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Valuation in Turbulent Times:

With the oil and gas industry at a critical junction what will become of Welltec?

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Executive summary

I set out to write this thesis with the principal purpose of estimating Welltec's fair market value as of 31 December 2016, in case of an M&A interest from one of OFS majors. To fulfil this task, I performed financial and strategic analysis to create a basis for forecast, which is the foundation for the valuation.

Currently, Welltec's finances are in a bad shape. Nevertheless, Welltec has a genuine chance of rebounding once oil prices recover. Whether or not it will be able to capitalize on this opportunity is another question.

The strategic analysis foresees a growing demand for equipment designed to work in unconventional wells and rising oil prices, which is good news for Welltec. The flipside of the coin is that alternative energy sources' infiltration of the energy market is gaining traction. The forecast prepared reflects prevailing professional concerns over these developments.

According to the forcast, on 31 of December 2016, the company market value of equity is estimated to be $109.464 thousand. Estimated market value of equity is equal to 63% of book value. This value estimate is compared to an EVA model valuation and a multiple valuation (however, only a single company was deemed to be comparable to Welltec), in order to check the reliability of the result obtained from the DCF model. In addition, the valuation was accompanied by a sensitivity analysis that revealed that the value estimate is sensitive to changes in some of the key value drivers, especially to changes in EBITDA-margin.

In conclusion, the estimated Welltec value is the result of the author's interpretation of the information generated by the strategic and profitability analysis. Turbulent times added uncertainty to a valuation. The only thing that is certain these days is that for the oil and gas industry business is not as usual, and no company can afford let go of the controls and switch to autopilot mode. Turbulent times open up for new opportunities as well as new threats.

It is also important to highlight that for the purpose of M&A the estimated value could be used as a starting point in defining the price of acquisition. The forecast, which was the basis for the valuation, was prepared using very moderate figures/assumptions. At the same time, the analysis revealed that there existed good opportunities for bolstering the company's value if internal policies and processes were improved. Armed with such a plan for improvement, the potential buyer would stand a good chance of profiting from his purchase. More so, if potential benefits from synergies and economies of scale are factored into his computations.

CHAPTER 1. Introduction

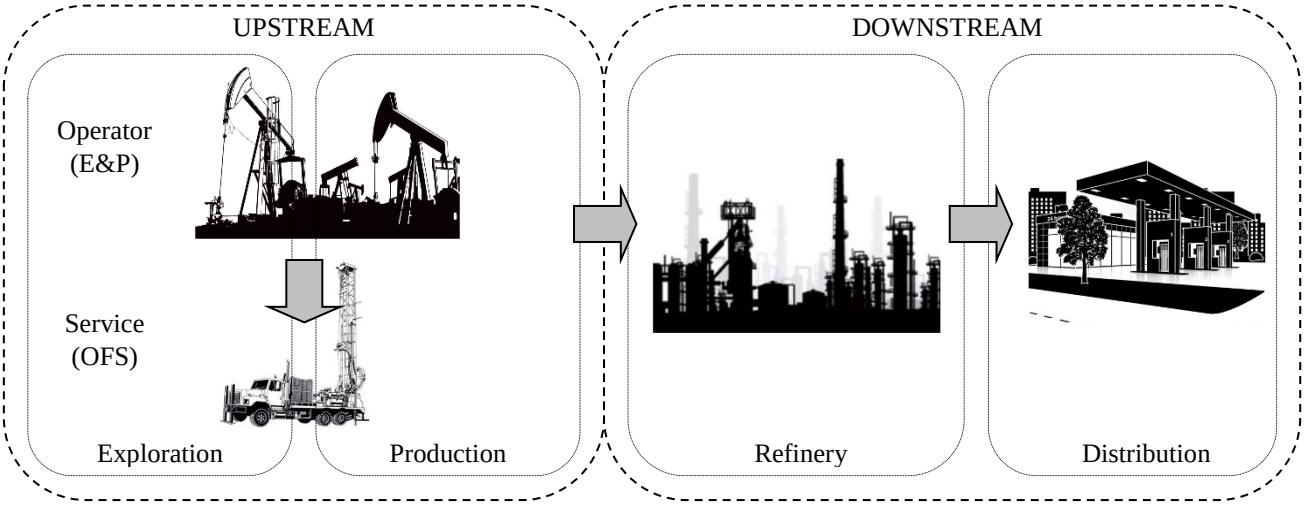
Oil is an essential commodity. Mainly, it is used as a source of energy – directly as fuel and indirectly as power supply. Petroleum is simple to transport, store and use compared to other energy sources. It is an important input in different economic sectors, principally, in chemical industry. Plastic, synthetic rubber and fabrics, as well as cosmetics products and medicines are made of petroleum or petrochemicals. [3] In other words, oil is an indispensable part of our daily lives.

The oil industry and the prices of oil have a tremendous influence on national and global economies. In consequence, oil attracts the attention of people from all walks of live with various professional affiliations, including politicians, economists, industrialists, and even the ordinary citizen. In short, almost everyone.

Because oil is so much enmeshed in our daily lives, and because of entanglement in many aspects of the world's economy, it is important that we improve our understanding of how the market assigns value to the companies operating in that field. This is even more so in the low oil prices and the emergence of renewables as economically viable sources of energy.

1.1. Industry overview

To begin with, I will draw a quick sketch of industry's value chain and its recent trends.



The oil and gas industry is comprised of numerous processes and activities. Their overarching purpose is transforming the crude resources into useful petro-based-products for the end users. First, they must identify the sites where they have a good chance of *finding* these resources, and an even better chance of *extracting* them. Should they be fortunate and hit *black* gold, they must then assess if it is worthwhile to proceed with development and production. The aforementioned activities comprise the activities generally labelled *upstream* oil and gas. Services associated upstream oil and gas include

"geological and geophysical surveys and analyses, drilling, equipment supply and engineering projects" [38, p.2]. The *downstream* part of the industry's value chain is where the crude resources are refined into useful substances and transported to their end users.

As this description indicates, the scale of the work involved is vast and the activities are diverse. Therefore, exploring, developing and producing petroleum is the *collaborative effort* of a number of specialized companies. Leading these efforts are the exploration and production companies (E&P for short) (a.k.a. the operators). E&P companies are the conductors of big oil orchestras: "The operators judge the economics and politics of resource acquisition, development and production, and coordinate the knowledge and operations of a number of service companies". [38, p.2-3]

Operators are the ones who enlist the services of 'oil and gas service companies' (OFSs) "to, among other things, provide the equipment, technology, and man-power needed to locate and retrieve oil" [38, p.4]. Thus, OFSs "provide products and services to E&P companies but are typically not producers of oil or natural gas themselves." [10, p.1]

Companies, in the OFS, are characterized by high degree of heterogeneity "rang[ing] in size from Fortune 500 companies to small local retailers" [10, p.1], and, in the *scope* of their services, from the provision of a single service to integrating a series of services along the entire value chain. The OFS market is highly competitive. In the US alone, there were more than 10,000 OFS companies operating in 2013, its biggest players are "Schlumberger Ltd., Halliburton Co., Baker Hughes Inc., and Weatherford International". [10, p.1] Within the OFS sector itself there exist a number of *sub*-segments: "The service and equipment subsectors are comprised of a number of segments with hydraulic fracturing ("fracking"), subsea equipment, and drilling & completion fluids representing the largest segments". [10, p.2] For a more detailed list, I refer the reader to the Appendix 2.

From the description above, it is apparent that the future fortunes of the OFS industry is a function of "the capital spending budgets of E&P companies as demand [for OFS products/services] is driven by the availability of capital for E&P companies as well as long-term expectations regarding the prices of oil and natural gas". [10, p.2]

At present, companies throughout the length of the industry's value chain, including OFS companies, have been struggling with *low* oil prices. As a result, pressures to economize have coursed through the value chain: "E&P companies have been pushing the supply chain to aggressively lower costs which in turn is impacting margins. This is hitting the service sector [OFS companies] by reducing capacity utilization and lowering rates, to which service companies are responding by downsizing". [44, p.1]

The evolution of OFS sector is characterized by integration of services driven by E&P customers' preference for 'single company' and 'single contact' solutions. The Spears and Associates estimates that 25% of a major OFS company's sales will be integrated services while in 2005 and 2010 the numbers were 5 and 10% accordingly. The trend within the upstream towards more integrated project management handled by OFS companies will lead to OFS sector consolidation. Bigger OFS companies continue to build capabilities and competencies over a wider range of activities in the field life cycle. According to KPMG, "in the current low oil price environment, integration is being pushed through mergers and acquisitions" [44, p.4].

One of the key factors in the integration movement is the ability to leverage certain technologies on a company wide scale. The ability of OFS companies to compete profitably depends on their ability to stay technologically competitive. In low oil price environment companies reduce their costs including the investments in research and development. However, some (mainly bigger) companies will stand out by investing and maintaining a focus on technology through the industry downturn "either in-house or by acquiring weaker companies with strong technology potential" [44, p.10]. The strategy for technological improvement through M&A with smaller companies with specified technological capabilities gives bigger OFS company an advantage to respond faster on innovation calls. Big OFS companies frequently look for smaller companies as potential M&A targets.

There is a trend in Oil industry towards developing unconventional oil plays. That set a direction for technological development in OFS sector. Service companies are challenged to provide well diagnostic, intervention, stimulation, completion and other well services technologically suitable for unconventional wells. For example, "demand for fracking services has grown with increased reliance on horizontal drilling and fracking of denser rock formations in the unconventional plays." [10, p.2]

Low price environment further boosts the integration trend. As major operators integrate into downstream to offset lower profits in the upstream, OFS companies increase the range of services to reduce costs through economies of scope and economies of scale. According to KPMG Global Energy Institute, "on a typical onshore, unconventional project the complexities associated with an non-integrated supply chain drive up costs much higher than necessary" [44, p.10].

Seeing as there are clear signs that the OFS sector is moving towards greater consolidation driven by customers' preference for integrated services, need to reduce costs through economies of scale and to respond on technological challenges, there is a high probability that a small innovative company will be object of M&A by one of the bigger players.

1.2. Company presentation

Welltec is an international provider of well completion technology and intervention solutions for the oil and gas industry. [73] It was Founded in 1994 by Jørgen Hallundbæk. Welltec started out as a subcontractor graduating into a direct contractor in 2003.

A comparatively small group of private actors own Welltec. At present, EXOR S.p.A. and Holding B.V. are Welltec's largest *external* shareholders. [68, p.60-61] Nevertheless, Hallundbæk remains in full command of the company.

In laymen terms, Welltec provides *patented technological solutions* that facilitates the exploitation of oil and gas resources. In particular, from wells with geological features regarded as being *unaccommodating*.

Their range of services include: conveyance solutions, open and cased hole logging, perforating, coiled tubing stimulations [61], clean-out solutions [64], milling solutions, mechanical solutions (incl. setting and pulling plugs and packers, valve manipulation, fishing services, etc.) [51] and completions solutions [63].

Welltec solutions are universal. They are compatible with non-Welltec equipment and other 3rd party systems and tools.

Welltec head office, production and service facilities are located in Denmark. Today, Welltec has more than 29 offices and service facilities worldwide employing more than 800 people.

More than a half Welltec revenue comes from Europe, Africa and Russia/CIS (see Appendix 17). About 1/3 of the Welltec income comes from a single customer (Statoil) who has been working closely with Welltec's from its early beginnings [68, p.35] Almost 1/3 of revenue comes from the Americas and less than 1/5 comes from Asia Pacific and the Middle East. Only a negligible share of the group's revenues are generated in Denmark [68, p.35]

To put it concisely, Welltec's strategy is the provision of reliable technologies that can extend the list of *non-conventional* oil and gas fields that can be economically exploited:

> "Welltec is a solution-driven company where we develop and apply proven technology to address the challenges of tomorrow's needs. We continue to push the boundaries of conventional oil field technology to their limits and force the only constant parameter we know; change. Only through constant change are we capable of capturing the necessary improvements to assure a strong future for our stakeholders: the industry, our clients and employees". [73]

1.3. Research question

Welltec is a possible candidate for the future M&A which is highlighted by the fact that it is in possession of specified technological knowhow that is required to develop unconventional oil plays. As Welltec is non-listed company, the market has not established a price for it. The research question (RQ) of this thesis is:

What would be a fair market price for Welltec in case of M&A interest from one of OFS majors.

The answer for that question will be revealed by valuating the company. The steps that need to be taken to reach a proper valuation will determine the sub-questions (SRQ).

The first step is dedicated to identifying the relevant *financial value drivers* by means of a thorough analysis of the company's financial statements. Analyzing financial statements is an important starting point as they contain many historical data about past operations that explain the current workings of the company. However, such historical data can reveal little information of how the company can be expected to perform in the future. Hence, a proper company valuation is indispensable.

This takes to the next step, which is the identification of *the factors that determine Welltec's financial value* and attempting to project *their future trajectory and behavior*. These drivers of financial value will be ferreted out and pinpointed using a thorough strategic analysis.

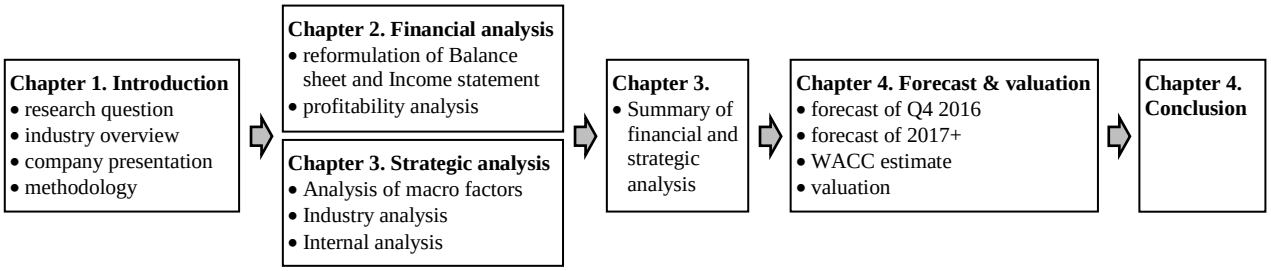
The results and conclusions that financial statement analysis and strategic analysis will enable us to *forecast Welltec's future cash flows and risk*.

Knowing what future cash flows that can be expected I will be able to carry out a valuation of the company and determine what a fair market price for Welltec would be.

The Appendix 3 explains the logical progression of the thesis's research plan.

1.4. Methodology

Following the logical progression of the thesis's research plan. The thesis is structured as presented in the figure below:



1.4.1. Choice of models and methods

Below I will provide a short overview of the models and methods used. A more detailed description of each model will be included in the section where it is applied.

1.4.1.1. Financial analysis

I acquired the Excel footwork that I used in my calculations from the course 'Applying Excel Models in Operations Management'. For instance, when adjusting Welltec's financial statements, I needed to capitalize operating leases. Here, I used the Excel functionality 'Goal Seek' to estimate the interest rate for financial leases that I then used to capitalize operating leases. Also, the info on operating lease payments and obligations was very compressed and limited in detail. Here, I used Excel's 'Solver' functionality to decompress the info and build a model scheduling lease payments and obligations with obligations *organized* according to their lease term period.

In chapter 2, my main fount of theories and methods is Petersen and Plenborg (2012), with tributary contributions from Wild et al. (2007), Krishna et al. (2013), and Koller et al. (2010).

1.4.1.2. Strategic analysis

To analyze the macro factors influencing the OFS sector, which Welltec belongs to, I use the PESTEL model. To appraise the attractiveness of the OFS industry to prospective investors I use the Six Forces model. To examine internal inimitable resources that *sharpen* Welltec's *competitive edge* I use the VRIO model. Finally, I use the SWOT model to sum up where potential market threats might come from, what makes Welltec vulnerable, how Welltec strengths might be used to strike back, and where potentially promising market opportunities might be found.

In chapter 3 dealing with strategic analysis, I follow the top-down approach advocated in Petersen and Plenborg (2012). However, in this chapter, my primary theoretical source was Johnson et al. (2014), supplemented with McManners (2014).

1.4.1.3. Forecasting and valuation

To forecast 2016's Q4 I use models from the 'Applying Excel Models in Operations Management' course. Primary my focus is on three models: 'Winter's Model' (that captures level, trend and seasonality), 'Holt's model' (that forecasts level and trend) and 'Simple Exponential Smoothing' (applied to forecast the level).

When forecasting 2017+, I preserve Welltec's historical sustainable growth, as I am assuming that Welltec will be unable to obtain additional funds at a reasonable cost due to its poor credit rating.

When calculating weighted average cost of capital (WACC), I will estimate β for Welltec from comparable companies. I will also use the multiple $\frac{MVE}{BVE}$ from a comparable company to estimate Welltec's market value of equity (MVE). I use CAPM to estimate investors required rate of return. Finally, to valuate the company I use discounted cash flow approach (DCF).

In chapter 4, the models and methods applied in forecasting 2016's Q4 come from Chiara Gobbi's (2013) lectures on 'Applying Excel models in Operations Management'. However, for the preparation of the pro forma statements, WACC calculations, valuation, sensitivity analysis etc. I, again, turn to Petersen and Plenborg (2012).

1.4.2. Data collection

I had no access to any *additional insider knowledge* of Welltec's activities. So, the data and information on which this paper is based, comes, solely, from sources available to the general public, such as the company's annual reports, web pages, articles, etc. Consequently, data used in the financial analysis, comes, mostly, from Welltec itself, including annual and quarterly reports, presentations to investors, company announcements etc., which can all be accessed from the company's Website.

Undoubtedly, there is always some risk (however small) that such internally prepared data has been *cooked* to suite Welltec's *tastes* (i.e. interests). However, Welltec's accounts have been examined by independent auditors, who judged their financial statements to be a true (or plausible) representation of the company's economic circumstances, which reduces the chances of any *wanton mis*representation of reality. Nevertheless, I recognize that for other types of internal information, such as *company announcements*, one has to exercise more caution, as a company will always try (given the chance) to paint a rosier picture (or is it a blacker picture in our case since we are dealing with the oil and gas industry). Therefore, for such types of information, it is always beneficial, circumstances allowing, to seek verification from external, independent sources to *bolster* the information's *credibility*.

For outlining the general contours of the oil and gas industry and the macro factors affecting (or afflicting) it I have used a much broader palette of secondary information sources, including textbooks, academic journals, industry journals, the official websites of governmental and non-governmental agencies, reports from consultancy firms, and online newspapers.

The above listed sources of data, especially academic journals, claim to offer factual, unbiased renditions of reality; which is probably true in the majority of cases. Nevertheless, one should always

keep his skepticism close at hand, especially, where the commercial press is concerned, as their *opinions* are, usually, more susceptible to corporate influence.

In order to forecast Welltec's future, I first needed a general projection of the possible future developments in the oil and gas industry and its governing macro factors. For this purpose, I use a long-term scenario that synthesizes the future outlooks envisaged in BP's "Energy Outlook 2017" and the IEA's "World Energy Outlook 2016", which, in many of their points, concur with the future prognostications of another major oil and gas player (Statoil 2016) and two of the world's leading consultancy firms (Deloitte 2016, and KPMG 2016). However, the figures in the BP report are the most recent. The fact that the *future outlooks* of these experts *closely agree* helps reinforces the credibility of data on which my scenario is founded.

In calculating cost of capital (WACC), I used the data of comparable companies obtained from Yahoo!Finance and The Wall Street Journal (https://www.wsj.com).

In the main, I consider the data, from both my primary and secondary sources, to be sound and highly valid.

1.4.3. Demarcation

In this paper, I attempt to assess what Welltec's worth to investors would be on 31 December 2016. Thus, any events taking place post 31 December 2016, which could either raise or lower Welltec's value are not incorporated into this analysis. However, in my scenario forecast of the industry, I have taken care to update the 'Energy Outlook' with important events taking place before the closure of 2016 (e.g. Trump election) that could potentially alter the outcome of Welltec's valuation.

Unfortunately, Welltec's annual report for 2016 is not included in the analysis, as its publication date is the end of February, which is beyond the timeline of this study. However, seeing as 2016 has been a particularly tough year for the industry, with negative side effects that will, most probably, carryover to 2017' profit/loss figures. Hence, omitting 2016' performance would greatly degrade the quality of the analysis. Therefore, I used Welltec's quarterly reports to forecast 2016.

I used data from comparable companies to estimate weighted average cost of capital (WACC). This was done fairly lately in my research process. By that time, the 2016 annual reports for the comparable companies had already been published, allowing me to bypass forecasting 2016 for these companies.

CHAPTER 2. Financial analysis

The activities of a company are divided into operating, investing, and financial activities. Operating activities, as the name suggests, are the ones responsible for *creating value*. Moreover, a company's operating activities are what distinguish it from its rivals, and their replication should, preferably, not

be easy. Therefore, assessing the company's ability to generate value and overcome competition requires that operating activities are isolated so I can subject them to closer analytical scrutiny. On the other hand, financial items, while not unimportant, only inform about the commonplace financial blind which the company's management has settled on for financing its operations (including investments). [8, p.68] Before I can go ahead with the financial analysis, I need to assess Welltec's accounting quality.

2.1. Accounting quality

An analyst should always regard the data provided in the financial statement with some degree of skepticism or even mistrust if it is warranted. Hence, he should always assess the data's quality before he proceeds with the analysis, as judgements based on low-quality accounting "could lead to misinterpretations and false conclusions". [8, p.64] Below, I include a summation of my impressions concerning the quality of Welltec's accounting figures.

I consider the data to be ***consistent***, since Welltec did not change accounting policies throughout the analyzed period.

I regard Welltec's annual statement as being ***transparent***; the notes contain a lot of additional information that facilitate the performance of a thorough analysis. However, quarterly reports do not contain notes. Therefore, when performing analysis and forecast of Q4 2016 I had to make assumptions about some of the accounting items based on previous years trends.

With that being said, the more demanding challenge was the *modifications* made to the way the *data was depicted* in the statements: "In 2013, Management decided to change the presentation currency of its consolidated financial statements [from DKK] to USD…."[68, p.42]. Welltec restated income statement for 2011 and 2012 is in USD. However, the earliest available balance sheet in USD is from 2012. This curtails the number of consistent financial statements available for analysis. To overcome this problem, balance sheet data for 2010 and 2011 is converted from DKK to USD using the annual exchange rates for these years. The converted data is used in profitability analysis, but only on a highly aggregated level. The quality of the data is not expected to suffer from the currency conversions. Moreover, it helps to extend the periods available for spotting (possible) trends.

An integral part of financial analysis and company valuation is identifying the "sources of noise" [8, p.64] in ones data. In 2012, Welltec launched a new product that was intended for the 'completion services segment', which was new territory for Welltec. With that being said, Welltec's services/products range remains narrow when one looks at product diversification and services integration that prevails in the OFS market. Thus, this, relatively restrained extension of Welltec's

product/service mix is not expected to alter its risk profile significantly. In addition to this, Welltec has been growing extensively during the analyzed period, extending its global geographic presence to 29 countries compared with 21 in 2010 (see Appendix 4)

Any of the abovementioned factor can change the company's risk profile. In the event that "the risk profile of [a] company has change[d] over time it is necessary to adjust the required rate of return accordingly". [8, p.65] In profitability analysis, I compare Welltec's ROIC with the WACC from their annual reports notes. This should mitigate the noise from some of the changes in Welltec's risk profile.

2010 and 2011 are excluded from indexing and common size analysis because of the currency representation issues described above. Additionally, the main changes that could affect company's risk profile that took place in 2010-2011. That is to say, they take place during a period not covered in the indexing and common size analysis.

Welltec's income statement contains special items. Some of them relate to restructuring costs and regarded as recurring. It also contains special items that are regarded as non-recurring. The latter is excluded from financial statement for the purpose of forecasting and valuation.

Welltec has both financial and operating leases. The latter are not recorded in balance sheet but disclosed in annual report notes. To improve representativeness/quality of the financial analysis and the valuation, operating leases are capitalized and the necessary adjustments to financial statement are made.

In conclusion, overall Welltec's financial statement data is regarded to be a good quality. Factors that could create 'noise' are addressed before forging ahead with the analysis.

2.2. Analytical balance sheet

For items in the 'analytical income statement' to be commensurate with related items in the 'analytical balance sheet'. [8, p.73] For the analytical balance sheet look in Appendix 5.

2.2.1. Intangible assets

Welltec's intangible assets consist of the following: goodwill, development projects (completed and still in-progress); patents, licenses, acquired intangibles including 'technology', 'customer relationship' and brand. [68, p.22] For detailed information on intangible assets, I refer the reader to Appendix 6. *All* intangible assets are regarded as being part of Welltec *operations* and classified as operational items.

2.2.2. Tangible assets

Tangible assets consist of land and buildings; plant-equipment and fleets (including those that are still under construction); other fixtures, fittings, tools and equipment; and leasehold improvements. [68, p.22] Some of these tangible assets are held under finance lease. Welltec has manufacturing equipment that has been leased for 3-5 years and a (single) new building acquired in 2014 with a lease term of 12,5 years. Leased assets are depreciated according to the lease term period. [69, p.61] For detailed information on tangible assets, I refer the reader to Appendix 7.

All tangible assets are considered to be part of Welltec operations and, therefore, classified as operational items.

2.2.3. Operating lease

Welltec has entered into operating lease agreements concerning rental of houses and office furniture for periods ranging from 3 months and up to 3 years. Welltec has, also, leased company cars for periods of up to 7 years and even longer. [72, p.60] , [71, p.63], [69, p.63], [68, p.55]

Operating leases are not recognized in the balance sheet. Lease contracts are disclosed as contingent liabilities in the Annual report notes. [8, p.421] Not disclosing the assets and their related liabilities in the balance sheet can positively bias financial ratios. [1, p.125] Therefore, in order to improve the analysis's reliability, operating leases with duration periods that are more than 1 year are capitalized (i.e. converted to finance/capital leases). As for operating lease agreements with duration periods that are less than or equal to 1 year, they are treated as operating expenses.

Finance lease is an alternative to operating lease. It appears in the balance sheet as lease asset with an offsetting lease liability. [8, p.421] Therefore, the following adjustments to Welltec balance sheet and income statement are required.

To convert operating leases to financial leases the present value of operating lease liabilities needs to be estimated.

The first step is to estimate the interest rate that should be used to discount the projected lease payments. Welltec reports both financial and operating leases. Therefore, assuming that operating and financial leases have a similar interest rate, then the interest rate can be estimated based on projected financial lease payments and their present value (see Appendix 8). [1, p.127]

In its notes Welltec discloses projected financial lease payments and their present values grouped into 3 categories depending on maturity of lease obligations. According to its Annual reports for 2013-2015, finance lease obligations that would be due in 1 year and those that would be due in 1 to 5 years are related to manufacturing equipment with lease terms of 3-5 years. [68, p.53], [69, p.61], [70, p.61]

Finance lease obligations with maturity periods that are longer than 5 years are related to a single new building, acquired in 2014, with a lease term of 12,5 years. [69, p.61]

Estimating the implicit interest rate for obligations maturing in less than 5 years is challenging as obligations with different length are jumbled up together. However, by creating a model with the system of constrains derived from Welltec Annual report notes for 2012-2015, the interest rates can be estimated using 'Solver' functionality in Excel (see Appendix 8):

Year	2012	2013	2014	2015	Average
Implicit interest rate (lease obligations due from 1 to 5 years)	2,5%	2,2%	2,5%	2,2%	2,3%

An average rate is used as a proxy for the interest rate for capitalizing operating, mid-term (1-3 years), leases.

According to Welltec notes, financial leases have a floating interest rate. [68, p.52] Based on the information about long-term liability (> 5 years) provided in Annual report notes 2014 and 2015, an implicit interest rate can be estimated using Excel's 'Goal Seek' functionality (for detailed calculation, I refer the reader to Appendix 8).

The interest rate for long-term leases on a new building was 3,4% in 2015 and 1,0% in 2014. I could use an average rate. However, there are only two observations and the difference between them is substantial. Therefore, as an alternative, I use the yield on Welltec's long-term debt to estimate the interest rate on company cars operating lease. [1, p.127]

From the start of 2012, Welltec's interest rate is mainly connected with its 'interest bearing debt to bondholders' which has a *fixed* effective rate of 8,5%. [68, p.52] This rate is used to capitalizing operating leases related to company cars.

Once the interest rates are determined, the next step is to estimate the present value of operating lease obligations. This is done by creating schedules for the liabilities and their amortization. Welltec has a mixture of 'operating lease liabilities' whose terms range anywhere from 3 month till 9 years. However, these obligations are grouped according to their maturity and not the length of their terms. Moreover, rental and leasing expenses for the year are *not* split according to *how* the leases are grouped, but are reported as a single, combined yearly figure. Therefore, in order to overcome the difficulties of creating the schedule model for the leases, part of the analysis has been performed using Excel's 'Solver' functionality.

In addition, before I could proceed with the creation of a schedule for the leases, some assumptions about its *inputs* needed to be in place. Below there is a short summary of model input (for detailed calculations, I refer the reader to Appendix 9):

Operating liabilities:	Model input	Comment/Assumptions
Long-term obligations (company car lease agreements for period > 5 years)	Long-term obligations were split into several agreements based on the Annual reports notes. Annual payments and obligations related to car lease agreements are estimated based on 'Over 5 years' obligations values and their dynamic.	Assumptions: Lease agreement of 2015-2023 replaced the previous one. It was renewed as well a year later. Annual payment for each agreement was considered a constant amount where possible.
Mid-term obligations (rental obligations running for the period 1-5 years)	Mid-term rental obligations were split into 2 groups based on duration: running for 2 years and running for 3 years.	Assumptions: Annual payment for each agreement was considered to be variable.
Short-term obligations (rental obligations running for the period from 3 months to 1 year)	Short-term obligations and related payments were calculated as residual after subtracting long- and mid-term obligations.	Short-term obligations are not capitalized and, therefore, the estimated values are not included in adjustments.

Using this model, lease-payout-schedules for lease agreements that were valid from 2012 to 2015 were created. Based on lease-payout-schedules, values of lease obligations, at the time of their *initial* recognition, were calculated as present values of the payments.

Next step was to calculate the interest expense for each lease agreement for each year. Interest expense is determined by applying the estimated interest rates to the value of lease liability at the beginning of period. [1, p.128]

The difference between lease payment for the year and interest expense for the same period equals to the value of amortization of lease obligation. Capitalized operating lease liabilities for the following periods are calculated as the values of lease obligation passed on from previous periods less present year's amortization. At the end of lease term, the lease obligation will be fully amortized and equal to ZERO.

A further step is to calculate lease asset values and their depreciation. Welltec uses straight-line depreciation for assets held under financial lease terms. Therefore, it is reasonable to assume that a straight-line depreciation method is used for capitalized operating lease assets as well. The value of lease asset at the time of initial recognition is equal to the value of lease obligation. Annual depreciation expense is calculated by dividing the value of the capitalized lease asset by the lease term and assuming a ZERO salvage value for each lease asset. [1, p.128] Lease asset values for the following years equal to asset values of previous year less depreciation for the year. At the end of lease term the lease obligation will be fully amortized and equal to ZERO.

Once the capitalized operating lease liabilities and assets have been determined, the *impact* of *lease reclassification* on reported income should be calculated: "[If] leases are classified as operating leases, [then] the entire payment [should be] recognized as an operating expense". [8, p.423]

There are two types of expenses relating to financial leases – interest and depreciation. Adjusting the income statement requires that 'operating lease expenses' that were capitalized to be added back and that expenses connected with financial leases should be deducted.

It is important to emphasize that if amortization equals depreciation, then 'earnings before tax' (EBT) is not affected. The adjustments described above only impact 'earnings before interest, tax, depreciation and amortization' (EBITDA), 'net operating profit after tax' (NOPAT) and 'net financial expenses' (NFE). However, if it is 'straight-line depreciation' that is being used, then amortization value is *not* be equal to depreciation value. This would affect EBT and would require some additional adjustments. Firstly, the tax expense difference is calculated as a difference between amortization and depreciation multiplied by that year's corporate tax rate. If amortization proves to be higher than depreciation, its consequence will be an increase in EBT, tax expense, and net earnings. The effect this has on tax expense should be recognized as 'deferred tax liability' and the effect on 'net earnings' should be added to 'retained earnings'. [9, p.4-46] On the reverse side, if amortization is lesser than depreciation, it will create a 'deferred tax asset' and decrease 'retained earnings'. It is worth noting, that the effects of the yearly deferred tax asset/liability and retained earnings are accumulated over the leases' terms.

Finally, as Danish corporation tax rate has changed during the period in question, accumulated deferred tax asset/liability should be adjusted with the accumulated difference between amortization and depreciation multiplied by difference in tax rate. The value of deferred tax adjustment is added back in income statement and deducted from deferred tax asset/liability and in the year of tax rate change.

Based on calculations described above, the following adjustments are made in Balance sheet (see Appendix 10):

USD, in thousands	2010	2011	2012	2013	2014	2015	2016
Invested capital ('net operating assets'):							
Capitalized operating lease asset less accumulated depreciation	7.524,85	14.710,44	8.905,52	17.283,30	14.655,07	18.417,76	15.812,87
Invested capital ('financing')							
Capitalized operating lease liability less accumulated amortization	6.579.72	14.917,02	10.622,19	18.781,59	15.652,06	18.424,70	17.018,09
Deferred tax asset (-) / liability (+)	236,28	-51,64	-429,17	-374,57	-259,25	-36,55	-300,28
Retained earnings	708,85	-154,93	-1.287,50	1.123,72	-737,75	29,62	-904.94

The adjustments in income statement are provided in 2.3.5.

'Capitalized operating lease liability' is classified as financing item due to its interest bearing nature, and 'Capitalized operating lease asset' is classified as operating item as it is part of company's operations.

2.2.4. Tax receivables

Welltec's 'tax receivables' appear under the headings 'financial assets' and 'receivables' [68, p.22] and are classified as financing and operating items respectively.

2.2.5. Deferred tax assets and liabilities

'Deferred tax' is caused by differences between accounting and tax regulations. This results in, a temporary, deference between assets and liabilities' *book values* and their *tax-based values*. Deferred tax liability (asset) occurs when asset (liability) book value is higher (lower) than its tax-based value. Differed tax asset arises in the reverse situations.

An inspection of Welltec's 'deferred tax' shows that the majority of it relates to operating activities (tangible and intangible assets, current assets) and, therefore, is classified as an operating item. As for the portion of deferred tax related to 'current and non-current liabilities', I assume that it was the result of financial activities, such as the disposal of bonds, and classify it as a financial item. No information is provided as to whether 'tax contingencies', 'tax loss carried forward' and 'change in tax rate' is related to operations or financing. However, as deferred tax is, mostly, linked to operations [8, p.88] they are be classified as operating items. Moreover, the smallness of their values means that regardless of how they are classified they have no significant bearing on the analysis's outcome. For detailed information on deferred tax assets and liabilities, I refer the reader to Appendix 11.

Welltec reports deferred tax assets and liabilities. Nevertheless, these two items are reconciled to simplify the reformulation of the financial statements and only their net (which is primary deferred tax liability) is posted in analytical balance sheet.

2.2.6. Other receivables

'Other receivables' appear under 'financial assets' and 'receivables'. [68, p.22] 'Other receivables' under the heading financial assets are financial investments/loans with a fixed maturity [68, p.32] and is classified as a financial item. As for 'other receivables' beneath the heading 'receivables', are, owing to lack of information, regarded as part of operation and classified as an operating item.

2.2.7. Inventories

Inventories are considered to be part of Welltec operations and, therefore, classified as operating items.

2.2.8. Trade receivables

Trade receivables are considered to be part of Welltec operations and, therefore, classified as operational items.

2.2.9. Current portion of non-current assets

As ‘current portion of non-current assets’ is probably related to the non-current financial assets, it is classified as financing items as well.

2.2.10. Prepayments

Welltec discloses details about prepayments which allows to classify each of the prepayments element separately. For detailed information on prepayments, I refer the reader to Appendix 12.

The largest part of prepayments is the ‘prepaid creditors’. Assuming that it is not related to operations it is considered as financing item. Welltec rents furniture and leases company cars [68, p.31], manufacturing equipment, and its new building. All these items can all be considered as prerequisites for normal business operations. Therefore, prepaid lease and rent are classified as operating items. Owing to their nature, Welltec’s business operations can be risky and are therefore insured. Hence, ‘prepaid insurance’ is classified as an operating item. No information is provided the other types of prepayments. I assume that they are also required operating expenses and classify them as operating items.

2.2.11. Securities

Welltec’s securities include mortgage bonds, corporate bonds, and shares [68, p.32]; they are all listed securities. Taking into account that securities are a financial asset that requires a return, securities are classified as financing item.

2.2.12. Cash and cash equivalents

As the label indicates, ‘cash and cash equivalents’ includes cash [68, p.33]. I would have liked to separate the ‘cash needed for operations’ from ‘excess cash’. Welltec’s annual report provides no further information about this item. Therefore, I consider all of ‘cash and cash equivalents’ to be *excess* cash. Thus, ‘cash and cash equivalents’ is regarded as a financing item.

2.2.13. Equity

Equity is comprised of share capital, currency translation reserve, retained earnings, and non-controlling interest. [68, p.23] Equity is a source of financing that requires a return. Thus, it is classified as a financing item. [8, p.75] For detailed information on equity, I refer the reader to Appendix 13.

2.2.14. Finance lease commitments

‘Finance lease commitments’ relate to lease agreements for the manufacturing equipment and the new building. [68, p.53] At initial recognition (start of the lease) they are measured at the lower of

the leased asset's fair value and the present value of future lease payments. Afterwards, lease commitments are measured at amortized cost. The difference between the present value and the nominal amount of the lease payments is recognized in income statement as a financial expense. [68, p.32] To facilitate the matching of items from the analytical income statement with related items in the analytical balance sheet operating activities and financing activities should be classified the same way in both statements. [8, p.73] So, 'finance lease commitments' are classified as a financing item.

2.2.15. Issued bonds

Based on the company's notes, "In February 2012, Welltec A/S issued bonds of a value of USD 325 million. The bonds have a fixed interest of 8% and an effective rate of 8,5%. The bonds are repayable in full in February 2019". [68, p.52] For detailed information on issued bonds, I refer the reader to Appendix 14.

As 'issued bonds' are a source of financing that requires a return, they are, accordingly, classified as a financing item.

2.2.16. Bank debt

According to Welltec's notes:

> In April 2015, Welltec A/S obtained a bank loan through the European Investment Bank of EUR 25 million (USD 28 million). The bank loan has a variable interest of 2.2% + 6 months EURIBOR. The bank loan is repayable in December 2018. The carrying amount of the bank debt is approximately equal to the fair value as of December 31, 2015. [68, p.52]

Since 'Bank debt' is a source of financing that requires a return, it is classified as a financing item.

2.2.17. Other non-current liabilities

The item 'other non-current liabilities' appears in the statements of 2012 and 2013. [70, p.33] In the statements of 2014 and 2015, there is no such item. [68, p.23] Welltec does not provide details regarding its 'other non-current liabilities'. However, they are not listed under 'current and non-current financial liabilities'. [70, p.60] Thus, Welltec, most probably, regards 'other non-current liabilities' to be part of company operations. Consequently, I have chosen to classify it as an operating item.

2.2.18. Current portion of non-current liabilities

'Current portion of non-current liabilities' represents the item 'finance lease commitments' which was classified as financing item. For this reason, 'current portion of non-current liabilities' is given the same classification as the item it represents, financing item.

2.2.19. Other provisions

'Other provisions' appear in 2012 and 2013 [70, p.33] but are absent in 2014 and 2015 [68, p.23]. 'Other provisions' are described in Welltec's notes as follows: "Other provisions are recognized when the group has a legal or constructive obligation as a result of past events in the financial year or prior years, and it is probable that settlement of such obligation is lead to an outflow of the company's financial resources". [70, p.43] Welltec's notes do not provide further details about 'Other provisions'. However, Welltec does not record its 'other provisions' under 'current and non-current financial liabilities'. Judging from this indirect/subtle hint I can infer that the reason for this may be that Welltec regards 'other provisions' as part of its operations. Hence, 'other provisions' are classified as an operating item.

2.2.20. Payables to affiliates

The item 'payables to affiliates' makes an appearance in 2012 and 2013 [70, p.33] but is absent from the scene in 2014 and 2015 [68, p.23]. Welltec's notes inform that 'affiliates' are principle shareholders. [70, p.69] Since *affiliates/principle shareholders* are not directly involved in operations (but are rather beneficiaries awaiting their financial rewards for investing in the company), 'payables to affiliates' are regarded as a financing item.

2.2.21. Trade payables

'Trade payables' are considered to be part of Welltec operations and, therefore, classified as operational items.

2.2.22. Current tax liabilities

Welltec's reports do not say much about the item 'current tax liabilities'. Also, 'current tax liabilities' are not listed under the banner 'current and non-current financial liabilities' [70, p.60]. Guided by what this information hints at, 'other non-current liabilities' are regarded as part of company operations. Ergo, I classify 'other non-current liabilities' as an operating item.

2.2.23. Other payables

Welltec provides details on 'other payables' allowing for the separate classification of each element (see Appendix 15).

I believe that there can be little doubt that items such as wages; salaries; personal income taxes; social security costs; and holiday pay are integral part of any company's operations. Hence, they are all classified as operating items.

On the other hand, ‘derivative financial instruments’ and ‘accrued interests’ are, as is apparent from their titles, part of financing activities and are, accordingly, classified as financing items.
Next in the list of ‘other payables’ is the item ‘earn out related to HPI’. This was the second and final ‘earn out payment’, made in 2013, as the result of Welltec acquiring ‘HPI Technology AS’ in 2009. Because the acquisitioned ‘HPI Technology AS’ was *incorporated into* Welltec’s business operations, the ‘earn out payment’ has been classified as an operating item.

2.3. Analytical income statement

In the following section, items in Welltec’s income statement are divided into two groups: ‘operations’ or ‘finance’. The purpose of this *split* is providing a clearer understanding of *where* value is created within Welltec [8, p.70]. For the analytical income statement, see Appendix 16.

2.3.1. Revenue

Using the guidelines of ‘IFRS 8 Operating Segment’, the group assessed that the activities of Welltec International ApS could be, appropriately, disclosed in a single segment. [68, p.35]
Regarding the question of *when* Welltec recognizes revenue, this happens when the agreed service is provided/performed. In cases where development projects have been subcontracted to a third part (i.e. the *actual* work or some of it has been handed over to a subcontractor), the income is recognized when services have been delivered to the client or when value, in some form or other, is perceived to have been added to the client’s processes/products/services. [68, p.29] As for revenue from the selling of physical products, “[it] is recognized in the income statement if delivery and transfer of risk to the buyer have taken place before year end, and if the income can be reliably measured and is expected to be received”. [68, p.29] For detailed information on revenue, I refer the reader to Appendix 17.
And, just to dispel any doubts, revenue is regarded as a, purely, operating item.

2.3.2. Cost of services provided

“Cost of services provided comprises direct and indirect expenses incurred to realize revenue” [68, p.30]. Depreciation, amortization, and impairment losses are part the expenses incurred to realize revenue. As will be described in 2.3.6., depreciation and amortization are deducted from the ‘cost of services’ figure. Obviously, the *adjusted* ‘cost of services provided’ figure is tied to Welltec’s core operating activities. So, it is classified as an operating expense.

2.3.3. Development and manufacturing cost

A company may capitalize its development costs and expenses. However, the capitalization of development costs requires that ‘technical/financial benefits’ from using the (completed) *intangible*

asset or its market value (selling price) can be verified. In other words, a company must provide proof of its intention and ability to complete the intangible asset "and demonstrate how the asset will generate future economic benefits". [8, p.391] Welltec capitalizes most of its development costs. However, a small portion of its engineering and development costs are not capitalized but *expensed* and given the title 'developments and manufacturing costs' [68, p.30]. These costs are indispensible to Welltec's core operating activities and should, therefore, be pigeonholed as an operating expense.
A point worth noting is that, in the past, Welltec, customarily, expensed no more than 1% of its yearly engineering and development costs. However, in 2015, the portion of expensed engineering and development costs was more than 10%.

2.3.4. Administrative and sales cost

As Welltec's notes inform, "administrative and sales costs comprise costs required to sustain the business including finance, IT, legal, HR and other overhead costs". [68, p.30] That being said, Welltec's 'administrative and sales costs' contain depreciation, amortization and impairment losses which is excluded as described in 2.3.6.
The *adjusted* 'administrative and sales costs' are costs closely knit to Welltec's operating activities. Hence, they are categorized as 'operating expenses'.

2.3.5. Operating lease

As mentioned earlier (in 2.2.3.), Welltec enter into a number of operating lease agreements. In order to improve the quality of the analysis, operating lease agreements lasting longer than 1 year have been capitalized (see 2.2.3. and Appendix 10).
To accomplish abovementioned *analytical adjustments*, following modifications were made to Welltec's income statement:

- Operating lease expense related to mid- and long-term agreements was added back;
- Depreciation expense was deducted;
- Interest expense was deducted;
- Tax expense was adjusted for differences between amortization and depreciation;
- Tax expense was adjusted for change in Danish corporation tax in relation to deferred tax assets/liabilities;
- The adjustments described above will impact 'Net earnings':

USD, in thousands	2010	2011	2012	2013	2014	2015	2016
Operating expenses	2.332,27	2.504,84	4.664,00	5.817,00	6.452,00	4.850,00	2.945,07
Depreciation, amortization and impairment losses	-1.713,50	-3.466,99	-5.805,59	-5.354,25	-4.768,34	-2.648,19	-2.604,90
Interest expense	-163,39	-189,56	-368,50	-244,37	-1.182,37	-1.211,75	-1.538,46
Operating tax (adjustment related to difference between amortization and depreciation)	-113,85	287,93	377,52	-54,60	-122,82	-232,66	263,62
Operating tax (adjustment related to tax rate change)	0,00	0,00	0,00	0,00	7,49	9,97	0,10
Impact on Net earnings	**341,54**	**-863,79**	**-1.132,57**	**163,79**	**385,97**	**767,36**	**-934,56**
Note:							
Danish corporation tax	*25%*	*25%*	*25%*	*25%*	*24,5%*	*23,5%*	*22%*

2.3.6. Depreciation, amortization and impairment losses (including amortization of acquired intangibles in a business combination)

In Welltec's consolidated income statement depreciation, amortization and impairment losses appear under the item that they are associated with. However, the full amount of the year's depreciation, amortization and impairment losses and how it is allocated is disclosed in the company's notes.

Once I reclassify depreciation, amortization and impairment losses in the analytical income statement, it will be possible to calculate EBITDA. The EBITDA figure is useful in cash flow statement calculations and in evaluating the firm's earning abilities.

So, according to the adjustments I described above, cost of services provided, development and manufacturing cost, and administrative and sales costs are appear net of their related depreciation, amortization and impairment losses.

Because depreciation, amortization and impairment losses are the result of the company's acquisition and usage of intangible and tangible assets, and because these assets are recognized as operating items, it, logically, that depreciation, amortization and impairment losses should be given the same classification.

2.3.7. Special items

Welltec reports 'special items', by themselves, "to facilitate the comparability of the profit or loss and provide a better picture of the operational results". [68, p.30] As described in their report, "special items consist of costs of a special nature in relation to the activities of the group, including costs of structural changes and other significant amounts of a one-off nature". [68, p.30]

In 2013, Welltec's 'special items' consisted of 'non-recurring consultancy fees' and 'costs related to resigned employees and special bonus'.

Welltec's report does not say what the consultancy work was for. However, in early February of 2013, news circulated that Welltec was considering going ahead with an IPO and consultants were hired for that purpose [59]. It would not be a stab in the total darkness, to deduce that the 'non-recurring consultancy fees' were connected with the IPO launch. Moreover, there can hardly be anything more *non-recurring* than an IPO.

Because an IPO is not something connected with a company's operations but rather a *way of financing them*, the consultancy fees spent in connection with Welltec's IPO are classified as a *financial* expense. Additionally, since it highly unlikely that such consultancy expenses will be recurring in the foreseeable future, they are excluded from our analytical forecasting.

Unlike an IPO, 'costs related to resigned employees and special bonuses' are not a one of a kind event, they appear in 2013 and, once again, in 2015 along with 'costs related to termination of rental agreements etc'. Costs such as these can best be described as *tactical* costs linked to the changes that companies carry out in order for it to *adapt* (i.e. restructure) their businesses "to [fit] changed market [i.e. business] conditions" [68, p.41] and are "accounting item[s] that frequently appears in the income statement". [8, p.353]

Based on the above written, it would not be inappropriate to classify both 'costs related to resigned employees and special bonuses' and costs related to termination of rental agreements etc' as (recurring) operating items.

2.3.8. Financial income and expenses

In its notes, Welltec lists its 'financial income and expenses' as being comprised of "interest income and expenses, the interest portion of finance lease payments, realized and unrealized capital gains and losses on payables and transactions in foreign currencies, amortization premium/allowance on debt, etc. as well as interest on tax" [68, p.30] (see Appendix 18).

Welltec treats 'exchange differences' resulting from discrepancies between the rate-of-exchange at the time when the transactions took place and the rate-of-exchange when it is time to for them to be paid or posted to the end-of-period financial reports as *financial* income or *financial* expenses in its income statement. [68, p.28]

That being said, it is important to point out that there exists more than one opinion on how 'exchange rate differences' should be handled. There are those who believe that these differences should be split into their operating and financing components as 'exchange rate differences' are not, exclusively, tied to either type of activity. Then again, there are those who, like Welltec, view 'exchange rate differences' as being a, purely, financial item. They argue that losses or gains from variations in

exchange rates are the result of financial acumen and prudence (or lack of both) rather than operational excellence. Depending on its financial policies, a company can choose whether or not to hedge a currency risks using financial instruments. On the other hand, if a company elects not to hedge its currency risks, then it leaves its earnings wholly exposed to exchange-rate winds, which can end in profit or loss depending on which direction these winds blow. [8, p.77]

Taking into consideration the above argument, exchange rate gains and losses is classified as financial item.

As for 'other items', they, as well, are linked to financial activities and are interest bearing and, as a result, are classified as financial items.

2.3.9. Income taxes

Welltec's corporation tax appears as a *single* item in its income statement. Yet, corporate tax is the result of both operating and financing activities. Therefore, Welltec's corporation tax *mixture* must be disentangled and divided into two figures: 'taxes from operating income' and 'tax shield on net financial expenses'. The result of this *division* hinges on the chosen assumptions with respect to tax rate. I can choose to use a 'marginal tax rate' or an 'effective tax rate':

Welltec tax rates	2011	2012	2013	2014	2015
Effective tax rate (current tax)	35,0%	36,9%	36,0%	36,3%	n/a
Danish corporation tax	25,0%	25,0%	25,0%	24,5%	23,5%

As shown in Appendix 19, financial items include income and expenses other than just interest expenses (or income). Welltec does not disclose whether such financial items are taxable, and if so at which rate. This informational *gap* can be overcome by using the effective tax rate:

$$Tax \quad rate = \frac{Corporation \quad tax \quad \times \quad 100\%}{Earnings \quad before \quad tax}$$ [8, p.73]

Welltec's income tax returns are filed in several jurisdictions. The year's taxes consist of: 'current tax for the year', 'adjustments in corporation tax previous years, 'changes in deferred tax' and 'other taxes' (see Appendix 19).

Welltec's 'effective tax rate' is determined by a number of variables including tax laws and regulations and how they are interpreted in the different jurisdictions where Welltec operates. Moreover, there is also the issue of how *compliance-failures* that are discovered during tax audits are resolved. [68, p.18] Therefore, effective tax rate can be calculated by dividing 'current tax' by 'earnings before tax'. Yet, it is not possible to calculate an effective tax rate for 2015 because Welltec's 'earnings before tax' that year was negative while its 'current tax' was positive.

It is more suitable to use an effective tax rate when company's borrowings come from countries with different taxation rates. Welltec's notes say nothing about *where* (i.e. which countries) its borrowed funds originate from. However, it is highly probable that its issued bonds and the loan it acquired through the European Investment Bank are covered by Danish tax regulations. Also, Welltec's 'lease commitments' relate to assets that were leased in Denmark. Therefore, using the *Danish* corporation tax rate to estimate tax shield would seem to be a good and sober choice.

As for the calculation of 'operating tax', it is computed by adding up the reported income taxes and the tax shields. Calculation of estimated tax shield and operating tax is shown below:

	2015	**2014**	**2013**	**2012**	**2011**
Danish corporation tax	**23,5%**	**24,5%**	**25,0%**	**25,0%**	**25,0%**
Net financial expenses:					
Financial expenses	70.077	61.281	49.411	39.329	28.778
Special items (financing)	0	0	3.181	0	0
Interest on lease assets	1.187	1.182	1.222	96	190
LESS:					
Financial income	37.884	39.782	23.236	1.068	4.628
Net financial expenses	**33.380**	**22.681**	**30.578**	**38.357**	**24.340**
Tax shield	**7.843**	**5.557**	**7.645**	**9.589**	**6.085**

Operating tax (tax on EBIT):					
Income taxes	14.849	32.810	20.887	23.537	16.093
LESS:					
Tax shield	7.843	5.557	7.645	9.589	6.085
Operating tax (tax on EBIT)	**22.692**	**38.367**	**28.532**	**33.126**	**22.178**

2.3.10. Unrealized exchange rate adjustments of foreign subsidiaries and branches

Based on what is stated in Welltec's notes: "exchange differences resulting from changes made in a foreign entity's other comprehensive income are also taken to other comprehensive income". [68, p.28] Since exchange rate gains and losses were classified as financial items, it stands to reason that 'unrealized exchange rate adjustments of foreign subsidiaries and branches' in 'other comprehensive income' should be given the same classification.

I am also informed that "the portion of tax attributable to entries directly in other comprehensive income is recognized in other comprehensive income". [68, p.38] This means that the stated figure of 'unrealized exchange rate adjustments of foreign subsidiaries and branches' is *net* of tax. For this reason, I exclude it from the tax shield calculations and add directly to 'net financial expenses after tax'.

2.4. Profitability analysis

When driving, a rearview mirror is indispensable. In other words, backwards gazing, in some cases, is useful. This, most certainly, applies to when forecasting a company's future financial performance,

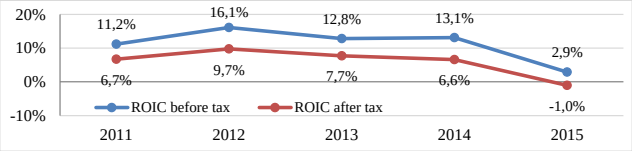
where “a critical component of valuation is the robust analysis of *historical performance*.” [21, p.163, *italics* mine]. In short, we form our expectations of *future* profitability based on *past* profitability: “The historical profitability is an important element in defining the future expectations for a company”. [8, p.93]

For profitability evaluation purposes “return on invested capital (ROIC) is the overall profitability measure for operations”. [8, p.94] ROIC figures significantly influence the evaluation “since a higher rate of return will lead, *ceteris paribus*, to a higher estimated value”. [8, p.94]

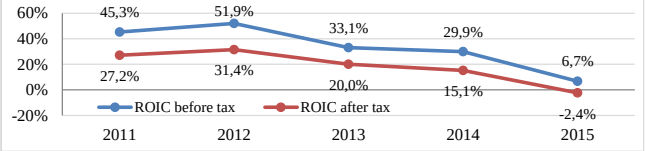
Welltec had to pay additional taxes for activities that took place prior to period being analyzed. Specifically, the additional taxes resulted from the *non-recognition* of credit relief of withheld foreign taxes from before 2012. This has significantly affected ‘net operating profit after tax’ (NOPAT), and, subsequently, ROIC after tax. Therefore, to mitigate the *noise* caused by the additional taxes, I include ROIC *before tax* in the analysis.

In addition, ROIC is calculated *with* and *without* goodwill and acquired intangibles. ROIC *with* goodwill and *acquired* intangibles gauges the firm’s “aggregate value creation” [21, p.165] abilities. On the other hand, ROIC *without* goodwill and acquired intangibles measures of the firm’s in-house ability to create value, and, by extension, the efficacy of its underlying processes. Therefore, it is better suited for analyzing trends. [21, p.165]

In Welltec’s annual report for 2015, we read that “separable intangible assets acquired through business combinations are brand, customer relationship and technology”. [68, p.31] Goodwill and acquired intangibles make up more than half of ‘invested capital’. As a result, ROIC without goodwill and acquired intangibles is much higher. The development of returns over time is presented below:



a) ROIC with goodwill and acquired intangibles

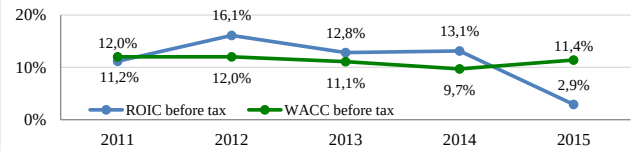


b) ROIC without goodwill and acquired Intangibles

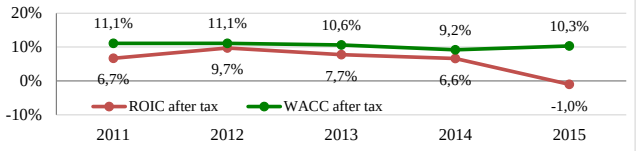
Overall, Chart X shows a declining profitability. There was a barely noticeable rise in 2012’s ROIC but, ever since then, ROIC has been falling. In general, 2015 was a pretty bad year for the oil and gas industry. However, Welltec’s downward performance slide started two years earlier, in 2013, which indicates that Welltec’s declining ROIC is not the result of a generalized industry depression.

In order to evaluate ROIC, I need to assess if its *level* is satisfactory. This can be done by using the ROIC of peer companies as performance benchmarks. However, because the services and products of the OFS industry are so diverse, a comparison of this kind would be inappropriate. Therefore, I

use an alternative method that involves comparing ROIC with the weighted average cost of capital (WACC). [8, p.96] Welltec provides WACC both before and after tax in its Annual reports.



a) ROIC before tax



b) ROIC after tax

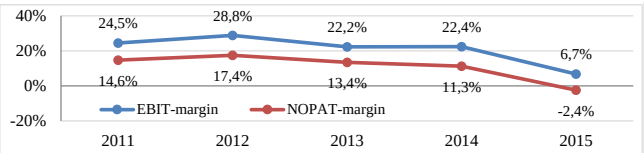
From 2012 to 2014 ROIC before tax exceeds WACC. The unsatisfactory ROIC level in 2015 was, largely, the result of a *general* fatigue in the industry and the prevalence of low oil prices. However, the inadequate ROIC level in 2011 was, wholly/*almost* wholly, the result of Welltec's poor performance, as 2011 was a quite a good year for the industry. In additions, the figures show that ROIC after tax is constantly lower than WACC, which is unsatisfactory. ROIC's level was dissatisfying in 2013 and 2014 when the company was saddled with additional tax charges from previous years. However, 2011 and 2012 ROIC levels were also unsatisfying despite not being burdened with any additional taxation. Comparing the levels of ROIC *with* and *without* goodwill and acquired intangibles suggests that the ROIC underperformance is not caused by malfunctioning business processes, but rather by decisions to purchase other businesses at premiums accrued from their past performances. Furthermore, the level of ROIC vs. WACC before and after tax in 2012-2014 suggests that Welltec's operations are taxed at substantially higher rate than its financial activities.

WACC is the expected return on invested capital. If ROIC exceeds WACC a company creates excess return or Economic Value Added (EVA); i.e. value for its shareholders. [8, p.97]

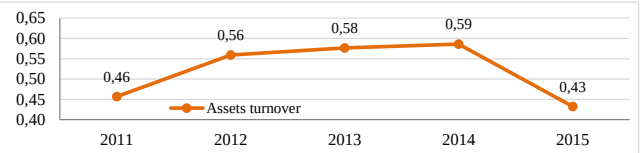
As Welltec's ROIC is constantly lower than WACC, the company is 'destroying value':

USD in thousands	2011	2012	2013	2014	2015
EVA	-22.116	-7.174	-15.928	-15.195	-64.426

Return on invested capital measures a firm's return on capital invested in operation. ROIC, however, is not able to explain whether profitability is driven by better revenue and expense relation or an improved capital utilization. To be able to answer this question, it is necessary to decompose the ratio into (a) the profit margin [both before and after tax] and (b) the turnover rate of invested capital [a.k.a. assets turnover rate] [8, p.107]:



a) EBIT-margin and NOPAT-margin



b) Assets turnover rate

When comparing profit margin and assets turnover trends it is clear that the decline in ROIC is, mainly, caused by shrinking profit margins that and is only slightly offset by a positive trend in the assets turnover rate (with the exception of 2015 which was a *bad* year for the whole oil and gas industry).

Although Welltec improved its capital utilization during the years 2012 to 2014, it can still only be regarded as poor considering the level of the 'revenue/expense relation' for the same period. In its best year (2014), Welltec's asset turnover rate reached 0,59, meaning that Welltec's invested capital would be held captive for more than 1,5 years (610 days).

As pointed out earlier, the majority of Welltec's assets come in the shape of goodwill and acquired intangibles, which may explain Welltec's poor capital utilization.

The analysis of profit margin and assets turnover rate informs us that the *proportionality* in revenue/expense relation has been steadily worsening while the efficiency of capital utilization has been improving (with the exception of 2015). Nevertheless, these ratios cannot be used to form a conclusive opinion, as they do not offer an adequate explanation as to *why* revenue/expense relation and the capital utilization efficiency have evolved as they have. Therefore, the ratios need to be broken down further by applying indexing (trend analysis) and common-size analysis (see Appendix 21, 22).

2.5. Sub conclusion

When the market prices for oil nosedived, Welltec's revenues plummeted and their profit margins shrunk significantly, signifying that 'the price of oil' was a one of Welltec's key value drivers and further highlighting the importance of monitoring macro factors to understand where the industry in general and Welltec in particular are heading.

Having said this, low oil prices seem not to be Welltec's only problem. Even in the years when oil prices were high, Welltec's profitability levels were still disappointing. Moreover, the efficiency of Welltec's processes (measured by ROIC without goodwill and acquired intangibles) has, since 2012 (the effects of the falling oil first hit home in 2015), been falling, which may explain why falling oil prices hit Welltec so hard; Welltec was already out of shape.

Decomposing ROIC revealed that the main problem was Welltec's revenue/expense relation. Indexing and common size analysis further revealed that, in 2012 and 2013, 'cost of services provided' were mushrooming at speed and revenue growth was struggling to catch up. Again, this was at least a couple of years before the oil market depression. Thus, Welltec's dwindling revenues cannot, at that time, be solely explained by oil companies pushing OFS firms for lower rates.

The surge in ‘cost of services provided’, in 2012, was probably the result of Welltec first-time entry to the ‘completion solutions segment’. In most cases, getting to grips with *new* markets is costly at the start. If Welltec can learn the ropes of this new segment, and if their clients appreciate this extension of their service repertoire, then this addition could help improve Welltec’s profitability when oil prices again pick up.

Apart from this, to better control its costs, Welltec will need to pay close attention to ‘administrative and sales cost’, the second largest operating expense component after ‘cost of services provided’.

In addition, the profitability analysis revealed *low* capital utilization efficiency. Although Welltec’s asset turnover rate showed signs of reviving, during the good years of 2012 to 2014, it was still very low.

A common size analysis of Welltec’s balance sheet shows where potential remedies for the problem may be found. For instance, 19% of Welltec’s invested capital goes to receivables, which is nearly the same as the whole of the company’s tangible assets. Within the receivables category, trade receivables are the largest, amounting to almost 16% of invested capital. A situation where Welltec borrows with interest and lends to its clients free of charge cannot be regarded as efficient capital utilization. A decrease in both the value and share of trade receivables over the observed period indicates that Welltec is aware of the need to improve its receivables collection. However, in 2015, trade receivables share of invested capital was 13%, which suggests that there is still further room for improvements.

CHAPTER 3. Strategic analysis

Chapter 3 will be dedicated to strategic analysis. Specifically, I will seek to identify factors influencing Welltec’s cash flow potential and risk with the purpose of forecasting their future behavior.

In chapter 1, I gave a concise overview of the industry that Welltec is part of, with the purpose of acquainting the reader with the nature of Welltec’s business environment. [8, p.187]. The overview reveals the complexity of the industry’s dynamics and that a good understanding of their workings cannot be obtained through reliance of historical information alone: “In [Welltec’s] case it is important to obtain a fundamental understanding about the underlying drivers of the market and the next generation of products and services”. [8, p.187].

Using a top-down approach, I kick-start the analysis with the PESTEL framework to identify macro factors influencing the company’s cash flow potential and risks. Also, I will attempt to prognosticate the future developments of these macro factors.

Next, I use the Six Forces model to discuss industry specific factors that can affect Welltec's cash flow potential and risks.

Finally, I use the VRIO model to probe into factors within the company itself (i.e. internal analysis) that influence its cash flow potential and risks.

Summary results and findings from the financial analysis in chapter 2 and the strategic analysis will be presented in a SWOT matrix.

3.1. PESTEL Analysis

This paper uses the PESTEL model to categorize and pencil out the external factors that have a bearing on the O&G industry in general and more specifically on the OFS industry and the company Welltec. The objective of the PESTEL framework is to highlight the macro factors affecting Welltec's key value drivers. The purpose is to understand how these factors affect Welltec's financial health and its ability to stay in business. The findings from this analysis will be used to forecast the key value drivers in chapter 4.

The PESTEL model, traditionally, classifies the external factors into six groups: political, economic, social, technological, environmental and legal. [23, p.34] Guided by this classification, I have reworded the macro factors salient to the industry being analyzed as follows:

- Political (in)stability in oil producing countries;
- Actions of Governments and international bodies affecting oil supply;
- Economic (in)stability (or the cyclical booms and busts of the economy);
- Technological capabilities;
- Global warming and emissions controls;
- High HSE (health, safety, environment) risks linked to O&G industry;
- Regulatory systems governing the petroleum industry.

3.1.1. Political (in)stability in oil producing countries

Political instability is spurred by different societal groups vying for their interest and failing to reach a compromise. It creates uncertain business environment that can threaten oil production and supply. Political instability manifests itself in a variety of forms and guises that vary in their severity such as demonstrations, protests, strikes, and civil wars. Such conflicts can lead to financial losses, damages to physical properties, and ecological disasters. An unstable political environment makes international O&G development cooperation more difficult to carry out. [40, p.303] It may lead to O&G development projects being put on hold or, at the very least, to fall behind schedule.

News of political unrest in oil producing nations are quick to reach the oil markets and affect the prices causing them to take an upward hike. However, oil prices, usually, drop back to more 'normal levels' once potential political threats to supply subside. Thus, there seems to be a strong link between the political statuses of the oil producing nations and the prices of oil.

There exists historical data that supports the above statement. Appendix 23, there are several examples of how closely tied political instability and oil prices are. One of these examples is described in more detail in the following paragraph.

At the beginning of first Gulf War (2 August 1990 – 28 February 1991) oil prices rose by 50% within a few weeks: from $18 to $27/b (or from $34 to $50/b in current prices). Analysts believed that Saddam would shower the Gulf area with rockets causing substantial disruptions to production and flinging Western economies into a severe economic crisis. Prices continued to grow and had almost doubled by October 1990 compared to pre-conflict level. However, when the military actions commenced, it soon became clear that Saddam's rockets were incapable of causing the predicted wide scale disruption to oil supply. Saudi Arabia's oil wells (the biggest oil producer) were beyond Saddam's reach. Moreover, the Saudis had enough excess production capacity to secure Western supplies and to fill the supply gap caused by Kuwaiti oil wells being temporary out of business. As a result, oil prices reverted to pre-war levels by March 1991.

Decreases in oil production also lead to a reduction in the O&G development activities that are, more often than not, collaborated efforts of host countries and international oil conglomerates. Moreover, if hostilities increase and armed conflict breaks out oil facilities become obvious targets. The destruction these facilities effects both the ruling regime and the oil companies. Because they are also responsible for the safety and welfare of its personal, they may need to operationalize emergency plans for closing down the locations and evacuating the staff.

3.1.2. Actions of Governments and international bodies affecting oil supply

Energy prices are determined on free market basis. That being said, there is a small circle of countries who have a huge say in what oil prices should be.

3.1.2.1. OPEC

A group of oil-exporting nations from the developed world has banded together the in the intergovernmental Organization of Petroleum Exporting Countries (OPEC). OPEC seeks to coordinate and unify the petroleum policies of its member countries. Its purpose being to insure "the stabilization of oil markets in order to secure an efficient, economic and regular supply of petroleum

to consumers, a steady income to producers and a fair return on capital for those investing in the petroleum industry". [48]

OPEC was founded in Baghdad in September 1960 by four Middle Eastern governments and Venezuela "as a defensive, and at first mainly ineffective, response to falling prices". [11, p.20] However, the group was not able to exercise any real leverage where oil prices were concerned till it reached the so-called 'Tripoli and Tehran' agreements with foreign companies for increases in prices and other improvements. The negotiations disintegrated in October 1973 with the start of Arab–Israeli war (the Yom Kippur War) when OPEC's Arab members made a total ban on oil exports to counties supporting the Israeli side. Needless to say, prices skyrocketed and the world experienced the energy crisis also known as 'the first oil shock'. That war was an event that marked the OPEC's growing influence. From that point on, the exporters alone set the prices. [11, p.20]

Even so, OPEC control of oil prices is not absolute as it sometimes loses its grip on oil prices due to internal disagreements between its members. For instance, in 1987 – although they did not regain the price levels of the 1970 – OPEC once more managed to boost prices by curbing production. Conversely, in the end of the 1990s OPEC members could not agree on quotas. Consequently, in 1998, the valves of oil pipelines were opened full throttle and the market was flooded with crude oil. This oil deluge coincided with the economic slump in Asia in the second half of that decade. The upshot was that prices plummeted to 12 USD/barrel (18 USD in current prices). Nevertheless, in 1999, OPEC managed to rein in the excess production and coupled with a recovering and growing economy oil prices were once more moving upwards.

According to Chatham house, the role of OPEC is changing. OPEC will continue to have an influence on oil prices in the short and medium term through its ability to regulate a significant share of the world's oil production. However, while other factors affecting oil supply will be coming into play and gaining more substantial share of the world trade, OPEC's influence will be weaker. [11, p.22]

3.1.2.2. Influences of non-OPEC governments

The ability to influence oil prices is not limited to OPEC's members. Non-OPEC nations can also influence prices by opening up for or restricting cooperation with oil producing countries as the case of Iran clearly demonstrates.

The first wave of economic sanctions against Iran was imposed by the United States in 1979 in the wake of the Iranian hostage crisis. By 1981, however, most of these sanctions had been lifted. [22] In 1987, the United States, again, imposed sanctions against Iran "as a result of Iran's support for international terrorism and its aggressive actions against non-belligerent shipping in the Persian Gulf".

[16] In between the years 2006 and 2010, the UN meted out four rounds of sanctions in response to Iran's nuclear program. [65] In June 2010 EU joined international sanctions against Iran and extended them in 2012. The sanctions included an oil embargo and ban on "involvement with petroleum development in Iran". [16]

At the time of these events, Iran was one of the World's biggest exporters of oil. [6] As a result, every time it was subjected to new sanctions or bans were introduced oil supplies would be negatively affected and prices would rise (see Appendix 23).

In July 2015 the five permanent members of the UN Security Council, Germany and the European Union reached the agreement with Iran on nuclear program and a plan for suspending and lifting the sanctions was set in motion (the Joint Comprehensive Plan of Action or JCPOA); UN sanctions were lifted on 16 January 2016. [53] These positive developments (at least as far as the Iranians were concerned) knocked oil prices down a notch or two.

As for the U.S. sanctions against Iran, they have been extended for another 10 years. Extending these sanctions was deemed necessary to insure that Iran would not renege on its nuclear agreements. The understanding is that so long as Iran did not violate its nuclear agreements the extended sanctions would remain suspended and Iran energy sector would be unaffected. [15] However, with the election of Donald Trump one can only speculate whether harsher measures are not lying in wait for the Iranians as both President Elect Trump and "several fellow Republicans remain vehemently opposed to the nuclear deal and have called for its termination". [62]

3.1.3. Economic (in)stability (or the cyclical booms and busts of the economy)

There is a closely-knit relationship between demand on oil and the health of the world's economy.

It must come, as little surprise that a world economy in a state of 'vigorous growth' needs oil and lots of it as virtually all economic sectors depend, to a greater or lesser degree, on oil-produced energy. This global hunger for oil is unlikely to abate in near future, especially, with the "increase in number of households and expansion of commercial sectors in developed and developing countries". [39, p.2] Conversely, when faced with a global economic slump demand for oil will take a dive. The adverse effects of such a worldwide reduction in demand for fossil fuels are felt most keenly by the economies of O&G producing nations leading them suspend investments in O&G development technology and infrastructure. [40, p.303]

Examples of economic downturns being linked to falling oil prices are numerous as Appeendix 23 demonstrates. The recession of the early 1980s (1980 – 1985) together with the shift towards alternative energy sources resulted in a production surplus that ended with oil prices being chopped

down by more than a third. [11, p.21] More recently, during the Asian financial crisis (1997 – 1998), oil prices fell to half their normal level hitting a low of $11,35/b (or $16,68/b in current prices) at the end of 1998. Finally, in the wake of the 2008 global financial crisis oil prices dropped by 1/4th. Afterwards, oil prices continued to careen downwards until they reached a low of $39,09/b (or $44,37/b in current prices) in February 2009.

In the decade that we live in, we witness a marked strengthening of ties between oil prices and the economic fortunes of the Asia-Pacific region, in particular, the Chinese economy: "In 2011 the Asia-Pacific region consumed 32% of world oil production. Almost half of world oil imports went to this region." [11, p.19]

The significance of China's role in hauling the world out of its most recent economic recession is hard to deny. That being said, it does seem as though the Chinese dragon is losing some of its economic firepower:

> "[Chinese] export driven growth of above 10 percent per year has already been a thing of the past since 2007. But due to massive fiscal and monetary stimulus, the Chinese government initially managed to keep growth high. In 2011 the government started to implement measures to slow down the economy and change the structure of growth towards a more sustainable and socially inclusive direction. As a result, domestic demand began to slow." [58]

In response to the abovementioned governmental measures, China started to lift its foot off its economic speeder. As a result, from 2012 to 2014, China's economic growth slowed down to between 7% and 8%. [30] This downward trend has continued in 2015 and 2016 dragging with it the rest of the world's economy. [56]

This, relatively, sluggish Chinese economy has profoundly affected oil prices. Since the second half of 2014, oil prices have been constantly decreasing and by February 2016 stood at just a bit over $30/b, which is less than 1/3rd of what the price was after the economic crisis in 2008.

Worryingly, for the producers of oil, it does not look as though the Chinese economy will be reverting to its former levels of economic growth any time soon. Moreover, China's economy is shifting away from being 'the world's factory' towards being a more diversified, service-oriented economy, which, obviously, is not good news for oil producer.

3.1.4. Technological capabilities

For many years, fears of running out of oil have dominated discussions about safeguarding future energy supplies. Yet, it seems as though these fears have been unwarranted or, at least, overstated:

> "Reserves increase as a result of new discoveries, and 'grow' as a result of better understanding of known reservoirs, as well as the application of new or improved technology to increase the proportion of the oil in the reservoir that can be economically produced …." [11, p.29]

Appendix 24 shows a variety of oil projects that have become economically viable and technically feasible thanks to technological advancements.

The more pressing challenge that we are facing today is not what to do when our oil wells run dry. Rather, it is the development of technologies better suited for the more demanding oil excavating projects: "As the traditional onshore and shallow water offshore fields are rapidly depleting, gradually only projects that are more technically complex, and thus more costly, remain." [38, p.7]

A combination of technological advancements and a decade of consistently high prices have resulted in supplies from shale and non-conventional resources becoming financially feasible. [11, p.1] These developments lead OPEC's secretariat, in its 2011 World Oil Outlook, to make the following announcement: "At real prices around $110/b, practically the entire non-conventional resource base is already economic in terms of long-term supply". [11, p.22]

OPEC's point of view was reaffirmed the following year in a study of the industry conducted by Citigroup. In this study, the break-even-point for all projects was under $100 (see Appendix 25). What's more, it revealed that nearly 30Mboe/d of production will come from projects, which have a break-even-point that is less than $70.

That being said, it must be pointed out that oil and gas extraction technologies do not appear overnight but take years to develop and a sizable amount financial funds. For instance, it took the US oil companies more than 60 years to fully develop the 'hydraulic fracturing' technique used in development of unconventional plays; during these many years, the companies developing this technique received scientific assistance as well as financial aid from the federal government. [11, p.33]

3.1.4.1. Project development and oil prices

Recently, markets have been awash with oil and gas because of shale oil and gas from the United States. Having depleted its own traditional conventional oil resources the US was, until April 2015, the world's largest importer of oil. However, thanks to new technologies rendering the utilization of unconventional oil resources profitable, the US is now the world's largest producer of oil. Following this antipodal reversal in the US's 'oil fortunes', the US is now able to cater to most of the needs of its domestic market and, in January 2016, was able to send off its first shipment to Europe.

Not surprisingly, the US's new role as an energy provider has caused some disruption to the oil markets. Since the end of 2014, the US offloading of its excess shale oil has caused oil prices to fall below the $50 mark where they have, for most of the time, remained. [26, p.364-365] However, it cannot be long before market mechanisms step in and rid us of the current 'oil glut'.

Consistently high oil prices were what made the exploitation of unconventional and costly resources possible in the first place. If oil prices levels do not improve, there will come a point where producers will be unable to cover the costs associated with the exploitation of these technically demanding, expensive oil resources. Consequently, drilling will slow down and production will fall. This same logic also applies to conventional oil resources. [11, p.21-22]

What's more, should oil prices fail to pick up, oil producers will be reluctant to embark on any new projects or kill current ones, which will further reduce supply:

> The IEA recognizes that present investments are key to securing future energy supplies. Investments in exploration and production are already perilous – producers face a host of risks including geologic, market, economic, political and legal risks. However, such investments become even more high-risk in a low-price environment. With fewer suppliers, demand is likely to overtake supply which restarts the cyclical boom or bust afresh. [26, p.365]

3.1.4.2. Changes in the US OFS market

There are two features related to the exploitation of oil and gas from new resources that are very likely to affect the future financial fortunes of Welltec. The first of these is that the profitable utilization of such resources requires 'continuous drilling':

> Many of these new [unconventional oil and gas] supplies are from [shale plays,] oil sands, tight oil and similar sources where individual wells have low production rates which decline rapidly if drilling is not sustained. The production technique depends on intensive drilling, which can be accelerated or slowed down according to market conditions and expectations. [11, p.32]

Continuous drilling is required due to the low yield of unconventional wells and their relatively quick depletion-rate compared to conventional wells. [5, p.9]

Another feature relates to the geological attributes of unconventional oil and gas wells that demand a horizontal drilling to be used in the extraction of these resources: "The percentage of rigs drilling horizontal wells has increased from 20% in 2007 to nearly 70% in 2014". [10, p.3].

Moreover, one should bear in mind that horizontal drilling and hydraulic fracturing are not the only type of oilfield services required for development and production from shale plays. Ergo, this increase in horizontal drilling will create demand for a host of other oilfield well services related to horizontal

wells. This is, of course, good news for oilfield service companies like Welltec who provide services specially tailored for horizontal wells.

3.1.5. Global warming and emissions controls

For decades now, the issue of 'global warming' has been perennially present in the heated and unceasing debates about the health of the earth's ecosystem.

Within the scientific community, there exists a, more or less, unanimous consensus that greenhouse gases (GHG) are the main culprit responsible for the defilement of the earth's environment. [35] In its 2014 report on climate change, the Intergovernmental Panel on Climate Change (IPCC) informs that more than three quarters of GHG come from burning fossils fuels for energy. (see Appendix 26) Amongst the biggest of these eco-sinners are oil and gas: "Oil and gas supply 57% of the commercial energy the world consumes, and their combustion accounted for roughly the same proportion of global CO_2 emissions." [11, p.1]

For some time now, the majority of the world's nations have come to realize that GHG emissions need to be reduced and that if fossil fuels cannot be banned entirely then, at least, there usage should be curbed and not be allowed to grow exponentially.

The international community realized that weaning the world off its oil-bottle would require globally binding legislations. A milestone step towards a less fossil-dependent world was the signing of the Kyoto Protocol back in 1997 which was extended in December 2011. A major flaw with the extended Kyoto agreement was that the majority of developing nations as well as some important developed nations (e.g. the United States) refused to hop on Kyoto's ecofriendly bandwagon. However, the deficiencies in Kyoto's agreement are scheduled to be fixed in the not so distant future as a new legally binding treaty, that is supposed to encompass most of the runaways from the 1997 Kyoto Protocol is due in 2020 [11, p.99].

Thankfully, it seems that the majority of the world's nations are not shirkers where matters of the environment are concerned. On the contrary, recent signs point to an increased worldwide commitment towards a greener planet. This increased environmental awareness was evident during the Conference of Parties (COP21) in Paris where almost 200 countries: "... agreed to a goal of limiting global temperature increases to less than two degrees Celsius above preindustrial levels and to reach net-zero greenhouse gas emissions in the second half of the century. This deal appears to represent a collective commitment by nations large and small to move away from fossil fuel production and consumption." [33, p.9]

Having said this, we should not lull ourselves into a false belief that the battle for a greener earth has been won as no one, so far, has found out how "the gap between the interests of producers and consumers seems too wide to be bridged". [26, p.367-368] Moreover, primacy of the environmental agenda needs constant maintenance, as instances where "climate change policies have [again] slipped down the agenda because so many appear to involve short term increases in costs to consumers or taxpayers, or both [11, p.83]" are far from being a fictitious scenario.

3.1.6. High HSE (health, safety, environment) risks linked to O&G industry

In April 2010, the offshore drilling unit Deepwater Horizon exploded and sank devastating the surrounding environment. This offshore oilrig was drilling for BP in the Gulf of Mexico south east of the Louisianan cost. The explosion claimed the lives of eleven of the oilrig's workers and injured another sixteen.

As a consequence of this incident, BP is facing a torrent of law suits and compensation claims from individuals and businesses, such as fishermen and tourism establishments, whose livelihoods have been dealt a severe – and in some instances fatal – blow. BP expects that the total pre-tax cost of this environmental blunder will be around $61,6 billion (or $44 billion after tax). [36]

Where this particular incident is concerned, it was, chiefly, the operator BP who was financially thrashed for the damages caused by the massive oil spillage. The accident exposed the vulnerability of operators. However, there have been "no clearly discernible move[s] (as of yet at least) to [collectively] share [future] responsibilities [of this kind] between operator and service provider." [44, p.7]

Needless to say, the oil and gas industry received a lot of negative PR following the accident. As a consequence, US plans for expanding offshore drilling in the area were either downsized or put on ice for a while. [12] In Europe – especially in the UK – there were discussions on whether a similar 'time-out' on deep-sea oil drilling was needed. Globally, the accident resulted in the laws, regulations, and safety standards of the oil and gas industry receiving a thorough going over. [12]

3.1.6.1. Environmental risk from developing unconventionals

Generally speaking, the benefits of fossil fuels come with a high social and environmental price tag [40, p.304]. This is even more so where unconventional oil and gas resources are concerned. In the first place, extracting these resources exposes workers at the sites to greater risks of injury. The second consideration has to do with the method of extraction, hydraulic fracturing. Hydraulic fracturing requires the injection of huge quantities of water under the earth's crust. Additionally, the backflow fluids resulting from this process are an unsavory mixture of toxic chemicals. And as if this were not

enough, the very same mixture may contain radioactive matter as shale rock, sometimes, holds natural deposits of uranium [37, p.641]. Doubtless, a leakage or spillage of such wastewaters would spell catastrophe for any water supplies close by.

Like offshore drilling, hydraulic fracturing is a fairly, newish, risk fraught way of extracting oil and gas whose regulatory frameworks need further developing if we are to avoid future environmental calamities like Deepwater Horizon. Therefore, the industry must, properly, review the processes connected with the exploitation of unconventionals and make them safer. Should it fail to do so, then it may find itself forced to scale back (or even permanently shut down) its operations if unfortunate environmental accident take place.

3.1.7. Regulatory systems governing the petroleum industry

Because of the strategic importance of the oil and gas industry, their regulatory systems have, for the most part, been devised and developed by the governments of oil producing nations. However, this does not mean that private enterprise has been denied access to the industry only that their access (i.e. control of oil and gas resources) has been limited to 'economic rights' that are granted to them "through a wide variety of possible arrangements either directly with government or with the state-controlled oil company" [11, p.36].

Broadly speaking, there are two main types of regulatory arrangements in the petroleum industry: the licensing and concession system (LCS) and the contractual-based system. [25, p.37] [31, p.395-396] LCSs are the default regulatory arrangements in the developed parts of the world where rights and obligations enjoy the protection of well-established, fully-mature legal structures and institutions, whereas the contractual-based systems are nearly only used by developing/emerging countries [25, p.37]. The focus here will be on LCS systems as Europe and North America are where Welltec's major markets are located. For a more expansive overview of petroleum regulatory systems I refer the reader to appendix 27.

In LCS systems, companies are granted the right to explore and/or produce petroleum in a specified area for a limited amount of time based on the results of a suitable tendering process [25, p.40-41]. In these contracts, the state's economic interests come in the shape of taxes, royalties, and license fees [11, p.36].

There are two principal systems of awarding licenses within the LCS: the North American system, with its emphasis on the bid system; and the 'North Sea' system that focuses on discretionary allocation. [25, p.58] The bid or auction may include either cash bidding, where the license is sold to the highest bidder in the form of a cash bonus or special royalty rate, or work program bidding (WPB),

where the license is granted to the applicant that commits to carry out the greatest amount of work on exploration in the license area. [25, p.46-47] The discretionary system usually requires companies to commit to a certain amount of "work program set either by the oil company upon application for acreage, or by the state developing the resources". [25, p. 52-53]

Thus, companies risk getting into agreements that force them to do a lot of financially fruitless drilling just to maintain their leaseholds [10, p.3]. Such compulsory excavation/exploration activities can mean more business for OFS companies like Welltec. Then again, these mandatory activities could place operators' P&L under so much financial strain that they are forced into bankruptcy and OFSs would have no business at all. Furthermore, contracts granted in times where oil prices are low, tend to have smaller scale 'work programs' and operators are not motivated to spend more than is contractually required, which also translates into less favorable business prospects for OFSs. Lastly, operators run the risk of States going back on part of their contractual agreements:

> The state retains the prerogative sovereign right to modify at any time those terms and conditions that are not negotiated but fixed by legislation. This is especially applicable to the rate of taxation that the state imposes on the income from petroleum operations [25, p.41].

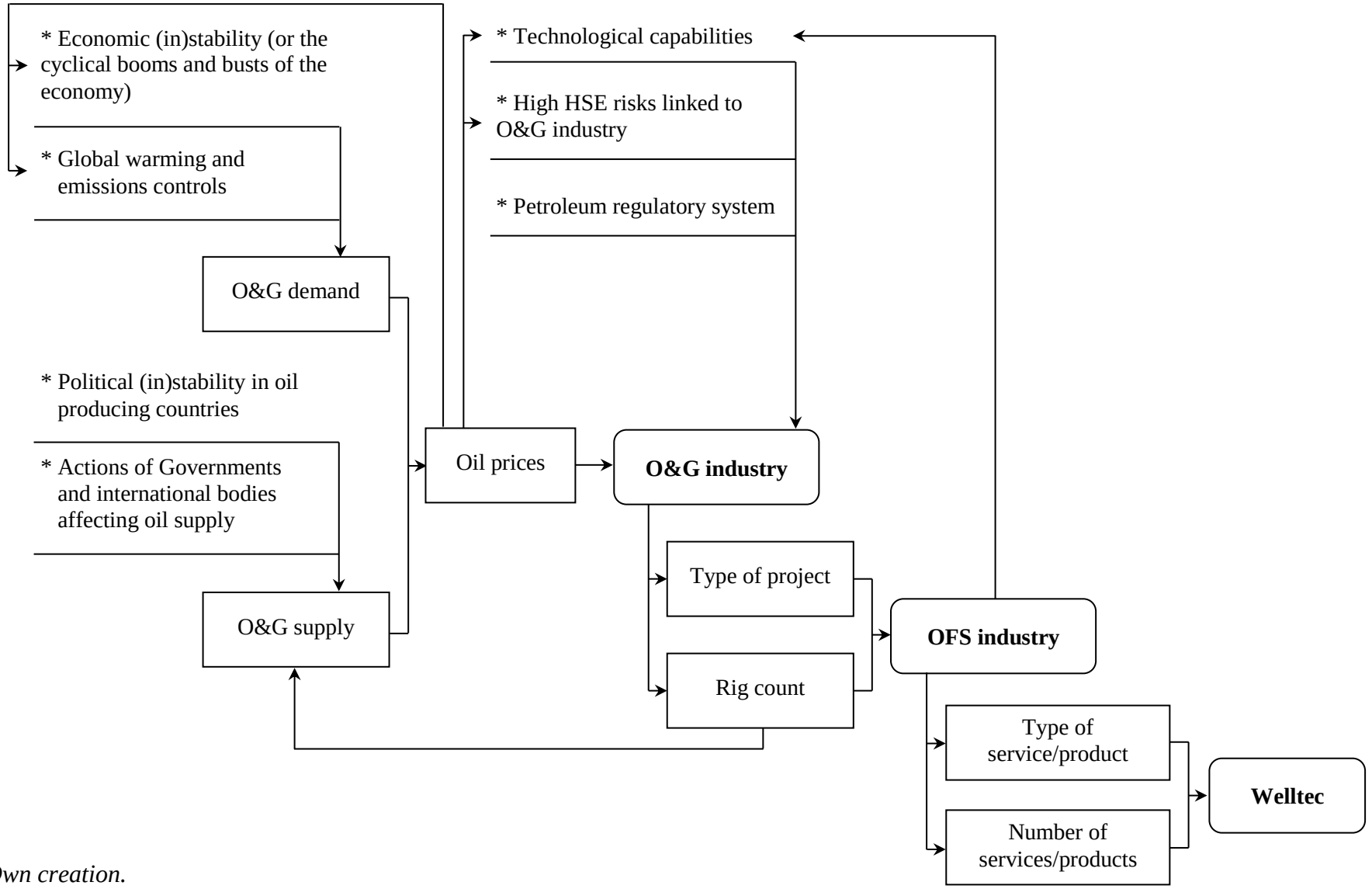
3.1.8. Sub conclusion

In summary, numerous factors influence the oil and gas industry by their ability to affect the demand or supply of oil and gas. Mismatches between demand and supply influence oil and gas prices. Prices determine how profitable/unprofitable oil and gas business (including OFS) will be. The chart below presents the ties, interdependencies, and correlations that exist between the macro factors, the industry-specific factors, Welltec's economic prospects.

Demand for oil and gas picks up when the economy is booming and takes a dive when the economy is depressed. When demand drops, a supply surplus appears, pulling prices down. However, low oil prices can help push forward the wheels of an inert economy, increasing demand.

Apart from sluggish economies, international political pressures for a greener planet also dampen the demand for oil and gas. Worldwide, the development of technologies utilizing alternative, environmentally friendly energy sources is being encouraged. Oil prices influence our *willingness* to go green. Not surprisingly, high oil prices increase the attractiveness of renewables, but when oil prices drop, our atavistic thirst for fossil fuels resurges.

Political factors affect oil and gas prices, as they can cause supply disruptions. Political factors are distinctive in their detachment from considerations of price.



Own creation.

Technology development flourishes when oil prices are high, and put on standby when prices are low. Low prices erode operators' profit margins, forcing them to put the squeeze on OFS companies, demanding that they lower their rates. In turn, OFS companies' profitability suffers and their R&D expenditure is reduced. Owing to this lack of funding, technological development is delayed, and the complex, costly projects are either postponed or permanently shelved. The dismantlement of these projects can cause a shortage in future oil supplies. The setup times for these projects is long (very long) and *they cannot be instantaneously re-started* should demand pick up. On the hand, the supply gap will push the prices up and technology development will again flourish.

As mentioned earlier, cheap oil translates as low or no profit for oil and gas companies. Understandably, companies resort to cost saving exercises. Unfortunately, sometimes, these cost saving efforts extend to the HSE budgets. Taking funds from HSE, whose governing regulations, to begin with, are not always strictly enforced, can further increase the chances of an environmental disaster taking place. If environmental misfortune should strike, then, as the history of the industry tells us, the response is likely to be more restrictive regulations or even a complete ban on certain types O&G activities, which will result in O&G supplies being reduced.

Regulatory systems play a significant role in shaping the petroleum industry. State regulations of the industry are a reflection of the government's political convictions. For instance, if high importance is accorded to preservation of the environment, then the government may opt not allocate acreage to projects that are perceived to be, potentially, too hazardous to the environment.

These factors shape the oil and gas industry and determine the type(s) of projects may be developed, which determines the services and products supplied by the OFS sector. As mentioned earlier, the growing utilization of unconventionals has increased the need for well services suited for horizontal wells, which is a service area where Welltec's technologies solution are especially efficient.

Conventional oil and gas resources are not inexhaustible and will, at some point, dry out. Therefore, provided that economic conditions are favourable, oil and gas companies will redirect their attention towards harvesting fossil fuels from *less convivial* environments, such as ultra-deep-water and pre-salt projects. Traditional technologies are, on the whole, unsuited for working in such hostile environmental conditions. Welltec provides technological solutions that compensate for inadequacies of conventional technologies. As the need to utilize the inhospitable oil and gas resources grows, so will the demand for Welltec's products/services. However, the future prosperity of Welltec is not a sure thing, as demand for its products/services depends on the prices for oil and gas being at level that can safeguard satisfactory profit margins for the rest of the industry's sectors.

3.2. Industry Scenario

As touched upon earlier, the landscape of the global energy market is changing. These changes are driven by several variables including, among other thing, the emergence of green, sustainable energy sources as economically viable options, the increasing energy-efficiency of industrial machineries, home appliances, and means of transportation, and politicians who are determined to wean us off our fossil fuel addiction. Therefore, the *future* of the oil and gas industry can best be described as being *uncertain*:

> "How geopolitical uncertainty, sustainable development goals, the climate change challenge and other drivers will interact and affect the global energy picture and economic development over the next decades is impossible to gauge with any degree of certainty". [57, p.3]

The following is a discussion of key developments within these variables may possibly affect the future of the oil and gas industry, more specifically, its OFS subsector and the target of our analysis, Welltec.

3.2.1. Actions of Governments and international bodies affecting oil supply

The whole world, including the oil and gas industry, is still trying to work out *how* they should respond/react/adjust to Donald J. Trump's election. Mr. Trump's irascible character and his lack of a political track record has left industry analysts at a loss as to what his next move might be: "Analysts cited economic uncertainty and the President-elect's plans to cut the 'red-tape' of the upstream US oil and gas sector."[52]

3.2.2. Economic (in)stability (or the cyclical booms and busts of the economy)

For the time being, the world's economy (GDP) is growing (see Appendix 28). The same goes for its population, although it does so at a much slower pace and is predicted to peak in 2050 after which it will start declining.

World GDP and population growth is critical for the industry. According to BP, world economy growth "is largely driven by increases in productivity (i.e. GDP per person) which would lead to increasing global prosperity". [66, p.11]

3.2.3. Technological capabilities

The ability of the oil and gas industry to constantly improve its technologies is vital for its survival. Nevertheless, the industry has, traditionally, been slow to adopt new technologies. [11, p.33]

So far, it is the OFS companies who have functioned as the industry's technological trailblazers [44, p.1]. However, the ability of OFS companies to continue churning out technological improvements

is being undermined by depressed oil prices that, in turn, pressure E&P companies to lower their costs. If this trend continues, OFS companies R&D budgets' will suffer and employees will be laid off. This poses a serious challenge for OFS companies, as *human* R&D capabilities/talents cannot be recuperated overnight should the demand for oil and gas recover [44, p.10]. Hence, the future success of an OFS company will depend on its ability to *preserve* its R&D capabilities during this time of funding shortage: "But some companies will stand out by investing through the downturn in their workforce and by maintaining a focus on technology — either in-house or by acquiring weaker companies with strong technology potential" [44, p.10]

3.2.4. Global warming and emissions controls

While the R&D departments of OFS are being starved of funds, I find, conversely, that investments in the development of alternative energy sources has been booming, spurred on by government subsidies and oil prices that were, until fairly recently, high. This redirection of governments' attention (and monies) toward renewables' research has, according to IEA, resulted in the cost of wind generated energy being reduced by more than a quarter and energy from solar PVs (photovoltaic systems) plummeting, in 2015, to a fifth of what it used to cost in 2008 (see Appendix 29).

Thus, renewables are on a fast track towards becoming the electricity source of choice for the environmentally as well as the cost conscious consumer:

> "Lazard – a financial advisory and asset management firm – suggests a cost range of 32-77 USD/MWh for wind power, and a range of 50-70 USD/MWh for utility scale solar PV power. In comparison, the ranges for gas combined cycle power and coal power are put at 52-78 USD/MWh and 65-150 USD/MWh respectively. [57, p.47]

Nevertheless, electric vehicles still have some way to go before they can compete on an equal footing with their petrol and diesel driven cousins:

> "Despite consumer preferences changing and technology improving, EV [Electric Vehicles] market shares are still highly dependent on subsidies and incentives from local governments ... EV penetration is expected to be reliant on subsidies until at least the mid-2020s, when costs are assumed to break even with ICE [Internal Combustion Engines] vehicles." [57, p.29]

During the years of the Obama administration, political efforts seeking to push through policies aimed at containing *adverse climatic changes* have been growing in force. They culminated in the signing and ratification of the Paris agreement in 2015.

Now that Mr. Trump is at the helm the US is likely to change course towards policies that are less friendly to the environment: "Trump may now seek to withdraw the US from the Paris Agreement,

in the meanwhile ignoring US domestic targets embodied within it and dismantling US regulations designed to meet its targets." [52]. In brief, Trump's policies will probably be more *black* than *green*. The danger is that if the US reneges of its environmental commitments, then other countries may also be prompted to start looking for ways they can wriggle out of their environmental obligations.

3.2.5. Regulatory systems governing the petroleum industry.

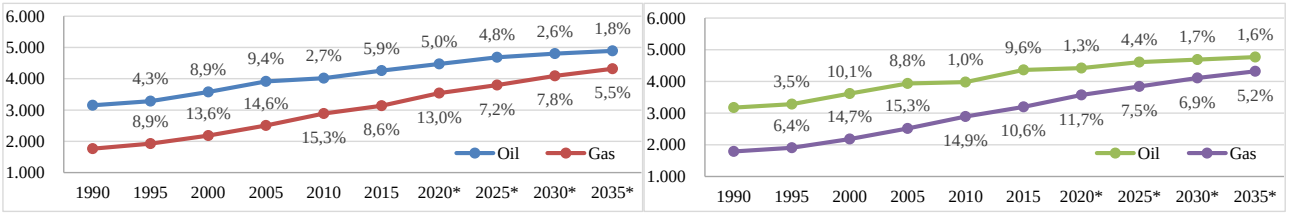
With Mr. Trump in the Oval Office, domestic oil and gas companies might not need to cut through as much regulatory red tape as they used to. However, even though it will be easier for oil and gas companies to produce products that are less friendly to the environment (e.g. shale oil), they will still have to compete on *price*: "The election is not a game-changer for boosting US shale production however, as the price environment will be the key driver for rig activity." [52]

3.2.6. 'Base case' scenario

It its attempt to limn what the future may hold for its company, BP has prepared an energy outlook until 2035, which they named 'Base Case'. According to the predictions in Base Case, "by 2035 global GDP doubles whereas energy demand [is estimated to increase] by only 30%". [66, p.13]

In addition, Base Case prophesy's a future fuel mix where renewables make up a pronouncedly larger share of our energy consumption: "Renewable energy is the fastest growing source of energy with its share in primary energy increasing to 10% by 2035, up from 3% in 2015" [66, p.15]. Nevertheless, fossil fuels trio (i.e. oil, coal, and gas) will remain our top energy source, although gas is predicted to overtake coal in its importance: "Out of fossil fuels, gas is the fastest growing fuel with its share in primary energy increasing as it overtakes coal to be the second-largest fuel source by 2035". [66, p.15]

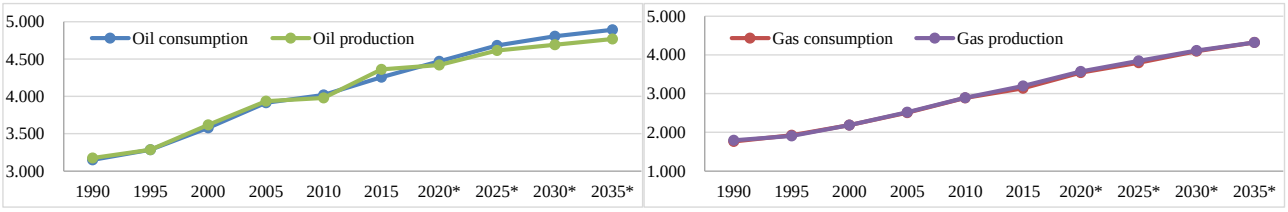
The charts below show trends in oil and gas consumption and production and the scenario of Base Case with 5 year increments in the chart's timeline:



a) Oil and gas consumption, Mtoe

b) Oil and gas production, Mtoe

It is important to emphasize that experts forecast a shortage in oil supply for the coming years. By 2020, the projected increase in oil consumption will guzzle up 2015's supply surplus and the very moderate increase in oil production, which would boost oil prices. Gas consumption is expected to equal gas production:



a) Oil consumption vs. production, Mtoe

b) Gas consumption vs. production, Mtoe

Oil production will be unable to satisfy future demand due to the current low price environment that forces companies to put their plans for *new* excavation projects on temporary hold or indefinite postponement: "Already, some $200 billion worth of projects have been canceled or postponed." [33, p.4]. In addition, *existing* sources are gradually drying up: "And even if demand growth is moderate, decline from existing sources of oil and gas virtually guarantees a future gap between demand and supply if investments do not pick up." [57, p.7]

In contrast, gas is expected to be able to meet the increases in future because gas projects are quicker to develop. Hence, future projections show no gap between gas production and gas consumption.

Among experts, there appears to a general opinion that oil prices, in the future, will be climbing up the charts. For instance, in KPMG's monthly report on oil and gas trends, oil are expected to reach the $70 per barrel mark as early as 2018 (see Appendix 30).

Further support for this view comes the IEA who, in its World Energy Outlook 2016, informs that, in the event that the world fail to live up to its COP21 commitments, oil prices are expected to exceed $120 per barrel by the end of 2040. The same outlook also applies to natural gas prices that are expected to increase enormously (see Appendix 31).

It is important to mention that BP energy outlook is not the only; quite a few future projections exist. However, there is not much dissimilarity between their conclusions. Appendix 32 provides the comparison of primary scenarios of other energy outlooks.

In summation, I ask what will the energy industry look like in twenty or thirty years time? It is difficult to give any precise answer. However, if the above projections hold water and oil prices continue to rise, then moving away from fossil fuels towards renewables will become increasingly more attractive, both economically and environmentally. Consequently, in the future, a greater party of our energy needs will come from renewable sources. Thus, we no longer need to fear (at least not to the same extent as previously) that we *run out of oil*. It is more likely that *we will run away from consuming it*:

> "The Stone Age did not end for lack of stone, and the Oil Age will end long before the world runs out of oil." So said Sheikh Ahmed Zaki Yamani, former Saudi Arabian oil minister, in an interview in 2000. [33, p.4]

3.3. Industry analysis

The ability to generate earnings greater than (or, at the very least, equal to) the cost of capital must be the most decisive factor in gauging an industry's attractiveness. That being said, the formula that determines an industry's attractiveness has more than one component [8, p.189].

A widely used model for gauging a prospective industry's value-generating potential is Porter's 5-forces model that claims that:

> "... the *intensity of competition* determines the potential for creating abnormal profits by the [companies] in an industry. Whether or not the potential profits are kept by the industry is determined by the relative bargaining power of the [companies] in the industry and [that of] their customers and suppliers." [9, p.2-3 – 2-4; *italics* mine]

Yet, despite the widespread acceptance of Porter's model, analysts have argued for the inclusion of a *sixth* force, namely, "complementors" (*not* competitors) of organizations: "An organization is your *complementor* if it enhances your business attractiveness to customers or suppliers" [23, p.49]. According to Porter's model, the contours of an industry are shaped by the *rivalry* of competition. The 6-Forces model, on the other hand, is *less adversarial*, for it assumes "that industries are shaped by a *balance* between competition and cooperation. [13, p. 74; *italics* mine]. Owing to the *supplementary* nature of Welltec's business, I have opted to use the 6-Forces model for my analysis of the industry's attractiveness.

Because Welltec's operations extend, geographically speaking, to all the corners of our planet, I will adopt a *global perspective* when examining the industry. In other words, my analysis will have a very high level of aggregation.

Another point worth noting is that OFS companies (such as Welltec) offer numerous products/services at various levels of upstream integration. As a result, the industry cannot (easily) be split into *clearly demarcated segments*. Still, my focus will be on 'well services' interspersed with comments on the industry, as a whole, when required.

3.3.1. Rivalry among existing companies

The oilfield service industry is a large, competitive industry. [10, p.1] OFS companies provide a wide range of products and services to E&P companies. In terms of *size*, OFS companies range anywhere "from Fortune 500 companies to small local retailers" [10, p.1]. However, the four largest OFS companies enjoy quasi-hegemonic market positions. To speak in general terms, industries that have a small number of dominant players tend to be less rivalrous as the smaller ones shy away head-on confrontations.

The OFS (as well as oil and gas) industry is one that is prone to cycles of boom and bust. Nevertheless, despite the turbulent disposition of OFS markets, "global energy demands are predicted to increase by 37 per cent over the next 25 years" [26, p.362] and "over the period 2011–2035, oil is predicted by the IEA to remain the principal fuel in demand among primary energy sources (IEA, 2011)" [31, p.395]. As a result, we can expect *steady* growth in Oil and gas industry and consequently in OFS industry in the next 20 to 25 years. If these future projections hold water, it will have a *mitigating effect* on the intensity of the competitive rivalry in the OFS industry:

> "In situations of strong growth, an organization can grow with the market, but in situations of low growth or decline, any growth is likely to be at the expense of a rival, and meet with fierce resistance. Low-growth markets are therefore often associated with price competition and low profitability." [23, p.42, 44]

In general, the comparatively low scrap value of OFS equipment means that *existing* the industry is costly [46]]. However, Welltec may be less disadvantaged by this shared limitation of OFS companies because it uses the equipment provided by its competitors. On the hand, this strategy is not without its risks: "Welltec is, to some extent, dependent on equipment provided by our competitors and acts or omissions by such competitors could restrict us from accessing wells using their equipment" [68, p.8].

When it is difficult to exit an industry rivalry between competing companies tends to increase. The situation is further aggravated if production capacity outstrips demand, as is currently the case in the oil and gas industry [23, p.44].

Overall, when I take into consideration current conditions and projected prospects, I see the industry as being very competitive, which *decreases* its attractiveness.

3.3.2. Cooperation

Industries are not made up companies endlessly squabbling over, who gets the biggest share of the 'market cake'. Even competing companies can, sometimes, work together/collaborate to the mutual benefit of all parties involved: "Responsible alliance building can balance competition and preserve profitability to be able to grow an industry where all players have the chance to thrive" [13, p. 76].

Because of the specificities of the OFS industry, the variety of its products/services, and the absence of entities whose products/services cover the entirety of the value chain, I find that OFS companies, commonly, work alongside one another on the same project. However, there is a growing trend, in the OFS industry, towards gathering evermore products/services under the roof of a single company. In short, there is a movement towards *fuller* integration of OFS products/services:

> "The industrial evolution of the service sector is also characterized by integration of services. Companies strive to offer more services across the value chain. Schlumberger has the widest provision of services along the whole value chain, but competitors have similar strategies and this is, for example, a driver of the BakerHughesHalliburton tie up" [44, p.3].

As an example of *cooperation* in the industry, I find that Welltec uses the equipment from the competitors. Having said this, an industry where cooperation between companies is a regular occurrence is attractive.

3.3.3. Threat of new entrants

The ability to earn abnormal profits is what lures new companies into setting up business in an industry. Of course, if it is easy for new players to enter a market, a growing number of companies will be sharing the 'abnormal profits' cake and, the point will eventually come, when entering such a market will no longer be worth it. Therefore, in order for an industry to *remain* attractive, *entry* into it must, to some extent, be *restrained*. OFS industry is an attractive industry as the fence barring entry is high:

> "... The barriers to enter this industry are enough to scare away all but the serious companies ... oil business requires highly specialized workers to operate the equipment and to make key … decisions. Having ample cash is another barrier - a company had better have deep pockets to take on the existing oil companies." [46]]

In addition, because OFS companies are regular collaborators, new pretenders may find that they need to challenge, *not* a *lone* incumbent, but a whole *alliance* of established companies. Lastly, legal barriers such as patents also help ward off a lot of unsought after competition.

Overall, there are few gaps in this industry's 'barriers to entry' fence, which makes it attractive, especially, for the companies already on the inside.

3.3.4. Threat of substitute products or services

The industry as a whole is always under the threat of substitute products or services. [13, p. 76]. It is common knowledge that the oil and gas industry is being threatened by alternative energy sources. However, although the threat of renewables is very much real its manifestation into more substantial setbacks to the oil and gas industry lies, according to most opinions, several decades in the future.

Substitution also exist in OFS services. However, there is much greater diversification with this segment of the industry. Therefore, "[OFS] Companies offering more obscure or specialized services … are much more likely to withstand the threat of substitutes" [46]].

Overall, this power is judged to be medium in its strength, which somewhat detracts from the industry's general attractiveness.

3.3.5. Bargaining power of buyers

For several years, oil prices have been low. In response, "E&P companies have been pushing the supply chain to aggressively lower costs which in turn is impacting margins" [44, p.1], which, in turn, has prompted OFS's companies to reduce the scale of their operations (i.e. remove excess capacity from the market) and lower their rates/prices.

Companies in the OFS sector serve a limit number of powerful buyers. Such a situation is *not* desirable "because [buyers] have power to dictate [their] terms" [13, p.77]

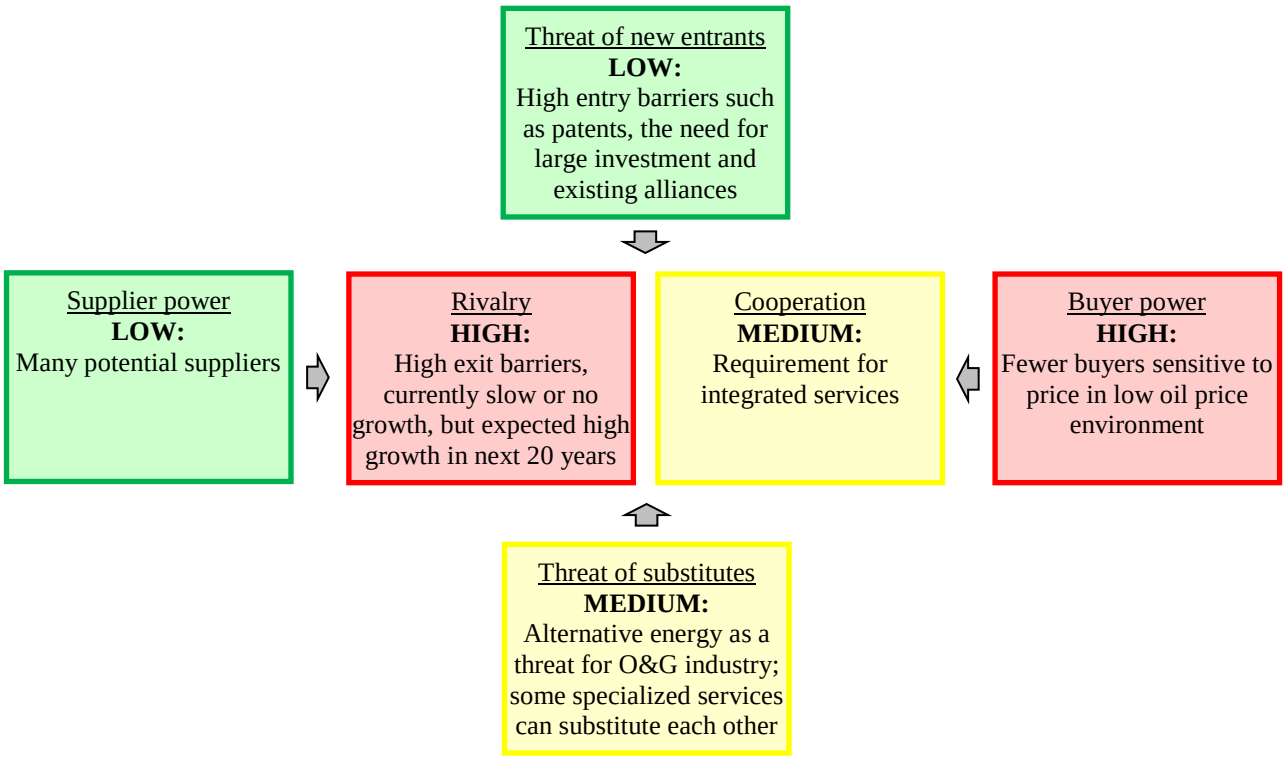
3.3.6. Bargaining power of suppliers

Suppliers are powerful when they are few in numbers, and when there are few substitutes available to their customers [9, p.2-8]. In the OFS industry, there are many potential suppliers, and, therefore, their ability to wield any real bargaining power is limited.

3.3.7. Sub conclusion

To conclude, what can be said about the *attractiveness* of the industry? As far *industry attractiveness* is concerned, I am afraid that the results of the six forces analysis does not allow me to pass any conclusive judgments *in support of* or *against* investing in the industry. For instance, 'threats of new entrants' is low. This is an attractive quality, as the company is not forced to *constantly* fend *new pretenders* off its established market territories. High entry barriers increases the company's possibility of maintaining its profit margins, which allows for a speedier recovery of its investments. Expressed more colloquially, it allows them to work in peace for a, relatively, longer span of time. On the reverse side, exiting the market is also costly, which can lead to market struggles being played out for longer than is financially sensible.

The figure below summarizes the insight from Six Forces analysis:



Overall, 'industry attractiveness' is being pushed and pulled in different directions by the six market forces. Therefore, in my opinion, the industry is only *moderately attractive*.

3.4. Internal analysis

In order for a company to have long lasting competitive advantage and above average economic performance it must be in position of some distinctive abilities. According to the VRIO model, a company's capabilities are unique if they are valuable to their customers, relatively rare, difficult to imitate, and enjoy organization-wide-backup. Of course, it is understood, that if a resource/capability is lacking in the first attribute (i.e. the customers are apathetic towards it), then, according to the VRIO model, it makes no sense to squander further resources on obtaining and developing it. [23, p.76]

3.4.1. Value

The most valuable resources/capabilities that Welltec have to offer are its technological knowhow. Welltec's technological menu is a, fairly, long one. However, two of these technologies stand out as being the most prominent and critical for Welltec's future success: Welltec's Well Tractor and Welltec Annular Barrier.

Well Tractor

In essence, the Well Tractor (see Appendix 33) is a robotic device that makes it possible for operators to work in horizontal and meandering oil wells [61]. Introduced in 1994, Well Tractors are used in a

large number of excavationary processes [27], but what makes Well Tractors unique is that they facilitate access to oil wells with uncongenial geological traits. With the number of projects seeking to exploit unconventional oil resources (e.g. shale oil and deep, offshore wells) growing, the value of Well Tractors will, most likely, increase:

> "Drilling and completing horizontal, ERD and Designer wells are common operations world wide. These types of well will play a major role in the coming decades along with multilateral horizontal wells." [14]

Welltec's Tractor has earned the approval of its clients because it has, consistently proven, that it is, among alternatives methods, the most financially efficient. In the testimonials of Welltec's clients, I find corroborate evidence to this claim:

- In 1996, during its maiden offshore test that was performed by Statoil Maritime Well Service (MWS) in the North Sea, the Well Tractor "revealed considerable savings when utilising wireline tractors for electric line type operations versus coiled tubing for the same type of operation". [14]
- In 1999-2000, when Well Tractor was used in a 3,8 km long horizontal well in the Lekhwair field in Oman it resulted "in a significantly more cost effective and faster field development". [17] According to Petroleum Development Oman, it was "much more cost effective than deploying a light rig for logging". [17]
- When "computer simulations ... [showed] that it would not be possible to reach the desired depth using [the technologies of] coiled tubing and conventional "extended reach" techniques alone" [7], Hydro O&E used a Well Tractor "to shut off a gas breakthrough in ... [an offshore] deviated reservoir section … in the Njord field" [7].
- "Significant cost savings" from the use of wireline tractoring technology "during the initial completion and intervention of two extended-reach, deepwater frac pack wells and one extended-reach, deepwater water-injection well" have been reported by Chevron Corp. [2]
- Occidental De Colombia Inc reported that using tractor conveyance in a challenging High Slanted (HS) exploratory well "saved significant time and associated rig costs over pipe conveyance to perforate a new well , and set two Latin American regional records for tractor-conveyed tools in one well". [29]

A very big advantage for Welltec is the combinability of Well Tractor with various third parties tools and systems. This is why Welltec has managed to collaborate successfully, on several projects, with OFS industry giants like Schlumberger [17], [7] and Halliburton [29], [2].

Welltec Annular Barrier

The Welltec Annular Barrier is a technology used in connection with the isolation of oil and gas wells: "[the technology is based on] an expandable, metal barrier which can be used for well integrity, zonal isolation or cement assurance applications" [45]. The technology replaces 'cement' as the primary well barrier. For almost a century, cement was the industry's most widely used isolation material. However, with wells, in particular horizontal wells, becoming, progressively, deeper and more complex in their design, cement, as a material used for isolating, was, steadily, on its way towards becoming obsolete [4]: "…some factors and conditions do enhance the attractiveness of the solution [i.e. Welltec's technology], such as when traditional cementing is challenged…" [34].

Despite the novelty of the Welltec Annular Barrier (WAB) technology, it has already won over several customers:

- Soon after WAB was introduced, it was used in deep and complex well design operations in the Norwegian offshore field of Valemon, where "the ability of cement to achieve a pressure seal across the reservoir section for the life of a well becomes ever more difficult to achieve" [32]. Statoil reported that "the final qualification process exceeds the industry-established guidelines in ISO standard 14310" [32].
- "The challenge to establish effective cement for zonal isolation (ZI) … within a subsea, deepwater, pre-salt well in Brazil" was met by installing "a cementless liner using state-of-the-art well annular barrier technology" [24].
- In 2016, Total E&P Congo selected Welltec Annular Barrier (WAB) as a completion component for their forthcoming, deepwater wells in the Moho Nord project. [45]

Creative human capital

Unsurprisingly, there is a human element involved in Welltec's inventiveness. A key dynamo of creativity in Welltec is the founder Jørgen Hallundbæk who conceived the idea behind the Well Tractor while still a graduate student at the Technical University of Denmark. In itself, the idea was not new, but Hallundbæk was the first who managed to produce a functioning prototype. Of course, Welltec's talent gene pool of inventive talent is not restricted to its founder and CEO. As an example, they have Brian Schwanitz who, in 2016, received the SPE's (Society of Petroleum Engineers) award for his lifelong achievements and contributions to the profession [47].

3.4.2. Rarity

If an organization is to have long-lasting competitive advantages, it is not enough for customers to value its resources; its resources must also be rare: "Rare capabilities … are those possessed uniquely

by one organization or by a few others. Here competitive advantage is longer-lasting" [23, p.77]. However, even if it has resources that are, currently, rare, a company should not assume that their rarity is everlasting.

Having said this, all Welltec's technologies, including Well Tractor and Welltec Annular Barrier (WAB) are, for the moment, under patent protection. As for having brilliant, innovative staff members, this is not the sole prerogative of Welltec: "[The] SPE serves more than worldwide 143,000 members" [43].

3.4.3. Inimitability

Another characteristic that can bolster the competitiveness of a company's capabilities even further is how costly it would be for its rivals to acquire/construct/build the same (or similar) capabilities. The more *prohibitive* the expenses required for this *imitation exercise* the better (better for the company who already owns the sought after capabilities). A company's competitive abilities are at an even greater advantage if their *uniqueness* is difficult to pinpoint. In other words, if it is not manifestly obvious what it is *exactly* that makes the company's products/services *special*:

> "Compared to physical assets and patents, competences, then, tend to involve more intangible imitation barriers. In particular, they often include linkages that integrate activities, skills, knowledge and people both inside and outside the organization in distinct and mutually compatible ways. These linkages can make capabilities particularly difficult for competitors to imitate…" [23, p.78].

While it would not be impossible for a competitor to copy Welltec's inventions, it would certainly be illegal as they are still under patent protection. As for Welltec's human capital, they seem to exhibit a high level of steadfastness and loyalty; Brian Schwanitz, for example, has been with the company for 15 years.

3.4.4. Organizational support

In order for a company to be able to reap the full benefits from owning (or controlling) valuable, rare, and inimitable capabilities "[the] organization's structure and formal and informal management control systems need to support and facilitate their exploitation" [23, p.80]. Put differently, the company must also possess "supporting capabilities … [which, by themselves,] are often not enough to provide for competitive advantage, but they are useful and effective in the exploitation of other capabilities that can provide for competitive advantage" [23, p.80].

Welltec does not say much about *how* its organizational structure and systems *support* its technological innovations. This may be because Welltec's innovations run on tracks parallel to its organizational structure and systems.

To backup this view, I point out that Welltec has never managed to create added value. Even in the very best years, when high oil prices could support Welltec's complex and costly projects, their ROIC was, consistently, lower than their weighted average cost of capital (both before and after tax), which means that Welltec destroyed value. If I am to judge from its financial results and the history of its founder, I would say that Welltec is a company that is more driven by *adding innovation* rather than by *adding value*.

Capabilities	Value	Rarity	Inimitability	Organizational support	Competitive implications
Well Tractor	Yes	Yes	Yes	No	Sustainable competitive advantage
Welltec Annular Barrier	Yes	Yes	Yes	No	Sustainable competitive advantage
Creative human capital	Yes	Yes	No	Yes	Temporary competitive advantage

Based on the findings from the VRIO framework I would say that Welltec's *competitiveness* receives its sustenance from two sources:

- the first of these is its technologies;
- the second of these are the individuals behind the inventions. Put differently, its creative human capital.

With regard to the 2nd of these sources, I find that the creative temperament of Welltec's founder together with a mission and philosophy focused on leveraging technological innovation in the pursuit of ever-greater industry efficiencies are all indications that Welltec is serious about nourishing/maintaining its 'creative genepool'.

However, the connection between Welltec's technological innovations and its business processes are loose and need to be strengthened. Prosaically speaking, Welltec is *good* at acquiring and taking care of its *talented workforce* but less *accomplished* when it comes to making money from the inventions they produce.

3.5. SWOT

The highpoints from the strategic and financial analysis are collected and poured into the SWOT matrix below. The SWOT highlights Welltec's internal strengths and weaknesses, as well as external threats and opportunities. The results derived from this table are important parameters for projecting Welltec future development.

Strength	Weaknesses
Internal technological capabilities Creative human capital Alliances/collaboration with other OFS companies like Schlumberger and Halliburton	Low profitability High borrowing cost High financial leverage Low assets turnover rate High level of receivables Low level of integration of services
Opportunities	**Threats**
Estimated economic growth Estimated growth in oil and gas consumption Estimated oil and gas prices increase Unconventional projects growth Potential deepwater projects growth Low threat of new entrants	Growth in conventional oil and gas (OPEC) Economic downturns Low oil prices Fossil fuels being substituted by alternative energy sources HSE risks linked to unconventionals and deepwater Potential changes in regulations

CHAPTER 4. Forecast and valuation

A *more comprehensive* forecast involves prognosticating *probable* future behaviours of several variables salient to business being analysed. However, for most types of businesses, *sales* is the *key* variable whose future behaviour analysts/managers seek to predict. Future sales, together with their projected profit margins, are foundational figures, which analysts/managers use in divining what the figures of other items, in the company's financial statements, can be *expected* to look like:

> "... working capital accounts and investment in plants should track the growth in sales closely. Most major expenses also track sales, subject to expected shifts in profit margins. By linking forecasts of such amounts to the sales forecast, one can avoid internal inconsistencies and unrealistic implicit assumptions" [9, p.6-2].

The pro forma statements for Welltec forecast was prepared based on the template suggested by Petersen C.V. & Plenborg T. [8, p.176] with a few adjustments.

Firstly, taking into account that operating tax rate is different from Danish corporation tax rate used to calculate tax shield, both of them will be included as financial drivers. Moreover, I will use borrowing cost before tax to account for differences in tax rates.

Secondly, because Welltec's tangible assets adjust to revenue level quicker than its intangible assets, I will estimate them separately. Furthermore, depreciation and amortization will also be split.

And lastly, "in the template dividends are a function of the cash surplus earned during each forecast year; i.e. the cash not consumed in operations, investments and financing". [8, p.183] However, Welltec is not paying out dividends. [69, p.58], [68, p.50] Therefore, in order to ensure that pro forma statement articulate, the *template* will be modified as follows:

- An interim item will be computed by adding 'cash and cash equivalents' back to 'net interest bearing debt';
- It is estimated based on the financial driver 'net interest bearing debt as a percentage of invested capital' (adjusted for cash and cash equivalents);
- '*New* debt' in cash flow statement is calculated as a change in 'net interest bearing debt' (adjusted for cash and cash equivalents);
- 'Cash and cash equivalents' will serve as "a final step ('plug') in the template that ensures an articulation of the pro forma statements" [8, p.183]. The value of 'cash and cash equivalents' at the end of period will be equal to the value at the beginning of period (i.e. end of preceding period) plus cash surplus;
- Finally, 'net interest bearing debt' is equal to 'net interest bearing debt' (adjusted for cash and cash equivalents) less 'cash and cash equivalents'.

It is important to note that the financial driver 'borrowing cost before tax (%)' will not be affected by this change as it is calculated as the value of 'net financial expenses before tax' divided by 'net interest bearing debt' at the end of previous period.

4.1. Adjustments for non-recurring items

In Chapter 2, I highlighted a few non-recurring items – 'non-recurring consultancy fees' that was part of special items and 'adjustment in corporation tax previous years' that was part of 'income tax'. For forecasting, I will exclude non-recurring items from income statements and adjust balance sheets accordingly. Importantly, because 'non-recurring consultancy fees' is excluded from the income statement, the value of tax shield is recalculated to account for this adjustment.

Adjustments for non-recurring items in Income statement:

USD, in thousands	2015	2014	2013	2012	2011
Reverse of Adjustment in corporation tax previous years	14	10.595	4.550	-355	55
Change in operating tax	**14**	**10.595**	**4.550**	**-355**	**55**

Special items (financing)			3.181		
Tax shield on non-recurring Special items (financing)			-795		
Change in net financial expenses after tax			**2.386**		
Change in net earnings	**14**	**10.595**	**6.936**	**-355**	**55**

Following the adjustments in income statement, the accumulated effect of excluded non-recurring items was added to both 'cash and cash equivalents' and 'retained earnings' in the balance sheet:

USD, in thousands	2015	2014	2013	2012	2011
Change in cash and cash equivalents	**17.245**	**17.231**	**6.636**	**-300**	**55**
Change in retained earnings	**17.245**	**17.231**	**6.636**	**-300**	**55**

Welltec does not disclose income tax details in its quarterly reports. Therefore, the effect from adjustments described above will be evenly allocated throughout the year.

Financial statement adjusted for non-recurring items presented in Appendix 34.

4.2. Forecast of Q4 2016 and full 2016

Before going ahead with forecasting Q4, the question of *seasonality* needs to be addressed:

> "How is important seasonality? What is a useful starting point – the most recent quarter's performance? The comparable quarter of the prior year? Some combination of two? … Does the … approach to forecasting used for annual data apply equally well to quarterly data?" [9, p.6-15].

What the above quoted questions indicate is that if the aim is *meticulous, reality reflecting* forecasting, then "one *cannot* focus only on performance of the *most recent quarter* as a starting point" [9, p.6-15; *italics* mine].

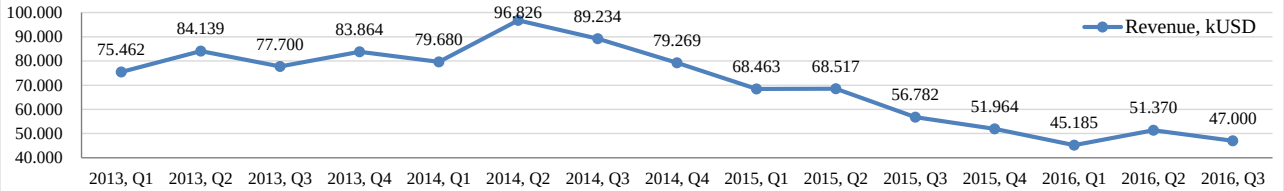
Therefore, I will use time series forecasting based on historical data for the periods from Q1 2013 until Q3 2016 (the latest available). As a starting point, I will consider the same key drivers as for annual forecasting. However, I will also perform a short analysis of each 'driver' prior to forecasting. The forecasting method will be chosen based on the revealed 'pattern'/'behaviour' of the key driver.

4.2.1. Revenue

Observed sales is a combination of a systematic component and a random component. [28, p.9] Any forecasting method seeks to filter out the random component and estimate the systematic component. [28, p.9] A systematic component consist of:

- Level (*de*seasonalized sales)
- Trend (growth or decline in sales)
- Seasonality (seasonal fluctuation). [28, p.9]

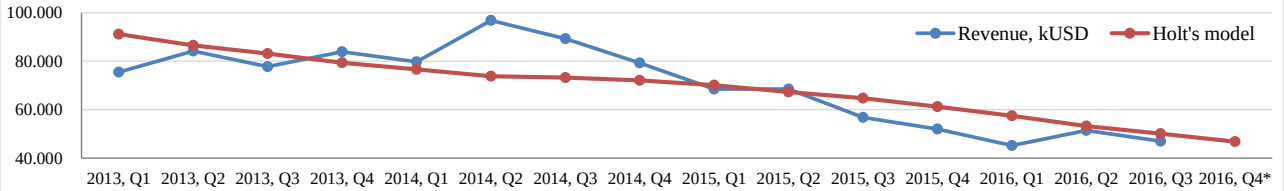
The chart below reveals the trends: growth in the first half of 2014 followed by a steady decline in tandem with falling oil prices (oil prices plummeted in the second half of 2014):



Furthermore, a diminutive seasonality pattern can be discerned – the second quarter of each year, always, has the highest revenue. However, there is no clearly discernible seasonality behaviour in the fourth quarter – it is mainly dominated by declining trend. For this reason, using a model that accounts for seasonality might be misleading when forecasting the fourth quarter of 2016, as it will be adding a seasonality factor, which could not be detected in the presented observations. On the other hand, the model employed ought to account for trend. Therefore, I will use 'trend corrected exponential smoothing' (Holt's model) to forecast Q4 revenue (see Appendix 35).

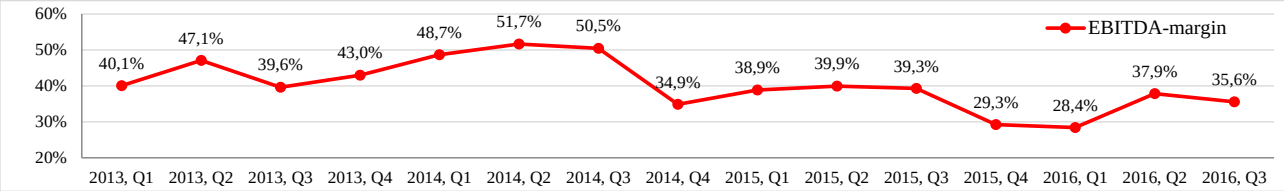
Revenue forecast for Q4 2016 is estimated as a sum of revised 'level' and 'trend' for Q3 2016.

The chart below illustrates actual revenue and forecasted revenue using Holt's model with both exponential smoothing constants α and β are being equal to 0,1:

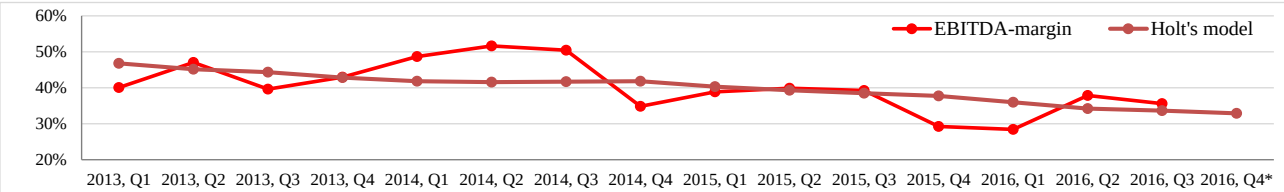


4.2.2. EBITDA-margin

For the observed period EBITDA-margin fluctuated between 28,4% and 51,7%:

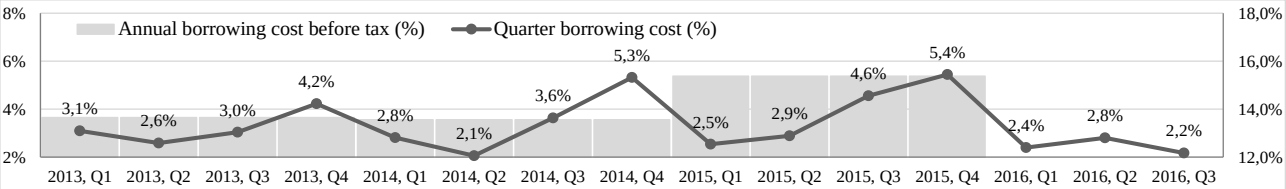


Seasonality cannot be traced for the observed period. Starting from second half of 2014, there is a slight decreasing trend. EBITDA-margin is forecasted using the same Holt's model:

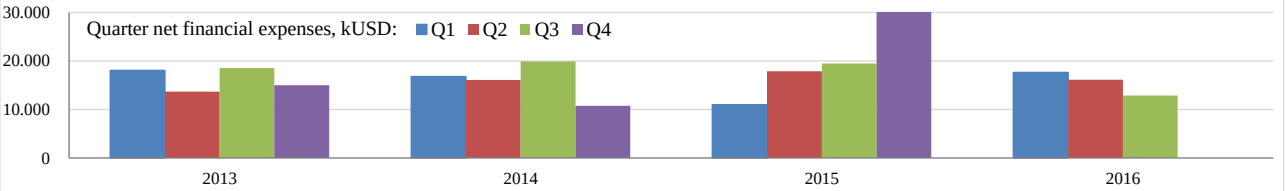


4.2.3. Borrowing costs before tax and net financial expenses before tax

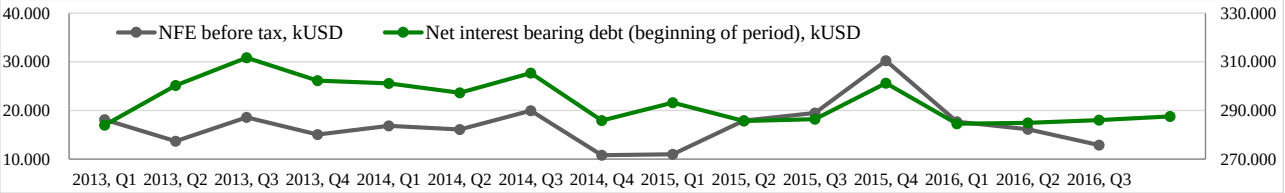
Borrowing cost before tax is a percentage of net financial expenses before tax over NIBD at the beginning of the period. The chart below demonstrates a seasonality factor. Even though the level of 'annual borrowing cost before tax' for 2013 and 2014 (right axis) did not change (13,6%), it is not, evenly, distributed throughout the year: the highest percentage of borrowing cost before tax falls in 4th quarters (left axis):



The one could assume that the majority of Welltec interest expenses fall on the last quarter of the year. However, the chart below does not support that assumption. Except for 2015, the value of net financial expenses paid at the year end is not higher than the sums paid in the first three quarters:



That indicates that 'borrowing cost before tax (%)' is primarily driven by developments in NIBD at the beginning of period (right axis) rather than developments in net financial expenses (left axis):

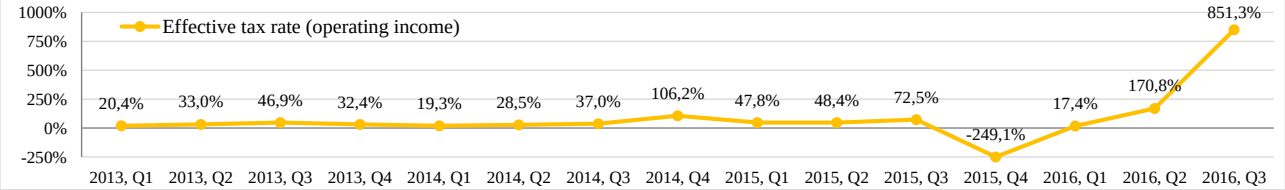


Therefore, net financial expenses before tax are estimated as a percentage of NIBD at the beginning of period. However, to avoid the doubtful effect of 'seasonality' exhibited on chart above, I will estimate the financial expenses for 2016 using the recent 2015 annual level of borrowing cost before tax (15,4%) and the net interest bearing debt at the end of 2015. The value of net financial expenses before tax for Q4 2016 is calculated as the difference between annual amount and expenses paid in Q1-Q3 2016. That method was chosen to account for low net financial expenses paid in Q3 2016 which are expected to be paid in Q4 2016. Estimating borrowing cost before tax based on quarter percentage would not capture/express the (true) value of these expenses that were, apparently, 'underpaid' in Q3 2016.

The estimated value for Q4 2016 accounts for a borrowing cost before tax equal to 7,9%.

4.2.4. Effective tax rate (operating income)

Effective tax rate for the operating income fluctuates significantly over the observed period:



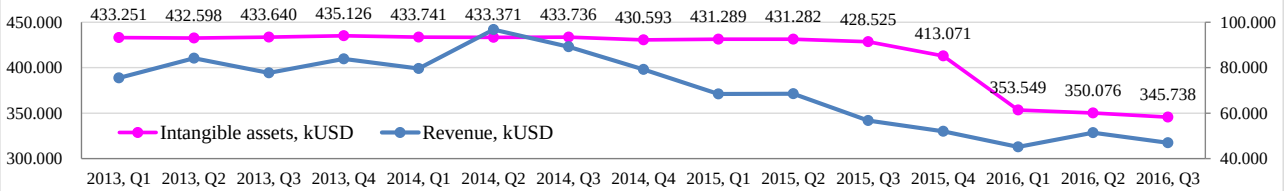
Therefore, to estimate the effective rate for Q4 2016 forecast, the average rate will be calculated as a sum of operating tax for observed period (from Q1 2013 till Q3 2016) divided by the sum of EBIT for that same period. This would help average out any potential 'extreme' rates that may relate to tax payment cash flow (i.e. tax being paid too early or being delayed). Effective tax rate for Q4 2016 is estimated at the level of 65,7%.

4.2.5. Danish corporation tax rate (financial income)

Danish corporation tax in 2016 was 22%. [60]

4.2.6. Intangible assets

Intangible assets as a percentage of revenue can be a 'driver' in an annual forecast, but it is not suitable for shorter forecasting periods. We should not expect a company to adjust its non-current assets so frequently following minor revenue changes. Therefore, for Q4 2016 forecast we will look at absolute numbers rather than a relative (a percentage) to reveal any trend:



The chart above reveals that intangible assets (left axis) stay almost on the same level until Q3 2015. In Q1 2016, because of the changed market conditions, Welltec recognized impairment losses to its technology and customer relationship assets amounting to USD 56 million [54, p.3-4] which significantly reduced its intangible assets (right axis). After this, the value of intangible assets is almost unchanged. Therefore, intangible assets for Q4 2016 are forecasted at the level of Q3 2016 less change in intangible assets. Change in intangible assets is estimated as -1,1% which is an average % of change for Q2-Q3 2016.

4.2.7. Amortization as % of intangible assets

Welltec discloses details on total 'amortization, depreciation and impairment losses' only in the notes to its annual report. Quarterly income statement contains 'amortization of acquired intangibles in

business combinations' which is only a portion of total amortization expense. Therefore, amortization should be estimated based on annually reported data. However, Welltec recognized a substantial impairment loss for intangibles acquired in business combination (named as 'technology' and 'customer relationship') in Q1 2016. This requires the adjustment of data from previous years. To estimate total amortization expense for Q4 2016 we need to go through the following steps:

Firstly, we calculate the average annual amortization as % of intangible assets in 2013-2015 excluding 'technology' and 'customer relationship':

USD, in thousands	2012	2013	2014	2015	Average
Amortization and impairment loss of intangible assets (total)	26.336	30.236	41.719	36.008	
LESS:					
Amortization of acquired intangibles in a business combination	-10.705	-10.616	-10.568	-10.264	
Amortization and impairment loss (adjusted)	**15.631**	**19.620**	**31.151**	**25.744**	
Intangible assets	431.412	435.126	430.593	413.071	
LESS:					
Technology	-65.927	-61.227	-56.197	-51.501	
Cusomer relationship	-24.499	-18.752	-13.052	-7.476	
Intangible assets (adjusted)	**340.986**	**355.147**	**361.344**	**354.094**	
Amortization as % of intangible assets (excl. acquired intangibles in a business combination)	**n/a**	**5,8%**	**8,8%**	**7,1%**	**7,2%**

Amortization (excluding acquired intangibles in a business combination) for Q4 2016 is estimated as 1/4th of annual percentage, i.e. 1,8%.

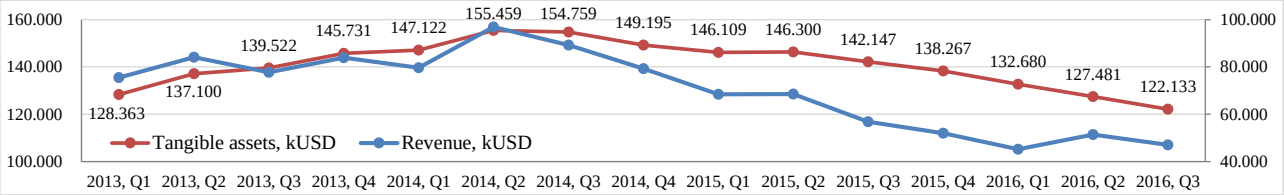
Next step is to calculate the value of amortization expense (excluding acquired intangibles in a business combination) for Q4 2016:

USD, in thousands	2015, Q4	2016, Q1	2016, Q2	2016, Q3	2016, Q4*
Intangible assets	413.071	353.549	350.076	345.738	
LESS:					
Technology	-51.501	-3.247	-3.194	-2.919	
Cusomer relationship	-7.476	-213	-149	-84	
Intangible assets (adjusted)	**354.094**	**350.089**	**346.733**	**342.735**	
Amortization as % of intangible assets (excl. acquired intangibles in a business combination)					1,8%
Amortization (excl. acquired intangibles in a business combination)					**6.183**
Amortization of acquired intangibles in a business combination	3.594	55.575	198	198	198
Amortization and impairment loss (total)					**6.381**

After impairment loss, 'amortization of acquired intangibles in a business combination' is equal to USD 198 thousand. Assuming that annual amortization expense is evenly allocated during the year, 'amortization of acquired intangibles in a business combination' for Q4 2016 is estimated at the same level. The total value of amortization expense is a sum of both parts.

4.2.8. Tangible assets as % of revenue

Similar to the forecasting intangible assets, we will look at absolute numbers when analysing any correlation between tangible assets (left axis) and revenue (right axis):



The chart above shows that tangible assets have been steadily decreasing since the 2nd half of 2014. They are following the same trend as revenue, but more smoothly. Therefore, tangible assets will be forecasted at the level of Q3 2016 less change in tangible assets. Change in tangible assets is estimated as -3,4% which is an average % of change for Q4 2014-Q3 2016.

4.2.9. Depreciation as % of tangible assets

Welltec discloses details on total 'amortization, depreciation and impairment losses' only in the notes to its annual report. Therefore, depreciation should be estimated based on the annually reported data from previous years. Depreciation for Q4 2016 is estimated as 1/4 of annual percentage.

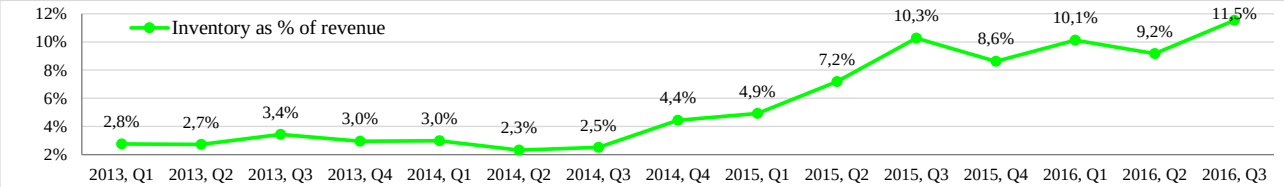
Furthermore, as we already have estimated the value of 'depreciation of capitalized operating lease asset' for 2016, we will calculate the rest of depreciation and then summarize both expenses:

USD, in thousands	2012	2013	2014	2015	Average
Tangible assets	104.994	128.448	134.540	119.849	
Depreciation and impairment loss of tangible assets	5.806	5.354	4.768	2.648	
Depreciation as % of tangible assets (excl. capitalized operating lease asset)	n/a	28,3%	29,4%	27,0%	28,2%

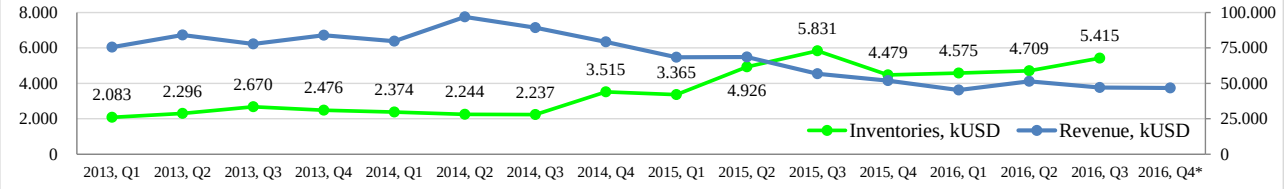
USD, in thousands	2015, Q4	2016, Q1	2016, Q2	2016, Q3	2016, Q4*
Tangible assets	119.849	114.913	110.366	105.669	
Depreciation as % of tangible assets (excl. capitalized operating lease asset)					7,1%
Depreciation (excl. capitalized operating lease asset)					7.458
Depreciation of capitalized operating lease asset					651
Depreciation (total)					**8.109**

4.2.10. Inventories

The level of 'inventory as % of revenue' has, during observed period, climbed to a *higher* plateau. More precisely, during the last 5 quarters, it has hovered somewhere between 8,6 and 11,5%:

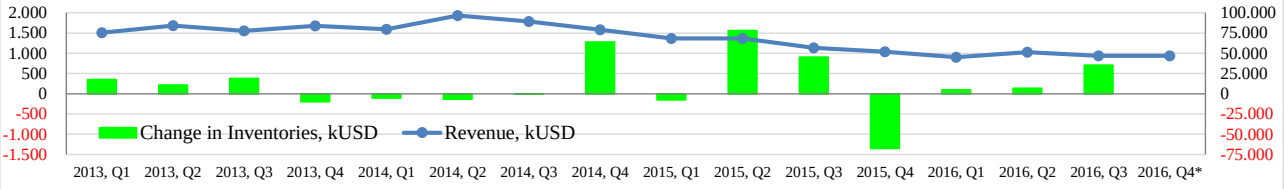


The new level was influenced by a combination of 2 factors: lower revenue (right axis) and higher level of inventories (left axis):



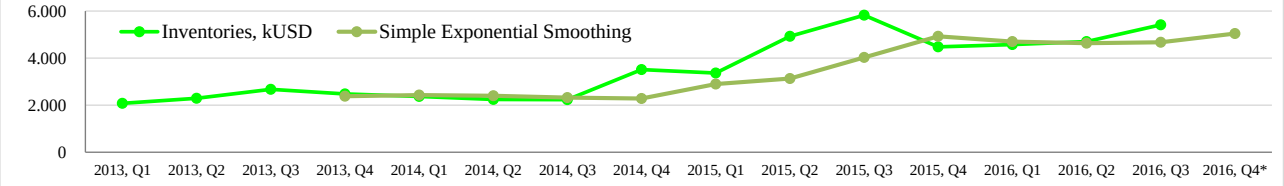
I can also observe the change in level in absolute numbers, i.e. inventories. The value of 'inventories' has ranged from 4,4 to 5,8 thousand USD in the last 6 quarters. The chart above does not reveal either trend or seasonality after the level has changed.

Analysis of 'change in inventories' (left axis) has not revealed a 'seasonality' factor within a year either:



Therefore, I will use a simple exponential smoothing model to estimate the inventories in Q4 2016. Moreover, as the fluctuation observed on the chart above is mostly related to revenue behaviour (right axis). Thus, I will estimate the inventories rather than their percentage of revenue.

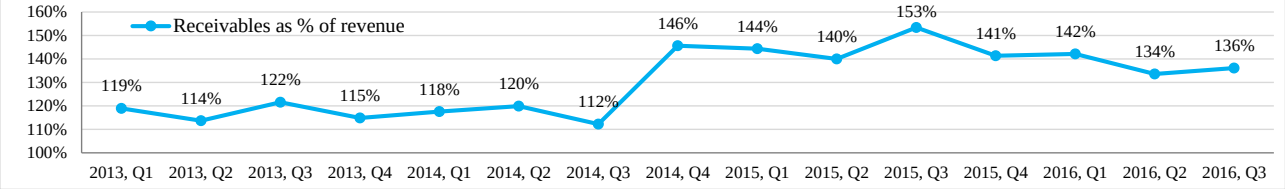
Simple exponential smoothing is 'an average method that weights the most recent data'. [28, p.20] The model is described in Appendix 36. Chart below illustrates actual revenue and forecasted revenue using simple exponential smoothing model with exponential smoothing constant α being equal to 0,5:



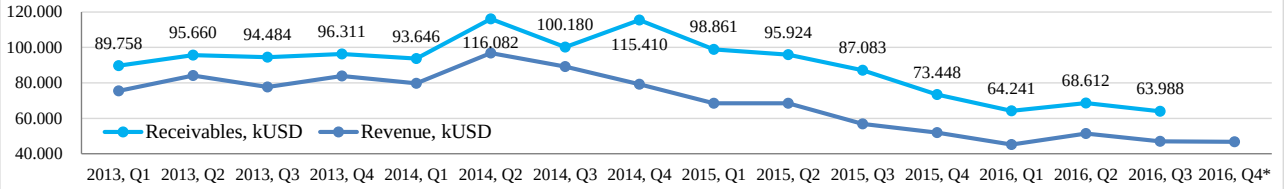
The value of 'inventory as % of revenue' based on estimated 'inventories' and 'revenue' is equal to 10,8% which lies within the range observed in last 5 quarters.

4.2.11. Receivables as % of revenue

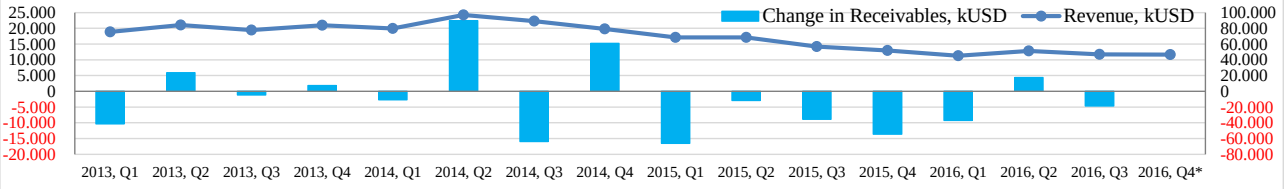
During the observation period, we see that after climbing to a higher plateau, the item 'receivables as a % of revenue' has, for the last 2 years, oscillated between 134 and 153%:



We can also observe that 'receivables', exhibiting a decreasing trend, trundle steadily downwards hard on heels of 'revenue':



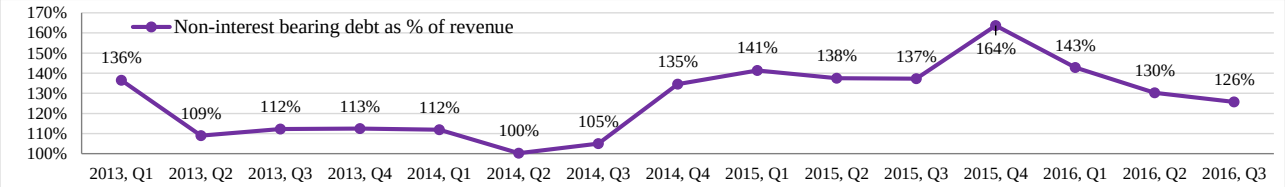
The chart above does not reveal seasonality. Analysis of 'change in receivables' (left axis) has not revealed 'seasonality' factor within a year either:



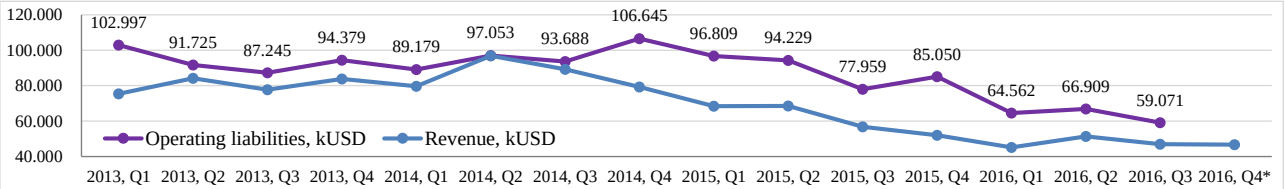
Based on above, receivables for Q4 2016 will be forecasted as a percentage of revenue. Based on the observation derived from the chart above, the level of 'receivables as % of revenue' is computed as average for Q4 2014 – Q3 2016 (recent 2 years), which is equal to 142%.

4.2.12. Non-interest bearing debt

For the most part, it appears that operating liabilities follow revenue:

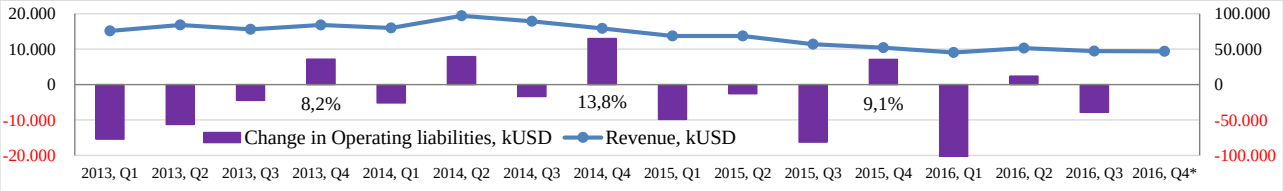


Beginning from early 2015, operating liabilities display a decreasing trend that lags a little behind revenue:



The explanation might be that, throughout the year, the level of 'operating liabilities' is driven by other factors apart from revenue. The chart below reveals an interesting pattern – regardless of

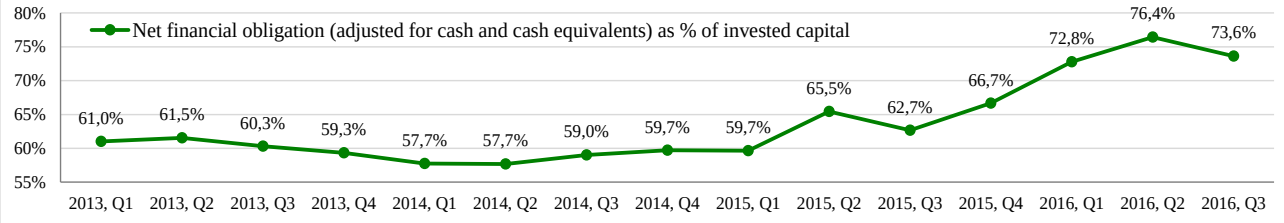
revenue behaviour (right axis), operating liabilities (left axis) always increase by the end of the year. That might be related to company's internal processes, e.g. billing clients for all unbilled services to close the books:



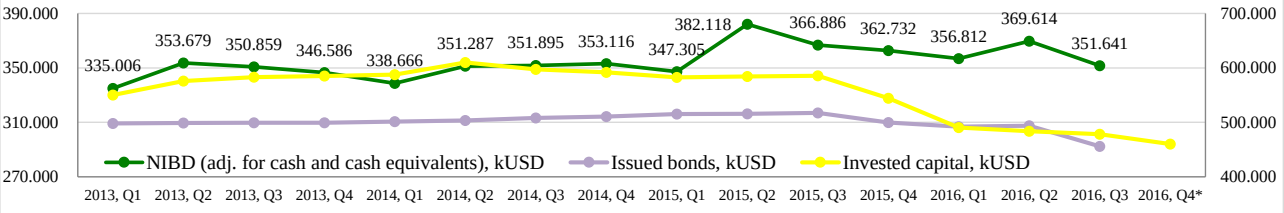
Therefore, operating liabilities at the end of Q4 2016 are forecasted at the level of Q3 2016 plus 10,4% which is an average change in operating liabilities in Q4 observed in 2013-2015. The estimated value of operating liabilities will count for 140% of estimated revenue for Q4 2016, which is in line with the level of non-interest bearing debt as a percent of revenue in recent years.

4.2.13. Net financial obligation (adjusted for cash and cash equivalents) as % of invested capital

'NIBD (adjusted for cash and cash equivalents) as a percent of invested capital', as the chart below demonstrates, has recently increased:



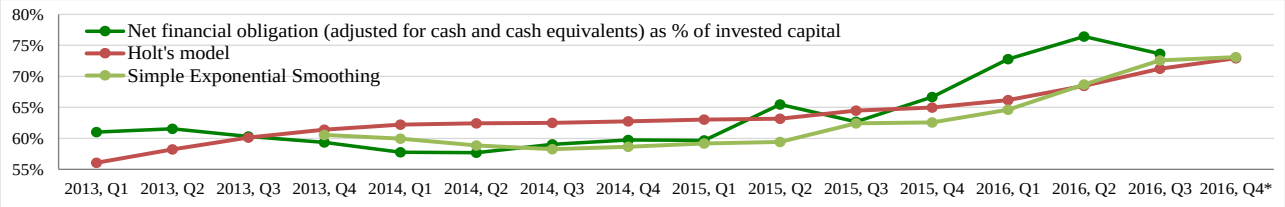
There are 2 factors that have brought about this change: a decreasing trend in invested capital (right axis) and an increased level of NIBD (adjusted for cash and cash equivalents) (left axis):



The chart above also reveals the seasonality factor in NIBD's behaviour. Every 1st quarter NIBD slightly decreases and every 2nd quarter NIBD increases. As for 3rd and 4th quarters, NIBD, more or less, remains on the same level. This slight seasonality affect was caused by 'bank debt' and 'finance lease commitments' behaviour. The presence of seasonality would suggest using Winter's model that enables to forecast taking into account level, trend and seasonality. However, the same chart also reveals that, starting from second half of 2015, the trend of NIBD (adjusted for cash and cash equivalents) is influenced by decreasing trend of 'issued bonds'(left axis). That trend is expected to

overshadow seasonality pattern for the end of 2016. Therefore, NIBD (adjusted for cash and cash equivalents) for Q4 2016 will be estimated as a percent of invested capital which would be calculated using a simple exponential smoothing method.

It could be argued whether a model accounting for trend should be used. However, if we consider the dominant directional dynamics of *the trend* to be increasing and the decrease in Q3 2016 as a random factor, the use of Holt's model would be justifiable. However, I tend to consider the path as a change in level, and therefore, choose to use the model that accounts for level and disregard the trend. It is worth mentioning that the choice of the model will not influence results significantly, as both models produce very similar result:



4.2.14. Cash and cash equivalents and net interest bearing debt

In order to estimate cash and cash equivalents for Q4 2016, a cash flow statement for the same period should be created (see Appendix 37). As suggested above, cash and cash equivalents for Q4 2016 is computed as cash and cash equivalents for Q3 2016 plus cash surplus in Q4 2016.

After cash and cash equivalents for Q4 2016 has been calculated, the value of net interest bearing debt can be calculated as estimated value of adjusted NIBD for Q4 2016 less cash and cash equivalents for Q4 2016.

4.3. Forecast of 2017+

I will divide the forecast into five unequal lengths of time:

- 'Early Convalescence' from 2017 till 2020

From 2017 to 2020, the industry is expected to recover from the oil prices slump. In 2020, oil production will have increased by 1,3% compared to 2015. Growth in oil and gas production will, primarily, come from the still plentiful *inland* and *shallow-water* resources (henceforth referred to as conventionals). After several years of banishment, Iranian oil will, once more, be permitted to enter the market. Oil prices start to pick up, but they are still far from *pre*-slump levels. Oil companies' interest in *unconventional inland resources* together with *deepwater*, *ultra deepwater* and *pre-salt water* (henceforth referred to as unconventionals) increases. However, the interest is dampened by relatively moderate oil prices that impede unconventionals' complex and costly projects.

- ‘Leaving the Sickbed’ from 2021 till 2025

Oil productions shifts into fifth gear. In 2025, annual production growth is 4,4%, a tripling of the 2020 level. The growing gap between demand and supply raise oil prices above $100/b. As a result, unconventional projects previously regarded as being too expensive become economically attractive. Meanwhile, conventional resources’ signs of *depletion* become more pronounced. As a result of the high prices, OFS companies margins are restored to health.

- ‘Vigorous Growth’ from 2026 till 2045

The oil market is now feeling the effects of project postponement from the bad-old-times when oil prices were low. Due to the relatively lengthy setup time of oil projects, oil production appears to be slowing down despite increasing demand. In other words, oil companies are unable to scale up their production capabilities fast enough. Consequently, during the 5-year time stretches in this period, total production growth never exceeds 2%. Nevertheless, because of the growing gap between demand and supply, oil prices continue their upward climb. Times are good and oil companies scurry to mine unconventionals.

- ‘Growth slowdown’ from 2046 till 2056

High oil prices and supply shortages have changed preferences. It is now *green* renewables rather than black oil that are fashionable. Past years consistently high oil prices encouraged further investments in renewables’ R&D. As a result of ensuing technological improvements, renewables no longer need government aid to be economically competitive. Backed up by the strong international desire to go green, renewables are now steadily supplanting fossil fuels in the energy market.

- ‘Decline’ from 2057 (terminal period)

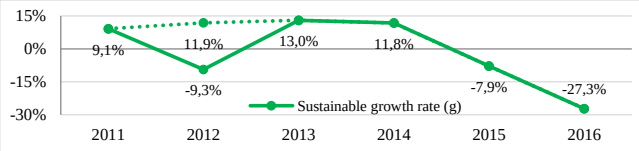
Alternatives are substituting fossil fuels at racing speeds. The oil market is quickly shrinking and oil production is decreasing.

4.3.1. Sustainable growth rate

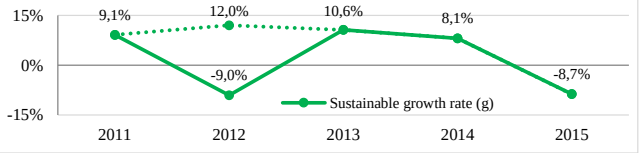
When a company’s growth ambitions exceed the ability of *their core business/businesses* to generate cash, “it can issue shares, increase financial leverage (borrow) or reduce dividends payments. Alternatively, a firm may reduce its ambitions and adjust its strategy to reflect the firm’s financial capacity”. [8, p.128] Thus, the *sustainable growth rate* represents the maximum rate at which a company can grow without additional borrowing. In other words, it is growth that allows for the company’s risk profile to remain unaltered (i.e. sustained).

In good years (2011-2014), Welltec’s sustainable growth rate was, according to financial statements adjusted for non-recurring items, 6,1%. In 2012, Welltec, intriguingly, dished out dividends that

exceeded its net earnings by almost 80%, pulling down that year's sustainable growth rate to -9,3%. If the company had followed its customary practice that year and had not paid out any dividends, then the sustainable growth rate for 2012 would have been 11,9% and the average for 2011-2014 would have been 11,5%:



a) adjusted for non-recurring items data



b) not adjusted for non-recurring items data

Actual average growth rate calculated based on non-adjusted financial statements was only 4,7%. It would have been 10% if the 2012 dividends had not been paid out.

In the forecast scenario, Welltec's 6,1% sustainable growth rate will be regarded as the maximum limit at which the company will be able to grow. I expect that Welltec *will have to*, despite positive signs of market growth, to cap its growth ambitions at this rate and preserve its current leverage level because of its low credit rating it recently (27 October 2015) received from Standard & Poor (B+, Outlook Negative). [67] With so *low* credit rating, it will be an uphill struggle for Welltec to obtain additional funding. Even if they do succeed, the loans' interest rates will be commensurate with the *high* risks that the lenders are taking. At present, Welltec's operational performance is lower than the cost of their capital. Hence, acquiring additional, high-rate borrowing would only increase the company's chances of going bankrupt.

4.3.2. Revenue growth

2017 is the year where the decline in Welltec's revenues is, finally, expected to stop. This optimism is fueled by predictions of a general industry recovery in 2017. Should these predictions turn out to be correct, Welltec will have a better chance of improving its revenue. However, Welltec's coffers appear to be nearly empty, and unless it manages to secure some form of *external* funding, it will not be able to finance any significant sale increase. According, up to 2020, only a slothful 1% growth in sales can be expected.

After 2020, the outlook for Welltec looks a little brighter due to higher oil prices and the growing interest in unconventionals. Consequently, from 2021 to 2025, Welltec's annual growth rate grows by an additional 1% every year.

Between the years 2026 and 2045, it is estimated that Welltec's annual growth rate will reach 6,1%. As it will be difficult for Welltec to obtain external funds, it is unlikely that they will be able to grow by more than the 6,1% average sustainable growth rate during the (good) years 2011-2014.

In the 10 years following 2046, renewables start replacing fossil fuels at rapid speed. As a result, Welltec's revenue growth drops by 0,5% each year.

From 2057, Welltec enters its 'terminal period' with revenue declining (not growing) -0,5% each year.

4.3.3. EBITDA-margin

In good years (2011-2014), Welltec's EBITDA-margin averaged 46,1%. In 2015, when oil prices started falling, Welltec's EBITDA-margin followed, dropping to 37,2%. In 2016, with rock-bottom oil prices, Welltec's EBITDA-margin is expected to continue its downward descend, hitting a new low of 33,8%. In 2017, an improvement in EBITDA-margin back to the level of 2015 is expected. This is understandable, since oil prices, in 2017, are only expected to improve slightly. After 2017, with oil prices improving and Welltec starting to reap the benefits of its 2015/2016 restructurings, EBITDA-margin is expected to grow 2,2% each year, reaching 39,7% in 2020, which is still far from what it was in 2011-2014. From 2021-2025, EBITDA-margin, galvanized by high oil prices, is expected to grow 3% each year, reaching 46,1% in 2025, which is the same as the average in the good old years of 2011-2014. Welltec is expected to maintain its 46,1% EBITDA-margin until the end of budgeted period. In terminal period, with revenues declining, a 44,3% EBITDA-margin is estimated, which equals historical average for 2011-2015.

4.3.4. Effective tax rate

From 2011-2014, the effective tax rate fluctuates between 33,3 and 39%. The average effective tax rate for the same period is 36,9%. This average rate will be used in estimating operating tax throughout the forecast.

4.3.5. Danish corporation tax rate

Danish corporation tax rate was decreasing over observed period and reached 22% in 2017. I will estimate tax shield using 22% Danish corporation tax rate in both budgeting and terminal periods.

4.3.6. Amortization as a percentage of intangible assets

Amortization as a percentage of intangible assets varied between 7 and 9,6%. In 2015, amortization was 8,4% of intangible assets, which is close to average amortization for 2013-2015 (8,3%). In my forecast, I am applying the latest observed value (8,4%) to estimate amortization for the full period.

4.3.7. Depreciation as a percentage of tangible assets

From 2013 to 2015, depreciation as a percentage of intangible assets dropped from 30,8 to 26,1%. Considering this decreasing trend, I use 26,1% to forecast depreciation expenses for all periods.

4.3.8. Intangible assets as a percentage of revenue

As was highlighted in 4.2.6., the level of intangible assets is almost constant, because they are mainly comprised of goodwill and brand, which are not amortized. Because of falling revenues, the ratio of intangible assets to revenue is increasing. However, from 2017 onwards, revenues are expected to increase. As a result, I am not able to use historical data to predict current and future levels of intangible assets. As an alternative, I use the level and trend of *additional* investments in intangible assets to estimate the level of intangible assets in 2017 and onwards.

Beginning from 2015, the level of investments in intangible assets falls dramatically, -50% in 2015 and -37% in 2016. For 2017, I estimate the level of investments in intangible assets to be 73% of what it was in 2016, corresponding to a 167,5% intangible assets to revenue ratio, which is 6,8% less than the ratio for 2016. In the future, due to Welltec's constrained finances, I forecast a very modest increase in investments in intangibles. However, growth in revenue will outpace future investments in intangibles, because intangibles are mostly goodwill and acquired intangible assets, and they will not grow over. On the contrary, some of the intangible items will be amortized. Despite this, from 2017 to 2020, 'intangible assets as a percentage of revenue' is expected to fall more than 6% each year, from 2021 to 2025, to fall 6% each year, and from 2026 and onwards, to fall 3,5% each year. On the other hands, in the future, the level of investments in intangibles will be gradually increasing.

4.3.9. Tangible assets as a percentage of revenue

When Welltec's revenues start falling, so do its tangible assets, nevertheless, at a slower pace. Also, in upcoming years, a reversal in Welltec's revenue trend is expected. The historical 'tangible assets as a percentage of revenue' cannot be used in estimating the first year's tangible assets. Therefore, to estimate tangible assets, I use the same approach as the one I used to estimate intangibles.

Since 2015, investments in tangible assets have fallen 40%. Revenue level is expected to change in 2017, slowing down the fall in 'investments in tangible assets'. Accordingly, for 2017, I forecast 'investments in tangible assets' to be 82% of their value in 2016, corresponding to 52% tangible assets to revenue ratio (16% less than in 2016). In the future, a slow growth in the level of investments in tangible assets is projected. At the same time, a steady -2% yearly decrease in the tangible assets to revenue ratio is expected until 2025, where it will henceforth stabilize at 28,8%.

4.3.10. Inventory as a percentage of revenue

Every year, 'inventory as a percentage of revenue' increases, 1,0% in 2014, 1,8% in 2015, and in 2016, it is *estimated* to be 2,7%. This, *unfortunate* development, was caused by post-2014 falling revenues, and a sharp increase in the *level* of inventories in the early months of 2015, which has not

fallen back to a more regular level since. Thus, as would be the case in most businesses, when sales drop, more of what is being sold or used in production will remain behind in the company's warehouse. In short, 'inventory as a percentage of revenue' is highly dependent on revenue's behaviour. I estimate 'inventory as a percentage of revenue' to be equal to its most recently *observed* level, 1,8% as in 2015. From 2018 to 2020, as revenues start to increase, I estimate that 'inventory as a percentage of revenue' will decrease by a steady 0,3% each year. Thus, beginning from a level of 1,5% in 2018, I forecast that 'inventory as a percentage of revenue' drops to 0,9% by 2020. In addition to revenues picking up, after the two very lean years of 2015 and 2016, Welltec's financial resources are, as one may expect, close to being depleted. As a result, it is highly unlikely, that Welltec will use much of its resources in building up *new* surplus inventories. From 2021-2025, the decrease in 'inventory as a percentage of revenue' is expected to continue, but at a far slower speed than previously, reaching its lowermost level of 0,7% in 2025. From 2026 and onwards, 'inventory as a percentage of revenue' to stabilize at 0,7%.

4.3.11. Receivables as a percentage of revenue

Receivables as a percentage of revenue fluctuate between 33,9% and 29,9%, but overall have a decreasing trend. Therefore, in 2017 receivables are estimated based on the latest observed percentage, 29,9% in 2015. From 2018 receivable to revenue ratio is expected to decline by 0,5% each year until 2025, where it will henceforth stabilize at 25,9%.

4.3.12. Non-interest bearing debt as a percentage of revenue

In 2012, 'non-interest bearing debt as a percentage of revenue' was 40%, then dropped to 30% in 2013, rose steadily in 2014 and 2015, and is estimated to reach 34,3% in 2016. As 2017 is a rather sluggish year, I will estimate that the level of operating liabilities (non-interest bearing debt) will remain the same as what it was in when *last observed*, 34,6% in 2015. Although revenues, in upcoming years, are expected to improve, the *bad years* have almost certainly dried out Welltec's funds. Since Welltec does not seem to have the opportunity to replenish its depleted funds at an affordable cost, operating liabilities might serve as temporary surrogate funding, helping Welltec to overcome its liquidity squeeze. Therefore, from 2017 to 2020, I expect a minute 1% increase 'non-interest bearing debt as a percentage of revenue', from 34,6% in 2017 to 35,7 in 2020. From 2021 to 2025, I forecast an even smaller increase of just 0,5%, from 35,9% in 2021 to 36,6% in 2025. From 2026, Welltec enters its 'Vigorous Growth' stage and will be able to fund revenue growth from internally generated cash. As a result, I estimate that the level of 'non-interest bearing debt as a

percentage of revenue' will drop back to 33,5%, its average in the good years 2011-2014, where, henceforward, it will remain.

4.3.13. Net financial obligations (adjusted for cash and cash equivalents) as a percentage of invested capital

As mentioned above, the forecast will be based on the assumption that the company will maintain its financial leverage level despite growth. Therefore, net financial obligations will be estimated based on the latest historical value, 73% of invested capital for all years.

4.3.14. Cash and cash equivalents and net interest bearing debt

Similar to what has been applied to estimate Q4 2016 (see 4.2.14.), cash and cash equivalents for each year is computed as cash and cash equivalents for preceding period plus cash surplus. After cash and cash equivalents are calculated, the value of net interest bearing debt can be calculated as estimated value of adjusted NIBD less cash and cash equivalents for the same year.

4.3.15. Borrowing cost before tax (%)

Borrowing cost before tax was 13,6% in 2013-2014 and increased to 15,3% in 2015-2016. Assuming that Welltec will preserve its financial risk, net financial expenses before tax will be estimated as 15,3% of net interest bearing debt at the beginning of period.

Forecast assumptions and pro forma statement are presented in Appendix 38 and 39 respectively.

4.4. Cost of capital

'Cost of Capital' is one of the keystones of financial analysis [8, p.245]. In Chapter 2, I used the weighted average cost of capital (WACC), provided by Welltec in its Annual report notes, as a benchmark for assessing Company's performance. I also needed WACC to make a company valuation. I might have used the most recent WACC provided in Welltec's annual report notes for 2015. However, this will not do, for the following reasons. Firstly, WACC tends to *increase* with increasing *financial leverage*, and in 2016, NIBD is expected to increase even further, making up 73% of invested capital. Secondly, the 'Danish corporation tax rate', which is used in calculating 'tax shields' and 'WACC after tax', has decreased from 23,5% in 2015 to 22% in 2016, causing WACC after tax to increase. So, if I were to use 2015 WACC, then I would be unjustifiably omitting these two pertinent developments. Thus, I need to calculate 2016 WACC.

To calculate WACC I need required rate of return on NIBD, required rate of return on equity, and Welltec's market value of equity. Because Welltec is not listed company, the last two figures can be

estimated based on comparable listed companies (peer group). The description of defining the peer group is provided in Appendix 40.

The first step is to estimate β_e from comparable companies:

- β_e is estimated for each comparable company by calculating the covariance of the return of an asset and the return of the benchmark divided by the variance of the return of the benchmark over last 5 years (from 1 January 2011 till 30 December 2016). Both the return of the asset and of the benchmark is calculated based on data obtained from Yahoo!Finance:

Peer Group	Benchmark	β_e	Share price*	Outstanding shares**	MVE, in mln*	Outstanding debt, in mln*	Debt/ Equity	β_d	β_a	Book Value Per Share*	MVE/ BVE
Aker Solutions	OSEAX	1,57	41,37	271,53	11.233,2	3950,0	0,35	0	1,16	23,12	1,79
Helix Energy Solutions Group	S&P 500	1,97	8,82	147,66	1.302,4	626,7	0,48	0	1,33	10,63	0,83
Calfrac Well Services	TSX Composite index	2,18	4,76	136,48	649,7	986,9	1,52	0	0,87	3,73	1,28
Trican Well Service		2,16	4,60	193,54	890,3	222,3	0,25	0	1,73	2,94	1,56
Average									**1,27**		**1,36**

** Expressed in local currency at 30 December 2016*

*** Outstanding shares in millions at the end of 2016*

- Assuming that market value of debt is equal to its book value, I will use book value of debt to calculate Debt/Equity ratio for comparable companies. Market value of equity is calculated as share price at 30 December 2016 multiplied by number of outstanding shares.
- β_d for comparable companies are equal to ZERO as their debt is not traded. Unlevered β (β_a) for each comparable company is calculated using their β_e, β_d and Debt/Equity ratio.
- The calculation is provided in the following table:

Welltec estimated β_a	1,27	The average of unlevered βs is used as a proxy for Welltec β_a
Welltec β_d	0,00	As Welltec withdraw the bond from Luxemburg stock exchange, Welltec β_d is equal to ZERO
Welltec NIBD (market value), kUSD	286.923	According to Welltec Annual report 2015, market value of Bond (which constitutes for 90% of NIBD) was close to its book value. Hence, I will assume that market value of NIBD is equal to its book value
Welltec BVE, kUSD	173.234	Welltec's market value of equity is defined based on $\frac{MVE}{BVE}$ multiple calculated for comparable companies at the end of the 2016 and its estimated book value of equity at the end of 2016
MVE/BVE (Helix Energy Solutions)	0,83	
Welltec MVE, kUSD	143.737	
Welltec Debt/Equity	2,00	
Welltec β_e	**3,81**	$\beta_e = \beta_a + (\beta_a - \beta_d) \times \frac{NIBD}{MVE}$ [8, p.255]

The next step is to estimate the investors' required rate of return (r_e) using Capital Asset Pricing Model (CAPM) model:

Risk-free rate r_f	2,38%	The yield for USA 10-year Zero coupon (end of period, USD) was used as a proxy [74]

Welltec β_e	3,81	
Risk premium (r_m - r_f)	5%	Risk premium (median) for USA in 2016 [75]
Return on equity r_e	**21,44%**	$r_e = r_f + \beta_e \times (r_m - r_f)$ [8, p.249]

The next step is to define the interest rate on debt:

Risk-free rate r_f	2,38%	
Credit spread r_s	7,03%	Financial Cbonds information [76]
Corporation tax rate t	22%	Danish Corporation tax rate in 2016
Return on debt r_d	7,34%	$r_d = (r_f - r_s) \times (1 - t)$ [8, p.265]

The last step is to calculate WACC:

Welltec NIBD, kUSD	286.923	Assuming that market value equals book value as per comments above
Welltec Equity, kUSD	143.737	Estimated based on multiple for comparable company
Return on equity r_e	21,44%	
Return on debt r_d	7,34%	
Corporation tax rate t	22%	
Weighted average cost of capital after tax WACC	**11,0%**	$WACC = \frac{NIBD}{(NIBD + MVE)} \times r_d \times (1 - t) + \frac{MVE}{(NIBD + MVE)} \times r_e$ [8, p.246]

The estimated value of WACC is higher than the WACC Welltec used for testing goodwill impairment in 2015. This squares with my expectations, since Welltec's financial leverage increased from 1,2 in 2015 to 1,4 in 2016 and tax rate decreased.

4.5. Valuation

In valuing Welltec, I have opted for the most popular of the present value approaches, the discounted cash flow model (DCF). Specifically, the enterprise value variant approach of DCF, which states that the value of the company is determined by the present value of future free cash flows to the firm (FCFF):

$$Enterprise \quad value_0 = \underbrace{\sum_{t=1}^{n} \frac{FCFF_t}{(1 + WACC)^t}}_{\text{Forecast horizon}} + \underbrace{\frac{FCFF_{n+1}}{WACC - g} \times \frac{1}{(1 + WACC)^n}}_{\text{Terminal period}} \quad \text{[8, p.216]}$$

The calculation of company value is presented in the table below:

USD, in thousands	Budgeted period	Terminal period	
Year	E1 – E40	E41+	
Free cash flow (FCFF)	4.554.530	283.472	See FCFF for each year in Appendix 41
WACC	11,0%	11,0%	See discount factor (based on WACC) for each year in Appendix 41
∑ PV of FCFF in forecast horizon	531.700		$\sum_{t=1}^{n} \frac{FCFF_t}{(1 + WACC)^t}$

The long-term growth rate (g)		-0,5%	
PV of FCFF in terminal period		37.922	$\frac{FCFF_{n+1}}{WACC-g}\times\frac{1}{(1+WACC)^n}$
Estimated enterprise value	**569.622**		Sum of PV of FCFF in budgeted and terminal period; USD in thousands
LESS: NIBD	-460.158		NIBD at the end of 2016; USD in thousands
Estimated market value of equity	**109.464**		USD in thousands

As the budgeted period is 40 years, it would be impractical to present FCFF, discount factor, and the present value (PV) of FCFF for each year in the main body of the thesis. Therefore, for detailed calculations, I refer the reader to Appendix 41.

Estimated market value of company is $569.622 thousand. By subtracting NIBD at the end of 2016, I get an estimated market value of equity equal to $109.464 thousand, which is 63% of its book value. Estimated value calculated using DCF and EVA model (for detailed calculation under EVA model, I refer the reader to Appendix 42), as expected, give very similar results. Market value of equity estimated using EVA model is slightly lower ($104.356 thousand equal to 60% of book value).

For both Welltec and its closest comparable company Helix Energy Solutions Group the market value of equity is priced lower than its book value. However, Welltec's $\frac{MVE}{BVE}$ is lower.

4.6. Sensitivity analysis

A valuation should always be accompanied by a sensitivity analysis that examines the valuation consequences of changing some of the key value drivers. [8, p.241] Below I present the impact of Welltec equity value estimate by changing the growth rate and the EBITDA-margin by +/- 1,0 percentage point:

kUSD

EBITDA-margin \ Growth rate	**-1,0%**	**0,0%**	**+1,0%**
-1,0%	99.357	101.775	104.224
0,0%	106.997	109.464	111.962
+1,0%	114.638	117.153	119.701

%

EBITDA-margin \ Growth rate	**-1,0%**	**0,0%**	**+1,0%**
-1,0%	91%	93%	95%
0,0%	98%	100%	102%
+1,0%	105%	107%	109%

As can be seen in the above tables, the value estimate is sensitive to both changes in the growth rate and the EBITDA-margin. However, when it comes to bolstering Welltec's value, improving its EBITDA-margins has a much more potent effect compared with increasing its growth rates. Thus, we see that changing EBITDA-margin by +1 percentage point vs. 'Base case' (highlighted in yellow) increases Welltec equity value by 9%. On the other hand, changing revenue growth by +1 percentage point increases Welltec equity value by only 2%. This squares with the insights from the profitability analysis, showing that profitability was low, and that Welltec should therefore primary concern itself with improving its profitability rather than any market expansionism plans.

Following up on the insights from profitability analysis, I also test the sensitivity of the 'value estimate' to changes in 'the receivables to revenue ratio':

kUSD	**Receivables to revenue ratio**		
	-1,0%	**0,0%**	**+1,0%**
	110.434	109.464	108.495

%	**Receivables to revenue ratio**		
	-1,0%	**0,0%**	**+1,0%**
	101%	100%	99%

The sensitivity test shows that an increase of +1 percentage point in 'receivables as a percentage of revenue' decreases Welltec equity value by 1%; the opposite of this also holds true. Thus, improving the 'receivables to revenue ratio' has a far less beneficial effect on company value compared to improving revenue growth or EBITDA-margin. However, it is more readily attainable.

CHAPTER 5. Conclusion

I set out to write this thesis with the principal purpose of estimating Welltec's fair market value as of 31 December 2016, in case of M&A interest from one of OFS majors. To fulfil this task, I performed financial and strategic analysis to create a basis for forecast, which is the foundation for the valuation. Regrettably (for Welltec), the performance analysis revealed low profitability levels. What is more, the profitability *trend* shows no signs of any positive future reversal. It appears that the main culprit behind this unfortunate development is the growing 'cost of services provided'. In Welltec's case, this *untough after cost growth* was, most likely, triggered by Welltec's launching of new products/services at a time when the oil and gas industry is already severely depressed. However, if Welltec's new products/services are well received, and if this *early* launch can give Welltec a head start over its rivals, than the gamble of introducing the new products/services in such unpropitious times just might pay off. On the other hand, future, upcoming demand for Welltec's completion solutions is expected to be high, as they are uniquely suited for harsh environment, and strategic analysis reveals that we can expect much greater interest in unconventional offshore projects in the future.

Welltec's *inefficient* utilization of its capital was another of the shortcomings unveiled by the profitability analysis. To fix matters, Welltec must, for a start, improve its payment collection process and reduce the level of its receivables. During last three years, Welltec has decreased the level of its receivables, which has marginally improved capital utilization. However, there is still much room for improvement. For instance, Welltec might need to review the policies allows their clients to borrow interest-free.

On top of internal company defects, external factors, beyond the reach of management's influence (e.g. low oil prices), have also had a negative effect on profits.

Currently, Welltec's finances are in a bad shape. Nevertheless, Welltec has a genuine chance of rebounding once oil prices recover. Whether or not it will be able to capitalize on this opportunity is another question.

The strategic analysis foresees a growing demand for equipment designed to work unconventional wells and rising oil prices, which is good news for Welltec. The flipside of the coin is that alternative energy sources' infiltration of the energy market is gaining traction.

The forecast prepared reflects prevailing professional concerns over these developments.

The forecast is split into stages of unequal length. In the first four years of this forecast ('Early Convalescence'), oil prices show signs of improvement, but they are still very low. Consequently, no substantial improvements in Welltec's revenue figures can be expected. Nevertheless, they can strive to enhance the effectiveness of their internal process in preparation for the predicted upcoming upsurge in demand. During the next five years ('Leaving the Sickbed'), Welltec's revenue growth begins to pick up speed, markedly improving profitability and bringing back to average level attained during the good years of 2012 to 2014.

In the third stage ('Vigorous Growth'), which is projected to last for 20 years, Welltec steps into a lengthy period of strong Growth, fuelled by depleting conventional resources and a growing demand for services specifically tailored for unconventionals.

A point worth noting is that the oil and gas industry is a cyclical industry, where both oil production and oil prices fluctuate. However, the professionals from BP and IEA preparing the scenarios, have accounted for this fact by averaging out the figures. Nevertheless, Welltec has a history of not being able to cope well with low oil prices. Hence, Welltec will not be able to ride out these periods of low prices, unless it addresses the deficiencies in its internal processes.

Sadly, all good things (and bad) eventually end, and so will this prolonged third stage of 'Vigorous Growth'. This happens when renewable energy sources' substitution of fossil fuels accelerates, and companies' interest in developing unconventionals start to sag. As a result, ten years after the 'Vigorous Growth' stage, Welltec enters its terminal period, slowly drifting towards the inevitable end.

Under the abovementioned assumptions and forecast, the company value is estimated to be $569.622 thousand and market value of equity to be $109.464 thousand. Estimated market value of equity is equal to 63% of book value. This value estimate is compared to an EVA model valuation and a multiple valuation (however, only a single company was deemed to be comparable to Welltec), in order to check the reliability of the result obtained from the DCF model.

In addition, the valuation was accompanied by a sensitivity analysis that revealed value estimate is sensitive to changes in some of the key value drivers, especially to changes in EBITDA-margin. Improving the EBITDA-margin has a much more potent effect compared with increasing the growth rates. Thus, we see that changing EBITDA-margin by +1 percentage point increases Welltec equity value by 9%. On the other hand, changing revenue growth by +1 percentage point increases Welltec equity value by only 2%. This squares with the insights from the profitability analysis, showing that profitability is low, and that Welltec should therefore primary concern itself with improving its profitability rather than any market expansionism plans.

Additionally, testing the sensitivity of the value estimate to changes in the net working capital value driver (receivables to revenue ratio) confirmed the insights from profitability analysis about the company needing to improve its internal policies and processes, which would improve the company's profitability and increase its value.

In conclusion, the estimated Welltec value is the result of the author's interpretation of the information generated by the strategic and profitability analysis. Turbulent times bring a lot of uncertainty to a valuation. The only thing that is certain these days is that for the oil and gas industry business is not as usual, and no company can afford let go of the controls and switch to autopilot. Turbulent times open up for new opportunities as well as new threats. Welltec is not an idle observer of the developments taking place, and is responding to market changes. However, only time can tell if their responses will prove to be successful (or even very successful).

It is also important to highlight that for the purpose of M&A the estimated value could be used as a starting point in defining the price of acquisition. The forecast, which was the basis for the valuation, was prepared using very moderate figures/assumptions (neither too pessimistic nor too optimistic). At the same time, the analysis revealed that there existed good opportunities for bolstering the company's value if internal policies and processes were improved. Armed with such a plan for improvement, the potential buyer would stand a good chance of profiting from his purchase. More so, if potential benefits from synergies and economies of scale are factored into his reckoning.

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Appendix 1. Abbreviations

$/b – USD per barrel

BVE – book value of equity

COP21 – the agreement on reducing greenhouse gases emission that was reached in Paris at the Conference of Parties

E&P – Exploration and Production

EIA – U.S. Energy Information Administration

ERD – Extended Reach Drilling the term used for drilling directional wells in which the drilled horizontal reach (HR) attained at total depth (TD) exceeded the true vertical depth (TVD) by a factor greater than or equal to two, i.e. very long horizontal wells. [50]

GHG – greenhouse gases

HSE – Health, Safety, Environment

IEA – International Energy Agency

IPCC – Intergovernmental Panel on Climate Change is the leading international body for the assessment of climate change [49]

JCPOA – the Joint Comprehensive Plan of Action

LCS –licensing and concession system (one of petroleum regulatory systems)

M&A – Merges and acquisitions

Mboe – million barrel oil equivalent

Mboe/d – million barrel oil equivalent per day

Mtoe – million tonnes oil equivalent

MVE – market value of equity

NFE – net financial expenses

NIBD – net interest bearing debt

O&G – Oil and Gas

OFS – Oilfield Service

OPEC – Organization of Petroleum Exporting Countries

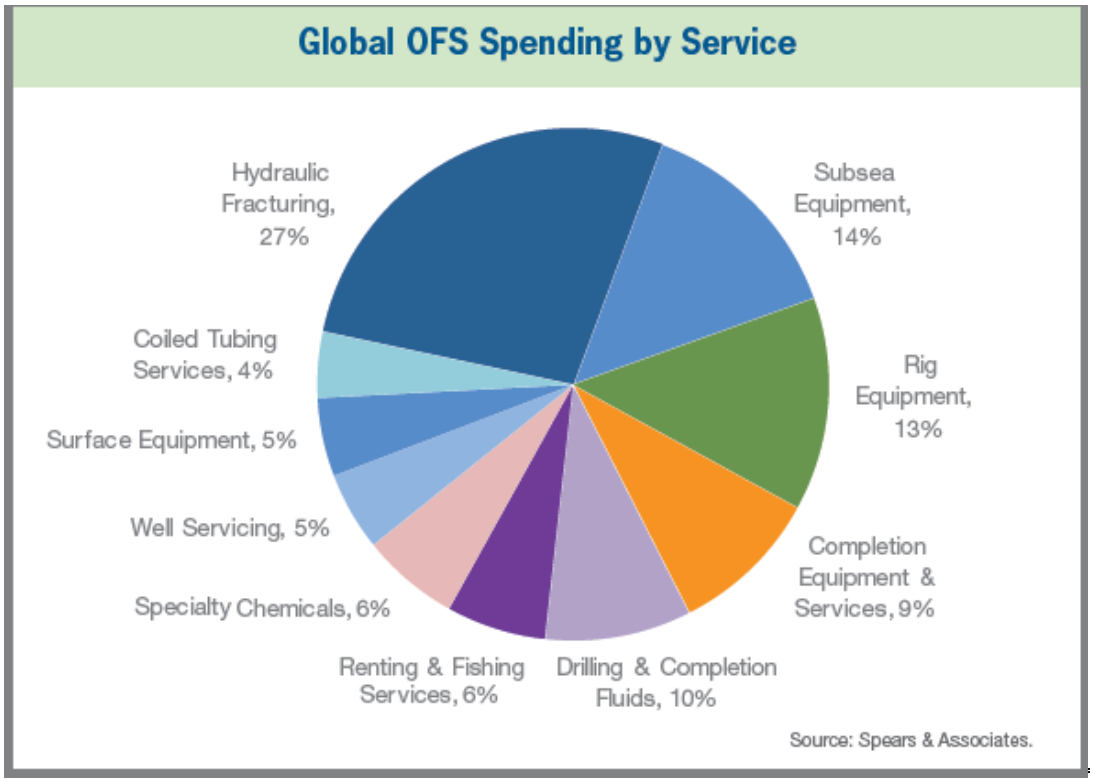
PESTEL – Political, Economic, Social, Technical, Environmental and Legal

SPE – Society of Petroleum Engineers

VRIO – Value, Rarity, Inimitability, Organizational support

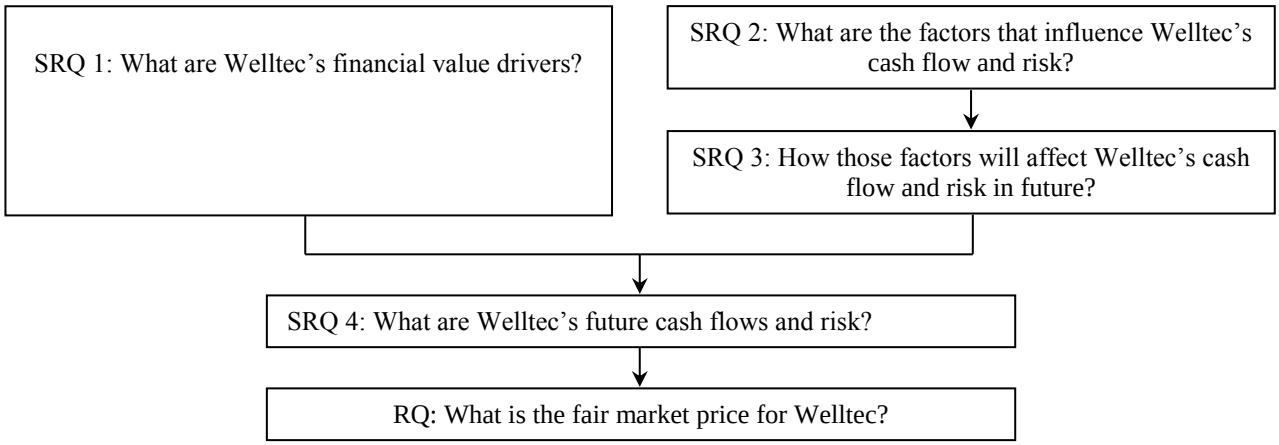
WAB – Welltec Annular Barrier

Appendix 2. Services provided by OFS sector, USA, 2013



Source: SRR [10, p.1]

Appendix 3. The logical progression of the thesis's research plan



Appendix 4. Welltec key figures

	2015	2014	2013	2012	2011	2010
Number of employees	832	1013	1055	907	793	645
Number of countries with established entities	29	29	28	25	22	21

Own creation. Source: Welltec Investor Presentation of Annual Report for 2013, 2014 and 2015. [18, p.4], [19, p.4], [20, p.4]

Appendix 5. Welltec analytical balance sheet

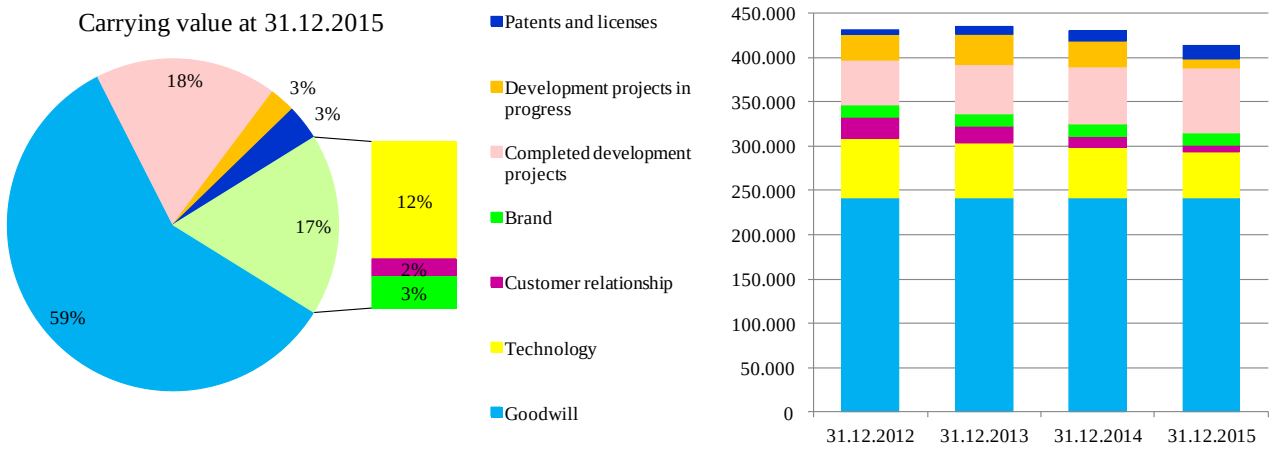
USD, in thousands		2012	2013	2014	2015
Operating assets		**647.162**	**679.644**	**698.713**	**629.265**
Non-current assets		**536.406**	**563.574**	**565.133**	**532.920**
Intangible assets		**431.412**	**435.126**	**430.593**	**413.071**
Goodwill	O	242.340	242.340	242.340	242.340
Technology	O	65.927	61.227	56.197	51.501
Cusomer relationship	O	24.499	18.752	13.052	7.476
Brand	O	13.924	13.924	13.924	13.924
Completed development projects	O	51.117	56.362	63.811	73.351
Development projects in progress	O	27.912	33.784	29.482	10.338
Patents and licenses	O	5.693	8.737	11.787	14.141
Tangible assets		**104.994**	**128.448**	**134.540**	**119.849**
Land and buildings	O	2.502	3.062	11.446	10.318
Leasehold improvements	O	2.013	2.786	2.592	2.021
Plant equipment and fleet	O	59.083	84.139	86.654	80.609
Other fixtures and fittings, tools and equipment	O	14.059	12.994	10.956	7.084
Plant equipment and fleet under construction	O	27.337	25.467	22.892	19.817
Current assets		**101.850**	**98.787**	**118.925**	**77.927**
Inventories	**O**	**1.733**	**2.476**	**3.515**	**4.479**
Receivables		**100.117**	**96.311**	**115.410**	**73.448**
Trade receivables	O	85.329	83.361	84.339	61.244
Tax receivables	O	1.924	2.070	17.626	5.256
Other receivables	O	9.902	6.630	12.530	5.757
Prepayments		2.962	4.250	915	1.191
Prepaid insurance	O	219	617	329	320
Prepaid lease	O	590	173	191	350
Prepaid rent	O	453	1.016	395	307
Other prepayments	O	1.700	2.444	0	214
Capitalized operating lease asset	**O**	**8.906**	**17.283**	**14.655**	**18.418**
LESS:					
Operating liabilities		**118.382**	**94.379**	**106.645**	**85.050**
Non-current liabilities		**54.186**	**41.939**	**35.980**	**41.204**
Deferred tax liabilities		**48.955**	**41.519**	**35.980**	**41.204**
Intangible assets	O	46.844	50.942	39.412	36.847
Tangible assets	O	-1.347	-2.124	-2.089	4.314
Current assets	O	397	-1.890	-1.002	173
Change in tax rate, coming years	O	0	-3.681	-341	0
Tax contingencies	O	4.759	0	0	0
Tax loss carried forward	O	-1.698	-1.728	0	-130
Other non-current liabilities	**O**	**5.231**	**420**	**0**	**0**
Current liabilities		**64.196**	**52.440**	**70.665**	**43.846**
Other provisions	**O**	**0**	**0**	**0**	**0**
Trade payables	**O**	**18.897**	**15.414**	**19.257**	**12.111**
Current tax liabilities	**O**	**11.943**	**6.865**	**20.094**	**7.256**
Other payables		**33.356**	**30.161**	**31.314**	**24.479**
Wages, salaries, personal income taxes, social security costs, etc.	O	9.361	7.541	8.076	3.891
Holiday pay obligation	O	7.467	8.671	7.822	6.324
Earn out related to HPI	O	1.796	0	0	0
VAT and duties	O	3.468	29	0	0
Other costs payable	O	11.264	13.920	15.416	14.264
Invested capital (net operating assets)		**528.780**	**585.265**	**592.068**	**544.215**

USD, in thousands		2012	2013	2014	2015
Equity		**245.134**	**277.491**	**281.648**	**242.523**
Share capital	F	787	824	824	835
Currency translation reserve	F	-3.493	-12.835	-26.598	-35.591
Reserve for capitalized development projects		0	0	0	0
Retained earnings	F	249.842	291.351	308.160	277.249
Retained earnings adjustment related to capitalized operating lease	F	-1.288	-1.124	-738	30
Non-controlling interest	F	-714	-725	0	0
Net interest bearing debt		**283.645**	**307.774**	**310.420**	**301.692**
Non-current liabilities		**308.120**	**321.642**	**331.652**	**346.775**
Deferred tax liabilities (adjusted)		**-1.015**	**10.295**	**9.126**	**2.003**
Current and non-current liabilities	F	-586	10.670	9.385	2.040
Deferred tax liabilities related to capitalized operating lease	F	-429	-375	-259	-37
Finance lease commitments	**F**	**1.072**	**1.561**	**8.251**	**8.011**
Issued bonds	**F**	**308.063**	**309.786**	**314.275**	**309.948**
Bank debt	**F**	**0**	**0**	**0**	**26.813**
Current liabilities		**15.835**	**14.329**	**12.395**	**12.060**
Current portion of non-current liabilities	**F**	**2.165**	**1.349**	**1.271**	**1.357**
Payables to affiliates	**F**	**1.186**	**354**	**0**	**0**
Other payables		**12.484**	**12.626**	**11.124**	**10.703**
Derivative financial instruments	F	0	1.030	0	0
Accrued interests	F	12.484	11.596	11.124	10.703
Capitalized operating lease liability		**10.622**	**18.782**	**15.652**	**18.425**
LESS:					
Financial assets		**4.639**	**3.146**	**2.800**	**1.756**
Tax receivables	F	1.321	1.382	0	0
Other recievables	F	3.318	1.764	2.800	1.756
LESS:					
Current assets		**46.293**	**43.833**	**46.479**	**73.812**
Receivables		**4.308**	**5.021**	**3.783**	**2.132**
Current portion of non-current assets	F	2.120	2.120	0	0
Receivables from affiliates	F	0	0	0	0
Prepayments		2.188	2.901	3.783	2.132
Prepaid creditors	F	2.188	2.901	3.783	2.132
Cash and cash equivalents	**F**	**41.985**	**38.812**	**42.696**	**61.040**
Securities	**F**	**0**	**0**	**0**	**10.640**
Invested capital (financing)		**528.780**	**585.265**	**592.068**	**544.215**

Also provided in Excel file (on USB memory stick), tab 'Consolidated BS'

Appendix 6. Welltec intangible assets

Intangible assets: structure and dynamic, USD in thousands



Own creation. Source: Welltec Annual Report for 2013, 2014 and 2015. [70, p.52-53], [69, p.52-53], [68, p.44-45]

- **Goodwill**

Goodwill makes up more than half of Welltec's intangible assets (see Figure X). This goodwill was first recognized in the balance sheet following the acquisition of Welltec Holding ApS in 2007. As stated in Welltec's annual report of 2105, "goodwill was [initially] measured as the difference between cost acquired and the fair value of assets, liabilities, and contingent liabilities acquired" [68, p.30, 46].

Goodwill is computed as cost minus accumulated write downs. Goodwill is tested, each year, for impairment. However, ever since it was first recognized and up until its 2015 impairment test, Welltec's goodwill has not suffered any impairment losses [68, p.30]

- **Development projects**

Welltec's capitalized development projects are comprised of clearly defined service equipments and processes that are expected to be a source of future cash flows for the group. When these development projects are set down, for the first time, in the company's books, Welltec records their costs. Afterwards, they are subjected to an annual impairment test. Once completed, development projects are amortized using a straight-line method over a period of, typically, 5 years. Nevertheless, there are cases where the amortization period can stretch up to 20 years [68, p.30-31]

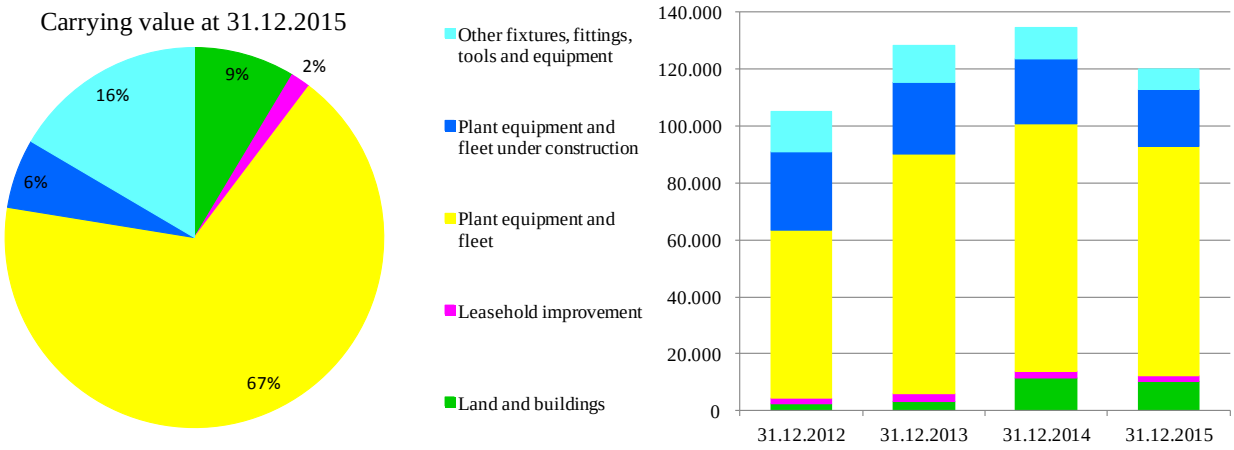
- **Patents and licenses**

Patents and licenses are recorded at cost and amortized according to the duration of the patent/license term (usually 20 years) 85, p.31].

Brands, customer relationships, and technological knowhow are the intangible assets acquired by means of acquisitions. A brand is considered as being useful throughout the entirety of the business's life. Accordingly, it is not amortized. Conversely, customer relationships and technological knowhow's usefulness to the company is finite. Therefore, they are amortized using a straight-line method, 10 years for customer relationships and 10 to 20 years for technological knowhow [68, p.31].

Appendix 7. Welltec tangible assets

Tangible assets: structure and dynamic, USD in thousands



Own creation. Source: Welltec Annual Report for 2013, 2014 and 2015. [70, p.54], [69, p.55], [68, p.47]

- **Land and buildings**

Land is measured at cost and it is not depreciated. Buildings are measured at cost and depreciated on straight-line basis over 50 years. The basis of depreciation is cost less estimated residual value after the end of useful life. [68, p.31]

- **Plant equipment and fleet (also under construction)**

Plant equipment and fleet are measured at cost less accumulated depreciation and impairment losses. During construction the asset is recorded as 'Plant equipment and fleet under construction', and when the tool is completed and ready to put into operations it is recognized under 'Plant equipment and fleet'. Plant equipment and fleet is depreciated on straight-line basis over 3-10 years and annually tested for any indications of impairment. [68, p.31-32]

- **Other tangible assets**

Other tangible assets are measured at cost and are subject to straight-line depreciation over 3-10 years for leasehold improvements and 3-5 years for 'other fixtures, fittings, tools and equipment'. [68, p.31]

Appendix 8. Estimating interest rate to capitalize operating leases

The interest rate can be estimated based on projected financial lease payments and their present value [1, p.127]:

$$PV = \sum_{t=1}^{n} \frac{Payment}{(1+IRR)^t} \quad [8, p.422]$$

Where:

PV – present value of projected financial lease payments;

Payment – annual lease payment;

IRR – internal rate of return;

n – financial lease period.

Estimating interest rate for finance lease obligations due over 5 years using 'Goal Seek' in Excel:

Maturity of finance lease obligations:	2014	2015
Over 5 years		
Minimum lease payments (Welltec notes)	5.691	5.309
Annual lease payment[2)]	382	382
Present value of lease payments (Welltec notes)	5.295	4.220
Discount factor	0,07479	0,25806
Present value of minimum lease payment	*5.295*	*4.220*
Number of years (n_3)[1)]	12,5	11,5
Interest rate (IRR_3)	**1,0%**	**3,4%**

1) Finance leases relate to manufacturing equipment with lease terms of 3-5 years and a new building acquired in 2014 with a lease term of 12,5 years [69, p.61] and renewed in 2015 with a lease term of 11,5 years. [68, p.53]

2) Assume that the annual payment for 2015-2026 is equal to payment in 2015 (= difference in Minimum lease payments in 2015 and 2014) and the residual is to be paid in last year of rent (2027).

Estimating interest rate for finance lease obligations due within 1 year and between 1 and 5 years using 'Solver' in Excel:

Maturity of finance lease obligations:	2012	2013	2014	2015		
Within 1 year						
Minimum lease payments (Welltec notes)	2.241	1.396	1.324	1.408		
Present value of minimum lease payment (Welltec notes)	2.165	1.349	1.271	1.357		
Discount factor	0,03510	0,03484	0,04170	0,03758		
Present value of minimum lease payment	*2.165*	*1.350*	*1.271*	*1.358*		
Difference	*0,5*	*-0,5*	*0,5*	*-0,5*		
Number of years (n_1)	0,9	0,8	1,0	0,9		
Interest rate (IR_1)	**4,2%**	**4,3%**	**4,2%**	**4,2%**		
Between 1 and 5 years						
Minimum lease payments (Welltec notes)	1.103	1.623	3.104	3.942	*min*	max
between 1 and 2 years	*1.103*	*1.324*	*1.408*	*299*	*1*	*2*
between 2 and 3 years			*299*	*1.397*	*2*	*3*
3 and more years		*299*	*1.397*	*2.246*	*3*	*5*
Present value of minimum lease payment (Welltec notes)	1.072	1.561	2.956	3.791		
Descount factor (1)	0,97579	0,97810	0,97585	0,97878	*1*	
Descount factor (2)	0,95216	0,95668	0,95229	0,95801	*2*	
Descount factor (3)	0,92911	0,93572	0,92930	0,93768	*3*	
Descount factor (4)	0,90661	0,91523	0,90686	0,91778	*4*	
Descount factor for t_2	0,96710	0,95155	0,92930	0,94791		
Present value of minimum lease payment	*1.072*	*1.562*	*2.957*	*3.791*		
Difference	*0,5*	*-0,5*	*-0,5*	*0,5*		
Number of years (n_2)	1,4	2,2	3,0	2,5		
Interest rate (IR_2)	**2,5%**	**2,2%**	**2,5%**	**2,2%**		
>=	*-0,5*	*-0,5*	*-0,5*	*-0,5*	*Difference*	
<=	*0,5*	*0,5*	*0,5*	*0,5*	*Difference*	
>=	*0,01%*	*0,01%*	*0,01%*	*0,01%*	*IR*	
>=	*0,1*	*0,1*	*0,1*	*0,1*	*Number of periods (n_1)*	
<=	*1,0*	*1,0*	*1,0*	*1,0*	*Number of periods (n_1)*	
>=	*1,0*	*1,4*	*2,0*	*2,5*	*Number of periods (n_2)*	
<=	*2,0*	*2,6*	*3,4*	*4,1*	*Number of periods (n_2)*	
	-0,05%	*0,05%*	*0,00%*	*0,00%*	*Calculated difference vs. average (<1 year)*	
	0,14%	*-0,10%*	*0,13%*	*-0,17%*	*Calculated difference vs. average (1-5 years)*	
<=	*0,05%*	*0,05%*	*0,05%*	*0,05%*	*Difference vs. average*	
>=	*-0,05%*	*-0,05%*	*-0,05%*	*-0,05%*	*Difference vs. average*	
<=	*0,10%*	*0,10%*	*0,10%*	*0,10%*	*Difference vs. average (1-5 years)*	
>=	*-0,10%*	*-0,10%*	*-0,10%*	*-0,10%*	*Difference vs. average (1-5 years)*	
Total difference:						
-0,0						

For detailed calculation, I refer the reader to #1 on the tab 'Operating lease' in Excel file (on USB memory stick)

Appendix 9. Estimating lease-payout-schedules

Lease obligations depending on lease asset and period:

a) Operational leasing agreements regarding company cars for 2007-2013. [72, p.60]

b) Operational leasing agreements regarding company cars for 2007-2015. [71, p.63]

c) Assume operational leasing agreements regarding company cars for the period 2014-2023.

d) Operational leasing agreements regarding company cars for the period 2015-2023. [69, p.63]

e) Operational leasing agreements regarding company cars for the period 2016-2023. [68, p.55]

f-h) Operational leasing agreements regarding office furniture [71, p.63] and starting from 2013 house rental. [70, p.64] Rental obligations are running from 3 to 36 months. [68, p.55]

Determining the present value of the projected operating lease payments and lease amortization:

USD, in thousands	Total	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
a) Lease agreement 2007-2013																		
Lease payment per year (const.)	3.509											1	444	259	701	701	701	701
Number of years (n_a)	7											7	6	5	4	3	2	1
Discount factor												0,56493	0,61295	0,66505	0,72157	0,78291	0,84946	0,92166
Lease obligation (beginning of period)												1	410	617	1.215	1.766	2.274	2.742
Interest expense	767											0	35	52	103	150	193	233
Amortization of lease obligation												1	409	207	598	551	508	468
Lease obligation (end of period)												0	1	410	617	1.215	1.766	2.274
Depreciation expense	2.742											392	392	392	392	392	392	392

USD, in thousands	Total	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
b) Lease agreement 2007-2013 extended till 2015																		
Lease payment per year	1.025									951	75							
Number of years (n_b)	2									2	1							
Discount factor										0,84946	0,92166							
Lease obligation (beginning of period)										876	876							
Interest expense	149									74	74							
Amortization of lease obligation										876	0							
Lease obligation (end of period)										0	876							
Depreciation expense	876									438	438							

USD, in thousands	Total	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
c) Lease agreement 2014-2023																		
Lease payment per year (const.)	17.193	1.064	1.882	1.882	1.882	1.882	1.882	1.955	1.881	1.878	1.004							
Number of years (n_c)	10	10	9	8	7	6	5	4	3	2	1							
Discount factor		0,44229	0,47988	0,52067	0,56493	0,61295	0,66505	0,72157	0,78291	0,84946	0,92166							
Lease obligation (beginning of period)		981	2.638	4.166	5.574	6.872	8.068	9.239	10.249	11.177	11.227							
Interest expense	5.966	83	224	354	474	584	686	785	871	950	954							
Amortization of lease obligation		981	1.658	1.528	1.408	1.298	1.196	1.170	1.010	928	50							
Lease obligation (end of period)		0	981	2.638	4.166	5.574	6.872	8.068	9.239	10.249	11.177							
Depreciation expense	11.227	1.123	1.123	1.123	1.123	1.123	1.123	1.123	1.123	1.123	1.123							

For detailed calculation, I refer the reader to #5 on the tab 'Operating lease (a-h)' in Excel file (on USB memory stick)

USD, in thousands	Total	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
e) Lease agreement of 2015-2023 replaced by new agreement 2016-2023																		
			3.82	3.58	3.35	3.13	2.93	2.74	2.57									
Lease payment per year (gradually increasing)	26.236	4.087	5	0	1	7	6	8	2									
Number of years (n_e)	8	8	7	6	5	4	3	2	1									
Annual growth	*6,8%*																	
Constrains:																		
Due within 1 year	2.572	< 5.058																
Due within 1-5 years	12.172	< 12.257																
Over 5 years	11.492																	

For detailed calculation using 'Solver', I refer the reader to #5 on the tab 'Operating lease (e)' in Excel file (on USB memory stick)

USD, in thousands	Total	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
e) Lease agreement for 2015-2023 replaced by new agreement 2016-2023																		
Lease payment per year (gradually increasing)	26.236	4.087	3.825	3.580	3.351	3.137	2.936	2.748	2.572									
Number of years (n_e)	8	8	7	6	5	4	3	2	1									
		0,5206	0,5649	0,6129	0,6650	0,7215	0,7829	0,8494	0,9216									
Discount factor		7	3	5	5	7	1	6	6									
Lease obligation (beginning of period)		3.766	6.997	9.748	12.073	14.019	15.626	16.935	17.979									
Interest expense	8.257	320	595	829	1.026	1.192	1.328	1.439	1.528									
Amortization of lease obligation		3.766	3.230	2.752	2.325	1.945	1.608	1.309	1.044									
Lease obligation (end of period)		0	3.766	6.997	9.748	12.073	14.019	15.626	16.935									
Depreciation expense	17.979	2.247	2.247	2.247	2.247	2.247	2.247	2.247	2.247									

For detailed calculation, I refer the reader to #5 on the tab 'Operating lease (a-h)' in Excel file (on USB memory stick)

USD, in thousands	Total	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
f) Rental obligations that running from 3 months to 1 year (are not capitalized)																		
Lease payment per year	19.428									5.145	4.867	4.601	1.153	2.940	722			

USD, in thousands	Total	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
g) Rental obligations for 2 years																		
Lease payment per year (const.) #1	1.914													738	1.176			
Lease payment per year (const.) #2	708												354	354				
Lease payment per year (const.) #3	0											0	0					
Lease payment per year (const.) #4	0										0	0						
Lease payment per year (const.) #5	1.168									1.139	29							
Lease payment per year (const.) #6	218								109	109								
Discount factor (year 1)								0,97752	0,97752	0,97752	0,97752	0,97752	0,97752	0,97752	0,97752			
Discount factor (year 2)								0,95554	0,95554	0,95554	0,95554	0,95554	0,95554	0,95554	0,95554			
Lease obligation (beginning of period)n #1														721	1.855			
Lease obligation (beginning of period) #2													346	684				
Lease obligation (beginning of period) #3												0	0					
Lease obligation (beginning of period) #4											0	0						
Lease obligation (beginning of period) #5										1.114	1.117							
Lease obligation (beginning of period) #6									107	211								
Interest expense #1	59													17	43			
Interest expense #2	24												8	16				
Interest expense #3	0											0	0					
Interest expense #4	0										0	0						
Interest expense #5	51									26	26							
Interest expense #6	7								2	5								
Amortization of lease obligation #1														721	1.134			
Amortization of lease obligation #2													346	338				
Amortization of lease obligation #3												0	0					
Amortization of lease obligation #4											0	0						
Amortization of lease obligation #5										1.114	3							
Amortization of lease obligation #6									107	104								
Depreciation expense	3.867								106	664	559	0	342	1.269	927			

USD, in thousands	Total	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
h) Rental obligations for 3 years																		
Lease payment per year (const.) #1	884													0	442	442		
Lease payment per year (const.) #2	351												326	13	13			
Lease payment per year (const.) #3	4.459											2.399	919	1.141				
Lease payment per year (const.) #4	11.204										5.165	3.417	2.622					
Lease payment per year (const.) #5	0									0	0	0						
Lease payment per year (const.) #6	536								179	179	179							
Lease payment per year (const.) #7	255							85	85	85								
Discount factor (year 1)								0,97752	0,97752	0,97752	0,97752	0,97752	0,97752	0,97752	0,97752	0,97752		
Discount factor (year 2)								0,95554	0,95554	0,95554	0,95554	0,95554	0,95554	0,95554	0,95554	0,95554		
Discount factor (year 3)								0,93406	0,93406	0,93406	0,93406	0,93406	0,93406	0,93406	0,93406	0,93406		
Lease obligation (beginning of period) #1														0	432	854		
Lease obligation (beginning of period) #2													318	323	329			
Lease obligation (beginning of period) #3												2.345	3.190	4.234				
Lease obligation (beginning of period) #4											5.049	8.276	10.653					
Lease obligation (beginning of period) #5										0	0	0						
Lease obligation (beginning of period) #6									175	345	512							
Lease obligation (beginning of period) #7								83	165	244								
Interest expense #1	30													0	10	20		
Interest expense #2	22												7	7	8			
Interest expense #3	225											54	73	97				
Interest expense #4	551										116	190	245					
Interest expense #5	0									0	0	0						
Interest expense #6	24								4	8	12							
Interest expense #7	11							2	4	6								
Amortization of lease obligation #1														0	432	422		
Amortization of lease obligation #2													318	5	5			
Amortization of lease obligation #3												2.345	846	1.044				
Amortization of lease obligation #4											5.049	3.227	2.377					
Amortization of lease obligation #5										0	0	0						
Amortization of lease obligation #6									175	171	167							
Amortization of lease obligation #7								83	81	80								
Depreciation expense	16.826							81	252	252	3.722	4.962	5.072	1.806	394	285		

USD, in thousands		Total	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
Rental and leasing expenses for the year (excl. <1 years)											4.850	6.452	5.817	4.664	2.505	2.332			
Rental and leasing obligations:																			
	Due within 1 year										2.945	4.850	6.452	5.817	4.664	2.505			
	Due within 1-5 years										12.257	10.006	10.044	12.910	10.982	4.442			
	Over 5 years										11.492	6.205	8.592	10.474	0	0			
Checks:	Over 5 years	= 0									0	0	0	0	0	0			
Constrains:	Rental and leasing expenses for the year	<=									9.995	11.319	10.418	5.817	5.445	3.298			
	Rental and leasing obligations (due within 1 yr) should be equal to or less than reported numbers										5.058	4.850	6.452	5.817	4.664	2.680			
	Rental and leasing obligations (due within 1-5 yrs) should match reported numbers										0,020	0,004	0,000	0,001	0,000	362,607			
	Rental and leasing obligations difference	<=									0,49	0,49	0,49	0,49	0,49	384,4			
Model deviation from reported amounts =		0																	

For detailed calculation, I refer the reader to #5 on the tab 'Operating lease (a-h)' in Excel file (on USB memory stick)

Appendix 10. Adjustments to financial statement related to capitalizing operating leases

Adjustments for Balance sheet:

USD, in thousands	*2016*	2015	2014	2013	2012	2011	2010	2009	2008	2007
1) Present value of operating leases should be added to 'Financial liabilities':										
Capitalized operating lease liability less accumulated amortization	17.018	18.425	15.652	18.782	10.622	14.917	6.580	3.830	2.620	2.274
2) The value of operating lease assets should be added to 'Tangible assets':										
Capitalized operating lease asset less accumulated depreciation	15.813	18.418	14.655	17.283	8.906	14.710	7.525	4.320	2.813	2.350
3) Accumulated value of tax expense adjustment should be added to 'Deffered tax liabilities':										
Deferred tax asset (-) / liability (+)	*-300*	*-37*	*-259*	*-375*	*-429*	*-51,64*	*236,28*	*122*	*48*	*19*
4) Accumulated gain/loss on capitalizing operating leases should be added to 'Retained earnings':										
Retained earnings	-905	30	-738	-1.124	-1.288	-155	709	367	145	57
Impact on Invested capital	***15.813***	**18.418**	**14.655**	**17.283**	**8.906**	**14.710**	**7.525**	**4.320**	**2.813**	**2.350**

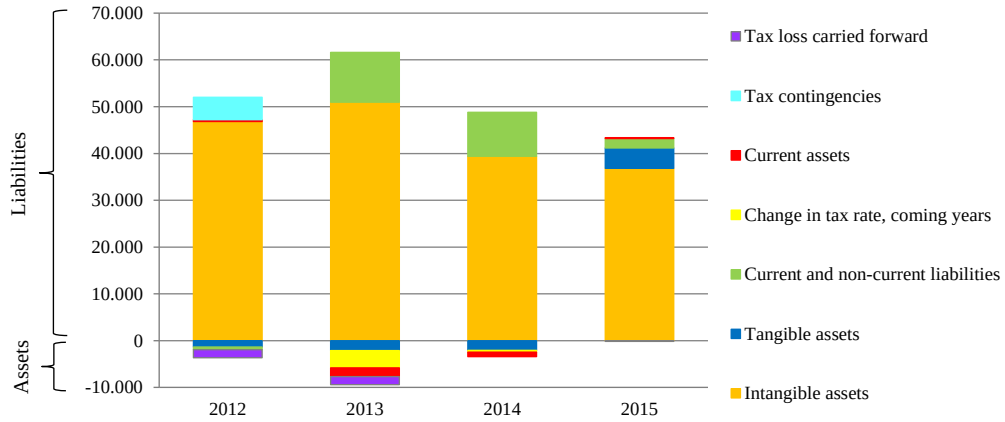
Adjustments for Income statement:

USD, in thousands	*2016*	2015	2014	2013	2012	2011	2010	2009	2008	2007
1) Rental and leasing expenses for the year (except for expenses related to short-term obligations within 1 year) should be excluded from 'Operating expenses':										
Operating expenses	*2.945*	4.850	6.452	5.817	4.664	2.505	2.332	1.143	701	701
2) Depreciation of lease assets should be added to 'Depreciation, amortization and impairment losses':										
Depreciation, amortization and impairment losses	*-2.605*	-2.648	-4.768	-5.354	-5.806	-3.467	-1.713	-676	-392	-392
3) Interest on lease assets should be added to 'Interest expense':										
Interest expense	*-1.538*	-1.212	-1.182	-244	-368	-190	-163	-170	-193	-233
4) 'Tax expense' should be adjusted for the difference between amortization and depreciation for the year										
Operating tax	264	-233	-123	-55	378	288	-114	-74	-29	-19
5) 'Tax expense' should be adjusted for the change in tax rate applied to accumulated deferred tax asset/liability										
Operating tax	*0,1*	*10,0*	*7,5*	*0,0*	*0,0*	*0,0*	*0,0*	*0,0*	*0,0*	*0,0*
6) Impact on 'Net earnings' (loss (-) / gain (+)):										
Net Earnings	*-935*	*767,36*	*385,97*	*163,79*	*-1.132,57*	*-864*	*342*	*223*	*87*	*57*
Impact on Operating income (EBIT)	***340***	***2.202***	***1.684***	***463***	***-1.142***	***-962***	***619***	***467***	***310***	***310***
Corporate tax rate	*22,0%*	*23,5%*	*24,5%*	*25,0%*	*25,0%*	*25,0%*	*25,0%*	*25,0%*	*25,0%*	*25,0%*

For detailed calculation, I refer the reader to the tab 'Operating lease' in Excel file (on USB memory stick)

Appendix 11. Welltec deferred tax assets and liabilities

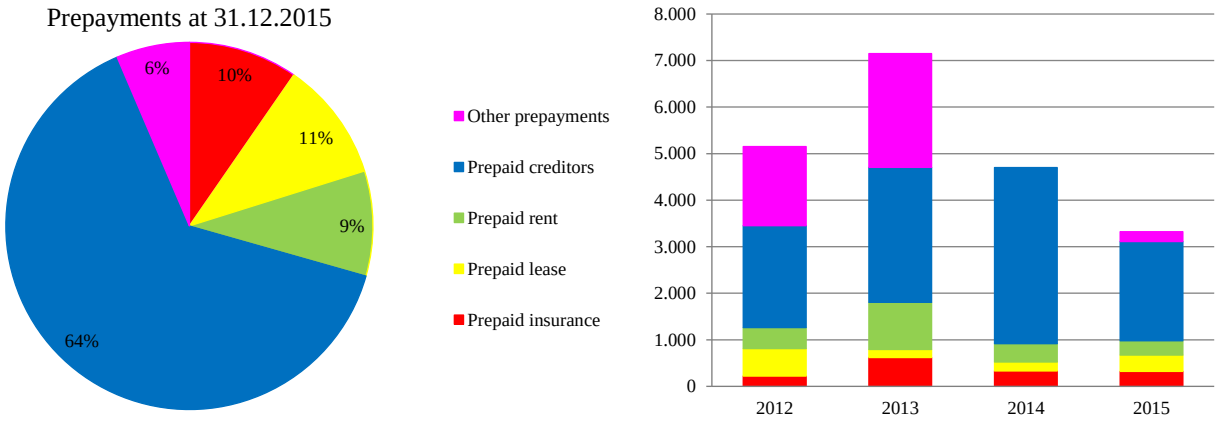
Dynamic of deferred tax assets (-) / liabilities (+), USD in thousands



Own creation. Source: Welltec Annual Report for 2013, 2014 and 2015. [70, p.59], [69, p.59], [68, p.51]

Appendix 12. Welltec prepayments

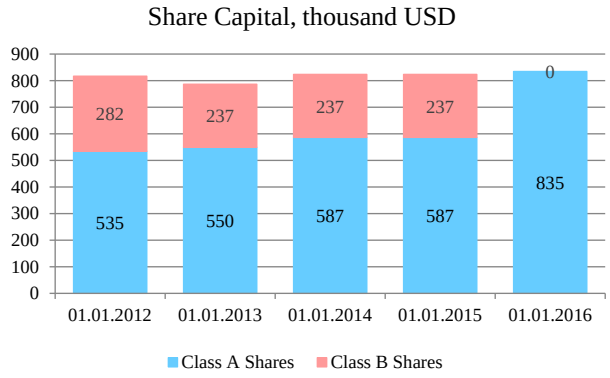
Prepayments: structure and dynamic, USD in thousands



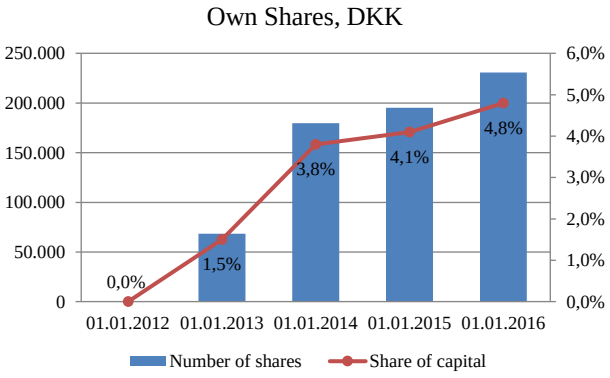
Own creation. Source: Welltec Annual Report for 2013, 2014 and 2015. [70, p.58], [69, p.58], [68, p.50]

Appendix 13. Welltec equity

Share capital: structure and dynamic



Holding own shares dynamic



Own creation. Source: Welltec Annual Report for 2013, 2014 and 2015. [70, p.58], [69, p.58-59], [68, p. 50]

In the close of 2015, Welltec's share capital consisted of 4.792.520 units of fully paid shares with a nominal value of DKK 1 or USD 0,17 [68, p.50]. Until 2015, Welltec's share capital consisted of Class A and Class B shares with equal voting rights. Yet, Class B shares had time-limited preference rights over Class A shares when Welltec makes its distributions.

In 2013, Class A preference shares at the value of DKK 150 thousand (USD 27 thousand) were issued. These specific Class A shares have, with a certain timeframe and subject to certain conditions being met, certain preference rights over the other Class A shares if Welltec does not complete an IPO [69, p.58].

Appendix 14. Welltec issued bonds

In 2015, Welltec started purchasing its own bonds. [68, p.52] This action was presented as a reduction in issued bonds. [68, p.32] The dynamics between the nominal values of issued bonds and their fair values determined by the quoted market prices (level 1) on the Bourse Luxembourg at the year's end are shown in the following table:

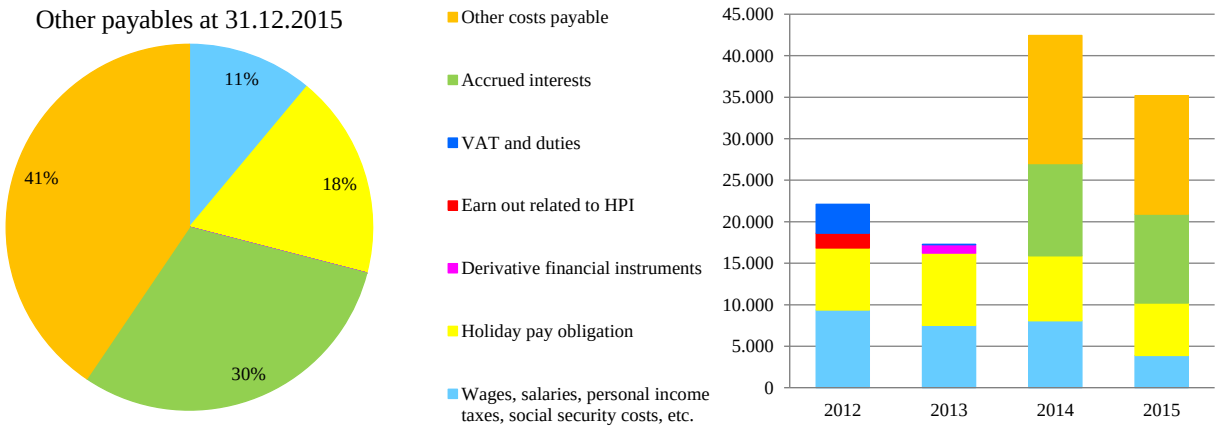
USD, in thousands	2012	2013	2014	2015
Issued bonds	308.063	309.786	314.275	317.741
Holding of own bonds	0	0	0	-7.793
Total issued bonds	**308.063**	**309.786**	**314.275**	**309.948**
Fair value of issued bonds (USD, in millions)	*347*	*347*	*317*	*309*
Quoted market price (USD per note)	*n/d*	*106,75*	*97,25*	*95,00*

Own creation. Source: Welltec Annual Report for 2013, 2014 and 2015. [70, p.61], [69, p.60], [68, p.52]

On July 19 2016, the company announced the withdrawal of the securities ('issued bond') from listing at the Luxembourg Stock Exchange. The withdrawal will become effective on 20 October 2016. [42]

Appendix 15. Welltec other payables

Other payables: structure and dynamic, USD in thousands



Own creation. Source: Welltec Annual Report for 2013, 2014 and 2015. [70, p.63], [69, p.62], [68, p.64]

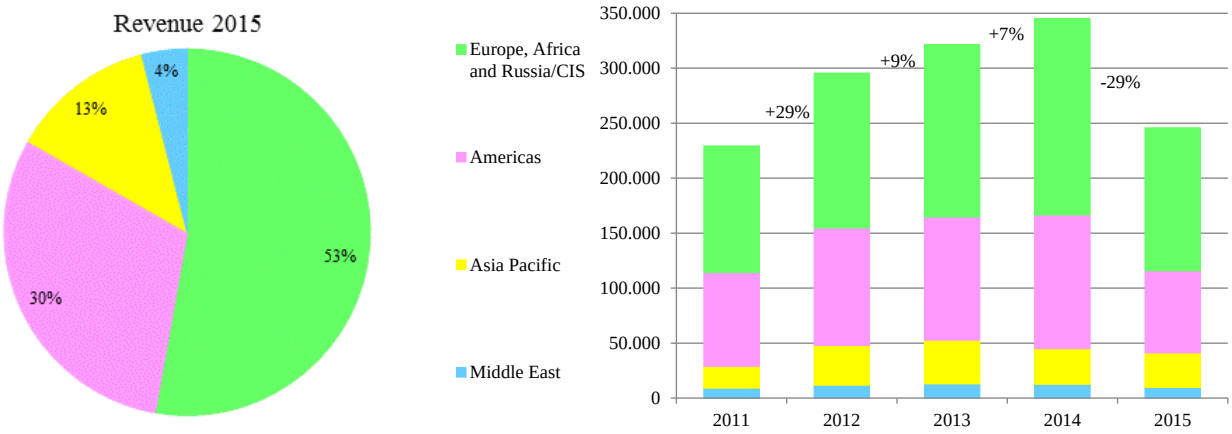
Appendix 16. Welltec analytical income statement

USD, in thousands	2015	2014	2013	2012	2011
Revenue	**245.726**	**345.009**	**321.165**	**295.387**	**229.223**
Operating expenses (adjusted)	-154.256	-183.520	-184.507	-153.526	-121.404
Cost of services provided (adjusted)	-89.980	-113.088	-113.353	-94.056	-66.012
Development and manufacturing cost	-2.464	-297	-99	-45	-128
Reverse of Depreciation and amortization related to Development and manufacturing cost	588	915	1.077	1.127	2.133
Administrative and sales cost (adjusted)	-58.750	-77.502	-76.432	-65.216	-59.902
Special items (operating)	-8.500	0	-1.517	0	0
Reverse of Rental & leasing expenses (capitalized operating lease)	4.850	6.452	5.817	4.664	2.505
EBITDA	**91.470**	**161.489**	**136.658**	**141.861**	**107.819**
Depreciation, amortization and impairment losses (adjusted)	-74.921	-84.290	-65.309	-56.854	-51.772
Related to Cost of services provided	-55.301	-56.108	-42.315	-34.270	-31.020
Related to Administrative and sales cost	-6.120	-11.931	-5.947	-4.946	-4.495
Related to Development and manufacturing costs capitalized	-588	-915	-1.077	-1.127	-2.133
Amortization of acquired intangibles in a business combination	-10.264	-10.568	-10.616	-10.705	-10.657
Depreciation of capitalized operating lease assets	-2.648	-4.768	-5.354	-5.806	-3.467
Operating income (EBIT)	**16.549**	**77.199**	**71.349**	**85.007**	**56.047**
Operating tax (tax on EBIT)	-22.699	-38.367	-28.287	-33.194	-22.178
Tax expense adjustment for capitalized operating lease	-223	-115	-55	378	288
Operating tax (tax on EBIT) (adjusted)	-22.922	-38.482	-28.342	-32.817	-21.890
NOPAT	**-6.373**	**38.716**	**43.007**	**52.191**	**34.157**
Net financial expenses	-32.193	-21.499	-26.175	-38.261	-24.150
Special items (financing)	0	0	-3.181	0	0
Interest on capitalized operating lease	-1.212	-1.182	-244	-368	-190
Net financial expenses (adjusted)	-33.405	-22.681	-29.600	-38.629	-24.340
Tax shield	7.850	5.557	7.400	9.657	6.085
Unrealized exchange rate adjustments of foreign subsidiaries and branches	-8.993	-13.763	-9.342	-3.551	62
Net financial expenses after tax	-34.548	-30.887	-31.542	-32.523	-18.193
Net income (Net earnings)	**-40.921**	**7.829**	**11.465**	**19.667**	**15.964**

Also provided in Excel file (on USB memory stick), tab 'Consolidated IS'

Appendix 17. Welltec revenue

Revenue: structure and dynamic, USD in thousands

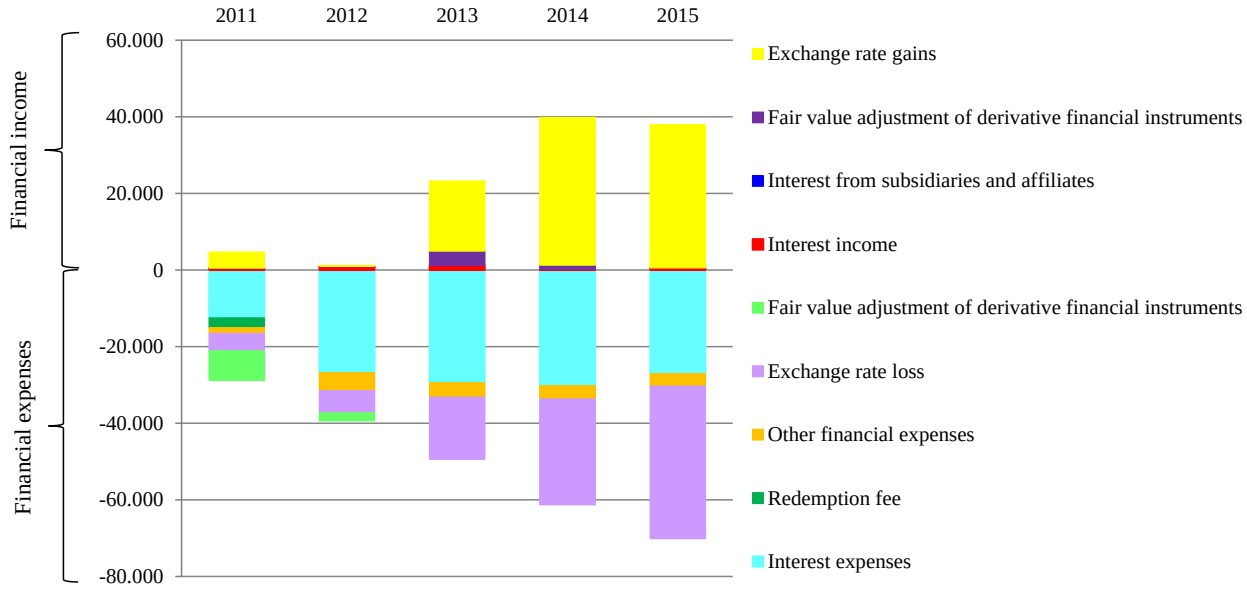


Own creation. Source: Welltec Annual Report for 2013, 2014 and 2015. [70, p.44], [69, p.44], [68, p.35]

Whether the revenue in question is *received* or *receivable*, it is recorded at its fair value. Nevertheless, in cases of *longer* than customary, *interest-free*, credit arrangements being made with clients, "the fair value of [receivables] is determined by discounting future payments receivable" [68, p.29-30] and differences between receivables' fair values and nominal amounts will be "recognized as financial income in profit or loss by applying the effective interest method" [68, p.29-30]. To finish, "[*all*] revenue is recorded net of VAT, duties, etc. collected on behalf of a third party" [68, p.29-30].

Appendix 18. Welltec financial expenses and income

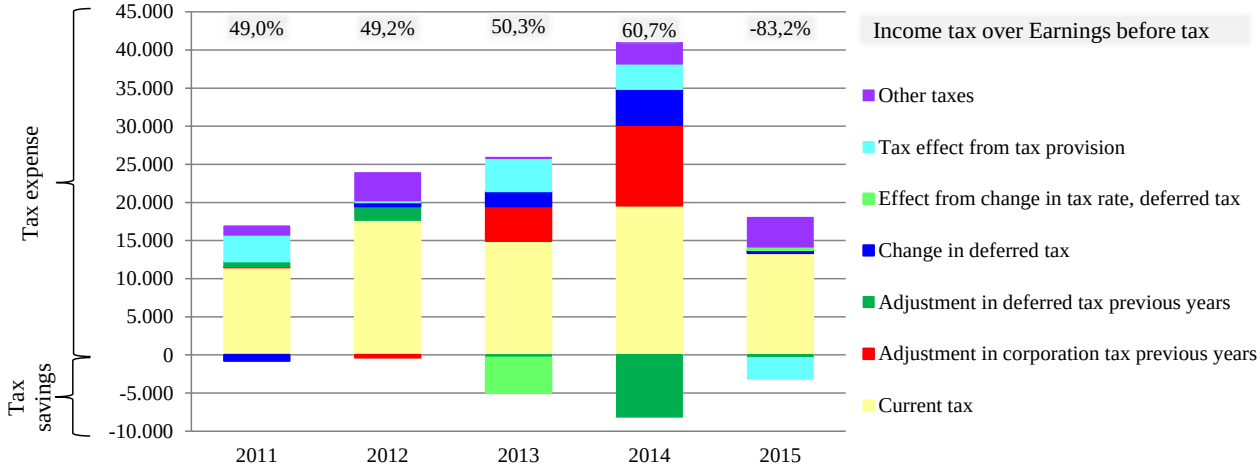
Financial expenses and income: structure and dynamic, USD in thousands



Own creation. Source: Welltec Annual Report for 2013, 2014 and 2015. [70, p.49], [69, p.49], [68, p. 49]

Appendix 19. Welltec income tax

Income tax: structure and dynamic, USD in thousands



Own creation. Source: Welltec Annual Report for 2013, 2014 and 2015. [70, p.50], [69, p.50], [68, p. 50]

Appendix 20.

Formulas used in Profitability analysis:

$$ROIC \quad after \quad tax = \frac{NOPAT}{Invested \quad capital} \times 100\% \quad \text{[8, p.94]}$$

$$ROIC \quad before \quad tax = \frac{EBIT}{Invested \quad capital} \times 100\% \quad \text{[8, p.94]}$$

Where:

ROIC – return on investment capital;

NOPAT – net operating profit after tax;

EBIT – earning before tax;

Inv. capital – average invested capital.

$$EVA = \left(ROIC \quad after \quad tax - WACC\right) \times Invested \quad capital \quad \text{[8, p.96]}$$

Where:

EVA – economic value added;

WACC – weighted average cost of capital.

$$EBIT - m\arg in = \frac{EBIT}{\mathrm{Re}venue} \times 100\% \quad \text{[8, p.107]}$$

$$NOPAT - m\arg in = \frac{NOPAT}{\mathrm{Re}venue} \times 100\% \quad \text{[8, p.107]}$$

$$Assets \quad turnover = \frac{\mathrm{Re}venue}{Invested \quad capital} \quad \text{[8, p.108]}$$

Appendix 21. Indexing and common-size analysis of analytical income statement

I start with the income statement to gain better understanding of profit margin development.
Operating expenses lap up a little more than half of Welltec's revenue, with the exceptions of 2013 and 2015 where they consume 3/5 of revenue. The largest of the operating expenses is 'cost of services provided' eating up more than 29% of revenue and grows over the observed period to 37%. Second in line is the 'administrative and sales cost', which are less voracious, consuming between 22-26% of revenue. Although small compared to the aforementioned, the restructuring costs for 2015, recorded under the heading 'special items' managed to trim away a further 3% off the revenues, which is not insignificant when a company's operating costs are already high.
'Depreciation, amortization and impairment losses' is another item that hacks away at the EBIT-margin and NOPAT. From 2011 to 2014, it consumed 19 to 24% of revenue. However, in 2015, the figure climbs to 30% of revenue. Not surprisingly, this sizeable increase in 'depreciation, amortization and impairment losses' expenses tears off a huge chunk from Welltec's EBIT-margin lowering it down to just 7%, when, in previous years, it had vacillated between 22 and 29%. Furthermore, while Welltec's EBIT-margins continue to dwindle 'operating tax' constantly consumes around 10% of revenue. In 2015, the level of 'operating tax' exceeds the EBIT-margin leaving Welltec with a -2% NOPAT.
As for 'net financial expenses after tax', during the years 2011-2014, their level is between 8-11%. In 2015, this increases to 14%.

Analytical Income Statement (not adjusted)	**Indexing (trend analysis)**					**Common-size analysis**				
USD, in thousands	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015
Revenue	**100%**	**129%**	**140%**	**151%**	**107%**	**100%**	**100%**	**100%**	**100%**	**100%**
Operating expenses (adjusted)	100%	125%	150%	149%	125%	54%	52%	58%	53%	63%
Cost of services provided (adjusted)	100%	142%	172%	171%	136%	29%	32%	35%	33%	37%
Development and manufacturing cost	100%	35%	77%	232%	1925%	0%	0%	0%	0%	1%
Administrative and sales cost (adjusted)	100%	109%	128%	129%	98%	26%	22%	24%	22%	24%
Special items (operating)	n/a	n/a	n/a	n/a	n/a	0%	0%	0%	0%	3%
Reverse of Rental and leasing expenses for the year (capitalized operating lease)	100%	186%	232%	258%	194%	-1%	-2%	-2%	-2%	-2%
EBITDA	**100%**	**133%**	**128%**	**152%**	**86%**	**46%**	**48%**	**42%**	**47%**	**37%**
Depreciation, amortization and impairment losses (adjusted)	100%	112%	129%	168%	150%	22%	19%	20%	24%	30%
Related to Cost of services provided	100%	110%	136%	181%	178%	14%	12%	13%	16%	23%
Related to Administrative and sales cost	100%	110%	132%	265%	136%	2%	2%	2%	3%	2%
Amortization of acquired intangibles in a business combination	100%	100%	100%	99%	96%	5%	4%	3%	3%	4%
Depreciation of capitalized operating lease assets	100%	167%	154%	138%	76%	2%	2%	2%	1%	1%
Operating income (EBIT)	**100%**	**152%**	**127%**	**138%**	**30%**	**24%**	**29%**	**22%**	**22%**	**7%**
Operating tax (tax on EBIT)	100%	150%	128%	173%	102%	10%	11%	9%	11%	9%
Tax expense adjustment for capitalized operating lease	100%	131%	-19%	-40%	-77%	0%	0%	0%	0%	0%
Operating tax (tax on EBIT) (adjusted)	100%	150%	129%	176%	105%	10%	11%	9%	11%	9%
NOPAT	**100%**	**153%**	**126%**	**113%**	**-19%**	**15%**	**18%**	**13%**	**11%**	**-3%**
Net financial expenses	100%	158%	108%	89%	133%	11%	13%	8%	6%	13%
Special items (financing)	n/a	n/a	n/a	n/a	n/a	0%	0%	1%	0%	0%
Interest on capitalized operating lease	100%	194%	129%	624%	639%	0%	0%	0%	0%	0%
Net financial expenses (adjusted)	100%	159%	122%	93%	137%	11%	13%	9%	7%	14%
Tax shield	100%	159%	122%	91%	129%	-3%	-3%	-2%	-2%	-3%
Unrealized exchange rate adjustments of foreign subsidiaries and branches	100%	-5727%	-15068%	-22198%	-14505%	0%	1%	3%	4%	4%
Net financial expenses after tax	100%	179%	173%	170%	190%	8%	11%	10%	9%	14%
Net income (Net earnings)	**100%**	**123%**	**72%**	**49%**	**-256%**	**7%**	**7%**	**4%**	**2%**	**-17%**

Appendix 22. Indexing and common-size analysis of analytical balance sheet

In order to gain better understanding of the development in capital utilization both index numbers and common-size analysis will be applied to Balance sheet. For index analysis, the basis year is 2012 (the earliest available in USD).

In 2013, the level of invested capital increased by 11%. In 2014, the level of invested capital was increased by 1%. However, in 2015, it fell back 9%.

The level of 'intangible assets' scarcely changes during the observed period. They constitute almost the entire value of invested capital. As mentioned earlier, the majority of 'intangible assets' is in the form of goodwill and acquired intangible assets. Goodwill and Brand remain on the same level, while acquired intangible assets are amortized over time.

'Development projects' are another component of 'intangible assets'. The value of *completed* projects have been rising, while 'development projects in progress' have, since 2015, been on a downward tumble, that was triggered by the low oil prices prompting OFS companies to send their R&D budgets on low-funds-diets. Welltec will need to raise its R&D investment if it is to maintain its technological competitiveness.

Patents and licenses have increased significantly. Yet, in 2015, they only made up 3% of invested capital.

In 2013 and 2014, at the expense of 'plant equipment and fleet', tangible assets' share of invested capital grew from 11 to 15 %. In contrast, 'plant equipment and fleet under construction' is slowly decreasing. If this development continues, it may lead to the discontinuance (or disruption) of completed 'plant equipment and fleet'. Moreover, 'other fixtures and fittings, tools and equipment' have been halved when compared to their level in 2012. The aforementioned is evidence that fewer investments are being allocated to equipment and tools. Stagnating investments in equipment and tools can seriously handicap Welltec's market responsiveness should oil prices pick up and demand for OFS services increase.

In 2014, there was a notable addition to 'land and buildings' in the form of a new manufacturing facility in Esbjerg, Denmark. Nevertheless, in 2015, 'land and buildings' accounted for no more than 2% of invested capital.

Receivables take up the largest share of 'current assets', accounting for 13-19% of invested capital. Trade receivables, receivables' principle subcategory have declined significantly. In opposition, tax receivables have more than doubled, but they share is small, constituting only 1% of receivables in 2015.

Generally, ‘operating liabilities’ are decreasing. In 2015, they had dropped to 72% of their 2012 value. Their share of invested capital changed from 22% to 16%. The same trend can be observed in all operating liabilities’ subcategories.

In 2013, equity grew by 13%, remained on the same level in 2014, but backslid to its initial level in 2015. From 2012-2015, Equity share of invested capital is at an almost stable level, 45-47%. Thus, NIBD, for that same period, was between 53-55% of invested capital.

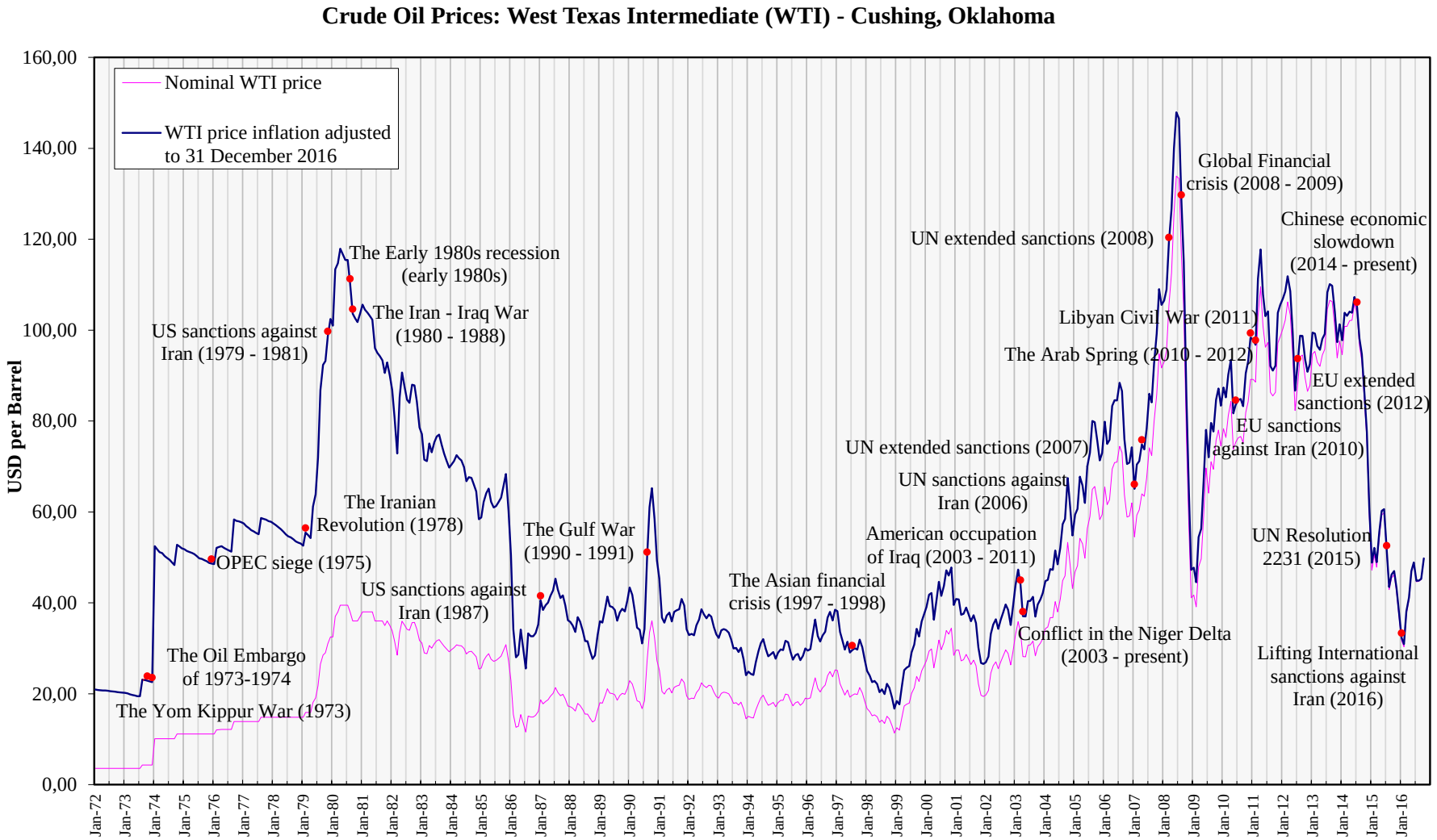
Between 2012 and 2015, NIBD grew by 6% caused by increases in non-current liabilities. Specifically, NIBD’s growth was the result of a small increase in ‘issued bonds’ constituting a large share of invested capital, a significant increase in ‘finance lease commitments’ that take up a small share of invested capital, and an increase in ‘bank loan’ to 5% of invested capital.

Analytical Balance Sheet (not adjusted)		**Indexing (trend analysis)**				**Common-size analysis**			
USD, in thousands		2012	2013	2014	2015	2012	2013	2014	2015
Operating assets		**100%**	**105%**	**108%**	**97%**	**122%**	**116%**	**118%**	**116%**
Non-current assets		**100%**	**105%**	**105%**	**99%**	**101%**	**96%**	**95%**	**98%**
Intangible assets		**100%**	**101%**	**100%**	**96%**	**82%**	**74%**	**73%**	**76%**
Goodwill	O	100%	100%	100%	100%	46%	41%	41%	45%
Technology	O	100%	93%	85%	78%	12%	10%	9%	9%
Cusomer relationship	O	100%	77%	53%	31%	5%	3%	2%	1%
Brand	O	100%	100%	100%	100%	3%	2%	2%	3%
Completed development projects	O	100%	110%	125%	143%	10%	10%	11%	13%
Development projects in progress	O	100%	121%	106%	37%	5%	6%	5%	2%
Patents and licenses	O	100%	153%	207%	248%	1%	1%	2%	3%
Tangible assets		**100%**	**122%**	**128%**	**114%**	**20%**	**22%**	**23%**	**22%**
Land and buildings	O	100%	122%	457%	412%	0%	1%	2%	2%
Leasehold improvements	O	100%	138%	129%	100%	0%	0%	0%	0%
Plant equipment and fleet	O	100%	142%	147%	136%	11%	14%	15%	15%
Other fixtures and fittings, tools and equipment	O	100%	92%	78%	50%	3%	2%	2%	1%
Plant equipment and fleet under construction	O	100%	93%	84%	72%	5%	4%	4%	4%
Capitalized operating lease asset	**O**	**100%**	**194%**	**165%**	**207%**	**2%**	**3%**	**2%**	**3%**
Current assets		**100%**	**97%**	**117%**	**77%**	**19%**	**17%**	**20%**	**14%**
Inventories	**O**	**100%**	**143%**	**203%**	**258%**	**0%**	**0%**	**1%**	**1%**
Receivables		**100%**	**96%**	**115%**	**73%**	**19%**	**16%**	**19%**	**13%**
Trade receivables	O	100%	98%	99%	72%	16%	14%	14%	11%
Tax receivables	O	100%	108%	916%	273%	0%	0%	3%	1%
Other receivables	O	100%	67%	127%	58%	2%	1%	2%	1%
Prepayments		100%	143%	31%	40%	1%	1%	0%	0%
Prepaid insurance	O	100%	282%	150%	146%	0%	0%	0%	0%
Prepaid lease	O	100%	29%	32%	59%	0%	0%	0%	0%
Prepaid rent	O	100%	224%	87%	68%	0%	0%	0%	0%
Other prepayments	O	100%	144%	0%	13%	0%	0%	0%	0%
LESS:									
Operating liabilities		**100%**	**80%**	**90%**	**72%**	**22%**	**16%**	**18%**	**16%**
Non-current liabilities		**100%**	**77%**	**66%**	**76%**	**10%**	**7%**	**6%**	**8%**
Deferred tax liabilities		**100%**	**85%**	**73%**	**84%**	**9%**	**7%**	**6%**	**8%**
Intangible assets	O	100%	109%	84%	79%	9%	9%	7%	7%
Tangible assets	O	100%	158%	155%	-320%	0%	0%	0%	1%
Current assets	O	100%	-476%	-252%	44%	0%	0%	0%	0%
Change in tax rate, coming years	O	n/a	n/a	n/a	n/a	0%	-1%	0%	0%
Tax contingencies	O	100%	0%	0%	0%	1%	0%	0%	0%
Tax loss carried forward	O	100%	102%	0%	8%	0%	0%	0%	0%
Other non-current liabilities	**O**	**100%**	**8%**	**0%**	**0%**	**1%**	**0%**	**0%**	**0%**

Current liabilities		**100%**	**82%**	**110%**	**68%**	**12%**	**9%**	**12%**	**8%**
Other provisions	**O**	**n/a**	**n/a**	**n/a**	**n/a**	**0%**	**0%**	**0%**	**0%**
Trade payables	**O**	**100%**	**82%**	**102%**	**64%**	**4%**	**3%**	**3%**	**2%**
Current tax liabilities	**O**	**100%**	**57%**	**168%**	**61%**	**2%**	**1%**	**3%**	**1%**
Other payables		**100%**	**90%**	**94%**	**73%**	**6%**	**5%**	**5%**	**4%**
Wages, salaries, personal income taxes, social security costs, etc.	O	100%	81%	86%	42%	2%	1%	1%	1%
Holiday pay obligation	O	100%	116%	105%	85%	1%	1%	1%	1%
Earn out related to HPI	O	100%	0%	0%	0%	0%	0%	0%	0%
VAT and duties	O	100%	1%	0%	0%	1%	0%	0%	0%
Other costs payable	O	100%	124%	137%	127%	2%	2%	3%	3%
Invested capital (net operating assets)		**100%**	**111%**	**112%**	**103%**	**100%**	**100%**	**100%**	**100%**

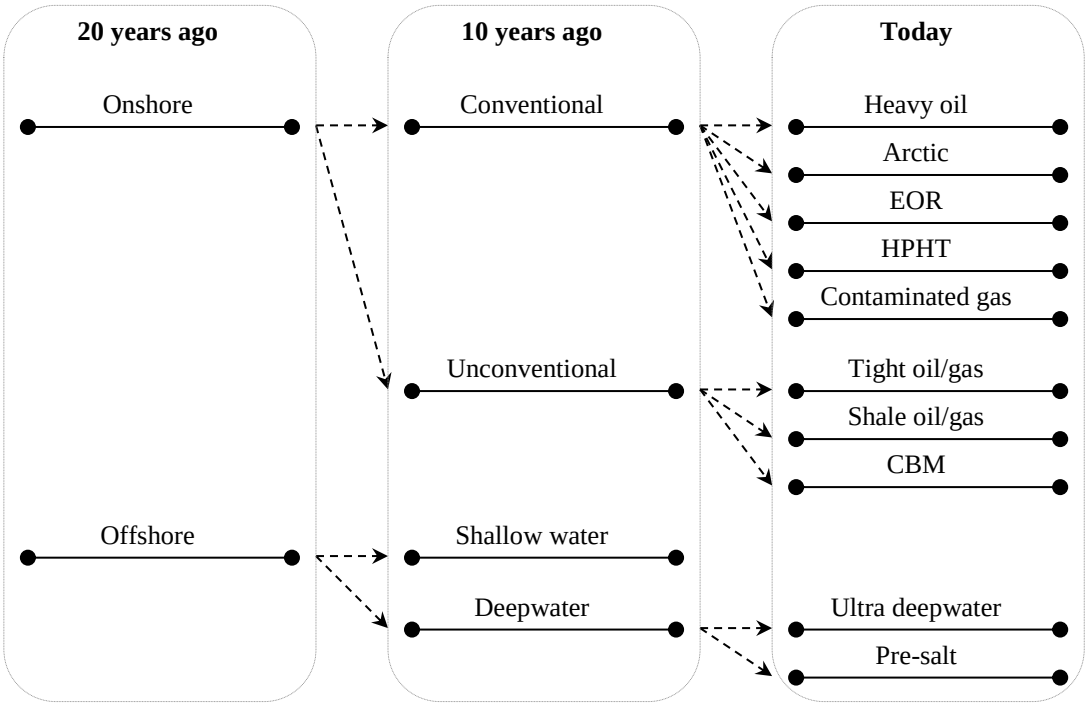
Analytical Balance Sheet (not adjusted)		**Indexing (trend analysis)**				**Common-size analysis**			
USD, in thousands		2012	2013	2014	2015	2012	2013	2014	2015
Equity		**100%**	**113%**	**115%**	**99%**	**46%**	**47%**	**48%**	**45%**
Share capital	F	100%	105%	105%	106%	0%	0%	0%	0%
Currency translation reserve	F	100%	367%	761%	1019%	-1%	-2%	-4%	-7%
Reserve for capitalized development projects		n/a	n/a	n/a	n/a	0%	0%	0%	0%
Retained earnings	F	100%	117%	123%	111%	47%	50%	52%	51%
Retained earnings adjustment related to capitalized operating lease	F	100%	87%	57%	-2%	0%	0%	0%	0%
Non-controlling interest	F	100%	102%	0%	0%	0%	0%	0%	0%
Net interest bearing debt		**100%**	**109%**	**109%**	**106%**	**54%**	**53%**	**52%**	**55%**
Non-current liabilities		**100%**	**104%**	**108%**	**113%**	**58%**	**55%**	**56%**	**64%**
Deferred tax liabilities (adjusted)		**100%**	**-1014%**	**-899%**	**-197%**	**0%**	**2%**	**2%**	**0%**
Current and non-current liabilities	F	100%	-1821%	-1602%	-348%	0%	2%	2%	0%
Deferred tax liabilities related to capitalized operating lease	F	100%	87%	60%	9%	0%	0%	0%	0%
Finance lease commitments	**F**	**100%**	**146%**	**770%**	**747%**	**0%**	**0%**	**1%**	**1%**
Issued bonds	**F**	**100%**	**101%**	**102%**	**101%**	**58%**	**53%**	**53%**	**57%**
Bank debt	**F**	**n/a**	**n/a**	**n/a**	**n/a**	**0%**	**0%**	**0%**	**5%**
Current liabilities		**100%**	**90%**	**78%**	**76%**	**3%**	**2%**	**2%**	**2%**
Current portion of non-current liabilities	**F**	**100%**	**62%**	**59%**	**63%**	**0%**	**0%**	**0%**	**0%**
Payables to affiliates	**F**	**100%**	**30%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**
Other payables		**100%**	**101%**	**89%**	**86%**	**2%**	**2%**	**2%**	**2%**
Derivative financial instruments	F	n/a	n/a	n/a	n/a	0%	0%	0%	0%
Accrued interests	F	100%	93%	89%	86%	2%	2%	2%	2%
Capitalized operating lease liability		**100%**	**177%**	**147%**	**173%**	**2%**	**3%**	**3%**	**3%**
LESS:									
Financial assets		**100%**	**68%**	**60%**	**38%**	**1%**	**1%**	**0%**	**0%**
Tax receivables	F	100%	105%	0%	0%	0%	0%	0%	0%
Other recievables	F	100%	53%	84%	53%	1%	0%	0%	0%
LESS:									
Current assets		**100%**	**95%**	**100%**	**159%**	**9%**	**7%**	**8%**	**14%**
Receivables		**100%**	**117%**	**88%**	**49%**	**1%**	**1%**	**1%**	**0%**
Current portion of non-current assets	F	100%	100%	0%	0%	0%	0%	0%	0%
Receivables from affiliates	F	n/a	n/a	n/a	n/a	0%	0%	0%	0%
Prepayments		100%	133%	173%	97%	0%	0%	1%	0%
Prepaid creditors	F	100%	133%	173%	97%	0%	0%	1%	0%
Cash and cash equivalents	**F**	**100%**	**92%**	**102%**	**145%**	**8%**	**7%**	**7%**	**11%**
Securities	**F**	**n/a**	**n/a**	**n/a**	**n/a**	**0%**	**0%**	**0%**	**2%**
Invested capital (financing)		**100%**	**111%**	**112%**	**103%**	**100%**	**100%**	**100%**	**100%**

Appendix 23. Oil prices and historical events



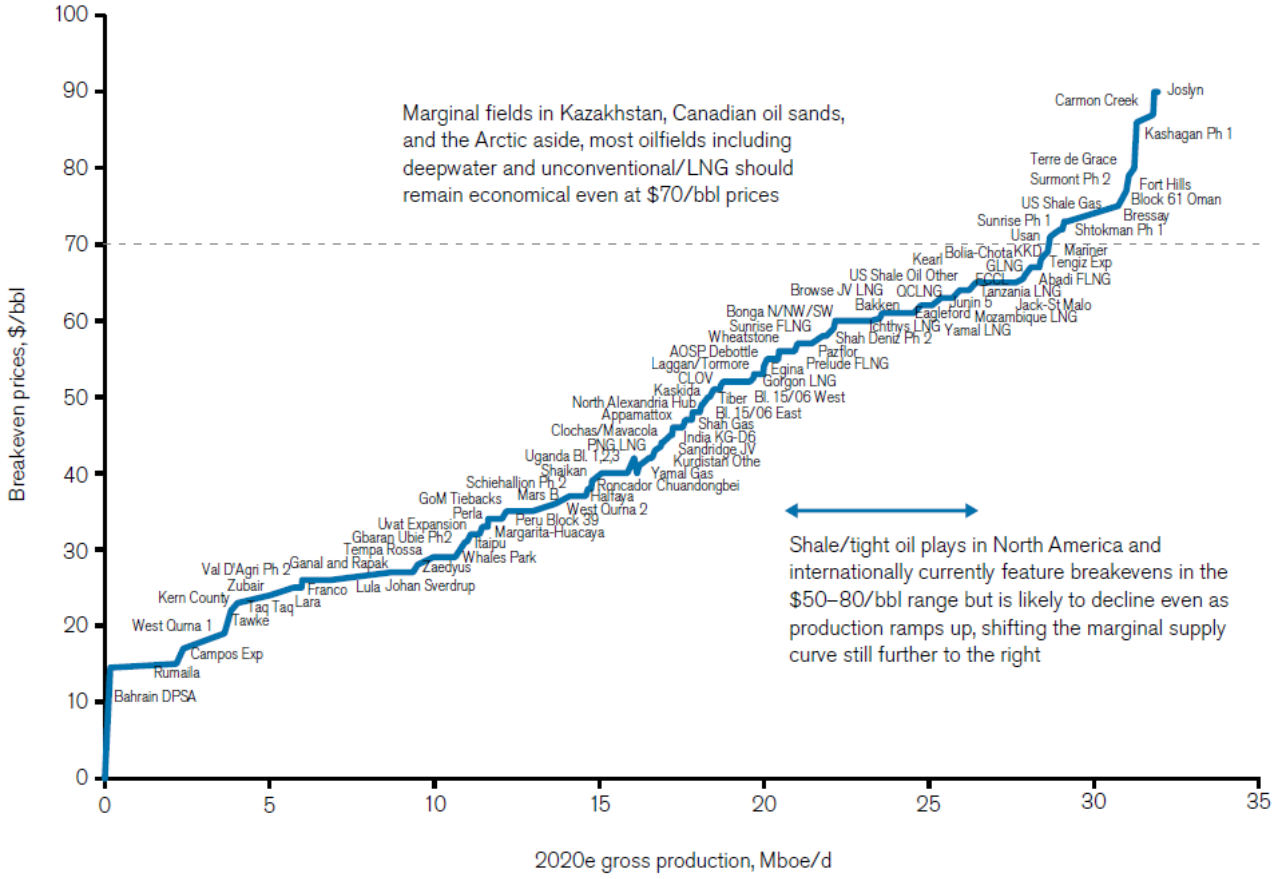
Own creation. Source: Federal Reserve Bank of St. Louis, Economic Research Division [77] & Inflationdata [78]

Appendix 24. Technology development



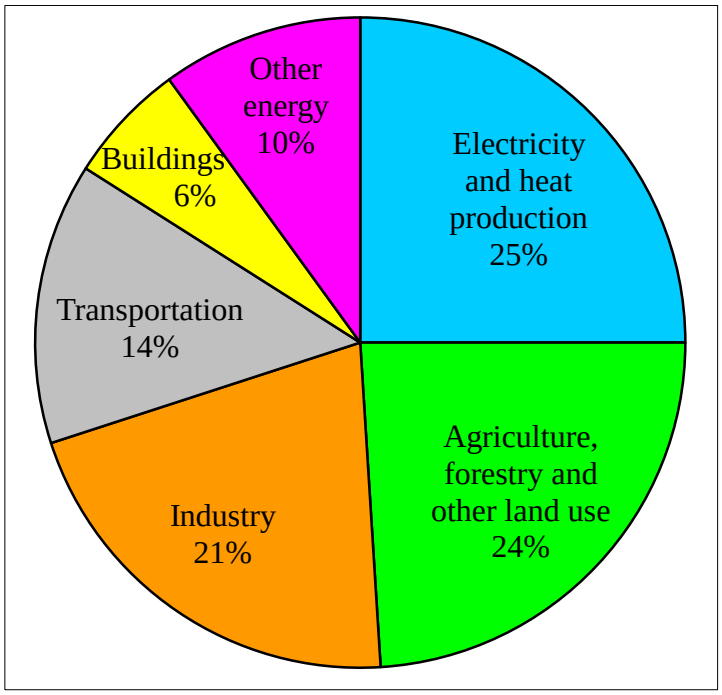
Source: Chatham House. [11, p.63]

Appendix 25. Estimate of breakeven price for incremental oil production projects



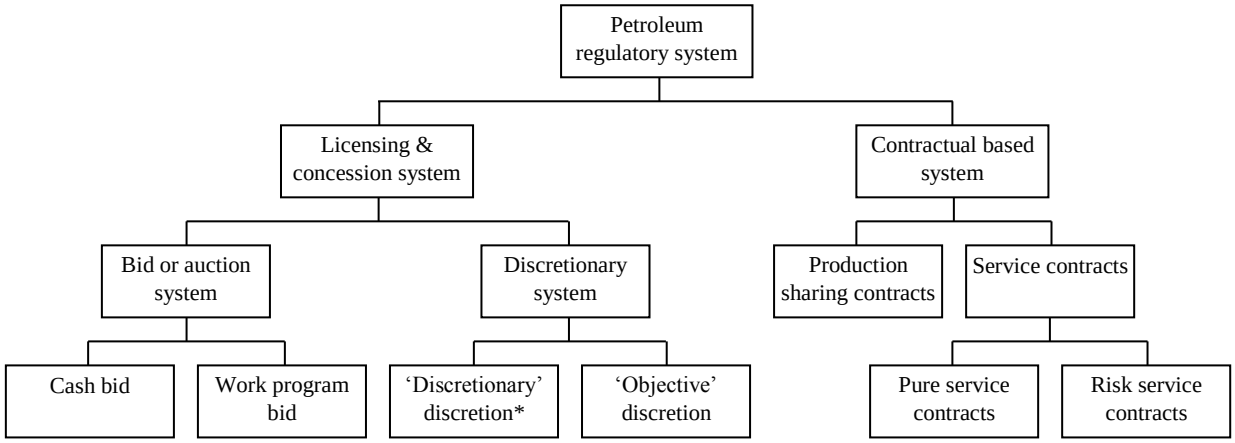
Source: Citigroup as presented in Chatham House [11, p.65]

Appendix 26. Global greenhouse gas emissions by economic sector



Source: US Environmental Protection Agency [55]

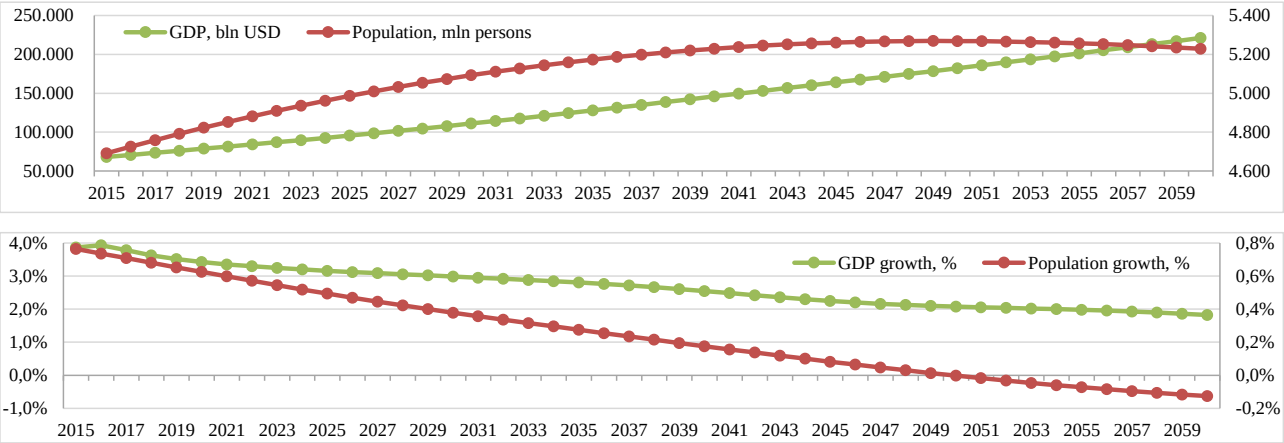
Appendix 27. Regulatory systems governing the petroleum industry



Own creation. Source: Hunter T. [25, p.46], Feng Zh., Zhang Sh.-B. & Gao Y. [31, p.395-396] and Mitchell J. [11, p.36]

* The 'discretionary' discretionary allocation of petroleum licenses was used by the Norwegian government prior to 1994. [25, p.54-55]

Appendix 28. GDP and population forecast

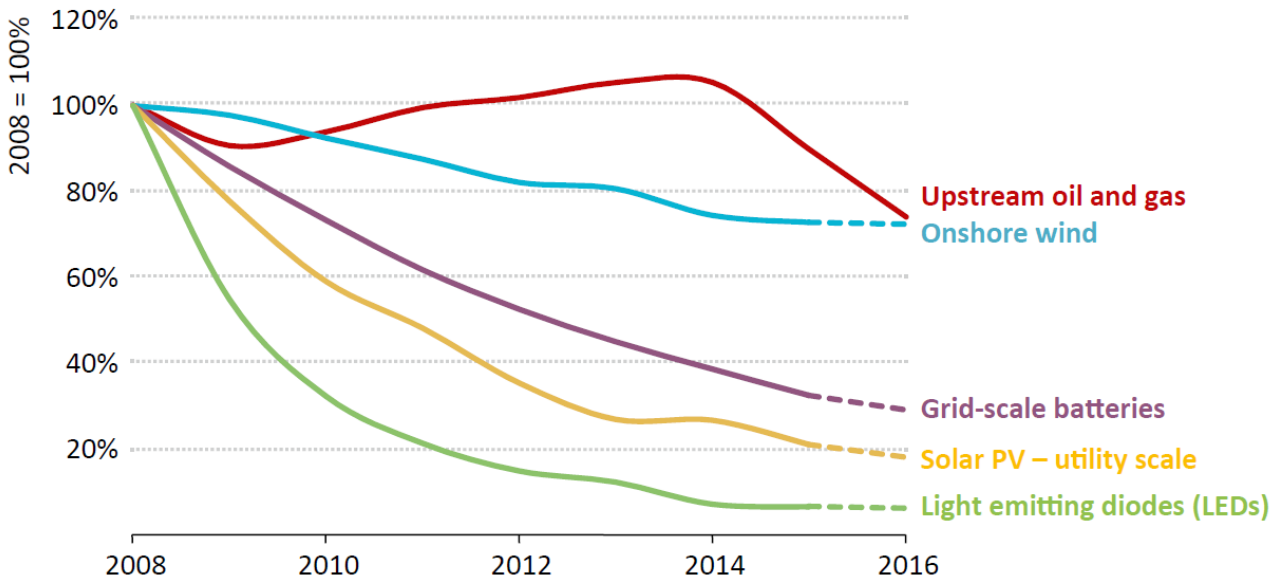


Own creation.

GDP (left axis). Source: OECD [79]

Population (right axis). Source: OECD [80]

Appendix 29. Recent cost trends for selected technologies

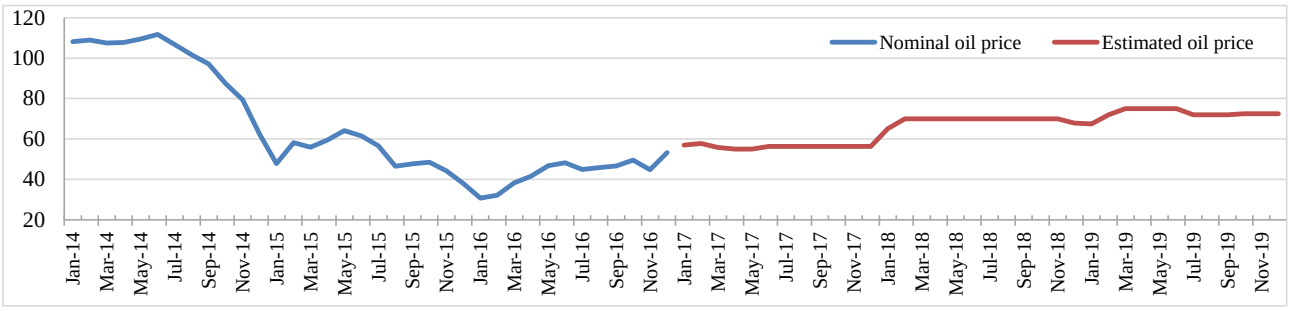


2016 is estimate

Source: IEA World Energy Outlook 2016 [41, p.53]

Appendix 30. Recent historical and estimated oil price

Analysts estimate oil price (Brent), median, $/barrel



Own creation.

Nominal oil price. Source: Federal Reserve Bank of St. Louis, Economic Research Division [81]

Estimate. Source: KPMG Market Update: Oil & Gas [52]

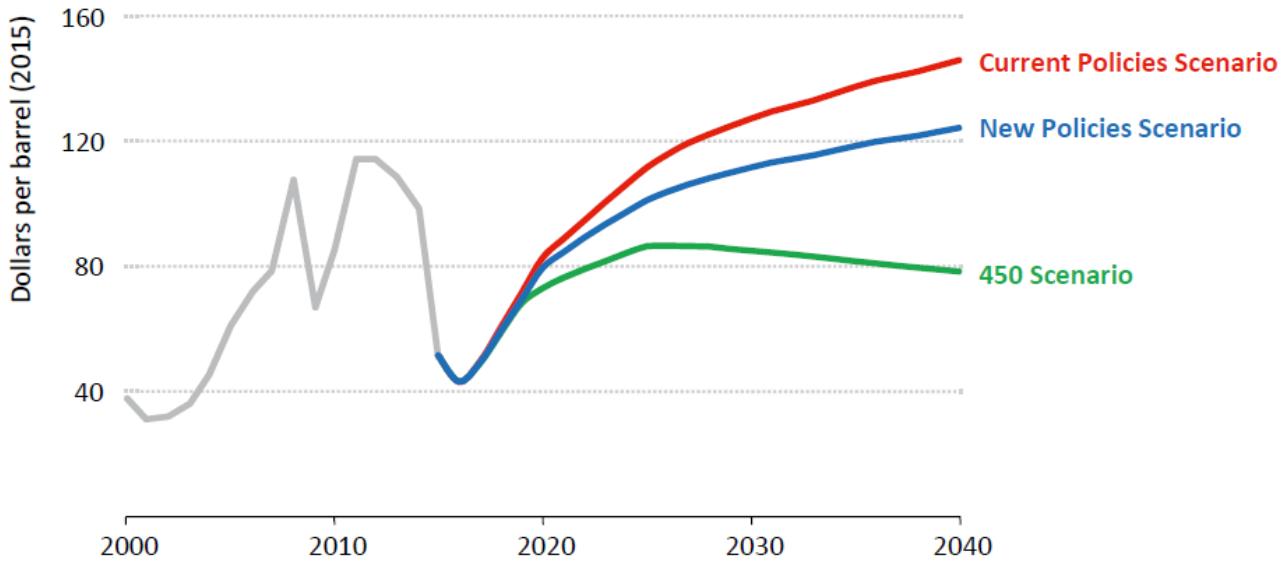
Appendix 31. Fossil fuel prices according to IEA World Energy Outlook 2016

Fossil-fuel import prices by scenario:

IEA WEO 2016	2015 real terms	Current Policies Scenario			New Policies Scenario*		
		2020	2030	2040	2020	2030	2040
Crude oil ($/barrel)	51	82	127	146	79	111	124
Natural gas ($/barrel)							
United States	2,6	4,3	5,9	7,9	4,1	5,4	6,9
European Union	7,0	7,3	11,1	13,0	7,1	10,3	11,5
China	9,7	9,5	12,5	13,9	9,2	11,6	12,1
Japan	10,3	9,9	13,0	14,4	9,6	11,9	12,4

** New policy scenario based on a detailed review of existing policies and policy announcements worldwide in relation to the Paris Agreement commitments (COP21) and includes IEA judgment on how far and how fast the policy commitments would be met.* [41, p.32]

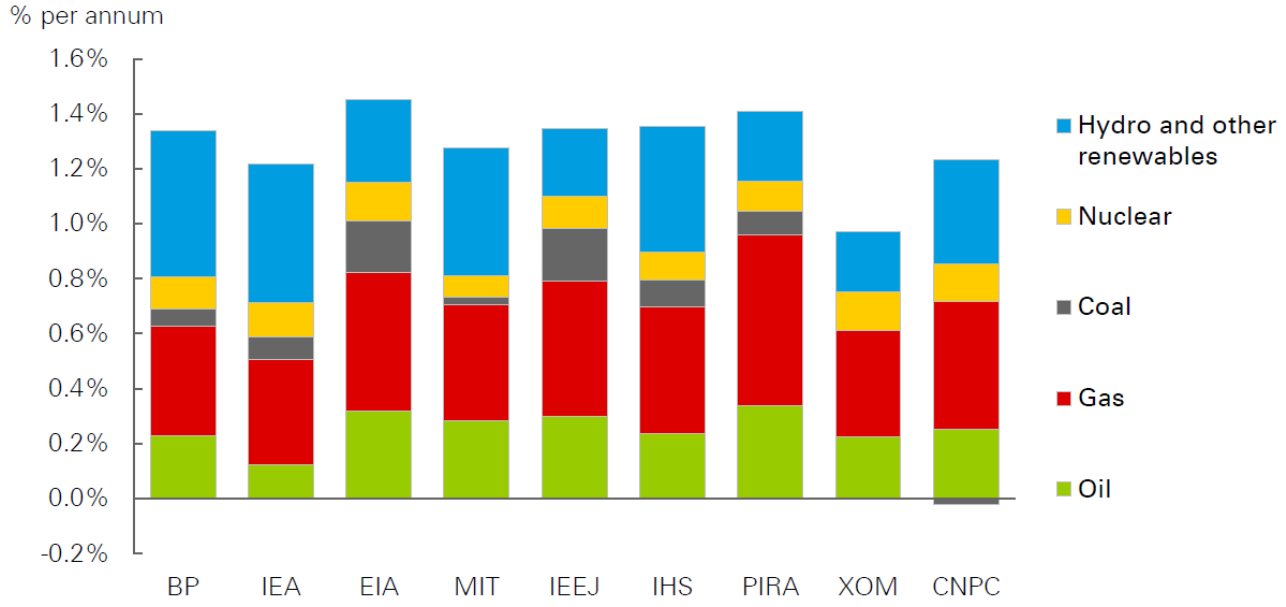
Average IEA crude oil import price by scenario:



Source: IEA World Energy Outlook 2016 [41, p.45, 48]

Appendix 32. Comparison between different energy outlooks

Contributions to growth of energy consumption, 2015-2035



Source: BP Energy Outlook 2017 [66, p.100]

Appendix 33. Well tractor ®

Source: Welltec [61]

Appendix 34. Financial statement adjusted for non-recurring items

Analytical income statement

USD in thousands	2011	2012	2013	2014	2015
Revenue	**229.223**	**295.387**	**321.165**	**345.009**	**245.726**
Operating expenses	-121.404	-153.526	-184.507	-183.520	-154.256
Cost of services provided (adjusted)	-66.012	-94.056	-113.353	-113.088	-89.980
Development and manufacturing cost	-128	-45	-99	-297	-2.464
Reverse of Depreciation and amortization related to Development and manufacturing cost	2.133	1.127	1.077	915	588
Administrative and sales cost (adjusted)	-59.902	-65.216	-76.432	-77.502	-58.750
Special items (operating)	0	0	-1.517	0	-8.500
Reverse of Rental and leasing expenses for the year (capitalized operating lease)	2.505	4.664	5.817	6.452	4.850
EBITDA	**107.819**	**141.861**	**136.658**	**161.489**	**91.470**
Depreciation, amortization and impairment losses	-51.772	-56.854	-65.309	-84.290	-74.921
Amortization and impairment loss of intangible assets	-24.079	-26.336	-30.236	-41.719	-36.008
Depreciation and impairment loss of tangible assets	-24.226	-24.712	-29.719	-37.803	-36.265
Depreciation of capitalized operating lease assets	-3.467	-5.806	-5.354	-4.768	-2.648
Operating income (EBIT)	**56.047**	**85.007**	**71.349**	**77.199**	**16.549**
Operating tax (adjusted for non-recurring items)	-21.835	-33.172	-23.792	-27.887	-22.908
NOPAT	**34.212**	**51.836**	**47.557**	**49.311**	**-6.359**
Net financial expenses	-24.150	-38.261	-26.175	-21.499	-32.193
Special items (financing) (adjusted for non-recurring items)	0	0	0	0	0
Interest on lease assets	-190	-368	-244	-1.182	-1.212
Net financial expenses (adjusted)	-24.340	-38.629	-26.419	-22.681	-33.405
Tax shield	6.085	9.657	6.605	5.557	7.850
Unrealized exchange rate adjustments of foreign subsidaries and branches		62	-3.551	-9.342	-13.763
Net financial expenses after tax	-18.193	-32.523	-29.157	-30.887	-34.548
Net income (Net earnings)	**16.019**	**19.312**	**18.401**	**18.424**	**-40.907**

Analytical balance sheet

USD in thousands	2012	2013	2014	2015
Operating assets	**647.162**	**679.644**	**698.713**	**629.265**
Non-current assets	**545.312**	**580.857**	**579.788**	**551.338**
Intangible assets	**431.412**	**435.126**	**430.593**	**413.071**
Tangible assets	**113.900**	**145.731**	**149.195**	**138.267**
Current assets	**101.850**	**98.787**	**118.925**	**77.927**
Inventories	**1.733**	**2.476**	**3.515**	**4.479**
Receivables	**100.117**	**96.311**	**115.410**	**73.448**
Trade receivables	85.329	83.361	84.339	61.244
Tax receivables	1.924	2.070	17.626	5.256
Other receivables	9.902	6.630	12.530	5.757
Prepayments	2.962	4.250	915	1.191
LESS:				
Operating liabilities	**118.382**	**94.379**	**106.645**	**85.050**
Non-current liabilities	**54.186**	**41.939**	**35.980**	**41.204**
Deferred tax liabilities	**48.955**	**41.519**	**35.980**	**41.204**
Other non-current liabilities	**5.231**	**420**	**0**	**0**
Current liabilities	**64.196**	**52.440**	**70.665**	**43.846**
Other provisions	**0**	**0**	**0**	**0**
Trade payables	**18.897**	**15.414**	**19.257**	**12.111**
Current tax liabilities	**11.943**	**6.865**	**20.094**	**7.256**
Other payables	**33.356**	**30.161**	**31.314**	**24.479**
Invested capital (net operating assets)	**528.780**	**585.265**	**592.068**	**544.215**
Equity	**244.834**	**284.127**	**298.879**	**259.767**
Share capital	787	824	824	835
Currency translation reserve	-3.493	-12.835	-26.598	-35.591
Reserve for capitalized development projects	0	0	0	0
Retained earnings (adjusted)	248.254	296.863	324.653	294.523
Non-controlling interest	-714	-725	0	0
Net interest bearing debt	**283.945**	**301.138**	**293.189**	**284.447**
Non-current liabilities	**308.120**	**321.642**	**331.652**	**346.775**
Current liabilities	**15.835**	**14.329**	**12.395**	**12.060**
Capitalized operating lease liability	**10.622**	**18.782**	**15.652**	**18.425**
LESS:				
Financial assets	**4.639**	**3.146**	**2.800**	**1.756**
LESS:				
Current assets	**45.993**	**50.469**	**63.710**	**91.057**
Cash and cash equivalents	**41.685**	**45.448**	**59.927**	**78.285**
Securities	0	0	0	10.640
Invested capital (financing)	**528.780**	**585.265**	**592.068**	**544.215**
NIBD (adjusted for cash and cash equivalents)	***325.630***	***346.586***	***353.116***	***362.732***

Cash flow statement

USD in thousands	2012	2013	2014	2015
EBITDA	**141.861**	**136.658**	**161.489**	**91.470**
LESS:				
Operating tax (tax on EBIT) (adjusted for non-recurring items)	-33.172	-23.792	-27.887	-22.908
Cash flow from operations before changes in NWC	**108.689**	**112.866**	**133.602**	**68.562**
ADD:				
Changes in inventories	115	-743	-1.039	-964
Changes in receivables	n/d	3.806	-19.099	41.962
Changes in operating debt	n/d	-24.003	12.266	-21.595
Cash flow from operations	**n/a**	**91.926**	**125.730**	**87.965**
LESS:				
Investments in non-current assets	n/d	-100.855	-83.221	-46.471
Free cash flow	**n/a**	**-8.929**	**42.509**	**41.494**
LESS (-) / ADD (+):				
New net interest bearing debt (adjusted for cash and cash equivalents)	n/d	20.956	6.530	9.616
Net financial expenses before tax	-43.364	-38.875	-40.911	-45.160
Tax shield	10.841	9.719	10.023	10.613
Dividend paid out to shareholders	-34.500	0	0	0
Sale of own shares		1.416		
Purchase of own shares and warrants		-33.202	-3.939	-233.799
Purchase of minority interest			0	
Share-based payment to executives		2.710	13	505
Tax credit relating to share option scheme		5.887	254	52
Capital increase	-30	45.965		235.724
Cost related to capital increase		-1.884		-687
Free cash flow to owners	**n/a**	**3.763**	**14.479**	**18.358**

Appendix 35. Revenue forecast using Holt's model

Under Holt's model, revenue is a sum of 'level' and 'trend'.

The first step is to estimate initial 'level' and 'trend' (i.e. 'level' and 'trend' for period ZERO – period preceding the first observation). Running a linear regression for 'revenue' observations for the full period (from Q1 2013 till Q3 2016) 'level' is computed as 'intercept' and 'trend' is computed as 'slope'. [28, p.26]

'Revenue' forecast for the following periods is calculated as a sum of 'level' and 'trend' for previous periods:

$$F_{t+1} = L_t + T_t$$ [28, p.27]

Where:

F_{t+1} – revenue forecast;

L_t – level for previous period;

T_t – trend for previous period.

After observing 'revenue' in period t, 'level and 'trend' are revised following the formulas:

$$L_{t+1} = \alpha R_{t+1} + (1-\alpha)(L_t + T_t)$$ [28, p.27]

$$T_{t+1} = \beta(L_{t+1} - L_t) + (1-\beta)T_t$$ [28, p.27]

Where:

L_{t+1} – level for the following period;

T_{t+1} – trend for the following period.

R_{t+1} – revenue observation (actual) for the following period;

L_t – level for previous period;

T_t – trend for previous period;

α, β – exponential smoothing constants lying in the range between 0 and 1.

Holt's model		2013, Q1	2013, Q2	2013, Q3	2013, Q4	2014, Q1	2014, Q2	2014, Q3	2014, Q4	2015, Q1	2015, Q2	2015, Q3	2015, Q4	2016, Q1	2016, Q2	2016, Q3	2016, Q4*
Period t	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Revenue R_t		75.462	84.139	77.700	83.864	79.680	96.826	89.234	79.269	68.463	68.517	56.782	51.964	45.185	51.370	47.000	
Level L_t (intercept)	94.138	89.596	86.234	82.544	79.791	76.935	76.107	74.810	72.790	69.956	67.396	63.930	60.257	56.191	53.040	49.750	42.062
Trend T_t (slope)	-2.972	-3.129	-3.152	-3.206	-3.161	-3.130	-2.900	-2.740	-2.668	-2.684	-2.672	-2.751	-2.843	-2.966	-2.984	-3.015	-3.482
Forecast F_t		**91.166**	**86.467**	**83.082**	**79.338**	**76.630**	**73.805**	**73.207**	**72.070**	**70.122**	**67.272**	**64.725**	**61.179**	**57.414**	**53.225**	**50.056**	**46.735**
Absolute Error A_t	7.629	15.704	2.328	5.382	4.526	3.050	23.021	16.027	7.199	1.659	1.245	7.943	9.215	12.229	1.855	3.056	
α =	0,1	*between 0 and 1*															
β =	0,1	*between 0 and 1*															

Appendix 36. Inventory forecast using simple exponential smoothing model

Simple exponential smoothing is 'an average method that weights the most recent data'. [28, p.20]

The first step is to estimate the initial 'level' which is calculated as an average for 4 months. Therefore, the earliest period for which forecasted value could be obtained is Q4 2013 (average for Q1 – Q4 2013).

After calculating inventories forecast in Q4 2013, the inventories forecast for Q1 2014 and following quarters until Q 4 2016 can be computed based on the formula:

$$F_{t+1} = \alpha I_t + (1-\alpha)F_t$$ [28, p.20]

Where:

F_{t+1} – inventories forecast for the following period;

I_t – actual inventories in previous period;

F_{t+1} – inventories forecast for the previous period;

α – exponential smoothing constant lying in the range between 0,01 and 0,5.

Simple Exponential Smoothing		2013, Q1	2013, Q2	2013, Q3	2013, Q4	2014, Q1	2014, Q2	2014, Q3	2014, Q4	2015, Q1	2015, Q2	2015, Q3	2015, Q4	2016, Q1	2016, Q2	2016, Q3	2016, Q4*
Period t	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Inventories I_t		2.083	2.296	2.670	2.476	2.374	2.244	2.237	3.515	3.365	4.926	5.831	4.479	4.575	4.709	5.415	
Forecast F_t					**2.381**	**2.429**	**2.401**	**2.323**	**2.280**	**2.897**	**3.131**	**4.029**	**4.930**	**4.704**	**4.640**	**4.674**	**5.045**
Absolute Error A_t	635					55	157	86	1.235	468	1.795	1.802	451	129	69	741	
	α =	0,5	*between 0 and 1*														

Appendix 37. Forecast of Q4 2016 and 2016

Analytical income statement

USD in thousands	2015, Q1	2015, Q2	2015, Q3	2015, Q4	2016, Q1	2016, Q2	2016, Q3	2016, Q4	2016
Revenue	**68.463**	**68.517**	**56.782**	**51.964**	**45.185**	**51.370**	**47.000**	**46.735**	**190.290**
Operating expenses	-41.853	-41.169	-34.476	-36.757	-32.334	-31.912	-30.269	-31.365	-125.881
Cost of services provided (adjusted)	-23.422	-20.666	-19.347	-26.546	-18.906	-17.811	-16.958		
Development and manufacturing cost	-216	161	-180	-2.229	-1.748	-1.457	-1.581		
Reverse of Depreciation and amortization related to Development and manufacturing cost		147	147	147	147	147	147	147	
Administrative and sales cost (adjusted)	-16.633	-17.942	-14.587	-9.588	-11.501	-13.072	-12.129		
Special items (operating)	-2.942	-4.082	-1.722	246	-1.063	-456	-485		
Reverse of Rental and leasing expenses for the year (capitalized operating lease)		1.212	1.212	1.212	1.212	736	736	736	
EBITDA	**26.610**	**27.348**	**22.306**	**15.207**	**12.851**	**19.458**	**16.731**	**15.370**	**64.409**
Depreciation, amortization and impairment losses	-18.385	-18.391	-18.386	-19.758	-71.728	-16.351	-16.351	-14.490	-118.922
Amortization and impairment loss of intangible assets	n/d	n/d	n/d	n/d	n/d	n/d	n/d	-6.381	n/d
Depreciation and impairment loss of tangible assets	n/d	n/d	n/d	n/d	n/d	n/d	n/d	-7.458	n/d
Depreciation of capitalized operating lease assets[1]	-662	-662	-662	-662	-651	-651	-651	-651	-2.605
Operating income (EBIT)	**8.224**	**8.956**	**3.919**	**-4.552**	**-58.878**	**3.106**	**379**	**880**	**-54.513**
Operating tax (tax on EBIT) (adjusted for non-recurring items)	-4.046	-4.452	-2.958	-11.452	10.398	-5.173	-3.095	-581	1.549
NOPAT	**4.179**	**4.504**	**962**	**-16.004**	**-48.480**	**-2.067**	**-2.716**	**299**	**-52.964**
Net financial expenses	-3.236	-9.335	-6.112	-13.510	-10.462	-7.778	-6.287		
Special items (financing) (adjusted for non-recurring items)		0	0	0	0	0	0	0	
Interest on lease assets	-303	-303	-303	-303	-385	-385	-385		
Net financial expenses (adjusted)	-3.539	-9.638	-6.415	-13.813	-10.847	-8.163	-6.672		
Tax shield	832	2.265	1.508	3.246	2.386	1.796	1.468		
Unrealized exchange rate adjustments of foreign subsidaries and branches		-2.983	1.056	-5.091	-1.975	3.138	150	367	
Net financial expenses after tax	-5.690	-6.317	-9.998	-12.542	-5.322	-6.217	-4.837	-17.799	-34.175
Net income (Net earnings)	**-1.512**	**-1.813**	**-9.037**	**-28.546**	**-53.803**	**-8.284**	**-7.553**	**-17.500**	**-87.139**

1 – Assuming depreciation expense is equally allocated during the year

Analytical balance sheet

USD in thousands	2015, Q1	2015, Q2	2015, Q3	2015	2016, Q1	2016, Q2	2016, Q3	2016, Q4	2016
Operating assets	**679.624**	**678.433**	**663.586**	**629.265**	**555.045**	**550.878**	**537.274**	**525.353**	**525.353**
Non-current assets	**577.398**	**577.582**	**570.672**	**551.338**	**486.229**	**477.557**	**467.871**	**459.786**	**459.786**
Intangible assets	**431.289**	**431.282**	**428.525**	**413.071**	**353.549**	**350.076**	**345.738**	**341.898**	**341.898**
Tangible assets	**146.109**	**146.300**	**142.147**	**138.267**	**132.680**	**127.481**	**122.133**	**117.888**	**117.888**
Current assets	**102.226**	**100.850**	**92.914**	**77.927**	**68.816**	**73.321**	**69.403**	**65.568**	**65.568**
Inventories	**3.365**	**4.926**	**5.831**	**4.479**	**4.575**	**4.709**	**5.415**	**5.045**	**5.045**
Receivables	**98.861**	**95.924**	**87.083**	**73.448**	**64.241**	**68.612**	**63.988**	**60.523**	**60.523**
LESS:									
Operating liabilities	**96.809**	**94.229**	**77.959**	**85.050**	**64.562**	**66.909**	**59.071**	**65.196**	**65.196**
Non-current liabilities	**39.217**	**40.694**	**38.497**	**41.204**	**29.389**	**29.002**	**30.572**	**n/a**	**n/a**
Deferred tax liabilities[1]	**39.217**	**40.694**	**38.497**	**41.204**	**29.389**	**29.002**	**30.572**	**n/a**	**n/a**
Other non-current liabilities	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**n/a**	**n/a**
Current liabilities	**57.591**	**53.535**	**39.462**	**43.846**	**35.173**	**37.907**	**28.499**	**n/a**	**n/a**
Other provisions	**0**	**0**	**9.854**	**0**	**0**	**0**	**8.296**	**n/a**	**n/a**
Trade payables	**14.154**	**11.904**	**0**	**12.111**	**10.043**	**9.604**	**0**	**n/a**	**n/a**
Current tax liabilities	**20.109**	**16.334**	**6.312**	**7.256**	**3.664**	**4.018**	**2.645**	**n/a**	**n/a**
Other payables[2]	**23.328**	**25.297**	**23.296**	**24.479**	**21.466**	**24.285**	**17.558**	**n/a**	**n/a**
Invested capital (net operating assets)	**582.816**	**584.203**	**585.627**	**544.215**	**490.483**	**483.969**	**478.203**	**460.158**	**460.158**
Equity	**297.208**	**297.780**	**284.468**	**259.767**	**205.612**	**197.952**	**190.734**	**173.234**	**173.234**
Net interest bearing debt	**285.607**	**286.424**	**301.159**	**284.447**	**284.871**	**286.017**	**287.469**	**286.923**	**286.923**
Non-current liabilities	**324.840**	**352.722**	**353.018**	**346.775**	**343.749**	**343.875**	**328.967**	**n/a**	**n/a**
Current liabilities	**11.471**	**17.436**	**11.764**	**12.060**	**11.270**	**12.581**	**9.701**	**n/a**	**n/a**
Capitalized operating lease liability[3]	**16.345**	**17.038**	**17.732**	**18.425**	**18.073**	**17.721**	**17.370**	**n/a**	**n/a**
LESS:									
Financial assets	**2.236**	**1.757**	**1.366**	**1.756**	**1.875**	**2.003**	**1.746**	**n/a**	**n/a**
LESS:									
Current assets	**64.813**	**99.015**	**79.988**	**91.057**	**86.346**	**86.158**	**66.823**	**n/a**	**n/a**
Cash and cash equivalents	**61.697**	**95.694**	**65.727**	**78.285**	**71.941**	**83.597**	**64.173**	**49.111**	**49.111**
Securities	**0**	**0**	**10.870**	**10.640**	**11.213**	**0**	**0**	**n/a**	**n/a**
Invested capital (financing)	**582.816**	**584.203**	**585.627**	**544.215**	**490.483**	**483.969**	**478.203**	**460.158**	**460.158**
NIBD (adjusted for cash and cash equivalents)	***347.305***	***382.118***	***366.886***	***362.732***	***356.812***	***369.614***	***351.641***	***336.034***	***336.034***

1 – Assuming the same portion of operating deferred liabilities as at the year end; For 2016 assuming the same portion as at the end of 2015

2 – Assuming the same portion of operating other payables as at the year end; For 2016 assuming the same portion as at the end of 2015

3 – Assuming no changes or new lease agreements in 2016; Assuming equal allocation throughout the year

Cash flow statement

USD in thousands	2015, Q1	2015, Q2	2015, Q3	2015	2016, Q1	2016, Q2	2016, Q3	2016, Q4	2016
EBITDA	**26.610**	**27.348**	**22.306**	**15.207**	**12.851**	**19.458**	**16.731**	**15.370**	**64.409**
LESS:									
Operating tax (tax on EBIT) (adjusted for non-recurring items)	-4.046	-4.452	-2.958	-11.452	10.398	-5.173	-3.095	-581	1.549
Cash flow from operations before changes in NWC	**22.564**	**22.896**	**19.348**	**3.755**	**23.248**	**14.285**	**13.636**	**14.789**	**65.958**
ADD:									
Changes in inventories	150	-1.561	-905	1.352	-96	-134	-706	370	-566
Changes in receivables	16.549	2.937	8.842	13.635	9.207	-4.371	4.623	3.465	12.925
Changes in operating debt	-9.836	-2.579	-16.271	7.091	-20.488	2.347	-7.838	6.124	-19.854
Cash flow from operations	**29.426**	**21.692**	**11.014**	**25.833**	**11.871**	**12.127**	**9.716**	**24.749**	**58.463**
LESS:									
Investments in non-current assets	-15.995	-18.576	-11.476	-424	-6.619	-7.680	-6.665	-6.405	-27.370
Free cash flow	**13.431**	**3.117**	**-462**	**25.409**	**5.251**	**4.447**	**3.050**	**18.344**	**31.093**
LESS (-) / ADD (+):									
New net interest bearing debt (adjusted for cash and cash equivalents)	-5.811	34.813	-15.231	-4.154	-5.920	12.802	-17.972	-15.607	-26.698
Net financial expenses before tax	-7.438	-8.258	-13.070	-16.395	-6.824	-7.970	-6.201	-22.819	-43.814
Tax shield	1.748	1.941	3.071	3.853	1.501	1.753	1.364	5.020	9.639
Dividend paid out to shareholders	0	0	0	0	0	0	0	0	0
Sale of own shares								0	0
Purchase of own shares and warrants	-616	-394	-4.459	-228.330	-695	0	0	0	-695
Purchase of minority interest								0	0
Share-based payment to executives	457	370	185	-507	342	333	335	0	1.010
Tax credit relating to share option scheme				52				0	0
Capital increase		2.407	0	233.317		291	0	0	291
Cost related to capital increase				-687				0	0
Free cash flow to owners	**1.771**	**33.996**	**-29.965**	**12.557**	**-6.344**	**11.656**	**-19.424**	**-15.062**	**-29.174**

Appendix 38. Forecast assumptions

Key financial drivers	2011	2012	2013	2014	2015	2016	2011-2015	2011-2016	2011-2014	2015-2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
						forecast	average	average	average 'good years'	average 'bad years'	Early Convalescence				Leaving the Sickbed				
Organic growth	9,1%	-9,3%	13,0%	11,8%	-7,9%	-27,3%	3,3%	-1,8%	6,1%	-17,6%									
Revenue growth, total	n/a	28,9%	8,7%	7,4%	-28,8%	-22,6%	4,1%	-1,3%	15,0%	-25,7%	1,0%	1,0%	1,0%	1,0%	2,0%	3,0%	4,0%	5,0%	6,0%
EBITDA-margin	47,0%	48,0%	42,6%	46,8%	37,2%	33,8%	44,3%	42,6%	46,1%	35,5%	37,2%	38,0%	38,9%	39,7%	40,9%	42,2%	43,4%	44,7%	46,1%
EBITDA-margin growth		*2%*	*-11%*	*10%*	*-20%*	*-9%*					*10,0%*	*2,2%*	*2,2%*	*2,2%*	*3,0%*	*3,0%*	*3,0%*	*3,0%*	*3,0%*
Effective tax rate (operating income)	39,0%	39,0%	33,3%	36,1%	n/a	2,8%	36,9%	30,1%	36,9%	2,8%	36,9%	36,9%	36,9%	36,9%	36,9%	36,9%	36,9%	36,9%	36,9%
Danish corporation tax rate	25,0%	25,0%	25,0%	24,5%	23,5%	22,0%	n/a	n/a	n/a	n/a	22,0%	22,0%	22,0%	22,0%	22,0%	22,0%	22,0%	22,0%	22,0%
Amortization as % of intangible assets	n/a	n/a	7,0%	9,6%	8,4%	n/a	8,3%	8,3%	8,3%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%
Depreciation as % of tangible assets	n/a	n/a	30,8%	29,2%	26,1%	n/a	28,7%	28,7%	30,0%	26,1%	26,1%	26,1%	26,1%	26,1%	26,1%	26,1%	26,1%	26,1%	26,1%
Intangible assets as % of revenue	n/a	146%	135%	125%	168%	180%	143,6%	150,8%	135,4%	173,9%	167,5%	156,4%	146,4%	137,3%	129,1%	121,3%	114,1%	107,2%	100,8%
Intangible assets growth			*-7%*	*-8%*	*35%*	*7%*					*-6,8%*	*-6,6%*	*-6,4%*	*-6,2%*	*-6,0%*	*-6,0%*	*-6,0%*	*-6,0%*	*-6,0%*
Tangible assets as % of revenue	n/a	39%	45%	43%	56%	62%	45,9%	49,1%	42,4%	59,1%	52,0%	44,8%	39,4%	35,4%	32,6%	30,7%	29,4%	28,8%	28,8%
Tangible assets growth			*18%*	*-5%*	*30%*	*10%*					*-16,0%*	*-14,0%*	*-12,0%*	*-10,0%*	*-8,0%*	*-6,0%*	*-4,0%*	*-2,0%*	*0,0%*
Inventory as % of revenue	n/a	0,6%	0,8%	1,0%	1,8%	2,7%	1,0%	1,4%	0,8%	2,2%	1,8%	1,5%	1,2%	0,9%	0,9%	0,8%	0,8%	0,7%	0,7%
Inventories growth			*31%*	*32%*	*79%*	*45%*					*-0,8%*	*-0,3%*	*-0,3%*	*-0,3%*	*-0,05%*	*-0,05%*	*-0,05%*	*-0,05%*	*-0,05%*
Receivables as % of revenue	n/a	33,9%	30,0%	33,5%	29,9%	31,8%	31,8%	31,8%	32,4%	30,8%	29,9%	29,4%	28,9%	28,4%	27,9%	27,4%	26,9%	26,4%	25,9%
Receivables growth			*-12%*	*12%*	*-11%*	*6%*					*-6,0%*	*-0,5%*	*-0,5%*	*-0,5%*	*-0,5%*	*-0,5%*	*-0,5%*	*-0,5%*	*-0,5%*
Non-interest bearing debt as % of revenue	n/a	40,1%	29,4%	30,9%	34,6%	34,3%	33,7%	33,8%	33,5%	34,4%	34,6%	35,0%	35,3%	35,7%	35,9%	36,0%	36,2%	36,4%	36,6%
Operating liabilities growth			*-27%*	*5%*	*12%*	*-1%*					*1,0%*	*1,0%*	*1,0%*	*1,0%*	*0,5%*	*0,5%*	*0,5%*	*0,5%*	*0,5%*
Net financial obligation (adjusted for cash and cash equivalents) as % of invested capital	n/a	62%	59%	60%	67%	73%	61,8%	64,0%	60,1%	69,8%	73,0%	73,0%	73,0%	73,0%	73,0%	73,0%	73,0%	73,0%	73,0%
NIBD (adjusted for cash) growth			*-4%*	*1%*	*12%*	*10%*					*0,0%*	*0,0%*	*0,0%*	*0,0%*					
Borrowing cost before tax (%)	n/a	n/a	13,7%	13,6%	15,4%	15,3%	14,2%	14,5%	13,6%	15,3%	15,3%	15,3%	15,3%	15,3%	15,3%	15,3%	15,3%	15,3%	15,3%
NBC growth				*-1%*	*13%*	*-1%*					*0,4%*								

Key financial drivers	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
	Vigorous Growth																			
Organic growth																				
Revenue growth, total	6,1%	6,1%	6,1%	6,1%	6,1%	6,1%	6,1%	6,1%	6,1%	6,1%	6,1%	6,1%	6,1%	6,1%	6,1%	6,1%	6,1%	6,1%	6,1%	6,1%
EBITDA-margin	46,1%	46,1%	46,1%	46,1%	46,1%	46,1%	46,1%	46,1%	46,1%	46,1%	46,1%	46,1%	46,1%	46,1%	46,1%	46,1%	46,1%	46,1%	46,1%	46,1%
EBITDA-margin growth																				
Effective tax rate (operating income)	36,9%	36,9%	36,9%	36,9%	36,9%	36,9%	36,9%	36,9%	36,9%	36,9%	36,9%	36,9%	36,9%	36,9%	36,9%	36,9%	36,9%	36,9%	36,9%	36,9%
Danish corporation tax rate	22,0%	22,0%	22,0%	22,0%	22,0%	22,0%	22,0%	22,0%	22,0%	22,0%	22,0%	22,0%	22,0%	22,0%	22,0%	22,0%	22,0%	22,0%	22,0%	22,0%
Amortization as % of intangible assets	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%
Depreciation as % of tangible assets	26,1%	26,1%	26,1%	26,1%	26,1%	26,1%	26,1%	26,1%	26,1%	26,1%	26,1%	26,1%	26,1%	26,1%	26,1%	26,1%	26,1%	26,1%	26,1%	26,1%
Intangible assets as % of revenue	97,2%	93,8%	90,6%	87,4%	84,3%	81,4%	78,5%	75,8%	73,1%	70,6%	68,1%	65,7%	63,4%	61,2%	59,1%	57,0%	55,0%	53,1%	51,2%	49,4%
Intangible assets growth	*-3,5%*	*-3,5%*	*-3,5%*	*-3,5%*	*-3,5%*	*-3,5%*	*-3,5%*	*-3,5%*	*-3,5%*	*-3,5%*	*-3,5%*	*-3,5%*	*-3,5%*	*-3,5%*	*-3,5%*	*-3,5%*	*-3,5%*	*-3,5%*	*-3,5%*	*-3,5%*
Tangible assets as % of revenue	28,8%	28,8%	28,8%	28,8%	28,8%	28,8%	28,8%	28,8%	28,8%	28,8%	28,8%	28,8%	28,8%	28,8%	28,8%	28,8%	28,8%	28,8%	28,8%	28,8%
Tangible assets growth																				
Inventory as % of revenue	0,7%	0,7%	0,7%	0,7%	0,7%	0,7%	0,7%	0,7%	0,7%	0,7%	0,7%	0,7%	0,7%	0,7%	0,7%	0,7%	0,7%	0,7%	0,7%	0,7%
Inventories growth	*0,0%*																			
Receivables as % of revenue	25,9%	25,9%	25,9%	25,9%	25,9%	25,9%	25,9%	25,9%	25,9%	25,9%	25,9%	25,9%	25,9%	25,9%	25,9%	25,9%	25,9%	25,9%	25,9%	25,9%
Receivables growth																				
Non-interest bearing debt as % of revenue	33,5%	33,5%	33,5%	33,5%	33,5%	33,5%	33,5%	33,5%	33,5%	33,5%	33,5%	33,5%	33,5%	33,5%	33,5%	33,5%	33,5%	33,5%	33,5%	33,5%
Operating liabilities growth	*-8,5%*																			
Net financial obligation (adjusted for cash and cash equivalents) as % of invested capital	73,0%	73,0%	73,0%	73,0%	73,0%	73,0%	73,0%	73,0%	73,0%	73,0%	73,0%	73,0%	73,0%	73,0%	73,0%	73,0%	73,0%	73,0%	73,0%	73,0%
NIBD (adjusted for cash) growth																				
Borrowing cost before tax (%)	15,3%	15,3%	15,3%	15,3%	15,3%	15,3%	15,3%	15,3%	15,3%	15,3%	15,3%	15,3%	15,3%	15,3%	15,3%	15,3%	15,3%	15,3%	15,3%	15,3%
NBC growth																				

Key financial drivers	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057+ Decline
						Growth slowdown						
Organic growth												
Revenue growth, total	5,6%	5,1%	4,6%	4,1%	3,6%	3,1%	2,6%	2,1%	1,6%	1,1%	0,6%	-0,5%
EBITDA-margin	46,1%	46,1%	46,1%	46,1%	46,1%	46,1%	46,1%	46,1%	46,1%	46,1%	46,1%	44,3%
EBITDA-margin growth												*-3,8%*
Effective tax rate (operating income)	36,9%	36,9%	36,9%	36,9%	36,9%	36,9%	36,9%	36,9%	36,9%	36,9%	36,9%	36,9%
Danish corporation tax rate	22,0%	22,0%	22,0%	22,0%	22,0%	22,0%	22,0%	22,0%	22,0%	22,0%	22,0%	22,0%
Amortization as % of intangible assets	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%
Depreciation as % of tangible assets	26,1%	26,1%	26,1%	26,1%	26,1%	26,1%	26,1%	26,1%	26,1%	26,1%	26,1%	26,1%
Intangible assets as % of revenue	47,7%	46,0%	44,4%	42,9%	41,4%	39,9%	38,5%	37,2%	35,9%	34,6%	33,4%	33,4%
Intangible assets growth	*-3,5%*	*-3,5%*	*-3,5%*	*-3,5%*	*-3,5%*	*-3,5%*	*-3,5%*	*-3,5%*	*-3,5%*	*-3,5%*	*-3,5%*	*0,0%*
Tangible assets as % of revenue	28,8%	28,8%	28,8%	28,8%	28,8%	28,8%	28,8%	28,8%	28,8%	28,8%	28,8%	28,8%
Tangible assets growth												
Inventory as % of revenue	0,7%	0,7%	0,7%	0,7%	0,7%	0,7%	0,7%	0,7%	0,7%	0,7%	0,7%	0,7%
Inventories growth												
Receivables as % of revenue	25,9%	25,9%	25,9%	25,9%	25,9%	25,9%	25,9%	25,9%	25,9%	25,9%	25,9%	25,9%
Receivables growth												
Non-interest bearing debt as % of revenue	33,5%	33,5%	33,5%	33,5%	33,5%	33,5%	33,5%	33,5%	33,5%	33,5%	33,5%	33,5%
Operating liabilities growth												
Net financial obligation (adjusted for cash and cash equivalents) as % of invested capital	73,0%	73,0%	73,0%	73,0%	73,0%	73,0%	73,0%	73,0%	73,0%	73,0%	73,0%	73,0%
NIBD (adjusted for cash) growth												
Borrowing cost before tax (%)	15,3%	15,3%	15,3%	15,3%	15,3%	15,3%	15,3%	15,3%	15,3%	15,3%	15,3%	15,3%
NBC growth												

Appendix 39. Forecast of 2017+

Analytical income statement

USD in thousands	2017	2018	2019	2020	2021	2022	2023	2024	2025
Stage		Early Convalescence				Leaving the Sickbed			
Revenue	**192.193**	**194.115**	**196.056**	**198.017**	**201.977**	**208.036**	**216.358**	**227.176**	**240.806**
Operating expenses	-120.650	-120.267	-119.829	-119.334	-119.312	-120.338	-122.415	-125.576	-129.880
EBITDA	**71.543**	**73.848**	**76.227**	**78.683**	**82.665**	**87.699**	**93.943**	**101.599**	**110.926**
Depreciation, amortization and impairment losses	-59.339	-52.999	-48.047	-44.140	-41.044	-38.980	-37.740	-37.241	-37.454
Amortization and impairment loss of intangible assets	-28.591	-26.913	-25.388	-24.001	-22.738	-21.801	-21.108	-20.635	-20.367
Depreciation and impairment loss of tangible assets	-30.748	-26.086	-22.659	-20.139	-18.306	-17.179	-16.632	-16.606	-17.087
Operating income (EBIT)	**12.204**	**20.848**	**28.180**	**34.543**	**41.620**	**48.719**	**56.203**	**64.358**	**73.472**
Operating tax (adjusted for non-recurring items)	-4.499	-7.685	-10.388	-12.734	-15.342	-17.959	-20.718	-23.724	-27.084
NOPAT	**7.705**	**13.163**	**17.792**	**21.810**	**26.278**	**30.760**	**35.485**	**40.634**	**46.388**
Net financial expenses after tax	-34.324	-36.365	-33.424	-30.926	-28.783	-27.276	-26.198	-25.501	-25.156
Net income (Net earnings)	**-26.618**	**-23.202**	**-15.631**	**-9.116**	**-2.505**	**3.484**	**9.287**	**15.134**	**21.233**

USD in thousands	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
Stage	Vigorous Growth																			
Revenue	**255.496**	**271.081**	**287.617**	**305.161**	**323.776**	**343.526**	**364.482**	**386.715**	**410.305**	**435.333**	**461.888**	**490.064**	**519.958**	**551.675**	**585.327**	**621.032**	**658.915**	**699.109**	**741.754**	**787.001**
Operating expenses	-137.803	-146.209	-155.127	-164.590	-174.630	-185.283	-196.585	-208.577	-221.300	-234.799	-249.122	-264.318	-280.442	-297.549	-315.699	-334.957	-355.389	-377.068	-400.069	-424.473
EBITDA	**117.693**	**124.872**	**132.489**	**140.571**	**149.146**	**158.244**	**167.897**	**178.138**	**189.005**	**200.534**	**212.767**	**225.745**	**239.516**	**254.126**	**269.628**	**286.075**	**303.526**	**322.041**	**341.685**	**362.528**
Depreciation, amortization and impairment losses	-38.406	-39.995	-41.663	-43.415	-45.254	-47.187	-49.217	-51.351	-53.595	-55.954	-58.435	-61.046	-63.793	-66.684	-69.728	-72.933	-76.308	-79.864	-83.610	-87.559
Amortization and impairment loss of intangible assets	-20.294	-20.778	-21.274	-21.782	-22.301	-22.834	-23.378	-23.936	-24.508	-25.093	-25.691	-26.305	-26.932	-27.575	-28.233	-28.907	-29.597	-30.303	-31.026	-31.767
Depreciation and impairment loss of tangible assets	-18.113	-19.217	-20.390	-21.633	-22.953	-24.353	-25.839	-27.415	-29.087	-30.862	-32.744	-34.741	-36.861	-39.109	-41.495	-44.026	-46.712	-49.561	-52.584	-55.792
Operating income (EBIT)	**79.287**	**84.877**	**90.826**	**97.156**	**103.891**	**111.057**	**118.679**	**126.787**	**135.410**	**144.580**	**154.331**	**164.699**	**175.723**	**187.442**	**199.900**	**213.142**	**227.218**	**242.177**	**258.075**	**274.970**
Operating tax (adjusted for non-recurring items)	-29.227	-31.288	-33.481	-35.814	-38.297	-40.938	-43.748	-46.737	-49.916	-53.296	-56.890	-60.712	-64.776	-69.096	-73.688	-78.570	-83.758	-89.273	-95.133	-101.361
NOPAT	**50.059**	**53.589**	**57.345**	**61.342**	**65.594**	**70.119**	**74.931**	**80.050**	**85.494**	**91.284**	**97.441**	**103.987**	**110.947**	**118.346**	**126.212**	**134.573**	**143.459**	**152.904**	**162.942**	**173.609**
Net financial expenses after tax	-25.158	-26.603	-27.420	-28.267	-29.147	-30.060	-31.007	-31.992	-33.015	-34.078	-35.183	-36.333	-37.529	-38.773	-40.069	-41.418	-42.823	-44.287	-45.813	-47.404
Net income (Net earnings)	**24.902**	**26.986**	**29.925**	**33.074**	**36.448**	**40.059**	**43.924**	**48.058**	**52.479**	**57.206**	**62.257**	**67.654**	**73.418**	**79.573**	**86.143**	**93.155**	**100.636**	**108.617**	**117.129**	**126.205**

USD in thousands	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	Terminal period
Stage						Growth slowdown						Decline
Revenue	**831.074**	**873.458**	**913.637**	**951.097**	**985.336**	**1.015.881**	**1.042.294**	**1.064.183**	**1.081.209**	**1.093.103**	**1.099.661**	**1.094.163**
Operating expenses	-448.244	-471.104	-492.775	-512.979	-531.446	-547.921	-562.167	-573.972	-583.156	-589.570	-593.108	-609.133
EBITDA	**382.830**	**402.354**	**420.863**	**438.118**	**453.890**	**467.961**	**480.128**	**490.210**	**498.054**	**503.532**	**506.554**	**485.030**
Depreciation, amortization and impairment losses	-91.720	-95.654	-99.313	-102.651	-105.623	-108.190	-110.314	-111.965	-113.117	-113.750	-113.854	-113.424
Amortization and impairment loss of intangible assets	-32.525	-33.144	-33.615	-33.931	-34.086	-34.077	-33.904	-33.568	-33.073	-32.426	-31.635	-30.711
Depreciation and impairment loss of tangible assets	-59.195	-62.510	-65.698	-68.720	-71.538	-74.113	-76.411	-78.397	-80.044	-81.324	-82.219	-82.712
Operating income (EBIT)	**291.110**	**306.700**	**321.549**	**335.467**	**348.267**	**359.771**	**369.813**	**378.245**	**384.937**	**389.782**	**392.699**	**371.607**
Operating tax (tax on EBIT) (adjusted for non-recurring items)	-107.311	-113.058	-118.531	-123.662	-128.380	-132.621	-136.323	-139.431	-141.898	-143.684	-144.759	-136.984
NOPAT	**183.799**	**193.642**	**203.018**	**211.805**	**219.887**	**227.150**	**233.491**	**238.814**	**243.039**	**246.098**	**247.940**	**234.623**
Net financial expenses after tax	-49.063	-50.555	-51.860	-52.959	-53.839	-54.486	-54.891	-55.046	-54.949	-54.600	-54.002	-35.183
Net income (Net earnings)	**134.736**	**143.088**	**151.158**	**158.846**	**166.047**	**172.664**	**178.600**	**183.768**	**188.090**	**191.498**	**193.938**	**199.439**

Analytical balance sheet

USD in thousands	2017	2018	2019	2020	2021	2022	2023	2024	2025
Stage		Early Convalescence					Leaving the Sickbed		
Operating assets	**482.801**	**450.481**	**423.263**	**400.140**	**384.664**	**374.878**	**370.280**	**370.661**	**376.086**
Non-current assets	**421.851**	**390.474**	**364.225**	**342.096**	**326.570**	**316.185**	**310.429**	**309.067**	**312.121**
Intangible assets	**321.835**	**303.600**	**287.011**	**271.909**	**260.706**	**252.416**	**246.762**	**243.554**	**242.677**
Tangible assets	**100.016**	**86.874**	**77.214**	**70.187**	**65.864**	**63.769**	**63.667**	**65.513**	**69.444**
Current assets	**60.950**	**60.007**	**59.038**	**58.045**	**58.095**	**58.693**	**59.851**	**61.594**	**63.965**
Inventories	**3.503**	**2.956**	**2.397**	**1.827**	**1.763**	**1.712**	**1.672**	**1.642**	**1.620**
Receivables	**57.447**	**57.051**	**56.641**	**56.217**	**56.332**	**56.982**	**58.179**	**59.952**	**62.345**
LESS:									
Operating liabilities	**66.521**	**67.874**	**69.254**	**70.662**	**72.436**	**74.982**	**78.371**	**82.701**	**88.101**
Non-current liabilities	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
Current liabilities	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
Invested capital (net operating assets)	**416.280**	**382.607**	**354.009**	**329.478**	**312.229**	**299.896**	**291.909**	**287.960**	**287.985**
Equity	**112.288**	**103.205**	**95.491**	**88.874**	**84.221**	**80.894**	**78.740**	**77.675**	**77.681**
Net interest bearing debt	**303.992**	**279.402**	**258.518**	**240.605**	**228.008**	**219.002**	**213.169**	**210.286**	**210.304**
Non-current liabilities	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
Current liabilities	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
Capitalized operating lease liability	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
LESS:									
Financial assets	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
LESS:									
Current assets	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
Cash and cash equivalents	**34.329**	**20.209**	**12.292**	**9.793**	**11.941**	**18.752**	**30.193**	**46.392**	**67.618**
Securities	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
Invested capital (financing)	**416.280**	**382.607**	**354.009**	**329.478**	**312.229**	**299.896**	**291.909**	**287.960**	**287.985**
NIBD (adjusted for cash and cash equivalents)	***303.992***	***279.402***	***258.518***	***240.605***	***228.008***	***219.002***	***213.169***	***210.286***	***210.304***

USD in thousands	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
Stage	Vigorous Growth																			
Operating assets	**390.016**	**404.580**	**419.812**	**435.748**	**452.426**	**469.884**	**488.165**	**507.314**	**527.377**	**548.404**	**570.448**	**593.564**	**617.812**	**643.253**	**669.954**	**697.984**	**727.418**	**758.334**	**790.815**	**824.948**
Non-current assets	**322.149**	**332.573**	**343.413**	**354.688**	**366.421**	**378.633**	**391.348**	**404.591**	**418.388**	**432.766**	**447.756**	**463.389**	**479.695**	**496.712**	**514.474**	**533.020**	**552.391**	**572.630**	**593.783**	**615.897**
Intangible assets	**248.468**	**254.398**	**260.469**	**266.685**	**273.050**	**279.566**	**286.238**	**293.069**	**300.063**	**307.224**	**314.556**	**322.063**	**329.749**	**337.618**	**345.676**	**353.925**	**362.372**	**371.020**	**379.874**	**388.940**
Tangible assets	**73.680**	**78.175**	**82.944**	**88.003**	**93.371**	**99.067**	**105.110**	**111.522**	**118.325**	**125.542**	**133.200**	**141.326**	**149.946**	**159.093**	**168.798**	**179.095**	**190.019**	**201.611**	**213.909**	**226.957**
Current assets	**67.867**	**72.007**	**76.400**	**81.060**	**86.005**	**91.251**	**96.817**	**102.723**	**108.989**	**115.637**	**122.691**	**130.175**	**138.116**	**146.541**	**155.480**	**164.965**	**175.027**	**185.704**	**197.032**	**209.051**
Inventories	**1.719**	**1.824**	**1.935**	**2.053**	**2.178**	**2.311**	**2.452**	**2.602**	**2.760**	**2.929**	**3.107**	**3.297**	**3.498**	**3.711**	**3.938**	**4.178**	**4.433**	**4.703**	**4.990**	**5.295**
Receivables	**66.148**	**70.183**	**74.465**	**79.007**	**83.826**	**88.940**	**94.365**	**100.121**	**106.229**	**112.709**	**119.584**	**126.878**	**134.618**	**142.830**	**151.542**	**160.786**	**170.594**	**181.001**	**192.042**	**203.756**
LESS:																				
Operating liabilities	**85.484**	**90.698**	**96.231**	**102.101**	**108.329**	**114.937**	**121.948**	**129.387**	**137.280**	**145.654**	**154.539**	**163.966**	**173.968**	**184.580**	**195.839**	**207.785**	**220.460**	**233.908**	**248.177**	**263.315**
Non-current liabilities	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
Current liabilities	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
Invested capital (net operating assets)	**304.532**	**313.882**	**323.581**	**333.647**	**344.096**	**354.947**	**366.217**	**377.926**	**390.097**	**402.750**	**415.909**	**429.598**	**443.844**	**458.673**	**474.115**	**490.199**	**506.958**	**524.426**	**542.638**	**561.632**
Equity	**82.145**	**84.667**	**87.283**	**89.998**	**92.817**	**95.744**	**98.784**	**101.942**	**105.225**	**108.638**	**112.188**	**115.880**	**119.723**	**123.723**	**127.888**	**132.227**	**136.747**	**141.459**	**146.372**	**151.495**
Net interest bearing debt	**222.387**	**229.215**	**236.298**	**243.649**	**251.279**	**259.203**	**267.433**	**275.984**	**284.872**	**294.112**	**303.721**	**313.718**	**324.121**	**334.950**	**346.227**	**357.972**	**370.211**	**382.967**	**396.266**	**410.137**
Non-current liabilities	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
Current liabilities	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
Capitalized operating lease liability	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
LESS:																				
Financial assets	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
LESS:																				
Current assets	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
Cash and cash equivalents	**88.056**	**112.520**	**139.828**	**170.187**	**203.816**	**240.949**	**281.832**	**326.732**	**375.928**	**429.721**	**488.429**	**552.390**	**621.966**	**697.538**	**779.516**	**868.332**	**964.448**	**1.068.354**	**1.180.570**	**1.301.652**
Securities	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
Invested capital (financing)	**304.532**	**313.882**	**323.581**	**333.647**	**344.096**	**354.947**	**366.217**	**377.926**	**390.097**	**402.750**	**415.909**	**429.598**	**443.844**	**458.673**	**474.115**	**490.199**	**506.958**	**524.426**	**542.638**	**561.632**
NIBD (adjusted for cash and cash equivalents)	***222.387***	***229.215***	***236.298***	***243.649***	***251.279***	***259.203***	***267.433***	***275.984***	***284.872***	***294.112***	***303.721***	***313.718***	***324.121***	***334.950***	***346.227***	***357.972***	***370.211***	***382.967***	***396.266***	***410.137***

USD in thousands	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	Terminal period
Stage						Growth slowdown						Decline
Operating assets	**856.770**	**885.885**	**911.920**	**934.525**	**953.388**	**968.238**	**978.854**	**985.065**	**986.762**	**983.896**	**976.479**	**971.597**
Non-current assets	**636.012**	**653.869**	**669.231**	**681.885**	**691.653**	**698.390**	**701.989**	**702.387**	**699.561**	**693.535**	**684.376**	**680.955**
Intangible assets	**396.345**	**401.979**	**405.754**	**407.606**	**407.500**	**405.428**	**401.410**	**395.495**	**387.759**	**378.304**	**367.254**	**365.417**
Tangible assets	**239.667**	**251.890**	**263.477**	**274.279**	**284.153**	**292.962**	**300.579**	**306.891**	**311.802**	**315.231**	**317.123**	**315.537**
Current assets	**220.758**	**232.016**	**242.689**	**252.639**	**261.734**	**269.848**	**276.864**	**282.678**	**287.201**	**290.361**	**292.103**	**290.642**
Inventories	**5.591**	**5.876**	**6.147**	**6.399**	**6.629**	**6.834**	**7.012**	**7.159**	**7.274**	**7.354**	**7.398**	**7.361**
Receivables	**215.167**	**226.140**	**236.543**	**246.241**	**255.105**	**263.014**	**269.852**	**275.519**	**279.927**	**283.007**	**284.705**	**283.281**
LESS:												
Operating liabilities	**278.061**	**292.242**	**305.685**	**318.218**	**329.674**	**339.894**	**348.731**	**356.055**	**361.752**	**365.731**	**367.925**	**366.086**
Non-current liabilities	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
Current liabilities	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
Invested capital (net operating assets)	**578.709**	**593.643**	**606.234**	**616.306**	**623.714**	**628.344**	**630.122**	**629.010**	**625.011**	**618.165**	**608.554**	**605.511**
Equity	**156.101**	**160.130**	**163.526**	**166.243**	**168.241**	**169.490**	**169.970**	**169.670**	**168.591**	**166.744**	**164.152**	**163.331**
Net interest bearing debt	**422.607**	**433.513**	**442.708**	**450.063**	**455.472**	**458.854**	**460.152**	**459.340**	**456.420**	**451.420**	**444.402**	**442.180**
Non-current liabilities	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
Current liabilities	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
Capitalized operating lease liability	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
LESS:												
Financial assets	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
LESS:												
Current assets	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
Cash and cash equivalents	**1.431.782**	**1.570.841**	**1.718.603**	**1.874.732**	**2.038.781**	**2.210.195**	**2.388.316**	**2.572.384**	**2.761.553**	**2.954.898**	**3.151.429**	**826.078**
Securities	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
Invested capital (financing)	**578.709**	**593.643**	**606.234**	**616.306**	**623.714**	**628.344**	**630.122**	**629.010**	**625.011**	**618.165**	**608.554**	**605.511**
NIBD (adjusted for cash and cash equivalents)	***422.607***	***433.513***	***442.708***	***450.063***	***455.472***	***458.854***	***460.152***	***459.340***	***456.420***	***451.420***	***444.402***	***442.180***

Cash flow statement

USD in thousands	2017	2018	2019	2020	2021	2022	2023	2024	2025
Stage		Early Convalescence				Leaving the Sickbed			
EBITDA	**71.543**	**73.848**	**76.227**	**78.683**	**82.665**	**87.699**	**93.943**	**101.599**	**110.926**
LESS:									
Operating tax (tax on EBIT) (adjusted for non-recurring items)	-4.499	-7.685	-10.388	-12.734	-15.342	-17.959	-20.718	-23.724	-27.084
Cash flow from operations before changes in NWC	**67.044**	**66.163**	**65.839**	**65.950**	**67.322**	**69.740**	**73.225**	**77.875**	**83.843**
ADD:									
Changes in inventories	1.541	547	559	570	64	51	40	30	22
Changes in receivables	3.076	396	410	424	-114	-650	-1.197	-1.773	-2.393
Changes in operating debt	1.326	1.353	1.380	1.408	1.774	2.546	3.389	4.330	5.400
Cash flow from operations	**72.987**	**68.459**	**68.188**	**68.352**	**69.046**	**71.687**	**75.457**	**80.462**	**86.872**
LESS:									
Investments in non-current assets	-21.404	-21.622	-21.798	-22.011	-25.518	-28.595	-31.984	-35.879	-40.508
Free cash flow	**51.583**	**46.836**	**46.390**	**46.341**	**43.528**	**43.092**	**43.472**	**44.583**	**46.363**
LESS (-) / ADD (+):									
New net interest bearing debt (adjusted for cash and cash equivalents)	-32.042	-24.590	-20.884	-17.914	-12.597	-9.006	-5.833	-2.883	18
Net financial expenses before tax	-44.004	-46.622	-42.851	-39.648	-36.901	-34.969	-33.588	-32.693	-32.251
Tax shield	9.681	10.257	9.427	8.723	8.118	7.693	7.389	7.192	7.095
Free cash flow to owners	**-14.782**	**-14.119**	**-7.918**	**-2.499**	**2.148**	**6.811**	**11.441**	**16.199**	**21.226**
Investments, intangible and tangible assets									
Intangible and tangible assets, end of period	421.851	390.474	364.225	342.096	326.570	316.185	310.429	309.067	312.121
ADD:									
Depreciation, amortization and impairment losses	59.339	52.999	48.047	44.140	41.044	38.980	37.740	37.241	37.454
LESS:									
Intangible and tangible assets, beginning of period	-459.786	-421.851	-390.474	-364.225	-342.096	-326.570	-316.185	-310.429	-309.067
Investments, intangible and tangible assets	**21.404**	**21.622**	**21.798**	**22.011**	**25.518**	**28.595**	**31.984**	**35.879**	**40.508**

USD in thousands	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
Stage	Vigorous Growth																			
EBITDA	**117.693**	**124.872**	**132.489**	**140.571**	**149.146**	**158.244**	**167.897**	**178.138**	**189.005**	**200.534**	**212.767**	**225.745**	**239.516**	**254.126**	**269.628**	**286.075**	**303.526**	**322.041**	**341.685**	**362.528**
LESS:																				
Operating tax (tax on EBIT) (adjusted for non-recurring items)	-29.227	-31.288	-33.481	-35.814	-38.297	-40.938	-43.748	-46.737	-49.916	-53.296	-56.890	-60.712	-64.776	-69.096	-73.688	-78.570	-83.758	-89.273	-95.133	-101.361
Cash flow from operations before changes in NWC	**88.466**	**93.584**	**99.008**	**104.757**	**110.849**	**117.305**	**124.148**	**131.401**	**139.089**	**147.238**	**155.876**	**165.033**	**174.740**	**185.030**	**195.940**	**207.505**	**219.768**	**232.768**	**246.552**	**261.167**
ADD:																				
Changes in inventories	-99	-105	-111	-118	-125	-133	-141	-150	-159	-168	-179	-190	-201	-213	-226	-240	-255	-270	-287	-304
Changes in receivables	-3.803	-4.035	-4.281	-4.542	-4.819	-5.113	-5.425	-5.756	-6.107	-6.480	-6.875	-7.295	-7.740	-8.212	-8.713	-9.244	-9.808	-10.406	-11.041	-11.715
Changes in operating debt	-2.617	5.215	5.533	5.870	6.228	6.608	7.011	7.439	7.893	8.374	8.885	9.427	10.002	10.612	11.259	11.946	12.675	13.448	14.268	15.139
Cash flow from operations	**81.946**	**94.659**	**100.149**	**105.966**	**112.132**	**118.667**	**125.593**	**132.934**	**140.716**	**148.964**	**157.707**	**166.976**	**176.801**	**187.217**	**198.260**	**209.967**	**222.380**	**235.540**	**249.493**	**264.287**
LESS:																				
Investments in non-current assets	-48.434	-50.420	-52.503	-54.691	-56.987	-59.399	-61.932	-64.594	-67.392	-70.333	-73.425	-76.678	-80.100	-83.700	-87.490	-91.479	-95.680	-100.103	-104.763	-109.673
Free cash flow	**33.513**	**44.239**	**47.645**	**51.276**	**55.145**	**59.268**	**63.661**	**68.340**	**73.324**	**78.631**	**84.282**	**90.298**	**96.701**	**103.517**	**110.770**	**118.488**	**126.700**	**135.436**	**144.730**	**154.614**
LESS (-) / ADD (+):																				
New net interest bearing debt (adjusted for cash and cash equivalents)	12.083	6.828	7.083	7.351	7.631	7.923	8.230	8.551	8.888	9.240	9.609	9.997	10.403	10.829	11.276	11.746	12.239	12.756	13.300	13.871
Net financial expenses before tax	-32.254	-34.107	-35.154	-36.240	-37.368	-38.538	-39.753	-41.015	-42.327	-43.690	-45.107	-46.581	-48.114	-49.709	-51.370	-53.100	-54.901	-56.778	-58.734	-60.774
Tax shield	7.096	7.504	7.734	7.973	8.221	8.478	8.746	9.023	9.312	9.612	9.924	10.248	10.585	10.936	11.301	11.682	12.078	12.491	12.922	13.370
Free cash flow to owners	**20.438**	**24.464**	**27.309**	**30.359**	**33.629**	**37.132**	**40.884**	**44.899**	**49.197**	**53.793**	**58.708**	**63.961**	**69.575**	**75.573**	**81.978**	**88.816**	**96.116**	**103.906**	**112.216**	**121.081**
Investments, intangible and tangible assets																				
Intangible and tangible assets, end of period	322.149	332.573	343.413	354.688	366.421	378.633	391.348	404.591	418.388	432.766	447.756	463.389	479.695	496.712	514.474	533.020	552.391	572.630	593.783	615.897
ADD:																				
Depreciation, amortization andimpairment losses	38.406	39.995	41.663	43.415	45.254	47.187	49.217	51.351	53.595	55.954	58.435	61.046	63.793	66.684	69.728	72.933	76.308	79.864	83.610	87.559
LESS:																				
Intangible and tangible assets, beginning of period	-312.121	-322.149	-332.573	-343.413	-354.688	-366.421	-378.633	-391.348	-404.591	-418.388	-432.766	-447.756	-463.389	-479.695	-496.712	-514.474	-533.020	-552.391	-572.630	-593.783
Investments, intangible and tangible assets	**48.434**	**50.420**	**52.503**	**54.691**	**56.987**	**59.399**	**61.932**	**64.594**	**67.392**	**70.333**	**73.425**	**76.678**	**80.100**	**83.700**	**87.490**	**91.479**	**95.680**	**100.103**	**104.763**	**109.673**

USD in thousands	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	Terminal period
Stage					Growth slowdown							Decline
EBITDA	**382.830**	**402.354**	**420.863**	**438.118**	**453.890**	**467.961**	**480.128**	**490.210**	**498.054**	**503.532**	**506.554**	**485.030**
LESS:												
Operating tax (tax on EBIT) (adjusted for non-recurring items)	-107.311	-113.058	-118.531	-123.662	-128.380	-132.621	-136.323	-139.431	-141.898	-143.684	-144.759	-136.984
Cash flow from operations before changes in NWC	**275.519**	**289.297**	**302.331**	**314.456**	**325.510**	**335.340**	**343.805**	**350.779**	**356.156**	**359.849**	**361.794**	**348.046**
ADD:												
Changes in inventories	-297	-285	-270	-252	-230	-205	-178	-147	-115	-80	-44	-4.432
Changes in receivables	-11.410	-10.973	-10.402	-9.698	-8.865	-7.908	-6.838	-5.667	-4.408	-3.079	-1.698	-170.572
Changes in operating debt	14.746	14.181	13.443	12.533	11.456	10.220	8.837	7.323	5.697	3.979	2.194	220.432
Cash flow from operations	**278.558**	**292.219**	**305.102**	**317.039**	**327.871**	**337.446**	**345.626**	**352.289**	**357.330**	**360.669**	**362.247**	**393.473**
LESS:												
Investments in non-current assets	-111.835	-113.511	-114.675	-115.306	-115.392	-114.927	-113.913	-112.362	-110.291	-107.725	-104.695	-110.002
Free cash flow	**166.723**	**178.708**	**190.427**	**201.733**	**212.479**	**222.519**	**231.713**	**239.926**	**247.039**	**252.944**	**257.551**	**283.472**
LESS (-) / ADD (+):												
New net interest bearing debt (adjusted for cash and cash equivalents)	12.470	10.906	9.195	7.355	5.409	3.381	1.298	-812	-2.921	-4.999	-7.019	148.068
Net financial expenses before tax	-62.901	-64.814	-66.487	-67.897	-69.025	-69.854	-70.373	-70.572	-70.448	-70.000	-69.233	-45.107
Tax shield	13.838	14.259	14.627	14.937	15.185	15.368	15.482	15.526	15.498	15.400	15.231	9.924
Free cash flow to owners	**130.130**	**139.059**	**147.762**	**156.129**	**164.049**	**171.414**	**178.120**	**184.068**	**189.169**	**193.345**	**196.531**	**396.356**
Investments, intangible and tangible assets												
Intangible and tangible assets, end of period	636.012	653.869	669.231	681.885	691.653	698.390	701.989	702.387	699.561	693.535	684.376	680.955
ADD:												
Depreciation, amortization and impairment losses	91.720	95.654	99.313	102.651	105.623	108.190	110.314	111.965	113.117	113.750	113.854	113.424
LESS:												
Intangible and tangible assets, beginning of period	-615.897	-636.012	-653.869	-669.231	-681.885	-691.653	-698.390	-701.989	-702.387	-699.561	-693.535	-684.376
Investments, intangible and tangible assets	**111.835**	**113.511**	**114.675**	**115.306**	**115.392**	**114.927**	**113.913**	**112.362**	**110.291**	**107.725**	**104.695**	**110.002**

Appendix 40. Comparable listed companies

As mentioned earlier, OFS is a highly diversified sector. As a result, Welltec has no doppelgangers or lookalikes in the industry. Nevertheless, to select a peer group, I first draw up a list of 100 OFS company. Next, I exclude the privately held companies (38 companies) as well as OFS's major players and their subsidies (26). Having whittled down my initial list to 36 company, I go through their lists of products/services to find out whose service range includes 'well intervention operations and completions' (services similar to what Welltec provides). This last criteria narrows my list down to 5 companies:

Company	Services	Traded as	Company website
Aker Solutions	Subsea (technology), engineering	OSE: AKSO	www.akersolutions.com
Helix Energy Solutions Group	Well intervention operations, remotely operated vehicle operations, oil exploration and production, offshore production facilities	NYSE: HLX	www.helixesg.com
Key Energy Services	Well services, fishing and rental services, coiled tubing, fluid management	NYSE: KEG	www.keyenergy.com
Calfrac Well Services	Fracturing, coiled tubing, acidizing, carbon dioxide, nitrogen, cementing, customized stimulation programs, electronic tools and databases, well performance analysis and forward planning, service-line-equipment	TSX: CFW	www.calfrac.com
Trican Well Service	Acidizing, coiled tubing, fracturing, nitrogen pumping, cementing, microseismic, and industrial services	TSX: TCW	www.trican.ca

From this list of five, Key Energy Services is excluded as it has only recently emerged from bankruptcy and relisted on NYSE. In other words, it doesn't have consistent historical data to calculate β_e. Also, in this list there is one company whose services are closely resemble what Welltec provides. This is Helix Energy Solutions Group whose service repertoire includes 'remotely operated vehicle operations'.

Appendix 41. Valuation (DCF model)

USD in thousands	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Free cash flow (FCFF)	51.583	46.836	46.390	46.341	43.528	43.092	43.472	44.583	46.363	33.513	44.239	47.645	51.276	55.145	59.268	63.661	68.340	73.324	78.631
WACC	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%
Discount factor	0,90090	0,81162	0,73119	0,65873	0,59345	0,53464	0,48166	0,43393	0,39092	0,35218	0,31728	0,28584	0,25751	0,23199	0,20900	0,18829	0,16963	0,15282	0,13768
PV of FCFF	46.471	38.013	33.920	30.526	25.832	23.039	20.939	19.346	18.125	11.803	14.036	13.619	13.204	12.793	12.387	11.987	11.593	11.206	10.826

2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057+
20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
84.282	90.298	96.701	103.517	110.770	118.488	126.700	135.436	144.730	154.614	166.723	178.708	190.427	201.733	212.479	222.519	231.713	239.926	247.039	252.944	257.551	283.472
11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%
0,12403	0,11174	0,10067	0,09069	0,08170	0,07361	0,06631	0,05974	0,05382	0,04849	0,04368	0,03935	0,03545	0,03194	0,02878	0,02592	0,02335	0,02104	0,01896	0,01708	0,01538	
10.454	10.090	9.735	9.388	9.050	8.722	8.402	8.091	7.790	7.497	7.283	7.033	6.751	6.443	6.114	5.769	5.412	5.048	4.683	4.319	3.962	

PV of FCFF in horizon (budgeted) period	531.700
The long-term stable growth rate in terminal period (g)	-0,5%
PV of FCFF in terminal period	37.922
Enterprise value	569.622
LESS: NIBD (end of 2016)	-460.158
Estimated market value of equity	109.464

Also provided in Excel file (on USB memory stick), tab 'Valuation'

Appendix 42. Valuation (EVA model)

USD in thousands	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
NOPAT	7.705	13.163	17.792	21.810	26.278	30.760	35.485	40.634	46.388	50.059	53.589	57.345	61.342	65.594	70.119	74.931	80.050	85.494	91.284
Invested capital (beginning of period)	460.158	416.280	382.607	354.009	329.478	312.229	299.896	291.909	287.960	287.985	304.532	313.882	323.581	333.647	344.096	354.947	366.217	377.926	390.097
WACC	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%
EVA	-42.912	-32.628	-24.294	-17.131	-9.965	-3.585	2.496	8.524	14.713	18.381	20.090	22.818	25.748	28.893	32.268	35.887	39.766	43.922	48.373
Discount factor	0,90090	0,81162	0,73119	0,65873	0,59345	0,53464	0,48166	0,43393	0,39092	0,35218	0,31728	0,28584	0,25751	0,23199	0,20900	0,18829	0,16963	0,15282	0,13768
PV of EVA in horizon period	-38.659	-26.481	-17.764	-11.285	-5.914	-1.917	1.202	3.699	5.752	6.474	6.374	6.522	6.630	6.703	6.744	6.757	6.746	6.712	6.660

2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057+
20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
97.441	103.987	110.947	118.346	126.212	134.573	143.459	152.904	162.942	173.609	183.799	193.642	203.018	211.805	219.887	227.150	233.491	238.814	243.039	246.098	247.940	234.623
402.750	415.909	429.598	443.844	458.673	474.115	490.199	506.958	524.426	542.638	561.632	578.709	593.643	606.234	616.306	623.714	628.344	630.122	629.010	625.011	618.165	608.554
11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%
53.138	58.237	63.691	69.523	75.758	82.420	89.537	97.139	105.255	113.919	122.020	129.985	137.717	145.119	152.093	158.541	164.373	169.501	173.848	177.347	179.942	167.682
0,12403	0,11174	0,10067	0,09069	0,08170	0,07361	0,06631	0,05974	0,05382	0,04849	0,04368	0,03935	0,03545	0,03194	0,02878	0,02592	0,02335	0,02104	0,01896	0,01708	0,01538	
6.591	6.508	6.412	6.305	6.190	6.067	5.938	5.803	5.665	5.524	5.330	5.115	4.883	4.635	4.377	4.110	3.839	3.566	3.295	3.029	2.768	

The long-term stable growth rate in terminal period (g)	-0,5%
PV of EVA in terminal period	23.452
Invested capital, beginning of year	460.158
ADD: PV of EVA in horizon period	80.904
PV of EVA in terminal period	23.452
Estimated enterprise value	564.514
LESS: NIBD (end of 2016)	-460.158
Estimated market value of equity	104.356

Also provided in Excel file (on USB memory stick), tab 'Valuation'