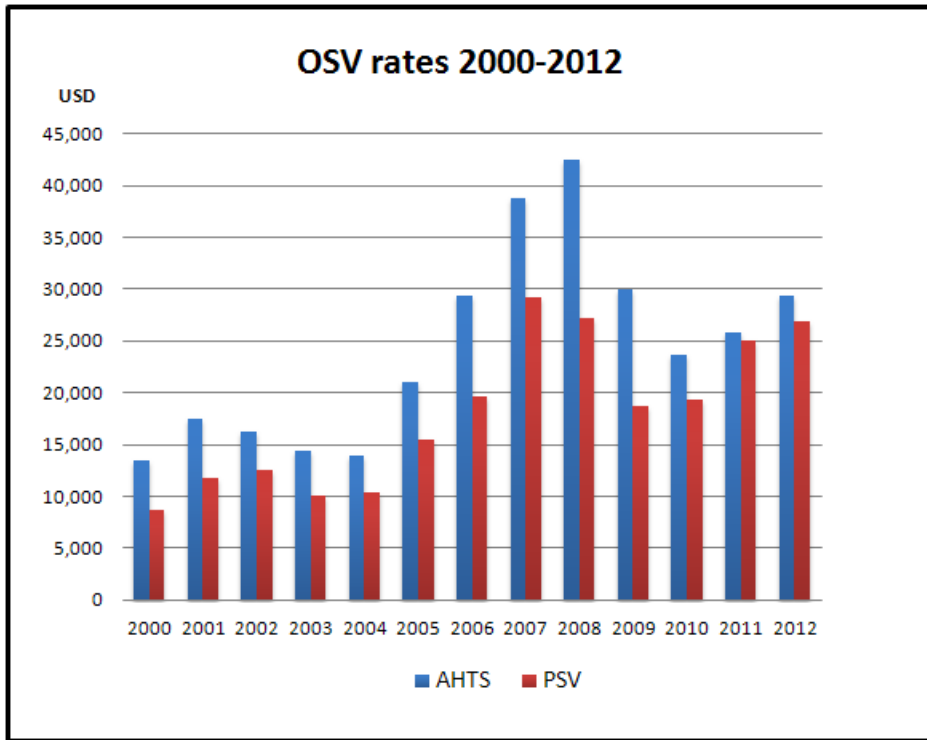


Source: RS Platou, Offshore Supply Vessel Market, 2012, page 23

## 2.4 PSVs and AHTSs

The vessels that provide OSV services are categorized in different segments, mainly supply, anchor handling, seismic and subsea. This thesis will focus on the supply and anchor handling segment – transportation of supplies to the oil rigs, called the Platform Supply Vessel (PSV) market, and anchor handling and tugging of oil rigs, called the Anchor Handling Tug Supply (AHTS / anchor handler) market[8].

### 2.4.1 The PSV Market

A PSV is a ship designed to supply oil platforms and perform other related jobs. These ships vary from 20 meters to 100 meters and their primary purpose is to transport supplies and personnel to and from platforms[9]. The supplies are transported either on deck or below deck in cargo tanks. The cargo tanks can carry mud, brine, fuel oil, cement or other dry bulk, water and other materials used for drilling operations. The decks normally range from 600-1000 m$^2$ and carry containers, pipes and other

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[8] http://offshore.no/
[9] http://maritime-connector.com/platform-supply-vessel/

equipment. Some vessels are fitted with fire fighting equipment in case of platform fires. Other vessels are equipped for oil containment in case of oil spills. However, a PSV's main task is to transport supplies used for drilling. In April 2013 the global fleet consisted of 1,179 PSVs[10].

PSVs are categorised according to their carrying capacities: Size of deck space, total carrying capacity in dead weight ton (dwt), or specifics of tanks. We have decided to categorise the PSVs into dwt in this thesis, which is done in table 2.1

**Table 2.1 – Categorisation of PSVs**

| PSV classes | | | |
|---|---|---|---|
| **Small** | **Medium** | **Medium +** | **Large** |
| < 2,000 dwt | 2,000 - 2,999 dwt | 3,000 - 3,999 dwt | >4,000 dwt |

Source: Compiled by authors

### 2.4.2 The AHTS market

AHTS vessels are mainly built to handle anchors for oil rigs, tow the rigs to the required sea sites where they are going to perform drilling operations, and anchor them up[11].  Furthermore, AHTSs are equipped with some of the cargo tanks that PSVs contain. Thus, in times of shortage of PSVs, AHTSs can be used to perform supply duties, however, the capacity are typically smaller than those of PSVs'. In April 2013 the total fleet of AHTS were 1,873[12].

AHTSs differ from PSVs in being equipped with cranes (called winches) for towing and anchor handling, having an open stern in order to allow decking of anchors, and having bigger engines to increase the bollard pull. AHTS vessels are classified mainly to their towing capacity in metro tons or their power, measured in break horsepower (bhp). In this thesis we choose to categorise them in bhp, which is done in table 2.2.

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[10]  RS Platou, Global Support Vessel Monthly May 2013, page 9
[11] http://www.marineinsight.com/marine/types-of-ships-marine/what-are-anchor-handling-tug-vessels-aths/
[12] RS Platou, Global Support Vessel Monthly December 2012, page 9

**Table 2.2 - Categorisation of AHTSs**

| AHTS classes | | |
|---|---|---|
| **Small** | **Medium** | **Large** |
| < 10,000 bhp | 10,000 - 14,999 bhp | > 15,000 bhp |

Source: Compiled by authors

# 3. Company profile – Deep Sea Supply Plc

Deep Sea Supply is an offshore supply vessel company, operating globally with a fleet of 15 AHTS and 12 PSV vessels, providing the oil and gas industry with important services like equipment and supply transportation, rig towing, anchor handling and more. The main markets for the company are Brazil, the North Sea, South East Asia and West Africa.

## 3.1 History

The company was established in 2004 in Arendal, Norway by Jon Skabo and Klaus Tollefsen. Through an acquisition of six AHTSs in 2005, DESSC established itself in the offshore supply vessel business, with the goal of becoming a leading company in the industry. The six ships were acquired from the American offshore shipping company Tidewater Marine and provided the company with six vessels, perfectly suited for operations in the largest markets[13].

In 2006, the company followed with further investments, engaging in a USD 394m deal with Sea Tankers Management Co. Ltd to purchase 22 new vessels. The company was the same year listed on the Oslo Stock Exchange and acquired by a new established company; Deep Sea Supply Plc. Deep Sea Supply Plc was incorporated in Cyprus, which meant that the company now moved the company's assets from Norway to Cyprus as well as changing from a Norwegian tax regime to a Cypriot tax regime. The company assumed that this move would give the company more stability and provide better competitive conditions than the Norwegian system could provide, for example reducing the taxation of dividends, which obviously is an important factor for the investors. Furthermore, the company assessed the Cypriot EU membership as being a favourable factor[14].

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[13] www.deepseasupply.no
[14] Deep Sea Supply, Annual Report 2011

Within a short period of time the company has grown to be an important actor globally and has established subsidiaries in Singapore, Cyprus and Norway, as well as a joint venture in Brazil. The company has per 31th of May 2013 a market capitalization of USD 202.6m[15].

## 3.2 Strategy

DESSC aims to become a leading actor in the international offshore supply market, and has the last couple of years invested heavily in new vessels, as well as exploring new markets and developing new organisations for in-house technical management. This is meant to position the company in the most important markets, increase their competitive advantage and secure further growth. The company seeks to secure a balance between medium – and long-term contracts for their vessels, which provides a stable cash flow and predictable rates[16].

## 3.3 Company structure

**Figure 3.1 – Company structure**
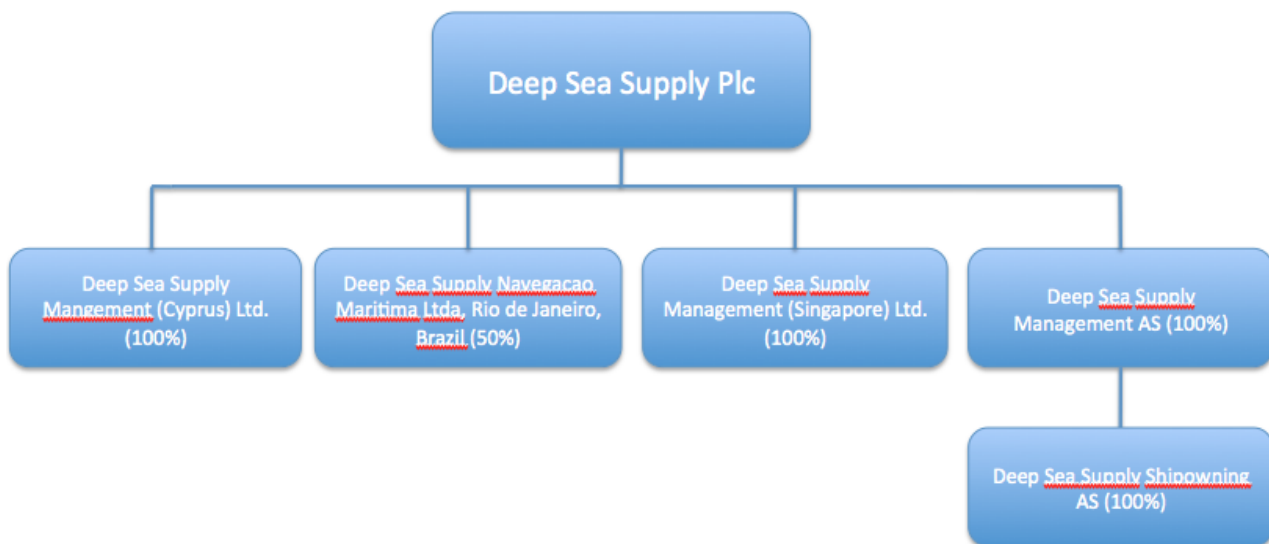


Source: Compiled by authors

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[15] http://www.oslobors.no/markedsaktivitet/stockOverview?newt__ticker=DESSC
[16] Deep Sea Supply, Annual Report 2012, page 4

Figure 3.1 illustrates the company structure of DESSC. As shown, Deep Sea Supply Plc act as the parent company of subsidiaries established at strategic geographical positions - Cyprus, Brazil, Singapore and Norway - all with different areas of focus. Deep Sea Supply Plc owns 100% of the subsidiaries except for the new Joint Venture, Deep Sea Supply Navegacao, which is owned 50/50 between Deep Sea Supply and BTG Pactual[17].

### 3.3.1 Subsidiaries

Subsidiaries in Singapore and Brazil (now joint venture) were established in 2006 and 2009, respectively, and have functioned as fully operating shipping companies, with focus on chartering and technical management. Both subsidiaries were established to get closer to the everyday operations of the vessels, which helped the company to reduce reaction time and increase control. The subsidiaries have also developed an in-house technical and crew management unit, which was meant to improve cost control and to secure important development of competences[18].

DESSC achieved a milestone when the Brazilian subsidiary was given status as EBN (Brazilian Shipping Company) in March 2011. With this status, the company has been able to escape cabotage rules which limit foreign companies' entrance to the market. This has given the company full rights to enter into charter contracts with oil companies in Brazil directly. The Norwegian subsidiary is primarily focusing on chartering, business development, as well as finance and accounting. Finally, the subsidiary in Cyprus is mainly focusing on administrative tasks, as financial reporting, cash management and control functions[19].

### 3.3.2 Joint venture

On 31th of May 2013 the company completed the process of establishing a 50/50 joint venture with the Brazilian investment bank BTG Pactual Oil & Gás Participacões (from now on referred to as BTG Pactual) purchasing a 50% ownership interest in the joint venture and former Brazilian subsidiary Deep Sea Supply Navegacao. Furthermore, Deep Sea Supply sold 9 AHTSs and 6 PSVs operating in Brazil to the joint venture. In addition 6 PSV newbuilds have been ordered and are expected to be delivered in 2013. The joint venture seeks to combine the parent company's knowledge and experience in the OSV

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[17] www.deepseasupply.no
[18] Deep Sea Supply, Annual Report 2012, page 4
[19] Deep Sea Supply, Annual Report 2012, page 10

industry with BTG's local presence. When the newbuilds are delivered the joint venture will be the third largest OSV owner in the Brazilian market[20].

## 3.4 Ownership structure

Deep Sea Supply is mainly owned by large institutions and private funds. The 20 largest shareholders hold approximately 70% of the company, which signals that the ownership is quite concentrated[21]. The company practice equal treatment of shareholders and the outstanding shares are all equal in class and there are no restrictions on voting rights or rights to receive dividends. The largest shareholder is Hemen Holding Ltd with 35% of the shares, which is owned by the Norwegian shipping tycoon John Frederiksen. Companies controlled by John Fredriksen are known to have an attractive dividend policy, and DESSC states that they aim to distribute retained earnings above a satisfactory working capital level as dividend. However, the CEO recently stated that Deep Sea Supply will focus on growth and not on paying out high dividends in the years coming, which is due to their expansion plans[22].

## 3.5 Fleet and charter status

As previously mentioned the company owns two different types of vessels - anchor handling tug and supply vessels (AHTS) and platform supply vessels (PSV). The fleet currently consists of 15 AHTSs and 12 PSVs and are operating in the North Sea (1 ATHS and 3 PSVs), Brazil (10 ATHSs and 6 PSVs), West Africa (2 PSVs) and Asia (4 AHTSs and 1 PSV). In addition, 6 PSV newbuilds are expected to be delivered to the joint venture in Q3 and Q4 2013, as well as 7 PSVs to the parent company in 2013 and 2014. When these newbuilds are delivered, DESSC will own and operate a total fleet of 40 OSVs[23].

The vessels are chartered to offshore service operations on spot (less than 30 days), medium and long-term contracts (more than 30 days). The medium and long-term contracts provide a fixed day rate which is index regulated and helps the company to reduce uncertainty due to volatility in the rates, providing the company with stable cash flows. However, spot contracts are used to stay exposed to a

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[20] Deep Sea Supply, Annual Report 2012, page 12
[21] Appendix 2.1 presents a overview of DESSC's shareholders
[22] Deep Sea Supply, Annual Report 2012
[23] Appendix 2.2 presents DESSC's fleet overview

potential upside during strong markets. The North Sea is the only market in the world that has a well-functioning spot market, where DESSC currently has one AHTS and one PSV operating[24].

 The medium and long-term contracts often include an option for further chartering. These option contracts give the charterers the right, but not the obligation to exercise the option at a specified strike price. If the day rates drop significantly, the charterers would be better off to charter on spot prices than on medium to long term contracts, meaning it would not be profitable to exercise the option.

As previously mentioned, Deep Sea Supply aims to balance the chartering of the vessels between medium - and long-term contracts. The company has per May 2013, 10 of 12 PSVs and 11 of 15 AHTS on term contracts. The high contract coverage of approximately 80 % secures good utilization of the fleet in 2013 and 2014, providing stable cash flows with a firm contract backlog of USD 297m[25].

## 3.6 Areas of Operations

DESSC delivers offshore services for oil companies in the North Sea, Brazil, South East Asia and Africa[26].

### 3.6.1 The North Sea

The North Sea is one of the oldest and most explored offshore sites with few large projects under construction at the moment. The area is mature and has a large share of fixed installations, which clarifies why the market mostly consists of PSVs and AHTSs. There are per April 2013 100 anchor handlers and 225 PSVs operating on both the spot and term market in the North Sea[27]. As a result of few large discoveries since the 1970s, the production of oil reached its peak in 2000 with almost 6 million barrels of oil produced per day. Ever since, the production has decreased significantly[28]. The production was on average 1.5 million barrels per day in 2012, whereas in 2013 so far, it has decreased to 1.4 million[29]. Despite a weak OSV market lately, CEO Finn Amund Nordbye, recently expressed his optimism regarding the North Sea for several years to come. Nordbye says the North Sea will be an active market in the upcoming years and hints that Deep Sea Supply will penetrate this market further.

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[24] http://deepseasupply.no/chartering
[25] Deep Sea Supply, Q1 2013 report, page 11
[26] http://www.deepseasupply.no
[27] RS Platou, Global Support Vessel Monthly May 2013, page 9
[28] Appendix 2.3 presents the historical North Sea oil production
[29] http://npd.no/no/Nyheter/Produksjonstall/2012/Desember-2012/

Simultaneously, the CEO stresses that there has been built many OSVs in this area that await those contracts[30].

### 3.6.2 Brazil

Brazil has become more popular among the oil companies since 2007 due to huge oil finds outside the country, and discoveries like the Basin, Tupi and Campos, have proven to contain huge oil reserves. The discoveries have been reported to be the largest in the Western Hemisphere in 30 years. Petrobras, the Brazilian state-owned oil company, has taken great advantage of the oil activities, and was in 2011 the 5th biggest E&P spender[31]. The boost in offshore exploration and production activities in Brazil has resulted in significant OSV market growth, which will continue to grow, as heavy investments in all offshore-related segments are needed[32].

In May 2012, the Brazilian OSV fleet (including subsea vessels) consisted of 433 vessels. Among this, 257 vessels, almost 60 %, were foreign flags, while the remaining 176 were Brazilian flagged. Foreign offshore supply vessel face challenges when conducting business in Brazil due to protective measures. The Brazilian government is committed to develop Brazil through its local content and institute favourable policies for those who commit to the country's growth. Among others, "circularization" is a regulation that gives priority to Brazilian-flagged vessels over foreign vessels. Foreign vessels in Brazil need to undergo circularization each year, meaning that the contracts will be taken over by Brazilian-flagged vessels if available. Furthermore, Special Brazilian Regime (REB) states that for each vessel ton built in Brazil by a Brazilian shipping company, 0.5X additional tons are allowed to be imported, with the privilege of a Brazilian flag. The same rule states that for each vessel ton under construction, twice the vessel tonnage of the same type is temporarily allowed to be imported with the privilege of a Brazilian flag[33]. However, due to DESSC's Brazilian subsidiary's status as an EBN (Brazilian shipping company), the company manages to escape these cabotage rules.

### 3.6.3 South East Asia

Within Asia, higher energy needs will lead to increased offshore activities and the demand for deep-

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[30] http://www.dn.no/energi/article2570727.ece
[31] Clarkson, Overview of the Offshore Supply Vessel Industry, 2012, page 4
[32] http://www.marinelink.com/news/supplying-brazils-booming345170.aspx
[33] DOF Group Brazil, 2012, page 19

water activity has amplified the need for OSVs with modern technology[34]. In South East Asia, the two countries with the greatest forecast investments within the exploration and production segment are expected to be Indonesia and Malaysia[35]. Deep Sea Supply currently has three AHTSs and one PSV on term jobs in Malaysia and one anchor handler on term work in Thailand[36].

### 3.6.4 West Africa

Oil discoveries were first made in West Africa in the early 1960s. Since then the region has evolved to become the world's third largest and active area for new offshore oil and gas developments. Over 300 OSVs are located in the area, and the market is expected to grow even more in the following years. The growing demand for OSV activity is expected to come from deep-water projects in Angola, Nigeria and Ghana. However, West Africa is affected badly by unstable political regimes, piracy and terrorism. Hijacking in West Africa, is not as common as for instance in Somalia and the Gulf of Aden, but kidnappings and robberies are affecting the market sentiment. Attacks are carried out by a mix of political militants and petty criminals, and incidents are thought to be underreported by International Maritime Bureau Piracy Reporting Centre[37].


## 3.7 Stock price development

Figure 3.2 illustrates the stock price development of DESSC, from its listening in December 2006 to present date. Throughout 2007 the stock price experienced a favourable development, increasing steadily from its initial listening price of NOK 18.50 and reaching its peak in September 2007 at NOK 27.50. However the stock fell sharply in the second half of 2008 to 2009, ending at a bottom NOK 5.63 in Mars 2009. The financial crisis with its global consequences had a tremendous effect on the oil industry. The oil price plummeted from its peak of USD147 per barrel to USD35 in just five months and the international oil companies were severely hurt, reducing the activity in the market[38]. The reduced activity directly affected the OSV market and the willingness of the investors to invest in OSV stocks, illustrating the decrease in the stock price of Deep Sea Supply. The activity in the oil industry has the last couple of years gained speed, however the stock price of Deep Sea Supply has been

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[34] http://www.offshoresupportvesselsasia.com/Event.aspx?id=842982
[35] Overview of the OSV sector in Malaysia, 2011, page 3
[36] http://deepseasupply.no/charter-status
[37] www.osvafrica.com
[38] http://www.iie.com/publications/pb/pb09-19.pdf

fluctuating around NOK 10-12, and it is clear from the graph that the stock price has not been able to get back to pre-financial crisis levels. As of 31th of May 2013 the stock price is NOK 9.35.

**Figure 3.2 – Deep Sea Supply's historical stock price**
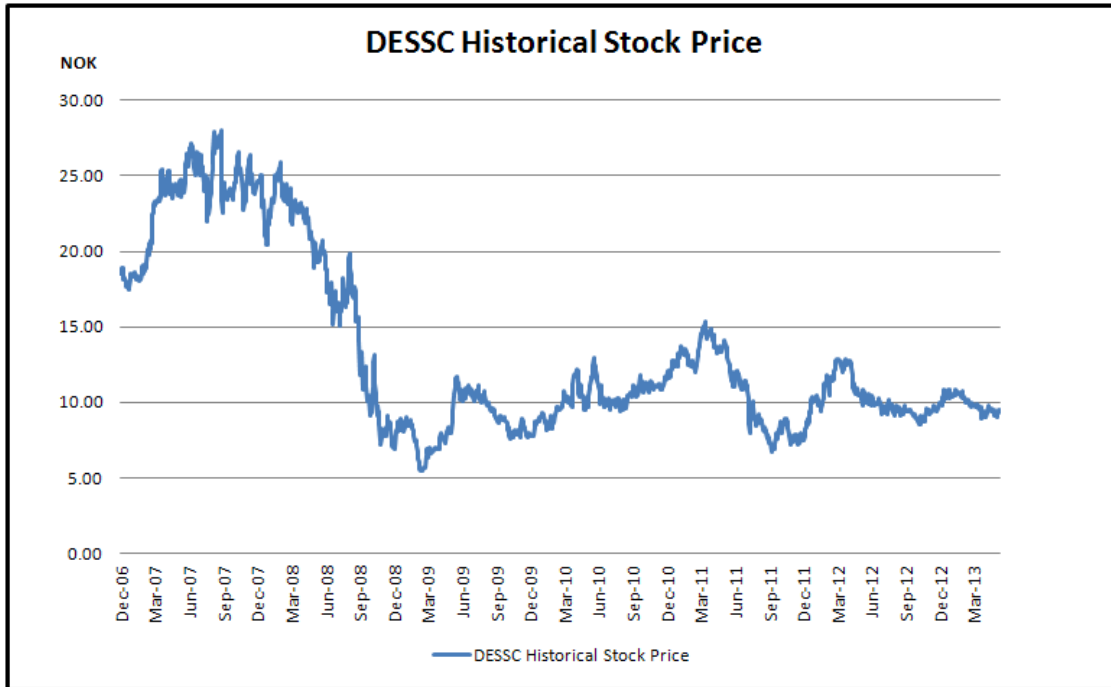


Source: Oslo Stock Exchange, http://www.oslobors.no/markedsaktivitet/stockOverview?newt__ticker=DESSC

## 3.8 Competitors – Peer group

There are many players in the offshore supply market. However, we have decided to focus on Norwegian peers listed on Oslo Stock Exchange. This should make it easier to compare market values when performing the multiple valuations. When choosing peers we emphasise the importance of choosing companies which are truly comparable, as Petersen and Plenborg defines as companies who share the same economic characteristics and outlook, and with accounting numbers based on the same quality[39]. The three companies chosen are Havila Shipping ASA, Farstad Shipping ASA and Solstad Offshore ASA.

The companies are all direct competitors and are affected by the same market dynamics and macro factors. The companies are following the International Financial Reporting Standards (IFRS) which

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[39] Petersen & Plenborg, Financial Statement Analysis, 2012, 1th ed., page 227

should lead to comparable financials. However the IFRS do allow some flexibility which is important to keep in mind when performing the multiple valuations[40].

### 3.8.1 Farstad Shipping ASA

Farstad was established in 1973 and listed on the Oslo Stock exchange in 1988. The company is now one of the largest actors in the OSV market, owning and operating a fleet of 57 vessels, containing 28 ATHSs, 26 PSVs and 3 subsea vessels. In addition the company has 7 newbuilds under construction for delivery in the period between 2013 and 2014, respectively 3 PSVs and 4 ATHSs. The company is operating globally, and has at the moment 15 vessels stationed in Brazil, 16 in the North Sea and 26 in the Indian Pacific region. The company structure of Farstad is quite similar to DESSC's, with Farstad Shipping ASA as the parent company and subsidiaries in Brazil, Australia, Singapore, Scotland and Norway. Being present with offices around the world provides the company with the advantage of being close to operations[41].

### 3.8.2 Havila Shipping ASA

Havila Shipping ASA was founded in 2003 and listed on the Oslo Stock Exchange in 2005. The company has a fleet of 28 vessels, respectively, 9 ATHSs, 14 PSVs, 3 subsea vessels and 2 RRV (rescue- and recovery vessels). Havila's main focus has been operations in the North Sea but has in the recent years started to operate in other important markets such as Brazil and Asia. Their headquarters are in Norway, and the company has established subsidiaries in Norway, Scotland, Cyprus, Singapore and Brazil. Havila has also engaged in two joint ventures, Posh Havila Pte Ltd and Acergy Havila Ltd, domiciled respectively in Singapore and Cyprus[42].

### 3.8.3 Solstad Offshore ASA

Solstad Offshore ASA began its offshore activities in 1973 and was listed on the Oslo Stock exchange in 1997. The fleet consists of 50 vessels, containing 18 CSVs (construction service vessels), 22 AHTSs, 9 PSVs and 1 DLB (derrick lay barge).The company is involved with activities worldwide, and in 2011 65% of earnings came from non-North Sea regions, mainly South America, Africa and Asia. The vessels are operated from the main offices in Norway and through subsidiaries in Scotland, Brazil,

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[40] Petersen & Plenborg, Financial Statement Analysis, 2012, 1th ed., page 232
[41] Farstad Annual Report 2012
[42] Havila Annual Report 2012

Singapore and Australia. The most important difference between Solstad Offshore ASA and Deep Sea Supply is the exposure to the Subsea market, in which Solstad Offshore has a major focus. In 2012, 55% of EBITDA was from the activities of the CSV vessels, while the AHTSs and PSVs stood for 35% and 10%, respectively[43].

### 3.8.4 Comparison

The peer companies and DESSC operate mostly within the same markets - Brazil, North Sea, Africa and Asia - with focus on high-end OSVs.

**Table 3.1 – Fleet comparison**

| Fleet composition | | | | |
|---|---|---|---|---|
| | Havila | Farstad | Solstad | DESSC |
| PSVs | 13 | 26 | 9 | 12 |
| AHTS | 10 | 28 | 22 | 15 |
| Subsea vessles | 3 | 3 | 18 | 0 |
| Others | 1 | 0 | 1 | 0 |
| **Total** | **27** | **57** | **50** | **27** |
| New builds | 0 | 7 | 2 | 13 |
| **Average age of fleet (years)** | **6** | **11** | **10** | **6** |
| Market Capitalization (USD) per 31.05.2013 | 148m | 838m | 620m | 203m |
| Contract coverage 2013 (incl options) | 70% | 65% | 70% | 78% |
| Contract coverage 2014 (incl options) | 48% | 42% | 60% | 66% |

Source: Companies' annual reports 2012

Table 3.1 presents the fleet composition of the companies. The average age of the fleets is especially interesting, where Deep Sea Supply and Havila operate a relatively young fleet with an average age of 6 years, while Farstad and Solstad have respectively 11 and 10 years average age of the fleet. The average age of the global OSV fleet is approximately 13 years[44]. This difference could present Deep Sea Supply and Havila with an advantage above the other two peers, as the market is demanding new, modern vessels. Havila and Deep Sea Supply have in comparison to Farstad and Solstad, much smaller fleet and market capitalization, however it is important to notice that Havila and DESSC are two relatively new OSV companies, established in 2003 and 2006 respectively.

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[43] Solstad Annual Report 2012
[44] Deep Sea Supply Q1 2013, p. 14

Deep Sea Supply shows the highest contract coverage among the peers, which is a measure of how many vessels of the fleet are engaged in charter contracts. The reason for Havila's lower coverage is that they have many vessels on contracts that expire in mid-2013. However, their strategy aims to secure medium to long-term charter contracts, which means that they will probably increase the coverage for 2014. Farstad on the other hand, has far more vessels on the spot market. This lowers the contract coverage, especially in the North Sea, which has been characterized by a lot of available tonnage with low rates and low utilization. High contract coverage secures the companies with stable cash flows and more predictability, which helps further strategic planning. The peer companies together with DESSC all emphasise their aim to find a good balance between spot, medium and long-term chartering.

**Figure 3.3 – EBITDA comparison**
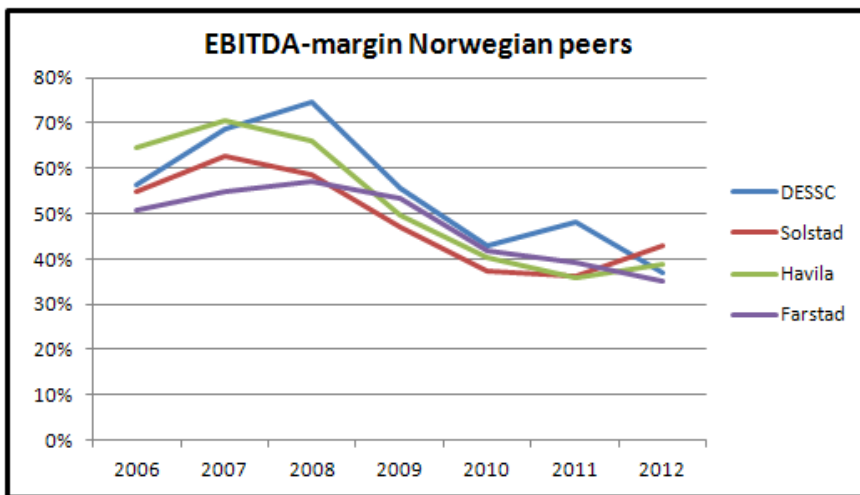


Source: Companies annual reports 2012

Figure 3.3 presents the EBITDA-margin of the peer group, which is a measurement of the companies' operating profitability[45]. As the figure illustrates, Deep Sea Supply has been able to keep an EBITDA margin above the peers in the period 2007 – 2011. All the companies have shown a negative trend since 2008, mainly attributed to the financial crisis, which had a tremendous effect on the oil and gas industry, reducing the activity in the offshore market. In addition, oversupply of OSVs in 2009 and 2010 further deteriorated the freight rates.

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[45] Appendix 2.4 presents calculations of DESSC's and peers' EBITDA-margin

# 4. Choices of theories

The purpose of this thesis is to determine a fair stock value of Deep Sea Supply in order to compare the value with the current stock price, which will enable us to give recommendations to buy, sell or hold the stock.

There are many different valuation methods one can use when performing a valuation. The different models are categorised by Petersen & Plenborg into four different groups: Present value approaches, relative valuation (multiples), liquidation and contingent claim valuation[46]. These methods are not mutually exclusive and there are advantages provided by using more than one approach when performing a valuation. All of these different approaches differ in value and user attributes and the choice of valuation method should be aligned with the type of company and industry in which it operates. We will implement the present value approach as main valuation approach and supplement with relative valuation, which will help us to assess our value estimate. We will not use the liquidation method because we regard DESSC as a going concern, and the contingent claim valuation is not used due to its complexity.

The present value approach is equivalent to what Penman calls the fundamental analysis. The approach includes a strategic and financial analysis in order to gather the needed information to forecast payoffs and finally arriving at a valuation based on those forecasts. Penman presents the fundamental analysis in an intuitive model of 5 steps, which will help structuring the thesis[47]:

**Figure 4.1 – The process of fundamental analysis**



Strategic analysis → Financial analysis → Forecasting → Valuation → Recommendation

## 4.1 Strategic Analysis

The strategic analysis plays a vital role in the valuation process and following Penman's 5 steps of fundamental analysis, the strategic analysis is step 1 - getting to know the company and the industry. The objective of performing a strategic analysis is to develop a comprehensive qualitative overview of

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[46] Petersen & Plenborg, Financial Statement Analysis, 2012, 1th ed., page 210
[47] Penman, Financial Statement Analysis and Security Valuation, 2012,3rd ed., page 85

the company's future potentials and risks presented by the company specific factors as well as external factors, macro and industry. On the basis of the findings we will be able to more accurately develop estimates for the company's financial value drivers, which in turn will lead to a more accurate valuation.

The strategic analysis will be structured as a top-down approach and divided into three parts: One external and one internal analysis, which together will form a picture of the company's strengths, weaknesses, threats and opportunities (SWOT) which will later be summarized in the third part of the strategic analysis. The strategic analysis is based on secondary information.

### 4.1.1 External Analysis

When performing the external analysis it is important to look at both macro and industry factors influencing the potentials and risks associated with the company's cash flow, making it possible to uncover both opportunities and threats. A common practice for the external analysis on the macro factors is to perform PESTEL analysis. However, we will implement Stopford's supply-demand model known as the "Shipping Market Model" performing a comprehensive market analysis of the OSV market. This will help us to assess in a structured manner all the important macroeconomic factors affecting the market. Further, we will perform a Porter's Five Forces analysis.

### *The Shipping Market Model*

The Shipping Market Model aims at improving one's understanding of how the freight rates are generated. Basically, it focuses on the demand and supply of vessels, and the balance between these two. In conventional shipping, the factors that affect demand for sea transport are the world economy, seaborne commodity trades, average haul, random chocks and transport costs. The supply part of it focuses on the world fleet, fleet productivity, shipbuilding deliveries and scrapping. Finally, the freight rate illustrates how the combination of supply and demand works[48].

In our thesis, we have our own "OSV approach." The concept and structure is the same, only that we use slightly different demand and supply factors in the analysis. Our primary demand variables consist of the world economy, the oil price, oil companies' exploration and production spending, and rig

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[48] Stopford, Maritime Economics, 2009, 3rd ed., page 135

demand, while our main supply factors consist of deliveries of OSVs and scrapping. Finally, the balance between supply and demand is illustrated through the OSV-to-rig-ratio and utilization ratios.

We believe that keeping a narrow perspective towards the OSV industry will result in better projections of the future through a better understanding of the complexities and dynamics of this industry. However, the analysis also includes some of the important factors which the PESTEL analysis incorporates.

### Porter's Five Forces

In addition to the market analysis, we will use the framework of Michael Porter known as the "Porter's Five Forces model" to identify important industry specific factors. Industry factors are factors affecting the company, which are specific for the respective industry. These factors affect the attractiveness of an industry, meaning the possibility of earning acceptable returns (ROIC > WACC). The attractiveness of an industry is often said to be controlled by the level of competition, and the more competition the less attractive the business, when considering the possibility of earning high return[49]. Michael Porter identifies five forces affecting the competition in an industry and furthermore the attractiveness of the industry: Industry rivals, customers, suppliers, potential entrants and substitute products.

The Shipping Market Model and Porter's Five Forces will enable us to identify possible opportunities and threats which will be important when assessing the future of the industry and again the future of the company with regards to level of competition and profitability.

### 4.1.2 Internal Analysis - VRIO

The internal analysis will be performed using the well-known framework VRIO, which aims to clarify which resources and capabilities the respective company possesses, and whether or not these resources generate any competitive advantages for the company. By doing this the company can develop strategies that will exploit the source of competitive advantage. VRIO stands for Value, Rarity, Imitability and Organisation, which are the four questions used to consider the advantage potential of the identified resources[50]. According to this framework, as presented in table 4.1, a resource has to be valuable, rare, hard to imitate, as well as the company has to be organised so that it can benefit on the

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[49] Petersen & Plenborg, Financial Statement Analysis, 2012, 1th ed., page 189
[50] Barney and Hesterly, Strategic Management & Competitive Advantage, 2006

resources in order to provide the company with a sustained advantage. The framework will be organised by looking at resources divided into financial, physical, human and organisational capital. After identifying the resources and capabilities of the firm, we will go through the questions of the VRIO to identify the competitive and economic implications.

**Table 4.1 – VRIO**

| Valuable? | Rare? | Costly to imitate? | Organized? | Competitve implications | Economic implications |
|---|---|---|---|---|---|
| No | | | No | Disadvantage | Below normal |
| Yes | No | | | Parity | Normal |
| Yes | Yes | No | | Temporary advantage | Above normal |
| Yes | Yes | Yes | Yes | Sustained advantage | Above normal |

Source: Barney & Hesterly, Strategic Management & Competitive advantage, 2006

### 4.1.3 SWOT

To sum up our strategic analysis and to evaluate the analysis in a structured manner we will use the SWOT analysis. This framework helps us to identify opportunities and threats presented in the external analysis, and strengths and weakness of the firm, presented in the internal analysis. The strengths and weaknesses depict the company's advantages or disadvantages over its competitors. The opportunities identify elements which could be exploited to the company's advantage, while the threats identify elements which might present the company with future difficulties and obstacles. The SWOT will be presented in a matrix combined with our chosen value drivers, and the findings will be important in our forecasting[51].

## 4.2 Choice of valuation method - The present value approach

As mentioned, we intend to perform a valuation of Deep Sea Supply using present value approaches. This value approach includes different valuation models such as the dividend discount model, the discounted cash flow model, EVA, RI and the adjusted present value model. The different approaches

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[51] Petersen & Plenborg, Financial Statement Analysis, 2012, 1th ed., page 193

all derive from the dividend discount model and because of this the different approaches are theoretically equivalent, yielding identical values[52].

The present value approach starts with strategic and financial analysis, which provides us with the needed information in order to generate projections of future cash flows that can be generated over the company's lifetime. The cash flows will then be discounted using the discount factor that reflects the risk in the cash flow and the time value of money, providing us with a value estimate of the company, which is the foundation of our recommendation. The present value approach is said to be of the more time consuming approaches due to the large amount of information that is needed. However, due to the depth in this type of analysis, it is a quite thorough approach and theoretically correct.

For our valuation of DESSC we will follow the fundamental analysis steps of Penman and use both the discounted cash flow (DCF) model and the economic value added model (EVA). Both models should yield identical value estimates as long as the input used are equivalent, making it possible for us to certify and control that the valuation is correctly executed.

### 4.2.1 Discounted cash flow model

The DCF model is argued to be the most popular among the present value approaches. The purpose of the model is to find the firm's intrinsic value by reviewing the firm's fundamentals. The model relies on cash flow data, and values the company by discounting the future cash flows using cost of capital as discount factor. The cash flows are estimated on the basis of the analyst's projections, based on the strategic and financial analysis[53].

There are two approaches of the DCF, one estimating the enterprise value of the company and one estimating the equity value of the company. The enterprise value approach uses the free cash flow to the firm (FCFF) and the WACC as cost of capital, which according to the model should be the only factors affecting the market value of a company. This model incorporates both the value of equity held by owners and the value of debt held by creditors. In contrast the equity value approaches uses the free cash flow to the equity (FCFE) and the investors required rate of return as the cost of capital and is limited to the value held by the equity owners. In short, the difference between the two is whether or

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[52] Petersen & Plenborg, Financial Statement Analysis, 2012, 1th ed., page 212
[53] Petersen & Plenborg, Financial Statement Analysis, 2012,1[th] ed., page 216-219

not the transactions with debt holders are accounted for or not, however both should yield the same market value of equity.

For our valuation of Deep Sea Supply we used the enterprise value approach with a two-stage model. The two-stage model divides the projections of the cash flows into two periods - the forecast horizon and the terminal period. In the forecast horizon the growth rate used is based on the company's outlook, which is assessed through our strategic and financial analysis. The forecast growth rate may however differ from the long-term growth rate. In the terminal period the growth rate will be assumed constant and reflects the long-term growth of the economy in which DESSC operates, also known as "steady state". The length of the forecast horizon depends on which stage in the company lifecycle the company is located, and how long it is expected to take before the company reaches "steady state". According to Petersen & Plenborg the forecast horizon will typically be longer for growth companies than more mature companies. Our decision on the length of forecast horizon will be explained in our forecasting chapter. The enterprise value approach with a two-stage model is estimated as following:

$$Enterprise\ value\ two\ stage\ model_0 = \sum_{t=1}^{n} \frac{FCFF_t}{(1+WACC)^t} + \frac{FCFF_{n+1}}{WACC-g} \times \frac{1}{(1+WACC)^n}$$

### 4.2.2 Economic Value Added model

The EVA model has been chosen as a supplement to the DCF model in order to make sure that the valuation is carried out correctly. The EVA is an excess return approach, which in contrast to the DCF relies on accrual accounting data, not cash flow data. However the two approaches should yield identical values of the company as long as they are based on the same input. If this is not the case it signals errors in the construction or implementation of the valuation. The value of the company is according to the EVA model determined by the initial invested capital plus the present value of all future EVAs, using the invested capital from last fiscal year as starting point and EVA defined as[54]:

$EVA = (NOPAT_t – WACC \times Invested\ capital)$

Similar to the DCF model, the EVA model can be presented as a two-stage model, with one forecast horizon and terminal period:

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[54] Petersen & Plenborg, Financial Statement Analysis, 2012, 1th ed., page 220

$$EV_0 \text{ two stage model} = \text{Invested capital}_0 + \sum_{t=1}^{n} \frac{EVA_t}{(1+WACC)^t} + \frac{EVA_{n+1}}{WACC - g} \times \frac{1}{(1+WACC)^n}$$

### 4.2.3 Assumptions of the DCF and the EVA models

In order to make sure that the DCF and the EVA models yield identical value estimates a few assumptions need to be incorporated. The DCF rests on the assumption that all excess capital are paid out as dividend or invested in projects with NPV = 0. The EVA model rests on the clean surplus assumption, stating that all revenues, expenses, gains and losses in the forecast period are recognized in the income statement[55]. Both models also rest on the going concern assumptions, which assume that Deep Sea Supply will continue its operations in perpetuity.

### 4.2.4 The relative valuation approach

As a supplement to the present value approach we will include a valuation method based on multiples. This approach is considered attractive due to its simplicity and is performed through an analysis of multiples of comparable peer companies. The companies chosen will form an industry average that can be compared to DESSC, making it possible to assess whether or not the stock can be considered under- or overvalued. The multiple valuations depict what investors are willing to pay for, e.g. one unit of earnings, and in contrast to the present value its approach offers a more objective valuation as it considers other investors' behaviour rather than subjective forecasts. This valuation method will help us to gain a better understanding of the accuracy of our value estimate. There are several multiples that can be used in a relative valuation, and one can separate between enterprise-value-based multiples and equity-based multiples. In our valuation of Deep Sea Supply we will apply multiples from both groups and calculate the EV/EBITDA, P/E and P/CF[56].

Even though the approach offers a "quick" and simple value estimate, it has some disadvantages, for instance it is relatively easy to manipulate as well as the fact that it is dependent on which companies that are chosen. These companies have to be truly comparable, and depending on which multiples used there are several assumptions that have to be fulfilled in order to generate an unbiased value estimate.

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[55] Petersen & Plenborg, Financial Statement Analysis, 2012, 1th ed., page 218
[56] Petersen & Plenborg, Financial Statement Analysis, 2012, 1th ed., page 226-235

For example differences in capital structure and depreciation may impact the multiples, leading to ambiguous results.

# 5. Strategic Analysis

As previously mentioned, we are dividing the strategic analysis into an external and internal part. Within the external analysis we will focus on a market analysis using the Shipping Market Model and the Porters Five Forces model, while we take a closer look at the VRIO model in the internal analysis. In the end we intend to gather the information in a SWOT analysis.

## 5.1 External analysis

We will in the following chapters perform an analysis of the external factors effecting Deep Sea Supply through the Shipping Market Model and Porter's Five Forces.

### 5.1.1 The Shipping Market Model

In order to improve our understandings of what is going on in the market, we will use a theoretical explanation of how the freight rate market works. In order to do this we will apply the shipping market model, which focuses on demand and supply of ships, and the balance between these two.

### *Global demand for OSVs*

In his book Maritime Economics, Stopford explains that there are five main variables influencing the demand for sea transport: The world economy, seaborne commodity trades, average haul, random shocks and transport costs[57]. However, these factors influence the "traditional shipping market," which contains dry bulk ships, container vessels and oil tankers. Stopford does not include the offshore market in his book. The factors affecting demand in the offshore supply vessel market are slightly different. In this thesis we chose to take a closer look at the world economy, the oil price, the oil companies' exploration and production (E&P) spending and oil rig demand.

**The world economy and the oil price**

The single most important impact on ship demand is the world economy. In traditional shipping there are two different aspects of the world economy that may change the demand for sea transport - the business cycle and the trade development cycle. With regards to the OSV market, the business cycle

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[57] Stopford, Maritime Economics, 2009, 3rd ed., page 136

lays the foundation for freight cycles, and will thus be focused on in this section. Stopford argues that the business cycle arises from a combination of external and internal factors. The internal factors refer to the dynamic structure of the world economy, which leads to a cyclical rather than a linear growth path[58]. External factors are for instance wars and sudden changes in the price of crude oil, which cause an unexpected change in demand for OSVs.

With respect to the OSV market, the oil price is paramount. An increase in price for oil will lead to increased exploration and production (E&P) investments for the oil companies, which converts to higher demand for the services that the OSVs provide. The oil price has a close relationship with the world economy. Normally, a higher increase in world GDP will lead to higher oil price due to increased demand. The relationship between the world economy, measured in gross domestic product (GDP) and the demand for oil, measured in the price for Brent crude oil per barrel, is illustrated in figure 5.1

**Figure 5.1 – The relationship between GDP and the oil price**



Source: www.imf.org  http://www.bp.com
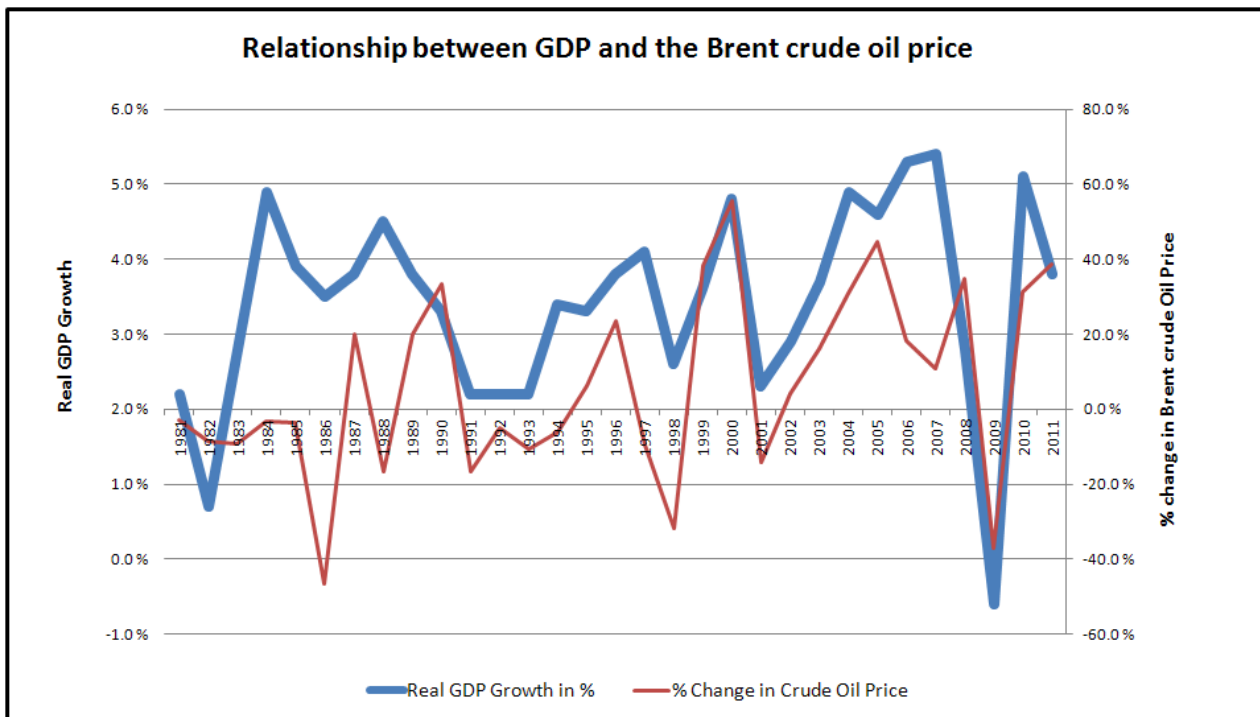
As illustrated, the world GDP and the oil price follow each other quite closely. Sometimes there can be

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[58] Stopford, Maritime Economics, 2009, 3$^{rd}$ ed., page 137

some time-lagging between the two factors, such as when the growth in the real GDP went south in 2008, but the Brent crude oil price continued to grow for another year. Nevertheless, there is a high positive correlation between the two parameters.

In order to validate the importance of the oil price, the OSV freight rates are compared with the Brent crude oil price measured in USD per barrel in figure 5.2[59].

**Figure 5.2 – The relationship between the Brent crude oil price and global OSV rates**
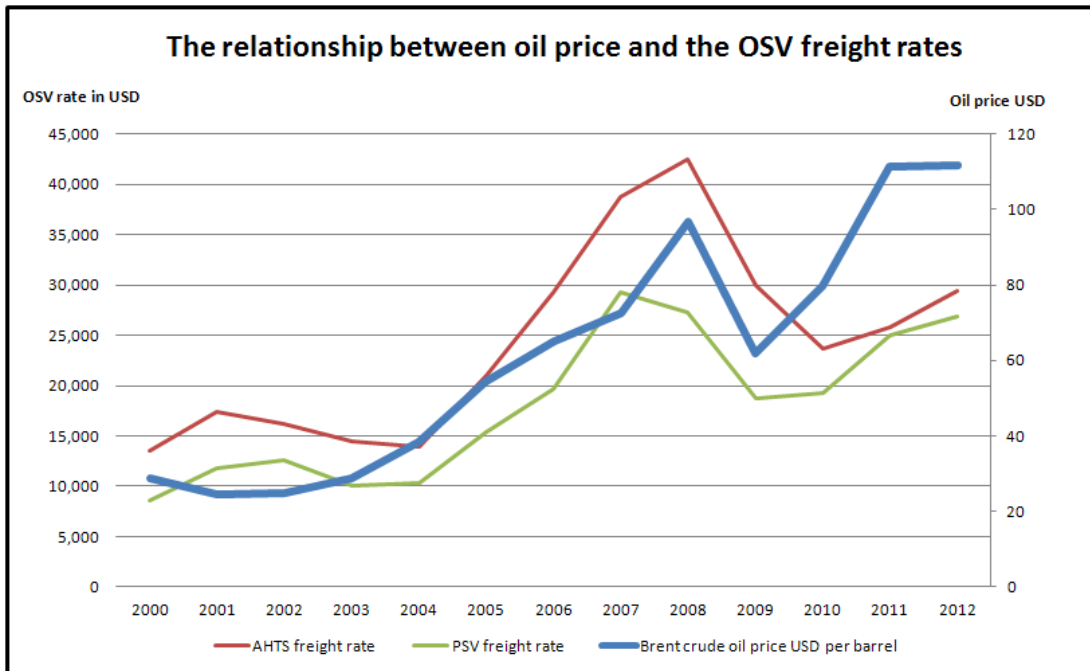


As illustrated, the rates for OSVs are correlated with the development in the price for oil, which confirms the importance of the oil price with regards to the OSV industry. The oil price affects OSV demand through a channel of links as illustrated in figure 5.3:

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[59] Appendix 3.1 presents the Brent crude oil price and OSV rates

**Figure 5.3 – Macro factors stimulating OSV demand**

| Steady global GDP growth | → | High energy demand and oil price | → | High E&P spending | → | Increased offshore activity | → | Robust OSV demand |

Source: Clarkson, Overview of the Offshore Supply Vessel Industry, 2012, page 3

A steady real growth in the global GDP leads to high energy demand and oil prices, which results in the oil companies spending more on E&P. Finally, this converts into higher demand for the services that the OSV industry provides. IMF has estimated that the real GDP is set to annually grow with between 4.1% and 4.5% in the period 2013 - 2017[60], which should stimulate the oil price. The World Bank has projected that the Brent crude oil price will be kept steady at approximately USD 100 per barrel until 2015[61]. With a business environment surrounded by stable macro factors the OSV industry is set for further growth in years ahead. In the following sections, we more thoroughly look at the drivers of OSV demand through offshore rig activity and E&P spending.

## Offshore rig activity

Offshore rig activity is a reliable driver of OSV demand as an increase in number of oil rigs leads to a higher demand for OSV services. The offshore rig activity declined in 2009 and 2010, which resulted in deteriorating OSV freight rates these years[62]. In 2011 and 2012 the global rig demand increased, which consequently led to an OSV market in favour of vessel owners with strong growth in the OSV term rates. Forecasts compiled by IHS Petrodata indicate a stronger demand of rigs until 2015. The sector experienced a lot of orders in 2011 and 2012, and many of these units will go into the fleet the next couple of years[63]. Every region in the world displays a positive demand for oil rigs, and the accumulated world growth in demand of oil rigs exceeds 100 rigs. The increased offshore rig activity should result in higher E&P investments and a robust OSV demand.

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[60] http://www.imf.org/external/pubs/ft/weo/2012/01/pdf/tables.pdf
[61] Appendix 3.2 presents the oil price forecast
[62] Appendix 3.3 presents the offshore rig activity
[63] IHS Petrodata

**Exploration and production (E&P) investments**

Exploration and production (E&P) spending is one of the most important determinants for activity within the OSV market as it depicts the oil companies' willingness to invest in the offshore service market. It is quite vulnerable to shocks in the world economy, and can quite easily be put on hold by the oil companies, but once put on hold it is expensive and time-consuming to restart the process[64]. The OSV industry is consequently reliant on the oil companies´ spending, which makes it to some extent risky. For instance, in 2009 the E&P investments plummeted with 13 %, leading to the PSV and AHTS freight rates deteriorating with 31 % and 29 %, respectively[65].

With the exception of 2009, E&P spending has been rising steadily over the years due to an increasingly more challenging access to resources for the oil companies. The oil companies invested heavily in 2010 – 2012 with an accumulated growth of 37 %. As a result of this aggressive investing, the oil service industry's total revenues increased from approximately USD 190bn in 2009 to a roughly estimation of USD 260bn in 2012. The E&P spending is predicted to increase with 9.3 % and 10 % in 2013 and 2014, respectively, which should further increase the demand for the OSVs.

*Global demand forecast of OSVs*

The outlook for OSV demand in the years to come appears optimistic. To sum up, real GDP is estimated to grow strongly and steadily in the future, while the Brent crude oil price is forecasted to be held steady at high levels. With strong macro factors, the primary drivers for the OSV market - rig demand and E&P spending –should be strengthened.

While the forecasts of the OSV drivers display positive signals, they will not necessarily provide a boost for all vessel classes or in all regions, but should however increase the demand for the OSVs on a general basis. Below we analyse the global demand of the different classes of PSVs and AHTSs.

**Global demand forecast of PSVs**

In table 5.1 we have summarised the demand for all the PSV classes until 2015. IHS Petrodata has forecasted that the global demand of PSVs will grow from 838 vessels in Q3 2012 to 1,068 in Q4 2015, which equals an increase of 27 %. The trend is as illustrated an increasing demand for large PSVs.

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[64] www.offshore.no

[65]Appendix 3.4 presents historical E&P spending while appendix 1.1 presents historical OSV freight rates

Demand for PSVs between 3,000 and 3,999 is forecasted to be the strongest with a growth of 85 vessels which equals 29 % when comparing the third quarter of 2012 with the final of 2015. PSVs larger than 4,000 dwt are forecasted to have an increase of 63 vessels, which also equals 29 %. The demand for the two smallest classes of PSVs is forecasted to increase with 33 and 49 PSVs, respectively.

**Table 5.1 – Demand forecast of PSVs**

| Global demand forecast of PSVs 2012-2015 | | | | | | |
|---|---|---|---|---|---|---|
| | Q3 2012 | Q4 2013E | Q4 2014E | Q4 2015E | Growth | Growth in % |
| Demand PSVs > 4,000 dwt | 215 | 244 | 262 | 278 | 63 | 29 % |
| Demand PSVs 3,000 - 3,999 dwt | 289 | 331 | 357 | 374 | 85 | 29 % |
| Demand PSVs 2,000-2,999 dwt | 107 | 128 | 137 | 140 | 33 | 31 % |
| Demand PSVs < 2,000 dwt | 227 | 269 | 276 | 276 | 49 | 22 % |
| Total | 838 | 972 | 1032 | 1068 | 230 | 27 % |

Source: IHS Petrodata

Oil is frequently being discovered in the deep-water segment and further away from shore than previously[66]. Consequently, this has led to a growth in deep-water drilling and subsequent production is expected to boost term work for the largest and most capable sector of the PSV market.

**Global demand forecast of AHTSs**

IHS Petrodata forecasts the global demand for all classes of AHTSs[67] to increase from 674 vessels in Q3 2012 to 816 in Q4 2015, which is a growth of 142 vessels or 21%. As table 5.2 illustrates, the demand for anchor handling tug supply vessels exhibits the same trend as with PSVs, with larger AHTSs being more attractive than smaller ones. Large AHTSs (bigger than 15,000 bhp) has the strongest growth with a demand for 55 additional vessels, which equals an increase of 37% in the period 2012 - 2015, followed by medium-sized AHTSs with a demand for 43 additional vessels (22% growth). The smallest class of AHTSs is forecasted to grow with only 13%.

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[66] Appendix 3.5 presents the exploration trend
[67] AHTSs smaller than 6,000 bhp are excluded

**Table 5.2 - Global demand forecast of AHTSs**

| Global demand forecast of AHTSs 2012-2015E | | | | | | |
|---|---|---|---|---|---|---|
| | 3Q 2012 | 4Q 2013E | 4Q 2014E | 4Q 2015E | Growth | Growth in % |
| Demand AHTS > 15,000 bhp | 147 | 183 | 192 | 202 | 55 | 37% |
| Demand AHTS 10,000 - 14,999 bhp | 198 | 219 | 235 | 241 | 43 | 22% |
| Demand AHTS 6,000 - 9,999 bhp | 329 | 364 | 373 | 373 | 44 | 13% |
| Total | 674 | 766 | 800 | 816 | 142 | 21% |

Source: IHS Petrodata

To sum up, demand for OSVs seems strongest for large high specification tonnage, and with increasing exploration in harsh deep-water environments the future of the most advanced vessels appears to be optimistic.

## *Global supply of OSVs*

The supply of PSVs and AHTSs is determined by deliveries of vessels from the shipyards to the ship owners, and scrapping of the ships when their economic lives are over. In general, building a vessel may take up to a year, but if the shipyards are busy, it may take them to 2-3 years to deliver, which prevents the market from responding swiftly to any unexpected increases in demand for OSVs. The OSV owners usually depreciate their vessels over a period of 30 years, meaning that the economical lives of the vessels are over after this age[68]. With such a high life expectancy only a small proportion of the fleet is scrapped every year. Consequently, the adjustment of supply changes in the market is measured in years rather than in months. In this chapter we are focusing on the supply of OSVs and how this adjustment process is controlled.

## The players who control supply

In terms of conventional shipping, the supply of vessels is controlled or influenced by a group of five players: Ship owners, charterers, shipyards, financial institutions and the several different authorities who regulate and make rules for safety[69]. In this thesis, we chose to focus on three of these groups: The ship owners, the charterers (the oil companies) and the shipyards. Ship owners are the primary players as they order new vessels, scrap old ones and decide when to lay up tonnage. The charterers may become owners of the vessels themselves or they influence the ship owners by chartering the vessels.

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[68] Deep Sea Supply Annual Report 2012, page 11
[69] Stopford, Maritime Economics 3rd edition, page 150

The shipyards build vessels based on what the ship owners predict about the future. Together these three players influence the supply of the OSV industry, and thereby the freight rate of AHTSs and PSVs.

## The shipbuilding industry - orders and deliveries

The shipbuilding industry plays an active part in the fleet adjustment process. The level of output adjusts to changes in demand, but only over long periods due to the time-lag between ordering and delivering of vessels. Orders must be placed by vessel owners on the basis of an estimate of future demand, and in the past these estimates have often proved to be wrong[70]. For example, very few OSV owners predicted the financial crisis and the economic downturn it would cause in the shipping markets in 2009, and ordered numerous OSVs in the years prior to the crisis[71]. In 2009 the rates plummeted, but regardless of this the number of deliveries reached an all-time-high in 2009 and only decreased with a very few in 2010. In 2011, two years after the rates dived, the additional supply of PSVs and AHTSs was finally restrained. In 2012 the numbers of deliveries did not change much, and in 2013 it is estimated to remain stable, while it will decrease to some extent in 2014.

**Figure 5.4 – Annual deliveries of OSVs**
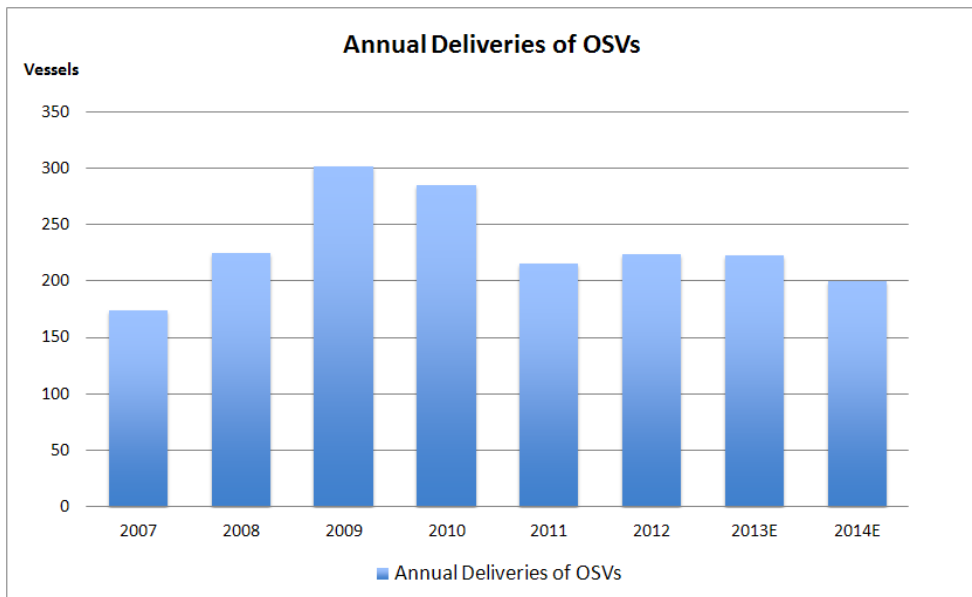


Sources: Platou and Clarkson

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[70] Stopford, Maritime Economics 3rd edition, page 157
[71] Appendix 3.6 presents the historical ordering activity

**Scrapping**

Historically, the OSV sector has witnessed low scrapping every year, except of 2009 where the demolitions touched a record high with 34 vessels due to a troublesome year for vessel owners. In 2010 the rates turned for PSVs[72], but continued to drop for AHTSs, which is why 19 ships were scrapped. In 2011 and 2012 the market favoured the OSV owners with increasing rates for both PSVs and AHTSs, which resulted in fairly low scrapping.

The OSV industry expects demolitions to increase to 20 and 31 vessels, in 2013 and 2014, respectively. This increase in scrapping is not related to demand changes as we have assessed the demand for OSVs to be strong in the following years. Rather, it is because national oil companies demand younger vessels for long-term charters, as well as competition from higher specifications vessels is increasing. This trend is shown in the world fleet with younger vessels dominating[73].

**Figure 5.5 – Annual scrapping of OSVs**
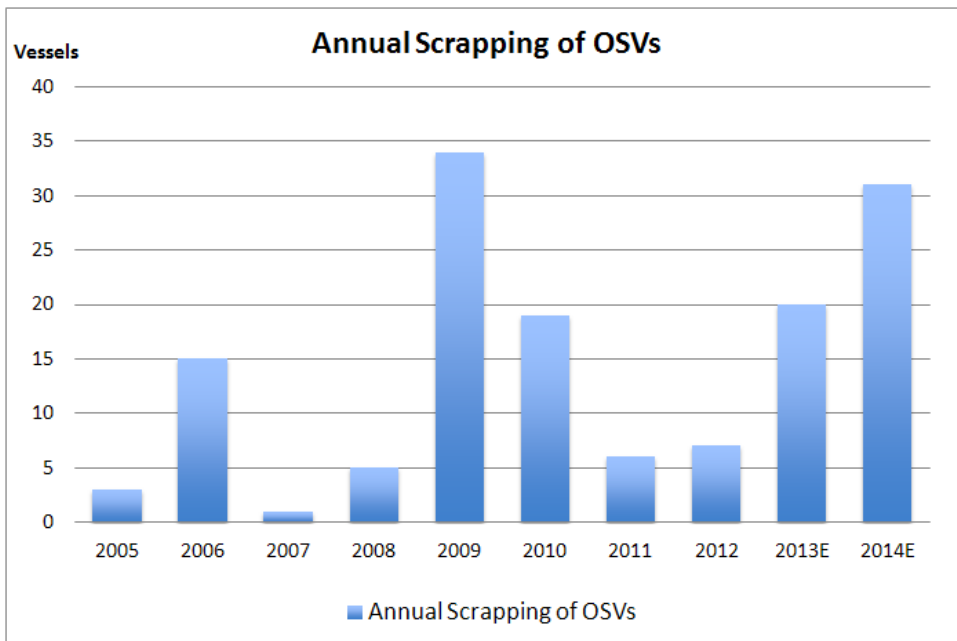


Source: Platou and Clarkson.

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[72] Figure 2.1

[73] Appendix 3.7 presents the source of the OSV world fleet and the respective age profile

**The OSV fleet**

As of April 2013 the world OSV fleet had reached 3,052 vessels, divided into 1,873 AHTSs and 1,179 PSVs[74]. Figure 5.6 shows the historical development in the OSV fleet from 2006 to 2012 as well as the forecasted fleet three years ahead[75]. The red bars represent the total fleet of offshore supply vessels whereas the blue line illustrates the fleet growth in %. In 2006 the total fleet existed of approximately 1,800 PSVs and AHTSs. Due to very high levels of deliveries and low levels of scrapping (with the exception of 2009) the OSV fleet grew increasingly from 2006 to 2009, and accounted for an accumulated growth of 35 %. From 2010 – 2012, the pace slowed down, but the fleet still grew with 24 %, and reached a total of 2,981 vessels ultimo 2012. However, it looks like 2013 will be a year with many deliveries as the fleet growth is set to increase with approximately 7% and reach 3,200 vessels. In 2014 and 2015 the OSV fleet growth will slow down, and is estimated to have an accumulated growth of only 5 %, and reach 3,350 vessels ultimo 2013.

**Figure 5.6 – Annual fleet in OSVs**
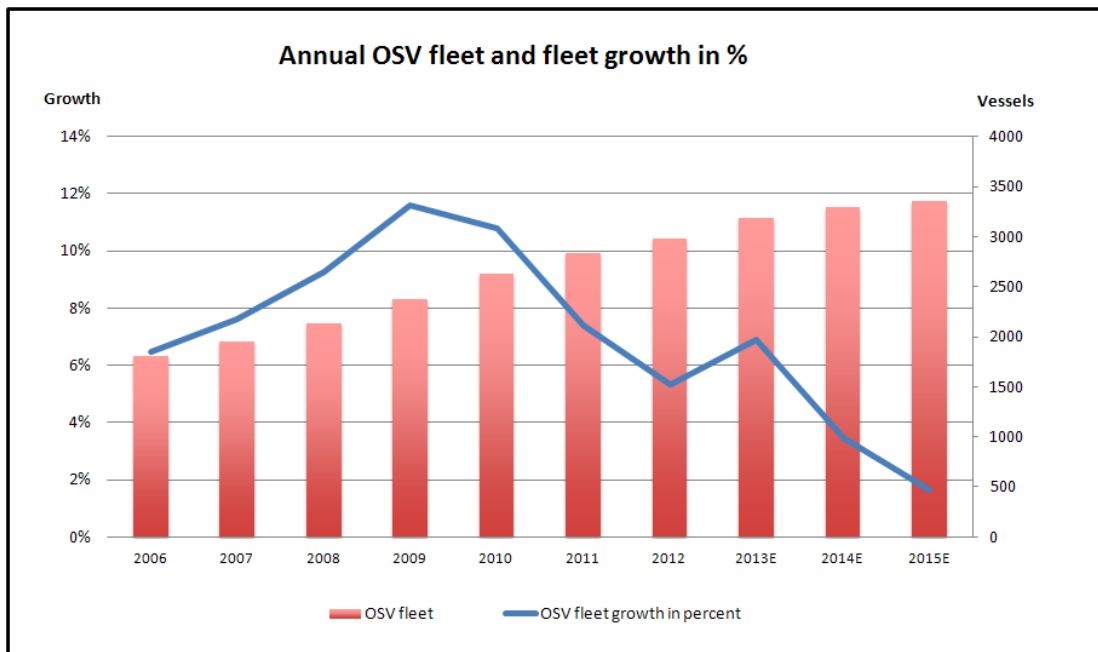


Source: Appendix 3.8

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[74] Platou, Global Support Vessel Monthly May 2013, page 9
[75] Appendix 3.8 presents the fleet growth and the estimated fleet growth

*Global supply forecast of OSVs*

In the first nine months of 2012, 110 OSVs were ordered by ship owners, with 60 of those belonging to the biggest class of PSVs (larger than 4,000 dwt). The newbuild order in this class of PSVs is now so vast that it alone could meet the forecasted demand of the entire PSV market until 2015, and still leave vessels available. Oversupply of OSVs, particularly large PSVs, imposes a treat for the OSV owners. In this chapter we take a closer look at the expected newbuilds that will enter into the market and affect the supply of OSVs in years ahead.

**Global supply forecast of PSVs**

The global fleet of PSVs consisted of 1,153 PSVs in Q3 2012. The expected newbuilds to be delivered were 338 PSVs at this time, meaning that the total supply of all classes of PSVs will consist of almost 1,500 vessels in Q4 2015[76]. In table 5.3 we have categorised the different classes of PSVs and their respective forecasted supply growth. The supply forecast corresponds to the demand pattern that large high-end PSVs will remain the most attractive in the future. The biggest class of PSVs, vessels bigger than 4,000 dwt, is estimated to grow with 230 vessels which equals a growth of 87%. The supply of the next biggest class of PSVs is estimated to increase with 87 ordered vessels which represent a growth of 27%. The newbuild backlog for the two smallest PSV classes consists only of 9 and 12 PSVs, respectively.

**Table 5.3 – Global forecast of PSV supply**

| Global supply forecast of PSV 2012 - 2015 | | | | | | |
|---|---|---|---|---|---|---|
| | Q3 2012 | Q4 2013E | Q4 2014E | Q 4 2015E | Growth | Growth in % |
| Supply PSV > 4,000 dwt | 265 | 376 | 442 | 495 | 230 | 87 % |
| Supply PSV 3,000 - 3,999 dwt | 328 | 390 | 415 | 415 | 87 | 27 % |
| Supply PSV 2,000 - 2,999 dwt | 153 | 160 | 162 | 162 | 9 | 6 % |
| Supply PSV < 2,000 dwt | 407 | 417 | 419 | 419 | 12 | 3 % |
| Total | 1153 | 1343 | 1438 | 1491 | 338 | 29 % |

Source: IHS Petrodata,

The large spread between supply of large and small platform supply vessels means that the market is craving large, sophisticated PSVs that can handle the rough conditions far from shore in the deep-water

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[76] IHS Petrodata

segment where oil discoveries are being made for the moment. At the same time, this large forecasted supply growth might cause an oversupply in the PSV market in the years ahead.

**Global supply forecast of AHTSs**

As of Q3 2012, the estimated global supply forecast of AHTSs was 112 vessels with deliveries until Q4 2015[77]. The greatest increase in the fleet will happen in 2013 as 91 of the AHTSs are predicted to be delivered. With a fleet of 1,015 AHTSs in Q3 2012, the total supply of anchor handlers is expected to equal 1,127 vessels in Q4 2015, which is a growth of 11%. Supply growth will be greatest for large AHTSs (bigger than 15,000 bhp) with an estimated increase of 46 vessels, which equals a growth of 22%. The smallest class of AHTSs is also estimated to grow with 46 vessels, but the growth is only 9% due to a larger fleet of small AHTSs in Q3 2012. Medium-sized anchor handlers have the smallest estimated supply growth with only 20 vessels.

**Table 5.4 – Global supply forecast of AHTSs**

| Global supply forecast of AHTSs 2012 - 2015 | | | | | | |
|---|---|---|---|---|---|---|
| | Q3 2012 | Q4 2013 | Q4 2014 | Q4 2015 | Growth | Growth in % |
| Supply AHTS > 15,000 bhp | 213 | 245 | 258 | 259 | 46 | 22% |
| Supply AHTS 10,000 - 14,999 bhp | 266 | 286 | 286 | 286 | 20 | 8% |
| Supply AHTS 6,000 - 9,999 bhp | 536 | 575 | 582 | 582 | 46 | 9% |
| **Total** | **1015** | **1106** | **1126** | **1127** | **112** | **11%** |

Source: IHS Petrodata

*Future balance between global supply and demand of OSVs*

This part of the shipping market model concerns the adjustment mechanism linking supply and demand. In order to reflect the balance between these two, we are going to have a closer look at the OSV-to-rig-ratio and utilization of OSVs.

**OSV-to-rig-ratio forecast**

The OSV-to-rig ratio is a reliable measure of the balance between demand and supply of offshore supply vessel as the ratio depicts how many OSVs are needed per oil rig. A low ratio indicates a high number of rigs related to OSVs, which is a situation characterised as a market in favour of the vessel

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[77] AHTSs smaller than 6,000 bhp are excluded

owners due to high rig activity and therefore stronger OSV demand[78]. In figure 5.7, both a historical and a forecast of the OSV-to-rig ratio is illustrated[79]. As shown, the ratio was very low in 2008, meaning that the number of oils rigs compared to OSVs was unusually high, leading to strong OSV freight rates this year[80]. However, the ratio increased significantly from 2008 to 2010, resulting in lower utilization and OSV term rates. In 2011 and 2012 the OSV-to-rig ratio stabilised, which consequently led to a better market for the vessel owners. The investment bank Pareto estimates that the ratio will decrease to 3.9 in 2013 and to 3.6 in 2014 and later on, reflecting the positive market sentiment and expected high rig activity in years ahead. The low expected OSV-to-rig ratio means that the supply of oil rigs will be stronger than the supply of OSVs. Ultimately, this should lead to higher utilization ratios and freight rates for AHTSs and PSVs in the years to come.

**Figure 5.7 – OSV-to-rig ratio**
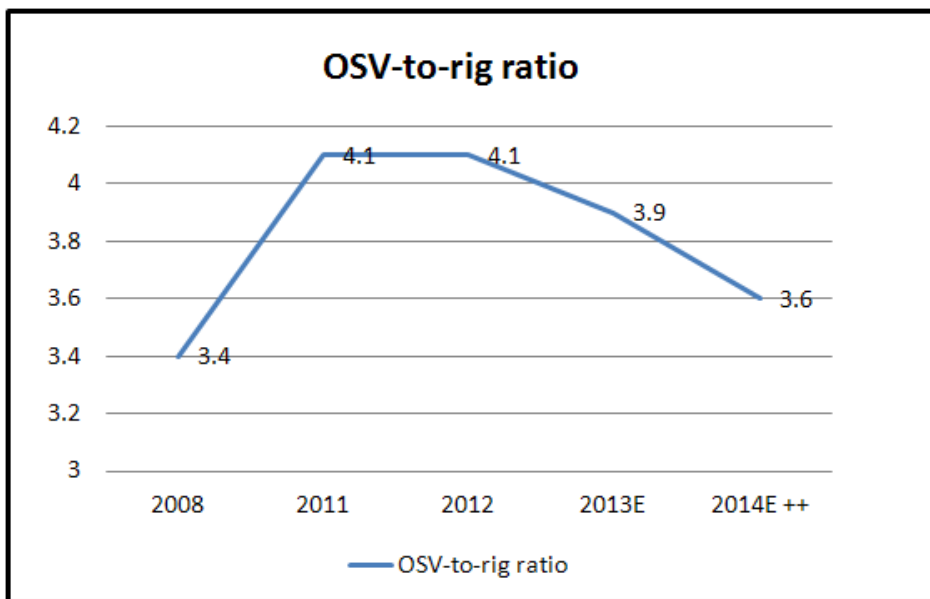


### Global utilization forecast

From earlier, we established that the outlook for the demand of OSVs in the future is positive. Real world GDP is forecasted to grow strongly and steadily, the Brent crude oil price will remain at a stable and high level and rig-demand is expected to increase. These factors influence the investments made by the oil companies, and E&P spending is forecasted to increase with 10% yearly in 2013 and 2014.

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[78] http://www.ocbcresearch.com/pdf_reports/company/Nam%20Cheong-121120-OIR.pdf
[79] Appendix 3.9 presents the source of the OSV-to-rig ratio
[80] See figure 2.1 for OSV freight rates

Furthermore, the OSV-to-rig ratio shows a declining trend, which translates into better utilization ratios of OSVs. Deep-water activity will continue to develop and grow, which ultimately increases the demand for the largest OSVs in order to cope with the harsh conditions.

**Table 5.5 – OSV utilization**

| OSV demand, supply and utilisation | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **PSV** | | | | | | |
| | Q3 2012 | Q4 2013E | Q4 2014E | Q4 2015E | Increase | % change |
| Demand | 838 | 972 | 1,032 | 1,068 | 230 | 27.4% |
| Supply | 1,153 | 1,343 | 1,438 | 1,491 | 338 | 29.3% |
| Utilization | 72.7 % | 72.4 % | 71.8 % | 71.6 % | -1.1 % | -1.1 % |
| **AHTS** | | | | | | |
| | Q3 2012 | Q4 2013E | Q4 2014E | Q4 2015E | Increase | % change |
| Demand | 674 | 766 | 800 | 816 | 142 | 21.1% |
| Supply | 1,015 | 1,106 | 1,126 | 1,127 | 112 | 11.0% |
| Utilization | 66.4 % | 69.3 % | 71.0 % | 72.4 % | 6.0% | 6.0 % |

Source: IHS Petrodata

From table 5.5 we can see that the PSV demand is forecasted to increase with 230 PSVs from Q3 2012 to Q4 2015, which translates into a growth of 27%. The supply however, is forecasted to increase even more with 338 deliveries of PSV in the same time period, which equals a growth of 29%. Due to higher growth in supply than demand of PSVs, the utilization is estimated to decrease with approximately 1%. The oversupply is caused by many deliveries of the biggest class of PSVs. However, it is kept at a minimum due to an undersupply of the other classes of PSVs. AHTS demand is estimated to grow with 21%, while the estimated supply growth is only 11%. This undersupply of AHTSs will cause a 6% increase in the utilization ratio. As with PSVs, the largest increase in demand for AHTS will be seen in the biggest class.

*Regional markets*

Until now we have looked at global trends when assessing the supply and demand forces in the OSV industry, as well as forecasts. Following, we intend to focus on the regional markets in which DESSC is involved.

**North West Europe (The North Sea)**

The North Sea has the recent years been characterized by oversupply of vessels, which is still present, leading to low utilization ratios and freight rates. The fleet is significantly larger than ever before, which has led to some vessel owners selling of or scrapping the oldest vessels in their fleets[81].

The current oil-rig demand forecasts indicate a strong market in favour of OSV owners in the North Sea. The Norwegian and UK semi-submergible rig markets[82] are particularly tight until 2015, with every unit in usage in Norway and the UK, with limited availability thereafter. The jack-up rig market[83] appears to be even tighter, with an undersupply of jack-ups in the North Sea forecasted until late 2014 at least. This should stimulate the OSV market, and demand for the largest tonnage is proving to be high. That trend looks certain to continue up to 2015, with the largest class of PSVs particularly in demand[84]. The fixture trend for PSVs trading the North Sea spot market also shows a positive picture for OSV vessel owners of very large PSVs. During Q3 2012, there were 55% more fixtures on the spot market for vessels with a dwt of greater than 4,000, than for PSVs with 3,000-3,999 dwt. This means that many of the oil companies in the North Sea are favouring these large, sophisticated and newly delivered vessels for supply work. New discoveries in the North Sea during the last couple of years have also provided a big boost to vessel owners, as such finds obviously increase demand for OSVs[85].

Despite a current strong PSV market, the AHTS market struggles with utilization ratios at approximately 50 %[86]. With approximately 100 AHTSs to be delivered globally in 2013[87] and a low forecasted demand for AHTS in the North Sea[88], we believe that this OSV segment will continue to struggle with low utilization ratio in 2013. However, in 2014 and 2015, the forecasted global supply increase of anchor handlers is small, and we believe therefore that this market will improve.

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[81] IHS Petrodata
[82] A semi-submergible rig is a type of rig that can float in the ocean
[83] A jack-up rig is a type of rig that can be jacked up from the seabed
[84] See appendix 3.10 for North Sea OSV demand forecast
[85] www.offshore.no
[86] Platou, Global Support Vessel Monthly May 2013, page 11
[87] See table 5.4

## Latin America (Brazil)

In the end of 2012 DESSC announced a joint venture with the Brazilian investment bank BTG Pactual. Being one of the largest investment banks in Latin America, Deep Sea Supply intend to create a Brazilian / Norwegian powerhouse that can supply the growing Brazilian offshore markets in the years to come[89].

In Brazil there is currently a high demand for offshore supply vessels, due to the significant amount of oil-activity in the market. The total number of rigs is forecasted to be at a high level between 2013 and 2015 (above 100) and it is increasing with approximately ten new rigs each year[90], which is good news for the OSV market. The recent discoveries in Brazil are located in the ultra-deep water (1,000 – 2,500 meters) and are on average 156 km from shore[91]. These two factors should contribute to increased demand for the high-end OSV market in Brazil. The OSV forecasted demand in Brazil is very strong, with high demand for large tonnage, particularly within the large PSV segments[92]. This has not gone unnoticed at Deep Sea Supply. The company has in conjunction with the joint venture ordered six newbuild PSVs, which are all classified as sophisticated, large PSVs with each a dwt \of 4,700 [93]. The AHTS market is not as exciting as the PSV market, with a more shy demand increase forecast. However, the current AHTS situation in Brazil is strong, especially for the largest classes, with 100 % utilization[94]. If the supply of these large AHTSs is controlled in Brazil in the following years, the market should remain strong. DESSC's already state-of-the-art fleet, and the joint venture with additional large PSVs, should be fitted to service the Brazilian offshore industry quite well in the years to come.

## South East Asia

Despite worries of oversupply of OSVs and increased costs of shipbuilding resulting in fairly low OSV rates, vessel owners and chartering managers remain optimistic about the Asia – Pacific OSV market. Increased field development and construction projects as well as an upturn in rig activity, will continue

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[89] www.deepseasupply.com
[90] Appendix 3.3 presents the global and regional rig demand forecast
[91] Clarkson, Overview of the Offshore Supply Vessel Industry, page 7
[92] Appendix 3.11 presents for the forecast of OSV demand in Brazil
[93] http://deepseasupply.no/newbuildings
[94] Appendix 3.12 presents current regional OSV utilization ratios

to keep the demand level of AHTSs and PSVs on a steady level throughout the region[95]. Increased offshore activity has stimulated chartering rates, particularly for vessel owners in Singapore and Malaysia, where DESSC currently has three AHTSs. Notwithstanding recent positive signs in the market, the South East Asian market lacks long-term charters - many vessel owners only manage to acquire spot and mid-term charters.

Even though the OSV rates in South East Asia have recently been quite low, the high-end OSV segment has as in other parts of the world, an optimistic outlook, with strong demand forecasts of medium sized AHTSs and large PSVs until Q4 2015[96]. The OSV demand growth is due to the increased rig-activity in Asia-Pacific, which actually has the highest number of oil-rigs throughout the world (currently around 150), with approximately 10 new rigs every year[97].

## West Africa

The growing demand for OSV activity in West Africa is expected to come from deep-water projects in Angola, Nigeria and Ghana. Angola has the world's deepest exploration trend with average water depth at almost 5,000 feet (world average is 1,900 feet), whereas Nigeria has the fourth deepest[98]. A new trend emerging in the latter part of 2012 has been local vessel owners, who typically have bought older vessels, now placing orders for large, high spec supply vessels in order to meet contract requirements. Local Nigerian vessel owners in particular have placed orders with international shipyards for the construction of brand new PSVs. Previously, they used to buy old vessels from international OSV owners who operated in the area. However, due to higher demands from charterers and to win their tenders, African players are now buying newbuilds[99]. This has increased the number of OSV owners over the years[100], effectively increasing the supply.

OSV owners are generally agreeing that demand for OSVs will continue to grow in 2013 with oil rigs forecasted to grow from 70 rigs in 2013 to 80 in 2015[101]. Due to exploration at very deep depths,

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[95] IHS Petrodata
[96] Appendix 3.13 presents the Asia-Pacific OSV demand forecast
[97] Appendix 3.3
[98] Appendix 3.5
[99] IHS Petrodata
[100] Report: Supply Vessels in West Africa, page 22
[101] Appendix 3.3

forecasts follow international trends that demand for OSVs remain strongest for high-end PSVs, particularly for PSVs with 3,000 – 3,999 dwt in this region[102].

To summarise, the trend for all the regions in which Deep Sea Supply operates, follows international trends with a high demand for large, modern OSVs, particularly for PSVs[103].


## *Summary of the Shipping Market Model*

In order to improve our understandings of the offshore supply market we analysed it through the Shipping Market Model. This model focuses on demand and supply of OSVs, and the balance between these two. First we looked at global trends, and then we focused at the regional markets where DESSC operates in. All the demand factors are displaying an optimistic outlook for the future OSV industry. Demand is highest for new, modern state-of-the-art vessels, particularly large PSVs. Deep Sea Supply regional markets display positive outlook as well, with high demand for rig-activity in every region. They support the trend with strong demand for the largest classes of PSVs and less for AHTSs.

Due to the severe case of global oversupply of the largest class of PSVs, the whole PSV market will be affected. One might argue that this oversupply will only affect PSVs larger than 4,000 dwt, but it is normal that these vessels trade down and target work currently undertaken by smaller vessels with lower specifications. Hence, it will affect the whole PSV market. Fortunately, the other classes of PSVs are forecasted to have an undersupply, which offsets the oversupply of PSVs larger than 4,000 dwt. Consequently, the utilization ratio will not change much from 2012, and be held at an acceptable level. The PSV term rate has been growing steadily since 2010, and we believe that this trend will continue in the short-term. In the long-run, we believe that the balance between supply and demand of the largest class of PSVs will move towards equilibrium and due to the strong market sentiment, the PSV freight rate is set to further increase.

With a stronger increase in demand of AHTSs than supply in the analysed period, the utilization ratio of these vessels is estimated to increase strongly. This should consequently increase the freight rate for AHTSs, both in the short- and long-term.

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[102] Appendix 3.14 presents the West African OSV demand forecast
[103] Appendix 3.15 presents a total overview of regional demand forecasts

## 5.1.2 Porter's Five Forces

The five forces help us to understand the different forces that affect the competition in the offshore supply vessel industry as well as uncover potential threats and opportunities facing DESSC. Strong forces will present the company with threats, while weak forces will present the company with opportunities. Figure 5.8 illustrates the forces.

**Figure 5.8 – Porter's Five Forces**
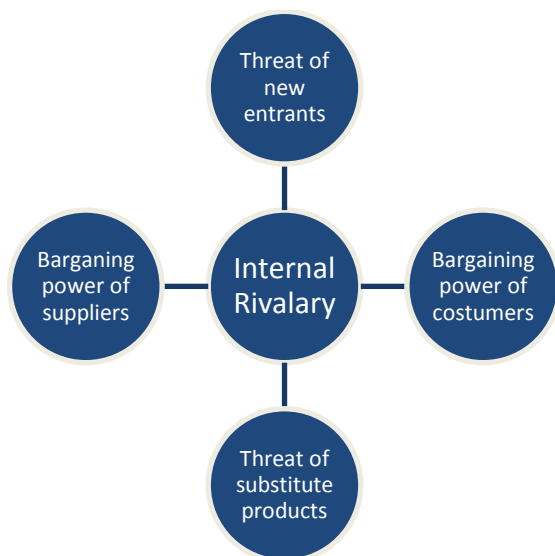


### *Internal rivalry*

Internal rivalry in an industry often presents the largest threat to a company. High internal rivalry puts pressure on prices and may result in fierce price wars. In addition, high internal rivalry might increase costs as a result of increased focus on quality, marketing and service, decreasing the potential profitability. There are mainly three factors determining the level of rivalry in an industry: Market structure, future demand and exit barriers[104].

The market structure points to the number of competitors and the relationship between them. The different OSV markets are all characterized by many small- and medium-sized companies, where no company holds a dominating position or the ability to affect the price level. The market is highly

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[104] Michael Porter, the five competitive forces that shape strategy, Harvard Business Review, 2008, page 9

competitive and can be defined as being close to perfect competition. Perfect competitions are market structures characterised by many sellers and buyers, no barriers of entry or exit, identical products / services, symmetric information and profit maximization[105]. However there are some barriers of entry and exit in the various OSV markets and the products/services may in some cases be differentiated. The different OSV markets are all characterised by many sellers and buyers of the OSV services, and for the most part these services are standardized. For example, the Latin American market which is one of the most important OSV markets, has 190 PSVs and 110 AHTSs operating in the market with the largest players holding 8% of the PSV market and 15% of the AHTS market illustrating the market structure[106]. This is also the case in the other OSV markets. With many actors in the markets the competition for employment increases, and we may argue that the market structure leads to fierce competition.

The future demand is also an important factor affecting the level of rivalry in the OSV market. High demand leads to lower rivalry between the companies as there are more employment contracts available in the market. When the market is slow, and supply exceeds demand the companies will compete more fiercely for the contracts. As already discussed under the market analysis we expect a positive trend in the drivers of the OSV market and the increased demand for OSV services should signal lower internal rivalry ceteris paribus. However, the positive outlook of the offshore activity has also led to a growing OSV fleet and the healthy order book signals more competition for contracts due to the potential oversupply.

Exit barriers represent the cost related to abandoning the market. High exit barriers may lead to companies remaining in an industry, even though the operations are not profitable. In some cases vessels in the OSV market are tailored to meet the costumer's particular need, in this case it might be difficult to sell the vessel on the second hand market, which reduces the value of the vessels and increases the exit barriers, however in most cases the vessels are standardized. The exit barriers also depend on the market situation, which affects the second hand market for offshore supply vessels. The markets are more than ever demanding younger vessels for their contracts which increases the yearly rate of scrapping. The only OSV segment that has seen stable second-hand values in the recent years

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[105] Michael Porter, the five competitive forces that shape strategy, Harvard Business Review, 2008, page 9
[106] Clarkson, Overview of the Offshore Supply Vessel Industry, page 19

has been the small AHTS segment[107]. This class is not forecasted to be in particular high future demand, which should imply a future decrease in the second hand price. In addition the large PSVs which are expected to be in high demand have seen its second hand prices sinking since the all-time high in 2008, decreasing from USD 78m to USD 56m.Overall, lower second hand prices leads to higher cost of exit and effectively increasing rivalry.

The overall assessment suggests that there is significant internal rivalry in the OSV market, and this acts as a threat to Deep Sea Supply.

### *Potential Entrants*

The threat of new entrants into the industry is highly dependent on the barriers to entry, which are present in the industry, and the potential reaction entrants can expect from established companies. If the barriers to entry are low then the treat of potential new entrants are high. These new entrants seek to gain market shares and returns on the expense of the already established companies, making the established companies worse off by dividing the market share pie on more players. Economies of scale, product differentiation, capital requirements, switching cost and government policy are all examples of barriers to entry[108].

The fact that the OSV market is characterized by many actors signals that the barriers to entry are quite low. Through the purchasing of one vessel a company is able to establish itself in the market, however the OSV market is highly capital intensive and requires large investments to establish a competitive fleet. The newbuild prices for large vessels, both AHTSs and PSVs have recently increased strongly, getting close to reaching the all-time high prices prior to the financial crisis[109]. In addition the investment is depending on financing undertaken by financial institutions, and the willingness to finance is affected by the cyclical nature of the business meaning that the financing terms changes as the market situation changes, which could serve as a barrier to entry. As the market demands younger and larger vessels, particularly large PSVs, the capital requirement s are assessed to be high.

 Large OSV companies are enjoying economies of scale due to the fact that the fixed costs of the company can be split on more vessels, reducing the average cost. In addition a large fleet will increase

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[107] Appendix 3.16 presents OSV second hand prices
[108] Michael Porter, the five competitive forces that shape strategy, Harvard Business Review, 2008, page 3
[109] Appendix 3.17 presents OSV newbuilding prices

the possibility of enjoying discounts due to high volume purchases. However the overall economies of scale are not serving as a strong barrier to entry.

The costumer switching costs relate to the costs of switching supplier (OSV companies). In the OSV market the OSV owners and the charterers are connected through contracts which may be expensive to abandon, especially if the vessel offers some specific attributes that meet the particular demand of the costumer. The medium-to long-term contracts that are used in the market present new entrants with challenges, and might force them into the more volatile spot market. However, there are more OSV owners than oil companies and the switching cost are argued to be low as the suppliers deliver a pretty standardized service.

The threat of new entrants depends on the future profitability of the industry, hence considering the growth perspective in the various markets presented in the market analysis, the sentiment for new entrants should signal an important threat in the time to come. The global OSV market is projected to grow significantly in the next 3-5 years, isolated this should, as we have commented, increase the threat of new entrants. However, it is essential to notice the government policies which differ from market to market. Brazil is especially interesting to new entrants considering the growth outlook, but due to the cabotage rules and yearly circularization enforced by the government, they are efficiently limiting foreign companies' entrance to the market and favouring Brazilian companies. The treat of new entrants are characterised as moderate.

### Threat of substitutes
The threat of substitutes to the services DESSC offer are quite low, as the AHTSs and PSVs are tailored for the services they perform, and the fact that these services are vital for the operation of the oil-rigs.

### Bargaining power of suppliers
The suppliers can effectively affect the profitability of the companies through demanding high prices for their products and services. This is especially possible if there are few suppliers of the respective products or services, the product is vital to the company and there are no perfect substitutes available. In the OSV market there are several suppliers of different services, the most important suppliers are the shipbuilders, who provide the companies with the vessels. The prices of newbuilds and second hand

vessels depend on the supply and demand in the market as well as commodity prices which serves as input in production. In bull markets the prices of vessels will increase and in bear markets the prices will drop, which reduces the bargaining power of the suppliers. In periods of high market demand for OSV services, the rates increase and the incentive to invest in new vessels increases due to the higher rates. This might results in a larger order book and potentially higher prices for the vessels. In addition to the market forces affecting the prices for newbuilds and second-hand ships, the internal rivalry between the shipbuilders puts pressure on the prices and reduces the bargaining power of the suppliers, which works in favour of the OSV companies. There has been a growing internal rivalry in the shipbuilding industry the last 10 years, due to increased activity in Asia. Norwegian OSV companies have previously favoured Norwegian yards due to quality and certifications, but Asian shipyards have proven to be competitive on both price and quality.

In addition to the shipyards, the labour represents an important supplier. Getting crew with the needed competence and skills has proven to be a challenge in the OSV market. The problem is related to local market regulations, which often favour local sailors. In Brazil, the government enforces regulations regarding the nationality of the crew on vessels. The government requires that a large part of the crew has to be local, which presents the global OSV companies with challenges due to the small pool of qualified crew. Due to this the crew expenses have risen significantly as a result of higher demand than supply for crew, effectively increasing the crew wages. This has negative implications for the OSV companies EBITDA-margin, and the overall profitability. We argue that the overall bargaining power of the suppliers is moderate.

### *Bargaining power of costumers*

The profitability of the OSV companies is affected by the bargaining power of the costumers. Customers with strong bargaining power can potentially take away some of the profit from the supplying companies through pressuring the companies into less profitable agreements. The bargain power is especially strong in markets with few costumers, undifferentiated products and threat of vertical integrations.

As already mentioned, the AHTSs and PSVs provide more or less undifferentiated services. The customers in the OSV market are large multinational oil companies, like Petrobras, Repsol, Shell etc.

The market contains fewer charterers than OSV owners, meaning that the oil companies have many alternatives to choose between. Together with the political power and resources of the large multinational oil companies this presents the costumers with high bargaining power. However, the prices which the OSV companies offer the customers are mainly controlled by market forces as described in the market analysis which reduces the bargaining power on prices. The threat of vertical integration, where the oil companies would operate the OSV's themselves could increase the bargain power of the oil companies. This has been seen, as both Statoil and Petrobras own vessels, however, it is arguably more profitable for most oil companies to focus on their core competences.

We consider the overall bargaining power of costumers as high due to the low costumer to supplier ratio, the standardised services, and the political and financial power of the large oil companies.

## 5.2 Internal analysis - VRIO

To assess if Deep Sea Supply possesses any competitive advantages relative to its peers we will consider the available resources and the uniqueness of these resources using the VRIO framework. In order to structure the VRIO in an informative and clear way, we will classify the resources and capabilities of the company in four categories based on the nature of the resource: Financial capital, physical capital, human capital and organisational capital. Examples are given in table 5.6.

**Table 5.6 – VRIO**

| VRIO | |
| --- | --- |
| Resources | Examples |
| Financial | Equity, liabilities, stockholders |
| Physical | Fleet, geographical position |
| Human | Adaptability, competence, experience |
| Organisational | Structure, relationship with key players |

Source: Compiled by authors

### 5.2.1 Financial resources

The financial resources of the company is important as the offshore supply industry is highly capital intensive. The company requires a lot of financial resources to maintain its fleet up to date as well as being able to take advantage of investment opportunities as they surface, which is essential for the company in order to defend its position as an important player in the industry. In this capital intensive

industry it is hard to fund growth entirely through internally generated cash, hence, DESSC is dependent on different ways to finance its strategy. The company states that it intends to use the capital market when doing investments and does not intend to hold significant liquid reserves for investments. All retained earnings are meant to be paid out as dividends as long as the situation of the company permits it. The main source of financing is senior bank loans from international banks which are long term players in the shipping industry. The company has managed to build strong relationships with these institutions, and the company states that this has been an important strategy ever since the company was founded[110]. The vessels are typically financed through loans with a repayment profile of 18 years. At the end of 2012 the company's balance sheet included total assets of USD 765.7m, with USD 639.8m relating to vessels. The assets have been financed through USD 157m equity and USD 608.7 mill liabilities. The equity has seen a small reduction from 2011-2012 due to the year's profit loss. The capital structure of the company is quite normal for the companies in this industry, and as we will see in the profitability and liquidity risk analysis, the financial resources of Deep Sea Supply might be valuable, but not rare for the industry. Hence, this does not provide the company with any above normal competitive advantage.

The company holds significant financial resources through its owners who have stated that they are ready to back the company in troubling times. The majority shareholder, Hemen Holding, owned by John Fredriksen, is especially important in this regard, as Fredriksen is one of the biggest players within the shipping industry. This has been important in situations when new capital has been necessary and one can argue that the strong ownership structure is valuable, in regard to the opportunities it provides, but not rare in the sense that the companies in the industry are characterised by large and well-funded owners.

### 5.2.2 Physical resources

DESSC owns a modern fleet of 27 vessels with an average age of 6 years. However, the company awaits deliveries of 13 vessels which are currently under construction. When these newbuilds are delivered, Deep Sea Supply will own a fleet consisting of 40 vessels with a younger fleet average than 6 years. The low average age provides the company with an advantage as the demand for new, modern vessels are increasing in the global market, and the average age of the global fleet is as much as 12.8

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[110] Deep Sea Supply annual report 2012, page 28

years[111]. As discussed in the market analysis, the majority of capital expenditures are directed towards deep-water activities, resulting in increased demand for larger vessels, which are more efficient than smaller vessels in these environments. Deep Sea Supply currently has 7 ATHSs and 4 PSVs which are in the large vessel segment. In addition to the current fleet, the 13 newbuilds under construction are all classified as large PSVs[112]. Thus, when the newbuilds are delivered, Deep Sea Supply will own 24 large OSVs, which should provide the company with an advantage above competitors with smaller vessels.

The geographical positioning of Deep Sea Supply is also providing the company with an advantage, with main focus on Brazil, an area experiencing high growth. 15 of 27 OSVs are stationed in Brazil through the joint venture. In addition, the joint venture awaits deliveries of 6 PSV newbuilds, as well as 4 of the PSVs newbuilds wholly owned by DESSC are expected to work there[113]. In 2012 the South American operations represented 64% of total revenue for the company[114]. We expect this proportion to grow in the next years.

As we have already stated in the market analysis, the large PSV market is experiencing oversupply. However, the Brazilian market stands out from the other markets with a higher utilization ratio for the large PSVs[115], and the high demand in Brazil is forecasted to increase until 2020 due to the recent oil discoveries. It is also safe to assume that the new joint venture with BTG Pactual will provide DESSC with more leverage in the market and hopefully lead to long-term contracts for the vessels operating in the market. Strict regulations and cabotage rules limit companies with the possibility to fully penetrate the Brazilian market. However, Deep Sea Supply is classified as EBN (Brazilian Shipping Company) which gives the vessel owner full rights to enter into charter contracts with oil companies in Brazil directly. This increases the market access and enables cost control. However, one can argue that the large exposure to one market might create some long term risk in contrast to being more diversified in the other markets.

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[111] DESSC presentation, 1Q 2013
[112] Appendix 2.2 presents DESSC's fleet
[113] RG Hagland Shipbrokers
[114] Deep Sea Supply annual report 2012, page 31
[115] Appendix 3.12 presents the current regional utilization ratios

We argue that the fleet composition, geographical positioning of the fleet and Brazilian licensing and relations offer DESSC with a temporary competitive advantage with above normal economical implications.

The company structure of Deep Sea Supply is organized with Deep Sea Supply PLC being the parent company for four subsidisers and one joint venture located in strategic geographical positions. The joint venture in Brazil and subsidiaries in Singapore and Norway are in charge of chartering and marketing, providing the company with the advantage of being close to operations in the respective markets. The joint venture provides, as previously mentioned, Deep Sea Supply with better penetration in the Brazilian market, and we argue that the JV will present the company with temporary advantages above competitors. However the general structure of DESSC is quite normal and seen in all the peers described earlier, hence it may be valuable but not rare, and not source of any above normal competitive advantage.

### 5.2.3 Human resources

The most important human capital in Deep Sea Supply is the accumulated skills of the management. To ensure sustainable growth and value creation the company and its shareholders depends on the managers taking the right decisions with the right timing. The OSV industry requires in-depth knowledge about the dynamics and nature of the business, which is quite different from other industries. One of the most important jobs for the management is to be able to take on a long-term perspective and estimate the future outlook to engage in the most profitable contracts and making the best investments considering timing of the market cycles. The management team of the company consists of a small, focused and qualified team of five executive officers, who keep the entire company in line. The management handles the core activities, chartering, fleet management control and finance. The managers all have long international experience from the OSV industry and both the CEO and CFO have been with DESSC since the start. This small, efficient management team seems to complement each other well, considering their different education and background, ranging from economists to engineers, combining academic knowledge with practical experience[116].

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[116] Deep Sea Supply annual report 2012

The company has also recently developed an in-house technical management and crew management to secure further development of key competence within the core activities, Total staff at Deep Sea Supply counted 51 employees at the year-end 2012, which is an increase of 12 since 2011. Other services as vessel crew, construction supervision and accounting services are purchased from third party providers[117].

The board of directors also presents the company with important skills, consisting of three highly capable and experienced individuals, including the daughter of the majority shareholder, John Fredriksen. John Fredriksen is one of the most influential business men in the world, controlling several large companies within industries like oil & gas, shipping and fish farming. When assessing the human capital of Deep Sea Supply it is essential to include the impressive skills of Mr. Fredriksen and as the largest shareholder it is likely to assume that he is quite active in establishing the overall strategy of the company.

The human capital of DESSC is definitely valuable, however even the experience and composition of the management is not rare in this business and do not offer the company any competitive advantage above normal. However, the skill set of Mr. Fredriksen might provide the company with competitive advantage using his world famous intuition and business sense. We have to argue that this is valuable, rare and difficult to imitate providing the company with a competitive advantage.

### 5.2.4 Organisational resources

The organisational resources relate to brand name, reputation and the ability to build important industry relations. These factors are important in the OSV market regarding the possibility of getting favourable contracts, access to markets and attracting competent crew. Deep Sea Supply is a rather new company, but has through its short history established itself as a serious player in the OSV market. The organisational resources in the ship owning firm are especially their relations with important financial institutions, providing the company with needed capital to maintain their growth strategy. In addition, as stated previously, the valuable relationship with the large investment bank BTG Pactual has developed into a potentially profitable joint venture. The ability of relation building is due to the reputation of DESSC, which also is strengthened by the link between the company and Mr. Fredriksen.

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[117] Deep Sea Supply annual report 2012

The organisational strengths of Deep Sea Supply are valuable, however not rare when comparing with peers who have been in the market for years, building strong reputations and brand name.

## 5.3 SWOT

**Table 5.7 - SWOT/value driver matrix**

| SWOT/value driver Matrix | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
|  | Revenue growth | EBITDA-margin | Dep. as % of fixed assets | Tax rate | NBC | Fixed assets as % of rev. | NWC as % of rev. | NIBD as % of IC |
| **Strenghts:** | | | | | | | | |
| Fleet composition, age and localization | ↑ | ↑ | | | | | | |
| High contract coverage | ↑ | | | | | | | |
| Brazilian relations and JV | ↑ | | | | | | | |
| Highly skilled management, strong owners | | ↑ | | | ↓ | | ↓ | |
| Strong relations to finance institutions | | | | | ↓ | | | |
|  | | | | | | | | |
| **Weaknesses:** | | | | | | | | |
| Highly exposed to one market | ↓ | | | | | | | |
| High financial leverage | | | | | ↑ | | | |
|  | | | | | | | | |
| **Opportunities:** | | | | | | | | |
| Expected increase in global rig activity | ↑ | | | | | ↑ | ↑ | ↑ |
| High global demand for large OSVs | ↑ | | | | | ↑ | ↑ | ↑ |
|  | | | | | | | | |
| **Threats:** | | | | | | | | |
| Highly dependent on oil price development | ↓↑ | | | | | | | |
| Lower demand than expected | | | | | | | | |
| Potential oversupply of PSV vessels | ↓ | | | | | | | |
| Volatile spot market | ↓↑ | | | | | | | |
| Increased competition, new entrants | ↓ | ↓ | | | | | | |
| Local market regulations | | ↓↑ | | ↓↑ | | | | |
| Strong customers | ↓ | ↓ | | | | | | |
| Suppliers bargaining power | | ↓ | | | | | | |

In the SWOT matrix above we have summarized the key points from the external and internal analysis and categorized them into strengths, weaknesses, opportunities and threats. Furthermore, we have tried to link the different SWOT elements to our chosen value drivers. The value drivers are vital in the valuation, as the entire pro forma statement will be based on them. By assessing the implications the SWOT elements may have on the respective value estimate we are effectively linking the strategic analysis to the valuation. This is key in order to make sure that the valuation is reflecting the underlying sentiments in the industry and the potential of the company. When performing the forecast of the pro forma we will look back and include our knowledge acquired from the strategic analysis.

Our overall assessment of the strategic analysis depicts a positive outlook for DESSC considering the strengths of the company and the opportunities provided by the market. Deep Sea Supply has stated that it will focus on growth and increase its fleet in the years to come, especially in Brazil, proving that they aim to exploit the strong market forecasts. However, as seen there are also potential threats which could deteriorate the positive outlook, such as oversupply, potential new regulations, increased competition and strong costumers. Furthermore, Deep Sea Supply's high exposure to one market may contain considerable future risk if in case Brazil turns out to be less profitable than expected. There is also the risk that the forecasted demand is not as good as predicted, which will increase the risk of oversupply.

# 6. Financial statement analysis

Now that we have acquired background knowledge of DESSC and the OSV industry, it is time for *step II* in Penman's five steps of Fundamental Analysis, which involves *analysing information[118]*. In this chapter we will perform a thorough analysis of Deep Sea Supply's historical financial performance, which provides a basis for developing and evaluating forecasts of future performance. We have obtained the figures used in the financial statement analysis from DESSC's annual reports, which give valuable information about how the company has performed economically in recent years. Simultaneously, they provide essential indications on future development. This information will be used when developing pro forma statements and we will also compare Deep Sea Supply's performance with our peers' performances. The comparison deals with the analysis of profitability and liquidity risk, which can be used as insight when budgeting future performance.

## 6.1 Analysis focus

There are several stakeholders attached to a company, such as lenders and owners. We wish to perform an investor-orientated analysis that is appropriate for equity capital investors – both current investors and potential investor. These stakeholders are interested in analysing the firm's value creation, and finding the fair value of the company to assess different business opportunities. In order to do this we have to reformulate the income statements and balance sheets.

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[118] Penman, Financial Statement Analysis and Security Valuation, 2007, 3rd ed., page 85

## 6.2 The Analysis Period

How long analysis period to choose depends on whether or not the company has been stable over time, or if it has changed character. If the company has been steady for a long time then the analyst should use a long period of analysis (say 10 years). If the company has changed character in recent years, then the analyst should choose a shorter period of time (for instance 4 years), because older figures is not very relevant for the company's current state. Regarding our analysis period, we do not have many options. DESSC was established in 2004, but was not listed at Oslo Stock Exchange before in 2006. Therefore we look at historical performance from 2006 to 2012. Despite that the financial crisis resulted in volatile markets, the best way to perform a valuation is when the data material about the company is at its freshest. We acknowledge the problem of including the years of high volatility, however, Deep Sea Supply has gone through important changes in these years, and with regard to this we have decided to include all years available.

## 6.3 Level of analysis

Deep Sea Supply Plc is the parent company and owns subsidiaries that work within different fields and are located at strategic geographical positions all over the world. The most optimal would be to analyse each business unit separately, but it would be complicated to obtain the information from the foreign companies as well as time consuming. Consequently, we choose to analyse the group as a whole based on the consolidated financial statements to get a more coherent picture of Deep Sea Supply.

## 6.4 The Financial Statements

In order to clarify DESSC's economical development in recent years, the financial statements from 2006 to 2012 are presented in appendix 4.1. The figures are taken directly from the company's annual reports, which are prepared in accordance with IFRS which was implemented in Norway in 2005.

The first step in the financial statement analysis is to remove transitory items from the income statement, and to distinguish between operating and financial items in the income statement and balance sheet. When this is done we can develop the analytical income statement and the analytical balance sheet, which is necessary when compiling the financial ratios that are used for assessing the historical development of the economy and profitability of Deep Sea Supply.

### 6.4.1. Reformulation of the income statement and the balance sheet

*Removal of transitory items in the income statement*

The analyst needs to consider the quality of the reported accounting data in the historical financial statements. For instance, the analyst must distinguish between permanent (recurring) and transitory (non-recurring) items. Transitory items are those that are unlikely to recur, or only recur with large time intervals. These accounting items need to be excluded when predicting the future earnings of a company and therefore removed from the analytical income statement[119].

DESSC has an accounting item in the financial income statement that is called "vessel relocation cost." This item only appears in 2006 when DESSC needed to relocate some vessels in conjunction with the company's start-up. At first sight this item may be regarded as transitory. However, we believe that it is just a coincidence that DESSC has not relocated their vessels to a higher extent. If the company has positioned a great portion of its fleet in a market it is unsatisfied with, then it is likely that DESSC will spend money on moving the fleet elsewhere. This is part of strategically decisions OSV owners have to face on a daily basis. Thus, we decide to keep "vessel relocation cost" in the analytical income statement as it is likely it will recur.

Further, we needed to take a closer look at "other (losses) / gains – net." This item is compiled by many different sub-items, which can be found in DESSC's annual reports. At first glance "other (losses) / gains – net" appears to be recurring since numbers are posted every year, but when examined in the annual reports, the analyst can notice that this accounting item is composed by a majority of transitory sub-items, while only a few are recurring. In table 6.1 we have separated the recurring and the transitory items.

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[119] Petersen & Plenborg, Financial Statement Analysis, 2012, 1th ed., page 6

**Table 6.1 – Decomposition of other (losses)/gains - numbers in USD thousand**

| Other (losses)/gains - net | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|
| **Recurring** | | | | | | | |
| Gain on sale of vessels | 0 | 0 | 20,225 | -447 | 9,991 | 24,524 | 0 |
| Change in value of financial derivatives | -909 | 7,839 | -8,962 | 3,752 | 1,241 | 129 | 175 |
| Deferred gain amortised in the period | 0 | 1,518 | 9,215 | 9,212 | 5,828 | 4,493 | 4,492 |
| **Total recurring items** | **-909** | **9,357** | **20,478** | **12,517** | **17,060** | **29,146** | **4,667** |
| **Transitory items** | | | | | | | |
| Gain on disposal of financial assets at fair value through profit and loss | 0 | 0 | -8,192 | 8,456 | 0 | 0 | 0 |
| Gain on sale of newbuilds contracts | 13,137 | 0 | 0 | 0 | 0 | 0 | 0 |
| Impairment of other receivables | 0 | 0 | -11,032 | 0 | 0 | 0 | 0 |
| Impairment of trade receivables | 0 | 0 | -546 | 0 | 0 | 0 | 0 |
| Cancelation of new building contracts | 0 | 0 | 0 | -603 | 0 | 0 | 0 |
| Gain on lower negotiated purchase vessel price | 0 | 0 | 0 | 1,087 | 0 | 0 | 0 |
| Amounts recieved on previously impaired receivables | 0 | 0 | 0 | 14 | 0 | 0 | 0 |
| Interest rate swap on sale and leaseback | 0 | -982 | 0 | 0 | 0 | 0 | 0 |
| Other gains | 0 | 0 | 0 | 0 | 0 | 79 | 175 |
| **Total transitory items** | **13,137** | **-982** | **-19,770** | **8,954** | **0** | **79** | **175** |
| **Total other losses/gains** | **12,228** | **8,375** | **708** | **21,471** | **17,060** | **29,225** | **4,842** |

Source: DESSC annual reports 2006-2012

For instance, other gains were reported to be USD 12.228m in 2006, when the actual number should have been – USD 909,000 when predicting future earnings potential. Thus, all the transitory items listed in the figure above are removed from the analytical income statement.

## *Separation of operating and financial items*

A firm's operations constitute the primary driving force behind value creation for the firm. However, since a company consists of operating, investing and financing activities, we need to separate "operations" and "investment in operations" from "financing activities" in the balance sheet as well as in the income statement[120]. A company's operation is what makes the company unique and difficult to copy, whereas the financial composition is much easier to replicate. Deep Sea Supply's balance sheet, like most others, does not distinguish between operating and financial assets, as well as operating and financial liabilities. In table 6.2 we have distinguished between those from the balance sheet.

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[120] Petersen & Plenborg, Financial Statement Analysis, 2012, 1th ed., page 68

**Table 6.2 – Separation between operating and financial items**

| ASSETS | LIABILITIES |
|---|---|
| **Operating assets** | **Operating labilities** |
| Vessels and equipment | Long term tax liability |
| Other long term receivables | Trade and other payables |
| Deferred income tax | Current income tax liabilities |
| Investment in associates | |
| Inventories | |
| Trade receivables | |
| Other short term receivables | |
| Operating cash | |
| **Financial assets** | **Financial liabilities** |
| Pension scheme | Finance lease liability, non-current |
| CIRR deposit | Deferred gain on sale and finance leaseback, non-current |
| Financial derivatives | Finance lease liability, current |
| CIRR deposit short term portion | Deferred gain on sale and finance leaseback, current |
| Financial assets at fair value through profit and loss | Bank borrowings, non-current |
| Excess cash | CIRR loan, non-current |
| Assets classified as held for sale | Borrowings from related parties |
| | Deferred gain on CIRR loan, non-current |
| | Pension Scheme |
| | Financial derivatives, non-current |
| | Bank borrowings, current |
| | CIRR loan, current |
| | Deferred gain on CIRR loan, current |
| | Financial derivatives, current |
| | Other long term liabilities |
| | Dividends payable |

Source: DESSC annual reports 2006-2012

The assets classified as "operating assets" are assets that are related to DESSC's daily operations. For instance, the company uses its property, plant and equipment (vessels) daily when doing its business. "Trade receivables" – what charterers own DESSC due to trade – are also part of operations. Assets such as "assets classified as held for sale" are categorised as financial, because when they are sold they will reduce the need for obtaining debt in order to finance the operations.

Operating liabilities, such as "trade and other payables" are part of operations as Deep Sea Supply purchases vessels from shipyards, which are needed for the company to conduct its business. "CIRR loan" and "borrowing from related parties" are classified as financial liabilities, because these items represent DESSC's debt and are interest-bearing. A rule of thumb applied when categorising financial and operating items is that accounting items are part of financial activities when they are interest-bearing.

In the income statement most of the items are self-explaining[121]. However, "cost related to restructuring of group" needs to be further examined. Petersen & Plenborg categorise this item is a "special item" and the analyst has to ask herself whether or not this item is related to operations[122]. We believe that restructuring costs are necessary for Deep Sea Supply in order to adjust its organisation to changing market conditions. Even though this item only appeared in 2006, it is likely it will recur again and in a frequently manner. Thus, "cost related to restructuring of group" is classified as operations in the income statement.

The previously discussed item, "other (losses)/gains-net" (table 6.1), also requires a closer look. "Gain on sale of vessels" is obviously part of operations, but "deferred gain amortised in the period" is more difficult to define. In DESSC's annual report of 2012, the analyst can read that deferred gain amortised in the period is related to gain on sale of vessels to Ship Finance International in 2007 and 2008 where the gain on sale is recorded as revenue over a period of 12 years[123]. This deal is in connection with a sale and finance leaseback transaction, which is an alternative to debt, and in the balance sheet "current deferred gain on sale and finance leaseback" is classified as a financial liability. Thus, we classify deferred gain amortised in the period as a financial item as well. "Change in value of financial derivatives" is used for economical hedging purposes in order to mitigate financial risks. Deep Sea Supply uses the derivatives in order to manage risks associated with interest and currency rates[124]. Petersen & Plenborg state that all operating and finance hedges are regarded as being financial decisions and for the same reason, gains and losses from derivatives should be treated as a financial item[125].

We have chosen to divide "cash and cash equivalents" into operating cash and excess cash. Operating cash is estimated as 2% of yearly income, which is based on a study performed by Koller et. al[126], and will be part of the operating assets, whereas excess cash shall be treated as part of financial activities. Excess cash is compiled by deducting operating cash from cash and cash equivalents. Below we illustrate how:

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[121] Appendix 4.1
[122] Petersen & Plenborg, Financial Statement Analysis, 2012, 1th ed., page 75-76
[123] DESSC Annual Report 2012, page 11
[124] DESSC Annual Report 2012, page 27
[125] Petersen & Plenborg, Financial Statement Analysis, 2012, 1th ed., page 78
[126] Koller et Al., Valuation – Measuring and managing the value of companies, p 145

**Table 6.3 – Operating cash**

| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|
| Revenue | 74,184 | 146,660 | 190,405 | 167,633 | 132,346 | 115,902 | 124,140 |
| Operating cash (2 % of revenue) | 1,484 | 2,933 | 3,808 | 3,353 | 2,647 | 2,318 | 2,483 |
| Cash and cash equivalents | 49,961 | 28,463 | 29,991 | 28,263 | 39,285 | 38,000 | 37,940 |
| Excess cash | 48,478 | 25,530 | 26,183 | 24,911 | 36,638 | 35,682 | 35,457 |

Source: Compiled by authors

## 6.4.2 The analytical income statement and balance sheet

Now that we have removed the transitory accounting items from the income statement and categorised operating and financial items, we are ready to develop the analytical income statement and balance sheet. The analytical income statement is presented in table 6.4.

**Table 6.4 – The analytical income statement**

| Analytical Income Statement | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|
| *Numbers in thousands USD* | | | | | | | |
| Revenue | 74,184 | 146,660 | 190,405 | 167,633 | 132,346 | 115,902 | 124,140 |
| +Share of profit from associates | 0 | 0 | 0 | 0 | 0 | 291 | 391 |
| Operating expenses vessels | -26,107 | -40,176 | -60,199 | -66,163 | -73,681 | -72,124 | -66,345 |
| Operating leases | 0 | 0 | 0 | 0 | -2,925 | -1,684 | 0 |
| Administrative expenses | -2,774 | -5,952 | -7,971 | -7,696 | -8,710 | -10,911 | -12,356 |
| Vessel relocation cost | -1,045 | 0 | 0 | 0 | 0 | 0 | 0 |
| Costs related to reconstructing of group | -2,391 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other (losses)/gains - net: | | | | | | | |
| Gain on sale of vessels | 0 | 0 | 20,225 | -447 | 9,991 | 24,524 | 0 |
| Total other (losses)/gains - net | 0 | 0 | 20,225 | -447 | 9,991 | 24,524 | 0 |
| Total operating expenses | -32,317 | -46,128 | -47,945 | -74,306 | -75,325 | -60,195 | -78,701 |
| EBITDA | 41,867 | 100,532 | 142,460 | 93,327 | 57,021 | 55,998 | 45,830 |
| Depreciation related to vessels | -10,041 | -16,556 | -30,230 | -36,308 | -36,347 | -28,603 | -32,057 |
| Other depreciation | -19 | -5 | -47 | -60 | -98 | -223 | -247 |
| EBIT | 31,807 | 83,971 | 112,183 | 56,959 | 20,576 | 27,172 | 13,526 |
| Taxes on EBIT | 454 | 15,286 | -6,937 | -10,656 | 664,783 | 704 | -3,513 |
| NOPAT | 31,353 | 68,685 | 119,120 | 67,615 | -644,207 | 26,468 | 17,039 |
| Finance income | 1,052 | 2,616 | 2,122 | 665 | 2,233 | 392 | 1,923 |
| + Deferred gain amortised in the period | 0 | 1,518 | 9,215 | 9,212 | 5,828 | 4,493 | 4,492 |
| -Finance costs | -6,185 | -24,413 | -44,496 | -36,332 | -29,797 | -31,454 | -23,802 |
| -/+ Change in value of financial derivatives | -909 | 7,839 | -8,962 | 3,752 | 1,241 | 129 | 175 |
| = Net financial expenses before tax | -6,042 | -12,440 | -42,121 | -22,703 | -20,495 | -26,440 | -17,212 |
| Tax shield | 86 | 2,265 | -2,605 | -4,248 | 662,166 | 685 | -4,471 |
| Net financial expenses after tax | -5,956 | -10,175 | -44,726 | -26,951 | 641,671 | -25,755 | -21,683 |
| Net income | 25,397 | 58,509 | 74,395 | 40,665 | -2,536 | 713 | -4,643 |

Source: DESSC annual reports 2006 – 2012

Operating earnings is a key performance as it measures a firm's profit from its core business regardless of how it has been financed. Operating earnings can be measured before and after tax. Earnings before interest and tax (EBIT) measures earnings before tax, whereas net operating profit after tax (NOPAT) measures operating earnings after tax[127]. We use the effective tax rate to get taxes paid, which is deducted from EBIT in order to obtain NOPAT. This process is shown in table 6.5 below:

**Table 6.5 – Calculation of effective tax rate and NOPAT**

| Calculation of effective tax rate and NOPAT | | | | | | | |
|---|---|---|---|---|---|---|---|
| *Numbers in thousand USD | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
| Profit before income tax | 38,902 | 70,549 | 50,292 | 43,209 | 81 | 811 | -3,511 |
| Income tax expenses | 555 | 12,843 | -3,110 | -8,084 | 2,617 | 21 | 912 |
| Effective tax rate | 1.4% | 18.2% | -6.2% | -18.7% | 3230.9% | 2.6% | -26.0% |
| EBIT | 31,807 | 83,971 | 112,183 | 56,959 | 20,576 | 27,172 | 13,526 |
| Taxes on EBIT | 454 | 15,286 | -6,937 | -10,656 | 664,783 | 704 | -3,513 |
| NOPAT | 31,353 | 68,685 | 119,120 | 67,615 | -644,207 | 26,468 | 17,039 |

In order to obtain the effective tax rate we need the profit before income tax and income tax expenses from the original income statement[128]. Income tax expenses are divided by profit before income tax in each year to get the tax rate. Further, the effective tax rate is multiplied with EBIT to achieve taxes on EBIT. Finally NOPAT is obtained through subtraction of taxes on EBIT from EBIT. NOPAT is an essential number we will use later in the profitability analysis and the valuation.

Since reported tax is positively affected by net financial expenses (a firm pays less taxes because of the tax shield) it is necessary to add back the tax shield and calculate net financial expenses after tax. This process is illustrated in table 6.6:

**Table 6.6 – Calculation of tax shield and net financial expenses after tax**

| Calculation of tax shield and net financial expenses after tax | | | | | | | |
|---|---|---|---|---|---|---|---|
| Net financial expenses before tax | -6,042 | -12,440 | -42,121 | -22,703 | -20,495 | -26,440 | -17,212 |
| Effective tax rate | 1.4% | 18.2% | -6.2% | -18.7% | 3230.9% | 2.6% | -26.0% |
| Tax shield | 86 | 2265 | -2605 | -4248 | 662166 | 685 | -4471 |
| Net financial expenses after tax | -5,956 | -10,175 | -44,726 | -26,951 | 641,671 | -25,755 | -21,683 |

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[127] Petersen & Plenborg, Financial Statement Analysis, 2012, 1th ed., page 73
[128] Appendix 4.1

To obtain the tax shield we multiplied the effective tax rate with net financial expenses before tax. The tax shield is then added to the net financial expenses before tax to get the net financial expenses after tax. Net income in table 6.4 is finally obtained by deducting net financial expenses after tax from NOPAT. As illustrated net income in the analytical income statement is different from what it was in the original income statement[129], which is due the removal of the transitory items.

The next step is to develop the analytical balance sheet, which is done in table 6.7 and 6.8 below.

**Table 6.7 – The analytical balance sheet (net operating assets)**

| Analytical Balance Sheet | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|
| *Numbers in thousands USD* | | | | | | | |
| **Operating assets:** | | | | | | | |
| Vessels and equipment | 363,372 | 597,785 | 686,519 | 676,929 | 554,496 | 573,237 | 639,798 |
| Other Long term receivables | 0 | 0 | 0 | 0 | 455 | 647 | 687 |
| Deferred income tax | 0 | 0 | 0 | 0 | 234 | 308 | 605 |
| Investments in associates | 0 | 0 | 0 | 0 | 0 | 594 | 1,194 |
| Inventories | 585 | 1,768 | 881 | 2,222 | 2,905 | 5,061 | 2,681 |
| Trade receivables | 19,480 | 41,631 | 47,866 | 22,483 | 26,017 | 29,475 | 30,010 |
| Other short term receivables | 15,969 | 18,981 | 6,172 | 6,349 | 9,374 | 6,468 | 9,541 |
| Operating cash | 1,484 | 2,933 | 3,808 | 3,353 | 2,647 | 2,318 | 2,483 |
| **Total operating assets** | 400,890 | 663,098 | 745,246 | 711,336 | 596,128 | 618,108 | 686,999 |
| **Operating liabilities** | | | | | | | |
| Long term tax liability | 0 | 11,565 | 5,336 | 0 | 1,806 | 873 | 0 |
| Trade and other payables | 9,068 | 12,928 | 25,039 | 3,589 | 11,519 | 13,307 | 23,667 |
| Current income tax liabilities | 560 | 1,338 | 667 | 0 | 903 | 881 | 1,266 |
| **Total operating liabilities** | 9,628 | 25,831 | 31,042 | 3,589 | 14,228 | 15,061 | 24,933 |
| **Invested capital (net operating assets)** | 391,262 | 637,267 | 714,204 | 707,747 | 581,900 | 603,047 | 662,066 |

Source: DESSC annual reports 2006 – 2012

Operating assets and liabilities are separated, and by deducting the liabilities from the assets we obtain invested capital. Per definition *"invested capital represents the amount a firm has invested in its operating activities and which requires a return[130]."* To check whether or not we have calculated the correct invested capital, we can also find invested capital through equity and financial items, which is done in table 6.8 below.

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[129] Appendix 4.1
[130] Petersen & Plenborg, Financial Statement Analysis, 2012, 1th ed., page 74

**Table 6.8 – The analytical balance sheet (finance)**

| Analytical Balance Sheet | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|
| *Numbers in thousands USD* | | | | | | | |
| **Equity** | 284,201 | 163,254 | 112,222 | 163,993 | 161,581 | 162,714 | 157,009 |
| **Financial liabilities** | | | | | | | |
| Deferred gain on sale and finance leaseback, non-current | 0 | 56,087 | 90,752 | 51,486 | 34,966 | 30,312 | 25,984 |
| Finance lease liability, non-current | 0 | 169,707 | 225,199 | 210,901 | 195,895 | 179,826 | 163,487 |
| Finance lease liabilities, current | 0 | 39,578 | 15,495 | 14,298 | 15,129 | 16,069 | 15,655 |
| Deferred gain on sale and finance leaseback, current | 0 | 0 | 9,201 | 5,830 | 4,493 | 4,655 | 4,488 |
| Bank borrowings, non-current | 145,221 | 179,012 | 266,998 | 260,698 | 211,603 | 223,473 | 278,426 |
| CIRR loan, non-current | 0 | 0 | 44,799 | 49,374 | 43,647 | 37,790 | 35,509 |
| Borrowings from related parties | 0 | 0 | 0 | 0 | 0 | 0 | 25,000 |
| Deferred gain on CIRR loan, non-current | 0 | 0 | 1,426 | 1,571 | 1,446 | 1,249 | 1,173 |
| Pension scheme | 0 | 0 | 30 | 79 | 11 | 124 | 195 |
| Financial derivatives, non-current | 0 | 0 | 0 | 0 | 0 | 0 | 1,435 |
| Bank borrowings, current | 10,994 | 13,453 | 23,724 | 25,207 | 20,639 | 22,074 | 26,447 |
| CIRR loan, current | 0 | 0 | 4,144 | 5,038 | 4,959 | 4,839 | 5,215 |
| Deferred gain on CIRR Loan, current | 0 | 0 | 229 | 229 | 161 | 157 | 170 |
| Financial derivatives, current | 841 | 0 | 5,254 | 1,770 | 529 | 400 | 225 |
| Dividends payable | 0 | 50,745 | 0 | 0 | 0 | 0 | 0 |
| Liabilities of assets classified as held for sale | 0 | 0 | 0 | 0 | 48,998 | 0 | 0 |
| Other long term liabilities | 0 | 0 | 0 | 0 | 0 | 0 | 361 |
| **Total financial liabilities** | 157,056 | 508,582 | 687,251 | 626,481 | 582,476 | 520,968 | 583,770 |
| **Financial assets:** | | | | | | | |
| Pension Scheme | 34 | 103 | 0 | 0 | 0 | 0 | 0 |
| CIRR Deposit | 0 | 0 | 44,799 | 49,426 | 43,693 | 37,796 | 35,558 |
| Financial derivatives | 0 | 6,003 | 0 | 0 | 0 | 0 | 0 |
| CIRR deposit short term portion | 0 | 0 | 4,144 | 5,038 | 4,959 | 4,839 | 5,215 |
| Financial assets at fair value through profit and loss | 0 | 0 | 6,335 | 0 | 0 | 0 | 0 |
| Excess cash | 49,961 | 28,463 | 29,991 | 28,263 | 39,285 | 38,000 | 37,940 |
| Assets classified as held for sale | 0 | 0 | 0 | 0 | 74,220 | 0 | 0 |
| **Total financial assets** | 49,995 | 34,569 | 85,269 | 82,727 | 162,157 | 80,635 | 78,713 |
| **NIBD** | 107,061 | 474,013 | 601,982 | 543,754 | 420,319 | 440,333 | 505,057 |
| **Invested capital (finance)** | 391,262 | 637,267 | 714,204 | 707,747 | 581,900 | 603,047 | 662,066 |

Source: DESSC annual reports 2006 – 2012

Equity, financial liabilities and financial assets are arranged separately. By subtracting financial assets from financial liabilities we obtain net interest-bearing debt (NIBD). The financial assets are deducted from the financial liabilities, because they reduce the need for obtaining debt. For instance, excess cash, reduces the need for debt. By adding equity to NIBD we get invested capital (finance), which matches the invested capital obtained through net operating assets.

## 6.5 Profitability analysis

To assess DESSC's historical performance it is important to perform a profitability analysis. By using a set of financial ratios, we will be able to uncover the historical financial performance of the company as

well as identifying factors which have contributed to the performance. Developing an understanding of the historical performance allows us to develop better projections on future forecasts which will lead to a better valuation of the company.

The financial ratios that we will use are linked to operations and based on the analytical income statement and balance sheet. The figure below shows the well-known Du-Pont model, which will form the structure of the profitability analysis. The Du-Pont Model depicts how the different ratios are interconnected and will provide us with important knowledge of the underlying performance of the company. When analysing the ratios we will assess both the level and trend of the ratios.

**Figure 6.1 – The Du-Pont Model**
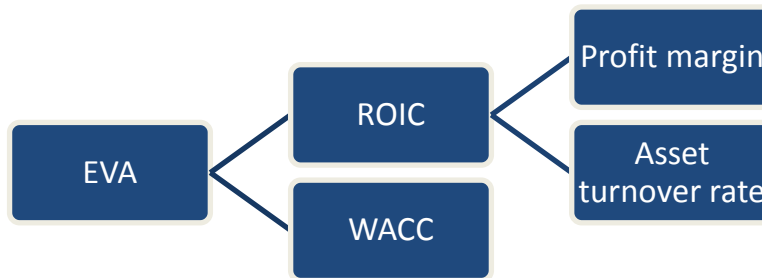


### 6.5.1 Return on invested capital (ROIC)

The return on invested capital (ROIC) is said to be the single most important value driver and serves as a measurement of overall profitability from operations. The ratio expresses the return on capital invested in the company's net operating assets as a percentage. As shown from the figure above, ROIC is driven by capital turn over (ATO) and operating profit margins. To be able to draw inference from the ROIC it is important to compare the level of the ROIC with the cost of capital, also known as the required (expected) rate of return, represented by the weighted average cost of capital (WACC)[131]. Theory states that a company only creates value for its stakeholders when the ROIC exceeds WACC. This means that a company may experience growth, but if the ROIC is below WACC, then the growth does not create any value for the stakeholders. This highlights the importance of performing a thorough profitability analysis and not to take all growth as signs of value creation. The economic value added (EVA) is a measurement of value creation, and is defined as:

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[131] Petersen & Plenborg, Financial Statement Analysis, 2012, 1th ed., page 96

$$EVA = (ROIC - WACC) \times invested\ capital$$

EVA shows how value is created when ROIC exceeds WACC.

In addition to comparing the ROIC with WACC to assess if the ROIC is at a satisfactory level, we include a comparison with the performance of the comparable peer companies which we have identified earlier in the thesis. This will increase our understanding of the company's position in the industry which can help us to draw inference on the performance of the company relative to its peers. To be able to calculate the ratios of Deep Sea Supply's peers we have reorganised each of the companies' income statement and balance sheets and made analytical income statements and balance sheets to make sure that the ratios are truly comparable. The reorganisation is based on the same assumptions as when we reorganized DESSC's income statement and balance sheet, and can be found in appendix 4.2.

**Table 6.9 – Deep Sea Supply's ROIC**

| DESSC Return on invested capital (ROIC) | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
| ROIC a.t (NOPAT/IC) | 8.0% | 10.8% | 16.7% | 9.6% | -110.7% | 4.4% | 2.6% |
| ROIC b.t (EBIT/IC) | 8.1% | 13.2% | 15.7% | 8.0% | 3.5% | 4.5% | 2.0% |

Source: Deep Sea Supply annual reports 2006-2012

We have calculated both ROIC before and after taxes[132]. However due to tax complications and changing tax regimes, especially effecting the calculation in year 2010, we will focus on the financial ratios before tax. The tax complications arrive from the calculations of effective tax, which have fluctuated a lot in the historical data. This have also been the case with the peer companies, and based on this we argue that it is preferable to assess the level and trend of the ROIC before taxes and not after taxes, which helps us to focus on the real underlying performance and make a better comparison. To assess if the level of the ROIC has been at a satisfactory level or not we can compare it with the WACC. Assuming that the WACC has been around 7% in the past, which is close to our calculated WACC of 7.20 %[133], we can see that the company has generated excess return in 2006 – 2009.

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[132] For estimation of DESSC's ROIC before and after tax see appendix 4.3
[133] WACC is estimated in chapter 8

However, the trend has been negative and the three last years the ROIC has been below the assumed WACC, meaning that no value was created for the shareholders.

Comparing with the peer group, as illustrated in figure 6.2[134], it is evident that each of the companies has experienced the same negative trend since 2008, however to different degrees. This signals that the development is due to negative market sentiments and not necessarily bad management. The period 2004 – 2008 was characterised by increasing freight rates, both for PSVs and AHTSs, however the financial crisis of 2008 had as mentioned in the strategic analysis a significant negative effect on the market, reducing the overall activity. This is illustrated with the negative trend from 2008-2012. However, the rates for the PSVs started to increase again in 2010, and rates for AHTSs started to recover in 2011[135], and the figure below illustrates the effect of the improved market with slightly improving return on capital for at least Solstad and Havila.

**Figure 6.2 – ROIC comparison between DESSC and peers**
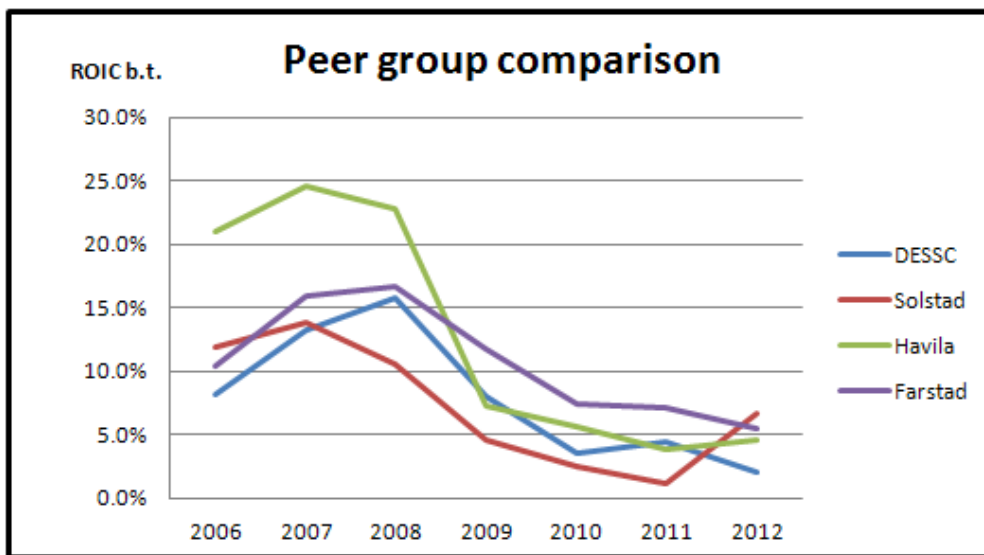


Source: Companies' annual reports 2006-2012

The graph depicts that DESSC has performed below the peer average throughout the period, with an average ROIC b.t. of 7.9% compared to peer average of 10.2%. However, the high peer average is

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[134] Peer's ROIC before tax are calculated in appendix 4.4
[135] Figure 2.1

much attributed to the high ROIC b.t of Havila in the years 2006 – 2009, which was above 20%. The overall trend and level seems to be quite similar for all peers throughout the period.

## 6.5.2 Decomposition of ROIC

By decomposing the ROIC into profit margin and asset turnover we can further assess the profitability and identify what has driven the profitability.

$$ROIC = Profit\ margin \times Turnover\ rate\ of\ invested\ capital$$

$$Profit\ margin\ b.t.= \frac{EBIT}{Net\ revenues} \times 100$$

The profit margin illustrates the relationship between revenue and expenses and expresses the operating income as a percentage of net revenue[136].

**Table 6.10 – DESSC's and peers' profit margin before tax**

| Profit margin b.t | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | AVG |
| DESSC | 43% | 57% | 59% | 34% | 16% | 23% | 11% | 35% |
| Solstad | 37% | 43% | 35% | 18% | 13% | 5% | 26% | 25% |
| Havila | 52% | 59% | 58% | 35% | 25% | 21% | 27% | 40% |
| Farstad | 36% | 41% | 45% | 39% | 26% | 24% | 20% | 33% |

Source: Companies' annual reports 2006-2012

As table 6.10 shows the profit margin of the companies compared are following a quit similar development, increasing from 2006 to 2008, and then decreasing towards 2011-2012[137]. Havila has showed the highest average, at 40% for the period, with Deep Sea Supply at 35%. Farstad and Solstad had averages of 33% and 25% respectively. DESSC's average of 35% indicates that the company has generated on average 35 cents on each dollar of net revenue.

To increase our understanding of the reasons behind the decreasing profit margin we have performed a trend analysis and a common-size analysis, illustrating why the ratios have developed as they have.

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[136] Petersen & Plenborg, Financial statement analysis, 2012, 1th ed., page 107
[137] See appendix 4.5 for the calculations of the companies' profit margin

**Table 6.11 – Trend analysis of Deep Sea Supply**

| Trend analysis | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
| Sales - freight revenue | 100 | 198 | 257 | 226 | 178 | 156 | 167 |
| Operating expenses vessels | 100 | 154 | 231 | 253 | 282 | 276 | 254 |
| **Gross profit** | **100** | **221** | **271** | **211** | **122** | **91** | **120** |
| Administrative expenses | 100 | 215 | 287 | 277 | 314 | 393 | 445 |
| Other operating expenses | 100 | 0 | 0 | 0 | 85 | 49 | 0 |
| **EBITDA** | **100** | **240** | **340** | **223** | **136** | **133** | **109** |
| Depreciation related to vessels | 100 | 165 | 301 | 362 | 362 | 285 | 319 |
| Other depreciation | 100 | 26 | 247 | 316 | 516 | 1174 | 1300 |
| **EBIT** | **100** | **264** | **353** | **179** | **65** | **85** | **43** |
| Taxes on EBIT | 100 | 3369 | -1529 | -2348 | 146499 | 155 | -774 |
| **NOPAT** | **100** | **219** | **380** | **216** | **-2055** | **84** | **54** |

Source: Deep Sea Supply Annual Reports 2006-2012

The trend analysis in table 6.11 identifies the trends in revenues and expenses. We can see that revenue increased by 67% from 2006 to 2012. However, the operating expenses have increased by 154% in the same period, leading to decreasing profit margin. One can identify an increase in revenue from 2006 to 2008, before falling in the period 2009 to 2011, which is equivalent to the development in ROIC. Operating expenses have increased steadily over the period before seeing a decrease in 2011 and 2012, which is positive for Deep Sea Supply. Due to a growth strategy, an increase in administrative expenses has been inevitable, and the total staff has increased from 9 to 51 persons employed in the historical period. Depreciations related to vessels have increased as a result of acquisitions of new vessels, which is natural for a newly established OSV owner. Other depreciations and administrative costs show a large increase, however to reveal the relative size of the items one need to look at the common-size analysis which tells us more of the size of the items relative to freight revenue.

**Table 6.12 – Common-size analysis of Deep Sea Supply**

| Common-size analysis | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
| Sales - freight revenue | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Operating expenses vessels | -35% | -27% | -32% | -39% | -56% | -62% | -53% |
| **Gross profit** | **65%** | **73%** | **68%** | **61%** | **44%** | **38%** | **47%** |
| Administrative expenses | -4% | -4% | -4% | -5% | -7% | -9% | -10% |
| Other operating expenses | -5% | 0% | 0% | 0% | -2% | -1% | 0% |
| Other (loss)/gains - net | | 0% | 11% | 0% | 8% | 21% | 0% |
| **EBITDA** | **56.4%** | **68.5%** | **74.8%** | **55.7%** | **43.1%** | **48.1%** | **36.6%** |
| Depreciation related to vessels | -14% | -11% | -16% | -22% | -27% | -25% | -26% |
| Other depreciation | 0.0% | 0.0% | 0.0% | 0.0% | -0.1% | -0.2% | -0.2% |
| **EBIT** | **43%** | **57%** | **59%** | **34%** | **16%** | **23%** | **11%** |
| Taxes on EBIT | 1% | 10% | -4% | -6% | 502% | 1% | -3% |
| **NOPAT** | **42%** | **47%** | **63%** | **40%** | **-487%** | **23%** | **14%** |

Source: Deep Sea Supply Annual Reports 2006-2012

As we can see in table 6.12, the huge increase in other depreciation is not of significant size relative to revenue, hence one need not to worry about this item. However, more disturbingly is the growth in operating expenses from 35% to 53% of revenue. This growth is mainly due to increased costs in relations with the larger fleet of vessels, as well as increasing crewing costs due to higher wages over the period. Costs related to operations of vessels include insurance, repairs and maintenance, equipment and other[138].

DESSC has stated that they emphasis on lowering operating expenses through better planning and control, as well as in 2012 introducing a fuel efficiency program to reduce the vessels' consumption of diesel. Results from the cost reductions are expected to be seen in 2013 and onwards, which should increase the profit margin, increasing the EBIT, again having a positive effect on ROIC.
Turnover rate of invested capital (ATO), illustrates the company's ability to utilise invested capital[139], in other words, how much revenue the company is generating in relation to the invested capital. ATO is estimated with the following calculation:

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[138] Deep Sea Supply Annual Report 2012, page 41
[139] Petersen & Plenborg, Financial Statement Analysis, 2012, 1th ed., page108

$$Turnover\ rate\ of\ invested\ capital = \frac{Net\ revenue}{Invested\ capital}$$

In an industry characterized by high internal rivalry, standardized products/services and prices determined by market forces it is important for the OSV companies to maintain a high and competitive ATO, which can be achieved through tight cost control while keeping invested capital at a minimum[140].

**Table 6.13 – Turnover rate (ATO) for DESSC and peers**

| Turnover rate, Peer comparison | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| DESSC | 0.19 | 0.23 | 0.27 | 0.24 | 0.23 | 0.19 | 0.19 | 0.22 |
| Solstad | 0.32 | 0.32 | 0.30 | 0.25 | 0.19 | 0.21 | 0.26 | 0.26 |
| Havila | 0.41 | 0.42 | 0.40 | 0.21 | 0.23 | 0.19 | 0.17 | 0.29 |
| Farstad | 0.29 | 0.39 | 0.37 | 0.30 | 0.29 | 0.29 | 0.28 | 0.31 |

Source: Companies annual reports 2006-2012

As table 6.13 illustrates, the companies' average ATO is between 0.22-0.31, which is quite low[141]. This looks to be a characteristic of the industry, where heavy investments are necessary. However, the companies are able to counter a low ATO with a high PM, making it possible to maintain a satisfactory ROIC.

Deep Sea Supply's average ATO is 0.22, meaning that invested capital is tied up for about four years and 196 days on average (360 / 0.22 = 1,636 days), or alternatively that the company generates 22 cent per dollar they invest in operation. The trend has been negative since 2009, which isolated has deteriorated the ROIC. Nevertheless, DESSC's ATO throughout the time period is considered to be rather stable. Based on this we conclude that the decreasing profit margin has been the primary reason for the decreasing ROIC b.t.

Overall assessment of ROIC, PM and ATO shows that Deep Sea Supply has on average performed close to industry average, with all of the comparable companies having ratios fluctuating around the same level and following the same trend. This illustrates that they are affected by the same macroeconomic and industry factors, which strengthens our decision for choosing the companies as peers. The period analysed has been fairly challenging for the OSV industry, with the financial crisis

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[140] Petersen & Plenborg, Financial Statement Analysis, 2012, 1th ed., page 109
[141] See appendix 4.6 for calculations of the companies' ATO

and periods of oversupply and low freight rates. We have identified the reason for DESSC's decreasing profitability, which is mainly due to the fact that operating expenses have grown faster than operating income. With the future outlook of the OSV markets, the strategically positioning of Deep Sea Supply's vessels, increased contract coverage and growing fleet, the revenue should be expected to grow at a faster rate than previously. In addition the operating expenses will increase as a result of a larger fleet, however, efficiency measures are being made to restrain this increase. We argue that it is rational to expect an increase in ROIC for the coming years.

### 6.6.3 Return on equity (ROE)

To increase our understanding of the value creation in Deep Sea Supply we need to include the impact of financial leverage on the profitability. Return on equity (ROE) measures how much profit a company generates with the equity invested by its shareholders, taking both operating and financial leverage into account. It is estimated with the following equation[142]:

$$ROE = ROIC + (ROIC - NBC) \times \frac{NIBD}{BVE},$$

Where $NBC$ represents net borrowing cost as a percentage, $NIBD$ represents net interest-bearing debt and $BVE$ represents book value of equity.

As the equation illustrates, when there is a positive spread between ROIC and NBC, ROE increases with an increasing financial leverage. In this case ROE will be higher than ROIC. On the other hand, when there is a negative spread between ROIC and NBC, financial leverage will deteriorate value creation for the shareholders. In order for investors to be pleased, ROE needs to be higher than their required rate of return, which is a measure of what they need to be compensated with for the acquired risk related to the investment. As we will thoroughly explain in chapter 8, DESSC's investors' estimated required rate of return is 9%. Hence, the company's ROE should be higher than 9% in order to satisfy its investors. For comparison reasons, we assume that the investors' historical required rate of return was 9% as well.

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[142] Petersen & Plenborg, Financial statement analysis, 2012, p. 117

**Table 6.14 – DESSC's ROE**

| Return on equity | | | | | | | |
|---|---|---|---|---|---|---|---|
| *Numbers in thousand USD* | 2006 | 2007 | 2008 | 2009 | 2010 b.t. | 2011 | 2012 |
| Net financial expenses after tax | -5,956 | -10,175 | -44,726 | -26,951 | | -25,755 | -21,683 |
| NIBD | 107,061 | 474,013 | 601,982 | 543,754 | | 440,333 | 505,057 |
| NBC (net financial exp. / NIBD) | 5.6% | 2.1% | 7.4% | 5.0% | 4.9% | 5.8% | 4.3% |
| ROIC after tax | 8.0% | 10.8% | 16.7% | 9.6% | 3.5% | 4.4% | 2.6% |
| Equity | 284,201 | 163,254 | 112,222 | 163,993 | 161,581 | 162,714 | 157,009 |
| Financial leverage (NIBD / Equity) | 0.38 | 2.90 | 5.36 | 3.32 | 0.00 | 2.71 | 3.22 |
| **Return on equity** | **8.94%** | **35.84%** | **66.29%** | **24.80%** | **3.54%** | **0.44%** | **-2.96%** |

Source: DESSC annual reports 2006-2012.

As table 6.14 illustrates, ROE was higher than ROIC between 2006 and 2009 due to a positive spread between ROIC and NBC in these years. The financial leverage increased dramatically over the period due to large investments and the strategy of using the capital markets to execute the growth strategy. ROE reached an all-time-high in 2008 due to a large spread between ROIC and NBC as well as high financial leverage. From 2010 to 2012 ROE decreased significantly due to a negative spread and high financial leverage in these years, and in 2012 ROE was negative.

When comparing the ROE with the costs of equity, only 2007-2009 were satisfactory for DESSC's investors. Based on the expansive growth strategy it is likely that DESSC will maintain or even increase its financial leverage, indicating that the company needs to increase ROIC significantly in order to generate a ROE in excess of the cost of capital.

## 6.7 Analysis of liquidity risk

Based on the CAPM theory the total risk in an investment or a portfolio of investments may be decomposed into systematic and unsystematic risk. The systematic risk expresses the risk attached to the market portfolio and cannot be reduced through diversification. The unsystematic risk on the other hand, is the uncertainties that come with the company or industry that you invest in, and may be reduced through diversification of investments[143].

The systematic risk will be analysed in the section regarding cost of capital. In this section we will focus on Deep Sea Supply's unsystematic risks by taking a closer look at short- and long-term liquidity

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[143] Penman, Financial Statement Analysis and Security Valuation, 2010, 3rd ed., page 590

risk. Liquidity is essential for any type of business. An illiquid company will struggle to pay its bills or carry out profitable investments, and in worst case go bankrupt. Therefore, it is important to assess both short- and long-term liquidity risk. Liquidity risk is also used when assessing a company's credit risk.

It is difficult to evaluate a company's liquidity risk without a proper benchmark, which is why we chose to compare DESSC's financial ratios with the company's peers.

### 6.7.1 Short-term liquidity risk

Analysis of short term liquidity risk reveals a company's ability to pay all short-term obligations before they fall due[144]. Following, we will estimate the current ratio and the cash flow from operations (CFO) to short-term debt ratio when analysing DESSC's short-term liquidity risks.

#### Current ratio

The current ratio indicates to which extent the current assets are financed by short-term debt. Also, the current ratio is used to assess a company's situation in the event of liquidation. A large ratio implies that you can sell the current assets and most likely cover the short-term debt. As a rule of thumb, PwC states that with regards to the shipping market, a current ratio of 1.5 is regarded to be financial sound, whereas a ratio of less than 1.5 indicates a high short-term liquidity risk[145].

$$Current\ ratio = \frac{Current\ assets}{Current\ liabilities}$$

**Table 6.15 – Current ratio comparison**

| Current ratio comparison | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Numbers in thousand USD | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| Deep Sea Supply | 4.08 | 0.85 | 1.18 | 1.21 | 1.46 | 1.38 | 1.14 | 1.20 |
| Peers | 2.23 | 1.42 | 1.66 | 1.94 | 1.07 | 1.14 | 0.86 | 1.47 |

Source: Companies' annual reports 2006-2012

In table 6.15 the current ratio for DESSC and the peers in the period 2006 to 2012 is presented[146]. We regard Deep Sea Supply's current ratio in 2006 as an outlier as this was the start-up year and the company obtained long-term debt rather than short-term debt this year. Consequently, we exclude 2006

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[144] Petersen & Plenborg, Financial Statement Analysis, 2012, 1th ed., page 150
[145] PwC, Global Shipping Benchmarking Survey, 2010, page 20
[146] See appendix 4.7 for calculation of current ratios

in the calculation of DESSC's average current ratio. Deep Sea Supply's average current ratio in the period is 1.20, whereas the peers' average is 1.40. DESSC's current ratio increased from 2007 to 2010 due to reduction of short-term debt, but in 2011 and 2012 the ratio declined due to a combination of an increase in the current liabilities and constant current assets. The company struggles to some extent with its ability to cover the short-term debt. Deep Sea Supply has not in any year met the requirement of a ratio of 1.5, and its average is far below.

An alternative to the current ratio is the quick ratio, which includes the most liquid assets and thus excludes inventory from the ratio[147]. However, DESSC does not have inventories of great value, which leads to similar ratios, which is why we exclude this variant.

### Cash flow from operations to short-term debt ratio

By replacing current assets with the actual cash flows generated from operations, we get the cash flow from operations (CFO) to short-term debt ratio. By using CFO instead of current assets, we get rid of the problem with converting assets to cash. Further, CFO might be a better indicator of available cash that can be used to pay off the short-term debt on an on-going basis[148].

$$CFO \ to \ short-term \ debt \ ratio = \frac{CFO}{Current \ liabilities}$$

**Table 6.16 – CFO to short-term debt ratio comparison**

| CFO to short-term debt ratio | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| Deep Sea Supply | 0.65 | 1.95 | 1.79 | 0.98 | 0.84 | 0.74 | 1.16 |
| Peers | 1.69 | 0.80 | 0.93 | 0.92 | 0.43 | 0.80 | 0.93 |

Source: Companies' annual reports 2006-2012

Table 6.16 presents the companies' CFO to short-term debt ratio from 2007 to 2012[149]. There is no rule of thumb when calculating the CFO to short-term debt ratio. However, we do believe that a company should be able to pay its short-term debt by using money generated from the business rather than obtaining a loan or use its equity to meet these obligations. That is why we use a ratio of 1 as the minimum requirement. Deep Sea Supply's CFO to short-term debt ratio outperformed the peers' ratio

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[147] Petersen & Plenborg, Financial Statement Analysis, 2012, 1th ed., page 155
[148] Petersen & Plenborg, Financial Statement Analysis, 2012, 1th ed., page 157
[149] See appendix 4.8 for calculations of the companies CFO to short-term debt

every year except of 2007 and 2012, and has an average ratio of 1.17, whereas the comparable companies have an average of 0.93. Hence, DESSC's average ratio satisfies our own rule of thumb and indicates that the company can pay 1.17 times its short-term obligations from the cash DESSC generates through its operations.

DESSC's CFO to short-term debt ratio is significantly higher than the peers' ratio in 2008 and 2009, and moves toward the industry's level in 2010. In 2008 Deep Sea Supply recorded an all-time-high EBIT, consequently resulting in a high CFO to short-term debt ratio. Since 2008, the ratio has been constantly decreasing, reaching 0.74 in 2012, which is due to a plummeting EBIT, effectively reducing the CFO[150].

### 6.7.2 Long-term liquidity risk

Long-term debt holders watch the firm's immediate liquidity, but they are more concerned with its ability to serve its long-term debt[151]. The long-term liquidity risk is also defined as solvency risk and refers to the firm's long-term financial health and its ability to meet all future obligations. Following, we will take a closer look at the solvency ratio, the interest coverage ratio and the CFO to debt ratio.

### *The solvency ratio*

An indicator of the long-term liquidity risk is the solvency ratio, which measures the proportion of the assets that is financed by equity. The solvency ratio is measured in the following way:

$$Solvency\ ratio = \frac{Equity}{Total\ liabilities + equity}$$

Generally, a low solvency ratio indicates a high long-term liquidity risk. Adequate solvency ratios differ across industries. In the shipping world a solvency ratio higher than 0.2 is considered to be financial sound[152]. When calculating the solvency ratio, it is recommended to use market values as they are closer to the realisable value[153]. Thus, when calculating the ratios for Deep Sea Supply we intend to use the market capitalisation (market cap) instead of book value of equity. However, estimating market values for debt is more challenging, which is why we use book value of debt.

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[150] Appendix 4.8
[151] Penman, Financial Statement Analysis and Security Valuation, 2010, 3rd ed., page 726
[152] PwC - Global Shipping Benchmarking Survey 2010
[153] Petersen & Plenborg, Financial Statement Analysis, 2012, 1th ed., page 158

**Table 6.17 – Solvency ratios based on market values**

| Solvency ratios based on market values | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| Deep Sea Supply | 0.69 | 0.53 | 0.15 | 0.22 | 0.30 | 0.23 | 0.27 | 0.34 |
| Peers | 0.51 | 0.47 | 0.25 | 0.36 | 0.34 | 0.28 | 0.28 | 0.36 |

Source: The companies' annual reports 2006-2012

Table 6.17 presents DESSC's and the peers' solvency ratio based on the market cap from 2006 to 2012[154]. Deep Sea Supply's average solvency ratio is 0.34, which is comfortably above the requirement of 0.20, and quite close to the peers' ratio of 0.36. Deep Sea Supply's ratio means that the company covers 34% of its assets through equity while 66% is financed with debt, which we believe is a pretty solid ratio.

DESSC's ratio is quite similar to the peers' for all the years of the analysis. The ratio was significantly higher in 2006 and 2007 for both DESSC and the peers. This is due to general high stock prices triggered by a bullish overpriced stock market which crashed in 2008 with the financial crisis. Thus, the solvency ratio plummeted in 2008 before it stabilized in 2009 and has remained at a steady level around 0.30 since.

### The interest coverage ratio

The interest coverage ratio measures the amount of earnings available to pay interest expense and it displays how far operating profit can fall before the company has difficulties to serve its debts as they fall due[155]. The interest coverage ratio is calculated as operating profit (EBIT) divided by net financial expenses. The higher the ratio, the lower the long-term liquidity risk.

$$Interest\ coverage\ ratio = \frac{EBIT}{Net\ financial\ expenses}$$

An interest coverage lower than 1 means that the company needs to finance its financial expenses with the company's equity or through obtaining further debt, which is unfortunate. With other words, as a rule of thumb, companies should try to avoid a ratio less than 1.

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[154] See appendix 4.9 for calculations of the companies' solvency ratios
[155] Koller et al., 2010. *Valuation- Measuring and Managing the Value of Companies*, 5th ed., pg. 180

**Table 6.18 – Interest coverage ratio comparison**

| Interest coverage ratio comparison | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| DESSC | 5.26 | 6.75 | 2.66 | 2.51 | 1.00 | 1.03 | 0.79 | 2.86 |
| Peers | 3.57 | 3.15 | 1.17 | 1.42 | 0.87 | 0.72 | 1.04 | 1.70 |

Source: Companies' annual reports 2006-2012

Table 6.18 presents the interest coverage ratio for DESSC and its peers from 2006 to 2012, as well as their average ratio[156]. Deep Sea Supply's average interest coverage ratio of 2.86 is comfortably above the minimum required ratio of 1, as well as the peers' average of 1.70 Thus, historically the company has had no trouble covering its interest payments from operating profits. However, the trend for both DESSC and its comparable peers, which seem to follow each other quite closely, is a decreasing ratio. Due to a low EBIT in 2012, the interest coverage ratio was only 0.79 this year, which is less than the required rule of thumb. The company must increase the ratio going forward before creditors assess the company to possess long-term liquidity risk, which is doable through increasing EBIT to a larger extent than the net financial expenses.

### Cash flow from operations to debt ratio

As a final step in the evaluation of DESSC's long-term liquidity risk we intend to analyse the company's cash flow from operations (CFO) to debt. It measures the extent to which the CFO is sufficient to cover all the company's debt[157].

$$CFO \ to \ debt \ ratio = \frac{CFO}{Total \ liabilities}$$

The difference between CFO to debt ratio and CFO to short-term debt ratio from earlier is that the former considers all the debt the company is obligated to pay, not just the current liabilities or short-term debt which the latter measures. There is no rule of thumb when assessing the CFO to debt ratio. However, the higher the ratio, the lower the long-term liquidity risk, as the company has enough cash to meet its debt.

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[156] See appendix 4.10 for calculations of DESSC's and companies' interest coverage ratios
[157] Petersen & Plenborg, Financial Statement Analysis, 2012, 1th ed., page 162

**Table 6.19 – CFO to debt ratio comparison**

| CFO to debt ratio comparison | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| Deep Sea Supply | 0.14 | 0.23 | 0.16 | 0.10 | 0.10 | 0.09 | 0.14 |
| Peers | 0.22 | 0.18 | 0.16 | 0.11 | 0.09 | 0.13 | 0.15 |

Source: Companies' annual reports 2006-2012

Table 6.19 presents the CFO to debt ratio for DESSC and its comparable competitors between 2007 and 2012[158]. Deep Sea Supply's average CFO to debt ratio is 0.14 which is quite close to the peers' average of 0.15. A CFO to debt ratio of 0.14 means that the company can pay 14% of all its debt with the cash generated from operations, which we assess to be decent in this line of business. However, from 2009 DESSC's CFO to debt ratio has been decreasing and been below 0.1. This reduction is not due to debt increase as debt lies around the same level as in 2009. Rather, it is because as earlier mentioned a decreasing EBIT.

### 6.7.3 Risk summary

**Table 6.20 – Summary of financial ratios**

| Deep Sea Supply's financial ratios | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average | Peers avg. | Requirement |
| **Short-term liquidity risk** | | | | | | | | | | |
| Current ratio | 4.08 | 0.85 | 1.18 | 1.21 | 1.46 | 1.38 | 1.14 | **1.20** | 1.47 | 1.50 |
| CFO to short-term debt ratio | | 0.65 | 1.95 | 1.79 | 0.98 | 0.84 | 0.74 | **1.16** | 0.93 | 1.00 |
| **Long-term ratio** | | | | | | | | | | |
| Solvency ratio (market cap) | 0.69 | 0.53 | 0.15 | 0.22 | 0.30 | 0.23 | 0.27 | **0.34** | 0.37 | 0.20 |
| Interest coverage ratio | 5.26 | 6.75 | 2.66 | 2.51 | 1.00 | 1.03 | 0.79 | **2.86** | 1.70 | 1 |
| CFO to debt ratio | | 0.14 | 0.23 | 0.16 | 0.10 | 0.10 | 0.09 | **0.14** | 0.15 | - |

In table 6.20 the different financial ratios measuring Deep Sea Supply's short – and long-term liquidity risk are summarised for 2006 – 2012, as well as the average for both DESSC and peers. In the column to the far right we have put in the requirements or the rule of thumbs we have used in the analysis, so we can compare it to the average ratios.

Both in the short - and long-term we assess DESSC risk to be low. Most of the company's ratios resemble the peers' ratios, and the CFO to short-term debt ratio, the solvency ratio and the interest

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[158] See appendix 4.11 for calculations of DESSC's and the peers' CFO to debt ratio

coverage ratio all satisfy their respective minimum requirement. The current ratio is the only financial ratio below the rule of thumb. However, we regard the CFO to short-term debt ratio to depict a better picture of a company's short-term liquidity, which is due to the avoidance of the convertibility-to-cash issue. Despite historical solid ratios, the risk has increased in recent years, much attributed to the plummeting EBIT. However, as we will thoroughly explain later in this thesis, we forecast with a strong growth in Deep Sea Supply's EBIT. Hence, it is reasonable to predict that the company's short- and long-term liquidity risk will be held at a minimum going forward.

# 7. Forecasting

In this chapter we intend to perform a forecast of Deep Sea Supply's future cash flows, which is step 3 in Penman's fundamental analysis. In order to do so, we need to change from a historical perspective to a forward-looking perspective and outline our estimates of future growth in the respective value drivers which present the primary driving force behind DEESC's value creation. The value drivers that we have chosen are based on the sales-driven forecasting approach[159]. This approach focuses on the link between the level of activity generating income and the related expenses and investments. We argue that this approach is suitable in our case due to the nature of DESSC's business and the information that we have access to. The value drivers chosen reflect the underlying economics of the company and should provide us with a sound forecast. The value drivers will enable us to develop our pro forma statement which makes the foundation of our valuation. Due to high uncertainty in forecasting the value drivers, we have decided to apply a high degree of aggregation. This is also due to the limited information available. However, we have decided to include extra line items in our most important value driver, the revenue growth, separating between AHTSs and PSVs. We believe that this will improve our forecast.

The estimations and assumptions of the value drivers will be based on our knowledge of the industry and company which we have acquired through the strategic and financial analysis. The value drivers will be presented after we have discussed and chosen a suitable forecasting horizon.

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[159] Petersen & Plenborg, Financial Statement Analysis, 2012, 1th ed., page 175

## 7.1 Choice of forecasting horizon

The pro forma statement incorporates the historical period, the explicit forecasting period and the terminal period. The length of the historical period has already been discussed and will include the years 2006 – 2012. The historical period provides us with important information about the development of the company and especially the development of our value drivers. Choosing the length of the historical period was simple due to the limited historical data, in contrast, choosing the explicit period is more complicated. The length of the explicit period depends on the nature of the company and when the company is expected to reach "steady state". Steady state represents an environment where the company's cash flow is expected to grow with a constant growth rate in perpetuity assuming the company as a going concern. This growth rate is assumed to be close to the growth of the world economy.

From our strategic analysis we have found that Deep Sea Supply is establishing new relations and are following a growth strategy, with plans and current orders for increasing their fleet. In addition we have looked at forecasted future supply and demand levels which overall looks promising due to market fundamentals. Based on this we argue that the company is in a growth phase.

The existence of shipping cycles is important to incorporate in our forecasts, and as a rule of thumb the cycles are said to last for around 7 years[160]. However each cycle is different and it is impossible to accurately forecast how long the next cycle will last. The shipping cycles are said to pass through four phases during these 7 years. Starting with the trough phase characterised by excess in capacity and low freight rates, followed by the recovery phase where supply and demand moves towards equilibrium, which puts upward pressure on the freight rates. The two last phases are the peak and the collapse. The peak is characterised by high freight rates and utilization, as well as high market pressure with supply and demand being almost completely equal. The collapse follows the peak when supply exceeds demand and freight rates plummet pushing the cycle towards the trough phase once again. The research around the shipping cycles is mainly based on data from the commercial shipping industry, and not the OSV industry. However, we argue that it is rational to apply the shipping cycles to the OSV industry as both industries are affected by the same macro-economic factors and are characterized by many of the

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[160] Stopford, Maritime economics, 2009, 3rd ed., page 130

same market dynamics. Based on the strategic analysis we argue that the OSV industry is now in the recovery phase after years of low freight rates and oversupply.

To incorporate the strategy and position of Deep Sea Supply as well as the market dynamics we believe that it should be beneficial to use an explicit period of seven years in our forecast (E2013 – E2019). This is in accordance with theory which states that it is preferable to use a forecast horizon between 5 – 10 years, due to the fact that forecasting becomes more and more uncertain for every year forecasted. We will forecast the revenue growth or the first four years of the explicit period in depth before letting the three last forecasts years revert towards the terminal period (T2020), where everything is assumed constant.

## 7.2 Forecasting of value drivers

We have decided to use eight different value drivers in our forecasting template. These value drivers will now be presented and estimated. This will enable us to perform a forecasting of our pro forma statement and provide us with the input needed for our valuation which will take place in chapter 9.

Furthermore, the estimation of the revenue growth, assets and liabilities has been subject to several assumptions which is important to be aware of. We argue that it is important to include the newly established joint venture in the valuation in order to obtain accurate value estimations. This could be done by valuing DESSC and the joint venture separately. Since the joint venture is 50/50 owned, we could then add 50% of the joint venture's net income to DESSC's income statement. However, due to limited information related to the joint venture we have decided to apply a more simplified method: When estimating DESSC's expected revenue for the first four years of the explicit horizon we have included 50% of the revenue generated from vessels owned by the joint venture. Furthermore, we have estimated the value of the entire fleet in year 2013E and 2014E, both vessels wholly owned by DESSC and 50/50 owned through joint venture. This is done in order to be able to included 50% of the value of the vessels owned by the JV into the balance sheet of DESSC. In order to include the liabilities relating to the JV vessels we have chosen to estimate net interesting bearing debt as a percentage of invested capital, hence incorporating debt on the JV vessels through tangible assets. We believe that this ensures us that we have incorporated both the value creation of the JV vessels as well as including the assets and liabilities relating to the JV vessels. We acknowledge the simplification of the method, however,

we believe that we through this method obtain a reasonable estimation of forecasted revenue, assets and liabilities.

### 7.2.1 Revenue growth

There are many factors that need to be accounted for when estimating the revenue growth value driver. We have throughout our strategic and financial analysis laid the foundation that will provide us with an estimation which we think is reasonable based on the information available.

We mean that it is beneficial to separate revenue growth into the two segments AHTS and PSV as these are the sources to DESSC's revenue. We have performed a comprehensive estimation of future revenue for the period 2013 to 2016 which is based on income generated from current contracts as well as future expected employment. Further, we have estimated expected income for the newbuilds which are expected to be delivered to Deep Sea Supply in 2013 and 2014.

In addition to account for revenues generated from the fleet wholly owned by Deep Sea Supply, we need to take into consideration the vessels that were sold into the newly established joint venture which was completed on May 31th 2013. This includes 9 AHTSs and 6 PSVs. In addition, 6 large PSV newbuilds will be delivered to the joint venture in 2013. As mentioned, we will forecast with 50% of the revenue generated by the joint venture.

Due to changes in the company structure and fleet composition, we have decided to not account for the historical revenue growth when forecasting future revenues for the first four years in the forecast horizon. Rather, the forecasted vessels' revenues are based on regional estimates of OVS freight rates compiled by the international shipbrokerage company RS Platou and estimated utilization ratios, both regional and global, which are assessed earlier in our external analysis.

### *AHTS revenue growth*

In 2012, DESSC operated 15 AHTSs with 10 located in Brazil, 1 in the North Sea and 4 in Asia. Due to negative growth in the company's AHTS revenues in the period 2009 and 2011, the average yearly revenue growth was only 4% between 2007 and 2012[161]. The reason for the negative trend was as

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[161] See appendix 5.1 for calculation of DESSC's historical AHTS revenue growth

already stated the financial crisis which dampened the offshore activity in 2009 and the wave of newbuilds hitting the market until 2010, which together deteriorated the freight rates.

The last couple of years have seen a positive trend, with global average AHTS freight rates moving from USD 23,640 in 2010 to 29,420 in 2012, an increase of 24%[162]. This trend was due to positive market sentiments and is expected to continue as stated in the external analysis. RS Platou predicts that the positive market outlook will continue, and estimates that the daily freight rates for AHTSs will increase with 5% yearly in 2013 and 2014 to 32,400[163]. This development has been further argued for in the external analysis, with a decreasing OSV-to-rig ratio and higher rig demand. As estimated in the shipping market model, the global demand for AHTS vessels is estimated to grow with 21%, whereas supply is only growing with 11%, which ultimately will increase the utilization ratio and put an upward pressure on the AHTS freight rate.

**Forecasted AHTS revenue 2013 - 2016**

In table 7.1 we have included our average daily freight rate estimations for different classes of AHTSs in different regions. We have based the estimations of 2013 and 2014 on forecasts provided by RS Platou[164]. To calculate the years 2015 and 2016 we have multiplied the previous year with our own estimated growth rate which is based on the historical growth for the respective regional market in which DESSC operates, forecasted global growth rate and forecasted regional corrections. The forecasted global growth rate and the regional corrections are based on our external analysis and a detailed estimation is presented in appendix 5.3.

**Table 7.1 – Estimated average AHTS freight rate – numbers in thousand USD**

| | Estimated average freight rate, AHTS | | | | | |
|---|---|---|---|---|---|---|
| Year | North Sea spot rate 10-15,999 bhp | North Sea term rate 10-15,999 bhp | Brazil term rate < 10,000 bhp | Brazil term rate 15,000 bhp | Asia term rate < 10,000 bhp | Asia term rate 10-12,000 bhp |
| 2012 | 25.0 | 20.6 | 12.6 | 42.0 | 10.8 | 18.0 |
| 2013 | 22.7 | 18.7 | 13.5 | 45.0 | 10.8 | 18.0 |
| 2014 | 29.1 | 24.0 | 15.0 | 50.0 | 11.1 | 18.5 |
| 2015 | 30.8 | 25.4 | 17.5 | 58.4 | 12.3 | 20.4 |
| 2016 | 33.6 | 27.7 | 19.0 | 63.5 | 13.2 | 22.1 |

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[162] Appendix 1.1
[163] See appendix 5.2 for forecasted AHTS freight rates
[164] RS Platou, Offshore Supply Vessel Market, 2012, page 23

Because not all vessels are currently on contract and the future is uncertain, we need to estimate the expected utilization ratio for the respective area of operation. The forecasted global utilization ratio in figure 7.2 is based on our external analysis, and the estimated numbers is a calculation on the balance between total supply and demand forecasts of AHTS. As argued, we expect an increase in the global utilization due to higher growth in demand for AHTS than supply going forward (see table 5.5). Furthermore, we have taken into account the regional utilization ratios. The ratios for 2012 are estimated in appendix 3.12, whereas the ratios between 2013 and 2016 are estimated on the basis of the analysis of regional markets earlier in this thesis[165]. It is important to include regional utilization ratios due to the fact that not every market has the same balance between supply and demand.

**Table 7.2- Global and regional utilization ratios of AHTSs**

| Utilisation ratios of AHTSs | | | | | |
|---|---|---|---|---|---|
| Area | 2012 | 2013 | 2014 | 2015 | 2016 |
| Global | 66.4% | 69.3% | 71.0% | 72.4% | 73.8% |
| Brazil | 93.0% | 90.0% | 90.0% | 90.0% | 90.0% |
| North Sea | 40.0% | 40.0% | 65.0% | 70.0% | 72.0% |
| West Africa | 69.0% | 70.0% | 71.0% | 72.0% | 74.0% |
| Asia | 75.0% | 76.0% | 78.0% | 79.0% | 80.0% |

When forecasting the total AHTS revenues for Deep Sea Supply, we have decided to separate the revenues into two parts. One part includes revenues generated from AHTSs wholly owned by DESSC, whereas the other regards revenues from the joint venture in which we assume Deep Sea Supply will earn 50% of the income. In figure 7.3 we have estimated the revenues from the former part until 2016. The revenues are compiled on the basis of Deep Sea Supply's contract backlog, stated in the Q4 report from 2012[166]. The revenue is calculated with the average term rate for the respective region at time of contract settlement, multiplied by number of days under contract. To give an example, Sea Weasel (highlighted in yellow), is under contract between March 2013 and July 2013. The estimated revenue for Sea Weasel in 2013 generated from the contract is calculated with the following equation:

$$Revenue\ Sea\ Weasel. = 30\ days\ \times no\ of\ months\ under\ contract\ \times freight\ rate\ Asia <$$
$$10,000\ bhp\ for\ 2013$$

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[165] See appendix 5.4 for explanation of regional AHTS utilization ratios.
[166] Deep Sea Supply Q4 2012 report, page 13

$$Revenue\ Sea\ Weasel\ = 30\ days\ \times 5\ months\ \times USD\ 10{,}800 = \textbf{USD\ 1.62m}$$

The freight rate of USD 10.8 can be found in table 7.1.

**Table 7.3 – Revenues from AHTSs wholly owned by DESSC - Numbers in thousand USD**

| Revenues from AHTSs wholly owned by DESSC | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Estimated revenue from AHTSs on contract per December 2012** | | | | | | | | |
| Vessel name | BHP | Area of operation | Start date | End date | Rev 2013 | Rev 2014 | Rev 2015 | Rev 2016 |
| Sea Weasel | 6,800 | Asia | Mar-13 | Jul-13 | 1,620 | - | - | - |
| Sea Bear | 15,000 | Brazil | Jan-13 | Oct-13 | 13,500 | - | - | - |
| Sea Eagle 1 | 12,000 | Asia | Nov-12 | Nov-13 | 5,940 | - | - | - |
| Sea Ocelot | 10,880 | Asia | Apr-13 | Apr-14 | 4,860 | 2,160 | - | - |
| Sea Badger | 6,800 | Asia | Jan-13 | Jan-16 | 3,888 | 3,888 | 3,888 | 324 |
| **Estimated revenue from AHTSs before contracts 2013** | | | | | | | | |
| Vessel name | BHP | Area of operation | Start date | End date | Rev 2013 | | | |
| Sea Weasel | 6,800 | Asia | Jan-13 | Feb-13 | 492 | | | |
| Sea Ocelot | 10,880 | Asia | Jan-13 | Mar-13 | 1,231 | | | |
| **Estimated revenue from AHTSs after expired contracts** | | | | | | | | |
| Vessel name | BHP | Area of operation | Availability date | End date | Rev 2013 | Rev 2014 | Rev 2015 | Rev 2016 |
| Sea Weasel | 6,800 | Asia | Aug-13 | - | 1,231 | 3,117 | 3,489 | 3,815 |
| Sea Bear | 15,000 | Brazil | Nov-13 | - | 2,430 | 16,200 | 18,914 | 20,561 |
| Sea Eagle 1 | 12,000 | Asia | Dec-13 | - | 410 | 5,195 | 5,815 | 6,359 |
| Sea Ocelot | 10,880 | Asia | May-14 | - | - | 3,463 | 5,815 | 6,359 |
| Sea Badger | 6,800 | Asia | Feb-16 | - | - | - | - | 3,497 |
| **Estimated revenue from AHTSs operating on Spot** | | | | | | | | |
| Vessel name | BHP | Area of operation | Availability date | End date | Rev 2013 | Rev 2014 | Rev 2015 | Rev 2016 |
| Sea Lynx | 15,000 | North Sea | Spot | - | 3,268 | 6,816 | 7,772 | 8,716 |
| **Revenue** | | | | | 38,871 | 40,838 | 45,694 | 49,632 |

Source: Compiled by authors

However, Sea Weasel's contract started in March 2013 and it is fair to assume that the vessel generated income in the two months prior to the contract start. Further, it is likely that the vessel will earn revenue after the contract expires in July 2013. The two months prior to the contract start is included under "estimated revenue from AHTSs before contracts 2013," and the remaining months are calculated under "estimated revenue from AHTSs after expired contracts." In order to calculate this, we have used the same equation as above and added the utilization ratio for AHTSs operating in Asia in for the respective year, which can be found in table 7.2. Below we show how Sea Weasel's generated revenue in 2013 excluding the contract is calculated:

**Revenue Sea Weasel without contract** $= 30\ days\ \times no\ of\ months\ without\ contract\ \times$ $Freight\ rate\ AHTS\ < 10,000\ bhp\ in\ Asia\ 2013\ \times utilization\ ratio\ Asia\ for\ 2013$

**Revenue Sea Weasel prior to contract** $= 30\ days \times 2\ months\ \times USD\ 10,800\ \times$ $76\%\ utilization = $ **USD** $\mathbf{0.492m}$

**Revenue Sea Weasel after contract** $=$
$30\ days\ \times 5\ months\ \times USD\ 10,800\ \times 76\ \%\ utilization = $ **USD** $\mathbf{1.231m}$

The procedure for estimating Sea Weasel's revenue is carried out for all the AHTSs in DESSC's fleet.

Deep Sea Supply has currently only one AHTS operating on the spot market in the North Sea (Sea Lynx), and its revenue is included in total revenue using the same equation as with vessels without contract. However we have used a spot freight rate which is compiled by the average 2012 spot rate for the North Sea market, adjusted for future expected growth. The procedure is presented in appendix 5.3.

As already mentioned we separated the revenues from AHTS into two parts. The procedure for revenue calculation for AHTS belonging to the joint venture follows the same structure as used with the vessels wholly owned by DESSC, with estimations of revenue deriving from vessels on contract as well as vessels without. The contract backlog is based on the stated backlog from the Q4 2012 report. The joint venture was completed on 31th of May, and DESSC will as assumed be entitled to 50% of the income generated by the JV-fleet after this date. However, DESSC earns 100% of the revenue generated in the period before the completion of the JV and we need to take this into account. Thus, we have separated the revenues from the contract backlog in 2013 into before and after the establishment of the joint venture, which is done under "Rev 2013 pre JV" and "Rev 2013 post JV" in table 7.4 The following equations illustrate the procedure:

$Rev.2013\ pre\ JV = 30\ days\ \times no.of\ months\ pre\ JV \times Brazilian\ freight\ rate$

$Rev.2013\ post\ JV\ = \dfrac{(30\ days\ \times no.of\ months\ post\ JV\ \times Brazilian\ freight\ rate)}{2}$

Estimations of the revenue generated by the JV-fleet without contract are calculated in the same way as with the fleet wholly owned by DESSC, however divided by two, except of calculation of Sea Tiger's

revenue before its contract start in March (highlighted in yellow). This revenue was not divided by two due to the expected income earned before contract start as well as joint venture completion. Sea Tiger's post contract revenue is also calculated under "Estimated revenue without contract" only that we have divided this revenue by two since the contract expires after JV establishment (highlighted in green).

**Table 7.4- AHTS revenues from the joint venture - Numbers in thousand USD**

| AHTS revenues from the joint venture | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Estimated revenue from AHTSs on contract per December 2012** | | | | | | | | | |
| Vessel name | BHP | Area of operation | Start date | End date | Rev 2013 pre JV | Rev 2013 post JV | Rev 2014 | Rev 2015 | Rev 2016 |
| Sea Tiger | 15,000 | Brazil | Mar-13 | Oct-13 | 4,050 | 3,375 | - | - | - |
| Sea Cheetah | 15,000 | Brazil | Mar-12 | Mar-16 | 6,300 | 4,410 | 7,560 | 7,560 | 1,890 |
| Sea Jaguar | 15,000 | Brazil | Mar-12 | Mar-16 | 6,300 | 4,410 | 7,560 | 7,560 | 1,890 |
| Sea Fox | 6,800 | Brazil | Oct-12 | Jul-16 | 1,890 | 2,646 | 2,268 | 2,268 | 1,323 |
| Sea Jackal | 6,800 | Brazil | Oct-12 | Jul-16 | 1,890 | 2,646 | 2,268 | 2,268 | 1,323 |
| Sea Vixen | 6,800 | Brazil | Sep-12 | Sep-16 | 1,890 | 1,323 | 2,268 | 2,268 | 1,701 |
| Sea Stoat | 6,800 | Brazil | Sep-12 | Sep-16 | 1,890 | 1,323 | 1,323 | 1,323 | 1,701 |
| **Estimated revenue without contract** | | | | | | | | | |
| Vessel name | BHP | Area of operation | Availability date | End date | Rev 2013 pre JV | Rev 2013 post JV | Rev 2014 | Rev 2015 | Rev 2016 |
| Sea Leopard | 15,000 | Brazil | Dry docking until 06/2013 | | | 4,253 | 8,100 | 9,457 | 10,281 |
| Sea Panther | 15,000 | Brazil | Aug-13 | | | 3,645 | 8,100 | 9,457 | 10,281 |
| Sea Tiger | 15,000 | Brazil | Jan-13 | Feb-13 | 2,430 | - | - | - | - |
| Sea Tiger | 15,000 | Brazil | Nov-13 | | | 1,215 | 8,100 | 9,457 | 10,281 |
| Sea Cheetah | 15,000 | Brazil | Apr-16 | | | - | - | - | 7,710 |
| Sea Jaguar | 15,000 | Brazil | Apr-16 | | | - | - | - | 7,710 |
| Sea Fox | 6,800 | Brazil | Aug-16 | | | - | - | - | 1,285 |
| Sea Jackal | 6,800 | Brazil | Aug-16 | | | - | - | - | 1,285 |
| Sea Vixen | 6,800 | Brazil | Oct-16 | | | - | - | - | 771 |
| Sea Stoat | 6,800 | Brazil | Oct-16 | | | - | - | - | 771 |
| **Revenue** | | | | | 26,640 | 29,246 | 47,547 | 51,618 | 60,203 |

Source: Compiled by authors

In table 7.5 we have summarized DESSC's total AHTS revenue for the period 2013 – 2016.

**Table 7.5 – Numbers in thousand USD**

| DESSC total AHTS revenue incl. JV | | | |
|---|---|---|---|
| 2013 | 2014 | 2015 | 2016 |
| 94,757 | 88,385 | 97,312 | 109,835 |

Source: Compiled by authors

## PSV revenue growth

The global PSV market has experienced increasing freight rates from the bottom in 2009 to 2012, with a yearly average rate growth of 13%[167]. This trend was due to positive market fundamentals, and as we have discussed in the external analysis, the PSV outlook is optimistic, especially for the larger segment of PSVs. RS Platou supports this development and has estimated that the global average PSV rate will increase with 18% until 2014, going from USD 26,840 in 2012 to USD 31,800[168].

### Forecasted PSV revenue 2013-2016

The PSV freight rate calculation shown in table 7.5 is separated into size, geographical localisation and year. The rates from 2013 and 2014 are based on estimates provided by RS Platou[169]. Furthermore, we have calculated the freight rates for 2015 and 2016 as we did with AHTSs, by multiplying the previous year with our forecasted freight rate growth for the respective size and localisation for the respective year, the global PSV freight rate growth for the respective year as well as a historical average growth for the respective region. The global and regional forecasts are based on our external analysis, which overall depicts a positive picture, especially for modern large PSVs, which can be seen with the increasing freight rates in the table. A detailed estimation on how we have calculated the regional freight rates for 2015 and 2016 can be found in appendix 5.6

**Table 7.5 – Estimated average PSV freight rate - Numbers in thousand USD**

| Estimated average term rate PSV | | | | | | | |
|---|---|---|---|---|---|---|---|
| Year | North Sea spot rate 3-3,999 dwt | North Sea term rate 3-3,999 dwt | North Sea term rate > 4,000 dwt | Brazil term rate 3-3,999 dwt | Brazil term rate > 4,000 dwt | West Africa term rate3-3,999 dwt | Asia term rate > 4,000 dwt |
| 2012 | 16.0 | 20.5 | 27.0 | 27.7 | 34.0 | 25.0 | |
| 2013 | 17.0 | 21.8 | 28.0 | 31.5 | 37.0 | 25.5 | 27.0 |
| 2014 | 18.7 | 24.0 | 32.0 | 35.0 | 40.5 | 27.5 | 24.7 |
| 2015 | 20.6 | 26.4 | 35.3 | 40.1 | 46.4 | 29.5 | 25.5 |
| 2016 | 23.3 | 29.8 | 39.7 | 46.9 | 54.3 | 32.8 | 28.0 |

Source: Compiled by authors

As with AHTSs, not all PSVs are currently on contract which makes the future uncertain. Thus, we need to estimate the utilization ratios for the respective areas of operation, which is done in table 7.6 below.

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[167] See appendix 1.1 for yearly PSV freight rate growth
[168] See appendix 5.5 for forecasted PSV freight rates until 2014 compiled by Platou
[169] Platou report, "The Outlook for the Offshore Supply Vessel Market", page 23

**Table 7.6 – Global and regional utilization ratios of PSVs**

| Utilisation ratio PSV | | | | | |
|---|---|---|---|---|---|
| Area | 2012 | 2013 | 2014 | 2015 | 2016 |
| Global | | 72.4% | 71.8% | 71.6% | 72.3% |
| Brazil | 87.0% | 82.0% | 83.0% | 84.0% | 85.0% |
| North Sea | 77.0% | 70.0% | 72.0% | 72.0% | 72.0% |
| West Africa | 66.0% | 70.0% | 71.0% | 72.0% | 73.0% |
| Asia | 73.0% | 72.0% | 71.0% | 70.0% | 72.0% |

Source: Compiled by authors

The global utilization ratio is based on our external analysis, and is a calculation on the balance between total supply and demand forecasts of PSVs[170], basing our estimates on the external analysis of the market outlooks, and supply and demand balance. Due to a larger increase in the fleet of PSVs than in the fleet of AHTSs, we will not see the same growth in the global utilization ratio of PSVs as we did with AHTSs, however, it is kept at a steady level. Furthermore, we have taken into account the regional utilization ratios. The ratios for 2012 are estimated in appendix 3.12, whereas the ratios between 2013 and 2016 are estimated on the basis of the analysis of regional markets earlier in this thesis[171].

In table 7.7 we have summarised the revenues generated by the PSV fleet wholly owned by Deep Sea Supply from 2013 to 2016. The expected revenue is calculated in the same manner as with the AHTSs, only that we use PSV regional freight rates and utilization ratios which can be found in table 7.5 and 7.6, respectively. Under "Estimated revenue from PSVs on contract per December 2012" we have summarised the revenue from the vessels based on the backlog as of December 2012. Under "Estimated revenue from PSVs without contract" we have gathered the revenue the PSV fleet without contract will generate, using regional utilization ratios to account for uncertainty in the future markets. Sea Falcon which has a contract beyond 2016 and Sea Trout which is being positioned in the spot market in the North Sea after the contract expires in May 2013, are however excluded from this part. The revenue Sea Trout generates in the future is taken into account in the last headline. Sea Flyer has been included under "Estimated revenue from PSVs without contract," since we expect the vessel will be moved from its current spot operations in Asia to term work.

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[170] See table 5.5 for calculation of global utilization ratios of PSVs
[171] See appendix 5.7 for explanations of the regional utilization ratios

Furthermore, we have included a part called "Estimated revenue from PSV newbuilds" where we account for all the estimated revenues the newbuilds will generate in the future. As described in the internal analysis, the company is currently moving into a growth phase with a strategy of expansion, and in line with this strategy the company has already taken deliveries of 3 PSVs: Sea Falcon, Sea Tantalus and Sea Flyer. In addition, DESSC has 7 large PSVs under construction that will be wholly owned by Deep Sea Supply. Accordingly, we need to include these vessels in our revenue forecast to get a correct picture of the situation. We have calculated the revenue of each vessel following the same procedure as done previously, considering expected delivery date, term rate in accordance with size and region as well as utilization ratio.

**Table 7.7 Revenues from PSVs wholly owned by DESSC – Revenue in thousand USD**

| Revenues from PSVs wholly owned by DESSC | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Estimated revenue from PSVs on contract per December 2012** | | | | | | | | |
| Vessel name | DWT | Area of operation | Start date | End date | Rev 2013 | Rev 2014 | Rev 2015 | Rev 2016 |
| Sea Trout | 3,300 | North Sea | Jan-12 | May-13 | 3,270 | - | - | |
| Sea Tantalus | 4,031 | North Sea | May-13 | May-14 | 5,880 | 4,200 | - | - |
| Sea Angler | 3,250 | West Africa | Aug-07 | Apr-15 | 9,180 | 9,900 | 3,544 | |
| Sea Witch | 3,250 | West Africa | Apr-12 | Apr-15 | 9,180 | 9,900 | 3,544 | |
| Sea Falcon | 4,543 | North Sea | Apr-13 | Apr-18 | 7,560 | 10,080 | 10,080 | 10,080 |
| **Estimated revenue from PSVs without contract** | | | | | | | | |
| Vessel name | DWT | Area of operation | Availability | | Rev 2013 | Rev 2014 | Rev 2015 | Rev 2016 |
| Sea Flyer | 4,600 | Asia | Jun-13 | | 4,075 | 6,305 | 6,425 | 7,247 |
| Sea Tantalus | 4,031 | North Sea | Jun-14 | | - | 4,838 | 9,138 | 10,297 |
| Sea Angler | 3,250 | West Africa | May-15 | | - | - | 5,103 | 8,609 |
| Sea Witch | 3,250 | West Africa | May-15 | | - | - | 5,103 | 8,609 |
| **Estimated revenue from PSV newbuilds** | | | | | | | | |
| Vessel name | DWT | Area of operation | Expected delivery | | Rev 2013 | Rev 2014 | Rev 2015 | Rev 2016 |
| Sea Titus | 4,000 | North Sea | Q2 2013 | | 5,292 | 8,294 | 9,138 | 10,297 |
| Sea Tortuga | 4,000 | North Sea | Q3 2013 | | 3,528 | 8,294 | 9,138 | 10,297 |
| Sea Triumph | 4,000 | North Sea | Q4 2013 | | 1,764 | 8,294 | 9,138 | 10,297 |
| Sea Supra | 4,600 | Brazil | Q1 2014 | | - | 12,101 | 14,021 | 16,617 |
| Sea Surfer | 4,600 | Brazil | Q1 2014 | | - | 12,101 | 14,021 | 16,617 |
| Sea Swan | 4,600 | Brazil | Q1 2014 | | - | 12,101 | 14,021 | 16,617 |
| Sea Swift | 4,600 | Brazil | Q1 2014 | | - | 12,101 | 14,021 | 16,617 |
| **Estimated revenue from PSVs operating on spot market** | | | | | | | | |
| Vessel name | DWT | Area of operation | Availability | | Rev 2013 | Rev 2014 | Rev 2015 | Rev 2016 |
| Sea Trout | 3,300 | North Sea | SPOT Jun-13 | | 2,501 | 4,855 | 5,349 | 6,027 |
| **Revenue** | | | | | **52,230** | **123,367** | **131,787** | **148,228** |

Source: Compiled by authors

To account for the PSVs included in the joint venture we have calculated the revenue

deriving from each vessel, using the same method as with the PSVs wholly owned by DESSC, which is done in table 7.8. The revenue has been separated into "Estimated revenue from PSVs on contract per December 2012", which is in accordance with the stated backlog from the Q4 2012 report, "Estimated revenue from PSVs without contract," which accounts for the revenues the PSVs generate when the contracts expire as well as "Estimated revenue from PSV newbuilds." The latter is due to as mentioned the 6 large PSV newbuilds which will be delivered to the joint venture in 2013, which we need to take into account when estimating the future income. Under the first headline, the year 2013 has been separated into pre and post JV to account for the different percentage belonging to DESSC, dividing revenue post JV by two.

**Table 7.8 – Revenue in thousands USD**

| Joint venture PSVs | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Estimated revenue from PSVs on contract per December 2012 | | | | | | | | | |
| Vessel name | DWT | Area of operation | Start date | End date | Rev 2013 pre JV | Rev 2013 post JV | Rev 2014 | Rev 2015 | Rev 2016 |
| Sea Halibut | 3,250 | Brazil | Jul-10 | Jul-14 | 4,725 | 3,308 | 3,308 | - | - |
| Sea Bass | 3,250 | Brazil | Jul-10 | Jul-14 | 4,725 | 3,308 | 3,308 | - | - |
| Sea Pike | 3,250 | Brazil | Dec-10 | Nov-14 | 4,725 | 3,308 | 5,198 | - | - |
| Sea Pollock | 3,250 | Brazil | Dec-10 | Dec-14 | 4,725 | 3,308 | 5,670 | - | - |
| Sea Turbot | 3,250 | Brazil | Jan-11 | Dec-14 | 4,725 | 3,308 | 5,670 | - | - |
| Sea Brazil | 4,700 | Brazil | Sep-12 | Mar-15 | 5,550 | 3,885 | 6,660 | 1,665 | - |
| Estimated revenue from PSVs without contract | | | | | | | | | |
| Vessel name | DWT | Area of operation | Availability | | | Rev 2013 | Rev 2014 | Rev 2015 | Rev 2016 |
| Sea Halibut | 3,250 | Brazil | Aug-14 | | | - | 2,179 | 6,058 | 7,180 |
| Sea Bass | 3,250 | Brazil | Aug-14 | | | - | 2,179 | 6,058 | 7,180 |
| Sea Pike | 3,250 | Brazil | Dec-14 | | | - | 436 | 6,058 | 7,180 |
| Sea Pollock | 3,250 | Brazil | Jan-15 | | | - | - | 6,058 | 7,180 |
| Sea Turbot | 3,250 | Brazil | Jan-15 | | | - | - | 6,058 | 7,180 |
| Sea Brazil | 4,700 | Brazil | Apr-15 | | | - | - | 5,258 | 8,309 |
| Estimated revenue from PSV newbuilds | | | | | | | | | |
| Vessel name | DWT | Area of operation | Expected delivery | | | Rev 2013 | Rev 2014 | Rev 2015 | Rev 2016 |
| Sea Forth | 4,600 | Brazil | Q3 2013 | | | 2,731 | 6,051 | 7,010 | 8,309 |
| Sea Frost | 4,600 | Brazil | Q3 2013 | | | 2,731 | 6,051 | 7,010 | 8,309 |
| Sea Spark | 4,600 | Brazil | Q3 2013 | | | 2,731 | 6,051 | 7,010 | 8,309 |
| Sea Spear | 4,600 | Brazil | Q4 2013 | | | 1,365 | 6,051 | 7,010 | 8,309 |
| Sea Spider | 4,600 | Brazil | Q4 2013 | | | 1,365 | 6,051 | 7,010 | 8,309 |
| Sea Springer | 4,600 | Brazil | Q4 2013 | | | 1,365 | 6,051 | 7,010 | 8,309 |
| Revenue | | | | | | 61,885 | 70,910 | 79,278 | 94,062 |

Source: Compiled by authors

In table 7.9 we have summarized the total PSV revenue, including the fleet wholly owned by Deep Sea Supply as well as the joint venture.

**Table 7.9 – DESSC's PSV revenues - Numbers in thousand USD**

| DESSC total revenues PSV incl. JV | | | |
|---|---|---|---|
| 2013 | 2014 | 2015 | 2016 |
| 114,115 | 194,277 | 211,064 | 242,290 |

Source: Compiled by authors

## *Total revenue forecast 2013-2016*

We have now performed a comprehensive forecast of both AHTS and PSV revenue and are able to present the total revenue forecast for the detailed period of 2013 – 2016:

**Table 7.10 – number in thousands USD**

| Forecasted total revenue of fleet | | | | | |
|---|---|---|---|---|---|
| | 2012 | 2013 | 2014 | 2015 | 2016 |
| Revenue AHTS | 69,192 | 94,757 | 88,385 | 97,312 | 109,835 |
| Growth AHTS | | 36.9% | -6.7% | 10.1% | 12.9% |
| Revenue PSV | 54,948 | 114,115 | 194,277 | 211,064 | 242,290 |
| Growth psv | | 107.7% | 70.2% | 8.6% | 14.8% |
| Total revenue | 124,024 | 208,872 | 282,663 | 308,376 | 352,126 |
| Growth | | 68% | 35% | 9% | 14% |

Source: Compiled by authors

From table 7.10 we can see that the forecasted growth rate is quite high, which is attributed to the large fleet increase in accordance with Deep Sea Supply's growth strategy, as well as our optimistic predictions on the outlook of the market in which DESSC operates. High expected activity in the oil and gas industry serves as a driving force and leads to higher demand for OSV services, especially for modern, large vessels. Considering the regions in which Deep Sea Supply operates we believe that Brazil will stand out as one of strongest local OSV markets in the future. As stated in our SWOT analysis, we believe that the fleet composition and low average age of the OSVs meets the requirement from the charterers. In addition, other important internal company strengths as the strategic positioning and the relations in Brazil due to the newly established joint venture, will present DESSC with competitive advantages. On the other hand, as mentioned as a weakness in our SWOT analysis, being highly exposed to one market might impose the company with risk should for instance Brazil prove not be as promising as anticipated.

Deep Sea Supply follows an expansive growth strategy increasing its fleet and establishing new relations in important markets. The fleet is expected to grow from 27 vessels to 40 by the end of 2014 illustrating the ambitious strategy. The forecast of Deep Sea Supply's future revenue is believed to be in accordance with both external and the internal analysis considering the internal strengths and weaknesses of the company as well as the external opportunities and threats provided by the markets.

### *Total revenue forecast 2017 – 2019 and terminal period*

Our estimates for the OSV revenue growth in the period 2017 – 2019 are based on the assumption that the company is moving towards a steady state. In this period both the AHTS and PSV revenue growth will amount to 8%, 6 % and 4 %, before the growth stabilises at 3 % in the terminal period. We believe that PSVs and AHTSs will grow with the same rate in the long term as they are affected by the same market forces. We use 3% as the growth in the terminal period which is the projected average global growth rate measured in gross domestic product (GDP)[172].

### 7.2.2 EBITDA-margin

The EBITDA-margin will be used as a value driver, and is especially important in the estimation of the operating expenses, as we will estimate the operating expenses as a residual of EBITDA-margin. We argue that this method is reasonable, due to the fact that operating expenses mainly include vessel operating expenses and administrative expenses, which have maintained a stable relationship throughout the historical period[173]. Thus, we argue that it is not necessary to separate between different types of operating expenses.  However it is important to mention that the largest part of vessel operating expenses relates to crew expenses, which is affected by the different salaries and legislations in the different markets. This could affect the EBITDA-margin going forward. In addition, it is more than likely that operating expenses will increase as the fleet expands, however revenue will also increase as a result of the increased fleet.

The EBITDA-margin of DESSC has been quite high over the historical period, with an average of 56%. This is higher than the average EBITDA-margin of the peer group, which has experienced an

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[172] PWC, World in 2050, 2013, http://www.pwc.com/en_GX/gx/world-2050/assets/pwc-world-in-2050-report-january-2013.pdf

[173] See analytical income statement in appendix 4.1

average margin of 49.4%[174]. Furthermore the company states that they emphasis on maintaining low operating expenses through implementing cost control and has taken actions to increase efficiency in the operations. The recent development of an in-house technical and crew management is an example of the actions being made. This provides the company with more control and the possibility of enhancing efficiency by being closer to day-to-day operations on board the vessels. In addition, the company has in 2012 implemented a fuel efficiency program aiming at reducing the vessels' consumption of diesel, and are expecting to see results in form of lower fuel expenses in the next couple of years. We believe that these efforts will help the company to maintain a high EBITDA-margin, and we argue that an EBITDA-margin of 56% is a fair assumption for both the explicit horizon as well as terminal period.

### 7.2.3 Depreciation as percentage of tangible assets

Deep Sea Supply's depreciation on vessels and other assets is calculated using the straight-line method to allocate their cost to their residual values over their estimated useful lives. DESSC's vessels, which account for the majority of the assets, have a useful life of 30 years[175]. Accordingly, the vessels' book values are depreciated to zero when the vessels are 30 years old.

Depreciation as percentage of tangible assets is used as a value driver and is an important estimation of the future depreciation of Deep Sea Supply's assets. DESSC has not any intangible assets in its balance sheets, which is why we only forecast depreciation as percentage of tangible (fixed) assets, which consist of the vessels that the company operates. Historically, Deep Sea Supply's average depreciation from 2006 to 2012 has been 4.6% of the fixed assets. When forecasting this value driver we chose to look at both DESSC's historical average as well as the peers' historical average, which was 4.6% as well[176]. We believe that it is fair to forecast depreciation as 5% of tangible assets, both in the explicit forecast horizon and in the terminal period. The actual depreciation number in the forecasting and terminal period is dependent on the size of tangible assets, which is taken into account in chapter 7.2.6.

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[174] See Appendix 5.8 for calculation of EBITDA-margins
[175] DESSC Annual Report 2012, page 22
[176] See appendix 5.9 for calculations of DESSC's and peers' depreciation as % of tangible assets

### 7.2.4 Efficient tax

Deep Sea Supply Plc is incorporated in Cyprus and the company is thus subject to a corporation tax of 10%. However, Deep Sea Supply's historical efficient tax has on average been 457 % from 2006 to 2012. The high number is due to the company's tax complications in 2010 which led to an extra tax payment of USD 2.6m. However, if we exclude 2010 we get an average of -5 % tax, which is still not a representative number to use as a value driver in the forecast years. The reason for this odd number is the tax shield obtained due to the high net financial expenses.

To simplify, we chose to use the Cypriot corporation tax of 10% both in the explicit forecast period as well as the terminal period. We acknowledge that the actual tax in most cases differ from the corporation tax, however, we do not have sufficient information to estimate the actual tax rate more closely.

### 7.2.5 Net borrowing cost

Net borrowing cost (NBC) is calculated as the ratio between net financial expenses and net interest-bearing debt (NIBD), and depicts a company's average interest rate to be paid on the debt. It is important to include the NBC as a value driver in the forecasting because it summarise a firm's financing activity[177].

Deep Sea Supply's historical NBC was 4.8 % between 2006 and 2012[178]. Despite an increased debt in accordance with the company's growth strategy, the NBC ratio has remained quite stable and fluctuated around 5%.

We argue that it is fair to forecast with a net borrowing cost of 5%. As analysed in the liquidity analysis, Deep Sea Supply has a solid average solvency ratio of 0.34, which is comfortably above the rule of thumb requirement of 0.2. This is a ratio quite similar to the peers' ratio and we believe that in shipping, an industry with highly geared companies, the lending institutions assess DESSC's solvency to be solid. Furthermore, as mentioned under the VRIO analysis, the main source of financing is senior bank loans from international banks which are long term players in the shipping industry. DESSC has managed to build and maintain strong relations with these institutions, which has always been a part of

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[177] Penman, Financial Statement Analysis and Security Valuation, page 252
[178] See appendix 5.10 for estimation of Deep Sea Supply's NBC

the company's strategy since it was established. In addition, as of December 2012, 60% of the company's interest-bearing debt was fixed. DESSC states that they aim to keep a high portion of its interest-bearing debt fixed in the future, which helps to keep the NBC ratio down should interest rates increase in the future[179]. Thus, we believe it is fair and reasonable to forecast with a NBC of 5% in the forecast horizon as well as the terminal period.

### 7.2.6 Tangible assets as percentage of revenue

Vessels and vessels under finance lease comprise Deep Sea Supply's fleet as well as its tangible (fixed) assets. The company has not any intangible assets in its balance sheets, which is why we only forecast with tangible assets in the forecast and terminal period. In 2013 and 2014 we have on the basis of Deep Sea Supply's current fleet as well as its current newbuild plan, calculated the value of the fleet and effectively the value of the tangible assets. Thus, in the two first forecasting years, we do not estimate DESSC's tangible assets as a percentage of revenue. However, in the remaining years of the forecasting horizon and terminal period, the template assumes a linear relationship between tangible assets and revenue.

The fleet value of 2013 and 2014 is estimated carefully in appendix 5.11. Due to Deep Sea Supply's growth strategy and its ambition of becoming one of the leading global OSV owners, they have recently ordered several PSV newbuilds. As mentioned earlier in this thesis, when the newbuilds are delivered, DESSC will own and operate a fleet of 40 OSVs. As previously mentioned, when estimating the value of the fleet we have taken into account that several of the vessels are co-owned through the joint venture and we therefore only estimate with 50% of the value of these vessels in the fixed assets. By doing so, we effectively incorporate the liabilities related to the vessels, since net interest-bearing debt is linked to invested capital. Further, we assume that the company completes payments of the newbuilds when they are delivered, which is why we add the value of the vessels under construction in the year they are delivered. The estimated total fixed assets comprise USD 958m in 2013 and approximately USD 1.2bn in 2014. When comparing 2014 to the assets in 2012, this is almost a double in value. But then again, DESSC is also almost doubling its total fleet with modern, large PSVs that are quite expensive.

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[179] Deep Sea Supply, annual report 2012

From 2015 to 2020 we calculate the tangible assets as a percentage of revenue. We assess this to be a fair assumption, since Deep Sea Supply will gradually invest in vessels according to the level of activity. When estimating the percentage we take into account DESSC's historical average of tangible assets as % of revenue between 2006 and 2012, which was 441 %. However, this ratio is a result of DESSC being a newly established company in a growth phase which needs to increase its fleet. Therefore, we also take the peers' tangible assets as percentage of revenue into account, which was 375 % in the same time period[180]. Our peers were established several years ahead of Deep Sea Supply and is characterised to be more in a maturity phase than a growth phase. Our forecasted number is a weighted average between these two and is calculated with the following equation:

$$Tangible\ assets\ as\ \%\ of\ revenue = \frac{DESSC'historical\ avg + peers'historical\ avg}{2}$$

$$Tangible\ assets\ as\ \%\ of\ revenue = \frac{441\ \% + 375\ \%}{2} = \mathbf{408}\ \%$$

Thus, we forecast with tangible assets as 408 % from 2015 – 2020.

### 7.2.7 Net working capital as % of revenue

We have decided to use a high aggregation on the net working capital as % of revenue, and do not decompose it into the different variables, inventory, receivables, accounts payable and operating liabilities. However we have analysed the components as percentage of revenue and have identified a quite stable relationship[181]. This also strengthens our decision to apply an aggregated level. As stated, DESSC is currently in a growth phase, with an expected increase in fleet and revenue, which argues for a higher net working capital. Higher revenue is often associated with higher account receivables and inventories and we need to take this relationship into account when choosing the expected level of net working capital. In addition due to the expansion of the fleet, we expect an increase in accounts payable, as accounts payables on DESSCs balance sheet includes payables related to vessels under construction. The historical average of net working capital as % of revenue has been 21% and based on our expected growth of the company we argue that a 23% of revenue should present a fair assumption on the net working capital for the future.

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[180] See appendix 5.12 for calculation of DESSC's and the peers' tangible assets as a % of revenue
[181] Appendix 5.13

### 7.2.8 Net interest-bearing debt as percentage of invested capital

Net interest-bearing debt is measured as a percentage of invested capital. The ratio has fluctuated between 72% and 84% in the period 2007 and 2012, and the average was 76%[182]. As stated in the VRIO analysis, the offshore supply vessel industry is quite capital intensive, and DESSC requires substantial financial resources to maintain its fleet up to date as well as being able to take advantage of investment opportunities as they surface. The company states in its annual report that it will rather use the capital market when doing investments as opposed to hold significant liquid reserves for investments[183]. Therefore, we argue that Deep Sea Supply will maintain this high level of debt in the future, and forecast that NIBD will constitute 76% of the invested capital in the explicit forecast period as well as the terminal period.

## 7.3 The proforma statement

In table 7.11 we have gathered all the value drivers and their respective estimated forecasts and in the following tables we present the income statement, balance sheet and cash flow statement based on our value drivers.

**Table 7.11– The value drivers**

| Value driver | Hist. avg. | 2013E | 2014E | 2015E | 2016E | 2017E | 2018E | 2019E | T2020 |
|---|---|---|---|---|---|---|---|---|---|
| AHTS growth | 4% | 37% | -7% | 10% | 13% | 8% | 6% | 4% | 3.0% |
| PSV Growth | 36% | 108% | 70% | 9% | 15% | 8% | 6% | 4% | 3.0% |
| EBITDA margin | 55% | 56% | 56% | 56% | 56% | 56% | 56% | 56% | 56% |
| Depreciation as % of tang. assets | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% |
| Efficient tax | -5% | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% |
| Net borrowing cost | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% |
| Tangible assets as % of rev. | 442% | 459% | 424% | 408% | 408% | 408% | 408% | 408% | 408% |
| NWC as % of revenue | 21% | 23% | 23% | 23% | 23% | 23% | 23% | 23% | 23% |
| NIBD as % of Invested capital | 76% | 76% | 76% | 76% | 76% | 76% | 76% | 76% | 76% |

Source: Compiled by authors

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[182] See appendix 5.14 for calculation of NIBD as % of invested capital
[183] Annual report 2012 page 4

**Table 7.12 – Pro forma income statement - Numbers in thousand USD**

| Income Statement | Forecast horizon | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | T2020 |
| AHTS Revenye | 94,757 | 88,385 | 97,312 | 109,835 | 118,622 | 125,739 | 130,769 | 134,692 |
| PSV Revenue | 114,115 | 194,277 | 211,064 | 242,290 | 261,674 | 277,374 | 288,469 | 297,123 |
| Revenue | 208,872 | 282,663 | 308,376 | 352,126 | 380,296 | 403,113 | 419,238 | 431,815 |
| + share of profits from ass. | | | | | | | | |
| Operating expenses | 91,904 | 124,372 | 135,686 | 154,935 | 167,330 | 177,370 | 184,465 | 189,999 |
| EBITDA | 116,968 | 158,291 | 172,691 | 197,190 | 212,966 | 225,743 | 234,773 | 241,816 |
| Depreciation and amortisation | -47,900 | -59,900 | -62,909 | -71,834 | -77,580 | -82,235 | -85,525 | -88,090 |
| EBIT | 69,068 | 98,391 | 109,782 | 125,357 | 135,385 | 143,508 | 149,249 | 153,726 |
| Tax on EBIT | 6,907 | 9,839 | 10,978 | 12,536 | 13,539 | 14,351 | 14,925 | 15,373 |
| NOPAT | 62,162 | 88,552 | 98,804 | 112,821 | 121,847 | 129,158 | 134,324 | 138,354 |
| Net financial expenses before tax | -38,388 | -48,209 | -50,740 | -57,939 | -62,574 | -66,328 | -68,981 | -71,051 |
| Tax shield | 3,839 | 4,821 | 5,074 | 5,794 | 6,257 | 6,633 | 6,898 | 7,105 |
| Net Income | 27,612 | 45,164 | 53,138 | 60,676 | 65,530 | 69,462 | 72,241 | 74,408 |

Source: Compiled by authors

**Table 7.13 – Pro forma balance sheet – Numbers in thousand USD**

| Balance sheet | Forecast horizon | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | T2020 |
| Assets | | | | | | | | |
| Tangible assets | 958,000 | 1,198,000 | 1,258,176 | 1,436,672 | 1,551,606 | 1,644,703 | 1,710,491 | 1,761,805 |
| Operating cash (2 % of revenue) | 4,177 | 5,653 | 6,168 | 7,043 | 7,606 | 8,062 | 8,385 | 8,636 |
| Net working capital | | | | | | | | |
| + Inventory | | | | | | | | |
| + Receivables | | | | | | | | |
| - Accounts payable | | | | | | | | |
| - Other operating liabilities | | | | | | | | |
| Total NWC | 48,041 | 65,012 | 70,927 | 80,989 | 87,468 | 92,716 | 96,425 | 99,317 |
| Invested capital (Net operating assets) | 1,010,218 | 1,268,666 | 1,335,270 | 1,524,704 | 1,646,680 | 1,745,481 | 1,815,300 | 1,869,759 |
| Liabilities | | | | | | | | |
| Equity, beginning of period | 157,009 | 242,452 | 304,480 | 320,465 | 365,929 | 395,203 | 418,915 | 435,672 |
| + Net income | 28,550 | 46,433 | 54,522 | 62,258 | 67,238 | 71,272 | 74,123 | 76,347 |
| - Dividends | 56,893 | 15,594 | -38,537 | -16,793 | -37,964 | -47,560 | -57,367 | -63,277 |
| Net cash effect after JV transaction | | | | | | | | |
| Equity, end of period | 242,452 | 304,480 | 320,465 | 365,929 | 395,203 | 418,915 | 435,672 | 448,742 |
| NIBD | 767,766 | 964,186 | 1,014,805 | 1,158,775 | 1,251,477 | 1,326,565 | 1,379,628 | 1,421,017 |
| Invested capital (finance) | 1,010,218 | 1,268,666 | 1,335,270 | 1,524,704 | 1,646,680 | 1,745,481 | 1,815,300 | 1,869,759 |

Source: Compiled by authors

**Table 7.14 – Pro forma cash flow statement – Numbers in thousand USD**

| Cash flow statement | Forecast horizon | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | T2020 |
| NOPAT | 62,162 | 88,552 | 98,804 | 112,821 | 121,847 | 129,158 | 134,324 | 138,354 |
| +Δ Operating cash | -1,695 | -1,476 | -514 | -875 | -563 | -456 | -322 | -252 |
| + Depreciation and amortisation | 47,900 | 59,900 | 62,909 | 71,834 | 77,580 | 82,235 | 85,525 | 88,090 |
| - Δ NWC | -28,256 | -16,972 | -5,914 | -10,062 | -6,479 | -5,248 | -3,709 | -2,893 |
| - Net investments: | | | | | | | | |
| Δ Intangible and tangible assetts | 318,202 | 240,000 | 60,176 | 178,497 | 114,934 | 93,096 | 65,788 | 51,315 |
| + Depreciation and amortisation | 47,900 | 59,900 | 62,909 | 71,834 | 77,580 | 82,235 | 85,525 | 88,090 |
| = Net investments (-) | -366,102 | -299,900 | -123,085 | -250,330 | -192,514 | -175,331 | -151,313 | -139,405 |
| = Free Cash Flow To Firm | -285,991 | -169,896 | 32,200 | -76,613 | -130 | 30,357 | 64,505 | 83,895 |
| New net financial liabilities | 262,709 | 196,420 | 50,619 | 143,970 | 92,702 | 75,089 | 53,063 | 41,389 |
| Net financial expenses after tax | -34,549 | -43,388 | -45,666 | -52,145 | -56,316 | -59,695 | -62,083 | -63,946 |
| = Free Cash Flow to Equity Holders | -57,831 | -16,864 | 37,153 | 15,212 | 36,256 | 45,750 | 55,484 | 61,338 |
| - Dividends | 57,831 | 16,864 | -37,153 | -15,212 | -36,256 | -45,750 | -55,484 | -61,338 |
| Cash Surplus | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Source: Compiled by authors

## 7.3.1 Forecast validation

In order to validate our forecast we intend to compare Deep Sea Supply's historical ROIC with the forecasted ROIC. We believe that ROIC is the most important financial ratio to look at as it measures overall operating performance. As before, we calculate ROIC before tax due to the strange historical effective tax rates.

**Table 7.15 – Comparison between historical and forecast ROIC after tax - Numbers in thousand USD**

| Historical ROIC before tax | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Avg. | |
| EBIT | 31,807 | 83,971 | 112,183 | 56,959 | 20,576 | 27,172 | 13,526 | | |
| Invested cap. | 391,262 | 637,267 | 714,204 | 707,747 | 581,900 | 603,047 | 662,066 | | |
| ROIC | 8.1% | 13.2% | 15.7% | 8.0% | 3.5% | 4.5% | 2.0% | 7.9% | |
| Forecasted ROIC after tax | | | | | | | | | |
| | 2013E | 2014 E | 2015E | 2016E | 2017E | 2018E | 2019E | T2020 | Avg. |
| EBIT | 69,068 | 98,391 | 109,782 | 125,357 | 135,385 | 143,508 | 149,249 | 153,726 | |
| Invested cap. | 1,010,218 | 1,268,666 | 1,335,270 | 1,524,704 | 1,646,680 | 1,745,481 | 1,815,300 | 1,869,759 | |
| ROIC | 6.8% | 7.8% | 8.2% | 8.2% | 8.2% | 8.2% | 8.2% | 8.2% | 8.0% |

Source: Compiled by authors

Deep Sea Supply's average historical ROIC before tax between 2006 and 2012 was 7.9 % while the company's forecasted ROIC in the explicit forecast period between 2013 and 2019 is 8.0 %. We believe that this small margin validates our forecasts and tells us that our pro forma statement is quite

reasonable and not exaggerated. DESSC's ROIC in the terminal period T2020 is forecasted to be 8.2 %, meaning that the company will achieve this ROIC in the future, which we believe is realistic due to the average of both the historical and the explicit forecasted period.

# 8. Cost of capital

Cost of capital reflects the compensation investors and lenders require due to the uncertainty that follows with a company's future cash flow[184]. Investors need to be compensated for the risk they bear when investing in a company and lending institutions expect a return for providing funds to risky projects. Consequently, the stakeholders need to convert a company's risk into a cost of capital measure[185]. The cost of capital is best measured with the weighted average cost of capital (WACC) which we estimate for Deep Sea Supply in the following section.

## 8.1 Weighted Average Cost of Capital

WACC is known as the cost of capital and can be defined as the "cost of the different components of financing used by the firm, weighted by their market value proportions"[186] and is an estimation of shareholders and creditors required rate of return on invested capital. When the return on invested capital exceeds the required rate of return on invested capital, ROIC > WACC, then the company is generating excess value on its investments. Hence we need to calculate the WACC to assess the level of the company's ROIC. WACC is essential to the DCF and EVA valuation methods, and is used as the discount factor in the model which enables us to calculate the present value of the free cash flow to the firm and EVA. WACC is calculated as in the following:

$$WACC = \frac{NIBD}{NIBD + MVE} \times r_d \times (1 - t) + \frac{MVE}{NIBD + MVE} \times r_e$$

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[184] McKinsey & Company, Valuation – Measuring and Managing the Value of Companies, 5th ed. page 35
[185] Petersen & Plenborg, Financial Statement Analysis, 1th ed., page 245
[186] Damodaran, http://people.stern.nyu.edu/adamodar/pdfiles/eqnotes/basics.pdf

Where NIBD is the market value of net-interest- bearing debt, MVE is the market value of equity, $r_d$ is the interest rate on NIBD (cost of debt), $r_e$ is the shareholders' required rate of return (cost of equity) and $t$ is the company's marginal tax rate[187].

Since none of the components incorporated in the WACC equation are directly observed from available data they need to be estimated using different models and assumptions.

### 8.1.1 Cost of equity, $r_e$

The cost of equity represents the price charged by investors for bearing the risk associated with the company they invest in. To calculate the cost of equity the capital pricing model (CAPM) can be used, which is defined as[188];

$$r_e = r_f + \beta_e \times (r_m - r_f) \, ,$$

Where $r_e$ refers to investors' required rate of return, $r_f$ is the risk-free interest rate, $\beta_e$ is the systematic risk on equity (levered beta) and $r_m$ is the return on market portfolio.

The CAPM model describes the relationship between risk and return, and can be divided into two parameters, time value of money and risk. The model rests on the assumptions of perfect markets, no transaction cost or taxes, and that by holding a diversified portfolio of shares the investors will only pay for the systematic risk. The market does not compensate the investor for holding unsystematic risk. The investors are rational and risk averse, and focuses only on maximizing their returns. The model depicts that an investor wants to earn at least the risk-free rate, but they also want a premium for any risk they take on[189].

The beta (systematic risk), risk free rate and the market risk premium ($r_m - r_f$) needs to be estimated to be able to calculate the cost of equity.

### *Risk-free rate*

The risk-free rate represents the time value of money, and expresses how much an investor can earn without taking on any risk.

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[187] Petersen & Plenborg, "Financial Statement Analysis", 2012, 1th ed., page 96
[188] Petersen & Plenborg, "Financial Statement Analysis", 2012, 1th ed., page 249
[189] Brealey et al. *Fundamentals of corporate finance*, 2012, 7th ed. McGraw – Hill, pg. 354

As a proxy for the risk-free rate we will use the 10 year Norwegian government bond, assuming that there is no default risk. Using a 10 year government bond should according to Mckinsey & Co avoid the problem of unexpected changes in inflation and liquidity problems. This might be more problematic if using a longer term rate such as a 30-year government bond.

The interest rate has recently been at a historical low level, with an average of 2.10% in 2012 and currently at 2.07%[190]. This low level should not be expected to last and to better reflect the long term perspective and to account for the low interest rate, we have decided to take an average of the monthly average interest rate over the last 5 years providing us with a calculated risk-free rate of 3.4%.

### The market risk premium ($r_m$ – $r_f$)

The CAPM model assumes that investors are risk averse and demand return higher than the risk-free rate. In addition the investor is assumed to hold a diversified portfolio and that the only interest of the investors is the return one can achieve in the market. The market risk premium reflects excess demand above the risk-free rate that investors require for taking on the risk associated with the potential company. Thus, the market risk premium is found by taking the expected return in the market less the risk free rate[191].

The level of the market risk premium has been subject to many studies. PwC Norway together with the Norwegian Society of financial Analysts carried out a survey in 2012 on the market risk premium and risk-free rate in the Norwegian market, which have been published in the presentation *"The Norwegian Market risk Premium 2012 and 2013"*. The respondents on the survey contained 224 analysts and economists with experience from the Norwegian and financial stock market. In addition to the survey the presentation included an estimation of the market risk premium of the Norwegian market for the period 2010 to 2012 based on market data from 21 companies on the Oslo Stock Exchange. The survey argues for a market risk premium in the Norwegian market of 5% for 2012 and 2013.

Fernandez et. Al also conducted a survey in 2012 on the market risk premium used in 82 countries in 2012. The survey included 7,192 answers from finance professors, analysts and managers. The survey

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[190] Norges Bank, Styringsrente, månedsgjennomsnitt, http://www.norges bank.no/no/prisstabilitet/rentestatistikk/styringsgrente-manedlig/
[191] Brealey et al. *Fundamentals of corporate finance*, 2012, 7th ed. McGraw – Hill, pg. 353

states that the average market risk premium for Norway in 2012 was 5.8%[192]. In addition research done by Damodaran, a well-known professor of finance at Stern School of Business estimates the market risk premium for Norway to be 6% in his latest update of his research on country risk premiums.

Hence, we argue that it is fair to apply a market risk premium of 6% when calculating the required return on equity.

### Beta

The beta represents the systematic risk of the company, which cannot be reduced through diversification. It indicates the impact market fluctuations have on the company stock return, meaning that the beta can be expressed as the covariance between the return of the company and the return of the market. The higher the systematic risk, the more compensation investors require to invest in the respective company. A beta of 1 means that the company has the same systematic risk as the entire market portfolio, while a higher beta reflects greater systematic risk than the market portfolio[193]. The beta is measured on historical stock returns which do add some uncertainty to its accuracy of the future estimation. There are also several problems related to the estimation of the beta, it will for instance differ depending on which data that are used and time period: One may base the estimation on daily, weekly or monthly observations, which all will produce different betas. In addition the beta is affected by illiquidity, capital structure and unforeseen risks. Combined, all these factors increase the uncertainty around the beta estimation.

When estimating our beta we ran a regression model in Bloomberg Professional, regressing weekly return on the market, in our case the OBX stock index, against the weekly return on the company, applying data from the last 5 years.

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[192] Fernandez et al. *Market Risk Premium Used in 82 Countries in 2012: A Survey with 7,192 Answers,* May 2013
[193] Brealey et al. *Fundamentals of corporate finance*, 2012, 7th ed. McGraw – Hill, pg. 346

**Figure 8.1 DESSC's beta estimation**
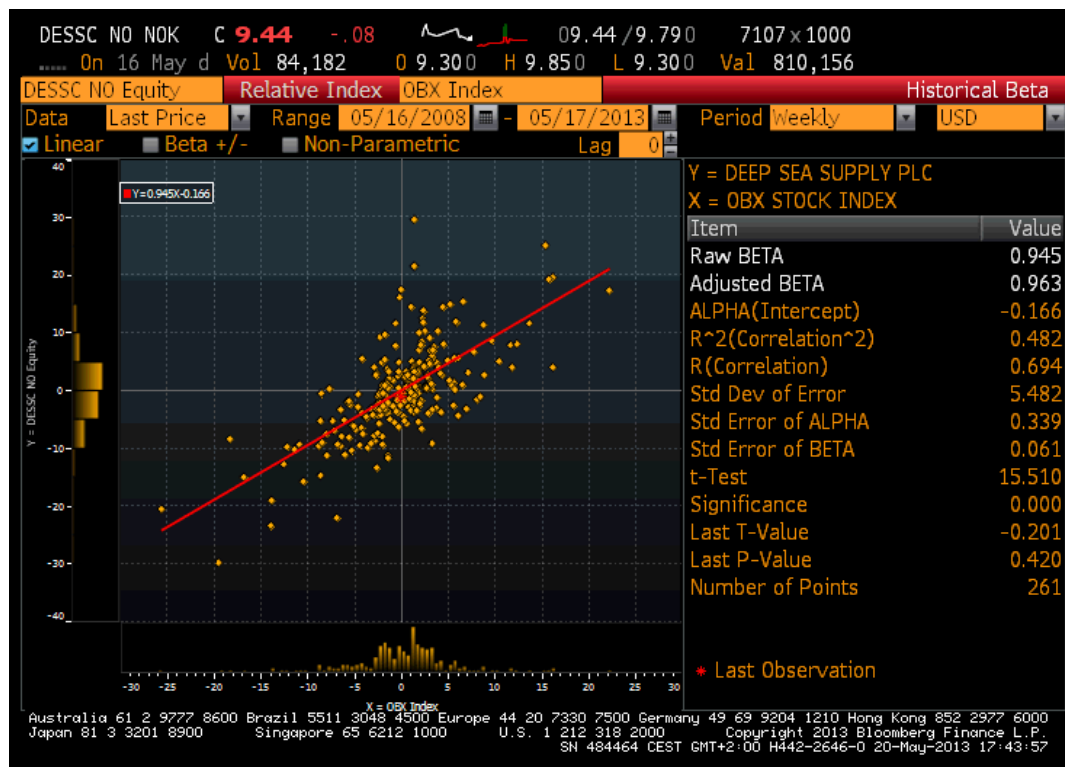


Source: Bloomberg

Bloomberg provides us with a raw beta and an adjusted beta. The adjusted beta is an estimate of the future beta, using historical data and assuming that the beta moves towards market average over time. The regression gave us an adjusted beta of 0.963, which indicates that the stock is less risky than the market portfolio. If the market portfolio fluctuates with 10%, then the return on the stock fluctuates with 9.63%. We also ran a regression on the peer companies to compare to DESSC, using the same time period and market index. Farstad had an adjusted beta of 0.734, havila 0.642 and Solstad 0.814[194]. These companies operate in the same markets and are affected by the same macro-economic factors, which should lead to quite similar systematic risk. However, as mentioned, the beta estimation is quite uncertain and the betas are affected by different capital structure and liquidity. The DESSC stock is the most liquid stock of comparable companies, which might be one of the reasons for the higher beta[195].

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[194] See appendix 6.1 for Bloomberg beta estimations of peers
[195] See appendix 6.2 for DESSC's liquidity compared to peers

To increase our understanding of the level of the beta and the strength of our estimation we include Damodaran's studies on different industries averages of beta. In his latest update on *individual company information,* Damodaran includes Deep Sea Supply under the sector Oilfield service/equipment and estimates the sector average beta to be 1.1202[196]. We have decided to apply a weighted average of DESSC's adjusted beta, peer group average beta and the industry average complied by Damodaran. The rational for using of a weighted average is basically due to the uncertainty around the beta estimation and we believe that the weighted average will help us to get a better estimation as we include both peers and industry averages which are good proxies for DESSC's beta.

$$\beta = \frac{DESSC\ adj.Beta + Peers\ average\ Beta + Industry\ average\ beta}{3} = \frac{0.963 + 0.73 + 1.12}{3} = \mathbf{0.938}$$

Thus we will apply a beta of 0.938 for Deep Sea Supply.

*Calculation of return on equity*

After having estimated each component in the CAPM we are now able to calculate our return on equity, which is done with the following equation:

$$r_e = r_f + \beta_e \times (r_m - r_f)$$

$$r_e = 3.4\% + 0.938 \times 6\% = \mathbf{9.03}\%$$

Thus, in our WACC estimation we will use a return on equity of 9.03%.

### 8.1.2 The required return on debt - $R_D$

The creditors' required return on debt (cost of debt) is a form of pricing they use in order to decide the interest rate they operate with. In addition to require the risk-free interest rate, the creditors demand a risk premium on the debt since there is a probability that the company may default[197]. The cost of debt can be estimated with the following equation:

$$r_d = (r_f + r_s) \times (1 - t),$$

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[196] Damodaran, http://pages.stern.nyu.edu/~adamodar/New_Home_Page/data.html?pagewanted=all

[197] Petersen & Plenborg, "Financial Statement Analysis", 2012, 1th ed., page 265

Where $r_d$ represents the required rate of return on net-interest bearing debt (cost of debt), $r_f$ represents risk-free interest rate, $r_s$ represents credit spread (risk premium on debt) and $t$ represents corporate tax rate. As already discussed we apply a risk-free interest rate of 3.4 % which is an estimated average of the 10 years Norwegian government bond over the last 5 years. The tax rate we use is the Cypriot corporate tax rate of 10 %.

**Table 8.1 – Estimation of DESSC's credit rating**

| Financial ratios | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average | Rating |
|---|---|---|---|---|---|---|---|---|---|
| 1. EBIT interest coverage ratio | 5.26 | 6.75 | 2.66 | 2.51 | 1.00 | 1.03 | 0.79 | 2.86 | BB |
| 2. EBITDA interest coverage ratio | 6.93 | 8.08 | 3.38 | 4.11 | 2.78 | 2.12 | 2.66 | 4.30 | BB |
| 3. Funds from operations/total debt | 21% | 14% | 15% | 12% | 6% | 5% | 5% | 11% | B |
| 4. Free operating cash flow/total debt | 0% | -30% | -2% | 5% | 21% | -3% | -11% | -3% | B |
| 5. Return on capital | 8% | 11% | 17% | 10% | -111% | 4% | 3% | 9% | B |
| 6. EBITDA/Revenue | 60% | 73% | 79% | 60% | 50% | 58% | 47% | 61% | AAA |
| 7. Long-term debt/capital | 34% | 72% | 85% | 78% | 75% | 74% | 77% | 71% | CCC |
| 8. Total debt/capital | 37% | 77% | 86% | 79% | 79% | 77% | 79% | 73% | B |
| **Total rating** | | | | | | | | | BB |

Source: Compiled by authors

In table 8.1 we have estimated Deep Sea Supply's credit rating on the basis of Standard & Poor's rating financial ratios. A detailed calculation of the financial ratios can be found in appendix 6.3. Overall we rate DESSC's credit risk at BB, which is a decent rating. In order to estimate the credit spread we used Deep Sea Supply's rating in combination with a default spread obtained from traded bonds in the US compiled by Damodaran[198]. With this table the company got a credit spread of 4.0 %. Now we can finally calculate the cost of debt:

$$r_d = \left(r_f + r_s\right) \times (1 - t),$$

$$r_d = (3.4\ \% + 4.0\ \%) \times (1 - 0.10) = \mathbf{6.660}\ \%$$

Thus, Deep Sea Supply's creditors' required return on debt is 6.66 %.

### 8.1.3 Target capital structure – the iteration method

In this section we assess Deep Sea Supply's optimal capital structure – the mixture of debt and equity the company chooses. The capital structure is calculated as the ratio between total debt, and total debt plus the company's value of equity. Market values represent the true opportunity costs for investors and

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[198] Damodaran, http://people.stern.nyu.edu/ADAMODAR/New_Home_Page/datafile/ratings.htm

lenders. Thus, it is most optimal to base the capital structure on market values. Deep Sea Supply does not disclose its long-term capital structure/target capital structure, which is why we must use alternative methods to determine DESSC's market capital structure. One option is to apply the capital structure of comparable traded companies (peers). However, we prefer another method called the *iteration method,* which requires that comprehensive forecasts have been made. Based on the forecasts of the enterprise value, iterations are made until the estimated market value of equity mirrors the value of equity used in the calculation of the capital structure in the WACC expression[199]. In appendix 6.4, we thoroughly explain this process and calculate the target capital structure, which is estimated to be 0.601.

## 8.2 Calculation of WACC

Now that we have estimated all the components in the WACC model, we are able to calculate Deep Sea Supply's WACC:

$$WACC = \frac{NIBD}{NIBD + MVE} \times r_d \times (1 - t) + \frac{MVE}{NIBD + MVE} \times r_e$$

$$WACC = 0.601 \times 0.660 \times (1 - 0.10) + (1 - 0.601) \times 0.0903 = \textbf{7.20}\ \%$$

Hence, DESSC's weighted average cost of capital is 7.20 %, which will be used as the discount factor in the DCF and EVA valuation models.

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[199] Petersen & Plenborg, Financial Statement Analysis, page 249

# 9. Valuation

Through analysing Deep Sea Supply and forecasting the future performance we have now acquired the input needed to engage into step 4 in the process of the fundamental analysis, performing the valuation of the company. We argue that our comprehensive analysis has provided us with input of high quality, which we believe will provide us with a realistic valuation estimate.

## 9.1 Present value approaches

As previously stated, we will use present value approaches when performing the valuation of Deep Sea Supply, through the DCF and EVA model. The models have already been described in detail previously in chapter 4, hence, we will in this chapter only assess the results of the valuation.

**Table 9.1 – DCF valuation**

| DCF - Discounted cash flow model | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Numbers in thousand USD | 2013E | 2014E | 2015E | 2016E | 2017E | 2018E | 2019E | T2020 |
| Free cash flow to the firm -FCFF | -285,991 | -169,896 | 32,200 | -76,613 | -130 | 30,357 | 64,505 | 83,895 |
| WACC | 7.20% | 7.20% | 7.20% | 7.20% | 7.20% | 7.20% | 7.20% | 7.20% |
| Discount factor | 1.07 | 1.15 | 1.23 | 1.32 | 1.42 | 1.52 | 1.63 | |
| Present value of FCFF | -266,775 | -147,832 | 26,135 | -58,006 | -92 | 19,999 | 39,640 | |
| Present value of FCFF in the forecast period | -386,929 | | | | | | | |
| Present value of FCFF in the terminal period | 1,226,621 | | | | | | | |
| Estimated enterprise value | 839,692 | | | | | | | |
| NIBD | 505,057 | | | | | | | |
| Estimated market value of equity per 31th Dec 2012 | 334,636 | | | | | | | |
| Estimated market value of equity per 31th May 2013 | 344,476 | | | | | | | |

Source: Compile by authors

The DCF model in table 9.1 has discounted the free cash flow to the firm (FCFF), which has been calculated in the pro forma statement based on our value drivers illustrated in table 7.11. The discount factor is based on our estimated WACC of 7.20%, which takes both the shareholder and the creditor into account. The FCFF has been projected throughout the explicit period, using our estimated value drivers. In addition we have included the company's ability to grow beyond the projection period by using the growth rate of 3%. This represents the expected growth in the world economy, hence in line

with the global inflation. This is important due to the fact that one cannot expect to grow faster than the world economy in eternity.

Using the DCF model we have estimated the enterprise value to be USD 839.7m, and subtracted the NIBD to get the estimated market value per 31th of December 2012 of USD 334.6m. However, since we have chosen 31th of May 2013 as our cut-off date we need to discount the estimated market value per 31th of December 2012 forward to get the value from 31th of May 2013. This is done by using the following equitation:

$$MVE\ per\ 31th\ of\ May\ 2013 = MVE\ per\ 31th\ of\ Decemeber\ 2012 \times (1 + WACC)^{(5/12)} = USD\ \mathbf{344.5m}$$

We notice that the present value of the FCFF in the terminal period is higher than the enterprise value. This illustrates the importance of the terminal value, as well as the problem with the DCF model. The terminal value will be highly sensitive to changes in estimates, hence, the parameters supporting the terminal value have to be carefully considered.

To make sure that our model is not subject to any errors regarding the input used, we have applied the EVA as a supplement to the DCF valuation. The models should yield the same estimation as long as the same input is used.

**Table 9.2 – EVA valuation**

| EVA - Economic Value Added | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Numbers in thousand USD* | 2013E | 2014E | 2015E | 2016E | 2017E | 2018E | 2019E | 2020 T |
| NOPAT | 62,162 | 88,552 | 98,804 | 112,821 | 121,847 | 129,158 | 134,324 | 138,354 |
| Invested capital, beginnig of period | 662,066 | 1,010,218 | 1,268,666 | 1,335,270 | 1,524,704 | 1,646,680 | 1,745,481 | 1,815,300 |
| ROIC | 9.39% | 8.77% | 7.79% | 8.45% | 7.99% | 7.84% | 7.70% | 7.62% |
| WACC | 7.20% | 7.20% | 7.20% | 7.20% | 7.20% | 7.20% | 7.20% | 7.20% |
| EVA | 14,472 | 15,785 | 7,420 | 16,640 | 12,021 | 10,545 | 8,595 | 7,595 |
| Discount factor | 1.07 | 1.15 | 1.23 | 1.32 | 1.42 | 1.52 | 1.63 | |
| Present value of EVA | 13,500 | 13,735 | 6,023 | 12,599 | 8,490 | 6,947 | 5,282 | |
| Invested capital, beginning of period | 662,066 | | | | | | | |
| Present value of EVA in the forecast period | 66,575 | | | | | | | |
| Present value of EVA in the terminal period | 111,052 | | | | | | | |
| **Estimated Enterprise Value** | 839,692 | | | | | | | |
| NIBD | 505,057 | | | | | | | |
| **Estimated market value of equity per 31th Dec 2012** | 334,636 | | | | | | | |
| **Estimated market value of equity per 31h May 2013** | 344,476 | | | | | | | |

The EVA model estimates the enterprise value of the company, using the initial invested capital, plus the present value of all future EVAs. We use the same discount factor as we did in the DCF model. The model estimates the enterprise value of DESSC to be USD 839.7m. By subtracting NIBD from the enterprise value we obtain the estimated market value of equity per 31th of December 2012 to be USD 334.6m, which again is forward discounted to get the 31th of May 2013 market value of equity, estimated to be USD 344.5m. The model yields identical value estimates as we got in the DCF-model, which indicates that the construction of the models has been successfully executed.

**Table 9.3 – Estimated share price**

| Estimated share price | |
|---|---:|
| *Numbers in thousand USD* | |
| Estimated MVE in USD per 31th of May* | 344,476 |
| Number of shares * | 127,197 |
| Share price USD per 31th of May | 2.71 |
| Exchange rate NOK/USD per 31th of May | 5.87 |
| **Estimated share price NOK per 31th of May** | **15.90** |
| Stock price NOK per 31th of May | 9.35 |
| Upside | 70% |

By dividing the estimated market value of equity on the number of outstanding shares we get our estimated share price. We multiplied the share price with the exchange rate NOK/USD per 31.05.2013 to get the stock price in Norwegian kroner. The estimated fair value of the share price derived from our valuation is **NOK 15.90**. Our estimated share price indicates that Deep Sea Supply is currently underpriced by 70%, as the stock price per 31.05.2013 is NOK 9.35.

## 9.2 The relative valuation approach

In order to validate the accuracy of our value estimate based on the present value approaches, we have performed a relative valuation based on multiples. This model relies on the relative pricing of peers' earnings, and on the assumptions that DESSC and the peers are truly comparable, sharing the same economic characteristics and outlook. In addition, the accounting numbers must be based on the same accounting principles, for instance the peers and Deep Sea Supply follow IFRS.

The relative valuation approach offers a quick and simple value estimate as well as a more objective valuation as it takes into account other investors' behaviour rather than subjective forecasts. We acknowledge that this "quick and simple" valuation method may contain some disadvantages such as being easy to manipulate as well as differences in cost of capital, risk, growth rate, profitability, depreciation rate, etc. may lead to biased value estimates. Nevertheless, we choose to include this valuation approach as it helps to understand whether or not Deep Sea Supply is over- or undervalued as well as to verify that we have performed a realistic valuation based on the present value approaches.

When comparing with the peers, we use the harmonic mean as measurement of average because harmonic mean avoids the problems with extreme multiples as well as research generally supports it[200]. Further we decide to estimate multiples based on expected earnings, which is also recommended by research[201].

**Table 9.4 – Relative valuation of Deep Sea Supply and peers**

| Multiples 2013 | | | | | | |
|---|---|---|---|---|---|---|
| **Multiples** | **DESSC** | **Farstad** | **Solstad** | **Havila** | **Harmonic mean peers** | **% differences between DESSC and peers** |
| EV/EBITDA | 6.05 | 7.70 | 8.30 | 9.40 | 8.41 | 39.0% |
| P/E | 7.34 | 10.30 | 6.10 | 7.00 | 7.43 | 1.2% |
| P/CF | 2.03 | 4.00 | 3.40 | 3.20 | 3.50 | 72.5% |
| | | | | | Avg. | 37.6% |
| Multiples 2014 | | | | | | |
| **Multiples** | **DESSC** | **Farstad** | **Solstad** | **Havila** | **Harmonic mean peers** | **% differences between DESSC and peers** |
| EV/EBITDA | 4.47 | 6.50 | 7.70 | 8.40 | 7.45 | 66.6% |
| P/E | 4.49 | 7.10 | 5.10 | 3.90 | 5.06 | 12.7% |
| P/CF | 1.29 | 3.60 | 3.00 | 1.90 | 2.64 | 104.1% |
| | | | | | Avg. | 61.1% |

Source: DESSC: Compiled by authors; Peers: SEB, Artic Securities, First Securities

In table 9.4 we have estimated the multiples of Deep Sea Supply and the comparable peer companies[202]. Based on our estimates of 2013, DESSC is currently trading at an enterprise value 6.05 times its EBITDA while the peers have a harmonic mean of 8.41. DESSC's P/E and P/CF for 2013 also

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[200] Petersen & Plenborg, Financial Statement Analysis, page 235
[201] Petersen & Plenborg, Financial Statement Analysis, page 223
[202] See appendix 7.1 for detailed calculations of DESSC's multiplies

show lower numbers than for the peers. This trend is confirmed when estimating the multiples based on denominators from 2014 as well. This may be interpreted in two different ways, either the low multiples indicate weaker future prospects for DESSC, or it may signal that the company is undervalued when compared to its peers. We argue for the latter, and observe a potential upside of 38% when comparing DESSC's multiples to the peers' in 2013, while 2014 indicates an average upside potential of 61%. Although not exactly correlated, and differences in the companies might cause biased estimates, the multiple approach provides us with a good sanity check of our estimated value of equity. The comparable valuation method supports our present value approaches, indicating that Deep Sea Supply is underpriced.

## 9.3 Sensitivity Analysis

The DCF and EVA valuation is based on several subjective assumptions which might not be fulfilled in the future. This implies that the estimated equity value may change significantly due to changes in factors that affect the company. To assess possible scenarios for the future profitability and growth we will perform three different sensitivity analyses which test how the valuation changes as a result of input changes. Due to the significance of WACC, we have chosen to include it in all three sensitivity analyses, combining it with the growth in terminal period, changes in OSV revenue between 2013 and 2016, and EBITDA-margin in both the forecast and terminal period.

**Table 9.5 – Sensitivity analysis 1, growth in terminal period vs. WACC**

| | | Growth vs WACC | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | WACC | | | | | | | | |
| | | 6.40% | 6.60% | 6.80% | 7.00% | 7.20% | 7.40% | 7.60% | 7.80% | 8.00% |
| Growth in terminal period | 1.00% | 24.4 | 21.2 | 18.3 | 15.5 | 12.9 | 10.6 | 8.3 | 6.3 | 4.3 |
| | 1.50% | 26 | 22.5 | 19.2 | 16.3 | 13.5 | 11 | 8.6 | 6.4 | 4.3 |
| | 2.00% | 27.9 | 24 | 20.4 | 17.2 | 14.1 | 11.4 | 8.9 | 6.5 | 4.3 |
| | 2.50% | 30.2 | 25.8 | 21.9 | 18.3 | 14.9 | 12 | 9.2 | 6.6 | 4.3 |
| | 3.00% | 33.3 | 28.2 | 23.7 | 19.6 | 15.9 | 12.6 | 9.6 | 6.8 | 4.3 |
| | 3.50% | 37.5 | 31.4 | 26.1 | 21.4 | 17.1 | 13.5 | 10.1 | 7 | 4.3 |
| | 4.00% | 43.4 | 35.8 | 29.3 | 23.7 | 18.8 | 14.5 | 10.7 | 7.3 | 4.2 |
| | 4.50% | 52.4 | 42.3 | 34 | 27 | 21 | 16 | 11.5 | 7.7 | 4.2 |
| | 5.00% | 67.8 | 52.8 | 41.2 | 31.9 | 24.2 | 18 | 12.7 | 8.2 | 4.2 |

Source: Compiled by authors

As we have seen the WACC calculation is based on several subjective assumptions which may not be entirely accurate. Hence, including WACC in a sensitivity analysis is informative and illustrates the significant effect a small change has on the share price. We calculated the WACC to be 7.20%, however, a change to 7.40% leads to a decline in the share price from NOK 15.9 to NOK 12.6, a 26% decrease, ceteris paribus.

In addition table 9.5 illustrates the effect of a change in the growth rate in the terminal period. We chose a 3% growth rate, which is based on studies on the expected global GDP growth. This is a best guess which may not turn out to be correct. If for instance the global GDP growth rate turns out to be 3.5%, the share price will increase to NOK 17.1, ceteris paribus.

**Table 9.6 – Sensitivity analysis 2, OSV revenues vs. WACC**

| | | 6.60% | 6.80% | 7.00% | 7.20% | 7.40% | 7.60% | 8.00% |
|---|---|---|---|---|---|---|---|---|
| | **Growth vs OSV revenue 2013-2016** | | | | | | | |
| | | | | WACC | | | | |
| OSV revenue in 2013E-2016E | -20.0% | 15.3 | 12.9 | 10.7 | 8.6 | 6.9 | 5.3 | 2.4 |
| | -15.0% | 18.0 | 15.2 | 12.6 | 10.3 | 8.2 | 6.2 | 2.8 |
| | -10.0% | 21.1 | 17.7 | 14.7 | 12.0 | 9.5 | 7.3 | 3.3 |
| | -5.0% | 24.5 | 20.6 | 17.0 | 13.8 | 11.0 | 8.4 | 3.8 |
| | **0.0%** | 28.2 | 23.7 | 19.6 | **15.9** | 12.6 | 9.6 | 4.3 |
| | 5.0% | 32.4 | 27.2 | 22.5 | 18.2 | 14.4 | 10.9 | 4.8 |
| | 10.0% | 37.1 | 31.0 | 25.6 | 20.7 | 16.3 | 12.3 | 5.3 |
| | 15.0% | 42.2 | 35.3 | 29.0 | 23.4 | 18.4 | 13.8 | 5.8 |
| | 20.0% | 47.8 | 39.9 | 32.8 | 26.3 | 20.7 | 15.4 | 6.3 |

Source: Compiled by authors

In the first four years of the explicit period we have performed a comprehensive calculation of the OSV revenues, based on estimated freight rates and utilization ratios which have been supported by the strategic analysis. As argued in the strategic analysis the supply and demand is affected by several uncontrollable factors and the industry is considered to be highly volatile. Hence, the estimated freight rates and utilization ratios hold significant uncertainty. Therefore, we have performed a sensitivity analysis of the total OSV revenue, including both PSVs and AHTSs. If our estimates turn out to be flawed, and the real revenue growth is for instance 10% lower than assumed, then the share price should be NOK 12, holding the WACC constant. If the WACC as well turns out to be higher, say 7.40%, then the share price should be NOK 9.5, which is around the same level as it is currently trading.

**Table 9.7 – Sensitivity analysis 3, EBITDA-margin vs. WACC**

| Growth vs EBITDA-margin | | | | | |
|---|---|---|---|---|---|
| | | WACC | | | |
| | | 6.80% | 7.00% | 7.20% | 7.40% | 7.60% |
| EBITDA-margin explict and term | 52.0% | 8.4 | 5.1 | 2.1 | 0.0 | 0.0 |
| | 53.0% | 12.2 | 8.8 | 5.6 | 2.7 | 0.0 |
| | 54.0% | 16.1 | 12.4 | 9.0 | 6.0 | 3.3 |
| | 55.0% | 19.9 | 16.0 | 12.4 | 9.3 | 6.4 |
| | **56.0%** | 23.7 | 19.6 | 15.9 | 12.6 | 9.6 |
| | 57.0% | 27.5 | 23.3 | 19.3 | 15.9 | 12.7 |
| | 58.0% | 31.3 | 26.9 | 22.8 | 19.2 | 15.9 |
| | 59.0% | 35.2 | 30.5 | 26.2 | 22.5 | 19.0 |
| | 60.0% | 39.0 | 34.1 | 29.7 | 25.8 | 22.2 |

Source: Compiled by authors

The last sensitivity analysis illustrates the large impact of the EBITDA-margin. The EBITDA-margin includes both changes in revenue as well as changes in operating expenses. We based our estimation on historical performance and argued for a margin of 56% in the explicit period as well as the terminal period. Due to DESSC's actions towards cost reductions as well as expected revenue increase, we believe that this is a fair assumption. However, the table depicts the high sensitivity of a change in the EBITDA-margin. If the company is not able to increase revenue or decrease it costs the share price will be radically affected. An EBITDA-margin of 53% and WACC of 7.20% is accompanied by a share price of NOK 5.6, illustrating the significant importance of the EBITDA-margin.

# 10. Conclusion/Recommendation

The main purpose of the thesis has been to determine the fundamental value of Deep Sea Supply per 31th of May 2013. Through performing comprehensive analyses, forecasting future performance and valuation we have reached the final step in the fundamental valuation process and we are ready to present our recommendation on the investment decision.

We argue for positive future outlooks in the OSV markets. With an expected healthy growth in the world economy and steady high oil prices, all the primary drivers of the OSV market are expected to strengthen. The strong OSV demand will be driven by an increasing offshore activity, illustrated by a

growth in the oil-rig demand and E&P spending. The oil discoveries are being made in the deep-water segments, which will result in a higher demand for large, modern OSVs than the other classes. The expected high demand is however accompanied by an increasing supply, illustrated by a growing orderbook, especially for large PSVs. The threat of oversupply is significant in the PSV segment and introduces potential future risk. On the other hand, the supply of PSVs of other classes is moderate, which should help to ease the downward pressure on the PSV freight rates. For AHTSs, the market is indicating an estimated undersupply which will help to increase utilization ratios and freight rates in this segment. Overall, we characterise the OSV market to be in a recovery phase after years of low utilization ratios and freight rates, and we expect that the global OSV market will experience growth in both the AHTS and PSV segment going forward. Nevertheless, we acknowledge the potential threats DESSC might encounter in the markets. For instance, there is the possibility that the demand for OSVs will turn out to be lower than expected, in which case the expected growth in the supply will deteriorate the freight rates.

DESSC is in a growth phase, with ambitious expansion plans, indicating that the company is trying to exploit the positive market sentiments as well as taking advantage of their internal resources. The newly established joint venture in Brazil represents a milestone in DESSC's short history, and is believed to enhance the company's position as an important player in the OSV industry, especially in the Brazilian market. With the majority of its fleet in Brazil, DESSC is strongly emphasising this market, which is argued to be one of the strongest regions in the OSV industry, and expected to remain so in years ahead. As with most parts of the world, demand for the largest tonnage is proving to be particular high in the Brazilian market. With DESSC' fleet composition and the focus on large modern OVSs, in combination with Brazilian relations, all is set for further penetration of this market. However, we acknowledge the risk deriving from betting highly on one market as there is the possibility that Brazil does not prove to be as promising as expected.

The profitability analysis of DESSC proved that the company has in recent years experienced low profitability and on some areas performed below peer average. The overall liquidity risk was assessed to be low throughout the analysis period, however, due to recent poor financial performance the current liquidity risk is argued to be higher, both in the short-and long-term. This negative development has

been fuelled by negative market sentiments illustrated by utilization ratios and freight rates. However, we argue that DESSC will be able to improve its profitability through increased revenue and cost-efficient initiatives, which will ease the liquidity risk going forward.

Our estimation on the fundamental value of Deep Sea Supply per 31th of May 2013 represents a target price of NOK 15.9, which signals a potential upside of 70%, from the current market price of NOK 9.35. The arguments for DESSC being undervalued were strengthened through the multiple analyses, indicating that DESSC on average trades below its peers. We acknowledge that changes in the inputs in the pro forma statement may cause significant impacts on the share price, and considering the volatility characterising the OSV market, the share price may fluctuate considerably. In addition, the subjective assumptions regarding the calculation of WACC introduce uncertainty. As illustrated in the sensitivity analysis the WACC has tremendous implication for the share price.

The overall assessment indicates that the company is strategically positioned to take advantage of the recovering OSV market, and we recommend a strong buy on Deep Sea Supply's share with an estimated upside of 70%.

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# Appendix

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# Appendix 1 - The offshore supply vessel market

## Appendix 1.1 - Calculation of global yearly average PSV and AHTS freight rates

| | Global yearly average AHTS freight rate | | | | | | |
|---|---|---|---|---|---|---|---|
| Year | ASIA term rate 12,000 bhp | North Sea term rate 10 - 15,999 bhp | North Sea term rate 16-19,999 bhp | term rate 16,000 bhp | Brazil term rate 15,000 bhp | AVERAGE | Growth |
| 2000 | 11,000 | 10,500 | | 15,000 | 17,500 | 13,500 | |
| 2001 | 16,000 | 17,000 | | 20,000 | 16,700 | 17,425 | 29% |
| 2002 | 12,000 | 14,000 | 20,000 | 17,500 | 17,500 | 16,200 | -7% |
| 2003 | 10,000 | 13,000 | 20,000 | 15,000 | 14,000 | 14,400 | -11% |
| 2004 | 11,500 | 11,000 | 17,300 | 16,000 | 14,000 | 13,960 | -3% |
| 2005 | 18,500 | 17,500 | 27,500 | 20,000 | 21,500 | 21,000 | 50% |
| 2006 | 22,000 | 29,000 | 38,000 | 30,000 | 27,500 | 29,300 | 40% |
| 2007 | 28,000 | 36,000 | 52,000 | 40,500 | 37,500 | 38,800 | 32% |
| 2008 | 34,500 | 35,000 | 52,000 | 42,000 | 49,000 | 42,500 | 10% |
| 2009 | 25,000 | 25,000 | 34,000 | 31,000 | 35,000 | 30,000 | -29% |
| 2010 | 15,000 | 18,000 | 24,500 | 23,700 | 37,000 | 23,640 | -21% |
| 2011 | 15,000 | 18,700 | 30,000 | 25,500 | 40,000 | 25,840 | 9% |
| 2012 | 18,000 | 20,600 | 38,000 | 28,500 | 42,000 | 29,420 | 14% |

| | Global yearly average PSV freight rate | | | | | | |
|---|---|---|---|---|---|---|---|
| Year | North Sea term rate 500-749 m2 | North Sea term rate 900 m2 + | term rate 500 - 749 m2 | Brazil term rate 500 - 750 m2 | Brazil term rate 900 m2 + | Average | Growth |
| 2000 | 6,000 | 8,500 | 10,000 | 10,000 | | 8,625 | |
| 2001 | 9,000 | 14,000 | 10,000 | 14,000 | | 11,750 | 36.2% |
| 2002 | 9,000 | 14,000 | 12,300 | 15,000 | | 12,575 | 7.0% |
| 2003 | 7,000 | 12,400 | 11,000 | 10,000 | | 10,100 | -19.7% |
| 2004 | 7,000 | 13,000 | 10,500 | 11,000 | | 10,375 | 2.7% |
| 2005 | 11,000 | 25,000 | 12,800 | 13,000 | | 15,450 | 48.9% |
| 2006 | 20,000 | 27,500 | 15,000 | 16,000 | | 19,625 | 27.0% |
| 2007 | 28,000 | 44,000 | 24,000 | 21,000 | | 29,250 | 49.0% |
| 2008 | 24,000 | 32,500 | 29,000 | 23,500 | | 27,250 | -6.8% |
| 2009 | 14,000 | 18,300 | 21,500 | 21,000 | | 18,700 | -31.4% |
| 2010 | 15,000 | 22,500 | 16,000 | 23,500 | | 19,250 | 2.9% |
| 2011 | 19,000 | 28,500 | 20,300 | 26,000 | 31,500 | 25,060 | 30.2% |
| 2012 | 20,500 | 27,000 | 25,000 | 27,700 | 34,000 | 26,840 | 7.1% |

Source: RS Platou, Offshore Supply Vessel Market, 2012, page 23

# Appendix 2 - Company profile – Deep Sea Supply Plc

## Appendix 2.1 - Overview of DESSC's shareholders

| DESSC shareholders | | | |
|---|---|---|---|
| *The largest shareholders as per 31st Dec. 2012 registered in VPS* | | | |
| **Shareholder** | **Citizen** | **No. Of shares** | **%** |
| HEMEN HOLDING LIMITED | CYP | 44,583,853 | 35.1% |
| SKAGEN KON-TIKI | NOR | 12,229,431 | 9.6% |
| PERESTROIKA AS | NOR | 6,350,000 | 5.0% |
| DNB NOR MARKETS | NOR | 3,512,105 | 2.8% |
| HOLBERG NORGE | NOR | 2,162,486 | 1.7% |
| SVENSKA HANDELSBANKEN | SWE | 1,918,050 | 1.5% |
| UTHALDEN AS | NOR | 1,575,000 | 1.2% |
| NORDEA BANK NORGE ASA | NOR | 1,439,529 | 1.1% |
| CENTRA INVEST AS | NOR | 1,421,643 | 1.1% |
| UBS AG | GBR | 1,382,395 | 1.1% |
| PACTUM AS | NOR | 1,325,000 | 1.0% |
| DNB NOR SMB | NOR | 1,100,000 | 0.9% |
| ANAXO CAPITAL AS | NOR | 1,014,275 | 0.8% |
| TOLUMA NORDEN AS | NOR | 962,931 | 0.8% |
| SOLSTEN INVESTMENT FUND | GER | 900,000 | 0.7% |
| BNP PARIBAS | FRA | 800,000 | 0.6% |
| MP PENSJON PK | NOR | 658,800 | 0.5% |
| LØREN HOLDING AS | NOR | 620,626 | 0.5% |
| HUSTADLITT AS | NOR | 594,524 | 0.5% |
| SKANDINAVISKA ENSKILDA | SWE | 585,482 | 0.5% |
| **Total 20 largest shareholders** | | 85,136,130 | 66.9% |
| **Total other shareholders** | | 42,061,064 | 33.1% |
| **Total number of shares** | | 127,197,194 | 100.0% |

Source: www.deepseasupply.no/shareholders

## Appendix 2.2 - DESSC's fleet overview

| Deep Sea Supply fleet | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Platform supply vessels | | | | Anchor handling tug supplies | | | | Newbuilds | | | |
| Vessel name | DWT | Area of operation | Delivered | Vessel name | BHP | Area of operation | Delivered | Vessel name | BHP | Area of operation | Exccepted delivery |
| Sea Brasil | 4,700 | Brazil | 2012 | Sea Cheetah | 15,000 | Brazil | 2007 | Sea Titus | 4,000 | North Sea | Q2 2013 |
| Sea Pollock | 3,250 | Brazil | 2008 | Sea Jaguar | 15,000 | Brazil | 2007 | Sea Tortuga | 4,000 | North Sea | Q3 2013 |
| Sea Turbot | 3,250 | Brazil | 2008 | Sea Bear | 15,000 | Brazil | 1999 | Sea Triumph | 4,000 | North Sea | Q4 2013 |
| Sea Bass | 3,250 | Brazil | 2008 | Sea Panther | 15,000 | Brazil | 1999 | Sea Forth | 4,600 | Brazil | Q3 2013 |
| Sea Halibut | 3,250 | Brazil | 2007 | Sea Tiger | 15,000 | Brazil | 1998 | Sea Frost | 4,600 | Brazil | Q3 2013 |
| Sea Pike | 3,250 | Brazil | 2007 | Sea Leopard | 15,000 | Brazil | 1998 | Sea Spark | 4,600 | Brazil | Q3 2013 |
| Sea Falcon | 4,543 | North Sea | Apr-13 | Sea Fox | 6,800 | Brazil | 2011 | Sea Spear | 4,600 | Brazil | Q4 2013 |
| Sea Tantalus | 4,031 | North Sea | May-13 | Sea Jackal | 6,800 | Brazil | 2011 | Sea Spider | 4,600 | Brazil | Q4 2013 |
| Sea Trout | 3,300 | North Sea | 2008 | Sea Vixen | 6,800 | Brazil | 2011 | Sea Springer | 4,600 | Brazil | Q4 2013 |
| Sea Flyer | 4,600 | Malaysia | Jun-13 | Sea Stoat | 6,800 | Brazil | 2011 | Sea Supra | 4,600 | Brazil | 2014 |
| Sea Witch | 3,250 | West Africa | 2008 | Sea Eagle 1 | 12,000 | Malaysia | 2009 | Sea Surfer | 4,600 | Brazil | 2014 |
| Sea Angler | 3,250 | West Africa | 2007 | Sea Ocelot | 10,880 | Malaysia | 2007 | Sea Swan | 4,600 | Brazil | 2014 |
| | | | | Sea Weasel | 6,800 | Malaysia | 2009 | Sea Swift | 4,600 | Brazil | 2014 |
| | | | | Sea Badger | 6,800 | Thailand | 1999 | | | | |
| | | | | Sea Lynx | 15,000 | North Sea | 2011 | | | | |

Source: www.deepseasupply.no/fleet

## Appendix 2.3 - Historical North Sea Oil production



North Sea Oil Production (C+C)
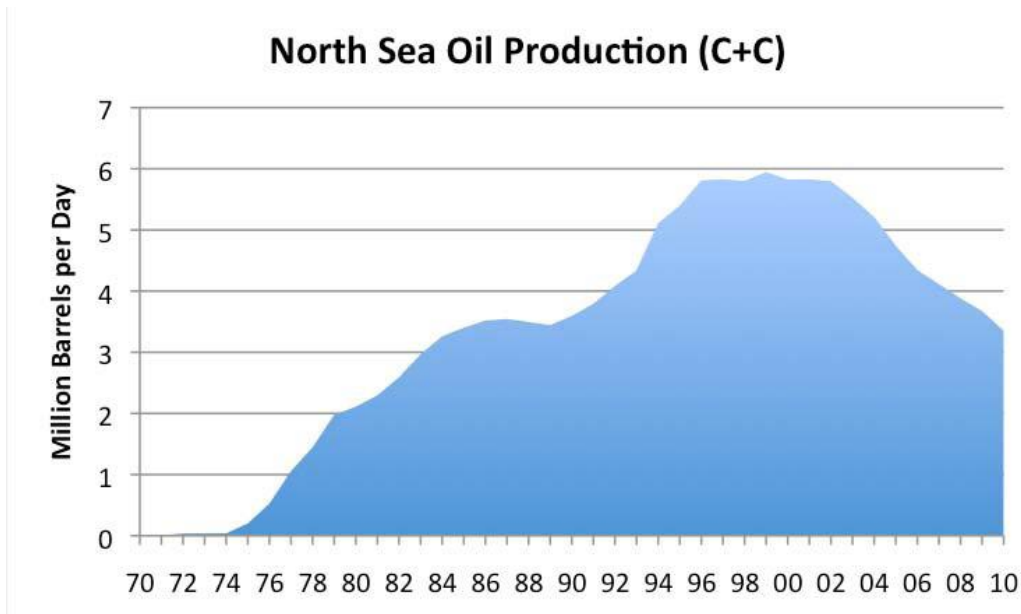
Source: www.southernlimitsnz.com

## Appendix 2.4 - Calculation of DESSC's and peers' EBITDA-margin

| Calculation of DESSC's and peers' EBITDA-margin | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|
| **DESSC** | | | | | | | |
| Net revenue | 74,184 | 146,660 | 190,405 | 167,633 | 132,346 | 116,193 | 124,531 |
| EBITDA | 41,867 | 100,532 | 142,460 | 93,327 | 57,021 | 55,998 | 45,830 |
| **EBITDA-margin** | 56% | 69% | 75% | 56% | 43% | 48% | 37% |
| **Farstad** | | | | | | | |
| Net revenue | 1,940,910 | 2,514,304 | 3,019,674 | 3,257,579 | 3,328,815 | 3,601,798 | 3,703,772 |
| EBITDA | 987107 | 1,376,834 | 1,729,130 | 1,736,160 | 1,386,162 | 1,418,435 | 1,306,198 |
| **EBITDA-margin** | 51% | 55% | 57% | 53% | 42% | 39% | 35% |
| **Solstad** | | | | | | | |
| Net revenue | 1,898,701 | 2,230,328 | 2,249,678 | 2,531,796 | 2,619,376 | 2,989,522 | 3,385,264 |
| EBITDA | 1,040,452 | 1,397,748 | 1,318,098 | 1,194,556 | 980,848 | 1,079,611 | 1,457,398 |
| **EBITDA-margin** | 55% | 63% | 59% | 47% | 37% | 36% | 43% |
| **Havila** | | | | | | | |
| Net revenue | 742,621 | 674,942 | 1,131,877 | 901,964 | 1,150,892 | 1,360,751 | 1,343,140 |
| EBITDA | 479,039 | 477,286 | 749,390 | 448,457 | 463,278 | 485,342 | 523,020 |
| **EBITDA-margin** | 65% | 71% | 66% | 50% | 40% | 36% | 39% |

Source: Companies' annual reports

# Appendix 3 – Strategic analysis

## Appendix 3.1- Comparison between Brent crude oil price and OSV rates

| Comparison between Brent crude oil price and freight rates | | | |
|---|---|---|---|
| Year | Brent crude oil price | AHTS freight rate | PSV freight rate |
| 2000 | 28.66 | 13,500 | 8,625 |
| 2001 | 24.46 | 17,425 | 11,750 |
| 2002 | 24.99 | 16,200 | 12,575 |
| 2003 | 28.85 | 14,400 | 10,100 |
| 2004 | 38.26 | 13,960 | 10,375 |
| 2005 | 54.57 | 21,000 | 15,450 |
| 2006 | 65.16 | 29,300 | 19,625 |
| 2007 | 72.44 | 38,800 | 29,250 |
| 2008 | 96.94 | 42,500 | 27,250 |
| 2009 | 61.74 | 30,000 | 18,700 |
| 2010 | 79.61 | 23,640 | 19,250 |
| 2011 | 111.26 | 25,840 | 25,060 |
| 2012 | 111.63 | 29,420 | 26,840 |

Source OSV freight rates: Appendix 1.1

Source Brent crude oil price: http://www.eia.gov/

## Appendix 3.2 - Oil price forecast

| Commodity Prices and Price Forecasts in Nominal USD | 2011 | 2012 | 2013E | 2015E |
|---|---|---|---|---|
| Crude oil, avg, spot, $/bbl | 104 | 105 | 102 | 102,1 |

Source: World Bank – Commodity Forecast

## Appendix 3.3 - Global rig demand forecast
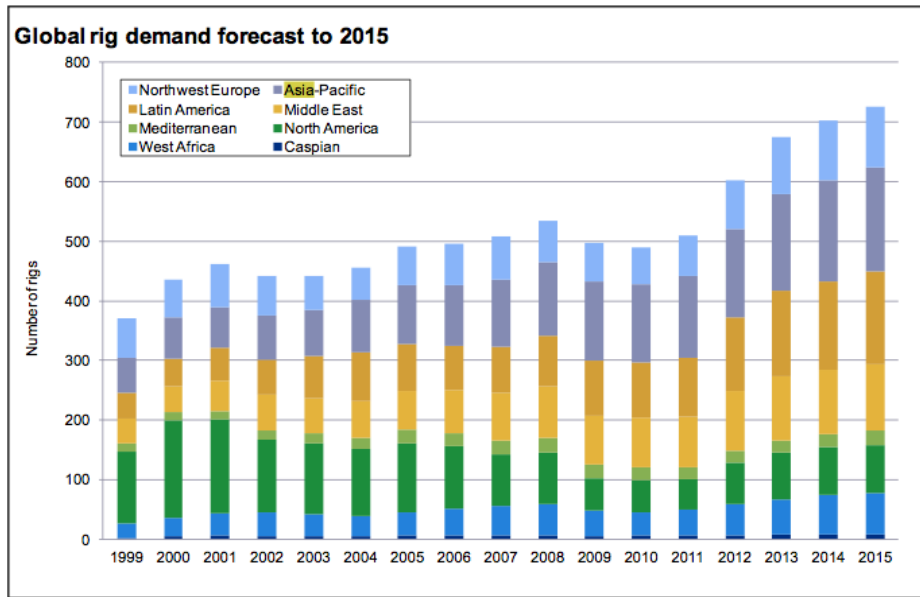


Source: IHS Petrodata

## Appendix 3.4 - Oil companies' historical E&P investments
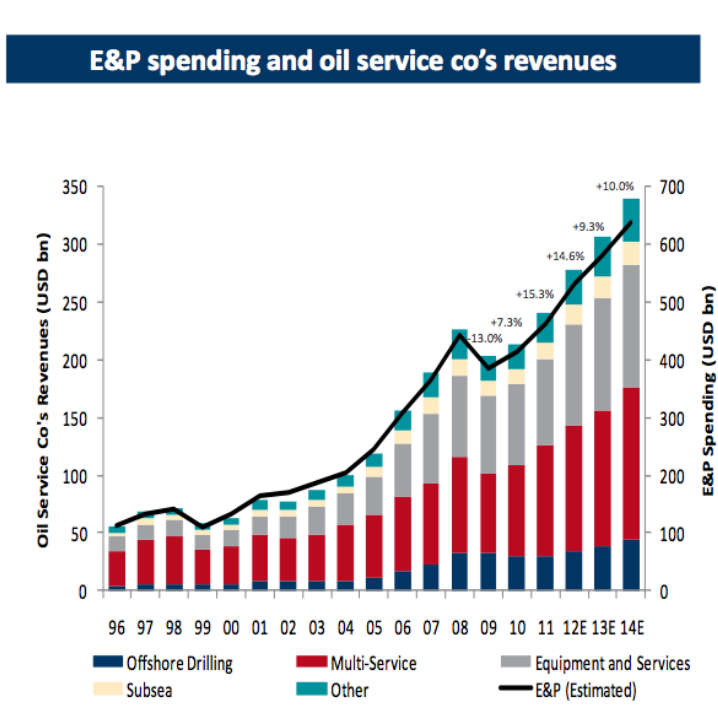


Source: RS Platou, Offshore Supply Vessel Market, 2012, page 12

## Appendix 3.5 - Exploration trend

### Exploration Trend – Deeper and Deeper

| Country | Number of Offshore Fields | Average Water Depth (feet) | Distance from Shore (km) |
|---|---|---|---|
| Angola | 10 | 4,970 | 156 |
| U.S. | 25 | 4,751 | 173 |
| Brazil | 30 | 3,514 | 156 |
| Nigeria | 7 | 2,054 | 63 |
| Malaysia | 8 | 1,171 | 99 |
| Norway | 18 | 761 | 141 |
| Australia | 7 | 499 | 149 |
| United Kingdom | 14 | 361 | 122 |
| India | 16 | 230 | 100 |
| China P.R. | 7 | 226 | 38 |
| Others | 39 | 666 | 83 |
| **Total** | **181** | **1,896** | **126** |

Source: Clarkson, Overview of the Offshore Supply Vessel Industry, 2012, page 7

## Appendix 3.6 - Ordering activity
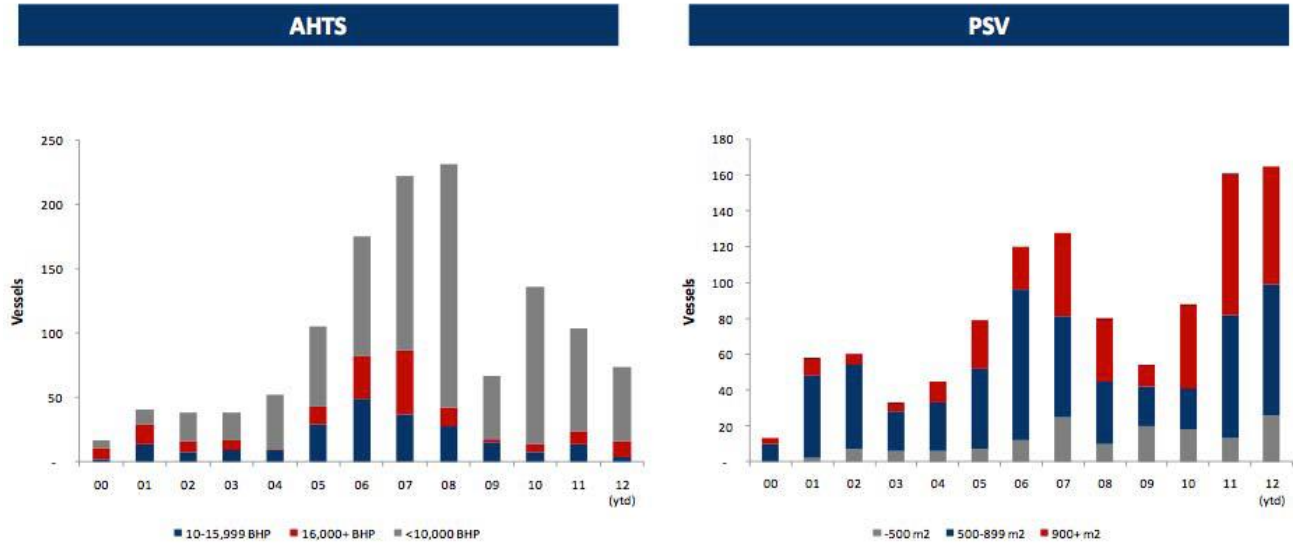


Source: RS Platou, Offshore Supply Vessel Market, 2012, page 17

## Appendix 3.7 - World OSV fleet, age profile by number of vessels
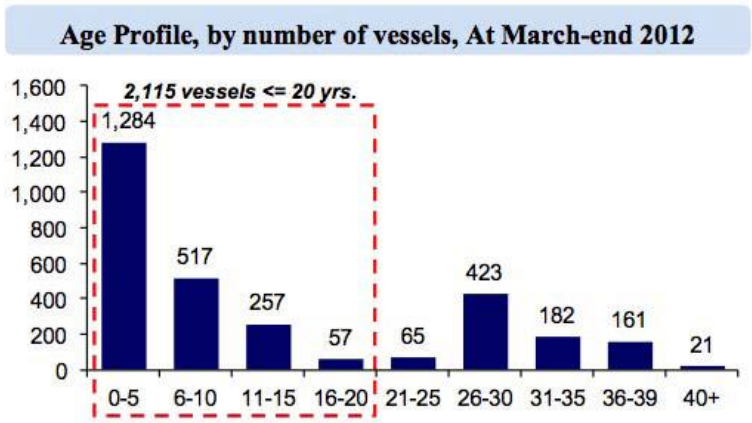


Age Profile, by number of vessels, At March-end 2012

2,115 vessels <= 20 yrs.

1,284 — 0-5
517 — 6-10
257 — 11-15
57 — 16-20
65 — 21-25
423 — 26-30
182 — 31-35
161 — 36-39
21 — 40+

Source: MarineBase, Clarkson Capital Markets estimates

Source: Clarkson, Overview of the Offshore Supply Vessel Industry, 2012, page 10

## Appendix 3.8 World OSV fleet
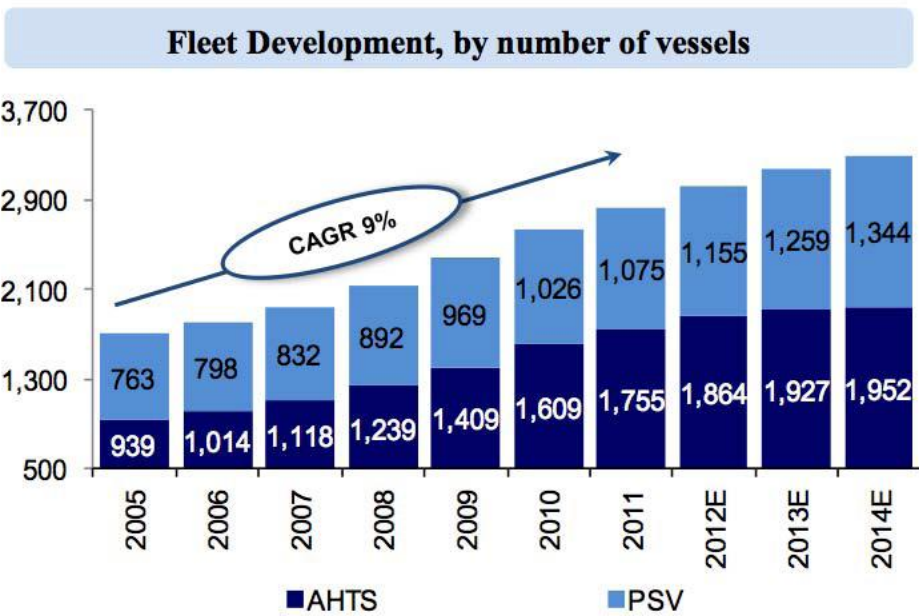


Fleet Development, by number of vessels

CAGR 9%

| Year | AHTS | PSV |
|---|---|---|
| 2005 | 939 | 763 |
| 2006 | 1,014 | 798 |
| 2007 | 1,118 | 832 |
| 2008 | 1,239 | 892 |
| 2009 | 1,409 | 969 |
| 2010 | 1,609 | 1,026 |
| 2011 | 1,755 | 1,075 |
| 2012E | 1,864 | 1,155 |
| 2013E | 1,927 | 1,259 |
| 2014E | 1,952 | 1,344 |

Source: MarineBase, Clarkson Capital Markets estimates

Source: Clarkson, Overview of the Offshore Supply Vessel Industry, 2012, page 10

## Appendix 3.9 - OSV-to-rig ratio

**OSV-to-Rig Ratio**

| Year | OSV-to-Rig Ratio | OSV Utilization |
|------|------------------|-----------------|
| 2008 | 3.4x | 85% |
| 2011 | 4.1x | 73% |
| 2012 | 4.1x | 73% |
| 2013 | 3.9x | 77% |
| Later | 3.6x | 81% |
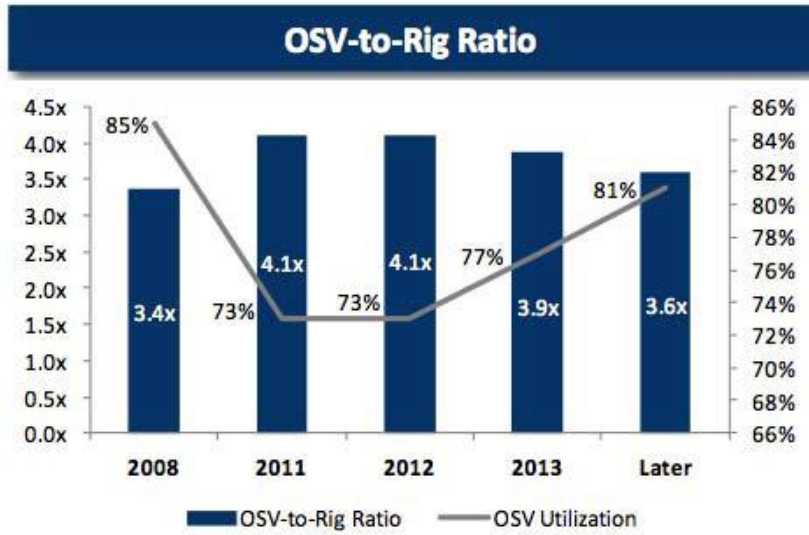
Source: Pareto, E&P survey, 2012

## Appendix 3.10 - North Sea OSV demand forecast

| Northwest Europe supply vessel market Selected demand forecasts to 2014 | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2012** | | | | **2013** | | | | **2014** | | | | **2015** | | | |
| | **Q1** | **Q2** | **Q3** | **Q4** | **Q1** | **Q2** | **Q3** | **Q4** | **Q1** | **Q2** | **Q3** | **Q4** | **Q1** | **Q2** | **Q3** | **Q4** |
| AHTS 23,000+ bhp | 5 | 2 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| AHTS 18,000-22,999 bhp | 7 | 7 | 5 | 6 | 7 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 10 | 10 | 9 |
| PSV 4,000+ dwt | 100 | 109 | 100 | 99 | 107 | 118 | 118 | 112 | 117 | 128 | 129 | 122 | 126 | 136 | 137 | 130 |
| PSV 3,000-3,999 dwt | 55 | 59 | 62 | 56 | 49 | 54 | 54 | 51 | 48 | 52 | 52 | 50 | 46 | 49 | 50 | 47 |

Source: IHS Petrodata

## Appendix 3.11 - Brazil OSV demand forecast

### LATIN AMERICA

| Latin America supply vessel market Selected demand forecasts to 2015 | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2012** | | | | **2013** | | | | **2014** | | | | **2015** | | | |
| | **Q1** | **Q2** | **Q3** | **Q4** | **Q1** | **Q2** | **Q3** | **Q4** | **Q1** | **Q2** | **Q3** | **Q4** | **Q1** | **Q2** | **Q3** | **Q4** |
| AHTS 23,000+ bhp | 18 | 17 | 19 | 19 | 20 | 21 | 21 | 22 | 22 | 21 | 22 | 23 | 24 | 24 | 25 | 25 |
| AHTS 15,000-17,999 bhp | 33 | 28 | 34 | 36 | 38 | 39 | 39 | 40 | 40 | 40 | 41 | 42 | 43 | 43 | 44 | 45 |
| PSV 4,000+ dwt | 45 | 45 | 49 | 60 | 63 | 65 | 66 | 66 | 67 | 66 | 69 | 71 | 73 | 74 | 76 | 78 |
| PSV 3,000-3,999 dwt | 76 | 75 | 79 | 88 | 97 | 100 | 100 | 101 | 102 | 101 | 104 | 107 | 109 | 111 | 114 | 116 |

Source: IHS Petrodata

## Appendix 3.12 - Current regional OSV utilization ratios

**AHTS utilization ratio**

| Current regional AHTS utilisation ratios | | | | |
|---|---|---|---|---|
| | Latin America | The North Sea | West Africa | Asia Pacific |
| AHTS 6,000 - 9,999 bhp | 86% | 70% | 52% | 64% |
| AHTS 10,000 - 14,999 bhp | 89% | 56% | 74% | 75% |
| AHTS 15,000 - 17,999 bhp | 88% | 26% | 69% | 79% |
| AHTS 18,000 - 22,999 bhp | 100% | 31% | 50% | 91% |
| AHTS > 23,000 bhp | 100% | 16% | 100% | 67% |
| **Average** | **93%** | **40%** | **69%** | **75%** |

**PSV utilization ratio**

| Current regional PSV utilisation ratios | | | | |
|---|---|---|---|---|
| | Latin America | The North Sea | West Africa | Asia Pacific |
| PSV < 2000 | 70% | | 31% | 57% |
| PSV 2,000-3,000 | 93% | 78% | 75% | 74% |
| PSV 3,000-3,999 | 92% | 74% | 83% | 87% |
| PSV > 4,000 | 93% | 78% | 75% | 74% |
| **Average** | **87%** | **77%** | **66%** | **73%** |

Source: IHS Petrodata

## Appendix 3.13 - Asia – Pacific OSV demand forecast

**ASIA-PACIFIC (INCLUDING INDIA, AUSTRALIA AND FAR EAST)**

| Asia-Pacific supply vessel market Selected demand forecasts to 2015 | 2012 | | | | 2013 | | | | 2014 | | | | 2015 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| AHTS 15,000-17,999 bhp | 18 | 19 | 17 | 17 | 19 | 22 | 23 | 24 | 23 | 23 | 22 | 23 | 23 | 24 | 24 | 24 |
| AHTS 10,000-14,999 bhp | 89 | 86 | 88 | 97 | 100 | 102 | 100 | 102 | 103 | 105 | 107 | 109 | 110 | 111 | 111 | 111 |
| PSV 3,000-3,999 dwt | 49 | 47 | 45 | 51 | 52 | 53 | 55 | 56 | 57 | 58 | 59 | 60 | 62 | 63 | 64 | 65 |
| PSV 2,000-2,999 dwt | 14 | 12 | 13 | 13 | 13 | 14 | 14 | 15 | 15 | 16 | 16 | 16 | 16 | 17 | 17 | 17 |

Source: IHS Petrodata

## Appendix 3.14 - West African OSV demand forecast

| West Africa supply vessel market Selected demand forecasts to 2015 | 2012 | | | | 2013 | | | | 2014 | | | | 2015 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| AHTS 10,000-14,999 bhp | 27 | 26 | 27 | 23 | 24 | 23 | 24 | 25 | 26 | 27 | 27 | 28 | 29 | 29 | 29 | 29 |
| AHTS 6,000-9,999 bhp | 57 | 54 | 52 | 53 | 53 | 53 | 56 | 53 | 56 | 57 | 58 | 59 | 60 | 61 | 60 | 60 |
| PSV 4,000+ dwt | 9 | 9 | 10 | 9 | 9 | 9 | 10 | 10 | 11 | 11 | 12 | 12 | 12 | 13 | 13 | 13 |
| PSV 3,000-3,999 dwt | 51 | 54 | 52 | 63 | 66 | 65 | 74 | 78 | 84 | 86 | 87 | 88 | 90 | 91 | 89 | 89 |

Source: IHS Petrodata

## Appendix 3.15 - Regional OSV demand forecast

| North Sea OSV demand forecast | | | | | | |
|---|---|---|---|---|---|---|
| | 3Q 2012 | 4Q 2013E | 4Q 2014E | 4Q 2015E | Change | % change |
| AHTS 23,000 bhp | 3 | 4 | 5 | 5 | 2 | 67% |
| AHTS 18,000 - 22,999 bhp | 5 | 8 | 9 | 9 | 4 | 80% |
| PSV 4,000 dwt | 100 | 112 | 122 | 130 | 30 | 30% |
| PSV 3,000 - 3,999 dwt | 62 | 51 | 50 | 47 | -15 | -24% |
| **Latin America OSV demand forecast** | | | | | | |
| | 3Q 2012 | 4Q 2013E | 4Q 2014E | 4Q 2015E | Increase | % change |
| AHTS 23,000 bhp | 19 | 22 | 23 | 25 | 6 | 32% |
| AHTS 15,000 - 17,999 bhp | 34 | 40 | 42 | 45 | 11 | 32% |
| PSV 4,000 dwt | 49 | 66 | 71 | 78 | 29 | 59% |
| PSV 3,000 - 3,999 dwt | 79 | 101 | 107 | 116 | 37 | 47% |
| **West Africa OSV demand forecast** | | | | | | |
| | 3Q 2012 | 4Q 2013E | 4Q 2014E | 4Q 2015E | Increase | % change |
| AHTS 10,000 - 14,999 bhp | 27 | 25 | 28 | 29 | 2 | 7% |
| AHTS 6,000 - 9,999 bhp | 52 | 53 | 59 | 60 | 8 | 15% |
| PSV 4,000 dwt | 10 | 10 | 12 | 13 | 3 | 30% |
| PSV 3,000 - 3,999 dwt | 52 | 78 | 88 | 89 | 37 | 71% |
| **Asia-Pacific (including South East Asia) OSV demand forecast** | | | | | | |
| | 3Q 2012 | 4Q 2013E | 4Q 2014E | 4Q 2015E | Increase | % change |
| AHTS 15,000 - 17,999 bhp | 17 | 24 | 23 | 24 | 7 | 41% |
| AHTS 10,000 - 14,999 bhp | 88 | 102 | 109 | 111 | 23 | 26% |
| PSV 3,000 - 3,999 dwt | 45 | 56 | 60 | 65 | 20 | 44% |
| PSV 2,000 - 2,999 dwt | 13 | 15 | 16 | 17 | 4 | 31% |

Source: IHS Petrodata

## Appendix 3.16 - OSV second hand prices

### AHTS second-hand market

**AHTS Second-Hand Market**

**Small AHTS Overview**

| Size | Age | YTD 2012 | YTD 2013 | Apr 2012 | Mar 2013 | Apr 2013 | | 1 year % change |
|------|-----|----------|----------|----------|----------|----------|---|-----------------|
| 5,000 BHP | 5 yrs old | 9.3 | 9.3 | 9.0 | 9.5 | 9.5 | ⬆ | 5.6 % |
| 5,000 BHP | RESALE | 12.1 | 11.5 | 12.2 | 11.8 | 11.8 | ⬇ | -3.3 % |
| 7,000 BHP | 5 yrs old | 16.0 | 16.0 | 16.0 | 16.0 | 16.0 | ⮕ | 0.0 % |
| 7,000 BHP | RESALE | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | ⮕ | 0.0 % |
| 8,000 BHP | 5 yrs old | 17.1 | 17.8 | 17.0 | 18.5 | 18.5 | ⬆ | 8.8 % |
| 8,000 BHP | RESALE | 22.3 | 21.5 | 22.0 | 21.0 | 21.0 | ⬇ | -4.5 % |
| 10,000 BHP | 5 yrs old | 23.5 | 22.8 | 23.5 | 22.0 | 22.0 | ⬇ | -6.4 % |
| 10,000 BHP | RESALE | 29.0 | 28.8 | 29.0 | 28.5 | 28.5 | ⬇ | -1.7 % |

*Numbers in USDm*



**Small AHTS Value Development**

Legend: 5,000 BHP, 5 years ols — 5,000 BHP, RESALE — 8,000 BHP, 5 years old — 8,000 BHP, RESALE — 10,000 BHP, 5 years old — 10,000 BHP, RESALE
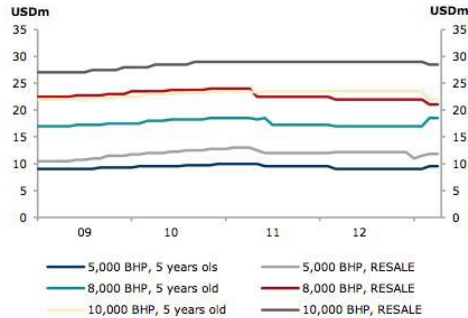
**Medium & Large AHTS Overview**

| Size | Age | YTD 2012 | YTD 2013 | Apr 2012 | Mar 2013 | Apr 2013 | | 1 year % change |
|------|-----|----------|----------|----------|----------|----------|---|-----------------|
| 12,000 BHP | 1992 | 12.1 | 9.8 | 12.0 | 9.5 | 9.5 | ⬇ | -20.8 % |
| 12,000 BHP | RESALE | 30.6 | 28.0 | 30.5 | 28.0 | 28.0 | ⬇ | -8.2 % |
| 14,000 BHP | 1998 | 28.8 | 25.9 | 28.5 | 25.5 | 25.5 | ⬇ | -10.5 % |
| 16,000 BHP | 2006 | 54.8 | 56.6 | 56.0 | 57.0 | 57.0 | ⬆ | 1.8 % |
| 18,000 BHP | 1998 | 54.8 | 56.6 | 44.0 | 39.0 | 38.5 | ⬇ | -12.5 % |
| 25,000 BHP | 2000 | 85.0 | 87.9 | 85.0 | 88.0 | 88.0 | ⬆ | 3.5 % |

*Numbers in USDm*



**Medium & Large AHTS Value Development**

Legend: 12,000 BHP, 1992 — 12,000 BHP, RESALE — 14,000 BHP, 1998 — 16,000 BHP, 2006 — 18,000 BHP, 1998 — 25,000 BHP, 2000
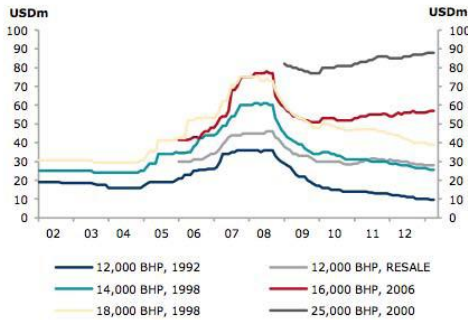
### PSV second-hand market

**PSV Second-Hand Market**

**PSV Overview**

| Size | Age | YTD 2012 | YTD 2013 | Apr 2012 | Mar 2013 | Apr 2013 | | 1 year % change |
|------|-----|----------|----------|----------|----------|----------|---|-----------------|
| UT 755-L | 1998 | 18.0 | 18.0 | 18.0 | 16.0 | 15.5 | ⬇ | -13.9 % |
| UT 755-LN | RESALE | 33.0 | 33.0 | 33.0 | 30.0 | 30.0 | ⬇ | -9.1 % |
| UT 745 | 1996 | 22.8 | 22.8 | 22.5 | 19.0 | 19.0 | ⬇ | -15.6 % |
| 1,000+ m2 | RESALE | 58.0 | 58.0 | 58.5 | 56.0 | 56.0 | ⬇ | -4.3 % |

*Numbers in USDm*



**PSV Value Development**

Legend: 1,000+ m2, RESALE — UT 755-L, 1998 — UT 755-LN, RESALE — UT 745, 1996
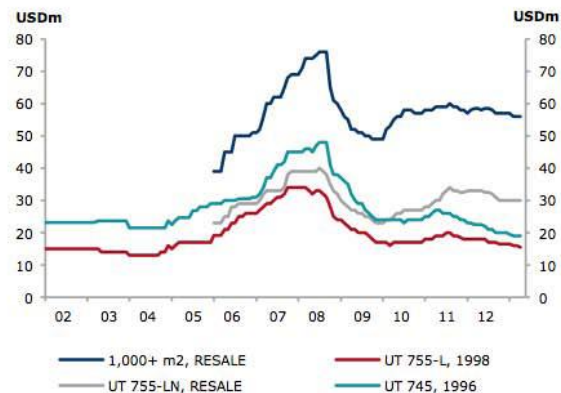
Source: RS Platou, Global Support Vessel Monthly May 2013, page 7

# Appendix 3.17 - OSV newbuilding prices

## AHTS newbuilding prices
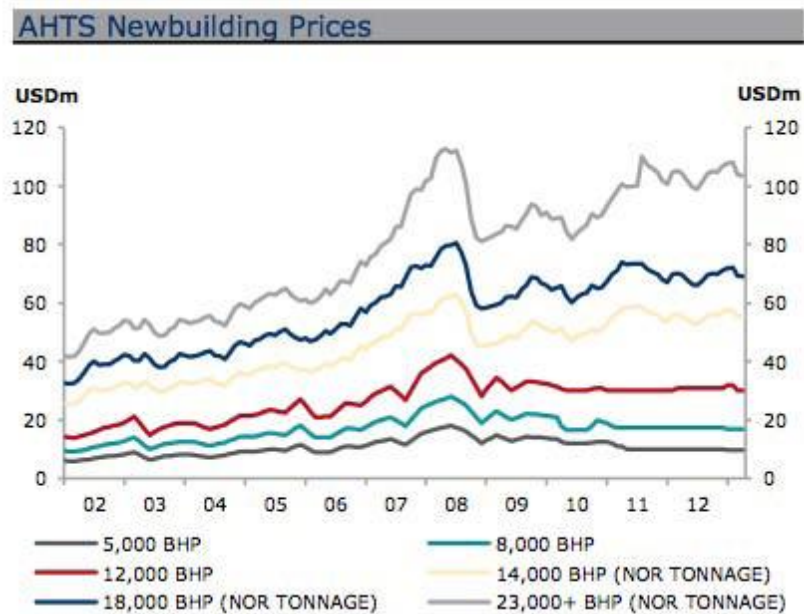
**PSV newbuilding prices**
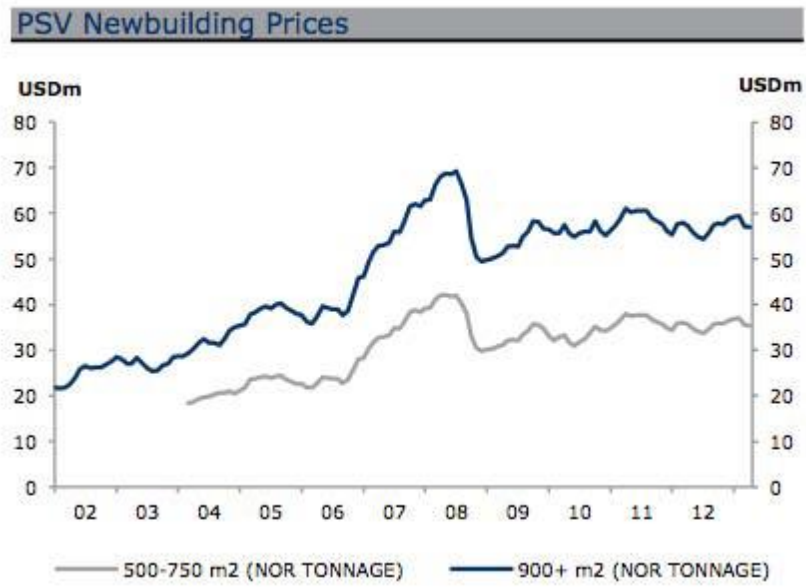


Source: RS Platou, Global Support Vessel Monthly May 2013, page 8

# Appendix 4 – Financial statement analysis

## Appendix 4.1 – DESSC's financial statements

### The income statement

| Income Statement | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|
| *Numbers in thousands USD* | | | | | | | |
| Sales - freigth revenue | 74,184 | 146,660 | 190,405 | 167,633 | 132,346 | 115,902 | 124,140 |
| Operating expenses vessels | -26,107 | -40,176 | -60,199 | -66,163 | -73,681 | -72,124 | -66,345 |
| Operating leases | 0 | 0 | 0 | 0 | -2,925 | -1,684 | 0 |
| Vessel relocation costs | -1,045 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other operating expenses | | | | | | | |
| Depreciation related to vessels | -10,041 | -16,556 | -30,230 | -36,308 | -36,347 | -28,603 | -32,057 |
| *Total operating expenses* | -37,193 | -56,732 | -90,429 | -102,471 | -112,953 | -102,411 | -98,402 |
| Gross profit | 36,991 | 89,928 | 99,976 | 65,162 | 19,393 | 13,491 | 25,738 |
| Other depreciation | -19 | -5 | -47 | -60 | -98 | -223 | -247 |
| Administative expenses | -2,774 | -5,952 | -7,971 | -7,696 | -8,710 | -10,911 | -12,356 |
| Other (losses)/gains - net | 12,228 | 8,375 | 708 | 21,470 | 17,060 | 29,225 | 4,842 |
| Cost related to restructuring of grou | -2,391 | 0 | 0 | 0 | 0 | 0 | 0 |
| Operating profit | 44,035 | 92,346 | 92,666 | 78,876 | 27,645 | 31,582 | 17,977 |
| Finance income | 1,052 | 2,616 | 2,122 | 665 | 2,233 | 392 | 1,923 |
| Finance costs | -6,185 | -24,413 | -44,496 | -36,332 | -29,797 | -31,454 | -23,802 |
| Finance costs - net | -5,133 | -21,797 | -42,374 | -35,667 | -27,564 | -31,062 | -21,879 |
| Share of profit of associates | 0 | 0 | 0 | 0 | 0 | 291 | 391 |
| Profit before income tax | 38,902 | 70,549 | 50,292 | 43,209 | 81 | 811 | -3,511 |
| Income tax expenses | -555 | -12,843 | 3,110 | 8,084 | -2,617 | -21 | -912 |
| Profit for the period | 38,347 | 57,706 | 53,402 | 51,293 | -2,536 | 790 | -4,423 |
| Attributable to: | | | | | | | |
| Equity holders for the company | 38,327 | 57,706 | 53,402 | 51,293 | -2,536 | 790 | -4,423 |
| Minority interest | 20 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 38,347 | 57,706 | 53,402 | 51,293 | -2,536 | 790 | -4,423 |

Source: DESSC annual reports 2006 – 2012

Based on the information in the financial statements that are showed above we can see a positive development in DESSC's revenues and gross profit until the financial crisis negatively affected the OSV industry in 2009. Revenues and gross profit continued to drop in 2010 and 2011, before they turned in 2012. Total operating expenses increased to a large extent until 2010 before it decreased in 2011 and 2012. The large growth in operating expenses is a natural result of DESSC's increased activity since their start-up in 2006. The depreciation of vessels has obviously also increased in line with procurement of vessels. Profit for the period was large compared to income, and increasing, until

2010, which saw a negative profit of $2.5 million[203]. DESSC earn record-low earnings in 2011, nevertheless the company managed to barely turn profit. However, this was due to sale of vessels which generated an income of USD 24.5 million. In 2012 DESSC earned a negative profit of USD 4.4 million.

**Assets**

| ASSETS | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|
| *Numbers in thousands USD* | | | | | | | |
| **Non-Current Assets** | | | | | | | |
| **Property, plant and Equiptment** | | | | | | | |
| Vessels | 228,432 | 280,498 | 369,404 | 414,340 | 312,684 | 340,179 | 426,751 |
| Vessels under finance lease contracts | 0 | 233,328 | 285,285 | 236,197 | 216,412 | 214,756 | 212,225 |
| Vessels under construction | 134,846 | 83,871 | 31,735 | 26,327 | 24,736 | 17,659 | 0 |
| Equipment and vehicle | 94 | 88 | 95 | 65 | 664 | 643 | 822 |
| **Total Property, plant and equipment** | 363,372 | 597,785 | 686,519 | 676,929 | 554,496 | 573,237 | 639,798 |
| Other Long term receivables | 0 | | 0 | 0 | 455 | 647 | 687 |
| Deferred income tax | 0 | | 0 | 0 | 234 | 308 | 605 |
| Investments in associates | 0 | 0 | 0 | 0 | 0 | 594 | 1,194 |
| Pension Scheme | 34 | 103 | 0 | 0 | 0 | 0 | 0 |
| CIRR Deposit | 0 | 0 | 44,799 | 49,426 | 43,693 | 37,796 | 35,558 |
| **Total non-current assets** | 363,406 | 597,888 | 731,318 | 726,355 | 598,878 | 612,582 | 677,842 |
| **Current assets** | | | | | | | |
| Financial derivatives | 0 | 6,003 | 0 | 0 | 0 | 0 | 0 |
| CIRR deposit short term portion | 0 | 0 | 4,144 | 5,038 | 4,959 | 4,839 | 5,215 |
| Inventories | 585 | 1,768 | 881 | 2,222 | 2,905 | 5,061 | 2,681 |
| Trade receivables | 19,480 | 41,631 | 47,866 | 22,483 | 26,017 | 29,475 | 30,010 |
| Other short term receivables | 15,969 | 18,981 | 6,172 | 6,349 | 9,374 | 6,468 | 9,541 |
| Financial assets at fair value through profit and loss | 0 | 0 | 6,335 | 0 | 0 | 0 | 0 |
| Cash and cash equivalents | 51,445 | 31,396 | 33,799 | 31,616 | 41,932 | 40,318 | 40,423 |
| **Total current assets** | 87,479 | 99,779 | 99,197 | 67,707 | 85,187 | 86,161 | 87,870 |
| Assets classified as held for sale | | 0 | 0 | 0 | 74,220 | | |
| **Total assets** | 450,885 | 697,667 | 830,515 | 794,062 | 758,285 | 698,743 | 765,712 |

Source: DESSC Annual Reports 2006 – 2012

Due to start-up in 2006 DESSC has through the analysis period strongly increased its fleet. The company is involved in several regions and they aim to be a major player in the markets, which cannot be done with a modest fleet. Per 31th of May 2013 the fleet is at its biggest with 27 vessels – 15 AHTS and 12 PSVs. The company's strong asset growth is encouraging considering Deep Sea Supply's goal to constantly develop the group and to ensure market shares.

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[203] The negative profit in 2010 was due to extra paid taxes in conjunction with a change in the tax regime.

## Equity and liabilities

| EQUITY | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|
| *Numbers in thousands USD* | | | | | | | |
| **Capital and reserves attributable to equity holders of the company** | | | | | | | |
| Share capital | 2,487 | 2,639 | 2,599 | 2,599 | 2,537 | 2,540 | 2,544 |
| Share premium | 226,367 | 66,948 | 16,203 | 16,203 | 6,477 | 6,641 | 6,878 |
| Other paid in capital | 496 | 231 | 1,242 | 1,720 | 1,846 | 2,023 | 1,934 |
| Treasury shares | 0 | -9,787 | -9,787 | -9,787 | 0 | 0 | 0 |
| Retained earnings and currency translation reserves | 37,379 | 103,223 | 101,965 | 153,258 | 150,721 | 151,510 | 145,653 |
| Minority interest | 17,472 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total equity** | **284,201** | **163,254** | **112,222** | **163,993** | **161,581** | **162,714** | **157,009** |
| **LIABILITIES** | | | | | | | |
| **Non-current liabilities** | | | | | | | |
| Bank borrowings, non-current | 145,221 | 179,012 | 266,998 | 260,698 | 211,603 | 223,473 | 278,426 |
| Finance lease liability, non-current | 0 | 169,707 | 225,199 | 210,901 | 195,895 | 179,826 | 163,487 |
| CIRR loan, non-current | 0 | 0 | 44,799 | 49,374 | 43,647 | 37,790 | 35,509 |
| Borrowings from related parties | 0 | 0 | 0 | 0 | 0 | 0 | 25,000 |
| Deferred gain on sale and finance leaseback, non-current | 0 | 56,087 | 90,752 | 51,486 | 34,966 | 30,312 | 25,984 |
| Deferred gain on CIRR loan, non-current | 0 | 0 | 1,426 | 1,571 | 1,446 | 1,249 | 1,173 |
| Other long term liabilities | 0 | 0 | 0 | 0 | 0 | 0 | 361 |
| Long term tax liability | 0 | 11,565 | 5,336 | 0 | 1,806 | 873 | 0 |
| Pension scheme | 0 | 0 | 30 | 79 | 11 | 124 | 195 |
| Financial derivatives, non-current | 0 | 0 | 0 | 0 | 0 | 0 | 1,435 |
| **Total non-current liabilities** | **145,221** | **416,371** | **634,540** | **574,109** | **489,374** | **473,647** | **531,570** |
| **Current liabilities** | | | | | | | |
| Trade and other payables | 9,068 | 12,928 | 25,039 | 3,589 | 11,519 | 13,307 | 23,667 |
| Current income tax liabilities | 560 | 1,338 | 667 | 0 | 903 | 881 | 1,266 |
| Bank borrowings, current | 10,994 | 13,453 | 23,724 | 25,207 | 20,639 | 22,074 | 26,447 |
| Finance lease liabilities, current | 0 | 39,578 | 15,495 | 14,298 | 15,129 | 16,069 | 15,655 |
| CIRR loan, current | 0 | 0 | 4,144 | 5,038 | 4,959 | 4,839 | 5,215 |
| Deferred gain on sale and finance leaseback, current | 0 | 0 | 9,201 | 5,830 | 4,493 | 4,655 | 4,488 |
| Deferred gain on CIRR Loan, current | 0 | 0 | 229 | 229 | 161 | 157 | 170 |
| Financial derivatives, current | 841 | 0 | 5,254 | 1,770 | 529 | 400 | 225 |
| Dividends payable | 0 | 50,745 | 0 | 0 | 0 | 0 | 0 |
| **Total current liabilities** | **21,463** | **118,042** | **83,753** | **55,961** | **58,332** | **62,382** | **77,133** |
| Liabilities of assets classified as held for sale | 0 | 0 | 0 | 0 | 48,998 | 0 | 0 |
| **Total liabilities** | **166,684** | **534,413** | **718,293** | **630,070** | **596,704** | **536,029** | **608,703** |
| **Total equity and liabilities** | **450,885** | **697,667** | **830,515** | **794,063** | **758,285** | **698,743** | **765,712** |

Source: DESSC annual reports 2006 – 2012

In order to finance the expansive growth in the analysis period, DESSC had to increase its liabilities. Total liabilities reached its peak in 2008, before the financial markets started to tremble in 2009, and the loaning activity was dampened.

## Appendix 4.2 - Peers' analytical income statement and balance sheet

### Farstad

| Farstad Analytical income statment | | | | | | | |
|---|---|---|---|---|---|---|---|
| *Numbers in thousand NOK | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
| AHTS revenue | 1,223,432 | 1,493,982 | 1,978,290 | 2,085,159 | 2,120,605 | 2,311,137 | 2,288,637 |
| PSV revenue | 708,768 | 798,754 | 832,785 | 936,352 | 1,022,486 | 1,102,842 | 1,179,133 |
| other (subsea, etc) | 8,710 | 221,568 | 208,599 | 236,068 | 185,724 | 187,819 | 236,002 |
| Operating revenue | 1,940,910 | 2,514,304 | 3,019,674 | 3,257,579 | 3,328,815 | 3,601,798 | 3,703,772 |
| Operating expenses | -953,803 | -1,137,470 | -1,290,544 | -1,521,419 | -1,942,653 | -2,183,363 | -2,397,574 |
| EBITDA | 987,107 | 1,376,834 | 1,729,130 | 1,736,160 | 1,386,162 | 1,418,435 | 1,306,198 |
| Depreciation and amortisation | -286,359 | -336,763 | -365,438 | -454,909 | -516,237 | -544,808 | -575,928 |
| Operating income (EBIT) | 700,748 | 1,040,071 | 1,363,692 | 1,281,251 | 869,925 | 873,627 | 730,270 |
| Tax on EBIT | 38,520 | 1,140,488 | -474,357 | -457,007 | 107,353 | -62,826 | 28,937 |
| NOPAT | 662,228 | -100,417 | 1,838,049 | 1,738,258 | 762,572 | 936,453 | 701,333 |
| Net finacial expenses before taxes | -125,887 | -114,864 | -454,424 | 142,439 | -377,376 | -413,747 | -405,573 |
| Tax shield | 6,920 | 125,954 | -158,070 | 50,806 | 46,570 | -29,754 | 16,071 |
| Net Income | 543,261 | -89,327 | 1,225,555 | 1,931,503 | 431,766 | 492,952 | 311,831 |

| Farstad Analytical Balance sheet | | | | | | | |
|---|---|---|---|---|---|---|---|
| *Numbers in thousand NOK | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
| **Assets** | | | | | | | |
| Intangible and tangible assets | 6,608,705 | 7,324,219 | 8,452,076 | 10,459,201 | 11,609,190 | 12,298,728 | 13,090,840 |
| Investments in associates and JV | | | | | | | |
| Operating cash | 38,818 | 50,286 | 60,393 | 65,152 | 66,576 | 72,036 | 74,075 |
| Net working capital | | | | | | | |
| Inventory | 17,438 | 10,525 | 19,665 | 29,743 | 40,480 | 41,319 | 57,020 |
| Recivables | 416,796 | 498,163 | 677,572 | 769,256 | 682,420 | 736,942 | 853,749 |
| Accounts payable | 130,662 | 287,647 | 304,107 | 199,344 | 277,648 | 272,288 | 251,328 |
| Other operating liabilities (non int.bearing) | 211,133 | 1,071,795 | 728,517 | 268,095 | 452,329 | 521,666 | 519,202 |
| Net working capital | 92,439 | -850,754 | -335,387 | 331,560 | -7,077 | -15,693 | 140,239 |
| Invested capital (net operating assets) | 6,739,962 | 6,523,751 | 8,177,082 | 10,855,913 | 11,668,689 | 12,355,071 | 13,305,154 |
| **Liabilities** | | | | | | | |
| Equity, beginning of period | | 3533712 | 3430107 | 4439988 | 6251895 | 6582368 | 6820235 |
| Net income | | | | | | | |
| Dividends | | | | | | | |
| Equity, end of period | 3,533,712 | 3,430,107 | 4,439,988 | 6,251,895 | 6,582,368 | 6,820,235 | 6,849,488 |
| NIBD | 3,206,250 | 3,093,644 | 3,737,094 | 4,604,018 | 5,086,321 | 5,534,836 | 6,455,666 |
| Invested capital (Equity + NIBD) | 6,739,962 | 6,523,751 | 8,177,082 | 10,855,913 | 11,668,689 | 12,355,071 | 13,305,154 |

Source: Farstad Annual Reports 2006-2012

**Solstad**

| Solstad Analytical income statment | | | | | | | |
|---|---|---|---|---|---|---|---|
| *Numbers in thousand NOK | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
| AHTS revenue | 892,721 | 1,083,676 | 1,179,539 | 1,260,857 | 1,085,254 | 1,204,157 | 1,266,656 |
| PSV revenue | 301,484 | 345,834 | 291,258 | 295,780 | 359,279 | 402,202 | 439,197 |
| Other revenue | 704,496 | 800,818 | 778,881 | 975,159 | 1,174,843 | 1,383,163 | 1,679,411 |
| Operating revenue | 1,898,701 | 2,230,328 | 2,249,678 | 2,531,796 | 2,619,376 | 2,989,522 | 3,385,264 |
| Operating expenses | -858,249 | -832,580 | -931,580 | -1,337,240 | -1,638,528 | -1,909,911 | -1,927,866 |
| **EBITDA** | **1,040,452** | **1,397,748** | **1,318,098** | **1,194,556** | **980,848** | **1,079,611** | **1,457,398** |
| Depreciation and amortisation | -336,441 | -437,284 | -520,851 | -728,948 | -638,593 | -918,526 | -584,817 |
| **Operating income (EBIT)** | 704,011 | 960,464 | 797,247 | 465,608 | 342,255 | 161,085 | 872,581 |
| Tax on EBIT | 19,446 | 349,565 | 946,257 | -92,139 | 293,389 | -3,001 | -82,102 |
| **NOPAT** | **684,565** | **610,899** | **-149,010** | **557,747** | **48,866** | **164,086** | **954,683** |
| Net finacial expenses before taxes | 211,155 | 145,753 | -941,314 | 400,742 | -209,083 | -560,225 | -510,134 |
| Tax shield | -5,832 | -53,047 | 1,117,251 | 79,302 | 179,231 | -10,438 | -47,999 |
| **Net Income** | **889,888** | **703,605** | **26,927** | **1,037,791** | **19,014** | **-406,577** | **396,550** |

| Solstad Analytical Balance sheet | | | | | | | |
|---|---|---|---|---|---|---|---|
| *Numbers in thousand NOK | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
| **Assets** | | | | | | | |
| Intangible and tangible assets | 5,517,323 | 6,660,257 | 7,549,368 | 9,884,944 | 13,788,212 | 13,918,971 | 12,760,381 |
| Investments in associates and JV | 158,055 | 220,567 | 4,135 | 18,789 | 21,300 | 13,798 | 222,072 |
| Other long term receivables | 19,202 | 45,432 | 15,072 | 5,971 | 9,589 | 27,060 | 2,462 |
| Operating cash | 37,974 | 44,607 | 44,994 | 50,636 | 52,388 | 59,790 | 67,705 |
| Net working capital | | | | | | | |
| Inventory | 18,978 | 25,951 | 19,358 | 39,471 | 59,377 | 59,843 | 73,469 |
| Recivables | 496,448 | 712,097 | 638,309 | 731,109 | 737,322 | 861,421 | 717,681 |
| Accounts payable | -121,191 | -548,405 | -433,182 | -254,580 | -494,268 | -372,362 | -255,005 |
| Other operating liabilities | -186,569 | -222,020 | -247,161 | -291,173 | -300,850 | -333,653 | -438,144 |
| **Net working capital** | **207,666** | **-32,377** | **-22,676** | **224,827** | **1,581** | **215,249** | **98,001** |
| **Invested capital (net operating assets)** | **5,940,220** | **6,938,486** | **7,590,893** | **10,185,167** | **13,873,070** | **14,234,868** | **13,150,621** |
| **Liabilities** | | | | | | | |
| Equity, beginning of period | | 3173787 | 3717458 | 3697623 | 4630319 | 4989443 | 4415914 |
| Net income | | | | | | | |
| Dividends | | | | | | | |
| **Equity, end of period** | **3,173,787** | **3,717,458** | **3,697,623** | **4,630,319** | **4,989,443** | **4,415,914** | **4,664,512** |
| NIBD | 2,766,433 | 3,221,028 | 3,893,270 | 5,554,848 | 8,883,627 | 9,818,954 | 8,486,109 |
| **Invested capital (Equity + NIBD)** | **5,940,220** | **6,938,486** | **7,590,893** | **10,185,167** | **13,873,070** | **14,234,868** | **13,150,621** |

Source: Solstad Annual Reports 2006-2012

**Havila**

| Havila Analytical Income Statment | | | | | | | |
|---|---|---|---|---|---|---|---|
| *Numbers in thousand NOK | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
| AHTS revenue | 118,973 | 102,142 | 380,449 | 410,752 | 451,990 | 436,025 | 352,374 |
| PSV revenue | 306,767 | 286,981 | 253,584 | 195,923 | 304,712 | 516,186 | 593,450 |
| Other revenue | 316,881 | 285,819 | 497,844 | 295,289 | 394,190 | 408,540 | 397,316 |
| Operating revenue | 742,621 | 674,942 | 1,131,877 | 901,964 | 1,150,892 | 1,360,751 | 1,343,140 |
| Operating expenses | -263,582 | -197,656 | -382,487 | -453,507 | -687,614 | -875,409 | -820,120 |
| EBITDA | 479,039 | 477,286 | 749,390 | 448,457 | 463,278 | 485,342 | 523,020 |
| | | | | | | | |
| Depreciation and amortisation | -93,550 | -80,535 | -98,420 | -132,221 | -180,288 | -205,240 | -161,063 |
| Operating income (EBIT) | 385,489 | 396,751 | 650,970 | 316,236 | 282,990 | 280,102 | 361,957 |
| Tax on EBIT | 58,092 | 123,268 | -119,152 | 35,388 | 479,226 | -108,301 | 155,081 |
| NOPAT | 327,397 | 273,483 | 770,122 | 280,848 | -196,236 | 388,403 | 206,876 |
| Net finacial expenses before taxes | -37,710 | -56,747 | -391,614 | 288,728 | -269,991 | -371,296 | -344,186 |
| Tax shield | 5,683 | 17,631 | -71,680 | -32,309 | 457,213 | -143,561 | 147,467 |
| Net Income | 295,370 | 234,367 | 306,828 | 537,267 | -9,014 | -126,454 | 10,157 |

| Havila Analytical Balance sheet | | | | | | | |
|---|---|---|---|---|---|---|---|
| *Numbers in thousand NOK | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
| **Assets** | | | | | | | |
| Intangible and tangible assets | 1,752,081 | 2,050,036 | 3,286,261 | 4,694,947 | 5,406,269 | 6,973,874 | 7,671,784 |
| Investments in associates and JV | 28,288 | 1,246 | 12,118 | 9,624 | 0 | 22,927 | 57,392 |
| Operating cash | 14,852 | 13,499 | 22,638 | 18,039 | 23,018 | 27,215 | 26,863 |
| Net working capital | | | | | | | |
| Inventory | 0 | 0 | 5,595 | 9,965 | 13,878 | 15,852 | 17,610 |
| Recivables | 282,790 | 128,580 | 248,937 | 333,146 | 555,953 | 541,748 | 431,889 |
| Accounts payable | -58,959 | -70,001 | -134,439 | -100,696 | -170,132 | -94,432 | -92,680 |
| Other operating liabilities | -187,209 | -494,190 | -564,634 | -555,630 | -830,394 | -246,148 | -225,865 |
| Net working capital | 36,622 | -435,611 | -444,541 | -313,215 | -430,695 | 217,020 | 130,954 |
| Invested capital (net operating assets) | 1,831,843 | 1,615,671 | 2,853,838 | 4,391,356 | 4,975,574 | 7,213,821 | 7,860,130 |
| **Liabilities** | | | | | | | |
| Equity, beginning of period | | 989431 | 879477 | 1125794 | 1702777 | 1695038 | 1809322 |
| Net income | | | | | | | |
| Dividends | | | | | | | |
| Equity, end of period | 989,431 | 879,477 | 1,125,794 | 1,702,777 | 1,695,038 | 1,809,322 | 2,008,164 |
| NIBD | 842,412 | 749,693 | 1,750,682 | 2,706,618 | 3,303,554 | 5,431,714 | 5,878,829 |
| Invested capital (Equity + NIBD) | 1,831,843 | 1,629,170 | 2,876,476 | 4,409,395 | 4,998,592 | 7,241,036 | 7,886,993 |

Source: Havila Annual Reports 2006-2012

## Appendix 4.3 - Calculation of DESSC's ROIC, before and after tax

| DESSC ROIC before tax | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Numbers in thousand USD | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| EBIT | 31,807 | 83,971 | 112,183 | 56,959 | 20,576 | 27,172 | 13,526 | |
| Invested capital | 391,262 | 637,267 | 714,204 | 707,747 | 581,900 | 603,047 | 662,066 | |
| ROIC before tax | 8.1% | 13.2% | 15.7% | 8.0% | 3.5% | 4.5% | 2.0% | 7.9% |

| DESSC ROIC after tax | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Numbers in thousand USD | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| NOPAT | 31,353 | 68,685 | 119,120 | 67,615 | -644,207 | 26,468 | 17,039 | |
| Invested capital | 391,262 | 637,267 | 714,204 | 707,747 | 581,900 | 603,047 | 662,066 | |
| ROIC after tax | 8.0% | 10.8% | 16.7% | 9.6% | -110.7% | 4.4% | 2.6% | -8.4% |

## Appendix 4.4 - Calculation of peers' ROIC before tax

| Farstad ROIC before tax | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Numbers in thousand NOK | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| EBIT | 700,748 | 1,040,071 | 1,363,692 | 1,281,251 | 869,925 | 873,627 | 730,270 | |
| Invested capital | 6,739,962 | 6,523,751 | 8,177,082 | 10,855,913 | 11,668,689 | 12,355,071 | 13,305,154 | |
| ROIC before tax | 10.4% | 15.9% | 16.7% | 11.8% | 7.5% | 7.1% | 5.5% | 10.7% |

| Solstad ROIC before tax | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Numbers in thousand NOK | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| EBIT | 704,011 | 960,464 | 797,247 | 465,608 | 342,255 | 161,085 | 872,581 | |
| Invested capital | 5,940,220 | 6,938,486 | 7,590,893 | 10,185,167 | 13,873,070 | 14,234,868 | 13,150,621 | |
| ROIC before tax | 11.9% | 13.8% | 10.5% | 4.6% | 2.5% | 1.1% | 6.6% | 7.3% |

| Havila ROIC before tax | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Numbers in thousand NOK | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| EBIT | 385,489 | 396,751 | 650,970 | 316,236 | 282,990 | 280,102 | 361,957 | |
| Invested capital | 1,831,843 | 1,629,170 | 2,876,476 | 4,409,395 | 4,998,592 | 7,241,036 | 7,886,993 | |
| ROIC before tax | 21.0% | 24.4% | 22.6% | 7.2% | 5.7% | 3.9% | 4.6% | 12.8% |

Source: Companies' annual reports 2006-2012

$$ROIC\ average\ for\ peers = \frac{10.7\% + 7.3\% + 12.8\%}{3} = \mathbf{10.2\%}$$

## Appendix 4.5 - Calculation of companies' profit margin before tax

### DESSC's profit margin before tax

| *Numbers in thousand USD | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
|---|---|---|---|---|---|---|---|---|
| EBIT | 31,807 | 83,971 | 112,183 | 56,959 | 20,576 | 27,172 | 13,526 | |
| Net revenue | 74,184 | 146,660 | 190,405 | 167,633 | 132,346 | 116,193 | 124,531 | |
| Profit margin b.t. | 43% | 57% | 59% | 34% | 16% | 23% | 11% | 35% |

### Farstad profit margin before tax

| *Numbers in thousand NOK | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
|---|---|---|---|---|---|---|---|---|
| EBIT | 700,748 | 1,040,071 | 1,363,692 | 1,281,251 | 869,925 | 873,627 | 730,270 | |
| Net revenue | 1,940,910 | 2,514,304 | 3,019,674 | 3,257,579 | 3,328,815 | 3,601,798 | 3,703,772 | |
| Profit margin b.t. | 36% | 41% | 45% | 39% | 26% | 24% | 20% | 33% |

### Solstad profit margin before tax

| *Numbers in thousand NOK | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
|---|---|---|---|---|---|---|---|---|
| EBIT | 704,011 | 960,464 | 797,247 | 465,608 | 342,255 | 161,085 | 872,581 | |
| Net revenue | 1,898,701 | 2,230,328 | 2,249,678 | 2,531,796 | 2,619,376 | 2,989,522 | 3,385,264 | |
| Profit margin b.t. | 37% | 43% | 35% | 18% | 13% | 5% | 26% | 25% |

### Havila profit margin before tax

| *Numbers in thousand NOK | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
|---|---|---|---|---|---|---|---|---|
| EBIT | 385,489 | 396,751 | 650,970 | 316,236 | 282,990 | 280,102 | 361,957 | |
| Net revenue | 742,621 | 674,942 | 1,131,877 | 901,964 | 1,150,892 | 1,360,751 | 1,343,140 | |
| Profit margin b.t. | 52% | 59% | 58% | 35% | 25% | 21% | 27% | 39% |

Source: Companies' annual reports 2006-2012

## Appendix 4.6 - Calculation of companies' turnover rate on invested capital (ATO)

### DESSC's ATO

| *Numbers in thousand USD | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
|---|---|---|---|---|---|---|---|---|
| Net revenue | 74,184 | 146,660 | 190,405 | 167,633 | 132,346 | 116,193 | 124,531 | |
| Invested capital | 391,262 | 637,267 | 714,204 | 707,747 | 581,900 | 603,047 | 662,066 | |
| ATO | 0.19 | 0.23 | 0.27 | 0.24 | 0.23 | 0.19 | 0.19 | 0.22 |

| Farstad ATO | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Numbers in thousand NOK | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| Net revenue | 1,940,910 | 2,514,304 | 3,019,674 | 3,257,579 | 3,328,815 | 3,601,798 | 3,703,772 | |
| Invested capital | 6,739,962 | 6,523,751 | 8,177,082 | 10,855,913 | 11,668,689 | 12,355,071 | 13,305,154 | |
| ATO | 0.29 | 0.39 | 0.37 | 0.30 | 0.29 | 0.29 | 0.28 | 0.31 |

| Solstad ATO | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Numbers in thousand NOK | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| Net revenue | 1,898,701 | 2,230,328 | 2,249,678 | 2,531,796 | 2,619,376 | 2,989,522 | 3,385,264 | |
| Invested capital | 5,940,220 | 6,938,486 | 7,590,893 | 10,185,167 | 13,873,070 | 14,234,868 | 13,150,621 | |
| ATO | 0.32 | 0.32 | 0.30 | 0.25 | 0.19 | 0.21 | 0.26 | 0.26 |

| Havila ATO | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Numbers in thousand NOK | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| Net revenue | 742,621 | 674,942 | 1,131,877 | 901,964 | 1,150,892 | 1,360,751 | 1,343,140 | |
| Invested capital | 1,831,843 | 1,629,170 | 2,876,476 | 4,409,395 | 4,998,592 | 7,241,036 | 7,886,993 | |
| ATO | 0.41 | 0.41 | 0.39 | 0.20 | 0.23 | 0.19 | 0.17 | 0.29 |

Source: Companies' annual reports 2006-2012

## Appendix 4.7 - Calculation of current ratio

| DESSC current ratio | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Numbers in thousand USD | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| Current assets | 87,479 | 99,779 | 99,197 | 67,707 | 85,187 | 86,161 | 87,870 | |
| Current liabilities | 21,463 | 118,042 | 83,753 | 55,961 | 58,332 | 62,382 | 77,133 | |
| Current ratio | 4.08 | 0.85 | 1.18 | 1.21 | 1.46 | 1.38 | 1.14 | 1.20 |

| Peers current ratio | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Numbers in thousand USD | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| Current assets | | | | | | | | |
| Farstad | 1,454,395 | 2,008,925 | 2,440,614 | 2,528,374 | 2,992,602 | 2,227,178 | 2,477,848 | |
| Havila | 957,340 | 1,364,854 | 1,066,412 | 754,950 | 1,192,261 | 799,669 | 887,736 | |
| Solstad | 1,932,924 | 1,850,791 | 1,551,432 | 2,292,906 | 1,680,572 | 1,582,261 | 1,624,173 | |
| Current assets peers | 4,344,659 | 5,224,570 | 5,058,458 | 5,576,230 | 5,865,435 | 4,609,108 | 4,989,757 | |
| Current liabilities | | | | | | | | |
| Farstad | 879,168 | 1,166,161 | 1,187,963 | 1,224,308 | 1,682,000 | 1,753,129 | 2,022,838 | |
| Havila | 172,035 | 384,088 | 457,510 | 470,097 | 888,577 | 621,222 | 969,840 | |
| Solstad | 901,197 | 2,117,623 | 1,401,941 | 1,176,386 | 2,928,096 | 1,656,621 | 2,815,265 | |
| Current liabilities peers | 1,952,400 | 3,667,872 | 3,047,414 | 2,870,791 | 5,498,673 | 4,030,972 | 5,807,943 | |
| Current ratio | 2.23 | 1.42 | 1.66 | 1.94 | 1.07 | 1.14 | 0.86 | 1.47 |

Source: Companies' annual reports 2006-2012

## Appendix 4.8 - Calculation of CFO to short-term debt ratio

| DESSC CFO | | | | | | |
|---|---|---|---|---|---|---|
| *Numbers in thousand USD | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
| EBIT | 83,971 | 112,183 | 56,959 | 20,576 | 27,172 | 13,526 |
| + Δ Operating cash | 1,450 | 875 | -455 | -706 | -329 | 165 |
| + Depreciation related to vessels | 16,556 | 30,230 | 36,308 | 36,347 | 28,603 | 32,057 |
| + Other depreciation | 5 | 47 | 60 | 98 | 223 | 247 |
| + - Δ NWC | -10,143 | 12,672 | -3,588 | 2,708 | -2,735 | 7,707 |
| Tax rate | 18.2% | -6.2% | -18.7% | 10.0% | 2.6% | -26.0% |
| + - Corporate tax | 15,286 | -6,937 | -10,656 | 2,058 | 704 | -3,513 |
| = CFO | 76,552 | 162,944 | 99,940 | 56,966 | 52,231 | 57,215 |

| DESSC's CFO to short-term debt ratio | | | | | | | |
|---|---|---|---|---|---|---|---|
| *Numbers in thousand USD | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| CFO | 76,552 | 162,944 | 99,940 | 56,966 | 52,231 | 57,215 | |
| Current liabilities | 118,042 | 83,753 | 55,961 | 58,332 | 62,382 | 77,133 | |
| CFO to short-term debt ratio | 0.65 | 1.95 | 1.79 | 0.98 | 0.84 | 0.74 | 1.16 |

Source: Deep Sea Supply annual reports 2006-2012

Due to a tax regime change in 2007, DESSC had to pay an extra USD 2.8m in taxes which was recorded in 2010. Consequently, the effective tax rate this year was 3,230 %, which complicated the calculation of the CFO. Ultimately we ended up with a CFO to short-term ratio of -14.0 in 2010, which of course does not depict the real situation. Therefore, when calculating the CFO in 2010, we decided to use the Cypriot tax rate of 10% as a proxy for the actual tax rate (highlighted in yellow).

| Peers CFO | | | | | | |
|---|---|---|---|---|---|---|
| *Numbers in thousand NOK | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
| **Havila** | | | | | | |
| EBIT | 396,751 | 650,970 | 316,236 | 282,990 | 280,102 | 361,957 |
| + Depreciation related to vessels | 80,535 | 98,420 | 132,221 | 180,288 | 205,240 | 161,063 |
| + - Δ NWC | 472,233 | 8,930 | -131,326 | 117,480 | -647,715 | 86,066 |
| + - Corporate tax | 123,268 | -119,152 | 35,388 | 479,226 | -108,301 | 155,081 |
| **Havila CFO** | 826,251 | 877,472 | 281,743 | 101,532 | -54,072 | 454,005 |
| **Farstad** | | | | | | |
| EBIT | 1,040,071 | 1,363,692 | 1,281,251 | 869,925 | 944,058 | 730,270 |
| + Depreciation related to vessels | 336,763 | 365,438 | 454,909 | 516,237 | 544,808 | 575,928 |
| + - Δ NWC | 940,450 | -519,957 | -677,407 | 335,790 | 473 | -157,474 |
| + - Corporate tax | 1,140,488 | -474,357 | -457,007 | 107,353 | -62,826 | 28,937 |
| **Farstad CFO** | 1,176,796 | 1,683,530 | 1,515,760 | 1,614,599 | 1,552,165 | 1,119,787 |
| **Solstad** | | | | | | |
| EBIT | 960,464 | 797,247 | 465,608 | 342,255 | 161,085 | 872,581 |
| + Depreciation related to vessels | 437,284 | 520,851 | 728,948 | 638,593 | 918,526 | 584,817 |
| + - Δ NWC | 240,043 | -9,701 | -247,503 | 223,246 | -213,668 | 117,248 |
| + - Corporate tax | 349,565 | 946,257 | -92,139 | 293,389 | -3,001 | -82,102 |
| **Solstad CFO** | 1,288,226 | 362,140 | 1,039,192 | 910,705 | 868,944 | 1,656,748 |

| Peers CFO to short-term debt ratio | | | | | | | |
|---|---|---|---|---|---|---|---|
| *Numbers in thousand USD | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| CFO | | | | | | | |
| Farstad | 1,176,796 | 1,683,530 | 1,515,760 | 1,614,599 | 1,552,165 | 1,119,787 | |
| Havila | 826,251 | 877,472 | 281,743 | 101,532 | -54,072 | 454,005 | |
| Solstad | 1,288,226 | 362,140 | 1,039,192 | 910,705 | 868,944 | 1,656,748 | |
| **CFO peers** | 3,291,274 | 2,923,142 | 2,836,695 | 2,626,836 | 2,367,038 | 3,230,541 | |
| **Current liabilities peers** | 1,952,400 | 3,667,872 | 3,047,414 | 2,870,791 | 5,498,673 | 4,030,972 | |
| **CFO to short-term debt ratio** | 1.69 | 0.80 | 0.93 | 0.92 | 0.43 | 0.80 | 0.93 |

Source: Peers' annual reports 2006-2012

## Appendix 4.9 - Calculation of solvency ratio

| DESSC Solvency ratio based on market values | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Numbers in thousand USD | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| Number of shares ultimo | 124,374 | 131,965 | 129,965 | 129,965 | 126,864 | 126,997 | 127,197 | |
| Share price ultimo NOK ultimo | 18.5 | 24.7 | 7.04 | 7.79 | 12 | 7.51 | 9.91 | |
| USD/NOK per 31th ultimo | 0.160 | 0.185 | 0.142 | 0.172 | 0.169 | 0.167 | 0.179 | |
| Share price USD ultimo | 2.96 | 4.56 | 1.00 | 1.34 | 2.03 | 1.25 | 1.77 | |
| Market cap ultimo | 368,561 | 601,515 | 129,612 | 174,208 | 257,950 | 158,952 | 225,596 | |
| Total liabilities | 166,684 | 534,413 | 718,293 | 630,070 | 596,704 | 536,029 | 608,703 | |
| Solvency ratio | 0.69 | 0.53 | 0.15 | 0.22 | 0.30 | 0.23 | 0.27 | 0.34 |

| Peers market capitalisaton | | | | | | | |
|---|---|---|---|---|---|---|---|
| *Numbers in thousand NOK | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
| **Havila** | | | | | | | |
| Number of shares ultimo | 15,960 | 15,960 | 15,960 | 15,960 | 15,960 | 21,410 | 29,743 |
| Share price ultimo | 82 | 117.54 | 34.08 | 58.77 | 60.75 | 34.08 | 25 |
| **Market cap Havila** | 1,308,720 | 1,875,938 | 543,917 | 937,969 | 969,570 | 729,653 | 743,575 |
| **Farstad** | | | | | | | |
| Number of shares ultimo | 39,000 | 39,000 | 39,000 | 39,000 | 39,000 | 39,000 | 39,000 |
| Share price ultimo | 135.00 | 148.00 | 67.50 | 128.50 | 175.00 | 151.00 | 134.00 |
| **Market cap Farstad** | 5,265,000 | 5,772,000 | 2,632,500 | 5,011,500 | 6,825,000 | 5,889,000 | 5,226,000 |
| **Solstad** | | | | | | | |
| Number of shares | 37,794 | 37,794 | 37,794 | 37,794 | 37,794 | 38,687 | 38,687 |
| Share price ultimo | 137.00 | 155.00 | 58.50 | 108.00 | 116.00 | 85.50 | 100.00 |
| **Market cap Solstad** | 5,177,778 | 5,858,070 | 2,210,949 | 4,081,752 | 4,384,104 | 3,307,739 | 3,868,700 |

| Peers solvency ratios based on market values | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Numbers in thousand NOK | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| Market cap | | | | | | | | |
| Farstad | 5,265,000 | 5,772,000 | 2,632,500 | 5,011,500 | 6,825,000 | 5,889,000 | 5,226,000 | |
| Havila | 1,308,720 | 1,875,938 | 543,917 | 937,969 | 969,570 | 729,653 | 743,575 | |
| Solstad | 5,177,778 | 5,858,070 | 2,210,949 | 4,081,752 | 4,384,104 | 3,307,739 | 3,868,700 | |
| **Market cap peers** | 11,751,498 | 13,506,008 | 5,387,366 | 10,031,221 | 12,178,674 | 9,926,391 | 9,838,275 | |
| **Total liabilities** | 11,408,986 | 15,069,210 | 16,248,737 | 18,203,176 | 23,663,080 | 25,164,891 | 25,508,194 | |
| **Solvency ratio peers** | 0.51 | 0.47 | 0.25 | 0.36 | 0.34 | 0.28 | 0.28 | 0.36 |

Source: Peers' annual reports 2006-2012

## Appendix 4.10 - Calculation of interest coverage ratio

| DESSC interest coverage ratio | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Numbers in thousand USD | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| EBIT | 31,807 | 83,971 | 112,183 | 56,959 | 20,576 | 27,172 | 13,526 | |
| Net financial expenses | -6,042 | -12,440 | -42,121 | -22,703 | -20,495 | -26,440 | -17,212 | |
| Interest coverage ratio | 5.26 | 6.75 | 2.66 | 2.51 | 1.00 | 1.03 | 0.79 | 2.86 |

| Peers interest coverage ratio | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Numbers in thousand NOK | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| EBIT | | | | | | | | |
| Farstad | 700,748 | 1,040,071 | 1,363,692 | 1,281,251 | 869,925 | 873,627 | 730,270 | |
| Havila | 385,489 | 396,751 | 650,970 | 316,236 | 282,990 | 280,102 | 361,957 | |
| Solstad | 704,011 | 960,464 | 797,247 | 465,608 | 342,255 | 161,085 | 872,581 | |
| EBIT Peers | 1,790,248 | 2,397,286 | 2,811,909 | 2,063,095 | 1,495,170 | 1,314,814 | 1,964,808 | |
| Financial expenses | | | | | | | | |
| Farstad | -213,016 | -250,138 | -307,942 | -304,153 | -395,155 | -410,900 | -435,844 | |
| Havila | -80,630 | -133,488 | -448,259 | -226,434 | -296,825 | -397,007 | -425,616 | |
| Solstad | -207,291 | -376,689 | -1,649,290 | -927,353 | -1,025,245 | -1,026,867 | -1,036,496 | |
| Financial expenses peers | -500,937 | -760,315 | -2,405,491 | -1,457,940 | -1,717,225 | -1,834,774 | -1,897,956 | |
| Interest coverage ratio peers | 3.6 | 3.2 | 1.2 | 1.4 | 0.9 | 0.7 | 1.0 | 1.7 |

Source: Companies' annual reports 2006-2012

## Appendix 4.11 - Calculation of CFO to debt ratio

| Deep Sea Supply CFO to debt ratio | | | | | | | |
|---|---|---|---|---|---|---|---|
| *Numbers in thousand USD | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| CFO | 76,552 | 162,944 | 99,940 | 56,966 | 52,231 | 57,215 | |
| Total liabilities | 534,413 | 718,293 | 630,070 | 596,704 | 536,029 | 608,703 | |
| CFO to debt ratio | 0.14 | 0.23 | 0.16 | 0.10 | 0.10 | 0.09 | 0.14 |

Source: DESSC's annual reports 2006-2012

| Peers' CFO to debt ratio | | | | | | | |
|---|---|---|---|---|---|---|---|
| *Numbers in thousand NOK | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| CFO | | | | | | | |
| Farstad | 1,176,796 | 1,683,530 | 1,515,760 | 1,614,599 | 1,552,165 | 1,119,787 | |
| Havila | 826,251 | 877,472 | 281,743 | 101,532 | -54,072 | 454,005 | |
| Solstad | 1,288,226 | 362,140 | 1,039,192 | 910,705 | 868,944 | 1,656,748 | |
| CFO peers | 3,291,274 | 2,923,142 | 2,836,695 | 2,626,836 | 2,367,038 | 3,230,541 | |
| | | | | | | | |
| Total liabilities peers | | | | | | | |
| Farstad | 5,917,408 | 6,472,342 | 6,765,827 | 8,095,816 | 7,771,923 | 8,788,243 | |
| Havila | 2,554,592 | 3,260,661 | 3,801,123 | 4,990,304 | 6,135,403 | 6,677,006 | |
| Solstad | 6,597,210 | 6,515,734 | 7,636,226 | 10,576,960 | 11,257,565 | 10,042,945 | |
| Total liabilities peers | 15,069,210 | 16,248,737 | 18,203,176 | 23,663,080 | 25,164,891 | 25,508,194 | |
| CFO to debt ratio | 0.22 | 0.18 | 0.16 | 0.11 | 0.09 | 0.13 | 0.15 |

Source: Peers' annual reports 2006-2012

# Appendix 5 – Forecasting

## Appendix 5.1 - Calculation of DESSC's average yearly AHTS freight rate growth

| DESSC historical AHTS revenues | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Numbers in thousand USD | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Ave |
| AHTS revenue | 74,184 | 127,943 | 146,061 | 105,971 | 92,351 | 61,524 | 69,192 | |
| Growth | | 72% | 14% | -27% | -13% | -33% | 12% | 4% |

Source: DESSC's annual reports 2006-2012

## Appendix 5.2 - RS Platou forecasted AHTS freight rates until 2014

| Year | ASIA term rate 12,000 bhp | North Sea term rate 10 - 15,999 bhp | North Sea term rate 16-19,999 bhp | term rate 16,000 bhp | Brazil term rate 15,000 bhp | AVERAGE | Growth |
|------|------|------|------|------|------|------|------|
| 2000 | 11,000 | 10,500 | | 15,000 | 17,500 | 13,500 | |
| 2001 | 16,000 | 17,000 | | 20,000 | 16,700 | 17,425 | 29.1% |
| 2002 | 12,000 | 14,000 | 20,000 | 17,500 | 17,500 | 16,200 | -7.0% |
| 2003 | 10,000 | 13,000 | 20,000 | 15,000 | 14,000 | 14,400 | -11.1% |
| 2004 | 11,500 | 11,000 | 17,300 | 16,000 | 14,000 | 13,960 | -3.1% |
| 2005 | 18,500 | 17,500 | 27,500 | 20,000 | 21,500 | 21,000 | 50.4% |
| 2006 | 22,000 | 29,000 | 38,000 | 30,000 | 27,500 | 29,300 | 39.5% |
| 2007 | 28,000 | 36,000 | 52,000 | 40,500 | 37,500 | 38,800 | 32.4% |
| 2008 | 34,500 | 35,000 | 52,000 | 42,000 | 49,000 | 42,500 | 9.5% |
| 2009 | 25,000 | 25,000 | 34,000 | 31,000 | 35,000 | 30,000 | -29.4% |
| 2010 | 15,000 | 18,000 | 24,500 | 23,700 | 37,000 | 23,640 | -21.2% |
| 2011 | 15,000 | 18,700 | 30,000 | 25,500 | 40,000 | 25,840 | 9.3% |
| 2012 | 18,000 | 20,600 | 38,000 | 28,500 | 42,000 | 29,420 | 13.9% |
| 2013E | 18,000 | 18,700 | 31,400 | 29,500 | 45,000 | 30,833 | 4.8% |
| 2014E | 18,500 | 24,000 | 39,500 | 30,000 | 50,000 | 32,400 | 5.1% |

*Global yearly average AHTS freight rate*

Source: RS Platou, Offshore Supply Vessel Market, 2012, page 23

## Appendix 5.3 - Estimated AHTS freight rates between 2014 and 2016

| Year | North Sea spot rate 10-15,999 bhp | North Sea term rate 10-15,999 bhp | Brazil term rate < 10,000 bhp | Brazil term rate 15,000 bhp | Asia term rate < 10,000 bhp | Asia term rate 10-12,000 bhp |
|------|------|------|------|------|------|------|
| 2012 | 25.0 | 20.6 | 12.6 | 42.0 | 10.8 | 18.0 |
| 2013 | 22.7 | 18.7 | 13.5 | 45.0 | 10.8 | 18.0 |
| 2014 | 29.1 | 24.0 | 15.0 | 50.0 | 11.1 | 18.5 |
| 2015 | 30.8 | 25.4 | 17.5 | 58.4 | 12.3 | 20.4 |
| 2016 | 33.6 | 27.7 | 19.0 | 63.5 | 13.2 | 22.1 |

*Estimated average freight rate, AHTS*

The term rates for all the regions between 2012 and 2014 are based on the RS Platou forecasts in appendix 5.2 above. Further, to calculate the average AHTS freight rates for 2015 and 2016 we multiply the previous year's AHTS freight rate with the next year's forecasted global growth rate, a market correction based on the difference between global utilization ratio and regional utilization ratio, and finally the average historically regional growth rate. This process is illustrated with tables below, with the North Sea as an example.

| The North Sea, estimated AHTS freight rate growth | | |
|---|---|---|
| | 2015 | 2016 |
| Forecasted global growth rate | 6.0% | 7.5% |
| Market correction | -2.4% | 0.0% |
| Average regional historical growth rate | 10.6% | 10.6% |
| Growth | 5.88% | 9.04% |

The forecasted global growth rate is based on our strategic analysis and very much linked to the calculations made in the shipping market model (see table 5.5 in the thesis), and we believe that the AHTS growth rate will increase with 6% in 2015 and 7.5% in 2016, which is due to increasing utilization. The market correction we have added is based on the difference between the utilization ratio between the North Sea and the global market, which is illustrated in table 7.2 in the thesis. Finally, we added an average regional historical growth rate based on appendix 1.1:

| North Sea, average historical AHTS growth rate | | | | |
|---|---|---|---|---|
| Year | AHTS 10,000 - 15,999 bhp | Growth AHTS 10,000 15,999 bhp | AHTS 16,000 – 19,999 bhp | Growth AHTS 16,000 19,999 bhp |
| 2000 | 10500 | | | |
| 2001 | 17000 | 62% | | |
| 2002 | 14000 | -18% | 20000 | |
| 2003 | 13000 | -7% | 20000 | 0% |
| 2004 | 11000 | -15% | 17300 | -14% |
| 2005 | 17500 | 59% | 27500 | 59% |
| 2006 | 29000 | 66% | 38000 | 38% |
| 2007 | 36000 | 24% | 52000 | 37% |
| 2008 | 35000 | -3% | 52000 | 0% |
| 2009 | 25000 | -29% | 34000 | -35% |
| 2010 | 18000 | -28% | 24500 | -28% |
| 2011 | 18700 | 4% | 30000 | 22% |
| 2012 | 20600 | 10% | 38000 | 27% |
| Average growth rate | | 10% | | 11% |

For the North Sea, the average growth in the freight rate is 10% per year for AHTSs between 10,000 and 15,999 bhp and 11% for AHTSs between 16,000 and 19,999 bhp. We used the average between these two, which gave us 10.6%.

When adding forecasted global growth rate, the North Sea growth rate and the historical average freight rate growth in the North Sea, we finally arrived at the estimated AHTS freight growth in the North Sea, which we have estimated to be 5.88% in 2015 and 9% in 2016. Now, it is possible to calculate an estimated freight rate for 2015 and 2016. For instance, the freight rate in the North Sea in 2015 for AHTS between 10,000 and 15,999 bhp is calculated as the freight rate for 2014 (USD 24,000) times 5.88% which is USD 25,400 (highlighted in yellow in the first table). This method was used for all the other regions as well. Tables for these are illustrated below:

**Asia**

| Asia, estimated AHTS freight rate growth | | |
|---|---|---|
| | 2015 | 2016 |
| Forecasted global growth rate | 6.0% | 7.5% |
| Market correction | 3.3% | 0.0% |
| Average regional historical growth rate | 8.5% | 8.5% |
| Growth | 10.5% | 8.0% |

| Asia, average historical AHTS growth rate | | |
|---|---|---|
| Year | AHTS average day rate medium | Growth |
| 2000 | 11000 | |
| 2001 | 16000 | 45.5% |
| 2002 | 12000 | -25.0% |
| 2003 | 10000 | -16.7% |
| 2004 | 11500 | 15.0% |
| 2005 | 18500 | 60.9% |
| 2006 | 22000 | 18.9% |
| 2007 | 28000 | 27.3% |
| 2008 | 34500 | 23.2% |
| 2009 | 25000 | -27.5% |
| 2010 | 15000 | -40.0% |
| 2011 | 15000 | 0.0% |
| 2012 | 18000 | 20.0% |
| Average growth rate | | 8.5% |

**Brazil**

| Brazil, estimated AHTS freight rate growth | | |
|---|---|---|
| | 2015 | 2016 |
| Average regional historical growth rate | 9.9% | 9.9% |
| Forecasted global growth rate | 6.0% | 7.5% |
| Market correction | 9% | 0% |
| Growth | 16.8% | 8.7% |

| Brazil average historical AHTS growth rate | | |
|---|---|---|
| Year | Average day rate large AHTS | Growth |
| 2000 | 17500 | |
| 2001 | 16700 | -4.6% |
| 2002 | 17500 | 4.8% |
| 2003 | 14000 | -20.0% |
| 2004 | 14000 | 0.0% |
| 2005 | 21500 | 53.6% |
| 2006 | 27500 | 27.9% |
| 2007 | 37500 | 36.4% |
| 2008 | 49000 | 30.7% |
| 2009 | 35000 | -28.6% |
| 2010 | 37000 | 5.7% |
| 2011 | 40000 | 8.1% |
| 2012 | 42000 | 5.0% |
| Average growth rate | | 9.9% |

**West Africa**

| West Africa, estimated AHTS freight rate growth | | |
|---|---|---|
| | 2015 | 2016 |
| Average regional historical growth rate | 8.0% | 8.0% |
| Forecasted global growth rate | 6.0% | 7.5% |
| Market correction | -0.4% | 0.0% |
| Growth | 6.6% | 7.8% |

| West Africa, average historical AHTS | | |
| --- | --- | --- |
| Year | Average day rate large AHTS | Growth |
| 2000 | 15000 | |
| 2001 | 20000 | 33.3% |
| 2002 | 17500 | -12.5% |
| 2003 | 15000 | -14.3% |
| 2004 | 16000 | 6.7% |
| 2005 | 20000 | 25.0% |
| 2006 | 30000 | 50.0% |
| 2007 | 40500 | 35.0% |
| 2008 | 42000 | 3.7% |
| 2009 | 31000 | -26.2% |
| 2010 | 23700 | -23.5% |
| 2011 | 25500 | 7.6% |
| 2012 | 28500 | 11.8% |
| Average growth rate | | 8.0% |

**The North Sea Spot Market**

Regarding the spot rate for the North Sea, we only have the freight rate for 2012, which we found in RS Platou's Weekly North Sea Spot Market Update for week 4. We do not have any further estimations, which is why we have made our own calculations for the spot market between 2013 and 2016, using the change in growth for the term rate for the same class of AHTSs as a proxy. The table below illustrates this process:

| North Sea spot market AHTS freight rate calculations | | | |
| --- | --- | --- | --- |
| Year | North Sea term rate 10- | Growth in term rate | North Sea spot rate 10-15,999 bhp |
| 2012 | 20.6 | | 25.0 |
| 2013 | 18.7 | -9.2% | 22.7 |
| 2014 | 24.0 | 28.3% | 29.1 |
| 2015 | 25.4 | 5.9% | 30.8 |
| 2016 | 27.7 | 9.0% | 33.6 |

## Appendix 5.4 – Explanation of regional AHTS utilization ratios

| Utilization ratios of AHTSs | | | | | |
|---|---|---|---|---|---|
| Area | 2012 | 2013 | 2014 | 2015 | 2016 |
| Global | 66.4% | 69.3% | 71.0% | 72.4% | 73.9% |
| Brazil | 93.0% | 90.0% | 90.0% | 90.0% | 90.0% |
| North Sea | 40.0% | 40.0% | 65.0% | 70.0% | 72.0% |
| West Africa | 69.0% | 70.0% | 71.0% | 72.0% | 74.0% |
| Asia | 75.0% | 76.0% | 78.0% | 79.0% | 80.0% |

- **Brazil:** Strong current utilization ratio is 93% (appendix 3.12). Utilization ratio will decrease slightly due to low additional demand in Brazil in combination with strong global supply growth. However, we believe it is realistic that DESSC achieves an utilization ratio of 90% due to the recent established JV with the Brazilian investment bank BTG Pactual which strengthens the local presence.

- **The North Sea**: Current utilization ratio of AHTSs is 40% (appendix 3.12). The ratio will remain at same level in 2013 due to low demand of AHTSs (appendix 3.10) and deliveries of almost 100 vessels (table 5.5). However, we believe that the utilization ratio for the North Sea in the future will improve as supply will be restrained from 2014 and later.

- **West Africa**: Current utilization ratio of AHTS is 69% (appendix 3.12). We believe that the ratio will slightly increase over the years due to a moderate growth in the local demand of AHTSs (appendix 3.14) in combination with not too aggressive growth in the global supply.

- **Asia:** Current utilization ratio of AHTSs is 75% (appendix 3.12). We believe that the ratio will increase steadily over the years due to an expected strong growth in demand for AHTSs in Asia (appendix 3.13).

## Appendix 5.5 - RS Platou forecasted PSV freight rates until 2014

| Year | North Sea term rate 500-749 m2 | North Sea term rate 900 m2 + | Asia term rate 900 m2 | West Africa term rate 500 - 749 m2 | Brazil term rate 500 - 750 m2 | Brazil term rate 900 m2 + | Average | Growth |
|---|---|---|---|---|---|---|---|---|
| | | | | **Global yearly average PSV freight rate** | | | | |
| 2000 | 6,000 | 8,500 | | 10,000 | 10,000 | | 8,625 | |
| 2001 | 9,000 | 14,000 | | 10,000 | 14,000 | | 11,750 | 36.2% |
| 2002 | 9,000 | 14,000 | | 12,300 | 15,000 | | 12,575 | 7.0% |
| 2003 | 7,000 | 12,400 | | 11,000 | 10,000 | | 10,100 | -19.7% |
| 2004 | 7,000 | 13,000 | | 10,500 | 11,000 | | 10,375 | 2.7% |
| 2005 | 11,000 | 25,000 | | 12,800 | 13,000 | | 15,450 | 48.9% |
| 2006 | 20,000 | 27,500 | | 15,000 | 16,000 | | 19,625 | 27.0% |
| 2007 | 28,000 | 44,000 | | 24,000 | 21,000 | | 29,250 | 49.0% |
| 2008 | 24,000 | 32,500 | | 29,000 | 23,500 | | 27,250 | -6.8% |
| 2009 | 14,000 | 18,300 | | 21,500 | 21,000 | | 18,700 | -31.4% |
| 2010 | 15,000 | 22,500 | | 16,000 | 23,500 | | 19,250 | 2.9% |
| 2011 | 19,000 | 28,500 | | 20,300 | 26,000 | 31,500 | 25,060 | 30.2% |
| 2012 | 20,500 | 27,000 | | 25,000 | 27,700 | 34,000 | 26,840 | 7.1% |
| 2013E | 21,800 | 28,000 | 26,952 | 25,500 | 31,500 | 37,000 | 28,760 | 7.2% |
| 2014E | 24,000 | 32,000 | 24,667 | 27,500 | 35,000 | 40,500 | 31,800 | 10.6% |

Source: RS Platou, Offshore Supply Vessel Market, 2012, page 23

## Appendix 5.6 - Estimated PSV freight rates between 2014 and 2016

| Year | North Sea spot rate 3-3,999 dwt | North Sea term rate 3-3,999 dwt | North Sea term rate > 4,000 dwt | Brazil term rate 3-3,999 dwt | Brazil term rate > 4,000 dwt | West Africa term rate 3-3,999 dwt | Asia term rate > 4,000 dwt |
|---|---|---|---|---|---|---|---|
| | | | **Estimated average term rate PSV** | | | | |
| 2012 | 16.0 | 20.5 | 27.0 | 27.7 | 34.0 | 25.0 | |
| 2013 | 17.0 | 21.8 | 28.0 | 31.5 | 37.0 | 25.5 | 27.0 |
| 2014 | 18.7 | 24.0 | 32.0 | 35.0 | 40.5 | 27.5 | 24.7 |
| 2015 | 20.6 | 26.4 | 35.3 | 40.1 | 46.4 | 29.5 | 25.5 |
| 2016 | 23.3 | 29.8 | 39.7 | 46.9 | 54.3 | 32.8 | 28.0 |

The term rates for all the regions between 2012 and 2014 are based on the RS Platou forecasts in appendix 5.4 above. Further, to calculate the average PSV freight rates for 2015 and 2016 we multiply the previous year's PSV freight rate with the next year's forecasted global growth rate, a market correction based on the difference between global utilization ratio and regional utilization ratio, and finally the average historically regional growth rate. This process is illustrated with tables below, with the North Sea as an example.

| The North Sea, estimated PSV freight rate growth | | |
|---|---|---|
| PSV rate North Sea | 2015 | 2016 |
| Forecasted global growth rate | 5.0% | 10.0% |
| Market correction | -0.3% | -0.3% |
| Average regional historical growth rate | 16.0% | 16.0% |
| PSV growth rate | 10.2% | 12.7% |

The forecasted global growth rate is based on our strategic analysis and very much linked to the calculations made in the shipping market model (see table 5.5), and we believe that the PSV growth rate will increase with 5% in 2015 and 10% in 2016. In 2015 we believe that the global growth rate will increase with 5% because the oversupply of PSVs is not as bad as initially expected as well as there is an undersupply of PSVs smaller than 4,000 dwt. Further there is a very good market sentiment. We argue that the global PSV freight rate will increase with 10% as the good market sentiment will continue in combination with a stabilization of the supply of PSVs bigger than 4,000 dwt. The market correction we have added is based on the difference between the utilization ratio between the North Sea and the global market, which is illustrated in table 7.6. Finally, we added an average regional historical growth rate based on appendix 1.1:

| The North Sea, average historical PSV growth rate | | | | |
|---|---|---|---|---|
| Year | Average day rate medium PSV | Growth medium | Average day rate large PSV | Growth large |
| 2000 | 6000 | | 8500 | |
| 2001 | 9000 | 50.0% | 14000 | 64.7% |
| 2002 | 9000 | 0.0% | 14000 | 0.0% |
| 2003 | 7000 | -22.2% | 12400 | -11.4% |
| 2004 | 7000 | 0.0% | 13000 | 4.8% |
| 2005 | 11000 | 57.1% | 25000 | 92.3% |
| 2006 | 20000 | 81.8% | 27500 | 10.0% |
| 2007 | 28000 | 40.0% | 44000 | 60.0% |
| 2008 | 24000 | -14.3% | 32500 | -26.1% |
| 2009 | 14000 | -41.7% | 18300 | -43.7% |
| 2010 | 15000 | 7.1% | 22500 | 23.0% |
| 2011 | 19000 | 26.7% | 28500 | 26.7% |
| 2012 | 20500 | 7.9% | 27000 | -5.3% |
| Average growth rate | | 16.0% | | 16.2% |

For the North Sea, the average growth in the freight rate is 16% per year for both medium and large PSVs.

When adding forecasted global growth rate, the North Sea growth rate and the historical average freight rate growth in the North Sea, we finally arrive at the estimated PSV freight growth in the North Sea, which we have estimated to be 10.2% in 2015 and 12.7% in 2016. Now, it is possible to calculate an estimated freight rate for 2015 and 2016. For instance, the freight rate in the North Sea in 2015 for medium-sized PSVs (between 3,000 and 3,999 dwt) is calculated as the freight rate for 2014 (USD 24,000) times 10.2% which is USD 26,400 (highlighted in yellow in the first table). This method was used for all the other regions as well. Tables for these are illustrated below:

**West Africa**

| West Africa, estimated PSV freight rate growth | | |
|---|---|---|
| | 2015 | 2016 |
| Average regional historical growth rate | 10.5% | 10.5% |
| Forecasted global growth rate | 5.0% | 10.0% |
| Market correction | -0.4% | 0.7% |
| PSV growth rate | 7.4% | 10.9% |

| West Africa, average historical PSV growth rate | | |
|---|---|---|
| Year | Average day rate | Growth |
| 2000 | 10,000 | |
| 2001 | 10,000 | 0.0% |
| 2002 | 12,300 | 23.0% |
| 2003 | 11,000 | -10.6% |
| 2004 | 10,500 | -4.5% |
| 2005 | 12,800 | 21.9% |
| 2006 | 15,000 | 17.2% |
| 2007 | 24,000 | 60.0% |
| 2008 | 29,000 | 20.8% |
| 2009 | 21,500 | -25.9% |
| 2010 | 16,000 | -25.6% |
| 2011 | 20,300 | 26.9% |
| 2012 | 25,000 | 23.2% |
| Average growth rate | | 10.5% |

**Brazil**

| Brazil, estimated PSV freight rate growth | | |
|---|---|---|
| | 2015 | 2016 |
| Average regional historical growth rate | 11.6% | 11.6% |
| Forecasted global growth rate | 5.0% | 10.0% |
| Market correction | 6.2% | 6.3% |
| Growth | 14.5% | 17.1% |

| Brazil, average historical PSV growth rate | | |
|---|---|---|
| Year | Average day rate medium | Growth |
| 2000 | 10,000 | |
| 2001 | 14,000 | 40.0% |
| 2002 | 15,000 | 7.1% |
| 2003 | 10,000 | -33.3% |
| 2004 | 11,000 | 10.0% |
| 2005 | 13,000 | 18.2% |
| 2006 | 16,000 | 23.1% |
| 2007 | 21,000 | 31.3% |
| 2008 | 23,500 | 11.9% |
| 2009 | 21,000 | -10.6% |
| 2010 | 23,500 | 11.9% |
| 2011 | 28,750 | 22.3% |
| 2012 | 30,850 | 7.3% |
| Average growth rate | | 11.6% |

**Asia**

| Asia, estimated PSV freight rate growth | | |
|---|---|---|
| | 2015 | 2016 |
| Forecasted global growth rate | 5% | 10% |
| Market correction | -1.6% | -0.3% |
| Growth | 3.4% | 9.7% |

**The North Sea Spot Market**

Regarding the spot rate for the North Sea, we only have the freight rate for 2012, which we found in RS Platou's Weekly North Sea Spot Market Update for week 4. We do not have any further estimations, which is why we have made our own calculations for the spot market between 2013 and 2016, using

the change in growth for the term rate for the same class of PSVs as a proxy. The table below illustrates this process:

| North Sea spot market PSV freight rate calculations | | | |
|---|---|---|---|
| Year | North Sea term rate 3-3,999 dwt | Growth in term rate | North Sea spot rate 3-3,999 dwt |
| 2012 | 20.5 | | 16.0 |
| 2013 | 21.8 | 6.3% | 17.0 |
| 2014 | 24.0 | 10.1% | 18.7 |
| 2015 | 26.4 | 10.2% | 20.6 |
| 2016 | 29.8 | 12.7% | 23.3 |

## Appendix 5.7 – Explanation of regional utilization ratios

| Utilization ratios of PSVs | | | | | |
|---|---|---|---|---|---|
| Area | 2012 | 2013 | 2014 | 2015 | 2016 |
| Global | 72.7% | 72.4% | 71.8% | 71.6% | 72.3% |
| Brazil | 87.0% | 82.0% | 83.0% | 84.0% | 85.0% |
| North Sea | 77.0% | 70.0% | 72.0% | 72.0% | 72.0% |
| West Africa | 66.0% | 70.0% | 71.0% | 72.0% | 73.0% |
| Asia | 73.0% | 72.0% | 71.0% | 70.0% | 72.0% |

- **Brazil:** Strong current PSV utilization ratio of 87% (appendix 3.12). We believe that the utilization ratio will decrease to 82% in 2013 due to a very strong growth in the global supply of PSVs this year (table 5.5), but increase in the following years due to reduced growth in supply in combination with strong demand growth of PSVs in Brazil (appendix 3.11). Furthermore, the newly established JV with the Brazilian investment bank BTG Pactual will strengthen DESSC's position in the area.

- **The North Sea:** A current PSV utilization ratio of 77% (appendix 3.12). The utilization ratio will be reduced to 70% in 2013 due to a strong increase in the global supply of PSVs this year (table 5.5), but then slightly improved due to weaker supply in combination with a strong demand growth of the largest PSV class in the North Sea (appendix 3.10).

- **West Africa:** The current PSV utilization ratio in West Africa is 66% (appendix 3.12), but we believe that the ratio will increase a great deal in the following years due to a strong growth in local demand of PSVs, especially in the 3,000 – 3,999 dwt class (appendix 3.14).

- **Asia:** The current PSV utilization ratio in Asia is 73% (appendix 3.12). We believe that the ratio will decrease due to a strong growth in the global supply of PSVs (table 5.5), however, not too much due to a modest growth in the local demand of vessels (appendix 3.13).

## Appendix 5.8 – EBITDA margin

| EBITDA margin DESSC | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| Revenue | 74,184 | 146,660 | 190,405 | 167,633 | 132,346 | 115,902 | 124,140 | |
| EBITDA | 41,867 | 100,532 | 142,460 | 93,327 | 57,021 | 55,998 | 45,830 | |
| EBITDA margin | 56% | 69% | 75% | 56% | 43% | 48% | 37% | 55% |

| EBITDA margin peers | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| Havila | | | | | | | | |
| EBITDA | 479,039 | 477,286 | 749,390 | 448,457 | 463,278 | 485,342 | 523,020 | |
| Revenue | 742,621 | 674,942 | 1,131,877 | 901,964 | 1,150,892 | 1,360,751 | 1,343,140 | |
| EBITDA-margin | 64.5% | 70.7% | 66.2% | 49.7% | 40.3% | 35.7% | 38.9% | 52.3% |
| Farstad | | | | | | | | |
| EBITDA | 987,107 | 1,376,834 | 1,729,130 | 1,736,160 | 1,386,162 | 1,418,435 | 1,306,198 | |
| Revenue | 1,940,910 | 2,514,304 | 3,019,674 | 3,257,579 | 3,328,815 | 3,601,798 | 3,703,772 | |
| EBITDA-margin | 50.9% | 54.8% | 57.3% | 53.3% | 41.6% | 39.4% | 35.3% | 47.5% |
| Solstad | | | | | | | | |
| EBITDA | 1,040,452 | 1,397,748 | 1,318,098 | 1,194,556 | 980,848 | 1,079,611 | 1,457,398 | |
| Revenue | 1,898,701 | 2,230,328 | 2,249,678 | 2,531,796 | 2,619,376 | 2,989,522 | 3,385,264 | |
| EBITDA-margin | 54.8% | 62.7% | 58.6% | 47.2% | 37.4% | 36.1% | 43.1% | 48.6% |
| Average peers | | | | | | | | 49.4% |

## Appendix 5.9 – Depreciation as % of tangible assets

| Depreciation as % of tangible assets DESSC | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| Depreciation | 10,060 | 16,561 | 30,277 | 36,368 | 36,445 | 28,826 | 32,304 | |
| Tangible assets | 363,372 | 597,785 | 686,519 | 676,929 | 554,496 | 573,237 | 639,798 | |
| Depr. As % of tang. Assets | 2.8% | 2.8% | 4.4% | 5.4% | 6.6% | 5.0% | 5.0% | 4.6% |

| Depreciation as % of tangible assets peers | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| Havila | | | | | | | | |
| Depreciation | -93,550 | -80,535 | -98,420 | -132,221 | -180,288 | -205,240 | -161,063 | |
| Tangible assets | 1,752,081 | 2,050,036 | 3,286,261 | 4,694,947 | 5,406,269 | 6,973,874 | 7,671,784 | |
| **Depr as % of rev tang. Assets** | 5.3% | 3.9% | 3.0% | 2.8% | 3.3% | 2.9% | 2.1% | 3.4% |
| Farstad | | | | | | | | |
| Depreciation | -286,359 | -336,763 | -365,438 | -454,909 | -516,237 | -544,808 | -575,928 | |
| Tangible assets | 6,608,705 | 7,324,219 | 8,452,076 | 10,459,201 | 11,609,190 | 12,298,728 | 13,090,840 | |
| **Depr as % of rev tang. Assets** | 4.3% | 4.6% | 4.3% | 4.3% | 4.4% | 4.4% | 4.4% | 4.4% |
| Solstad | | | | | | | | |
| Depreciation | -336,441 | -437,284 | -520,851 | -728,948 | -638,593 | -918,526 | -584,817 | |
| Tangible assets | 5,517,323 | 6,660,257 | 7,549,368 | 9,884,944 | 13,788,212 | 13,918,971 | 12,760,381 | |
| **Depr as % of rev tang. Assets** | 6.1% | 6.6% | 6.9% | 7.4% | 4.6% | 6.6% | 4.6% | 6.1% |
| **Average peers** | | | | | | | | 4.6% |

## Appendix 5.10 – Estimation of NBC

| Net borrowing costs (NBS) DESSC | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| Net financial expenses b.t. | -6,042 | -12,440 | -42,121 | -22,703 | -20,495 | -26,440 | -17,212 | |
| NIBD | 107,061 | 474,013 | 601,982 | 543,754 | 420,319 | 440,333 | 505,057 | |
| NBC | 5.6% | 2.6% | 7.0% | 4.2% | 4.9% | 6.0% | 3.4% | 4.8% |

## Appendix 5.11 – Estimation of fleet value in 2013 and 2014

| Fleet value 2013 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **PSVs wholly owned by DESSC** | | | | **AHTSs wholly owned by DESSC** | | | |
| Vessel name | DWT | Delivered/expected del. | Value | Vessel name | bhp | Built | Value |
| Sea Angler | 3,250 | 2007 | 25,000 | Sea Weasel | 6,800 | 2009 | 18,000 |
| Sea Trout | 3,300 | 2008 | 30,000 | Sea Bear | 15,000 | 1999 | 26,000 |
| Sea Witch | 3,250 | 2008 | 30,000 | Sea Eagle 1 | 12,000 | 2009 | 25,000 |
| Sea Falcon | 4,543 | Apr-13 | 58,000 | Sea Ocelot | 10,880 | 2007 | 22,000 |
| Sea Tantalus | 4,031 | May-13 | 58,000 | Sea Badger | 6,800 | 2011 | 20,000 |
| Sea Flyer | 4,600 | Jun-13 | 60,000 | Sea Lynx | 15,000 | 1999 | 26,000 |
| Sea Titus | 4,000 | Q2 2013 | 58,000 | | | | |
| Sea Tortuga | 4,000 | Q3 2013 | 58,000 | | | | |
| Sea Triumph | 4,000 | Q4 2013 | 58,000 | | | | |
| | | | **435,000** | | | | **137,000** |
| **PSVs owned by JV** | | | | **AHTSs owned by JV** | | | |
| Vessel name | DWT | Delivered/expected del. | Value | Vessel name | bhp | Built | Value |
| Sea Halibut | 3250 | 2007 | 25,000 | Sea Tiger | 15,000 | 1998 | 25,000 |
| Sea Bass | 3250 | 2008 | 30,000 | Sea Cheetah | 15,000 | 2007 | 30,000 |
| Sea Pike | 3250 | 2007 | 30,000 | Sea Jaguar | 15,000 | 2007 | 30,000 |
| Sea Pollock | 3250 | 2008 | 30,000 | Sea Fox | 6,800 | 2011 | 18,000 |
| Sea Turbot | 3250 | 2008 | 30,000 | Sea Jackal | 6,800 | 2011 | 18,000 |
| Sea Brasil | 4700 | 2012 | 58,000 | Sea Vixen | 6,800 | 2011 | 18,000 |
| Sea Forth | 4,600 | Q3 2013 | 60,000 | Sea Stoat | 6,800 | 2011 | 18,000 |
| Sea Frost | 4,600 | Q3 2013 | 60,000 | Sea Leopard | 15,000 | 1998 | 26,000 |
| Sea Spark | 4,600 | Q3 2013 | 60,000 | Sea Panther | 15,000 | 1999 | 26,000 |
| Sea Spear | 4,600 | Q4 2013 | 60,000 | | | | |
| Sea Spider | 4,600 | Q4 2013 | 60,000 | | | | |
| Sea Springer | 4,600 | Q4 2013 | 60,000 | | | | |
| | | | **563,000** | | | | **209,000** |
| Divided by 2 = | | | **281,500** | Divided by 2 = | | | **104,500** |
| **Fleet value 2013** | | | | **958,000** | | | |

| Fleet value 2014 | | | |
|---|---|---|---|
| **PSV wholly owned by DESSC** | | | |
| **Vessel name** | **DWT** | **Delivered/expected del.** | **Value** |
| Sea Supra | 4,600 | 2014 | 60,000 |
| Sea Surfer | 4,600 | 2014 | 60,000 |
| Sea Swan | 4,600 | 2014 | 60,000 |
| Sea Swift | 4,600 | 2014 | 60,000 |
| Additional value from 2014 | | | 240,000 |
| + fleet value 2013 | | | 958,000 |
| = Fleet value 2014 | | | 1,198,000 |

We have estimated the value of each vessels on the basis of appendix 3.16 and 3.17.

## Appendix 5.12 – Tangible assets as % of revenue

| Tangible assets as % of revenue, DESSC | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| Tangible assets | 363,372 | 597,785 | 686,519 | 676,929 | 554,496 | 573,237 | 639,798 | |
| Revenue | 74,184 | 146,660 | 190,405 | 167,633 | 132,346 | 115,902 | 124,140 | |
| Tang. Ass. As % of rev | 489.8% | 407.6% | 360.6% | 403.8% | 419.0% | 494.6% | 515.4% | 441.5% |

| Tangible assets as % of revenue,  peers | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| Havila | | | | | | | | |
| Tangible assets | 1,752,081 | 2,050,036 | 3,286,261 | 4,694,947 | 5,406,269 | 6,973,874 | 7,671,784 | |
| Revenue | 742,621 | 674,942 | 1,131,877 | 901,964 | 1,150,892 | 1,360,751 | 1,343,140 | |
| Tangible assets % of rev | 235.9% | 303.7% | 290.3% | 520.5% | 469.7% | 512.5% | 571.2% | 414.9% |
| Farstad | | | | | | | | |
| Tangible assets | 6,608,705 | 7,324,219 | 8,452,076 | 10,459,201 | 11,609,190 | 12,298,728 | 13,090,840 | |
| Revenue | 1,940,910 | 2,514,304 | 3,019,674 | 3,257,579 | 3,328,815 | 3,601,798 | 3,703,772 | |
| Tangible assets % of rev | 340.5% | 291.3% | 279.9% | 321.1% | 348.7% | 341.5% | 353.4% | 325.2% |
| Solstad | | | | | | | | |
| Tangible assets | 5,517,323 | 6,660,257 | 7,549,368 | 9,884,944 | 13,788,212 | 13,918,971 | 12,760,381 | |
| Revenue | 1,898,701 | 2,230,328 | 2,249,678 | 2,531,796 | 2,619,376 | 2,989,522 | 3,385,264 | |
| Tangible assets % of rev | 290.6% | 298.6% | 335.6% | 390.4% | 526.4% | 465.6% | 376.9% | 383.4% |
| Average peers | | | | | | | | 374.5% |

## Appendix 5.13 – Net working capital as % of revenue

| Net working capital as % of revenue, DESSC | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| NWC | 26,406 | 36,549 | 23,877 | 27,465 | 24,757 | 27,492 | 19,785 | |
| Revenue | 74,184 | 146,660 | 190,405 | 167,633 | 132,346 | 115,902 | 124,140 | |
| Tang. Ass. As % of rev | 35.6% | 24.9% | 12.5% | 16.4% | 18.7% | 23.7% | 15.9% | 21.1% |

| Inventory, receivables, accounts payables and other operating liabilities as % of revenye | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
| Inventory | 585 | 1,768 | 881 | 2,222 | 2,905 | 5,061 | 2,681 |
| Revenue | 74,184 | 146,660 | 190,405 | 167,633 | 132,346 | 115,902 | 124,140 |
| **Inventory as % of revenue** | **0.8%** | **1.2%** | **0.5%** | **1.3%** | **2.2%** | **4.4%** | **2.2%** |
| Receivables | 35,449 | 60,612 | 54,038 | 28,832 | 36,080 | 37,492 | 19,785 |
| Revenue | 74,184 | 146,660 | 190,405 | 167,633 | 132,346 | 115,902 | 124,140 |
| **Receivables as % of revenue** | **47.8%** | **41.3%** | **28.4%** | **17.2%** | **27.3%** | **32.3%** | **15.9%** |
| Accounts payable | 9,068 | 12,928 | 25,039 | 3,589 | 11,519 | 13,307 | 23,667 |
| Revenue | 74,184 | 146,660 | 190,405 | 167,633 | 132,346 | 115,902 | 124,140 |
| **Accounts payable as % of revenue** | **12.2%** | **8.8%** | **13.2%** | **2.1%** | **8.7%** | **11.5%** | **19.1%** |
| Other operating liabilities | 560 | 12,903 | 6,003 | 0 | 2,709 | 1,754 | 1,266 |
| Revenue | 74,184 | 146,660 | 190,405 | 167,633 | 132,346 | 115,902 | 124,140 |
| **Other op. lia. as % of revenue** | **0.8%** | **8.8%** | **3.2%** | **0.0%** | **2.0%** | **1.5%** | **1.0%** |

## Appendix 5.14 – NIBD as % of invested capital

| NIBD % of invested capital DESSC | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| NIBD | 107,061 | 474,013 | 601,982 | 543,754 | 420,319 | 440,333 | 505,057 | |
| Invested capital | 391,262 | 637,267 | 714,204 | 707,747 | 581,900 | 603,047 | 662,066 | |
| **NIBD as % of invested capital** | **27.4%** | **74.4%** | **84.3%** | **76.8%** | **72.2%** | **73.0%** | **76.3%** | **76.2%** |

NIBD as % of invested capital in 2006 is not part of the average as this year is considered to be an outlier.

# Appendix 6 – Cost of capital

## Appendix 6.1 - Bloomberg beta estimation of peers

**Solstad**



**Havila**

**Farstad**



FAR NO NOK    C **122.00**   -1.00    ⌐ ̄ ̄__    0122.00/123.000    859×680
⌐___ On 16 May d Vol 1,420    O 119.000 H 122.000 L 119.000 Val 171,679

| FAR NO Equity | Relative Index  OBX Index | | Historical Beta |

| Data | Last Price ▾ | Range | 05/16/2008 ▦ – | 05/17/2013 ▦ | Period Weekly ▾ | USD ▾ |

☑ Linear    ☐ Beta +/-    ☐ Non-Parametric    Lag  0

Y=0.601X-0.037

Y = FARSTAD SHIPPING
X = OBX STOCK INDEX

| Item | Value |
| --- | --- |
| Raw BETA | 0.601 |
| Adjusted BETA | 0.734 |
| ALPHA(Intercept) | -0.037 |
| R^2(Correlation^2) | 0.443 |
| R(Correlation) | 0.666 |
| Std Dev of Error | 3.762 |
| Std Error of ALPHA | 0.233 |
| Std Error of BETA | 0.042 |
| t-Test | 14.362 |
| Significance | 0.000 |
| Last T-Value | -0.962 |
| Last P-Value | 0.168 |
| Number of Points | 261 |

❋ Last Observation

Australia 61 2 9777 8600 Brazil 5511 3048 4500 Europe 44 20 7330 7500 Germany 49 69 9204 1210 Hong Kong 852 2977 6000
Japan 81 3 3201 8900    Singapore 65 6212 1000    U.S. 1 212 318 2000    Copyright 2013 Bloomberg Finance L.P.
SN 484464 CEST GMT+2:00 H442-2646-0 20-May-2013 17:49:42

## Appendix 6.2 – DESSC's liquidity compared to peers



1Q 2013 average monthly volume and turnover velocity

Source: Deep Sea Supply Q1 2013

## Appendix 6.3 – S&P credit rating financial ratios

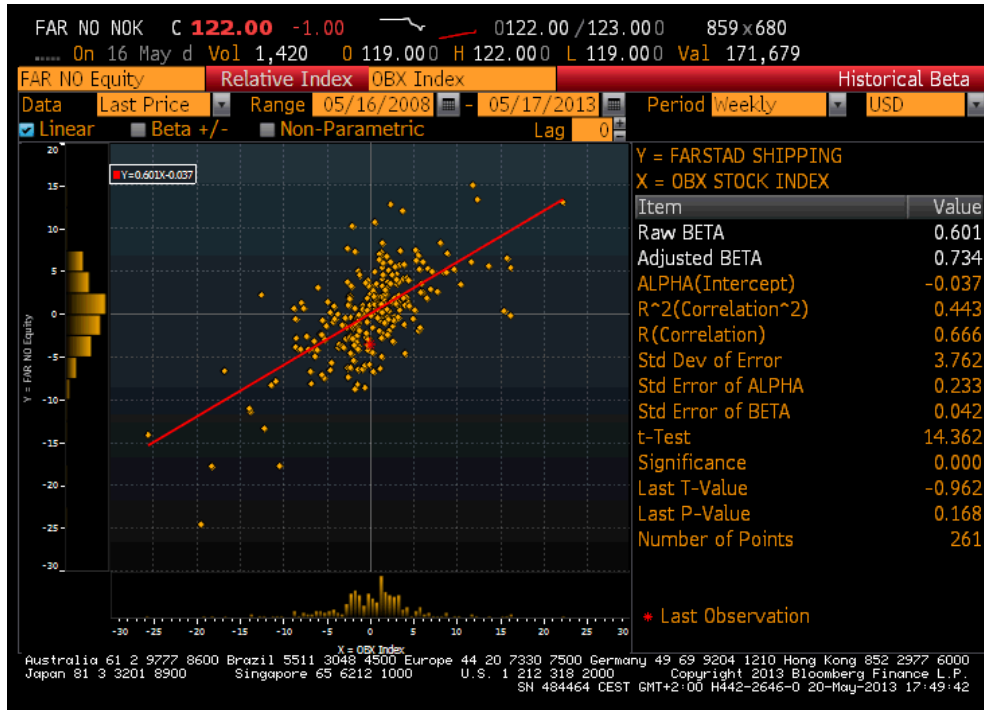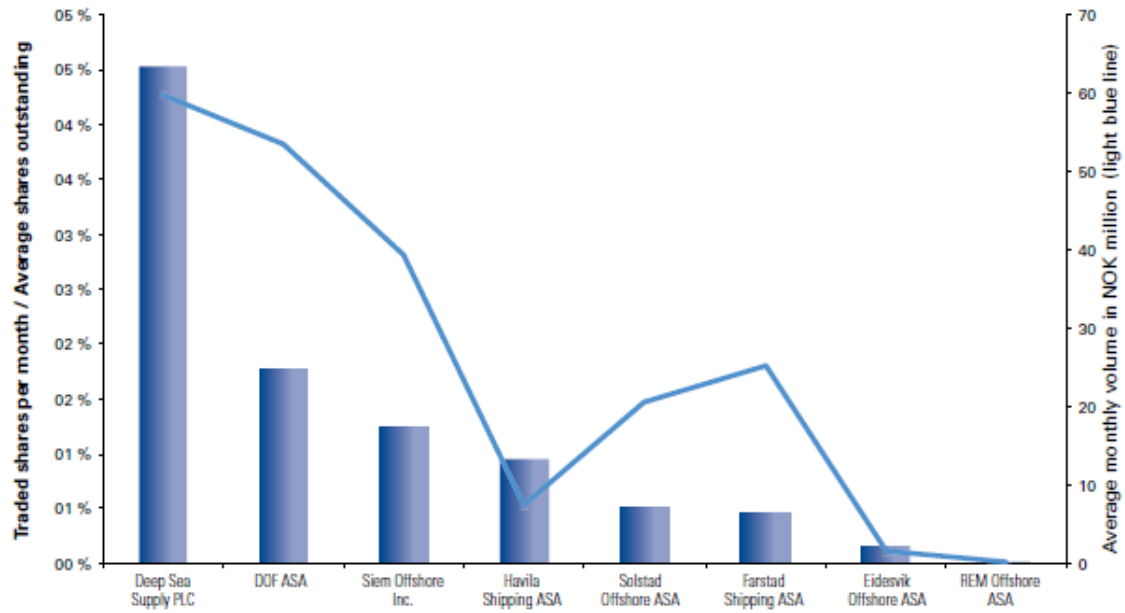| Financial ratios | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average | Rating |
|---|---|---|---|---|---|---|---|---|---|
| **1. EBIT interest coverage ratio** | | | | | | | | | |
| EBIT | 31,807 | 83,971 | 112,183 | 56,959 | 20,576 | 27,172 | 13,526 | | |
| Net financial expenses | -6,042 | -12,440 | -42,121 | -22,703 | -20,495 | -26,440 | -17,212 | | |
| **1. EBIT interest coverage ratio** | 5.26 | 6.75 | 2.66 | 2.51 | 1.00 | 1.03 | 0.79 | 2.86 | BB |
| | | | | | | | | | |
| **2. EBITDA interest coverage ratio** | | | | | | | | | |
| EBITDA | 41,867 | 100,532 | 142,460 | 93,327 | 57,021 | 55,998 | 45,830 | | |
| Net financial expenses | -6,042 | -12,440 | -42,121 | -22,703 | -20,495 | -26,440 | -17,212 | | |
| **2. EBITDA interest coverage ratio** | 6.93 | 8.08 | 3.38 | 4.11 | 2.78 | 2.12 | 2.66 | 4.30 | BB |
| | | | | | | | | | |
| **3. Funds from operations/total debt** | | | | | | | | | |
| Net income from continuing operations | 25,397 | 58,509 | 74,395 | 40,665 | -2,536 | 713 | -4,643 | | |
| + depreciation & amortisation | 10,022 | 16,551 | 30,183 | 36,248 | 36,249 | 28,380 | 31,810 | | |
| + Deferred income tax | 0 | 0 | 0 | 0 | 234 | 308 | 605 | | |
| + other non-cash items | | | | | | | | | |
| **Funds from operations** | 35,419 | 75,060 | 104,578 | 76,913 | 33,947 | 29,401 | 27,772 | | |
| **Total debt** | 166,684 | 534,413 | 718,293 | 630,070 | 596,704 | 536,029 | 608,703 | | |
| **3. Funds from operations/total debt** | 21% | 14% | 15% | 12% | 6% | 5% | 5% | 11% | B |
| | | | | | | | | | |
| **4. Free operating cash flow/total debt** | | | | | | | | | |
| Funds from operations | 35,419 | 75,060 | 104,578 | 76,913 | 33,947 | 29,401 | 27,772 | | |
| - capital expenditures | -10,060 | -250,974 | -119,011 | -26,778 | 85,988 | -47,567 | -98,865 | | |
| +/- Δ NWC | 0 | -10,143 | 12,672 | -3,588 | 2,708 | -2,735 | 7,707 | | |
| +/- Δ short-term debt | | | | | | | | | |
| Trade and other payables | 9,068 | 12,928 | 25,039 | 3,589 | 11,519 | 13,307 | 23,667 | | |
| Current income tax liabilites | 560 | 1,338 | 667 | 0 | 903 | 881 | 1,266 | | |
| +/- Δ short-term debt | | 4,638 | 11,440 | -22,117 | 8,833 | 1,766 | 10,745 | | |
| Free operating cash flow | | -161,133 | -15,665 | 31,606 | 126,060 | -13,665 | -68,055 | | |
| Total debt | | 534,413 | 718,293 | 630,070 | 596,704 | 536,029 | 608,703 | | |
| **4. Free operating cash flow/total debt** | | -0.30 | -0.02 | 0.05 | 0.21 | -0.03 | -0.11 | -3% | B |
| | | | | | | | | | |
| **5. Return on capital (ROIC)** | 8.0% | 10.8% | 16.7% | 9.6% | -110.7% | 4.4% | 2.6% | 8.7% | B |
| | | | | | | | | | |
| **6. EBITDA/Revenue** | | | | | | | | | |
| EBITDA | 41,867 | 100,532 | 142,460 | 93,327 | 57,021 | 55,998 | 45,830 | | |
| Administrative costs | 2,774 | 5,952 | 7,971 | 7,696 | 8,710 | 10,911 | 12,356 | | |
| Revenue | 74,184 | 146,660 | 190,405 | 167,633 | 132,346 | 116,193 | 124,531 | | |
| **6. EBITDA/Revenue** | 60% | 73% | 79% | 60% | 50% | 58% | 47% | 61% | AAA |
| | | | | | | | | | |
| **7. Long-term debt/capital** | | | | | | | | | |
| Long-term debt | 145,221 | 416,371 | 634,540 | 574,109 | 489,374 | 473,647 | 531,570 | | |
| Capital | 284,201 | 163,254 | 112,222 | 163,993 | 161,581 | 162,714 | 157,009 | | |
| **7. Long-term debt/capital** | 34% | 72% | 85% | 78% | 75% | 74% | 77% | 71% | CCC |
| | | | | | | | | | |
| **8. Total debt/capital** | | | | | | | | | |
| Total debt | 166,684 | 534,413 | 718,293 | 630,070 | 596,704 | 536,029 | 608,703 | | |
| Capital | 284,201 | 163,254 | 112,222 | 163,993 | 161,581 | 162,714 | 157,009 | | |
| **8. Total debt/capital** | 37% | 77% | 86% | 79% | 79% | 77% | 79% | 73% | B |

Source: http://www.uic.edu/classes/actg/actg516rtr/Readings/Bond-Ratings/S&P-Ratings-and-Ratios-7pages.pdf

| Calculation of average rating | | |
|---|---|---|
| Different ratings | DESSC's actual rating | Converted to number |
| AAA = 1 | BB | 5 |
| AA = 2 | BB | 5 |
| A = 3 | B | 6 |
| BBB = 4 | B | 6 |
| BB = 5 | B | 6 |
| B = 6 | AAA | 1 |
| CCC = 7 | CCC | 7 |
| | B | 6 |
| Average | | 5.3 BB |

## Appendix 6.4 - Iteration calculation

First order of business is to estimate WACC, which is done through this following equation:

$$WACC = R_D \times W_D + R_E \times (1 - W_D),$$

Where $R_D$ represents the return on debt, $W_D$ represents capital structure and $R_E$ represents return on equity. Return on debt and return on equity are both estimated earlier in the thesis at 6.66 % and 9.03 %, respectively. The capital structure is obtained through the following equation:

$$W_D = \frac{Value\ of\ debt}{Value\ of\ debt + value\ of\ equity}$$

When performing the iteration method one should use current values of debt and equity[204]. Debt is DESSC's net-interest bearing debt from ultimo 2012, which is estimated to be USD 505.057m. We assume the value of debt will not change throughout the iteration process. The value of equity is estimated as market value of equity which we have achieved by using the market capitalisation[205]:

$$Value\ of\ equity = Number\ of\ shares\ \times share\ price$$

$$Value\ of\ equity = \ 127\ 147\ 000\ shares\ \times 9.35 = NOK\ 1\ 200\ 267\ 689$$

---

[204] Larkin, "To Iterate Or Not To Iterate? Using The WACC In Equity Valuation"
[205] Number of shares, share price and exchange rate (NOK/USD) per 16th of May

$$Value\ of\ equity = 1\ 200\ 267\ 689\ NOK\ \times 0.17037 = \$\mathbf{202\ 620\ 000}$$

Now we can estimate the capital structure ($W_D$):

$$W_D = \frac{505\ 057\ 000}{(505\ 057\ 000 + 202\ 620\ 600)} = \mathbf{0.714}$$

Finally, we can estimate the WACC that is used for the iteration process:

$$WACC = R_D\ \times W_D\ +\ R_E \times (1 - W_D) = 6.0\ \%\ \times 0.714 + 9.03\ \%\ \times (1 - 0.714) = \mathbf{0.0686}$$

Thus, our initial WACC when performing the iteration method is 6.86 %. With this WACC we can estimate the firm value which is applied in the iteration method.

$$FCFF\ Firm\ Value = \frac{FCFF_1}{(1 + WACC^1)} + \cdots + \frac{FCFF_n}{(1 + WACC)^n} + \frac{FCFF_{n+1}}{(WACC - g)}\ \times \frac{FCFF_{n+1}}{(1 + WACC)^{n+1}}$$

When using a WACC at 6.86 % we achieved a firm value of USD 976,839m. Further, by deducting the net-interest bearing debt from this number, we obtained the estimated market value of equity, which was USD 471,783m. Obviously, this number differs from the beginning equity value, which is used in the capital structure when calculating WACC. Thus, we continue the process with a different WACC (7.46 %) because the capital structure now has changed due to the new estimated market value of equity. This process continues until we achieve the same market value of equity as the initial equity used in calculating WACC, which is done in attempt 60 (highlighted in yellow). As illustrated in the table, DESSC's optimal capital structure and based on market values is 0.601.

| Attempt number | Beginning value of equity | Current value of debt | W$_D$, Capital structure | WACC | FCFF Firm value | Estimated market value of equity |
|---|---|---|---|---|---|---|
| 1 | 202,620 | 505,057 | 0.714 | 6.86% | 976,839 | 471,783 |
| 2 | 471,783 | 505,057 | 0.517 | 7.46% | 750,823 | 245,766 |
| 3 | 245,766 | 505,057 | 0.673 | 6.99% | 923,888 | 418,831 |
| 4 | 418,831 | 505,057 | 0.547 | 7.37% | 780,768 | 275,711 |
| 5 | 275,711 | 505,057 | 0.647 | 7.07% | 892,301 | 387,244 |
| 6 | 387,244 | 505,057 | 0.566 | 7.31% | 801,029 | 295,972 |
| 7 | 295,972 | 505,057 | 0.631 | 7.12% | 872,916 | 367,860 |
| 8 | 367,860 | 505,057 | 0.579 | 7.27% | 814,501 | 309,444 |
| 9 | 309,444 | 505,057 | 0.620 | 7.15% | 860,813 | 355,756 |
| 10 | 355,756 | 505,057 | 0.587 | 7.25% | 823,355 | 318,298 |
| 11 | 318,298 | 505,057 | 0.613 | 7.17% | 853,174 | 348,117 |
| 12 | 348,117 | 505,057 | 0.592 | 7.23% | 829,129 | 324,072 |
| 13 | 324,072 | 505,057 | 0.609 | 7.18% | 848,321 | 343,264 |
| 14 | 343,264 | 505,057 | 0.595 | 7.22% | 832,876 | 327,819 |
| 15 | 327,819 | 505,057 | 0.606 | 7.19% | 845,224 | 340,167 |
| 16 | 340,167 | 505,057 | 0.598 | 7.22% | 835,300 | 330,243 |
| 17 | 330,243 | 505,057 | 0.605 | 7.19% | 843,242 | 338,185 |
| 18 | 338,185 | 505,057 | 0.599 | 7.21% | 836,864 | 331,807 |
| 19 | 331,807 | 505,057 | 0.604 | 7.20% | 841,972 | 336,915 |
| 20 | 336,915 | 505,057 | 0.600 | 7.21% | 837,872 | 332,815 |
| 21 | 332,815 | 505,057 | 0.603 | 7.20% | 841,157 | 336,100 |
| 22 | 336,100 | 505,057 | 0.600 | 7.21% | 838,521 | 333,465 |
| 23 | 333,465 | 505,057 | 0.602 | 7.20% | 840,634 | 335,577 |
| 24 | 335,577 | 505,057 | 0.601 | 7.21% | 838,939 | 333,883 |
| 25 | 333,883 | 505,057 | 0.602 | 7.20% | 840,297 | 335,241 |
| 26 | 335,241 | 505,057 | 0.601 | 7.20% | 839,208 | 334,151 |
| 27 | 334,151 | 505,057 | 0.602 | 7.20% | 840,081 | 335,025 |
| 28 | 335,025 | 505,057 | 0.601 | 7.20% | 839,381 | 334,324 |
| 29 | 334,324 | 505,057 | 0.602 | 7.20% | 839,943 | 334,886 |
| 30 | 334,886 | 505,057 | 0.601 | 7.20% | 839,492 | 334,436 |
| 31 | 334,436 | 505,057 | 0.602 | 7.20% | 839,853 | 334,797 |
| 32 | 334,797 | 505,057 | 0.601 | 7.20% | 839,564 | 334,507 |
| 33 | 334,507 | 505,057 | 0.602 | 7.20% | 839,796 | 334,739 |
| 34 | 334,739 | 505,057 | 0.601 | 7.20% | 839,610 | 334,553 |
| 35 | 334,553 | 505,057 | 0.602 | 7.20% | 839,759 | 334,702 |
| 36 | 334,702 | 505,057 | 0.601 | 7.20% | 839,639 | 334,583 |
| 37 | 334,583 | 505,057 | 0.602 | 7.20% | 839,735 | 334,679 |
| 38 | 334,679 | 505,057 | 0.601 | 7.20% | 839,658 | 334,602 |
| 39 | 334,602 | 505,057 | 0.602 | 7.20% | 839,720 | 334,663 |
| 40 | 334,663 | 505,057 | 0.601 | 7.20% | 839,671 | 334,614 |
| 41 | 334,614 | 505,057 | 0.601 | 7.20% | 839,710 | 334,654 |
| 42 | 334,654 | 505,057 | 0.601 | 7.20% | 839,679 | 334,622 |
| 43 | 334,622 | 505,057 | 0.601 | 7.20% | 839,704 | 334,647 |
| 44 | 334,647 | 505,057 | 0.601 | 7.20% | 839,684 | 334,627 |
| 45 | 334,627 | 505,057 | 0.601 | 7.20% | 839,700 | 334,643 |
| 46 | 334,643 | 505,057 | 0.601 | 7.20% | 839,687 | 334,630 |
| 47 | 334,630 | 505,057 | 0.601 | 7.20% | 839,697 | 334,641 |
| 48 | 334,641 | 505,057 | 0.601 | 7.20% | 839,689 | 334,632 |
| 49 | 334,632 | 505,057 | 0.601 | 7.20% | 839,696 | 334,639 |
| 50 | 334,639 | 505,057 | 0.601 | 7.20% | 839,690 | 334,633 |
| 51 | 334,633 | 505,057 | 0.601 | 7.20% | 839,695 | 334,638 |
| 52 | 334,638 | 505,057 | 0.601 | 7.20% | 839,691 | 334,634 |
| 53 | 334,634 | 505,057 | 0.601 | 7.20% | 839,694 | 334,637 |
| 54 | 334,637 | 505,057 | 0.601 | 7.20% | 839,692 | 334,635 |
| 55 | 334,635 | 505,057 | 0.601 | 7.20% | 839,693 | 334,637 |
| 56 | 334,637 | 505,057 | 0.601 | 7.20% | 839,692 | 334,635 |
| 57 | 334,635 | 505,057 | 0.601 | 7.20% | 839,693 | 334,636 |
| 58 | 334,636 | 505,057 | 0.601 | 7.20% | 839,692 | 334,635 |
| 59 | 334,635 | 505,057 | 0.601 | 7.20% | 839,693 | 334,636 |
| 60 | 334,636 | 505,057 | 0.601 | 7.20% | 839,692 | 334,636 |

# Appendix 7. – Valuation

## Appendix 7.1 – Calculation of multiples

| DESSC multiples based on current stock price | | |
|---|---|---|
| **Price / Earnings** | | |
| | 2013 | 2014 |
| Stock price NOK 31th of May 2013 | 9.35 | 9.35 |
| NOK/USD 31th of May 2013 | 0.17037 | 0.17037 |
| Stock price USD 31th of May 2013 | 1.59 | 1.59 |
| Net income USD | 27,612 | 45,164 |
| Number of shares | 127,197 | 127,197 |
| EPS | 0.22 | 0.36 |
| **P/E** | **7.34** | **4.49** |
| **Price/book** | | |
| | 2013 | 2014 |
| Stock price USD 31th of May 2013 | 1.59 | 1.59 |
| Book value of equity | 242,452 | 304,480 |
| Number of shares | 127,197 | 127,197 |
| Book value per share | 1.91 | 2.39 |
| **P/B** | **0.84** | **0.67** |
| **Price/cash flow** | | |
| | 2013 | 2014 |
| Stock price USD 31th of May 2013 | 1.59 | 1.59 |
| CFO | 99,797 | 156,812 |
| Number of shares | 127,197 | 127,197 |
| Cash flow per share | 0.78 | 1.23 |
| **Price / cash flow** | **2.03** | **1.29** |
| **EV/EBITDA** | | |
| | 2013 | 2014 |
| Stock price USD 31th of May | 1.59 | 1.59 |
| Number of shares | 127,197 | 127,197 |
| Market cap | 202,620 | 202,620 |
| NIBD | 505,057 | 505,057 |
| Enterprise value | 707,676 | 707,676 |
| EBITDA | 116,968 | 158,291 |
| **EV/EBITDA** | **6.05** | **4.47** |
| **EV / EBIT** | | |
| | 2013 | 2014 |
| Enterprise value | 707,676 | 707,676 |
| EBIT | 69,068 | 98,391 |
| **EV/EBIT** | **10.25** | **7.19** |