

Valuation of Royal Unibrew A/S

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Executive summary

Investing in a stock of Royal Unibrew four years ago would have yielded a return of more than 2200% today while the Danish C20 in comparison would have generated a return of about 125%. This has led to a motivation of challenging the existing market price. Consequently, this thesis sets out to find the fundamental value of Royal Unibrew's stock.

To do so, an initial discussion and appraisal of the most appropriate valuation model is carried out. The DCF and EVA models are found to be most applicable in the case of Royal Unibrew.

A financial analysis is conducted to investigate Royal Unibrew's historical and current performance. It shows that the company has managed to improve profitability, value creating growth, and liquidity during the last few years. It currently performs considerably better than competitors in the Danish market as well as most other breweries in Europe.

The strategic analysis reveals that Royal Unibrew currently holds stable positions in its markets. However, it also discloses that consumption of Royal Unibrew's main product, beer, is decreasing considerably in Europe. Substituting products are gaining market shares while the younger population, who tend to drink more beer, is diminishing. At the same time, a global consolidation process led on by four major breweries, is threatening the existence of smaller breweries. Marketing expenditures is shown to be of significant importance due to the homogeneity of the products, which may place larger companies with an advantage.

Synthesising the financial and strategic analysis leads to a forecast of key financial value drivers. Calculating the cost of capital then enables a valuation of the stock. The estimated price of DKK 332 is well below the market price of DKK 530, which indicates that the market has overvalued the stock.

A sensitivity analysis shows that even small changes in the cost of capital and growth rate have great impact on the value. Thus, the "true" value may be far from the estimated price.

It is recognized that there are serious flaws inherent in the valuation models. Great uncertainty comes with the associated assumptions, which make the reliability of the yielded result questionable. Therefore, the estimated fundamental value should be considered indicative only and interpreted with care.

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1.0 Introduction

1.1 Motivation

"In a bubble, investors behave as if they are joining a chain letter. One letter writer writes to a number of people, instructing each to send the letter on to a number of people with the same instruction. Letters proliferate, but ultimately the scheme collapses... A few that are early in the chain make considerable money, but most participants are left with nothing."

Stephen Penman (2010: 7)

A capital market is said to be efficient if prices in the market fully reflect available information. When this condition is satisfied, market participants cannot earn risk-adjusted profit on the basis of available information (Levich, 2001). This postulate is called the efficient market hypothesis. Believers of this hypothesis think that investors are rational in their pricing of stocks and that the market price of stocks are equal to its fundamental value.

On the contrary, advocates of behavioural finance suggest that stock prices may not reflect intrinsic values. This is for instance evidenced by 'Siamese twins' stocks, in which investors have claims on the same cash flows, but nevertheless trade at different prices (Brealey et al., 2008).

This thesis is motivated by an urge to investigate whether Royal Unibrew has been priced incorrectly by the stock market. The motivation is supported by the assumption that investors may not be rational in their pricing of stocks.

Royal Unibrew is an interesting case, as the share has given an extremely high return to shareholders during the last four years. Investing in a share of Royal Unibrew from April 2009 to May 2013 would have yielded a return of more than 2200%. In comparison, investing in OMX C20 would have yielded a return of about 125%¹.

In 2008 it reported a large impairment loss and the stock price hit the bottom at DKK 23. During the financial crisis in 2008, a new management team was put in charge. Since then, the company has experienced a decrease in revenues, but has apparently managed to increase value tremendously at the same time. The question is if this apparent high value creation justifies the high stock price or if investors may have behaved as in a chain letter.

¹Datastream

1.2 Research question

The motivation has led to the following research question:

What is the fundamental value per share of Royal Unibrew, as of May 8th 2013 on a stand-alone basis?

The research question is seen in a trading perspective. The purpose of the question is to improve the decision making of an analyst in whether to buy or sell the stock.

The financial calendar of Royal Unibrew is from 1/1 – 31/12. It issued the annual report on May 7th 2013. To allow investors time to react on the release, the cut off date is set to May 8th 2013. Consequently, all information after that date are ignored in order to avoid noise in the analysis.

1.3 Structure

To answer the research question, a fundamental valuation of Royal Unibrew's stock is carried out.

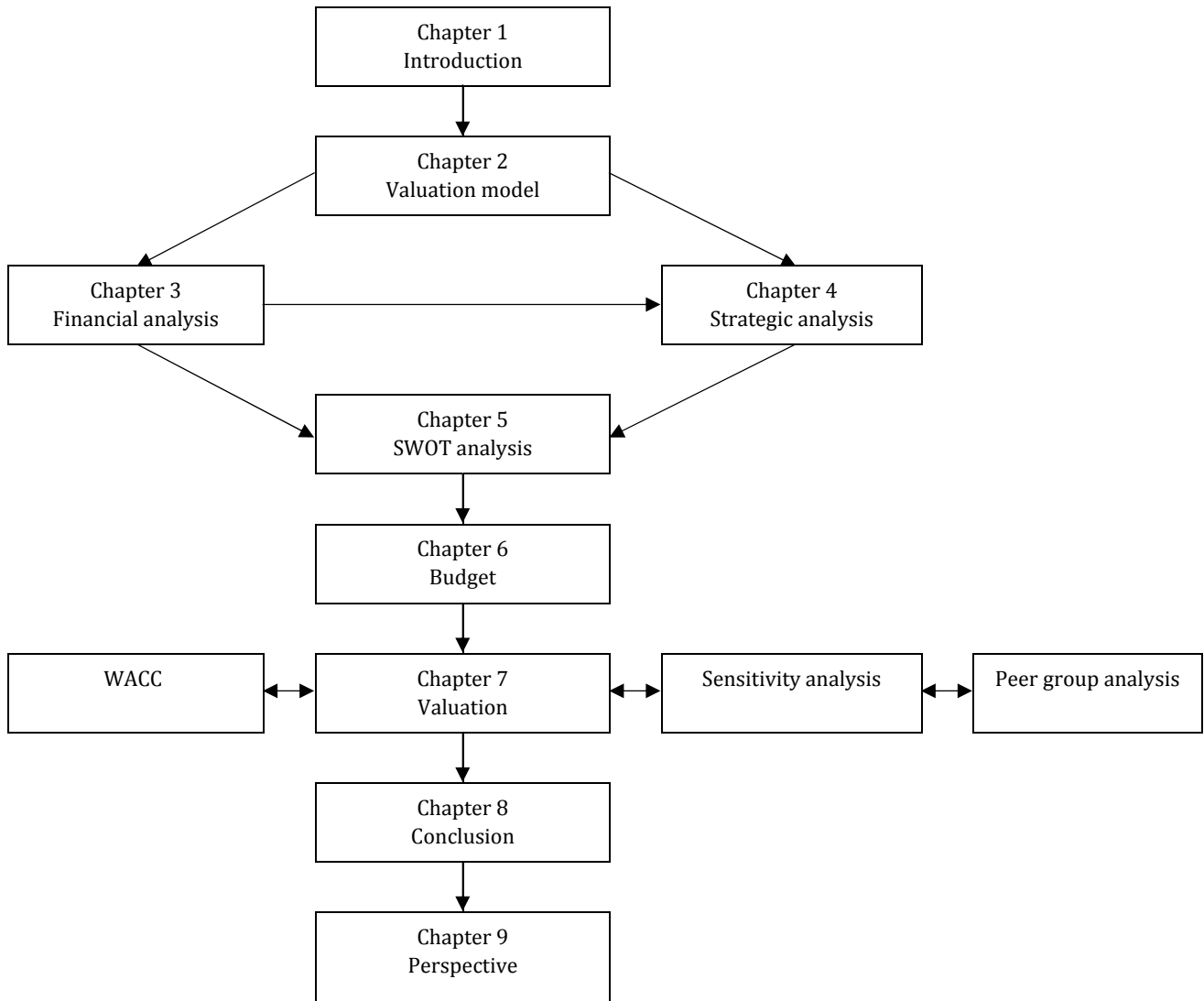
Figure 1.0 depicts the structure of the thesis. Chapter 1 contains the motivation, research question, methodology and delimitations. Furthermore, a description of the company is presented.

As a foundation for the subsequent analysis and stock valuation, chapter 2 discusses which valuation model works best for the case of Royal Unibrew. To determine Royal Unibrew's past and current performance a financial analysis is placed next. A strategic analysis is carried out in chapter 4, where the future prospects of the company is analysed. Several elements from chapter 3 are used here. Consequently, this sequence of the chapters is necessary. Findings from both the financial and strategic analysis contain *strength*, *weaknesses*, *opportunities* and *threats* for Royal Unibrew. Hence, both chapters are summarized in a SWOT analysis in chapter 5.

Chapter 6 contains a budget of key financial value drivers based on the analysis in the three foregoing chapters. This leads to the valuation in chapter 7. The chapter starts out by estimating the weighted average cost of capital (WACC). An estimation of the core value of the stock is then performed. A sensitivity analysis investigates how sensible the value is to certain critical key parameters and the peer group analysis verifies the result. Chapter 8 concludes by answering the research question. Chapter 9 puts the thesis into perspective.

In addition to the appendices, excel sheets documenting all calculations in the thesis are available on attached USB stick.

Figure 1.0
Structure of the thesis
Source: own creation



1.4 Methodology

1.4.1 Data and information

In line with a typical investor analysis, this thesis makes use of secondary data only. Access to databases, articles and science books has been achieved through the library of Copenhagen Business School and Google Scholar. Information from the annual reports of Royal Unibrew has been obtained

through the database Greens Online, which stores annual reports accepted by Selskabs & Erhvervsstyrelsen. Furthermore, information from news articles and webpages of different brewery related organisations are used.

1.4.2 Choice of models and theory

Different theory and models are used in order to answer the problem statement. The choice of the different approaches is argued along the way. Some models have certain limitations and it may have a direct consequence of the outcome. Consequences are elaborated on and discussed.

1.4.3 Source criticism

Information from the annual reports of Royal Unibrew is treated critically. The company is listed and is therefore required by law to reveal information in line with International Financial Reporting Standards (IFRS) and OMX Nordic Exchange Copenhagen. However, it may still have an incentive to make the company look rosier than it actually is. Information from other sources is included at the extent to which the material seems objective. Still, this information may in some cases be biased and is treated with care.

1.5 Delimitations

It is necessary to carry out certain delimitations to answer the problem statement.

This report is exclusively based on external information. It ensures that the valuation is based on the same level of information as an investor. As such, it is assumed that the investor does not pose any internal information.

The thesis makes use of different models, mathematical formulas, and valuation techniques. Due to the limited space, the theory behind is either explained very briefly or not at all. It is assumed that the reader is familiar with most of the frameworks used.

There are no empirical studies on the accuracy of the models. Instead, discussions are based on existing studies.

The price of the stock is calculated on a stand-alone basis. It is therefore assumed that Royal Unibrew will not be acquired or merge with another company. As such, no synergy effects are accounted for.

1.6 Description of Royal Unibrew

Royal Unibrew is a Danish brewery headquartered in Faxe, Denmark. It was created in 1989 when Jyske Bryggerier merged with Faxe Bryggeri. The company got listed on Copenhagen Stock Exchange in 1998 and is now the second-largest brewery in Denmark in terms of market shares². It has subsidiaries in Western Europe, Eastern Europe, USA and Caribbean. The full structure of the company is found in appendix 1.0. The following description makes use of information from the webpage of Royal Unibrew and its annual reports.

1.6.1 Management and strategy

Henrik Brandt took over as CEO in 2008 and three other executives were replaced within a period of seven months. Before 2008, focus was on growth in sales and investment; since then, priority has shifted towards increasing profitability and selling branded products. This has led the company to engage in several acquisitions and sales of subsidiaries, which is evident in key performance metrics.

Table 1.0 Key performance measures of Royal Unibrew

DKK 1000	2005	2006	2007	2008	2009	2010	2011	2012
Net revenue	3,190,959	3,439,026	3,881,762	4,178,703	3,816,421	3,775,431	3,430,633	3,430,008
Net income	220,638	230,339	155,234	-483,165	52,451	277,773	350,855	372,804

Source: annual reports of Royal Unibrew

As seen in table 1.0, there has been an increase in net revenues until 2008. Subsequently, net revenues have decreased 18%. But since 2008 net income has increased vastly, indicating that the strategy has worked. This is support by looking at management's expectation and realized EBIT. As shown in table 1.1 management has the last four years either performed as expected or better.

Table 1.1 Budgeted and realized EBIT

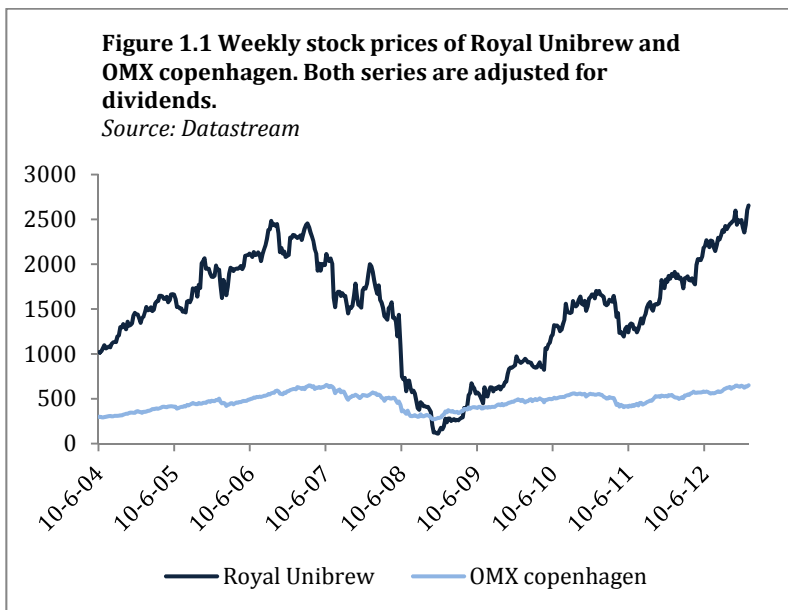
DKK 1,000,000	2009	2010	2011	2012
Budgeted EBIT	108	275-325	435-485	450-500
Realized EBIT	243	417	474	485

Source: Annual reports of Royal Unibrew

² <http://www.portal.euromonitor.com.esc-web.lib.cbs.dk/Portal/Pages/Search/SearchResultsList.aspx>

1.6.2 Investors

The investors seem to have reacted positively to this profitability. Figure 1.1 shows the development in stock prices of Royal Unibrew as well as the index of OMX Copenhagen. Both series are adjusted for dividends to make the prices comparable. Compared to the index, performance seems to have been outstanding since 2009.



By the end of 2012 Royal Unibrew had approximately 17,000 registered shareholders accounting for 90% of total equity. Three of those investors hold more than five per cent of the share capital:

Chr. Augustinos Fabrikker, Denmark. Holding 11.0%.

ATP, Denmark. Holding 5.2%.

Skagen Fondene A/S, Norway. Holding 8.9 %.

1.6.3 Products and markets

Royal Unibrew produces, markets, sells, and distributes beverages with main focus on beer products. In general, the type of beer can be classified into four categories (Aksglæde, 2011):

Super premium

Premium

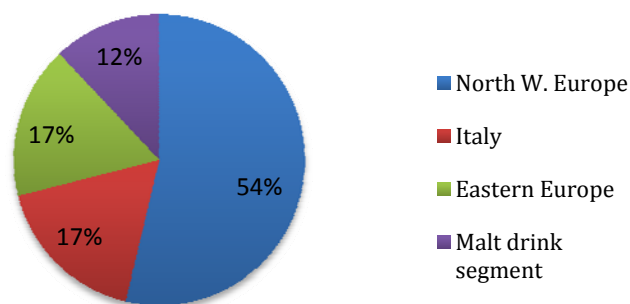
Mainstream

Private label and discount

Where the super premium segment typically consists of exclusive beers, Royal Unibrew mostly have premium and mainstream beers in its product portfolio. Other products in its portfolio include soft drinks and malt drinks as well as fruit juice and mineral water. A small part of its product portfolio consists of energy drinks, cider and alcoholic soft drinks.

Figure 1.2 depicts the company's market segmentation. In this segmentation, it has been necessary to mix markets with products. Description of the figure is given below. It must be noted that the annual report of 2012 does not segment any further. However, the report from the previous year does. This is depicted in a pie chart in appendix 1.1.

Figure 1.2 Share of revenue.
Source: AR 2012



Royal Unibrew sells beers, soft drinks, juice and mineral water in Northwestern Europe and Italy. The main market is Denmark, which constitutes about one third of total net revenues of Royal Unibrew. Germany and German border trade constitute about 15%, while Italy constitutes about 17%.

Eastern Europe refers to Lithuania, Latvia, and Estonia and comprises the market for beer, fruit juice and soft drinks. The distribution of sales to each country in 2012 is unclear but according to the annual report of 2011, Lithuania and Latvia are the biggest markets in Eastern Europe.

The malt drink segment comprises the international markets for malt drinks and exports of beer and soft drinks to markets where the company does not have local representation. Export of beer is mainly positioned to the United States. The markets for malt drinks are mostly centered to Africa and the Caribbean region. Malt drinks to these regions constitute about 3% of total net revenues.

In addition to selling its own products, Royal Unibrew has a license agreement with Heineken to produce and distribute Heineken's products in Denmark and the Baltic region. Additionally, the company produces and distributes products of PepsiCo in Denmark.

To get an understanding of Royal Unibrew's markets, table 1.2 lists certain characteristics of the most relevant countries. Description of consumption patterns covers beer only.

Table 1.2 Characteristics of the most relevant markets of Royal Unibrew

	Percentage of revenues	Consumption of beer (millions of litres)	Consumption per capita (liter)
Denmark	34.8%	366.2	65.6
Germany and border trade	15.8%	8,715.4	106.5
Italy	17.0%	1,643.6	27
Lithuania	9.1%	286.9	89.7
Latvia	7.6%	152.3	74.7

Source: Euro Monitor and annual reports of Royal Unibrew, 2011 and 2012

It is seen that Denmark, Lithuania and Latvia have a low total consumption of beer but that consumption per capita is relatively high. The opposite is evident for Italy while Germany has both a high total volume and per capita.

1.6.4 Competitors

In Denmark, Carlsberg and Harboe Brewery are considered the main competitors, as their product portfolio of beers and soft drinks are similar to Royal Unibrew. Carlsberg is the largest brewery in Denmark with approximately DKK 67 billion of net revenues in 2012. It mainly sells premium and mainstream branded beers and soft drinks and is represented in Western and Eastern Europe (CARLSBERG, 2012). It is therefore considered a competitor of great importance. Harboe had in 2012 net revenues of approximately DKK 1.3 billion. Its main markets are Denmark and Germany. Its focus is on mainstream and discount products mostly for the retail segment (HARBOE, 2012).

The peer group outside Denmark of greatest relevance is considered to be Heineken, SABMiller, and Anheuser-Busch Inbev. Including Carlsberg, these breweries are later referred to as the 'big four', since they all stand out in terms of size. These competitors are also identified in terms of their product portfolios and target markets, which compare to those of Royal Unibrew. For a brief description of each competitor the reader is referred to appendix 1.2.

There are additionally several other competitors in the markets of Royal Unibrew. These are identified in the strategic analysis in chapter 4.

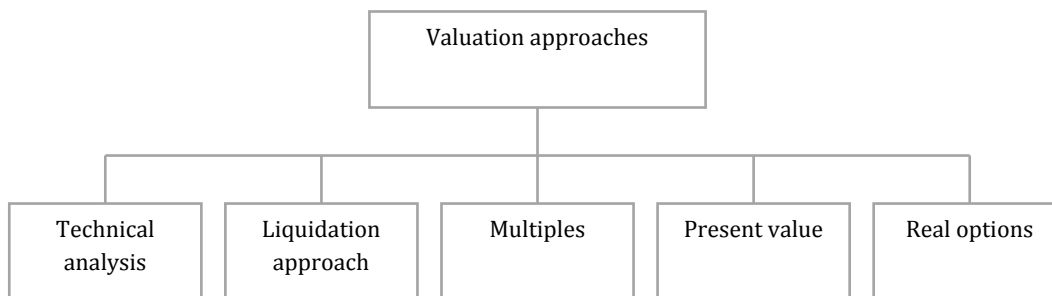
2.0 Valuation model

2.1 Valuation approaches

Before proceeding with the financial and strategic analysis, it needs to be discussed and evaluated which valuation model works best in the case of Royal Unibrew. Plenborg & Petersen (2010: 212) believe a good valuation model has four ingredients: the model's precision, realistic assumptions, user friendliness and an understandable output. These criteria form the basis upon which the valuation model in present thesis is selected. Figure 2.0 depicts the different valuation models available.

Figure 2.0 Valuation approaches

Source: based on Plenborg & Petersen (2012) and Siegel et al. (2000)



2.1.1 Technical analysis

The first approach, technical analysis, is different from the other models as the calculated value is based on past information. Technical analysts believe it is possible to predict future share prices by identifying relationships between stock price changes and other market information (Siegel et al. 2000). Park & Irwin (2007) have conducted a meta-study of 95 studies where 56 studies find positive results regarding technical analysis, i.e. that it is possible to generate economic profit. However, they find most of the studies to have various problems in their testing procedures. The model has the disadvantage that it does not calculate the fundamental value of a company. Therefore, this model is not used to value Royal Unibrew.

2.1.2 Liquidation approach

The liquidation value is the estimated amount that a company can be sold for if all assets were sold and liabilities settled (Plenborg & Petersen, 2012). Although it may be simple to use, the approach is not flawless. The problem is an imperfect balance sheet (Penman, 2010). Plenborg & Petersen (2012) suggest that the approach is best suited when the going concern of the business is questioned and when alternative uses of the assets would yield a higher return. As Royal Unibrew is currently a profitable business, the asset-based model seems inappropriate to use in this case.

2.1.3 Multiples

Multiples are simply the ratio of an observable market value to a particular number in the financial statement; revenues, earnings or book value to name a few (Penman, 2010). By identifying a group of “identical” firms, the value of the target company can be estimated. The model is considered simple and fast to use, which might explain the popularity among practitioners (Damodaran, 2012). However, several assumptions related to the model may be problematic.

First, the model assumes that the stocks of the comparable companies are efficiently priced (Damodaran, 2012). As such, it depends on investor expectations and does not calculate the incremental value of the company. Second, the comparable companies must share the same economic characteristics and outlook (Koller et al., 2010). Clearly, the task of finding “truly” comparable companies seems difficult. Third, the accounting numbers must be based on the same quality. Differences in recognition criteria between the comparable firms can lead to false conclusions (Plenborg & Petersen, 2012).

Researchers have different view on multiples. Penman (2010) is suspicious of its use, as the model does not challenge speculation. On the contrary, Koller et al. (2010) endorse the method and claim that it generates insights into key factors creating value in an industry. Damodaran (2012) and Plenborg & Petersen (2012) approve of the method but stress the potential shortcomings if assumptions are not complied with. Nonetheless, as the model is based on existing market prices, it does not estimate the fundamental value of the firm. Consequently, it seems less appropriate to use as a core valuation measure in this thesis.

2.1.4 Present value models

Present value models on the other hand, are not influenced by investor expectations as they measure intrinsic value by discounting forecasted future cash flows or excess return. Within the present models

a lot of approaches exist. They come in three types: the dividend discount model, the discounted cash flows models and the excess return models (Penman, 2012). When used correctly, all these approaches yield identical results (Plenborg & Petersen, 2003), which can be used a validation check on one another.

Like the rest of the models, however; several assumptions and weaknesses are attached to present value models. First, future financial drivers with an infinite time horizon are budgeted. Obviously, such forecasts are difficult and subject to uncertainty. Second, the estimation of beta and the market risk premium is difficult (Koller et al., 2010). As Penman also notes, *“no one knows the true beta... Even if we get a good measure of beta, there is the more difficult problem of determining the market risk premium”* (Penman 2010: 112). Third, the growth rate in the terminal period is expected to be static. This means that even small differences in the growth rate may have substantial impact on the stock price since the terminal period typically consists of a large part of the value (Møller, 2006).

Also, it is assumed that cash surpluses are paid out as dividends or reinvested in projects with a net present value equal to zero (Plenborg & Petersen, 2012). Again, this assumption seems problematic as many companies earn returns that are different from its cost of capital. Nevertheless, the present value models are the most accepted and used models among practitioners (Plenborg & Petersen, 2012). Koller (2005) even claims that they are the most correct models to use.

2.1.5 Real options

The last model, the real option approach, has apparently attractive features, as it uses elements from the discounted cash flow models while taking into account flexibility in investment decisions. As opposed to financial options, real options are based on tangible assets. Real options could for instance take into account the value of follow-on investment opportunities, timing investment, the abandon of projects etc. Several scholars claim that the traditional present value models are not able to incorporate the future value of flexibility in forecasting (Brealey et al. 2008, Mason 1984, Trigeorgis 2005). Thus, the traditional NPV-approach may lead to flawed budgeting decisions and incorrectly valuation of companies.

Nonetheless, the problem of using real options in practice lies with its high level of complexity and uncertainty (Block, 2007). Also, due to the flexibility inherent in the model, it would be more applicable for companies that undertake investments based on high future uncertainty (Block, 2007). That could for instance be companies related to natural resource discoveries, IT technology investments, pharmaceutical companies and the like. Because of the business model of Royal Unibrew, the real option method seems less appropriate to use.

2.1.6 Conclusion

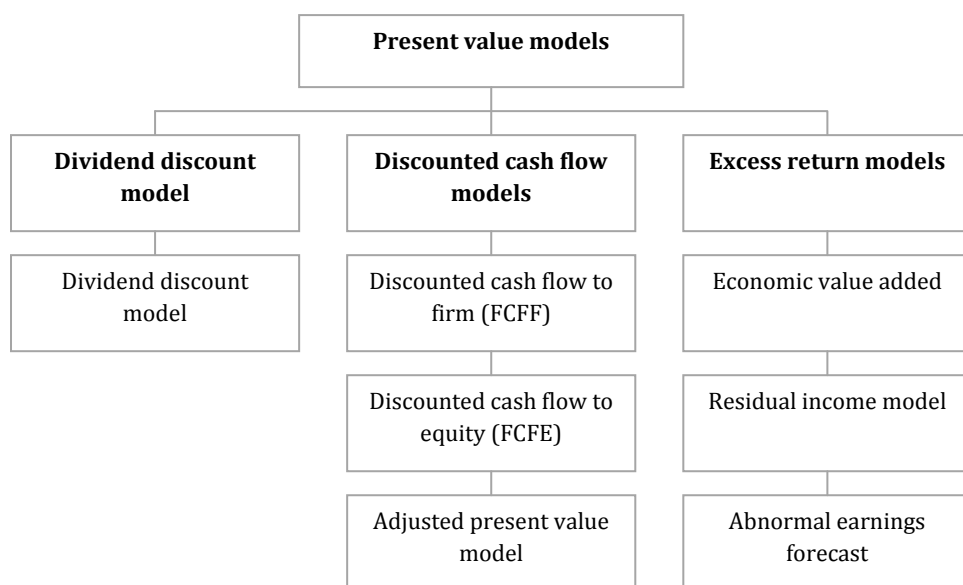
From the discussion on the merits and demerits of the different models, the present value approach is considered the most relevant in relation to Royal Unibrew. It measures the fundamental value of the company and avoids the influence of investor expectations³. Thus, this model will be used in calculating the intrinsic value of Royal Unibrew's stock. However, it must be emphasized that due to the assumptions and uncertainty that comes with the model, the use of this approach must be interpreted with care. The multiple approaches will be used as a stress test as Koller (2010) suggests. Because of the assumptions inherent in the model, it needs to be underscored that this comparison must be treated with care as well. Choice of specific multiples will be discussed in chapter 7.

2.2 Specific valuation model

Having discussed the overall approach, the specific present value model is assessed in the following. Figure 2.1 depicts the different present value models available. A discussion of each value model is considered beyond the scope of this thesis. The figure is merely to get an idea of the different approaches accessible.

Figure 2.1 Present value models

Source: based on Penman (2012), Plenborg & Petersen (2012) and Damodaran (2012)



³ Previous years of stock price movements are typically used in the calculation of beta. Consequently, the model does not completely avoid the influence of investors.

As previously mentioned, they all yield identical results if used correctly and if certain assumptions are fulfilled. Consequently, it does not seem to matter what model works best. But as Plenborg & Petersen (2012) points out, user friendliness and an understandable output propose two of the four criteria for a good valuation model. The 'discounted cash flow to firm' model is used, as it is widely applied and seems easy understandable. It is later referred to as the DCF model. It is calculated as (Brealey et al., 2008):

$$Enterprise\ value_0 = \sum_{t=1}^{\infty} \frac{FCFF_t}{(1 + WACC)^t}$$

where FCFF = free cash flow to the firm. For the purpose of validating the calculations, the 'economic value added' model is used as well. It is calculated as (Plenborg & Petersen, 2012):

$$Enterprise\ value_0 = Invested\ capital_0 \sum_{t=1}^{\infty} \frac{EVA_t}{(1 + WACC)^t}$$

where EVA = economic value added. Both of these models are value-based, that is they estimate the intrinsic value of the firm. Hence, to calculate the value of the stock, net interest bearing debt must be subtracted.

Equity-based valuation models on the other hand, directly estimate the value of equity. This requires that free cash flow to equity or residual income be discounted by equity holder's required rate of return. If the approaches are to yield identical results, the required rate needs to fluctuate with changes in the market value of the capital structure for each year (Plenborg & Petersen, 2012). By using the value-based approaches instead, a complex iteration procedure is avoided. Hence, Plenborg & Petersen's 'user friendliness' criterion is satisfied.

As will be evident in chapter 6, sales forecast is particularly of great importance due to its relation to other key drivers. Also, return on invested capital (ROIC) is used to evaluate the pro forma budget and is therefore of profound significance. Hence, critical attention is assigned to especially these two parameters in the financial and strategic analysis.

3.0 Financial analysis

The objective of this financial analysis is to provide information about Royal Unibrew's historical and current performance. Synthesizing this with a strategic analysis enables a forecast of key financial value drivers. The analysis is divided into six subchapters: assessment of accounting quality, preparation of financial statements, profitability analysis, growth analysis and a risk analysis. In some parts of the chapter, accounting figures from Carlsberg and Harboe Brewery are included as a benchmark.

3.1 Accounting quality

As mentioned in the introduction, listed companies in Denmark are required to reveal information according to IFRS and disclosure requirements of OMX Nordic Exchange Copenhagen. Still, management has certain flexibility in generating the accounts, which can bias the interpretation if not taken into account. This creative bookkeeping can be formed purposely as well as instinctively.

As past accounting numbers are used as an indicator of the future, this information has to be as reliable as possible. When appraising the level of accounting quality, a definition is needed of what good accounting is. Researchers use different definitions, but the one Plenborg & Petersen (2012) use seems to be the most appropriate:

“Good accounting quality is defined as the financial reporting that provides the input which best supports the decision models used.”

This definition incorporates that quality depends on the purpose of the analysis and the decision models used. With that in mind, the accounting quality is used towards the use of present value models and multiples.

It must be emphasized that the level of biased accounting depends on the industry and the business model (Plenborg & Petersen, 2012). As the brewery industry is characterized by relatively simple transactions, which span over a short time horizon, biased accounting numbers are less likely to occur (Plenborg & Petersen, 2012). However, a thorough investigation of accounting quality has been executed. There are a few things that need to be pointed out.

3.1.1 Auditor's statements

Looking at the auditor's statements gives an indication of the reliability of the annual reports and the company as a going concern (Plenborg & Petersen, 2012). Royal Unibrew has since 2008 used Ernst and Young as auditors of the company. The auditors do not question the company as a going concern in any of the years; rather, they state that the financial statements give a true and fair picture of the financial position of the company. It is their opinion, that the information provided in management's reviews in the annual reports is consistent with the financial statements. Apparently, the annual reports do not suffer from reliability issues.

3.1.2 Quality of financial ratios

In 2008 Royal Unibrew reported an impairment loss of more than DKK 450 million on intangible and tangible assets related to two subsidiaries in Poland. This is a severe loss since it constituted about 17% of the non-current assets. As mentioned in the introduction, a new management team took office in 2008 and it is likely it made use of 'big bath' accounting. This is a method to decrease earnings in one year and improve earnings and return on invested capital (ROIC) in subsequent years. The impairment loss has a positive effect on ROIC in two ways. It reduces depreciation and amortization charges, making future profit higher and it decreases invested capital (Penman, 2010). In this case, ROIC increases severely faster in subsequent periods. However, the two subsidiaries in Poland were sold off in 2011, and the effect is therefore only temporary. Nevertheless, it is kept in mind that the impairment loss is transitory and ROIC would not have increased with the same pace, had it not taken place. The direct impact of the impairment loss is clarified later in the analysis.

Royal Unibrew does not state whether it makes use of conservative or liberal accounting⁴. Consequently, it is not possible to know how ROIC is affected. But compared to Harboe, that states it makes use of conservative accounting (Harboe, 2008-2012), the length of tangible assets between the two companies is approximately the same. This indicates that Royal Unibrew makes use of conservative accounting as well. It implies that ROIC is higher than if the company had used liberal accounting. It must, however, be emphasised that due to the business model, the discretion of increasing ROIC by applying conservative accounting is limited. The effect is more severe for R&D heavy companies that to some degree have the option of expensing research and development costs

⁴ Conservative accounting implies for instance recognizing all probable losses as they are discovered and most expenditures as they are incurred. Also, it could imply the lowering of the lifetime of intangible and tangible assets, making amortization and depreciation charges higher. This has a negative effect on earnings but a positive effect on ROIC. The opposite is true for liberal accounting (Penman, 2010).

instead of capitalizing them. Also, this type of accounting does not add value when using present value models, because the higher return is exactly offset by a lower balance sheet (Penman, 2010).

3.1.3 The ability to convert accounting earnings to cash flow

In the long run the amount of free cash flow to equity (FCFE) and net earnings should be equivalent (Plenborg & Petersen, 2012). However, creative bookkeeping and accounting manipulation may cause discrepancy between the two (Plenborg & Petersen, 2012). Comparing the two measures therefore gives an indication of the quality of the accounting.

The cash conversion rate can be used in that regard (Plenborg & Petersen, 2012):

$$\text{Cash conversion rate} = \frac{FCFE}{\text{Net earnings}} \times 100$$

If there is compliance between FCFE and net earnings, the above equation should be equal to 100%. In appendix 3.7 a reformulated cash flow statement with an estimated FCFE is available. By using average FCFE and average net earnings for different time horizons, the cash conversion rate is calculated. For two years it is 123%, for 5 years it's 87%, and for 8 years it's 100%. The difference between the two measures is greater, the shorter the period of time. But when including 8 years, there is no discrepancy between the two measures, indicating that the accounting is of decent quality.

3.1.4 Conclusion

In general, it seems that the accounting is of good quality with a stable accounting practice. This means that past performance and growth, all things equal, serve as a decent indicator of the future. However, it must be kept in mind that ROIC is positively affected between 2009-2011 by the impairment loss.

3.2 Preparation of financial statements

In order to accomplish the valuation, items from the income statement and balance sheet are reclassified into operating and financing activities. Additionally, the statement of equity is adjusted. The reformulations are carried out in accordance with Plenborg & Petersen (2012) and Penman (2012).

Clearly, the latest years in a historical period are of greatest importance in terms of forecasting. On the other hand, to evaluate performance stability, it is relevant to analyse a longer period of time. Taking

into account that IFRS was implemented in 2005 the analysis includes a period of nine years (2004–2012). For the analytical purpose this should give sufficient information on the company's performance before and after the financial crisis and the impact of the new management team.

Due to classification issues some subjective assumptions are executed in the reformulation process. Only the most important items that are considered to have an impact on the valuation are elaborated on. A more detailed classification is found in appendix 3.0 where most reformulated items of Royal Unibrew are elaborated on.

Harboe is used as a benchmark in the risk analysis. Therefore, it is also necessary to reformulate statements of this company in order to derive liquidity ratios. Additionally, Harboe recently divested a large business segment that was not brewery related. In order to make the company comparable in the profitability analysis, this discontinued activity is removed from the statements. Reformulations of Harboe are found in appendix 3.1.

Carlsberg is used as a benchmark in the profitability analysis only. Consequently, it has been sufficient to obtain key financial ratios of the firm from the database Bloomberg.

3.2.1 Ambiguous items

The following emphasizes ambiguous items of Royal Unibrew that require an assessment of particular subjective character.

Associates

Every items related to associates of Royal Unibrew are classified as belonging to operations in the reformulations. This is due the fact that all associates are only connected to brewery activities and as such are considered part of operations (Plenborg & Petersen, 2012). The consequence of this classification is hard to assess since the return from these associates has been very fluctuating the last nine years. However, these items only consist of a small part of the whole group and the impact on the valuation is therefore relatively small.

"Others"

There is no note related to the items 'Other operating income', 'other investment' etc. Consequently, they could belong to operations as well as financing. As no information is given, it is classified under operations.

Tax

The effective tax rate is used when calculating tax on EBIT. Royal Unibrew has subsidiaries in countries where different tax rules apply. Therefore, using an “average” tax rate likely gives a more accurate estimate than the marginal tax rate, since the marginal tax rate only applies for Danish corporations. In this case, the effective tax rate is higher making the estimated value smaller. Adjusted tax for previous years is included in the calculation of the effective tax rate. Including it has the advantage that the forecasted tax rate will not be downward biased (Plenborg and Petersen, 2012).

Cash

‘Cash at bank and in hand’ is classified as belonging to operations. Cash is usually interest bearing and therefore could be assumed to be part of financing activities but the amount of cash fluctuates heavily which suggest that cash is used in operations (Plenborg and Petersen, 2012).

3.3 Profitability analysis

3.3.1 Net income vs. total income

Before moving on to the profitability analysis a somewhat indistinctness of the relevance of using net income or total income in the valuation needs to be addressed. As total income, also called dirty surplus, consists of non-realized gains and losses, these items bypass the income statement and are recognized directly in the statement of equity. Researchers are divided when it comes to including dirty surplus or not. Plenborg & Petersen (2012), Koller et al. (2010), and Subramanyam & Wild (2009), all use net income. On the other hand, Penman (2012) repeatedly points out that value is lost if total income is not used. Sørensen & Elling (2005) use total income and discuss their choice briefly. However, in Sørensen’s later book, he changes his view in favour of net income (Sørensen, 2012). The rest of the researchers do not argue for their choice of method, and as a consequence the relevance of including total income or not needs to be investigated.

Relatively little empirical studies have been conducted to determine whether dirty surplus have an effect on the value of equity. The studies that exist are based on sample periods prior to the implementation of IFRS in 2005 and the findings are mixed. Dhaliwal et al. (1999) for instance, find no clear evidence that comprehensive income on average are more strongly associated with returns than net income. This is supported by O’hanlon et al. (2004) and Isidro et al. (2006). They find no evidence of predicted relationship between valuation errors and dirty surplus outside the US. To the contrary,

Kanagaretnam et al. (2009) find that dirty surplus is relevant in explaining firm value in Canadian data. Also, Biddle et al. (2006) find evidence to support the idea that dirty surplus matter.

Looking at the reformulated statement of equity in appendix 3.0, dirty surplus items seem fluctuating and therefore difficult to forecast. Many of these items are outside the control of management and therefore including total income may give an inadequate picture of performance (Sørensen & Elling, 2005).

A contradictive argument is that unrealized gains and losses make it possible for management to manipulate earnings and risk. This is done by realizing gains and losses from a portfolio of financial assets with the purpose of reducing the volatility of profit in the income statement (Sørensen & Elling, 2005). However, according to the statement of equity, Royal Unibrew does not possess financial assets available for sale. Therefore, it apparently does not have this possibility of earning manipulation.

As no clear empirical evidence exists, the importance of including total income or not, seems to depend on the specific dirty surplus items of the company. In this case, most of the dirty surplus items are outside the control of Royal Unibrew and therefore not possible to forecast. A way to deal with that could be to average these items from the past nine years and use that number as a static forecast. However, the problem is that nine years may not be enough time to provide an accurate estimate. Also, the financial crisis between 2008-2011 may have created noise; hence an estimated average may not give useful indications of the future. Therefore, net income is used going forward.

3.3.2 The profitability model

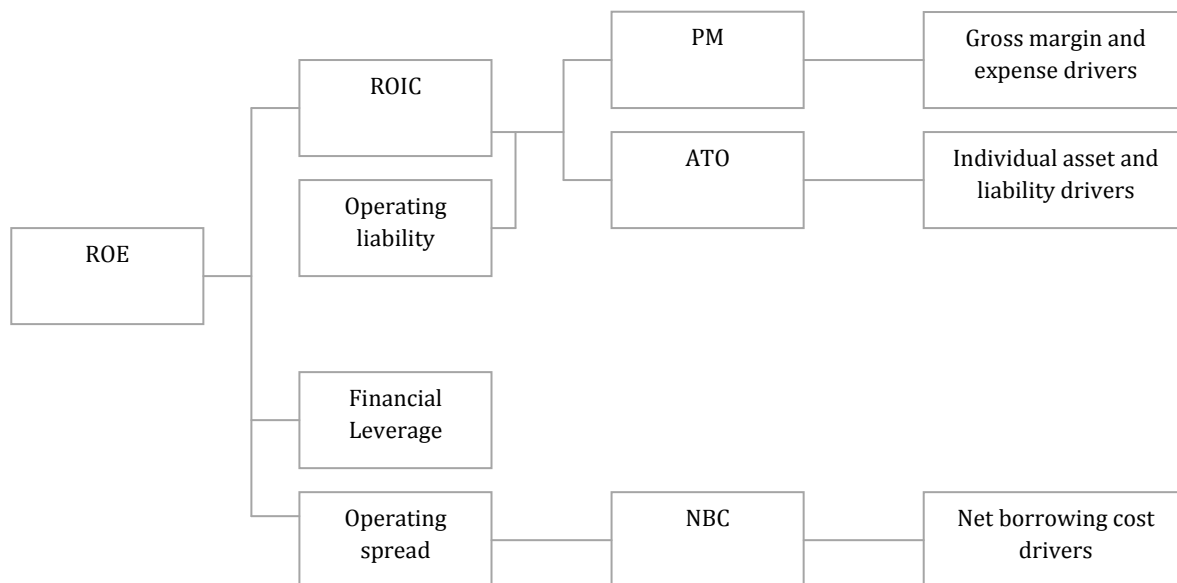
To enhance the ability of forecasting it must be discovered what drives profitability (Penman, 2010). The analysis is undertaken by use of the Du Pont model, which is depicted in figure 3.0. The model investigates what drives return on equity (Penman, 2010).

Emphasis is mainly assigned to the upper part of the model as value is driven from operations (Penman, 2012). The model differs slightly from the traditional Du Pont model as it takes into account the effect of operating liability leverage. This is incorporated to investigate how much of value creation is explained by current liabilities.

To be able to break down the model, minority interests are included. These are small and do not alter the interpretation of the financial ratios. But as seen in the reformulated statement of equity in appendix 3.0, the share of minority interests is decreasing with no minority interests the last year. Thus, ROIC is also estimated after minority interests in chapter 6 when evaluating the budget.

Figure 3.0 Du Pont Model.

Source: based on Penman (2012)



3.3.2.1 Return on equity

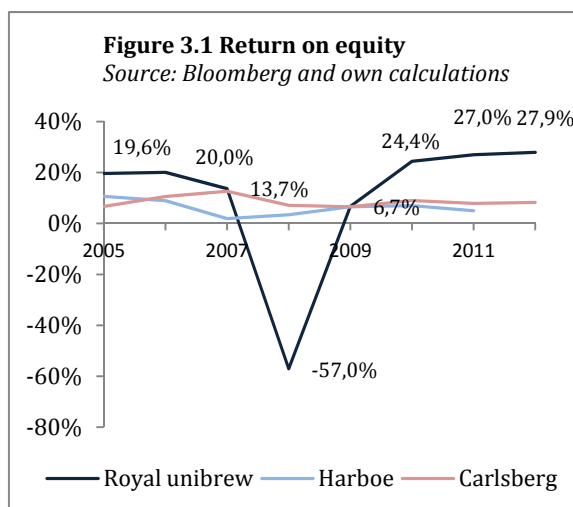
The first link of the model measures the return on equity by taking into account both operating and financial leverage and is calculated as (Damodaran, 2012):

$$\text{Return on equity (ROE)} = \frac{\text{net income}}{\text{BVE}}$$

where BVE = book value of equity.

It is seen in figure 3.1 that ROE for Royal Unibrew has decreased leading up to 2008 where the impairment loss is recognized. Since then, it has increased tremendously and has been considerably higher than that of the peers in the Danish market. However, the marginal ROE is diminishing, which suggests that the development cannot sustain.

To enable a more comprehensive analysis of ROE, it is broken down to investigate how it is created.



The relationship can be expressed the following way (Svensson 2012):

$$\begin{array}{c}
 \text{Return from operating activities} \qquad \qquad \text{Effect of financial leverage} \\
 \underbrace{\hspace{10em}} \qquad \qquad \underbrace{\hspace{10em}} \\
 ROE = \text{Return on invested capital} + \text{Operating spread} \times \text{Financial leverage}
 \end{array}$$

The lower part of figure 3.0 is now briefly assessed followed by a more comprehensive investigation of the upper part of the figure.

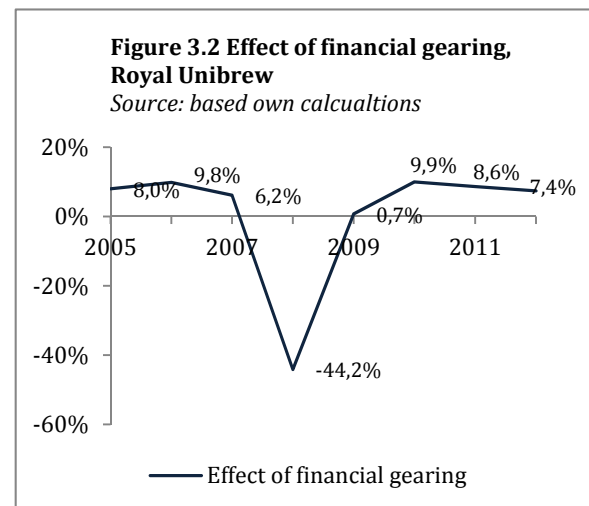
3.3.2.2 Effect of financial leverage

The effect of financial leverage is shortly addressed here, in order to see if Royal Unibrew benefits from its gearing or if the high ROE is mainly created through its operations. By mathematical manipulation ROE can be rewritten (Penman, 2012):

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

where NIBD = net interest bearing debt. The equation tells us that financial leverage is beneficial as long as ROIC exceeds net borrowing costs (NBC).

As seen in figure 3.2, Royal Unibrew has benefitted from its financial leverage in every year except for 2008. This helps explain the high ROE. It must, however, be kept in mind that though financial leverage increases ROE, it does not create value. This is because the increase in ROE is exactly offset by a larger required rate of return of shareholders due to a more risky capital structure (Brealey et al. 2008). What really drive value are operations (Penman, 2012).



3.3.2.3 Operating liability leverage

The idea is that just as financial leverage can lever up ROE, operating leverage can equivalently lever up ROIC. Credit from suppliers comes with a price. Suppliers who provide credit without interests also charge higher prices for the goods and services they supply than would be the case if the firm paid

cash. And so operating liability leverage can be unfavourable as well as favourable (Penman, 2010). Appendix 3.2 and the excel sheet provide the needed calculations. Cf. to the appendix, the last three years approximately 25 % of ROIC is explained by the current liabilities. This tells us that value is not created entirely through operations. Further investigation of the impact of current liabilities is presented later in the analysis.

3.3.2.4 Return on invested capital

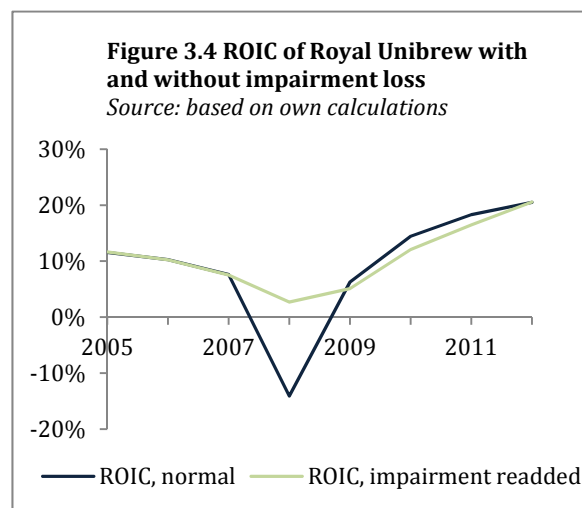
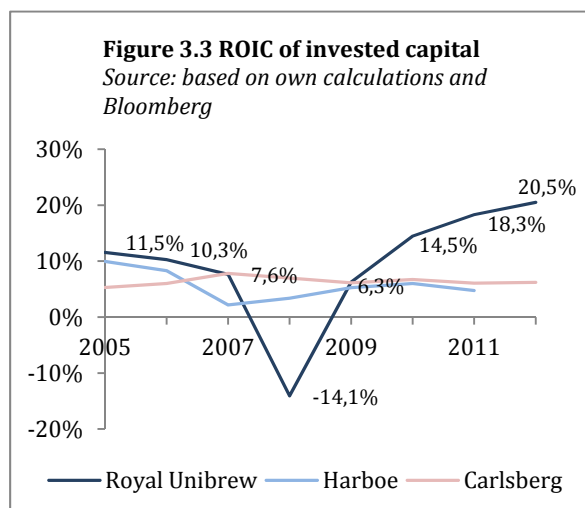
Return on invested capital measures the return on net operating assets and is calculated as (Subramanyam & Wild, 2009):

$$ROIC = \frac{NOPAT}{\text{average invested capital}}$$

where NOPAT = net operating profit after tax.

Figure 3.3 depicts the development of ROIC for Royal Unibrew as well as its main competitors in the Danish market. The trend is similar to ROE. Royal Unibrew has after a downturn in ROIC leading up to the financial crisis, created a high return on its operations the last 3-4 years. Royal Unibrew has additionally outperformed Harboe and Carlsberg tremendously the last three years. Worth noting is that before 2008 the return is not much higher than the return of competitors. This suggests that it has performed extraordinary well the last three years.

As mentioned in the beginning of the chapter, the subsidiaries in Poland that are impaired in 2008 are sold three years later. Thus, it is relevant to see what happens to ROIC if the impairment loss had not taken place. This is depicted in figure 3.4. The impairment loss is added back in the income statement in 2008 and in the balance sheet from 2008-2010.



Depreciation and amortization charges have not been adjusted for. However, this likely has a minor effect.

ROIC still has the same trend as before but is now flatter in the middle. This implies that the return has not increased as rapidly as first indicated.

The significant increase in ROIC the last three years could be indorsed by a certain stage in the product’s lifecycle. If the products are in a growing phase ROIC likely increases accordingly but will decline subsequently when products have matured (Plenborg & Petersen, 2012). However, the product portfolio of Royal Unibrew tends not to follow the same maturation procedure as other long-lived products. There are other external and industrial factors that have an impact on ROIC, which are clarified in the strategic analysis in the next chapter.

In order to get a more comprehensive assessment of ROIC it is broken down further. Two drivers, namely the profit margin and asset turnover, explain it.

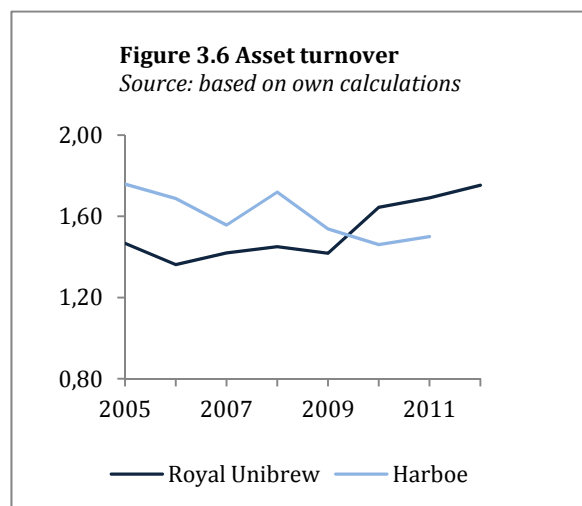
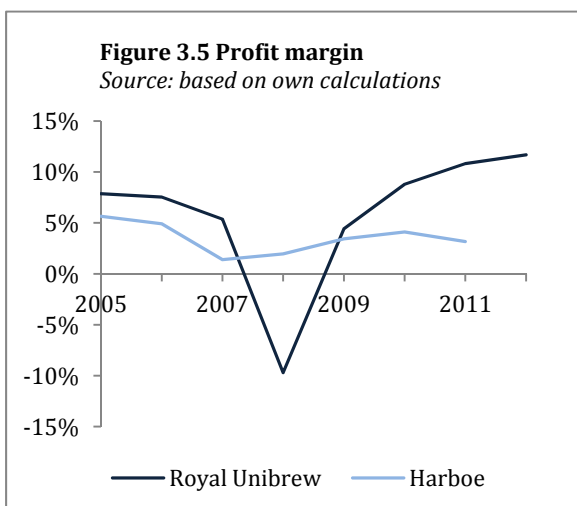
3.3.2.5 Profit margin and asset turnover

ROIC can be expressed by the following relationship (Subramanyam & Wild):

$$ROIC = Profit\ Margin \times Asset\ Turnover$$

where Profit margin = NOPAT / net revenue and Asset turnover = net revenue / average IC

The profit margin (PM) and asset turnover (ATO) depends on the industry to which the analysed company belongs (Subramanyam & Wild). An assessment of the relative trend in the two ratios is therefore relevant. As figure 3.5 reveals, Royal Unibrew has managed to increase its profit margin significantly the last three years, which suggest that it has managed its costs efficiently.



Also ATO has increased especially the last four years, which demonstrates that Royal Unibrew has handled invested capital well. To get an understanding of the cause of these increases, a trend- and common size analysis is executed.

3.3.2.6 Indexing and common-size analysis

2007 is chosen to serve as the base year for the trend and common-size analysis. Including the last six years may give a better understanding of the latest data than incorporating all eight years.

Gross margin and expense drivers

In table 3.1 the most relevant drivers to explain the increase in the profit margin are shown. A complete overview of all drivers is found in appendix 3.3. In the table below, the trend in each item is described and how much they individually constitute of net revenues in a given year.

Though net revenues have fallen, EBITDA and NOPAT have increased 51% and 95% respectively. Most of this can be attributed to a significant fall in production costs, which account for most of the costs. Also distribution and administrative expenses have decreased substantially. In general, it seems that Royal Unibrew has been able to be a lot more efficient in all areas of production the last three years. This will, all things equal, enable a competitive advantage in the future. Compared to Harboe, its production costs constitute a significant smaller portion of net revenues. Also, EBITDA and NOPAT are pointedly higher than Harboe's. The break down of PM and ATO for Harboe is found in appendix 3.5.

The only item that has not fallen is sales and marketing costs. As a percentage of net revenues it has increased 2 percentage points in the period. This will, all things equal, help insure that market shares sustain the coming years.

Table 3.1 Indexing and common-size analysis

	2007	2008	2009	2010	2011	2012
Trend, net revenue	100	108	98	97	88	88
Trend, production costs	100	113	102	91	80	81
Production costs, (percentage of net revenue)	-52%	-54%	-54%	-48%	-47%	-47%
Trend, sales and distribution expenses	100	109	89	93	84	83
Sales and distr. Expenses (percentage of net revenue)	-32%	-33%	-29%	-31%	-31%	-30%
Trend, sales and marketing costs	100	113	96	113	101	105
Sales and marketing costs (percentage of net revenue)	-12%	-12%	-11%	-13%	-13%	-14%
Trend, administrative expenses	100	94	90	87	76	69
Administrative expenses (percentage of net revenue)	-6%	-5%	-5%	-5%	-5%	-5%

Trend, EBITDA	100	66	103	148	142	151
EBITDA (percentage of net revenue)	11%	7%	12%	17%	18%	19%
Trend, depreciation and amortizations	100	130	155	140	93	95
Depr. and amortizations (percentage of net revenue)	-3.4%	-4.1%	-5.3%	-4.8%	-3.6%	-3.6%
Trend, NOPAT	100	-195	81	159	178	192
NOPAT (percentage of net revenue)	5%	-10%	4%	9%	11%	12%

Source: based on own calculations

3.2.3.8 Individual asset and liability drivers

To investigate how ATO has developed a variation of trend and common-size analysis is used. By calculating days on hand for each item making up invested capital, information on both the importance and trend of each item is revealed. Days on hand express the number of days that an accounting item is consuming cash (Plenborg & Petersen, 2012). Below, an excerpt of the most significant items is presented. A complete trend and days on hand analysis is found in appendix 3.4. Days on hand are calculated as (Plenborg & Petersen, 2012):

$$\text{Days on hand} = \frac{365}{\text{net revenue/each item}}$$

The formula says that a decrease in any asset results in lower number of days on hand. This causes ATO and ROIC to increase. The opposite applies for liabilities.

Table 3.2 Days on hand of invested capital. Average figures are used

	2007	2008	2009	2010	2011	2012
Total intangible assets	60	55	46	43	42	41
Total tangible assets	163	175	211	201	205	187
Inventory	30	33	31	21	19	19
Trade receivables	48	49	45	39	42	40
Other current assets	37	30	27	13	8	20
Trade payables	-33	-38	-45	-41	-44	-44
Other current liabilities	-130	-143	-161	-148	-157	-150
Invested capital	257	252	257	222	216	208

Source: based on own calculations

As seen in table 3.2 invested capital decreases considerably. Referring to appendix 3.3 invested capital falls 28% while net revenue only falls 12%. This explains why ATO has increased the past six years.

Taking a closer look, Royal Unibrew has managed to improve intangible assets and inventory. Tangible

assets on the other hand has first increased and then fallen greatly from 2009. The fall has a positive effect on ATO but at the same time may indicate that Royal Unibrew will have difficulties in meeting future demands.

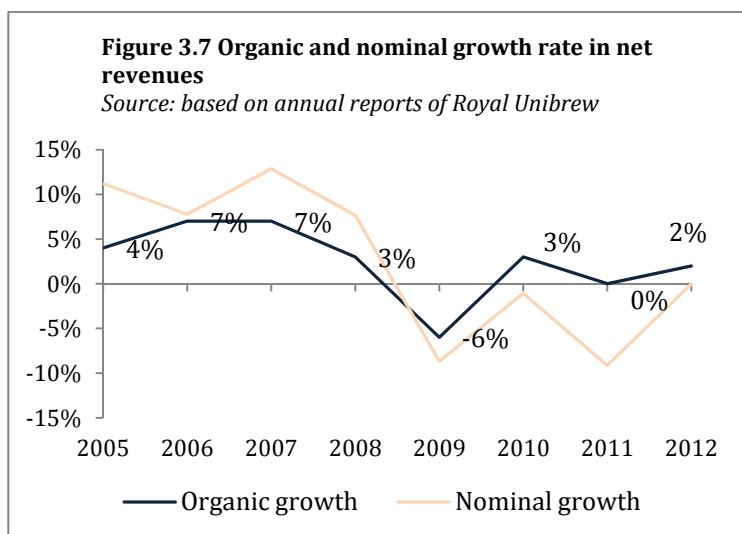
The increase in ATO and ROIC is also attributed to extended credit terms by suppliers while Royal Unibrew has reduced its credit terms with customers. As previously mentioned this means that value is not only created through operations. Still, this has no influence on the value of the company when using present value models, as higher residual income is offset by a lower balance sheet (Penman, 2012).

3.4 Growth analysis

As with profitability, the growth of Royal Unibrew needs to be assessed to get better indication of the future.

3.4.1 Organic growth rate

It was previously mentioned that Royal Unibrew has experienced a fall in net revenues of about 18% since 2008. This could be interpreted as a 'red flag', but as mentioned in the introduction, the company has been engaged in several acquisitions and sales of subsidiaries the last eight years. Hence, the organic growth rate must be assessed in order to get a better understanding of the development in net revenue for forecasting purposes.



Before 2009 the organic growth is lower than total sales growth but since 2009 it is higher in every year. The only time the organic growth is negative is in 2009 where it falls 6%. After that, Royal Unibrew has managed to have positive organic growth rates in 2010 and 2012. The figure reveals that despite of the large decrease in net revenue, Royal Unibrew has been able to improve organic sales the last three years.

It would have been preferable to have organic growth rates for every segments. Unfortunately, Royal Unibrew does not provide enough information to allow that fragmentation.

3.4.2 Value of growth

The organic growth rate did not give any indications of the value of growth. In a growth context, growth is only interesting when ROIC exceeds the weighted average cost of capital (Plenborg & Petersen, 2012). This can be expressed the following way (Plenborg & Petersen, 2012):

$$\text{Economic value added (EVA)} = (\text{ROIC} - \text{WACC}) \times \text{Invested Capital}$$

The WACC is taken from chapter 7 where a thorough calculation is executed. It is assumed constant here, for ease of calculations. In practice the WACC was likely higher around the time of the financial crisis due to increased risk, but this has minor effect on the estimate of the historical EVA.

Table 3.3 Growth in EVA

	2006	2007	2008	2009	2010	2011	2012
ROIC	10.3%	7.6%	-14.1%	6.3%	14.5%	18.3%	20.5%
WACC	9.95%	9.95%	9.95%	9.95%	9.95%	9.95%	9.95%
Average IC	2,524,557	2,734,199	2,881,380	2,690,819	2,295,748	2,029,122	1,956,299
EVA	8,053	-63,575	-692,157	-98,965	103,477	169,268	206,383
Growth in EVA	-77%	-889%	-989%	86%	205%	64%	22%
Ave. growth in EVA	-226%						
Average, 2009-2012	94%						

Source: based on own calculation

Based on the last seven years, the average growth of Royal Unibrew is not value creating. Nonetheless, exclusively observing the last four years, the average growth in EVA is 94%, which must be considered to be highly value creating. But the trend is unsurprisingly following ROE and ROIC; Royal Unibrew is not able to maintain the high pace of growth in EVA. Also, as previously mentioned, the increase in ROIC is partly due to a change in net current assets, which means that growth in EVA is not entirely created by operations.

3.4.3 Quality of growth

Obviously growth from core operating profit is more attractive than earnings from unusual items. It indicates whether growth is likely to sustain in the future (Sørensen, 2012). It must first be noticed that when using net income instead of total income it reduces the amount of unusual items.

Consequently, focusing on the income statement, when assessing the quality of growth, seems sufficient. The income statement in appendix 3.0 reveals that operating profit is almost entirely based on core operating activities. The only items that fall out of this category are 'other operating income', 'special items' and 'impairment losses'. The first two items are relatively small and have little impact on net operating profit. Also, since the impairment loss is only recognized ones, growth in EVA is assessed to be of good quality. This is positive in terms of future prospects as earnings from the core business are the base for growth (Penman, 2010).

3.4.4 Sustainable growth rate

It needs to be assessed whether Royal Unibrew is growing internally or may have to obtain debt in the future in order to meet investment opportunities. A firm's sustainable growth rate give indications of how much the firm is growing internally and is calculated as (Plenborg & Petersen, 2012):

$$\text{Sustainable growth rate, } g = \left(ROIC + (ROIC - NBC) \times \frac{NIBD}{BVE} \right) \times MI \times (1 - PO)$$

where PO = payout ratio and MI = minority interests. MI is calculated as (Plenborg & Petersen, 2012):

$$MI = \frac{\text{net earnings after MI/net earnings before MI}}{\text{Equity, parent/equity, group}}$$

As seen, the equation is similar to the formula used in calculating return on equity. But the sustainable growth rate now depends on minority interests and the pay out ratio. Table 3.4 reveals that Royal Unibrew has grown internally the last four years but that the sustainable growth rate is slowing down. This is caused by the high payout ratio. The management team explains the high payout ratio with confidence in future income (AR, 2012). It is difficult to conclude anything from the decrease in the sustainable growth rate. However, the high payout ratio indicates that it can be more difficult to fund projects with internal funds in the future. Consequently, this could limit management's ability of undertaking profitable investment.

Table 3.4 Sustainable growth rate

	2005	2006	2007	2008	2009	2010	2011	2012
ROE after minority interest	20%	20%	14%	-60%	6%	25%	27%	28%
Payout ratio	0.26	0.26	0.37	-0.11	0.00	0.01	0.40	0.48
Sustainable growth rate, g	15%	15%	9%	-67%	6%	25%	16%	15%

Source: based on own calculations. Theory based on Plenborg & Petersen (2012)

3.5 Risk analysis

In the profitability analysis the drivers that create value was broken down. But just as they create value, there's a risk they will fail to in the future (Sørensen & Elling, 2005). Hence, this risk must be assessed. This will furthermore enable an appraisal of Royal Unibrew's WACC in chapter 7. In general, there are two types of risk a company carries; a financial and an operational (Sørensen & Elling, 2005). In the following, the financial part consists of liquidity risk, financing conditions and exchange rate risk.

The operational risk is based on three components, namely the external, strategic and operating risk (Plenborg & Petersen, 2012). This will be assessed in chapter 4 where sufficient information allows to do that.

3.5.1 Liquidity risk analysis

Lack of liquidity can prevent the company from taking advantage of profitable opportunities, increase interest expenses etc. (Subramanyam & Wild). Also, discredit from stakeholders could be troublesome (Brealey et al., 2008). One extreme example can be assigned to Enron's energy trading business, which was a valuable asset. When it became clear that Enron was in financial distress its trading volume went to zero immediately. None of the customers were willing to make a new trade with Enron (Bryce, 2002). Thus, an appraisal of liquidity risk is important.

Based on financial ratios, a short-term as well as a long-term assessment is carried out. It must be acknowledged that they are only indicative as they are backward looking and merely describe part of the company's financial position (Plenborg & Petersen, 2012). Formulas for the ratios and the associated reformulated cash flow statement are found in appendix 3.6 and 3.7. All ratios make use of end of year balance sheet dates in order to get the latest possible data.

3.5.1.1 Short-term liquidity risk

The liquidity cycle explains the number of days it takes to convert net working capital to cash (Plenborg & Petersen, 2012). In terms of risk, this means that the lower the number, the better. As table 3.5 reveals, there has been a positive trend the last five years.

Table 3.5 Short term liquidity risk ratios

	2008	2009	2010	2011	2012
Liquidity cycle	20	2	-4	-8	-11
Current ratio	1.14	0.84	0.71	0.66	0.96
CFO to short term debt ratio	30%	68%	64%	50%	61%

Source: own calculations. Theory based on Plenborg & Petersen (2012)

The current ratio is current assets divided by current liabilities and therefore the higher the better. Though it has increased the last year, the decrease from 2008 to 2011 could be troublesome. Some argue that a current ratio of greater than 2.0 is an indication of low short-term liquidity risk (Plenborg & Petersen, 2012). But as they point out, the ratio depends on the industry. Compared to Harboe, the current ratio is only slightly lower. Liquidity ratios for Harboe are found in appendix 3.8.

The cash flow from operations to short-term debt ratio indicates how much of current liabilities can be paid by cash flow from operations. Again, the higher the ratio is, the better. Apparently, the ratio seems high. Also, as it has remained more or less stable the last four years the ratio does not give any sign of trouble.

One prerequisite for using these ratios is that they should always be used together, never isolated (Plenborg and Petersen, 2012). Assessing them together, they do not indicate any negative trend. And in comparison to Harboe, all ratios are better except for the current ratio. Thus, it seems that Royal Unibrew does not suffer from short-term liquidity problems.

3.5.1.2 Long-term liquidity risk

Table 3.6 provides an overview of different long-term liquidity ratios. In terms of risk, the higher the ratios are the better. The solvency ratios measure how much the equity accounts for total liabilities and equity combined. Because of the increase in stock prices the solvency ratio based on market values is higher. The increase in both ratios gives indications of a positive long-term liquidity.

Table 3.6 Long term liquidity ratios

	2008	2009	2010	2011	2012
Solvency ratio, book value	0.14	0.29	0.42	0.46	0.47
Solvency ratio, market values	0.17	0.37	0.67	0.69	0.78
Interest coverage ratio	-3.23	1.54	6.26	17.94	13.88
Interest coverage ratio (cash)	3.30	4.24	8.42	16.70	14.46
CFO to debt ratio	0.10	0.27	0.35	0.29	0.37

Source: own calculations. Theory based on Plenborg & Petersen (2012)

The two next ratios measure the company's ability to meet its net financial expenses. As seen, they have both increased except for the last year. The last one, cash flow from operations to debt ratio, measures the extent to which cash flows from operations are sufficient to repay liabilities. Though it has increased in the period it has fluctuated a lot as well. This could be interpreted as a small 'red flag'. But again, the ratios must be assessed combined. In general there are no indications of liquidity problems in Royal Unibrew as they have all more or less increased. Also, compared to Harboe, the ratios seem very healthy.

3.5.2 Financing conditions

95% of Royal Unibrew's debt consists of fixed interest rate loans (AR, 2012). Hence, fluctuations in the interest rate do not have much of an impact on interest expenses. There is change that a decrease in the interest rate will make the market value of debt higher. But the interest rate in Denmark and other European countries is historical low. Therefore, the risk of an increase in the market value of debt seems also low.

3.5.3 Exchange rate risk

Besides Denmark, most of Royal Unibrew's net revenues come from Germany and Italy. Both countries use Euro and since the Danish Krone is locked to this currency, net revenues are in general not that exposed. As goes for Eastern Europe, the Lithuanian currency Lita⁵, is locked to the Euro while Latvia will soon join the Euro⁶. This obviously causes the exchange risk to be low as well.

Royal Unibrew is mostly exposed to USD, British pounds and the currency of African countries. However, as mentioned in the introduction, the export of malt drinks to Africa only consists of 3 % of total net revenues. Hence, the impact of exchange rates in these countries is assessed to be low.

⁵ <http://euobserver.com/lithuania/120293>

⁶ http://www.dr.dk/P1/orientering/indslag/2013/01/04/154126_1_1_1_1.htm

3.6 Summarization of the financial analysis

The accounting quality is assessed to be of good quality and in general a decent indicator of the future. However, it is revealed that ROIC and ROE is positively affected by an impairment loss in 2008. Using net income in the valuation is argued to be the most appropriate method for Royal Unibrew.

The profitability analysis reveals that Royal Unibrew has had a very high ROE compared to Carlsberg and Harboe. Part of this is explained by a beneficial financial leverage. ROIC has followed the same pattern as ROE, as it has increased tremendously since 2008. This is explained by an improved efficiency especially in terms of production costs. Also distribution costs and administrative expenses have improved significantly.

However, the increase in ROIC is attributed to extended credit terms from suppliers while Royal Unibrew at the same time has shortened credit terms to customers. ROIC is the last three years approximately explained by 25% of operating liability leverage. Additionally, the development in ROIC shows a decreasing trend, suggesting that the increase will not sustain. Still, the profitability analysis indicates that Royal Unibrew will have an advantage to competitors in the near future due to a more efficient production.

Though Royal Unibrew's net revenue has decreased about 18% since 2008, it has not have negative organic growth the last three years. Also, EVA has grown the last four years while the quality of this growth is assessed to be good. This also indicates that Royal Unibrew will have a competitive advantage in the near future.

The liquidity analysis reveals that Royal Unibrew has been able to improve the short-term liquidity risk. This also applies for the long-term. It is assessed that Royal Unibrew in general has low liquidity risk, which is supported by a comparison of Harboe. Also, financing conditions and exchange rate risk is assessed to be low.

The purpose of the financial analysis is to gain knowledge of the future performance of Royal Unibrew. Still, information derived from this analysis is only indicative. As Graham and Dodd state, *"it must always be remembered that the truth which the analyst uncovers is first of all not the whole truth and, secondly, not the immutable truth. The result of his study is only a more nearly correct version of the past"* Graham and Dodd (1934: 352).

4.0 Strategic analysis

The purpose of the strategic analysis is to identify important aspects of a company's future cash flow potential and risk to enable a forecast of key financial drivers (Plenborg & Petersen 2012). External macro-factors are analysed first followed by an industry analysis. This is supplemented by a study of competitors and the most important markets of Royal Unibrew. Additionally, an internal analysis is undertaken with the purpose of identifying strengths and weaknesses compared to competitors. A risk analysis is carried out subsequently.

The amount of information that could have an impact on future performance of Royal Unibrew is enormous. To remain focus, only the most relevant information is included in the analysis. Additionally, we need to recall that the largest part of Royal Unibrew's product portfolio is composed of beer. Its main markets are Denmark, followed by Italy and the Baltic countries. A smaller part of Royal Unibrew's portfolio consists of soft drinks, malt drinks and fruit juice. This is kept in mind when undertaking the analysis.

4.1 PEST analysis

Royal Unibrew's performance, growth potential, and risk depend on macro factors, which is analysed using the PEST framework. In this model, T as in technology, includes weather conditions. The main findings and their impact are summarized in table 4.0 next page. Each factor is considered to have a positive or negative effect on a scale from 1-3. An effect of 1 is considered low, 2 is medium and 3 is high. The impact of the factors is assessed relatively to each other. The elements are subsequently elaborated on and discussed.

4.1.1 Political factors

Breweries in Europe are charged an excise fee and a packing fee for the products they sell. The last time Royal Unibrew reported the cost of these fees was in 2008. Back then, the excise and packing fee amounted to 15 % of total revenues (AR, 2008). Each country within the EU differs in its level of taxation. For soft drinks, breweries in Denmark pay high excise duties⁷ while excise on beer is more moderate compared to other EU countries⁸.

⁷ <http://www.bryggeriforeningen.dk/default.asp?pid=277>

Table 4.0 Summarization of macro-analysis

<i>General factors</i>	<i>Underlying element</i>	<i>Effect</i>	<i>Magnitude</i>
Political	Decreased excise duty on soft drinks in Denmark	+3	3
	Decreased excise duty on beer in Denmark	+3	3
	Lowering of corporate tax rate in Denmark	+1	1
	Better access to finance and lower energy duties in DK	+1	1
	Negative publicity in the media	-1	1
	Increased excise duty on water	-1	1
Economical	Moderate growth in real GDP in Western Europe	+1	1
	Growth in real GDP in Eastern Europe	+2	2
	Growth in real GDP in Africa and Caribbean	+2	2
	Likely increase in prices of energy and agricultural products	-1	1
Socio-cultural	Change in consumption trend in beer in Western Europe	-3	3
	Decrease in consumption of soft drinks in Denmark	-2	2
	Decrease in consumption of fruit juice in all segments	-1	1
	Shift in age composition in Europe	-3	3
	Health trend in Denmark	-2	2
Technological	Global warming	+1	1

Source: theory based on Mellahi et al. (2005). Model inspired by Scharghin (2009)

The Danish government has implemented a stimulus package in April 2013 with the purpose of increasing economic activity and thereby decreasing the unemployment rate. The package especially favours the brewery business in Denmark, as the excise duty on soft drinks and beers is decreased. This is done in an effort to reduce border trade. Concretely, the excise duty on soft drinks was reduced by 50% by 1st of July, 2013 and by 2014 the excise duty will be eliminated. In 2012, the excise fee on soft drinks in Denmark was DKK 1.64 per litre⁹, which suggests that the impact of the political intervention is severe.

The excise duty on beers was from 1st of July, 2013 lowered by 15%¹⁰. These reductions will, all things equal, have positive impact on future revenues. There is a chance that this will decrease cross-border trade; however, the impact will likely be small compared to the overall positive effect.

⁸ <http://www.bryggeriforeningen.dk/default.asp?pid=272>

⁹ <http://ipaper.ipapercms.dk/Bryggerigruppen/Foreningen/Afgifter2013/>

¹⁰ <http://nyhederne.tv2.dk/article.php/id-67416068:vækstpakke-det-betyder-den-for-dig.html>

The stimulus package will also likely have positive impact on the Danish economy as a whole. The corporate tax rate will be lowered gradually from 2014-2016 from the current rate of 25% to 22%. Additionally, companies will have better access to finance and face lower energy duties¹¹.

There is a risk that negative publicity in the media regarding beer products can influence the politicians negatively. Sundhedsstyrelsen in Denmark for instance, often makes public campaigns about the appropriate level of consumption of alcohol. Royal Unibrew does, however, participate in local and international cooperation within the brewery industry with the purpose of influencing legislative decision makers. This is to ensure that conditions for producing and marketing beer and soft drinks do not deteriorate (AR, 2012).

Excise duties on water in Denmark have increased from DKK 5 per m³ of water in the beginning of 2012¹² to DKK 6.13 in 2013¹³. The increase will have negative impact on production costs.

4.1.2 Economic factors

4.1.2.1 Economic outlook

Before assessing the future economic outlook, it is important to understand the degree to which economic changes affect the brewery industry. As beer is a short-lived consumer good it may not be as dependent on the business cycle as other consumer goods. Colen & Swinnen (2011) have done an interesting finding. They find that beer consumption initially increases with rising incomes, but at higher levels of income, beer consumption falls. The article does not suggest why this is the case. But it could be because that people project their drinking habits towards more expensive substituting products like wine, liquor etc.

On the other hand, Tremblay and Tremblay (2005) does a meta study, where six out of eight studies find that beer is a normal good that reacts negatively to recessions. Freeman (2011) finds for US data that consumption of beer is only mildly correlated with economic fluctuations, and that the brewery industry is relatively immune to business cycles. He furthermore finds that a demographic change of an increased youth have a much more significant positive effect.

As these studies are mixed, no clear interpretation can be made. Recalling the organic growth rate for Royal Unibrew in figure 3.7, it was revealed that Royal Unibrew had a negative organic growth of 6% in 2009. This indicates that the company is affected by the economy. For the matter of this thesis,

¹¹ http://www.skm.dk/public/billeder/presse/andrenyheder/aftale%20om%20en%20v_kstplan.pdf

¹² <http://www.kpmg.com/dk/da/nyheder-og-indsigt/nyheder/energi-og-forsyning/sider/indberetning-af-vandafgifter.aspx>

¹³ http://www.rsmplus.dk/images/skat_nyhedsarkiv/2013/Godtgrelse%20af%20energi-%20og%20vandafgift%202013.pdf

consumption of beer in Western Europe will be regarded as being positively correlated with growth in GDP. This is also the case for the Eastern European segment. However, for this segment, the correlation is assessed to be higher. This is because these countries have smaller disposable incomes. No studies have been found regarding the impact of economic activity on consumption of soft drinks.

Table 4.1 displays the historical and predicted real GDP percentage growth for countries relevant to Royal Unibrew. As with all economic forecasts, the reliability of the used models comes with insecurity (Blanchard, 2009). The projections have been compared to numbers from OECD. There are variations in the figures but the general trend is the same. The forecasts are, however, still treated with care.

Table 4.1 Real GDP percentage growth

	Realized				Projections		
	2009	2010	2011	2012	2013	2014	2018
Denmark	-5.7	1.6	1.1	-0.6	0.8	1.3	1.5
Norway	-1.4	0.2	1.3	3.0	2.5	2.2	2.1
Sweden	-5.0	6.3	3.8	1.2	1.0	2.2	2.4
Germany	-5.1	4.0	3.1	0.9	0.6	1.5	1.2
Italy	-5.5	1.7	0.4	-2.4	-1.5	0.5	1.2
Lithuania	-14.5	1.5	5.9	3.6	3.0	3.3	3.8
Latvia	-17.7	-0.9	5.5	5.6	4.2	4.2	4.0
Estonia	-14.1	3.3	8.3	3.2	3.0	3.2	3.7
Latin America and Caribbean	-1.5	6.1	4.6	3.0	3.4	3.9	3.9
Middle East and north Africa	2.9	5.3	3.9	4.7	3.1	3.7	4.5
Sub-Saharan Africa	2.7	5.4	5.3	4.8	5.6	6.1	5.5
USA	-3.1	2.4	1.8	2.2	1.9	3.0	2.9
Central and Eastern Europe	-3.6	4.6	5.2	1.6	2.2	2.8	3.8
Euro area (advanced economies)	-4.4	2.0	1.4	-0.6	-0.3	1.1	1.6

Source: International Monetary Fund

Western Europe

As previously mentioned, this segment mainly consists of Denmark, Italy and Germany while also a small portion of the sale goes to other Nordic countries. Especially Western European countries were severely hit by the financial and economic crisis in 2008-2009. The crisis seems to have lasted relatively long and developed countries have struggled to get out of the recession. But from the table it is seen that all these countries are expected to grow moderately in terms of real GDP from 2013-2018. This will have positive effect on the sale of Royal Unibrew's products.

Italy is also expected to grow; however, as it appears from the table, the country is expected to grow at a slower pace compared to Germany and Denmark. In 2012, the country was hit by the tumult in the European area, likely due to the instability of Greece, Spain and Portugal¹⁴. It is therefore expected that the sale of beers to this segment will be mildly positively affected.

Eastern Europe

Lithuania, Latvia and Estonia are developing countries with smaller disposable income. As seen in the table, all these countries are forecasted to grow 3-4% until 2018. This will likely have a positive effect on all products within the Eastern European market segment many years going forward.

Malt-drinks

As mentioned in the introduction, the segment mainly consists of malt drinks to Africa, Caribbean, and European countries and export of beer to the United States. IMF forecasts that Caribbean and African countries will grow at a rate between 3-4.5% until 2018. Most of these countries belong to the category of emerging markets and have low disposable income. As such, growth in real GDP will increase the demand of goods in general. The sale of malt drinks for African and Caribbean countries will therefore likely be greatly positively affected in the future. Also, the real GDP growth in the United States will have a positive effect on the export.

4.1.2.2 Energy and commodity prices

There has been price increases in energy and commodity products particularly the last ten years (Mitchell, 2008). This increase is, among others, due to a rising demand from emerging markets. IMF predicts that the high level of economic activity in emerging markets will continue. Consequently, demand of energy and commodities will likely grow in the future, which will cause prices to increase. This will have negative impact on production costs in a long-term perspective.

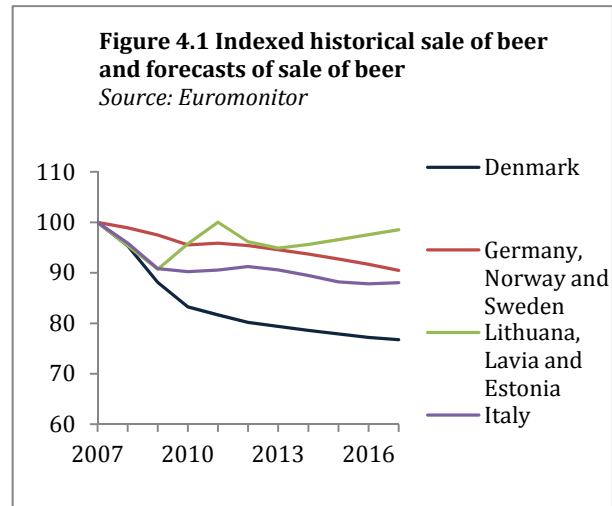
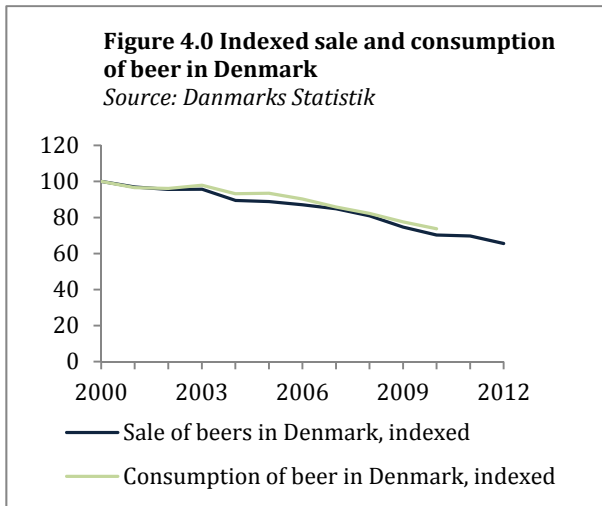
4.1.3 Socio-cultural factors

4.1.3.1 Consumption trends

Figure 4.0 depicts indexed developments of sale and consumption of beer in Denmark the last 12 years. The figure reveals that they have both decreased tremendously. At the same time, price of beer has increased¹⁵. Other segments of relevance to Royal Unibrew display the same trend, though not as significant. This is depicted in figure 4.1.

¹⁴ <http://www.imf.org/external/pubs/ft/weo/2013/01/pdf/text.pdf>

¹⁵ <http://www.statistikbanken.dk/statbank5a/default.asp?w=1280>

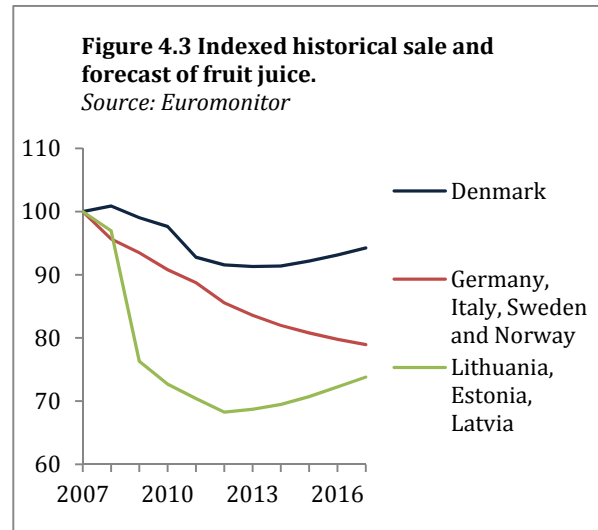
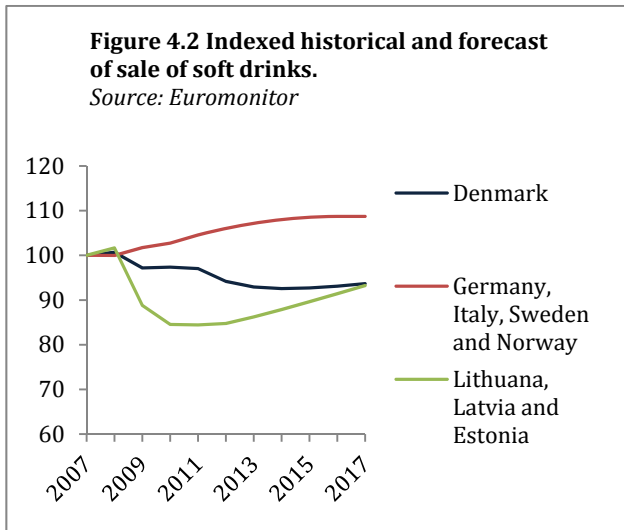


The forecasts provided by Euro monitor, suggest that this trend will continue. These diminishing market conditions will have negative impact on sales for any brewery operating in Europe.

Figure 4.2 discloses that this adverse trend also applies for soft drinks in Denmark and the Baltic countries. At the same time, Germany, Italy, Sweden and Norway combined have had increased sales. However, sale of soft drinks to these countries are limited, so the overall effect is assessed to be negative.

The development in sale of fruit juice is depicted in figure 4.3. This also, shows decreasing sales patterns in the relevant countries. However, these numbers include any kind of fruit juice and can therefore be difficult to interpret correctly.

To get an idea of world consumption patterns a figure showing the trend in beer consumption for every region is provided in appendix 4.0. The figure shows that Asia, Latin America, Middle East and Africa have seen high growth rates of beer in the last six years. Consequently, it might be easier for breweries to increase sales in these regions. Consumption of beer has fallen in every other region the last six years.



4.1.3.2 Demographic changes

In the Nordic countries and Europe in general there is an on-going demographic shift in terms of age composition¹⁶. The future will see significantly more old people relative to young people than there is today¹⁷. This means that the beer market will shrink, as young people tend to drink more beer than old people (Freeman, 2011). This prediction is supported by the organisation 'Brewers of Europe' that claims that older people tend to drink less alcohol and that the middle aged segment of traditional beer drinkers is diminishing in Germany¹⁸.

At the same time, African countries are experiencing an increased population size, which has a small positive effect on the malt drink segment (AR, 2009).

Health trends

In recent years a trend may have developed toward living a healthier lifestyle in Denmark. For instance, children's sugar consumption has decreased significantly in recent years¹⁹. Also, the percentage of sugar-free soft drinks of total soft drinks in Denmark has increased from 13% in 2000 to 33% in 2010²⁰. This trend may have created an incentive for breweries to produce more healthy products like light soft drinks. But recent surveys suggest that these light products are not healthier than traditional soft drinks²¹. An increased awareness of this among the population must be expected

¹⁶ <http://www.norden.org/da/aktuelt/nyheder/aendret-befolkningssammensaetning-udfordrer>

¹⁷ <http://www.information.dk/289441>

¹⁸ http://www.brewersofeurope.org/docs/flipping_books/contribution_report_2011/index.html#/113/zoomed

¹⁹ <http://www.dev-bryggeriforeningen.dk/default.asp?pid=191&visnyhed=320>

²⁰ <http://www.dev-bryggeriforeningen.dk/default.asp?pid=191&visnyhed=370>

²¹ <http://www.bt.dk/kvinder.bt.dk/4-gode-grunde-til-at-droppe-light-sodavand>

to have negative consequences for the breweries. Royal Unibrew seems to have responded to this trend by for instances increasing the content of oranges in its soft drink 'Nikoline'.

4.1.4 Technological factors

In terms of technology, breweries are assessed not to be so dependent on any new inventions. All breweries are assessed to be more or less equal in terms of technology. This does, however, not mean that breweries are not dependent on efficient production equipment. For instance, Howard (2013) claims that production technology in the beginning of 2000 has made it possible for larger breweries to expand. Additionally, there are certain environmental issues breweries need to consider in terms of recycling of cans and bottles and polluting garbage. This is obviously something that may enhance production costs but there is nothing to suggest that the future will change relative to the present. As such, technology does currently not seem to have an impact on future performance.





















There's a negative correlation between bad weather conditions and consumption of beer (Colen & Swinnen, 2011). The summer of 2012 was characterized by bad weather circumstances and sales was negatively impacted (AR, 2012). This suggests that Royal Unibrew's organic growth rate of 2% in 2012 likely would have been higher had the weather been better. As the sale is dependent on the weather, it can be argued that the global warming will have a positive effect²². However, this effect is considered small compared to the other macro trends.

4.2 Industry analysis

In this section the attractiveness of the industry is analysed. The chosen theoretical framework is Porter's Five Forces (Porter, 1985). There are five forces affecting the competition in the industry. The idea is that the stronger the forces, the less attractive is the industry and the possibility of earning attractive returns (Plenborg & Petersen, 2012). Table 4.2 next page lists the main findings and their effect. The level of effect is assessed on a scale of 1-5.

²² <http://www.climatehotmap.org>

Table 4.2 Summarization of the five forces

<i>Force</i>	<i>Overall</i>	<i>Underlying element</i>	<i>Level of threat</i>	<i>Effect on RU</i>
Entrants	Low	Increased number of breweries in DK and Europe	Low	
		Increased number of breweries in Italy	Low-medium	
		Large investments in fixed assets and marketing	Low	
		Use of licence agreements	Low	
Suppliers	Low	Many suppliers	Low	
		Agricultural supplier's ability to increase price	Low	
		Packaging supplier's independence	Low-medium	
Customers	Low	Few large customers in the retail sector	Low-medium	
		Increased power from the on-trade segment	Low	
Substitutes	Medium-high	Increased consumption of substitutes in DK	High	
		Increased consumption of substitutes in W. E.	Medium	
		Low switching costs	Medium	
Rivals	Medium-high	Negative growth rates of beer in all segments	High	
		Negative growth rates of soft drinks and juice	Medium	
		High entry and exit barriers	Medium	
		Low differentiation of products	Medium	
		Sizeable marketing effort required	Medium	
		Increased number of niche breweries	Low	
		Brand loyalty	Low	
Increased consolidation process	Medium-high			

Source: Theory based on Mellahi et al. (2005). Model inspired by Schargbin (2009)

4.2.1 Potential entrants

In 2001 there were 15 breweries in Denmark. In 2008 the number was 105²³. More and more small breweries are entering the market in Denmark as well as in Europe. These small breweries typically produce for the super-premium segment²⁴, which likely includes expensive restaurants and specialist shops. Obviously, there is a risk that these breweries will gain market shares at the expense of breweries that produce for the premium and mainstream segment. But the threat is assessed to be low due to the small size of these companies.

In general, establishing among the largest players in the market that produce for the premium and mainstream beer segment requires large production facilities, distribution network, know-how, and so

²³ <http://www.statistikbanken.dk/statbank5a/default.asp?w=1280>

²⁴ http://www.brewersofeurope.org/docs/flipping_books/contribution_report_2011/index.html#/12/zoomed

forth. Also, especially producing for these segments requires expensive marketing campaigns (Ebneht & Theuvsen, 2006). This is for instance evidenced by the annual reports of Royal Unibrew, Carlsberg and Heineken, that all spend more than 10% of net revenues on sales and marketing. Therefore, the entrance of other breweries poses a limited threat.

However, for Italy the threat of new entrants is assessed to be higher. This is due to the fact that a large part of Royal Unibrew's sale in this country goes to the on-trade segment. It is Royal Unibrew's own assessment that 75,000 of the 150,000 on-trade places in Italy have Royal Unibrew's brand beer 'Ceres' (AR, 2012).

To increase market shares in foreign countries, many of the large established breweries make use of distribution networks and license agreements. This will also make it difficult for new entrants to establish themselves on the market. The licence agreements and large marketing efforts do, however, pose a threat from already large established breweries like Carlsberg, Heineken, SAB-miller etc. These companies will have more resources to compete in the market.

4.2.2 Suppliers bargaining power

Standardized agricultural products such as water, hops, yeast, barley malt, and sugar are primarily used in production. Additionally, materials for packaging such as glass, aluminum and plastic are used. The prices of agricultural products are set on the international market and as such, both Royal Unibrew and the suppliers have limited influence on the price. Royal Unibrew does engage in future contracts in order to reduce the price exposure but being able to negotiate better prices may not be possible.

With regard to suppliers of packaging material, Royal Unibrew is engaged in environmental friendly packaging in Denmark, which means that it has certain environmental demands for the products²⁵. This obviously makes the packaging products less standardized and as such, the power from these types of suppliers is enhanced. However, this agreement requires suppliers to increase their investments in production facilities²⁶. This means, that when a supplier has invested and is committed, it will have low incentive to resign from continuing the cooperation. This obviously makes the supplier power smaller.

In general, it seems that suppliers have limited power.

²⁵ <http://www.green21.dk/faa-styr-paa-leverandoererne/cases/royal-unibrew-as>

²⁶ <http://www.green21.dk/faa-styr-paa-leverandoererne/cases/royal-unibrew-as>

4.2.3 Customers bargaining power

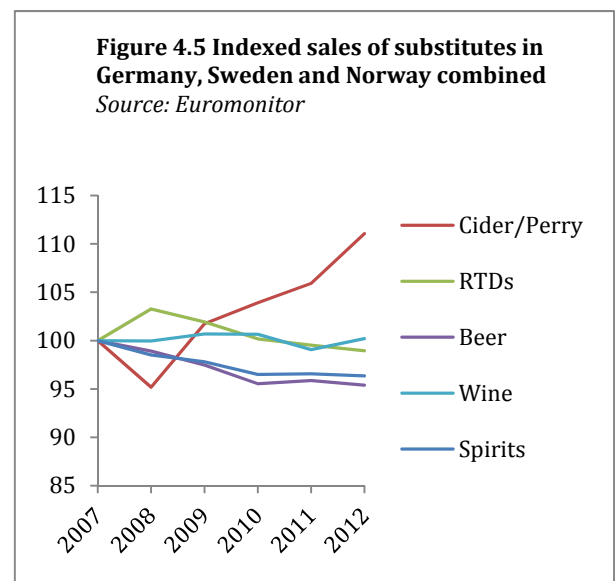
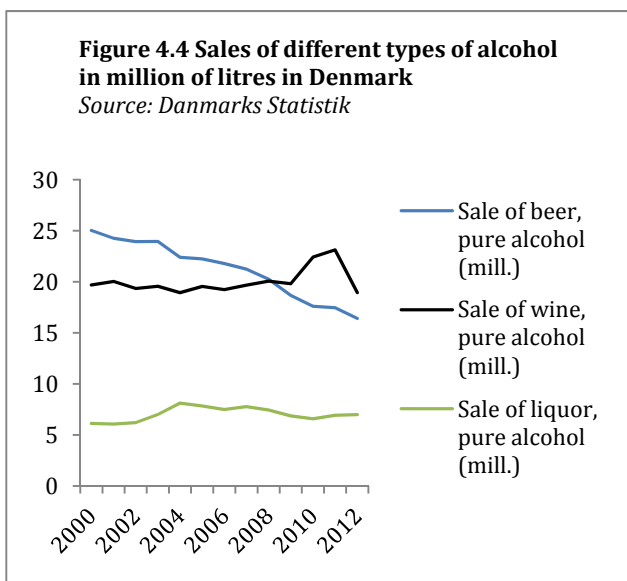
There are in general two ways of distributing products, namely through the HoReCa and detail segment. The HoReCa segment primarily consists of restaurants, bars and hotels, which is considered to be very fragmented and as such, these have relatively small negotiating power.

The detail-segment is concentrated with few players that have large market shares, which means that they as a starting point have a great deal of negotiating power. However, Royal Unibrew has no customers that constitute more than 10% of net revenues (AR, 2012). This obviously makes the customers power smaller. Also, by being the producer of Pepsico and Heineken, Royal Unibrew strengthens its product portfolio with renowned brands. That may additionally decrease the power of customers.

4.2.4 Threat of substitutes

Figure 4.4 depicts the sales pattern of different types of alcohol in Denmark. It is seen that there has been a shift in sale of beer to wine and liquor the last twelve years. This shift helps explain the decrease in sale of beer previously discovered in the PEST analysis. Assuming the trend will continue, it will clearly have negative consequences for Royal Unibrew.

Additionally, numbers from Euro Monitor reveals that in Denmark, sale of cider has increased by 177% from 2007-2012, while high-strength premixes have increased by 8% in the same period²⁷. It

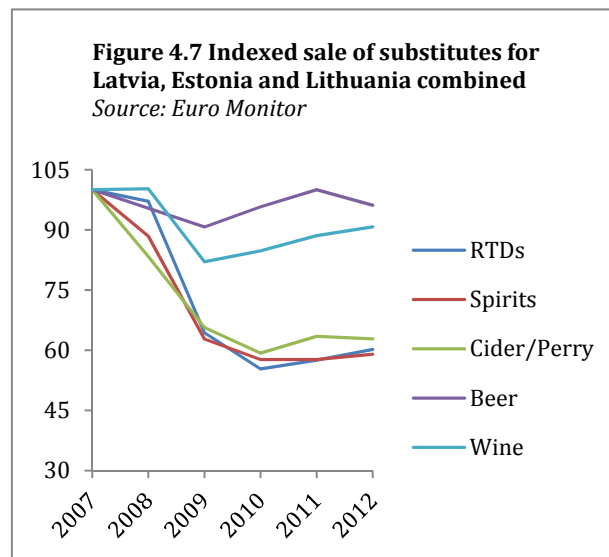
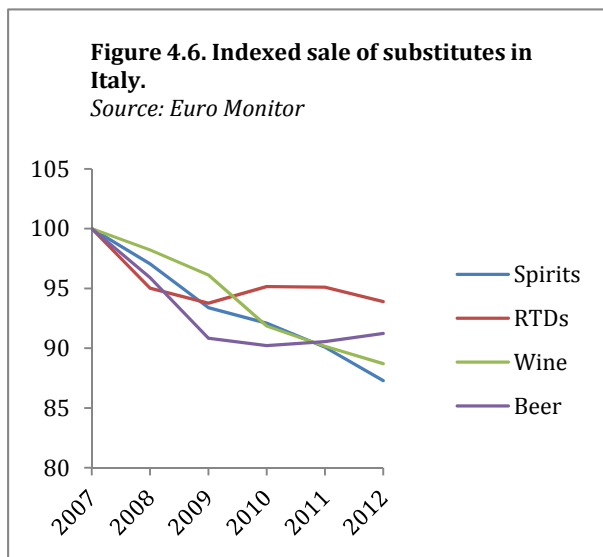


²⁷ <http://www.portal.euromonitor.com.esc-web.lib.cbs.dk/Portal/Pages/Magazine/IndustryPage.aspx>

must, however, be noted that sale of these two substitutes are very small compared to beer. Based on own calculations of numbers from Euro Monitor, these substitutes only constitute about 2% of the total sale of beer. Nevertheless, there seems to be a shift in consumption patterns in the Danish population.

Figure 4.5 reveals that the trend seems to be the same for Germany, Sweden and Norway combined. Here, consumers are also switching to ciders and high-strength premixes. This is supported by a study executed by the consultancy agency Ernst And Young. The study shows that consumers have changed their drinking pattern the last 10 years. A new generation of young people seem to have shifted their consumption of alcoholic drinks towards pre-mixed drinks and spirits.²⁸ The threat from substituting products may intensify by the fact that beer and soft drinks are relatively homogeny products. Additionally, customers have very low switching costs. A change of excise duties in favour of substituting products or an increased marketing effort by the corresponding companies could therefore pose a threat.

The same trend does, however, not apply for Italy and the Baltic countries. For Italy, wine and spirits have actually decreased more than beer. For the Baltic countries all substitutes have decreased but beer has had the lowest fall. These trends are shown in figure 4.6 and 4.7 below.



²⁸ http://www.brewersofeurope.org/docs/publications/economy_of_beer/a_market_under_pressure.pdf

4.2.5 Competitive rivalry

4.2.5.1 Market growth and exit barriers

The PEST analysis revealed that consumption of beer in Denmark and other countries in Western Europe is decreasing. Table 4.3 shows the average yearly growth rate of sale of beers in Denmark, and other relevant countries to Royal Unibrew.

Table 4.3 Average yearly growth of beer consumption

Growth rates	2007-2012	2013-2017e
Denmark	-4.30%	-0.87%
Germany, Norway and Sweden	-1.07%	-1.00%
Italy	-1.79%	-0.71%
Lithuania, Latvia and Estonia	-0.67%	0.49%

Source: Euro Monitor

As expected, the growth has been negative for all segments. Also, the PEST analysis discovered that almost all relevant markets have experienced negative growth of soft drinks and fruit juice the last five years. This worsens the conditions for creating economic profit and the rivalry in the market intensifies. Additionally, high fixed costs in the industry make it critical to breweries to have a mark-up than can at least cover the fixed costs. This makes the exit barriers higher and thereby strengthens the competition. An indication of the deteriorating market conditions was found in the financial analysis. Here, it was revealed that ROIC of Carlsberg and Harboe is around 6-7%. This likely does not cover the required return of investors and they are therefore not creating economic profit.

4.2.5.2 Product differentiation and marketing efforts

It was evident in subsection 4.2.1 that more breweries are entering the market in Denmark and the rest of Europe, which produce for the super premium segment. An increase in microbreweries indicates that consumers are getting a higher preference for exclusive beers. However, for the premium and mainstream segment, beer may be conceived of as a homogeny product. Customers can easily change products with low switching costs. This is also the case with substitutes, which are gaining market shares relatively to beer. This further intensifies competition.

Due to the low product differentiation and the decreasing consumption trends, the branding of products seems to be of vital importance (Ebneht 2006, Vrontis 1998). Being able to market the products, the company needs to have sufficient funds. Therefore, big global companies like Carlsberg, Heineken, SAB-miller etc. have an advantage because of their size and economies of scale. Royal

Unibrew has a relatively small size and likely does not have the same possibility of branding its products.

4.2.5.3 Market concentration

To investigate Royal Unibrew's current position and future prospects an analysis of the market concentration is conducted. It is carried out on a global scale, a regional scale and by country. Countries include Denmark, Italy, Lithuania and Latvia due to their importance to Royal Unibrew. Germany is not included since Royal Unibrew has a very small market share in the country. Also, a large part of its sales is likely contributed to border trade²⁹.

As pointed out, marketing campaigns are of vital importance due to the homogeneity of the product. Hence, it appears to be more relevant to examine the level of market power by the biggest companies instead of focusing on an overall concentration that includes microbreweries. Thus, concentration ratios are used instead of Herfindahl indexes. Focus is mainly assigned to the beer industry.

Global market concentration

Regional and local breweries previously characterized the beer industry. But especially the last twelve years there has been a dramatic global consolidation process resulting from mergers, acquisitions and joint ventures (Howard 2013, Gammelgaard & Dörrenbächer 2013). This consolidation process has primarily been controlled by four companies; Anheuser Busch Inbev, SAB Miller, Heineken and Carlsberg. In 2000, the global concentration ratios of the biggest five companies was 25.4% (Gammelgaard & Dörrenbächer, 2013). In 2012 it was 47.8%³⁰. It must be emphasized that these numbers underestimates the concentration ratios because they do not include joint ventures (Howard, 2013). Schultes (2012) for instances, has found the global CR4 ratio in 2012 to be 55%.

The trend indicates that the world production output is leading towards oligopolistic competition with a few dominating firms to control the market. This obviously may have negative consequences for relatively smaller breweries that produce for the premium, mainstream, and discount segment. These smaller companies do not have the same economies of scale and possibility of branding their products. The decreasing growth rates in Europe indicate that the process will endure. Also, lower transaction costs and political lobbyism have previously enhanced the consolidation process (Gammelgaard & Dörrenbächer, 2013). This may continue in the future.

²⁹ According to Bryggeriforeningen, 25 % of the sale of beer in Denmark comes from border trade: <http://ipaper.ipapercms.dk/Bryggerigruppen/TalFraBF/TalFraBF2011L/>

³⁰ Numbers for 2013 are based on own calculations based on figures from Euro Monitor.

Another rationale for mergers & acquisitions is that empirical evidence suggests that financial performance of market leaders in the brewery industry is significantly better than the second largest companies. A study by Pedersen et al. (2013) shows that return on assets for markets leaders in the brewery industry in Eastern Europe is more than twice as large as the second largest firm.

According to industrial theory, this enlarged concentration will increase prices making it more attractive for new firms to enter the market (Pepall et al., 2008). This is evident by an increased number of breweries in Europe. However, as previously mentioned these are microbreweries producing for the super premium segment. A segment that bigger breweries like Royal Unibrew, Carlsberg etc. cannot and will not target in the same way (Howard, 2013).

In terms of soft drinks, the concentration is even higher on a global scale. 75% of world production of carbonated soft drinks is controlled by two firms, namely, Coca Cola and PepsiCo (Howard, 2013).

Market concentration in Western- and Eastern Europe

To acquire a more refined picture of the competitive intensity in Europe, CR4 indexes for Western- and Eastern Europe are provided. As seen, Western Europe has a CR4 of 39% while Eastern Europe has one of 65%. The figures verify that these regions are fairly dominated by the 'big four'. It may still be possible to gain market shares for smaller breweries in some markets. But assuming the consolidation process continues it seems difficult to stay competitive.

Figure 4.8 Company share of sale of beer in Western Europe, 2012

Source: Euromonitor

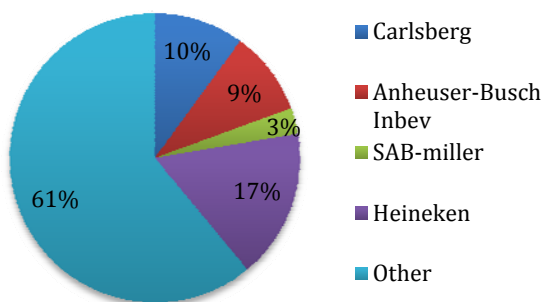
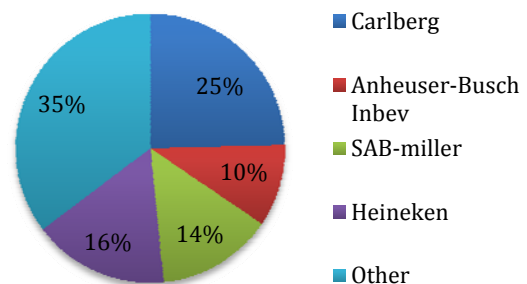


Figure 4.9 Company share of sale of beer in Eastern Europe, 2012

Source: Euromonitor



Concentration by country

Table 4.4 lists CR4's for the most important markets of Royal Unibrew. As seen, these markets are also concentrated, which means that a consolidation process has developed. Royal Unibrew's presence in the markets and the stability of its sale is clarified next.

Table 4.4 CR4 by country, 2012

	Denmark	Italy	Lithuania	Latvia
CR4	79.4%	62.1%	63.9%	81.3%

Source: Euro Monitor

4.3 Competitor and market analysis

As a supplement to the preceding study a competitor and country analysis is carried out for each country. Table 4.5 encompasses competitors in the Danish, Italian, Lithuanian and Latvian market. There are numerous of other large breweries in Europe. The table only covers the most relevant present rivals.

Table 4.5 Overview of competitors, 2012

DKK 1000	Net revenues	Headquartered	# of regions	Relevant market to RBREW
Anheuser-Busch Inbev	296,515,164	Belgium	4	Italy
Heineken	137,100,414	Holland	6	Italy
SABMiller	128,089,334	England	5	Italy
Carlsberg	67,201,000	Denmark	3	Denmark, Italy, Lithuania
Royal Unibrew	3,430,008	Denmark	2	
Olvi Oyj	2,587,926	Finland	1	Lithuania
Harboe	1,343,647	Denmark	1	Denmark
Birra Forst SpA	702,171	Italy	1	Italy
Birra Castello SpA	575,385	Italy	1	Italy
Krinitza OAO	340,510	Belarus	2	Lithuania

Source: Bloomberg, Orbis and annual reports of competitors

As seen, the 'big four' are significant larger than the rest of companies. Their strength is attached to their brand name, which will enable them to penetrate new markets easier than other companies. Also, in markets where consumer loyalty is high, they have the ability relatively easy to acquire or merge with national companies. Interestingly, next to the 'big four' Royal Unibrew is the fifth largest company. Consequently, it may have equal or more strength that the rest of the breweries.

4.3.1 Denmark

Below, market shares and CR4's are provided between 2008-2012. As seen, Carlsberg is clearly the biggest brewery while Royal Unibrew is follower with 19.4% of the market in 2012. The table reveals

two interesting things. First, the market shares of the companies have been stable the last five years. Second, except for Carlsberg, none of the major global breweries have control.

Table 4.6 Company market shares and CR4 indexes for Denmark

	2008	2009	2010	2011	2012
Carlsberg	56.3%	56.5%	56.5%	56.7%	57.0%
Royal Unibrew	18.1%	18.6%	18.6%	19.2%	19.4%
Harboe Brewery	1.3%	1.5%	1.5%	1.5%	1.5%
Heineken	1.4%	1.4%	1.5%	1.5%	1.5%
CR4	77.1%	78.0%	78.1%	78.9%	79.4%

Source: Euro Monitor

It seems like the rest of the 'big four' have had difficulties in entering the country. It could be because Carlsberg is already present, which makes the market less attractive. Also, consumer loyalty in general makes it difficult for new companies to enter if they do not make use of M&A's or joint ventures (Howard, 2013).

Harboe does not appear to pose a threat due to its small market shares. Also, the financial analysis revealed that it is likely not creating value on its operations. Thus, it seems like Royal Unibrew is only threatened by Carlsberg. However, the figures above indicate that Royal Unibrew will continue to have substantial steady market shares in Denmark for the time being.

4.3.2 Italy

Table 4.7 lists the market shares of the biggest four companies in Italy. This market is clearly controlled by the 'big four'.

Table 4.7 Company market share and CR4 index for the Italian beer market, 2012

Heineken	30.1%
SABMiller	19.0%
Anheuser-Busch Inbev	7.2%
Carlsberg	5.8%
CR4	62.1%

Source: Euro Monitor

Two other breweries are notably represented in the market, namely Birra Forst Spa and Birra Castello Spa. They are both Italian and have slightly larger market shares than Royal Unibrew. However, they

are small in terms of net revenues and therefore may not have same strength as the rest of the competitors.

According to Euro Monitor the Italian market seems to be characterized by a strong preference for national products³¹. It is therefore relevant to investigate the development of the different brands compared to Royal Unibrew.

Table 4.8 Beer brand shares in Italy

	2009	2010	2011	2012
Peroni (SABMiller)	12.8%	11.9%	11.6%	11.9%
Heineken (Heineken)	8.1%	8.3%	8.1%	8.1%
Moretti (Heineken)	7.5%	7.7%	8.0%	8.0%
Castello (Birra Castello)	5.2%	5.3%	5.4%	5.5%
Beck's (Anheuser-Busch InBev)	4.4%	4.3%	4.4%	4.4%
Dreher (Heineken)	4.2%	4.2%	4.2%	4.2%
Forst (Birra Forst)	3.6%	3.7%	3.7%	3.6%
Ceres (Royal Unibrew)	3.1%	3.1%	3.3%	3.2%

Source: Euro Monitor

As seen, Royal Unibrew's 'Ceres' has the eight largest market share in Italy. The stability of the sales indicates that it will continue to have this solid position on a short-term basis. The general steadiness in all brands furthermore suggests this.

4.3.3 Lithuania

Contrary to the Italian market, only Carlsberg of the 'big four' has a substantial market share. Royal Unibrew is also greatly represented with a market share of 13.1% in 2012.

Table 4.9 Market shares of companies in Lithuania

	2008	2009	2010	2011	2012
Carlsberg	38.0%	35.3%	33.1%	32.2%	32.3%
Royal Unibrew	24.1%	22.2%	17.3%	14.3%	13.1%
Olvi Oyj	10.7%	9.7%	10.8%	11.8%	12.6%
Krinitisa OAO	-	0.4%	1.5%	2.7%	4.9%
CR4	77.3%	71.4%	65.4%	62.1%	62.9%

Source: Euro Monitor

³¹ <http://www.portal.euromonitor.com.esc-web.lib.cbs.dk/Portal/Pages/Analysis/AnalysisPage.aspx>

Finish Olvi Oyj, and Belarusian Krinitisa OAO have both been able to increase their market shares, which indicates that they have performed better than Royal Unibrew. However, they are both smaller and may not have the same strength. Also, Krinitisa OAO went in financial distress in 2011-2012 and as a consequence cannot obtain more debt for the time being³². Thus, its future survival and ability to increase market shares are questionable.

Royal Unibrew has sold off different divisions during the last five years. Hence, the decrease in its market share is difficult to interpret. However, its current position indicates that it may continue to have influence in the market.

4.3.4 Latvia

As table 4.10 reveals, Royal Unibrew has been able to increase its market shares of beer in Latvia during the last five years. It must be noted that Royal Unibrew has not been engaged in any acquisitions in Latvia during the period, which means it is increasing sales organically. This obviously indicates that the company will continue to have stable sale in this country.

Table 4.10 Market shares of companies in Latvia

	2008	2009	2010	2011	2012
Carlsberg A/S	37.9%	38.1%	36.1%	35.5%	35.5%
Olvi Oyj	16.0%	17.2%	19.9%	22.9%	22.1%
Royal Unibrew A/S	12.6%	13.0%	17.9%	17.9%	18.6%
Agrofirma Tervete SIA	5.4%	5.2%	4.7%	4.9%	5.1%
CR4	71.9%	83.5%	78.6%	81.2%	78.3%

Source: Euro Monitor

4.3.5 Conclusion

To conclude, it seems that Royal Unibrew has relatively solid positions in Denmark, Italy and Latvia. Also, it has currently large market shares in Lithuania. It indicates that Royal Unibrew in a short-term perspective will continue to have steady sales in these three countries. However, based on the previous discussion, it seems like the brewery industry still continues to be more concentrated in Europe and the rest of the world. This trend indicates that smaller breweries that produce for especially the premium and the mainstream segment may face serious competitive challenges in a long-term perspective.

³² <http://www.portal.euromonitor.com.esc-web.lib.cbs.dk/Portal/Pages/Analysis/AnalysisPage.aspx>

4.4 Value chain analysis

To explore competitive advantage it is necessary to define a firm's value chain for competing in a particular industry (Porter 1985: 45). However, the model seems less appropriate in the absence of a benchmark. Therefore, Porter's value chain analysis is used in combination with Barney's VRIO framework (Barney, 2001).

Barney's mind-set is that if a resource or capability is *valuable* but not rare, exploiting this resource will generate competitive parity. If the resource is also *rare*, the firm will have temporary competitive advantage. If it is additionally costly to *imitate*, exploiting it by the *organisation* will grant the firm sustained competitive advantage (Barney 2001: 173).

Table 4.12 Value chain and VRIO framework on Royal Unibrew

Value Chain Activity	Valuable	Rare	Costly to Imitate	Exploited by Organisation	Competitive Implications	Implications
<i>Primary</i>						
Inbound logistics	✓			✓	Parity	Neutral
Outbound logistics	✓	✓		✓	Temporary advantage	Superior
Marketing and Sales	✓			✓	Parity	Neutral
<i>Supporting</i>						
HRM	✓			✓	Parity	Neutral
Technology	✓			✓	Parity	Neutral
Infrastructure	✓			✓	Parity	Neutral

Source: Theory based on Porter (1985), Barney (2001) and Schargbin (2009). Model inspired by Schargbin (2009) Operations, service and procurement have been ignored

4.4.1 Primary activities

Inbound Logistics

Royal Unibrew has licence agreements with major breweries like PepsiCo and Heineken in Denmark. From 2012 it has also been the producer and distributor for Heineken in the Baltic States. It is definitely valuable but it is not rare. A lot of breweries have licence agreements with each other (Howard, 2013). Carlsberg for instance has an agreement with Coca Cola to produce and distribute its products in Denmark (CARLSBERG, 2012). Therefore, the competitive implications are assessed to be neutral.

Outbound Logistics

According to Royal Unibrew, its malt drink 'Vitamalt' is the third largest malt drink globally. Also, the organic growth rate in net revenues of malt drinks in Africa has increased 12% the last year (AR, 2012). Due to limited market data on this subject, the information is not possible to verify.

Nonetheless, the position is assessed to be valuable and rare. However, for larger breweries it may not be costly to imitate. Also, Harboe sells malt drinks in Africa (HARBOE, 2012). Consequently, Royal Unibrew is assessed only to have temporary competitive advantage with its 'Vitamalt' drink.

Marketing and sales

Royal Unibrew has subsidiaries in countries close to its markets. This definitely makes it easier to sell its products more efficiently. But as previously evident this capability is definitely not rare. In terms of marketing, Royal Unibrew markets its branded products through television and social medias like Facebook etc. (AR, 2012). Again, it is valuable but not rare.

4.4.2 Supporting activities

Human resource management

In 2011, the parent group of Royal Unibrew in Denmark signed up for a project named 'World-class employees' with the purpose of increasing employee's professional skills in all levels of the organisation. The project is backed up by EU and is a cooperation between six companies. This human resource management may create value in the long-term, but as stated in the annual report, other companies participate as well. Therefore, it is likely not rare and as such the impact is assessed to be neutral.

Technology

The second supportive activity, technology, might explain elements of the increased efficiency in production. Royal Unibrew has implemented systems with the purpose of decreasing consumption of water and energy. The systems have had a positive effect on the use of utilities (AR, 2012) and are therefore valuable to the company. As the financial analysis revealed, Royal Unibrew has increased its efficiency greatly compared to Harboe and Carlsberg. However, other companies must strive to be efficient as well. Therefore, the resource is assessed not to be rare.

Infrastructure

Unibrew has from 2012 adapted the control system SAP to the subsidiary in Lithuania, which means that all entities in the organisations now use the system (AR, 2012). Furthermore, all the systems have been upgraded to run efficiently. This likely creates better planning and communication but most

other breweries make use of the same and other more advanced systems in for instance targeting customers (Howard, 2013).

4.4.3 Summarization

Except for the malt drinks, Royal Unibrew does not seem to have any advantages relatively to competitors. Obviously, the company has an incentive to keep certain information to itself and as such it may hold resources that are not publicly available. However, based on assessable information, it does not seem to possess any resources or capabilities that competitors do not have. Consequently, it may be difficult to differentiate itself from competitors.

4.5 Risk analysis

In chapter 3 the liquidity risk and financing conditions were analysed. In table 4.11 next page, the operational risk is assessed. An appraisal of Royal Unibrew's capability of handling the risk is carried out as well. The analysis provides insightful knowledge in terms of appraising the cost of capital later in the thesis.

In a short-term perspective, the operational risk is assessed to be relatively low. The political situation is in favour of breweries in Denmark for the time being and the economy is recovering. Also, Royal Unibrew has stable positions in its markets. In a long-term perspective, however, Royal Unibrew seems to be subject to much external and industry risk. The external risk is mostly due to changing consumption patterns of consumers and a demographic change of age in Denmark and Germany. This is further enhanced by intensified rivalry in the industry with a few global companies that have much more strength than relatively small breweries.

Table 4.11 Operational risk Assessment

Types of operational risk	Assessment of risk level	Capability of handling the risk
<i>External risk</i>		<i>Difficult</i>
Cyclical changes	Medium	Sale of beer is dependent on the economy but not as much as long-lived consumer goods. Royal Unibrew has subsidiaries in areas with different GDP growth rates and disposable income.
Political	Medium	Changing excise duties are crucial. Does lobbyism in local and international unions to limit the exposure.
Socio-cultural	High	Consumption of beer, soft drinks and juice is decreasing. Has the malt drink segment in Africa and Caribbean to reduce exposure.
Whether	Low	Poor whether conditions have a negative impact on sales.
<i>Strategic risk</i>		<i>Challenging</i>
Potential entrants	Low	Many new breweries are entering but being a big player on the market is difficult due to high fixed costs.
Substituting products	High	Consumption of beer is falling in the main markets and substituting products are gaining market shares. Royal Unibrew has launched the Temp Cider, an alcohol soft drink (RTD) and the energy drink Faxe Kondi Booster.
Customer's power	Low	Customer's power is assessed to be of low magnitude since no customer accounts for more than 10% of net revenues. Royal Unibrew additionally limits the exposure by having licence agreements with PepsiCo and Heineken.
Supplier's power	Low	Supplier power is assessed to be low due the homogeneity of the products and the use of fixed price- and derivative contracts
Competition intensity	High	The industry is likely getting more concentrated. Major global players have the possibility to brand their products more intensely and thereby taking markets shares from Royal Unibrew in the long-term.
<i>Operating risk</i>		<i>Capable</i>
Production	Low	As Royal Unibrew is a lot more efficient in production compared to competitors in the Danish market, operating risk is assessed to be low.

Theory based on Plenborg & Petersen (2012). Model inspired by Bruun (2012)

5.0 SWOT analysis

The previous two chapters identified several characteristics and trends that have an influence on the future performance of Royal Unibrew. Therefore, findings from both the financial and strategic analysis are summarized in a SWOT analysis. The company's strengths, weaknesses, opportunities, and threats are listed below.

Strengths	Weaknesses
+ High ROIC compared to competitors	÷ Small company in a global context
+ Positive organic growth rate	÷ Low differentiated product portfolio
+ Value creating growth	
+ High quality of growth	
+ Improved liquidity ratios	
+ Increased efficiency in production	
+ Solid positions in current markets	
+ High growth in sales of malt drinks	

Opportunities	Threats
+ Decreasing excise duties in Denmark	÷ Negative growth of beer sale in W. Europe
+ Stimulus package in Denmark	÷ Negative growth of soft drinks in Denmark
+ Real GDP growth in all relevant segments	÷ Negative growth in fruit juice in Europe
+ Increased population size in Africa	÷ Decreasing number of young people in EU
	÷ Increased market share of substitutes
	÷ Health trend in Denmark
	÷ Increased consolidation process
	÷ Increased excise duties on water

All the strengths of Royal Unibrew are assessed to enable a competitive advantage on a short-term basis. However, in a long-term perspective, the threats seem to be of larger magnitude than the opportunities. The largest threat is assessed to be the decreased consumption of beer and the consolidation process. This can have severe competitive implications in the future.

6.0 Budget

The previous three chapters provided an understanding of the financial and strategic value drivers of Royal Unibrew. This now gives the opportunity to forecast key financial value drivers to qualify an estimated fundamental value of Royal Unibrew's stock.

Relatively few drivers are budgeted. This is in line with Plenborg & Petersen (2012) who believe a more aggregated driver setup is appropriate in long-term forecasting. This is because information tends to become cruder and less accurate the further in advance forecasts are made, they claim. The budget is based on Plenborg & Petersen's (2012) 'sales driven approach' and consists of the following drivers:

- 1) Net revenues
- 2) EBITDA: as a percentage of net revenues
- 3) Depreciation and amortisations: as a percentage of non-current assets
- 4) Tax rate
- 5) Non-current assets: as a percentage of net revenues
- 6) Net current assets: as a percentage of net revenues

These drivers enable a valuation using the DCF and EVA model. The budgeting period consists of two stages: an explicit forecasting horizon and a terminal period. In the forecasting horizon an assessment of every year is prepared, while the terminal period assumes that every variable grow at the same rate (Sørensen, 2012).

The models include an explicit forecasting period of 10 years. That may seem a long period, since the brewery industry appears relatively stable. However, the implementation of the stimulus package by the Danish Government is expected to lead to an increase in sales on a short-term basis. On a long-term basis, sales may decrease due to deteriorating market conditions. To capture the whole process a long horizon is needed. This is in line with Koller et al. (2005) that recommend an explicit forecasting period of 10-15 years. Using a shorter period typically results in a significant undervaluation of the company, they claim. Consequently, the present value models from chapter 2 can now be expressed the following way (Plenborg & Petersen, 2012):

$$DCF: EV = \sum_{t=1}^{10} \frac{FCFF_t}{(1+WACC)^t} + \frac{FCFF_{11}}{(WACC-g)} \times \frac{1}{(1+WACC)^{10}}$$

$$EVA: EV = Invested\ capital_0 + \sum_{t=1}^{10} \frac{EVA_t}{(1 + WACC)^t} + \frac{EVA_{11}}{(WACC - g)} \times \frac{1}{(1 + WACC)^{10}}$$

Due to the relatively stable industry the forecasts are centred on a base case only. This is in line with Plenborg & Petersen (2012) who suggest forecasts should be built on scenarios only if the products are complex and the business environment dynamic.

Despite of the established knowledge of the company and its context, it is still difficult to know how the future will develop in the long-term. Nonetheless, several scholars document a mean reverting trend in sales growth and ROIC (Penman 2010, Koller et al. 2010, Plenborg & Petersen 2012). This means that even if a company is highly value creating, its ROIC will in most cases revert toward the mean of the industry (Møller, 2006).

Møller (2006) claims that in theory a company should not be able to uphold economic profit in the long run. On the other hand, several scholars point out that the ability to remain above normal profit depends on competitive intensity (Pepall et al., 2008). If the industry is characterized by e.g. oligopolistic competition, companies should in theory be able to uphold economic profit.

Consequently, looking at the trend in the specific industry is necessary. Pedersen et al. (2013) have investigated key performance measures of companies in the brewery industry. Their findings are presented in table 6.0.

Table 6.0 Performance of breweries, average of 2000-2009

	EBIT margin	Return on total assets	Return on equity
Anheuser-Busch Inbev	19.3%	6.9%	17.4%
SABMiller	12.9%	11.6%	32.8%
Heineken	17.4%	9.4%	19.7%
Carlsberg	10.7%	5.1%	19.4%
Largest 200 breweries (excl. 'top four')	12.6%	7.6%	18.5%
Royal Unibrew (average of last 2 years)	14.9%	12.6%	27.5%

Source: Pedersen et al. (2013) and own calculations

Royal Unibrew has during the last two years performed significantly better than the group of largest 200 breweries. Also, compared to the largest four companies, it has performed well. This suggests that the high level of performance of Royal Unibrew will not sustain in the long run.

The following subsections discuss the forecasted six value drivers. A complete budget is found in appendix 6.0.

6.1 Net revenues

Since Royal Unibrew has been engaged in several acquisitions and sales of subsidiaries the last few years, the organic growth rate will be budgeted. The forecast is displayed in table 6.1.

The SWOT analysis revealed that Royal Unibrew is currently strong in terms of a high ROIC, a high value creating growth and strong liquidity. Also, the company has currently stable market positions in Western Europe, Eastern Europe and the malt drink segment. The lowering of excise duties on beer and soft drinks in Denmark is found to have positive effect. Additionally, IMF's projections of a recovery in all the relevant segments will likely have a positive impact on sales many years going forward. The organic growth rate is therefore expected to rise to 4% in 2013 and 2014.

However, the strategic analysis also revealed that consumption of beer is falling significantly in Denmark. This trend is prevalent in every other market of Royal Unibrew, though not with the same speed. Also, consumption of soft drinks and fruit juice is decreasing in every market except for Germany. Additionally, the global consolidation process is threatening smaller breweries due to their size.

The organic growth rate is consequently expected to decrease gradually to -1% in 2023. This rate might seem pessimistic, since it is slightly lower than Euro Monitor's projection of consumption growth of beer in Denmark. However, due to the increasing power of major breweries, it is expected that Royal Unibrew will lose market shares faster than this decrease in consumption. Hence, the future survival of the company is questioned.

Table 6.1 Forecasts of organic net revenue

Historical		Explicit forecast period										Terminal
2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
0.0%	2.0%	4.0%	4.0%	3.0%	2.0%	1.5%	1.0%	0.5%	0.5%	0.0%	-1.0%	-1.0%

Source: based on own assessment

One could speculate that Royal Unibrew may look to develop growth markets like china, Latin America etc. in the future. However, as Howard (2013) points out, several large breweries are already well

established in these regions. SABMiller, for instance, claims significant market share in Latin America. Thus, entry in growing markets seems less likely in a short-term and long-term perspective.

6.2 EBITDA margin

Table 6.2 shows the expected EBITDA as a percentage of net revenues. Royal Unibrew has during the last few years improved the margin significantly. The fast increase indicates that it will continue to progress. This is supported by the management's implementation of systems to reduce utilities and increase efficiency.

However, excise duties on water are increasing, which has a reverse effect. Also, the likely increase in energy and commodity prices will have negative impact on EBITDA in the future.

The margin is expected to rise until 2019. After that, it is expected to decrease slightly. This is in line with empirical evidence of a mean reverting trend as previously discussed.

Table 6.2 Forecast of EBITDA margin

Historical		Explicit forecast horizon					Terminal	
2011	2012	2013	2014	2015-20	2021	2022	2023	
17.9%	19.1%	20.0%	21.0%	21.5%	20.0%	19.1%	19.1%	

Source: based on own assessment

6.3 Depreciation and amortisation margin

Due to the impairment loss in 2008, non-current assets were lower in subsequent years. Instead of basing the forecast of an average of the past few years, it is based on 2012 only. The depreciation and amortization margin in 2012 of 6.3% is therefore expected to sustain.

6.4 Tax rate

The average effective tax rate of 26% was used in calculating tax on EBIT in the historical period. This was due to the fact that Royal Unibrew has subsidiaries in different countries. For the same reason the effective tax rate is used for forecasting purposes. As mentioned in the strategic analysis, the corporate tax rate will be lowered 3 basis points between 2014-2016 due to the stimulus package in Denmark.

As roughly 30% of the revenues go to Denmark, the effective tax rate will be lowered accordingly. Table 6.3 illustrates.

Table 6.3 Forecasted effective tax rates

2013	2014	2015	2016-20	2021-23
26.00%	25.66%	25.33%	25.00%	25.00%

Source: based on own assessment

6.5 Intangible and tangible assets

Intangible and tangible assets constituted 57.8% of net revenues in 2012. The efficiency of Royal Unibrew's non-current assets is expected to remain. Therefore, this number will be used as a static forecast.

6.6 Net current assets

In 2012 net current assets constituted -1% of net revenues. As was evident in the risk analysis in chapter 3, Royal Unibrew has a historical low current ratio. A small increase in net current assets is therefore expected. As such, it is expected that Royal Unibrew will not maintain its current efficiency in assets. Again, this is in line with empirical evidence. The forecast is found in appendix 6.0.

6.7 Evaluation of the budget

Table 6.4 compares the budgeted performance of Royal Unibrew in the terminal period with the average of the industry. To calculate return on equity, two additional drivers need to be forecasted, namely NIBD as a percentage of invested capital and the net borrowing rate before tax. These forecasts are also found in appendix 6.0.

Table 6.4 Evaluation of performance in the terminal period

	Royal Unibrew (terminal period)	Average of 200 largest breweries (2000-2009)	Average of 'big four' (2000-2009)
EBIT margin	15.5%	12.6%	15.1%
Return on equity	19.5%	18.5%	22.3%

Source: Pedersen et al. (2013) and own calculations

As seen, Royal Unibrew is expected to have a slightly higher EBIT margin than the average of the large competitors in the industry. High historical margins and focus on efficiency of Royal Unibrew seem to justify this high EBIT.

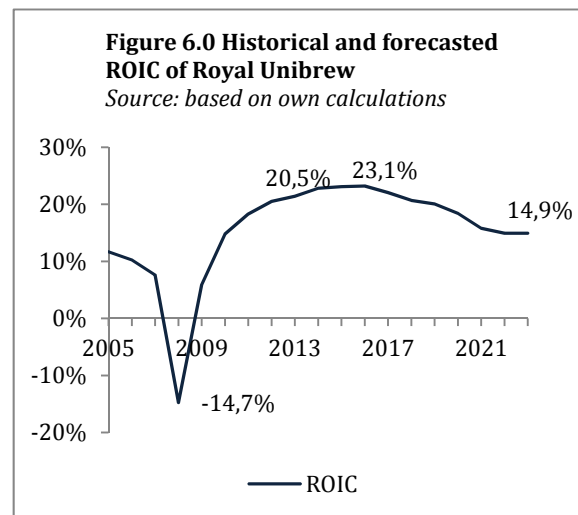
Return on equity is expected to be close to the average of the largest 200 breweries but lower than the 'big four'. This seems appropriate, since the major companies have economies of scale and are therefore likely to drive higher returns.

To get an idea of the performance in the explicit forecasting horizon the historical and budgeted derived ROIC is depicted in figure 6.0.

ROIC is expected to be 14.9% in the terminal period. This may seem high in a long-term perspective but as previously discussed, the level of return depends on the industry.

Choice of accounting policy by the firm also explains why the return is expected to be relatively high. It was assessed in chapter 2 that Royal Unibrew is likely to make use of conservative accounting, which has a small positive effect on ROIC. Therefore, the return is accordingly high in the terminal period (Møller, 2006). It must still be emphasised that it does not add value to the final estimated price of the stock. This is because a corresponding lower balance sheet in 2012 should offset the higher ROIC (Penman, 2010).

The value chain analysis in chapter 4 revealed that Royal Unibrew does not possess any resources or capabilities that grant the firm sustained competitive advantage. Thus, a long-run return on equity and ROIC close to the average of the industry seems plausible. Had the company had sustained competitive advantage a higher long-run performance could maybe be justified. However, this is not the case for Royal Unibrew.



7.0 Valuation

7.1 Weighted average cost of capital (WACC)

The WACC is a weighted average of cost of capital for every type of investor (Plenborg and Petersen, 2012). It is therefore the minimum return investors require when investing in the company. It is calculated as (Brealey et al, 2008):

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

where E = market value of equity, EV = enterprise value, R_e = required rate of return on equity, NIBD = net interest bearing debt, R_d = cost of debt, t = effective tax rate.

Royal Unibrew makes use of operating leases, which are consequently classified in the income statement and not in the balance sheet. It would have been preferable to reclassify these items as financial leases to account for this type of loan. Unfortunately Royal Unibrew does not provide enough information to allow for that adjustment. However, the amount of operating leases is relatively small, so this will not have much effect.

The following subchapters investigate and calculate the different parameters of WACC.

7.1.1 Required rate of return on equity

There exist different models in the literature to calculate the required rate of return on equity. Nonetheless, the capital asset pricing model seems widely used (Koller et al. 2010, Plenborg & Petersen 2012, Penman 2012). Multifactor models shall not be used. As Penman (2010: 111) points out: *“even the one-factor model is demanding.”*

Using the CAPM, return on equity is calculated as:

$$r_e = r_f + \text{Beta} \times (r_m - r_f)$$

where r_f = risk free rate, beta = systematic risk on equity and r_m = return on the market portfolio. Every item in the CAPM model is now calculated.

7.1.1.1 Risk free rate

Plenborg & Petersen (2012) and Koller et al. (2010) suggest that the risk free rate should be based on a 10-year zero coupon government bond in the same currency as the cash flows. A 30-year zero coupon bond often match the cash flow better but it suffers from illiquidity, which affects the yield (Plenborg and Petersen, 2012). Hence, the risk free rate on a Danish 10-year zero coupon government bond is used. On April 2013 this rate was 1.32%³³. In a historical context this rate is, however, very low and as such will likely not sustain. The average risk free rate for the last 5 years is calculated to be 2.78%. This rate will be used instead. In terms of discounting infinite cash flow and excess returns it seems more appropriate.

7.1.1.2 Calculating beta

Beta is a measure of the systematic risk of a company's stock relative to the market portfolio. A beta above 1 implies that the systematic risk is higher than that of the market portfolio. A beta of 1 implies that the stock is equally risky and a lower number means that the stock is less risky (Brealey et al. 2008).

How to define the market portfolio depends on how diversified the investors are. Risk depends on the origin of the other securities in the investor's portfolio due to correlation effect (Brealey et al., 2008). If the stockholders invest heavily in other markets than the Danish, another market portfolio should be used (Brealey et al., 2008). However, since the investor's diversifications are unknown, the Danish market is assumed to be the accurate market portfolio. This is despite of the fact that Novo Nordisk accounts for about 40% of the index and therefore has influence on the return on the index³⁴. As the systematic risk of Novo Nordisk likely is low because of its business model, it may downturn the risk of the market portfolio and make the rest of the stocks look more risky than they are.

In calculating beta, intervals on one month is used. This is in line with Koller et al. (2010) who claim that using this interval limits the risk of systematic biases.

Below, beta of Royal Unibrew has been calculated through the database Bloomberg based on three, five and ten years of data. An example of a Bloomberg estimate is found in appendix 7.0.

³³ Danmarks statistik

³⁴ <http://www.business.dk/investor/novo-er-vokset-fra-c20>

Table 7.0 Beta values of Royal Unibrew

	3 years	5 years	10 years
Adjusted beta, relative to KFX C20	0.805	1.823	1.514
Number of observations	36	60	120

Source: Bloomberg

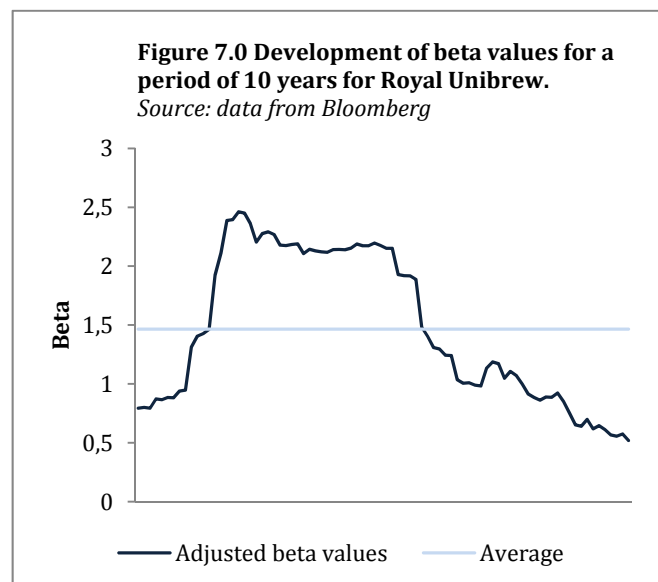
Bloomberg provides a raw beta and an adjusted beta. Beta values that are above 1 are downward adjusted while beta values less than 1 are upward adjusted. The reason for this is, that empirical evidence suggests that estimated values over 1 tend to be overrated while the opposite is evident as well (Hillier et al., 2012). Therefore, the adjusted beta value is used.

The estimated beta values in table 7.0 are very diverse depending on the number of years included. As such, the “true” beta value is difficult to assess. Currently Royal Unibrew has a low operating risk due to stable market shares, high profitability etc. Additionally, the financial risk analysis revealed that it does not suffer from liquidity and financing risk. This might explain why beta for the last three years is relative low. Thus, a low beta value would seem appropriate to use.

On the other hand, in a long-term perspective the company’s current position is questioned. Several indicators point to that the company will have difficulties in upholding sales and market shares. Based on that, a higher beta seems more correct.

To understand how beta has developed over the last 10 years a rolling average of 36 months of observations over 10 years has been calculated (Hansen, 2010). The procedure is the following: a beta estimate is undertaken of the latest 36 months. Then these 36 months are pushed through the whole period and a total of 84 beta values are obtained (Hansen, 2010). The development is depicted in figure 7.0.

The average of these estimates is 1.465. To understand the statistical significance, a 95% confidence interval is set up.



$$\bar{\beta} \pm z_{\alpha/2} \frac{\sigma}{\sqrt{n}} \xrightarrow{\text{yields}} 1.465 \pm 1.989 \frac{0.637}{\sqrt{84}} \xrightarrow{\text{yields}} [1.326: 1.603]$$

This tells us that we can be 95% confident that the interval 1.326 to 1.603 includes the average beta of 1.465 in the historical period of ten years (Williams et al., 2002). Hence, the founded number seems close to the true beta in the historical period.

It was concluded in the risk analysis in chapter 4, that the risk of substituting products, socio-cultural factors and competitive rivalry was high. Thus, an average beta of 1.465 seems appropriate.

7.1.1.3 Market risk premium

Plenborg and Petersen (2012) suggest two ways of determining the market risk premium: ex-post and ex-ante. The ex-post approach uses historical risk premiums while the ex-ante approach attempts to infer the market portfolio's risk premium. Plenborg & Petersen (2012) acknowledge that there is uncertainty related to both methods.

They provide a list of 884 professor's use of market risk premiums in Europe. The professor's uses rely on historical data as well as expectations. The average of the premiums is 5.3%, which is used. This is in line with Koller et al. (2005) who believe that a range of 4.5-5.5 % is appropriate.

7.1.1.4 Calculation of the required rate of return on equity

The required rate of return on equity can now be calculated:

$$r_e = 0.0278 + 1.465 \times 0.053 = 0.105445$$

Some researchers argue that a liquidity premium should be added due to the costs associated with converting stocks for cash (Plenborg & Petersen, 2005). However, since Royal Unibrew has a relatively large market capitalization and is traded frequently, a liquidity premium is not added.

A required return on equity of 10.5% is close to the rate analysts of Jyske Bank use. They use a rate of 10%³⁵.

7.1.2 After tax cost of debt

This subsection focuses on calculating the cost of debt and the tax rate. The cost of debt can be calculated using the formula (Plenborg & Petersen, 2012):

³⁵ The assessment by Jyske Bank is from an analyst report of 04.03.2013. The report is downloaded from the database Investext.

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

where r_s = credit spread (risk premium on debt) and t = tax rate

7.1.2.1 Credit risk premium

As the risk free rate has already been found, the risk premium on debt needs to be estimated.

Unfortunately Royal Unibrew is not credit rated and as such, a subjective assessment of the company's financial and operating risk must be carried out.

Table 7.1 shows Standard and Poor's risk premiums for different levels of credit ratings. Due to volatility of the premiums the average of the credit premiums will be used. In the following it will be assessed which of the ratings Royal Unibrew should have.

Table 7.1 Standard and Poor's credit premiums

	AAA	AA	A	BBB	BB	B
High	1.9%	2.4%	3.6%	4.7%	11.2%	13.1%
Low	0.6%	0.7%	0.8%	1.3%	2.6%	3.2%
Average	1.25%	1.55%	2.20%	3.00%	6.90%	8.15%

Source: Plenborg & Petersen (2012)

Financial risk assessment

Standard and Poor use different financial ratios to assess the credit rating of a company. These ratios are based on an average of three years of data (Plenborg & Petersen, 2012).

Table 7.2 shows calculated financial ratios and the associated ratings of Royal Unibrew. The combined ranking provides a rating of approximately BBB.

Table 7.2 Assessment of averaged financial ratios from 2010-2012.

	3 years average	AAA	AA	A	BBB	BB	B	CCC
EBIT/interest	12.7%		X					
EBITDA/interest	16.1%		X					
Free operating cash flows/total debt	33.6%		X					
Return on invested capital	17.7%			X				
EBIT/net revenue	14.0%						X	
Long term debt/invested capital	34.1%				X			
Total debt/invested capital	80.7%							X

Source: based on Plenborg & Petersen (2012) and own calculations

Operating risk assessment

As previously discussed, Royal Unibrew has currently a low operating risk due to stable market shares, high profitability etc. However, due to the deteriorating market conditions and intensified rivalry in the industry in the long-term, the operating risk must be expected to be higher. Thus, a rating of BBB with a corresponding credit premium on debt of 3% seems appropriate For Royal Unibrew.

7.1.2.2 Tax rate

In chapter 3 it was argued that the effective tax rate was more relevant to use than the marginal corporate tax rate. In chapter 6 the effective tax rate was forecasted to be 24 % in the terminal period. To avoid a very tedious problem of changing the tax rate in the forecasting horizon, this rate is used in the estimation of WACC.

7.1.2.3 Calculation of the after tax cost of debt

The after tax cost of debt is estimated to be:

$$r_d = (0.0278 + 0.03) \times (1 - 0.25) = 0.04335$$

7.1.3 Capital structure

The final step in calculating WACC is the capital structure. Koller et al. (2010) state that market values should be used. Royal Unibrew has 10,570,000 shares outstanding with a market value each of DKK 530 as of May 8th 2013. Hence, the market value of equity is DKK 5,602,100,000.

The net interest bearing debt is not publicly traded and as such no market value is available. Koller et al. (2010) suggest using the book value as an alternative. Book value of net interest bearing debt in 2012 was calculated in appendix 3.0 and amounts to DKK 594,324,000. The market value of equity and net interest bearing debt combined represents the market value of the enterprise (Koller et al., 2010). It is estimated to be DKK 6,196,424,000.

The weights needed in calculating WACC is:

$$\text{Equity/Enterprise value} = 0.9041$$

$$\text{Net interest bearing debt/Enterprise value} = 0.0959$$

7.1.4 Calculation of WACC

The final WACC can now be calculated:

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

$$WACC = 0.9041 \times 0.105445 + 0.0959 \times 0.04335 = 0.09949$$

7.2 Core valuation

The budget and the estimated WACC enable a valuation of Royal Unibrew's stock. By applying the DCF model the fundamental value is estimated in figure 7.1.

Figure 7.1 Valuation by use of the FCFF model. Figures are in millions except for the stock
Source: based on own calculations

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
FCFF	355.2	398.5	401.3	478.5	378.0	351.9	445.2	285.6	294.0	495.2	490.3
WACC	0.0995	0.0995	0.0995	0.0995	0.0995	0.0995	0.0995	0.0995	0.0995	0.0995	0.0995
Discount factor	0.910	0.827	0.752	0.684	0.622	0.566	0.515	0.468	0.426	0.387	0.352
PV, FCFF	323.1	329.7	301.9	327.4	235.3	199.2	229.2	133.7	125.2	191.8	
PV of FCFF	2,397										
PV of terminal period	1,734										
EV value	4,131										
NIBD	622										
Value of equity	3,509										
Value of stock	332										

The fundamental value of the stock is calculated to be DKK 332. For the purpose of validation, the value is estimated by the use of the EVA model as well. Figure 7.2, next page, sets up the numbers behind.

Figure 7.2 Valuation by use of the EVA model. Figures are in millions except for the stock price

Source: based on own calculations

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
ROIC	0.223	0.237	0.243	0.237	0.235	0.223	0.208	0.202	0.169	0.148	0.148
WACC	0.0995	0.0995	0.0995	0.0995	0.0995	0.0995	0.0995	0.0995	0.0995	0.0995	0.0995
IC	1941.9	2019.0	2099.8	2208.6	2252.8	2405.3	2589.2	2682.4	2938.0	3139.8	3108.4
EVA	239.2	278.4	301.2	302.9	306.4	296.5	280.9	274.3	203.5	151.5	149.9
Discount factor	0.910	0.827	0.752	0.684	0.622	0.566	0.515	0.468	0.426	0.387	0.352
Present value of EVA	217.5	230.3	226.6	207.3	190.7	167.8	144.6	128.4	86.6	58.7	
Invested capital	1,942										
PV of EVA	1,659										
Terminal value	530										
EV value	4,131										
NIBD	622										
Value of equity	3,509										
Value of stock	332										

The two methods yield identical results and the estimations should therefore not contain any calculation errors. The fundamental value of DKK 332 is significantly lower than the market value of DKK 530 as of 8th May 2013. Consequently, the stock market seems to have overpriced the stock, which suggests that investors might benefit from selling.

As mentioned in chapter 2, the models rest of the assumption that cash surpluses are paid out as dividends or reinvested in projects with a net present value equal to zero. In this case, it may downward bias the estimated value and the value may in reality be somewhat higher. The impact is, however, not possible to know.

Also, the models calculate the value of the stock as of January 1st. Since we want the value as of May 8th, there's a range of about 5 months that has not been accounted for. This may however, have a small effect on the value.

7.3 Sensitivity analysis

In chapter 2 it was pointed out that the present value models comes with uncertainty. To test how sensitive the value is to changes in certain parameters, a sensitivity analysis is carried out.

7.3.1 Sensitivity of WACC and growth

Even small variations in the cost of capital often cause significant changes in the estimated value (Plenborg & Petersen, 2005). Also, since the terminal period consists of a large part of firm value, growth in that period may have a significant influence as well. Therefore, the sensitivity analysis is exploring the impact of changing these two parameters. This is displayed in figure 7.3.

Figure 7.3 Sensitivity of Growth and WACC

		WACC					
		6.95%	7.95%	8.95%	9.95%	10.95%	11.95%
Growth	2.0%	609	499	419	360	315	277
	1.0%	560	469	401	349	307	273
	0.0%	525	447	387	340	301	269
	-1.0%	498	430	376	332	296	266
	-2.0%	478	416	367	326	292	263
	-3.0%	461	405	359	320	288	260

Source: based on own calculations

Clearly, changing these two parameters has a significant impact on the value of the stock. As such, the true value may be far from DKK 332. Interestingly, only two of the values are larger than the market price of DKK 530. To be specific, a WACC of less than 6.95% and a growth rate higher than 0.2% will generate values that are higher than the market's expectations³⁶. It supports the idea that the market price is overvalued.

As mentioned in chapter 2, a difficult part of estimating WACC is the determination of beta and the market risk premium. To find the number of these two parameters separately that would have yielded a value identical to the market price of DKK 530 an iteration process has been undertaken. By holding all other variables constant, a beta of 0.7575 and a market risk premium of 2.74% is found.

This beta is even lower than the previously estimated beta based on the latest three years of data. Also, this would have resulted in a corresponding required return on equity of 6.79%; a rate that is well below the previously calculated number and the one Jyske Bank use. The market risk premium of

³⁶ The growth number is found through 'trial and error'.

2.74% is significantly less than Koller's recommended range of 4.5-5.5%. This furthermore supports the idea that the fundamental value is considerably below the market price.

7.3.2 Sensitivity of parameters in the explicit forecasting horizon

To get an idea of the influence of altering other parameters in the model, the different financial value drivers are changed. By changing each financial value driver 1%-point in the explicit forecast horizon while holding the other constant, new stock prices are estimated.

Table 7.3 Sensitivity of changing drivers in the explicit forecasting horizon

1%-point increase net revenue growth	353
1%-point increase in EBITDA	359
1%-point decrease in depreciations and amortizations	347
1%-point decrease in the effective tax rate	338
1%-point decrease in current assets	335
1%-point decrease in non-current assets	337

Source: based own calculations

As seen, small changes in the driver above also have an impact on the stock price. If they change together, it can have a significant larger impact. It suggests that the estimated value should be interpreted with care.

7.4 Peer group analysis

In line with the discussion in chapter 2, a multiple valuation is conducted as a stress test of the estimated fundamental value. Here, it was stated that multiple models might be of low complexity and fast to use but that several assumptions were inherent in the approach.

The assumption of 'identical firms' seems challenging. To limit the variation in the firm's economic outlook, the inclusion of major global breweries is avoided. Instead breweries with approximately the same turnover, products and markets as Royal Unibrew are selected. However, since several of Royal Unibrew's closest competitors with these characteristics are not listed, other breweries in Europe are used. The analysis includes 6 companies, which is in line with Koller et al. (2005) who claim at least five peers should be included. A list of the chosen firms and their characteristics is found in appendix 7.1.

The assumption of ‘identical accounting quality’ is in some cases possible to adjust for (Plenborg & Petersen, 2012). However, in this thesis multiples are used only to stress test the yielded result from the present value models. Thus, such adjustment is not conducted.

Multiples based on historical data seem appropriate to use as they estimate the value in the relevant year. However, scholars agree on the superiority of forwarded multiples (Schreiner 2007, Nissim et al. 2002, Koller et al. 2005). Therefore, a combination of the two approaches is used.

Yet, there is no consensus among scholars as to which multiple works best. Schreiner (2007) finds that equity-based multiples outperform value-based multiples³⁷. This is partially supported by Lie & Lie, (2002) who find Price/Earning multiples to outperform all other multiples. On the other hand, Koller et al. (2005) find that value-based EBITDA multiples are superior. They claim that Enterprise value/EBITDA multiples should be used because it mitigates problems of differences in capital structure.

As there is no agreement upon which method works best, the multiples P/E and EV/EBITDA is used. Calculation of forecasted earnings is found on attached USB stick. The harmonic mean of the samples is taken, as it supposedly generates more accurate estimates³⁸ (Baker & Ruback, 1999).

Table 7.4 Valuation by the use of multiples

	P/E		EV/EBITDA	
	2013	2014	2013	2014
Anadolu Efes	25.1	9.5	13.4	10.7
C&C Group	18.3	15.5	13.0	11.1
Molson Coors	12.6	13.4	17.1	10.0
Olvi Oyj	15.9	16.7	8.8	10.5
Ottakringer Getraenke AG	26.8	27.8	11.3	9.4
Harboe	13.9	22.9	7.8	5.0
Harmonic mean	17.3	15.6	11.1	8.8
Estimated equity	6,438,490	6,344,282	7,268,335	6,246,872
- NIBD	-	-	594,324	617,927
Estimated equity	6,438,490	6,344,282	6,674,011	5,628,945
Estimated stock price	609	600	631	533

Source: Bloomberg and own calculations

³⁷ Equity-based multiple calculates directly estimate the value of equity whereas value-based multiples calculate the value of the firm.

³⁸ *Harmonic mean* = $\frac{n}{\sum_{i=1}^n \frac{1}{multiple_i}}$ (Plenborg & Petersen, 2012)

As seen in table 7.4, the estimated stock prices are considerably higher than the previously calculated fundamental value. They are even higher than the market value of DKK 530. Thus, based on the multiple valuations, the formerly estimated fundamental value is too low.

Differences in accounting policies between the peer group and Royal Unibrew may explain some of the deficit. However, as stated in section 3.1, the industry is characterized by relatively simple transactions, which means that biased accounting numbers are less likely to occur. Thus, this may not explain the large discrepancy.

Most of the firms should have approximately the same economic outlook as Royal Unibrew. Only Anadolu Efes that have operations in Russia may have better growth prospects than the rest of the breweries. Thus, it seems that the stock market has either overvalued the peer group's ability to generate cash flows or expect a low risk.

8.0 Conclusion

The purpose of the thesis is to estimate the fundamental value per share of Royal Unibrew on a stand-alone basis. To do so, a discussion of the most applicable valuation models is conducted. The present value models are found to be superior in the case of Royal Unibrew, though it suffers from several shortcomings. The DCF is chosen as the specific valuation model and the EVA model is selected for the purpose of validation. The multiple valuation approach is selected to serve as a stress test of the yielded result.

The financial analysis reveals that Royal Unibrew has had a significant turnaround from 2009 and over the last three years has seen incredible performance. ROIC has been very high compared to competitors in the Danish market and its growth has been steadily value creating. Most of this is explained by an increased efficiency in production. At the same time, Royal Unibrew has been able to decrease liquidity risk.

The strategic analysis discloses that Royal Unibrew currently has stable positions in its markets. However, consumption of beer is falling drastically in Denmark and moderately in Europe. The youth, which tends to drink beer the most, is getting smaller while consumption of substituting products is increasing in some markets. At the same time, consumption of soft drink is shrinking. Additionally, a developing global consolidation process led on by four major companies intimidates smaller breweries. Thus, the long-term survival of Royal Unibrew is questioned.

Integrating the financial and strategic analysis facilitates a forecast of key financial value drivers. An estimation and appraisal of the cost of capital is conducted, which enables a calculation of the fundamental value of the stock. The obtained value of DKK 332 is well below the market price of DKK 530. It indicates that the market has overpriced the stock and that investors might benefit from selling.

The sensitivity analysis reveals that the yielded result is very sensitive to even small changes in the parameters of the model. Therefore, the true value may be far from the one that is found. Interestingly, when changing WACC and the growth rate, only two of the calculated prices are higher than the market price. Also, to obtain a fundamental value equal to the market price requires a much lower beta and market risk premium than estimated. This further indicates that investors have overvalued the stock.

On the other hand, the peer group analysis reveals that the price of Royal Unibrew's stock should be even higher than the market price. Differences in accounting quality and economic outlook is assessed not be the primary explanation. This suggests that investors of the peer group have overpriced these stocks as well.

In the introduction, a statement from Stephen Penman is quoted. It is stated that in a bubble investors react as if they are joining a chain letter, where each push up the price. Based on the analysis in this thesis, this could be the case for Royal Unibrew and other breweries in Europe. Investors may overrate smaller breweries' ability to generate cash flows in the long-term or they may undermine risk.

However, due to the uncertainty inherent in the models, it is not possible to exclusively make that conclusion. As Benjamin Graham stated in his renowned book 'the intelligent investor' in 1959: *"...But precise formulas with highly imprecise assumptions, can be used to establish, or rather justify, practically any value one wishes"* (Bogle, 2009: 18). Several of the parameters of the model could have been different. For instance, if beta was calculated based on the latest three years of data, it would have resulted in a much lower WACC with a corresponding substantially higher stock price. The calculated value must therefore be interpreted with care; the intrinsic value only indicates that the market price is overvalued and that investors may benefit from selling.

9.0 Perspective

In the previous chapter it was concluded that the fundamental value of the stock was considerable lower than the market price. This indicates that investors should sell the stock in order to avoid losses. But as Penman (2010) points out, if investors truly are behaving as if they are joining a chain letter the price may continue to rise. Thus, selling is not necessarily the best solution. Taking a look at the current price of Royal Unibrew's stock is therefore interesting. As of 27th November 2013 the stock price has risen to DKK 755. It begs the question whether the applied models are actually useful if the purpose is to invest in stocks.

Even if it is possible for an investor to find the true intrinsic value of a stock, other investors may find other values to be correct. With the severe uncertainty inherent in the valuation models analysts may differ greatly in their valuations and the price of the stock will be influenced accordingly. Therefore, it seems like the critical part of trading is not merely to find the true value, but also to find out what other investors determine to be the true value. That obviously seems quite difficult.

Interestingly, most researchers find that active managed mutual funds do not outperform passive market portfolios. Gallo & Swanson (1996) for instance, evaluate the performance of 37 US-based solely equity mutual funds and find that they perform just as well as the market benchmark. Anderson & Ahmed (2005) evaluate a number of studies and conclude that most of them find mutual funds to perform worse or equivalently to market portfolios. However, most of these studies cannot provide statistical significant results³⁹.

The question is then if these funds use the valuation models discussed in chapter 2. Plenborg & Petersen (2012) claims that present value models and multiples are the most widely used. However, they do not state whether analysts use them for the purpose of investing in stocks. Walker et al. (2004) have studied valuation methodologies in 104 analysts' reports from international investment banks for 26 large UK-listed firms. They find that P/E multiples and multi period DCF valuation models are dominant. But this applies for investment banks and not for mutual funds. Hence, it is not possible to know for certain what models are being used in a trading perspective.

Through time it seems that it has not been possible for mutual funds to generate abnormal profit. However, it must be noted that transaction costs are included in the evaluation of the mutual funds in

³⁹ In this context 'significant' means that it is possible to conclude with 95% certainty that mutual funds perform either worse or better than the market portfolio.

the mentioned studies. Assuming that present value models and multiples are being used, it can be argued that they do add value; however, it does not seem high enough to cover the costs associated with the transactions. Wermers (2000) for instance, finds mutual funds to outperform the market but when accounting for transaction costs they underperform. This assumption is supported in a study by Barber & Odean (2000) that find a strong negative correlation between return and frequent trading in American households. This indicates that professionals who likely use present value models and multiples benefit from these approaches relative to individual investors who likely are not capable of using these techniques.

Despite of the discussion above, several value investors like Warren Buffet and Benjamin Graham have beaten the market remarkably with statistical significance. These investors do not use any of the valuation models mentioned in chapter 2. Instead, they passively invest in stocks that are selected mostly based on financial ratios. High book/market and high earning/price ratios characterise value stocks, which is the opposite of growth stocks. Even when adjusting for risk, several scholars have documented a large historical value premium to growth stocks in Europe and USA (Risager, 2009). Based on these studies, the value-based approach seems more appropriate in terms of investing in stocks. However, the approach does not calculate the price of securities.

To conclude, it seems that most of the models discussed in chapter 2 might be more applicable in terms of mergers and acquisitions, initial public offerings, stock issues and the like. Here, the use of the models may justify the uncertainty inherent in the approaches. If the purpose is to speculate in stocks, the models seem less useful.

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Appendix 1.0 - Group structure

Segment	Ownership	Exchange	Capital	Activity
Parent company:				
Royal Unibrew A/S, Denmark		DKK	105,700,000	1)
Western Europe:				
<i>Subsidiaries:</i>				
Aktieselskabet Cerekem International Ltd. DK	100 %	DKK	1,000,000	4)
Albani Sverige AB, Sweden	100 %	SEK	305,000	4)
Ceres S.p.A., Italy	100 %	EUR	206,400	2)
The Curious Company A/S, Denmark	100 %	DKK	550,000	4)
<i>Associates:</i>				
Hansa Borg Holding AS, Norway	25 %	NOK	54,600,000	3)
Nuuk Imeq A/S, Godthåb, Greenland	32 %	DKK	38,000,000	1)
Grønlandskonsortiet I/S, Denmark	50 %	DKK		4)
Eastern Europe:				
<i>Subsidiaries:</i>				
AB Kalnapilio-Tauro Grupe, Lithuania	100 %	LTL	23.752.553	1)
UAB Vilkmarges Alus, Lithuania	100 %	LTL	3,570,000	1)
Royal Unibrew Services UAB, Lithuania	100 %	LTL	150,000	4)
SIA "Cido Grupa", Latvia	100 %	LTL	785,074	1)
OÜ Royal Unibrew Eesti, Estonia	100 %	LTL	1,000,000	2)
Malt drinks				
<i>Subsidiaries:</i>				
Centre Nordique d'Alimentation EURL, France	100 %	EUR	131,000	2)
Supermalt UK Ltd., England	100 %	GBP	9,700,000	2)
Vitamalt (West Africa) Ltd., UK	100 %	GDP	10,000	2)
The Danish Brewery Group Inc., USA	100 %	USD	100,000	2)
Royal Unibrew Caribbean Ltd., Puerto Rico	100 %	USD	200,000	4)

Activity:

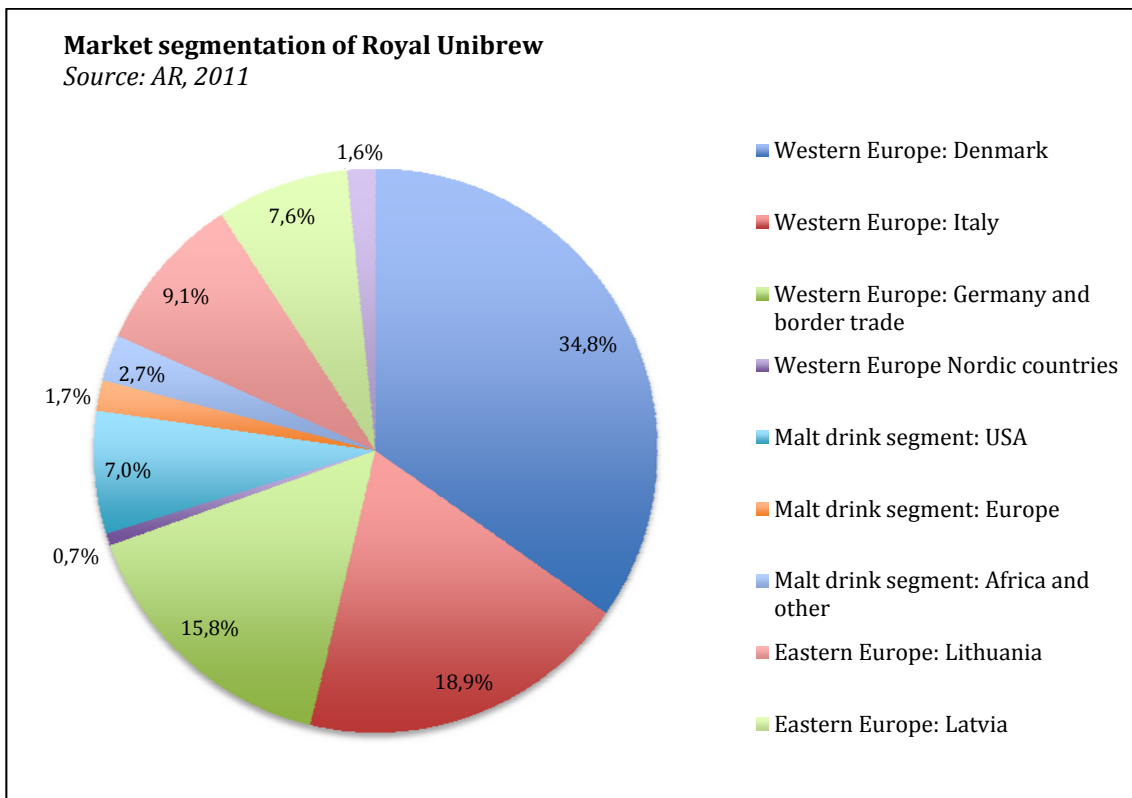
- 1) Production, sales and distribution
- 2) Sales and distribution
- 3) Holding company
- 4) Other

Appendix 1.1 - Market segmentation of Royal Unibrew 2011

Below, the market segmentation of Royal Unibrew is described as of end of 2011.

Market segmentation of Royal Unibrew 2011:

Western Europe: Denmark	34.8%
Western Europe: Italy	18.9%
Western Europe: Germany and border trade	15.8%
Western Europe Nordic countries	0.7%
Malt drink segment: USA	7.0%
Malt drink segment: Europe	1.7%
Malt drink segment: Africa and other	2.7%
Eastern Europe: Lithuania	9.1%
Eastern Europe: Latvia	7.6%
Eastern Europe: other	1.6%



Appendix 1.2 - Description of main competitors outside Denmark

Heineken is a Dutch brewery represented with its beers in 140 countries worldwide. Heineken is very large compared to Royal Unibrew as it had revenues in 2012 of approximately DKK 140 billion. It is considered an important competitor since approximately 60 % of its revenues are related to Western and Eastern Europe (Heineken, 2012).

Anheuser-Busch Inbev is a Belgium Brewery that sells beers and soft drinks. It had revenues of approximately DKK 220 billion in 2012 out of which 7.3 % went to Western Europe and 1.6 % to Central and Eastern Europe. Therefore it's considered a peer as it covers the two main markets of Royal Unibrew (AB Inbev, 2012).

SAB Miller sells beers and soft drinks, it's headquartered in London and had revenues of about DKK 120 billion in 2012. It has operations in 75 countries including Europe and is therefore considered a competitor of importance (SAB Miller, 2011).

Appendix 3.0 - Reformulations of Royal Unibrew

The financial calendar of Royal Unibrew is from 1/1 - 31/12.

Reformulated statement of equity:

Note	Royal Unibrew, DKK 1000	2004	2005	2006	2007	2008	2009	2010	2011	2012
	Balance, opening	995,837	1,098,495	1,149,750	1,148,121	1,119,463	574,828	995,114	1,280,519	1,321,185
1	Minority interests beginning period	11,138	11,784	10,993	12,917	38,689	34,922	38,080	11,709	12,869
1	Minority interest ending period	11,784	10,993	12,917	38,689	34,922	38,080	11,709	12,869	0
	Opening balance, adjusted for MI	984,699	1,086,711	1,138,757	1,135,204	1,080,774	539,906	957,034	1,268,810	1,308,316
	Transactions with shareholders:									
	Increase of capital	0	0	0	0	0	393,690	0	0	0
	Acquisition of treasury shares	-55,580	-107,097	-180,139	-162,598	-46,244	0	0	-122,785	-200,405
	Sale of treasury shares	7,431	1,784	110	6,854	1,551	4,014	0	0	463
	Dividends from treasury shares	0	0	0	0	0	0	0	0	0
	Distributed dividends	-47,576	-56,654	-60,714	-57,722	-54,901	0	-2,394	-138,742	-179,328
	MI shareholders share of subsidiaries sold	0	0	0		0	0	-23,738	0	-14,524
	Minority shares of acquired businesses	0	0	0	26,875	0	0	0	0	0
	Tax on transactions with owners	0	0	-567	-694	0	0	0	0	0
	Acquisitions paid by treasury shares	10,938	0	0	0	0	0	0	0	0
	Transactions with shareholders total	-84,787	-161,967	-241,310	-187,285	-99,594	397,704	-26,132	-261,527	-393,794
	Comprehensive income:									
	Net profit/loss for the year	194,874	220,638	230,339	155,234	-483,165	52,451	277,773	350,855	372,804
	Dirty surplus:									

Exchange adjustment of foreign group enterprises (net of tax)	-12,845	5,237	-3,676	-7,789	-99,434	-11,970	14,026	-4,484	29,853
Change in value of hedging instruments	8,063	-6,650	12,410	10,700	-48,345	-17,993	24,639	-49,038	17,756
Tax on hedging instruments	0	0	0	-2,618	3,685	0	-4,901	4,860	-209
Share based payments	1,100	3,300	3,400	3,100	2,218	94	0	0	0
Net revaluation of project development property (net of tax)	0	0	0	0	180,000	0	0	0	0
Tax on equity movements	91	8,789	-2,792	0	0	0	0	0	0
2 Change of accounting policy	-3,838	-18,092	0	0	0	0	0	0	0
Dirty surplus total	-7,429	-7,416	9,342	3,393	38,124	-29,869	33,764	-48,662	47,400
Closing balance	1,098,495	1,149,750	1,148,121	1,119,463	574,828	995,114	1,280,519	1,321,185	1,347,595
Change in minority interests	-646	791	-1,924	-25,772	3,767	-3,158	26,371	-1,160	12,869
Closing balance, adjusted for MI	1,086,711	1,138,757	1,135,204	1,080,774	539,906	957,034	1,268,810	1,308,316	1,347,595

Reformulated income statement:

Note	Royal Unibrew, DKK 1000	2004	2005	2006	2007	2008	2009	2010	2011	2012
	Net revenue	2,869,008	3,190,959	3,439,026	3,881,762	4,178,703	3,816,421	3,775,431	3,430,633	3,430,008
3	Production costs	-1,220,151	-1,425,450	-1,568,976	-2,002,909	-2,266,557	-2,048,018	-1,818,071	-1,610,127	-1,626,997
	Gross profit	1,648,857	1,765,509	1,870,050	1,878,853	1,912,146	1,768,403	1,957,360	1,820,506	1,803,011
3	Sales and distribution expenses	-1,025,651	-1,111,522	-1,174,999	-1,246,590	-1,362,792	-1,105,059	-1,161,259	-1,051,835	-1,040,239
3	Administrative expenses	-147,158	-168,397	-196,127	-230,778	-215,816	-206,567	-200,044	-176,073	-158,433
4	Other operating income	19,028	6,149	43,512	9,289	3,835	3,691	3,929	3,549	4,843
5	Profit from associates, before tax	2,773	21,806	36,247	37,331	30,205	34,448	41,947	19,160	45,684
	Operating profit before special items	497,849	513,545	578,683	448,105	367,578	494,916	641,933	615,307	654,866
3 & 6	Special items income	0	1,000	0	0	0	21,500	0	0	0
3 & 6	Special items expenses	0	0	-5,401	-15,552	-82,782	-71,068	0	0	0
	EBITDA	497,849	514,545	573,282	432,553	284,796	445,348	641,933	615,307	654,866
	Depreciation, amortizations and profit from sale of plant	-188,001	-185,018	-203,631	-130,924	-169,863	-202,460	-183,093	-121,906	-124,185
7	Impairment losses	0	0	0	0	-384,957	0	0	0	0
7	Impairment losses on investments	0	0	0	0	-70,104	0	0	0	0
	Operating income (EBIT)	309,848	329,527	369,651	301,629	-340,128	242,888	458,840	493,401	530,681
8	Tax on EBIT	-87,722	-72,307	-100,280	-83,845	-57,809	-65,532	-116,472	-117,465	-118,245
5	Tax on profit from associates	1,074	-6,106	-10,149	-9,333	-7,551	-8,612	-10,487	-4,790	-11,421
	Net operating profit after tax (NOPAT)	223,200	251,114	259,222	208,451	-405,488	168,744	331,881	371,146	401,015
	Net financial expenses before tax	-38,394	-41,309	-39,149	-72,132	-105,286	-157,629	-73,340	-27,503	-38,239
8	Tax shield	10,068	10,833	10,266	18,915	27,609	41,336	19,232	7,212	10,028
	Group profit after tax	194,874	220,638	230,339	155,234	-483,165	52,451	277,773	350,855	372,804
2	Minority interests	-736	432	-2,697	-3,487	-1,168	-5,389	300	-2,914	-1,612
	Group profit after MI	194,138	221,070	227,642	151,747	-484,333	47,062	278,073	347,941	371,192

Reformulated balance sheet:

Note	Royal Unibrew, DKK 1000	2004	2005	2006	2007	2008	2009	2010	2011	2012
	Non-current operating assets									
	Intangible assets									
	Goodwill	276,492	320,861	323,398	487,861	311,275	307,524	263,982	263,733	244,882
	Trademarks	87,684	173,946	174,236	278,351	167,885	166,193	133,647	124,186	124,069
	Distribution rights	11,834	10,587	9,854	8,524	7,186	6,237	4,513	3,175	1,672
	Total intangible assets	376,010	505,394	507,488	774,736	486,346	479,954	402,142	391,094	370,623
	Tangible assets									
	Land and buildings	662,773	710,810	723,509	770,679	643,363	723,786	661,062	584,120	559,200
	Project development properties	0	0	0	0	400,000	403,552	406,427	411,450	276,338
	Plant and machinery	351,187	413,396	400,842	488,715	529,291	650,786	513,373	442,783	433,369
	Other fixtures, tools and equipment	254,328	238,870	237,618	240,091	214,997	224,146	178,550	132,298	142,903
	Property and equipment in progress	39,382	25,930	64,888	57,536	291,787	11,386	12,233	30,623	67,531
9	Investments in associates	76,446	214,409	231,285	225,691	87,650	110,842	136,187	290,712	129,782
16	Other investments	2,944	2,834	2,838	3,018	56,900	56,748	59,027	2,613	2,620
	Non-current assets held for sale		28,988	28,988	0	0	0	0	0	0
	Total tangible assets	1,387,060	1,635,237	1,689,968	1,785,730	2,223,988	2,181,246	1,966,859	1,894,599	1,611,743
	Total non-current operating assets	1,763,070	2,140,631	2,197,456	2,560,466	2,710,334	2,661,200	2,369,001	2,285,693	1,982,366
	Current operating assets									
	Raw materials and consumables	100,963	99,935	97,284	169,316	122,194	92,199	58,415	50,861	65,208
	Work in progress	14,931	17,521	17,353	25,816	27,177	20,980	18,012	16,644	21,062
	Purchased finished goods	131,915	136,113	161,983	156,461	265,302	124,945	110,717	105,642	94,072
	Trade receivables	342,877	399,406	442,238	577,847	541,566	408,958	407,029	379,012	365,286

10	Other receivables	41,710	22,091	37,360	64,035	113,679	21,082	26,105	13,605	12,138
9	Receivables from associates (short)	3,549	3,695	1,318	1,012	1,008	1,039	1,786	1,793	1,444
9	Receivables from associates (long)	24,588	25,460	24,664	25,481	20,634	0	0	0	0
11	Prepayments	37,383	42,611	43,775	31,435	147,191	53,885	22,291	13,191	14,253
	Corporation tax	0	0	0	0	0	0	0	0	8,855
16	Other receivables 2	27,228	13,338	21,875	11,592	11,939	12,892	6,093	5,114	9,645
12	Cash at bank and in hand	67,697	286,995	368,320	157,832	90,384	92,474	37,391	18,773	273,775
	Total current operating assets	792,841	1,047,165	1,216,170	1,220,827	1,341,074	828,454	687,839	604,635	865,738
	Operating liabilities (non-interest bearing)									
	Trade payables	230,675	278,839	344,338	350,407	523,175	419,381	429,501	397,795	430,852
14	Other payables (long)	0	0	0	0	0	0	12,585	23,119	9,121
14	Other payables (short)	106,257	126,896	126,057	163,252	335,654	228,479	225,570	221,876	220,091
	Repurchase obligation, returnable packaging	97,018	96,332	90,554	97,533	74,056	61,793	57,278	42,241	36,211
13	Deferred tax liabilities	164,764	146,198	133,250	131,524	179,378	171,831	170,011	166,539	144,795
	Corporation tax	0	0	61,262	54,759	0	6,227	8,329	63	0
	VAT, excise duties, etc.	72,941	73,762	74,821	98,764	61,439	98,012	66,001	68,017	65,115
	Total non-interest bearing debt	671,655	722,027	830,282	896,239	1,173,702	985,723	969,275	919,650	906,185
	Net current assets	121,186	325,138	385,888	324,588	167,372	-157,269	-281,436	-315,015	-40,447
	Invested capital	1,884,256	2,465,769	2,583,344	2,885,054	2,877,706	2,503,931	2,087,565	1,970,678	1,941,919
	Equity belonging to parent	1,086,711	1,138,757	1,135,204	1,080,774	539,906	957,034	1,268,810	1,308,316	1,347,595
	Equity belonging to minority interest	11,784	10,993	12,917	38,689	34,922	38,080	11,709	12,869	0
	Interest bearing debt									
13	Deferred tax liabilities	0	-3,720	-5,530	-3,806	0	0	0	0	0
15	Mortgage debt (long)	379,455	559,171	593,540	749,751	734,655	735,516	595,534	593,880	591,680
15	Mortgage debt (short)	34,935	53,738	58,732	953	0	0	2,430	1,959	2,010
15	Credit institutions (long)	267,414	587,353	650,375	790,260	968,888	773,301	79	0	0

15	Credit institutions (short)	103,957	119,477	138,106	228,433	599,335	0	209,003	53,654	634
Total interest bearing debt		785,761	1,316,019	1,435,223	1,765,591	2,302,878	1,508,817	807,046	649,493	594,324
Interest bearing assets										
Total interest bearing assets		0	0	0	0	0	0	0	0	0
Net interest bearing debt		785,761	1,316,019	1,435,223	1,765,591	2,302,878	1,508,817	807,046	649,493	594,324
Invested capital		1,884,256	2,465,769	2,583,344	2,885,054	2,877,706	2,503,931	2,087,565	1,970,678	1,941,919

Notes

Note 1: Minority interests

The reformulated statement of equity has been adjusted for minority interests, as the thesis will make use of ratios both before and after minority interests.

Note 2: Opening adjustment (change in accounting policies)

Change in accounting policies is due to the implementation of IFRS in 2005. It is classified under dirty surplus as Penman (2012) does it.

Note 3: Depreciation, amortizations and profit from sale of plant

Royal Unibrew classifies expenses by function. Depreciation and amortization charges are therefore included in the function to which they belong. These costs have been reclassified in the reformulated income statement to a single item. This has made it possible to calculate EBITDA, which is used in the analysis. The table below shows how depreciations and amortizations are related to the different costs in the income statement.

DKK 1000	2004	2005	2006	2007	2008	2009	2010	2011	2012
Production costs	150,569	155,961	173,924	126,264	166,741	163,116	127,601	75,184	87,268
Sales and distr. Exp.	25,679	29,779	16,226	22,193	24,751	41,545	38,901	33,078	22,214
Adm. expenses	11,753	3,300	4,553	18,264	11,028	12,501	16,591	13,644	14,703
Special items inc.	0	0	0	-128,068	0	0	0	0	0
Special items exp.	0	-4,022	8,928	92,271	-32,657	-14,702	0	0	0
Total	188,001	185,018	203,631	130,924	169,863	202,460	183,093	121,906	124,185

Note 4: Other operating income

Royal Unibrew is not specifying in any note what 'other operating income' consists of. It is therefore difficult to assess the classification of this item. As no information is given, it is classified as belonging to operations.

Note 5: Profit from investments in associates, before tax

Associates to Royal Unibrew are all involved in brewery related activities and are therefore classified under operations. Since Royal Unibrew's share of profit from associates is measured after tax, 'tax on associates' needs to be calculated. Royal Unibrew's marginal corporate tax rate has been used in the calculation. It may not be the most appropriate tax rate to use, but it is a simple solution to a tedious task of finding corporate tax rates for every associate of Royal Unibrew.

The first year tax on associates is given, but the rest of the years it needs to be calculated. Profit before tax is calculated using the formula:

$$\text{Profit before tax} = (1 - \text{Marginal tax rate}) \times \text{Profit before tax} \Leftrightarrow$$

$$\text{Profit before tax} = \text{profit after tax} / (1 - \text{Marginal tax rate})$$

The table below shows the calculations.

DKK 1000	2004	2005	2006	2007	2008	2009	2010	2011	2012
Corporation tax, marginal	0.3	0.28	0.28	0.25	0.25	0.25	0.25	0.25	0.25
Profit after tax, asso.	2,773	15,700	26,098	27,998	22,654	25,836	31,460	14,370	34,263
Profit before tax, asso.	3,847	21,806	36,247	37,331	30,205	34,448	41,947	19,160	45,684
Tax on profit, associates	1,074	6,106	10,149	9,333	7,551	8,612	10,487	4,790	11,421

Note 6: Special items

Royal Unibrew reports only special items from 2005-2010. Therefore, these items do not have much of an effect in terms of forecasting. Still, an overview and discussion of these items is presented below. All items in the table are before depreciations and amortization charges.

Most of them are related to reorganization, which must be considered necessary to stay competitive. Therefore these items are not considered transitory and included in terms of forecasting.

'Value adjustment of non-current assets held for sale' may be due to too high depreciation charges in the past. Therefore it's not removed and it's considered to belong to operations. 'Profit on sale of property in Eastern Europe' is depreciated to zero in the same year (Cf. note 3) and therefore it's not removed in terms of forecasting either.

Special items, DKK 1000	2005	2006	2007	2008	2009
Value adjustment of non-current assets held for sale	5,022				
Reorganisation in the Baltic countries		-14,329			
Profit on sale of property in Eastern Europe			128,068		
Expenses and impairment losses on assets related to reorganisation in Western Europe			-91,089		
Expenses and impairment losses on assets related to reorganisation in Eastern Europe			-16,734		
Value adjustment of assets related to reorganisation in Denmark				-48,278	-23,600
Value adjustment of assets related to reorganisation in the rest of Western Europe and Eastern Europe				-1,847	-32,766
Profit on sale of non-current assets related to reorganisation					21,500
Special items, net	5,022	-14,329	20,245	-50,125	-34,866

Note 7: Impairment losses

Two impairment losses are recognized in 2008. One of them, a loss of DKK 384.957 million, relates to subsidiaries in Poland. Approximately DKK 260 million is related to goodwill and brands. Another DKK 124 million is related to tangible assets.

The second impairment loss in 2008 relates to the Polish brewery, Perla Browary Lubelskie, which was previously regarded as an associated entity to Royal Unibrew, but in that year has been classified as a subsidiary.

Note 8: Taxes

In Royal Unibrew's annual reports income tax is recognized as a single item. Therefore tax on operating and financing activities must be calculated separately. As Royal Unibrew has subsidiaries in many countries, where different tax rules apply, the effective tax rate is used in calculating tax on EBIT.

The average of these effective tax rates has been calculated and used for every year. 2008 is however excluded in the calculation since the effective tax rate in that year is negative.

The calculations are shown below.

DKK 1000	2004	2005	2006	2007	2008	2009	2010	2011	2012
EBT	271,454	282,112	320,353	220,164	452,965	76,647	375,013	461,108	481,021
Corporation tax	77,654	61,474	90,014	64,930	30,200	24,196	97,240	110,253	108,217
Effective tax rate	0.265	0.218	0.281	0.295	-0.067	0.316	0.259	0.239	0.225
Ave. Effective tax rate, excluding 2008	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
NFE	-38,394	-41,309	-39,149	-72,132	105,286	157,629	-73,340	-27,503	-38,239
Tax shield	10,068	10,833	10,266	18,915	27,609	41,336	19,232	7,212	10,028
Tax on EBIT	87,722	72,307	100,280	83,845	57,809	65,532	116,472	117,465	118,245

Note 9: Associates

Royal Unibrew classifies these items under financing activities, but associates to Royal Unibrew are all related to brewery activities. Therefore all items related to associates are classified as belonging to operations.

Note 10: Other receivables

Royal Unibrew does not provide any information on this item, so it is classified under operating assets.

Note 11: Prepayment

As no information is given in the annual report this item is assumed to belong to operations.

Note 12: Cash at bank and in hand

This item could belong to finance since excess cash could be assumed to be interest bearing. But the amount of cash is very volatile through time, which suggest that cash is being used in the daily operations. Therefore the item is classified under operating assets.

Note 13: Deferred tax

In the notes Royal Unibrew makes a distinction between the different sources of deferred tax liabilities. The notes reveal that deferred tax liabilities belong to operations as well as financing. Therefore, a distinction has been made. The table below shows the reclassification. This explains why 'deferred tax liabilities' under 'interest bearing debt' in the balance sheet is negative.

DKK 1000	2004	2005	2006	2007	2008	2009	2010	2011	2012
Financial assets	0	-3,720	-5,530	-3,806	0	0	0	0	0
Belonging to operations	164,764	146,198	133,250	131,524	179,378	171,831	170,011	166,539	144,795
Deferred tax total	164,764	142,478	127,720	127,718	179,378	171,831	170,011	166,539	144,795

Note 14: Other payables (long) and other payables (short)

There is no information of whether these liabilities are interest bearing or not. It is assumed they are not interest bearing and used in operations and therefore classified under operating activities.

Note 15: Mortgage debt & credit institutions (long and short)

These items are both interest bearing so they are classified under interest bearing debt.

Note 16: Other investments and other receivables

Royal Unibrew classifies 'other investment' and 'other receivables' as financial assets but does not give any other explanation for that categorization. As previously mentioned Royal Unibrew also classifies associates belonging to finance, but this was classified under operations in the reformulated statements.

As no other information is given, it is likely that 'other investments' and 'other receivables' are linked to associates. Based on that, these items are classified as belonging to operations.

Appendix 3.1 - Reformulations of Harboe Brewery A/S

The financial calendar of Harboe Brewery A/S is from 1/5 – 30/4

Reformulated statement of equity:

Note	Harboe Brewery A/S DKK 1000	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
	Balance, opening	486,735	619,437	677,403	685,819	696,947	664,463	730,250	753,438	789,979
1	Minority interests beginning period	456	441	422	414	242	190	191	209	215
1	Minority interest ending period	441	422	414	242	190	191	209	215	179
	Opening balance, after MI	486,279	618,996	676,981	685,405	696,705	664,273	730,059	753,229	789,764
	Transactions with shareholders									
	Purchase of treasury shares	0	0	0	0	-25,675	0	-33,338	-3,734	-5,190
	Sale of treasury shares	54,334	0	0	0	0	29,516	0	0	0
	Dividends from treasury shares	341	75	400	75	75	160	526	526	672
	Distributed dividends	-6,000	-9,000	-48,000	-9,000	-9,000	-9,000	-9,000	-9,000	-9,000
	Repayment of minority shareholders	0	0	0	-127	0	0	0	0	0
	Transactions with shareholders total	48,675	-8,925	-47,600	-9,052	-34,600	20,676	-41,812	-12,208	-13,518
	Comprehensive income:									
	Net profit/loss for the year	86,087	65,535	56,503	20,108	25,621	43,029	60,653	38,672	3,091
	Dirty surplus:									
	Foreign currency translation adjustment regarding foreign enterprises	137	1,001	-668	655	-1,153	-443	487	-1,276	1,126
	Adjustment to fair value of financial assets available for sale	309	355	181	-583	-21,599	-3,247	4,748	495	-123

Adjustment to fair value of financial assets available for sale, recirculation upon disposal	0	0	0	0	0	0	263	14,609	0
Adjustment to fair value of financial instruments entered into for hedging future cash flow	0	0	0	0	-1,004	165	838	0	0
Tax on other comprehensive income	0	0	0	0	251	5,607	-1,989	-3,751	42
2 Change of accounting policy	-2,506	-	-	-	-	-	-	-	-
Revaluation of material assets									
Dirty surplus total	-2,060	1,356	-487	72	-23,505	2,082	4,347	10,077	1,045
Closing balance	619,437	677,403	685,819	696,947	664,463	730,250	753,438	789,979	780,597
1 Change in minority interests	15	19	8	172	52	-1	-18	-6	36
Closing balance after MI	618,996	676,981	685,405	696,705	664,273	730,059	753,229	789,764	780,418

3	Opening balance after MI, adjusted	570,782	636,111	645,334	657,240	621,280	686,543	753,229	789,764
3	Closing balance after MI, adjusted	570,782	636,111	645,334	657,240	621,280	686,543	753,229	789,764

3	Opening balance before MI, adjusted	571,223	636,533	645,748	657,482	621,470	686,734	753,438	789,979
3	Closing balance before MI, adjusted	571,223	636,533	645,748	657,482	621,470	686,734	753,438	789,979

Reformulated income statement:

Note	Harboe Brewery A/S (DKK 1000)	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
4	Net revenue	1,199,340	1,160,625	1,189,235	1,137,328	1,319,439	1,283,633	1,320,654	1,410,480	1,343,647
4 & 5	Production costs	-822,354	-810,644	-841,780	-841,550	-979,575	-915,517	-923,472	1,060,713	1,057,046
	Gross profit	376,986	349,981	347,455	295,778	339,864	368,116	397,182	349,767	286,601
5	Distribution costs	-152,435	-150,109	-147,375	-150,910	-168,578	-163,766	-171,429	-179,431	-166,105
5	Administrative expenses	-30,741	-27,786	-33,733	-34,218	-38,183	-41,155	-44,659	-42,435	-38,615
5 & 6	Other operating expenses	-6,346	-6,714	-7,157	-7,045	-6,662	-7,005	-9,653	-11,044	-10,404
5 & 7	Other operating income	16,149	14,678	18,120	14,768	19,403	18,343	18,281	23,116	20,675
	EBITDA	203,613	180,050	177,310	118,373	145,844	174,533	189,722	139,973	92,152
4 & 5	Depreciation, amortizations, impairment	-76,447	-86,857	-88,860	-97,782	-109,727	-116,283	-117,121	-80,463	-82,709
	Operating income (EBIT)	127,166	93,193	88,450	20,591	36,117	58,250	72,601	59,510	9,443
8	Tax on EBIT	-43,408	-27,530	-30,053	-4,665	-10,297	-14,245	-18,346	-14,804	-2,331
	Net operating profit after tax (NOPAT)	83,758	65,663	58,397	15,926	25,820	44,005	54,255	44,706	7,112
8	Net financial expenses before tax	-3,128	-1,890	-1,658	-4,737	-5,736	-1,489	-5,422	-8,435	-5,339
8	Tax shield	1,068	558	563	1,072	1,635	364	1,370	2,098	1,318
9	Share of profit after tax, associates	0	0	0	0	0	0	-	-	-
	Group profit after tax	81,698	64,331	57,302	12,261	21,719	42,880	50,203	38,369	3,091
		81,577	62,267	57,521	12,261	21,784	42,724	50,248	38,510	2,954
2	Minority interests	15	19	8	45	52	-1	-18	-6	36
	Group profit after minority interests	81,713	64,350	57,310	12,306	21,771	42,879	50,185	38,363	3,127

Reformulated balance sheet:

Note	Harboe Brewery A/S DKK 1000	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
	Non-current operating assets									
	Goodwill	0	0	0	0	0	3,573	3,573	3,573	3,573
	Development projects	0	0	0	0	2,274	1,572	433	0	6,884
	Rights	0	0	0	5,723	5,712	5,707	5,719	5,705	5,718
	Software	0	0	0	320	1,332	4,881	7,920	6,383	21,302
	Intangible assets under construction	0	0	0	289	2,068	688	5,764	20,502	153
	Land and buildings	298,207	300,995	301,666	329,773	319,406	331,848	337,159	255,166	245,130
	Plant and machinery	422,862	408,140	360,277	401,417	405,989	447,405	456,073	445,680	474,568
	Other plant, tools and equipment	36,855	37,529	45,375	44,096	36,246	41,206	38,665	31,856	27,937
	Spare parts for own machinery	6,534	6,511	5,298	4,707	4,210	3,887	3,993	5,297	4,458
	Property, plant and eq. Under construction	32,928	18,486	122,381	13,216	35,338	33,247	36,083	64,872	5,577
10	Deferred tax assets	0	0	0	2,093	1,575	1,299	886	3,275	3,806
	Investment properties*	0	0	0	0	0	0	0	72,919	63,909
	Total non-current operating assets	797,386	771,661	834,997	801,634	814,150	875,313	896,268	915,228	863,015
3 & 20	Total non-current operating assets, adj.	737,886	730,018	805,462	779,645	804,236	861,790	938,939	915,228	863,015
	Current operating assets									
	Inventories	87,430	87,512	102,023	114,645	118,468	122,211	138,250	136,878	133,391
11	Trade receivables	204,862	190,760	218,858	237,393	267,427	304,155	301,676	277,803	287,725
12	Other receivables	2,889	1,609	19,604	10,853	34,929	3,964	10,306	20,947	11,534
13	Cash	88,044	77,556	27,360	12,310	59,864	43,774	39,913	24,140	13,780
14	Deferred income/prepayment	5,513	4,241	3,104	9,274	8,393	7,219	7,977	5,199	6,537
	Total current operating assets	388,738	361,678	370,949	384,475	489,081	481,323	498,122	464,967	452,967
20	Total current operating assets, adj.	341,069	334,586	338,444	346,259	443,509	437,190	456,925	464,967	452,967

Operating liabilities (non-interest bearing)

10	Deferred tax liabilities	47,907	48,881	51,081	37,776	39,580	33,555	37,861	52,780	52,335
14	Deferred income (short)	6,762	7,375	8,972	10,066	8,654	8,279	9,579	9,133	10,036
14	Deferred income (long)	31,081	31,155	38,275	44,335	63,627	61,088	54,832	65,283	66,868
	Trade payables	212,548	154,467	213,100	186,087	200,136	187,556	216,388	189,625	172,341
	Repurchase obligation, returnable packaging	65,363	42,933	31,489	36,298	35,637	33,350	27,958	13,928	10,278
15	Other payables	93,228	73,079	61,674	71,913	105,678	100,526	102,641	94,786	105,365
	Income tax	31,891	30,142	30,416	17,060	14,530	16,372	20,609	6,635	2,260
14	Deferred income/prepayments	0	0	0	0	0	0	0	0	263
	Total non-interest bearing debt	488,780	388,032	435,007	403,535	467,842	440,726	469,868	432,170	419,746
20	Total non-interest bearing debt, adj.	448,107	375,330	423,800	385,076	453,416	423,767	462,832	432,170	419,746
	Invested capital	697,344	745,307	770,939	782,574	835,389	915,910	924,522	948,025	896,236
	Invested capital, adjusted	630,848	689,274	720,106	740,828	794,329	875,213	933,032	948,025	896,236
	Equity belonging to group	618,996	676,981	685,405	696,705	664,273	730,059	753,229	789,764	780,418
	Equity belonging to minority interest	441	422	414	242	190	191	209	215	179
3 & 20	Total equity, adjusted	571,223	636,533	645,748	657,482	621,470	686,734	753,438	789,979	780,597
	Interest bearing debt									
16	Mortgage debt (long)	39,823	34,523	25,501	23,112	317,441	290,920	253,402	231,941	216,155
16	Mortgage debt (short)	5,224	5,410	9,061	5,559	5,682	26,377	36,656	14,844	15,671
17	Other credit institutions (long)	30,500	18,707	9,173	3,439	1,185	0	0	0	0
17	Other credit institutions (short)	10,800	11,780	29,722	60,196	135,436	154,340	169,124	103,780	69,216
18	Liabilities in respect of assets held for sale	0	0	0	0	2,987	2,987	2,979	3,209	0
19	Payables to associates	0	7,660	20,665	6,473	11,377	0	-	-	-
	Total interest bearing debt	86,347	78,080	94,122	98,779	474,108	474,624	462,161	353,774	301,042
20	Total interest bearing debt, adj.	68,065	62,429	82,569	93,008	471,432	477,443	470,671	353,774	301,042
	Interest bearing assets									
	Financial assets available for sale	2,737	2,938	3,047	2,461	288,768	283,738	285,782	190,961	180,600
	Deposits, leases	2,033	2,072	2,113	2,148	2,186	2,234	2,303	2,367	2,403

19	Investment in associates	853	488	791	3,490	4,609	0	-	-	-
18	Assets held for sale	0	0	0	0	3,242	2,992	2,992	2,400	2,400
19	Receivables from associates	2,817	4,678	3,051	5,053	4,377	0	-	-	-
	Total interest bearing assets	8,440	10,176	9,002	13,152	303,182	288,964	291,077	195,728	185,403
20	Total interest bearing assets, adj.	8,440	9,688	8,211	9,662	298,573	288,964	291,077	195,728	185,403
	Net interest bearing debt	77,907	67,904	85,120	85,627	170,926	185,660	171,084	158,046	115,639
20	Net interest bearing debt, adj	59,625	52,741	74,358	83,346	172,859	188,479	179,594	158,046	115,639
	Invested capital	697,344	745,307	770,939	782,574	835,389	915,910	924,522	948,025	896,236
	Invested capital, adjusted	630,848	689,274	720,106	740,828	794,329	875,213	933,032	948,025	896,236

Notes

As mentioned in chapter 3, Harboe is used as a benchmark in the profitability and risk analysis. Consequently, it has been necessary to reformulate the statements of Harboe as well.

Harboe divested a large business segment in 2011 that was not brewery related. This business segment, that was a foodstuff sector (FS), has been removed from the reformulated statements to make the performance of Harboe comparable. The removal is quite complicated. Therefore, it has been kept simple in this appendix. A more comprehensive description is found on attached USB STICK.

Note 1: Minority interests

The reformulated equity- and income statement have been adjusted for minority interests.

Note 2: Change of accounting policy

This change is due to the implementation of IFRS in 2005.

Note 3: Adjustment of equity from the foodstuff sector

The equity for Harboe Farm is calculated using the formula (Sørensen, 2005):

$$\text{Equity} = \text{total assets} - \text{total liabilities}$$

Calculations are provided on attached USB stick.

Note 4: Items from the foodstuff sector subtracted from the group

The table below shows items from the foodstuff sector that has been subtracted from the group. There is no further fragmentation of production costs in the annual report, so it has not been possible to separately adjust distribution costs, administrative expenses, other operating expenses and other operating income.

DKK 1000	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Revenue	252,342	200,668	193,697	233,570	225,167	241,094	-
Total production costs	227,864	180,361	181,535	221,246	211,926	225,566	-
Depreciation, amortizations and impairment	14,926	14,653	12,284	11,320	8,454	9,436	-

Note 5: Depreciation, amortization and impairment losses

Harboe is classifying expenses by function. Depreciation, amortization and impairment losses are therefore recognized in the function to which they belong. In the notes these costs are specified as shown below. In order to calculate EBITDA these costs have been reclassified in the income statement.

DKK 1000	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Production costs	80,524	90,692	91,714	96,360	107,642	106,368	100,815	61,472	60,990
Distribution costs	3,049	3,115	3,527	4,479	4,877	11,256	7,917	7,319	9,462
Administrative expenses	3,274	3,430	1,660	3,841	4,658	4,882	4,941	6,878	6,842
Other operating income	0	0	0	0	-2,966	-51	0	0	0
Other operating expenses	4,526	4,273	4,243	4,422	3,970	3,264	3,448	4,794	5,415
Total	91,373	101,510	101,144	109,102	118,181	125,719	117,121	80,463	82,709

Note 6: Other operating expenses

No further information is provided. Therefore, it has been classified as belonging to operations.

Note 7: Other operating income

The table below specifies this item. Though rental income is not part of core operations it is still considered to be part of Harboe's operations.

DKK 1000	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Government grants	6,160	7,664	10,854	9,271	14,042	13,188	12,657	7,968	7,021
Rental income	9,989	7,014	7,266	5,497	5,362	5,206	5,624	7,751	8,056
Proceeds, sale of assets	0	0	0		2,965	0	0	0	0
Other operating income	0	0	0	0	0	0	0	7,397	5,598
Total	16,149	14,678	18,120	14,768	19,404	18,394	18,281	15,719	15,077

Note 8: Tax on EBIT and net financial expenses before tax

Corporation tax belongs to operations as well as financing but the annual reports do not provide enough information to distinguish tax on operations from tax on finance. Since Harboe is a multinational with subsidiaries in countries where different tax rules apply, the effective tax rate has been used in calculating tax on EBIT.

The corporation tax in year 2007/08 is affected largely by a positive adjustment of tax from previous years. This past tax adjustment has therefore been removed as it gives a wrong indication of the performance for that year.

For the rest of the years adjustment of tax for previous years are included. These amounts are small and the effect is assessed to be minimal.

DKK 1000	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
EBT	124,038	91,303	86,792	15,872	30,381	56,761	67,180	51,075	4,104
Corporation tax	-42,461	-29,036	-29,271	-3,593	-8,597	-14,037	-16,931	-12,565	-1,150
Effective tax rate	0.342	0.318	0.337	0.226	0.283	0.247	0.252	0.246	0.280
Financial income	1,555	2,626	643	839	18,245	11,159	4,488	5,728	4,720
Financial expenses	-4,683	-4,516	-2,301	-5,576	-23,981	-12,648	-9,910	-14,163	-10,059
Net financial expenses	-3,128	-1,890	-1,658	-4,737	-5,736	-1,489	-5,422	-8,435	-5,339
Tax shield	-1,071	-601	-559	-1,072	-1,623	-368	-1,366	-2,075	-1,496
Tax on EBIT	-43,532	-29,637	-29,830	-4,665	-10,220	-14,405	-18,297	-14,640	-2,646

Note 9: Share of profit after tax, associates

Associates are companies in which Harboe usually owns 20-50 % of the voting rights. Associates of Harboe are all related to the foodstuff sector. Therefore, they have been removed from the reformulated statements.

Note 10: Deferred tax assets and tax liabilities

The notes in the annual reports do not reveal whether this item belongs to operating or financing activities. Deferred tax assets and tax liabilities usually arise from differences in accounting income and taxable income. Therefore, in most cases these items are directly related to operations. However, tax deficits may arise from financial activities like losses from disposal of securities or financial expenses that cannot be contained within positive earnings from operations (V. Petersen & Plenborg, 2012). Nonetheless, the items are classified as belonging to operations, since no information is given.

Note 11: Trade receivables

This item is not interest bearing and therefore classified under operating assets.

Note 12: Other receivables

Since these items are not interest bearing as well. Therefore, they are classified as operating assets.

Note 13: Cash

Cash can belong to finance as excess cash can be assumed to be interest bearing. But when taking a closer look, the cash position is very fluctuating through time, which suggest that cash is being used in day-to-day operations. Therefore the item is classified as belonging to operations.

Note 14: Deferred income/prepayment

This item is assumed to belong to operations.

There are two matching liabilities – deferred income (short) and deferred income (long). They are both classified belongings to operations in the reformulated balance sheet, as no information is given on these items as well.

Note 15: Other payables

According to the notes in the annual report this item consists of wages and salaries, holiday pay obligations etc., VAT and taxes payable, other costs payable and derivative financial instruments. 'Other costs payables' consists of about 50% of 'other payables'. It is not possible to identify what this item consists of. Still, it is considered to belong to operations.

Note 16: Mortgage debt

Mortgage debt (short) and mortgage debt (long) are both interest bearing so they are classified as financial liabilities.

Note 17: Other credit institutions

Other credit institutions (short) and other credit institutions (long) are debt that are both interest bearing so they are classified as financial liabilities.

Note 18: Assets held for sale and related liabilities

'Assets held for sale' is one of Harboe's residential properties. This item has been classified as belonging to financing activities, as the disposal of these assets will reduce Harboe's borrowing. The related liabilities are treated equally likely.

Note 19: Items related to associates

As previously mentioned, associates are treated as financing activities but taken out of the reformulated statements. The item has already been removed under 'total interest bearing assets, adj.' in note 20. In order not to remove it twice, it stands.

Note 20: Adjustment for the foodstuff sector

All calculations are provided on attached CD.

Appendix 3.2 - Effect of operating liability leverage

Formulas for calculating operating liability leverage:

$$ROIC = ROOA + (OLLEV \times OLSPREAD)$$

$$ROOA = \frac{(OI + \text{Implicit interest (after tax)})}{\text{operating assets}}$$

	2005	2006	2007	2008	2009	2010	2011	2012
Short term borrowing rate after tax*	2,78%	2,78%	2,78%	2,78%	2,78%	2,78%	2,78%	2,78%
Operating income	251.114	259.222	208.451	405.488	168.744	331.881	371.146	401.015
Implicit interest on operating liabilities	19.372	21.577	23.999	28.772	30.016	27.174	26.256	25.379
ROOA	9,42%	8,51%	6,46%	-9,62%	5,27%	10,97%	13,36%	14,86%
Operating leverage (OLLEV)	32,04%	30,74%	31,57%	35,92%	40,13%	42,58%	46,55%	46,67%
Operating liability leverage spread (OLSPREAD)	6,64%	5,73%	3,68%	-12,40%	2,49%	8,19%	10,58%	12,08%
Effect of operating liability leverage	2,13%	1,76%	1,16%	-4,45%	1,00%	3,49%	4,93%	5,64%
ROIC	11,55%	10,27%	7,62%	-14,07%	6,27%	14,46%	18,29%	20,50%

* The risk free rate found in chapter 7 is used as a proxy for the short term borrowing rate.

Appendix 3.3 - Trend and common-size analysis of profit margin, Royal Unibrew

Trend analysis:

Indexing (trend analysis)	2007	2008	2009	2010	2011	2012
Net revenue	100	108	98	97	88	88
Production costs	100	113	102	91	80	81
Gross profit	100	102	94	104	97	96
Sales and distribution expenses	100	109	89	93	84	83
Sales and marketing costs	100	113	96	113	101	105
Administrative expenses	100	94	90	87	76	69
Other operating income	100	41	40	42	38	52
Profit from investments in associates, before tax	100	81	92	112	51	122
Operating profit before special items	100	82	110	143	137	146
Special items income	n.a.	n.a.	100	0	0	0
Special items expenses	100	532	457	0	0	0
EBITDA	100	66	103	148	142	151
Depreciation, amortizations and profit from sale of plant	100	130	155	140	93	95
Impairment losses	n.a.	100	0	0	0	0
Impairment losses on investments and balances	n.a.	100	0	0	0	0
Operating income (EBIT)	100	-113	81	152	164	176
Tax on EBIT	100	69	78	139	140	141
Tax on profit from associates	100	81	92	112	51	122
Net operating profit after tax (NOPAT)	100	-195	81	159	178	192

Common-size analysis:

Common size analysis	2007	2008	2009	2010	2011	2012
Net revenue	100%	100%	100%	100%	100%	100%
Production costs	-52%	-54%	-54%	-48%	-47%	-47%
Gross profit	48%	46%	46%	52%	53%	53%
Sales and distribution expenses	-32%	-33%	-29%	-31%	-31%	-30%
Sales and marketing costs	-12%	-12%	-11%	-13%	-13%	-14%
Administrative expenses	-6%	-5%	-5%	-5%	-5%	-5%
Other operating income	0%	0%	0%	0%	0%	0%
Profit from investments in associates, before tax	1%	1%	1%	1%	1%	1%
Operating profit before special items	12%	9%	13%	17%	18%	19%
Special items income	0%	0%	1%	0%	0%	0%
Special items expenses	0%	-2%	-2%	0%	0%	0%
EBITDA	11%	7%	12%	17%	18%	19%
Depreciation, amortizations	-3.4%	-4.1%	-5.3%	-4.8%	-3.6%	-3.6%
Impairment losses	0%	-9%	0%	0%	0%	0%
Impairment losses on investments and balances	0%	-2%	0%	0%	0%	0%
Operating income (EBIT)	8%	-8%	6%	12%	14%	15%
Tax on EBIT	-2%	-1%	-2%	-3%	-3%	-3%
Tax on profit from associates	0%	0%	0%	0%	0%	0%
Net operating profit after tax (NOPAT)	5%	-10%	4%	9%	11%	12%

Appendix 3.4 - Trend and common-size analysis of asset turnover (ATO), Royal Unibrew

Trend analysis:

Trend analysis, based on average figures	2007	2008	2009	2010	2011	2012
Non-current operating assets						
Intangible assets						
Goodwill	100	99	76	70	65	63
Trademarks	100	99	74	66	57	55
Distribution rights	100	85	73	58	42	26
Total intangible assets	100	98	75	69	62	59
Tangible assets						
Land and buildings	100	95	91	93	83	77
Project development properties	0	100	201	202	204	172
Plant and machinery	100	114	133	131	107	98
Other fixtures and fitting, tools and equipment	100	95	92	84	65	58
Property, plant and equipment in progress	100	285	248	19	35	80
Investments in associates	100	69	43	54	93	92
Other investments	100	1023	1941	1977	1053	89
Non-current assets held for sale	100	0	0	0	0	0
Total tangible assets	100	115	127	119	111	101
Total non-current operating assets	100	111	113	106	98	90
Current operating assets						
Raw materials and consumables	100	109	80	56	41	44
Work in progress	100	123	112	90	80	87
Finished goods and purchased finished goods	100	132	123	74	68	63
Trade receivables	100	110	93	80	77	73
Other receivables	100	175	133	47	39	25
Receivables from associates (short)	100	87	88	121	154	139
Receivables from associates (long)	100	92	41	0	0	0
Prepayments	100	238	267	101	47	36
Corporation tax	0	0	0	0	0	100
Other receivables 2	100	70	74	57	33	44
Cash at bank and in hand	100	47	35	25	11	56
Total current operating assets	100	105	89	62	53	60

Operating liabilities (non-interest bearing)						
Trade payables	100	126	136	122	119	119
Other payables (long)	0	0	0	100	284	256
Other payables (short)	100	172	195	157	155	153
Repurchase obligation, returnable packaging	100	91	72	63	53	42
Deferred tax liabilities	100	117	133	129	127	118
Corporation tax	100	47	5	13	7	0
VAT, excise duties, etc.	100	92	92	94	77	77
Total non-interest bearing debt	100	120	125	113	109	106
Invested capital	100	105	98	84	74	72

Common size analysis:

Days on hand of invested capital. Based on average figures

	2007	2008	2009	2010	2011	2012
Non-current operating assets						
Intangible assets						
Goodwill	38	35	30	28	28	27
Trademarks	21	19	16	14	14	13
Distribution rights	1	1	1	1	0	0
Total intangible assets	60	55	46	43	42	41
Tangible assets						
Land and buildings	70	62	65	67	66	61
Project development properties	0	17	38	39	44	37
Plant and machinery	42	44	56	56	51	47
Other fixtures and fitting, tools and equipment	22	20	21	19	17	15
Property, plant and equipment in progress	6	15	14	1	2	5
Investments in associates	21	14	9	12	23	22
Other investments	0	3	5	6	3	0
Non-current assets held for sale	1	0	0	0	0	0
Total tangible assets	163	175	211	201	205	187
Total non-current operating assets	224	230	257	243	248	227

Current operating assets						
Raw materials and consumables	13	13	10	7	6	6
Work in progress	2	2	2	2	2	2
Finished goods and purchased finished goods	15	18	19	11	12	11
Trade receivables	48	49	45	39	42	40
Other receivables	5	8	6	2	2	1
Receivables from associates (short)	0	0	0	0	0	0
Receivables from associates (long)	2	2	1	0	0	0
Prepayments	4	8	10	4	2	1
Corporation tax	0	0	0	0	0	0
Other receivables 2	2	1	1	1	1	1
Cash at bank and in hand	25	11	9	6	3	16
Total current operating assets	115	112	104	73	69	78
Operating liabilities (non-interest bearing)						
Trade payables	-33	-38	-45	-41	-44	-44
Other payables (long)	0	0	0	-1	-2	-2
Other payables (short)	-14	-22	-27	-22	-24	-24
Repurchase obligation, returnable packaging	-9	-7	-6	-6	-5	-4
Deferred tax liabilities	-12	-14	-17	-17	-18	-17
Corporation tax	-5	-2	0	-1	0	0
VAT, excise duties, etc.	-8	-7	-8	-8	-7	-7
Total non-interest bearing debt	-81	-90	-103	-95	-100	-97
Invested capital	257	252	257	222	216	208

Appendix 3.5 - Break down of PM and ATO, Harboe

Break down of PM:

Trend analysis	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Net revenue	100	116	113	116	124	118
Production costs	100	116	109	110	126	126
Gross profit	100	115	124	134	118	97
Distribution costs	100	112	109	114	119	110
Administrative expenses	100	112	120	131	124	113
Other operating expenses	100	95	99	137	157	148
Other operating income	100	131	124	124	157	140
EBITDA	100	123	147	160	118	78
Depreciation, amortizations, impairment	100	112	119	120	82	85
Operating income (EBIT)	100	175	283	353	289	46
Tax on EBIT	100	221	305	393	317	50
Net operating profit after tax (NOPAT)	100	162	276	341	281	45
Common size analysis	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Net revenue	100%	100%	100%	100%	100%	100%
Production costs	-74%	-74%	-71%	-70%	-75%	-79%
Gross profit	26%	26%	29%	30%	25%	21%
Distribution costs	-13%	-13%	-13%	-13%	-13%	-12%
Administrative expenses	-3%	-3%	-3%	-3%	-3%	-3%
Other operating expenses	-1%	-1%	-1%	-1%	-1%	-1%
Other operating income	1%	1%	1%	1%	2%	2%
EBITDA	10%	11%	14%	14%	10%	7%
Depreciation, amortizations, impairment	-9%	-8%	-9%	-9%	-6%	-6%
Operating income (EBIT)	2%	3%	5%	5%	4%	1%
Tax on EBIT	0%	-1%	-1%	-1%	-1%	0%
Net operating profit after tax (NOPAT)	1%	2%	3%	4%	3%	1%

Break down of ATO:

Trend analysis	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Non-current operating assets						
Goodwill			100	200	200	200
Development projects		100	169	88	19	303
Rights	100	200	200	200	200	200
Software	100	516	1942	4000	4470	8652
Intangible assets under construction	100	816	954	2233	9089	7147
Land and buildings	100	103	103	106	94	79
Plant and machinery	100	106	112	119	118	121
Other plant, tools and equipment	100	90	87	89	79	67
Spare parts for own machinery	100	89	81	79	93	98
Property, plant and eq. Under construction	100	36	51	51	74	52
Deferred tax assets	100	175	137	104	199	338
Investment properties					100	188
Total non-current operating assets	100	99	103	108	111	109
Total non-current operating assets, adj.	100	100	105	114	117	112
Current operating assets						
Inventories	100	108	111	120	127	125
Trade receivables	100	111	125	133	127	124
Other receivables	100	150	128	47	103	107
Cash	100	182	261	211	161	96
Deferred income/prepayment	100	143	126	123	106	95
Total current operating assets	100	116	128	130	127	122
Total current operating assets, adj.	100	115	129	131	135	134
Operating liabilities (non-interest bearing)						
Deferred tax liabilities	100	87	82	80	102	118
Deferred income (short)	100	98	89	94	98	101
Deferred income (long)	100	131	151	140	145	160
Trade payables	100	97	97	101	102	91
Repurchase obligation, returnable packaging	100	106	102	90	62	36
Other payables	100	133	154	152	148	150
Income tax	100	67	65	78	57	19
Deferred income/prepayments						
Total non-interest bearing debt	100	104	108	109	108	102
Total non-interest bearing debt, adj.	100	104	108	110	111	105
Invested capital	100	104	113	118	121	119
Invested capital, adjusted	100	105	114	124	129	126
Days on hand of invested capital	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13

Non-current operating assets

Goodwill	0	0	1	1	1	1
Development projects	0	0	1	0	0	1
Rights	1	2	2	2	1	2
Software	0	0	1	2	2	4
intangible assets under construction	0	0	0	1	3	3
Land and buildings	101	90	93	92	77	68
Plant and machinery	122	112	121	125	117	125
Other plant, tools and equipment	14	11	11	11	9	8
Spare parts for own machinery	2	1	1	1	1	1
Property, plant and eq. Under construction	22	7	10	10	13	10
Deferred tax assets	0	1	0	0	1	1
Investment properties*	0	0	0	0	9	19
Total non-current operating assets	263	223	240	245	234	242
Total non-current operating assets, adj.	254	219	237	249	240	242

Current operating assets

Inventories	35	32	34	36	36	37
Trade receivables	73	70	81	84	75	77
Other receivables	5	6	6	2	4	4
Cash	6	10	15	12	8	5
Deferred income/prepayment	2	2	2	2	2	2
Total current operating assets	121	121	138	135	125	125
Total current operating assets, adj.	110	109	125	124	119	125

Operating liabilities (non-interest bearing)

Deferred tax liabilities	14	11	10	10	12	14
Deferred income (short)	3	3	2	2	2	3
Deferred income (long)	13	15	18	16	16	18
Trade payables	64	53	55	56	53	49
Repurchase obligation, returnable packaging	11	10	10	8	5	3
Other payables	21	25	29	28	26	27
Income tax	8	4	4	5	4	1
Deferred income/prepayments	0	0	0	0	0	0
Total non-interest bearing debt	135	121	129	126	117	116
Total non-interest bearing debt, adj.	130	116	125	123	116	116

Invested capital	249	224	249	254	242	250
Invested capital, adjusted	234	212	237	250	243	250

Appendix 3.6 - Liquidity risk ratios, Royal Unibrew

Formulas for short-term and long-term liquidity cycles used in the financial analysis are shown below.

Short-term liquidity risk ratios:

$$\text{Liquidity cycle} = \frac{365}{\frac{\text{net revenue}}{\text{net working capital}}}$$

Net working capital is defined as: net working capital = trade receivables + receivables from associates (short) + receivables from associates (long) + other receivables – trade payables – other payables (long) – other payables (short)

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

$$\text{CFO to short term debt ratio} = \frac{\text{cash flow from operations}}{\text{current liabilities}}$$

Long-term liquidity ratios:

$$\text{Financial leverage, book value} = \frac{\text{total liabilities}}{\text{book value of equity}}$$

$$\text{Financial leverage, market value} = \frac{\text{total liabilities}}{\text{market value of equity}}$$

$$\text{Interest coverage ratio} = \frac{\text{operating profit (EBIT)}}{\text{net financial expenses}}$$

$$\text{Interest coverage ratio (cash)} = \frac{\text{cash flow from operations}}{\text{net financial expenses}}$$

$$\text{Cash flows from operations to debt ratio} = \frac{\text{cash flow from operations}}{\text{total liabilities}}$$

Appendix 3.7 - Reformulated cash flow statement, Royal Unibrew

DKK 1000	2005	2006	2007	2008	2009	2010	2011	2012
Cash from operations:								
NOPAT	251,114	259,222	208,451	-405,488	168,744	331,881	371,146	401,015
Charges not affecting cash:								
Depr., amort. And impairment	185,018	203,631	130,924	624,924	202,460	183,093	121,906	124,185
Dirty surplus	-7,416	9,342	3,393	38,124	-29,869	33,764	-48,662	47,400
Change in working capital:								
Change in inventory	-5,760	-23,051	-74,973	-63,080	176,549	50,980	13,997	-7,195
Change in current assets	-29,266	-64,629	-140,172	-124,615	338,161	34,552	50,589	1,094
Change in current liabilities	50,372	108,255	65,957	277,463	-187,979	-16,448	-49,625	-13,465
Cash flow from operations	444,062	492,770	193,580	347,328	668,066	617,822	459,351	553,034
Cash from investment activities:								
Change in intangible assets	-129,384	-2,094	-267,248	288,390	6,392	77,812	11,048	20,471
Change in non-current assets	-248,177	-54,731	-95,762	-438,258	42,742	214,387	72,260	282,856
Depr., amort. And impairment	-185,018	-203,631	-130,924	-624,924	-202,460	-183,093	-121,906	-124,185
FCFF	118,517	232,314	300,354	427,464	514,740	726,928	420,753	732,176
CF from financing activities:								
NFE after tax	-30,476	-28,883	-53,217	-77,677	-116,293	-54,108	-20,291	-28,211
Change in NIBD	530,258	119,204	330,368	537,287	-794,061	-701,771	-157,553	-55,169
FCFE	381,265	322,635	-23,203	32,146	395,614	-28,951	242,909	648,796
Transactions with shareholders	-161,967	-241,310	-187,285	-99,594	397,704	-26,132	-261,527	-393,794
Cash surplus	219,298	81,325	210,488	-67,448	2,090	-55,083	-18,618	255,002
Change in cash in balance sheet	219,298	81,325	-210,488	-67,448	2,090	-55,083	-18,618	255,002

Appendix 3.8 - Liquidity risk ratios of Harboe

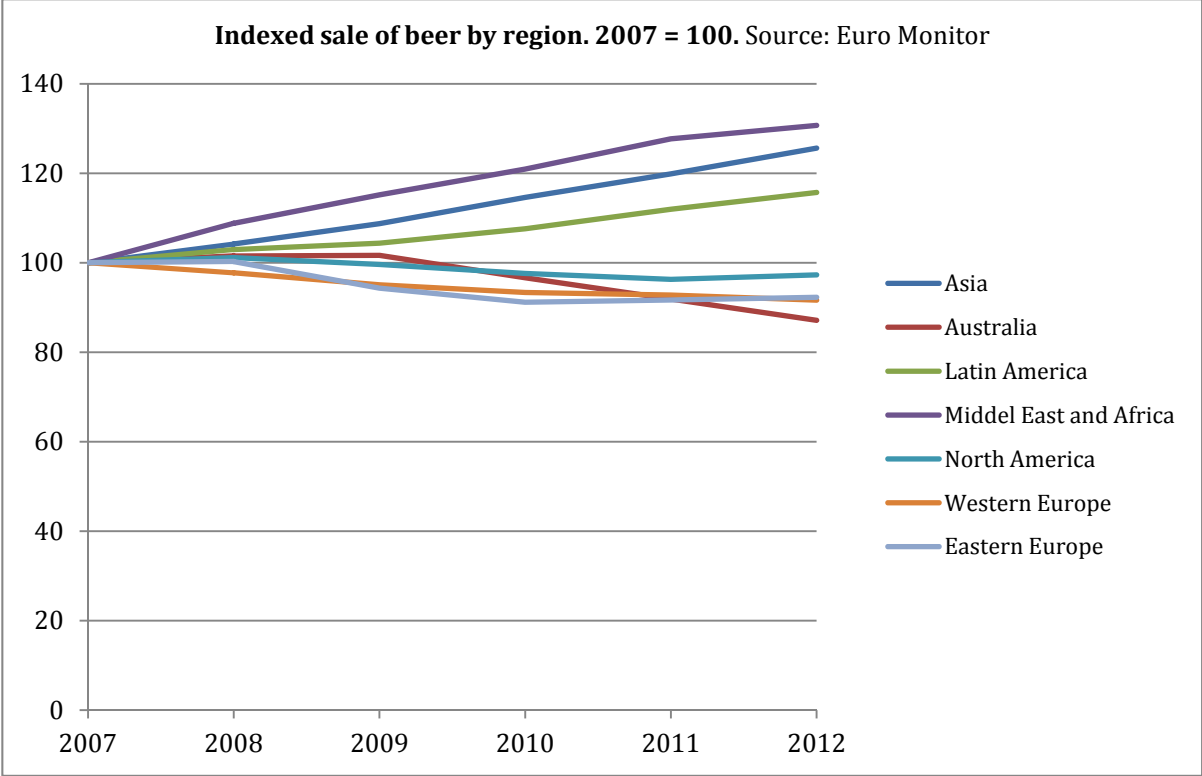
Short-term liquidity ratios of Harboe:

	2008/09	2009/10	2010/11	2011/12	2012/13
Liquidity cycle	32	40	36	39	42
Current ratio	0,98	1,03	0,99	1,08	1,08
CFO to short term debt ratio	25%	29%	39%	27%	19%

Long-term liquidity ratios of Harboe:

	2008/09	2009/10	2010/11	2011/12	2012/13
Solvency ratio, book value	0,41	0,44	0,45	0,50	0,52
Interest coverage ratio	6,3	39,1	13,4	7,1	1,8
Interest coverage ratio (cash)	20,8	85,2	34,0	13,6	15,0
CFO to debt ratio	0,13	0,14	0,20	0,15	0,11

Appendix 4.0 - Indexed sale of beer by region



Appendix 6.0 - Budget of Royal Unibrew

In chapter 6, six financial value drivers are forecasted. This enables a valuation of the stock by using the DCF and EVA model. However, return on equity is used to evaluate the pro forma budget and forwarded P/E multiples are used in the peer group analysis in chapter 7. Hence, net earnings must be calculated. Therefore, two additional value drivers need to be forecasted. These are:

NIBD: as a percentage of invested capital

Net borrowing rate before tax

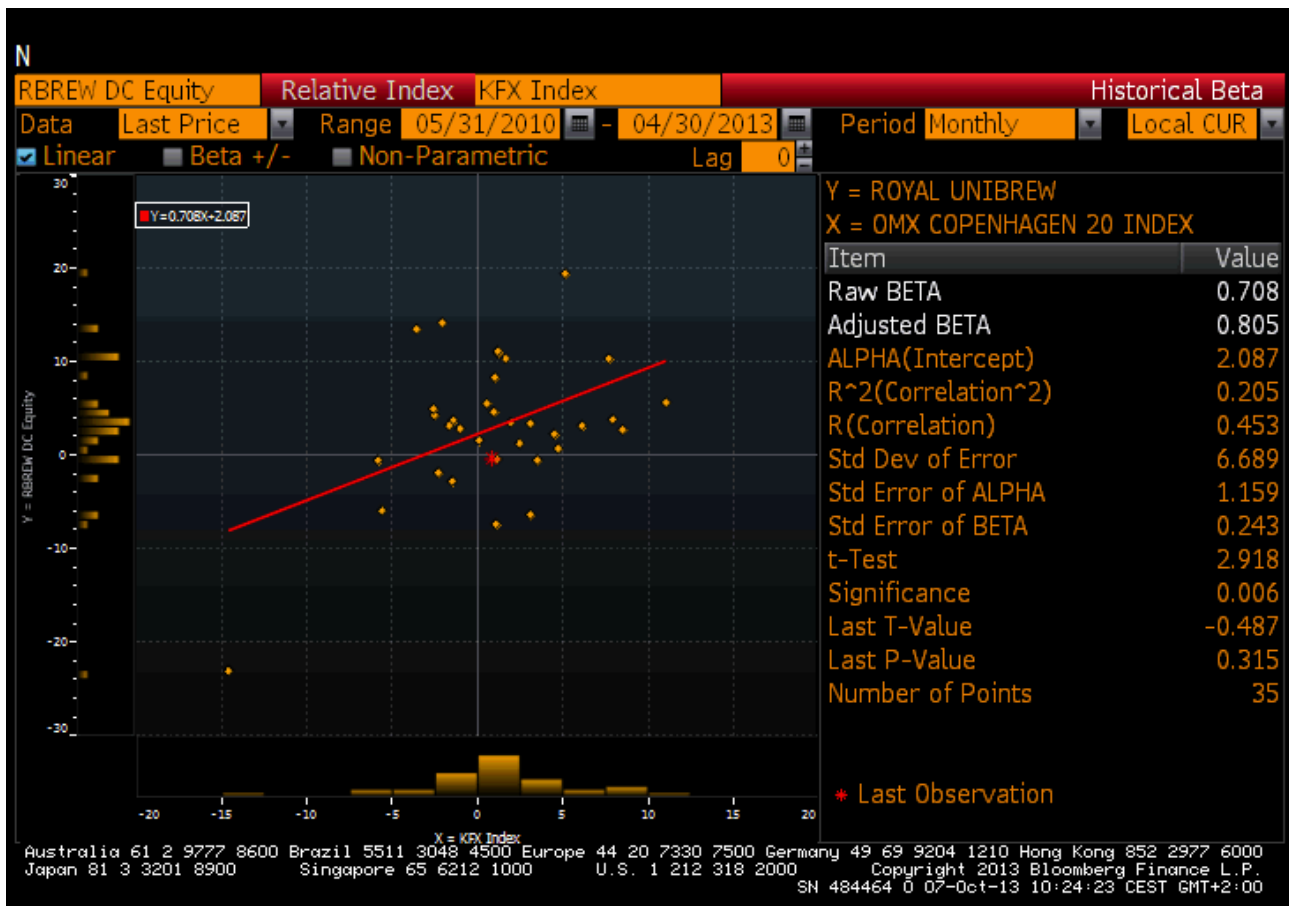
NIBD/invested capital is expected to remain at the current 30.6%. The net borrowing rate before tax is calculated in chapter 7. It is expected to remain at 5.78%. The whole budget is seen below.

All calculations are found on the USB stick.

	Historical period			Explicit forecast period										Terminal
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
net revenue growth	3.0%	0.0%	2.0%	4.0%	4.0%	3.0%	2.0%	1.5%	1.0%	0.5%	0.5%	0.0%	-1.0%	-1.0%
EBITDA/net revenue	17.0%	17.9%	19.1%	20.0%	21.0%	21.5%	21.5%	21.5%	21.5%	21.5%	21.5%	20.0%	19.1%	19.1%
Depreciation and amortizations / non-current assets	7.7%	5.3%	6.3%	6.3%	6.3%	6.3%	6.3%	6.3%	6.3%	6.3%	6.3%	6.3%	6.3%	6.3%
Effective tax rate	26.0%	26.0%	26.0%	26.0%	25.7%	25.3%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Non-current assets / net revenue	62.7%	66.6%	57.8%	57.8%	57.8%	57.8%	57.8%	57.8%	57.8%	57.8%	57.8%	57.8%	57.8%	57.8%
Net current assets / net revenue	-7.5%	-9.2%	-1.2%	-1.2%	-1.2%	0.0%	0.0%	3.0%	7.0%	9.0%	15.0%	20.0%	20.0%	20.0%
NIBD/invested capital	38.7%	33.0%	30.6%	30.6%	30.6%	30.6%	30.6%	30.6%	30.6%	30.6%	30.6%	30.6%	30.6%	30.6%
Net borrowing rate before tax	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%

Appendix 7.0 - Calculation of beta

Beta values of Royal Unibrew have been calculated through the database Bloomberg. The estimate based on three years is shown below. The same procedure applies for all other estimates of beta in the thesis.



Appendix 7.1 - Characteristics of breweries in peer group analysis

The following lists characteristics of breweries used in the peer group analysis. Royal Unibrew is listed first to compare. Information is collected from the database Bloomberg.

Royal Unibrew

Headquartered: Denmark

Revenues in thousand: DKK 3,430,008

Main products: beer, soft drinks and malt drinks

Main markets covered: Western Europe and Eastern Europe

Anadolu Efes

Headquartered: Turkey

Revenues in thousand: DKK 17,453,804

Main products: beer

Main markets covered: Turkey, Russia and Eastern Europe

C&C Group

Headquartered: Ireland and U.K.

Revenues in thousand: DKK 3,556,720

Main products: beer and ciders.

Main markets covered: Western Europe

Molson Coors

Headquartered: U.S.

Revenues in thousand: DKK 29,209,257

Main products: beer

Main markets covered: U.S., Canada and Europe

Olvi Oyj

Headquartered: Finland

Revenues in thousand: DKK 2,587,926

Main products: beer

Main markets covered: Western Europe and Eastern Europe

Ottakringer Getraenke AG

Headquartered: Austria

Revenues in thousand: DKK 1,647,472

Main products: beer

Main markets covered: Western Europe and Eastern Europe

Harboe Brewery A/S

Headquartered: Denmark

Revenues in thousand: DKK 1,343,650

Main products: beer and soft drinks

Main markets covered: Western Europe