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Financial and Strategic Valuation of Lundin Petroleum AB

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Executive Summary

The aim of this thesis is to find the fair share price of Lundin Petroleum AB on the 1st of April 2014. Lundin Petroleum is a Swedish company operating in the oil and gas exploration and production industry with operations all over the world. The Lundin share was listed on the Stockholm Stock Exchange in 2001 and has so far been an exceptional stock to have in an investor's portfolio. The stock grew by 2 459.6 % from its listing in 2001 to the valuation date 1st of April 2014, far outperforming the average stock on the Stockholm Stock Exchange.

To assess the fair value of the stock, an in-depth analysis of the company was carried out from a strategic and financial perspective. The strategic analysis, including a PESTEL and a Porter's five forces framework revealed general characteristics inherent to the environment in which Lundin operates and underlined the challenging external factors influencing its performance. Factors with the highest impact on the future evolution of the entire sector include pressure from renewable energy sources, higher competitiveness from alternative fuels such as shale gas and an interplay of economic, financial and political forces. On the other hand, the strategic analysis focused on the company itself revealed that Lundin holds crucial strengths such as internal know-how, good track record in exploration and discoveries and valuable assets promising future oil and gas. The financial analysis assessing the financial performance of the past 5-years revealed that the company managed to evolve from a negative to a positive net income and managed to secure a considerable amount of financing that will both help support its future endeavours by continuing investments but also adds higher financial risks to its operations through a heavy debt burden.

The results of the strategic and financial analysis was then used to make a realistic 10-years forecast of Lundin's performance. The forecasted cash flow was discounted by using the DCF method obtaining a value of 18,89 USD per share, indicating that the current market is slightly overvaluing the Lundin stock. To sanity check the calculated share price a sensitivity analysis was done assessing the sensitivity in the assumptions driving the resulting share price, showing that changes in the oil price and WACC are the biggest factors affecting the Lundin price. To triangulate the share price a multiples analysis was conducted showing that the most applicable multiple to this particular industry – the EV/EBITDA – also reveals the closest result to the DCF valuation and to the market price. In contrast other multiples, that were used for comparison purposes revealed much higher variations around these values.

Although there are many factors that can affect a stock's price in the future and many of the influencing variables are extremely hard to predict, the report concludes that the stock price today is slightly overvalued.

Definitions

2P	Proved and probable reserves
ATO	Assets Turnover
Boe	Barrels of Oil Equivalents, Natural gas converted to barrels of oil equivalents 6 mcf= 1boe
Boepd	Barrels of Oil Equivalent Per Day
BP	British Petroleum
CAPM	Capital Asset Pricing Model
CAPEX	Capital Expenditures
DCF	Discounted Cash Flows
E&P	Exploration and Production
EIA	Energy Information Agency
EBIT	Earnings Before Interest and Tax
EBITDA	Earnings Before Interest, Tax, Amortization and Depreciation
EV	Enterprise Value
FCF	Free Cash Flow
IEA	International Energy Agency
LNG	Liquefied Natural Gas
MMboe	Million Barrels of oil Equivalent
MMSCFPD	Million Standard Cubic Feet Per Day
MUSD	Million US dollars
NOK	Norwegian Kronor
NOPLAT	Net Operating Profit Less Adjusted Taxes
NWC	Net Working Capital
OECD	The Organization for Economic Co-operation and Development
OPEC	Organization of Petroleum Exporting Countries
P.A	Per Annum

PESTEL	Political, Economical, Social, Technological, Environmental, Legal
PPE	Property, Plant and Equipment
ROCE	Return On Capital Employed
ROIC	Return On Invested Capital
RONIC	Return On New Invested Capital
SEK	Swedish Kronor
Toe	Tonnes of Oil Equivalent
USD	US Dollars
WACC	Weighted Average Cost of Capital

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Introduction

The financial crisis starting in 2007 had a profound impact on the world economy and as the crisis is currently getting close to an end the economic environment is in the process of recovering (Elliot, 2011). The increased cross-national and cross continental trade means that today's business environment is globally integrated and interdependent. The global reach of businesses leads an increasing number of investors to seek opportunities across borders. By the worldwide reach of Internet, disclosure of information by companies and more extensive media coverage of private companies, investors are more able to follow a company's development. The possibility investors have today to be always up to date on a company's progress and the possibility of their instant trading actions in cases of unexpected events or performances makes a valuation of a company operating in this environment especially interesting.

There are few things in today's industrial and economic development that play such a crucial role as energy does, and more specifically the discovery, exploration and production of fossil fuels, especially oil and gas. An increase in the oil price can stall or even hamper economic growth (Forbes, 2012). Approximately two billion US dollars a day of petroleum are traded worldwide which makes petroleum the largest item in the balances of payments and exchanges between nations (World Bank, 2011). Oil has also been a prominent actor on the stock exchanges over the world, thus not only affecting producers, suppliers and direct consumers of oil products but also financial investors, hedge funds and traders all over the world (Forbes, 2012).

The prominent position oil has in international trade and the large affects changes in oil production have on the global economy makes it an interesting industry to look into. The fact that it is an industry operating in a very uncertain environment makes it even more appealing. The production of oil reached its peak in 2004 and has since then been on a bumpy plateau even if the world demand for energy is increasing (OPEC, 2013). The oil sector is not just dependent on how much it can produce but also how much oil reserves are found. The difficulty in finding oil, extracting it successfully and the ambiguity in the quality of the oil increase the uncertainty surrounding companies in this industry. Moreover, recent scientific and technological developments make possible extraction and production of oil and gas from those areas and sources that previously have been deemed impossible with the most relevant example being shale gas and oil. Another factor that makes the future of the oil industry as well as for individual companies very uncertain is the growth of the renewable energy sector. Although, renewable energy currently doesn't pose a big threat, it hasn't reached its' potential yet and the movement of companies and individuals opposing fossil fuel is growing, adding to the uncertain environment companies in this sector are facing.

The unique characteristics of the oil industry created an interest to do a valuation of a company operating in this environment. Lundin Petroleum AB is a Swedish oil production and extraction company, with operations all over the world. At the end of 2013 Lundin had a market capitalization of 6 125 314 978 USD and annual revenues of USD 1 196 million[1]. Furthermore, it is a well discussed company in the news and it's been highly criticized for its morally alleged misconduct in the past as well as its strong family ties governing the company today. Bearing in mind this somewhat infamous picture in the media and looking at its book value, the Lundin Petroleum share price seems very high. The share value of 133,10 SEK on the 1st of April 2014 seems even higher when comparing it to Lundin Petroleum's competitors.

The complex economic environment, the oil industry's special characteristics and Lundin Petroleum's perceived high share price makes a company valuation of Lundin Petroleum AB interesting to do and forms the topic of this thesis.

Problem Statement

The main objective of this thesis is to estimate the fair value of the Lundin Petroleum stock as of 1st of April 2014. The estimated fair value will be based on a strategic and financial analysis, and established valuation methods. The thesis will work towards answering the main research question and six sub questions posed to support the main research question. The research questions are disclosed in table 1 below, where the first question is the main research question and questions two to seven are sub-questions.

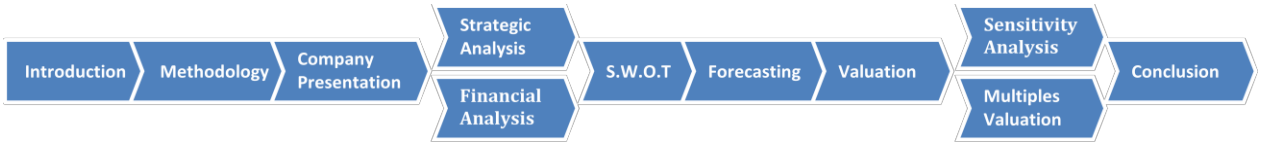
Research Questions		
Nr.	**Main Research Question**	**Answer page**
1.	What is the estimated fair value of one Lundin Petroleum AB share on a standalone basis as of 01.04.2014?	101
Nr.	**Sub Question**	**Answer page**
2.	How does the oil industry – and more specifically the upstream sector – look today and how will it develop in the future?	14-35
3.	What does the competitive landscape look like and what is Lundin Petroleum's position amongst its main competitors?	40-43
4.	What are the key drivers for Lundin Petroleum's performance today and how will they develop in the future?	46, 66-68
5.	How would the strategic analysis translate into the financial accounts of Lundin Petroleum?	43-66
6.	What are Lundin Petroleum's future growth projections and when will it reach steady state?	69-83
7.	Is the Lundin Petroleum stock over- or under- valued, what is the reason for this discrepancy?	100-101

Table 1: Research Questions

[1] Lundin annual reports are written in US dollars while its share is traded on the Swedish stock exchange and therefore traded in Swedish kronor. Our valuation will be conducted in USD.

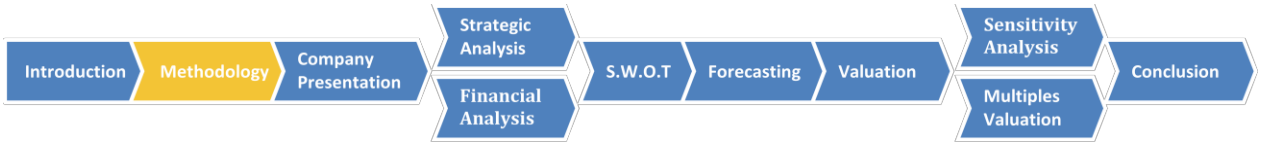
Structure of the paper

In the following section the methodology, on which the thesis is based, will be presented including the theories, the scope and limitations of the paper. Thereafter the company itself, Lundin Petroleum (here forth, Lundin) will be shortly presented, followed by a strategic and financial analysis, carried out for the scope of the valuation. A SWOT analysis will tie the strategic and financial analysis together and bridge the analysis part of this paper with the valuation. The valuation part will start with a forecasting section. Thereafter methods and theories including the CAPM and DCF will be employed to find the intrinsic value of the share. To evaluate the soundness of the valuation a sensitivity analysis will be conducted and to triangulate the results a multiple analysis is carried out. A conclusion will then conclude the paper and answer the main research question. The orientation scheme below shows the structure of the thesis.



Methodology

In this section the theoretical backbone of the thesis is presented, the validity and reliability of the data under building the thesis is argued for and the scope and limitations is outlined.



Theory

In order to fairly estimate the value of Lundin's stock price several theoretical models that evaluate the company from both the financial and strategic standpoint is used. The strategic aspects will be covered by the PESTEL and Porter's Five Forces framework. The financial analysis will include a reformulation of the company's balance sheet and income statement. The strategic and the financial analysis will be combined and concluded in a SWOT analysis. For the valuation part the models used are: the Capital Asset Pricing Model (CAPM) to estimate the accurate rate of return; the Discounted Cash Flow (DCF) model to evaluate the future earnings of the company; and the multiples method to benchmark against other comparable firms in the industry.

The aforementioned models are all commonly used in papers valuating the energy industry and the DCF method is especially suggested to be used when valuating companies in the E&P industry (Baustad

Benonisen, 2014) (Beer, 2014). Even though these methods are so commonly employed in practice, the full reliability and accurateness of the results is highly dependent on the assumptions made. This sensitivity can thus explain the final variability we might notice in the price of shares dictated by this paper compared to the price observed in the market. A sensitivity analysis will also help test the impact changes in the input variables have on the final price.

Reliability and Validity

According (Saunders, Lewis and Thornhill, 2003) the quality of the collected data and its analysis is depended on its validity (i.e. the credibility, correctness and truth of the data) and reliability (i.e. the extent to which your data collection techniques or analysis procedures will yield consistent findings).

The data for this project has been derived from two main sources: primary and secondary data. We have extensively relied on secondary data both due to its wider availability, higher perceived quality and consequently higher legitimacy. The sources for this data stem primarily from the audited and publicly available reports of Lundin and other external data sources such as Bloomberg, Tower Watson and financial press. The high standards associated with these sources advocate for a high degree of validity of this secondary data. Consequently, we judge the data to be reliable and it should yield comparable results in other valuations if used appropriately and accurately.

To get a more complete and all-encompassing idea about the true value of Lundin and its key drivers we also collected primary data to support our secondary sources. The primary data was attained from analysts that directly track Lundin's development and thus represent well-informed sources on the company's past performance and future expectations. We have conducted one phone interview with Greg Rodderick an analyst covering Lundin at Wood Mackenzie. Furthermore, several analysts, Christian Yggeseth at Arctic Securities, André Baustad Benonisen at Danske Bank Markets, Teodor Nilsen at Swedbank, Julian Beer at SEB, all covering the company answered questions by replying to our e-mail and/or sent their reports and presentations of the company[2]. These are representatives directly involved in Lundin's governance and stock trading. The validity of this type of data is deemed high as it was sourced from experts with high credibility status. However, it is difficult to correctly assess its reliability as it represents a personal opinion of people directly affected by the price of Lundin and its prospective variations, thus it's extremely prone to subjectivity biases.

Scope

The aim of this paper is to find the intrinsic value of the company's traded stock, by applying a thorough and structured description of the valuation process for Lundin Petroleum. The paper does not however seek to

[2] All the e-mail replies and interview transcripts are disclosed in the appendix 16 and 17

invent new valuation approaches or to recommend on the best model to use. Throughout the paper the advantages and disadvantages of each of the methods employed will be debated, keeping the tone of the entire paper as objective as possible. Furthermore, the different findings and insights drawn in the paper will be explained and discussed, so to ensure that the deepest and correct understanding of the company is attained.

Moreover, this paper does not aim to validate the theoretical models used or to profoundly argue for their suitability. It will merely employ the existing approaches to the case study at hand. The timeline of the valuation is also clearly delimited in the title of the paper as it is bound to the 1st of April 2014 and ignores any quantitative data, news or other form of information surfaced after the specified date.

Moreover, this thesis does not aim to speculate on the future share price of the company or the oil price. Rather it is a description of the mechanisms any rational outside investor could use to make an educated estimate of Lundin's intrinsic value as well as the possible and expected variations in the main factors that drive its value. Moreover, the final result of the paper does not seek to replicate the traded share price at the valuation date of the company or at a present time. Much rather the paper will focus on finding the fair value of the Lundin stock and the entire thesis should be judged holistically as a process rather than on the basis of the price alone.

Limitations

Similar to any paper of this nature and scope, this thesis is constrained by several limitations which will be taken into consideration throughout the work to ensure objectivity, validity and reliability.

The most important source of constraints for this type of paper stem from the type of data. Most of the data we are basing our work on is secondary by nature and thus prone to biases of the party that compiled the data in the first place. It is especially crucial to remember this fact when looking at the quantitative data that represents the foundation of the valuation and is mostly sourced from the company itself.

Data provided and declared by Lundin as a publicly traded entity are diligently regulated by the authority of the Stockholm Stock Exchange. The exchange is the primary securities exchange of the Nordic countries with more than 300 companies listed for trading. Since 2008, the Stockholm Stock Exchange has been part of the NASDAQ OMX Group and thus fully respects NASDAQ's requirements and regulations (Bergström & Johnson, 2011), (Bernhardsson, 2002). However, biases cannot be erased completely and are expected to skew positively the final result for the corporation.

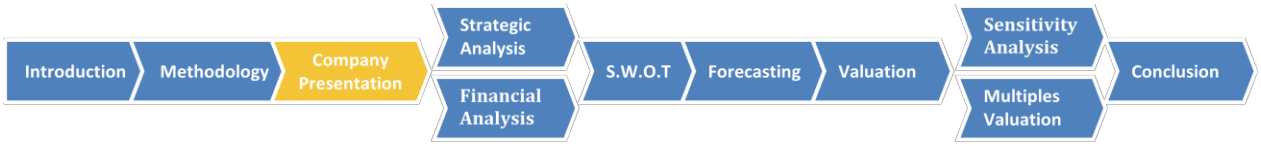
Another limitation is due to the fact we don't have access to internal information and the company's tax accounts. Therefore, we have tried to estimate the company's taxes with most accuracy however the

estimates can differ from the actual tax accounts and could affect the final result. In addition, due to restricted time and limited space in this thesis peers financial accounts have not been reformulated possibly affecting the benchmarking of Lundin's performance.

Lastly, a limitation is imposed by the chosen methods of valuation. As no perfect and universal valuation method exists, throughout the paper the methods will be described and the disadvantages of each of the employed approaches considered and the final choice of methods will be argued for.

The company

In this section the most important aspects of the company will be introduced.



Lundin is an independent Swedish company that is in the business of oil and gas exploration and production. Lundin is headquartered in Stockholm, Sweden and generated a revenue of USD 1 196 million and a net result of USD 73 million in 2013 (Lundin, 2013). The company operates through its subsidiaries, which are among others: Lundin Malaysia BV, Lundin Norway AS, Lundin Netherlands Holding BV and Lundin South East Asia BV. Figure 1 below illustrates the company structure.

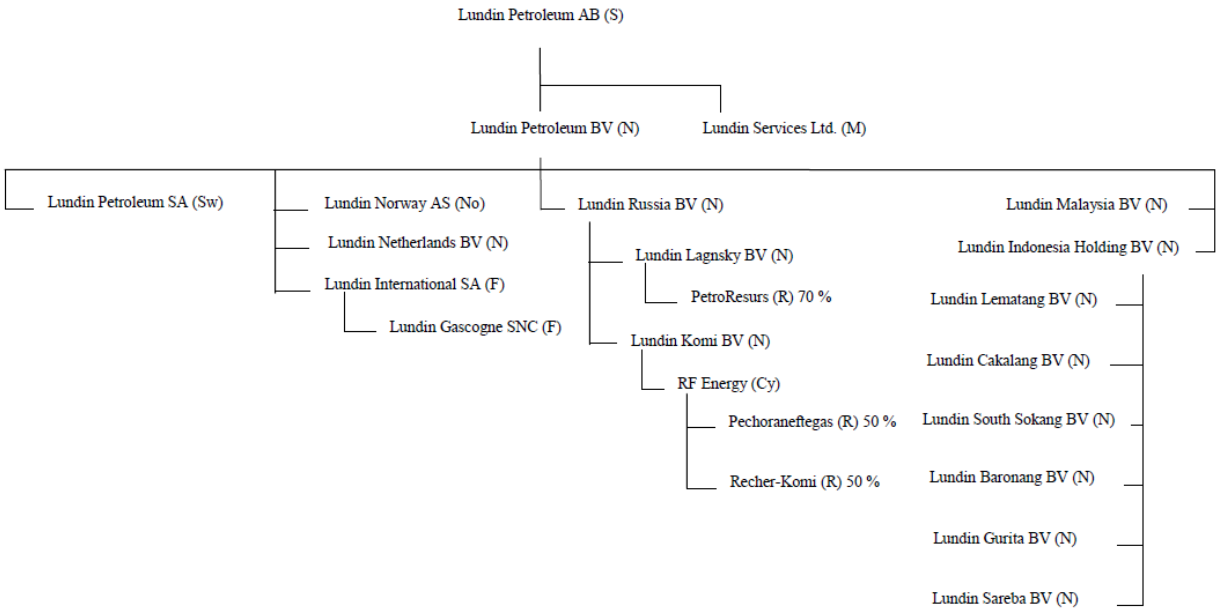


Figure 1: Organizational structure of Lundin (based on Lundin, 2013)

The firm is an active player in the upstream oil and gas sector with primary activities focused on the exploration, development, and production of oil and gas properties. The company operates in Europe, South East Asia, Russia, and Africa with key properties located in seven countries: France, Indonesia, Ireland, Malaysia, Netherlands, Norway and Russia. (Marketline data report, 2013)

History

Lundin Petroleum has its roots in the company International Petroleum Corporation (IPC). IPC was founded in 1981 by Adolf H. Lundin and had assets in the Middle East, Texas, Bay of Biscay, production in offshore U.A.E and made discoveries in Oman, Papua New Guinea and Malaysia. In 1997 IPC and Sands Petroleum merged and formed Lundin Oil AB. (Lundin Petroleum, 2014_a)

In 2001 Lundin Oil AB was taken over by Talisman Energy in a deal valued at USD 470 million. As a result of the takeover Lundin Petroleum AB was formed in 2001. The new company included the management and corporate technical team from Lundin Oil and had exploration assets in Sudan, Iran, and an equity investment in the Russian oil company KMOC. Lundin Petroleum was listed on the New Market in Sweden in September 2001. (Lundin Petroleum, 2014_a)

In 2002 Lundin petroleum acquired Coparex International adding exploration and production assets in France, Netherlands, Tunisia, Venezuela, Indonesia and Albania. The acquisition transformed the Lundin Petroleum from a pure exploration company into an exploration and production company. In 2003 the company grew into Norway by acquiring a portfolio of producing assets in UK, Ireland and Norway. (Lundin Petroleum, 2014_a)

In 2010 and 2011 Lundin made several big discoveries in Norway in the area called Johan Sverdrup. In 2012 a total of six discoveries were made in Norway, Malaysia, France and the Netherlands. (Lundin Petroleum, 2014_a)

Corporate governance

The Annual General Meeting (AGM) is the highest decision-making body in Lundin. Lundin have several committees governing the company: a nomination committee is appointed by the largest shareholders and its main task is to nominate the board of directors. The chairman of the board from 2001 until today is Ian H. Lundin, son of the founder Adolf H. Lundin. The board of directors has three committees: a reserves committee; a compensation committee; and an audit committee. (Lundin Petroleum, 2014_b)

The board of directors appoint the President and CEO. Since 2002 until today the President and CEO is Ashley Heppenstall. An investment committee comprising the President and CEO, CFO, COO and SVP of operations has been established to help the board in investment related matters. Lundin Petroleum is

applicable to external regulations which affect its corporate governance. These are: "The Swedish Companies Act", "Swedish Annual Accounts Act", "The NASDAQ OMX Stockholm Rule book for Issuers", "The Toronto Stock Exchange Rule Book" and "Swedish Code of Corporate Governance". Lundin Petroleum has also established some internal corporate governance practices: the "Articles of Association", "Code of conduct", "Policies, Guidelines and Procedures" and "Management Systems, Rules of Procedure of the Board". (Lundin Petroleum, 2014_b) Lundin Petroleum's corporate governance structure can be seen in appendix 1.

Recent developments

Over the last couple of years Lundin has been a common name in the press, nationally and internationally. The incident that has given the company the most media attention is its alleged participation in war and the deaths of 10 000 people in Sudan in the years 1997-2003. The "Unpaid Debt" report which was published by 50 human rights and aid organizations in 2010 accused oil companies Lundin, Malaysian Petronas and Austrian OMV of complicity in war crimes and crimes against humanity (Seglem & Gundersen, 2013). It is alleged that Sudanese troops, in collaboration with militias, attacked and drove away the civilian population in areas where companies could drill for oil (The Local, 2012). While Lundin's direct participation never has been proven circumstances and companies with Lundin interests being present at the incidents indicate that Lundin might have been involved (Lundin Oil, 2012).

Share price

Lundin is listed on the Stockholm OMX and the Toronto stock exchange. Ever since it first became publicly traded on the Stockholm Stock Exchange Lundin has been a fortunate stock to have in an investor's portfolio. On the first trading day the company closed at 2.74 SEK (6th September 2001) only to grow to 133.10 SEK at closing on the 1st of April 2014[3]. (Lundin Petroleum, $2014_{c)}$ The stock development is shown in figure 2.

[3] This chapter of the analysis is based on the data given by the Stockholm stock exchange and reported on the company's website in full accordance to the regulations of the exchange.

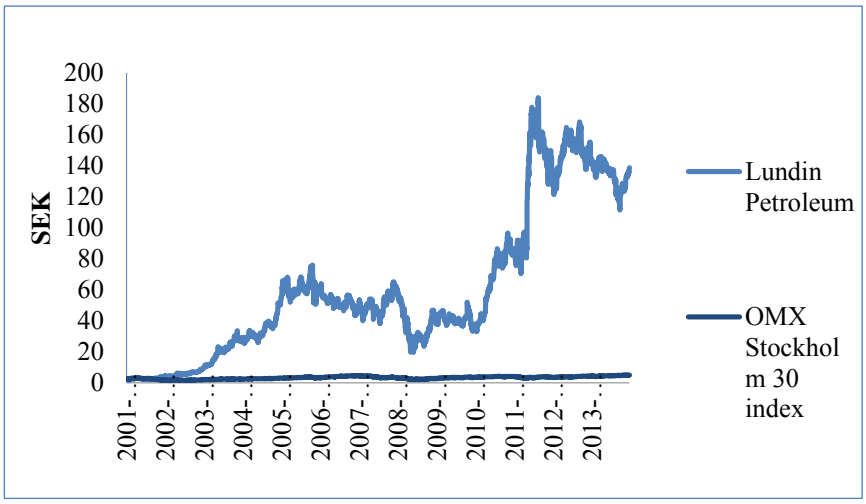


Figure 2: Lundin Stock development (Lundin, 2014)[4]

The above chart shows a strong positive trend in the stock's price history. Lundin consistently outperformed the market in the past 12 years in spite of several highly correlated, negative events such as the 2007 crisis, followed by a couple of years of stagnation and a further general slowdown in equities.

To track the overall change in value that an outside investor would experience when holding Lundin shares a proxy of 100 shares is assumed to be bought at the very start of the trading date and held until the set final valuation date: the 1st of April 2014. This would help track the change in value such a selection of shares would give. "From the initial purchase price of 5.20 SEK (different from closing time) the per share value would grow to 133.10 SEK (1st of April 2014) resulting in 2 459.6 % change in market value plus an increase of 11 931 SEK of reinvested funds resulting in a total increase of overall value from 520 SEK to 25 241 SEK" (Lundin Petroleum, 2014_c).

As of 31st December 2013 Lundin had 45 148 shareholders. Swedish retail investors held 13 % of the shares and 70 % were held by foreign investors. The 10 largest shareholders are depicted in the table 2 below. Lorito Holdings (Guernsey) Ltd, Zebra Holdings and Investment (Guernsey) Ltd are investment companies wholly owned by Lundin family trusts. Landor participations Inc. is an investment company owned by a trust whose settler is Ian H. Lundin. The proportion of shares held by investor groups is shown in figure 3 (Lundin, 2013).

[4] The Lundin share price has been kept in SEK to avoid the distortion that would occur in growth rate and price if it was converted to USD.

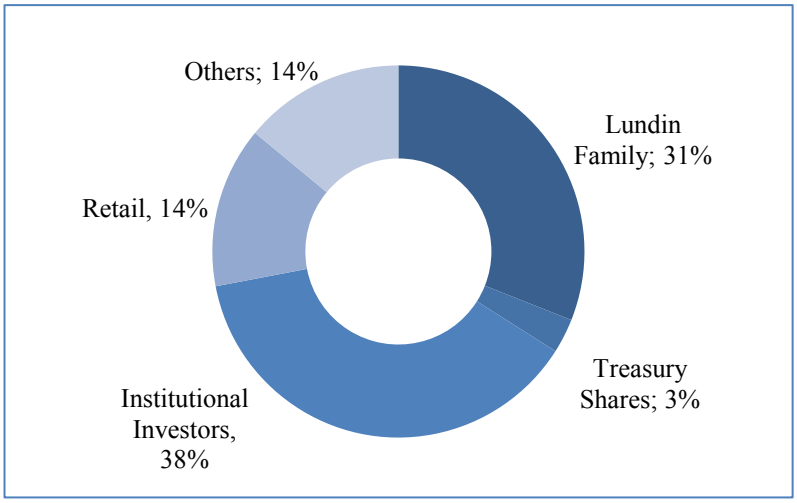


Figure 3: Shareholder Structure (Lundin, 2014)

Strategic Objectives and Business Model

Lundin's strategic direction is first of all defined by its vision: "to grow as a profitable upstream exploration and production company, focused on core areas in a safe and environmentally responsible manner for the long term benefit to our shareholders and society." (Lundin Petroleum, 2014_d) This underlying principle is further reflected in the company's business model, responsible commitment and long term objectives. Throughout the company's reports, presentations and financial books a general pledge for Continuous Reinvestment, Innovation, Safety, People, Sustainability, Growth and Development can be remarked (Lundin Petroleum, 2014_d).

After years of active mergers, acquisitions and restructuring, the company's current business model is defined by organic growth to "generate sustainable value through exploration and production of hydrocarbons in a responsible way" (Lundin website, 2014_c). Today Lundin is committed to invest in developing its existing portfolio with prospective fields, by appraising existing discoveries, investing in new investigation projects and continued progress with the fields that are already in the development phase to be turned into production. Earned cash flow from ongoing operations will continue to be reinvested in further exploration and development. (Lundin website, 2014_c) This commitment is supported by concrete and observable actions that demonstrate a clear positive evolution in the company's contingent resources to be turned into actual reserves. An investment into the company in 2001 would have by the end of 2013 made a value development of 4800%, which is a remarkable positive growth, especially considering the complex particularities of the industry. Figure 4 below shows how the company has grown in the past.

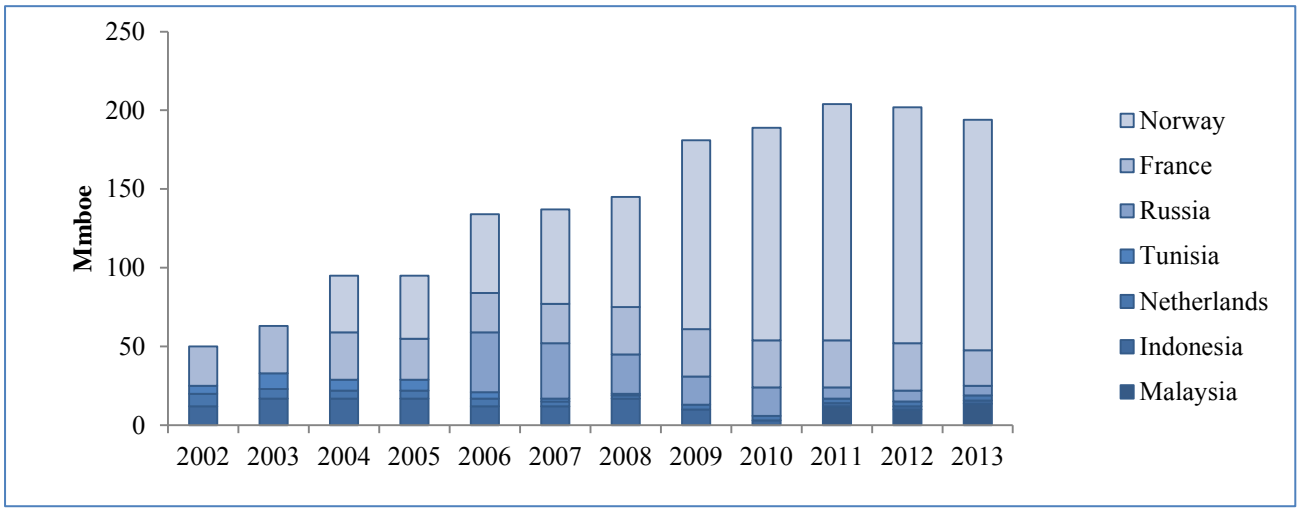


Figure 4: Reserves Growth (Lundin, 2013)

Most interestingly perhaps is the fact that this growth does not include the discovery of the giant field Johan Sverdrup which makes up the bulk of promised resources for Lundin in Norway – the region which in turn accounts for 77% of total contingent resources of the company across the world. The field is currently still classified as a contingent resource but whose re-categorization to a reserve is expected in 2014.

Strategic Landscape and Peer Overview

A thorough analysis of the peer group and strategic environment where Lundin operates becomes clearly demanded when one understands the implications, limitations and assumptions of the chosen methods of valuation for this thesis. Practitioners and theorists alike have consistently gravitated towards the DCF model of valuation as the most accurate, accessible and dynamic way to valuate divisions, projects and even companies. (Goedhart et al., 2005) However, as with any method of valuation, DCF's accuracy is determined directly by the soundness of its forecasts. Key elements such as long term growth rate, cost of capital, return on invested capital and others are hard to objectively set and forecast. For this particular reason Goedhart et al. (2005) advised the use of peer group comparisons for a more effective and real evaluation. A good peer group analysis not only allows for a more diligent overview of key financial figures but also lets researchers and investors stress-test those figures across the industry and compare the strategic position of the company towards its most direct competitors.

Identifying the most relevant competitors in this sense becomes important both for assessing the possible future prospects of the firm as well as evaluating its current positioning. We chose the reference group on the basis of several criteria. Firstly, it was imperative to choose those representatives that were active in the same business areas as Lundin, companies specialised in exploration and productions – the upstream oil industry. The particularities of the industry make this aspect especially relevant given that the operations differ greatly in investments, exposure, time horizon, risk and capabilities between the exploration and production side on

one hand and sales, marketing and commercial products on the other. However, given the limited reports and information available to the public of companies narrowly specialised in upstream production some bigger and more international competitors were included as well. Secondly, the geographical spread of Lundin's operations was used to reference the best suited competitors. Lundin's focus area is Norway and East Asia although it has assets in other areas as well. Norway represent by far the most important region by the quantity of recorded reserves, representing at the end of 2013 75.6 % of reserves (total amount of reserves of Lundin in the end of 2013 was 194 MMboe). The companies that are thus heavily exposed in these regions or whose operations are globally spread are prioritized. Finally, the amount of oil production per day narrowed down the potential competitors to a list of five peers. The peers are shortly introduced below and chart of key facts about the competitors can be found in the Competitors Benchmarking table (appendix 3).

Premier Oil

Premier Oil is a company with Caribbean roots and was started in the early 20th century. Currently it is a rich and active producer in key regions of the world. Premier has an existing portfolio of projects, including the most important ones such as Catcher and Solan – in the UK North Sea; the Bream – in Norway; the Dua oil field in Vietnam, and other projects in Indonesia. Its production currently averages around 60 000 boepd. This is represented in yearly terms by booked 2P reserves of 259 MMboe. It follows a similar strategy and vision perspective to that of Lundin with a tendency to reinvest gained cash flows into further exploration, development and more investments in new discoveries. Norway represents the part of the portfolio concentrated on contingent resources and is expected to play an even bigger role in the company's earnings in the future. This is in line with both the strategy and the portfolio allocation of Lundin Petroleum. (Premier Oil, 2014)

Tullow Oil plc

Tullow Oil plc is a multinational energy company, with Irish roots and with its main headquarters in London. It is known to be focused on exploration and production alone with extensive operations across various regions of the world. Its main geographic areas for production are located in six countries in Africa, including Ghana, Uganda and Kenya but also extensive operations are found in the Southern North Sea and Asia (Tullowoil.com, 2014). Tullow Oil boasts an impressive success rate of appraisal activities – around 74% which is nearly twice what is registered as the average in the industry (Tullow annual report, 2013). Tullow Oil has been involved in several controversies concerning political lobbying, tax disputes and tax avoidance. This negative presence in the media makes it a very interesting example to look at and benchmark against as Lundin has had a similar negative position in the media.

Statoil ASA

Statoil ASA (henceforth Statoil) is the largest Norwegian multinational oil and gas company with head offices in Stavanger, Norway, with very specific shareholders structure where the Norwegian state (Ministry of Petroleum and Energy) has per 31st of December 2013 67% of the ownership (Statoil, 2011). It is one of the largest oil and gas companies in the world and has fully integrated operations in over 30 countries. As Statoil is the largest acreage holder in Norway, before Lundin, it is an interesting company to benchmark against. Moreover, Statoil is listed as co-owner or co-developer on many of the fields that Lundin is currently working on, thus aligning their operational and production risk. Except for its main focus on the region of Norway it has operations in Angola, Canada, Greenland, Russia and others. In the first quarter of 2014 Statoil had production of 1 978 MMboepd (Statoil quarter report, 2014). The company's Scandinavian roots make it a relevant comparable candidate for Lundin, as it shares a lot of the corporate governance, structural and political characteristics. (Statoil, 2014)

British Petroleum

British Petroleum (henceforth BP) is the British company starting in 1908. It is headquartered in London and is one of the world's leading oil and gas companies. It is a fully integrated company with operations across the entire value chain. The company is spread around the whole globe, operating in 80 countries covering all the worlds regions. The North Sea represents an important exposure area in terms of exploration, production and decommission. (BP website, 2014) At the end of 2013 the company reported a production of around 3.2 MMboepd or 510 000 m3/d of oil equivalent and its total proved reserves average on 17.9 billion barrels of oil equivalent. (BP Annual Report, 2013) The company's great international breadth of operations and the importance of the North Sea make it an interesting competitor to look at as its history, performance and evolution can serve as a prototype for the entire oil and gas sector.

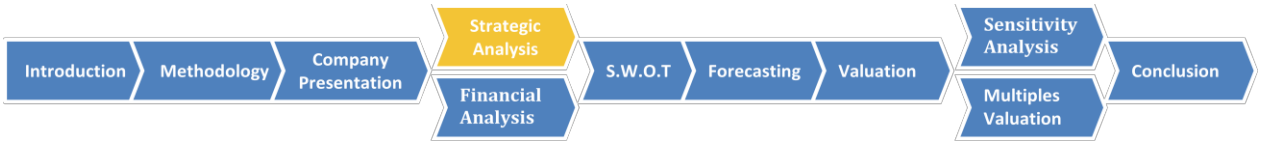
Chevron Corporation

Chevron Corporation is an American national energy company that traces its roots back to an oil discovery north of Los Angeles dating back to 1879. Chevron's net production reached almost 2.6 MMboepd in 2013 and faithful to its roots 25% of this production came from the United States. Its overall global network of operations is very vast – spreading to 180 countries (Chevron.com, 2014). Chevron's wide spread operations include geographic areas such as Norway, Indonesia, Russia and the North Sea which are considered strategic areas for Lundin (Chevron Annual report, 2013). Even though it is a fully integrated company, Chevron has a particular focus on exploration and production – representing the part of the company that is claimed to drive its value and growth. In 2013 the company increased its capital and exploratory expenditures by 22.3% supporting its commitment to the development of its upstream activities. (Chevron Annual Report, 2013)

Understanding Lundin's company profile, its business strategy and company assets as well as who its main competitors are, forming its peer group, the environment Lundin is operating in will be analyzed in the next section.

Strategic Analysis

To value Lundin share price it is essential to understand the environment the company is operating in and Lundin's strengths and weaknesses. Therefore a strategic analysis is conducted assessing the environment Lundin is operating in and the company itself. The first part focuses on the external macroeconomic environment analyzed by applying the PESTEL framework. This is followed by an industry analysis including industry facts and a Porter's Five Forces analysis of the upstream industry. Finally, particularly important factors driving Lundin's performance are outlined.



External Analysis

In this section the external factors that affect the oil and gas industry and Lundin's operations and profitability specifically will be analyzed. The foundation of the analysis will be the PESTEL framework that will help identify those areas of risk and opportunity that are essential in driving Lundin's performance. The following paragraphs will focus on those factors that are deemed to be most interesting and influential.

Political Factors

The energy sector – more than any other in the economy – is influenced by the developments in the geopolitical situation in the world. The political landscape has been for years now gravitating towards the emerging markets of China, India, Brazil and South East Asia. Not only does this imply a quick catch up in their economic development but also their increasing role in world politics and negotiation tables. (IEA, 2013)

Statoil's 2012 Outlook predicts a gradual decline in the OECD countries' global economic and political importance. This will invariably change the balance of power in current key-conflict regions but its exact effect is highly controversial. The latest events starting with the Arab Spring in 2011, led to some considerable supply disruptions in today's oil market (Statoil, 2012). The problems continued with a complete shutdown of Libyan production as a consequence of those events, followed by the civil war in Syria, the split in Sudan and the ongoing sanctions on the Iranian resources (BP, 2014). By the end of 2013, conflicts in these countries had removed over 2 MMboepd of production from global markets. Such conflicts

as well as pressure on other key producing countries such as Iraq, Saudi Arabia, Venezuela and Russia may greatly impact globalization, lead to acute protectionism and trade conflicts thus putting an ever bigger pressure on oil and gas supply, potentially raising prices but also increasing the risk of international organizations with exploratory and producing facilities in such conflicting regions. (Bain, 2013)

The entire oil industry in 2014 will have to contend with more shifts and changes in the political landscape: a new government in Australia, Mexican energy reforms, difficulties in North Africa and more recently Syria and a strengthening of energy partnerships between Russia, China, Brazil and the Caspians. (Bain, 2013) The recent emergence of new hubs of oil and gas production in an environment of continuous political instability in the regions that have historically been the biggest producers led to the ongoing change in supply and demand centres. This factor made industry players wary of a potential rise in resource nationalism. This is a form of protectionist policy led by the state to extract maximum gains from the resources found on its territory. An increase in resource nationalism could potentially threaten the soundness and smoothness of companies' global operations. (Deloitte, 2013_b) For Lundin just like for other international players it is important to understand the triggers of resource nationalism, but also the legitimate right of sovereign governments to tend to such policies.

In terms of geopolitical factors it is just as important to look at the potential resources and thus forecasted production of different regions in the world. In 2012 the region producing the most oil was Middle East, Europe & Eurasia and North America. While total oil production is expected to increase from around 4119 to 4816 million tonnes of oil equivalent in 2035 representing a growth of 17 %, South-, Central-, North America and Middle East are the regions expected to increase their oil production most by 2035. (BP, 2014_b) Figure 5 and 6 below shows the geographic segmentation in percentages and its future potential development. Thus, regions such as Europe & Eurasia, Asia Pacific and Africa are expected to shrink in relative size.

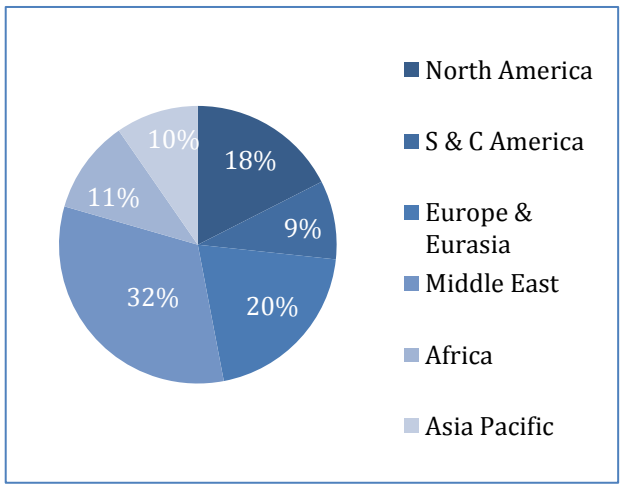


Figure 5: Geographic segmentation of oil production 2012 (BP, 2014)

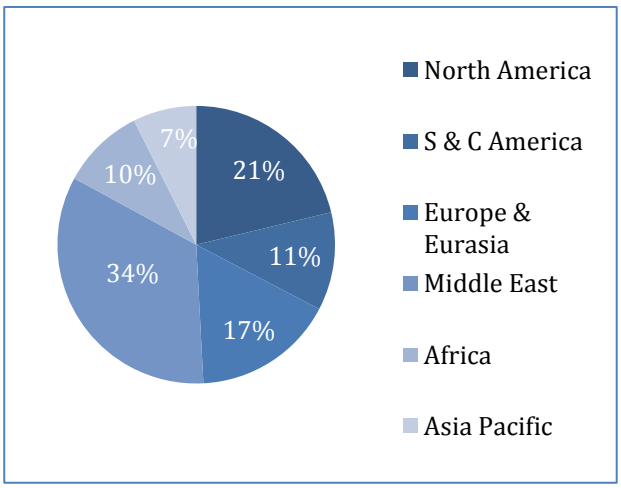


Figure 6: Geographic segmentation of Oil production 2035 (BP, 2014)

In 2012 Eurasia and North America was the biggest producers of gas. The regions expected to grow most in gas production until 2035 are Africa, Asia pacific and Middle East when the total gas production is expected to increase from around 3034 to 4647 million tonnes of oil equivalent in 2035 representing a growth of 53 % (BP, 2014$_b$). Figure 7 and figure 8 below show the geographic segmentation in percentages in 2012 and 2035, respectively. The future expectations for the gas sector demonstrate that Eurasia is keen to keep its leadership and grow in market share. Middle East and North America are forecasted to follow suit but with less aggressive growth. On the other hand the remaining regions of South-, Central America, Africa and Asia Pacific are forced to give up market share in overall gas production by 2035.

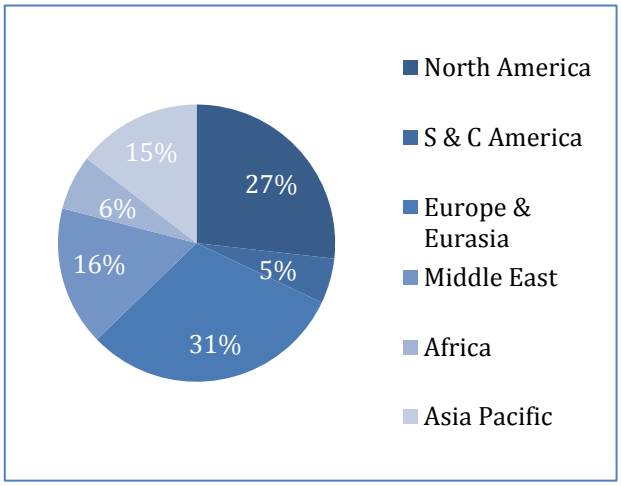


Figure 7: Geographic segmentation of natural gas production 2012 (BP, 2014)

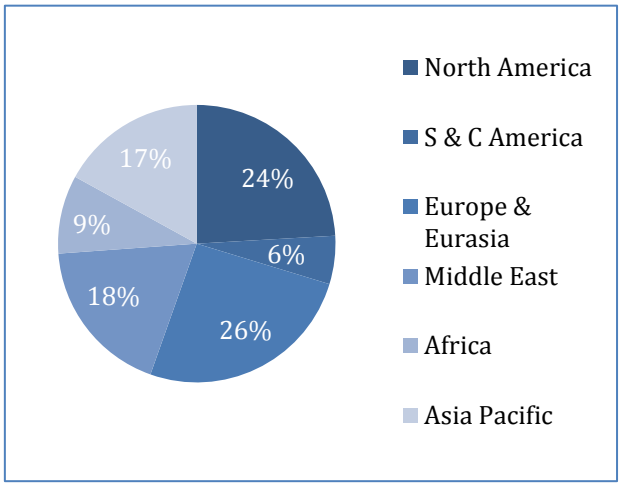


Figure 8: Geographic segmentation of natural gas production 2035 (BP, 2014)

Economic and Social Factors

Three major factors of both social and economic nature will in the next 20 years affect the growth of the oil and gas sector (PWC, 2013). Firstly, the increasing population, driven mainly by the Asian Pacific region is expected to continue to grow with a 0.9% per annum (p.a) in the next two decades. Secondly, the same region will also be the main driver of growth of world GDP from year 2013 to 2030, averaging at 3.3 -3.7 % p.a. highly correlated but growing in lower pace is the third factor, energy consumption. (PWC, 2013) Both the constant growth in GDP and world population drives the demand for more electricity, transportation and heat which at the bottom line raises demand for more oil and gas.

"We project that by 2035 global energy consumption will increase by 41 % from today's levels with virtually all (95 %) of the growth in non-OECD countries and more than half coming from India and China." (BP, 2014) Currently China is the main driver of this galloping energy demand, but BP's research predicts India to take over its position in the 2020s as the principal source of growth. These two countries then for the

foreseeable future will lead the growing dominance of Asia in global energy demand and trade (BP, 2014). Figure 9 and 10 present the energy consumption by region in 2012 and its forecast for 2035.

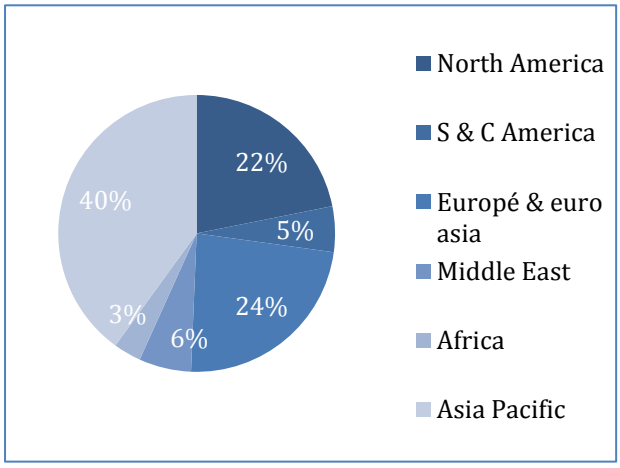


Figure 9: Energy consumption by region 2012 (BP, 2014)

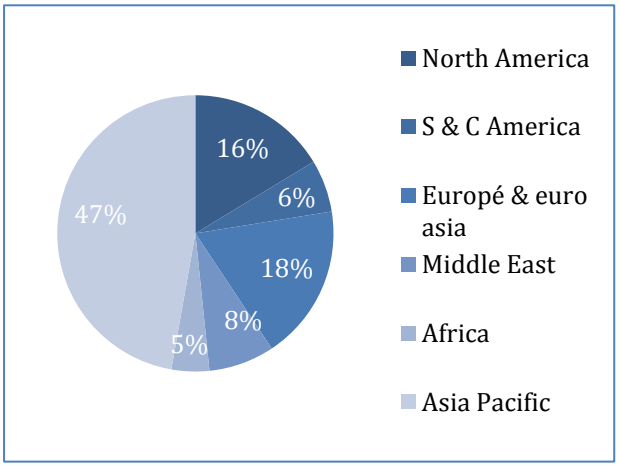


Figure 10: Energy consumption by region 2035 (BP, 2014)

Generally there is a long-term energy shift from OECD countries to non-OECD countries. In non-OECD countries energy consumption is forecasted to grow at 2.3 % p.a. In OECD countries energy consumption is forecasted to grow at 0.2 % p.a. over the period 2012-3035 but is expected to fall after year 2030 and going forward. (BP, 2014) See figure 11 and 12 for the energy consumption by OECD and non- OECD countries.

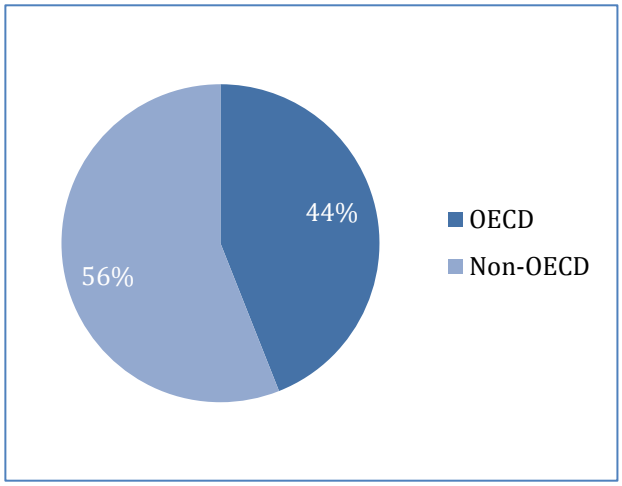


Figure 11: Energy consumption by region 2012 (BP, 2014)

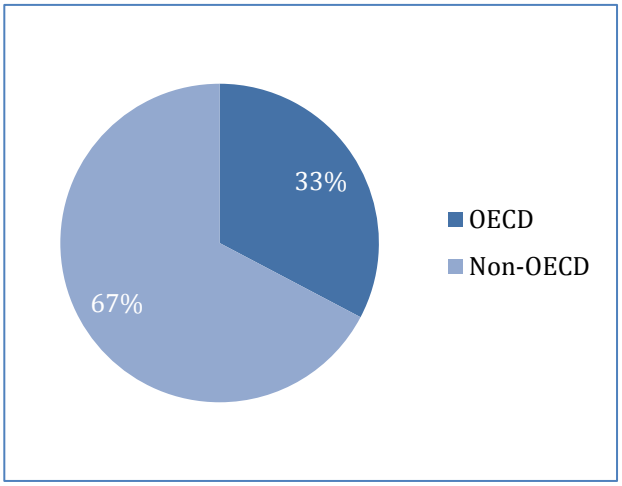


Figure 12: Energy consumption by region 2035 (BP, 2014)

Given this ongoing trend Lundin's position in South East Asia is crucial. Transportation costs of energy still represent the most significant cost for energy supply with geographical distance being the main driver (Deloitte, 2013$_b$). Thus being positioned in close proximity to the fastest growing region in both population and economic development is strategically important for the company's future prospects and value growth.

Technical Factors

Another wider dimension of factors that greatly affects the upstream oil industry and Lundin in particular is the technological development. For the past several years technological development in unconventional oil and gas sources, such as deep offshore and shale gas have substantially changed the supply, production, import and export dynamics across the world. One of the most interesting phenomena has been the emergence of North America as a huge developer of shale oil and gas. Experts forecast that by 2025 105% of North America's energy needs is to be supplied by national unconventional production, turning it from one of the biggest importers in the world into a self-sufficient and a net exporter in 2018 (BP, 2014).

The development in the LNG field poses great uncertainty on the global gas and oil markets in terms of the yet unknown and untapped production of unconventional resources from outside North America, such as Russia, China and Latin America. The April 2011 study made by the Energy Information Agency (EIA) forecasted that improvements in technology will raise the amount of shale recoverable resources outside of US to 5760 trillion cubic feet Tcf – leading to a more than 40% increase in world gas resources.

The market of shale gas given their greater technical challenge, development and exploitation costs is hardly replicable in all markets and is thought to continue representing a largely regional resource. The countries recognized by experts as having the highest potential in such production are Poland, China, Argentina and the USA – mentioned in increasing order of importance and recoverability of the resource (Deloitte, 2013_b). The fact that LNG is a regional resource and mostly existing outside of Lundin's focus markets means that Lundin is not expected to be effected by it to a to a large extent. Or as in the words of Rodderick (2014) "*I don't think they will be affected by shale gas at all, unless they start to try to get in LNG and this type of things and industry projects but I don't see that at all*" (Rodderick interview, Time: 9.15, 2014).

Even though technology is vital for the efficiency in the oil and gas industry, innovation and technological changes are surprisingly difficult compared to other sectors. This is due to the high uncertainties and complexities associated with the oil and gas manufacturing process and the difficulty in making changes to already established structures and practices. (Anderson, 2000) Nonetheless corporations are finding themselves in the position of needing more ideas and game-changing perspectives and thus looking at possibilities of enhancing partnerships with universities and research centres in the field (Roodhart, 2008). Recent interesting projects for efficiency enhancements acknowledged in the industry are: pipeline gas bubble break up technologies for improved natural gas flow and fewer gas slippages; sensitive ethane gas sensors that are able to measure tiny amounts of ethane naturally seeping from hydrocarbon reservoirs and thus screen larger territories for a much smaller cost; EZIP polymers that allow reduced water and increased oil inflow in mature fields; and many others. (Roodhart, 2008) Such technologies are clearly striving to improve the performance and profitability of players like Lundin in the long run. Industry experts suggest

that in order to implement these changes and continue innovation, companies should allocate more resources to R&D and seek to open up the entire sector to innovation (Gdfsuezep.com, 2014).

Environmental Factors

Given the nature of the sector in which Lundin operates, environmental factors are of paramount importance. Starting with the Kyoto protocol in 1997 governments and companies strived to appear and act in line with the environmental consequences their operations have. Since 2011 the energy sector have become ever more scrutinized and the way both consumers and producers judge the energy sector and all of its individual components has dramatically changed. The nuclear energy sector that until 2011 held promising growth opportunities has been revised and in many cases excluded from the policies of many governments, changing completely their prospective outlooks. Clearly, this was the consequence of the outcries heard across the world in response to the Fukushima nuclear disaster in Japan. The event is expected to have further long term environmental and policy repercussions on the prospects of the nuclear energy and the entire energy sector as well. (The Economist, 2014)

Environmental considerations affect Lundin's operations in other ways as well. The strong public opinion on this subject coupled with the government's need to react in policies, incentives and subsidies slowly change the share and growth rates in different types of fuels. The biggest sustainability objective greatly affecting the industry is probably environmental policies, which should seek to balance the world's need for energy against the need for protection against global warming and local pollution. (Statoil, 2012) Another related issue is carbon emissions. These continue to grow at 1.1% p.a. – at a slower rate than energy consumption but still much faster than environmentalists recommend. BP warns that CO2 emissions in 2035 may well reach 3.75 times the level registered in 1965. (BP, 2014) Overall, the policies and developments projected by the EIA for the period of time until 2035 are characterized by a change in the mix of power production. This is an important environmental progress as it is unsustainable to consume and produce energy with the emissions, pollution and inefficiency of today. However, except for Europe, changes in the global fuel mix are driven by economics – a desire to save resources for profit rather than environmental preservation (BP, 2014). Moreover, even with the increasing importance given to sustainability in both governmental policies and companies long term strategies, real changes are slow to occur. Driven by economics however, corporations do not invest enough research and innovation in carbon intensity. Even though changes in this area are greatly needed due to the low cost of carbon today companies are largely unconcerned and uninterested in improving their carbon emission margins. (BP, 2014)

Legal Factors

The current policies in place in different regions of the world affect the Legal dimension of this framework. As has been mentioned in the previous section the rise in carbon emissions and environmental impact in the past 50 years has made both companies and governments more focused on energy efficiency. However, realistic long term solutions remain scarce as governments have to face the constant dilemma of having to choose between economic growth, development and increased energy demand on one side and energy savings and sustainability on the other. On top of that the levels of energy prices now at a historical high (IEA, 2013) continue to put additional pressure on policymakers. Even in such a context however most countries in the world continue maintaining fossil subsidies with their general amount rising to 544 USD billion in 2012. (BP, 2013) However, the political agenda of developing and utilizing more renewable energy has lead to increasing subsidies being granted to this industry, possibly affecting the future demand for fuels (OPEC, 2013). Nevertheless, Rodderick (2014) doesn't think that a change in the legal landscape would affect the demand for Lundin's products; the effect, if any, would more related to how Lundin operates its business. As Rodderick expressed it "*Environmental policies etc might not effect Lundin's production outlook, in terms of the energy mix changing, but more in terms of the challenges they face in developing projects and there could be more environmental regulation affecting the power of the facilities*" (Rodderick interview, time: 29,37, 2014).

The PESTEL analysis shows that a lot of changes affecting the energy industry are occurring. Economic trends are expected to overall have a positive effect while political factors can have disruptive results for the industry and for individual companies. Technological development can challenge the current energy sources and the environmental factors supported by the new legislative frameworks can trigger the implementation of new policies, subsidies and regulations, further challenging the current energy usage.

Industry Analysis

The industry a company operates in affects the company and its profitability. Therefore to do a valuation of Lundin's stock price the upstream industry is analyzed.

In the last couple of years the global consumption of oil and gas in terms of boe has increased. In 2012 the market volume of oil and gas was 45 630 million of boe representing a value of 3 066 USD billion. (Marketline, 2013) The consumption and market value of oil and gas in barrels and USD billion over the last five years is shown in figure 13 and 14 below.

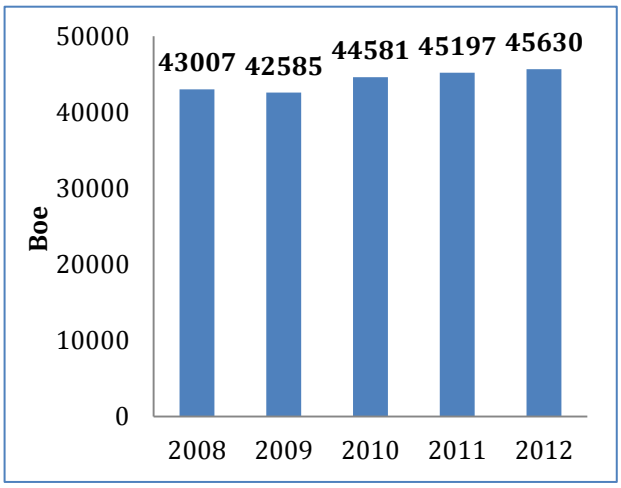


Figure 13: Oil and gas market in BOE (Marketline, 2013)

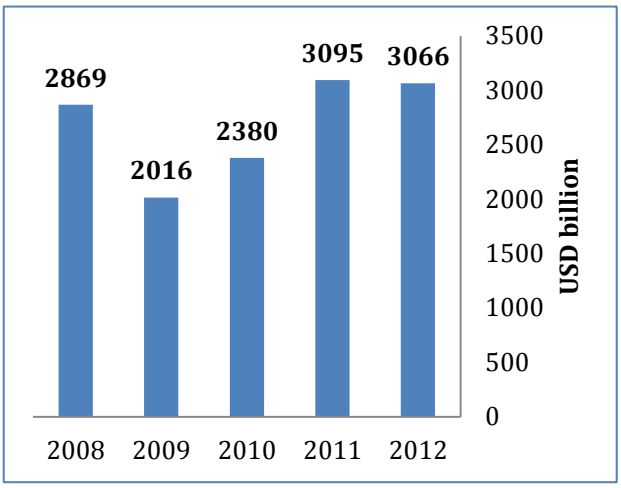


Figure 14: Oil and gas market in USD Billion (Marketline, 2013)

Porters Five Forces

According to Porter (1979) five sources of competitive pressure determines the profitability of an industry. The competitive sources include three horizontal sources: competition from substitutes, competition from potential entrants and competition from established rivals, two vertical sources of competition comes from the bargaining power of suppliers and buyers. (Grant, 2010) Figure 15 illustrates the model.

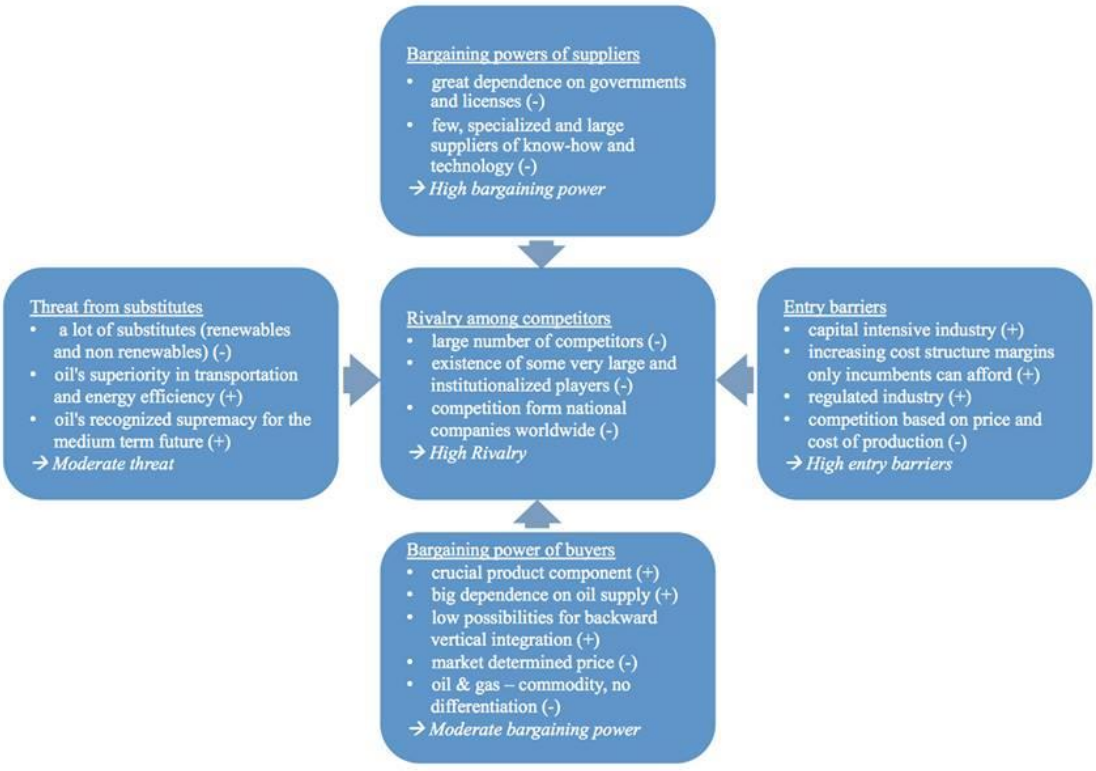


Figure 15: Porter's five forces: (+) indicate an advantage for Lundin, (-) indicate a disadvantage. These advantages and disadvantages will further impact the financial forecasts (Own illustration).

Bargaining Power of Buyers

According to Porter (1979) the buying power of customers depends on the buyers' price sensitivity that is determined by: the importance of an item as a proportion of total cost, the differentiation in the product, the intensity of the competition among buyers and the criticality of the product and their relative bargaining power in terms of the size and concentration of the buyers, buyers' information and the possibility of buyers to integrate vertically.

Looking at the price sensitivity of buyers, oil and gas are products that represent 2.5 % of world GDP (Carlyle, 2013) and are used in numerous products such as textiles, plastics and adhesives etc (Ukoog, 2013). A large part of the energy consumption comes from different industrial sectors, with most energy consumed as an input to power, second most by the industry sector and the transportation sector. (BP, 2014) Figure 16 and 17 show the energy consumption by sector in 2012 and 2035.

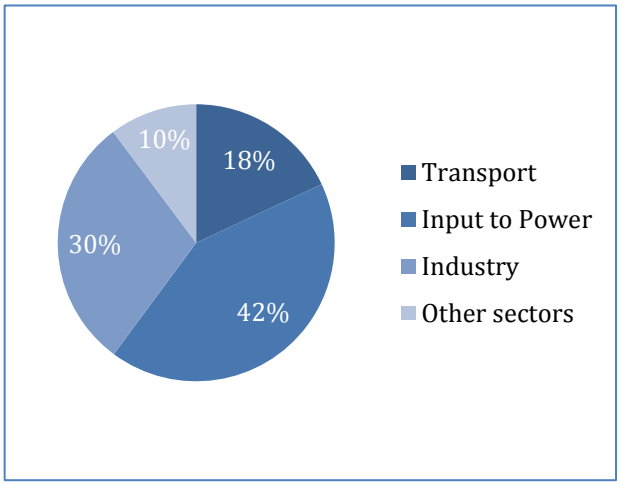


Figure 16: Energy consumption by sector 2012 (BP, 2014)

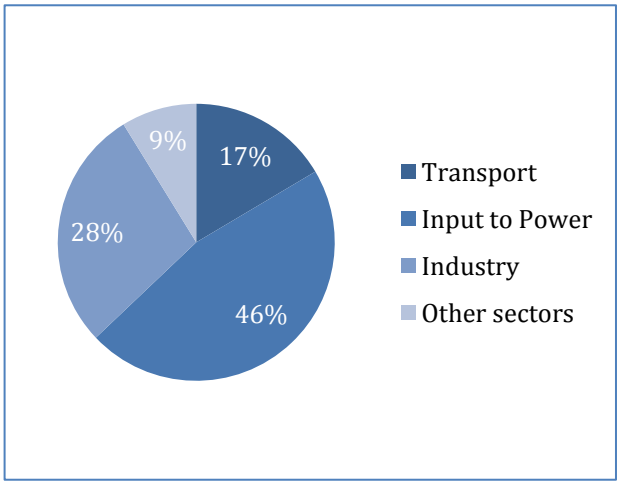


Figure 17: Energy consumption by sector 2035 (BP, 2014)

The prominence of oil and gas in the market, its inclusion in many products and the criticality of oil in proportion to the total costs indicates that buyers are less sensitive to price. The buyers' dependence on oil and gas decrease their bargaining power. In contrast, the characteristics of oil and gas, being a commodity with no differentiation and no brand attached, makes buyers indifferent between whom they buy from, increasing buyers' sensitivity to the price.

Incidentally, the buyers of upstream companies are midstream companies that transport the oil and gas to companies that sell it to the market, called downstream companies. (Gauthier, 2013) There are many midstream and downstream companies on the market and the many potential buyers of oil and gas decreases the bargaining power of any individual buyer. This however, does not apply to large institutional buyers with heavy financial power and subsequently more bargaining power (Marketline, 2010).

The prices of oil and gas are determined by supply and demand on the world's mercantile exchanges through the trading of futures (How prices are determined, 2013). This gives more bargaining power to buyers as they can be very well informed about the prices and restricts the range of prices suppliers can charge. A possibility for buyers to increase their bargaining power is through vertical integration. However, operating in the E&P industry requires industry specific skills and capabilities which take time to develop and are not easy to attain (Deloitte, 2013_b). Although, some bigger companies have vertically integrated in the past the difficulty in attaining the crucial capabilities implies that vertical integration is improbable and unrealistic in most cases.

Overall, the high importance oil and gas decreases the bargaining power of buyers. Even though oil is a commodity and thus easily replaceable, it is also scarce, easily transportable and with a high energetic potential compared to other sources of energy making its demand constant and reliable. This demand is what ultimately increases` the bargaining power of oil producers while reducing that of oil consumers. This supports our argument that buyers have moderate bargaining power in the sector.

Bargaining power of Suppliers

The bargaining power of suppliers depends on the same factors as for buyers, the price sensitivity and the relative bargaining power of the suppliers vis-a-vis their buyers.

E&P companies are positioned at the beginning of the value chain but they must obtain permissions in the form of licenses from national governments allowing them to explore and produce (Marketline, 2010). This creates great dependence on national governments to grant licenses to the E&P companies. The high bargaining power is also significant when considering the fact that only national governments can offer the licenses, in most cases the market for licenses representing a de-facto monopoly. (Marketline, 2010) This increases the bargaining power of suppliers. According to Baustad Benonisen & Storløkken (2012), an analyst at Danske Markets Lundin has good relations with the Norwegian government and the Ministry of Energy and Petroleum in Norway leading to Lundin receiving attractive licenses for free.

Another important factor to consider is the equipment used to explore and produce oil and gas. Companies supplying this industry are large, diversified and very few supply a wide range of products and services. Some well-known suppliers are: Schlumberg and Baker Hughes. (Marketline, 2010) This leads to their increasing bargaining power. For example the high demand and few suppliers of deepwater rigs have recently led these suppliers to charge premium prices (IHS, 2012). Moreover, the criticality of both licences and the equipment makes E&P companies less price sensitive, thus giving more bargaining power to suppliers. The possibility of companies integrating backwards, however, somewhat decreases this bargaining power. Nevertheless, there is an interdependency relationship at play between the two sides. The E&P sector

is very particular, with industry specific investments and equipment, making suppliers of equipment heavily dependent on the oil and gas companies as buyers, decreasing the formers' bargaining power and locking their relationship in the market with either side requiring the exclusive services of the other. (Marketline, 2010)

Overall, the bargaining power of suppliers is high due to the decisive power of governments; the large and few equipment and service suppliers; and finally due to the criticality of having these resources for upstream companies.

Threat from Substitutes

The threat from substitutes depends on the existence of substitute products that buyers can switch to and the relative price and quality of these (Grant, 2010). Many different energy sources exist and could substitute oil and gas, therefore representing a threat. The sources can be divided into two categories: non-renewable and renewable.

Non-renewable

The non-renewable sources contain fossil fuels including oil, gas and coal as well as nuclear power.

Oil and Gas

Oil is liquid, easy and cheap to ship and store while gas is complex to store and ship. Oil is a more efficient resource as 1 ton of oil produces 1 ton oil equivalent (toe) while 1000 m^3 of gas produces 0,9 toe. (Gauthier, 2013) Oil and gas are prominent commodities used in many different products, especially for electricity, heating and transportation (Ukoog, 2013). Crude oil is the largest component of the oil and gas market representing 62.9 % of the oil and gas markets total volume in 2012 (Marketline, 2013). Nonetheless, both oil and gas present some disadvantages as their production releases considerable greenhouse gases and both are easily depleted and limited (Fossil Fuel, 2014). In 2035 the two sources are expected to be en par with each other. The split between oil and gas can be seen in figure 18 and 19 below.

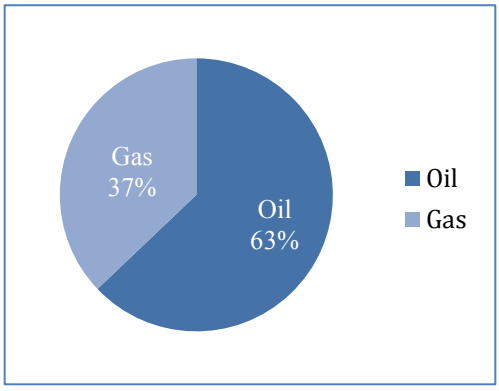


Figure 18: Oil and Gas market segmentation 2012 (BP, 2014)

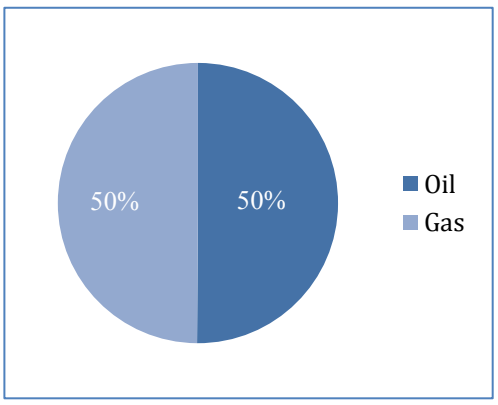


Figure 19: Oil and gas Market segmentation 2035 (BP, 2014)

Coal
Coal is a readymade fuel that is deemed cheap, simple to extract, ship and burn. With current consumption rates, it is also quite abundant with another 109 years of forecasted global supply. (OPEC, 2013) The disadvantage with coal is that it releases more greenhouse gases than oil and gas for the same amount of produced energy (BBC, 2014_b). Coal is expected to grow with 1.1 % p.a (BP, 2014). 1 ton of coal generates 0,67 toe (Gauthier, 2013). Its initial attractiveness, in terms of price, availability and transportation makes it not only the cheapest resource to replace nuclear and a considerable competitor for resources such as oil and gas, having been named: "the fuel of future, unfortunately". (The Economist, 2014) These factors render coal as a real threat to oil and gas.

Nuclear
Nuclear is a very production efficient resource with cheap raw materials and lasting production facilities. In comparison to fossil fuels nuclear doesn't give off atmospheric pollutants. On the other hand, nuclear reactors are expensive to run; the waste is very toxic and need to be stored for hundreds of years making this process very expensive and its potential leakage having devastating results. (BBC, 2014_b) Nuclear energy is expected to grow at 1.9 % p.a but its total share of the energy consumption is expected to stay flat (BP, 2014). The nuclear catastrophe in Japan and the negative governmental reactions to nuclear around the world make it less of a threat to oil and gas.

Renewable sources

The renewable sources include wind, water, geothermal, solar and biomass. The renewable energy is more environmental friendly and more sustainable in the long term (BBC, 2014_a). In general renewables are cleaner but not less capital intensive. In 2012 renewables accounted for 60 % of the investment budget but for less than 30 % of capacity additions (Gauthier, 2013).

Hydroelectric power
Hydroelectric power is generated from the movement of water making it very environmentally friendly in terms of pollutants. Its negative factors are that high initial costs are required and natural consequences such as floods and adverse ecological impact. (BBC, $2014_{b)}$ Hydro-electric power is expected to grow 1.8 % p.a and the share of total energy is expected to remain flat over the coming decades (BP, 2014).

Biomass
Biomass is generated from decaying plant and animal waste. It is cheap and readily available and can be a long-term sustainable source if the plants are systematically replaced. However, when burned it gives off atmospheric pollutants, such as greenhouse gases. (BBC, 2014_b)

Solar
Solar power generates energy from the sunlight. Advantages of this form are that it is based on an infinite energy supply and that it can be used by individual consumption components. The downsides are the costs of implementation and manufacturing and that for it to properly work consistent sunlight is required, something that is not feasible in certain areas of the world. (BBC, $2014_{b)}$

Wind
This resource is very similar to solar energy. It can be an infinite source of power, but expensive to manufacture, implement and difficult to forecast. (BBC, $2014_{b)}$

Geothermal
Geothermal uses the heat of the world and is potentially an infinite source of energy. However, it can be expensive to set up and only works in volcanic areas, and it is very dependent on volcanic activity. If the later settles the energy stations become redundant. (BBC, $2014_{b)}$

Water
Water energy is tidal or wave produced and is a potential energy source especially for islands. Tidal can generate a lot of energy while wave is likely to be more on a local scale. The constructions of these sources are costly and can have an adverse effect on the wildlife and are therefore opposed by some environmental groups. (BBC, $2014_{b)}$

An important factor determining the threat from all of these substitutes is their cost structure. While it is hard to make an entirely objective and standardized comparison, EIA has made estimates of electricity costs produced from different types of sources. Since the cost structure is different for different sources EIA used the levelized costs, which is "the per kilowatt-hour cost of building and operating a generating plant over an assumed financial life and duty cycle" (EIA, 2014_b). On levelized cost basis, solar and offshore wind power has the highest energy costs. However, after wind and solar plants are built their energy is less costly than fossil fuels since wind and solar don't have a fuel cost attached to them which fossil fuels have. On the other hand, renewable sources such as wind, solar, hydroelectric are non-dispatchable sources that only provide energy when the natural conditions allow it. This makes it unreliable and highly dependent on back up energy from traditional sources that can ensure continued supply of energy (IER, 2013) Furthermore, infrastructure such as transmission lines must be built for renewable energy to become more widely available (Oilprice, 2011). Putting in place such infrastructure will require big investments and be time consuming, thus decreasing the threat of renewables. (Marketline, 2010)

Below in figure 20 and 21 the energy consumption mix for 2012 and 2035 are shown, this gives an insight into how the different sources are expected to develop in the future.

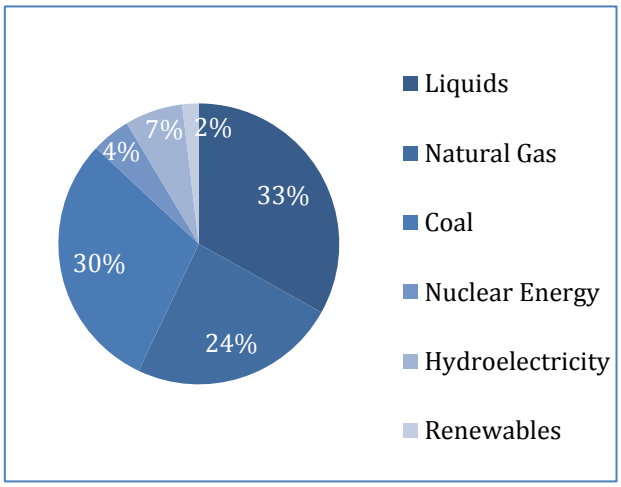


Figure 20: Energy consumption 2012 (BP, 2014)

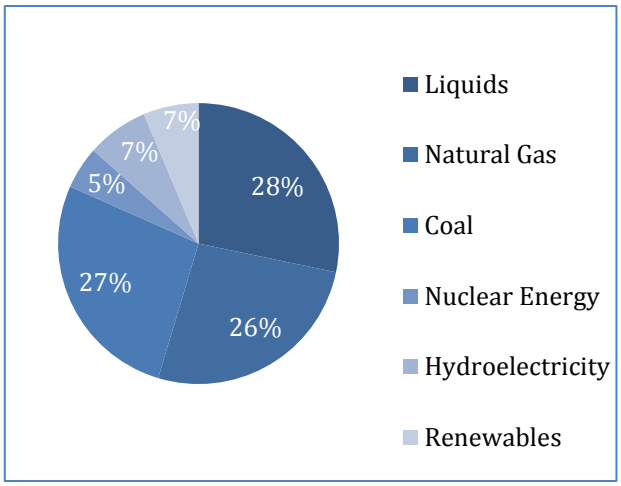


Figure 21: Energy consumption 2035 (BP, 2014)

Even though there are many substitutes for oil and gas the threat is considered to be moderate. While renewables are expected to have high growth rates there are still obstacles to them becoming truly widespread. Wood Mackenzie and Marketline analysts covering Lundin see the threat from these sources to be low while analysts at Swedbank see it to be increasing in the future and particular threatening gas production (Marketline, 2013) (Nilsen, 2014) (Rodderick, 2014). The main threat against oil and gas seems to stem from coal. Overall, the oil and gas still remains competitive and substitutes for oil and gas is considered to be moderate but increasing in the future.

Threat of Entry

Barriers to entry determine the threat of new entrants and defined as any advantage that established firms have over new entrants. The barriers depends on the capital cost of starting in the industry, economies of scale, absolute cost advantage, product differentiation, access to channels of distribution, governmental and legal barriers and retaliation of existing players. (Grant, 2010)

E&P is a capital intensive industry and the investments periods are around 30 years (Deloitte report, 2013_b). The total spending in the E&P industry in 2013 was estimated to amount to USD 690 billion. This was an increase of 65 % since 2009 and the investments are estimated to grow with a double digit figure. (Hureau, Serbutoviez & Silva, 2013) Big companies such as Exxon mobile, Chevron and BP were estimated to spend USD 84, 82 and 60 billion respectively between 2011-2014 on upstream development investments alone, not including exploration and appraisal costs (Brown, 2011). Lundin's budget to drill 6 appraisal wells in 2014 was 300 million USD (Lundin presentation, 2014). The large scale of such projects gives an indicative picture of the financial resources needed to compete in the industry. While the cost of becoming an established player in the E&P industry is hard to estimate the large capital outlay present increases the entry

barrier. Due to the high investments, economies of scale are crucial to this sector and therefore established companies hold an advantage compared to new entrants.

Important resources in the E&P industry are R&D capabilities and skilled workers. Both resources take a long time to develop and skilled workers are a scarce resource and major challenge for companies to develop and retain in the E&P industry (Deloitte report, 2013_b). Lundin has highly attractive and skilled personnel (Baustad Benonisen & Storløkken, 2012). These resources can be hard for new entrants to acquire and therefore presents a big challenge for new entrants when trying to become established in the industry. The challenge of acquiring these important capabilities further increases the entry barriers.

Furthermore, the whole industry is a very regulated, in all stages - from obtaining a license to environment compliance. Complying with such regulations requires knowledge and resources thus further increasing the barriers. Moreover, licensees from national governments are often needed, which can be a lengthy process (Marketline, 2010). The regulation and the licences present another barrier to entering the industry.

Another factor affecting the entry barriers is that access to distribution networks is not the responsibility of upstream companies. This part of the value chain is carried out by midstream companies, however good relationships with the midstream partners are required and therefore it presents an entry barrier.

Overall, the characteristics of the industry, the high investment, economies of scale and specific capabilities that take a long time to develop implies that the barriers to entry are high and that an established player such as Lundin holds a competitive advantage. This allows Lundin to capitalize on its existing capabilities and to raise positive expectations for the future of the company, translating into positive ROIC and RONIC forecasts in the financial statements which will be discussed further in the report.

Rivalry among Competitors

The rivalry among competitors is determined by the number and size of the competing firms, their diversity, product differentiation, excess capacity, exit barriers, scale economies and the ratio of fixed to variable costs. (Grant, 2010)

There are many E&P companies all around the world. In 2009 the biggest company in E&P had 8.7 % of the market and the fourth biggest 2.6 %. The four biggest companies in E&P represented together 17.4 % of the market and the rest (82.6 %) of the market was represented by companies with smaller market shares (Marketline, 2010). This implies that the E&P industry has fairly many players, indicating high rivalry among competitors.

The companies competing in this industry have different characteristics, some companies are big international and vertically integrated companies while others are small focused E&P companies and some companies specialize in certain locations (Marketline, 2010). The difference in the companies and in their location specialization reduces the rivalry. However, the companies are not differentiated when operating in the E&P industry which increases the rivalry. Furthermore, as oil and gas are commodities, there is low differentiation between companies leading to high rivalry.

The high capital investments needed in the industry lead to high fixed costs while the operating expenses needed to sustain the mining stage are relatively low. This leads to high fixed costs vs. variable costs, on average 4 to 1. However, in unfavourable cases, for example where the extraction is far below sea level variable costs are higher and the ratio might be 1 to 1. (Clô & Orlandi, 2009) The industry also requires large investments that are very industry specific, making it hard for companies to divest the business and leave the industry. (Marketline, 2010) This means that there are high exit barriers leading to high rivalry among competitors.

In total the rivalry among competitors is high, due to the similarity of the companies, the non-differentiated products, economies of scale and the high exit barriers.

Conclusion of Strategic Analysis

The Porter's Five Forces analysis shows that the bargaining power of buyers is moderate, due to the high numbers of buyers, the market determined price of commodities and the low product differentiation. The bargaining power of suppliers is high due to the necessary supply of licences from national governments and the equipment by a very small number of companies as well as the criticality of these factors for E&P companies. Threat from substitutes is estimated to be moderate because of the higher cost and lower efficiency of renewable sources and the high switching cost to utilise these. The entry barriers are high due to the large investment required, industry specific capabilities and economies of scale. The rivalry among competitors is high because of the many companies, low differentiations between competitors and high exit barriers.

Important value drivers

Certain factors play a particularly important role in an E&P company's bottom line performance. The reserve and resources Lundin is able to find and develop, coupled with the price it is able to receive for the commodity are crucial in determining its final value.

Oil Price

Oil is a commodity that has an over-encompassing effect on all industries, sectors and even individuals. However, for Lundin, oil price represents the very foundation of the revenue equation, thus directly influencing its revenues and with that its future investments in exploration, development, production and growth. The contacted analysts Nilsen (2014), Rodderick (2014) and Yggeseth (2014) all emphasized that the oil price is one of the biggest upsides, if increasing, and downsides, if decreasing, for Lundin's future performance. The oil price, as has been previously mentioned, is not a variable Lundin can control and it is fully dictated by the market. The price of oil, like that of most other traded commodities, is affected by standard economic conditions such as global demand, GDP, industrial production, urbanization, transportation, but also by such peculiar factors like OPEC supply and production quotas, non OPEC supplies and reserves, existing inventory, political relations between countries and more general market sentiment and risk appetite. Oil is traded on the financial markets in futures, swaps, spots, spreads and options and to a certain extent it is the financial market[5] that determines the price of oil. (EIA, 2014$_c$) The historical oil price development is shown in the figure below.

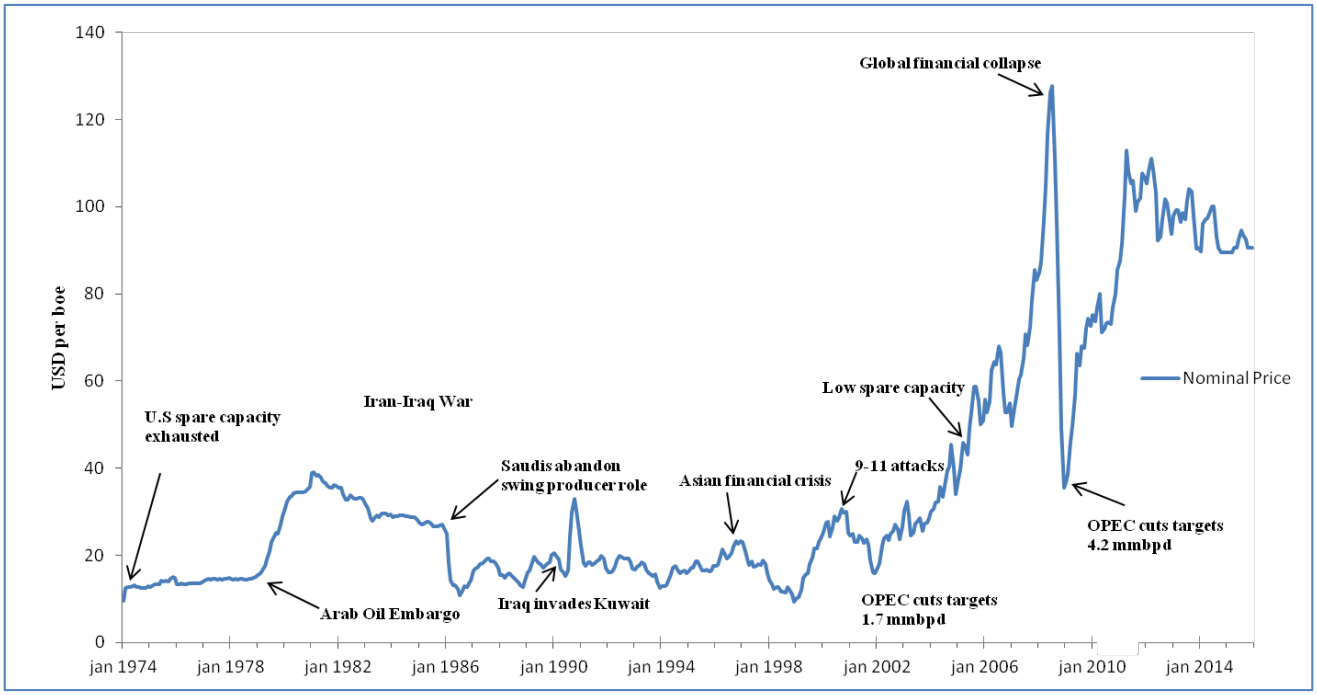


Figure 22: Crude oil prices are more sensitive to geopolitics (EIA, 2014)

Oil price fluctuations include a great degree of uncertainty, considering their long history of ups and downs as well as the various economic and political factors that can impact the ultimate market price. There are different types of oil and one metric used to define different types of oil is the API gravity which compares the petroleum's liquid's density to water, classifying the oil to either light or heavy. Furthermore, oil can also

[5] A future is a binding agreement of one party having the right to buy oil by the barrel at a predefined price on a predefined date. (Bodie, Kane & Markus, 2011)

be classified as sweet or sour, determined by its sulphur content. Sour and sweet oil generally comes from different parts of the world; sour oil is prevalent in oil sands in Canada, The Gulf of Mexico, some southern parts of the US and most of Middle East. Sweet crude oil comes from central US, the North Sea region in Europe, much of Africa and the Asia Pacific region. Although both oil types are in demand, end users normally prefer the sweet crude oil because it requires less processing to remove impurities. Therefore, light and sweet forms of crude oil are heavily priced while heavy sour oil often is traded at a discount. (Dutram, 2011)

Currently there are two major benchmarks for world oil prices, West Texas Intermediate (WTI) crude oil and Brent crude oil, both are for light sweet crude oil. WTI oil is often sweeter and lighter and therefore historically has traded with a premium (Dutram, 2011). Lundin's current and future production activities are Brent oil dominated (Lundin, 2013) and this is the benchmark used to price two thirds of the world's internationally traded crude oil supplies. (Dutram, 2011).Therefore we will use as a reference the Brent Crude Oil prices.

To understand the oil price variations that can be expected in the long term the mechanisms driving the oil price will first be looked at (for Brent Crude Oil) in the short and midterm. Just in the last four years the Europe Brent Spot Price FOB (Dollars per Barrel) increased from the price of 75,95 USD in May 2010 to 107,48 USD in March 2014, experiencing considerable fluctuations of up to 125,45 USD, in March 2012 along the way (Eia.gov, 2014_a). Such variations are to a great extent induced by the political landscape developments in the major oil producing regions, especially in the OPEC (Onefinancialmarkets.com, 2014).

In the past year, for instance, the increase in the spot price was influenced by the tensions in the Middle East, which was influenced by concerns over potential shortages and outages in supply. Backwardation is another interesting phenomenon that characterizes oil price curves in general and in particular the fluctuations in the past year. It occurs when near-term prices are higher than longer term ones, depicting a picture where market participants are unwilling to deplete inventory, expecting future supply disruptions. These kinds of spikes in the oil price curve occur often and yet are extremely difficult to predict. A more long term overview of price structure of oil would give more insights for a valuation analysis, as it will focus on the general trends of the price and will smoothen out its short term fluctuations (Onefinancialmarkets.com, 2014).

The International Energy Outlook (IEO) predicts a continuously sustained high price of crude oil, driven primarily by increases on the demands side (EIA, 2013). In its turn the increase in demand will be driven by the increasing needs of the transportation sectors especially in the emerging non-OECD economies. In such countries – with China in the lead – income growth, increased need for mobility and rapid urbanization will impact the high growth in transportation energy usage the most. In the IEO2013 Reference case, non-OECD

transportation energy usage grows by 2.2 % per year from 2010 to 2040, China alone tripling its demand of liquid fuels, including petroleum (EIA, 2013).

The EIA 2013 report includes 3 different base case scenarios based on macroeconomic considerations and forecasts, including the Low Oil Price, High Oil Price and the Reference case. The cases are based on different assumptions regarding the key factors influencing the price of oil in the period leading up to 2040. The reference case encompasses mid-range expectations regarding exploration and development and is reasonably assumed to be driven by non-OECD countries' consumption of petroleum and other products and a growth rate of their GDP of 4.7% - all of these factors representing the demand side of the economy. The price will be pegged to the 2011 dollars and are, under this scenario, expected to increase from USD 110 in 2012 to USD 163 per barrel in 2040. The long term increase in price is also endorsed by the trends of the last decade characterized by increased costs of producing and supplying oil. Overall and across all three scenarios the production in non-OPEC countries is expected to decrease - supported by improvements in efficiency and alternative energy sources while production in OPEC countries is expected to increase due to the increase in the price of fuels (Eia.gov, 2014_e).

OECD, relying on similar factors as EIA also forecasts the oil price to increase, however its baseline forecast is slightly higher setting a price of 190 dollar per barrel of oil in year 2020. OECD admits that there is an uncertainty related to this price and its sensitivity analysis provides an estimate of the price per barrel of oil to vary between 150- 270 USD in 2020, stated in 2011 currency (OECD, 2013). OPEC reference case estimates that the average oil price is USD 110 per barrel until year 2020 and thereafter it will increase reaching a nominal value of 160 USD per barrel in year 2035 (World Oil Outlook, 2013). The World Bank also makes forecasts of the future price of oil and just like IMF they base their forecasts on the average of several different oil price estimations. The World Bank uses the equally weighted Dubai, Brent and WTI benchmarks and based on this it expects the price of crude oil to steadily decline to 96,7 USD per barrels of oil stated in nominal USD in 2020 (Knoema.com, 2014). IMF basing its forecast on the average spot price of U.K., Dubai, Brent and WTI estimates the oil price in 2019 to be 93,2 USD (IMF, 2014).

Compared to the spot price reported on the market, the future prices of a commodity account for the expectation investors have regarding a commodity's price development and are often a better estimate for future fluctuations. In the Brent crude oil market, the last day of March recorded an oil future price of 105,39 USD and on the 1st of April it was 103,57 USD per barrels of oil. The price difference between the two dates shows the inherent volatility and uncertainty occurring in the market on a day-to-day basis (Theice.com, 2014).

While different agencies and institutions forecasts different future oil prices, the consensus across various scenarios of different global and national agencies is that oil prices will continue to grow in the long run, with very probable and large variations along the way.

Oil and Gas Properties

The specificity of the oil industry makes it a very particular case for valuation. The intrinsic value of the company is based on the ability of the company to explore, develop and produce oil and gas. The discovery and development stages of oil producing operations are by far the more uncertain and the riskiest in the industry.

In the valuation of companies pertaining to this sector, a snapshot of its current producing assets compared to the reserves assets represents a useful picture of how much the company can be expected to grow in the future. According to PWC (2011) the financial strength of an upstream company depends on the amount and quality of the resources it has the right to extract and sell. Further, the resources the company have are the source of future cash flows and the basis for borrowing and raising equity finance (PWC, 2011).

Generally the industry differentiates between oil/gas reserves and resources. Both of these are defined as amounts that can be made commercially available. The difficulty in inspecting, counting and valuing these assets that are located in reservoirs deep underground make all valuations of such based on estimates rather than objective figures (Spe.org, 2014_a). Thus all such estimations present various degrees of uncertainty. In order to reflect these uncertainties related to the various types of reserves and resources this paper will use the PRMS framework for classification (Spe.org, 2014_b).

Classifications

A classification of operating assets with varying degrees of recoverability includes the following: production, reserves and resources (spe.org, 2014_b). The industry also uses the class unrecoverable petroleum to define the lowest probability (close to 0) of recoverability. Production is the volume of oil and natural gas that has already been recovered by the company. This represents the direct output from operations and will be analyzed in Lundin's case in the following section. Reserves represent a part of total resources, which are deemed commercially recoverable, while contingent and prospective resources have higher associated risks.

Reserves

Reserves are defined as those quantities of petroleum which are anticipated to be commercially recovered from known accumulations from a given date forward (PWC, 2011). The reserves are divided into different categories based on their uncertainty and are either considered to be proved, probable or possible. Lundin, for instance, only reports those reserves that can be considered proved plus probable (2P) reserves. Proved reserves are those reserves that by geological and engineering data can be estimated with reasonable

certainty to be commercially recoverable from a given date forward from known reservoirs and under current economic conditions, operating methods and governmental regulations. Proved reserves can be defined as developed or undeveloped. Probable reserves are those unproved reserves which analysis of geological and engineering data suggests are more likely than not to be recoverable. (Lundin, 2014_f)

Resources

Resources, in their turn are generally divided into two main categories: contingent and prospective. Contingent resources are those quantities of petroleum estimated to be potentially recoverable at a given date in the future from known sights but that have several contingencies associated to them. (spe.org, 2014) These contingencies (or conditions) need to be resolved in order for this type of resources to be moved to the reserves part of asset classes of a company. Such conditions can be of legal, economic, technologic, political etc nature. (Lundin, 2013) Clearly, contingent resources are considered less certain than reserves as they are not considered mature enough for commercialization. Prospective resources represent a class with higher associated risks than that of contingent resources this is because they represent volumes associated to undiscovered accumulations. Fundamentally there are risk to both the discovery and the commercialization of such volumes. The estimations of such resources are based on indirect evidence and their associated deposits have generally not been drilled yet. (Lundin, 2014_f)

Accounting standards: Oil and gas

In addition to the uncertainty used in classifying assets, the oil and gas industry represents some peculiarities in terms of the accounting methods and principles used. It is important to take these into account when analyzing a company in this sector. In our specific case, it is also important to understand which of these principles Lundin abides to.

Generally there are two broad principles of accounting methods specific to the exploration and development of oil and gas sights (PWC, 2011). As these directly impact how operating expenses are treated it is crucial to determine which one of them is used by Lundin. These methods ultimately impact the net income and cash flows account which in its turn determine the value of the company. The first method – the Successful Efforts (SE) method – fundamentally allows the company to only capitalize those expenses that are linked to the successfully developed and commercialized oil and gas sights (PWC, 2011). As we will see later (next section) this is the method that Lundin reportedly uses. In this method the unsuccessful results, called “dry holes” in the sector are expensed and recorded in the income statement immediately after the sight is deemed un-commercialisable.

The second possible method – denominated the Full Cost method – allows all operating expenses to be capitalized regardless of the final outcome of the sight (PWC, 2011). This second method clearly helps the companies employing this accounting approach to boost Net income for a certain amount of time. Regardless

of the method chosen, each company includes the exploration costs under long term assets on its balance sheet. As the assets of the exploration costs are used these costs are gradually charged against revenues.

In Lundin's specific case, some of the general rules used to account for oil and gas properties are described in the firm's annual reports and include the recording of such properties at historical cost less depletion. Moreover, all costs associated with the properties, including license, interests in production sharing contracts, surveying and drilling are capitalized. In fact, all costs directly connected to exploration sights are capitalized. Only if the discovery has not achieved commercial state (actual production) will exploration costs be included in the income statement. Once production is achieved all the net capitalized costs incurred to that date are depleted based on the production schedule and figures achieved for that year and its relation to the total probable and proved reserves, as well as the expected future capital costs to be incurred for the development and operation of the sight. Depletion of the fields is charged to the income statement once actual production starts. Other costs, on the other, including routine maintenance and repair costs are expensed as they arise. (Lundin, 2013)

Lundin's Products and Markets

The specificity of Lundin's business model, as underlined in its annual reports, is based on organic growth through exploration. This includes identifying and maturing exploration targets, drilling exploration wells, appraising discoveries, developing these and finally producing. Lundin focuses on three key areas of upstream production where it has built superior expertise over the years. The first stage of its operations lies in resource exploration where the firm claims to "constantly question and re-evaluate established ways of analysing geological data and thus discover new resources" (Lundin p. 20, 2013). Their second area of expertise lies in the exploration and appraisal drilling. This part of the process requires the use of a 3D simulation to model the reservoir as accurately as possible and develop a plan to efficiently manage the extraction and production process. This includes the plan on extraction, engineering and design of surface facilities and the surrounding infrastructures for resource delivery. This stage also pans for operational risk, environmental impact minimization and safety procedures. The production phase is defined by the company as *"everything from extraction and processing to delivering the oil or gas for sale"*. (Lundin p.21, 2013) Income from production is usually reinvested directly into new exploration programs but the company plans to increase its focus on production in the nearest future. (Lundin, 2013)

In terms of geographical breadth, Lundin current focus lies in two core exploration areas: Norway and South East Asia. In Norway, Lundin is a crucial player, second in acreage only to Statoil. The company claims to be the most successful explorer in the last 10 years, having drilled 35 exploration wells which resulted in 14 commercial discoveries by the end of 2013. According to the company's annual report, in 2014, Lundin plans to drill six exploration wells in Norway, targeting over 370 MMboe of prospective resources. Beyond

that year exploration activity will continue in the Utsira High (Johan Sverdrup area) and the Barents Sea. The Barents Sea, too, holds the promise of becoming a major oil-producing province. (Lundin, 2013)

South East Asia too has been considered a core area since 2008, where the company holds a total of 12 Production Sharing Contracts (PSC). In Malaysia, Lundin is a major acreage holder, second only to Petronas. In this region the company targets to reach 216 MMboe of prospective resources through six exploration wells to be drilled in 2014, three of these in Malaysia and three in Indonesia. On top of all of the above operations, the company conducts extensive 2D and 3D seismic research and has in 2013 discovered several structures with a potential for multi-billion barrel oil and/or multi-trillion cubic feet of gas. (Lundin, 2013)

Except for these two core regions, another two: France and Netherlands are gaining importance. One exploration well is planned to be drilled in France and five are planned in the Netherlands[6] (Lundin, 2013). As of 2013 Lundin holds 117 licences to operate in different areas. The company's large exploration licence portfolio however means that many more prospects and leads are projected to be drilled in the future.

At the end of 2013 Lundin counted an overall amount of 194,1 MMboe of reserves. Between 2002 and 2011 Lundin increased its reserves four fold. Both in 2012 and 2013 production from reserves exceeded their additions, adding to the risk of depletion, but the projected 2014 appraisal wells to be drilled on the Gohta, Luno II and Tembakau discoveries hold the potential to add between 90 to 180 MMboe to the reduced reserves base. (Lundin, 2013) The company's production properties in Norway only, for instance, have estimated resources between 1.7 and 3.3 billion barrels of oil. One of its most important current production sites is the Alvheim project. On average the sight produces 11 800 boepd net and its gross recoverable reserves are estimated to be 291 MMboe (Marketline data, 2013).

Lundin's Operations

Based on the information presented so far – classification of assets and accounting methods used both across the industry and in Lundin's specific case – we can focus on Lundin's operating development and expected performance. The external analysts interviewed suggest an overall very positive outlook for Lundin. Based on the company's historical performance and its sound funds, analysts of Swedbank for instance expect the value of Lundin to grow, driven by resources that are coming closer to the production stages.

In the period between 2002 to 2011 Lundin's reserve base grew four fold, and at the end of 2013 the company reported reserves amounting to 194,1 MMboe, with 92 % of Lundin's 2P reserves represented by oil. Lundin's reserves geographic segmentation and historical growth can be seen in figures 23 and 24 respectively.

[6] These projects represent only those that are planned for the immediate future as Lundin only discloses resource estimates for the projects that will be drilled in the following year.

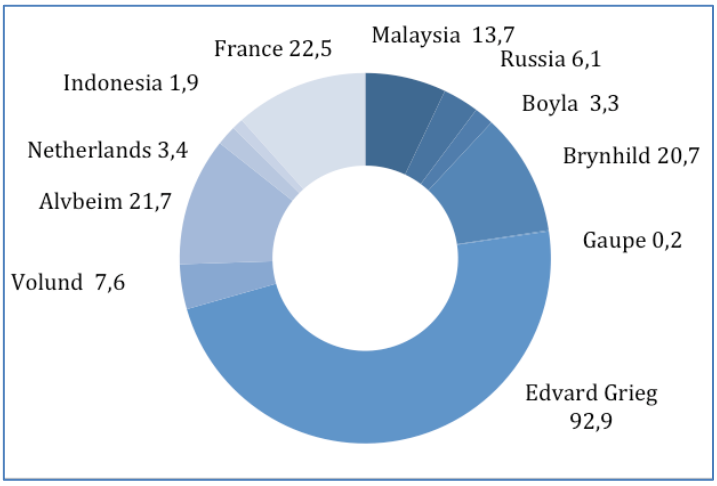


Figure 23: Reserves 2013 (Lundin 2013)

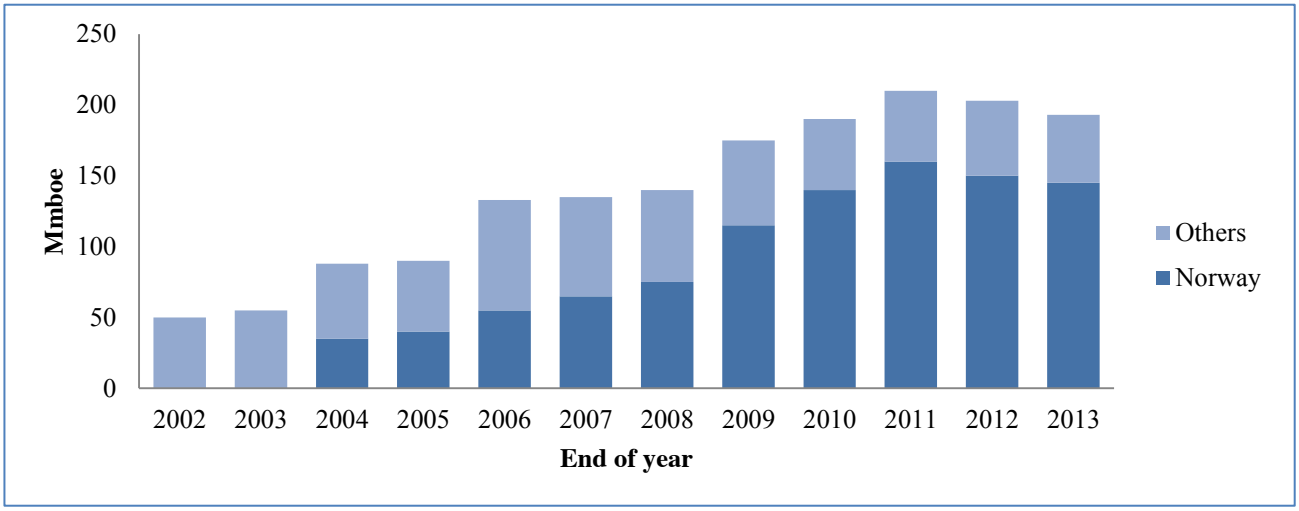


Figure 24: Reserves History (Lundin, 2013)

In the resources class, Lundin has assets denominated as contingent resources amounting to 342 MMboe, which represent "best case" or 2C values and exclude the resources expected of Johan Sverdrup. The gross contingent resources estimated for Johan Sverdrup have values ranging between 1 800 and 2 900 MMboe. The field represents a very important strategic asset for Lundin, as it represents an estimated asset base far larger than what the company currently owns. Moreover, even though the field does not entirely belong to the firm, Lundin owns considerable interest in its licenses. The field is covered by licenses PL501, PL502 and PL265 and Lundin owns 40 % interest in PL501 and 10 % interest in PL265. Currently, the company has in total 117 licenses in 6 different countries. The company reports to continuously employ efforts meant to remove the contingencies attached to the sights, thus moving those classified as contingent resources into actual reserves. Lundin's contingent resources geographic segmentation and historical growth can be seen in figure 25 and 26, respectively.

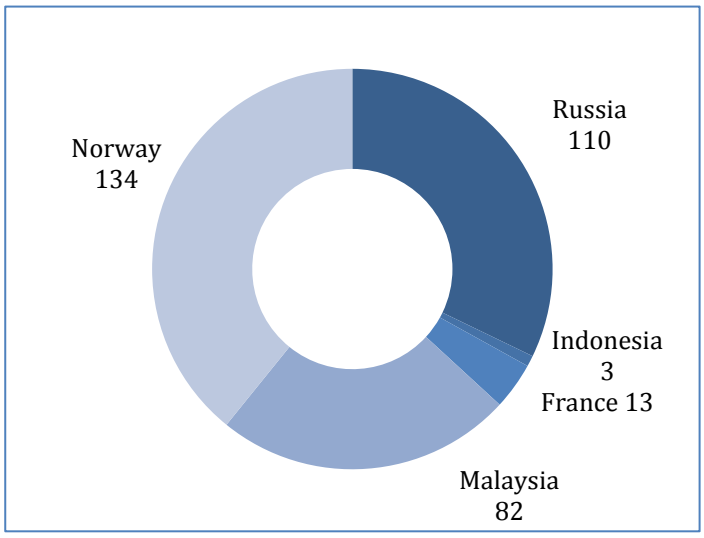


Figure 25: Contingent Resources 2013 (Lundin, 2013)

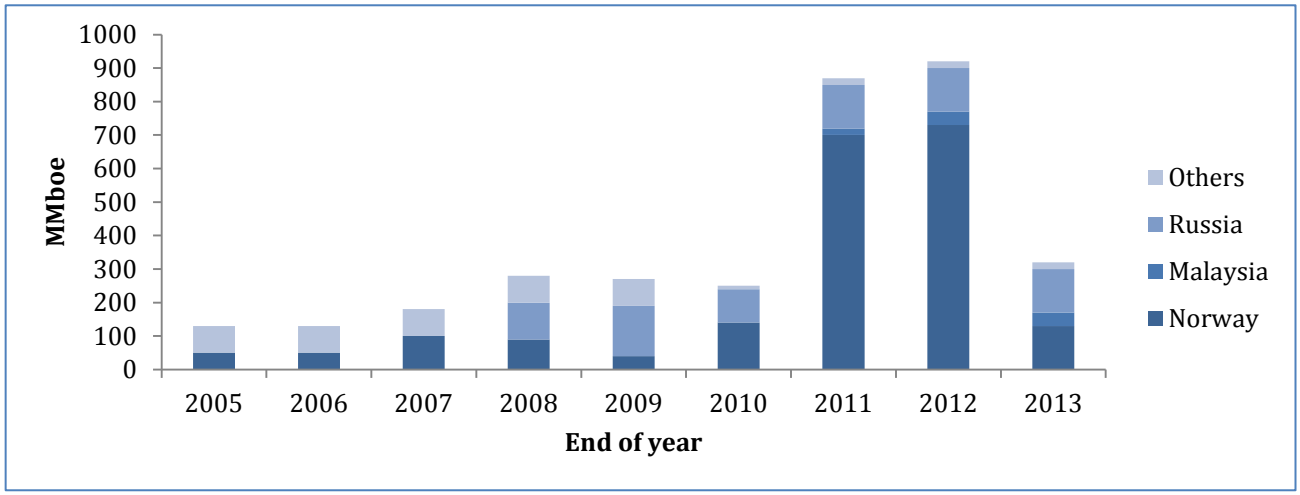


Figure 26: Contingent Resources History (Lundin, 2013)

In general, the interviewed industry experts and analysts agree that among the reserves and resources Lundin currently owns there are some especially promising and important which adds to their expected growth and valuation of the company. The Danske Bank equity research, for instance, highlights the progress Lundin has recently made in discovering important sights by production potential. The report mentions factors such as Lundin's vast experience in the exploration of the Norwegian Shelf and its extraordinary hit rate with a 12% upside compared to the average in the industry that increase the value of these reserves by raising the probability of them turning into real production (Baustad Benonisen & Storløkken, 2012). Analysts also mention the discoveries in Luno II, Albert and Juksa/Snurrevad discoveries as high potential candidates with eight exploration wells set in place in these targets in 2013 (Nilsen and Glover, 2014).

It is especially interesting to note the proportion of value new exploration sights for Lundin might potentially deliver compared to their current production. Even though such assets have no book value in the Financial Statements of Lundin, they represent the key value drivers for the market value of the company, through

expected production and future cash flows. In this regard the Sverdrup sight, where Lundin holds a significant stake, has a production capacity ten times surpassing that of Lundin's current operations. The probability of the reserve is valued at 90%. Table 2 and 3 shows the numbers for the current production sights and the biggest discoveries estimated to come into production in the near future:

Production				
	Country	**Stake %**	**Net mmboe**	**Probability**
Alvheim	Norway	15%	23	100%
Volund	Norway	35%	3	100%
PL292 Gaupe	Norway	40%	1	100%
France-Paris-Aquitane basins	France	77%	19	100%
Netherlands	Netherlands	4%	1	100%
Indonesia, South Sumatra	Indonesia	26%	1	100%
Russia	Russia	34%	5	100%
Sum production			**53**	**100%**

Table 2: Lundin Production (Own illustration based on Nilsen & Glover, 2014)

Discoveries				
	Country	**Stake %**	**Net mmboe**	**Probability**
PL 265/501 Sverdrup	Norway	20%	506	90%
PL 265/501 Sverdrup upside	Norway	20%	84	90%
PL 338 Edvard Grieg	Norway	50%	94	90%
PL 148 Brynhild	Norway	90%	16	90%
PL 359 Luno II	Norway	40%	29	80%
Morskoye	Russia	34%	54	60%
SB303 - SB303A (Malaysia)	Malaysia	75%	58	50%
PL 338 Apollo	Norway	50%	18	70%
PL 265 Ragnarrock	Norway	10%	14	50%
PL 492 Gohta	Norway	40%	68	60%
France	France	70%	10	60%
Netherlands	Netherlands	4%	10	60%
PL 338 Edvard Grieg south	Norway	50%	5	60%
PM 307 Bertam	Malaysia	75%	13	50%
PL 340 Bøyla	Norway	15%	3	70%
PL 203 Viper	Norway	15%	1	75%
PL 340 Catepillar	Norway	15%	1	50%
PM307 – Tembakau	Malaysia	75%	47	80%
PL 505 Earb South	Norway	30%	5	10%
Sum discoveries			**1036**	**81%**

Table 3: Lundin Discoveries (Own illustration based on Nilsen & Glover, 2014)

Focusing on the company's current production shows a considerable fluctuation in recent years. The numbers in 2011 and 2012 were driven by the large discoveries of both oil and gas in Norway. The chart "Production" below demonstrates this fluctuating trend, while the next one "Lundin reserves" underlines the proportion of contingent reserves the company owns compared to the proved category.

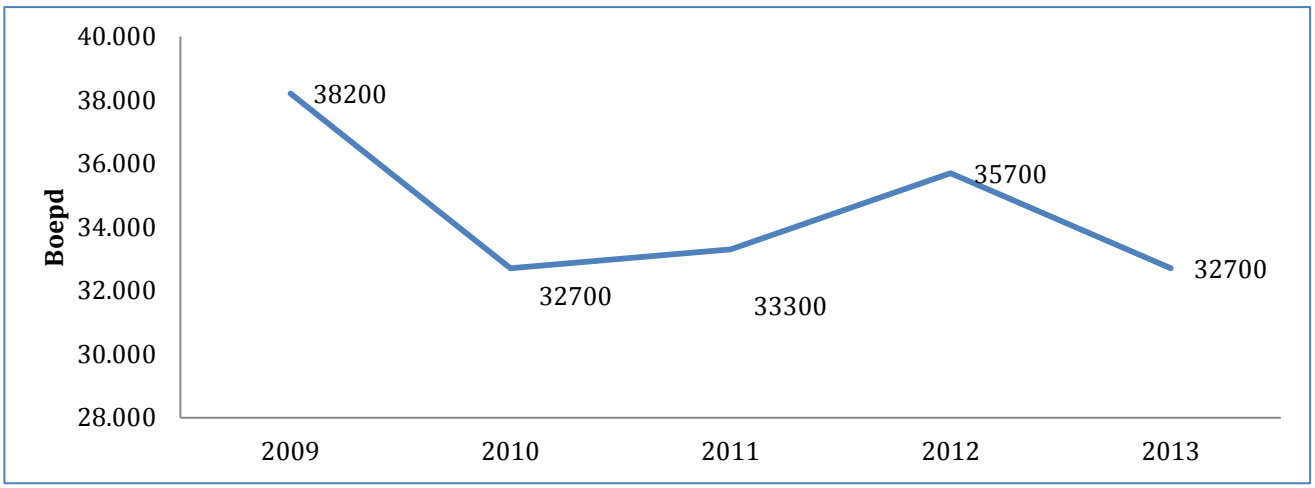


Figure 27: Lundin Production (Own illustration based on Lundin, 2013)

Operating performance compared to peers

Another important factor to consider when analyzing Lundin's current and future performance is not only the production potential (which was described in the previous section) but also its current performance compared to peer.

The industry in general does not present over –reaching trends and each peer in the upstream sector follows its own specific development. Amongst our chosen peer group, BP has increased its production, Chevron has decreased and Statoil has increased and then evened out. Tullow, Premier and Lundin have followed each other closely and have a quite stable development. Such observations seem to reinforce the general positive expectations attached to the company's medium and long-term development.

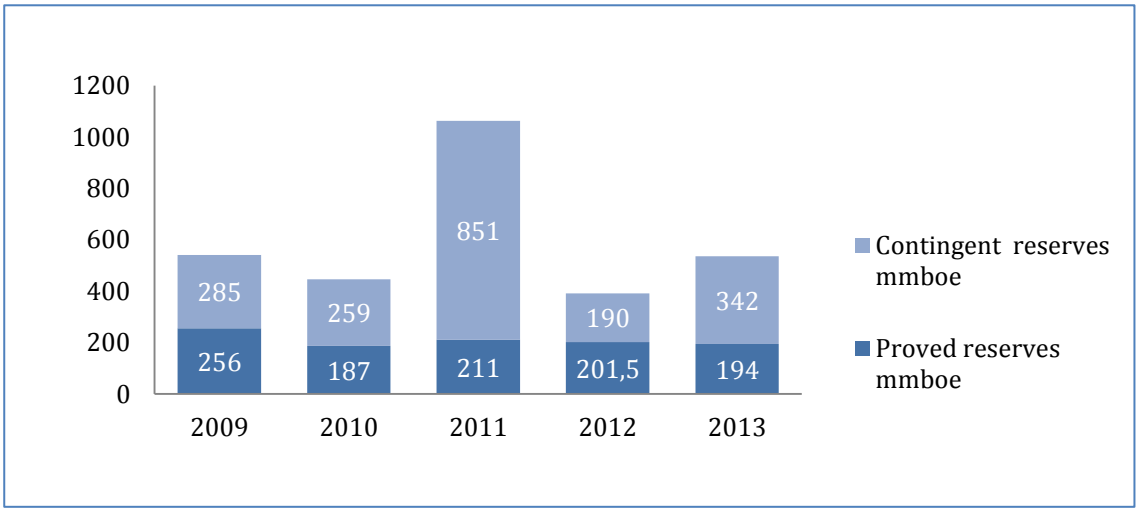


Figure 28: Lundin reserves (Lundin, 2009-2013)

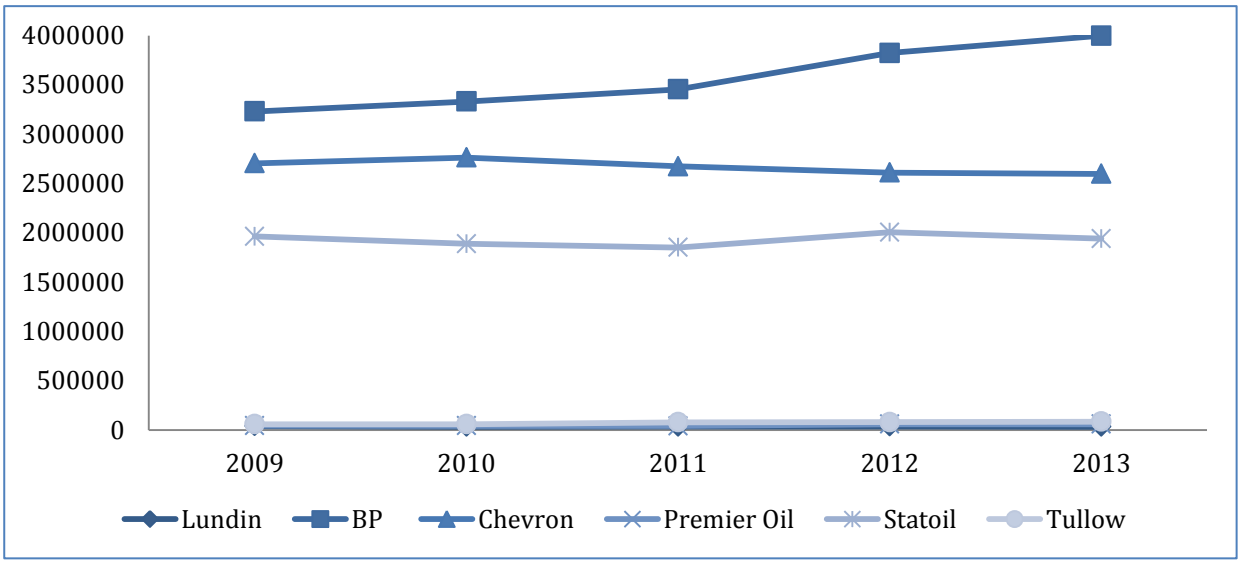


Figure 29: Production of peers (Peer group and Lundin, 2009-2013)

Conclusion of strategic analysis

I. As Lundin's operating geographical area is and will remain concentrate on Norway, it will protect the company from the ongoing crisis and disruptions present in the other main oil-producing region such as the GCC and Russia. This allows the company to make more probable and confident projections for the future. In the same way the company can count on a stable political, economic, tax and license regime. (+)

II. Even though Lundin's focus on the Norwegian and European market protects the company from some downside risks it also makes the company vulnerable to stagnation. Demand is expected to grow greatly in regions such as Asia and America, while Europe is set to expect a decline. The fact that Lundin's main reserves and resources are far from the areas of main demand growth is something that could affect Lundin negatively in future. (-)

III. Technological development in deep offshore and shale resources will have a big impact on the global energy landscape but probably only have a weak influence on Lundin's operations. Firstly because these new found sources of energy take long periods of time to develop and secondly because they are mostly present in North America where Lundin can expect little impact from either the demand or supply side. (0)

IV. Competition from other sources of energy is expected to grow – both from coal – as the cheapest source, and the renewables, which will see important growth in the future. However, the overall impact on the demand of oil will be unimportant and thus it will have a negligible impact on Lundin's operations as well. (0)

V. The price the company can charge for the oil is determined by the global market price making Lundin susceptible to price changes on the global exchanges and very dependent on global demand and supply. (-)

VI. Lundin with its exploration expertise, skilled employees, and good relations with the government in Norway has a clear competitive advantage over new comers in the industry. (+)

VII. Lundin has many different and big fields in its possession and a lot of promising resources in its pipe-line. This ensures that Lundin has good grounds for growing in the future. (+)

Financial Analysis

In this section the financial performance of Lundin is assessed. By assessing the historical financial performance of the company the factors driving costs and revenues will be reflected upon. The financial analysis together with the strategic analysis of Lundin will support the forecast and valuation later in this thesis. The financial analysis is based on five years of historical financial statements, obtained from the company's annual report in years 2009- 2013. Five years of historical data is deemed enough to form expectations. The upstream industry is very dependent on the discovered reserves and although long-term historical performance can reveal important information it is not necessarily indicative of how the company will perform in the future.

Quality of financial statements

The financial analysis will have a substantial influence on the valuation and the resulting estimated fair value of the Lundin share; therefore it is important that the quality of the statements is good. Before conducting the analysis the quality of the financial statements was examined. Lundin abides to the International Financial Reporting Standards (IFRS), The Swedish Annual Accounts Act and accounting practices applicable to companies incorporated in Sweden and listed on the NASDAQ OMX Stockholm and the Toronto Stock Exchange. An external auditor Price Waterhouse Coopers approved without remarks the financial statements to be in accordance with Swedish practices for all consecutive years between 2009-2013. Since external auditors approve Lundin's financial statements we consider the quality of the financial statements to be sufficient for this valuation. The same quality standards can be applied to the financial statements of peers, which were used to make the peer group analysis and thus the quality of their statements is also deemed high and sufficient for this valuation.

Reformulation of financial statements

Company's financial statements follow general accounting principles. A company's value is to a large extent created by their operations, therefore the focus will be on measures assessing Lundin's operations. In this analysis the analytical methods of Koller, Goedhart and Wessels (2010) will be used. The financial statements mix the company's operating performance, non-operating performance and capital structure. Therefore the statements must be reorganized into statements that separate these three elements from each other. To analyze a company's performance the balance sheet and income statement must be prepared and

reorganized. The reorganization of each statement will be described in subsequent sections which also will include the reasoning behind our assumptions and main considerations.

Reformulation of Balance Sheet

The accountant balance sheet is built by the most basic economic principle:

Asset= Liabilities + Shareholder's Equity

The balance sheet mixes operating assets, non-operating assets and sources of financing. However, to value a company the items affected by the company's operations must be found, as it is in the operations value is created in the company. Invested capital represents the capital needed to operate a business' core operations without distinguishing how the capital is financed. The balance sheet will therefore be reorganized to obtain invested capital and will include: operating working capital, fixed assets, intangible assets and other long-term operating assets. The reformulated balance sheet is seen in table 4 below and the historical balance sheet can be found in appendix 6.

Operating working capital is defined as

Operating working capital= current operating assets - current operating liabilities

- **Current operating assets** include the assets necessary for the operation of the business. Current items are items whose tenure is less than one year. The items considered to be current operating assets are: inventories, trade receivables, prepaid expenses and accrued income, short-term loan receivables, tax receivable, joint venture debtors and other receivables. Other receivables include underlift posts and corporate taxes for operations and therefore these were also considered to be operating assets. As not all cash and cash equivalents are needed to run operations this item was divided into one cash post included in the operating assets and a post called excess cash included in total funds invested. Koller et al. (2010) estimates that around 2 % of sales in cash are needed to run operations. Therefore operating working capital only includes a calculated amount of cash equal to 2 % of sales.

- **Current operating liabilities** are defined as those liabilities that are related to the ongoing operations of the firm. Items considered to be current operating liabilities are trades payables, accrued expenses and deferred income, joint venture creditors, tax liability and other liabilities. The notes to the financial statements show that tax liability concerns income and the post other liabilities concerns overlift and extraction tax etc therefore these were considered to be current liabilities. Interest bearing instruments are not considered to be operating items and therefore were purposely not included in working capital.

Both components that make up Working Capital for Lundin have been quite stable over the observed period of time. This seems to indicate towards an established and effective trade system for the company especially in its dealings with suppliers, buyers - the relevant conditions for their trade agreements – and finally their joint venture associates. This is because the most important parts driving both current operating assets and liabilities are represented by trade receivables, trade payables and joint venture creditors. In the next step, for finding invested capital, long-term assets and liabilities will be added to working capital.

- **Long-term assets** include oil and gas properties, solar properties, other tangible assets and long-term receivables. Other tangible assets concerned office equipment and real estates and therefore considered a long-term asset.

- **Long-term liabilities** include provision for site restoration and other non-current liabilities, which are considered as operational as there is no note specifying otherwise. Overall net long-term assets have increased over the past five years.

Intangible assets include goodwill and other intangible assets. Lundin only had these accounts in 2009. The items concerned a Russian subsidiary that was believed to be very valuable but didn't realize the expectations and was written down in 2010. It was a onetime event and no changes to goodwill have been recorded in subsequent years.

We have calculated the Invested Capital for Lundin (with and without Goodwill) and then computed the value of total funds invested. The item driving the bulk of value in these final figures were the oil and gas properties on Lundin's Balance Sheet which given the core business the company operates in, was expected. Invested Capital and thus Total Funds invested witnessed a drop from 2009 to 2010 and then followed an increase throughout the years until the valuation time. This is also to a large part explained by the oil and gas properties that followed a similar trend. This fact shows that the company is committed to its core business and its financial statements fully support its operations.

Finally, another way of looking at the total funds invested is from the financing side as total funds invested should be equal to total financing sources, which can come from debt or equity. Debt includes short-term debt, bank loans, derivatives and financial liabilities. The post provisions are considered to be debt equivalent as it according to the notes concerns pensions and long-term incentive planning. Equity includes share capital, additional paid in capital, other reserves, retained earnings and non-controlling interest. Provisions for deferred tax are considered to be equity equivalent.

Lundin Reformulated Balance sheet					
MUSD	**2009**	**2010**	**2011**	**2012**	**2013**
Current Operating Assets					
Inventories	27	20	32	19	23
Trade receivables	81	94	145	126	129
Prepaid expenses and accrued income	10	6	5	33	62
Short-term loan receivable	34	75			
Tax receivable	2				
Joint venture debtors	29	21	20	12	25
Other receivables	15	20	23	40	44
Cash operational	11	16	25	27	24
Current Operating Assets	**209**	**252**	**250**	**256**	**306**
Current Operating Liabilities					
Trade payables	20	16	17	16	19
Accrued expenses and deferred income	16	8	16	13	41
Joint venture creditors	140	101	88	210	335
Tax liability	21	40	240	170	5
Other liabilities (considered operational)	20	13	29	15	43
Current Operating Liabilities	**218**	**178**	**390**	**423**	**442**
Operating Working Capital	**-9**	**75**	**-141**	**-167**	**-136**
Oil and Gas properties	2540	1999	2329	2864	3852
Solar power properties	1				
Other tangible assets	15	15	16	49	85
Long-term receivable	24	24			
Long-term Assets	**2581**	**2038**	**2345**	**2914**	**3937**
Provision for site restoration	133	94	119	190	246
Other non-current liabilities	13	18	22	23	25
Long-term Liabilities	**145**	**112**	**141**	**213**	**271**
Long term Assets net of Liabilities	**2435**	**1926**	**2204**	**2701**	**3666**
Invested Capital (excl. goodwill and intangibles)	**2427**	**2001**	**2064**	**2534**	**3530**
Goodwill	1				
Other intangible assets	5				
Invested Capital	**2432**	**2001**	**2064**	**2534**	**3530**
Other shares and participation	32	69	18	20	22
Excess Cash	66	33	48	71	69
Pension provision	-1	-1	-1	-2	-2
Other provisions	-17	-24	-64	-70	-34
Deferred tax	28	15	15	13	22
Derivative instruments (current and non-current)	0			9	6
Other financial assets	29	22	13	11	12
Total Funds invested	**2569**	**2115**	**2093**	**2585**	**3625**

Table 4: Lundin Reformulated Balance sheet

Reformulation of Income Statement

The income statement shows the profit and loss produced by the assets of the company. The income mixes operating and non-operating activities and as we are interested in the profit and loss created by the operations alone the statement is reorganized to show operating activities. To attain the profit or loss from operating activities the income statement will be reformulated to result in Net Operating Profit Less Adjusted Taxes (NOPLAT). NOPLAT represents the total after tax operating income generated by the invested capital which is available to all financial investors (Koller et al. 2010). It excludes income from non-operating assets and financial expenses. The reformulated income statement can be seen in table 5 below and the reformulated income statement can be seen appendix 8. In some cases net operating profit after tax (NOPAT) is used instead of NOPLAT, the difference comes from NOPLAT taking into account deferred taxes while NOPAT only includes income taxes. Since Lundin has deferred tax posts, NOPLAT has been the chosen measure for this thesis.

NOPLAT is based on earnings before interest, tax and amortization (EBITA). Normally this is income minus operating expenses however depreciation must be included as the assets' value decreases over time. The formula is shown below.

NOPLAT = EBITA + Operating Cash Taxes

- **Gross profit** must first be found to get EBITA and then NOPLAT. Gross profit is the direct costs of sales deducted from revenues. For Lundin the cost of sales includes production, depletion and decommissioning costs, and impairment costs for oil and gas properties and goodwill.

- **EBITA** includes gross profit as well as the items: other income and general administration and depreciation costs. The item - other income concerns income from technical and management services to joint ventures and therefore is considered to be an operating item and included in the EBITA. The item - gain on sale of assets concerns the sale of several subsidiaries, which is not a reoccurring item and therefore considered to be a non-operating income and is not included in the EBITA.

- **NOPLAT** was calculated by adding operating cash taxes to EBITA. Since non-operating items also affect taxes, taxes had to be adjusted to account for operations only. The taxes had to be estimated and added back. To estimate the operating cash taxes the annual reports were searched for the Swedish statutory tax rate, foreign tax effect and other taxes. The Swedish statutory tax rate has been 26 % for the years 2009-2012 but was 22 % in 2013. The marginal tax rate was used to compute the taxes paid on EBITA, foreign tax effect and other taxes was found in the notes to the financial statements and was added to retrieve Lundin's operating taxes. To find the operating cash taxes the

increase in operating deferred taxes was added. The deferred tax assets on the balance sheet concerned the tax loss carry forward and was therefore not considered an operating deferred tax and not included in the operating deferred taxes. The item - provision for deferred taxes included some posts that considered operations, such as depreciation, while other items were not specified and thus the whole post was considered to be operating deferred taxes. The increase in the item provision for deferred taxes was then added to the operating cash taxes. The tax computation tables can be found in appendix 9. By adding the operation cash taxes to EBITA Lundin's NOPLAT was obtained. NOPLAT from financing activities was also calculated to ensure that the two sides would reconcile and ensure consistency across the operating and the financing sides of the company.

Lundin's NOPLAT figures fluctuated considerably over the years but has seen more stable figures in the last three years of the historical period. The main drivers were the revenues and direct cost structure, which underlines Lundin's commitment to its operations. Moreover, the cost structure itself proves that the company is indeed focused on discovery and exploration activities as exploration costs present in most years the biggest part of their costs. In 2013 this number amount to 37% of total direct operating costs.

Lundin Reformulated Income Statement					
MUSD	**2009**	**2010**	**2011**	**2012**	**2013**
Revenue	572	799	1 270	1 345	1 196
Cost of Sales					
Production costs	-155	-157	-193	-172	-196
Depletion and decommissioning costs	-118	-145	-165	-191	-174
Exploration costs	-135	-128	-140	-168	-288
Impairment costs of oil and gas properties	-526			-237	-123
Impairment cost for goodwill	-119				
Gross Profit	-481	369	771	575	415
Other income	1	1			
General, administration and depreciation expenses	-29	-42	-67	-32	-44
EBITA	-509	328	704	544	371
Operating Cash taxes	64	-342	-404	-287	-136
NOPLAT	**-445**	**-15**	**300**	**257**	**235**

Table 5: Lundin Reformulated Income statement

After having found NOPLAT the free cash flow of the company was calculated. The free cash flow is the after tax cash available to all investors. It is independent from non-operating and financing items and represents the basis for the subsequent valuation. FCF comprises gross cash flow, investments in Invested Capital and effects of acquisitions and divestitures. (Koller et al., 2010) The FCF formula:

FCF = NOPLAT + Noncash Operating Expenses−Investment in Invested Capital

- **Gross cash flow** is the cash flow generated by the company's operations. It represents the cash available for investment and investors without the company having to sell the non-operating assets. Gross cash flow comprises NOPLAT plus non-cash operating expenses. As some expenses recorded on the income statement are not actual cash flows these need to be added to NOPLAT to get the actual cash flows of the company. Items in Lundin that have been recorded as cash outflow but where no money has gone out of the company are depreciations. Therefore Lundin's gross cash flow comprises NOPLAT plus depreciation and depletion.

To have continued growth a company will reinvest some of its gross cash flow. Therefore the gross investment is subtracted from the gross cash flow to get FCF.

- **Gross investment** includes the change in operating working capital, net capital expenditure, investment in goodwill and intangibles, change in long-term operating assets net of long-term liabilities and accumulated other comprehensive income. Increases in these posts are subtracted from gross cash flow, as we need to subtract the money being invested to get the FCF.

    - **Change in working capital,** was calculated by finding the change in net current operating assets minus current operating liabilities. This was extracted from the balance sheet. Deducting the current operating liabilities from the current operating assets reveals that operating working capital has been negative for the previous four out of the five last years. The underlying factors affecting working capital is the growth in trade receivables, driving the growth of the overall current operating assets. Prepaid expenses and accrued income, and other receivables are other accounts have also had a positive although smaller affect on the operating assets. Inventory levels and joint venture debtors have been fairly constant for the past 5 years. The overall net working capital has seen a negative growth, mainly driven by a surge in the joint venture creditors accounts which increased a lot in 2012 and 2013 due to more drilling and development activities in Norway and Malaysia. Accrued expenses, deferred income, and other liabilities have also increased over the five years and have affected, to smaller extent, the current operating liabilities. Trade payables have stayed constant while tax liabilities fluctuated, rising in 2011, 2012 and decreasing in 2013 to a lower level than in 2009.

    - **Capital expenditure** was also included in the gross investment as it represents the capital investments in fixed assets. Capital expenditure is defined as

CAPEX= End book value assets- beginning book value + depreciation of the year

The fixed assets included in the calculation are oil and gas and solar properties. Lundin's capital expenditures have increased a lot in the last five years, developing from negative capital expenditures to a considerable spending in 2013. Investments in oil and gas properties, having grown with 50% over the last five years, are the main driver of CAPEX. The majority of the increase in oil and gas properties can be traced to Norway, representing 98% of the development costs in 2013, and Malaysia. While investments in other tangibles also have grown, the absolute amount spent is very small compared to oil and gas properties. Lundin hasn't had any expenditure in solar properties since 2009 and the small investment in 2009 meant that it had an insignificant effect on CAPEX that year.

- Further, increased investment in intangibles and goodwill are subtracted. Lundin only had goodwill and investments in intangibles in 2009 and 2010.

- Changes in long-term operating assets concern those items that were not included in the fixed assets calculated in CAPEX. The remaining long-term operating assets were long-term receivables, which were netted against long-term liabilities including site restoration and other non-current liabilities. Lundin only had long-term receivables in 2009 and 2010 while non-current liabilities stayed constant and site restoration increased over the 5 years, resulting in net liabilities being larger than the long-term assets and therefore needed to be added back.

- Comprehensive income concerns the exchange rate differences springing from Lundin operating in many different geographical regions. On a year to year basis the changes in currency exchange rates were accordingly added or subtracted to the comprehensive income account.

By adding all these items gross investment was found. Gross investment was then added to gross cash flow to get the FCF. Gross investment is one of the most important line items in this sector and thus in our further forecasts. It is estimated based on the changes in working capital, long term assets and depreciation thus summing up the resources the company would need to continue reinvestment and development of its operations. When added to FCF it is seen with a negative arithmetic signs as it represents bottom line expenditures the company has to undertake. Lundin's FCF has gone from being low but positive in 2009 to being large and negative in 2013 which is driven by the considerable increments in CAPEX, with the amount in 2013 representing almost double of what it has been in 2012. As the negative free cash flow comes from

Lundin investing in oil and gas properties it is not seen as a sign of a company being in a bad financial state rather that it is investing to generate cash flow in the future.

FCF excludes cash coming from non-operating assets, such cash flow must therefore be added to FCF to get the total company cash flow and thereby the total cash flow available to investors. The non-operating items for Lundin are excess cash and cash flow from non-operating items.

- **Excess cash** generates cash flow through interest income and asset sales (Koller et. al, 2010). Interest income and result from share in associated company was included on an after tax basis, calculated by using the marginal tax rate. Other non-operating taxes were included and an increase in excess cash flow was deducted from FCF to find the cash flow available to investors.

- **Other non-operating cash flow** also must be included to find the cash flow available to investors. Non-operating income and gains were added back while increases in non-operating assets were subtracted. For Lundin, the gain from discontinued operations was added, the increase in non-operating long-term investments and the increase in loss carry forwards were subtracted. Cash flow from non-operating activities has fluctuated over the last five years, but has been positive in the last two years. The cash available to investors have decreased over the years, and has gone from being positive to negative. The full table showing Lundin's FCF and cash flow available to investors can be found in appendix 10.

Free Cash Flow					
	Historical				
	2009	2010	2011	2012	2013
NOPLAT	-444,8	-14,6	299,9	256,8	234,8
Depreciation	727,2	497,7	643,1	995,5	1 102,5
Gross Cash Flow	282,4	483,1	943,0	1 252,3	1 337,3
Change in WC (Increase)/ Decrease	21,6	-83,2	215,2	26,6	-31,5
Net Capital Expenditure	405,6	44,3	-974,2	-1 563,9	-2 125,6
Investments in goodwill and other intangibles	113,2	5,8	-	-	-
Decrease (Increase) in Long term operating assets	34,3	-33,2	53,4	71,9	58,0
Change in accumulated other comprehensive income	-74,8	118,7	-6,4	-99,1	93,3
Gross Investment	500,0	52,4	-712,1	-1 564,6	-2 005,8
Free Cash Flow	**782,3**	**535,5**	**230,9**	**-312,3**	**-668,5**

Table 6: Lundin Historical Free Cash Flow

Having reformulated and found the important variables describing Lundin's financial state the profitability analysis can be carried out in the next section, looking at the variables more thoroughly and benchmarking measures of profitability of Lundin against the ones of its peer group.

Profitability analysis

A company's value is primarily driven by its ability to grow and the return on capital it is able to deliver (Koller et al., 2010). Therefore to understand Lundin's performance several factors will be analysed: the source of the firm's revenues, its cost drivers and how well the company is utilizing its resources and creating value. Lundin's performance is analysed first independently and then compared to its peers.

ROIC

To evaluate a company it is essential to understand how the company has been generating value historically. According to the Du Pont framework a company's profitability comes from two sources. Firstly, the return on net operating assets is higher the more of each dollar of sales is translated into net operating income and secondly the return on net operating assets is higher the more sales are generated by the net operating assets (Penman, 2010). While common measures are return on assets and return on equity Koller et al. (2010) argue that Return On Invested Capital (ROIC) is a more suitable measure to use to understand a company's performance as it focuses on a company's operations. Therefore, ROIC and its components will be analysed in this thesis.

The higher a company can raise its ROIC and the longer it can sustain a rate of ROIC greater than its cost of capital the more value it creates. Furthermore, a company with a competitive advantage earns a higher ROIC, either by being able to charge a price premium or by producing at lower cost or lower capital per unit (Koller et al., 2010). ROIC can differ between individual companies because of different strategies and capabilities and according to Koller et al. (2010) if a company finds a strategy that makes it earn an attractive ROIC it is likely to be able to sustain it over time. Therefore, an understanding of Lundin's ROIC will enable us to better forecast Lundin's future.

ROIC can be calculated in several ways. Koller et al. (2010) defines it as

$$ROIC = \frac{NOPLAT}{Invested\ Capital}$$

This formula gives ROIC by utilizing the reformulated financial statements and this ROIC will be used for the valuation forecasts. The Du Pont scheme below shows another way of how ROIC can be obtained.

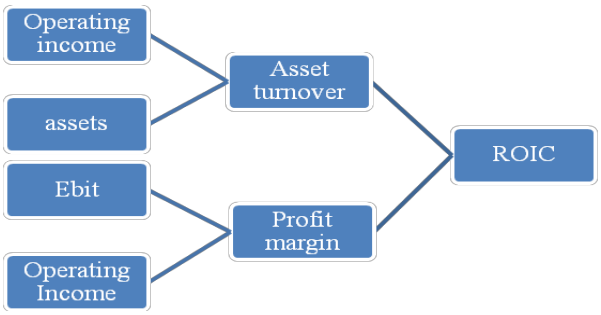


Figure 30: Du Pont scheme

ROIC by Du Pont is defined as

$$ROIC = \frac{\cancel{Operating\ Profit}}{Assets} \times \frac{Ebit}{\cancel{Operating\ profit}} \quad ROIC = \frac{Ebit}{Assets}$$

This formula will be used in the peer group comparison. The reason for using another formula in the peer group comparison is that the peer's financial statements haven't been reorganized, as was mentioned in the limitations. Furthermore, using this formula based on EBIT for peer comparison is better as it does not include the taxes paid and thereby facilitates a comparison based on the company's operating performance. This is important since the peers operate in very different fiscal regimes and using EBIT excludes the tax effects. Moreover, it doesn't take into account the leverage structure of the company as it is calculated before interest. On the other hand looking at ROIC as NOPLAT over Invested Capital for the valuation of Lundin is justified since NOPLAT is used to derive FCF and ultimately the value of the company. Thus, using the reformulated ROIC in the valuation of Lundin while using the Du Pont ROIC in the peer group comparison allows for the usage of the best measures in their respective areas.

In table 7 below Lundin's NOPLAT, Invested Capital (in MUSD) and ROIC (%) over the last five years can be seen.

Return on Invested Capital					
	2009	**2010**	**2011**	**2012**	**2013**
NOPLAT	-444,8	-14,6	299,9	256,8	234,8
Invested Capital (excluding goodwill and intangibles)	2426,6	2001,0	2063,5	2533,5	3530,1
ROIC	**-18.3%**	**-0.7%**	**14.5%**	**10.1%**	**6.7%**

Table 7: Lundin Return on Invested Capital

Calculating ROIC by using NOPLAT and Invested Capital shows that ROIC has gone from being negative in 2009 to being positive in 2013. The last three years ROIC has been positive but decreasing. The decrease can be explained by a somewhat lower NOPLAT but mostly by a large increase in Invested Capital.

NOPLAT has developed from being negative to being positive the last five years. The reason NOPLAT has had this positive development can be attributed to developments in Lundin's revenues and costs. Over the last five years Lundin's revenues have grown by 109 %. The compounded annual average growth rate between 2009-2013 has been 16 %. There are two main factors driving Lundin's revenue: the amount of oil they sell and the oil price. In 2009 Lundin had the highest sales but received the lowest price per boe. Since then the overall sales in MMboe have decreased in the period but the oil price per boe has increased resulting in increased revenues for Lundin. The lower revenue in 2013 is due to a slightly lower price per boe but mostly by a decrease in sales. Figure 31 shows Lundin's revenue growth and 32 how the value drivers have developed the last five years.

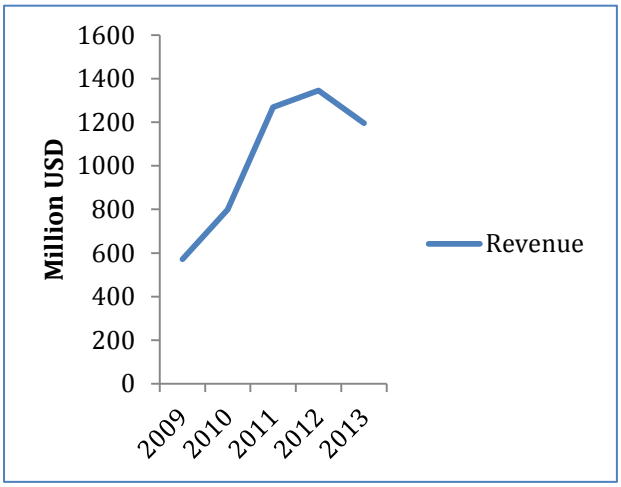


Figure 31: Lundin Revenues (Lundin, 2009-2013)

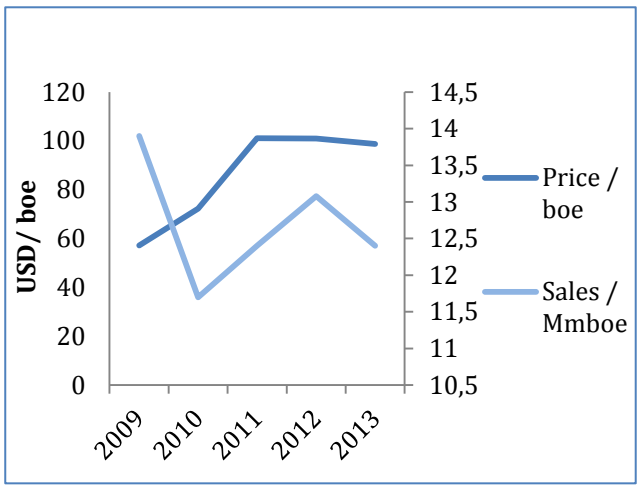


Figure 32: Revenue drivers (Lundin, 2009-2013)

Lundin has mainly had organic growth, the only times it had goodwill from acquisitions was in 2009 and 2010. The focus of continued organic growth is emphasized on their website and annual reports as well as by analysts covering the company, and therefore believed to continue in the future. On the cost side Lundin has been largely affected by high impairment costs in 2009, to no and lower impairment costs the last two years. Another cost factor effecting Lundin's NOPLAT is the considerable high amount of taxes that Lundin pays over the Swedish statutory tax rate. The high taxes can be attributed to the Norwegian taxes. As Norway is one of Lundin focus areas the Norwegian tax rate of 78 % has a large effect on the amount of taxes Lundin pays.

Invested Capital has increased by 45 % over the five years with oil and gas properties being its main driver. This shows a clear commitment of the company to reinvesting its funds, to growing long-term and expanding its current resources base.

Profit margin (NOPLAT margin)

The profit margin shows the profitability of each dollar of sales, the part of each dollar that is turned into actual profit (Penman, 2010). The profit margin is an important factor effecting ROIC.

Profit margin is defined as

$$Profit\ margin = \frac{Operating\ income\ after\ tax}{Sales}$$

Lundin's NOPLAT margin was negative in 2009 and 2010 due to low revenues in these years and the high impairment cost in 2009. The last three years' NOPLAT margin was stable and positive mostly due to increased revenues and considerably lower impairment costs.

NOPLAT margin					
	2009	**2010**	**2011**	**2012**	**2013**
Revenue	571,8	798,6	1269,5	1345,1	1195,8
NOPLAT	-444,8	-14,6	299,9	256,8	234,8
NOPLAT margin	**-77.8%**	**-1.8%**	**23.6%**	**19.1%**	**19.6%**

Table 8: Lundin NOPLAT margin

Asset turnover

The other component that affects ROIC is the turnover rate of assets. It is defined as

$$Asset\ turnover = \frac{Sales}{net\ operating\ assets}$$

The asset turnover rate shows the sales revenue per dollar of net operating assets used. The inverse 1/ATO= NOA/Sales, indicates the amount of net operating assets used to generate a dollar of sales. (Penman, 2010) Invested Capital measures the net operating assets and to find the asset turnover rate, it is divided by revenues. As can be seen in table 9 Lundin's asset turnover increased until 2011 and started to decrease afterwards. This development can be attributed to the continuously increased Invested Capital driven by the investments in oil and gas properties. While revenue (MUSD) continued to increase until year 2012 it didn't grow with the same rate as Invested Capital (MUSD). Furthermore, Invested Capital increased most in 2013 while revenues decreased in 2013, explaining the lower asset turnover rate that year.

Asset Turnover ratio					
	2009	**2010**	**2011**	**2012**	**2013**
Revenue	571,8	798,6	1269,5	1345,1	1195,8
Invested Capital (excluding goodwill and intangibles)	2426,6	2001,0	2063,5	2533,5	3530,1
Asset turnover	**23.6%**	**39.9%**	**61.5%**	**53.1%**	**33.9%**

Table 9: Lundin Asset Turnover ratio

Peer group benchmarking

To really understand Lundin's performance it must be benchmarked against its peers. Comparing Lundin to its near peers will reveal if the company is performing as the average firm or over- or under- performing compared to its competitors. This is crucial to know when valuating Lundin as how a company is performing relative to the industry and its peers will determine if investors invest in the company and the price they are willing to pay.

Peer group ROIC Analysis

Comparing the ROIC of the peer group the formula, as mentioned before, $ROIC = \frac{Ebit}{Assets}$ is used. Lundin and its peer's ROIC development can be seen in figure 33.

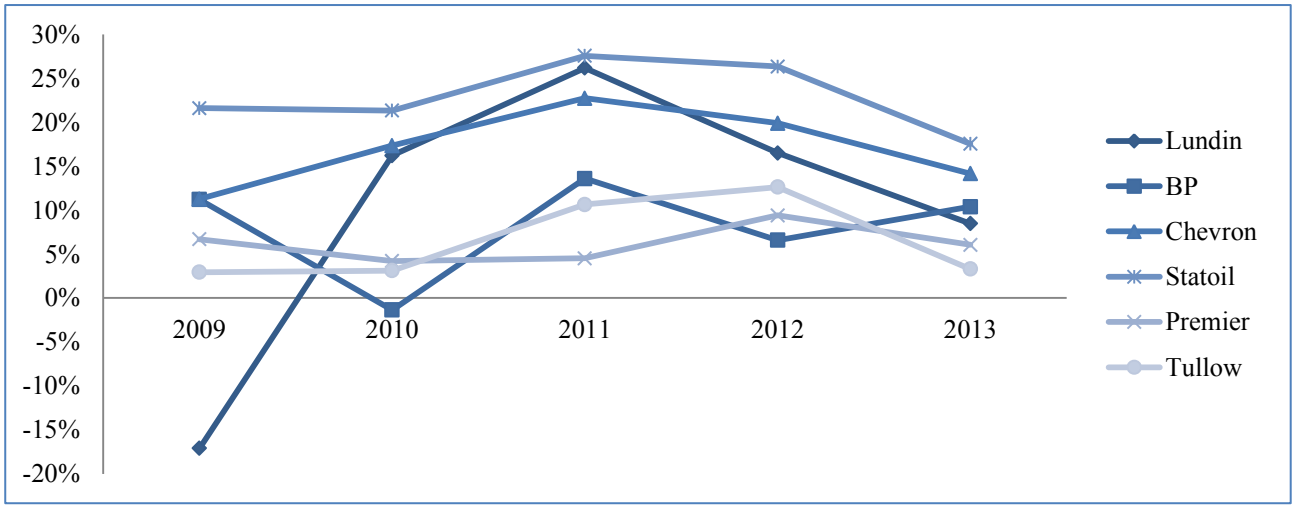


Figure 33: ROIC (Own calculation based on peers' annual reports, 2009-2013)

Compared to its peers Lundin's ROIC has seen much more variations in the last five years. It went from being negative in 2009, which none of the peers experienced, to having the second highest ROIC in 2011 and then being a moderate performer in 2013. However, excluding the negative ROIC in year 2009 Lundin have experienced similar ROIC trend as the other companies in the industry. Most peers had a peak in ROIC in 2011 just as Lundin had when it made its big Sverdrup discovery in Norway. After 2011 most peer's ROIC decreased and the decreasing trend continued in 2013. One reason for the lower ROIC is the increasing costs of producing oil. According to IHS (2012) the upstream costs have continued to increase in the last couple of years with 2.3 % increments between Q3 2001 and Q1 2012. PWC (2013) also states that the industry is experiencing higher operating costs. The increased costs come from both building and operating upstream facilities. As the demand for oilfield goods and services increased, strengthening oil prices and encouraging more production, the threshold price of production for most projects increased as well thus supporting the general cost structure increases in the whole sector. (IHS, 2012)

ROCE

According to PWC (2013) ROCE is the most important indicator to look at in the upstream industry. ROCE is defined as

$$ROCE = \frac{Ebit}{Capital\ employed}$$

Capital employed is defined as total assets minus current liabilities. A higher ROCE indicates more efficient use of capital and ROCE should be higher than the company's cost of capital. (Investopedia, 2014) While ROCE and ROIC often give similar results the difference comes from ROIC using only assets while ROCE focuses on the capital employed and includes all assets deducted by current liabilities. Figure 34 shows the ROCE of Lundin and the peers between 2009- 2013.

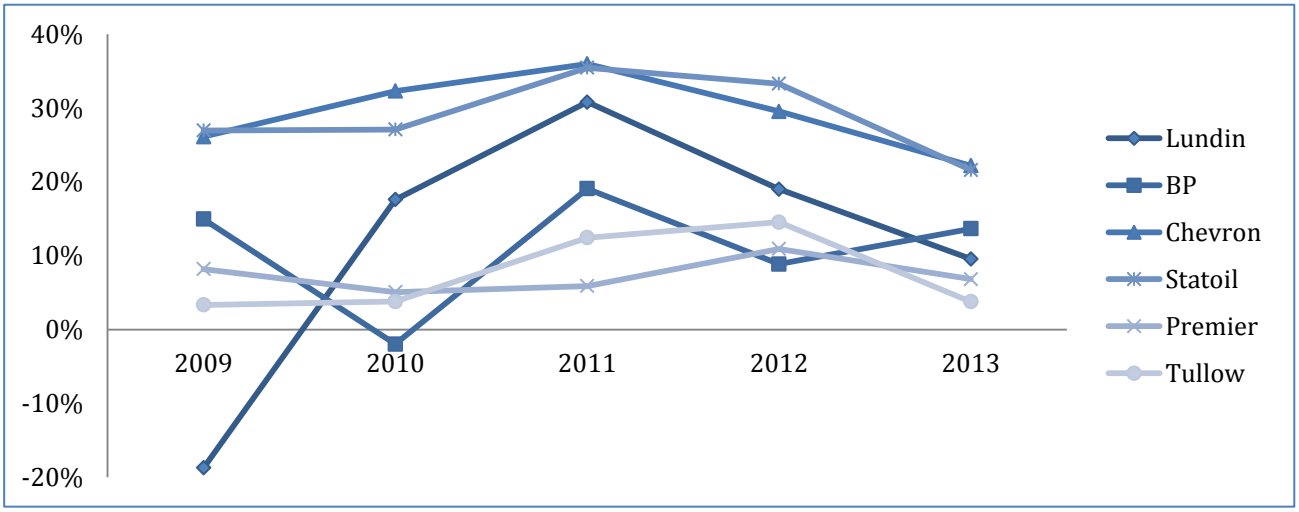


Figure 34: ROCE (Own calculations based on peers annual reports (2009-2013)

Lundin's ROCE followed a similar trend to its ROIC but clearly ROCE values are slightly higher than the ROIC due to the way ROCE is calculated. Lundin, Statoil, Chevron and BP had their peaks in 2011 while Tullow and Premier had their peaks in 2012. After the peaks have been reached the company's ROCE has steadily declined and the declining trend has continued for all companies except for BP in 2013. Lundin produced a moderate ROCE in 2013. Overall the trends in all of the analysed companies were very comparable.

Key value drivers

A few key drivers affect the overall performance of the companies. It is therefore important to benchmark Lundin against its competitors on these. One important deciding factor is a company's earnings before interest, tax, depreciation and amortization (EBITDA) as it gives a good idea about a company's core profitability. Lundin's EBITDA margin compared to its peers has been second highest since 2011. In 2012

Lundin's EBITDA margin started to decline, similar to Tullow's, due to higher exploration costs. Although it has declined in the last year, Lundin's still maintained a high EBITDA margin, which gives a positive indication to the company's ability to create earnings. In general upstream companies have had higher EBITDA margins than the fully integrated companies. EBITDA being a direct indicator of the profitability of a company can be expected to be higher for the upstream operators as the upstream sector has shown higher profitability in recent years.

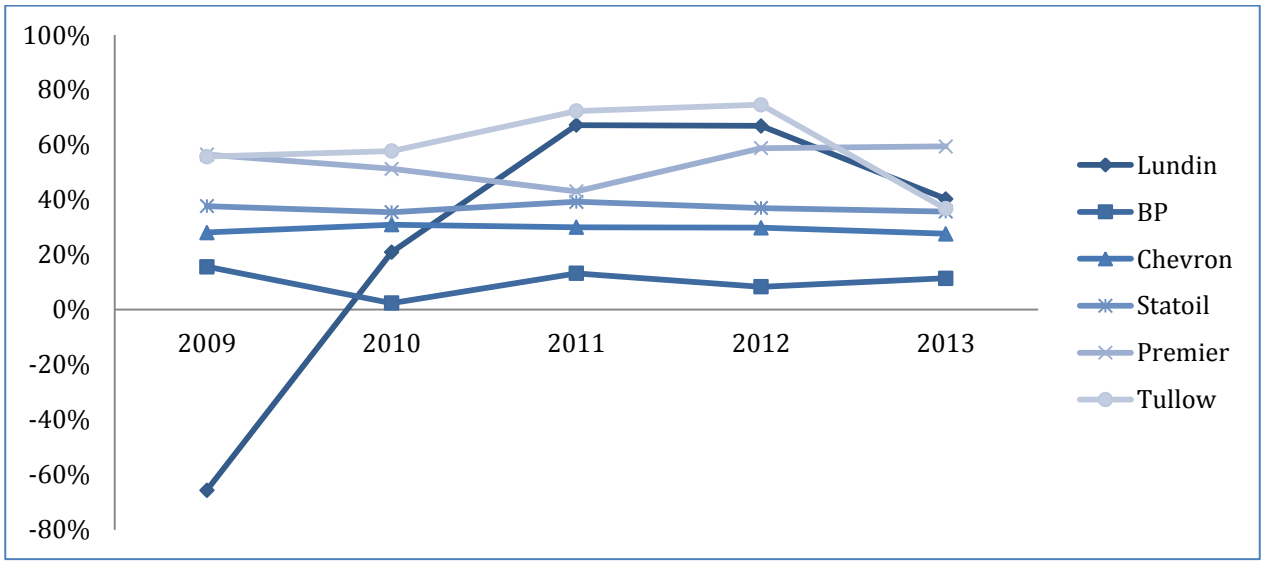


Figure 35: EBITDA margins (Own calculations based on peers annual reports, 2009-2013)

In the E&P industry the amount of money the companies invest in exploration and production is a driver of the companies' revenue and future performance. The capital expenditures of the peer group show a lot of variation in the industry. As the incumbent players in the industry BP, Chevron and Statoil report constant and proportionally lower levels of CAPEX (calculated as CAPEX/ Revenues). This is illustrative of the general attribute in the industry of having higher CAPEX levels in times of growth and expansion which is more characteristic to smaller and younger players. In fact, Lundin, Tullow and Premier – all show much more variability in the past 5 years and higher levels of expenditure compared to the bigger players. All three representatives are upstream companies, whereas the others are operators across the whole value chain – a characteristic that can at least partly explain the difference. Lundin however, has a much more varying and unstable CAPEX/Revenues structure, even among upstream players, which has been increasing since 2010. The variations in CAPEX for Lundin can be explained by the relative young age of the company and its active growth in such a short period of time. Moreover, the company's high expenditures in CAPEX show a dedication to more exploratory activities and future organic growth.

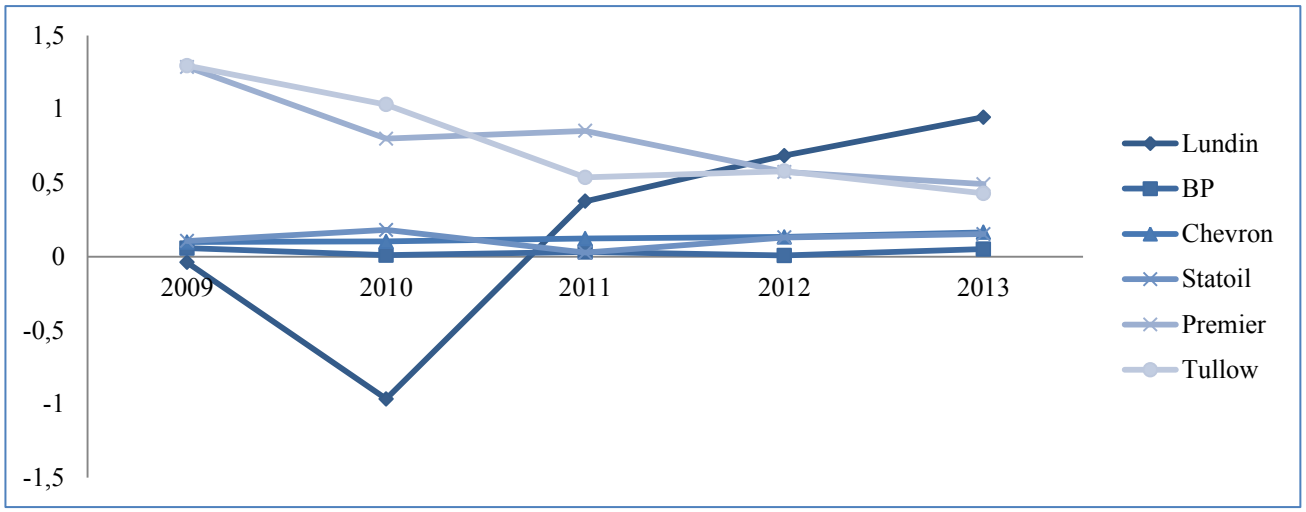


Figure 36: CAPEX/Revenue ratio (Own calculations based on peers annual reports, 2009-2013)

Comparing the Net Working Capital (NWC) of the peers calculated as current asset minus current liabilities reveals that it fluctuates a lot for the companies operating in the upstream industry. NWC for Statoil, Chevron and BP has been stable, positive but low. The exclusively upstream companies don't seem to follow one general trend. While Lundin had positive NWC for the two first years it has had stable but negative NWC in the last three years. Tullow and Premier started with a positive NWC, followed by a negative one and ending with a strong positive NWC in the last 2 years. A company's NWC varies a lot depending on each individual's company needs and short-term requirements. Lundin's negative NWC comes from joint venture creditors created by the opportunities in the development fields it has at hand. Therefore, while Lundin has reported big variations in NWC over the years, this factor is not seen as an exceptionally negative one as it indicates to the structure of short term operations in the company and accounts for the opportunities Lundin has to pursue currently and its closest future.

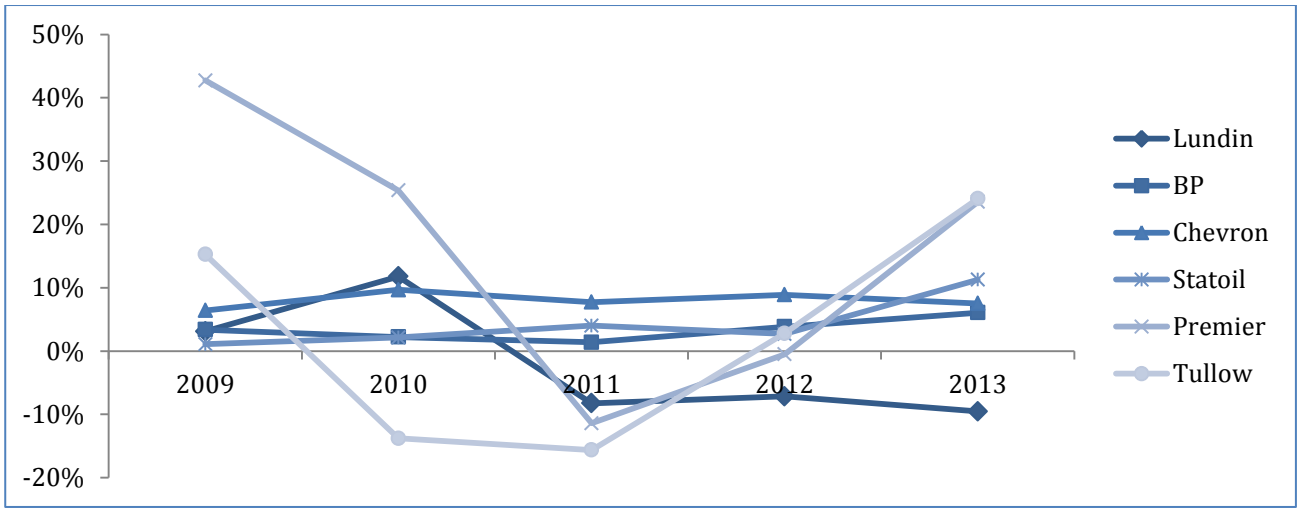


Figure 37: NWC (Own calculations based on peers annual reports, 2009-2013)

Common size analysis of income statement

To expand our understanding of Lundin's performance an analysis of its and its peers' income statement will be conducted. To eliminate the size difference and the effect it will have on the absolute numbers a common size analysis of the income statement will be done, allowing us to look at the percentage of revenues the individual accounts have for each of the peers. According to Penman (2010) a common size analysis is an effective way in comparing companies of different size and allows the discovery of unusual features that require further investigation.

First a trend analysis of Lundin was conducted, showing the company's historical development, which can reveal important deviations and drifts in the last five years. Table 10 shows the trend analysis of Lundin's income statement, the most relevant items are shown as percentages of revenue.

Lundin consolidated income statement trend analysis					
	2009	**2010**	**2011**	**2012**	**2013**
Revenue	100%	100%	100%	100%	100%
Production costs	-27%	-20%	-15%	-13%	-16%
Depletion and decommissioning costs	-21%	-18%	-13%	-14%	-15%
Exploration costs	-24%	-16%	-11%	-13%	-24%
Impairment costs of oil and gas properties	-92%	-	-	-18%	-10%
Impairment cost for goodwill	-21%	-	-	-	-
Gross profit	-84%	46%	61%	43%	35%
Gain on sale of assets	1%	8%	-	-	-
Other income	0%	0%	-	-	-
General, administration and depreciation expenses	-5%	-5%	-5%	-2%	-4%
Operating profit	-88%	49%	55%	40%	31%
Financial income	14%	3%	4%	2%	0%
Financial expense	-9%	-4%	-2%	-4%	-7%
Result from share in associated company	-4%	-	-	-	-
Profit before tax	-87%	48%	57%	39%	24%
Income tax expense	-8%	-32%	-45%	-31%	-18%
Net result from continuing operations	-95%	16%	12%	8%	6%
Net result from discontinued operations	2%	46%	-	-	-
Net result	**-94%**	**62%**	**12%**	**8%**	**6%**
Net result attributable to parent company shareholders	-72%	64%	13%	8%	6%
Net result attributable to non-controlling interest:	-22%	-2%	0%	0%	0%

Table 10: Lundin consolidated income statement trend analysis

This analysis reveals that the production cost as a percentage of revenue has decreased since 2009, indicating an increase in the firm's operational efficiency. Exploration costs which decreased for year 2009, 2010 and 2011 has increased in subsequent years, 2013 representing almost the double of what it was in 2012. Impairment costs in oil and gas properties represented 10 % of revenue in 2013, but are much lower than the

90 % it represented in 2009. Gross profit has gone from negative in 2009 to positive in the last four years. Gross profit was highest in 2011 but decreased in 2012 and 2013. This can be attributed to the 2012 impairment costs and Lundin having lower revenues, higher exploration costs and some impairment costs in 2013. General, administration and depreciation costs have decreased somewhat in the last years, but overall operating profit follows the same trend as gross profit. Overall the trend analysis reveals an articulated discrepancy in 2009 due to exceptional one-time events that distorted profitability margins in that period of time but are not expected to be repeated in the future. Table 11 shows a common size analysis of the peers' income statement as an average percentage of revenue of the years 2009-2013.

Common size analysis percentage of revenue average between 2009-2013						
	Lundin	**BP**	**Chevron**	**Statoil**	**Premier Oil**	**Tullow Oil**
Cost of sales	-80%	-86%	-69%	-61%	-74%	-50%
Exploration expenses	-17%	0%	-1%	-3%	-11%	0%
Gross profit	20%	14%	31%	39%	26%	50%
General, admin., deprec.expenses	-4%	-8%	-8%	-12%	-2%	-8%
Other accounts	2%	0%	-7%	0%	0%	-11%
Operating profit	18%	7%	16%	27%	24%	31%
Net Financial	-1%	0%	0%	-1%	-7%	-6%
Profit before tax	16%	6%	16%	27%	17%	25%
Tax	-27%	-2%	-7%	-19%	0%	-10%
Profit after tax	**-11%**	**4%**	**9%**	**8%**	**18%**	**16%**

Table 11: Common size analysis between 2009-2013 (average of percentage of revenue)

Comparing Lundin to its peers shows that the company has had the second highest cost of sales and the highest exploration expenses. Lundin's exploration expenses were almost 15 % more of revenues compared to its competitors, excluding Premier. The 17.4 % of revenues that Lundin has on average spent on exploration in 2009-2013 can be explained by the company's high commitment to discovering new resources and its renowned position as an expert in exploration. The exploration expenses as percentage of revenues is considerably higher compared to all of the benchmarked competitors, however the number is less representative of the highly integrated peers like BP, Statoil and Chevron since their upstream operations account for a smaller part of the revenues.

Lundin's average profit before tax was comparable to that of Chevron and Premier. BP had a lower profit before tax, while Statoil and Tullow had around 10 % higher. Lundin has the highest tax rate amongst its peers which is explained by Norway's tax rate regime where Lundin has a very high exposure through its operations that account for 75% of its entire production. On average Lundin had a negative profit after tax in the last five years, whereas all other peers recorded positive numbers for profit after tax as a proportion of revenues in the 4-15% range.

As Lundin's historical performance was so affected by the incidents in 2009, table 12 below compares the common size income statement in year 2013. The focus on that year reveals that Lundin had the third lowest cost of sales compared to its peers but still had the highest exploration costs. Lundin's higher exploration expenditures can be explained by its commitment to drilling more exploration wells. In 2013 Lundin drilled 16 exploration wells while Premier only drilled 7. Furthermore, Lundin's focus on Norway leads to higher costs than competitors operating in lower costs areas. In 2013 Lundin had the second highest gross profit and the highest operating profit. However, Lundin still had the highest taxes in 2013, resulting in Lundin having 6% profit margin after taxes, equal to the profit margin of Statoil and BP.

Common size analysis percentage of revenue 2013						
	Lundin	**BP**	**Chevron**	**Statoil**	**Premier Oil**	**Tullow Oil**
Cost of sales	-65%	-85%	-70%	-63%	-76%	-46%
Exploration expenses	-24%	-1%	-1%	-3%	-7%	
Gross profit	35%	15%	30%	37%	24%	54%
General, admin., deprec.expenses	-4%	-7%	-8%	-13%	-1%	-8%
Other accounts	0%	0%	-6%	0%	0%	-32%
Operating profit	31%	8%	16%	24%	23%	14%
Net Financial	-7%	0%	0%	-3%	-4%	-3%
Profit before tax	24%	8%	16%	22%	19%	12%
Tax	-18%	-2%	-6%	-16%	-3%	-4%
Profit after tax	**6%**	**6%**	**9%**	**6%**	**15%**	**8%**

Table 12: Common size analysis percentage of revenue 2013

Risk Analysis

All companies hold risks and the risk a company has will determine its cost of capital. The risk comes from the company's operations and financing (Penman, 2010).

Operating risk

The potential variation in return from operating assets creates operating risk. The variation in the return on operating assets is driven by changes in asset turnover and profit margin. Asset turnover risk recognizes the possibility that sales might fall due to either a decrease in prices or volumes. (Penman, 2010) The character of Lundin's business makes it quite sensitive to asset turnover risk. Its success depends on the new discoveries and the quality of its reserves. Lundin's operational success therefore depends on its internal capabilities such as investments, technological and human resources but also on natural sources such as the quality and the quantity of the reserves the company finds, which is an external risk Lundin can only control to a small extent. The uncertainty of exploration success and the company's dependence on it means that there is quite high asset turnover risk as the volume it sells is highly dependent on its exploration success.

In Norway Lundin is the second largest acreage holder but has in the last 10 years been the most successful explorer. Lundin has over the last 10 years drilled 36 exploration wells in Norway of which 15 are commercial discoveries giving a hit ratio of 40 %. For its appraisal wells 22 out of 24 wells are classified as successful giving a hit ratio of 92%. This shows that Lundin has had a good performance in Norway, its main focus area. Nonetheless, some wells have been declared un-commercial in Norway and South East Asia (resulting in impairment costs) showing the riskiness and difficulty in assuring good oilfield discoveries. Furthermore, the oil price affects Lundin and as the oil and gas prices are set by the market Lundin has little or almost no power in setting the prices, which increases the asset turnover risk.

Profit margin risk is the risk of profit margins changing for a given level of sales. This risk is driven by expense risk, the risk of costs increasing per dollar of sales (Penman, 2010). The industry wide trend of increasing costs of exploration means that profit margins might become lower presenting a profit margin risk for Lundin. Operating leverage, the level of fixed to variable costs, also affects the profit margins. The character of Lundin's business and the industry standards of 4 to 1 ratio in fixed to variable costs means that it would take a long time for Lundin to adjust to market changes and thereby add to Lundin's profit margin risk. The high profit margin and ATO risk characterizes Lundin as having a high operating risk.

As Lundin is an upstream company other risks related to the operations can have a big effect on the company. Such risks are related to accidents and the sustainability of the company's operations. In terms of accidents the company and its contractors have had no fatalities in the last five years. In 2013 it had 2 lost time incidents among its employees and 4 among contractors while between 2009- 2012 it had 9 incidents among its employees and 11 among its contractors. Oil spills can also affect an upstream company negatively and while Lundin had no oil spills in 2013 it had 2 in 2012 amounting to a volume of 4,18 m^2, 7 in 2011 equal to a volume of 33 m^2, 1 in 2010 resulting in a volume of 10 m^2 and 1 in 2009 amounting to a volume of 40 m^2. These incidents show that Lundin's operations entail some degree of risk. However, the company has implemented a Health, Safety and Environmental (HSE) framework that guides it operations and hamper the risks associated with its operations (Lundin, 2013).

Financing risk

The financial risk arises because of leverage and is determined by the financial leverage risk and net borrowing cost risk.

The current ratio measures a company's ability to meet its short-term obligations. It is defined as:

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

Lundin's current ratio structure has reported a negative development in the past three years. As an important measure of liquidity, this ratio represents a point Lundin should focus on in the future as it might indicate inefficiencies in the operating cycle and issues in paying off future obligations. However, in Lundin's specific case, the 0,8 level of the ratio can be explained by the company's recent heavy investing and commitment to development. Moreover, Lundin has access to financing sources, as expressed by Rodderick *"they seem to be fairly robust financially"* (Rodderick, time: 13,35, 2014), provides an additional protection against potential downside risks and implications from its low current ratio.

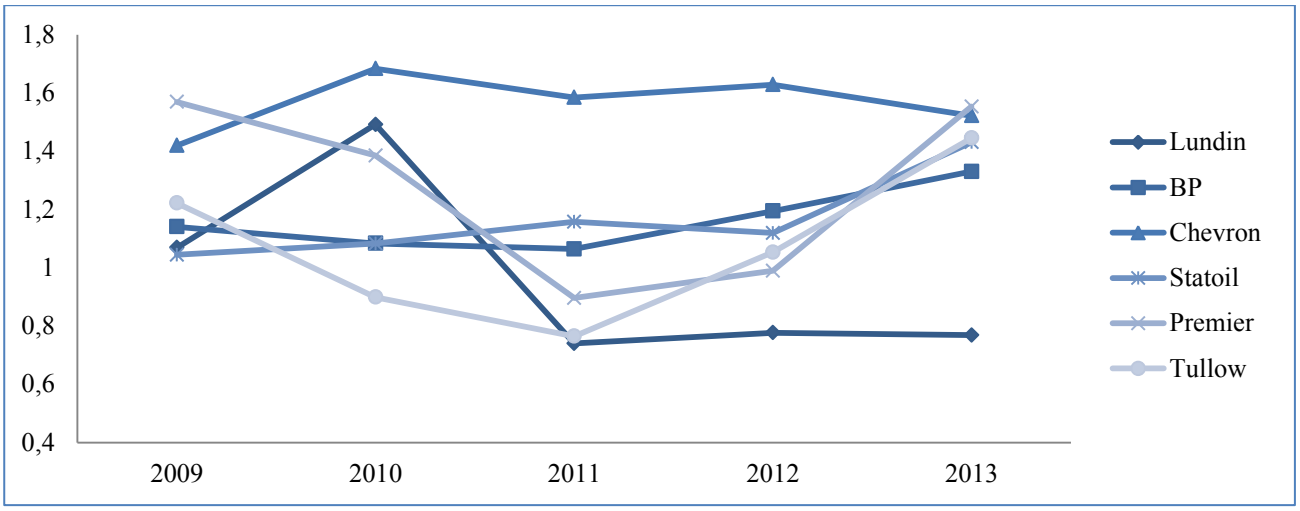


Figure 38: Current ratio (Own calculations based on peers annual reports, 2009-2013)

Net debt shows the amount of debt a company has on its books, defined as

$$Net\ debt = total\ debt - cash\ and\ cash\ equivalents$$

The upstream companies have higher net debt than the integrated companies. In 2013 Lundin had the highest net debt compared to assets among its peers. Lundin's net debt has more than doubled over the last five years; it has gone from 468,4 MUSD in 2009 to 1 178,3 MUSD in 2013, with the highest increase occurring in 2013. Although Lundin's debt has increased dramatically in recent years and it is a lot higher than most of its peers debt ratio to assets, Statoil has a similar leverage.

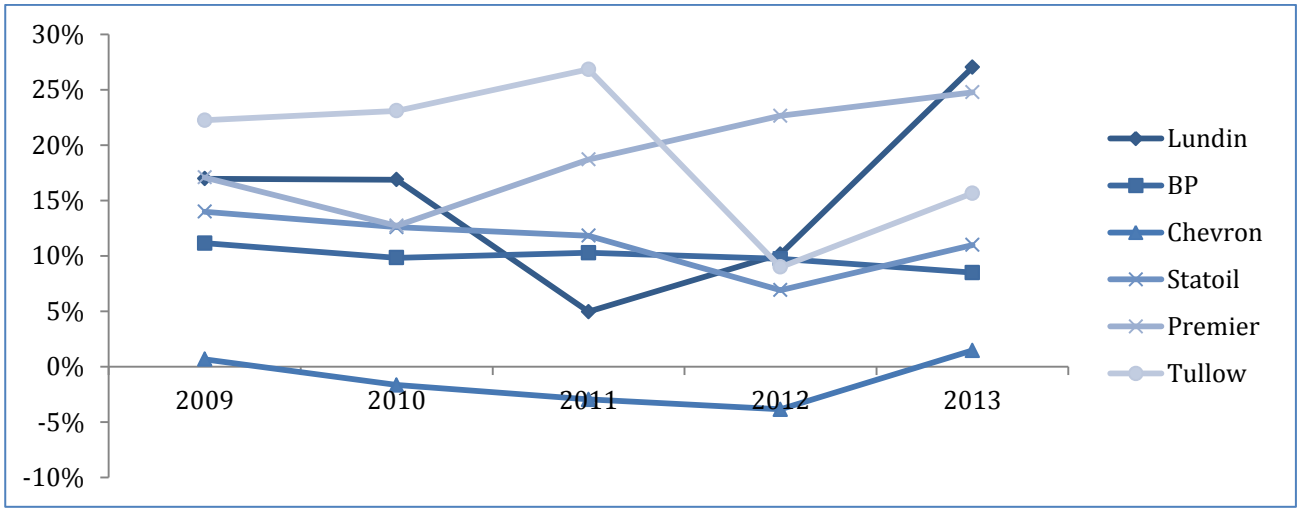


Figure 39: Net debt/ Assets (Own illustration based on Peers 2009-2013)

Lundin's financial leverage calculated as long-term liabilities over total equity has increased since 2009 and in 2013 Lundin had a financial leverage of 2,1. While it is difficult to say anything of the financial leverage as it differs between industries and companies, Lundin's financial leverage compared to its peers seems elevated. Premier has the second highest leverage of 1,4, Statoil 1,1, Tullow 0,9, BP 0,8 and Chevron has the lowest of 0,5. Lundin had an average financial leverage of 1,21 between the years 2009- 2012 and increased its leverage by 224% between 2012 and 2013. The new debt was taken on to fund the Norwegian development activities. Although Lundin has a high leverage, it has not breached any debt covenants in the period and analysts covering the company believe it to have a strong balance sheet and doesn't consider the large leverage a big risk.

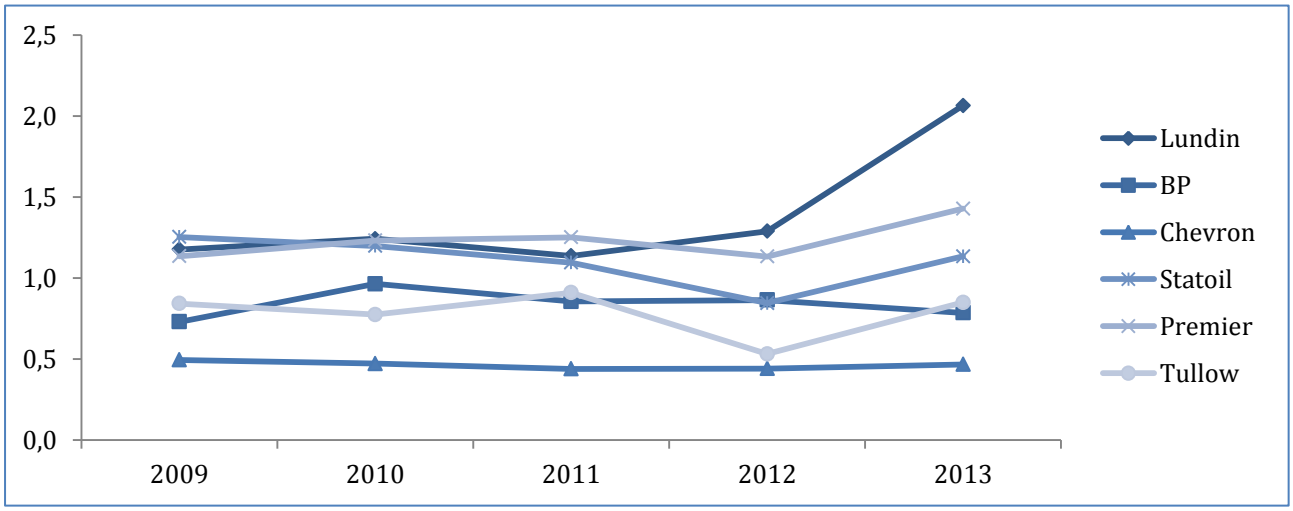


Figure 40: Financial leverage (Own calculations based on peers annual reports, 2009-2013)

Trade receivables were the second biggest asset item on Lundin's balance sheet after oil and gas properties. Trade receivables going bad could potentially affect Lundin, however in 2013 the company estimated that none of the trade receivables was bad debt. Another potential financial risk comes from Lundin having a big equity stake in Johan Sverdrup and as such has placed a lot of its investments in one place. The high, concentrated investments mean that Lundin is very dependent on the performance of this oilfield, which increases all its risk. However, according to Rodderick, Lundin has good financial support and strong financial shareholders leading to the company having low financial risk. Overall, the company is estimated to have moderate financial risk.

Conclusion to Financial Analysis

In this part the financials of Lundin was assessed, both how Lundin has developed in the last five years and how it has performed in comparison to its peers.

I. Lundin's Invested Capital and CAPEX have increased a lot in the past five years and in year 2013 the company had the highest CAPEX among the peer group. As Lundin's investments mostly have been in oil and gas properties it is seen to be a positive development as it prepares the company for the future. (+)

II. On the other hand, the large investments in the recent past have meant that Lundin has taken on extensive debt resulting in high financial leverage also in comparison to its peers and high net debt. The leverage was recognised as important to finance the required investment to keep the company operational and growing but it adds a financial burden on its operations, its ultimate ability to raise more financing and even a risk of default (-)

III. Lundin's NOPLAT has fluctuated a lot in the past years but has in the most recent years stabilized and gone from being negative to positive in the analytical period.. (+)

IV. In contrast, Lundin's FCF has developed from being positive to negative in the last couple of years, although this is due to heavy investments it constrains the company as it can mean that it doesn't have enough cash at hand to pursue opportunities at hand. (-)

V. Lundin's ROIC has gone from being negative in 2009 to positive in 2013 although decreasing the last two years. Lower ROIC characterizes the whole industry with Lundin's ROIC similar to its peers. The reported second highest EBITDA margin in 2013 and stable profit margins in the last years also shows that Lundin is able to generate value from its investments. (+)

VI. Lundin's current ratio has been stable but negative the last 3 years, while it doesn't necessarily mean that the company is in bad shape it can mean that it has difficulties of meeting its most short term financial obligations. (-)

VII. The company has consistently shown above industry average exploration results and resources replacement rates and has in this period been able to increase its revenues a lot. (+)

VIII. Lundin is prone to great financial uncertainty mainly coming from impairment costs that has affected its profits in the past, and can thus also unexpectedly affect its profits in the future. In addition, Lundin has the highest tax rate among the peers springing from its large presence in Norway, which affects Lundin's reported profits to a great extent. (-).

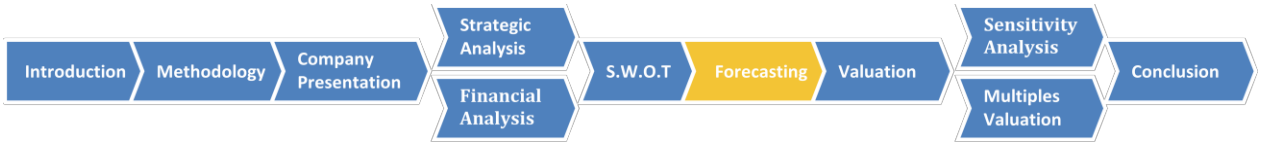
SWOT Analysis

A SWOT analysis allows us to quickly summarise the most important characteristics that were uncovered in the strategic and financial analysis and consolidate them in a table that will serve as a further reference for the forecasting and expectations section.

Strengths	**Weaknesses**
• Excellent record of explorations • Recognised industry know-how and skilled professionals • Owner of important and numerous licenses • Considerable estimated reserves and resources • Stable fiscal and political regimes of operations • Strong balance sheet and funding • Established player in the industry with strong ties with government officials in Norway • General better recognised performance of specialised upstream sector companies	• High tax rate system of operations • High uncertainty regarding the real reserves potential • Large investments required for some of its most isolated fields in Norway • Heavy focus on oil production • Norwegian market focus that is part of a mature (European) market and may lack prospects of growth in the future • High financial leverage and burden • Extremely reliant on only a few promising fields • Little diversification in its producing facilities
Opportunities	**Threats**
• The contingent reserves and resources whose potential is yet vastly unexplored • Expansion in promising growth region such as South East Asia • Active owner of licenses which will encourage further exploration and development	• The increasing demand and threat posed by renewables and coal • Increasing cost structure of the upstream industry - production/extraction • Increased pressure on debt repayment schedules and shareholder returns due to decreasing margins in the industry

Forecasting

The financial and strategic analysis highlighted important factors that affect Lundin's performance and how these should be restated to account for the operational and the financial side of the company. The insights and information gained in these sections are used to make projections of Lundin's future development. In this part the accounts leading to Lundin's cash flow figures will be forecasted which will provide the basis for the valuation of its share price, conducted in the next section.



Forecasting period

The main criterion for choosing the length of the forecasting period is that it should be long enough for the company to reach steady state. A company has reached its steady state when it grows at a constant rate by reinvesting a constant proportion of its operating profits into the business each year and it earns a constant rate on both existing capital and new capital invested. (Koller et al., 2010) Choosing a reasonable steady state growth rate is one of the most important caveats of the model. One of the most fundamental assumptions acknowledged by most practitioners is that no firm can keep a growth rate that exceeds that of the economy it operates in for extended periods of time. Damodaran (1996), for instance mentions that a stable firm cannot be expected to maintain growth rates above 6% in the long run. Additionally, in our work – based on the current economic environment, the growth rate should be expected to be even lower.

For the forecasting period Koller et al. (2010) recommends using 10 to 15 years. Lundin's cash flows are largely dependent on the success of the natural resource sights it currently holds. Our expectations for the future of the company are positive and in line with the view analysts and experts have on the company's future. The company currently holds important assets with a potential for exploitation far exceeding that of current production. Thus, during the forecasted period the largest oil fields that are currently in the research and development stage are expected to become fully functional and reach steady states of production and consequently provide steady cash flows. The forecasting period for Lundin will be 10 years as that's the time that is expected to take for Lundin's assets to start generating stable cash flows. The forecasting period for Lundin therefore is over the years 2014-2024. After the forecasted period Lundin is assumed to reach steady state and the terminal value calculation starts in year 2024.

Forecasting method

The value of a business is determined by its future expected free cash flows (Brealey, Myers & Allen, 2011). Lundin's forecasted cash flows will therefore be one of the main factors determining the estimated stock price in this thesis. To ensure that a realistic and true stock price is found the future development of Lundin must be carefully forecasted. It is essential that the forecast is built on realistic assumptions, incorporating the insights from the strategic and financial analysis and including the main value drivers.

According to Petersen & Plenborg (2012) there are two possible forecasting methods, the line item approach and the sales driven approach. In the line item approach each accounting item is forecasted. In this method in-depth knowledge is required to be able to predict how each item will develop in the forecasting period and thus is often only feasible for analysts that have very clear and specific internal industry and company insights. Through the second method, the sales driven forecasting approach, all items are forecasted as a percentage of sales or revenues. (Petersen & Plenborg, 2012) We deemed the line item method as unsuitable for us due to the previously mentioned reasons and thus the forecasting method used will be based on the revenues driven approach. In this regard, Koller et al (2010) states that while almost all items will be directly or indirectly driven by revenues, some items will be driven by the underlying assets and liabilities and in such cases the underlying drivers should be used for the forecast. The report will follow the same principle of forecasting throughout the analysis, meaning that whereas most items will be forecasted on a revenue base some others will be driven by other accounts if deemed more relevant. Since Lundin holds quite a complex balance sheet we will not restrict ourselves to the revenues driven forecast approach but instead decide which underlying factor is the main driver for the individual item and base its forecast on that, following the method Koller et al. (2010) proposes.

Forecasted items

To be able to assess the overall expected performance of Lundin each important item revealing Lundin's financial status must be forecasted. To be consistent with the financial analysis and in order to concentrate on key value drivers we deem it sufficient for our purpose to forecast those items from the income statement and balance sheet that ultimately make up the final FCF in the order and sequence determined in the financial analysis section for consistency purposes. Such items include but are not limited to: revenues, direct operating costs, NOPLAT, taxes, CAPEX, working capital and others.

Income statement forecast

Revenue

Ultimately the value assigned to a firm is most dependent on the expectations of its future cash flows. Therefore for a reasonable valuation, great consideration should be given to the growth rates employed in the forecasts. Damodaran (1996) remarks on three general methodologies that can be used to estimate growth

rates and the author suggests taking into account all three of them in order to get a true and representative final estimate. Growth rates can be based on (I) past trends, (II) analysts' estimates or (III) specific firm fundamentals. Considering all three methods is crucial for a thorough analysis but in Lundin's specific case the future industry expectations are seen as particularly important. As a fairly young player in the industry it is expected to change, grow and develop more than its more mature peers. This means that forward-looking analysis – in our case supported by analysts' reports and opinions – and company specific resources are particularly important. Predictions based solely on past performance are generally considered unreliable (Harris, 2003) and we consider it to be especially the case for a company that grows as fast and changes as rapidly as Lundin does, looking over the analysts' expectations is deemed as a crucial source of information to estimate the growth in revenues for the company. In general, analysts are often considered to hold an advantage in the field of valuing and analysing firms as they are exposed to a huge amount of information that often balances at the very edge of private and public (Damodaran, 1996).

As most of the items in our analysis will be forecasted directly or indirectly as a percentage of revenue it is important to have a thorough and detailed forecast of Lundin's revenues. (Koller et al., 2010) To estimate future revenues a top-down (market-based) or bottom-up (customer-based) approach can be used. In the top-down approach revenues are forecasted by sizing the total market, determining market share and price. In the bottom-up approach demand from existing customers and customer turnover etc are used. While Koller et al. (2010) recommends using both methods the restricted information about Lundin's customers makes it difficult for us to do the bottom-up approach and therefore only the top–down approach will be used.

According to Kaiser & Yu (2012) E&P companies rely heavily on their reserves, their ability to replace depleting reserves and the price of natural resources. Therefore the main factors that drive the revenues of Lundin are its proven and probable reserves and the price it can charge for its oil and gas.

While Lundin's supply ability will be one determining factor, the demand in the market also will affect its revenues. As we have seen in the strategic analysis the demand for oil and gas is not expected to decrease in the future but rather a long term increase in the consumption of oil and gas is expected. Therefore, even without the analysis of the specific information about Lundin's customers the company is expected to be able to sell all the oil and gas it finds and produces. This represents an important underlying assumption for our valuation. Therefore, the main driver of Lundin's revenues is the amount of oil it will produce and the price it can charge.

$$Lundin's\ Revenues = produced\ oil\ \&\ gas * price\ of\ oil\ and\ gas$$

Although there is uncertainty around how much oil and gas Lundin will be able to produce, a good indication is the amount of reserves and development sights they currently have in the company. Lundin's array of

assets including those categorised as production, reserves and contingent resources will be examined together with the analysts' expectations for the company's producing capacity thus forming the bases for the revenue forecast.

In the five years of historical performance that were analysed, prior to making the forecasting, production volumes varied considerably. The conducted historical analysis, coupled with the company's own expectations and an overall reconciliation of all of the analysts' expectation resulted in an overall production forecast for the period 2014- 2024, that is presented further in figure 41.

There was some variation in the estimation of Lundin's expected production of the interviewed analysts and in order to produce reliable estimates we have taken a conservative approach and considered the most careful and prevailing prognosis.

In 2013 Lundin produced 32 700 boepd and the company itself estimates production volume to be approximately the same during 2014. Thereafter the production is projected to gradually increase and reach 50 000 boepd in 2015. The value generated in both 2014 and 2015 is mostly driven by the fields: Alvheim and Boyla (Lundin Petroleum, 2014_e). Edvard Grieg is yet another promising field on Lundin's asset list, expecting to lead production when it comes on stream in late 2015. Yggeseth - an analyst at Arctic Securities - expects that Lundin will produce 60000-65000 boepd when Edvard Grieg comes on stream in late 2015. When this field reaches its plateau in 2016 net production is forecasted to exceed 75 000 boepd. (Yggeseth e-mail, 2014) In agreement with this forecast Rodderick - an analyst at Wood Mackenzie - also predicts that Lundin's production will double by 2017. In the words of Rodderick *"Based on our approach and asset models for Lundin we expect production to grow, to more than double by 2016-2017 as new projects come on stream"* (Rodderick, time: 20,35, 2014).

Lundin's biggest field and value lever however is undoubtly the Johan Sverdrup field in Norway. Analysts and Lundin forecasts estimate production in Johan Sverdrup to come on stream in late 2019 or early 2020. In its plateau stage, production from Johan Sverdrup promises to quadruple production from today's level (Rodderick interview, Yggeseth e-mail, 2014). Johan Sverdrup and Edvard Grieg are Lundin's largest and most valuable production areas. The value of the entire company is highly dependent on the performance stemming from these fields and both investors and industry experts hold extremely positive outlooks for these assets. The production is expected to plateau in years 2023/ 2024 which supports our choice of forecasting period, as these, indirectly, represent the years when cash flows are expected to stabilize and revenues to reach a steady state growth rate. Lundin's historical and forecasted production amount can be seen in figure 41.

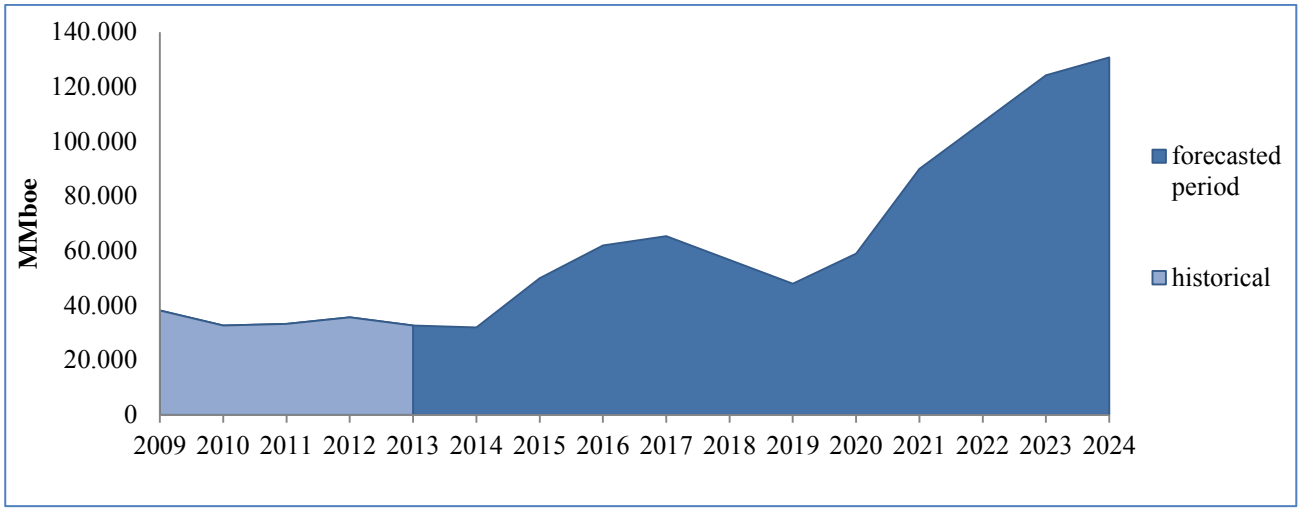


Figure 41: Lundin production forecast, Lundin, 2013, Rodderick 2014, Yggeseth 2014

The second aspect driving the revenue of Lundin is the price of the commodity. Having assessed the historical performance and the future development of the oil price in the strategic analysis the expectation is that the price of oil will fluctuate around the same level as it has in the last couple of years (105 USD per barrels of oil). The price of oil in the world markets represents a very complex variable to include in any analysis and limitations concerning the assumption that the price level of the commodity will be kept constant are important to be taken into considerations. Our previous discussion in the strategic analysis section demonstrates various reasons for possible oil price fluctuations in both negative and positive directions, depending on the conditions assumed in the different scenarios. Our reference forecast lays on the assumptions that the price of oil is expected to increase in the long term and oscillate around the price of 105 USD per barrel during the forecasted period. This estimation is based on the common features in the forecasts presented by agencies like: EIA, IEO, IMF and the WB and our expectations for the future of the sector.

Having considered all of the aforementioned facts and opinions we have constructed the following forecasted schedule of revenues based on an assumed level of oil price of 105 USD per boe.

Production forecast																
	Historical					Forecast										
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Boepd	38 200	32 700	33 300	35 700	32 700	32 000	50 000	62 000	65 400	56 700	48 000	59 000	90 000	107 130	124 260	130 800
Boe per annum	**13 943 000**	**11 935 500**	**12 154 500**	**13 030 500**	**11 935 500**	**11 680 000**	**18 250 000**	**22 630 000**	**23 871 000**	**20 695 500**	**17 520 000**	**21 535 000**	**32 850 000**	**39 102 450**	**45 354 900**	**47 742 000**

Table 13: Production forecast, p.a. production based on: daily production * 365 days

Having expressed so far the fundamentals in our production forecast over the period 2014-2024 and the assumptions used for future oil price fluctuations, we can thus proceed to the forecasting of the actual revenue figures. A historical review of the producing capacities of Lundin in the past years and its revenues in the same period of time provide an interesting insight into the industry. Even though production and oil

price are the most important triggers in determining the amount of revenues a company is expected to generate, the relationship is by no means described by a one to one expression. This observation is supported by industry reports that note that hidden costs, trading fees and production and transportation losses eat away an initial margin from a firm's revenues in the E&P sector (Barclays, 2013). To account for this factor we have calculated the revenues Lundin should have received in the historical period 2009–2013, if the revenue formula would have been given simply by Production * Oil Price. This is shown in the first row of the table 14 and is based on Lundin's reported production figures and the oil price for the relevant years. The next row shows the real revenues that Lundin has received in the same period. The coefficient then reflects the proportion of real revenues out of total revenues that Lundin should have received if the relation was given by = Production x Oil Price.

Lundin Revenues					
	2009	**2010**	**2011**	**2012**	**2013**
Theoretical Revenues	1 533 730 000	1 312 905 000	1 336 995 000	1 433 355 000	1 312 905 000
Factual Revenues	571 800 000	798 600 000	1 269 500 000	1 345 100 000	1 195 800 000
Coefficient	37%	61%	95%	94%	**91%**

Table 14: Lundin Revenues

We have deliberately chosen the 2013-year coefficient for our forecasting period, as the years before that show considerable variations and are not considered representative for a long-term valuation. Thus based on a coefficient of 91%. For the purpose of this report this number can be considered a coefficient expressing the rate of conversion from production figures to "real revenues". We have then constructed the following table 15 of revenue scenarios for Lundin based on small variations of oil price which represent the price levels that we considered most likely in the future.

Oil price scenarios													
	USD/ boe	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Pessimistic	95	1032,9	1010,8	1579,4	1958,4	2065,8	1791,0	1516,2	1863,7	2842,9	3384,0	3925,1	4131,6
Base case	105	1141,6	1117,2	1745,6	2164,6	2283,3	1979,5	1675,8	2059,8	3142,1	3740,2	4338,2	4566,5
Optimistic	110	1196,0	1170,4	1828,7	2267,6	2392,0	2073,8	1755,6	2157,9	3291,7	3918,3	4544,8	4784,0
Very Optimistic	115	1250,4	1223,6	1911,9	2370,7	2500,7	2168,1	1835,4	2256,0	3441,4	4096,4	4751,4	5001,5

Table 15: Oil price scenarios

Our valuation model is based on the assumption of a constant oil price level which we finally selected to be pegged at 105 USD/boe. Accordingly the revenues deriving from this oil price level which are reflected in the base case scenarios represent the basis for our further forecast and valuation. Theoreticians and practitioners' advice on the use of scenarios in oil price movements when valuating an E&P player (Howard and Harp, 2009) and it gives further insight into our analysis and the entire sector to compare the impact even small variations in commodity prices can have on the revenue growth of the company. (Damodaran, 2009) The different scenarios will then be further used to analyse the impact they have on the final share price.

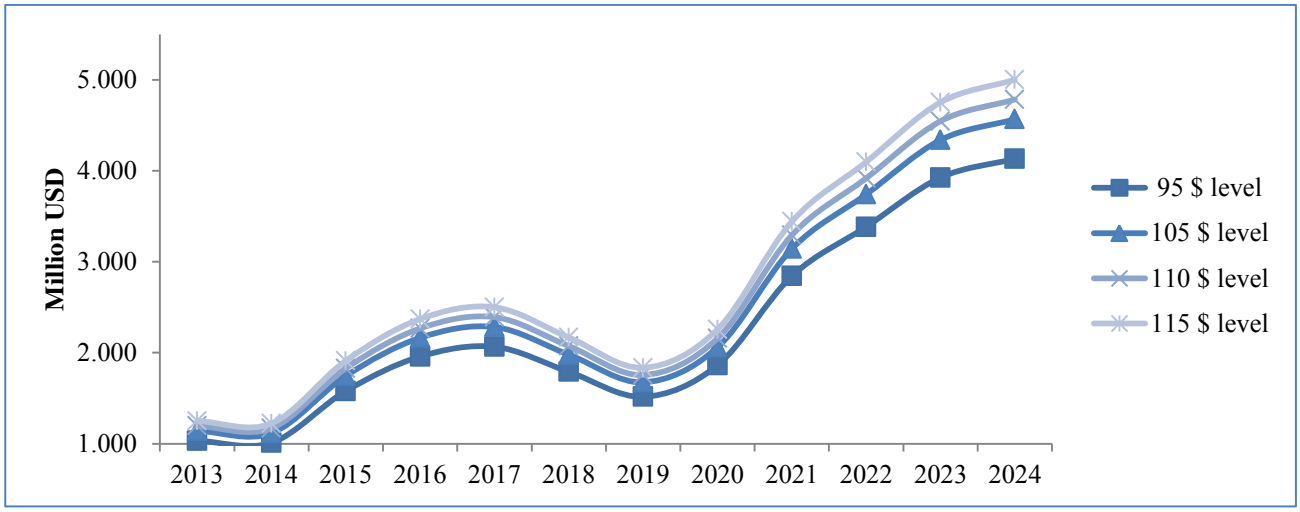


Figure 42: Lundin revenues for different oil price scenarios

Damodaran (2009) in his paper on the particularities of valuing cyclical and commodity companies warns on the sensitivity of such companies to variations in market prices, which is eloquently exposed in the forecasted revenues of Lundin in the chart. The highest forecasted scenario presents a 21.1% increase in revenues compared to the low case scenario, based on 2024 levels calculated on the same set of assumptions and constant oil price structure. Oil price levels could have such deep implications for Lundin, influencing everything from directly impacting its financial reports to altering investment expenditures, exploration and drilling prospects. For this reason adopting a more conservative and careful oil price estimation is crucial in avoiding the over-valuation of the assets and finally the stock price of the company.

The forecasted number for Lundin's revenues represents the basis for valuation for the rest of the model and is, further, used to estimate NOPLAT and FCF, by analysing the cost and cash flow structure in the company.

Production costs

According to the World Energy Outlook 2013, the production costs are increasing in the upstream industry (IEA, 2013). That production costs are expected to increase is also confirmed by the analyst at Arctic Securities estimating a costs' elevation of 2-3 % over the next five years (Yggeseth e-mail, 2014). Since the assumption is made for the total production costs it includes the depletion, decommission and exploration costs. While the overall production costs will increase the mix of the cost drivers is also expected to change. Depletion accounts for the reduction in the producer's reserves and decommissioning costs are the costs associated with abandoning an asset (Deloitte, 2013_a) (Oduware, 2013). As these two costs are directly dependant on the amount of production, they are expected to increase as the company production increases. At the same time exploration can be regarded as an investment decision by the company and thus as more sights are developed, more production is expected and the company slowly reaches a more mature state in

which it is expected to commit less resources to new discoveries and instead focus on production. In this case, exploration costs are expected to account for a decreasing proportion of overall costs. As Lundin's production is expected to increase a lot in the forecasting period we expect exploration costs to take a smaller percentage of total costs over time while depletion and decommissioning costs will represent a bigger part of the production costs. This assumption is based on the fact that decommissioning and depletion expenditures are a requirement for upstream companies and increases when production increases. Therefore these accounts will increase by the rate of Lundin's production increase. To estimate the production costs for 2014 the average costs of the years 2010 -2013 was calculated, these accounted for were 47 % of the revenues and due to the predicted increase in production costs we assume that there will be a gradual increase of 2-4 % per year, according to the overall trends in the sector and also dependable on production, resulting in higher increase in total operating costs in the year with the highest production growth rates. At the end of the period the operating costs will seize to grow and settle for the steady state of the company.

Impairment costs

Impairment costs are assets being written down to reflect the market value when the book value is too high. Upstream companies either use the successful-efforts model or the full cost model for their impairment accounting. Under the successful- efforts method proved properties should be tested for recoverability when events or changes in circumstances indicate that the assets carrying amount might not be recoverable. Unproved properties should have periodic, at least annual, assessments. Under the full-cost method companies are required to perform a full cost ceiling test on proved properties each reporting period and unproved properties must be assessed at least annually. (Deloitte, 2014) Lundin performs "impairment tests annually or when there are facts and circumstances that suggest that the carry value (...) is higher than the anticipated future net cash flow from oil and gas reserves…" (Lundin p. 92, 2013). Lundin therefore performs impairment under the successful-efforts method. Impairment costs are not included in the production costs and therefore have to be forecasted separately and represent some of the most complex and unpredictable accounts in the E&P sector as these are estimated in the post-development stages of the producing assets (EY, 2011). In Lundin's case, impairment costs have varied significantly, peaking in 2009 when a huge proportion of total costs were attributed to impairment costs – an amount equal to almost 92% of revenues. Contrastingly, in the following 2010 and 2011 years impairment costs were estimated at 0, even in the situation of gradually growing production and revenues. The 2009 data shows how significant impairment costs were that year. The company reported that these could not be expected and were related to two unsuccessful drilling projects in Russia. In 2012 and 2013, the impairments stemmed from projects in Russia and Norway and in 2013 they related to Norway and Malaysia (Lundin, 2009-2013). In such a setting it can be erroneous to consider average estimations of the past data, as the variations between various years are too considerable. Thus, due to the high uncertainty associated to this line item as well as the historical unpredictability we assign it a small percentage of revenues that in the long run is forecasted to average 3 %

annually, expecting to account both for the years in which impairment will be much higher and those in which it will be completely absent.

Finally, all the assumptions and the analysis conducted above – including production, exploration, depletion, decommissioning and impairment costs - results in the following overall cost structure for Lundin in the forecasted period:

Gross Profit																
	Historical					Forecast										
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Net sales of oil and gas	571,8	798,6	1 269,5	1 345,1	1 195,8	1 117,2	1 745,6	2 164,6	2 283,3	1 979,5	1 675,8	2 059,8	3 142,1	3 740,2	4 338,2	4 566,5
Profit after operating costs (without impairement)						593,0	902,0	1 087,2	1 112,7	944,4	781,9	928,2	1 346,8	1 539,0	1 734,1	1 825,3
Gross profit	**-481,2**	**368,7**	**771,2**	**575,3**	**414,6**	**481,3**	**744,9**	**914,0**	**952,8**	**825,6**	**698,1**	**845,8**	**1 221,1**	**1 426,8**	**1 603,9**	**1 688,3**

Table 16: Gross Profit

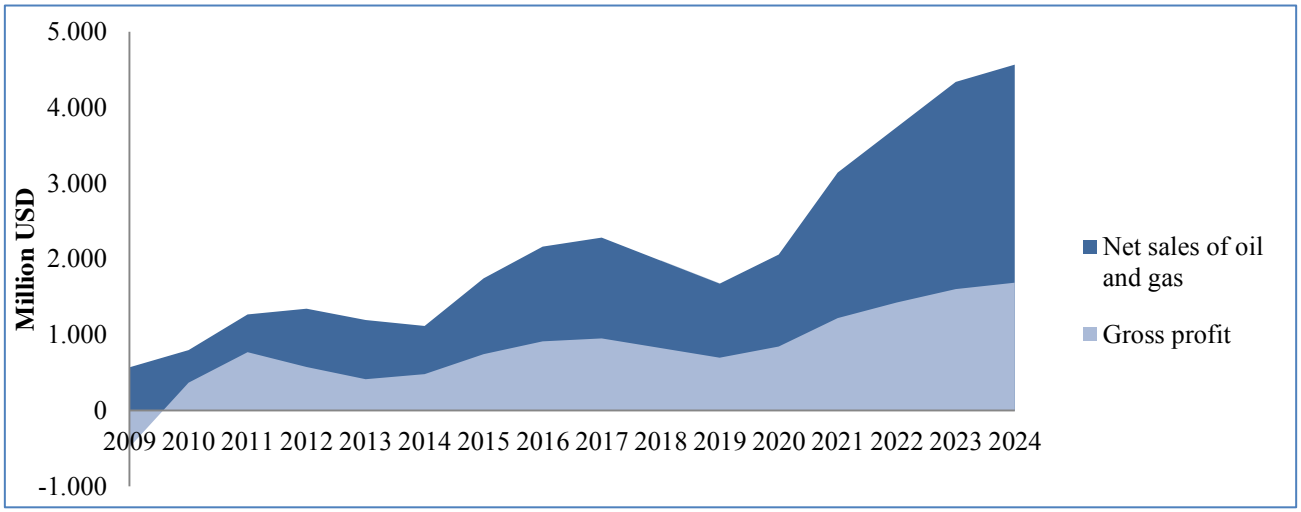


Figure 43: Profitability Analysis of Lundin

General and administration and depreciation

General, administration and depreciation represented on average 4 % of revenues in the last five years. The deprecation in this account concerns office equipment and real estates. As Lundin is expected to triple or even quadruple its production in the forecasting period the general, administration and depreciation costs are also estimated to go up, driven mostly by the costs and complexities found in managing an ever-growing organisation (Hendrikse, 2003). Thus in this period the value of the item is estimated to gradually increase from 4% to 7% of revenues.

Forecasting costs and profitability margins over such long-term horizons increases the risk of errors either in undervaluing or overvaluing a company's abilities to keep the same cost structure. To check the validity of our forecasts we have looked at the historical EBIT margins for Lundin. It is deemed as one of the best measures for the real profitability of the firms as it takes into account the costs that directly affect operations

and is independent of capital structure and debt conditions. (Koller et al., 2010) We have then compared these historical values with the estimated values for the future of the company and have illustrated the results in the following figure 44.

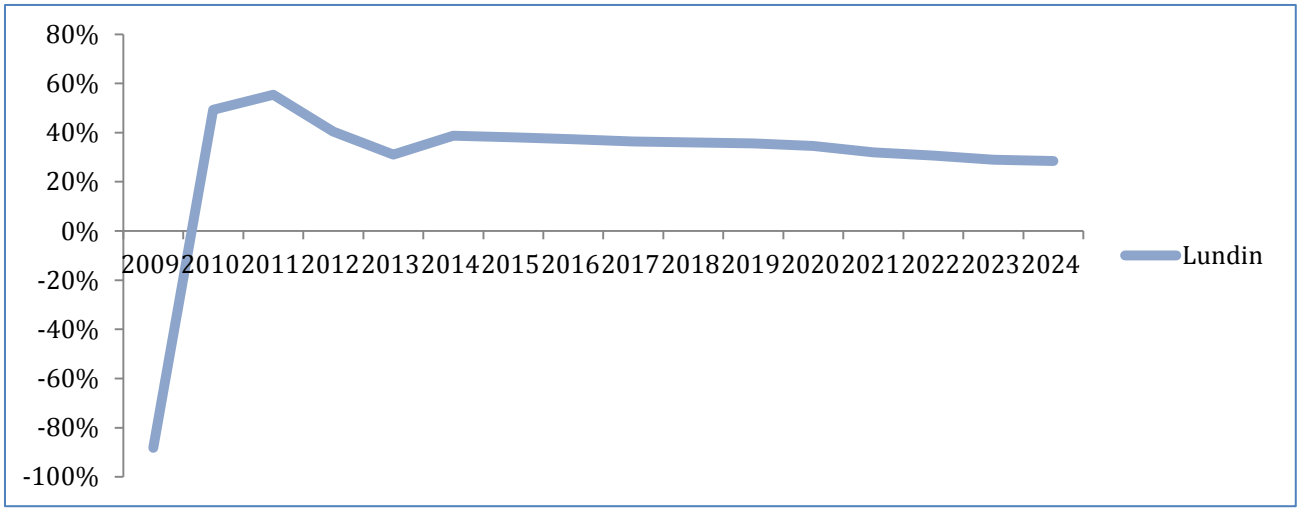


Figure 44: Lundin EBIT margin

Further, we have compared the historical EBIT numbers amongst Lundin's peers, illustrated in figure 45.

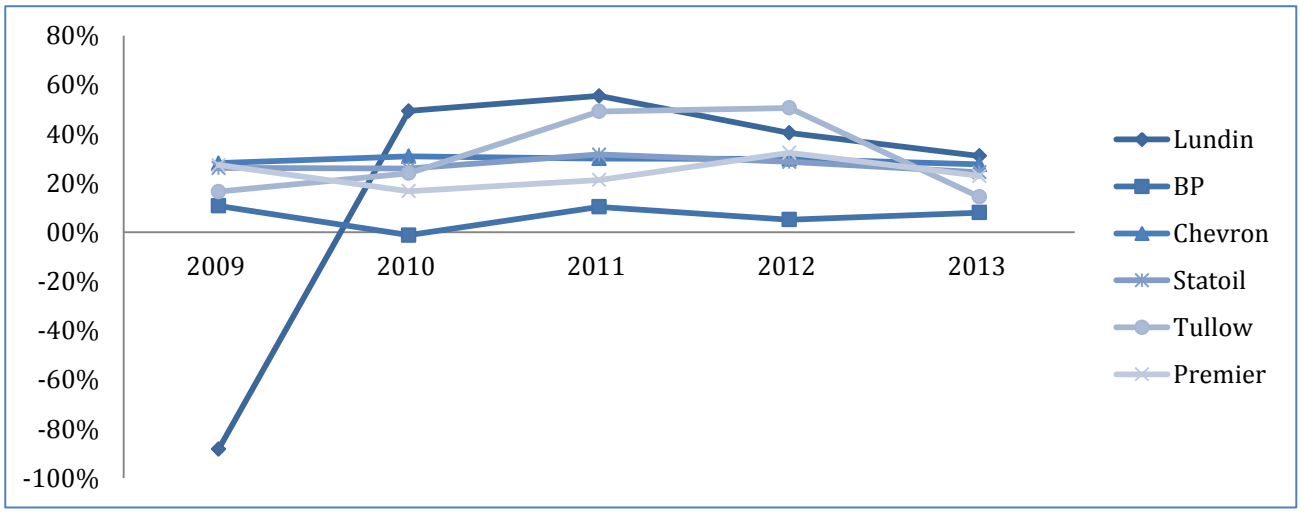


Figure 45: EBIT margins (own calculations based on peers annual reports, 2009-2013)

The figure provides a good reality check for our consideration as all of the peers considered in the group have EBIT values that tend to similar levels. Firstly it can be noted that the bigger, more integrated companies have more constant profit margins, varying little over the years. On the other hand those firms that are focused on the E&P sector, as Lundin is, and that moreover represent younger entities see greater variations throughout the historical period. Our forecast shows a gradual lessening of fluctuations in costs structure over time and a long-term tendency towards steady state rates approaching industry averages.

Interest income and interest expense

Interest income and interest expense should be calculated as a percentage of the underlying liability and asset (Koller et al., 2010). Most of Lundin's financial income is interest income and according to Koller et al. (2010) most interest income comes from cash and cash equivalents. Since cash and cash equivalents is estimated to be around the same percent of revenues as it has been in the previous years the financial income average of the last five years, 2.1% was found and used to forecast the financial income in the forecasting period. While the financial expense are reliant on the debt Lundin has taken on it is the amount of debt that is the driver of the financial expense. Lundin increased its debt a lot in 2013 and in the forecasting period it is assumed that Lundin will keep a constant debt level. Therefore, the financial expense in 2013 is seen as the most indicative variable for Lundin's future financial cost. Therefore, the financial expense is believed to stay at 7.2 %, the same percentage of revenues in the forecasting period as in 2013.

Income taxes

The forecasted operating cash taxes were based on the expected statutory tax rate of 22 %, the average effect of foreign tax rates in the last five years and the average amount of increase in operating deferred taxes Lundin has had in the last five years. While Lundin has its operations spread around the world and it operates in many different currencies and fiscal regimes the foreign tax rate effect is difficult to forecast. Therefore the average is believed to be the best approximation. The statutory tax rate plus the average foreign tax rate of the last five years yielded an average operating tax of 69.6 % based on the operating profit. While the operating deferred taxes are also hard to forecast, the average increase in the last five years was assumed to be a good approximation. The operating deferred taxes are thus estimated to stay constant over the period.

NOPLAT

Applying all of the above forecasting assumption leads us to calculating NOPLAT by subtracting the final Operating Cash Taxes from the EBITA. The table 17 below shows how Net Sales compare to Gross Profit, EBITA and finally NOPLAT.

NOPLAT forecast																
	Historical					Forecast										
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Net sales of oil and gas	571,8	798,6	1 269,5	1 345,1	1 195,8	1 117,2	1 745,6	2 164,6	2 283,3	1 979,5	1 675,8	2 059,8	3 142,1	3 740,2	4 338,2	4 566,5
Gross profit	-481,2	368,7	771,2	575,3	414,6	481,3	744,9	914,0	952,8	825,6	698,1	845,8	1 221,1	1 426,8	1 603,9	1 688,3
General, administration and depreciation expenses	-28,8	-42,0	-67,0	-31,7	-43,6	-48,2	-80,6	-107,0	-120,8	-112,0	-101,5	-133,5	-217,8	-277,4	-344,3	-387,8
EBITA	-504,2	393,9	704,2	543,5	371,0	433,1	664,3	807,0	832,1	713,6	596,7	712,3	1 003,3	1 149,4	1 259,6	1 300,5
Profit before tax	-500,1	381,3	729,7	522,3	288,0	376,4	575,8	697,2	716,3	613,2	511,7	607,9	843,9	959,7	1 039,6	1 068,9
Operating cash taxes	69,8	256,2	404,3	286,8	136,2	52,8	123,0	166,4	174,0	138,0	102,5	137,6	226,0	270,3	303,8	316,2
EBITA	-504,2	393,9	704,2	543,5	371,0	433,1	664,3	807,0	832,1	713,6	596,7	712,3	1 003,3	1 149,4	1 259,6	1 300,5
NOPLAT	**-574,0**	**137,7**	**299,9**	**256,8**	**234,8**	**380,2**	**541,3**	**640,6**	**658,1**	**575,6**	**494,2**	**574,7**	**777,3**	**879,1**	**955,8**	**984,3**

Table 17: NOPLAT Forecast

Lundin's NOPLAT compared to its revenues in the 2009-2024 period is illustrated below.

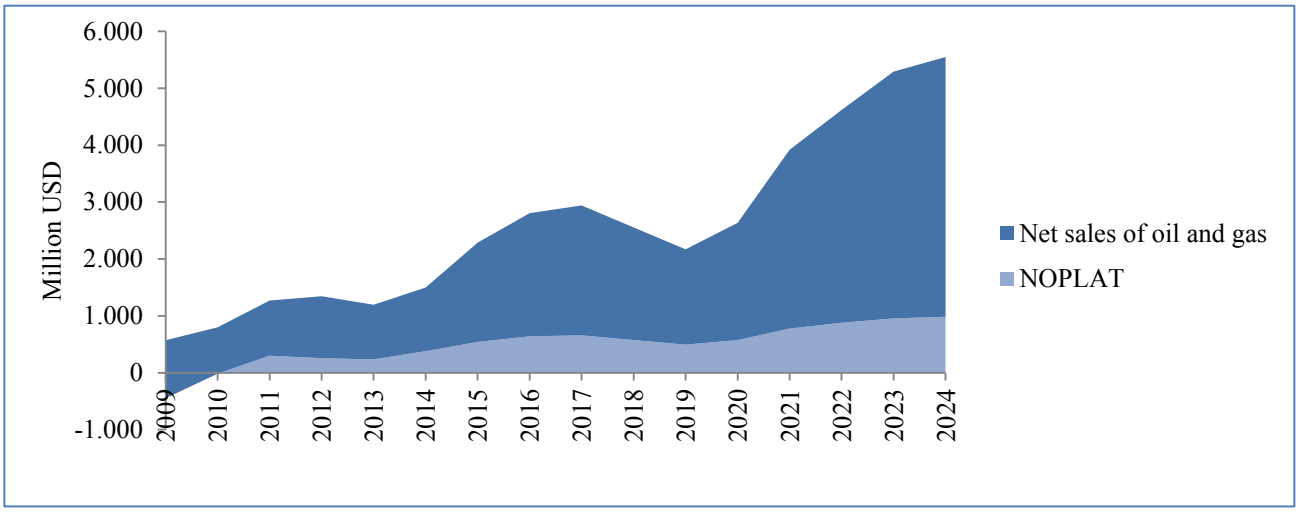


Figure 46: Lundin net sales and NOPLAT

Free Cash Flow

The ability to generate cash in the long run is directly representative to a company's ability to create value, which is why it is such an important value driver in the DCF valuation. (Woolley, 2009) Apart from the Income statement and Balance Sheet items we have previously looked at, there are several others important levers that have a huge impact on the bottom line figures of the Free Cash Flow. These are primarily changes in Working Capital and Net Capital Expenditures

Working capital

According to Koller et al. (2010) the working capital can be assumed to grow in line with revenues. To ensure that the individual accounts included in working capital correspond to this rationale they were checked and the development estimated. Lundin's inventory item concerns drillable prospects that have large upside potential; this therefore is proportional to production and assumed to stay at a constant proportion of revenue. The trade receivables item relate to hydrocarbon sales, which Lundin sells to a limited number of independent customers. Hydrocarbon production depends on the overall production and therefore also is a function of production and in turn revenues. The current operating assets: prepaid expenses and accrued income, other receivables and cash are also dependent on Lundin's operations and therefore also expected to be driven by Lundin's revenues in the forecasting period.

The large items joint venture debtors and creditors are not explained in the annual reports. The assumption is therefore that since most of the development projects and discoveries are done in partnership with other parties, the joint venture debtors and creditors accounts are assumed to grow in line with production, as the different sights are developed or new sights are discovered and new joint ventures established.

Trade payables concern shares in subsidies, which also is estimated to stay at a constant level of production as it is today. The other current liabilities: accrued expenses and deferred income, tax liability and other liabilities are also expected to stay at a constant percentage of revenue.

Since all the items in Lundin's operating working capital are driven by its production and in turn by revenues and none of the items are estimated to change beyond the proportionate change of production in the forecasted period, they are estimated to grow in line with revenue growth. The average of Lundin's working capital over the last three years was calculated and used to determine the working capital in the forecasted period. The reason for not taking the average of the whole historical period was because the working capital in 2011-2013 was more indicative of Lundin's future performance. The average was 12 % of revenues and this was estimated to stay constant for the whole forecasting period.

CAPEX

In the upstream sector, as in any heavy industry, CAPEX is an important item to forecast as it drives the amount of production – in our case oil and gas a company will find and produce. CAPEX is determined by a company's investment in long-term assets and their subsequent depreciation. According to Koller et al. (2010) the advisable way to forecast CAPEX is to start from long-term assets and estimate these as a percentage of revenues. The next step in this methodology would be to calculate depreciation as a percentage of PPE or long-term assets. To this avail, Lundin's average depreciation over PPE in the last five years was computed, resulting in depreciation of 29 % and as recommended previously by theorists it was assumed to be linearly depended on revenues and to represent a constant proportion of these in the forecasted period. (Koller et al., 2010) Finally, using this method CAPEX would be computed from the increase in long-term assets and yearly depreciated.

The E&P industry reports, however, provide a different insight into the forecast procedures for CAPEX and suggest forecasting overall capital expenditures based on the overall trends in the sector, rather than letting these be driven by revenues alone. (England, 2013), (Karev, 2012) The industry reports have consistently reported an industry landscape characterized by increasing costs, decreasing margins and yet an overall willingness of players to invest in new long-term assets (Barclays, 2013) (Ogfj.com, 2014). An AT Kearney analysis forecasts an increase in E&P industry's overall CAPEX of one-third over the next 5 years. According to this report the level of capital expenditures is based on thousands of decisions made by governments as well as public and private companies worldwide. (Atkearney.dk, 2014) Variations in capital expenditure have a great effect on the bottom line cash flows of players in the industry thus making this line item particularly crucial and difficult to estimate. Changes in CAPEX not only influence the year's cash flow but also the value the company can be expected to deliver in the future. Often it is considered the key driver of this type of businesses' long-term success with additional effects on P&L and valuation. The level of investments greatly depends on the expected oil price fluctuations, with almost half of the surveyed

companies reporting to be willing to increase investments at the 105 USD per boe threshold (Barclays, 2013). The Energy Transition Advisors in their Carbon Tracker reports note on the recent trend of increasing investments with progressively smaller returns in the global oil and gas supply, underlining the companies' need to continue investing just to keep the same levels of production and the need to invest even more in order to grow and increase production (ETA, 2014).

Lundin's own projections of CAPEX are set to decrease with approximately 5% in 2014 (Lundin, 2013). The industry analysis however shows an overall tendency to increasing capital expenditures in the long run. These wider sector considerations, coupled with Lundin's reported intentions in this regard to slightly decrease capital expenditures in the shortest term, resulted in a forecast of this item that initially decreases and then gradually start increasing from year 2019 and finally settle at growth rate of 10% in the long run. The chosen long term growth rate in CAPEX was based on the considerations sourced from industry experts who highlight a historical tendency of an increasing compounded average growth rates (CAGR) for CAPEX. A Global Data Energy report, for instance, predicts increases in CAPEX of approximately 13.4%, while The ETA analysis reports a historical CAGR of CAPEX in the period 1999-2013 for the exploration and production sector specifically, of 10.9%. (Energy.globaldata.com, 2014) This last figure is assumed in our analysis to represent a valid and conservative estimate for the long-term reinvestment rate for Lundin.

With the Lundin's CAPEX forecast in place, we looked at the company's long-term assets, including its oil and gas properties and other tangible assets to assess these as percentage of revenues (Koller et al., 2010). Since Lundin hasn't had long-term receivables since 2010 they were assumed to stay at zero in the model. Our fundamental reasoning for Lundin's long term assets forecast was to get its current values as close to the average industry levels as possible in the forecasting period.

Thus when forecasting CAPEX we were carefully looking into the Fixed Asset Turnover (PPE/ Revenues) as a reality and industry-wide check. The average in the industry for this particular ratio was pegged around 0,86 in the years 2010-2013 (Moneycontrol.com, 2014). Lundin's Fixed Asset Turnover ratio on the other hand varied considerably in the period prior to the valuation – the ratio ranging from 1,85 to 4,48 – accounting for the fact that it is a young, changing and growing company. In our forecast, we have estimated the CAPEX and the Fixed Asset items on a recurring basis so that the Fixed Asset Turnover ratio gradually decreases and slowly tends to the industry average. Moreover, in our analysis the end of the explicitly forecasted period registers CAPEX values that are closest to the figures presented by Tullow and Premier – which are the most comparable companies to Lundin by size and specialization.

The relatively high values for PPE/Revenues ratio of Lundin in recent years is due to the extensive borrowing the company has undergone in the nearest past, but it also shows a commitment to building value and investing in long-term performance. This fact is viewed positively by analysts (Nilsen & Glover, 2014).

They claim that the company is ready to take on new opportunities and development sights, from the asset and funding side. However, the financial implication was that PPE levels exceeded revenues by nearly 3 times on average in the past 5 years. Therefore the assumption for the years 2014-2024 is that Lundin will decrease its investments gradually each year. The assumption is moreover justified by the belief that as production reaches gradually higher levels and the company consequently reaches steadier state and consequently this kind of investment will repay itself and steadily decreases, letting the company follow more long term, feasible rates of investment.

Long-term liabilities represent another account that has fluctuated over the last years and include the items provision for site restoration and other non-current liabilities. The provision for site restoration is dependent on how much Lundin produces and is therefore forecasted as a percent of investments in oil and gas properties. Since the need for site restoration is expected to be the same as it has been historically, the average of the last five years was found, resulting in 5.52 % of oil and gas properties. This percentage was then used to forecast the item. Other non-current liabilities are also considered operational and therefore also forecasted as percentage of oil and gas properties. The average over the last five years was 0.74 % and this was assumed to remain the same in the future.

Other comprehensive income

The future development of the item - other comprehensive income - depends on the developments of the many currencies that Lundin gets in contact with through its globally spread operations, as expressed in the annual reports of the company. While the account depends on currencies such as the Euro, the Russian Ruble and the Malaysian Ringgit Lundin have its majority of assets and operations in Norway and therefore it is expected to be effected most by the Norwegian kroner. Bearing in mind Norway's strong currency and the expected continuance of it, the foreign currency translation effect is expected to not be in Lundin's favour in the future. While the currency translation effect probably will vary a lot we assume on average it will have a similar negative effect as it has had for Lundin in the past. Therefore the average change in the last five years was used to forecast this account.

Forecasting reality check

The assumptions we have presented so far lead us to the following FCF over the entire period:

Free Cash Flow Forecast																
	Historical					Forecast										
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
NOPLAT	-574,0	137,7	299,9	256,8	234,8	380,2	541,3	640,6	658,1	575,6	494,2	574,7	777,3	879,1	955,8	984,3
Depreciation	727,2	497,7	643,1	995,5	1 102,5	1 322,8	1 464,1	1 560,9	1 627,7	1 671,5	1 717,7	1 774,5	1 849,4	1 963,9	2 142,3	2 311,7
Gross Cash Flow	153,2	635,4	943,0	1 252,3	1 337,3	1 703,1	2 005,3	2 201,5	2 285,8	2 247,1	2 211,9	2 349,2	2 626,7	2 842,9	3 098,0	3 296,0
Change in WC (Increase)/ Decrease	21,6	-83,2	215,2	26,6	-31,5	-5,9	73,0	48,7	13,8	-35,3	-35,3	44,6	125,8	69,5	69,5	26,5
Net Capital Expenditure	405,6	44,3	-974,2	-1 563,9	-2 125,6	-2 019,3	-1 958,7	-1 900,0	-1 862,0	-1 824,7	-1 879,5	-1 973,5	-2 111,6	-2 365,0	-2 767,0	-2 905,4
Decrease (Increase) in Long term operating assets	34,3	-33,2	53,4	71,9	58,0	20,3	29,9	21,2	14,7	9,6	10,1	12,5	16,4	25,1	39,1	37,2
Change in accumulated other comprehensive income	-74,8	118,7	-6,4	-99,1	93,3	6,3	6,3	6,3	6,3	6,3	6,3	6,3	6,3	6,3	6,3	6,3
Gross Investment	500,0	52,4	-712,1	-1 564,6	-2 005,8	-1 998,6	-1 849,5	-1 823,7	-1 827,2	-1 844,1	-1 898,3	-1 910,0	-1 963,0	-2 264,0	-2 652,1	-2 835,3
Free Cash Flow	**653,1**	**687,8**	**230,9**	**-312,3**	**-668,5**	**-295,5**	**155,8**	**377,8**	**458,7**	**403,0**	**313,5**	**439,2**	**663,6**	**578,9**	**446,0**	**460,7**

Table 18: Free Cash Flow Forecast

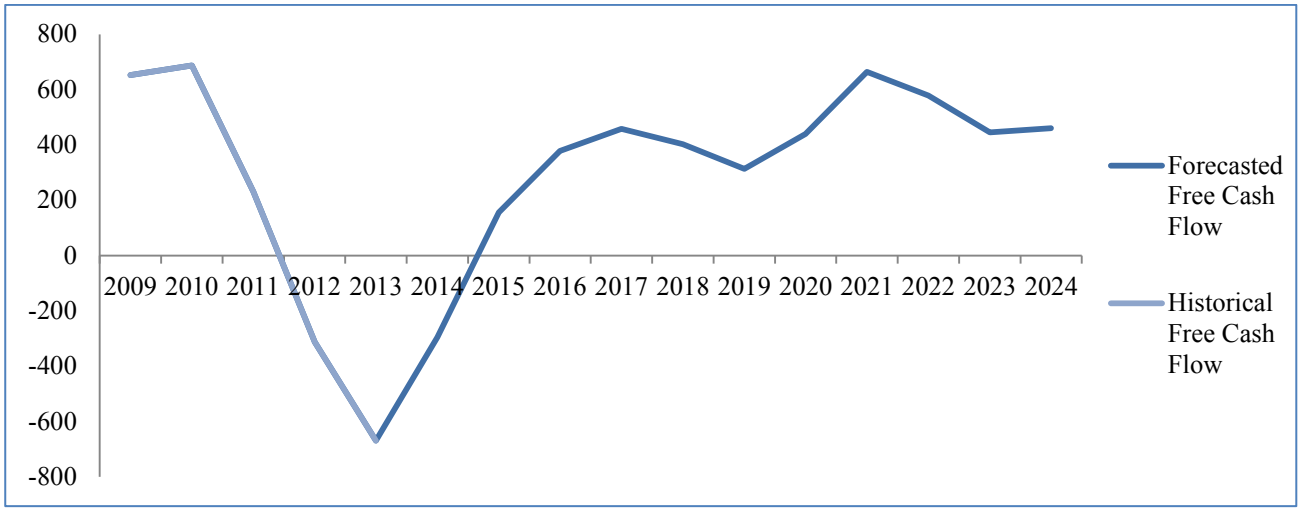


Figure 47: Lundin forecasted FCF

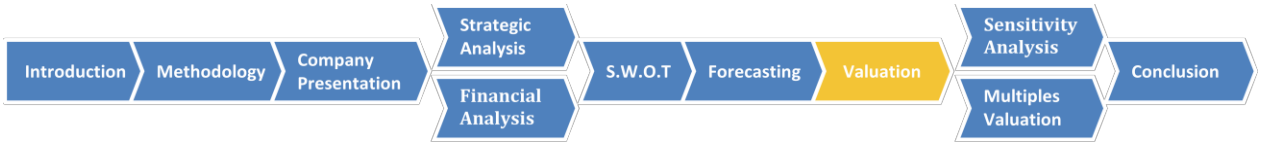
The related figure 47 clearly shows the great variability that characterizes Lundin's free cash flows. Highest growth in this account coincides with increases in production and revenues. As the period gradually reaches the terminal period the variations in Free Cash Flow become less abrupt and plateaus into a more constant line, characteristic to the steady state.

Sub- conclusion of the forecasting section

The environment Lundin is operating in and company specific traits and opportunities, factors reflected upon in the strategic and financial analysis, served as the basis for Lundin's forecasted cash flows. Lundin's expertise, success in the industry and heavy balance sheet was represented in the forecast driven by future growth, further investments in exploration, development and production. While Lundin still is a young company the forecast was sought to include more long-term account numbers leading more towards industry trended ratios. This approach is funded by theorists who consider that in the long term most companies tend to perform in similar ways as their operations develop, their initial competitive advantage lessens and the industry overall arrives to a more mature state (Koller et al., 2010). These fundamental principles were especially important in drawing up the figures for the last year in our forecast, year 2024 which serve as the foundation for the Terminal Value for Lundin. In the next section the forecasted cash flows will be used to find the intrinsic value of Lundin's share.

Valuation

To estimate the fair value of one of Lundin's shares the value of the company must be obtained. In this part different valuation approaches first will be discussed and then the specific method for this paper will be chosen. Thereafter Lundin's cost of capital will be calculated which then is used to find the intrinsic stock value.



Method

Many possible valuation methods exist. According to Petersen & Plenborg (2005) valuation methods can be classified into DCF methods, relative valuation methods, contingent claim method and liquidation methods.

Valuation Models				
Type	**Method**	**Valuation factor**	**Discount factor**	**Details**
DCF	Enterprise discounted cash flow	FCF	WACC	Target capital structure
DCF	Discounted economic profit	Economic profit	WACC	Highlights a company's economic performance
DCF	Adjusted present value	FCF	Unlevered cost of equity	Changing capital structure
DCF	Capital cash flow	Capital cash flow	Unlevered cost of equity	Compiles FCF and interest tax shield
DCF	Equity cash flow	Equity Cash flow	Levered cost of equity	Suitable for financial institutions.
Relative valuation	Multiples	Revenue, cash flow, earnings		Easy to calculate and communicate
Contingent claims	real options	Option pricing portfolio		Requires replicating portfolio
Liquidation	Liquidation	Assets		Requires likely liquidation
Replacement cost	Replacement	Assets		Some assets can't be replaced

Table 19: Valuation Models

DCF

The DCF method relates the value of an asset to the present value of the expected future cash flows of that asset. This is the approach used to find the intrinsic value of a stock and is the fundamental approach that the other methods are built on. (Damodaran, 2012)

According to Koller et al. (2010) there are many different ways to approach the DCF model. One method is the enterprise discounted cash flow where the free cash flow of the company is discounted by using the weighted average cost of capital. The claims of debt holders and other non-equity holders are then subtracted from the enterprise value to get the equity holder's value. This method is suitable for projects, business units and companies that manage their capital structure to a target level. This method is favourable because it relies on the cash flow of the company and the cash flows available to all investors. A drawback is that each year's cash flow gives little insight into the company's economic performance and that the value will only be as good as the forecasted inputs. (Koller et al., 2010) Another DCF model discounted by WACC is the economic profit method where the company's economic profit is discounted by WACC. This model highlights whether the company is earning its cost of capital and how its financial performance is expected to

change over time. This method if applied correctly should give the same results as the enterprise valuation methods.

The adjusted present value method uses the free cash flow and discounts it by the unlevered cost of equity. This method is suitable when the company has a changing capital structure as it values cash flows associated with capital structure separately. Another model is the capital cash flow model which uses the unlevered cost of equity to discount the capital cash flow. A short coming of this model is that it is difficult to compare companies and performance over time since it compiles the company's free cash flow and the interest tax shields. Finally, there is the equity cash flow model where the equity cash flow is discounted by the levered cost of equity. This model is best used to value financial institutions. (Koller et al., 2010)

Relative valuation

In comparison to the DCF method the relative valuation uses a limited amount of information making it easy to calculate and communicate to others. (Sørensen, 2012) The relative valuation estimates the value of an asset by comparing it to comparable assets. This method relies on the prices in the marketplace and assumes that the prices are right on average but maybe not for individual stocks. A common relative valuation approach is to use multiples. The benefit of using multiples is that they are simple and easy to relate to and that it is quick to obtain estimates for firms and assets. Another benefit according to Koller et al. (2010) is that multiples put the company in context. These advantages make the relative valuation the most common valuation method used. A disadvantage of multiples is that two firms are seldom completely alike which means that finding comparables is very subjective and multiples can be misused and manipulated. (Damodaran, 2012) The comparables are often standardized using earnings, book value, cash flow or revenues. Among the most widely used are the price-earnings ratio, price-book value ratio and price-sales ratio. (Damodaran, 2012) According to Koller et al., 2010) a common multiple is the enterprise value over EBITA.

Contingent claim

The contingent claim valuation uses option-pricing models to measure the value of an asset. This method is often called real options. It relies on a replicating portfolio and the intuition is that if there is a portfolio with the same expected future cash flows as your portfolio they should be priced the same. (Damodaran, 2012) According to Koller et al. (2010) it is hard to create portfolios replicating companies and therefore the application of this model is limited.

Liquidation

Liquidation value approach, this approach sets the continuing value equal to the estimated proceeds from sale of assets after paying off liabilities at the end of the explicit forecast period. The liquidation value is

often different than for a going concern, for example in a growing company the liquidation value is often below the going concern value. (Koller et al., 2010) While this approach is recommended when liquidation in the end of the forecasting period is likely, this will not be used as there is no indication of this in the case of Lundin.

Replacement cost

Another value approach is the replacement cost approach which sets the continuing value equal to the expected cost to replace the company's assets. However, some assets cannot be replaced and others will never be replaced. These drawbacks make it unsuitable to use. (Koller et al., 2010)

In this paper the DCF method and multiples method have been chosen, as it is acknowledge by both practitioners and theorists. As the enterprise DCF discounts the cash flow of the company and avoid any accounting manipulation this is the primary valuation model used. However, since the value of the DCF is very dependent on the assumptions made for Lundin's future cash flow a triangulation method will be used where the results obtained in the DCF method will be cross checked by applying the multiple method to ensure validity of our results. Next, the capital structure of Lundin first will be discussed as it affects the company equity beta and WACC. Thereafter, the different parameters included in the WACC and WACC itself will be discussed.

Capital structure

The ratios of debt and equity on a company's balance sheet are subject to changes and rebalancing. In valuation methodologies however target capital structure is most often used, as these are both easier to model and forecast. Moreover, for most entities the year-to-year changes in debt to equity ratios are extremely small and so it is important to consider a sustainable and reasonable long-term representation. Koller et al. (2010) advocates for the use of market values of debt and equity of a company when calculating the capital structure ratios for the WACC computations. According to this approach we have estimated the market value through Lundin's market capitalization by multiplying the number of shares outstanding on the day of the valuation with the price per share in SEK converted in USD for consistency purposes. On the 1st of April 2014 Lundin had 309 070 330 shares outstanding and the price per share was 133,1 SEK. Since Lundin's FCF are in USD this stock price was converted to USD by retrieving the exchange rate from the Swedish national bank where one 1 USD equals 6,45 SEK for that date (Sveriges Riksbank, 2014_a). The market value of Lundin's equity was the number of shares outstanding times the price per share, making the total market value of equity to amount to 6 377 078 955 USD. For the market value of debt, the method described by Koller et al. (2010) would involve using the principle of bond pricing to estimate the value. In our case, since Lundin has not issued such bonds the market value of debt is not observable. In such cases the authors suggest using the book value of debt as a reasonable approximate to the current market value (Koller et al., 2010). Therefore

the book value of debt was taken as an estimate. The latest available figure is from the end of 2013 when Lundin's total amount of debt amounted to 2 615 300 000 USD. The fundamental assumption of the DCF valuation would mean that this capital structure would have to be used in discounting the cash flows throughout the entire lifetime of the company. These principles impose certain constrains on the model and is considered to work best for mature companies with determined capital structure that are not expecting to make huge rebalancing in their debt values. (Koller et al., 2010)

For a company that is as young and growing as Lundin is, practitioners often suggest a more generalist approach to long-term capital structure, namely using a target value. Industry levels of debt and equity often represent the better, more aggregate levels that the company in any particular industry tends towards in the long run. For our analysis we have first looked at the average level of D/E for the peer group. The peer group D/E value of 0,92 was then converted in proportion of 0,48 of D/V and accordingly 0,52 values of E/V. However, looking at the broader oil exploration and production industry showed a lower proportion of debt to equity. An estimated value of an industry target capital structure based on the broader E&P figures is considered more relevant, firstly because it is based only on those competitors that operate in the upstream sector and secondly because the increased number of firms in the sample reduces errors. The data for the target capital structure was sourced from Damodaran (2014) based on the raw data from S&P capital IQ. As Lundin will continue to grow and expand its projects in both breadth and scale it is expected to get closer to the capital structures dictated by those players in the industry that have been operating in the sector for a longer period of time. From the industry Debt/Equity value of 0,41 the proportion of Debt of 0,29 and Equity 0,71 was calculated.

Finally, taking into account all considerations, the capital structure used to discount the FCF throughout the valuation is:

$$\frac{D}{V} = 0{,}29 \qquad \frac{E}{V} = 0{,}71$$

Having determined all the necessary components and established the target capital levels we can proceed to resuming the computations for WACC.

WACC

To find the enterprise value Lundin's FCF must be discounted by its cost of capital. The weighted average cost of capital (WACC) is the opportunity costs that investors face for investing in one business instead of another with similar risk. According to Koller et al. (2010) the most important principle underlying successful implementation of the cost of capital is consistency between WACC and FCF. Since FCF is the cash flow available to all financial investors the company WACC must include the required return for all investors. (Koller et al., 2010) WACC equals the weighted average cost of the after tax cost of debt and cost

of equity. This is therefore the appropriate rate to discount the free cash flow of the company. WACC is defined as

$$WACC = \frac{D}{V}k_d(1 - T_m) + \frac{E}{V}k_e$$

Where

$\frac{D}{V}$ = target level of Lundin's debt to enterprise value using market based values

V = is the total value of debt and equity

k_d = cost of debt

T_c = Lundin's marginal income tax rate

$\frac{E}{V}$ = target level of equity to enterprise value using market based values

k_e = cost of equity

WACC is the minimum return a company must generate to satisfy its investors.

Cost of debt

To estimate the after tax cost of debt the risk-free rate, default spread and marginal tax rate must be obtained.

Risk-free rate

The risk-free rate is the theoretical rate of return an investor can expect to receive for a riskless asset, deprived even from the default risk. Absolutely risk-free assets can only be found in theory and so most practitioners use government bond rates denominated in certain currencies for their calculations. (Princeton.edu, 2014) According to Koller et al. (2010) a proxy for the risk-free rate can be considered the yields on long-term government bonds as the default risk is small for these. Ideally each cash flow should be discounted by a government bond with the same maturity as the cash flow. However, for simplicity investors often use one interest rate. According to Damodaran (2012) the risk-free rate must be free of default and reinvestment risk, therefore a zero coupon government bond could be used. Furthermore, the used long-term government bond should be denominated in the same currency as the company's cash flows. While Lundin's cash flows are denominated in Swedish kroner the risk-free rate should also be in Swedish kroner. On the 1st of April 2014 the interest of a 10 year Swedish government bond is 2.14% (Sveriges Riksbank, 2014). However, this is a lower interest than normally and therefore not representative of the long-term risk-free

rate. A rate considered to be representative and used in Sweden for long term estimation is 3.5% (Företagsvärdering. Org, 2013) Therefore, 3.5% will be used as the risk-free rate in subsequent section.

Default spread

The default spread is determined by the company's bond rating and the amount of physical collateral (Koller et al., 2010). It is fundamentally an excess return over the risk-free rate that an investor would expect to receive to account for the risk of receiving loan payments. For public companies the spread can usually be observed based on the conditions of the bonds issued. However, as Lundin hasn't issued any bonds there is no bond rating that could be used as a proxy. We have thus applied a more indicative approach to find out the spread. Petersen & Plenborg (2012) and Damodaran (2006) both suggest starting from the company's credit rating and infer the spread from the official rating. Lundin however, has not been rated by any of the largest rating agencies, which adds complexity to the estimation of its cost of debt. As suggested by Brealy et al. (2011) some financial ratios are especially indicative of a company's credit rating and we have used these – specifically EBIT/ interest (interest coverage ratio) and D/E to get the final spread. Lundin's interest coverage ratio indicates a potential rating between AA and A, but looking at its capital structure, its increased borrowing levels in recent years and the risks such debt entails, moves our assessment to an indicative A rating. Bloomberg terminal offers a range of spreads that has been used by theorists to approximate the default spreads for companies that lack traded debt (Petersen & Plenborg, 2012). For A rated companies Bloomberg suggests a spread from 0.8 to 3.6 %. For the risk premium "this spread covers the exposure to the default risk and administration and service costs" (Petersen & Plenborg p.291, 2012). To narrow down a more precise default spread to be used in our analysis and that would be consistent and representative of the financial health of the company, we also looked through the company's annual reports at debt covenants and conditions. Lundin's discloses in its notes to the financial statement that it pays Libor + 2.75 % in interest on its credit facility. Libor is an interbank rate that often is used as a proxy for the risk-free rate and the 2.75 % is the excess amount Lundin has to pay to account for the risk it holds. (Lundin, 2013) On top of these observations we also have taken into account Lundin's general considerations of probability of default, recoverability rate for stakeholders and the future debt policy strategy it has so far reported. Finally, we have concluded that a 3% spread on loans would be the most appropriate estimate for our analysis taking into consideration our assessment of Lundin's ability to repay its debt, raise new capital and its general financial health.

Tax rate

The tax rate is the statutory tax rate of Lundin. The Swedish corporate tax rate in 2013 of 22% is expected to stay the same in the future. A possible tax change could come from a change in office after the election in the fall 2014 however since the biggest parties in Sweden support the low tax rate this is seen as unlikely (PWC, 2012), (Sydsvenskan, 2013). Therefore the tax rate of 22 % is assumed to prevail in the future.

Calculating the cost of debt for Lundin, we then have the following components:

A risk-free rate of 0,035 and a spread paid on loans estimated at 0,03, which gives us a final value of 0,065, which represents the cost of debt to be incorporated in our analysis and calculated with tax shield consideration in the final WACC formula.

Cost of equity

An acknowledged method for calculating the cost of equity is the Capital Asset Pricing Model (CAPM). The CAPM gives a prediction of the relationship between the risk of an asset and its expected return. The CAPM defines a stock's risk as its sensitivity to the stock market. The CAPM states that the expected return on any security is equal to the risk-free rate plus the security's beta times the market risk premium. The company beta represents the company specific risk. The formula means that investors should be compensated for the time value of money through the risk-free rate and the carried risk through the company's beta times the market risk premium. (Bodie, Kane and Marcus, 2011) CAPM is defined as:

$$E(R_i) = r_f + \beta_i\,[E(r_m) - r_f]$$

$E(R_i)$ = is the expected return of the stock

r_f = risk-free rate

β_i = stock's sensitivity to the market

$E(r_m)$ = expected return of the market

To calculate CAPM the components risk-free rate, market risk premium and company beta is needed.

Risk-free rate

The risk-free rate is the same rate as used in the calculation of cost of debt and equals 3.5 %.

Market risk premium

The market risk premium is defined as "The additional return over the risk-free rate needed to compensate investors for assuming an average amount of risk" (Brigham & Housten, 1998 p. 183). It is the expected return of the market portfolio less the risk-free rate of return and is dependent on the overall risk aversion of the market (Brealey et al., 2011). There are three models to find the market risk premium 1) asking analysts about their predictions 2) the historical method and 3) the implicit method. The historical method holds biases and assumes that the future will continue with past trends. The implicit method is based on today's stock prices, it is very complex and holds a lot of uncertainty. (Sørensen, 2012) According to Sørensen (2012) analysts' estimates possibly give the best estimate.

In order to assess the right risk premium for our valuation we have analysed and considered various historical methods and predictions by researches, academics and practitioners. Koller et al. (2010) for instance, estimates the market risk premium to be between 4.5–5.5 %. According to Penman (2010) research papers and textbooks have estimated the risk premium to be between 3.0 to 9.2 %. According to Brigham and Housten (1998) it has varied between 4 and 8 % in the last 20 years. JP Morgan estimates it to be in the range of 5 – 7% (JP Morgan, 2008). While there are many different estimates of the market risk premium we have finally decided to take Damodaran's figures, as these represent the average of historical risk premiums and are also a middle range figure from all of the aforementioned researches. According to Damodaran (2012), the market risk premium in Sweden was 6% in 2012. This is further confirmed by Fernandez, Aguirreamalloa and Corres (2012) who also estimate the Swedish risk premium to be 6% by conducting surveys across business leaders, theorist and researchers. Therefore, a market risk premium of 6 % is used.

Estimating Beta

The beta is perhaps the most important and interesting parameter to look at within the CAPM model. The risk-free rate and the market risk premium are often market wide variables that represent risk and characteristics associated to a variety of companies in the same sector or geography. The beta, however, encompasses a firm's individual characteristics and requires analysts, evaluators and us to make subjective and qualitative judgements regarding the firm. According to CAPM the beta estimates the company specific risk, it represents the incremental risk investors takes by holding this security in its diversified portfolio. The beta measures the degree to which the stock moves together with the rest of the market and thereby how much the company's returns change in comparison to the returns of the market. A beta of 1 means that the stock moves together with the market and has the same risk as the market. A beta >1 is more aggressive and has more risk than the market and a beta of <1 is more defensive and is less risky than the market. A company's beta can't be observed and therefore must be estimated by comparing it against the market portfolio. One of the suggested methods for estimating the beta is by regressing it against the returns of the market portfolio. (Brodie, Kane & Marcus, 2011) (Damodaran, 2012) We have thus, included a regression model in our evaluation. A company's beta using the market model is defined as

$$R_i = \alpha + \beta R_m + \varepsilon$$

R_i = return on stock i

α = alpha

βR_m = The company's risk times the market risk premium

ε = epsilon

In this case the market portfolio is represented by the OMX Stockholm 30 index. Lundin's monthly returns between April 2009 and April 2014 were regressed against the monthly returns of the OMX Stockholm 30 Index during the same period. Five years of data was used to adhere to the requirement of a solid model of 60 data points. The portfolio was chosen because it is a diversified portfolio including 30 Swedish companies from different industries making it qualified as a market portfolio. Moreover, the OMX Stockholm 30 index was chosen because it is denominated in Swedish kroner and listed on the same stock exchange as Lundin making them comparable.

The result of the regression is seen in table 20.

Regression results								
Regression Statistics								
Multiple R	0,55							
R Square	0,303							
Adjusted R Square	0,302							
Standard Error	0,021							
Observations	1251							
ANOVA								
	Df	*SS*	*MS*	*F*	*Significance F*			
Regression	1	0,235	0,235	541,826	0			
Residual	1249	0,542	0					
Total	1250	0,777						
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95%*	*Upper 95%*
Intercept	0	0,001	0,821	0,412	-0,001	0,002	-0,001	0,002
X Variable 1	1,065	0,046	23,277	0	0,976	1,155	0,976	1,155

Table 20: Regression results

The regression output estimates Lundin's beta to be 1,065 with an R-square of 30.26 % and very low p-value. Looking at the beta it shows that Lundin's stock is not much riskier than the market portfolio. However, the fairly low R-square shows that the return on the market portfolio only explains 30.26 % of the return of Lundin's stock. It means that the regression line and the real data points do not fit that well together and that the returns of the chosen market portfolio aren't a good explainer of the Lundin stock return. Subsequently, something else predicts the rest of the return. The p-value is 0 showing that it is likely to be around this number and with two standard deviations (95% probability) the beta is likely to be between 0,9756 and 1,15552.

Lundin's beta has also been estimated by financial institutions. In table 21 a list of Lundin's beta is seen.

Estimates of Lundin's Beta	
Company	Beta
Thomson Reuters	0,99
Bloomberg	0,74
Financial Times	1,04
Reuters	1,04

Table 21: Estimates of Lundin's Beta (Thomson One, 2014. Bloomberg terminal, 2014. Financial Times, 2014. Reuters, 2014)

The beta obtained in the regression analysis and the beta estimates by the financial analysts are very similar. However, simply regressing the results against the market overlooks the leverage and thus the financial risk of the company (Koller et al., 2010). To account for these factors a method of leveraging and un-leveraging betas can be used, that is based on principles described by Modigliani and Miller. There are several restrictions applying to their theorem. The first restriction of the simplified Modigliani and Miller model is based on debt's claims having first priority thus making the beta of debt very low, letting us assume the beta of debt to be 0. Secondly, if a company maintains a constant capital structure the value of the tax shields will fluctuate with the value of the operating assets and the beta of the tax shields will equal the beta of the unlevered firm. Thus a company's beta equals the company's operating beta, called unlevered beta times a leverage factor. As leverage rises the equity beta will rise. (Koller et al. pg 254-255, 2010) According to this model, companies operating in the same industry face similar operating risk and therefore should have similar operating betas. However, companies also hold financial risk, which is dependent on the leverage structure of the company. As the financial analysis has revealed, Lundin is characterized by a high net debt and the more leverage the riskier is a company, which should be reflected in the beta. To compare the betas of companies in the same industry the effect of leverage must be excluded, which is done by un-leveraging the betas in the industry so that ultimately they only account for operating risk.

In our analysis we started by comparing companies with similar operating risks and then cancelling out the effect of leverage. Through this process, the betas became comparable across the industry. For a more holistic picture we have then consulted analysts' reports to observe a wider industry beta. Petersen and Plenborg (2012) reports a 0,86 average of the unleveraged beta across the production and exploration industry, calculated across 186 firms. This beta estimation is considered more relevant for our analysis, as it accounts for all the particularities of the sector – being based on the representatives of E&P companies only. Moreover this figure, calculated over a larger number of players in the industry is deemed more representative and less prone to selection biases. In the model the next step after establishing the operating (unlevered) beta is to account for the financial risk through re-leveraging. The process of re-levering the beta and finding the specific beta of equity for Lundin is based on the Modigliani and Miller theorem on the weighted average risk of a firm's financial claims as well as some additional restrictions that make the formula more usable in practice. The definition of finding the beta for equity becomes:

$$\beta_e = \beta_u(1 + \frac{D}{E})$$

To find the beta of Lundin the industry beta must be leveraged with Lundin's leverage factor dictated by the capital structure. In such a way we account for the leverage and thereby the financial risk of Lundin. This yields a final value of 1,217 for the equity beta which represents a higher value than the one estimated by analysts based on historical performance and higher than the beta observed in the regression analysis. However since it is based on the overall operational risk in the industry and the financial risk associated to Lundin specifically, it is deemed as the most appropriate and valid estimation.

Finally we are able to aggregate all the previous calculations and assumptions and finalize the WACC number, which yields a value of 9.13 %.

WACC = 6.5% * 0,29 * (1-0,22) + 0,70 * 11% = 9.13%.

To account for the subjectivity of the assumptions that usually affect valuations and make final values extremely prone to biases, we checked industry wide reports for consistency. In order to keep these as close to reality as possible we compare this number to historical numbers recorded industry wide. The average WACC for the oil companies oscillates around 10 % which represents a good benchmark and a positive reality check for our employed value of 9.13%, which will further drive the discount rate in our model.

Liquidity Premium

The CAPM is one of the methodologies most widely quoted by theorists and valuation guidelines. A variety of alterations exist to the classic CAPM model. One of the interesting aspects concerning company specific risk is the possibility of a liquidity premium which in some cases investors have to incur for any transaction on the stock. This is defined as the "premium that investors will demand" when there are difficulties in converting the given security into cash at fair market value. With a high liquidity premium, the asset is said to become illiquid, which will cause its price to fall. Small free float and low stock liquidity are the common reasons for the increased transaction costs and thus higher discount rates. (Jong and Rindi, 2009). Jong and Rindi (2009) report market wide fluctuations in liquidity as an additional factor that may demand higher returns for the company.

Damodaran, (2006) examines the value of liquidity for traded stocks and thus the price illiquidity imposes on investors, observing the positive relationship that exists between the size of transactions and the price of illiquidity as well as that between the overall illiquidity in the market and that of the asset in question. The earliest theories including the illiquidity into the CAPM were presented by Mayers in several of his works in 1972, 1973 and 1976, but referred to non-marketed assets and did not explicitly present how to account for illiquidity. Acharya and Pedersen (2005) make another important observation, mainly on the timing of the

illiquidity of the premium, with spikes in illiquidity coinciding with market wide phenomena like crisis and downturns that affect all stocks. The same authors also conclude that illiquid stocks on average have risk premiums 1.1% higher than liquid stocks. In our report we would seek to determine how illiquid Lundin's stock is and whether the measure should be included in the valuation.

Most theoretical and empirical studies suggest that the best way to account for illiquidity is by including its premium in the discount rate calculation. The consensus among theorists focuses on systematic liquidity while practitioners suggest that bid-ask spreads and turnover ratios are more applicable to measure the premium. Both approaches conclude that the demand for liquidity varies across times and thus influences the final value for investors. (Damodaran, 2006)

In this report the calculations for the liquidity premium are based on a model proposed by Amihud and Mendelson, (1986) incorporating a relative bid-ask spread S and an expected trading frequency μ into the Gordon formula for valuing assets.

$$P = \frac{d}{r + \mu S}$$

Jong and Rindi, (2009) further developed the analysis implying a linear relation between expected returns and liquidity:

$$E[R] = r + \mu S$$

Integrating this into the CAPM formula, results in the following equation:

$$E[R] = r_f + \beta(E[R_m] - r_f + \mu S$$

Where the classical CAPM formula based on the risk-free rate of return, the risk premium and beta, another component is added – the liquidity premium – directly regulated by the bid-ask spread of the traded stocks.

In our analysis we have exported data for Lundin stock's bid-ask spreads and trading volume for the period 2nd of April 2013 to the 1st of April 2014 and calculated the relative bid-ask spread based on the daily average price as well as the number of traded shares on that day based on the total number of shares outstanding. For the entire year the average bid-ask spread S = 0.09%[7] while the average proportion of shares traded daily represented 0.353% of the total number of shares. (Nasdaqomxsnordic.com, 2014) These figures indicate a high relative liquidity of Lundin's stock and represent an expected observation, supported by theory, which suggests that mostly firms not traded on public stock exchange encounter high liquidity

[7] S – represents the average of the bid ask spread over the average of the traded price for the day (High& Low price)

premiums, as compared to the ones with traded shares that are more liquid and thus do not incur this cost. To incorporate the actual premium into our cost of equity calculations, we use Amihud and Mendelson, (1986 p.238) estimation for μ, who observed an approximate trading periodicity for each stock at every 5th month over a large number of traded stocks, resulting in a 0,211 estimate for μ.

This results in a final liquidity premium of 0.019%[8] to be added to our final estimations of E[R] in the WACC calculations.

WACC = 6.5% * 0,29 * (1-0,22) + 0,70 * 11% + 0.019% = 9.13%.

Explicit Forecasted Period

For the explicitly forecasted value of the company which in our case accounts for the 10 year forecasted period, we use the following formula (Brealey, Myers & Allen, 2011):

$$PV = \frac{FCF_1}{1 + WACC^{1-0,5}} + \frac{FCF_2}{(1 + WACC)^{2-0,5}} + \ldots\ldots + \frac{FCF_H}{(1 + WACC)^H} + \frac{PV_H}{(1 + WACC)^H}$$

Using a WACC of 9.13% over the entire period, we get a value of 2 024,2 MUSD that is the final sum of total discounted Free Cash Flows.

Terminal value

As we have seen so far and as Damodaran (2009) explains in his paper the discounted cash flow method for valuing a company rests on "four inputs – earnings and cash flows from existing assets, the growth in these cash flows in the near term, a judgment on when the company will become mature and a discount rate to apply to these cash flows". (Damodaran p. 13, 2009) Because the forecasted estimations take a much larger part of the actual calculations and processes in the valuation of any company, it is easy to overlook the importance of the terminal value part of the analysis.

In the DCF valuation method the terminal value represents in most cases more than 50% of the entire value the company is expected to create in the future. Koller et al. (2010) for instance depicts an example that demonstrates the proportion of terminal (or continuing) value compared to the explicitly forecasted value. In the illustration, the terminal value accounts for 79% of the total value in a 5-year forecasted horizon compared to 67% of total value when forecasted during an 8-year horizon. The exact amount the terminal value represents of the total company value is dependent on the assumptions of the model, the industry and the company itself but an important observation is that the longer the forecasted period lasts, the more value

[8] Liquidity Premium = μ*S

is represented in the explicit forecasting period compared to the terminal value. With correct and consistent assumption the total value of the company remains the same under all scenarios. (Koller et al., 2010)

These theoretical considerations help underline the importance of having a well thought-through terminal value computation. In practice the calculation represents a reiterative process that involves the reconsideration of some of the assumptions previously made. The following is the primary, baseline perpetuity growth formula that is used for DCF terminal value calculations:

$$Terminal\ value = \frac{FCF_{n+1}}{WACC_{n+1} - g_n}$$

Looking at what are the long term value drivers in a company leads us to reconsider an alternative equation that would better account for these factors. An entity creates value for its stakeholders by investing the capital they raise and generating return at rates that are higher than the cost of capital. (Koller et al., 2010) The higher the difference between the rates of return on invested capital and the cost of the capital the more value the company can be expected to create. Estimating such values for the long run is a difficult and subjective process that rarely involves mathematical precision or absolute figures. The core principle in such an analysis is the idea of competitive advantage and the period of time that it could be sustained. Thus, rather than looking at figures from a purely arithmetic point of view, it is important to take into consideration the industry landscape, their future development, sector trends, competition and the gradual timely erosion of the competitive advantage or vice-versa, its lifelong sustainability (Koller et al., 2010), (Damodaran, 2009), (Woolley, 2009).

To incorporate the value drivers in the terminal value formula we turn to Koller et al.'s (2010) suggestions of using a key value driver formula, in the following form:

$$Continuing\ Value_t = \frac{NOPLAT_{\ t+1}\left(1 - \frac{g}{RONIC}\right)}{WACC - g}$$

The formula uses NOPLAT estimated for the year after the explicitly forecasted period, Return On New Invested Capital (RONIC), WACC and long-term growth.

The long-term growth is a small but crucial detail in this equation as it is very hard to estimate precisely and yet impacts the final value considerably, as the sensitivity analysis will show further down the line. According to Damodaran (2012) the stable growth rate of a company is constrained by the estimated growth rate of the economy it operates in. Koller et al. (2010) too affirms that a company cannot be realistically expected to grow faster than the economy and considers the long term growth of the industry a good proxy

for this parameter. Another rule of thumb is that the stable growth rate should not be higher than the risk-free rate used in the valuation. In our estimation we have looked at the expectation of the Swedish economy as Lundin's base and the regions in which it is heavily exposed to operationally with a particular focus on Norway. The Swedish economy growth rate is equal to 2 % and this is also estimated to be the rate at which company is expected to grow in the future (Riksbanken.se, 2014).

NOPLAT, too, is a parameter with a considerable impact on the resulting continuing value. Thus, the assumptions that led into the NOPLAT figure of the last forecasted year were carefully analysed and adapted to reflect perpetuity growth assumptions. Overall this means normalising the main drivers for value of Lundin, preparing these for the perpetuity including its investment in long-term assets, production growth and cost structure.

The inclusion of RONIC, on the other hand, requires the assessment of the company's competitive advantage in the long-term context of the industry's environment. It represents an advantage of this formula to the standard continuing growth value formula as it accounts for the specifics of the company and its competitive positioning. In general economic theory dictates that competition will eventually erase abnormal returns for most companies, thus settling RONIC close the WACC level for the long term. Only companies with clear brands and patents superiority can claim a considerable higher RONIC than WACC levels. It is interesting to note that assuming RONIC=WACC is fundamentally different from the assumption ROIC =WACC. The former one does not suggests that the company ceases to create value beyond the forecasted period. Return on existing capital will remain at the same level and then only gradually reach WACC, thus consistent with the competitive conditions in the industry and economic theory prognosis. Following this reasoning for the purposes of our analysis we set RONIC only slightly higher than WACC to account for the expertise Lundin has proven to have in the E&P sector.

Regarding the discount rate, as mentioned in earlier sections, the WACC used in the model accounts for the capital structure, business risk and expected industry conditions.

In our valuation the year 2024 served as the basis for the terminal value calculations. We have thus used reasonable assumptions for its components, seeking to depict a long-term sustainable and reasonable picture.

Summary of forecasting period and valuation results																	
		Historical					Forecast										
MUSD		**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Free Cash Flow (FCF)		782,3	535,5	230,9	-312,3	-668,5	-295,5	155,8	377,8	458,7	403,0	313,5	439,2	663,6	578,9	446,0	460,7
WACC							9,13%	9,13%	9,13%	9,13%	9,13%	9,13%	9,13%	9,13%	9,13%	9,13%	9,13%
Discount factor							0,96	0,88	0,80	0,74	0,67	0,62	0,57	0,52	0,48	0,44	0,40
FCF present value							-282,9	136,7	303,6	337,8	271,9	193,9	248,8	344,5	275,4	194,4	184,0
Sum of PV FCF (2014-2023)	2024,2																
Forecasted FCF's proportion of EV	29,1%																
Terminal Value (based on 2024)	11818,3																
Discounted Terminal Value	4931,3																
Terminal Value's proportion of EV	70,9%																
Enterprise Value	**6955,5**																

Table 22: Summary of forecasting period and valuation results

The NOPLAT value computed in the financial analysis is then fed into the formula together with the set values of WACC, RONIC and growth and finally a Terminal Value (TV) of 11 818,26 (thousand USD) is determined. This value is then discounted with a 10 year discount factor dictated by WACC (discount factor = 0,42) yielding a discounted TV of 4 931,26 (thousand USD). This figure represents a proportion of 70.9% of the total value computed by our valuation model and is consistent with both Koller's and Damodaran's suggestions about the proportion terminal value accounts for under the DCF model. Thus, the enterprise value of the whole company that is based on both the explicitly forecasted period and the terminal value given by the DCF calculation is 6 955,6 MUSD and represents the total value of the company.

Final Value

Enterprise value represents the value of the entire company while equity value represents the portion owned by shareholders. Since the aim of this thesis is to find the value per share, the equity value must be calculated. To attain the equity value the non-operating assets such as excess cash and nonconsolidated subsidiaries should be added to the core operations value of the company. Lundin's excess cash of 68,8 MUSD was therefore added to the operating total value of 6 955,6 MUSD, obtained in the previous section. Minority interest is the mirror image of non-consolidated subsidiaries and concerns subsidiaries a company controls but doesn't fully own. In Lundin's annual report this is called non-controlling interest and as written in the annual report "The non-controlling interest in a subsidiary represents the portion of the subsidiary not owned by the Group" (Lundin p. 90, 2013). The non-controlling interest equity concerns the Russian subsidiaries and amounts to 59,8 MUSD in 2013. Since Lundin doesn't fully own the subsidiary, including the full value in the valuation would distort the value appropriable to Lundin's shareholders. To adjust for this, the third-party minority interest in the subsidiary is deducted as a non-equity financial claim (Koller et al., 2010). In addition, to get the equity value, Lundin's debt should be subtracted from the enterprise value. Lundin's interest bearing debt of 1 239,2 MUSD was deducted. Furthermore, Lundin has had some capitalized financing fees connected to its debt. There is a current discussion about how to handle financing fees and since the US GAAP requires them to be capitalized it is included in the debt Lundin has in its balance sheet (PWC, 2011). Since it represents part of the whole debt burden and does not directly add value to shareholders it has been deducted to find the equity value. The entire process yields a final result for equity value of 5 689,3 MUSD on the 31st of December 2013. Since we are valuing the company 3 months down the line we are discounting forward the entire equity value by the equity discount factor: = 5 689,3 *(1+Ke)^(3/12). The new equity value as per the 1st of April is thus 5 837,4. The value per share is obtained by dividing this final equity value with the outstanding number of shares of 309 070 330 – recorded at year-end. The underlying assumption here is that the number of shares stays constant throughout the year and we use the total number of shares in circulation at year-end 2013 as a proxy for calculating the share price for

Lundin's stock. The number of shares in circulation throughout 2014 thus is 309 070 330. The whole process yields a final share price of 18,89 USD on the 1st of April 2014.

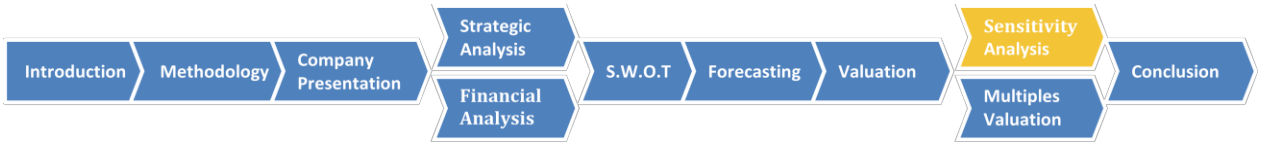
This computed price of 18,89 USD is the final price per share as given by the DCF model with the applicable assumptions and forecasts and is deemed to represent the fair value of the company's stock on the valuation date.

Share value	
Total value	6 955,46
Excess Cash	68,78
Non- controlling interest	-59,80
Enterprise Value	6 964,44
Value of Debt	-1 239,20
Value of capitalised financing fees	-35,90
Equity Value	5 689,34
Equity Value as of the 1st of April 2014	5 837,36
Nr of shares outstanding 31st of December 2013	309 070 330
Equity value per share 1st of April 2014	18,89

Table 23: Lundin share value

Sensitivity Analysis

The many elements that make up a DCF valuation together with the different assumptions that lead to their estimation make the final value extremely sensitive to the inputs. In order to check for the validity of our results as well as the range of variation it can incur based on variations in inputs, a sensitivity analysis is done.



The sensitivity analysis also gives a good retro-perspective, not only to what inputs trigger the largest variations in a company's value but also gives a good insight into what assumptions and forecasts the current market price is based on. In this way potential investors could check how realistic, reasonable and sustainable the assumptions made are and compare them to their own expectations of the future.

Two important inputs that influence the final valuation figure are the WACC and the Terminal Value growth rate. WACC represents the overall risk inherent to the entire company, accounting for the type of financing used and its proportion in the capital structure, and it is used to discount the cash flows in the explicitly

forecasted period as well as to determine the final terminal value. The growth rate, on the other hand, is a crucial input for the terminal value estimation. The terminal value in most cases accounts for more than 50% (Koller et al., 2010) of total company value and in our case for 70.9% of it, thus the impact of the growth rate used in the calculated value of the stock is also considerable. The following table 24 shows the exact range of impact these two variables have on the final results.

		Growth rate				
		1.0%	1.5%	2.0%	2.5%	3.0%
WACC	12%	10,39	10,46	10,53	10,60	10,69
	11%	12,52	12,65	12,79	12,95	13,13
	10%	15,19	15,42	15,68	15,98	16,32
	9.13%	18,08	18,46	**18,89**	19,38	19,96
	9%	18,58	18,99	19,46	20,00	20,62
	8%	23,04	23,75	24,58	25,56	26,73
	7%	29,10	30,36	31,86	33,70	36,00
	6%	37,75	40,06	42,94	46,66	51,61

Table 24: Sensitivity analysis I

The variations in WACC have a higher impact on the final share price than the growth rate does. Just a 14% decrease in WACC – from the value we considered in our analysis of 9.13% to 8%, at the same growth rate level of 2% – induces an increase of 30% in the final share price – from 18,89 to 24,58 USD. At the same time, considering a decrease in the growth rate of 25% – from 2% to 1.5% at the base-case WACC level of 9.13% – only leads to a decrease of 22.8% in the share price.

In its turn the variations in WACC can be driven by changes in its different elements and their underlying assumptions. In our analysis we estimated a lot of the elements based on industry-wide trends and forecasts, but some of them bare firm specific risks. The most important factor underlying firm specific risk is the equity beta. Variations in the beta value leads to subsequent variations in the cost of equity which in its turn drives the cost of capital for the entire company.

The following table shows the sensitivity of the share price to fluctuations in the terminal value growth rate and the beta of equity affecting Lundin's WACC. The range for the beta values was selected based on the spread of the peer group, which present large fluctuations ranging from 0,69 for Statoil to 1,87 for BP. (Thomson One, 2014).

			Growth rates				
			1.0%	1.5%	2.0%	2.5%	3.0%
Beta	0,6	6.52%	32,86	34,53	36,57	39,12	42,39
	0,7	6.94%	29,52	30,82	32,38	34,29	36,68
	0,8	7.37%	26,65	27,66	28,87	30,32	32,10
	0,9	7.79%	24,16	24,96	25,89	27,00	28,35
	1	8.21%	21,98	22,61	23,34	24,19	25,22
	1,1	8.64%	20,05	20,55	21,12	21,79	22,57
	1,2	9.06%	18,35	18,74	19,19	19,71	20,31
	1,217	9.13%	18,08	18,46	18,89	19,38	19,96
	1,3	9.49%	16,82	17,13	17,49	17,89	18,36
	1,4	9.91%	15,46	15,70	15,98	16,29	16,65
	1,5	10.33%	14,23	14,42	14,63	14,87	15,15
	1,6	10.76%	13,11	13,26	13,43	13,61	13,82

Table 25: Sensitivity analysis II

Variations in WACC that are driven by beta of equity introduce additional insight to the drivers affecting Lundin's stock value, as they show smaller and more precise variations. The table can help us speculate on the assumptions the market makes through their current (1st of April 2014) price for Lundin's stock. From this point of view several things can be inferred from the table. Specifically, the market stock price of 20,63 USD on the valuation date (1st of April 2014) in the table would be most indicative of a growth rate of 1.6% which might indicate that our model assumed a too optimistic growth rate value but still fairly close in value to our model's assumption of 2%; and a beta value of 1,1 indicating that investors on the market perceive the risk of Lundin's stock to be lower. By assigning a higher firm specific risk to Lundin in our valuation we assume a more conservative position and thus consider the results of this sensitivity exercixse as a positive validation for our assumptions.

Another estimate we wanted to test for was the market risk premium, which served as an input for the estimation of the cost of equity in the CAPM. Various research and arguments exist that argue for certain levels of market risk premium and since these estimates are sometimes so different it is useful to test for their variations. The range was based on the historical estimates for US stocks because of their existing earlier records and their larger traded number (Koller et al., 2010).

			Growth rates				
			1.0%	1.5%	2.0%	2.5%	3.0%
Rm	0,035	6.98%	29,22	30,48	32,00	33,86	36,19
	0,04	7.41%	26,35	27,34	28,51	29,91	31,64
	0,045	7.84%	23,87	24,64	25,54	26,62	27,92
	0,05	8.27%	21,69	22,30	23,01	23,83	24,82
	0,055	8.70%	19,77	20,26	20,81	21,45	22,20
	0,06	9.13%	18,08	18,46	18,89	19,38	19,96
	0,065	9.56%	16,56	16,86	17,20	17,58	18,03
	0,07	9.99%	15,20	15,44	15,70	16,00	16,34
	0,075	10.42%	13,98	14,16	14,37	14,60	14,86
	0,08	10.85%	12,88	13,02	13,17	13,35	13,54

Table 26: Sensitivity analysis III

Reducing the market risk premium by only 8.33 % – to a 5.5% level – causes an increase in the valuation of the stock of 10.16% bringing the final share price to 20,81 USD, very close to its market value on the 1st of April 2014, which may indicate that investors generally assess the market risk premium to be lower than our estimations.

Throughout the analysis we have sought to underline the crucial factors impacting Lundin's future performance. One of the most influential and simultaneously uncertain estimates is the price of oil. It influences directly the revenues the company can expect to receive; the amount of resources it can invest in further exploration and development; as well as how deep Lundin can drill and how much they can extract. The section on oil price fluctuations in the strategic analysis compiled the opinions and analyses of various agencies and reports and also underlined the wide variances that characterised the price development of oil along the years. The variety of elements that make up its price mechanism, make it an extremely complex forecasting target and thus it is important to consider a variety of scenarios with different inputs and outcomes. Our reference case scenario of 105 USD per barrel was based on a conservative consensus of the experts' forecasts and yielded a final valuation below the market value. Therefore to check the sensitivity of the price of oil on the obtained Lundin stock price 4 oil price scenarios based on the previous sector analysis was created. The examined oil price levels were: 95, 105, 110 and 115 USD per barrel of oil. The following tables describe what happens in each of the scenarios to FCF, NOPLAT and subsequently to the total company value and share price.

Valuation with 95 USD per barrels of oil													
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Revenues		1141,6	1010,80	1579,37	1958,42	2065,82	1791,01	1516,20	1863,66	2842,87	3383,96	3925,05	4131,64
NOPLAT			336,26	472,64	555,73	568,83	498,10	428,56	494,50	658,49	738,72	796,41	818,20
FCF			-345,84	74,23	288,26	368,09	328,85	251,30	354,72	532,82	431,96	279,99	292,08
Discount factor			0,96	0,88	0,80	0,74	0,67	0,62	0,57	0,52	0,48	0,44	0,40
Discounted FCF			-331,05	65,11	231,68	271,08	221,91	155,39	200,98	276,62	205,49	122,05	116,66
Forecasting period	1419,25												
Terminal Value	4099,17												
Total Value	5518,42												
Equity value per share (April 1st)	14,12												

Table 27: Valuation with 95 USD per barrels of oil

Valuation with 105 USD per barrels of oil													
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Revenues		1141,6	1117,2	1745,6	2164,6	2283,3	1979,5	1675,8	2059,8	3142,1	3740,2	4338,2	4566,5
NOPLAT			380,2	541,3	640,6	658,1	575,6	494,2	574,7	777,3	879,1	955,8	984,3
FCF			-295,5	155,8	377,8	458,7	403,0	313,5	439,2	663,6	578,9	446,0	460,7
Discount factor			1,0	0,9	0,8	0,7	0,7	0,6	0,6	0,5	0,5	0,4	0,4
Discounted FCF			-282,9	136,7	303,6	337,8	271,9	193,9	248,8	344,5	275,4	194,4	184,0
Forecasting period	2024,20												
Terminal Value	4931,26												
Total Value	6955,46												
Equity value per share (April 1st)	18,89												

Table 28: Valuation with 105 USD per barrels of oil

Valuation with 110 USD per barrels of oil													
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Revenues		1196,00	1170,40	1828,75	2267,65	2392,00	2073,80	1755,60	2157,92	3291,74	3918,27	4544,80	4784,00
NOPLAT			394,63	563,32	667,43	685,74	599,27	513,98	598,36	810,65	917,25	997,65	1027,51
FCF			-274,96	181,39	406,91	486,97	424,98	331,68	464,96	702,95	620,41	491,16	505,18
Discount factor			0,96	0,88	0,80	0,74	0,67	0,62	0,57	0,52	0,48	0,44	0,40
Discounted FCF			-263,21	159,10	327,04	358,63	286,78	205,09	263,44	364,95	295,14	214,09	201,78
Forecasting period	2211,05												
Terminal Value	5147,80												
Total Value	7358,85												
Equity value per share (April 1st)	20,23												

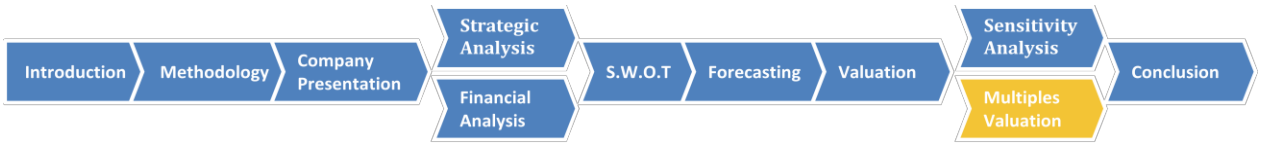
Table 29: Valuation with 110 USD per barrels of oil

Valuation with 115 USD per barrels of oil													
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Revenues		1196,00	1223,60	1911,87	2370,72	2500,73	2168,06	1835,40	2256,01	3441,37	4096,37	4751,38	5001,45
NOPLAT			414,08	593,55	704,66	724,71	632,99	542,46	632,98	861,37	976,75	1064,73	1097,28
FCF			-251,34	217,11	446,46	526,60	457,02	358,48	501,70	759,66	683,23	561,55	576,22
Discount factor			0,96	0,88	0,80	0,74	0,67	0,62	0,57	0,52	0,48	0,44	0,40
Discounted FCF			-240,59	190,43	358,83	387,81	308,41	221,66	284,25	394,39	325,02	244,78	230,15
Forecasting period	2474,98												
Terminal Value	5497,34												
Total Value	7972,33												
Equity value per share (April 1st)	22,26												

Table 30: Valuation with 115 USD per barrels of oil

The analysis shows how crucial the price of oil is for Lundin. These four scenarios show the importance oil price has for Lundin's profitability, underlining that it is a factor controlled by the market and thus largely out of Lundin's control. The tables clearly underline that the assumed price of 105 USD per barrels of oil results in a lower final stock price compared to the market values on the valuation date. Moreover it is interesting to mention that an assumed price of 110 USD per barrels of oil would generate a stock price closest to the market price, specifically of 20,23 USD – only a 40-cent deviation from the market price or a 2% difference. This shows that our estimated oil price, used throughout the valuation model, is more conservative than what the markets assumed during the same period of time.

Multiple Analysis



Discounted Cash Flow is considered the most flexible and accurate method for valuing a company and is especially recommended for valuing players in the E&P sector (Koller et al., 2010) (Bryan, 2012). However, as is the case with any model the results DCF yields are only as good as the input data provided. For this particular reason running a sensitivity analysis was important in order to see which components of our analysis are most likely to cause the highest variations in the value of the company. A multiple analysis will further test the validity and accuracy of the DCF results, pegging the value we have assigned to the company against that suggested by the market and other competitors.

Choosing the right set of multiples is crucial in constructing a solid analysis and so is choosing the right set of comparable companies (Koller et al., 2010). The two perhaps most popular ratios used are the P/E ratio and the EV/EBITDA. Even though P/E is easy to use and quite common across practitioners, Koller et al. (2010) recommends using EV/ EBITDA, as the ratio is more indicative of a firm's true value. This is due to the fact that P/E focuses on share price, whereas EV/EBITDA is based on enterprise value. Moreover, the authors demonstrate how this later ratio incorporates four value driving factors including the growth rate, the return on invested capital, the operating tax rate and the cost of capital (Koller et al. pg 316, 2010). In further support of this argument, industry reports claim that for the evaluation of E&P companies EV/EBITDA is suitable to be used (Bryan, 2012).

In some cases Koller et al. (2010) argue that the use of the EBITA multiple over EBIT and even EBITDA is more favourable. However, given the importance depreciation expenses present in this industry and its role in forecasting future required capital expenditure EBITDA is considered a suitable replacement for EBITA (Koller et al., 2010). Following these lines of judgment we have opted for the use of several multiples, namely EV/ EBITDA – as the most recommended multiple by both theoreticians and industry experts (Bryan, 2012) and P/E and EV/ Sales –for benchmarking purposes. The following table gives the comparison in Lundin's share value with the two different methods: DCF and multiple analysis based on the 3 multiples.

Multiples				
EV obtained from different multiples	**DCF**	**EV/EBITDA**	**EV/ SALES**	**P/E**
Total value	6955,5	6500,3	6301,8	8490,7
Excess Cash	68,8	68,8	68,8	68,8
Non- controlling interest	-59,8	-59,8	-59,8	-59,8
Enterprise Value	6964,4	6509,3	6310,8	8499,7
Value of Debt	-1239,2	-1239,2	-1239,2	-1239,2
Value of capitalised financing fees	-35,9	-35,9	-35,9	-35,9
Equity Value	5689,3	5234,2	5035,7	7224,6
Equity Value as of the 1st of April 2014	5837,4	5370,3	5166,7	7412,6
Nr of shares outstanding 31st of December 2013	309070330	309070330	309070330	309070330
Equity value per share	18,89	17,38	16,72	23,98
Equity value per share 1st of April 2014	**18,9**	**17,4**	**16,7**	**24,0**
Difference to our calculated value (DCF)		-8.0%	-11.5%	27.0%
Difference to share price on market.		-15.8%	-19.0%	16.2%

Table 31: Multiples analysis

EV/EBITDA

Given the previous arguments we have mainly focused on the EV/EBITDA ratio in this analysis and will take a short look at the other ratios used for valuation purposes further in the report. For the multiples analysis Lundin's peer group was used.

Comparative EV/EBITDA Multiples	
Companies	**EV/EBITDA**
Premier Oil Plc	4,5
Tullow Oil Plc	8,4
BP	2,7
Chevron	4,3
Statoil	2,2*
Averages	**4,42**

Table 32: EV/EBITDA multiple, * I USD = 6,2 NOK

The average for the EV/EBITDA multiple was estimated to be 4,42, which is the one used to find the enterprise value of the Lundin.

The next step in the multiple analysis is simply using the calculated average EV/ EBITDA to find the enterprise value of Lundin. Koller et al. (2010) recommends basing the final EV estimation on the forecasted year that best reflects the future of the business. Using this principle Lundin enterprise value would be derived from year 2024 EBITDA value as it is the year that is most representative of the long-term perspectives, future considerations and expectations of the company's growth. The computed forecasted EBITDA for 2024 was calculated to be 1469,97 MUSD.

This gives an enterprise value of 6 500,29 MUSD. Subtracting from this figure net interest bearing debt, capitalized financing fees and non-controlling interest based on the principles elaborated in the Final Value section yields a final equity value of 5 234,2 MUSD on the 31st of December 2013. Bringing the value forward to our valuation date on the 1st of April 2014 gives the equity value of 5 370,3 MUSD and a final value of 17,4 USD per share. This represents an 8% lower figure compare to the calculated DCF share price and a 15.6% lower figure compared to the share price on the market. The EV/EBITDA multiple in this case seems to underestimate the value of the company both compared to the way the market values Lundin and the DCF driven valuation found in this report, even though the discrepancy with our calculations is much lower supporting the more conservative assumptions in the DCF analysis. The reason for these lower values could also lie in the underestimation of the average multiple that was considerably pulled down by those peers, which are more integrated and more globalized than Lundin. Including them in the analysis has both advantages and disadvantages – advantages driven mostly by the more diverse, large and less biased sample and the disadvantages – of having too diverse players in the same group with different sizes of operations. We consider it important to keep all peers in the analysis but simultaneously take into account all of the considerations expressed above.

EV/ SALES

Even though the EV/EBITDA multiples is considered to be the most suitable measure for Lundin, it is always useful to have a more relative view and more values to compare to and thus we turn to EV/Sales multiple, which measures the way the company's value compares to its ability to generate revenues. The average multiple amongst the selected group of peers was 1,38.

Amongst the chosen reference group, Premier is recognized as most comparable to Lundin by the nature of its operations and size. Even though the individual multiple coefficients across the chosen group vary considerably, Premier presents a multiple of 1,5, while all the other peers have substantially lower values thus depressing the final average multiple used in the analysis.

Comparative EV/Sales Multiples	
Companies	**EV/Sales**
Premier Oil Plc	1,5
Tullow Oil Plc	3
BP	0,5
Chevron	1
Statoil	0,9*
Averages	**1,38**

Table 33: EV/Sales multiple, * I USD = 6,2 NOK

The total Enterprise Value based on this EV/Sales multiple is thus found to be 6 301,83 Mill USD and the equity value per share as of the 1st of April 2014 results to be 16,72 USD following previously presented steps for deriving equity value per share from the total EV. This represents a value 11.5% lower than the value we obtained using our DCF calculations and 18.9% lower than the traded share price on the market (See table 31). This lower value is mainly pulled down by the low EV/Sales multiples some of the peers have and represents simply another benchmark against which to compare the final price per share.

P/E

The price over earnings ratio present attractive advantages in its easiness in application for a quick and general understanding of the pricing level of a stock, whether under- or over- priced. Koller et al. (2010) alerts to the existing drawbacks of the ratio – as its value can be distorted by the capital structure and non-operating gains and losses. Moreover, Koller et al. (2010) mention that the P/E ratio is most suitable for some industries while in others – especially more mature ones such as the oil industry – it may incorrectly value the long term prospects.

These considerations - which advocate against the use of P/E ratios alone – can be noticed in our calculations as well. The average P/E multiple for the peer group equals 11,28 and presents great variations across all individual companies. Chevron and BP have values closest to the average value – of respectively 10,9 and 11,4 – while Premier our most comparable representative is reported to have a P/E multiple of 9,9.

Comparative P/E Multiples	
Companies	**P/E**
Premier Oil Plc	9,9
Tullow Oil Plc	16,6
BP	11,4
Chevron	10,9
Statoil	7,6*
Averages	**11,28**

Table 34: P/E multiple, * I USD = 6,2 NOK

This method yields the highest valuation number with a final EV of 8 490,74 MUSD and consequently an equity value per share on the 1st of April 2014 of 23,98 USD. This represents a figure 27% higher than the value we obtained using our DCF calculations and 16.24% higher than the traded share price on the market. Even though practitioners especially in the mergers and acquisition market often use P/E, (Koller et. al., 2010) we deem the value computed through this technique as overvaluing the true price of Lundin's stock.

Positioning the DCF, market and multiple analysis

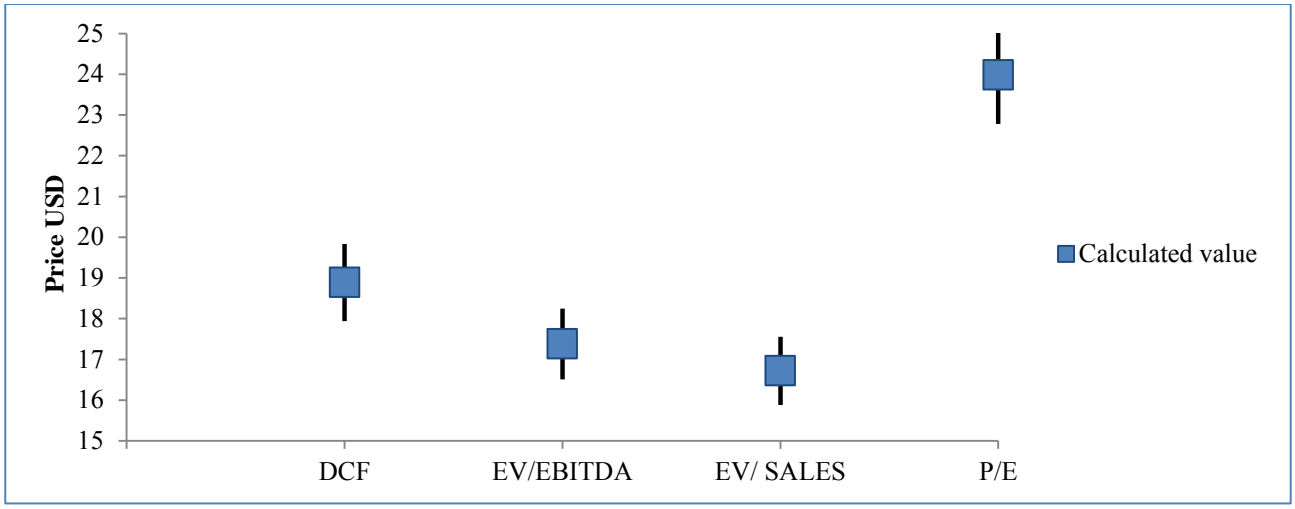


Figure 48: Stock price comparison with 5% over and under the estimated price

Figure 48 above gives a much more illustrative idea of the ranges given by the different methods for the value of Lundin's share. It brings into more focus the overvaluation given by the P/E ratio and thus underlines its potential unsuitability for this type of companies compared to the other methods. On the other hand the results presented by the 3 other methods: DCF, the EV/EBITDA and EV/SALES multiples are much more in line and support our overall result that Lundin's share price at the valuation date was slightly over valued by the market. Furthermore, the figure shows that a 5 % increase or decrease in the estimated share price gives values comparable to other methods. For example, the 5% lower range of the DCF valuation figure and the 5% upper range of the EV/EBITDA figure gives share prices of same value.

Conclusion to Valuation

The DCF method was deemed as the most suitable method to use to discount the forecasted cash flow estimated in the previous sections. To assess the sensitivity of the price obtained of the assumptions driving the estimated price a sensitivity analysis was done, showing that the price is most sensitive to changes in WACC. A multiples analysis was then carried out to check the validity of the price and the EV/EBITDA multiple which was found to be most relevant in the valuation of Lundin's stock indicated a price only slightly higher than the price obtained in the DCF and closer to the observed market price.

Conclusion

This report has sought to compute a fair value per share for the Swedish company Lundin Petroleum AB on the set valuation date of the 1st of April 2014. Apart from calculating an exact share price to answer the research question the report also focused on developing and discussing the key value drivers in the petroleum industry overall and those exclusively pertaining to Lundin.

The research led us through a strategic analysis of the strengths, weaknesses and particularities of the company seen from the lenses of the overall macro perspective in the form of PESTEL and through an industry analysis by applying Porter's Five forces. The strategic analysis revealed that exploration and production is an industry with very specific characteristics such as long business cycles, large initial and on-going investments, high dependence on the financial and trading markets and a continuous need for engineering expertise and technological know-how. These factors present risks but also strengths for Lundin's business model – where especially important are Lundin's proven track record of successful exploratory activity, promising asset base and its commitment to future growth and expansion as seen through its investments and increasing capital expenditure.

Further a more detailed analysis of the company's past 5-years financial performance was analyzed through the firm's annual reports and then summarized and assessed via key ratios and peer benchmarking. This revealed several important characteristic of Lundin's historical development that in part supported the findings revealed in the strategic section. Most important is that Lundin went from having a negative profit in 2009 (due to the high impairment costs during 2009 and 2010) to a positive and growing profit in 2013. Moreover, it revealed an increasing amount of gross investment occurring in the most years showing the company's commitment to future growth and its conviction in its own expertise. The high investments and capital expenditure were only possible through a relatively heavy debt financing which on the one side – as analysts like to underline – means that the company is ready to take on new opportunities but on the other hand raises the overall risk profile of the firm via risk in its ability to meet payments, raise new debt or even face default.

The strategic and financial analysis allowed us to make an informed forecast for Lundin's future performance. A 10-year explicit cash flow forecast was chosen due to the lengthy cycles and considerable investment payback period inherent to the industry. The difficulty and uncertainty in precisely forecasting accounts, sales, expenses and costs that would occur in an industry as volatile and complex as the oil and gas exploration and production industry required seeking more in depth information than the one commonly made available to investors. Thus, we consulted several industry experts and sought their opinion on expectations regarding the entire sector and Lundin in particular. This additional insight provided in the form of presentations and interviews adds focus and sharpness to the results.

The forecasts, based on general industry trends and firm specific expectations were then tested for consistency through key ratios such as ROIC, operating profit and Invested Capital. ROIC varied considerably within the historical period from -24% in 2009 to 15% in 2011 and 7% in 2013. In the forecasted period we presented similar yearly but smaller fluctuations as it was assumed that Lundin at the end of 2023 will converge to the industry recorded level of approximately 13%. Operating profit too presented extreme variations from -100% in 2009 to 24% in 2011 and 20% in 2013. In our forecasts we recorded firstly an increasing operating margin that then gradually decreases to 22% at the end of the forecasting period to account for the erosion of Lundin's competitive advantage and the industry-wide effect of the competitive forces. Invested Capital recorded less variation in the historical period and our forecast assumed a gradually increasing amount of Invested Capital to account for the growth and expansion of the company.

The DCF method was then used to discount the forecasted free cash flow figures and led us to a value of 18,89 USD per share on the 1st of April 2014 which indicates that Lundin's share at the valuation date were slightly over-valued. Our estimated share price is 8.5% lower than the traded market price. To assess the profoundness of this estimated price a sensitivity analysis was conducted. This revealed that variations in WACC have the biggest impact on the final share price. A 14% decrease in WACC results in a 30% increase in the share price, whereas the terminal growth rate even though just as important has a smaller scale impact. Another factor that was examined was the price of oil for the forecasted period, whose importance has been underlined repeatedly throughout the report and that, expectedly, has a big impact on the final valuation. A 9.5% increase in the oil price of up to 115 USD per barrel of oil leads to an increase in the share price of 18%. An increase of just 4.8% to the value of 110 USD per barrel of oil leads to an increase of 7% and a value per share of 20,23 USD which is very close to the value recorded on the market. On the other hand, in the case of a lower oil price by 9.5% to 95 USD per barrel, the effect is a 25% lower share price of 14,12 USD.

A multiples analysis was also used to triangulate the value obtained through the DCF and put it into perspective. The EV/EBITDA multiple analysis, most supported by researchers and practitioners, gives a share price value that indicates an even higher overvaluation of the price currently on the market. It pegs the real value at 17,38 USD that is 8% lower compared to our calculated DCF share price and a 15.8% lower figure compared to the market price. The two other multiples in our analysis indicate higher variations to the stock price compared to both our DCF value and the market but have considerable disadvantages both compared to the DCF valuation method and the EV/EBITDA multiple, and thus their results are deemed as less reliable.

Given these considerations our final conclusion is that the fair value of a share of Lundin's stock is 18,89 USD on the 1st of April 2014 and that its current traded price is indeed overvalued. This can be explained by

the market's low risk aversion, its underestimation of the uncertainties the company faces in the industry or by the assumption of a higher future oil price than we estimate it to be in this thesis. Nonetheless our strategic and financial analyses also indicate numerous strengths inherent to Lundin. This means that even though the stock might encounter a small downward price correction in the nearest future, we believe it to be a valuable stock to have in a portfolio.

Perspectives

It is of paramount importance to consider this thesis initial and fundamental purpose when evaluating it against the value it creates. Rather than providing strict steps to follow in Lundin's or any other oil company's evaluation program, the report sought to open a discussion on the various value levers and variables affecting the bottom line value of any company within the industry. The string of events that dawned through the oil sector in the months following the valuation date underlines the complexity and uncertainty engulfing the sector. As the oil hit a 3-year low (Bloomberg, 2014) in the first week of November and world leaders actively engage in talks over oil supply and demand, the crucial role the industry plays in world economics and politics became even more evident. Talks and headlines surrounding the industry gained momentum but so did the risk pertaining to the sector's main operators and consequently to the variability of any valuation done in the field.

In retrospect and in view of the latest developments several external factors emerge as key in influencing the attractiveness of the entire sector and ultimately of Lundin's stock. These are; (1) External policies of the biggest world exporters and importers, namely – the OPEC members USA, Europe and Russia, (2) Evolution of conflicts in key regions, (3) Shale gas revolution in the USA and (4) Environmental legislation and commitments (Bloomberg, 2014). The divide among world leading economies has become more prominent as OPEC interests clashed with the shale gas production growth in North America driving the commodity to a spiral of dropping prices. Alternative sources of fossil fuels and technological developments should then have deserved a far deeper analysis in order to be able to realistically model the threat inherent in these new substitutes to traditional oil and gas. Environmental considerations too should have perhaps taken a bigger part in our report as worldwide movements led by governments rather than mere activists may actually impact the bottom line quotas for oil extraction.

All of these factors have constituted an important part of our analysis and we sought to underline their unpredictable and external nature, representing risks outside Lundin's control. Developments in these areas are very difficult to forecast and in some instance we have perhaps understated their impact and role for the entire industry. However, overall the report sought to consolidate all feasible information and make fair and reasonable assumptions – related to both the company and the sector – that investors can be expected to make when evaluating possible investment opportunities.

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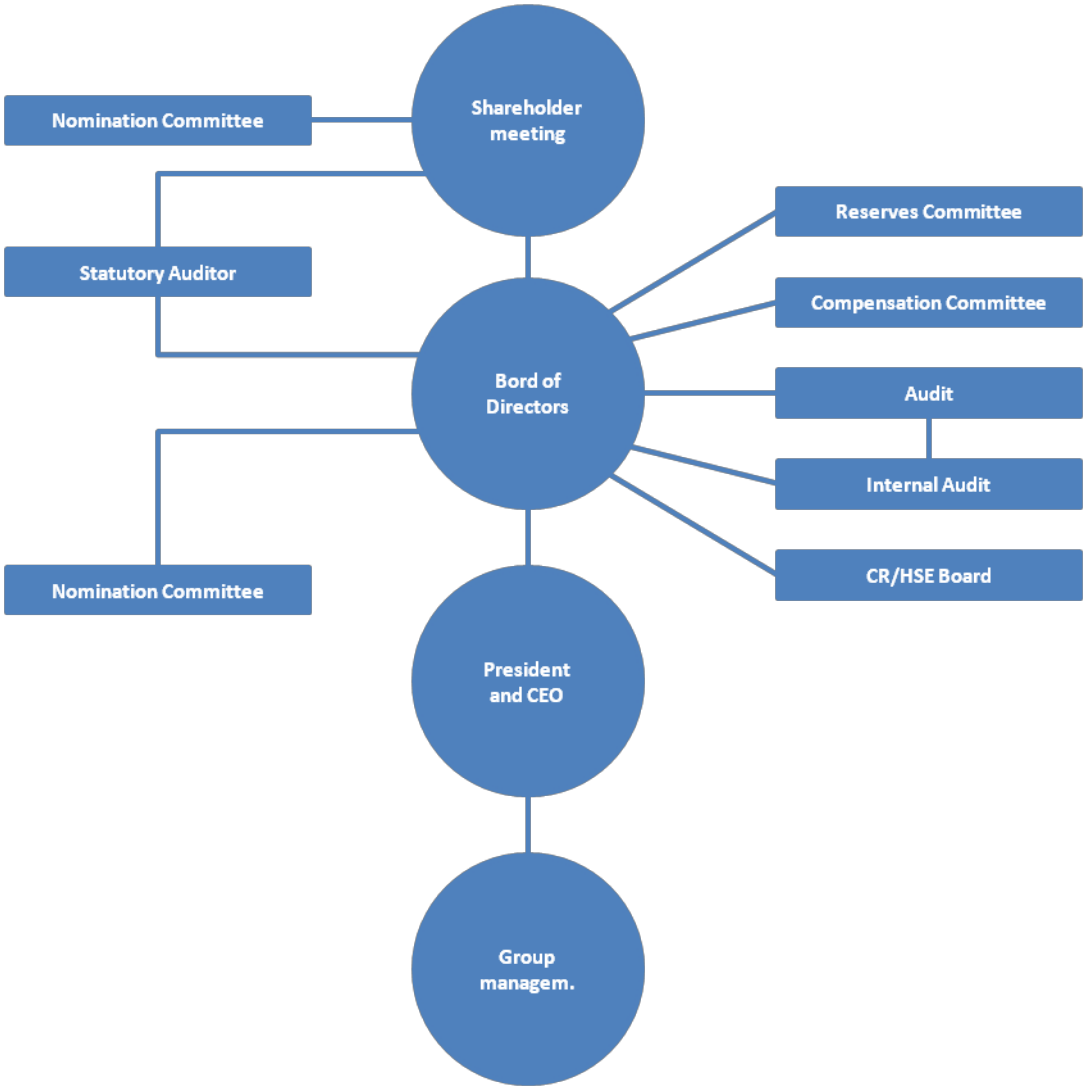
Appendices

Appendix 1. Lundin's Corporate Governance Structure



Appendix 2. Lundin's largest shareholders

10 largest shareholders of Lundin as at 31st Dec 2013	Number of shares	Capital/votes
Lorito Holdings (Guernsey) Ltd.	76,342,895	24%
Landor Participations Inc.	11,538,956	3.6%
Zebra Holdings and Investment (Guernsey) Ltd.	10,844,643	3.4 %
Lundin Petroleum AB	8,340,250	2.6 %
Swedbank Robur fonder	8,248,334	2.6 %
Danske Capital Sverige AB	4,264,159	1.3 %
Norges Bank Investment Management	4,164,629	1.3 %
Fjärde AP-fonden	3,194,836	1.0 %
Blackrock Global	3,003,092	0.9 %
Handelsbankens fonder	2,927,826	0.9 %
Other shareholders	185,040,960	58.2 %
Total	**317,910,580**	**100%**

Appendix 3. Peer group benchmarking

Name	Logo	Market Cap (US$ Billion)	Assets Book Value	ROIC	Revenues (US$ Billion)	Nr of employee	Geographic Regions
Premier Oil		3.1	5.8	6.1	1.5	882	North Sea, South East Asia: Vietnam and Indonesia, Pakistan
Tullow Oil plc		12.8	11.5	3.3	2.6	1679	Africa, Southern North Sea, Asia
Statoil ASA		90.3	139.4	17.5	100.3	23000	Worldwide – focus on Norway, Angola, Canada, Greenland, Russia
BP		142.8	305.7	10.4	396.2	83900	Worldwide – 80 countries
Chevron Corporation		236.9	253.8	14.2	228.8	64600	Worldwide – 180 countries

Appendix 4. Oil and gas development

Oil production by geographical segmentation			
Geography	**2012**	**2035**	**Change**
North America	721,4	1023,2	41,84%
S & C America	378	550,3	45,58%
Europe&Euroasia	836,4	795	-4,95%
Middle East	1336,8	1625,4	21,59%
Africa	449	465,3	3,62%
Asia Pacific	397,3	356,8	-10,19%
Total	**4118,9**	**4816**	

Gas production by geographical segmentation			
Geography	**2012**	**2035**	**Change**
North America	812,7	1119,3	37,72%
S & C America	159,6	261,3	63,76%
Europe & Euroasia	931,9	1194,9	28,23%
Middle East	493,6	856,6	73,56%
Africa	194,6	424,6	118,21%
Asia Pacific	441,2	790,2	79,12%
Total	**3033,5**	**4647**	

(Own creation based on Marketline, 2013)

Appendix 5. Lundin Consolidated Balance sheet

Lundin Consolidated Balance sheet					
MUSD	**2009**	**2010**	**2011**	**2012**	**2013**
Assets					
Non-current Assets					
Oil and Gas properties	2540	1999	2329	2864	3852
Solar power properties	1				
Other tangible assets	15	15	16	49	85
Goodwill	1				
Other intangible assets	5				
Other shares and participation	32	69	18	20	22
Long-term receivable	24	24			
Deferred tax	28	15	15	13	22
Derivate instruments	0				3
Other financial assets	29	22	13	11	12
Total non-current Assets	**2675**	**2144**	**2392**	**2958**	**3996**
Current Assets					
Inventories	27	20	32	19	23

Trade receivables	81	94	145	126	129
Prepaid expenses and accrued income	10	6	5	33	62
Short-term loan receivable	34	75			
Derivative instruments				9	3
Tax receivable	2				
Joint venture debtors	29	21	20	12	25
Other receivables	15	20	23	40	44
Cash and cash equivalents	77	49	74	97	93
Total current Assets	**275**	**285**	**298**	**336**	**378**
Total Assets	**2951**	**2429**	**2690**	**3294**	**4375**
Equity and Liabilities					
Equity					
Share capital	0	0	0	0	1
Additional paid in capital	909	484	484	475	455
Other reserves	-69	-66	-146	-64	-97
Retained earnings	712	-9	503	663	771
Net result	-411	512	160	108	78
Shareholder's equity	1142	920	1001	1182	1207
Non-controlling interest	96	77	69	68	60
Total Equity	**1237**	**998**	**1070**	**1250**	**1267**
Non-current Liabilities					
Provision for site restoration	133	94	119	190	246
Pension provision	1	1	1	2	2
Provision for deferred tax	744	651	803	942	1068
Derivate instruments	3				2
Other provisions	17	24	64	70	34
Bank loans	546	459	207		
Financial liabilities				384	1239
Other non-current liabilities	13	18	22	23	25
Total non-current Liabilities	**1456**	**1246**	**1217**	**1611**	**2615**
Current Liabilities					
Trade payables	20	16	17	16	19
Tax liability	21	40	240	170	5
Derivate instruments	7	7	0		4
Accrued expenses and deferred income	16	8	16	13	41
Short-term debt	32	0			
Joint venture creditors	140	101	88	210	335
Other liabilities	20	13	29	15	43
Provisions			12	9	46
Total current Liabilities	**257**	**185**	**403**	**432**	**492**
Total Equity and Liabilities	**2951**	**2429**	**2690**	**3294**	**4375**

Appendix 6. Lundin Reformulated Balance sheet

Lundin Reformulated Balance sheet					
MUSD	**2009**	**2010**	**2011**	**2012**	**2013**
Current Operating Assets					
Inventories	27	20	32	19	23
Trade receivables	81	94	145	126	129
Prepaid expenses and accrued income	10	6	5	33	62
Short-term loan receivable	34	75			
Tax receivable	2				
Joint venture debtors	29	21	20	12	25
Other receivables	15	20	23	40	44
Cash operational	11	16	25	27	24
Current Operating Assets	**209**	**252**	**250**	**256**	**306**
Current Operating Liabilities					
Trade payables	20	16	17	16	19
Accrued expenses and deferred income	16	8	16	13	41
Joint venture creditors	140	101	88	210	335
Tax liability	21	40	240	170	5
Other liabilities (considered operational)	20	13	29	15	43
Current Operating Liabilities	**218**	**178**	**390**	**423**	**442**
Operating Working Capital	**-9**	**75**	**-141**	**-167**	**-136**
Oil and Gas properties	2540	1999	2329	2864	3852
Solar power properties	1				
Other tangible assets	15	15	16	49	85
Long-term receivable	24	24			
Long-term Assets	**2581**	**2038**	**2345**	**2914**	**3937**
Provision for site restoration	133	94	119	190	246
Other non-current liabilities	13	18	22	23	25
Long-term Liabilities	**145**	**112**	**141**	**213**	**271**
Long term Assets net of Liabilities	**2435**	**1926**	**2204**	**2701**	**3666**
Invested Capital (excl. goodwill and intangibles)	**2427**	**2001**	**2064**	**2534**	**3530**
Goodwill	1				
Other intangible assets	5				
Invested Capital	**2432**	**2001**	**2064**	**2534**	**3530**
Other shares and participation	32	69	18	20	22
Excess Cash	66	33	48	71	69
Pension provision	-1	-1	-1	-2	-2
Other provisions	-17	-24	-64	-70	-34
Deferred tax	28	15	15	13	22
Derivative instruments (current and non-current)	0			9	6
Other financial assets	29	22	13	11	12

Total Funds invested	**2569**	**2115**	**2093**	**2585**	**3625**
Reconciliation					
Long term Debt					
Bank loans	546	459	207		
Financial liabilities				384	1239
Derivate instruments	3				2
Long term Debt	549	459	207	384	1241
Short-term debt	32	0			
Derivate instruments (current)	7	7	0		4
Short-term debt	39	7	0		4
Equity Equivalent: operating and Non					
Provision for deferred tax (Op-Eq equiv)	744	651	803	942	1068
Provisions (pensions, non op) - debt equivalent		-	12	9	46
Share capital	0	0	0	0	1
Additional paid in capital	909	484	484	475	455
Other reserves	-69	-66	-146	-64	-97
Retained earnings	712	-9	503	663	771
Net result	-411	512	160	108	78
Shareholder's equity					
Non-controlling interest	96	77	69	68	60
Total Funds Invested (reconciliation)	**2569**	**2115**	**2093**	**2585**	**3625**

Appendix 7. Lundin Consolidated Income Statement

Lundin Consolidated Income Statement					
MUSD	**2009**	**2010**	**2011**	**2012**	**2013**
Net sales of Oil and gas	567	785	1258	1319	
Other operating income	4	13	12	26	
Revenue	572	799	1270	1345	1196
Cost of Sales					
Production costs	-155	-157	-193	-172	-196
Depletion and decommissioning costs	-118	-145	-165	-191	-174
Exploration costs	-135	-128	-140	-168	-288
Impairment costs of oil and gas properties	-526			-237	-123
Impairment cost for goodwill	-119				
Gross profit	**-481**	**369**	**771**	**575**	**415**
Gain on sale of assets	5	66			
Other income	1	1			
General, administration and depreciation expenses	-29	-42	-67	-32	-44
Operating profit	**-504**	**394**	**704**	**544**	**371**
Financial income	82	21	46	27	3
Financial expenses	-52	-33	-21	-49	-86
Results from financial investments	30	-13	25	-21	-83
Result from share in associated company	-26				
Profit before tax	-500	381	730	522	288
Income tax expense	-46	-252	-574	-418	-215
Net result from continuing operations	-546	129	155	104	73
Discontinued operations					
Net result from discontinued operations	9	369			
Net result	**-537**	**498**	**155**	**104**	**73**
Net result attributable to the shareholders of the Parent Company:					
From continuing operations	-420	143	160	108	78
From discontinued operations	9	369			
	-411	512	160	108	78
Net result attributable to non-controlling interest:					
From continuing operations	-126	-13	-5	-4	-5
Net result	**-537**	**498**	**155**	**104**	**73**

Appendix 8. Lundin Reformulated Income Statement

Lundin Reformulated Income Statement					
MUSD	**2009**	**2010**	**2011**	**2012**	**2013**
			1	1	1
Revenue	572	799	270	345	196
Cost of Sales					
Production costs	-155	-157	-193	-172	-196
Depletion and decommissioning costs	-118	-145	-165	-191	-174
Exploration costs	-135	-128	-140	-168	-288
Impairment costs of oil and gas properties	-526			-237	-123
Impairment cost for goodwill	-119				
Gross Profit	-481	369	771	575	415
Other income	1	1			
General, administration and depreciation expenses	-29	-42	-67	-32	-44
EBITA	-509	328	704	544	371
Operating Cash taxes	64	-342	-404	-287	-136
NOPLAT	**-445**	**-15**	**300**	**257**	**235**
Reconciliation					
Net income	-537	498	155	104	73
Decrease (increase) in operating deferred taxes	69	-93	153	139	125
Adjusted net income	-468	406	308	243	198
After tax interest expense	39	25	15	36	67
Total income available to investors	**-429**	**430**	**324**	**278**	**266**
Other, net (non-operating taxes)	38	-12	11	-2	-28
After tax gain on sale of assets	-3	-49			
After tax interest income	-60	-15	-34	-20	-3
Net result from discontinued operations	-9	-369			
Result from share in associated company	19				
Sum	-16	-445	-24	-22	-31
NOPLAT	**-445**	**-15**	**300**	**257**	**235**

Appendix 9. Tax reconciliation

Tax reconciliation					
	2009	**2010**	**2011**	**2012**	**2013**
Income tax at statutory rate	132	-100	-192	-137	-63
Foreign rate differences	-139	-163	-372	-283	-180
Other, net (non-operating taxes)	-38	12	-11	2	28
Reported taxes	-46	-252	-574	-418	-215
Earnings before taxes	**500**	**381**	**730**	**522**	**288**

Tax reconciliation (percent)					
	2009	**2010**	**2011**	**2012**	**2013**
Income tax at statutory rate	0,263	-0,263	-0,263	-0,263	-0,220
Foreign rate differences	-0,278	-0,428	-0,510	-0,541	-0,625
Other, net	-0,076	0,031	-0,015	0,003	0,098
Reported taxes	**-0,1**	**-0,7**	**-0,8**	**-0,8**	**-0,7**

Operating taxes					
	2009	**2010**	**2011**	**2012**	**2013**
Marginal tax rate	0,26	0,26	0,26	0,26	0,22
* adjusted EBITA	-509	328	704	544	371
= Marginal taxes on EBITA	-134	86	185	143	82
Other Operating taxes	139	163	372	283	180
Operating taxes	5	249	557	425	262
Operating Cash taxes					
Operating taxes	5	249	557	425	262
Increase in operating deferred taxes	-69	93	-153	-139	-125
Operating Cash taxes	**-64**	**342**	**404**	**287**	**136**

Appendix 10. Free Cash Flow

Free Cash Flow	Historical				
	2009	**2010**	**2011**	**2012**	**2013**
NOPLAT	-444,8	-14,6	299,9	256,8	234,8
Depreciation	727,2	497,7	643,1	995,5	1 102,5
Gross Cash Flow	282,4	483,1	943,0	1 252,3	1 337,3
Change in WC (Increase)/ Decrease	21,6	-83,2	215,2	26,6	-31,5
Net Capital Expenditure	405,6	44,3	-974,2	-1 563,9	-2 125,6
Investments in goodwill and other intangibles	113,2	5,8	-	-	-
Decrease (Increase) in Long term operating assets	34,3	-33,2	53,4	71,9	58,0
Change in accumulated other comprehensive income	-74,8	118,7	-6,4	-99,1	93,3
Gross Investment	500,0	52,4	-712,1	-1 564,6	-2 005,8
Free Cash Flow	**782,3**	**535,5**	**230,9**	**-312,3**	**-668,5**
After tax interest income	60,5	15,4	34,2	20,1	2,6
Result from share in associated company	-18,8	-	-	-	-
Other, net (non-operating taxes)	-38,0	11,6	-10,6	1,5	28,2
(Increase) decrease in excess cash	-15,7	24,4	-11,4	-16,5	-1,7
Discontinued operations	8,7	369,0	-	-	-
(Increase) decrease in long term investments	-20,9	127,8	-146,7	93,3	-0,8
Decrease (increase) in net loss carry-forwards	-2,0	12,8	-0,3	2,1	-9,1
Non operating Cash Flow	-26,2	561,1	-134,7	100,5	19,1
Cash Flow available to Investors	**756,1**	**1096,6**	**96,2**	**-211,8**	**-649,4**

Appendix 11. Common Size analysis of peers

Lundin Income statement MUSD	2009	2010	2011	2012	2013	Average
Total revenue	572	799	1270	1345	1196	1036
Cost of sales	-1053	-430	-498	-770	-781	-706
Exploration expenses	-135	-128	-140	-168	-288	-172
Gross profit	-481	369	771	575	415	330
General, administration and depreciation expenses	-29	-42	-67	-32	-44	-43
Other accounts	6	67	0	0	0	15
Operating profit	-504	394	704	544	371	302
Net Financial	4	-13	25	-21	-83	-17
Profit before tax	-500	381	730	522	288	284
Tax	-46	-252	-574	-418	-215	-301
Profit after tax	-546	129	155	104	73	-17
Common size analysis	**2009**	**2010**	**2011**	**2012**	**2013**	**Average**
Cost of sales	-184%	-54%	-39%	-57%	-65%	-80%
Exploration expenses	-24%	-16%	-11%	-13%	-24%	-17%
Gross profit	-84%	46%	61%	43%	35%	20%
General, administration and depreciation expenses	-5%	-5%	-5%	-2%	-4%	-4%
Other accounts	1%	8%	0%	0%	0%	2%
Operating profit	-88%	49%	55%	40%	31%	18%
Net Financial	1%	-2%	2%	-2%	-7%	-1%
Profit before tax	-87%	48%	57%	39%	24%	16%
Tax	-8%	-32%	-45%	-31%	-18%	-27%
Profit after tax	-95%	16%	12%	8%	6%	-11%

BP Income statement MUSD	2009	2010	2011	2012	2013	Average
Total Revenue	246 138	308 928	386 216	388 074	396 217	345115
Cost of sales	- 194 175	- 288 602	- 321 154	-342 608	- 338 327	-296973
Exploration expense	- 1 116	- 843	- 1 520	- 1 475	- 3 441	-1679
Gross Profit	51 963	20 326	65 062	45 466	57 890	48141
General, administration and depreciation exp	- 26 144	- 23 719	- 25 315	- 26 044	- 26 580	-25560
Other accounts	607	- 309	68	347	459	234
Operating Profit	26 426	- 3 702	39 815	19 769	31 769	22815
Net financial	- 1 302	- 1 123	- 1 587	- 1 638	- 1 548	-1440
Profit before tax	25 124	- 4 825	38 228	18 131	30 221	21376
Tax	- 8 365	1 501	- 12 619	- 6 880	- 6 463	-6565
Profit after tax	16 759	- 3 324	25 609	11 251	23 758	14811
Common size analysis	**2009**	**2010**	**2011**	**2012**	**2013**	**Average**
Cost of sales	-79%	-93%	-83%	-88%	-85%	-86%
Exploration expense	0%	0%	0%	0%	-1%	0%
Gross Profit	21%	7%	17%	12%	15%	14%
General, administration and depreciation exp	-11%	-8%	-7%	-7%	-7%	-8%
Other accounts	0%	0%	0%	0%	0%	0%
Operating Profit	11%	-1%	10%	5%	8%	7%
Net financial	-1%	0%	0%	0%	0%	0%
Profit before tax	10%	-2%	10%	5%	8%	6%
Tax	-3%	0%	-3%	-2%	-2%	-2%
Profit after tax	7%	-1%	7%	3%	6%	4%

Chevron Income statement MUSD	2009	2010	2011	2012	2013	Average
Total revenue and income	171 636	204 928	253 706	241 909	228 848	220205
COGS	- 118 852	- 136 802	- 172 788	- 165 064	- 161 184	-150938
Exploration expenses	- 1 342	- 1 147	- 1 216	- 1 728	- 1 861	-1459
Gross profit	52 784	68 126	80 918	76 845	67 664	69267
Selling, general and administration expenses	- 16 637	- 17 830	- 17 656	- 18 137	- 18 696	-17791
Other	- 17 619	- 18 241	- 15 628	- 12 376	- 13 063	-15385
Operating profit	18 528	32 055	47 634	46 332	35 905	36091
Net financial	-	-	-	-	-	0
Profit before tax	18 528	32 055	47 634	46 332	35 905	36091
Tax	- 7 965	- 12 919	- 20 626	- 19 996	- 14 308	-15163
Profit after tax	10 563	19 136	27 008	26 336	21 597	20928
Common size analysis	**2009**	**2010**	**2011**	**2012**	**2013**	**Average**
COGS	-69%	-67%	-68%	-68%	-70%	-69%
Exploration expenses	-1%	-1%	0%	-1%	-1%	-1%
Gross profit	31%	33%	32%	32%	30%	31%
Selling, general and administration expenses	-10%	-9%	-7%	-7%	-8%	-8%
Other	-10%	-9%	-6%	-5%	-6%	-7%
Operating profit	11%	16%	19%	19%	16%	16%
Net financial	0%	0%	0%	0%	0%	0%
Profit before tax	11%	16%	19%	19%	16%	16%
Tax	-5%	-6%	-8%	-8%	-6%	-7%
Profit after tax	6%	9%	11%	11%	9%	9%

Statoil Income statement Million NOK	2009	2010	2011	2012	2013	Average
Total revenues	465	530	670	722	637	605
COGS	-280	-331	-394	-444	-401	-370
Exploration expenses	-17	-16	-14	-18	-18	-16
Gross profit	186	199	276	278	237	235
Selling, general and administrative expenses	-64	-62	-65	-72	-82	-69
Other accounts						0
Operating profit	122	137	212	207	155	167
Net financial items	-7	0	2	0	-17	-4
Profit before tax	115	137	214	207	138	162
Tax	-97	-99	-135	-137	-99	-114
Net income	18	38	78	70	39	48
Common size analysis	**2009**	**2010**	**2011**	**2012**	**2013**	**Average**
COGS	-60%	-62%	-59%	-61%	-63%	-61%
Exploration expenses	-4%	-3%	-2%	-3%	-3%	-3%
Gross profit	40%	38%	41%	39%	37%	39%
Selling, general and administrative expenses	-14%	-12%	-10%	-10%	-13%	-12%
Other accounts	0%	0%	0%	0%	0%	0%
Operating profit	26%	26%	32%	29%	24%	27%
Net financial items	-1%	0%	0%	0%	-3%	-1%
Profit before tax	25%	26%	32%	29%	22%	27%
Tax	-21%	-19%	-20%	-19%	-16%	-19%
Profit after tax	4%	7%	12%	10%	6%	8%

Premier Income statement MUSD	2009	2010	2011	2012	2013	Average
Revenue	621	764	827	1409	1540	1032
COGS	-433	-618	-625	-929	-1168	-755
Exploration expense	-57	-68	-188	-158	-106	-115
Gross Profit	188	146	201	479	372	277
General and administration costs	-18	-18	-26	-24	-20	-21
Net accounts						0
Operating profit	170	128	176	455	352	256
Net financial items	-90	-27	-34	-95	-67	-63
Profit before tax	80	101	142	360	285	194
tax	33	29	30	-108	-51	-14
Profit after tax	113	130	171	252	234	180
Common size analysis	**2009**	**2010**	**2011**	**2012**	**2013**	**Average**
COGS	-70%	-81%	-76%	-66%	-76%	-74%
Exploration expense	-9%	-9%	-23%	-11%	-7%	-12%
Gross Profit	30%	19%	24%	34%	24%	26%
General and administration costs	-3%	-2%	-3%	-2%	-1%	-2%
Net accounts	0%	0%	0%	0%	0%	0%
Operating profit	27%	17%	21%	32%	23%	24%
Net financial items	-14%	-4%	-4%	-7%	-4%	-7%
Profit before tax	13%	13%	17%	26%	19%	17%
tax	5%	4%	4%	-8%	-3%	0%
Profit after tax	18%	17%	21%	18%	15%	18%

Tullow Income statement MUSD	2009	2010	2011	2012	2013	Average
Revenue	916	1090	2304	2344	2647	1860
cost of sales	-626	-584	-931	-999	-1207	-869
Exploration expense						0
Gross profit	290	506	1373	1345	1440	991
administrative expenses	-78	-90	-123	-191	-219	-140
Net other accounts	-62	-154	-119	32	-841	-229
Operating profit	151	262	1132	1185	381	622
Net financial items	-119	-83	-59	-69	-68	-79
Profit before tax	33	179	1073	1116	313	543
income tax expense	-2	-90	-384	-450	-97	-204
profit for the year	31	89	689	666	216	338
Common size analysis	**2009**	**2010**	**2011**	**2012**	**2013**	**Average**
cost of sales	-68%	-54%	-40%	-43%	-46%	-50%
Exploration expense	0%	0%	0%	0%		0%
Gross profit	32%	46%	60%	57%	54%	50%
administrative expenses	-8%	-8%	-5%	-8%	-8%	-8%
Net other accounts	-7%	-14%	-5%	1%	-32%	-11%
Operating profit	16%	24%	49%	51%	14%	31%
Net financial items	-13%	-8%	-3%	-3%	-3%	-6%
Profit before tax	4%	16%	47%	48%	12%	25%
income tax expense	0%	-8%	-17%	-19%	-4%	-10%
Profit after tax	3%	8%	30%	28%	8%	16%

Appendix 12. Key financial numbers

Lundin	2009	2010	2011	2012	2013
Assets	2951	2429	2690	3294	4374,5
EBIT	-504	394	704	544	371
ROIC	**-17%**	**16%**	**26%**	**17%**	**8%**
EBIT	-504	394	704	544	371
Assets	2951	2429	2690	3294	4374,5
Current liabilities	257	191	403	432	492,4
Capital employed	2693	2238	2287	2861	3882,1
ROCE	**-19%**	**18%**	**31%**	**19%**	**10%**
Total non-current Liabilities	1456	1240	1217	1611	2615,3
Equity	1237	998	1070	1250	1266,8
Debt/Equity	**1,2**	**1,2**	**1,1**	**1,3**	**2,1**
Current assets	275	285	298	336	378
Current liabilities	257	191	403	432	492
Current ratio	**1,1**	**1,5**	**0,7**	**0,8**	**0,8**
Short term debt	32	0	0		
Long term debt	546	459	207	432	1275
Cash and cash equivalents	77	49	74	97	93
Net debt	**501**	**410**	**133**	**335**	**1182**

BP MUSD	2009	2010	2011	2012	2013
Assets	235968	272262	293068	300466	305690
EBIT	26426	-3702	39815	19769	31769
ROIC	**11%**	**-1%**	**14%**	**7%**	**10%**
EBIT	26426	-3702	39815	19769	31769
Assets	235968	272262	293068	300466	305690
Current liabilities	59320	83879	84318	77175	72812
Capital employed	176648	188383	208750	223291	232878
ROCE	**15%**	**-2%**	**19%**	**9%**	**14%**
Total non-current Liabilities	74535	92492	96268	103539	102471
Equity	102113	95891	112482	119752	130407
Debt/Equity	**0,7**	**1,0**	**0,9**	**0,9**	**0,8**
Current assets	67653	89725	89164	91666	96840
Current liabilities	59320	82832	83780	76740	72812
Current ratio	**1,1**	**1,1**	**1,1**	**1,2**	**1,3**
	2009	**2010**	**2011**	**2012**	**2013**
Short term debt	9109	14626	9044	10030	7381
Long term debt	25518	30710	35169	38767	40811
Cash and cash equivalents	8339	18556	14067	19548	22250
Net debt	**26288**	**26780**	**30146**	**29249**	**25942**

Chevron MUSD	2009	2010	2011	2012	2013
Assets	164621	184769	209474	232982	253753
EBIT	36147	50296	63262	58708	48968
ROIC	**22%**	**27%**	**30%**	**25%**	**19%**
EBIT	36147	50296	63262	58708	48968
Assets	164621	184769	209474	232982	253753
Current liabilities	26211	29012	33600	34212	33018
Capital employed	138410	155757	175874	198770	220735
ROCE	**26,1%**	**32,3%**	**36,0%**	**29,5%**	**22,2%**
Total non-current Liabilities	45849	49946	53693	60938	70308
Equity	92561	105811	122181	137832	150427
Debt/Equity	**0,5**	**0,5**	**0,4**	**0,4**	**0,5**
Current assets	37216	48841	53234	55720	50250
Current liabilities	26211	29012	33600	34212	33018
Current ratio	**1,4**	**1,7**	**1,6**	**1,6**	**1,5**
Short term debt	0,384	0,187	0,34	0,127	0,374
Long term debt	9829	11003	9684	11966	19960
Cash and cash equivalents	8716	14060	15864	20939	16245
Net debt	**1113**	**-3057**	**-6180**	**-8973**	**3715**

Statoil NOK	2009	2010	2011	2012	2013
Assets	563	643	769	784	886
EBIT	122	137	212	207	155
ROIC	**22%**	**21%**	**28%**	**26%**	**18%**
EBIT	122	137	212	207	155,3
Assets	563	643	769	784	885,6
Current liabilities	112	136	171	164	166,9
Capital employed	451	507	597	621	718,7
ROCE	**27,0%**	**27,1%**	**35,4%**	**33,3%**	**21,6%**
Total non-current Liabilities	251	271	312	301	363
Equity	200	226	285	356	320
Debt/Equity	**1,3**	**1,2**	**1,1**	**0,8**	**1,1**
Current assets	117	148	198	183	239
Current liabilities	112	136	171	164	167
Current ratio	**1,0**	**1,1**	**1,2**	**1,1**	**1,4**
Net debt					
Short term debt	8	12	20	18	17
Long term debt	96	100	112	101	166
Cash and cash equivalents	25	31	41	65	85
Net debt	**79**	**81**	**91**	**54**	**97**

Premier MUSD	2009	2010	2011	2012	2013
Assets	2540	3026	3889	4844	5814
EBIT	170	128	176	455	352
ROIC	**7%**	**4%**	**5%**	**9%**	**6%**
EBIT	170	128	176	455	352
Assets	2540	3026	3889	4844	5814
Current liabilities	466	503	910	678	656
Capital employed	2074	2523	2980	4166	5158
ROCE	**8%**	**5%**	**6%**	**11%**	**7%**
Total non-current Liabilities	1102	1393	1656	2213	3034
Equity	971	1130	1324	1954	2124
Debt/Equity	**1,1**	**1,2**	**1,3**	**1,1**	**1,4**
Current assets	732	697	815	670	1019
Current liabilities	466	503	910	678	656
Current ratio	**1,6**	**1,4**	**0,9**	**1,0**	**1,6**
Net debt					
Short term debt	0	0	184	0	0
Long term debt	685	685	853	1284	1889
Cash and cash equivalents	251	300	309	187	449
Net debt	**434**	**385**	**728**	**1097**	**1440**

Tullow MUSD	2009	2010	2011	2012	2013
Assets	5143	8413	10634	9382	11509
EBIT	151	262	1132	1185	381
ROIC	**3%**	**3%**	**11%**	**13%**	**3%**
EBIT	151	262	1132	1185	381
Assets	5143	8413	10634	9382	11509
Current liabilities	630	1486	1533	1229	1432
Capital employed	4513	6927	9102	8153	10076
ROCE	**3%**	**4%**	**12%**	**15%**	**4%**
Total non-current Liabilities	2064	3023	4336	2831	4630
Equity	2449	3903	4766	5322	5446
Debt/Equity	**0,8**	**0,8**	**0,9**	**0,5**	**0,9**
Current assets	770	1336	1172	1294	2069
Current liabilities	630	1486	1533	1229	1432
Current ratio	**1,2**	**0,9**	**0,8**	**1,1**	**1,4**
Net debt					
Short term debt	0	0	0	0	159
Long term debt	1396	2281	3161	1174	1995
Cash and cash equivalents	252	338	307	330	353
Net debt	**1144**	**1943**	**2854**	**843**	**1802**

Appendix 13. Key financial numbers 2

Lundin	2009	2010	2011	2012	2013
Revenue	572	799	1270	1345	1196
Current assets	275	285	298	336	378
Current liabilities	257	191	403	432	492
Net Working Capital	18	94	-105	-96	-114
EBIT	-504	394	704	544	371
EBIT margin	-88%	49%	55%	40%	31%
Depreciation, depletion, amortization	129	-227	148	355	111
EBITDA	-375	167	852	899	482
EBITDA margin	-66%	21%	67%	67%	40%
Property plant and equipment	2556	2014	2345	2914	3937
Accumulated depreciation (depletion)	727	498	643	996	1103
Change in property	-148	-542	331	568	1023
Change in depreciation	125	-229	145	352	107
Capex	-23	-771	476	921	1130
Capex/Revenue	-4%	-97%	38%	68%	95%
PPE/Revenue	447%	252%	185%	217%	329%

BP	2009	2010	2011	2012	2013
Revenue	246138	308928	386216	388074	396217
Current assets	67653	89725	89164	91666	96840
Current liabilities	59320	82832	83780	76740	72812
Net Working Capital	8333	6893	5384	14926	24028
EBIT	26426	-3702	39815	19769	31769
EBIT margin	11%	-1%	10%	5%	8%
Depreciation, depletion, amortization	12106	11164	11357	12687	13510
EBITDA	38532	7462	51172	32456	45279
EBITDA margin	16%	2%	13%	8%	11%
Property plant and equipment	108275	110163	119214	125331	133690
Accumulated depreciation	122983	124076	122773	123573	135196
Change in property	5075	1888	9051	6117	8359
Change in depreciation	9074	1093	-1303	800	11623
Capex	14149	2981	7748	6917	19982
Capex/Revenue	6%	1%	2%	2%	5%
PPE/Revenue	44%	36%	31%	32%	34%

Chevron	2009	2010	2011	2012	2013
Revenue	171636	204928	253706	241909	228848
Current assets	37216	48841	53234	55720	50250
Current liabilities	26211	29012	33600	34212	33018
Net Working Capital	11005	19829	19634	21508	17232
EBIT	36147	50296	63262	58708	48968
EBIT margin	21,1%	24,5%	24,9%	24,3%	21,4%
Depreciation, depletion, amortization	12110	13063	12911	13413	14186
EBITDA	48257	63359	76173	72121	63154
EBITDA margin	28%	31%	30%	30%	28%
Property plant and equipment	96468	104504	122608	141348	164829
Change depreciation	12110	13063	12911	13413	14186
Change in property	96376	8036	18104	18740	23481
Change in depreciation	12110	13063	12911	13413	14186
Capex	108486	21099	31015	32153	37667
Capex/Revenue	63,2%	10,3%	12,2%	13,3%	16,5%
PPE/Revenue	56%	51%	48%	58%	72%

Statoil	2009	2010	2011	2012	2013
Revenue	465	530	670	722	637
Current assets	117	148	198	183	239
Current liabilities	112	136	171	164	167
Net Working Capital in NOK	5	11	27	20	72
Net Working Capital in USD	0,9	1,9	4,5	3,5	11,7
EBIT	122	137	212	207	155
EBIT margin	26%	26%	32%	29%	24%
Depreciation, depletion, amortization	54	51	51	61	72
EBITDA	175	188	263	267	228
EBITDA margin	38%	35%	39%	37%	36%
Property plant and equipment	343	352	408	439	487
Accumulated depreciation	449	497	535	559	608
Change in property	13	9	56	32	48
Change in depreciation	37	48	38	24	49
Capex in NOK	49	57	94	55	97
Capex in USD	9	10	16	10	16
Capex/Revenue	11%	11%	14%	8%	15%
PPE/Revenue	74%	66%	61%	61%	76%

Premier	2009	2010	2011	2012	2013
Revenue	621	764	827	1409	1540
Current assets	732	697	815	670	1019
Current liabilities	466	503	910	678	656
Net Working Capital	265,4	193,8	-94,4	-7,3	363
EBIT	170	128	176	455	352
EBIT margin	27%	17%	21%	32%	23%
Depreciation, depletion, amortization	181	264	180	373	563
EBITDA	351	391	356	828	915
EBITDA margin	56%	51%	43%	59%	59%
Property plant and equipment	1386	1733	2258	2693	2886
Accumulated depreciation	712	976	1156	1529	2091
Change in property	619	347	525	435	193
Change in depreciation	180	263	180	373	563
Capex	799	610	705	808	756
Capex/Revenue	129%	80%	85%	57%	49%
PPE/Revenue	223%	227%	273%	191%	187%

Tullow	2009	2010	2011	2012	2013
Revenue	916	1090	2304	2344	2647
Current assets	770	1336	1172	1294	2069
Current liabilities	630	1486	1533	1229	1432
Net Working Capital	140	-150	-360	65	637
EBIT	151	262	1132	1185	381
EBIT margin	16%	24%	49%	51%	14%
Depreciation, depletion, amortization	359	367	534	562	592
EBITDA	510	629	1666	1747	973
EBITDA margin	56%	58%	72%	75%	37%
Property plant and equipment	2200	2974	3658	4408	4863
Accumulated depreciation	1863	2213	2766	3374	4051
Change in property	772	775	684	750	455
Change in depreciation	414	349	553	608	677
Capex	1186	1124	1237	1358	1132
Capex/Revenue	129%	103%	54%	58%	43%
PPE/Revenue	240%	273%	159%	188%	184%

Appendix 14. Forecasting

Lundin Forecast	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Revenues	1117,2	1745,6	2164,6	2283,3	1979,5	1675,8	2059,8	3142,1	3740,2	4338,2	4566,5
Production costs (as % of Revenues)	-16%	-16%	-17%	-18%	-18%	-18%	-19%	-20%	-20%	-20%	-20%
Production costs	-179,0	-288,0	-367,8	-399,7	-353,4	-305,2	-386,4	-613,0	-751,5	-889,1	-935,9
Exploration costs	-16%	-16%	-17%	-17%	-18%	-18%	-19%	-19%	-20%	-20%	-20%
Exploration costs	-177,8	-286,0	-365,3	-396,8	-350,9	-303,1	-383,7	-608,5	-746,1	-882,6	-929,1
Depletion and decommissioning costs	-15%	-15%	-16%	-16%	-17%	-17%	-18%	-18%	-19%	-19%	-19%
Depletion and decommissioning costs	-167,6	-269,7	-344,5	-374,3	-331,0	-285,8	-361,8	-574,0	-703,8	-832,6	-876,5
Total operating costs (without impairement) (as % of Revenues)	-47%	-48%	-50%	-51%	-52%	-53%	-55%	-57%	-59%	-60%	-60%
Total operating costs (without impairement	-524,2	-843,6	-1077,4	-1170,6	-1035,2	-893,9	-1131,7	-1795,3	-2201,1	-2604,2	-2741,2
Impairement costs of oil and gas properties (as % of Revenues)	-10%	-9%	-8%	-7%	-6%	-5%	-4%	-4%	-3%	-3%	-3%
Impairement costs of oil and gas properties	-111,7	-157,1	-173,2	-159,8	-118,8	-83,8	-82,4	-125,7	-112,2	-130,1	-137,0
Impairement cost for goodwill	-	-	-	-	-	-	-	-	-	-	-
Total operating costs (%)	-57%	-57%	-58%	-58%	-58%	-58%	-59%	-61%	-62%	-63%	-63%
Gross profit	**481,3**	**744,9**	**914,0**	**952,8**	**825,6**	**698,1**	**845,8**	**1221,1**	**1426,8**	**1603,9**	**1688,3**
Gain on sale of assets	-	-	-	-	-	-	-	-	-	-	-
Other income	-	-	-	-	-	-	-	-	-	-	-
General, administration and depreciation expenses (as % of Rev	-4%	-5%	-5%	-5%	-6%	-6%	-6%	-7%	-7%	-8%	-8%
General, administration and depreciation expenses	-48,2	-80,6	-107,0	-120,8	-112,0	-101,5	-133,5	-217,8	-277,4	-344,3	-387,8
Operating profit (EBITA)	**433,1**	**664,3**	**807,0**	**832,1**	**713,6**	**596,7**	**712,3**	**1003,3**	**1149,4**	**1259,6**	**1300,5**
Financial income	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Financial expense	-7%	-7%	-7%	-7%	-7%	-7%	-7%	-7%	-7%	-7%	-7%
Results from financial investments	-56,7	-88,5	-109,8	-115,8	-100,4	-85,0	-104,5	-159,3	-189,7	-220,0	-231,6
Result from share in associated company	-	-	-	-	-	-	-	-	-	-	-
Profit before tax	**376,4**	**575,8**	**697,2**	**716,3**	**613,2**	**511,7**	**607,9**	**843,9**	**959,7**	**1039,6**	**1068,9**

Lundin Taxes Forecast	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Operating profit (EBITA)	**433,1**	**664,3**	**807,0**	**832,1**	**713,6**	**596,7**	**712,3**	**1003,3**	**1149,4**	**1259,6**	**1300,5**
Operating taxes	131,5	201,7	245,0	252,6	216,7	181,2	216,3	304,6	349,0	382,4	394,9
Operating taxes (%)	-70%	-70%	-70%	-70%	-70%	-70%	-70%	-70%	-70%	-70%	-70%
Increase in defferedoperating taxes	-78,7	-78,7	-78,7	-78,7	-78,7	-78,7	-78,7	-78,7	-78,7	-78,7	-78,7
Operating cash taxes	52,8	123,0	166,4	174,0	138,0	102,5	137,6	226,0	270,3	303,8	316,2
NOPLAT (EBITA - Operating cash taxes =NOPLAT)	**380,2**	**541,3**	**640,6**	**658,1**	**575,6**	**494,2**	**574,7**	**777,3**	**879,1**	**955,8**	**984,3**

Lundin FCF Forecast	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
NOPLAT	380,2	541,3	640,6	658,1	575,6	494,2	574,7	777,3	879,1	955,8	984,3
Depreciation	1322,8	1464,1	1560,9	1627,7	1671,5	1717,7	1774,5	1849,4	1963,9	2142,3	2311,7
Gross Cash Flow	**1703,1**	**2005,3**	**2201,5**	**2285,8**	**2247,1**	**2211,9**	**2349,2**	**2626,7**	**2842,9**	**3098,0**	**3296,0**
Change in WC (Increase)/ Decrease	-5,9	73,0	48,7	13,8	-35,3	-35,3	44,6	125,8	69,5	69,5	26,5
Net Capital Expenditure	-2019,3	-1958,7	-1900,0	-1862,0	-1824,7	-1879,5	-1973,5	-2111,6	-2365,0	-2767,0	-2905,4
Investments in goodwill and other Intangibles	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Decrease (Increase) in Long term operating assets	20,3	29,9	21,2	14,7	9,6	10,1	12,5	16,4	25,1	39,1	37,2
Change in accumulated other comprehensive income	6,3	6,3	6,3	6,3	6,3	6,3	6,3	6,3	6,3	6,3	6,3
Gross Investment	-1998,6	-1849,5	-1823,7	-1827,2	-1844,1	-1898,3	-1910,0	-1963,0	-2264,0	-2652,1	-2835,3
Free Cash Flow	**-295,5**	**155,8**	**377,8**	**458,7**	**403,0**	**313,5**	**439,2**	**663,6**	**578,9**	**446,0**	**460,7**

Lundin Working Capital Forecast	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Revenue	1117,2	1745,6	2164,6	2283,3	1979,5	1675,8	2059,8	3142,1	3740,2	4338,2	4566,5
% WC/Revenue	-12%	-12%	-12%	-12%	-12%	-12%	-12%	-12%	-12%	-12%	-12%
Operating Working Capital	-129,8	-202,9	-251,6	-265,4	-230,1	-194,8	-239,4	-365,2	-434,7	-504,2	-530,7
Change	**5,9**	**-73,0**	**-48,7**	**-13,8**	**35,3**	**35,3**	**-44,6**	**-125,8**	**-69,5**	**-69,5**	**-26,5**

Lundin PPE Forecast	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Long-term assets (PPE)	4633,4	5128,1	5467,2	5701,4	5854,7	6016,5	6215,4	6477,7	6878,8	7503,6	8097,2
% PPE/ Revenue	2,9	2,9	2,5	2,5	3,0	3,6	3,0	2,1	1,8	1,7	1,8
Depreciation	1322,8	1464,1	1560,9	1627,7	1671,5	1717,7	1774,5	1849,4	1963,9	2142,3	2311,7
% Depr/PPE	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%
Capex	**2019,3**	**1958,7**	**1900,0**	**1862,0**	**1824,7**	**1879,5**	**1973,5**	**2111,6**	**2365,0**	**2767,0**	**2905,4**

Appendix 15. E-mail to analysts sent on 27th of June

Dear [name],

I am writing to you regarding the Lundin Petroleum analyst coverage work you are currently doing for [Company].

I am a finance student at Copenhagen Business School and together with a colleague of mine we are writing our Master Thesis on Lundin Petroleum. We are doing a valuation of the Lundin Petroleum share price, looking at the main valuation drivers and key differentiation factors for Lundin Petroleum in comparison to its main competitors.

Given the feeble and unpopular position some oil producers and recently Lundin Petroleum, have held in the minds of both students and the media, we believe it would be interesting to write about the company, assessing its real value by determining its most crucial aspects of adding value and growth in the market place. An input from you as the responsible analyst from [Company] would be absolutely priceless. If you dispose of the time and willingness to answer a few of our questions in more detail either via email or a short interview we would both appreciate the input and incorporate it into our study.

Possible interview questions are listed below. Since we fully understand how busy and demanding your position is if you don't have time for an interview we would truly appreciate it if you found the time to answer the following questions in short via a reply to this e-mail.

- What are your overall expectations/ prospects for the Upstream oil industry in terms of growth rate, competition, cost structure?

- What is you estimated long-term growth rate for Lundin Petroleum?

- What are the main value drivers that you consider in your value estimation for Lundin Petroleum?

- What are the biggest factors that can have an adverse impact on the stock price?

- What is Lundin Petroleum's most important competitive advantage compared to its competitors?

- How do you expect Lundin Petroleum to perform compared to competitors in the same industry and value chain position?

Thank you in advance for your help and we wish you a great weekend!

Best regards,

[Our name]

Appendix 16. E-mail replies from analysts

Christian Yggeseth, Arctic Securities, 27th of June

· What are your overall expectations/ prospects for the Upstream oil industry in terms of growth rate, competition, cost structure?

Our expectation for overall global oil production is 1 annually for the next 5 years. Assuming a stable oil price we expect the cost for the industry will grow by 2-3% above general inflation over the period.

· What is you estimated long-term growth rate for Lundin Petroleum?

Being an oil company growth will be highly dependent on project timing, we expect production to grow to 60-65,000 boepd once Edvard Grieg comes on stream late 2015 and to around 150,000 once Johan Sverdrup reaches plateau production in 2023.

· What are the main value drivers that you consider in your value estimation for Lundin Petroleum?

Oil price and exploration upside

· What are the biggest factors that can have an adverse impact on the stock price?

Project delays, a large drop in oil price

· What is Lundin Petroleum's most important competitive advantage compared to its competitors?

Geological and Geophysical competence, making them a better exploration company vs most peers

· How do you expect Lundin Petroleum to perform compared to competitors in the same industry and value chain position?

Better

André Baustad Benonisen, Danske Bank Markets, Equity Analyst - E&P, 27th of June

Please see my initiation of coverage attached. It is a thorough piece which goes through the value drivers and how we look at the Lundin Petroleum case - I think it will answer most of your questions.
As a general rule, I think net asset value, based on DCF per asset, is the best way to value independent E&Ps when a significant part of the value is in future development or exploration (as

opposed to P/E multiples for instance, which is relevant for majors). I would be very careful about looking at book value and multiples like P/B due to the nature of E&Ps accounting rules.

Teodor Sveen Nilsen, First Securities AS, Swedbank, 2nd of July

· What are your overall expectations/ prospects for the Upstream oil industry in terms of growth rate, competition, cost structure?

Reduced cost inflation compared to the past few years (but probably not a substantial cost reduction), 1% growth in global oil production per year, more competition from renewable (threat for in particular gas production)

· What is you estimated long-term growth rate for Lundin Petroleum?

See attached reports

· What are the main value drivers that you consider in your value estimation for Lundin Petroleum?

Oil price, Sverdrup resources

· What are the biggest factors that can have an adverse impact on the stock price?

Reduced Svedrup resource estimate

· What is Lundin Petroleum's most important competitive advantage compared to its competitors?

Exploration skills, balance sheet

· How do you expect Lundin Petroleum to perform compared to competitors in the same industry and value chain position?

Outperform

Julian Beer, SEB, 7th of July 2014

Sorry I don't have time to give you a detailed answer. One thing to note with E&P companies is that the universal valuation approach (by leading European sell-side analysts as well as the industry itself) is DCF analysis of current and potential projects, with some analysts adjusting discount rates to reflect different political jurisdictions.

Near term earnings based analysis is meaningless for E&P companies but often used for majors who have less volatile production outlooks. Imagine an E&P company that has found a huge

oilfield but earnings are 5 years in the future – current year earnings would be a poor indicator of medium term trend. Similarly, the concept of terminal growth rate is difficult as this will depend on many difficult to assess factors including exploration success and type/size of fields to be discovered.

The industry rarely pays for goodwill for E&P companies.

Appendix 17. Interview with Greg Rodderick, Wood Mackenzie

10.30 am 3rd of July 2014, Skype, Length 44.55 minutes

G: Greg Rodderick, analyst

V: Victoria Mattsson, student

G: You are in Copenhagen, is that right?

V: Yes, I'm Swedish so I'm actually in Sweden but Copenhagen is my university.

G: Ok, Tom forwarded your e-mail to myself because I actually cover Lundin at Wood Mackenzie and thought it would be easier for me to answer your questions. So feel free to fire away. You are writing your thesis on Lundin, specifically? is that right?

V: Yes we are.

G: That's interesting?

V: Yes it is. Very interesting I would say, we are about to go into the financial analysis and need some more information, to do a proper valuation.

G: Are Lundin known in Sweden? I know they are quite known in the industry, but I mean they have been in the media quite a lot in sweden.

V: I would say that it is a quite infamous company, I would say. There hasn't been a lot of positive media coverage and that's why we picked it. Could you tell me a bit about yourself, what's your position and what you do?

G: At Wood Mackenzie we have corporate sales team. What we do is that we look at top 60 leads globally Asia M&C Large cap, independence and also mid cap such as Lundin. I pick up quite a few of them that we use in Wood Mackenzie field asset data and we provide a bottom up approach looking at companies at a corporate level looking at their valuations, their production level, their financials and based on case modelling and upstream. I've been with Wood Mackenzie for two years now, and before that I was at Tullow oil and before that Deloitte, so I've been in the industry for a few years merely in a financial place so this schedule fit quite well. I have a couple of years of operation experience and Lundin, Premier I cover.

V: You know quite a lot about Lundin in particular and about the industry then?

G: I hope so. We try to stay on top of the data we have and all the major companies, so we can analyse them benchmark and compare them and that gives us a feel for what is happening in the industry and industry trends, even though we are looking at individual companies we do have a feel of what happens in the industry. Tom would probably been better to chat with to get overall global understanding but I'll try to give you a bigger picture of what is happening globally.

V: If I shoot away with some questions that i have.

G: Yes fire away and we can discuss those questions.

V: If we start with the industry what are your overall expectations of it, is it going to grow are there any big industry trends?

G: That's a big question. At the moment the main thing, I guess is this whole focus on shareholder returns and value rather than of volume. A lot of larger companies are forcing back or pushing back large developments and cutting costs. To focus on returning more money to the shareholders. In the past companies appeared to have focused more on production volume and big projects and while investors have not seen the return they expected or wanted. So there has been a drive the last year or 18 months of companies cutting back on costs, there is more pressure on service companies to accomplish better costs estimates and we see that continuing, we see larger chunk cash being returned to investors. Shareholders are happy to get quite a lot of cash back but it's quite short term. There is a bit of catch 22, if they don't invest the money in their projects now at some point in the future the production will start to decline and investors will not have the returns and volume and in the future companies will have low earnings. I guess hopefully China is still contemplating growth, there is a uncertainty about the weight of growth coming up there but that will hopefully still continue drive the market and elsewhere in Asia. Another Maxim is the North American shale gas and typo revolution. They have gas which is keeping the prices low over there and the fiscal economy. That's a big trend there, companies are exploring conventional gas elsewhere, in Eastern Europe and Australia, and South America that's the maxim going on in the industry right now. The main one is the capital allocation value versus volume. I think we have a presentation of that, I'll ask if I can send it to you, it can give you a better picture of how we see the cash flow is going to look like for the majors. This reflects what the entire industry is doing. For M&Cs they have gone through a period of large scale M&A which they seem to be pulling back from at the moment and will pick up again in the future. There is a huge amount of assets on the market and a lot of companies try to off load what they consider noncore assets which are a drive to reduce costs and outgoings.

V: The shale gas is one, I guess, substitute to oil, will that have a big effect on Lundin or other oil companies?

G: Lundin, No, probably not they are not really exposed to any type of conventionals. They are primarily European based or Norway based I guess, and has some exposure in south East Asia. I don't think they will be affected by shale gas at all, unless they start to try to get in LNG and this

type of things and industry projects but I don't see that at all. I don't see Norway at all being affected too much by what's happening in North America.

V: And that's because it is so regional and it is not going to be transported?

G: Yes I guess because their projects are in Norway and Norway is a mature oil province. Their oil again will be benchmarked on branch I guess, things happening in Middle East and the usual pace of things that will impact oil prices will impact them. I can't think of how the North American story would impact them. I guess it depends on their production and what countries can export into the US but I don't think Lundin oil will specifically target US market, they are probably more likely to remain in the European market to sell to Norway and Europe.

V: What are the factors affecting it positively or negatively?

G: Lundin strength is the fact that it has been a good oil explorer in Norway, they have a very focused portfolio of assets, so they are primarily a Norwegian explorer and have some assets in South East Asia, which they try to cool off their business with, they have scattered to diversify. It has been quite successful in Norway offshore, we see that they are a top quarter of growth probably double its production by 2016 and 2017 and potentially triple that in next decades. Primarily on the bases they have two-three recently big sights developments going on now and huge Johan Sverdrup and scale drop in Eskehoj, they have a good strong conventional reserve base so they got long reserve life based on production. Again everything seems to be underpinned by the Johan Sverdrup, the projects they have got good returns and high teens returns which investors seem to be quite happy about. If it gets below 10-15 % it becomes slightly more marginal but we don't really see that, Lundin seem to have a quite a strong portfolio and return on assets. I guess the fact that their portfolio is oil heavy. They are primarily an oil producer and there is more value in oil than in gas and therefore their portfolio, production is striving to good value. They seem fairly robust financially, gearing and net debt might or will probably go up in the near terms as they need to develop projects Grieg and Norway and when that cash flow comes on stream it will help fund their Johan Sverdrup. Another one of exploration potential, it has some opportunities on the upside on the performance. Lundin has not had a great year so far I believe in terms of exploration success but they have a great track record in being able to find discoveries offshore Norway which goes into their share prices. We actually see a 35 % premium in the share price. We look at the company EV and benchmark against our total asset valuation for Lundin and what we see is that the EV trades at 35 % premium to our upstream asset valuation which implies that investors in the industry see quite a lot of potential in the share price and it is really underpinned by Johan Sverdrup and by expectations of exploration success. In terms of negative points and weaknesses they are exposed to project executional risk, so developing projects, cost over runs, underperformance of these projects on the stream is still a risk. One thing for Norway is that it is fairly mature and low risk. It's a common basin and a lot of infrastructure there, so the developments on the oil industry standard are really simple as such in terms of considering the level of engineering and the technical expertise that go into them. And I guess another potential threat is the sale and slippage in the Johan Sverdup

asset and any kind of delays and problems that they have there will be reflected in the share price performance.

V: Can you say the last two things again it again?

G: In terms of weaknesses we see project executional risk, production outlook and financial outlook is heavily dependent upon new field developments on new Grieg area and some of these near term developments are vital to future cash flow which will help support the development of the large Johan Sverdrup which is essentially underpinning the large increase in Lundin share price the last couple of years. Those projects risk of cost over runs, potential problems of partners and disagreements.

V: You said something about the infrastructure.

G: Norway is a fairly maturing oil province, so I guess that they are not in aidaince and probably have to develop new ways of developing fields, they will probably have to try and test new technology which should make development simpler to execute. They are not in the Arctic these developments are well known in the southern North Sea and UK etc. The development should be relatively simple using new technology. I do hear that in Norway there were changes in the power supply to the field and things like that are issues. That should be a cross point for Lundin in terms of them managing project risk etc. Another is continuation on successful exploration so if they start to drill a lot of unsuccessful wells they will start to erode value and potentially harm and damage the credibility that they have built over the years in terms of the huge successes they've had. I actually think it was Lundin that found Johan Sverdrup. Oil price weaknesses could start to harm funding and finances and if there is a shock in oil price there are probably not a lot of finances to go back to.

V: How do you expect Lundin perform in the future, do you expect them to grow? Do you have growth rate estimation?

G: Based on our approach and asset models for Lundin we expect production to grow, to more than double by 2016-2017. As new projects come on stream there might be a slight steep wave of production coming on stream from Johan Sverdrup around 2020. We see an annual growth trend upwards up until in the middle of next decade in terms of production which will seriously transform the company from 50000- 60000 barrels of oil per day up towards 100000- 150000 barrels of day which is tripling the size of the company. Which is an astonishing achievement. We think it is based on organic growth, it is not any M&A acquisitions that they have made driving this growth, it is purely based on the exploration success that they have. That is the key value driver, organic exploration success drives higher value creation. We definitely see the production growing. There are some risks in the outlook based on the projects slippage and financial challenges but overall we see an increasing trend in production and essentially revenue for the company. The big uncertainty I guess is Johan Sverdrup and they have quite a significant equity position in that. They have a strategic hold on Johan Sverdrup and in the next couple of years they may have an opportunity elsewhere so they might decide to sell that to found the opportunity and they might return the money to the investors at this stage. I would say that they have a quite good position. High quality

assets which will fund growth overall over the next ten years but there are always uncertainties and risks in the outlook depending on what the company decides to do with Johan Sverdrup. But we have heard no rumours of this and no one says that they might be in a situation where they come to a point of selling Johan Sverdrup instead of developing it, to return money to their investors. That's when the investors start to see their money monetize a lot quicker instead of develop.

V: Who are Lundin's biggest competitors and how is Lundin expected to perform compared to them?

G: I guess companies of similar size to Lundin would be companies like Tullow, Premier oil, Nober Energy. There are a number of companies of similar size and similar strategy but they are based all over the world. Potentially Kem energy and ONB. We see Lundin to potentially outperform all of these companies based on the success they have had so far. Their focus is Norway and I don't see who would be s strong competitor, you could say Statoil. Lundin is just focusing on Norway, Statoil is a bigger company than Lundin, but Lundin probably have the second largest footprint in Norway after Statoil. From that point of view we could see them as being competitors in Norway. We do see them crawling on a number of metrics such as production growth, and sales growth over the next few years.

V: What other metrics do you look at? Is ROIC good to look at in the upstream industry?

G: We don't tend to use P&L metrics such as EBITDA and EBITDAX. We don't analyze companies in short term valuation details or financial details like the investment banks. We tend to look at broad industry metrics, such as new field project returns which is a Wood Mackenzie metric and looking at the overall weighted returns that projects are going to generate, production compound annual growth rate, company annual growth rate we do look at and benchmark this premium enterprise to our Mackenzie upstream valuation metrics. We do a lot of benchmarking on that level. We do benchmarking on exploration performance so we look at how much value companies have created in their exploration efforts whether they have created or destroyed value. We also look at resource streams. We are looking at I guess more Wood Mack specific stuff instead of generics. We have a list of metrics that the Lundin specifically use to benchmark themselves. I can send that one to you, but it is actually in their annual report. That can be quite useful. But we don't use the financial metrics so much in our analysis.

V: The expected success of Lundin, could it be threatened by renewables growing?

G: No I don't think so. I don't know what the renewable landscape is in Norway but I think renewables are still going to be a very small part of the energy mix and I don't really see that being an influence on Lundin's outlook. Environmental policies etc will not have an influence on the outlook but more in terms of the challenges Lundin face in developing projects and could be more regulation, environmental regulation, in the power of the facilities. But not in the landscape that will affect their outlook.

V: Is Lundin dependent on any big supplier or buyer that might be able to affect their performance?

G: I'm not aware of Lundin being reliant on any buyer. I guess they would hedge some of their oil to sell it to creators. I guess from a supplier point of view the service industry in Norway, in my gather, costs are quite high so they will probably pressure the service companies to reduce their costs, the industry is facing increasing costs, and to generate more returns to investor and cut costs to pure return on projects. From that point of view they may face some potential problems and pressure from service industries that might be quite expensive. But I guess that Lundin and Statoil and other partners behind them will try to put pressure on service companies to reduce costs the best they possibly can. It might be useful to look into the climate in Norway, based on sales energy costs, that could be useful I'm not sure who the main players are but I guess it is companies like Technic and Schlumberg and Petrolfac and these kind of large companies. I guess Lundin and their contractors probably manufacture a large portion of their infrastructure like platforms in Norway or in Europe anyway which will be more expensive than doing it in Asia but at least they have the expertise on their doorstep.

V: When I looked through the financial statements, I was surprised that there were no leases and also that the depreciation seemed quite low. I expected it to be quite high as I thought the machinery would be very expensive.

G: Oil and guess accounting is quite tricky. I guess depreciations are probably quite low at the moment as it is based on unit production depreciation and the production is not that high right now so I guess when they start producing the depreciation will increase as production increases. They have a lot of costs and assets on the balance sheet right now and oil development spend so the depreciation might increase. Are you familiar with the oil and gas production and depreciation and that stuff?

V: No, I'm not.

G: It is difficult, I have a slide that I can send to you. Lundin uses depreciation

V: If you have any material that you think could be useful for us it would be great if you could send it. Do you have any other things that we should think of when we are doing the valuation?

G: One thing that might not be that useful is looking at company's reserves for example Lundin, at the moment their commercial reserves are not particularly high but have a huge contingent resource base which applies mostly on Johan Sverdrup. You kind of see how companies will grow based on their contingent reserves. But all oil companies are absolutely different but if you are looking at close peers I would assume that they are similar type companies. One thing we tend to look at is net debt, gearing, financial metrics and cash flow. When we look at financials we look at cash flow, available credit facilities, and sometimes financial stretch, how much money companies are spending compared to its upstream cash flow, how many dividends and buy back. I don't think Lundin is doing many of those things, because they are doing cash developments. If I think on anything I'll send you an e-mail. The fiscal regime the company is operating in is important. Lundin is mostly in Norway and that is a stable regime compared to some companies that are in West Africa.

Appendix 18. Modigliani and Miller

The theories presented by Modigliani and Miller (M&M) were used in the paper in the process of leveraging and un-leveraging the Beta. As mentioned in the paper and underlined by Koller et al. (2010) a company's beta depends not only on its operating risk but on the financial risk as well – which depends directly on how much debt the company takes on. A company with a higher proportion of debt will face more risks and thus have a higher beta. To concentrate on operating risks only we should take out the effect of leverage, by using the theories presented by M&M and applied to company valuations in Koller et al. (2010).

According to M&M, the *weighted average risk of a company's financial claims equals the weighted average risk of a company's economic assets*. They represent this relationship using Beta to reflect risk in the following formula:

$$\frac{V_u}{V_u + V_{txa}}\beta_u + \frac{V_{txa}}{V_u + V_{txa}} = \frac{D}{D+E}\beta_d + \frac{E}{D+E}\beta_e$$

V_U =value of the company's operating assets

V_{ixa} =value of the company's interest tax shields

D = market value of the company's debt

E = market value of the company's equity

The equation can be rearranged and solved for β_e for our purposes leading to the next expression:

$$\beta_e = \beta_u + \frac{D}{E}(\beta_u - \beta_d) - \frac{V_{txa}}{E}(\beta_u - \beta_{txa})$$

Two additional restrictions can be imposed to simplify assumptions and calculations. Firstly, as debt securities have a higher priority than equity, in general β_d is very low and for simplicity many assume it to be equal to 0. (Koller at al., 2010) The second assumption comes from an assumption we (and many others) made regarding capital structure – by keeping it constant. With constant $\frac{D}{E}$ values the value of tax shields will vary with the value of all the other assets and the beta of tax shields will equal that of the whole unlevered company (β_u). Thus: $\beta_{txa} = \beta_u$ eliminates the final term in the previous equation rendering the following:

$$\beta_e = \beta_u(1 + \frac{D}{E})$$

"Thus, a company's equity beta equals the company's unlevered beta times a leverage factor. As leverage rises, so will the company's equity beta." (Koller et al. pg 255, 2010)