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Fundamental Analysis and Valuation of P/F Bakkafrost

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Abstract

This master thesis conducts strategic analysis and a fundamental valuation of the company P/F Bakkafrost in order to find the company`s intrinsic value. Bakkafrost is the largest aquaculture company in the Faroe Islands, harvesting and selling first class salmons. The company is noted on the Oslo Stock Exchange with a share price of 605 NOK and a market capitalization of 35,8 billion NOK (as of 31.05.20).

I use the enterprise discounted cash flow model and a relative valuation analysis, weighting them 80% and 20% respectively and arrive at a price target of 674 NOK, an upside of 11% to the current share price. The relative valuation gave a price target of 481 NOK, a downside of 20% to the current share price, and the DCF model gave a price target of target of 723 NOK, an upside of 19% to the current share price.

In conclusion, based on my valuation analysis, Bakkafrost appear to be a solid company that historically have delivered operational performance way above peers and there is still is a buying opportunity given today’s stock price.

Preface

This master thesis concludes my master's in economics and is the finish line of five years of studying in Oslo Business school, a department of the Oslo Metropolitan University. The master thesis is mandatory and counts for 30 points in the curriculum.

I choose to write a fundamental valuation of Bakkafrost in my master thesis because of my high interests in the stock market and my excitement when analysing companies. I also joined the CFA Research challenge during winter of 2020, where I analysed and valued the salmon company Bakkafrost. This made my choice regarding the subject in my master thesis easy.

My work with the master thesis was in some periods difficult and exhaustive, but at the same time exciting and interesting where I learned much more than I thought I would. An entire analysis of a company is dependent of more depth and variety in the analysis than I maybe first thought. This has given me more clarity and experience when valuating new companies in the future.

I want to specially say thanks to my supervisor Danielle Zhang for all her help, it had been difficult to finish with the same quality without her. I also want to say thanks to my wife and family for the support and patience where most of my time have been used on this master thesis in the last months.

Tormod Frogner Borge Oslo, 15.06.20

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Chapter 1 – Introduction

Since the inception of the first salmon farm in Norway in 1970 (The Norwegian Seafood Council 2020), the salmon farming industry have become a large and important part of the Norwegian economy. The salmon companies in Oslo Stock Exchange have had a tremendous growth over the last decade, with the Oslo Seafood Index up 759% (Datastream 2020) and the salmon prices doubled (Fishpool 2020). Today, the salmon companies are contributing to more than 10% of the value in the Oslo Benchmark index (Oslo Børs 2020).

In 2010, the salmon farming company P/F Bakkafrost from Faroe Islands had a successful IPO (Initial Public Offering) on the Oslo Stock Exchange. It is one of the largest private companies in the Faroe Islands, and is a well-managed company with a high historic growth and excellent operational performance. The company acquired the Scottish Salmon Company in October 2019, their first acquisition of a farming company outside of the Faroe Islands, which allows the company to grow larger and be more geographically diversified. Today, only the salmon companies MOWI and Salmar have a larger market value than P/F Bakkafrost of the salmon companies on the Oslo Stock Exchange. P/F Bakkafrost have high growth ambitions for the next few years and is perhaps one of the most interesting salmon companies on the Oslo Stock Exchange today. This can also be seen by the high earnings multiple the company have today compared to peers. The market value of all the salmon companies has also increased a lot the last years, and the earnings multiples has never been higher in the industry. It is interesting to investigate if this seemingly high valuations are justified from the outlook and future cash flow in the salmon industry and for P/F Bakkafrost.

1.1 Purpose and thesis question

The purpose of this master thesis is to conduct a valuation of the company P/F Bakkafrost noted on the Oslo Stock Exchange, to estimate the equity value of the company as of 31.05.20. After this date, the information gathering ends. I have chosen this date because I want my master thesis to be so relevant as possible in time, with a lot of changes happening the last months due to COVID-19. I will then compare my results with the market value of Bakkafrost as of 31.05.20 to conclude with a buy or sell recommendation.

The research question for my master thesis will therefore be:

«What is the equity value of P/F Bakkafrost as of 31.05.20? »

This thesis aims to find out the fair value of P/F Bakkafrost (from now: Bakkafrost) by applying different valuation methods. To conduct my analysis will I be relying on the company`s historical financial statements and today`s macro- and microeconomic factors and outlook. I will then use a discounted cash flow valuation and a relative valuation to find the fair value of the company.

1.2 Thesis structure

My thesis structure is partly based on the five steps described by Stephen H. Penman (2013, 85), where the structure of the financial analysis is further broken down into six steps described by Koller, Goedhart & Wessels (2015, 165-319). To have a good foundation to start the valuation of Bakkafrost it is a prerequisite to first know the company and the sector it operates in (Penman 2013, 85). Chapter 2 will therefore present an overview of Bakkafrost and the aquaculture industry. To get the reader to fully understand my master thesis, chapter 3 presents the theories of the existing valuation methods and chapter 4 presents the methods I have used for collecting and analysing data. I have analysed information in chapter 5, 6 and 7, both strategic (chapter 5) and financial (chapter 6 & 7), to further understand the reasons for the historic growth of the company together with the possibilities for the future. In chapter 8 I have conducted forecasts based on the previous chapters, and in chapter 9 and 10 I converted the forecasts into a valuation in addition to do a relative valuation. In the end have I finished with risk factors and a conclusion of the valuation together with a trading recommendation.

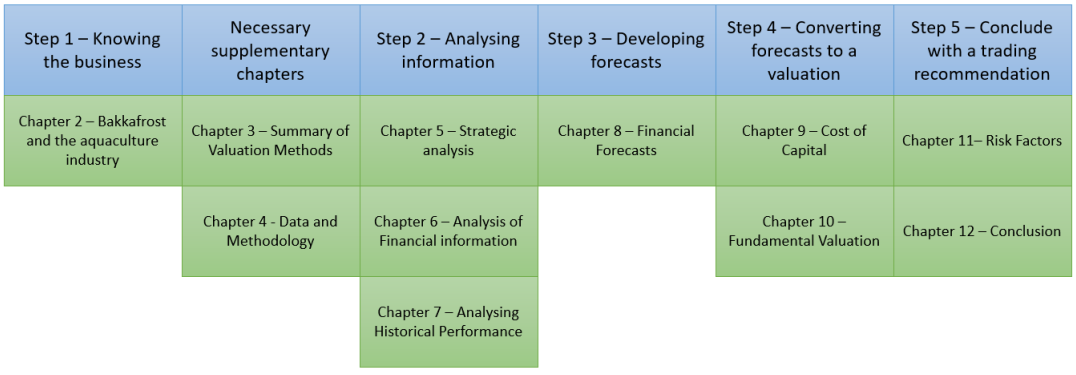

Figure 1: Illustrates the structure of my master thesis. Source: Influenced by Penman (2013); Own creation.

1.3 Delimitations

I wrote this master thesis from an investor`s point of view with the goal to find out if the Bakkafrost share is worth buying for an investor or acquirer. This paper is therefore not as relevant for other stakeholders towards the company like customers, suppliers, creditors or organizations. The accounting reports I have used to analyse the company is their annual report from 2010 to 2019. Bakkafrost went first public in 2010, and reports before 2010 is therefore scarce with information. I am therefore not finding it relevant to start my analyse period before this. This is 10 years of reports and should be enough data to get a good picture of their historical performance. All the data I have used in my master thesis is publicly available data based on financial reports, sector and science reports, news articles, web pages and stock market news, in addition to acknowledged textbooks and research papers. The valuation is influenced with my own assumptions and expectations, since forecasting is based on a highly uncertain future.

Chapter 2 – Bakkafrost and the Aquaculture Industry

In this chapter I present Bakkafrost and the aquaculture industry. To be able to do a fundamental analysis of Bakkafrost is it essential to first gain knowledge of the company and the industry it operates in.

2.1 Overview of Bakkafrost

Here I present the company`s background and history, vision and mission, in addition to owner structure, management and stock information, before going over to their operations with their business plan, value chain, sales and distribution and different segments. In the end will I presented their investment plan and strategy and for the future together with information about the acquisition of the Scottish Salmon Company in 2019.

2.1.1 Background and history

Bakkafrost is an aquaculture company harvesting and selling Atlantic salmons (from now: salmon), operating in the Faroe Islands and in Scotland. They sell premium salmons achieving premium prices, and they have one of the longest vertically value chains in the industry. The company is noted on the Oslo Stock Exchange and harvested 65 thousand tonnes salmons in 2019.

The company was established in 1968 by the two brothers Hans and Róland Jacobsen, bulding their first processing plant later the same year. Their third brother Martin Jacobsen joined the company in 1971. They started with catching herring and selling marinated and spiced herring filets to the UK. In 1986 started they the first production of farmed salmon and smolt. In 1992 were the group restructured by Regin Jacobsen, Hans Jacobsen and Martin Jacobsen, and the group established the company P/F Alistøðin á Bakka, with farming licenses for salmon in two fjords as well as slaughtering capacity in Glyvrar. They build their first value added product (VAP) factory in 1995, although the investment and capacity were limited in the start. From 1999 to 2001 were the company increasing their daily VAP capacity up to 22 tonnes gutted weight (TGW) from two separate investments.

The growth started to really happen fast for the company in 2006, growing their yearly farming capacity of salmon from 3 000 TGW to 18 000 TGW through several mergers and acquisitions. With this gained the Bakkafrost group access to six new fish farming fjords, in addition to two new hatcheries for the production of smolt. Bakkafrost invested also a lot in their VAP capacity, increasing their daily VAP capacity up to 55 TGW.

Bakkafrost were merging with the company Vestlax in 2010 and they became the largest farming company in the Faroe Island with 55% of the salmon harvest in the country. Later that year the company got listed on the Oslo Stock Exchange, where they have experienced high growth and a successful stock price development. In 2011 bought they the company P/F Havsbrún that were producing fishmeal, fish oil and fish feed in the Faroe Islands, effectively increasing their value chain. In 2019 did they buy their first farming company operating outside of the Faroe Islands, the Scottish Salmon company (SSC), a premium salmon producer with a harvest of 33,8 thousand TGW in 2019. The harvest capacity of Bakkafrost is today therefore above 100 thousand TGW in total (P/F Bakkafrost 2020b; P/F Bakkafrost 2020a, 42).

2.1.2 Stock information and stock price development

Bakkafrost were noted on the Oslo Stock Exchange the 26th of March 2010, with a stock price of 31 NOK. With 48 858 thousand outstanding shares at the time gave this a market capitalization of roughly 1,5 billion NOK. Their stock`s journey on the Oslo Stock Exchange have been very successful, with a total stock price return of 1 842% up to 602 kroner as of 23.05.20. With 59 858 outstanding shares today is the market capitalization at around 35 billion NOK. With that have they strongly outperformed both Oslo Benchmark Index (OSEBX) and Oslo Seafood Index (OSLSFX), as you can see in Figure 2. In addition, Bakkafrost have been giving out dividends north of 2,6 billion DKK since they got noted on the Oslo Stock Exchange (P/F Bakkafrost 2020c).

The shares of Bakkafrost is also heavily traded, with an average daily transaction turnover in 2019 of approximately 68 million NOK (Datastream 2020).

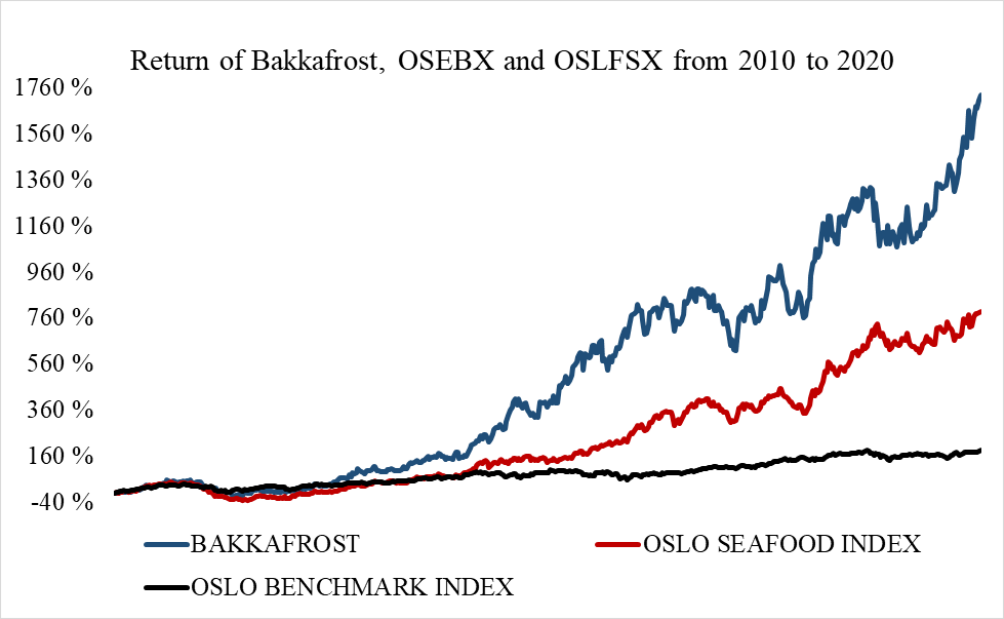

Figure 2: Illustrates the stock price development of Bakkafrost from 2010 to end of 2019, compared with the Oslo Benchmark Index and Oslo Seafood Index. Source: Datastream (2020).

2.1.3 Vision, mission and company values

Bakkafrost`s vision is:

to become a world-class company in the salmon industry

Bakkafrost`s mission is:

"to produce healthy world-class salmon to meet the world's growing demand for sustainably and responsibly produced protein and essential fatty acids"

Bakkafrost`s core values are:

"to be responsible, respectful, persistent, efficient and ambitious"

The company's priority since their inception in 1968 have been to run a healthy, attractive and cost-conscious salmon farming company.

To succeed with their vision, the company have also seven financial and non-financial strategic objectives:

"development & growth", "efficiency & creating value", "food safety & top quality", "sustainability", "biological security" and an "attractive company culture"

The company is extremely focused on sustainability in everything they do, and that`s why they in 2017 started to publish a yearly sustainability report together with the annual report (P/F Bakkafrost 2020a, 16).

2.1.4 Management and board of directors

The management of Bakkafrost is consisting of Regin Jacobsen as the CEO, Høgni Dahl Jakobsen as the CFO and Odd Eliassen as the CEO in their newly acquired Scottish segment, in addition to be the managing director of Havsbrún. Regin Jacobsen have been the CEO of the company since 1989, and is the son of one of the founders, Hans Jacobsen. Regin Jacobsen is also the second largest investor with a 7,8% ownership in the company. Odd Eliassen owns 183 870 shares, while Høgni Dahl Jakobsen owns only 140 shares in the company (P/F Bakkafrost 2020a, 77)

The Bakkafrost board of directors consist of six members, where Rúni M. Hansen is the chairman of the board. Hansen has previously worked for Statoil (Equinor) as head of their Arctic unit and their worldwide exploration team. He owns 10 761 shares in the company. For the other five in the board is it only Annika Fredsberg that owns a substantial number of shares, totalling to 15 810 shares. Five of the board members are considered to being independent, while the only woman in the board, Annika Fredsberg, is the sales manager in Bakkafrost and is not considered to be independent (P/F Bakkafrost 2020a, 75-76).

2.1.5 Owner structure

The largest investor is the Norwegian National Insurance Fund (Folketrygdfondet) with 8,71% of the shares in the company. In total owns the 20 largest investors 55,4 % of the company, where it is mostly funds and foreign banks on the list. Of private persons is CEO Regin Jacobsen the second largest investor with 7,80% of the shares and his mother Oddvør Jacobsen the third largest investor with 7,77% of the shares. The management and board of directors are in total holding 8,16% of the shares in the company (P/F Bakkafrost 2020a, 125).

The rest of the shares are dispersed among smaller shareholders, and the free float of the company is 83% of the shares (Datastream 2020).

2.1.6 Business model and value chain

Their business model is built around their goal to produce superior quality salmon. From their natural resources and skilled workforce in the Faroe Island and in Scotland, together with what is probably the most vertically integrated salmon farming company in the world, are they delivering healthier and more sustainable salmons, with more omega 3 and with higher quality than their peers. This again creates satisfied customers and employees, return to shareholder`s and tax contributions to the Faroe Island.

The main explanation for Bakkafrost`s success gives the company to their long vertically value chain, together with their natural resources in the Faroe Island with perfect marine conditions for the farming of Atlantic salmon.

Bakkafrost controls the entire value chain in producing a salmon, from roe to the finished product and sales. The company are claiming to probably have the longest vertically integrated value chain in the industry, enabling Bakkafrost to have control over the quality of the salmon and the costs of production. Cost is especially important to control when it comes to fish feed, the highest cost when producing a salmon.

Their value chain consists of fishmeal, fish oil, fish feed, broodstock, hatcheries, farming, farming service vessels, harvesting, processing, packaging to sales and marketing, in addition to have built a biogas plant, making energy of waste to power the local communities in the Faroe Island. The biogas plant will begin operations in the start of 2020 and is their latest addition to their value chain, showing their ambitions in producing sustainable salmons (P/F Bakkafrost 2020a, 18-24).

2.1.7 Segments

Bakkafrost consist of four segments, two farming segments divided after geographical location, one segment producing fish meal, fish oil and fish feed (FOF segment) in the Faroe Islands and one VAP segment in the Faroe Islands.

Farming in the Faroe Islands is the biggest segment of the company, with revenue of 3,1 billion DKK in 2019. 2,5 billion of this were external revenue and the rest were sold internally to the VAP segment. The harvest was 57 200 TGW in 2019 (P/F Bakkafrost 2020a, 40). This segment is later called farming segment (FO).

Farming in Scotland is the second biggest segment, but for 2019 were only 437 MDKK recognised as revenue since the acquisition of the Scottish Salmon Company first was consolidated at 8th of October 2019. The harvest recognised to Bakkafrost were 7 925 TGW, but in total had Scottish Salmon Company a harvest of 33 799 TGW in 2019 (P/F Bakkafrost 2020a, 42). This segment is later called farming segment (SCT).

The VAP segment is producing skin- and boneless portion of salmons in the Faroe Islands, with the main market in Europe. The VAP segment is selling on long-term contracts of up to 12 months, therefore limiting the impact of the fluctuations in the salmon price and thus slightly reduce the volatility in the company`s net earnings. That also means that the VAP segment often have negative margins when it is an increase in the salmon price, and positive margins when it is a decrease in the salmon price, due to the internally bought salmons at market price. The VAP segment had a revenue in 2019 of 964 MDKK, and a volume of 16 690 TGW, corresponding to 29% of the harvest in the Faroe Islands. This was up from 2018 were only 18% of the harvest volume was sold as VAP. In the long term is the goal to have 40% to 50% of the harvest volumes sold on VAP contracts (P/F Bakkafrost 2020a, 44).

The FOF segment is producing fishmeal, fish oil and fish feed. The main production is the fish feed, which they mostly sell internally to the farming segments (79% internal sale). The fishmeal and fish oil are partly used internally, and partly sold externally (P/F Bakkafrost 2020a, 46).

The fish feed is extremely important for Bakkafrost`s ambition in delivering sustainable and healthier salmons. They use more marine content than they peers, that is more like the salmon’s diet in the wild. Bakkafrost claims that this leads to higher production efficiency and

the lowest feed-to-food ratio in the industry, in addition to more omega 3 content and healthier salmons (P/F Bakkafrost 2020a, 21; P/F Bakkafrost 2019a, 7-10)

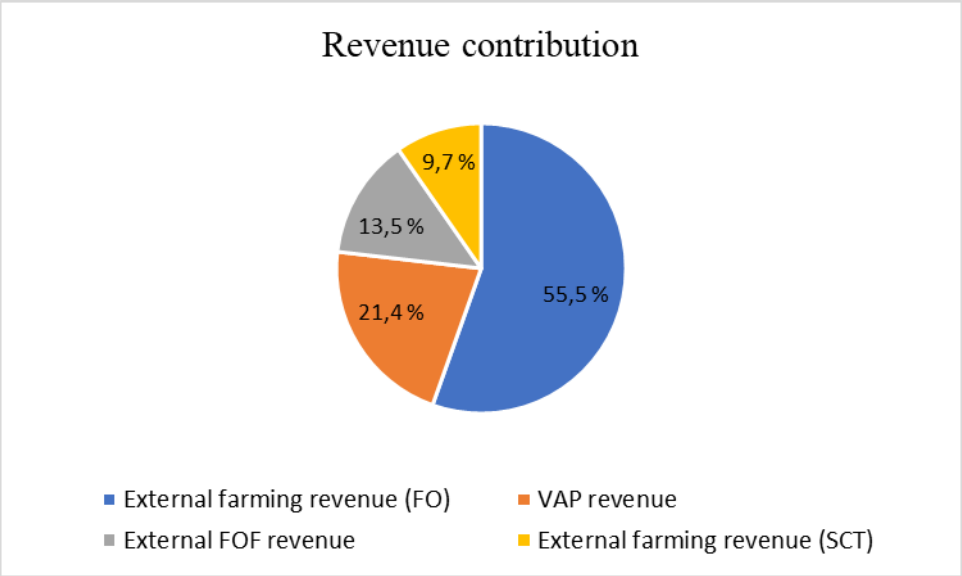

Figure 3: Illustrates the revenue contribution from the company`s segments in 2019. Source: P/F Bakkafrost (2020a).

2.1.8 Sales and distribution

Bakkafrost's main markets are in Europe, USA, China and Russia. The company`s strategy is to use a sales mix between different geographical markets and product segments. The whole salmon is sold in the spot market, while the VAP products are sold on long-term contracts.

With the capability to serve in many countries and continents (37 countries in 2019), together with the different product segments, are the company believing they reduce the risk of shocks in specific markets, thus reducing the volatility in revenue and profitability (P/F Bakkafrost 2020a, 30).

The company have a sales office in the Faroe Islands for their global sale, a sales office in UK for their UK sales, and a sales office in New Jersey for their US sales. Within 50 hours can they reach main airports in China and US, while it takes 20 hours to ship to UK and 36 hours to ship to Denmark (P/F Bakkafrost 2020a, 30; P/F Bakkafrost 2019b, 28).

As you can see in Figure 4, the western Europe was their largest sales contributor in 2019, but normally is it a more equal contribution between their main markets, as seen in 2017 and 2018. In late 2018 to early 2019 was the Russian market closed for Bakkafrost, explaining the

reduced volumes to East Europe in 2019 were Russia is the main market. The company had to find other markets to sell their salmons, which showed the importance of diversified sales channels and markets.

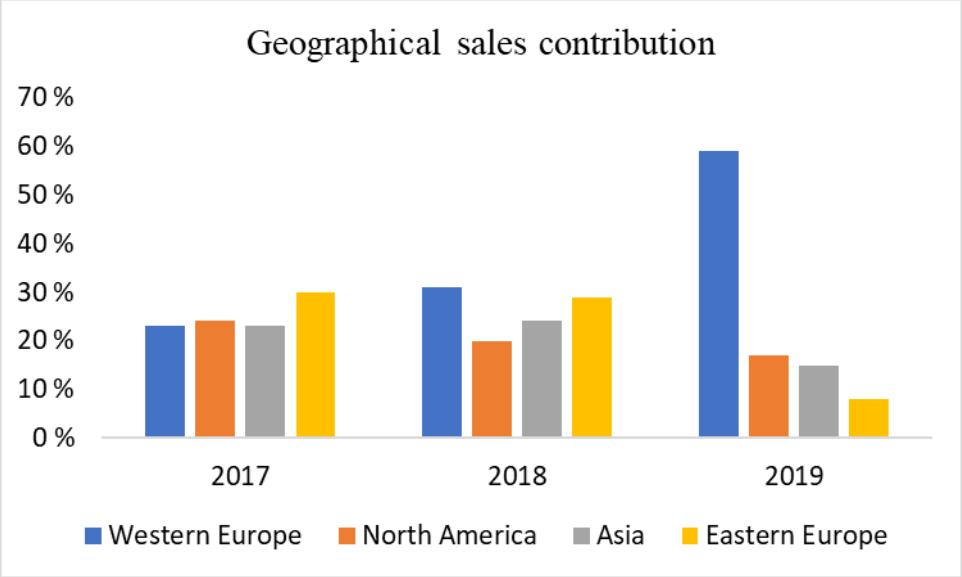

Figure 4: Illustrates the company`s geographical sales contribution in percent from 2017 to 2019. Source: P/F Bakkafrost (2019d, 2020a).

2.1.9 Five-year investment plan and future strategy

Bakkafrost is currently following a five-year investment plan in the Faroe Island, spanning from 2018 to 2022 and totaling to 3 billion DKK in investments. The first two year were the investments amounting to 1,2 billion DKK (excluding the acquisition of SCC), thus leaving 1,8 billion DKK in investments left for 2020 to 2022. This is including the company`s maintenance capex, estimated yearly at around 100-150 MDKK (P/F Bakkafrost 2020a, 33).

The investments are divided on all their different parts in their value chain, but the investment focus for 2018-2022 is mostly on higher smolt capacity and on higher transportation capacity of salmons. Most of the investments is therefore going to be used in building and expanding their hatcheries and to their farming division with one new live fish carrier. The aim of the investments is to increase the harvest capacity of salmons up to 100 thousand TGW in 2022, from today`s 60 thousand TGW. The goal is also to minimize biological risk, increase efficiency and create sustainable organic growth. The main strategy to achieve these goals is with their larger smolt strategy, which is explained further down in this chapter (P/F Bakkafrost 2020a, 33; P/F Bakkafrost 2019a, 24-30, 78-48).

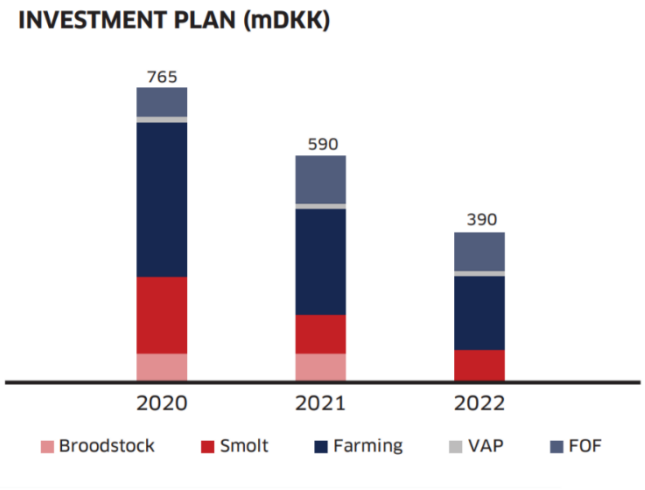

Figure 5: Illustrates the investment plan for the Faroe Islands from 2020 to 2022. Source: Picture are taken from the 2019 annual report for Bakkafrost, page 9 (P/F Bakkafrost 2020a, 9)

With the increase in harvest capacity have the company estimated the harvest production to increase from 57,2 thousand TGW in 2019 to around 76 thousand TGW in 2023, a 33% increase or CAGR at 9,9% (P/F Bakkafrost 2019a, 22). Since the salmon cycle takes almost three years from roe to harvest, Bakkafrost can at the earliest reach their harvest target of 100 thousand TGW of salmon around 2025 to 2026.

With the acquisition of SSC will the investments have to increase, and they are estimating investments of 10 DKK per kilo harvested salmon in Scotland, or around 350 MDKK from 2020 to 2024. The rule of thumb of investments in the Faroe Islands have historically also been 10 DKK per kilo salmon, were the average (2010-2019) investments have been 9,6 DKK per kilo harvested salmon.

The company`s main strategy for further growth going forward is to increase the size of the smolt from today’s 200 gram to 500 grams. This has several positive impacts on production efficacy and biological risk. With larger smolt will the production time at sea decrease from 18 to 12 months, dramatically increasing the efficient use of the fjords. With the fjords in the Faroe Islands starting to reach full capacity, this is one of the only ways the company can grow in the same pace they historically have been doing. This will also reduce the biological risk, with shorter time being exposed in the fjords for algae or sea lice (P/F Bakkafrost 2020a, 33; P/F Bakkafrost 2019a, 18-19).

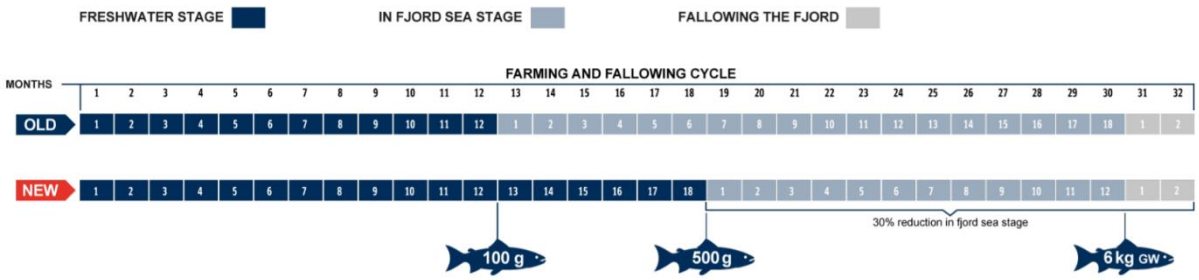

Figure 6: Illustrates the implications from the large smolt strategy, decreasing the time spent in the fjords. Source: Picture are taken from the 2019 capital markets day presentation for Bakkafrost, page 18 (P/F Bakkafrost 2019a, 18).

Their larger smolt strategy is going to be achieved with an increased smolt capacity, by building a new hatchery in Suðuroy that is going to be operational by 2023, and with increased capacity in Norðtoftir and Glyvradalur from 2022 to 2023. They have also a new hatchery in Strond that started operations in 2018, and this will be fully operational by the end of 2020. Together will this increase the smolt capacity from 12 million smolt at 220 gram in 2019, up to around 16 million smolt at 500 gram in 2022 (P/F Bakkafrost 2020a, 23; P/F Bakkafrost 2019a, 52).

The next step for organic growth in the Faroe Island after 2026, where the increased capacity from this investment cycle should be fully exploited, is probably to go offshore. With the fjords closing into maximum capacity utilization, it is difficult to increase the capacity further without getting out offshore. Bakkafrost is currently researching the possibility of going offshore in the last stage in the production cycle for the salmon, reducing the time spent in the fjords even more. This will probably take some time to achieve, as it is significant challenges concerning waves and current, safety and transportation (P/F Bakkafrost 2019a, 30, 69-73).

2.1.10 The acquisition of the Scottish Salmon Company

The company bought the Scottish Salmon Company (SCC) in the end of 2019, their first farming acquisition outside of the Faroe Islands. SSC is a salmon farming producer operating solely in Scotland, divided on 60 sites along the West Coast and the Hebridean Islands. Their salmon harvest was 33,8 thousand TGW in 2019, and their annual production capacity is 50 thousand TGW (P/F Bakkafrost 2020a, 141). This will give a dramatic increase in the

salmon production for the Bakkafrost group, which had a harvest of 57,2 thousand TGW in the Faroe Islands in 2019.

The main goal of the acquisition is to bring new growth and development opportunities to the group. This will also reduce the risk of only operate in one geographical location, by diversify to other geographical areas. The SSC is at the same time located relatively near to the Faroe Islands and share many similarities with Bakkafrost in terms of operations. SSC is positioned in the premium salmon marked and is achieving higher prices than the spot market price. Bakkafrost wants to be a differentiated global leader in the premium salmon segment, and with this acquisition have they dual exposure to both the Faroe Island and Scottish premium salmon.

By acquiring SSC, Bakkafrost also believe they can improve the operations and materially increase the profitability there over a five-year horizon. They will do this with the realization of synergies, transfer of best practices from the Faroe Island and with heavy investments. The company are looking at Scotland as an attractive farming region which can be used much more efficiently, adapting their own successful operation methods over to the SSC. They are preparing a similar investment program as their own, increasing the investments in SSC from 120 MDKK (avg. 2017-2019) to around 350 MDKK.

The synergies are expected in three key areas, feed and procurement, sales cooperation and SG&A and overhead. The largest synergy is maybe the fish feed. Since Bakkafrost is having their own feed, with a higher marine content compared to the industry feed, they claim that this will achieve a higher biological performance and a higher nutritional value to the final product. The use of own feed from the Faroe Island will also result in fixed cost efficiency at the companies feed facilities with internal sales to SSC. The sale of own fish feed to SSC will first be possible to achieve completely by 2022, due to some contracts that must be fulfilled first. With the Scottish farming segment being self-supplied with fish feed from the Faroe Islands, the company is expecting to achieve a synergy at 2,6 NOK per kilo salmon harvested in Scotland.

The company will also achieve some synergy from reducing cost at SG&A and overhead with a leaner head office in Scotland, achieved partially with the delisting of the SSC on the Oslo Stock Exchange. The Bakkafrost group also believes the potential for transfer of best practices from the Faroe Islands to Scotland. This include implementation of better farming

procedures for improved costs, a gradual consolidation of farming sites and the mitigation of biological threats through delousing expertise. The result that is expected is larger fish, improving the achieved salmon price performance and an increased profitability. One implementation they will try to do is the successful "one Fjord, one operator" they have in the Faroe Island. This will reduce the biological risk for SSC, because they get more control in the farming operations in the fjords.

The last synergy is sales cooperation, with both companies coordinating their sales distribution going forward. With both the companies producing a premium salmon and obtaining a higher salmon price, Bakkafrost believe they can get a more efficient sales department, taking advantages of their relative sales strength around in the global markets (P/F Bakkafrost 2020a, 141; P/F Bakkafrost 2019c).

2.2 Aquaculture industry and Atlantic salmon industry

This chapter will introduce the aquaculture industry in general, and the Atlantic salmon industry in specific. I will first present an overview of the aquaculture industry before I present the Atlantic salmon industry with the production cycle and the cost structure in the industry.

2.2.1 Aquaculture industry

The aquaculture industry is the farming of fish and other organisms in fresh- or saltwater under controlled conditions, therefore it differs from the commercial fishing capturing wild catch. The farming can be anything from salmons to shrimps, oysters and algae, to mention a few.

There has been a substantially increasing supply of total fish and fish per capita the last decades, where fish has been the fastest growing sector of animal-based food producing sectors. From 1961, the global consumption per capita of seafood doubled, and both seafood and meat are getting a more and more important part of our diet globally. As of today`s protein sources, seafood contributes to around 6% of consumption, going up from 4% of in 1961. (FAO, 2020). The majority of the growth in seafood supply have come from

aquaculture, while wild catch has been stagnating since the middle of 1980 (see Figure 7 below). The aquaculture now contributes to 54% of the seafood supply, compared to 31% in 2000 and 10% in 1980 (FAO Fisheries & Aquaculture Department 2020).

The World Bank predicted in their report *"Fish to 2030"* (2013) that aquaculture will continue to increase their share of total fish consumption, and they estimate that 63% of human consumption of fish will come from this sector in 2030. Both technology in feeding and breeding has contributed to the growth of aquaculture, that has been growing at an annual rate of 5,6% since 2000 in contrast to wild catch at 0,2% (FAO Fisheries & Aquaculture Department 2020).

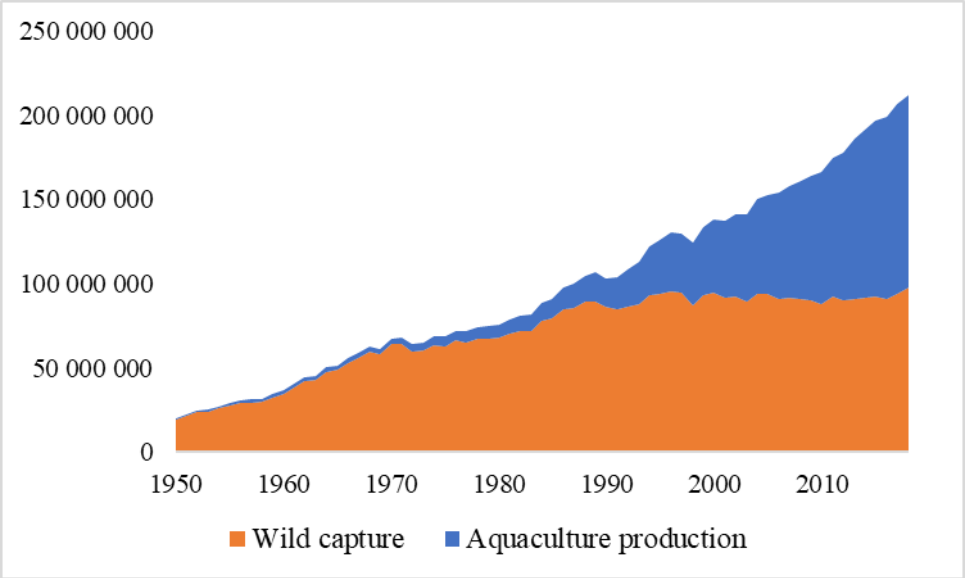

Figure 7: Illustrates the seafood production from wild capture and aquaculture from 1950 to 2018. Source: FAO Fisheries & Aquaculture Department (2020).

2.2.2 Atlantic salmon industry

The salmon farming industry is young, with the first documented salmon farm built on the Island Hitra in Norway in 1970. From then the farming of salmon has become one of Norway's most important industries, generating 33 700 jobs, selling to 140 countries and providing 14 million meals per day (The Norwegian Seafood Council 2020).

Norway is the largest producer of salmon with over half the production, while Canada, Chile, UK and the Faroe Island together with Norway contributes with over 98% of the total production (Iversen et al. 2020).

The Atlantic salmon is the largest species in the salmonids group, with a total consumption of farmed Atlantic salmon in 2018 at 2,2 million tonnes gutted weight (TGW). If we include all salmonids both farmed and wild will this number go up to 3,2 million TGW (Mowi 2019, 11). Almost all the commercially available Atlantic salmon is farmed, and it has been an increase in production of Atlantic salmon of over 800% from 1990 to today (Iversen et al. 2020), or a CAGR of 7,8%, while the growth from 2009 to 2018 has been 6% CAGR (Mowi 2019, 26). In fact, the Atlantic salmon is one of the most successful aquaculture species, with a growth higher than the aquaculture in general (Kobayashi et al. 2015). Still the global supply of salmonids is only 4,4% of the global seafood supply.

Farmed salmon was first dominating the supply of salmonids in 1999 and has since then continued to grow fast. The supply of wild catch on the other hand has almost stand still and has the last ten years been in a supply range between 0,7 and 1 million TGW, now contributing to around 1/3 in the supply of salmonids (Mowi 2019, 16).

2.2.3 Production cycle

The production cycle of a farmed salmon takes almost three years from roe to finished product. The production cycle starts on land, with fertilized eggs from broodstock (mature individuals used for breeding purposes) that is placed in a small freshwater incubator for 60 days until it hatches into a salmon fry. The first four to six weeks get the fry its nutrition from a sack on the stomach, before it is removed to a larger freshwater tank for feeding. After 10 to 16 months, the fish undergoes a lot of transformation since it has hatched and is now ready to live in saltwater. This process is called a smoltification process, while the small fish is called smolt, normally weighing between 60 to 100 grams. The fish will now live in fish farms in the fjords for 14 to 22 months where they are fed to reach a weight of 4 to 6 kilo, before it is harvested and sold to the markets around the world. After around three years, the fishes are ready to be eaten by customers (Sjømat Norge 2020).

2.2.4 Cost structure

Fish feed is the most important input factor in salmon farming, with 47% of the total cost in producing salmons in 2018 for Norwegian companies (see Figure 8; Iversen et al. 2020). The

second highest cost (except other) is smolt with 11% of the total cost, with harvesting/packaging and labour cost right behind with 10% and 9% of the total cost. Depreciation is 7% of the total cost (Iversen et. al, 2020).

The feed cost is therefore the most important input factor to control for the companies. Feed is consisting of 70% vegetable ingredients from plants like soy, corn, rapeseed, sunflower and wheat, and 30% of marine ingredients like fishmeal and fish oil. In addition is the feed containing vitamins, minerals and amino acids (Sjømat Norge 2018).

In later years, other costs have increased more than the feed costs due to biological problems, therefore is the feed cost contribution of total costs decreasing (Aponte & Tveterås 2019; Iversen et al. 2020). In 2003 was the feed cost contributing to 52% of the total cost in producing salmons for Norwegian companies, compared to 47% in 2018 (Iversen et. al. 2020).

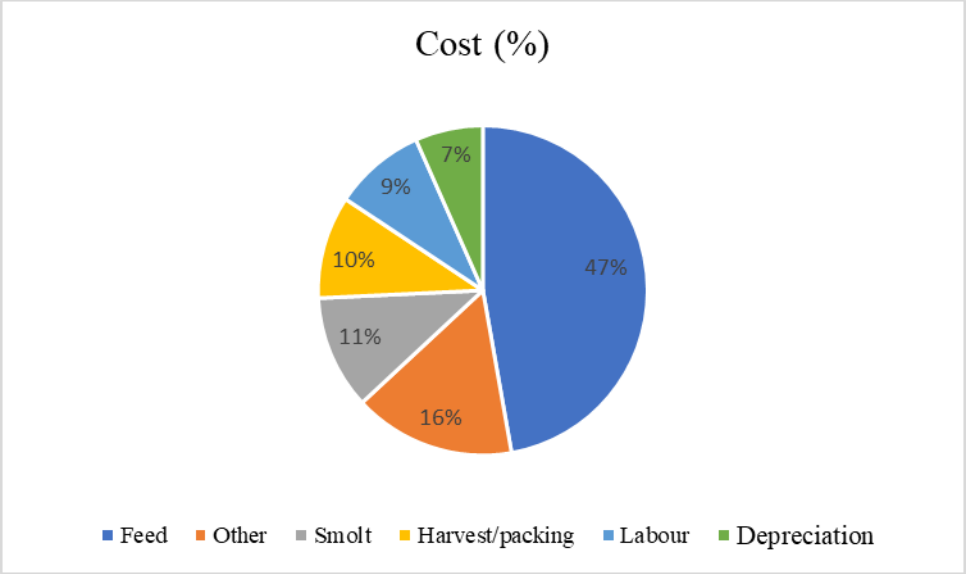

Figure 8: Illustrates the cost contribution in producing salmons for Norwegian companies in 2018. Source: Iversen et. al. (2020).

Chapter 3 – Summary of Valuation Methods

This chapter presents the theory and literature behind the different valuation methods. There is a large variety of valuation models, all with the goal to estimate the value of an asset or a company. They can be both simple and very advanced, but most of them share some common elements, and the different methods can be sorted in three different approaches to valuation: discounted cash flow valuation, relative valuation, and contingent claim valuation (Damodaran 2012, 11).

3.1 Discounted cash flow valuation

The discounted cash flow (DCF) valuation is the foundation for all the other valuation approaches and is built on the present value rule that says that the value of an asset or a company is the present value of the expected future cash flows it produce (Damodaran 2012, 11).

The general formula looks like this:

$$Value = \sum_{t=1}^{t=n} \frac{CF_t}{(1+r)^t}$$

Where:

n = Life of asset

CF_t = Cash flow in period t

r = Discount rate

t = periods (usually in years)

Where the cash flow can be the free cash flow to the firm for a company, dividends for investors, coupons for bonds or after-tax cash flow for a project. From here, I will use the theory based on valuation of a company.

In a DCF valuation, we are trying to estimate the intrinsic value of a company based on fundamentals. Intrinsic value is defined by Damodaran (2012, 12) as "*... the value that would be attached to the firm by an unbiased analyst, who not only estimates the expected cash flows for the firm correctly, given the information available at the time, but also attaches the right discount rate to value these cash flows*". For a company is the expected free cash flow under enormous uncertainty, and the expected free cash flow should therefore have a discount rate that is reflecting this uncertainty. Under the hypothesis of efficient markets should the calculation of the intrinsic value result in the same value as the company is worth today (Malkiel & Fama, 1970). But this hypothesis is being criticized by theories of behavioural finance arguing that the hypothesis is working as a model for an ideal world but cannot be used as a description of the actual market (Shiller, 2003). Shiller (2013) argue that anomalies and high volatility in the markets, like the dot-com bubble in 2000 can be better understood with evidence from behavioural finance.

I will now briefly explain some of the different discounted cash flow methods under.

3.1.1 Discounted cash flow to the firm

The discounted cash flow to the firm values the entire business, which include both equity holders, debt holders and other non-equity investors. This is therefore also called the enterprise DCF model. The cash flow used in the model is the cash flow after operating expenses, tax and investment needs, but before any payments to the debt holders. This is called the free cash flow and is discounted with the weighted average cost of capital (WACC) which includes all the investor capital, to find the enterprise value. In the end is debt and other non-equity claims subtracted to reach the equity value (Damodaran 2012, 12-15).

3.1.2 Discounted cash flow to equity

The discounted cash flow to equity values the business for equity holders and is not including debt holders or other non-equity investors. The cash flow used is the same as the cash flow to the firm but subtracted the payments to debt holders. The discount rate used is therefore the discount rate for equity. If done correctly should this yield the same results as the equity value estimated from the discounted cash flow to the firm (Damodaran 2012, 14).

The drawback with the equity DCF model is that it is easier to do errors when mixing together operational performance and capital structure (Koller et al. 2015, 136).

3.1.3 Dividend discount model

The dividend discount model is a special version of the equity DCF model, where the value of equity is the present value of expected future dividends to investors (Damodaran 2012, 13). This is instead of cash flow as in the equity DCF model, and is preferable to use in financial companies because of the regulatory framework deciding how the financial companies are capitalized, and the difficulties with estimating debt and cost of debt in addition to the reinvestment back to the company (Damodaran, 2013).

3.1.4 Adjusted present value

In enterprise DCF are we using WACC to discount the cash flows before payments to debtholders. Ergo is the discount rate capturing the effects from debt while the cash flow does not include any tax benefits. In the adjusted present value model, the effects on value from debt like expected tax benefit of debt and expected bankruptcy costs are separated from the value of the business. We start with valuing the company as if it is fully funded by equity, then we add the present value of tax benefits and subtract the expected bankruptcy costs. We will then have the business value of the company and estimated correct should this lead to the same value as using the enterprise DCF model (Damodaran 2012, 15-16).

3.1.5 Excess cash flow model

The excess cash flow model also called residual cash flow, is discounting the present value only of the future excess return. The excess return is the cash flow that is earned in excess of the required return on the company and only this is considered value creation.

First are we calculate the excess return:

$$Excess\ return = Cash\ flow\ earned - cost\ of\ capital\ \times capital\ invested$$

Then we add the present value of the excess return to the value of the invested capital:

$$Value\ of\ Business = \ Present\ value\ of\ excess\ return + invested\ capital$$

The positive side of the model is that it highlights where the company create value, even though we also here get the same answer as the DCF to equity or to the firm (Koller et al. 2015, 150).

3.2 Relative valuation

In relative valuation is the company valued in relation to the value of similar companies in the same industry, normally called peers. To find the average pricing of peers, we calculate how much the companies are valued as a multiple of a relevant variable like operating profit, earnings, free cash flows or book value (Koller et. al. 2015, 163). Common multiples to use are then price-to-earnings, price-to-book, EV to EBITDA and EV to EBIT. The average pricing in multiples is then used as a basis to find the valuation of the company in focus.

The discounted cash flow models try to find the intrinsic value of the company, relative valuation on the other hand is considering the market to correctly price the entire industry but that it makes errors when it comes to the pricing of specific companies. When we are using relative valuation is this helping us to find these potential errors and let the market correct the errors over time (Damodaran 2012, 18).

Relative valuation does not reveal market errors in the entire industry, this can be categorized as some of their weaknesses. The dot-com boom and bust in the start of the 21`th century is a good example where all the companies were compared with each other while the pricing of most of the companies in the industry were astronomical compared to their revenues and profit.

But relative valuation can be a good way to check if the DCF calculations seems reasonable. Is it a large difference between the DCF valuation and the relative valuation should it be checked if the company have different future expectations than peers, or if the market has another view on the entire industry than you (Koller et. al. 2015. 163).

3.3 Contingent claim valuation

Contingent claim valuation is an option-based type of valuation, where the contingent claim can be defined as a claim that only will pay off under certain contingencies (Damodaran 2012, 23). The company will then be valued in the same way as an option and is mostly used where the company or parts of the company have option-like characteristics. This can in example be research that may or may not lead to profit, or reserves of oil that is extracted only if the oil price is high enough. Even though the contingent claim valuation can teach valuable lessons in the pricing of a company is today´s implementation limited in valuating companies (Koller et al. 2015, 164).

Chapter 4 – Data and Methodology

This chapter presents the methods I have used in my master thesis. How the data is collected, which valuation method I have used and the structure of the financial analysis. I also describe the inclusion and exclusion criteria for the comparable companies.

4.1 Data collection

The historical numbers and the strategy of Bakkafrost and SSC were mostly collected from the annual reports and internet homepage from the respecting companies. I have also used data from the software products of Thomson Reuters Eikon (Datastream 2020), mostly for the collection of data from the comparable companies and when collecting historical data for the different indexes used for comparing purposes and when estimating Beta. To find research papers, I used Google scholar and the resources provided to me by the library in Oslo Metropolitan University. Additionally, I have used well known and acknowledged webpages to gain insight in macro trends in the world like webpages own by UN and the World Bank.

For gaining insight in valuation techniques and how to structure my financial analysis and valuation of Bakkafrost, have I mostly used the book *Valuation* from Koller et al. (2015), while additional insight is gained from the book *Investment Valuation* from Damodaran (2012).

4.2 Method of valuation used and the structure of the financial analysis

I have used the enterprise DCF method as my main valuation method when analysing and valuating Bakkafrost. This is the most common way to valuate a company, and I avoid the chance of implementation errors easily occurring in the DCF to equity method because of the mixing of operating performance and capital structure in the cash flow (Koller et al. 2015, 136). I have also applied relative valuation to help me with my valuation of Bakkafrost. Relative valuation will only count for 20% of my valuation of Bakkafrost, while the enterprise DCF valuation will count for 80%. I have used the relative valuation both to investigate how peers are priced in comparison to Bakkafrost, and to further broaden my analysis if the market has another view on the market´s outlook than me.

The structure in my financial analysis and forecasting of Bakkafrost is mainly done in six steps, where I have followed the recommendation from Koller et al. (2015).

1. Reorganizing the financial statements to better gain insight from an investors point of view.
2. Analysing the historical performance, where revenue growth and ROIC is the most essential part.
3. Perform financial forecasting of the explicit forecast period, based on the analysing of historical performance and strategy. The explicit forecast period will include a detailed forecast period of 7 years and a simplified forecasting period of 8 years, totalling to 15 years of explicit forecast period.
4. Estimating the cost of capital, one for the explicit forecast period and one for the continuing value.
5. Estimating the continuing value using the key driver formula presented in Koller et al. (2015, 145).
6. Estimating the enterprise value and enterprise value per share.

4.3 Inclusion and exclusion criteria for comparable companies

To use relative valuation, I must compare Bakkafrost to companies with similar characteristics. This can be in terms of operation, market size, geographical area and so forth. It is important to find companies that can be compared on an apple to apple basis. Some of the inclusion or exclusion criteria have also been used for the purpose of having enough information about the company to be able to compare it with Bakkafrost.

The following inclusion criteria is used:

- Harvest of salmon is the company´s main activity
- Company is listed in Oslo Stock Exchange
- Above 1 000 MNOK in market capitalization

The following exclusion criteria is used:

- The company cannot be an investment company having majority or minority stakes in other salmon companies.
- Inadequate financial information

To screen for companies, I used Thomson Reuters Eikon (Datastream 2020) and the following companies were included as comparable companies:

Table 1: Comparable companies. Outstanding shares in numbers of millions, Share price in NOK, and market capitalization and revenue in 2019 in Million NOK. Share price and market capitalization as of 31.05.20. Source: Datastream (2020).

Company	Ticker	Outstanding shares	Share price	Market cap.	Revenue 2019
MOWI	MOWI	517,1	183,05	94 657,2	42 136
Salmar	SALM	112,9	437,20	49 369,9	12 238
Lerøy	LSG	595,5	54,54	32 477,3	20 427
Grieg Seafood	GSF	112,2	99,40	11 156,0	8 273

I will use the companies in Table 1 to compare their historical performance with Bakkafrost in my financial analysis. In the relative valuation, I further added some exclusion criteria to better achieve a relative valuation where the companies compared is more alike regarding their operational performance. This is further explained in Chapter 10.2, where the relative valuation is computed.

Chapter 5 – Strategic Analysis

To forecast the company`s future cash flow it is essential to analyse the strategic positioning of the industry in general and the company in specific. It is important to first look outward on the external factors before focusing inward on the internal factors. The external analysis is factors influencing the entire industry and is about the environment that the industry interacts with. An internal analysis on the other hand is the focus on evaluating the specific company and all the aspects of the organization, normally the resources and capabilities the company possess. The strategy chapter is therefore starting with the external analysis and an analysis of the supply and demand outlook in the salmon industry, before doing a Porter`s five forces analysis to investigate the outlook of the competitive intensity in the industry. Then I looked internally with a VRIO analysis investigating the resources in Bakkafrost, to evaluate whether the company have a competitive advantage in the industry. In the end, I did a brief SWOT analysis to summarize the external and internal strategy analysis into strength, weaknesses, opportunities and threats.

5.1 External analysis

This section investigates the external factors shaping the salmon industry, to gain knowledge of the outlook in the industry and of factors influencing the profitability. I first investigated the outlook in supply and demand of salmon before I did a Porter`s five forces analysis.

5.1.1 Global supply outlook

The supply of farmed Atlantic salmon mainly comes from Norway, Chile, United Kingdom, the Faroe Islands and North America, wherein Norway is the largest producer with around half the production (Iversen et al, 2020). The Atlantic salmon can only live in certain latitude bands in the Northern and Southern Hemisphere that has the right temperature, in addition to the right amount of current. To protect the salmon from the strongest currents must the farming sites normally be placed in a fjord or be protected by archipelagos. This results in few coastlines suitable for salmon farming, limiting the competition in the production of the Atlantic salmon (Mowi 2019, 27). The production of Atlantic salmon has increased a lot from the early 1990s until today. In later years the production has increased with a 6% CAGR from

2009 to 2018. The production is expected to have a diminishing growth going forward, with a CAGR of 4% from 2019 to 2022, due to the industry reaching a production level where the biological boundaries are being pushed (Mowi 2019, 26). To continue with the high production growth in the future and to keep up with demand, new technology enabling offshore and/or land-based farming in large scales can be important factors. Land-based production have only harvested a limited amount of salmons so far, but an increasing amount of investments have gone towards this (Mowi 2019, 27). It is difficulties though, both with the scale of operations and that land-based farming need a continuous freshwater supply. In ISFA`s report "The evolution of land based Atlantic salmon farms" (2016, 16) are they estimating that if the entire current salmon production is moved from sea to land will they need land equalling to 28 000 Canadian football fields. They also stated that the amount of freshwater needed for the harvest of 75 thousand tonnes of salmons are 4,16 billion litres, equalling to 1/3 of the daily water usage for the entire United States. Because of the space the salmon farming must use if the salmons are going to grow in appropriate densities is it difficult to come out with profit, at least with today`s technology (ISFA 2016, 13). The amount of water supply needed is also making it difficult to do land-based farming many places in the world, in addition to the ethical aspect of using freshwater when the world is growing and the freshwater supply is getting scarcer.

Norwegian salmon companies like Salmar and MOWI have been focusing more on R&D spending towards offshore farming, but no one have still come far enough to harvest salmons from offshore farming. Salmar however, started the first full-scale pilot study of an offshore fish farm (Salmar 2020). If this goes successfully, it will perhaps not be so many years before it is implemented.

5.1.2 Global demand outlook

Global macro trends with increased focus on sustainability, health and climate awareness should help boost the demand for Atlantic salmon, which is a more sustainable and healthier alternative compared to land-based protein sources. Atlantic salmon has high quality protein levels, high contents of Omega 3, and high content of important vitamins and minerals like vitamin D and vitamin B12. It is also more efficient to produce than other land-based animals like pork and cattle, where salmons have a higher protein and edible yield and a much lower

feed conversion ratio, making it a more healthy and sustainable protein alternative than land-based meat. Atlantic salmon has a feed conversion ratio of 1.1, in comparison to cattle that have a feed conversion ratio between 4 and 10, while pork is around 3. The carbon footprint is also much lower than producing meat from pork and cattle (Mowi 2019, 21-22). All of this should strengthen the demand after salmon in the future.

It is estimated to be a world population of 9,7 billion people in 2050, up from today's 7,7 billion people, a growth of 26% or 0,8% CAGR (United Nations, 2019). While resources from land-based protein will be scarce to feed the growing population because of capacity restraints on land, should seafood be in a prime position to undertake much of the growth in demand with 70% of the Earth`s surface covered by water and only 6% of the protein sources for human consumption produced here (FAO 2020). We can therefore expect a higher growth from seafood production than population growth alone will give. Fish consumption per capita is today around 20,3 kg (avg. 2016-2018) and is estimated to grow to 21,3 kg per year in 2028 (OECD/FAO 2018). When we add to the estimated population growth of 9% at the same time (United Nations 2019) is the fish consumption estimated to increase with 16% and the fish production estimated to increase 14% to 2028 (OECD/FAO 2018). The difference between the growth in fish production and fish consumption, is the estimated higher percent of the fish production used as human food. The estimated annual growth rate in fish consumption from 2018 to 2028 is then 1,3%, down from 2,7% the last decade, while the annual growth rate for fish production is 1,1%, down from 2,4%. Since the aquaculture is responsible for all the growth in fish consumption is the aquaculture production estimated to increase with 28% to 2028, or a 2% CAGR. This is also much lower than the growth of last decade, where the aquaculture production increased with a CAGR of 4,6% (OECD/FAO 2018).

Since the production and demand of salmon is growing slightly faster than the total aquaculture production, is it reasonable with an estimate in salmon production growth above 2% CAGR from today to 2028.

5.1.3 Porter`s Five Forces

Porters Five Forces is a framework for analysing the intensity of competition in an industry and consist of five basic forces that competition depends on (Porter 1979). The five forces are the bargaining power of suppliers, bargaining power of buyers, threat of new entries, threat of

substitutes and the competitive rivalry within the industry. When analysing the competition in an industry is it not enough to simply just look at the competitors, the competition in an industry is a result of its underlying economics with all the five forces influencing the intensity of the competition. The combined strength of these five forces is determining the profit potential in the industry, where low combined strength gives potential for high profit and high combined strength gives potential for low profit (Porter 1979).

5.1.3.1 Threats from new entries

The threats from new entries is depending on the barriers that is present in the industry, and on the reaction from the current competitors that the entrants can expect. The six major sources of barriers to entry is economies of scale, product differentiation, capital requirement, cost disadvantages independent of size for new entries, access to distribution channels and government policy (Porter 1979).

The salmon industry has high barriers when it comes to geographical location, salmon farming needs the right biological conditions such as seawater temperature optimally between 8-14 degrees and the need of fjords or archipelagos to conduct the right amount of currents in the water. Due to this biological constraint is it only ten countries that is geographically fitted for salmon farming: Norway, Faroe Islands, Ireland, Scotland, Iceland, Canada, USA, New Zealand, Tasmania and Chile (Mowi 2019, 27, 76). This weakens the threat of new entries.

Salmon farming is also highly capital intensive because of the long production cycle, and requires large investments in plant, property and equipment. In addition, farming licenses granted by public officials is scarce and costly. During the last years we have seen a consolidation trend in the industry, resulting in fewer and larger companies, gaining advantages in economies of scale (Mowi 2019, 45). All of this weakens the threat from new entries. But salmons are also a homogenous product with difficulties to differentiate the products, even though Bakkafrost manage to sell salmon at premium prices (P/F Bakkafrost 2019a, 15). Anyway, this is strengthening the threat of new entries.

A new threat in land-based salmon farming has occurred during the last couple of years, and a lot of capital is put into research on further development of this new farming method. Land-based farming is still in the early stage of development, but the possibilities can potentially be

huge. This will destroy the barriers of geographical location in the salmon farming industry, effectively open the possibility to farm salmon almost all over the world and come closer to the end-markets. Still, land-based farming needs a continuous water supply to work, and this can restrict the supply of land-based farming some. My assessment considering all the factors above, is that the overall threat from new entries is considered moderate to low.

5.1.3.2 Threats from substitutes

The threat of substitutes is depending on the attractiveness of the price-performance trade-off offered by the substitute products. With an attractive price-performance trade-off will the substitute products put a lid on the industries profit potential (Porter, 1979).

Salmons are nutritious, containing high-quality proteins, several minerals and vitamins, in addition to omega-3 fatty acids (Mowi 2019, 20). The threat from substitutes for animalistic protein is high as there is several sources in the market selling fish and meat, as well as the growing interest for vegetarian alternatives. The largest threats are from pork, cattle and poultry, being the biggest producers in the world of animalistic protein. These alternatives impose a high threat since substitution is considered extremely easy for consumers, with switching costs from one food source to another being low to nothing. Consumers are highly price sensitive and fluctuation in the salmon prices plays a big role in consumers' willingness to substitute. Another dietary function of salmon is to meet the need for omega-3 fatty acids and vitamins like D-vitamin. American Heart Association (2017) is recommending eating fish two times a week, claiming it is good for your heart and that omega-3 fatty acids can reduce the risk of stroke and heart disease. This should strengthen the position of salmon against substitutes like meat, which does not contain any omega-3 fatty acids, and almost no D-vitamin.

In the recent years, consumers have also become more aware of environmental and sustainable aspects when it comes to food production. Compared to cattle, pork and poultry, salmons have the lowest feed conversion ratio and the highest edible yield, becoming a more resource-efficient production (Mowi 2019, 21). When it comes to carbon emissions per kilogram edible meat, poultry is the only one with a lower carbon footprint, while salmon production has around 10 times less carbon footprint then cattle (Mowi 2019, 22). The increasing interest and enlightenment towards eating healthier and more sustainable food

should be factors strengthening the position of salmon compared to their substitutes. My assessment considering all the factors above, is that the overall threat of substitutes is considered moderate to low.

5.1.3.3 Competitive rivalry

The competitive rivalry in the industry is determined by the number of competitors and the differences in size, product differentiation, growth rate and the exit barriers (Porter 1979). The competitive rivalry is more intense in industries with numerous competitors, and where the companies are about equal in size. Low growth rate and high exit barriers also increase the competitive rivalry, while homogenous products and low switching costs increase the price competition (Porter 1979).

The scarcity when it comes to farming licenses and geographical fitted areas for salmons is the key factor for the consolidation trend this decade. Low exit barriers due to scarce licenses and several willing buyers of equipment, has made it simple to sell assets and companies to competitors. This gives the acquirer increased economies of scale and a competitive advantage over the other competitors. We have therefore seen fewer but larger competitors in the industry over the last decade, where the ten biggest companies now produce 70% of the produced salmons in Norway, and the three biggest companies produce 45% (Mowi 2019, 44). This should weaken the competitive rivalry within the industry.

The growth in the industry has been very high, with a 7,8% CAGR in Salmon production from 1990 (Iversen et al. 2020). The demand has more than followed the increase in supply keeping salmon prices to double the last decade (Fishpool 2000). The high growth in the industry has avoided intense competitive rivalry among the current companies, where they don’t have to fight for market shares to grow (Porter, 1979). The population is estimated to reach 9,7 billion in 2050 (United Nations 2019) implying a 25% increase in demand for protein. From increased wealth should the protein consumption per capita in 2050 increase, and the demand for protein is therefore going to be much higher. With land-based protein production being scarce in the future is the outlook for demand in seafood good. At the same time biological boundaries could be limiting future supply. My assessment considering all the factors above, is that the overall threat of competitive rivalry within the industry is considered low.

5.1.3.4 The power of buyers

Bargaining power of customers is determined by the number of customers, price sensitivity, level of standardization of the product and the switching cost (Porter 1979).

Bakkafrost probably have an advantage compared to many of their peers in terms of bargaining power of customers. They have unique locations for their operations, which enables them to produce healthier and larger fish than most of their competitors (P/F Bakkafrost 2019a, 12). This makes their product harder to imitate and more valuable, which they achieve premium prices for. Nevertheless, salmons are generally considered a homogenous product with low switching costs. This should strengthen the bargaining power of customers.

The price elasticity of salmon is largely elastic, and it has also been seen a higher price elasticity in salmons compared to other fish (Gallet 2009). This is increasing the bargaining power of buyers, because salmons are not necessary goods.

Bakkafrost had 29% of their sales in the VAP segment in 2019, where they operate with long-term contracts for 6 to 12 months, reducing the power of customers some. But the prices of whole salmons are publicly available information for the customers, where they can follow price trackers and weekly publications, strengthening the bargaining power of the customers.

Since Bakkafrost is differentiated with a premium salmon achieving premium prices from their larger and healthier salmons, is my assessment on the overall bargaining power of customers considered to be moderate.

5.1.3.5 The power of suppliers

The bargaining power of suppliers is determined by the number of suppliers of a given input factor, how standardized the products or services are and the switching costs (Porter 1979).

In salmon farming is the fish feed making up the largest share of the total cost, making it the main cost driver (Iversen et al. 2020). The achieved price you pay from buying the fish feed from an external supplier will thus greatly impact the profit margin. Fish feed can also be produced internally and several of the salmon companies have started to produce their own

fish feed to reduce the external risk and overall costs in production. In the last decade become the salmon feed industry increasingly consolidated, with four producers controlling 99% of the fish feed output in Norway today (Mowi 2019, 61). This is strengthening the bargaining power of suppliers. But the fish feed is normally standardized to achieve the lowest possible production costs (Mowi 2019, 62), and this will weaken the bargaining power of suppliers.

Medical treatment to defeat deceases such as salmon lice, are most companies buying from external suppliers since the research and production is difficult and expensive. The bargaining power of suppliers has weakened over the last years as suppliers have increased in numbers in addition to an increasing amount of different treatment methods. The medical issues have been few in the Faroe Islands, but with a small increase in incidents the last few years.

Bakkafrost make most of they own fish feed but is still dependent on external suppliers for some of their marine ingredients from fish. As Bakkafrost has one of the longest integrated vertically value chains in the industry, is my assessment of the overall bargaining power of suppliers considered to be low.

5.1.3.6 Summary of Porter`s Five Forces

With an increasing world population to feed and macro trends in the world with focus on health and sustainability, is the outlook for continuing demand growth in the salmon industry in place, where the companies can increase their sales without increase their market share. With high barriers for new entrants regarding biological conditions, and Bakkafrost`s long vertically value chain where they are little dependent from external suppliers, should Bakkafrost be in a good position to profit from this increased demand for salmons.

On the downside, the salmon price can easily be tracked and as a homogenous product with low switching cost, can the price pressure become high. Together with the many substitutes and salmon being a luxury good with high price elasticity, can put a lid on the salmon price and decrease the profit in the industry.

With an assessment of low bargaining power of suppliers, moderate bargaining power of buyers, low threat of competitive rivalry, moderate to low threat from substitutes and moderate to low threat from new entries, is my conclusion that the competitive intensity in the industry is moderate to low. This should mean potential for high profit in the industry, as in line with the high historical profit where the comparable companies had an operating margin averaging at 20% in 2019.

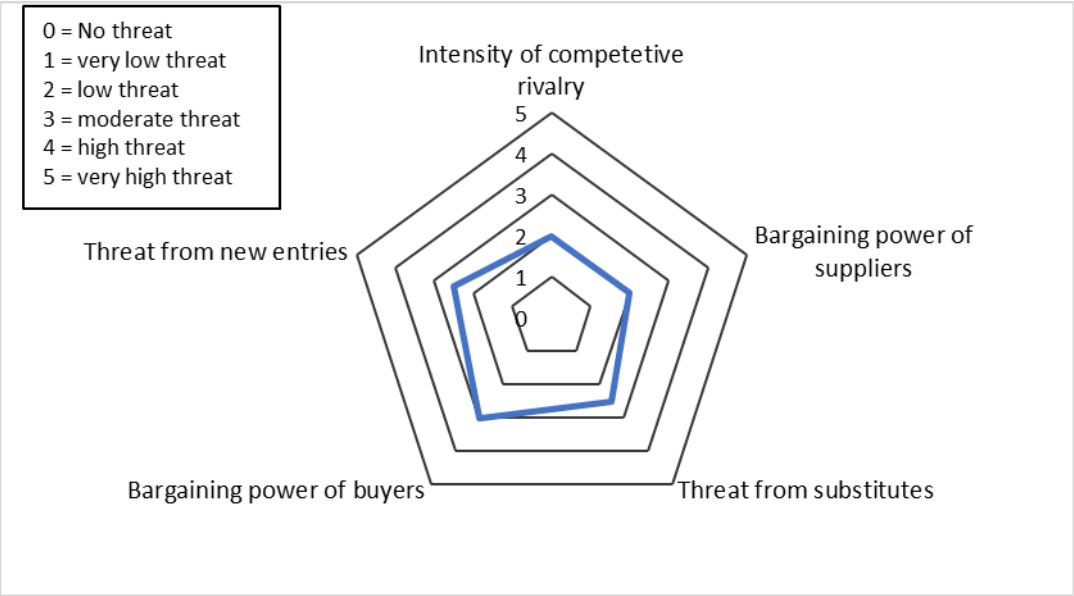

Figure 9: Show the summary of Porters Five Forces. Source: Own creation.

5.2 Internal analysis

I analysed Bakkafrost`s internal resources using the VRIO framework. To understand if the company have a competitive advantage or disadvantage in the industry, is it important to evaluate the internal resources and capabilities of the company to find the company`s strengths and weaknesses. I first present the VRIO framework before I analyse some of the most important internal resources in the company.

5.2.1 VRIO analysis

VRIO is a framework for internal analysis of the company's resources and capabilities, to investigate the competitive potential of the company. VRIO is an abbreviation where the letters stand for *Value*, *Rarity*, *Imitability* and *Organization*, and was first developed in 1991

by Jay Barney, but then under the initials VRIN where N stands for Non-substitutable. He updated he`s work in 1995 and changed Non-substitutable to Organization. The point of VRIO is to answer the four framework questions about a resource or capability in the firm, to decide the competitive potential. This is the question of value, the question of rareness, the question of imitability and the question of organization (Barney, 1995). Under is the questions, as originally presented by Barney in 1995.

The question of value: *"Do a firm's resources and capabilities add value by enabling it to exploit opportunities and/or neutralize threats?"*

The question of rarity: *"How many competing firms already possess these valuable resources and capabilities?"*

The question of imitability: *"Do firms without a resource or capability face a cost disadvantage in obtaining it compared to firms that already possess it?"*

The question of organization: *"Is a firm organized to exploit the full competitive potential of its resources and capabilities?"*

The questions always start with value, and if the answer of the question is no, this mans that the company has a competitive disadvantage. If the resource or capability is valuable but not rare, the business has a competitive parity, meaning it has sustainable business model but not a profitable business model. If the resource or capability are valuable and rare, but not costly to imitate, tthe business model has a temporary competitive advantage and should be a profitable company. The business model also has a temporary competitive advantage if the resource or capability are valuable, rare and costly to imitate, but the company is not organized to capturing the value. If the company is also organized to capturing the value, the company has a sustained competitive advantage.

I now go through some of Bakkafrost`s most valuable resources. Bakkafrost`s most important resources and capabilities is the locations of their operations in the Faroe Islands, perfectly suited for the farming of salmons, the business model of Bakkafrost with their long vertical value chain, and the skills of the management in Bakkafrost.

5.2.1.1 Location & biological conditions

The Faroe Islands have biological conditions perfectly suited for the farming of Atlantic salmons, and this is one of the big strengths of Bakkafrost. Their cool and stable sea temperatures, together with the strong currents and excellent water quality (P/F Bakkafrost 2020a, 25), has sure added value to the company by enabling it to farm premium salmons and achieving premium prices.

Regarding question two of rarity, as said earlier is it only ten countries in the world that have conditions suitable to farm salmons, because of the need of right sea temperatures and right amount of currents in the water. Also, Bakkafrost have probably even better biological conditions than most of their peers, with a more stable and cooler sea temperatures, as can be seen in Figure 10 below. Temperatures in the sea are very important for the salmons to thrive and grow, and the ideal temperatures lay between 8 to 14 degrees Celsius, even though temperatures between 4-18℃ also is fine for the salmons. With higher temperatures increase the risk of diseases, and with temperatures below zero degrees Celsius will it be more likely with mass mortality (Mowi 2019, 50). In the Faroe Islands, the max temperatures are around 10,5℃, while in Scotland 14,5℃, in mid-Norway and Chile around 14℃ and in Northern Norway around 12℃ (World sea temperatures 2020). With the rising sea temperatures in the world can this be an advantage for the Faroe Islands in the future compared to the other countries (IPCC 2020, 450).

Bakkafrost also have a lower mortality rate and lower economic feed conversion rate, together with higher harvest weight than their Norwegian peers (P/F Bakkafrost 2019a, 9). This is indications of a well-functioning biology and high animal welfare. I conclude that the location and right biological condition that Bakkafrost possess in the Faroe Islands is rare, since they manage to get healthier and larger salmons than their peers, indicating extraordinary biological conditions, together with a general scarcity for suited locations for salmon farming,

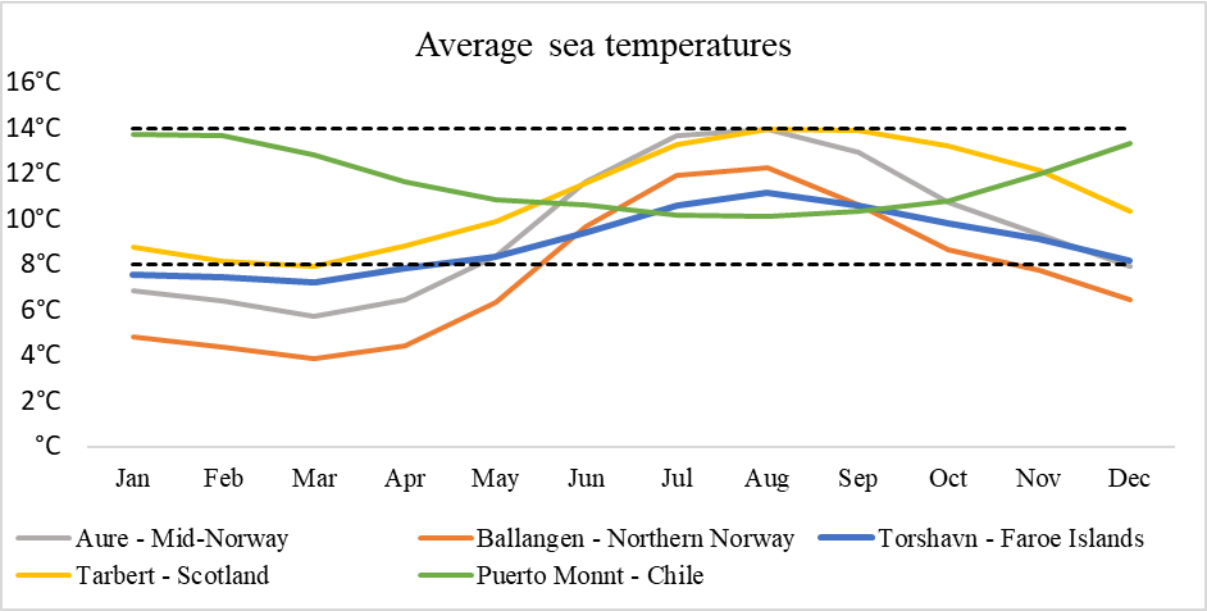

Figure 10: Average sea temperatures for specific places in Norway, Faroe Islands, Scotland and Chile. Source: World sea temperatures (2020).

The cost disadvantage to obtain the right biological conditions is high because of the scarcity in the licenses, and the regulations makes it also difficult for foreign companies to acquire the licenses. In the Faroe Islands, licences are issued for a 12-year period and is most likely prolonged after this period if the company has fulfilled the conditions of the license (P/F Bakkafrost 2020a, 66). In the end, Bakkafrost are organized to capture the value from their locations, which they have proven from their branding of their salmons as premium salmons, capturing the potential of the competitive advantage with premium prices and higher profit margins than peers (see Chapter 7.1.1.1). To conclude, the company has a sustainable competitive advantage because of their geographically fitted locations of their salmon farms.

As a paradox, the location of the company is also one of their weaknesses, resulting in higher transportation cost to Europe in addition to biological boundaries limiting the growth opportunities in the Faroe Islands after this investment cycle. This is partly overcome by selling to countries that is further away from Norway where transport cost is more similar their Norwegian counterparts. The biological boundaries for future growth are also shared by other peers in the industry and not something unique for the Faroe Islands.

5.2.1.2 Value chain and fish feed

Bakkafrost has one of the longest integrated value chains in the industry and control the entire value chain from roe and fish feed to sales and marketing of finished VAP products. This is important for the company to ensure availability and traceability, and to control all aspects of the salmon cycle, not being dependent on external suppliers (P/F Bakkafrost 2020a, 20). The other peers in Norway have almost the same value chain, but MOWI is the only company producing fish feed except Bakkafrost. This is also the biggest cost driver (Iversen et al. 2020) and can be important to control if the supply is too low compared to demand, or if the company wants to make special fish feed. Regarding fish feed have companies normally two strategies, either using standardized fish feed to get the lowest possible cost or use special feed to try to achieve higher quality in the salmons. Most of the companies uses the standardized feed, with a low marine content (Mowi 2019, 63; P/F Bakkafrost 2019a, 7). Bakkafrost with their branding as a premium salmon provider, is using a larger content of marine ingredients like fish meal and fish oil than their peers. From this, they are claiming to get a higher omega 3/omega 6 ratio, and a higher yield smolt (P/F Bakkafrost 2019a, 7). In addition, since they make their own fish feed and use more local ingredients than their peers, are they using less cost in fish feed.

From the above factors comes my assessment that the value chain and fish feed are valuable to the company, since Bakkafrost have the highest operating margin among peers, and get healthier salmons achieving premium prices. It can be difficult to know though, if this is caused from the fish feed or the biological conditions in the Faroe Islands, or maybe because of both. The fish feed and value chain are also rare, only MOWI can catch up with the length of their value chain. But it is not difficult to imitate, and the cost disadvantages to obtain it should not be too high, even though some investments must be done. My assessment is that their value chain and the use of their own special fish feed is giving the company a temporary competitive advantage.

5.2.1.3 Administration and employee skills

The CEO of the company, Regin Jacobsen, is the son and nephew of the founders Hans and Róland Jacobsen and has been the CEO since 1989. He began in the company in 1982 with the responsibility of the economy at an age of only 16 years old, and when he began as the

CEO in 1989, he was only 23 years old. As a family company with 100% ownership before the mergers and acquisitions from 2003 to 2009, the continuity in the company have been good (Saue 2018). They survived the difficult period in the end of 1980 because of sickness in the Faroe Islands were the stock of blue whiting plummeting (P/F Bakkafrost 2020b), and the ILA (Infectious Salmon Anemia) crisis in the start of 2000. From this they have adapted knowledge and experience in how to survive and to build a sustainable business model. The Faroe Islands have also a long history in the maritime environment, with a tradition to work on the sea. This has led to good knowledge in the population in all types of maritime tasks, and it is an increasing interest in the aquaculture sector (Saue 2018).

The company have done many right choices to arrive where they are today, as the biggest private employer in the country (Jogvan, 2017). I am therefore considering the skills from the administration and their employees to be valuable. But it can be argued that it is not rare. In Norway, the tradition in maritime industries like shipping and fishing is also long, with experience probably matching the maritime industry in the Faroe Islands. The Norwegian company Lerøy started in 1899 and was a family owned company all the way to 1997, while MOWI started their company in 1964 with their first salmon smolt in seawater in 1969, proving to become the largest salmon company in the world. My assessment is therefore that the administration and employee skills is not rare, and from this capability the company have a competitive parity.

5.3 SWOT analysis

To summarize the strategic analysis, I am using SWOT which is a framework combining both external and internal analysis. The internal analysis is to evaluate and identify the company`s strength and weaknesses, and the external analysis is to evaluate and identify the opportunities and threats that can influence the company in the future. SWOT is an abbreviation where the letters stand for *Strengths*, *Weaknesses*, *Opportunities* and *Threats.*

SWOT combines the results from the external and internal analysis, where the strength and weaknesses is identified in the VRIO framework, while the opportunities and threats is identified in the Porter`s five forces analysis. The external analysis of threats and opportunities is analysed based on the entire salmon industry, while the internal analysis of

strengths and weaknesses is analysed based on the company. For a summary of the strategic analysis, see Figure 11 of the SWOT analysis.

Figure 11: SWOT analysis. Source: own creation

Chapter 6 – Analysis of Financial Statements

The analysis of the financial statements is an important part in the valuation of a company, since this will help in creating the forecasting of future cash flow. The first step is to reorganize the income statement and the balance sheet to better provide insight in the business from the investor`s point of view. Step two is to analyse and adjust it for measurement errors. The last step is the analysing of ratios used in the forecast (Koller et al., 2015).

6.1 Assumptions

When starting with the financial analysis, it is important to first have some assumptions on how to proceed. First, I need to know if I am going to analyse every segment for itself or the segments all together. Because the segments are reported in detail in Bakkafrost`s annual reports, I decided to analyse each segment for itself when it comes to revenue growth. The segments that are related to the operations in the Faroe Islands are growing at almost the same pace and with only small differences in margin. And therefore, I did not analyse each segments margin here, but rather did this as a whole for the segment's operating in the Faroe Islands.

The farming segment of Scotland have large differences in growth, margins and ROIC compared to what Bakkafrost achieved before the acquisition. I therefore have analysed the entire segment for itself, both when it comes to revenue, cost and invested capital. In this way I get a more detailed forecasting of Bakkafrost and it will be easier to explain the direction of both ROIC and growth in the future forecast. I have added the Scottish and the Faroe Islands operations together in the end, to conduct one future income statement and balance sheet, one free cash flow table and one DCF model for Bakkafrost.

The second important point to decide before analysing is the historical length in the past to go back and analyse. The company were noted on the Oslo Stock Exchange in 2010 and before this it is scarce with financial information. Bakkafrost did not have any large impact or changes in their operations since 2010, except for the acquisition of Havsbrün in 2012. The first large change for the company is the acquisition of the Scottish Salmon company in the end of 2019. Since the company have been stable regarding their operations after they have gone public, I have decided to use the historical data from 2010 till today as foundation for

my analysis of the company. It is also a point to have a long enough historical data to get the full cycle in the salmon industry. For the Scottish Salmon Company, I decided to go back only six years in my analysis. This is because of two points:

1. Scottish Salmon Company is not my main focus in the evaluation of Bakkafrost.
2. After the acquisition from Bakkafrost, their investor page has been closed, making it difficult to find more information than I already had before it closed.

6.2 Presentation of historical financial statements

The reported income statement and balance sheet for Bakkafrost from 2010 to 2019 is presented in appendix A and B, while the reported income statement and balance sheet for SSC from 2014 to 2018 is presented in Appendix C and D. SSC is incorporated in Bakkafrost from October 8, 2019, and SSC has therefore only conducted financial statements to 2018. The incorporation of SSC in Bakkafrost creates a high increase in many of the items in the balance sheet for 2019 compared to 2018, but just a slight increase in the items on the income statement for 2019.

From the information in the 2019 Annual Report of Bakkafrost (P/F Bakkafrost 2020a, 97, 141-142) it was possible to construct the income statement and balance sheet for Bakkafrost excluding the acquisition of SSC, as well as an estimated income statement and balance sheet for SSC in 2019. Because of not having all the details in the income statement from this information, I had to estimate some of the specific items from the historical ratios. However, the most important items like operating margin, net margin, taxes, revenue and total cost of operations, including information regarding fair value adjustment and depreciation, was all presented in the 2019 Annual Report of Bakkafrost and should be correct.

The splitting of the income statement and balance sheet without the impact from the acquisition of SSC, makes it easier to conduct my forecast analysis because of the difficulties with SSC being incorporated early on the 4`th quarter of 2019. When dividing between Bakkafrost and SSC in the financial statements of 2019 is it easier to recognize the organic growth in all the specific items, something that is going to be important when making the historical ratios. The estimated income statement and balance sheet for Bakkafrost excluding

SSC and for SSC is in Appendix E and F respectively. I also show the proforma numbers, the segment report of farming (SCT) and the actual income statement, to show my calculations.

Regarding the balance sheet for 2019, both for Bakkafrost excluding and including SSC and for SSC alone, I don't need to find all the items – which was impossible. The most important is the information needed to compute NOPLAT and invested capital in 2019 for SCC alone and for Bakkafrost excluded SSC. This means that the total funding of the company can be done in the end of the analysis for SSC and Bakkafrost combined. I will then compute the excess cash and retained earnings together with the financial items. I will also add to the combined company the posts of goodwill and deferred tax that stems from fair value adjustments from the acquisition, which I will not include in the balance sheet and invested capital for Bakkafrost and SSC on a stand-alone basis.

6.3 Reorganized financial statements

The traditional way to structure the financial statements are not organized in a way to gain easy knowledge of operational performance. The balance sheet is mixing together both operating and non-operating assets and different ways of funding, while the income statement are combining operating profits with interest expense and other non-operating items. To gain more knowledge about the economic performance of the company it is essential to reorganize the items in the financial statements into three categories: operating items, non-operating items and sources of finance (Koller et al. 2015, 165). The information from these categories can I use to reorganize the income statement into NOPLAT (Net Operating Profit Less Adjusted Taxes) and the balance sheet into invested capital and total funds invested, before calculating the free cash flow to the company. This will make it easier to analyse the operational performance of the company.

6.3.1 NOPLAT

NOPLAT is an abbreviation for Net Operating Profit Less Adjusted Taxes and can be explained as the after-tax profit from core operations. This excludes any income or expense from non-operating assets or financial income and expenses.

To begin estimating NOPLAT I need to find EBITA (Earnings Before Interest, Taxes and Amortization- of acquired intangibles). In this way I only include operational revenue and costs. I also have some items in the income statement specific for the salmon industry that must be adjusted for to find the real operational performance. This will be further discussed later. Firstly, I define the items in the income statement of Bakkafrost into operating and non-operating items.

The items in the financial statement is defined as followed:

- *Revenues*

  All revenues are part of Bakkafrost`s core operations and considered to be operating.

- *Cost of goods sold (COGS)*

  Cost of goods sold is directly related to the revenue and considered to be operating.

- *Salary and personnel expenses + other operational expenses*

  This is directly related to the operations of Bakkafrost and considered to be operating.

- *Depreciation*

  Indirectly related to the operational activities through the assets which depreciates and is therefore considered to be operating. The amortization from goodwill is subtracted from depreciation and considered to be non-operating.

- *Revenue tax*

  Considered to be an operating item, due to the specific taxes for the farming operations in the Faroe Islands.

- *Amortization of goodwill*

Considered to be non-operating, since goodwill is not directly influencing operations but is a measurement on which price the company has managed to acquire companies for.

- *Impairment of badwill (Positive number)*

  Considered to be non-operating, this is only an example of a good acquisition from the company. Badwill is the opposite of goodwill, where Bakkafrost acquired a company for less than the book value.

- *Other unusual expense*

  This is different costs related to restructure cost and the cost of going public in 2010. Since it is many years since the company had any unusual expenses (last year was 2012) and it is not a regular cost, I will consider this a non-operating expense.

- *Onerous contracts*

  Relating to change in value of the long-term contracts from the VAP-segment and is considered a non-operating item.

- *Income from associates*

  This is not related to Bakkafrost's core operations but from companies where they are minority owner. This is considered a non-operating item.

- *Fair value adjustments of biological assets*

  This is not considered to be a non-operating item, due to the external factors influencing the fair value of the biological assets, like interest rate and salmon price. This item in the income statement gives a high volatility in the earnings, making it difficult to see the underlying operational performance.

- *Financial items*

  Financial items like currency effects, interest expense and financial income is considered non-operating items.

- *Taxes*

  Taxes have been adjusted for an all-equity operating level, following McKinsey`s three step process (Koller et al. 2015, 185), where the marginal tax rate have been multiplied with EBITA to calculate the operating tax.

NOPLAT for Bakkafrost is computed and presented in Appendix G.

6.3.2 Invested capital

Since the traditional balance sheet mixes operating assets with non-operating assets and mixes the different sources of financing, we must also reorganize the balance sheet. With the invested capital, we can extract what is invested into the company's core operations and what is assets outside of the company's core operations, in addition to distinct between the company`s sources of funding. Including in the invested capital is working capital, fixed assets, net other long-term assets and intangible assets. Normally we distinct between invested capital included and excluded goodwill. In this way can we get the performance of the company both for the underlying operations itself and with regards to the price the company have paid for acquisitions (Koller et al. 2015, 170-175).

The normal way to present a balance sheet is:

$$Assets = Liabilities + Equity$$

For invested capital are we first dividing the assets into operating assets (OA) and non-operating assets (NOA), and liabilities into operating liabilities (OL), debt and debt equivalents (D&DE) and equity and equity equivalents (E&EE). We then get:

$$OA + NOA = OL + D\&DE + E\&EE$$

When we are rearranging this, we get:

$$OA - OL + NOA = Total\ funds\ invested = D\&DE + E\&EE$$

Since operating assets minus operating liabilities equals invested capital, we get:

Invested capital + NOA = Total funds invested = D&DE + E&EE

This is how I rearranged the balance sheet. Through this I was able to compute both the working capital, invested capital including and excluding goodwill and total funds invested. This will also help me to find ROIC, while I will use the change in invested capital in the free cash flow analysis (Koller et al. 2015, 166-167)

First, I will find the items on the left side of the equation called → *total funds invested: Uses*

Then I will find the items on the right side of the equation called → *total funds invested: Sources*

In the end should we get the same number on both sides of the equation. Under will I present the total funds invested for both sides of the equation.

6.3.2.1 Total funds invested: Uses

Total funds invested: Uses, is the left side of the equation above. This is the investing perspective where we see what the funds invested are going to.

We must first understand what invested capital is:

Invested capital = Operating working capital + fixed assets + net other long-term operating assets

Where,

Operating working capital = Operating current assets – operating current liabilities

Now I need to define the items on the balance sheet, where we are dividing them into operating current assets, operating current liabilities, fixed assets, other long-term operating assets, other long-term operating liabilities, debt & debt equivalents, equity & equity equivalents and non-operating assets. We start with the items needed for the *total funds invested: Uses.*

I consider the following assets to be operating current assets:

- *Operating cash*

  2% of revenue is considered a good estimate of operating cash needed, where this number is conducted from several surveys and reports (Koller et al. 2015, 177).

- *Receivables*

  I consider all the receivables to be operating, I cannot find anything in the notes of the annual report saying otherwise.

- *Other operating receivables & prepaid expenses*

- *Inventory*
  The inventory is considered operating, because it is directly related to operations.

- *Cost of biological assets*
  Biological assets in the balance sheet is adjusted on a fair value basis to external drivers like salmon price and interest rate. I therefore used the cost of biological assets instead, which was possible to find in the notes of the annual reports of Bakkafrost. The cost of biological assets is directly related to operations, and I consider it to be operating.

I consider the following assets to be operating current liabilities:

- *Accounts payable*
- *Current tax liabilities*
- *Other operating current liabilities*

I consider the following to be fixed assets:

- *Property plant and equipment*

I consider the following to be other long-term operational assets:

- *Other long-term receivables*

I now have the items I need for computing invested capital excluded goodwill. To get invested capital included goodwill, I must adjust goodwill and acquired intangibles for deferred taxes and the accumulated amortization of intangibles. I have to do this since the deferred tax liability is created at the time of the acquisition and is drawn over the amortization period, since amortization is not tax deductible. This will lead to the same amount being artificially increased in the acquired intangibles to counterbalance the deferred tax. I must also add back the accumulated amortization of intangibles, since goodwill and intangibles does not wear out or are replaceable like other fixed assets.

All goodwill and intangibles in Bakkafrost are considered operating assets.

Table 2: Table showing goodwill and acquired intangibles, adjusted for deferred tax and cumulative amortization of goodwill. All numbers in thousand`s DKK. Source: P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a).

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Goodwill	3 537	3 537	3 537	4 537	4 537	4 537	4 537	4 537	17 607	567 129
Aquired intangibles	132 708	366 418	290 138	290 138	290 138	290 138	372 138	372 138	372 138	3 828 558
Deferred tax liabilities, goodwill & intangibles	23 887	65 955	52 225	52 862	66 077	52 886	67 622	67 622	67 622	618 922
Goodwill and aquired intangibles, less tax gross up	**112 358**	**304 000**	**241 450**	**241 813**	**228 598**	**241 789**	**309 053**	**309 053**	**322 123**	**3 776 765**
Cumulative amortization goodwill	0	0	0	0	0	0	0	0	878	1 756
Adjusted goodwill and aquired intangibles	**112 358**	**304 000**	**241 450**	**241 813**	**228 598**	**241 789**	**309 053**	**309 053**	**323 001**	**3 778 521**

To find *total funds invested: uses* I have to add the non-operating assets to the invested capital including goodwill.

I consider the following to be non-operating assets:

- *Investments in associated companies + Investments in stock and shares*

  This is not part of Bakkafrost`s core business and is easier valued when added to the valuation after the DCF analysis has been conducted of the company. From now is these two items combined together and I have called it financial investments.

- *Excess cash*

  Excess cash that is above 2 % of revenue, is considered non-operating assets.

6.3.2.2 Total funds invested: Sources

To find *total funds invested: Sources*, I need to find the items in the balance sheet being debt and debt equivalents and the items in the balance sheet being equity and equity equivalents.

I consider the following to be debt and debt equivalents in the balance sheet:

- *Short term debt*
- *Long term debt*
- *Non-controlling interest*
  Other claimholders into the equity of the company is a debt equivalent.

I consider the following to be equity and equity equivalents in the balance sheet:

- *Equity adjustments for fair value adjustments of biological assets*

  I have to adjust the equity for the fair value adjustment done on the biological assets.

- *Deferred tax liability (assets), operating net*

  Deferred tax relating to goodwill and acquired intangibles, net of deferred tax assets.

- *Cumulative amortization of goodwill*

  I need to adjust for the cumulative amortization of goodwill, like I did in *total funds invested: Uses*.

- *Shareholders' equity*

The invested capital and total funds invested is computed and presented in Appendix H.

6.3.3 Free cash flow

Free cash flow to the firm is an essential part in order to conduct a DCF valuation. The free cash flow to the firm is excluded financing and non-operating items. I adjusts the enterprise value with these items after the DCF analysis instead in order to find the equity value.

Free cash flow is defined as:

Free cash flow = NOPLAT + non-cash operating expenses – investments in invested capital

Where NOPLAT plus non-cash operating expenses is defined as gross cash flow, while changes in invested capital is defined as gross investments (Koller et al. 2015, 189). I will also distinct between organic free cash flow and free cash flow including the acquisition of SSC in 2019 and Havsbrún in 2012.

Gross cash flow is the cash flow from operations back to the company, available for investments and pay-out to investors. I have already calculated NOPLAT and I need to add back non-cash operating expenses. Depreciation and amortization of fixed assets, less the amortization of goodwill, is the only non-cash operating expense I need to adjust NOPLAT with to get the gross cash flow.

Gross investments are the reinvestments of gross cash flow back into the business, needed for maintaining and growing the company, and can be segmented into five primary areas:

- *Change in working capital*

  Since I have working capital from the reorganized balance sheet can I easily compute the change in working capital from on year to the next.

- *Net capital expenditures*

  This is the increase in PP&E from year to year, adjusted for depreciation and sale of assets.

- *Change in capitalized operating leases*

  Bakkafrost have no operating leases, except a small amount they got from the acquisition of SSC in 2019. I will therefore not include this in gross investments.

- *Investments in goodwill and acquired intangibles*

  This is the change in adjusted goodwill and acquired intangibles year to year, where it is adjusted for deferred taxes and accumulated amortization is added back.

- *Change in other long-term operating assets, net of long-term operating assets*

  For Bakkafrost will this be the change in other long-term receivables.

The free cash flow for Bakkafrost is computed and presented in Appendix I.

Chapter 7 – Analysing Historical Performance

When we are going to predict the company`s future it is important to first understand the company`s past and what is driving the results. It is therefore a critical part of the valuation to analyse the company`s performance in the past.

The core elements of value creation are the growth and return on invested capital (Koller et al. 2015, 201), and where I start my analysing. Here, is it important to analyse both where the company are, and the trends in the performance of the company.

When analysing the revenue growth, it is important to analyse the drivers behind the revenue growth for the company. The revenue drivers in the salmon industry is the salmon price and the volume of salmon sold. The volume sold is normally expressed in Tonnes Gutted Weight (TGW), and the salmon price is normally expressed in NOK per kilo. I will come back to this a little later, and instead start with ROIC.

7.1 ROIC

ROIC is an important performance measure of the operations in the company and reveal how much return the invested capital is creating.

ROIC is measured as the ratio of NOPLAT over invested capital (Koller et al. 2015, 201):

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

ROIC is a better tool for analysing a company`s operational performance compared to peers, then other return ratios like ROE and ROA. This is because ROIC focuses only on the operations of a company, while ROE mixes the capital structure with operational performance, making it difficult to compare companies with different capital structures against each other (Koller et al. 2015, 202).

We should analyse ROIC both with and without goodwill and acquired intangibles (from now I call it “ROIC included goodwill” and “ROIC excluded goodwill”). This is because the ratio analyses two different things. When we analyse ROIC excluded goodwill it tells us about the underlying operational performance of the company, and if the company are getting return on

the underlying economics that is above the cost of capital. This is also the best ratio for comparing operational performance among peers and to analyse trends. ROIC included goodwill on the other hand is measuring whether the company have achieved adequate returns for shareholders, because you are including the price premiums that is paid for acquisitions (Koller et al. 2015, 203). In that regard is it an important ratio for companies regularly involved in merger & acquisitions, to further investigate if the premiums of the acquisitions have been too high or is acceptable.

When forecasting performance and projecting the future cash flow, ROIC excluded goodwill is the most relevant to use. This is because companies do not need to spend money on acquisitions to grow organically and ROIC excluded goodwill will show a more relevant baseline for forecasting cash flows. It can also be easier to see where the future value creation can come from. A company with high ROIC excluded goodwill is probably creating most value from growth, while companies with low ROIC excluded goodwill is probably going to create more value from increasing the ROIC then growth (Koller et al. 2015, 203)

In conclusion, because of the rationale above have I mostly focused on using ROIC excluded goodwill to analysing the historical performance of the company, and when comparing Bakkafrost to peers. This is also because Bakkafrost have had few acquisitions the last ten years, except for the acquisition of SSC in 2019. The results are therefore almost the same between ROIC excluded and included goodwill as seen in Figure 12.

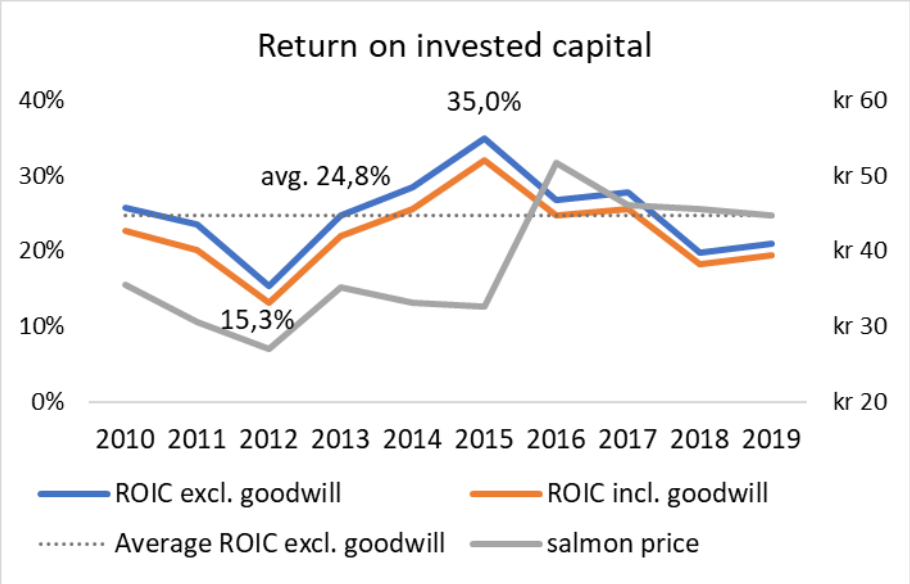

Figure 12: Illustrating ROIC excluded and included goodwill for Bakkafrost 2010-2019, the average ROIC excluded goodwill from 2010-2019, and the salmon price in DKK/kg. Source: P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a); Fishpool 2020.

As you can see in Figure 12, the company is first following the salmon price before deviating from it in 2015. This can partly be explained by a high growth in salmon harvest in 2015 together with higher price premiums achieved for the salmons from 2013 to 2015, compared to before and after. While the salmon price was highest in 2016 before having a slow downturn towards 2019, the cost of operations on the other hand have been steadily increasing for Bakkafrost, leading to a lower ROIC.

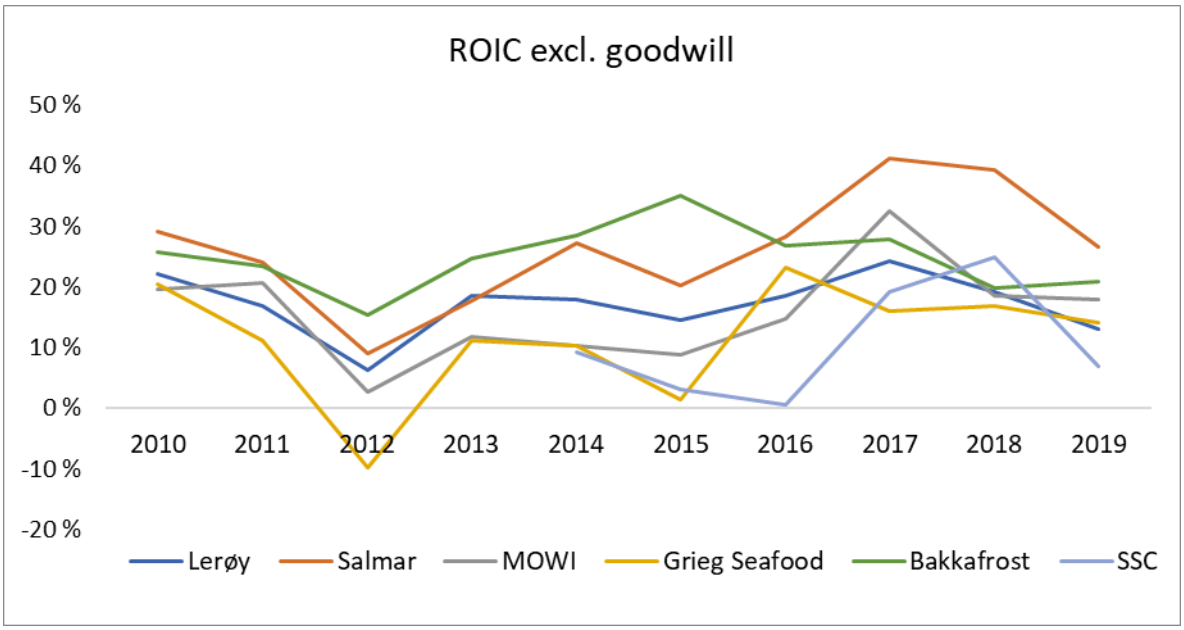

Figure 1: ROIC excluding goodwill for Bakkafrost, SSC and peers, from 2010 to 2019. Source: Datastream (2020); P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a)

We can easily see from Figure 13 that Bakkafrost alongside with Salmar have historically had the highest ROIC excluded goodwill among peers. But we can also see a falling ROIC excluded goodwill after 2015, whereas the other peers not seem to fall in the same pace, effectively closing in the gap. SSC on the other hand are lagging behind on the bottom, with a very volatile ROIC excluded goodwill.

ROIC excl. Goodwill	
Selskap	Average
Salmar	26,3 %
Bakkafrost	24,8 %
Lerøy	17,1 %
MOWI	15,7 %
Grieg seafood	11,5 %
SSC	10,7 %

When we look at the ten-year average from 2019 in the table above, Bakkafrost is right behind Salmar in ROIC excluded goodwill while SSC is on the bottom. To find out why Bakkafrost has so high ROIC excluded goodwill compared to peers, I must do a decomposition of ROIC to investigate if they achieve a better operating margin or asset turnover than peers.

7.1.1 ROIC decomposition

To gain further knowledge of the sources of Bakkafrost`s high ROIC compared to peers, I did a decomposition of ROIC into its parts. Another way of calculating ROIC is the product between capital turnover, profit margin and the operating tax rate (Koller et al. 2015, 204):

$$ROIC = Capital\ turnover * Operating\ Margin * (1 - Operating\ tax\ rate)$$

This equation shows that a company can increase its ROIC either with higher profitability, higher optimization of capital turnover or lowering the operating tax rate.

Since the operating tax rate have been stable the last years will we not investigate this further, but rather look at the profit margin and capital turnover for Bakkafrost and SSC before comparing it with peers.

7.1.1.1 Operating margin

Operating margin can be defined as the ratio of EBITA over revenues and is a measure of the profitability in a company (Koller et al. 2015, 204). The formula looks like this:

$$Operating\ margin = \frac{EBITA}{Revenues}$$

To investigate the operating margin, I first compare the operating margin between Bakkafrost and SSC from 2010 to 2019, before comparing the operating margin with peers.

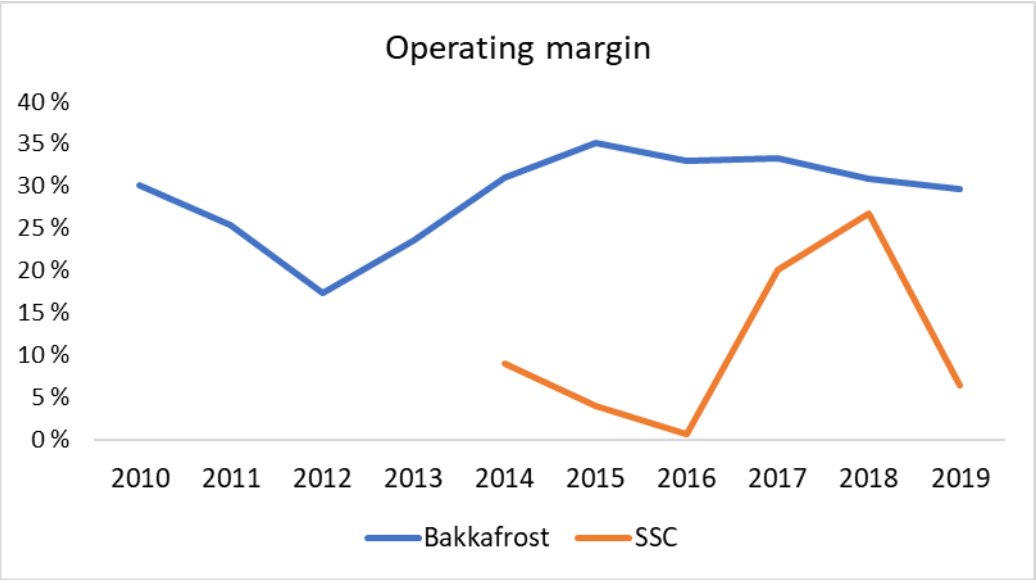

Figure 14: Operating margin 2010-2019 for Bakkafrost and SSC. Source: Datastream (2020); P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a)

Figure 14 above is illustrating the operating margin for Bakkafrost and SSC. From the figure can we see a high volatility in the operating margin, this is natural considered the volatility in the salmon price. We also see a much higher operating margin in Bakkafrost compared to SSC, in addition to being more stable. SSC seems to have some issues with their operational performance. To gain further knowledge about the quality of the operating margin, I compare the results to the other peers.

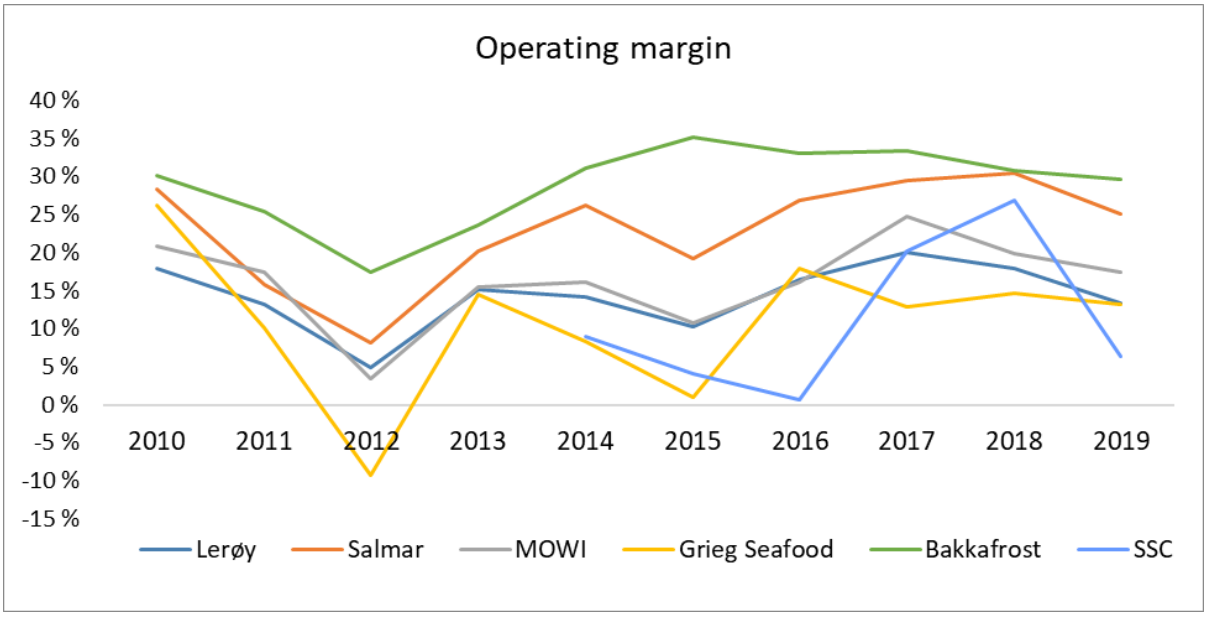

Figure 25: Graph of the operating margin to Bakkafrost, SSC and peers, from 2010 to 2019. Source: Datastream (2020); P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a)

Figure 15 is comparing the operating margin of Bakkafrost and SSC to other peers. From the figure can we clearly see that Bakkafrost has the best operating margin among peers, and they achieved that every year the last decade. SSC on the other hand have among the worst operating margins together with Grieg Seafood, except for 2018. When we see the average operating margin from 2010 to 2019 (2014-2019 for SSC) can we see that Bakkafrost has on average a six percent higher operating margin then Salmar, and much more to the next on the list, MOWI. This illustrates that Bakkafrost looks like a company with good operational performance.

Operating Margin	
Selskap	Average
Bakkafrost	29,0 %
Salmar	23,0 %
MOWI	16,2 %
Lerøy	14,3 %
SSC	11,2 %
Grieg Seafood	10,9 %

7.1.1.2 Capital turnover

Capital turnover is a measure of how effective the capital is used and can be defined as the ratio of revenue over invested capital (Koller et al. 2015, 204). The formula looks like this:

$$Capital\ turnover = \frac{Revenue}{Invested\ capital}$$

In my analysis will asset turnover be measured with the ratio of revenue over invested capital excluded goodwill, since I am analysing ROIC excluded goodwill.

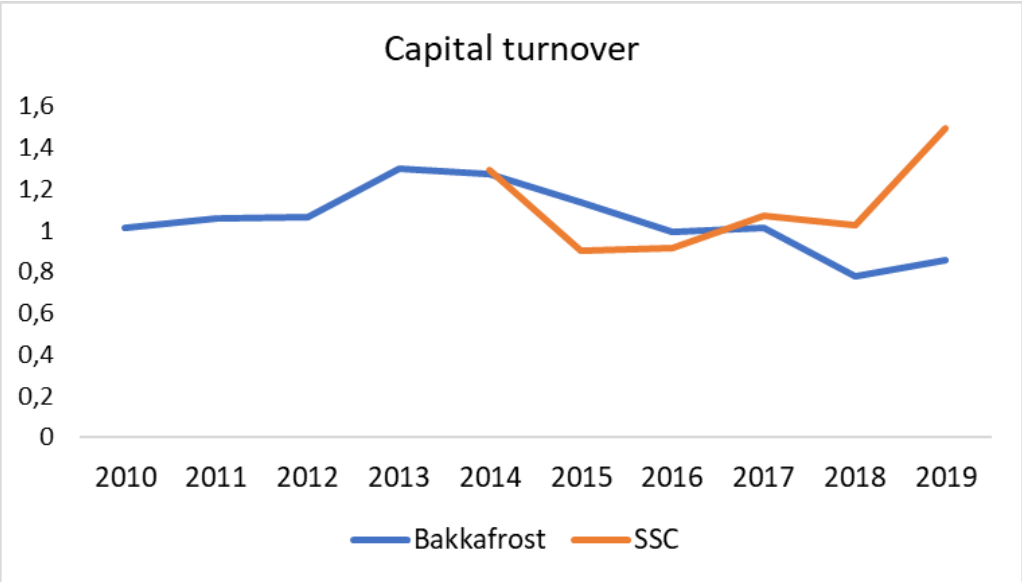

Figure 16: Capital turnover for Bakkafrost and SSC from 2010-2019. Source: Datastream (2020); P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a)

We can from Figure 16 see that the capital turnover for Bakkafrost had a top in 2013 and have decreased since then. The capital turnover of SSC has been in line and actually surpassed Bakkafrost in the last three years. We have to compare Bakkafrost with peers to see if these results are consistent with other peers.

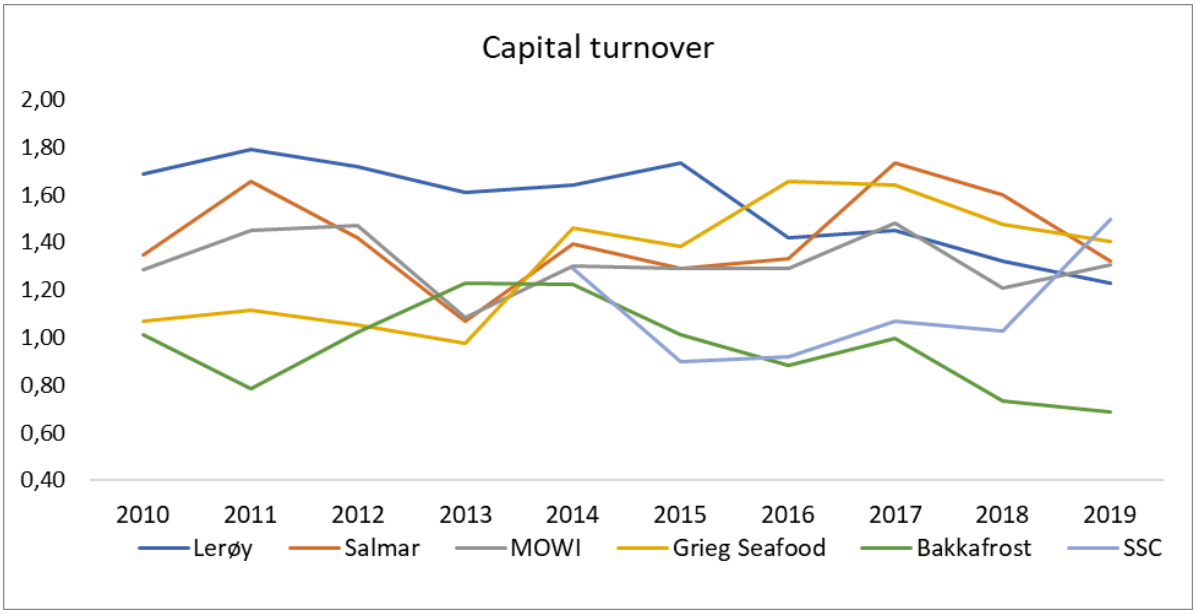

Figure 17: Illustrates the capital turnover for Bakkafrost, SSC and peers, from 2010-2019. Source: Datastream (2020); P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a)

Figure 17 is illustrating the capital turnover for Bakkafrost and its peers. We can see from the figure that Bakkafrost have the lowest capital turnover in average from 2010 to 2019 compared to peers. In addition, the capital turnover is going slowly down since 2014 and the gap up to peers have been increasing the last couple of years. One explanation that partly can explain the low capital turnover is the high investments from Bakkafrost for future growth that has not yet begun to bear fruits. Remember, from investments are ready to be set in use it takes three years before it is possible with increased salmon harvest. We are going to look further on revenue and harvest growth later to see if this can help us explain more. Another explanation can be differences in the markets of Norway and the Faroe Island, both legal and structural, influencing the balance sheet and investments to be difference between the two countries.

Capital Turnover	
Selskap	Average
Lerøy	1,56
Salmar	1,42
Grieg Seafood	1,32
MOWI	1,32
SSC	1,12
Bakkafrost	0,96

We can also see from Figure 17 that SSC have the second lowest capital turnover, with only Bakkafrost doing worse. Still, even with the lowest capital turnover is only Salmar having a higher ROIC excluded goodwill than Bakkafrost. The reason for this is entirely because of the superior high operating margin in Bakkafrost. SSC on the other hand have among the worst of peers in both capital turnover and operating margin, and therefore the lowest ROIC excluded goodwill among peers. Bakkafrost seems to have a large job in front of them to get the operational performance of SSC up to Bakkafrost`s level.

To explain why Bakkafrost have so much higher operating margin than its peers I have to look closer and see if they achieve higher salmon price, lower operating cost or a combination of these two.

7.1.1.3 Operating margin decomposition

To have higher operating margin than peers, Bakkafrost have to either achieve a higher selling price of salmons or having lower cost of operations per kilo harvested salmon.

$$Operating\ margin = \frac{EBITA}{Revenue} = \frac{Revenue - operating\ cost}{Revenue} = \frac{\frac{Revenue}{Harvested\ salmon} - \frac{Operating\ cost}{Harvested\ salmons}}{\frac{Revenue}{Harvested\ salmons}}$$

I will first look at the salmon price, which is equivalent to revenue divided on harvested salmons, before investigating the operating cost per kilo harvested salmon.

7.1.1.3.1 Achieved salmon price

Bakkafrost is advertising themselves as selling premium salmons that is on average healthier and bigger than salmons sold from competitors. To see if they actually are selling their salmons for premium prices, I have to check their achieved selling price of salmon for Bakkafrost compared to the historical spot price of salmons.

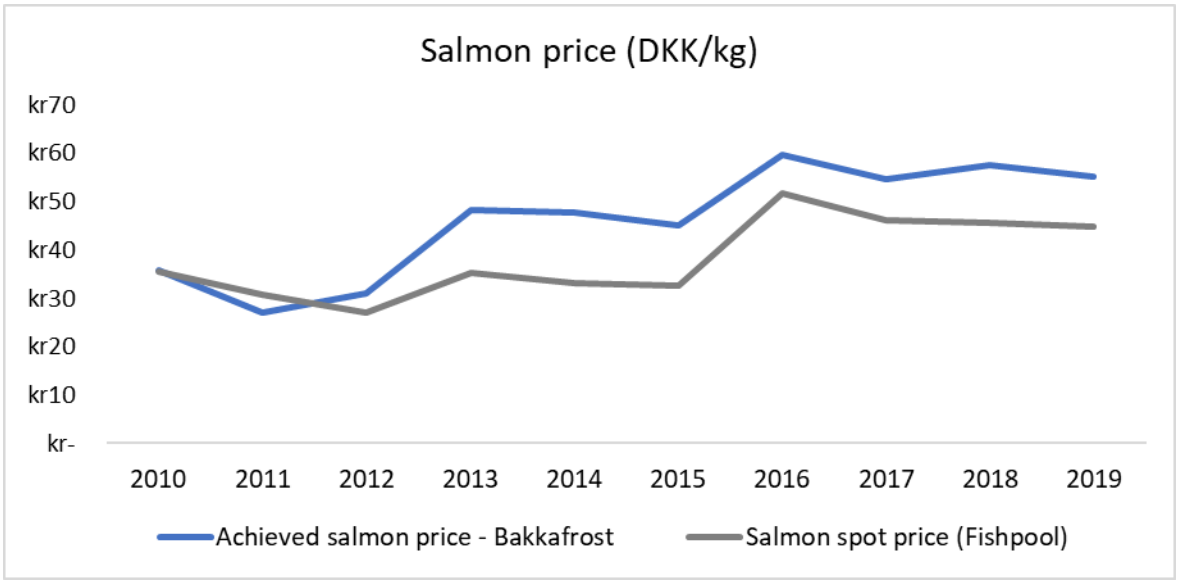

Figure 18: Illustrates the achieved salmon selling price for Bakkafrost and the historical spot price of salmon. All prices in DKK/kg. Source: Fishpool (2020); P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a)

Figure 18 illustrates the achieved salmon selling price for Bakkafrost, and the historical spot price. This is only for the farming segment in the Faroe Islands and is excluded the VAP segment. We can see a large premium in the salmon price, averaging at 20,5% above the spot price for the last ten years and 24,3% above the spot price for the last five years. The five-year average am I going to use later in my revenue forecast for the farming segment in the Faroe Islands (FO).

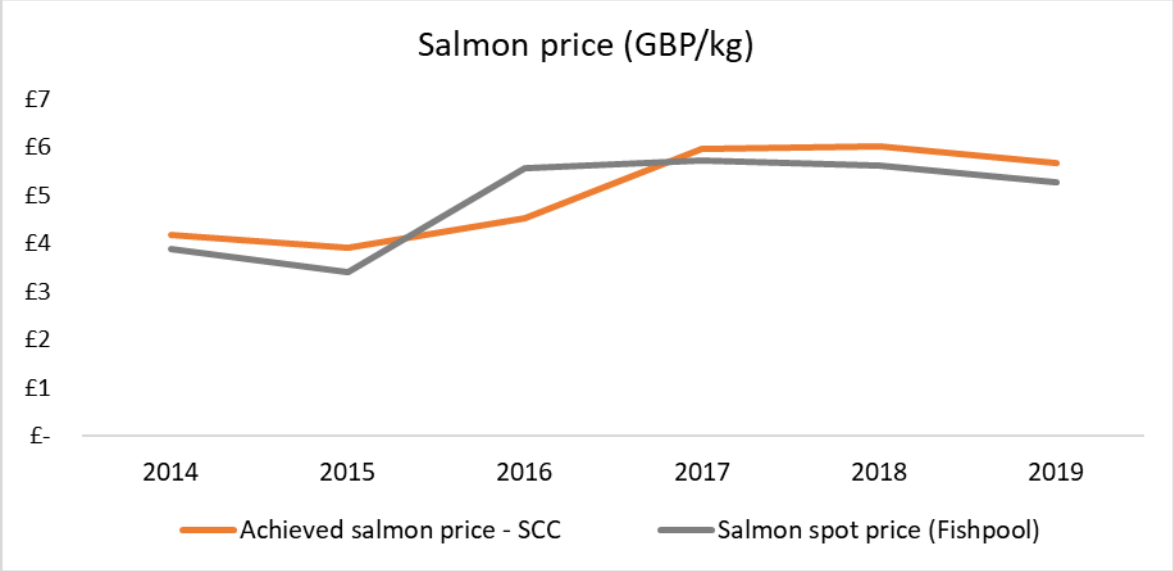

Figure 19: Illustrates the achieved salmon selling price for SSC and the historical spot price of salmon. All prices in GBP/kg. Source: Fishpool (2020); Datastream (2020)

From Figure 19 can we see that SSC also achieve a slightly higher salmon price than the spot price, but much lower than Bakkafrost. SSC achieved from 2014 to 2019 an average premium of 3,8% to the spot price. This number will I also use later in my revenue forecast of the farming segment in Scotland (SCT). The premium salmons that SSC produced alongside with their brands, were also one of the reasons Bakkafrost wanted to buy the company.

To test if these premiums are real and that the historic spot price is true, I must check if the premiums still holds compared to peers.

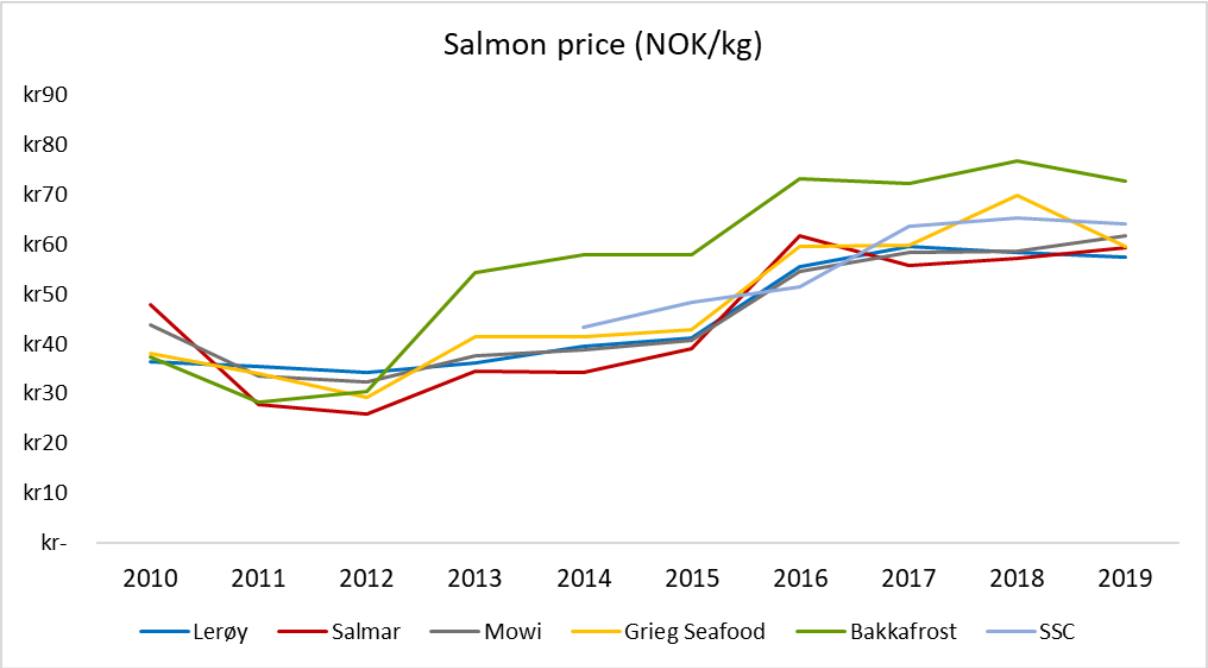

Figure 20: Illustrates the achieved selling price for the farming segments in Bakkafrost, SSC and peers. Source: Datastream (2020); P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a)

Compared to peers, Figure 20 illustrates another clear example that Bakkafrost is achieving to sell the salmons for premium prices. From 2013 and beyond can we see that the company have a much higher selling price of salmons than the other peers. SSC is also achieving among the highest salmon prices but nothing close to the premium achieved by Bakkafrost. The high selling premium for Bakkafrost is clearly one of the answers to their superior profit margin. Another thing to point out is the long uptrend in the salmon price.

7.1.1.3.2 Operating cost

Operating cost is here defined as the cost that comes before operational EBIT. Since some of the companies are different regarding having other segments than just salmon production and differences in the use of VAP, will I only look at the farming segment of each company. This make it easier to look at the operations itself, but overhead and management cost will not be accounted for. When comparing operating cost between peers will I use NOK per kilo harvested salmon, which is the most common way of comparing cost between salmon companies

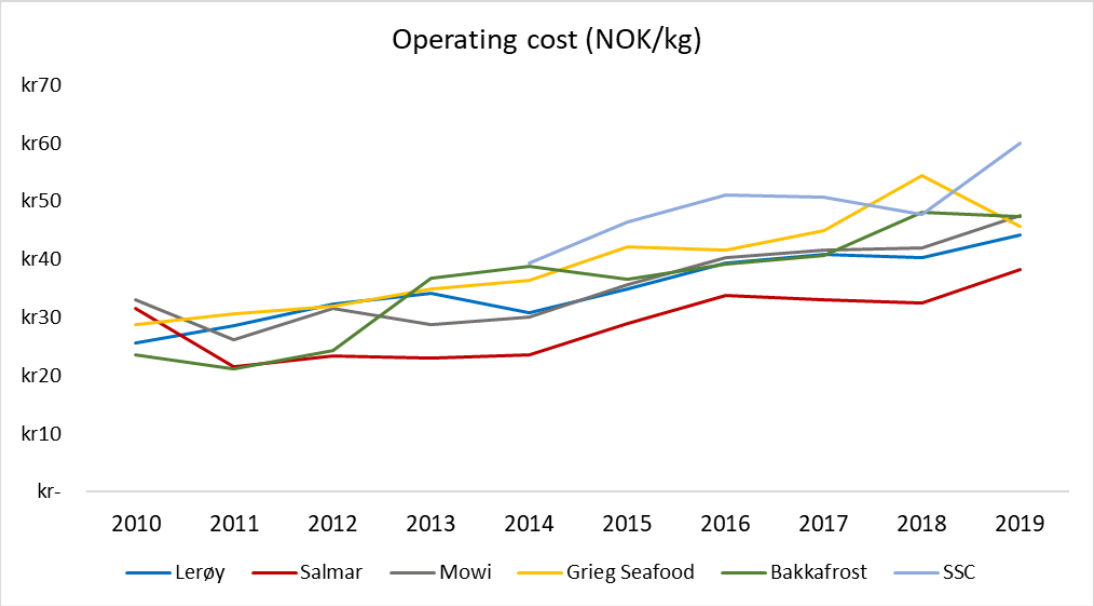

Figure 21: Illustrates the operating cost of Bakkafrost, SSC and peers in NOK per kilo. Source: Datastream (2020); P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a).

From Figure 21 can we see that the operating cost of Bakkafrost is almost equal to the average cost of peers (35,6 vs 34,9 NOK/kg). SSC on the other hand have the highest operating cost except for 2019. This can be an opportunity for Bakkafrost to decrease the operating cost for SSC down towards the peer average, effectively increasing the operating margin.

We can also see a clear uptrend in the operational cost, following the uptrend in the salmon price. But while the salmon price has been relatively flat since 2016, the cost is still increasing slowly upwards. We can investigate this more by computing EBIT/kg, by subtracting the operating cost from revenue per kg salmon. This is one of the most common ratios to use in the salmon industry and show in absolute numbers which company is the most profitable. It should show almost the same results as the operating margin, but since we now focus on the farming segment in the companies can some differences occur. If we see a large difference from the operating margin should we look closer for errors or differences in the accounting methods.

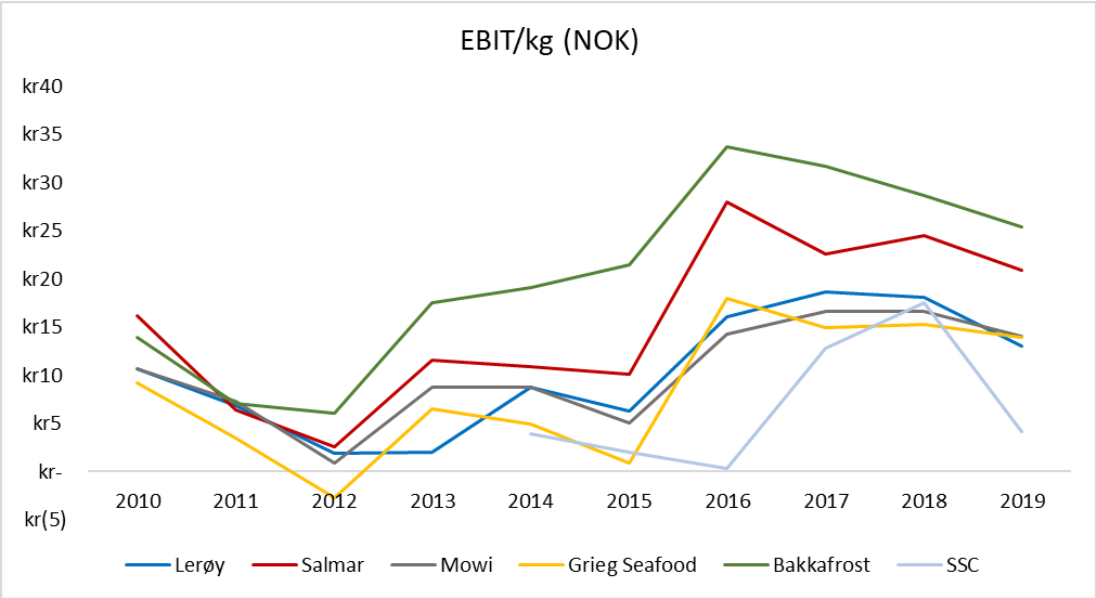

Figure 22: EBIT/kg for Bakkafrost, SSC and peers. Source: Datastream (2020); P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a).

From Figure 22, we are getting almost the same results as we got with the operating margin regarding the ranking of the companies. Something else should have been worrying. But since EBIT/kg is in relative numbers we are seeing a long upward trend, resulting from the long upward trend in both the salmon price and in the operating cost per kilo. Bakkafrost have had the highest EBIT/kg since 2012 and have a good distance down to the other peers. Bakkafrost manage this through their premium selling price, while Salmar on the other hand being the closest competitor with having the lowest operating cost. And again, SSC have the worst operating performance among peers.

As suspected, EBIT/kg for Bakkafrost and most of the peers is showing a downtrend since 2016, due to the salmon prices being flat and the operating costs increasing. Bakkafrost is among the companies with the largest downtrend in EBIT/kg. If the Salmon price continue to be flat, it can it be difficult for the companies to slow down the increase in operating costs. If so, will the operating margin and profitability for the salmon producers be reduced.

7.2 Revenue growth

The company`s value is driven by ROIC, cost of capital and growth in cash flow. If profits and reinvestments is going in a steady state, the growth in cash flow is directly linked to the

growth in revenue (Koller et al. 2015, 209). The revenue growth is therefore together with ROIC the most important to look at in a company.

From analysing the historical growth of the company can it be possible to estimate the future growth. When it comes to analysing the historical revenue growth it is important to look at the real organic growth of the company, where the growth is adjusted for acquisitions and currency changes distorting the results.

Since Bakkafrost historically has most of their sale in EUR and cost in DKK, where DKK is kept fixed to EUR (Danmarks Nationalbank 2020), Bakkafrost is not so sensitive for currency changes. Although they have some sale in GBP, USD and other currencies, I don't see any large distortions in the revenue because of this. I have therefore decided to not do a further adjustment for currency changes for Bakkafrost when evaluating the organic revenue growth.

However, when it comes to acquisitions it is at least two acquisitions I needed to adjust the revenue growth for, and that is the acquisitions of Havsbrún (FOF-segment) in 2011 and SSC in 2019.

Table 3: Table of the consolidated and organic revenue growth for Bakkafrost. Source: P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a).

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Average
Consolidated revenue	820 212	1 321 092	1 855 544	2 491 081	2 683 319	2 850 363	3 202 686	3 770 049	3 177 422	4 511 107	
Revenue from Bakkafrost	820 212	1 150 271	1 541 754	2 039 410	2 325 915	2 500 155	2 854 665	3 149 727	2 590 945	3 466 129	
Revenue from SSC (2019)										437 171	
External revenue FOF (2011)		170 821	313 790	451 671	357 404	350 208	348 021	620 322	586 477	607 807	
Proforma		1 471 918								5 779 903	
Consolidated revenue growth		61 %	40 %	34 %	8 %	6 %	12 %	18 %	-16 %	42 %	23 %
Organic revenue growth		40 %	26 %	34 %	8 %	6 %	12 %	18 %	-16 %	28 %	17 %

We can see from Table 3 that the consolidated revenue growth averaged at 23% from 2010 to 2019, while the average in organic revenue growth were 17%. This is still an impressing number. It looks like the company had most of the growth from 2010 to 2013, except for 2019.

SSC on the other hand did not have any substantial acquisitions since 2014 and I can find the revenue growth without any need for adjustments.

Table 4: Table of the revenue growth of SSC. Source: Datastream (2020); P/F Bakkafrost (2020a).

SSC	2014	2015	2016	2017	2018	2019	Average
Revenue	1 305 457	1 239 087	1 249 838	1 605 365	1 953 419	2 167 331	
Revenue growth		-5 %	1 %	28 %	22 %	11 %	11 %

We can see from Table 4 that SSC had an average in organic revenue growth of 11 percent from 2014-2019.

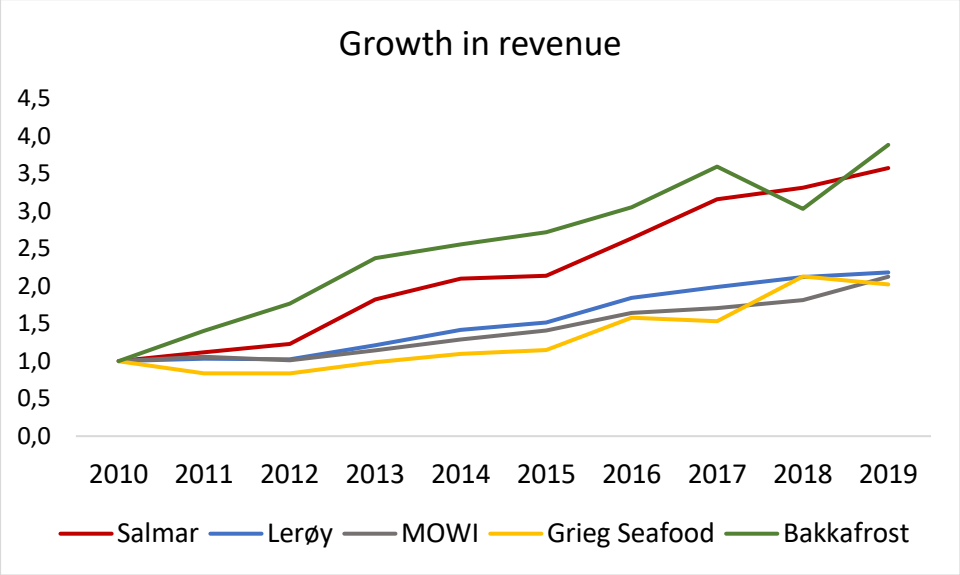

Figure 23: Illustrates the accumulated organic growth in revenue for Bakkafrost and peers from 2010 to 2019. Source: Datastream (2020); P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a).

When comparing the organic revenue growth with peers, Figure 23 illustrates that Bakkafrost had the largest organic revenue growth among peers in the last decade, with Salmar close behind. Grieg Seafood, Lerøy and MOWI had all a much slower growth. The average organic revenue growth for peers the last ten years were 10,9% versus 17,5% for Bakkafrost, but the average organic growth for the last five years was 9,8% for Bakkafrost versus 11,5% for peers and 15,5% for SSC.

7.2.1 Revenue growth segments

The farming segments of Bakkafrost are the most important and is also what drives the revenue growth in the VAP segment. The revenue growth in the VAP segment is not important to analyse for itself, since it will in a long-term basis be dependent on the growth in the farming segment and the target volume used as VAP. For the VAP segment is it therefore important to find the revenue or volume contribution, and the premium the VAP segment can achieve selling the salmons for compared to the internal sale from the farming segment.

The FOF segment have most of the sale internally to the farming segments, but they have also some sale externally. I should therefore find the revenue growth together with the percentage of sale done externally and internally. It will be logical that the growth in internal sale will be close to the growth in harvest volume, since Bakkafrost will use more feed. The FOF segment are smaller than the farming segments, and the external revenue from FOF is around 15% of the revenue in Bakkafrost, going down to around 10% next year due to the contribution from the new farming segment in Scotland.

I will therefore start by analysing the growth of the farming segments in the Faroe Islands and Scotland (earlier SSC).

7.2.1.1 Revenue growth farming segments

Revenue for the farming segments can be decomposed into:

$$Revenue = \frac{Revenue}{kilo\ salmon} * kilo\ salmon$$

To increase the revenue, Bakkafrost need to either achieve a higher salmon price per kilo or to increase the harvest volume. To see from where Bakkafrost historically have achieved organic growth, I did a revenue growth decomposition from 2010 to 2019.

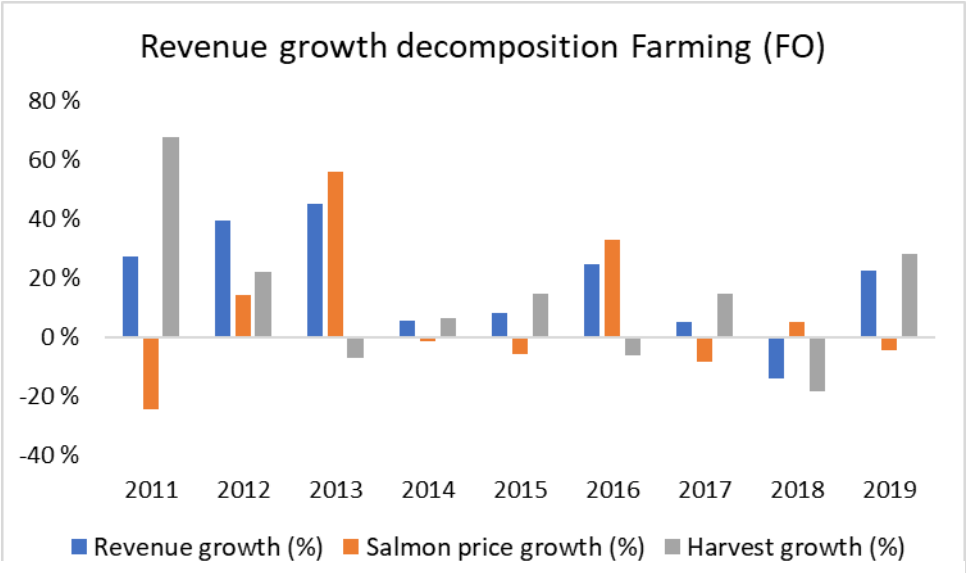

Figure 3: Illustrates the revenue growth decomposition of the farming segment in the Faroe Island from 2010 to 2019. Source: P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a).

We can from Figure 24 see that the revenue growth for the farming segment in the Faroe Islands is explained some years exclusively by growth in the salmon selling price, some years exclusively by the harvest growth, and sometimes in combination. We can also see clearly that it was higher growth from 2011 to 2013 then after. The only year with negative revenue growth was in 2018 where the harvested volume decreased with 18%, and the salmon price were slightly up.

To get a better sense of the total contribution to revenue growth from harvest growth and salmon price growth, can it be better to look at it in a table.

Table 5: Show the revenue growth, salmon selling price growth and harvest growth for the farming segment of Faroe Islands. Source: P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a).

Farming segment FO	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	10y CAGR
Revenue (DKK)	771 747	982 157	1 371 660	1 991 552	2 099 473	2 273 595	2 840 870	2 986 561	2 568 366	3 152 462	16,9 %
Revenue growth		27 %	40 %	45 %	5 %	8 %	25 %	5 %	-14 %	23 %	
Salmon price (DKK)	35,69	27,02	30,93	48,26	47,70	44,96	59,75	54,68	57,60	55,11	4,9 %
Salmon price growth		-24 %	14 %	56 %	-1 %	-6 %	33 %	-8 %	5 %	-4 %	
Harvest (TGW)	21 626	36 343	44 341	41 268	44 013	50 565	47 542	54 615	44 591	57 200	11,4 %
Harvest growth		68 %	22 %	-7 %	7 %	15 %	-6 %	15 %	-18 %	28 %	

From table 5 can we see that growth has been the highest contributor to revenue growth from 2010 to 2019 for the farming segment (FO), with a 10-year CAGR (Compounded Annual Growth Rate) of 11,4%, versus a CAGR of 4,9% in the salmon selling price. In total have the revenue from the farming segment in the Faroe Islands a 10-year CAGR of 16,9%.

Table 6: Show the revenue growth, salmon selling price growth and harvest growth for the farming segment of Scotland (SSC). Source: Datastream (2020). P/F Bakkafrost (2020a).

Farming segment SCT	2014	2015	2016	2017	2018	2019	10y CAGR
Revenue (GBP)	125 900	100 400	109 900	150 900	180 100	191 786	8,8 %
Revenue growth		-20 %	9 %	37 %	19 %	6 %	
Salmon price (GBP)	4,17	3,91	4,51	5,97	6,02	5,67	6,3 %
Salmon price growth		-6 %	15 %	32 %	1 %	-6 %	
Harvest (TGW)	30 183	25 649	24 342	25 272	29 913	33 800	2,3 %
Harvest growth		-15 %	-5 %	4 %	18 %	13 %	

For SSC it has been the opposite, the selling price of salmon have been most important for the revenue growth from 2014 to 2019 with an CAGR of 6,3%, while the harvest growth have been smaller with an CAGR of just 2,3% (see Table 6) In total is the revenue CAGR from 2014 to 2019 at 8,8%.

7.2.1.2 Revenue growth FOF segment

Table 7 shows that the FOF segment had an historic growth in total revenue at 6,6% CAGR (2012-2019). Since the contribution from external revenue increased from around 35% of total FOF revenue in 2012 to 43,8% in 2019, the external revenue had a higher growth with an CAGR of 9,9% (2012-2019). The 5-year average in external revenue contribution to total FOF revenue is 40,2%, and both this ratio and the CAGR of 6,6% will I use later in my forecast of the FOF revenue growth.

Table 7: Show the revenue from the FOF segment, with external and total revenue. Source: P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a).

FOF historic revenue	2011	2012	2013	2014	2015	2016	2017	2018	2019	7-year CAGR
FOF total revenue	508 717	889 337	1 083 009	970 730	1 048 052	1 158 111	1 303 161	1 268 564	1 388 461	6,6 %
FOF external revenue	170 821	313 790	451 671	357 404	350 208	348 021	620 322	586 477	607 807	5-year avg.
FOF external revenue in %	33,6 %	35,3 %	41,7 %	36,8 %	33,4 %	30,1 %	47,6 %	46,2 %	43,8 %	40,2 %

7.2.1.3 Revenue contribution VAP segment

The internal sale from the farming segment (FO) to the VAP segment, has an average revenue contribution of 29% (2010-2019) compared to the total farming revenue, as seen in Table 8. The trend seems to be down the last two years, but Bakkafrost's goal is to increase the percentage from the VAP segment back to old averages. The 10-year average premium in VAP revenue above the internal sale price from the farming segment (FO) is 27%. Both these numbers will I use in my forecast of the revenue growth of the VAP segment later.

Table 8: Includes the internal revenue of the farming segment (FO), internal revenue in percent of total farming revenue, revenue in the VAP segment and the premium of VAP segment over internal sale prices. Source: P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a).

VAP historic revenue	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	10-year average
Internal revenue farming (FO)	424 677	339 126	356 168	618 314	686 962	510 097	867 150	835 622	342 248	650 816	
Farming internal sale in %	55 %	35 %	26 %	31 %	33 %	22 %	31 %	28 %	13 %	21 %	29 %
Revenue VAP	473 142	507 241	526 257	666 172	913 404	736 657	880 945	998 778	364 827	964 484	
Premium VAP (%)	11 %	50 %	48 %	8 %	33 %	44 %	2 %	20 %	7 %	48 %	27 %

7.3 Credit health & Capital Structure

To investigate if the company have a sustainable capital structure and the financial power to sustain a potential industry downturn, we must look at how the company have financed their operations. Two important aspects to investigate is the leverage of the company, and the

interest coverage. From this can we see if the company have an acceptable solidity and liquidity.

7.3.1 Leverage

With higher leverage will the company take higher risk but can effectively increase its return on equity. We can use the ratios debt to equity or equity to assets to find the leverage of the company. The ratios are measuring exactly the same but in different ways, because of the balance sheet equation where:

$$Equity + Liabilities = Assets$$

A high debt to equity means a low equity to assets, and the opposite. If debt to equity are one is an equal amount financed with equity and with liabilities. In this case will the equity to assets ratio be 50%. Since the use of both are redundant have I chosen to use the debt to equity ratio to look at the leverage of Bakkafrost.

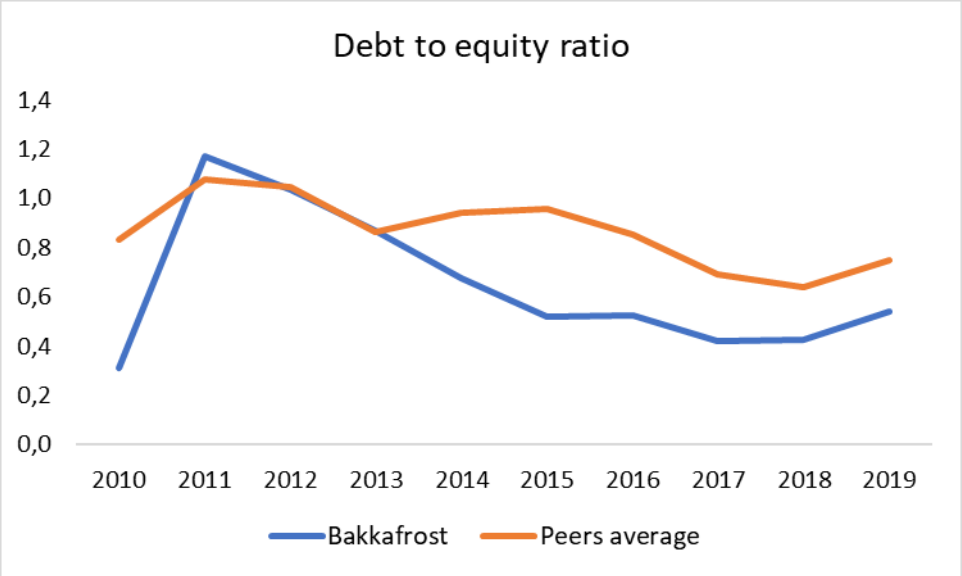

Figure 4: Illustrates the debt to equity ratio for Bakkafrost and the average debt to equity for peers, from 2010 to 2019. Source: Datastream (2020); P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a).

Figure 25 illustrates the debt to equity ratio for Bakkafrost and the peer average from 2010 to 2019. In most years Bakkafrost have less leverage than the peer average, except for 2011.

This can be explained by their acquisition of Havsbrún. The debt to equity went slightly up in 2019 from 2018 because of the debt to acquire SSC. Still, the debt to equity ratio is low at 0,54, almost twice as much equity then debt. This is considered a low leverage, and we also see that this is lower compared to the average debt to equity for peers at 0,75 in 2019.

In conclusion, the leverage of the company is low, and the solidity of the company looks strong.

7.3.2 Coverage

When we measure the interest coverage of the company, are we measuring the company´s ability to meet short-term obligations (Koller et al. 2015, 215). It is normal to divide either EBITDA or EBITA over interest expenses, this is called interest coverage, and shows how many times EBITDA/EBITA can cover the interest expenses. EBITDA divided with interest expenses is telling us the coverage for interest expenses after operating cost, but before cost in investments for replacement or maintenance of assets. EBITA divided with interest expenses tell us the coverage after operating cost, including the cost for replacements of assets (equal to depreciation). This is more normal to use because a company in steady state needs to invest in replacement of assets and maintenance to keep going.

Since the interest rates are at record low levels are the loans cheap, and the interest expenses low. We can get ridiculous high EBITDA over interest expenses, and potentially still have too much debt. Since EBITDA divided over interest expenses is not expressing the interest coverage in a potentially higher interest rate environment, it is now more normal to use net debt over EBITDA or EBITA, also called debt coverage (Koller et al. 2015, 216). Net debt to EBITDA is not dependent on interest rates and is therefore a much more stable ratio to use, making it easier to compare it over time.

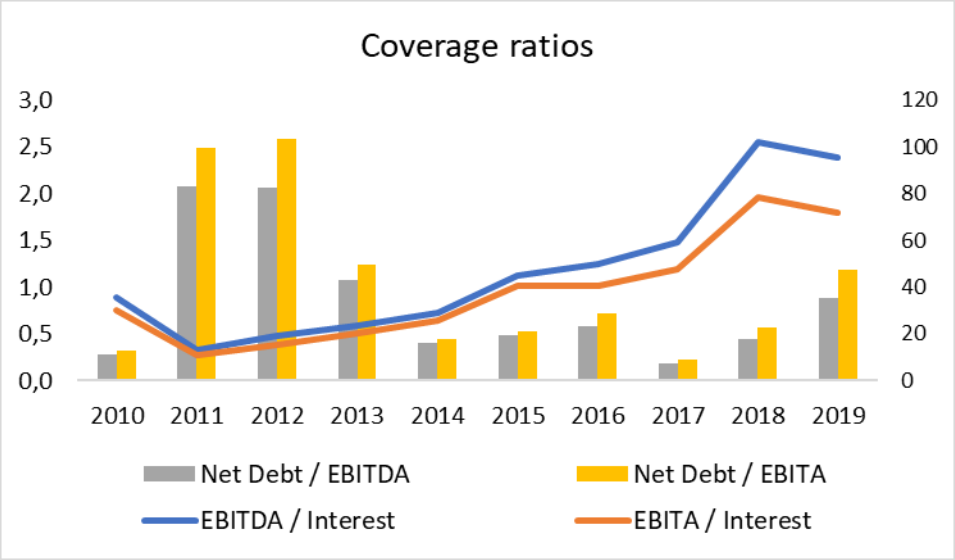

Figure 5: Illustrating the debt coverage net debt to EBITDA and net debt to EBITA (Left Y-axis), and the interest coverage EBITDA to interest expenses and EBITA to interest expenses (right Y-axis), for Bakkafrost from 2010-2019. Source: P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a).

From Figure 26 we are again seeing an increase in leverage around 2011 after the acquisition of Havsbrún, before slowly coming back to the normal (low) level of leverage for Bakkafrost.

Net debt over EBITA have increased from 0,57 in 2018 to 1,18 in 2019. This is because of the acquisition of SSC. The reason that the decrease in EBITA over interest expenses from 2018 to 2019 were not larger, is because most of the debt were issued late in 2019 so the interest expenses in 2019 were not so high. The explanation of the steady increase in the interest coverage since 2011 is mostly caused by the decreasing interest rates. That is also why we need the supplemental information from debt over EBITA when we are looking at Bakkafrost's credit health.

Even with a high increase in net debt over EBITA at 1,18 in 2019, Bakkafrost is still much lower than the peer average at 1,53. In considering the debt and interest coverage to be strong, and the credit health of the company to be very good. I find both the liquidity and solidity of the company to be at very satisfying levels.

Chapter 8 – Financial Forecasts

This chapter presents the revenue forecast and the forecast ratios for the detailed forecast period, which is based on the strategic and financial statement analysis. Then I present the forecast of future financial statements, and the forecast in NOPLAT and invested capital in addition to the forecasted ROIC and free cash flow. In the end I conduct a simplified forecast period, as an intermediary period between the detailed forecast period and the continuing value. But first I need to define the framework for my future forecast.

8.1 Framework for the future forecast

When forecasting future cash flow, first thing we need to know is for how many years we are going to forecast into the future and how detailed it is going to be (Koller et al. 2015, 221). The normal way to forecast is a relatively detailed year-by-year forecast for a certain period of time (from now: explicit forecast period), before valuing the remaining years in a continuity formula (From now: continuing value). In the continuing value, it is assumed to be a steady-state performance regarding growth and ROIC. The explicit forecast period for the company should therefore be long enough to reach a steady-state performance. Because of this it is recommended having an explicit forecast period of at least 10 to 15 years before reaching a continuing value, since shorter time normally will undervalue the company. Cyclically companies or companies with high growth should maybe even have longer forecast period than this (Koller et al. 2015, 222). But having a long explicit forecast period has its own problems, and this is that detailed forecasting 10 to 15 years into the future is so inaccurate that it is no point in doing it. It is therefore normal to split the explicit forecast period in two:

1. A detailed forecast period, with so detailed income statements and balance sheet as possible. A time frame between 5-7 years is normal (Koller et al., 2015, 222).
2. A more simplified forecasting for the remaining years, where the focus lay on the most important factors. At the end of this forecast is the goal to reach the growth and RONIC of the continuing value (RONIC stands for *return on new invested capital* and is further explained in chapter 8.5.)

Since Bakkafrost have large investments plans for the next years with significant harvest growth towards 2027, I have decided to use a detailed forecast period for 8 years from 2020 to 2027. Thereafter, I have a simplified forecast period for a seven-year period where the company is reaching the steady state of the continuing value in the end of the period. This will together become the explicit forecast period of 15 years.

In the detailed forecast period I use the company`s own capabilities and guiding's of future growth and investments to forecast the revenue growth, together with the historical ratios and growth in the cost to find the earnings. I used the top-down market approach n the simplified forecast period, where I will estimate the growth in the market to find the steady state performance of Bakkafrost.

I have mostly used the harvest volume as the cost driver, while I have used the salmon price together with the harvest volume as a revenue driver. This is because I believe that the harvest volume is what decide the development in costs best, while the revenue is more unstable because of the high volatility in the salmon price. For the balance sheet have I mostly used the revenue as the driver, together with specific drivers on some of the items.

8.2 Forecast based on strategic and financial statement analysis

8.2.1 Revenue forecast

Bakkafrost have four segments, their farming segment in the Faroe Islands, farming segment in Scotland, value-added products (VAP) segment in the Faroe Islands and their fishmeal, fish oil and fish feed (FOF) segment in the Faroe Islands. I will forecast the revenue, cost and income from the farming segment in Scotland for itself because of the big differences in margins and operational performance. Both NOPLAT and invested capital will be forecasted for the farming segment in Scotland alone, and will later be added to the other segments on the Faroe Islands. Total funds invested, retained earnings and cash will then be forecasted for the entire company.

The farming segments are the most important segments in Bakkafrost, and the farming segment in the Faroe Islands is standing for above 40% of the revenue, excluding the internal sales to the VAP segment. Historically the segment has contributed to 50-70% of the revenue. Together with the farming segment in Scotland will the farming segments stand for over 70%

of the revenue in the group. Since the VAP segment is a result of the farming segment and only an extension of the value chain, will the farming segments in total contribute for around 90% of the revenues. The last 10% of the revenue are external revenues from the FOF segment, selling fish feed, meal and oil.

To forecast the revenue from the farming segments, I needed to forecast the salmon price and harvest volume for the farming segments in the Faroe Islands and in Scotland.

8.2.1.1 Harvest volume

I have first forecasted the harvest volume for the farming segment (FO). In Table 9 is the historical harvest and capacity volume of farmed salmon. Some of the years had no information about the capacity volume, and here I have used the average between the years I found. The years that had missing information about capacity volume was 2010, 2015, 2016 and 2017.

Table 9: Farmed harvest volume, capacity and capacity utilization for the farming segment (FO). Source: P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a).

Operating Revenue Factors (FO)	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Capacity volume (TGW)	38 500	40 000	50 000	50 000	50 000	52 500	55 000	57 500	60 000	60 000
Harvest volume (TGW)	21 626	36 343	44 341	41 268	44 013	50 565	47 542	54 615	44 591	57 200
Harvest growth		68 %	22 %	-7 %	7 %	15 %	-6 %	15 %	-18 %	28 %
Capacity utilization	56,2 %	90,9 %	88,7 %	82,5 %	88,0 %	96,3 %	86,4 %	95,0 %	74,3 %	95,3 %
Capacity utilization 1 year lag		94,4 %	110,9 %	82,5 %	88,0 %	101,1 %	90,6 %	99,3 %	77,5 %	95,3 %
Capacity utilization 2 year lag			115,2 %	103,2 %	88,0 %	101,1 %	95,1 %	104,0 %	81,1 %	99,5 %
Capacity utilization 3 year lag				107,2 %	110,0 %	101,1 %	95,1 %	109,2 %	84,9 %	104,0 %

Then I needed to calculate the capacity utilization which is defined as the actual harvest volume divided on the harvest capacity volume. This will indicate how much of the harvest capacity the company manage to use. I also calculate what the capacity utilization is when dividing harvest volume on harvest capacity volume from one, two and three years earlier. I call this the capacity utilization with 1-, 2- and 3-year lag. This helps me in my forecasts over future harvest volumes.

The average capacity utilization from 2010 to 2019 was 85,4%, the average capacity utilization with one-year lag was 93,3%, two-year lag 98,4% and three-year lag 101,7% (calculated in Table 9). That means that the harvest volume will average at 101,7% above the

harvest capacity volume from three years before. This makes sense from the perspective that the salmon cycle is almost three years long.

Table 10: Shows the forecasted capacity volumes and harvest volume, the harvest growth in percent and the capacity utilization including 1, 2- and 3-years lag. Source: P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019a, 2019b, 2020a); Own estimates.

Operating Revenue Factors (FO)	Driver	Calculation Basis	Base rate	2020	2021	2022	2023	2024	2025	2026	2027
Capacity volume (TGW)	Investments	Company/own estimate	Different	66 771	73 011	79 856	86 700	100 000	106 434	112 249	115 970
Harvest volume (TGW)	Investments	Company estimates	Different	50 000	64 000	70 000	76 000				
Earlier miss on forecast	Avg. historic factor	Own calculations	-2,61 %	-2,61 %	-2,61 %	-2,61 %	-2,61 %	-2,61 %	-2,61 %	-2,61 %	-2,61 %
Harvest volume (TGW)	Investments	Own estimatess	Different	48 693	62 326	68 170	74 013	83 134	90 858	95 822	98 999
Harvest growth (%)		Growth (%)	Different	-12 %	24 %	9 %	9 %	12 %	9 %	5 %	3 %
Volume/capacity				72,9 %	85,4 %	85,4 %	85,4 %	83,1 %	85,4 %	85,4 %	85,4 %
Volume/capacity one year lag					93,3 %	93,4 %	92,7 %	95,9 %	90,9 %	90,0 %	88,2 %
Volume/capacity two year lag						102,1 %	101,4 %	104,1 %	104,8 %	95,8 %	93,0 %
Volume/capacity three year lag							110,8 %	113,9 %	113,8 %	110,5 %	99,0 %

Estimated from harvest volume / capacity
Company estimates (minus historic average miss on harvest volume)

For estimating the future harvest volume in the farming segment (FO) I have used Bakkafrost`s own forecasts, and my own calculations from historic capacity utilization done earlier. I have used Bakkafrost`s estimates for future harvest volume and capacity volume from their report Capital Markets Day 2019 (P/F Bakkafrost 2019a, 22-24). They have forecasted the harvest all the way to 2023 and forecasted the harvest capacity to reach 100 thousand TGW late in 2022. I use the company forecasts where it is possible, since I am sure this will be a more accurate forecast than my own estimates from historical analysis. This will also give the company more credit for all the investments they currently are doing.

For the current year of 2020 the company have reduced their guiding of 57 thousand TGW in salmon harvest in the Q4 report to 50 thousand TGW in the Q1 report, due to a severe storm destroying some of their farming places early in 2020, killing 1,2 million salmons (P/F Bakkafrost 2020d, 10). For the cost side, I used the average number of 57 and 50 thousand TGW as the cost driver for cost related to personnel expenses and other operating expenses, to better get the cost associated with this disastrous hit in their harvest volume. I use the average (53,5 thousand TGW), since I think they will manage to not use all the cost related with the originally planned harvest. For cost of goods sold, I have used the actual achieved harvest volume.

I have also managed to find the company´s average historical miss on guiding's from earlier annual reports, estimated at minus 2,61%. I have subtracted the average miss on estimates from the company estimates, and in that way finding the harvest volume from 2020 to 2023.

This will be my forecast for harvest volume these years (in blue at Table 10). The company also have estimated that they will reach 100 thousand TGW in capacity in end of 2022. This means that 2023 is the first year that they have capacity of 100 thousand TGW an entire year. I have estimated that they reach this capacity goal first in 2024, because of three points.

1. When questioning the company, they said that they were behind on some building projects for some of their hatcheries, due to troubles with getting satisfactory bids regarding quality and price. Their hatcheries are among the most important for them to be able to reach their capacity goals in time.
2. They have in earlier investment cycles also been a bit behind schedules for their harvest and capacity goals, normally between one to two years.
3. The ongoing pandemic Covid-19 is making everything more unsure and can delay some work also for Bakkafrost in the Faroe Islands. More about the risk of Covid-19 in Chapter 11.1.5.

To find the harvest volume in 2024 I used the company's average capacity utilization and the estimate of 100 thousand TGW in 2024. With an average capacity utilization of 85,4% I get a harvest volume of 85,4 thousand TGW. Further on I used the capacity utilizations with one, two- and three-year lag for 2025, 2026 and 2027 (in orange at Table 10). In these years, will I also subtract the average miss on estimates from earlier years, thus making the numbers a bit more conservative since most of this numbers are still derived of estimates from the company. For the last year in my detailed forecast period (2027) we can see that the harvest volume is close to 100 thousand TGW. This is three years later than my forecasted capacity harvest of 100 thousand TGW, that sounds fair due to the salmon cycle of almost three years. It should therefore normally take three years from capacity is reached till it is possible to harvest the same amount, especially under high growth.

In total will the growth for the farming segment (FO) be a CAGR of 7,1% from 2019 to 2027.

For the farming segment (SCT) I have chosen another approach, because of less information and guiding's from the SSC. The Scottish Salmon Company have earlier guided a goal of 7% cycle-on-cycle growth beyond, that will say 7% growth from one salmon cycle to the next (SSC 2019, 23). I use this as a starting point, where 7% growth for three years is equal to

2,3% growth every year. This is also identical with the growth in harvest volume from 2014 to 2020 with a CAGR of 2,3%.

Table 2: Historical harvest capacity and actual harvest volumes from 2014 to 2019 for SSC, including harvest growth and capacity utilization. Source: Datastream (2020); P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a).

Operating Revenue Factors (SCT)	Driver	Calculation Basis	Base rate	2014	2015	2016	2017	2018	2019
Capacity volume (TGW)	Investments	Historic numbers	Different	n.a.	n.a.	n.a.	n.a.	50 000	50 000
Harvest volume (TGW)	Investments	Historic numbers	Different	30 183	25 649	24 342	25 272	29 913	33 800
Harvest growth		Yearly growth in %			-15 %	-5 %	4 %	18 %	13 %
Volume / capacity								59,8 %	67,6 %

Bakkafrost have forecasted a harvest of 39 thousand TGW in Scotland in 2020 (P/F Bakkafrost 2020d, 10). I have used their forecast minus the average estimate miss of 2,8% for 2020, before going back to the 7% cycle-on-cycle growth as starting point in 2021.

Since Bakkafrost have forecasted heavy investments in Scotland being two to three times higher than SSC historically have invested, I would expect a higher growth going forward than the 7% cycle-on-cycle growth. I would assume a growth reaching the farming segment in the Faroe Island in the end of the explicit forecast period. I have therefore forecasted the harvest growth to go up from 2,3% in 2021 to 4% in 2022, 5% in 2023, and 6 % from 2024 to 2027 (see Table 12). In total this will be a CAGR of 5,9% (2019-2027), since 2020 is forecasted to have a high harvest growth from 2019 at 12,4%.

For the forecast in capacity utilization for the farming segment (SCT) I have used the same as last year capacity utilization (2019). I will not use this number for any forecasting anyway.

Table 12: Shows forecast for harvest capacity and harvest volumes from 2020 to 2027, included harvest growth and capacity utilization. Source: Own estimates.

Operating Revenue Factors (SCT)	Driver	Calculation Basis	Base rate	2020	2021	2022	2023	2024	2025	2026	2027
Capacity volume (TGW)	Investments	Own estimates	Different	51 140	52 307	53 500	55 373	57 311	59 316	61 689	64 157
Harvest volume (TGW)	Investments	company/own estimates	Different	37 980	38 854	40 408	42 428	44 974	47 672	50 533	53 565
Harvest growth		Yearly growth in %		12,4 %	2,3 %	4,0 %	5,0 %	6,0 %	6,0 %	6,0 %	6,0 %
Volume / capacity				67,6 %	67,6 %	67,6 %	67,6 %	67,6 %	67,6 %	67,6 %	67,6 %

8.2.1.2 Salmon price

To forecast the achieved selling price of salmon, I started with the farming segment (FO). I needed the forecast in salmon price in NOK, the NOK/DKK exchange rate, and the premium in achieved selling price of salmon over the market price to forecast the achieved selling price.

For the salmon market price I have decided to use the forward prices for 2020 to 2022, and thereafter a growth in the salmon prices of 3%. I decided the growth of 3% from 4 factors:

1. Inflation of around 2% in the Nordic markets and West Europe.
2. Estimated population growth of 0,97% CAGR to 2027 (United Nations 2019).
3. Estimated seafood consumption growth per capita of 0,26% CAGR to 2027 (Mowi 2020, 13).
4. Historical growth in the salmon prices last 10 years with a CAGR of 5,3%.

For the future forecast, I decided to use the average exchange rate for the last three years for DKK/NOK because of its volatility. I did not use a longer time frame because it is looking like a clear trend that the DKK is getting stronger than NOK over time (Appendix J).

Bakkafrost is famous for having premium salmons, and as we saw in Chapter 7.1.1.3.1 the farming segment in the Faroe Islands achieved a premium selling price averaging at 24,3% above the market price (2015-2019). I decided to use the five-year premium average instead of the ten-year average since the trend is clearly a higher premium in the last 5 years. I used this number in my forecasting of the salmon selling price for the farming segment (FO). The calculations of historical premiums in achieved selling price can be seen in Appendix J.

The forecasted salmon selling price in DKK is shown in Table 13, together with the calculations. From 2019 to 2027 is my forecast growth in the salmon price at only 2,0% CAGR and this is due to a lower forward price in 2020 than the salmon price in 2019, and almost flat forward prices from 2021 to 2022.

Table 13: Forecasted exchange rate DKK/NOK, salmon price and achieved selling price per kg salmon in the Faroe Island. Sources: Fishpool (2020); Own estimates.

Operating Revenue Factors (FO)	Driver	Calculation Basis	Base rate	2020	2021	2022	2023	2024	2025	2026	2027
Exchange rate DKK/NOK	Avg. historic factor	3-year average EXR	1,32	1,32	1,32	1,32	1,32	1,32	1,32	1,32	1,32
Forecast salmon price (NOK/kg)	Global market	Futures / own estimates	3,0 %	56,68	59,80	60,00	61,80	63,65	65,56	67,53	69,56
Forecast salmon price (DKK/kg)	NOK price & EXR	EXR * NOK price		42,78	45,14	45,29	46,65	48,05	49,49	50,98	52,51
Forecast premium (%)	Avg. historic factor	5-year average	24,3 %	24,3 %	24,3 %	24,3 %	24,3 %	24,3 %	24,3 %	24,3 %	24,3 %
Forecast selling price (DKK/kg)		Salmon price (DKK) * Premium (%)		**53,17**	**56,10**	**56,29**	**57,98**	**59,72**	**61,51**	**63,36**	**65,26**

I did the same for the farming segment (SCT), where I used the same forecasted market salmon prices in NOK but with a different selling premium. For the exchange rate GBP/NOK, I use the three-year average (2017-2019) for my forecasts. The average premium in the

achieved selling price of salmons were 3,8% above the historical market price (2014-2019), and I have use this premium also in my forecasts. The calculations of historical premiums in achieved selling price can be seen in Appendix K, in addition to the calculation of the GBP/NOK exchange rate.

Table 3: Forecasted exchange rate GBP/NOK, salmon price and achieved selling price per kg salmon in Scotland. EXR = Exchange rate. Sources: Fishpool (2020); Own estimates.

Operating Revenue Factors (SCT)	Driver	Calculation Basis	Base rate	2020	2021	2022	2023	2024	2025	2026	2027
Exchange rate GBP/NOK	Avg. historic factor	3-year average EXR	10,91	10,91	10,91	10,91	10,91	10,91	10,91	10,91	10,91
Forecast salmon price (NOK/kg)	Global market	Futures / own estimates	3,0 %	56,68	59,80	60,00	61,80	63,65	65,56	67,53	69,56
Forecast salmon price (GBP/kg)	NOK price & EXR	EXR * NOK price		5,20	5,48	5,50	5,67	5,84	6,01	6,19	6,38
Forecast premium (%)	Avg. historic factor	5-year average	3,8 %	3,8 %	3,8 %	3,8 %	3,8 %	3,8 %	3,8 %	3,8 %	3,8 %
Forecast selling price (GBP/kg)		Salmon price (GBP) * Premium (%)		**5,40**	**5,69**	**5,71**	**5,88**	**6,06**	**6,24**	**6,43**	**6,62**

Table 14 shows the forecasted selling price (GBP) of salmons for the farming segment (SCT) from 2020 to 2027. I now have both the harvest volume and the salmon selling price, and from this I can find the revenue for Bakkafrost`s farming segments.

8.2.1.3 Revenue forecast segments

We now have what we need to find the revenue for the farming segments in the Faroe Islands and in Scotland. First, I present the forecast in revenue and revenue growth of the farming segments before forecasting the revenue in the VAP and FOF segment.

8.2.1.3.1 Farming segment (FO)

For the farming segment in the Faroe Islands, I forecasted a downturn in revenues in 2020 compared to 2019 of minus 17,9% (see Table 15 below). This is because of an estimated 12,3 % reduced harvest volume because of the storm in January and a decrease in the salmon price of 3,5% (see Table 15 below). In 2021, the forecast is a 35,1% increase in revenue from 2020, because of high growth in the harvest volume at 24,3% and an increase in the salmon price of 5,5%. The revenue growth is not so high when we see it compared to 2019, with only a 5,3% increase. The reason is therefore a weak 2020 with reduced harvest volumes and weak salmon prices. From 2022 to 2027 is the yearly revenue growth between 6,4% and 15,7%, with a decreasing revenue growth from 2024 to 2027 were it is ending at 6,4% revenue growth (Table 15).

Table 45: Forecasted revenue for the farming segment in the Faroe Islands (in thousand`s DKK). Source: own estimates.

Farming FO revenue forecast	2020	2021	2022	2023	2024	2025	2026	2027
Forecasted harvest (TGW)	48 693	62 326	68 170	74 013	83 134	90 858	95 822	98 999
Forecasted sellling price (DKK/kg)	53,17	56,10	56,29	57,98	59,72	61,51	63,36	65,26
Revenue forecast	**2 589 062**	**3 496 730**	**3 837 339**	**4 291 242**	**4 964 692**	**5 588 763**	**6 070 936**	**6 460 364**
Revenue growth	-17,9 %	35,1 %	9,7 %	11,8 %	15,7 %	12,6 %	8,6 %	6,4 %

To investigate where the growth is coming from will I do a decomposition of the revenue growth into harvest growth and salmon selling price growth.

Table 5: Revenue growth decomposition into harvest and salmon selling price growth for the farming segment (FO). Source: Own estimates.

Revenue decomposition FO	2020	2021	2022	2023	2024	2025	2026	2027	CAGR 2019-2027
Revenue growth (%)	-17,9 %	35,1 %	9,7 %	11,8 %	15,7 %	12,6 %	8,6 %	6,4 %	9,4 %
Harvest growth (%)	-12,3 %	24,3 %	9,4 %	8,6 %	12,3 %	9,3 %	5,5 %	3,3 %	7,1 %
Salmon price growth (%)	-3,5 %	5,5 %	0,3 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	2,1 %

The revenue growth from 2019 to 2027 is a CAGR of 9,4%, with 7,1% from harvest growth and 2,1% from salmon price growth (Table 16). Figure 28 is illustrating a comparison in revenue growth decomposition from CAGR 2010-2019 and CAGR 2019-2027. We can see that the revenue growth is reduced from 16,9% to 9,4%, the harvest growth is reduced from 11,4% to 7,1%, and the salmon selling price growth is reduced from 4,9% to 2,1%.

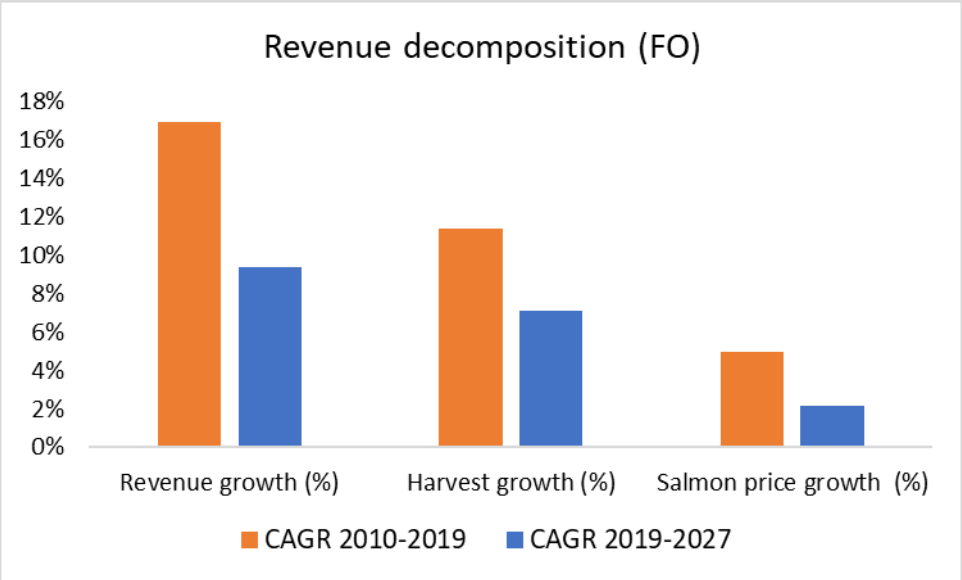

Figure 6: Illustrates the revenue growth decomposition into harvest growth and salmon price growth, compared as CAGR 2010-2019 and CAGR 2019-2027. Source: P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a); Own estimates.

The harvest growth is now contributing more to the revenue growth than before, and the achieved salmon price growth is contributing less. Either would this mean that the high salmon price growth the last decade cannot continue, or it can be a upside from my estimates with a higher salmon price growth.

8.2.1.3.2 Farming segment (SCT)

Table 17: Forecasted revenue for the farming segment in Scotland (in thousand`s GBP). Source: own estimates.

Farming SCT revenue forecast	2020	2021	2022	2023	2024	2025	2026	2027
Forecast harvest (TGW)	37 980	38 854	40 408	42 428	44 974	47 672	50 533	53 565
Forecast selling price (GBP/KG)	5,40	5,69	5,71	5,88	6,06	6,24	6,43	6,62
Revenue forecast	**204 947**	**221 221**	**230 840**	**249 653**	**272 571**	**297 593**	**324 912**	**354 739**
Revenue growth	6,9 %	7,9 %	4,3 %	8,1 %	9,2 %	9,2 %	9,2 %	9,2 %

With a forecasted high harvest growth of 12,4% in 2020 will the forecasted revenue growth be 6,9%, even with a 4,9% lower salmon price (see Table 19). The revenue growth will be high also for 2020 with 7,9% in revenue growth, due to the higher forward prices in the salmon price. But the forward price in 2022 is almost flat compared to 2021, leading to only a 4,3% revenue growth in 2022. The revenue growth will be at 8,1% in 2023 before stabilizing at 9,2% from 2024 to 2027, being slightly lower than the average growth of the farming segment in the Faroe Island.

Table 18: Revenue growth decomposition in harvest and salmon selling price growth for the farming segment in Scotland. Sources: Own estimates.

Revenue decomposition SCT	2020	2021	2022	2023	2024	2025	2026	2027	CAGR 2019-2027
Revenue growth (%)	6,9 %	7,9 %	4,3 %	8,1 %	9,2 %	9,2 %	9,2 %	9,2 %	8,0 %
Harvest growth (%)	12,4 %	2,3 %	4,0 %	5,0 %	6,0 %	6,0 %	6,0 %	6,0 %	5,9 %
Salmon price growth (%)	-4,9 %	5,5 %	0,3 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	2,0 %

From Table 18 we can see that most of the growth in revenues is coming from the harvest growth, with an CAGR of 5,9% from 2019 to 2027, while the forecast of achieved selling price of salmon is increasing with an CAGR of 2,0%. In total will my forecasted revenue growth from 2019 to 2027 be at 8,0% CAGR, slightly lower than the farming segment (FO) at 9,4%

Figure 28 below is illustrating a comparison in revenue growth decomposition from CAGR 2014-2019 and CAGR 2019-2027. As we can see, the revenue growth contribution is now

switched between the achieved salmon price growth and the harvest growth, where the harvest growth now is contributing more to the revenue growth. In total, the revenue growth will be lower between 2019-2027 than 2014-2019, from a CAGR of 8,8% down to 8,0%. The harvest growth is increasing from a CAGR of 2,3% to 5,9%, while the achieved salmon price growth has been reduced from a CAGR of 6,3% to 2,0%. I came to the same conclusion as I did with the farming segment (FO), that this can indicate either that the high growth in the salmon price the last decade is over, or it can be an upside from my revenue forecast. But a salmon price increasing with 6% every year is not sustainable in the long run.

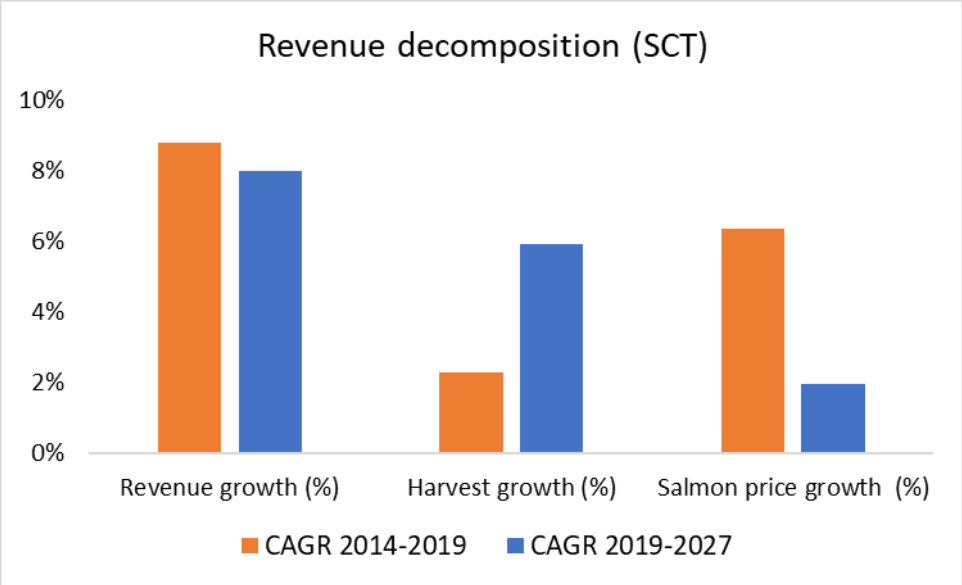

Figure 7: Illustrates the revenue growth decomposition in harvest growth and salmon price growth, compared with CAGR 2014-2019 and CAGR 2019-2027. Sources Datastream (2020); P/F Bakkafrost (2020a); Own estimates.

8.2.1.3.3 VAP segment

Historically the average internal farming sale has been at 29% of total sales (2010-2019), as we discovered in Chapter 7.2.1.3. We also found the average premium selling price of VAP compared to the internal farming revenue, being at 27% (2010-2019). I used this two numbers to add the revenue for the VAP segment, where the growth rate then will be at the same pace as the farming segment (FO).

Table 19: Forecasted VAP premium, the farming internal sale (FO) in percent, the internal farming revenue (FO) and the VAP revenue. Numbers in thousand`s DKK. Source: Own estimates.

VAP revenue forecast	2020	2021	2022	2023	2024	2025	2026	2027
Forecast VAP premium	27 %	27 %	27 %	27 %	27 %	27 %	27 %	27 %
Farming internal sale (%)	29 %	29 %	29 %	29 %	29 %	29 %	29 %	29 %
Internal farming revenue	761 702	1 028 737	1 128 945	1 262 483	1 460 612	1 644 213	1 786 068	1 900 638
VAP revenue	**967 184**	**1 306 258**	**1 433 498**	**1 603 060**	**1 854 638**	**2 087 769**	**2 267 892**	**2 413 369**

I forecasted the internal farming revenue (FO) by taking the forecasted farming revenue (FO) multiplied with the average internal sale (%) for the last ten years. Then I multiplied it with the selling premium of 29% to find the forecast in revenue for the VAP segment.

8.2.1.3.4 FOF segment

At last we have the FOF segment in the Faroe Islands. This segment has been in the company since 2011, but I started the analysing from 2012 since the contribution in 2011 is not a full year. The FOF segment also have internal revenue going to the farming segment, in addition to external revenue.

Since we found the historic revenue growth for the FOF segment in chapter 7.2.1.2 with a CAGR of 6,6% (2012-2019), I then used this number as the forecasted revenue growth for 2020 to 2027. I did not use more time on this segment since this is a minor part of operations and is not so important as the farming segments.

Table 6: Includes the forecast of FOF revenue, the external revenue in percent and the forecast of external revenue. Source: Own estimates.

FOF revenue forecast	2020	2021	2022	2023	2024	2025	2026	2027
Forecast FOF revenue	1 479 694	1 576 921	1 680 538	1 790 962	1 908 643	2 034 056	2 167 709	2 310 145
External revenue (%)	40,2 %	40,2 %	40,2 %	40,2 %	40,2 %	40,2 %	40,2 %	40,2 %
Forecast external revenue	**595 057**	**634 157**	**675 826**	**720 233**	**767 558**	**817 993**	**871 742**	**929 022**

To find the forecasted contribution from external revenue to the total FOF revenue, I used the five-year average of 40,2% which I found in chapter 7.2.1.2. I chose the five-year average since it was a trend of more external revenue the last years compare to earlier years.

8.2.1.3.5 Total revenue Bakkafrost group

To find the group`s total revenue, we need to add the different segments together with an elimination of the internal revenue from the farming segment (FO).

First, we find the revenue for the operations in the Faroe Islands, excluding the revenue from the farming segment in Scotland since we will be analysing this segment for itself later.

Table 21: Forecasted revenue and revenue growth for Bakkafrost`s operations in the Faroe Island. All numbers in thousand`s DKK. Source: Own estimates.

Revenue Bakkafrost forecast (FO)	2020	2021	2022	2023	2024	2025	2026	2027
Revenue farming segment FO	2 589 062	3 496 730	3 837 339	4 291 242	4 964 692	5 588 763	6 070 936	6 460 364
Revenue VAP segment	967 184	1 306 258	1 433 498	1 603 060	1 854 638	2 087 769	2 267 892	2 413 369
Elimination / farming internal revenue	-761 702	-1 028 737	-1 128 945	-1 262 483	-1 460 612	-1 644 213	-1 786 068	-1 900 638
External revenue FOF segment	595 057	634 157	675 826	720 233	767 558	817 993	871 742	929 022
Forecast revenue Bakkafrost (FO)	**3 389 602**	**4 408 407**	**4 817 718**	**5 352 052**	**6 126 276**	**6 850 311**	**7 424 501**	**7 902 117**
Revenue growth (%)	-16,8 %	30,1 %	9,3 %	11,1 %	14,5 %	11,8 %	8,4 %	6,4 %

We now have the revenue for the Faroe Islands operations. We can see from Table 21 that the revenue growth is almost the same as the revenue growth from the farming segment (FO), this is natural since the farming segment (FO) is influencing between 80-90% of the revenue. We see mostly a slightly reduced revenue growth, due to the slower growth of the FOF segment. Exception of this is in 2020 and 2027, due to higher growth in the FOF segment than the farming segment (FO) these years. The revenue growth from 2019 to 2027 displays a CAGR of 8,6%.

I used this revenue forecast together with the forecast of operational cost (computed later) to create the forecast of NOPLAT and invested capital, before adding the numbers from the farming segment of Scotland. But for analysis purposes have I added the revenue from the farming segment of Scotland already now, to investigate the revenue growth for the entire Bakkafrost group.

Table 22: Includes the revenue from the farming segment (SCT), arriving at the total revenue forecast for the Bakkafrost Group from 2020 to 2027. Numbers in thousand`s DKK, except where specified otherwise. Source: Own estimates.

Revenue Bakkafrost Group forecast	2020	2021	2022	2023	2024	2025	2026	2027
Revenue farming segment FO	2 589 062	3 496 730	3 837 339	4 291 242	4 964 692	5 588 763	6 070 936	6 460 364
Revenue VAP segment	967 184	1 306 258	1 433 498	1 603 060	1 854 638	2 087 769	2 267 892	2 413 369
Elimination / farming internal revenue	-761 702	-1 028 737	-1 128 945	-1 262 483	-1 460 612	-1 644 213	-1 786 068	-1 900 638
External revenue FOF segment	595 057	634 157	675 826	720 233	767 558	817 993	871 742	929 022
Revenue farming segment SCT (GBP)	204 947	221 221	230 840	249 653	272 571	297 593	324 912	354 739
GBP/DKK	8,8	8,8	8,8	8,8	8,8	8,8	8,8	8,8
Revenue farming segment SCT (DKK)	1 811 733	1 955 597	2 040 623	2 206 934	2 409 531	2 630 726	2 872 226	3 135 897
Forecast revenue Bakkafrost Group	**5 201 334**	**6 364 004**	**6 858 342**	**7 558 986**	**8 535 807**	**9 481 037**	**10 296 727**	**11 038 014**
Revenue growth (%)	-10,0 %	22,4 %	7,8 %	10,2 %	12,9 %	11,1 %	8,6 %	7,2 %

From Table 22 above, we can see a lower revenue growth from 2021 to 2025 than for the Faroe Islands operations alone because of a smaller revenue growth from the farming segment of Scotland in this period. It is however a good improvement in the organic revenue growth in 2020, which goes from minus 16,8% to minus 10% due to a revenue growth of 6,9% in the farming segment (SCT). We are also seeing improvements in 2026 and 2027 due to a slightly higher growth in the farming segment of Scotland these years than in the Faroe Islands. The organic revenue growth from 2019-2027 for the entire Bakkafrost group will be at 8,4% CAGR, slightly down from 8,6% CAGR for only the Faroe Islands operations.

Figure 29 is illustrating the total revenue for Bakkafrost and the organic revenue growth. We clearly see a growth in revenue, but the entire revenue growth for 2020 is because of the acquisition of SSC. The organic revenue growth is going down compared to the past, from a CAGR of 16,2% (2010-2019) to a CAGR of 8,4% (2020-2027). The absolute revenue growth is also going down from a CAGR of 20,9% (2010-2019) to 11,8% CAGR (2019-2027).

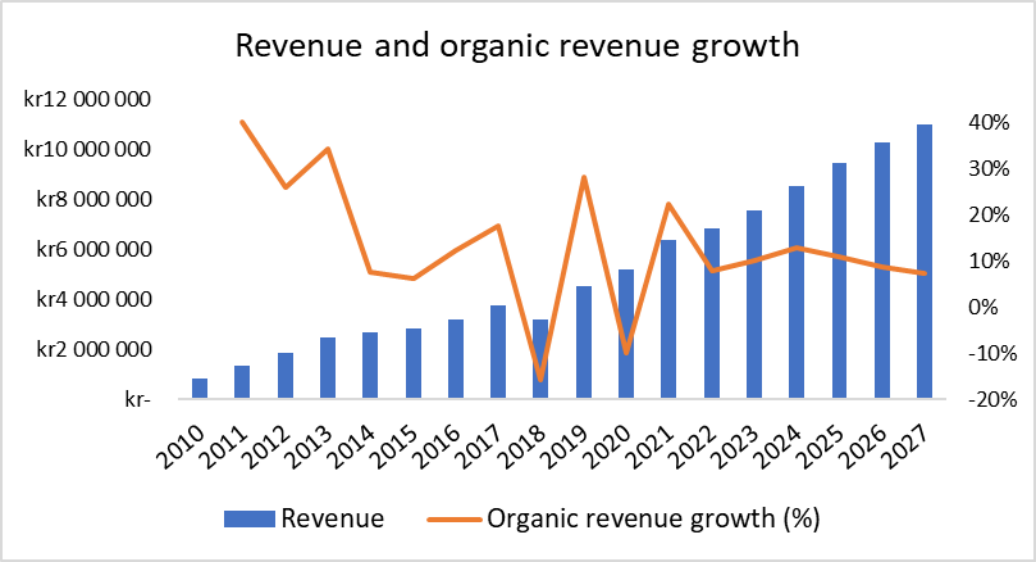

Figure 29: Illustrates the revenue and organic revenue growth for the entire Bakkafrost group. Revenue in thousand`s DKK. Source: P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a); own estimates.

Figure 30 below illustrates the revenue contribution from the different segments of Bakkafrost. The revenue from the farming segment of Scotland is starting to contribute in 2019 and have the first full year with revenue contribution in 2020. The other segments will therefore reduce their revenue contribution to Bakkafrost. We see a decreasing VAP contribution from 2010 to 2018 before an uptick in 2019. I have stabilized the revenue

contribution from the VAP segment back to the historical average for the explicit forecast period from 2020 to 2027. Because of lower growth in the FOF segment from 2021 to 2026 than the farming segments, will the FOF segment contribute slightly less to the revenue in Bakkafrost as the years goes by.

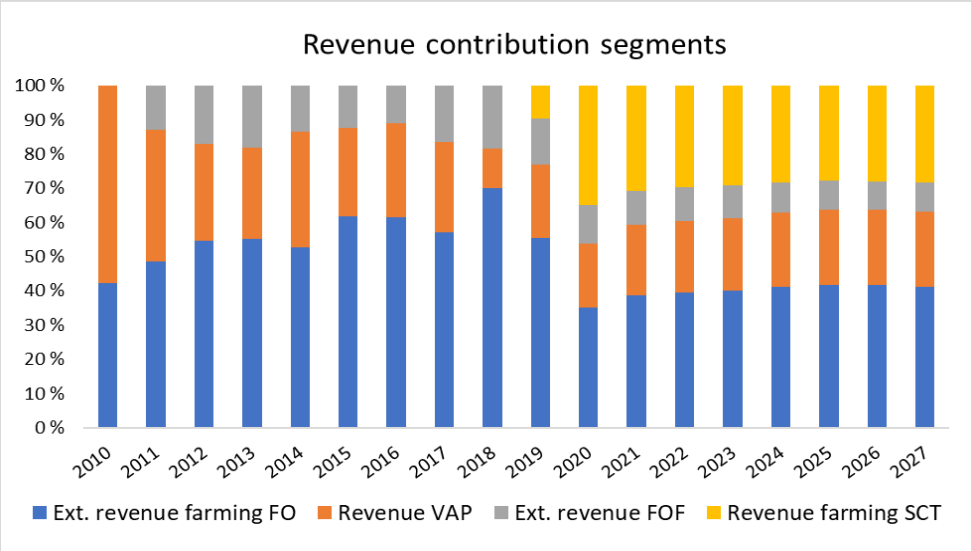

Figure 8: Illustrates the revenue contribution from the segments in Bakkafrost, from 2010 to 2027. The numbers from 2010 to 2019 is historical numbers, but the numbers from 2020 to 2027 is forecasted numbers. Source: P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a); Own estimates.

8.2.2 Forecast ratios of operating and non-operating cost items

I have mainly used forecast ratios with the salmon harvest as cost driver, where I have used historical cost ratios and either my own estimates in growth rate or the average historical growth rate. This will be specified below for all the cost items for Bakkafrost. For SSC I only estimated the cost items above EBIT including the taxes since this is all I need to find NOPLAT for the farming segment of Scotland. This is also the only posts that usually is in a segment report. For the forecast ratios for the farming segment of Scotland, I have used the historical cost ratios based on numbers from SSC and the same growth rate as for the Faroe Islands operations.

8.2.2.1 COGS

I have used the salmon harvest as the cost driver for the growth in COGS (Cost Of Goods Sold). I have used the 2019 ratio of COGS to harvest volumes as a starting point. Because of high volatility in COGS/kg did I use CAGR from the average COGS/kg 2015 to 2019, compared to the average COGS/kg in 2010 to 2014. The CAGR is then 2,3% and I used this as the growth rate in the forecast ratio.

8.2.2.2 Salary and personnel expenses

I have used the salmon harvest as the cost driver for the growth in salary and personnel expenses. I have used the 2019 ratio of salary and personnel expenses to harvest volumes as starting point, and I have chosen to use 2% growth rate going forward, instead of the ten-year average of 4,3%. I have used this because of the lower growth in the salmon price and I think that Bakkafrost will adapt to the new reduced growth in the salmon price after a decade with strongly increased salmon prices and costs related to operations.

8.2.2.3 Other operating expenses

I used the salmon harvest as the cost driver for the growth in other operating expenses. I have used the 2019 ratio of other operating expenses to harvest volumes as starting point. Because of a high volatility in the ratio of other operating expenses/kg, I have also here used the CAGR of average ratio 2015-2019 over 2010-2014, landing at 5% growth. Since the development in the salmon price is forecasted to be lower than in the last decade, I have set the growth to slowly decrease from 5% down to 2,5% in 2024, before stabilizing at 2,5% going forward.

8.2.2.4 Depreciation

For the depreciation I used the prior year's book value of PP&E as the cost driver, as recommended by Koller et al. (2015, 231). I used the five-year average in the Faroe Islands operations at 8,9% as the ratio for the entire detailed forecast period. I did not use the ten-year

average since the ratio was very high in 2010 and 2011 because of high growth in investments. For the farming segment in Scotland I used the average between 2014 to 2018 at 19,7%, before slowly going down to 13% in 2027, thus getting closer to the ratio of the Faroe Islands operations.

8.2.2.5 Synergies

I subtracted the synergy from the cost items, thus it will look like an income in the income statement to make the number transparent. I have forecasted two types of synergies, the synergy resulting in lower feed cost and the synergy of reduced overhead and salary cost (see more in Chapter 2.1.10). I have not chosen to include the other synergies, because it is difficult to forecast how much value they can get from sales cooperation and transfer of knowledge.

Bakkafrost have forecasted a synergy in feed of 2,6 NOK/kg harvested salmon in saved cost which, but this will be fully applied first from 2022 since some feed contracts in Scotland have to expire first. For 2020 can they only get a small synergy from this, so I only forecasted 20% of 2,6 NOK/kg in 2020. For 2021 I forecasted the company to achieve 2/3 of the feed synergy, before I forecasted 2,6 NOK/kg in 2022 and beyond.

For the cost saved from redundancy in overhead and salary expenses in Scotland, I believe that the company should manage to save at least 15%. I therefore forecasted that they manage to save 5% in 2020, 10% in 2021, and 15% in 2022 and beyond. This will be savings compared to the cost the Scotland segment should have used from the historical ratio of overhead and salary cost divided on salmon harvest.

8.2.2.6 Fair value adjustment of biological assets

I have sat this item to zero in my detailed forecast period since this will be impossible to forecast. It will also give no value to my analysis since it has no cash effect.

8.2.2.7 Other financial expenses

I have used revenue as the cost driver for the growth in other financial expenses. I chose to use the ten-year average of 0,2% as the cost ratio, since the ratio of other financial expenses over revenue does not have a clear trend. I decided to use 0,2% as the cost ratio for all the years in my detailed forecast period.

8.2.2.8 Interest expenses

I have used the prior year's debt as the cost driver for the interest expenses, which was recommended by Koller et al. (2015, 233). I have used the 2019 ratio of 2,1% as a starting point before going slowly up to 3,5% in 2025, before stabilizing there from 2025 to 2027. I decided 3,5% because this is the five-year average. I chose to start with the 2019 ratio and keep the ratio under the five-year average all the way up to 2025 because of the low interest rate environment today.

8.2.2.9 Interest revenue

I used the sum of the prior year's cash, cash equivalents and investments in stocks as the interest revenue driver, which was recommended by Koller et al. (2015, 234). Because of some volatility, I used the five-year average of 0,9% as the cost ratio. Because of the low interest rate environment have I decided to use this the entire detailed forecast period.

8.2.2.10 Revenue tax

In the Faroe Islands have the company revenue tax for the farming revenues, which they have had since 2016. The revenue tax is straight forward with 0% tax if the Nasdaq salmon price is under 42 NOK/kg, a 2,5% tax if the Nasdaq salmon price is between 42 and 47 NOK/kg, and 5% tax if the Nasdaq salmon price is above 47 NOK/kg. The revenue tax is tax deductible and is recognised as cost and not tax in the income statement (P/F Bakkafrost 2019, 39).

Since the salmon price has been above 47 NOK/kg almost the entire time the last years, the tax should have been close to 5% in revenue tax. But last year were the revenue tax only 3,1%

of the farming revenue and the average for the last four years is 3,7%. This is due to among other factors, that the revenue tax is only deducting from the theoretical Nasdaq spot price, and not for the premium that Bakkafrost achieves to sell the salmon for. I will therefore use the ratio of 3,7% instead of 5%, and I think this will be more accurate since I am forecasting that Bakkafrost continues to achieve a high premium in their selling price of salmons.

This revenue tax will only be for the revenue from the farming segment in the Faroe Islands, since this is a specific tax for the Faroe Islands.

8.2.2.11 Income from associates

I have used actual numbers with growth rate instead of ratio, as recommended by Koller et al. (2015, 233) for variable nonoperating income. Because of the high volatility in income from associates, but with an uptrend, have I used the five-year average of 12 412 thousand DKK as the starting point. The growth rate I have used is 5%.

8.2.2.12 Taxes

I have set the taxes to 18 % for the Faroe Islands operations and 19% for the farming segment of Scotland. This is the same as the nominal tax rate in the Faroe Islands and in Scotland.

8.2.2.13 Dividends

Bakkafrost have a dividend policy to give out 30 to 50% of adjusted EPS in dividends to their shareholders´. Their adjusted EPS is adjusted for the fair value adjustment of their biological assets in addition to the onerous contracts for the VAP segment. Since I have put both this items to zero in my income statement will Bakkafrost`s adjusted EPS be close to my forecasted EPS. I have set the dividend pay-out ratio to 30% of EPS in 2020, 35% in 2021, 40% in 2022 and 50% from 2023 to 2027 due to a high amount of excess cash after some years.

8.2.3 Forecast ratios of the items in the balance sheet

For the items in the balance sheet were mostly revenue used as the operating driver, but it is also used specific drivers fitting the item in the balance sheet. This will be specified under.

8.2.3.1 Operating and excess cash

The operating cash is set at 2% of revenue, as recommended by Koller et al. (2015, 177). It has been seen that companies with the smallest cash balances have held cash just below 2% (Koller et al. 2015, 177). Cash above 2% is then defined as excess cash in the company. The excess cash is calculated to balance the balance sheet together with new debt. I used the primary accounting definition of assets equalling liabilities plus shareholders´ equity to determine the excess cash. Because of a high cash position were new debt not needed for any of the years in the detailed forecast period.

8.2.3.2 Accounts receivable

With regards to the growth in accounts receivables, I used revenue as the operating driver as recommended by Koller et al. (2015, 237) due to the close proximity between revenues and accounts receivables. I have used the five-year average ratio for the entire detailed forecast period. I have chosen to use the five-year average instead of the ten-year average, due to the trend of a lower ratio the last years.

8.2.3.3 Other receivables and prepaid expenses

With growth in other receivables and prepaid expenses, I used revenue as the operating driver. I have used the five-year average ratio for the entire detailed forecast period. I chose to use the five-year average instead of the ten-year average due to the trend of lower ratio the last years.

8.2.3.4 Inventory

For the growth in inventory, I used COGS as the operating driver as recommended by Koller et al. (2015, 237). I have used the ten-year average ratio for the entire detailed forecast period. I have chosen to use the ten-year average instead of the five-year average, due to the high volatility in the ratio but with no defined trend.

8.2.3.5 Biological assets (at cost)

For the growth in biological assets, I have used COGS as the operating driver. I used the ten-year average ratio for the entire detailed forecast period. I have chosen this instead of the five-year average due to the high volatility in the ratio but with no defined trend. To find the ratio have I used the cost of biological assets found in the notes of the annual reports, thus excluded the fair value adjustments.

8.2.3.6 PP&E and investments

PP&E have I estimated from the relationship between investments and depreciation. I have calculated it like this:

$$PP\&E_t = PP\&E_{t-1} + Investments\ in\ PP\&E_t - Depreciation_t$$

Where:

$PP\&E_t$ is the current year's value of property, plant and equipment

$PP\&E_{t-1}$ is the prior year's value of property, plant and equipment

$Investments\ in\ PP\&E_t$ are the current year investments in property, plant and equipment

$Depreciation_t$ is the depreciation the current year

t is the time period, normally in years

To find the investments in PP&E have I used the forecast from the five-year investment plan for the Faroe Islands for the years 2020 to 2022. For 2023 have I used the company`s rule of thumb of 10 DKK per kilo harvested salmon in investments. Because of lower forecasted growth in the last years of the detailed forecast period is the investments reduced to 9 DKK/kg for 2024 and 8 DKK/kg from 2025 to 2027. For Scotland have I used forecast from Bakkafrost from the annual report of 2019, where they said they were planning to invest 350 million DKK yearly in Scotland from 2020 to 2024. For 2025 to 2027 have I used 8 DKK/kg in investments, the same ratio as the operations in the Faroe Islands.

8.2.3.7 Goodwill and acquired intangibles

I have chosen to hold goodwill and acquired intangibles constant through the detailed forecast period since I have not taken acquisitions into account in my forecasts in revenue. This approach is preferred since the empirical literature have documented that the typical acquisition fails to create value. The synergies are transferred to the target company through high premiums, and the acquisition will most likely be a zero-NPV investment (Koller et al. 2015, 238-239).

8.2.3.8 Financial assets

For the growth in financial assets, I used historic growth as the operating driver. I have used the five-year average growth in financial assets for the entire detailed forecast period. I chose to use the five-year average instead of the ten-year average due to the trend of lower growth the last years. Financial assets include the investments in associated companies and investments in stocks and shares.

8.2.3.9 Long-term receivables

For the growth in long-term receivables, I used revenue as the operating driver. I have used the ten-year average ratio for the entire detailed forecast period. I have chosen to use the ten-year average instead of the five-year average due to the high volatility in the ratio but with no defined trend.

8.2.3.10 Accounts payable

For the growth in accounts payable, I used COGS as the operating driver, as recommended by Koller et al. (2015, 237). I have used the five-year average ratio for the entire detailed forecast period. I have chosen to use the five-year average ratio instead of the ten-year average ratio, due to the trend of lower ratio the last years.

8.2.3.11 Short term and long-term debt

I have the short-term and long-term debt constant, as recommended by Koller et al. (2015, 241).

8.2.3.12 Current tax liabilities

For the growth in current tax liabilities, I used taxes as the operating driver, as recommended by Koller et al. (2015, 240). I have used the five-year average ratio for the entire detailed forecast period. I have chosen to use the five-year average ratio instead of the ten-year average ratio, due to the trend of lower ratio the last years.

8.2.3.12 Other current liabilities

For the growth in other current liabilities, I used revenues as the operating driver. I have used the five-year average ratio for the entire detailed forecast period. I have chosen to use the five-year average instead of the ten-year average, due to the trend of higher ratio the last years.

8.2.3.13 Deferred income tax

For the growth in deferred income tax have I used taxes as the operating driver, as recommended by Koller et al. (2015, 240). I have used the ten-year average ratio for the entire

detailed forecast period. I have chosen to use the ten-year average ratio instead of the five-year average ratio, due to the high volatility in the ratio but with no defined trend.

8.2.3.14 Retained earnings

Retained earnings is used to reconcile the balance sheet with investor funds, and is defined as:

$$Retained\ Earnings_t = Retained\ Earnings_{t-1} + Net\ Income_t - Dividends_t$$

Where:

$Retained\ Earnings_t$ is the current year's retained earning

$Retained\ Earnings_{t-1}$ is the prior year's retained earnings

$Net\ Income_t$ is the current year's net income

$Dividends_t$ is the current year's dividends

t it the time period, normally in years

To find the retained earnings I need to know the amount of dividends each year.

8.2.3.15 Common Stock

I have decided the common stock to be constant, as recommended by Koller et al. (2015, 240). This is because we are not going to forecast any issued shares or change in the capital structure of the company.

8.3 Forecast of future financial statements

Here I will present my forecasted income statement and balance sheet for Bakkafrost in the detailed forecast period. I will only present my forecasts for the entire company, where the results from both the operations in the Faroe Islands and in Scotland is included.

8.3.1 Presentation of the forecasted income statement

Table 7: Shows the forecasted income statement for Bakkafrost from 2020 to 2027. Number in thousand`s DKK, except EPS and DPS (NOK). Source: Own estimates.

Forecasted Income Statement	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Revenue	**5 201 334**	**6 364 004**	**6 858 342**	**7 558 986**	**8 535 807**	**9 481 037**	**10 296 727**	**11 038 014**
COGS	-2 172 759	-2 527 662	-2 758 904	-3 015 355	-3 371 628	-3 717 168	-4 020 066	-4 299 826
Gross Profit	**3 028 575**	**3 836 343**	**4 099 438**	**4 543 632**	**5 164 179**	**5 763 869**	**6 276 662**	**6 738 188**
Salary and personell expenses	-722 470	-822 848	-901 397	-986 537	-1 113 531	-1 234 815	-1 337 069	-1 428 067
Other Operating Expenses	-942 096	-1 146 528	-1 294 153	-1 444 537	-1 658 947	-1 855 815	-2 005 927	-2 125 573
Synergy (feed)	14 908	50 329	79 307	83 272	88 269	93 565	99 179	105 129
Synergy (overhead & salary)	14 503	30 266	48 159	51 578	56 039	60 887	66 153	71 876
EBITDA	**1 393 421**	**1 947 562**	**2 031 354**	**2 247 408**	**2 536 009**	**2 827 691**	**3 098 998**	**3 361 553**
Depreciation	-438 553	-517 024	-561 418	-578 816	-621 522	-657 801	-690 518	-723 468
Operational EBIT *	**954 867**	**1 430 538**	**1 469 936**	**1 668 592**	**1 914 487**	**2 169 889**	**2 408 480**	**2 638 085**
Fair value adjustments of biological assets	-	-	-	-	-	-	-	-
Revenue tax	-95 160	-128 521	-141 040	-157 723	-182 476	-205 413	-223 135	-237 449
EBIT	**859 707**	**1 302 016**	**1 328 896**	**1 510 869**	**1 732 011**	**1 964 476**	**2 185 345**	**2 400 637**
Net interest revenue	11 478	11 150	11 498	13 220	12 264	11 389	11 924	13 773
Net interest expenses	-56 094	-56 094	-56 094	-66 541	-79 849	-93 157	-93 157	-93 157
Other non-operational income (expense)	-	-	-	-	-	-	-	-
Income from associates (non-operational)	13 033	13 684	14 369	15 087	15 841	16 634	17 465	18 338
Other financial expenses	-9 172	-11 223	-12 094	-13 330	-15 053	-16 719	-18 158	-19 465
Net Income Before Taxes	**818 952**	**1 259 534**	**1 286 574**	**1 459 306**	**1 665 215**	**1 882 622**	**2 103 419**	**2 320 126**
Income Taxes	-148 681	-228 409	-232 916	-264 259	-301 690	-341 288	-381 567	-421 194
Net Income After Taxes	**670 271**	**1 031 125**	**1 053 658**	**1 195 047**	**1 363 525**	**1 541 334**	**1 721 851**	**1 898 932**
Minority Interest	-	-	-	-	-	-	-	-
Discontinued Operations								
Net Income	**670 271**	**1 031 125**	**1 053 658**	**1 195 047**	**1 363 525**	**1 541 334**	**1 721 851**	**1 898 932**
Basic Weighted Average Shares	59 143	59 143	59 143	59 143	59 143	59 143	59 143	59 143
Diluted Weighted Average Shares	59 143	59 143	59 143	59 143	59 143	59 143	59 143	59 143
Earnings Per Share	**15,0**	**23,1**	**23,6**	**26,8**	**30,5**	**34,5**	**38,6**	**42,5**
Dividend payout ratio	30 %	35 %	40 %	50 %	50 %	50 %	50 %	50 %
Dividends	201 081	360 894	421 463	597 523	681 763	770 667	860 926	949 466
Dividends Per Share	**4,5**	**8,1**	**9,4**	**13,4**	**15,3**	**17,3**	**19,3**	**21,3**

8.3.2 Presentation of the forecasted balance sheet

Table 8: Shows the forecasted balance sheet for Bakkafrost from 2020 to 2027. Numbers in thousand`s DKK. Source: Own estimates.

Forecasted Balance Sheet	2020	2021	2022	2023	2024	2025	2026	2027
ASSETS								
Current assets								
Operating cash	104 027	127 280	137 167	151 180	170 716	189 621	205 935	220 760
Excess cash	1 182 331	1 216 825	1 396 962	1 292 453	1 196 290	1 249 341	1 441 436	1 749 354
Accounts Receivables	456 518	558 565	601 953	663 448	749 183	832 146	903 738	968 801
Other Receivables & prepaid expenses	140 179	173 422	187 382	206 833	234 165	260 429	282 724	302 662
Inventory	392 973	503 613	561 131	621 586	711 065	793 241	856 212	906 766
Biological assets (at cost)	1 824 897	2 190 131	2 407 040	2 642 777	2 978 212	3 296 882	3 563 122	3 798 028
Total Current Assets	**4 100 926**	**4 769 837**	**5 291 635**	**5 578 277**	**6 039 632**	**6 621 659**	**7 253 166**	**7 946 372**
Non-current assets								
Goodwill	567 129	567 129	567 129	567 129	567 129	567 129	567 129	567 129
Licences, brands	3 828 558	3 828 558	3 828 558	3 828 558	3 828 558	3 828 558	3 828 558	3 828 558
Total Intangible Assets	**4 395 687**	**4 395 687**	**4 395 687**	**4 395 687**	**4 395 687**	**4 395 687**	**4 395 687**	**4 395 687**
Total Property, Plant and Equipment	**4 789 770**	**5 212 746**	**5 391 328**	**5 902 639**	**6 379 322**	**6 829 766**	**7 310 090**	**7 807 133**
Financial assets	126 583	134 553	143 026	152 032	161 605	171 781	182 598	194 096
Long-term receivables	8 144	9 964	10 738	11 835	13 365	14 845	16 122	17 282
Deferred tax assets	-	-	-	-	-	-	-	-
Total Non-Current Assets	**9 320 183**	**9 752 950**	**9 940 779**	**10 462 193**	**10 949 979**	**11 412 079**	**11 904 497**	**12 414 198**
TOTAL ASSETS	**13 421 109**	**14 522 787**	**15 232 415**	**16 040 471**	**16 989 611**	**18 033 738**	**19 157 663**	**20 360 570**
EQUITY & LIABILITIES								
Current Liabilities								
Accounts Payable	507 881	590 839	644 892	704 837	788 116	868 885	939 687	1 005 081
Short-term Interest-bearing Debt	107 808	107 808	107 808	107 808	107 808	107 808	107 808	107 808
Current tax liabilities	150 288	221 044	216 636	247 585	285 087	324 668	364 042	402 308
Other Current Liabilities	230 347	266 107	282 749	309 095	344 062	379 414	412 970	446 128
Total Current Liabilities	**996 324**	**1 185 798**	**1 252 085**	**1 369 325**	**1 525 073**	**1 680 776**	**1 824 508**	**1 961 326**
Non-Current Liabilities								
Long-term Interest-bearing Debt	2 553 816	2 553 816	2 553 816	2 553 816	2 553 816	2 553 816	2 553 816	2 553 816
Deferred Income Tax	1 073 415	1 316 882	1 329 988	1 425 355	1 539 448	1 660 108	1 782 771	1 903 346
Total Non-Current liabilities	**3 627 231**	**3 870 698**	**3 883 804**	**3 979 171**	**4 093 264**	**4 213 924**	**4 336 587**	**4 457 162**
TOTAL LIABILITIES	**4 623 555**	**5 056 496**	**5 135 888**	**5 348 496**	**5 618 337**	**5 894 700**	**6 161 095**	**6 418 488**
Equity								
Common Stock	59 143	59 143	59 143	59 143	59 143	59 143	59 143	59 143
Additional Paid-In Capital	4 027 375	4 027 375	4 027 375	4 027 375	4 027 375	4 027 375	4 027 375	4 027 375
Retained Earnings (Accumulated Deficit)	4 161 541	4 830 277	5 460 513	6 055 962	6 735 261	7 503 026	8 360 555	9 306 069
Other Equity, total	549 495	549 495	549 495	549 495	549 495	549 495	549 495	549 495
Non-controlling interest	0	0	0	0	0	0	0	0
TOTAL EQUITY	**8 797 554**	**9 466 290**	**10 096 526**	**10 691 975**	**11 371 274**	**12 139 039**	**12 996 568**	**13 942 082**
TOTAL EQUITY & LIABILITIES	**13 421 109**	**14 522 787**	**15 232 415**	**16 040 471**	**16 989 611**	**18 033 738**	**19 157 663**	**20 360 570**

8.4 Forecast of reorganized financial statements, ROIC and free cash flow

Here I will present my forecasts of NOPLAT, invested capital, ROIC and free cash flow for the detailed forecast period. I will only present my forecasts for the entire company, where the results from both the operations in the Faroe Islands and in Scotland is included.

8.4.1 Presentation of forecasted NOPLAT

Table 9: Shows the forecasted NOPLAT and reconciliation with net income for Bakkafrost from 2020 to 2027. Numbers in thousand`s DKK. Source: Own estimates.

	2020	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Tax rate	18,2 %	18,1 %	18,1 %	18,1 %	18,1 %	18,1 %	18,1 %	18,2 %
Revenues	5 201 334	6 364 004	6 858 342	7 558 986	8 535 807	9 481 037	10 296 727	11 038 014
COGS	-2 172 759	-2 527 662	-2 758 904	-3 015 355	-3 371 628	-3 717 168	-4 020 066	-4 299 826
Salary and personell expenses	-722 470	-822 848	-901 397	-986 537	-1 113 531	-1 234 815	-1 337 069	-1 428 067
Other operating expenses	-943 666	-1 149 349	-1 298 143	-1 449 591	-1 664 934	-1 862 854	-2 014 151	-2 135 130
Depreciation	-438 553	-517 024	-561 418	-578 816	-621 522	-657 801	-690 518	-723 468
Revenue tax	-95 160	-128 521	-141 040	-157 723	-182 476	-205 413	-223 135	-237 449
Synergy (feed+overhead/salary)	29 411	80 595	127 466	134 850	144 308	154 451	165 332	177 005
EBITA	858 137	1 299 196	1 324 906	1 505 814	1 726 024	1 957 436	2 177 120	2 391 080
Operating cash taxes	155 781	235 576	239 816	272 632	312 649	354 784	394 861	433 987
NOPLAT	702 356	1 063 620	1 085 090	1 233 183	1 413 375	1 602 652	1 782 260	1 957 093
Reconcilation with net income								
Net income	668 999	1 028 825	1 050 393	1 190 898	1 358 598	1 535 529	1 715 059	1 891 028
(+) Amortization goodwill	-	-	-	-	-	-	-	-
(-) FVA of biological assets	-	-	-	-	-	-	-	-
(-) Badwill related to aquisition	-	-	-	-	-	-	-	-
(+) Other unusual expense	-	-	-	-	-	-	-	-
(-) Onerous contracts (expense)	-	-	-	-	-	-	-	-
(-) income from associates	13 033	13 684	14 369	15 087	15 841	16 634	17 465	18 338
(-) Currency effects (1-t)	-	-	-	-	-	-	-	-
(+) Net interest expense	56 094	56 094	56 094	66 541	79 849	93 157	93 157	93 157
(+) Other financial expense (income)	-2 305	93	640	180	2 886	5 458	6 398	5 897
Non operating expence (income)	**40 755**	**42 502**	**42 365**	**51 634**	**66 894**	**81 982**	**82 089**	**80 715**
(+) Non operating taxes	-7 398	-7 707	-7 668	-9 348	-12 117	-14 859	-14 888	-14 650
(+) Minority interest	-	-	-	-	-	-	-	-
(-) Discontinued operations	-	-	-	-	-	-	-	-
NOPLAT	702 356	1 063 620	1 085 090	1 233 183	1 413 375	1 602 652	1 782 260	1 957 093

8.4.2 Presentation of forecasted invested capital

Table 10: Shows the forecasted invested capital for Bakkafrost from 2020 to 2027. Numbers in thousand`s DKK. Source: Own estimates.

Forecasted reorganized balance sheet	2020	2021	2022	2023	2024	2025	2026	2027
Total funds invested: Uses								
Operating cash	104 027	127 280	137 167	151 180	170 716	189 621	205 935	220 760
Accounts receivables	456 518	558 565	601 953	663 448	749 183	832 146	903 738	968 801
Other operating receivables & prepaid expenses	140 179	173 422	187 382	206 833	234 165	260 429	282 724	302 662
Inventory	392 973	503 613	561 131	621 586	711 065	793 241	856 212	906 766
Biological assets								
Biological assets - Fair value adjustments								
Biological cost price (operational)	1 824 897	2 190 131	2 407 040	2 642 777	2 978 212	3 296 882	3 563 122	3 798 028
Operating current assets	**2 918 595**	**3 553 012**	**3 894 673**	**4 285 824**	**4 843 342**	**5 372 319**	**5 811 730**	**6 197 018**
Accounts payable	507 881	590 839	644 892	704 837	788 116	868 885	939 687	1 005 081
Current tax liabilities	150 288	221 044	216 636	247 585	285 087	324 668	364 042	402 308
Other operating current liabilities	230 347	266 107	282 749	309 095	344 062	379 414	412 970	446 128
Operating current liabilities	**888 516**	**1 077 990**	**1 144 277**	**1 261 517**	**1 417 265**	**1 572 968**	**1 716 700**	**1 853 518**
Operating working capital	2 030 079	2 475 021	2 750 397	3 024 307	3 426 076	3 799 351	4 095 031	4 343 500
Total property, plant and equipment	4 789 770	5 212 746	5 391 328	5 902 639	6 379 322	6 829 766	7 310 090	7 807 133
Other long term receivables	8 144	9 964	10 738	11 835	13 365	14 845	16 122	17 282
Invested capital, excl. goodwill	**6 827 992**	**7 697 731**	**8 152 463**	**8 938 782**	**9 818 763**	**10 643 962**	**11 421 242**	**12 167 915**
Goodwill and acqu. Intangibles, less tax gross up	3 776 765	3 776 765	3 776 765	3 776 765	3 776 765	3 776 765	3 776 765	3 776 765
Cumulative amortization and impairment	1756	1756	1756	1756	1756	1756	1756	1756
Adjusted goodwill and aquired intangibles	3 778 521	3 778 521	3 778 521	3 778 521	3 778 521	3 778 521	3 778 521	3 778 521
Invested capital incl. Goodwill	**10 606 513**	**11 476 252**	**11 930 984**	**12 717 303**	**13 597 284**	**14 422 483**	**15 199 763**	**15 946 436**
Excess cash	1 182 331	1 216 825	1 396 962	1 292 453	1 196 290	1 249 341	1 441 436	1 749 354
Financial investments	126 583	134 553	143 026	152 032	161 605	171 781	182 598	194 096
Non-operating assets	1 308 914	1 351 378	1 539 988	1 444 485	1 357 895	1 421 122	1 624 034	1 943 450
Total funds invested	**11 915 427**	**12 827 631**	**13 470 972**	**14 161 788**	**14 955 180**	**15 843 605**	**16 823 798**	**17 889 886**
Total funds invested: Sources								
Short-term debt	107 808	107 808	107 808	107 808	107 808	107 808	107 808	107 808
Long-term debt	2 553 816	2 553 816	2 553 816	2 553 816	2 553 816	2 553 816	2 553 816	2 553 816
Non-controlling interest	0	0	0	0	0	0	0	0
Debt and debt equivalents	**2 661 624**	**2 661 624**	**2 661 624**	**2 661 624**	**2 661 624**	**2 661 624**	**2 661 624**	**2 661 624**
Equity adjustment - fair value of biological assets	0	0	0	0	0	0	0	0
Deferred tax liabilities (assets), operating	454 493	697 960	711 066	806 433	920 526	1 041 186	1 163 849	1 284 424
Cum. Amortization and impairment	1756	1756	1756	1756	1756	1756	1756	1756
Shareholders equity	8 797 554	9 466 290	10 096 526	10 691 975	11 371 274	12 139 039	12 996 568	13 942 082
Equity and equity equivalents	**9 253 803**	**10 166 007**	**10 809 348**	**11 500 164**	**12 293 556**	**13 181 981**	**14 162 174**	**15 228 262**
Total funds invested	**11 915 427**	**12 827 631**	**13 470 972**	**14 161 788**	**14 955 180**	**15 843 605**	**16 823 798**	**17 889 886**

8.4.3 Presentation of forecasted ROIC

Table 11: Shows the forecast of ROIC for Bakkafrost from 2020 to 2027. Numbers in thousand`s DKK. Source: Own estimates.

Forecasted ROIC	2020	2021	2022	2023	2024	2025	2026	2027
NOPLAT	703 628	1 065 903	1 088 318	1 237 272	1 418 220	1 608 349	1 788 915	1 964 827
Invested Capital	10 606 204	11 475 697	11 930 198	12 716 307	13 596 105	14 421 096	15 198 143	15 944 554
Invested Capital ex. Goodwill	6 827 683	7 697 176	8 151 677	8 937 786	9 817 584	10 642 575	11 419 622	12 166 033
ROIC	**6,72 %**	**9,65 %**	**9,30 %**	**10,04 %**	**10,78 %**	**11,48 %**	**12,08 %**	**12,62 %**
ROIC excluded Goodwill	**10,53 %**	**14,68 %**	**13,73 %**	**14,48 %**	**15,12 %**	**15,72 %**	**16,22 %**	**16,66 %**

8.4.4 Presentation of forecasted free cash flow

Table 28: Shows the forecasted free cash flow and cash flow available to investors for Bakkafrost from 2020 to 2027. Numbers in thousand`s DKK. Source: Own estimates.

Forecasted free cash flow	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
NOPLAT	702 356	1 063 620	1 085 090	1 233 183	1 413 375	1 602 652	1 782 260	1 957 093
(+) Depreciation	438 553	517 024	561 418	578 816	621 522	657 801	690 518	723 468
Gross cash flow	**1 140 909**	**1 580 644**	**1 646 507**	**1 811 999**	**2 034 897**	**2 260 454**	**2 472 778**	**2 680 560**
Increase (Decrease) in working capital	-394 637	444 942	275 375	273 911	401 769	373 275	295 680	248 469
Investments in capital expenditure	1 282 620	940 000	740 000	1 090 127	1 098 205	1 108 246	1 170 842	1 220 511
Increase (decrease) in adjusted goodwill & acqu. intangibles	-	-	-	-	-	-	-	-
Increase (decrease) in other operating assets, net	3 722	1 820	774	1 097	1 529	1 480	1 277	1 161
Foreign currency translations	-	-	-	-	-	-	-	-
(-) Gross investments	**891 705**	**1 386 763**	**1 016 149**	**1 365 135**	**1 501 504**	**1 483 000**	**1 467 799**	**1 470 141**
Adjustment for acquisition	-	-	-	-	-	-	-	-
(-) Gross organic investments	**891 705**	**1 386 763**	**1 016 149**	**1 365 135**	**1 501 504**	**1 483 000**	**1 467 799**	**1 470 141**
Organic free cash flow	249 205	193 881	630 358	446 864	533 393	777 453	1 004 979	1 210 420
Free cash flow	**249 205**	**193 881**	**630 358**	**446 864**	**533 393**	**777 453**	**1 004 979**	**1 210 420**
Other financial income (expense)	2 305	-93	-640	-180	-2 886	-5 458	-6 398	-5 897
Other non-operating expense	-	-	-	-	-	-	-	-
Income from associates	13 033	13 684	14 369	15 087	15 841	16 634	17 465	18 338
Non-operating taxes	-7 398	-7 707	-7 668	-9 348	-12 117	-14 859	-14 888	-14 650
Decrease (increase) in excess cash	36 992	-34 494	-180 137	104 509	96 163	-53 050	-192 096	-307 918
Decrease (increase) in investments	-7 499	-7 971	-8 473	-9 006	-9 573	-10 176	-10 817	-11 498
Non-operating cash flow	37 434	-36 580	-182 550	101 062	87 428	-66 911	-206 733	-321 624
Cash flow available to investors	**286 638**	**157 302**	**447 808**	**547 926**	**620 821**	**710 543**	**798 246**	**888 796**

8.5 Simplified forecast period

The simplified forecast period is seven years from 2028 to 2034. Together with the 8 years from the detailed forecast period will the explicit forecast period be 15 years in total.

In the simplified forecast period, I will only forecast the revenue growth, EBITA margin, tax margin, capital turnover and ROIC. The goal of the simplified forecast period is to slowly reduce the growth and RONIC towards the same values as used in the continuing value. RONIC is, as the name is implying, the return of new invested capital for future growth.

The calculations and free cash flow of the simplified forecast period including the detailed forecast period is shown in Appendix L. The reasoning of the different factors is shown under.

8.5.1 Revenue growth

Since the revenue growth was 7,2% in 2027, I will start with a revenue growth of 6,5% in 2028 before reducing the growth gradually to 3,5% in 2034. This is just above the growth set in the continuing value at 3%, which is explained in further details in Chapter 10.1.1.1.

8.5.2 EBITA margin

The EBITA margin averaged at 28,7% from the period 2010 to 2019, while it has averaged only at 20,0% from the period of 2020 to 2027 because of lower growth in the salmon price. I have forecasted slightly increased margins from 2021 to 2027, ending with an EBITA margin at 21,7% in 2027. I will continue with this margin throughout the simplified forecast period.

8.5.3 Tax

I keep the operating tax rate at the same tax level as in 2027, thus estimating that the EBITA contributions from the Faroe Islands and in Scotland will grow in the same pace. The tax level was 18,15% in 2027.

8.5.4 ROIC

To decide ROIC I need to compute the invested capital. As we remember in chapter 7.1.1, ROIC could be dissected into capital turnover, operating margin and the operating tax rate. We now have the operating margin and the operating tax rate, but not the capital turnover. The capital turnover is found when dividing revenue on the invested capital at the end of year from 2020 to 2027.

The capital turnover was 0,907 in 2027. I let it gradually decrease to 0,900 in 2034 (Appendix L). After deciding the capital turnover, I can now use it to find the invested capital end-of-year by dividing revenue on capital turnover. When computing the average of start-of-year and end-of-year invested capital, I can find the average invested capital. From this will I calculate ROIC and the change in invested capital year to year.

The ROIC excluding goodwill calculated from the average invested capital, was 16,7% in 2027. The average from 2020 to 2027 was 14,6% in comparison to 24,5 % for Bakkafrost from 2010 to 2019 and 10,65% for SSC from 2014 to 2019. Since I have decided to use 14% RONIC in the continuing value (see further details in chapter 10.1.1.2), would I like ROIC to slowly go down towards that. For 2028 is the ROIC 16,6% before gradually reducing it to 16,3% in 2034 due to reduced capital turnover (Appendix L). Since RONIC is the return on new invested capital can the invested capital already in the company still achieve the same high ROIC as before. Because RONIC is only used for growth can it take decades for ROIC to come close to the RONIC set in the continuing value (Koller et al. 2015, 256). So, when I am using 14% RONIC in the continuing value does this not mean that ROIC must be 14% in 2034. Instead we must try to get RONIC close to 14% at the end of the simplified forecast period. For 2028 is the RONIC 17,1% reducing gradually to 14,2% in 2034, just above 14% RONIC used in the continuing value (Appendix L).

8.5.5 Free cash flow

When we have calculated NOPLAT and invested capital end of year is it easy to find the free cash flow. We simply subtract the yearly change in invested capital from NOPLAT, and we have the free cash flow. From Appendix L can we see that the free cash flow will increase from 1 283 MDKK in 2028 to 2 161 MDKK in 2034.

Chapter 9 – Cost of Capital

When discounting the free cash flow from my forecast using the enterprise DCF model, I need to discount it with the weighted average cost of capital (WACC).

WACC can be defined as the returns that all the investors in a company, both lenders and equity holders, is expecting to earn for investing in the specific business instead of others with the same risk, also called the opportunity cost. When the company meets the expectation will the investors in the company earn the cost of capital, hence the cost of capital is therefore the same as the expected return (Koller et al. 2015, 269).

WACC is consisting of:

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

Where:

D is the value of debt using market-based values

V is the enterprise value of the company

E is the equity value using market-based values

k_d is cost of debt

k_e is cost of equity

T_m is the marginal tax rate of the company.

9.1 Capital structure

When finding the cost of capital using WACC, we need to find the equity and debt weight in the capital structure of the company. We should normally use the targeted weight in capital structure for the company since todays weight can reflect a short-term swing in the company`s stock price that is not rebalanced yet. Since it was not possible to find any targeted weight in

capital structure, another possibility is to use the current weight instead (Koller et al. 2015, 295).

When finding the current equity and debt weight in the company, it is favourable to use market values instead of book values. This is because the company can return capital without changing the capital structure by buying back shares or paying down debt, but this must be done in market values. The book values are in that regard considered to be sunk cost (Koller et al. 2015, 294).

The market value of equity can easily be found by multiply the stock price with the number of outstanding shares in the company.

$$Market\ value\ of\ equity = stock\ price * number\ of\ outstanding\ shares$$

All the interest-bearing debt in Bakkafrost is loans in the bank, and it is therefore not possible to find the market value of these. I will therefore use the book value of interest-bearing debt instead, which is most often reasonably close to the market value (Koller et al. 2015, 295). The excess cash must be subtracted from the book value of the interest-bearing debt, to find net debt. The enterprise value can then be calculated by adding net debt and market value of equity together.

Table 29: Calculation of the weighted current capital structure. Numbers in thousand`s DKK, except otherwise specified. DKK/NOK from 29.05.20 Source: Datastream (2020); P/F Bakkafrost (2020a); Norges bank (2020a).

Equity	
Outstanding number of shares	59 143
Stock price (NOK)	605
Market value (NOK)	35 781 515
DKK/NOK	1,447
Market value (DKK)	**24 724 651**
Debt	
Short-term interest-bearing debt	107 808
Long-term interest-bearing debt	2 328 231
Long-term leasing debt	225 585
Excess cash	1 219 324
Net debt and debt equivalents	**1 442 300**
Enterprise value	**26 166 951**
Weigthed current capital structure	
E/V	94,5 %
D/V	5,5 %

We then arrive with a weight of equity to enterprise value at 94,5%, and the weight of net debt to enterprise value at 5,5%.

9.2 Cost of equity

The cost of equity is the most difficult to calculate in WACC, and it has been numerous formulas and theories on the subject. The most acknowledged theory is the Capital Asset Pricing Model (CAPM), where the premium in market return are calculated together with the company`s risk related to the market.

Fama & French (1992) did an attempt to make the formula more specific to the company by adding certain factors calculated from regression. Their famous three-factor model found out that the company`s size was inversed related to the company`s equity returns, while the company`s book-to-market value of equity were positively related to the equity returns (Fama & French 1992). Later they also made a five-factor model that better described the equity returns than the three-factor model. This consist of profitability and investment factors, in addition to the factors in the three-factor model (Fama & French 2015).

Another famous theory for finding the cost of equity, is the Arbitrage Pricing Theory. The APT is resembling a generalized Fama & French three-factor model, but because of a disagreement in the numbers of factors, how to use the factors and how to calculate them, the model is tricky to calculate in practice and not much in use (Koller et al. 2015, 282).

The Fama & French three- and five-factor model is based on empirical evidence, while the CAPM is based on solid theory about risk and return. The theoretical evidence about the factors that Fama & French is using has not gained universal acceptance and is not always risk factors in itself, in example the book-to-market value (Koller et al. 2015, 282).

I therefore used CAPM to find the cost of equity, because it is well known and based on solid theoretical foundation.

9.2.1 Capital Asset Pricing Model

The Capital Asset Pricing Model describes the relationship between systemic risk and the risk of the security in relation to the market. The CAPM is calculated as the risk-free rate plus the company`s beta times the market premium. The market premium and the risk-free rate is common for all companies, while beta is the only factor that is different between the companies. Beta is representing the risk of the company which is calculated from how much the company is moving up and down in conjunction with the market (Koller et al., 2015).

The formula to find the cost of equity from CAPM is computed as followed (Koller et al. 2015, 279):

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

Where:

$E(R_i)$ = expected return of company i

r_f = risk-free rate

β_i = Security i´s sensitivity to the market

$E(R_m)$ = excpected return of market

$E(R_m) - r_f$ = equity market premium

Where the expected return of the company is the same as the cost of equity (k_e) in the WACC formula.

9.2.2 Risk-free rate

A risk-free rate is representing a hypothetical return on a risk-free investment, with no chance of defaulting on the payment. This rate lays the foundation for all investments since the risky investments need to give an expected return above the risk-free rate to compensate for the risk. The ten-year government bond is the closest you can get risk-free rate.

To avoid currency risk is it best to use government bonds as risk-free rate in the same currency as the investments (Koller et al. 2015, 275). I will therefore use the Norwegian 10-year government bond as risk-free rate, since Bakkafrost is noted on the Oslo Stock Exchange in Norway. For the explicit forecast period will I use the average rate of the ten-year Norwegian government bond for the last five years (2015-2019), which was at 1,58% (Norges Bank 2020b)

For the continuing value, I used the average rate of the ten-year Norwegian government bond for the last 20 years to calculate for the possibility of interest rate reversing back to mean. The 20-year average was 3,41% (Norges bank 2020b).

9.2.3 Market risk premium

The market risk premium is the excess return investors in the stock market expect to get compared to a risk-free investment.

We can find the market risk premium in three different ways:

- Using the historical market risk premium
- Market implied cost of equity
- Surveys

PWC have conducted surveys in Norway, asking members in NFF (Norske Finansanalytikeres Forening) about which market premium they use. Their average result from 2012 to 2019 is 5% (PWC 2019, 8). This is also the same result as Koller et al. (2015, 274-278) recommended using, where they have calculated the historical market premium and adjusted it for the survivorship premium. I therefore use 5% as the market risk premium in CAPM, both for the explicit forecast period and the continuing value.

9.2.4 Equity beta estimation

Beta is a factor expressing how much the company is exposed to systematic risk. Beta can be defined as how much the company move up and down in conjunction with the market (Koller

et al. 2015, 270). A company that is following the market perfectly have a beta of one, with a cost of equity equalling the market risk premium plus the risk-free rate. If a company move in conjunction with the market but with higher volatility is the beta above one, and if the company is either not moving in conjunction with the market or with lower volatility, is the beta under one.

The formula of equity beta is defined as:

$$\beta_e = \frac{Cov(k_e, k_m)}{\sigma^2(k_m)}$$

Where:

$Cov(k_e, k_m)$ is the covariance between the security and the market portfolio

$\sigma^2(k_m)$ is the variance of the market portfolio

β_e is the equity beta (levered beta).

When calculating the equity beta, I calculated the median industry beta from the salmon companies instead of the equity beta from Bakkafrost alone. This is because Bakkafrost is facing the same operating risk as the other peers and to use the industry beta decreases the risk of estimation errors and the potential effects from idiosyncratic shocks (Koller et al., 2015, 286). This should provide a better estimate for the future beta of Bakkafrost. I used the median industry beta instead of the average, because of a small sample and the influence from outliers.

Beta is a measurement of how the company are moving in conjunction with the market portfolio, and the market portfolio is the portfolio of all assets in the world both listed and unlisted. Since it is not possible to measure the true market portfolio, I needed a good proxy that best can replicate it. This should be some of the largest indexes in the world with a well-diversified market portfolio (Koller et al. 2015). I have used the MSCI World Index, since this should be the most diversified index to use and therefore the best proxy for the true market portfolio.

I used monthly data from the last ten years to calculate the equity beta, since using too frequent data leads to systematic biases, at least if the stock is rarely traded (Koller et al.

2015, 285). I use 10 years of data, since the average industry beta using five years were close to zero. When calculating beta should it minimum be used 60 data points according to Koller et al. (2015, 285). This is exactly five years with monthly data, making little room for shocks in the salmon market in-between.

Table 30: Shows the calculation of the industry beta. Market capitalization and debt in million NOK, except for Bakkafrost (million DKK). Source: Own calculations from data extracted from Datastream (2020); P/F Bakkafrost (2020a).

	Levered beta	Market cap.	Debt	D/E	Unlevered beta
Grieg Seafood	0,662	11 200	2 512	0,22	0,570
MOWI	0,670	98 225	14 936	0,15	0,604
Salmar	0,670	51 876	3 620	0,07	0,638
Lerøy	0,486	33 846	5 672	0,17	0,434
Bakkafrost	0,284	25 216	2 662	0,11	0,262
Industry median	**0,662**				**0,570**

The industry beta I calculated is levered and it needs to be adjusted to an unlevered beta. Since the operating risk the companies are facing is the same, but the financing risk is not the same, I need to find the unlevered beta for the industry. Then I calculate it back to be the levered beta for Bakkafrost. In the end, I did a beta smoothing to get the beta for the salmon industry closer to the average of 1. I did this because the beta is the forecast of the future and not what has happened in the past. In the future will most industries and companies revert back to average, which is 1 (Damodaran 2012, 187).

Table 12: Shows the calculation of equity beta used in WACC. Source: P/F Bakkafrost (2020a); Own calculations.

Bakkafrost	
Industry beta unlevered	0,570
D/E	0,11
Beta relevered	0,620
Beta adjusted with smoothing	**0,747**

Beta adjusted with smoothing is 0,747 (see calculation in Table 31), and I will use this in the explicit forecast period. For the continuing value, will I use the beta of one, since I am forecasting that Bakkafrost is growing together with the economy as a whole (Damodaran 2012, 187).

9.2.5 Calculation of cost of equity

I use CAPM to calculate the cost of equity for the explicit forecast period and the continuing value. In Table 32 can we see that the cost of equity is 5,32% in the explicit forecast period, and 8,41% in the continuing value.

Table 32: Calculation of cost of equity for the explicit forecast period and the continuing value. Source: Own calculations; Norges bank (2020b).

Explicit forecast period	
Risk-free rate	1,58 %
Equity beta	0,747
Market risk premium	5,00 %
Cost of equity	**5,32 %**
Continuing value	
Risk-free rate	3,41 %
Equity beta	1,00
Market risk premium	5,00 %
Cost of equity	**8,41 %**

9.3 Cost of debt

The cost of debt after tax is a factor of the risk-free rate, the credit premium and the marginal tax rate. The credit premium is decided by the risk of bankruptcy and default, influenced by the company`s solvency, liquidity and ability to pay, together with the outlook for the company.

To find the cost of debt after tax is the following formula used:

$$k_d = (r_f + r_s) * (1 - T_m)$$

Where:

k_d is the cost of debt after tax

r_f is the risk-free rate

r_s is the credit premium

T_m is the marginal tax rate

The cost of debt can be found in three ways:

1. Find the effective interest rate paid by the company today
2. The interest rate paid on the company`s bonds.
3. Synthetical credit rating

I calculated the cost of debt after tax using the synthetical credit rating, since the company does not have any bonds but only bank loans. The synthetical credit rating of Bakkafrost is BBB (Datastream 2020), which indicate a credit premium of 1,56% (Damodaran 2020).

I use the same risk-free rate for the cost of debt as I used for the cost of equity, both for the explicit forecast period and the continuing value. When calculating the cost of debt after tax in Table 33, I get a cost of debt after tax at 2,5% for the explicit period and 4,07% for the continuing value

Table 13: Shows the calculation of the cost of debt after tax for both the explicit forecast period and the continuing value. Source: Own calculations; Norges Bank (2020b); Damodaran (2020).

Explicit forecast period	
Risk-free rate	1,49 %
Credit premium	1,56 %
Marginal tax rate	18,15 %
Cost of debt after tax	**2,50 %**
Continuing value	
Risk-free rate	3,41 %
Credit premium	1,56 %
Marginal tax rate	18,15 %
Cost of debt after tax	**4,07 %**

9.4 Weighted average cost of capital

The weighted average cost of capital is calculated in Table 34, where the WACC for the explicit forecast period is calculated at 5,07% and the WACC for the continuing value is calculated at 8,17%.

Table 14: Shows the calculation of WACC for both the explicit forecast period and the continuing value. Source: Own calculations.

Explicit forecast period	
Cost of debt after tax	2,50 %
Cost of equity	5,22 %
D/V	5,41 %
E/V	94,59 %
WACC	**5,07 %**
Continuing value	
Cost of debt after tax	4,07 %
Cost of equity	8,41 %
D/V	0,054
E/V	0,946
WACC	**8,17 %**

Chapter 10 – Fundamental Valuation

From my forecast of the future cash flow to the company, I used a discounted cash flow model to find the intrinsic value of Bakkafrost`s operations. When adjusting for non-operating assets as excess cash and investments in stocks and associated companies, we get the enterprise value of Bakkafrost. Further, I adjusted the enterprise value for interest-bearing debt and potential hybrid claims, before finding the equity value of the company and the equity value per share.

I also did a relative valuation where I found the equity value of Bakkafrost using the average pricing multiples of peers. From valuing the DCF model 80% and the relative valuation 20%, can will I conclude with a target price of Bakkafrost and a trading advice.

10.1 Discounted cash flow valuation

The DCF-model is consisting of two terms, the explicit forecast period and the continuing value. The value of the company can then be defined as (Koller et al. 2015, 247):

$$Value = Present\ value\ of\ cash\ flow\ during\ explicit\ forecast\ period + present\ value\ of\ cash\ flow\ after\ explicit\ forecast\ period$$

My explicit forecast model is 15 years long from 2020 to 2034 and consists of 8 years with a detailed forecast period, followed by 7 years with a simplified forecast period. The continuing value is the company´s value beyond the explicit forecast period, computed with the key value driver formula.

10.1.1. Continuing value

I have chosen to use the key value driver formula as recommended by Koller et al. (2015, 248) to compute the continuing value, because it links cash flow directly to ROIC and growth. The key value driver formula is defined as:

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

Where:

$Noplat_{t+1}$ is NOPLAT the year following the explicit forecast period

g is the long-term growth rate

$RONIC$ is return on new invested capital

$WACC$ is the weighted average cost of capital

t is the time period, normally in years

I already have WACC and NOPLAT but need to decide the long-term growth rate and return on new invested capital.

10.1.1.1 Long-term growth rate

In the long term it is difficult for a company to grow more than the industry as a whole. Koller et al. (2015, 251) suggested that the best estimate for long-term growth is to use the long-term consumption growth plus inflation. With the historical track record that Bakkafrost has regarding operational excellence, I believed that the company at least can manage to follow the growth in the industry. I therefore used a long-term growth rate in the continuing value at 3%. I have decided to use this growth because of the following points:

- 2 percent target inflation in most European countries (ECB 2020)
- 40-year average of real GDP growth in the world at around 3%, while for Western Europe at 1,7% (1980-2020) (IMF 2020)
- The Western Europe have a decreasing growth in the real GDP, with only 1,2% growth as the average for the last 20 years (IMF 2020).
- The forecast in population growth to 2100 is an CAGR of 0,42% from 2020, with a decreasing growth rate over time (United Nations 2019).
- Higher demand growth from the aquaculture sector than the total demand growth for seafood, because wild catch is at zero percent growth.
- Trend of increased protein consumption per capita from fish and aquaculture when the world gets wealthier.

I have from the points above forecasted a 1% consumption growth for salmons, with an 2% inflation rate. Because of the trend of lower growth in Western Europe together with a decreasing population growth, should it be reasonable with around 1% in real GDP growth for the countries in Western Europe. Even though the population growth is diminishing will the salmon harvest from aquaculture probably supply the entire consumption growth, increasing the market share from wild catch.

10.1.1.2 RONIC

RONIC is defined as the growth in NOPLAT divided on last year`s increase in invested capital. It is therefore only measuring the return for the new invested capital, while the old investments still can have the same ROIC. For RONIC, I have calculated the company to have a long-term RONIC at 14%. This is way under what Bakkafrost achieved from 2010 to 2019 (avg. 24,8% ROIC excl. goodwill) and a little under my forecast average from 2020 to 2027 (avg. 14,6%), but much higher than WACC. Even though it is often normal to let the long-term RONIC be the same as WACC, protected sectors and companies with entry barriers and sustainable competitive advantages can have a long-term ROIC well above this. I chose to use 14%, because of the three following points:

1. The salmon industry is well protected by natural entry barriers, because the habitats where the salmons can thrive is only in small belts in the northern and southern hemisphere containing the right temperatures. Further needs the salmon farms to be protected with fjords and archipelagos, restricting possible farming places even more (Mowi 2019, 27).
2. The average ROIC for peers of Bakkafrost have been 16,3% the last ten years. Studies have shown that industry ROIC tends to stay relatively stable, where industries with high ROIC continue to have higher ROIC than industries with lower ROIC (Koller et al. 2015, 105).
3. Bakkafrost have performed much higher ROIC than the industry average. Among individually companies is it also a tendency with stability in ROIC over time. High performing companies have shown to be capable of sustaining their competitive advantage over time, where the mean reversion is only partially. (Koller et al. 2015, 107).

If I had let ROIC be the same as WACC am I confident that the valuation had been too conservative. From the operational performance Bakkafrost have done and the high ROIC in the industry, am I positive that a RONIC slightly under the average ROIC from peers the last decade (14% vs 16,6%) is sustainable for Bakkafrost in the long-term.

10.1.1.3 WACC

I am going to use the long-term WACC calculated at 8,16% in Chapter 9.4 in the key value driver formula.

10.1.2 Presentation of the discounted cash flow from operations

Table 35: Shows the cash flow and the discounted cash flow for Bakkafrost from the explicit forecast period, both for the detailed forecast period and the simplified forecast period. Numbers in thousand`s DKK. Source: Own estimates

DISCOUNTED CASH FLOW - BAKKAFROST (DKK 1.000)								
Year	2020e	2021e	2022e	2023e	2024e	2025e	2026e	2027e
EBITA	859 707	1 302 016	1 328 896	1 510 869	1 732 011	1 964 476	2 185 345	2 400 637
Income taxes	156 080	236 113	240 578	273 596	313 792	356 127	396 429	435 809
NOPLAT	703 628	1 065 903	1 088 318	1 237 272	1 418 220	1 608 349	1 788 915	1 964 827
Depreciation	438 553	517 024	561 418	578 816	621 522	657 801	690 518	723 468
Gross Cash Flow	1 142 181	1 582 927	1 649 735	1 816 088	2 039 742	2 266 150	2 479 434	2 688 295
Working capital change	- 394 946	444 696	275 145	273 701	401 585	373 067	295 446	248 207
Capital expenditure	1 115 000	940 000	740 000	1 090 127	1 098 205	1 108 246	1 170 842	1 220 511
Free cash flow	422 127	198 231	634 590	452 261	539 951	784 838	1 013 146	1 219 577
Discount factor	0,95	0,90	0,86	0,82	0,78	0,74	0,70	0,67
Present value of FCF	**401 399**	**179 240**	**545 620**	**369 758**	**419 774**	**580 194**	**712 193**	**815 205**

DISCOUNTED CASH FLOW - BAKKAFROST (DKK 1.000)								
Year	2028e	2029e	2030e	2031e	2032e	2033e	2034e	Continuing value
EBITA	2 556 678	2 710 079	2 859 133	3 002 090	3 137 184	3 262 671	3 376 864	
Income taxes	464 137	491 985	519 045	544 997	569 522	592 302	613 033	
NOPLAT	2 092 541	2 218 093	2 340 088	2 457 093	2 567 662	2 670 368	2 763 831	2 846 746
Depreciation								
Gross Cash Flow								
Working capital change								
Capital expenditure								
Free cash flow	1 283 425	1 424 387	1 566 733	1 713 073	1 862 072	2 012 237	2 161 936	43 285 733
Discount factor	0,64	0,60	0,57	0,55	0,52	0,49	0,47	0,47
Present value of FCF	**815 756**	**860 895**	**900 429**	**936 187**	**967 644**	**994 329**	**1 015 842**	**20 338 938**

10.1.3 Presentation of the calculations to equity value per share

Table 15: Shows the calculation from DCF value of operations to equity value per share. Numbers in thousand`s DKK, except otherwise specified. Source: Own estimates.

Present value of free cash flow from explicit period	10 514 466
Present value of continuing value	20 338 938
DCF value of operations	**30 853 403**
Excess cash and cash equivalents	1 219 324
Investments in associated companies	63 766
Investments in stocks and shares	55 318
Enterprise value of Bakkafrost	**32 191 811**
Interest-bearing debt	
Short-term interest-bearing debt	107 808
Long-term interest-bearing debt	2 328 231
Debt equivalents	
Long-term leasing debt	225 585
Derivatives	1 966
Debt and debt equivalents	**2 663 590**
Hybrid claims	
Non-controlling interest	-
Equity value	**29 528 221**
DKK/NOK	1,447
Equity value (NOK)	**42 733 242**
Number of shares (non-diluted)	59 143
Number of shares (diluted)	59 143
Equity value per share (NOK)	**722,5**

10.1.3.1 DCF value of operations and enterprise value

From the discounted cash flow from operations, we are getting the present value of free cash flow from the explicit period at 10 514 million DKK and the present value of continuing value at 20 339 million DKK. In total will the value of operations be 30 853 million DKK (see Table 36 above).

To find the enterprise value of Bakkafrost we are adjusting the DCF value of operations with cash and cash equivalents, and other non-operating assets as investments in stocks and shares and investments in associated companies. The enterprise value of the company is then 32 192

million DKK. This is the total value of Bakkafrost for all investors, both for lenders and equity owners.

10.1.3.2 Equity value and equity value per share

I need to adjust enterprise value for debt, debt equivalents, and hybrid claims to find equity value. Bakkafrost has 108 million DKK in short-term debt, and 2 328 million DKK in long-term debt (P/F Bakkafrost 2020a, 88-89). They had also liabilities in derivatives at 2 million DKK and 225,6 million DKK in long-term leasing debt, which we here define as debt equivalents. Bakkafrost did not had any hybrid claims as of 31.12.2019, except for the non-controlling interest. Since the non-controlling interests were acquired from Bakkafrost in January 2020 and adjusted for in the free cash flow forecast of 2020, will I not adjust for this here. The equity value is then computed at 29 528 million DKK.

I exchanged the equity value from DKK to NOK, since the stock is denominated in NOK. The exchange rate as of 31.05.20 is 1,447 (Norges Bank 2020a), and the equity value in NOK is 42 733 million.

To find the equity value per share am I dividing the equity value in NOK with the number of outstanding shares. The number of shares is 59 143 million (P/F Bakkafrost 2020a, 138), and I got an equity value per share of 722,5 NOK.

10.2 Relative valuation

I used relative valuation as a supplement to my fundamental analysis of Bakkafrost. Relative valuation expresses what the company should be worth using the average pricing multiple for comparable companies. If the valuation differs from the DCF valuation has either the market another outlook for the industry or the company have different prospects than peers. The theory behind relative valuation is that the pricing should be the same between two similar companies with the same risk and outlook for future cash flow, if not is the opportunity cost too high. The weighting of the relative valuation is going to be 20% to my target price, while the DCF valuation is going to be weight 80%.

10.2.1 Inclusion of comparable companies

When including companies to compare with, it should be so similar companies as possible both with regarding the type of operations and sector and with regards to operational performance like ROIC and growth (Koller et al. 2015, 346). If the operational performance is not the same should not the multiples be either. I use the comparable companies found in chapter 4, where the inclusion criteria were access to information, type of industry and size. I will further look at the operational performance of the companies, specifically the companies ROIC and organic revenue growth, to only include companies with similar operational performance as Bakkafrost. But, I was forced to use a relatively large span for the inclusion criteria since the peers to choose from were few.

The inclusion criteria's I have selected is:

- Historical ROIC must be on a ±10% range from Bakkafrost, both on a 10- and 5-year average.
- Yearly growth estimate from 2019-2022 must be in a ±5% range from Bakkafrost.
- Historical organic growth must be on a ±5% range from Bakkafrost on a 5-year average.

Table 37: Average ROIC for the last 10 and 5 years, for Bakkafrost and peers. Source: Datastream (2020).

	ROIC avg. 10y	ROIC avg. 5y
Salmar	26,3 %	31,1 %
Bakkafrost	24,8 %	26,0 %
Lerøy	17,1 %	17,9 %
MOWI	15,7 %	18,5 %
Grieg seafood	11,5 %	14,3 %

I did not include Grieg Seafood in my relative valuation analysis, because of the low ROIC (see Table 37). The company have the worst operational performance of the comparable companies, with a ROIC more than 10 percent point less than Bakkafrost. This is also translated into having the lowest pricing multiples. It will therefore not be fair to compare Bakkafrost with Grieg Seafood, as Bakkafrost should deserve much higher pricing multiples.

Table 38: Average organic growth for the last 10 and 5 years, in addition to the estimated growth for the next three years for Bakkafrost and peers. Source: Datastream (2020); Own estimates.

	Growth est. 2019e-2022e	Growth avg 10y	Growth avg. 5y
Grieg seafood	10,1 %	9,5 %	14,7 %
Salmar	8,9 %	15,9 %	11,6 %
Bakkafrost	5,9 %	17,5 %	9,8 %
Lerøy	5,7 %	9,3 %	9,2 %
MOWI	4,3 %	8,9 %	10,7 %

From Table 38 can we see that the organic revenue growth have been closing in between peers the last years, compared to the 10-year average where Bakkafrost and Salmar showed outstanding revenue growth compared to the other companies, particularly in the first half of last decade. The revenue growth estimates towards 2022 is also quite similar for the comparable companies, except for Grieg Seafood that is already excluded from the relative valuation.

The companies that I include in the relative valuation will therefore be Salmar, Mowi and Lerøy.

10.2.2 Decision of target multiple and forecast year for multiples

I have decided to use EV/NOPLAT as the multiple to use in my relative valuation analysis. I have chosen EV/NOPLAT because of the following points.

- Multiples like EV/NOPLAT and EV/EBIT are superior to P/E, because the capital structure does not matter when using EV/NOPLAT or EV/EBIT (Koller et al. 2015, 337). When using P/E will the different capital structures distort the results, and companies with high debt would often looks the cheapest, while cash would be negative for the pricing.
- EV/NOPLAT and EV/EBIT are superior to multiples like EV/revenue or EV/kg, because of the difference in the operating margin. Since Bakkafrost historically had a much higher operating margin than their peers will the company look expensive using multiples like EV/revenue or EV/kg.

- EV/NOPLAT and EV/EBIT are superior to EV/EBITDA. Even though depreciation is a non-cash item can depreciation be seen as the accounting equivalent of setting money to the side for future investments (Koller et al. 2015, 340). Heavy asset companies will have higher depreciation and higher investments, and light asset companies will have smaller depreciation and smaller investments, but probably higher operating cost. If we use EBITDA will the heavy asset company probably look cheaper than the light asset company.
- EV/NOPLAT is superior to EV/EBIT when it is differences in the tax jurisdictions for the companies (Koller et al. 2015, 343). Bakkafrost have a lower nominal tax with 18% in the Faroe Islands vs 22% for the comparable companies in Norway.

When conducting a relative valuation should we use forward estimates of earnings because they typically have a much lower variation in multiples across the peers than if we use historical or trailing earnings (Kim & Ritter, 1999; Koller et al. 2015, 334). This is because todays multiples have different expectations about growth for the next years, while this is already embedded in the forward estimates of earnings. The variation in multiples across peers typically narrows in the longer into the future where forward earnings is used. When using a forward-looking multiple is it best to choose a forecast year that is best representing the long-term prospects for the company (Koller et al. 2015, 336).

I have used an equal weight in my relative valuation between EV/NOPLAT using historical NOPLAT from 2019 and the forward estimates in NOPLAT for 2022. This is because I don't have access to estimates for the comparable companies further into the future than in 2022. Ideally would I have chosen forward earnings estimate from 2025 to 2027, better representing the long-term prospects for Bakkafrost. Since 2022 is not yet so good year for Bakkafrost in my forecast, will I also use the historical numbers from 2019 to better back up my results. For 2019 I am using the proforma numbers for Bakkafrost, because this will give a fairer comparison because of the higher number of outstanding shares and amount of debt after the acquisition of SSC.

10.2.3 Equity value from relative valuation

Table 39: Shows EV/NOPLAT for 2019 and estimates for 2022 for the comparable companies. Source: Datastream (2020).

	EV/NOPLAT 2019	EV/NOPLAT 2022e
Salmar	22,0	16,4
Lerøy	16,5	12,1
MOWI	19,1	16,4
Average	**19,2**	**15,0**

Table 39 shows that the average EV/NOPLAT when using historical NOPLAT from 2019 is 19,2 for the comparable companies, while the average EV/NOPLAT when using the estimated forward NOPLAT for 2022 is 15,0.

Table 40: Shows the calculation from the average EV/NOPLAT of the comparable companies, to the equity value per share in NOK. Numbers in Thousand´s DKK, except otherwise specified. Source: P/F Bakkafrost (2020a); own estimates.

	EV/NOPLAT 2019	EV/NOPLAT 2022e
Multiple	19,2	15,0
x NOPLAT	1 317 474	1 088 318
EV	25 318 303	16 301 510
- Debt	2 661 624	2 661 624
+ Excess cash	1 404 446	1 404 446
+ Non-operating assets	119 084	119 084
Equity value	24 180 209	15 163 417
Outstanding shares	59 143	59 143
Equity value per share (DKK)	409	256
DKK/NOK (pr. 31.05.20)	1,447	1,447
Equity value per share (NOK)	592	371
Contribution	50 %	50 %
Equity value * 50%	296	186
Equity value per share (NOK)	**481**	

From the relative valuation is the equity value per share of Bakkafrost worth 481 NOK (Table 40). We can see that the equity value per share when compared to 2019 numbers is 592 NOK, but only 371 NOK when comparing to 2022 numbers. This is because of good 2019 numbers, while the earnings is lower in 2022 because of stagnant salmon prices and higher cost, in addition to lower multiples. Because of good growth in salmon harvest towards 2027 for

Bakkafrost, am I speculating that using estimates of forward earnings from 2025 to 2027 had given better results for Bakkafrost given their prospects.

10.3 Target price

Table 16: Shows the weighted contribution in equity value from DCF valuation and relative valuation, in addition to the target price. Source: Own estimates

Equity value per share from DCF valuation	723
Weighting	80 %
Equity value contribution from DCF Valuation	**578**
Equity value per share from relative valuation	481
Weighting	20 %
Equity value contribution from relative valuation	**96**
Target price	**674**
Stock price	605
Upside	11 %
Recommendation	**Buy**

I conclude my valuation of Bakkafrost with a target price of 674 NOK per share, using 20% weighting from the relative valuation and 80% weighting from the DCF analysis (see Table 41). This is an upside of 11% from the stock price as of 31.05.20 at 605 NOK.

10.4 Sensitivity analysis

I used sensitivity analysis to test the impact in my DCF valuation from changes in key inputs in my model. This can help me find out which factors is most important for the value of the company and should be investigated more. The key inputs I investigated are the salmon price, harvest production, operational cost, short-term and long-term WACC, and growth and RONIC in the continuing value formula. The results are illustrated in Figure 31 below.

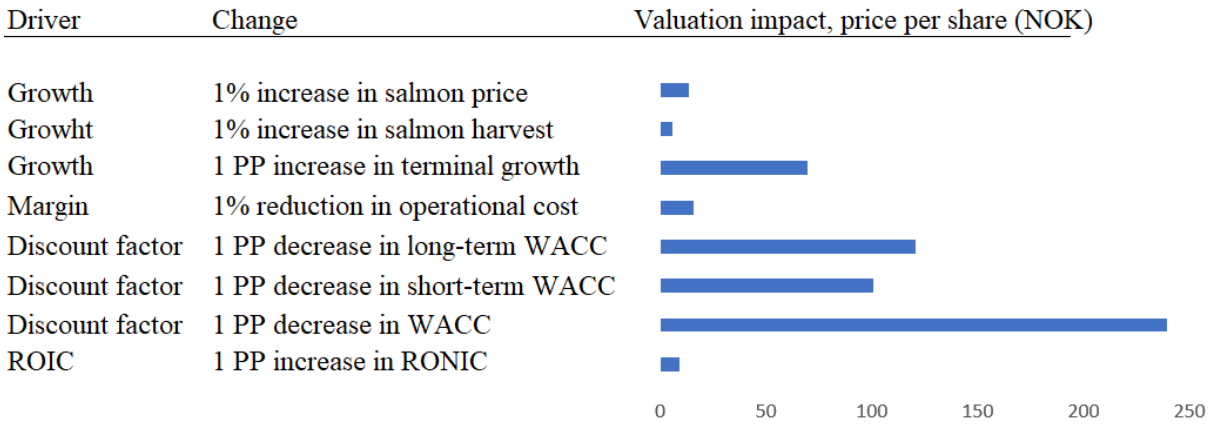

Figure 31: Illustrates the sensitivity in the valuation of the company from changes in key inputs in the model. PP = percentage point. Source: Own estimates.

Since we cannot compare 1% increase with 1 percentage point increase, will I first analyse the sensitivity from the 1% increase in salmon price and salmon harvest, and the 1% reduction in operational cost.

If I increase the salmon price with 1% for every year in my detailed forecast period will the valuation increase with 1,9%, or an increase in the share price of 13,4 NOK compared to my valuation. In comparison will a 1% increase in the salmon harvest for every year in my detailed forecast period increase my valuation with just 0,8%, or an increase in the share price of 5,8 NOK. This is because the salmon harvest is the key driver for the operational cost, so the margins will not change much. The salmon harvest will therefore not have so large impact to my valuation as the salmon price, because the salmon price is not impacting the costs in my model. The reason that the change is lower than 1% when increasing the salmon harvest, is because the change in harvest is only done in the detailed forecast period (first 8 years of my forecast).

We can argue that the salmon industry will adapt to a sustained change in the salmon price, while the price changes in short term probably not will change the costs much. In my model is the salmon price fairly constant with a lower growth factor compared to last decade (2,0% CAGR 2019-2027, VS 5,2% CAGR 2010-2019), and I have therefore made adaptions in the forecast of the company with reduced growth rate in operational cost compared to their historically cost increase. The conclusion is that my valuation is highly sensitive for the salmon price, with a high impact in my valuation of Bakkafrost.

A cost reduction of 1% compared to my estimates in the detailed forecast period, increase my valuation almost in line with the increased salmon price, with a 2,2% increase in my valuation and an increase in the share price of 16 NOK. This is because the reduced cost goes directly to the bottom line in the same way the salmon price does. My valuation is therefore highly sensitive also to changes in the operational cost.

When it comes to changes in percentage point in WACC, and in ROIC and growth in the continuing value, will this normally have much larger impacts as the percentage point is a much higher change in percent. The discount factor in WACC will have the largest impact, were a 1% decrease in WACC for both the long-term and short-term WACC will increase my valuation with 33% or 239 NOK per share. If WACC instead increases with 1 percent point in both the long-term and short-term WACC will my valuation go down with 154 NOK to 566 NOK, a downside of 21% to my valuation and a 6% downside to the stock price as of 31.05.20.

When estimating the sensitivity for the short- and long-term WACC is my valuation more sensitive for the long-term WACC. When decreasing only the long-term WACC with 1 percentage point will my valuation increase with 16%, and when decreasing only the short-term WACC will my valuation increase with 14,7%. This is because my continuing value stands for 66% in the valuation of the company in my DCF model. In conclusion is my valuation highly sensitive to changes in WACC.

When checking the sensitivity for the other factors in the continuing value, RONIC and growth, can we see that my valuation is not so sensitive for RONIC but highly sensitive for growth. An increase of RONIC with 1 percentage point will only increase my valuation with 1,3% or 9,1 NOK in share price. If I had put RONIC to the same amount as my long-term

WACC would my valuation go down to 617 NOK, a decrease of 14,2%. The valuation of Bakkafrost would still be higher than the share price as of 31.05.20 at 605 NOK.

When increasing the growth in the continuing value with 1 percentage point will my valuation increase with 9,6% or 69,3 NOK. This is because of a high RONIC where the company can capture much of the value from the growth, and because of the significance of the continuing value in my valuation. With higher growth would my model also become more sensitive to RONIC.

In conclusion is my DCF model most sensitive to changes in the salmon price, operational cost, WACC and growth in the continuing value. Harvest growth and RONIC in the continuing value are also largely impacting my valuation, but not as much as the other key inputs.

Chapter 11 – Risk Factors

This chapter will look at important risk factor for Bakkafrost and is further divided into risk factors from market risk, financial risk and operational risk. The knowledge of risk factors that influence the company is very important when valuing a company and deciding to buy or not to buy a stock, in order to protect your money and investments. First, I present risk factors in the market, this is risk factors that Bakkafrost hardly can control. Then I will present financial risk factors, and in the end operational risk factors. This is risk factors Bakkafrost can prepare more for and try to mitigate. In every risk factor am I considering the probability of the event and the potential impact on the company from low to high. In the end will I conclude the risk factors with a risk matrix.

11.1 Market risk

11.1.1 MR1 – Salmon price risk

Since salmons are a commodity will the price normally be volatile and follow a cyclical pattern. The demand and supply for farmed salmon is deciding the price, and this will contain numerous risk factors. For demand is estimates in world population and GDP growth important factors, where less growth in population and in GDP will decrease the demand for salmons. In supply can new technology enabling offshore and land-based farming dramatically increase the intensity in competition of farmed salmons, and thus lead to lower salmon prices. This is factors outside of Bakkafrost´s control, but it will probably be even more important to differentiate themselves as the premium salmon producer, and in that way achieve a small profit margin. The probability of sustained reduced salmon prices am I considering to be moderate and with a high impact for the company.

11.1.2 MR2 – Fish feed price risk

Fish feed is the biggest cost for the salmon producers with up to 50% of the total operating cost (Iversen et al. 2020). An increase in the price of fish feed can therefore have a large impact on the company. The feed prices are determined by the global market in fish meal and vegetable and marine oil. The supply of fish meal and fish oil can be restricted from natural limitations of the marine resources, which will increase the fish feed price. The salmon

industry is mitigating this risk with the use of more vegetable oil than earlier. I consider the risk of increased fish feed to be moderate, while the impact on Bakkafrost also will be moderate because of the reduced risk from having their own fish feed in their value chain.

11.1.3 MR3 – Industry risk

Industry risk is related to increased intensity in the competition, and the risk of new technologies in offshore and land-based farming causes losses of market share for Bakkafrost. New technologies can reduce the entry barriers to the industry, thus increasing the potential new competitors. This would lead to more supply and an increased intensity in the competition for the industry, which again can decrease the salmon prices. I will consider this risk to be moderate, as Bakkafrost will be aware of the changes and trying to be one of the players in a potential offshore farming industry. It will also be difficulties with scale of the operations in the start. Nevertheless, this could have a high impact in the salmon industry.

11.1.4 MR4 – Geographical risk

Geographical risk is the risk of trade barriers or reduced demand for salmons in specific regions or countries. This happened in late 2018 to early 2019 were the Russian market was closed for Bakkafrost, explaining the reduced volumes to East Europe in 2019. This shows the importance in selling and distribute to many different regions. Bakkafrost sold their salmon to 37 countries and three continents in 2019, mitigating the risk of trade barriers to any single country (P/F Bakkafrost 2020a, 30). I am considering the probability for trade barriers or reduced demand for a single country or region to be high, but I believe Bakkafrost's diversification in sales will minimize the potential impact.

11.1.5 MR5 – COVID-19 risk

The ongoing pandemic COVID-19 have several risk factors involved, that is also influencing many of the other risk factors mentioned in this chapter. COVID-19 is now in almost all the countries in the world and have consequences in logistics and trade because of the lockdown we have seen in many countries. It can also affect the company where a shutdown at some of their locations can happen in last instance if a large outbreak incurs in Scotland or the Faroe

Islands. Bakkafrost's sale to China have been disturbed for the first part of 2020, and this can potentially have a significant impact on the company if the problems in sales continue (P/F Bakkafrost 2020a, 8). COVID-19 can also decrease the global economic growth in the short term, where the demand for salmons could decrease for a small period in time. The risk for increased problems regarding COVID-19 is impossible to estimate, but I will consider the probability to be moderate in the short term. This can impact the company moderately, but for the long term should things go back to normal. I am therefore considering the total impact on the company to be low, especially because of their geographically diversification in sales and distribution.

11.2 Financial risk

11.2.1 FR1 – Interest rate and liquidity risk

Since the company have a low debt-to-equity ratio at 0,54 and a debt to EBITA at 1,18 (P/F Bakkafrost 2020a, 88-89) should the company have a low impact if interest rate increases. With the interest rate being lower than ever before is it a high probability of substantial higher interest rate in the future, but this should not impact the company much since they have the financial strength to handle it without impacting the operational results. One of Bakkafrost prime objectives is also to ensure a healthy debt-to-equity ratio so they can maintain their good credit rating and favourable terms when borrowing. In total will I consider the interest rate and liquidity risk to be low, but with a moderate impact.

11.2.2 FR2 – Exchange rate risk

The sale of salmon is done in the world market, predominantly in DKK, EUR, USD and GBP, while the purchase of raw materials like fish feed is done in DKK for the segments in the Faroe Island (P/F Bakkafrost 2020a, 67). Since the Danish Krone is kept fixed against the Euro (Danmarks Nationalbank 2020), has the company a partial hedging from this, reducing the exchange risk. For the other exchanges has the company financial risk regarding fluctuations in the exchange rate. For the farming segment in Scotland is most of the revenue and cost in GBP, but the export sale outside of UK is increasing. Here is the company using forward currency contracts to manage the exposure to fluctuations in the exchange rates (P/F Bakkafrost 2020a, 67). The company is mainly financed in DKK, EUR and GBP, which is also where they have most of their revenue and assets. With the fixed exchange rate risk of

DKK and EUR, and a large part of the revenue and costs in the same currency, am I considering the exchange rate risk to have a moderate probability with low impact for the company.

11.2.3 FR3 – Credit risk

Credit risk is the risk that counterparties are not fulfilling their obligations. Bakkafrost is ensuring to only sell to customers with no prior payment problems, and they also have the majority of receivables insured (P/F Bakkafrost 2020a, 67). They have historically low losses from debt of customers, and even though they still have some credit risk will I consider both the probability and the impact on the company to be low.

11.3 Operational risk

11.3.1 OR 1 – Biological risk

Biological risks are containing several factors that can increase salmon mortality or the health and value of the salmons. Biological risks can be sea lice, diseases, salmon escapes and weather-related issues. The risk of sea lice am I considering to be medium-to-high for Bakkafrost, were they have changed the treatment method from medical to mechanical treatment in 2015, in addition to the use of lumpfish. Mechanical treatment is not a well-tested method yet, even though it has become normal to use in Norway since 2015 because of medical resistance evolving in the lice. The results from this is therefore not well known yet (Overton et al. 2018). The change to medical treatment increased the mortality in the start-up phase for Bakkafrost, before it has improved in the last couple of years (P/F Bakkafrost 2020a, 32-33). Sea lice have a high probability of leading to high mortality and can be very costly for the salmon companies.

Escaped salmons can also impact the industry substantial, and this has been a big problem in Norway. The salmon can potentially spread diseases and threaten the wild salmons, even though the risks for wild salmon is not quantified yet (Keyser et al. 2018). Escapes for Bakkafrost is considered to only have a moderate financial effect but can lead to governmental penalties and bad publicity (P/F Bakkafrost 2020a, 64).

Changes in temperature can be critical for the growth of the salmons and can lead to mortality in the worst-case scenario if temperatures go over 18 degrees Celsius or down to zero. With the environment changing and the sea temperatures rising (IPCC 2020, 450), is this a high probability with a high impact for the industry, while Bakkafrost with colder and more stable temperatures should have a lower risk than many of their peers. But in the Faroe Islands can storms also have an impact, were the storm in February of 2020 in the Faroe Islands lead to the death of 1.2 million fish (P/F Bakkafrost 2020d, 10).

Lastly, diseases have a large impact in mortality and in costs related to premature harvesting and loss of quality in the salmons. This can incur substantial loss for the company (P/F Bakkafrost 2020a, 63). With the acquisition of SSC is the company now more geographically diversified, effectively reducing risk of disease and difficult weather changes happening in one region. With their larger smolt strategy are they in addition having the salmons a shorter time in the sea, which should reduce the biological risk even more. I am anyway concluding that the biological risks have a high probability which could have a moderate to high impact on the company.

11.3.2 OR 2 – Regulatory risk

The risk of regulatory changes and restrictions due to environmental and animal welfare concerns is always an underlying treat and can potentially have a large impact on the company both financially and operationally (P/F Bakkafrost 2020a, 66). With the higher attention towards the aquaculture sector together with an increased attention to the environment and animal welfare, could this lead the government being pressed by the public to incur new restrictions if any bad publicity is happening. The high mortality of lump fish (Scholz et al. 2018) can also results in restrictions in the use of lump fish, to increase animal welfare and sustainability in the industry.

If Bakkafrost is breaching the conditions of a license, or the license is against the overall development plan and protective measures in the Faroe Island, can the government withdraw the license leading to substantial loss for the company. The licenses in the Faroe Island is also issued for a 12-year period and if the company have fulfilled the conditions of the license should they have a legal claim to prolong it, even though there can be no assurance of this (P/F Bakkafrost 2020a, 66).

The existing regulations and practice have a probability to be stricter in the future, but as the company have a good dialogue with the authorities and is the largest private company regarding number of employers in the Faroe Island, I am considering that Bakkafrost will have a low probability to face regulatory changes which will impact the company. If it happens will I consider the impact on the company to potentially be high.

11.3.3 OR 3 – Risk of reduced fish feed volumes and break in their value chain

Bakkafrost is self-sufficient with fish meal, fish oil and fish feed, and is in that regard exposed to the risk of loss in volumes where they potentially must purchase fish feed from a third party. The risk in loss of volumes in the FOF segment can come from food safety incidents, downtime or an insufficient access to raw materials. The access to raw materials will perhaps be the most important factor and can be insufficient with low catching volumes or limited supply from third parties. The FOF segment in Bakkafrost can also be affected with trade restrictions or restrictions in ocean quotas. The risk of buying fish feed from third parties will also the companies that is not self-sufficient with fish feed have, but they will normally have mitigated this risk in contracts, specifying the obligations for the third party to replace the fish feed if they can't deliver themselves (P/F Bakkafrost 2020a, 64). I am considering the probability of reduced fish feed volumes to be moderate, while the impact will be low since they can purchase the fish feed from third parties.

11.3.4 OR 4 – Risk of decreased price premium

Bakkafrost is achieving premium prices for their salmons, which is the main reason for their higher operating margin than peers. They have achieved this with a healthier and larger salmon, together with building a brand as a premium salmon producer. To continue to achieve price premiums is the company dependent to continue the differentiate of their salmons compared to the industry. Risk can be higher competition regarding premium salmons, where the competitors have increased focus on the quality and weight of the salmons. Today are most of companies buying standardized fish feed from third parties, because this gives the lowest cost compared to the quality of the salmon. But since Bakkafrost is achieving higher margins is it normal with an increased competition over time in this segment. Another risk is lower quality of the salmons for Bakkafrost, which can happen from biological risk. Diseases

and increased sea temperatures can lead to lower weight and decreased salmon quality, which again decreases the salmon premium. I consider the probability of the risk in decreased price premium to be low, due to the biological stability in the Faroe Islands and because none of the large competitors are trying to compete with Bakkafrost on quality today. The impact on the company with decreased price premium will be high, since it will go directly to the bottom line for the company and decrease the company's value significantly.

11.3.5 OR 5 – Cyber security and IT risk

In the recent years have IT became more integrated in Bakkafrost's operations (P/F Bakkafrost 2020a, 66), and the risk related to IT security has therefore increased and will continue to increase as more of the operations are automated. Especially could faults in their power and back-up systems affect recirculation in their hatcheries. Cyber-attacks have also become more common in the recent years, where the risk of attacks is increasing together with the growth of digitalization. For Bakkafrost is the worst plausible scenario an cyberattack who will shut down the processing and sales function, leading to substantial difficulties for their operations (P/F Bakkafrost 2020a, 64). Even though the risk is increasing am I considering the probability for a Cyber-attack or IT faults to be low, while the impact on operations to be moderate.

11.4 Summary of risk factors

As seen in Figure 32 below, most of the risk factors are in the green sectors where they have low to moderate probability and low to moderate impact. These factors are not the main concerns for Bakkafrost. The light green sectors have a higher probability of happening or a higher impact on the company and should be followed more closely. This is the risk factors of regulatory risk, risk of decreased price premium, risk of increased fish feed price and the geographical risk. The risk factors in the orange and partly red sectors is the risk of sustained reduced salmon price, the industry risk regarding new technology and the biological risk. The salmon price risk and the industry risk have I considered to have a moderate probability and a high impact on the company, which should be followed closely by the company. The biological risk have I considered to have a high probability and a moderate to high impact on the company and should be the factor that Bakkafrost should follow the closest. It is also a risk factor that Bakkafrost partly can control themselves, in opposition to the salmon price and

industry risk. Bakkafrost is also using a lot of resources in mitigating the biological risk through mechanical de-lousing, special farming supply vessels and their larger smolt strategy to name a few. In their investments plan for the Faroe Islands and in Scotland is reducing the biological risk also one of their main targets, and this show the significant risk the biological environment is influencing the salmon farmers.

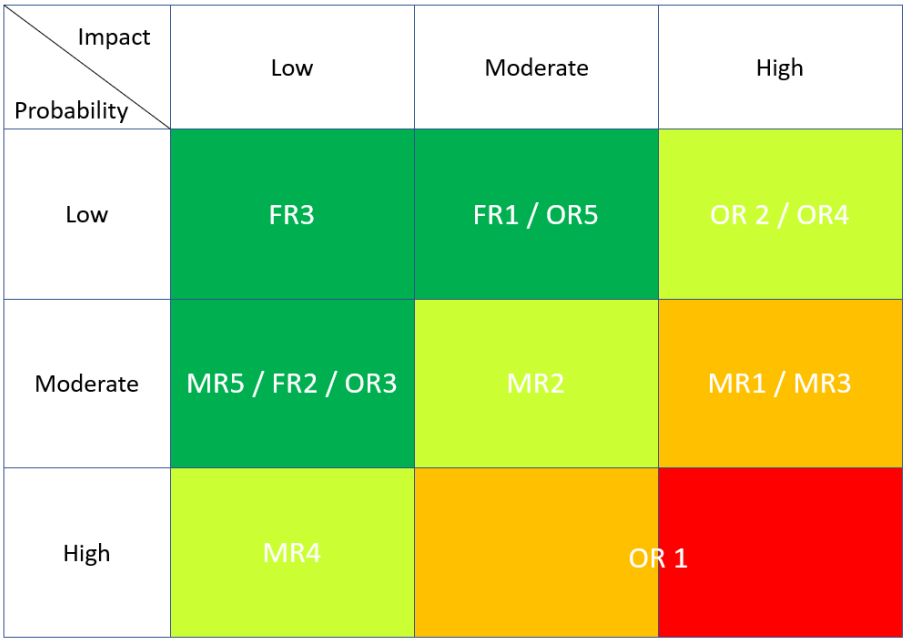

Figure 32: Illustrates a risk matrix with probability and impact from low to high. Source: Own creation.

Chapter 12 – Conclusion

Bakkafrost is a company in high growth with an estimated CAGR in organic revenue of 8,4% from 2019 to 2027. However, the estimated lower growth in the salmon price for my detailed forecast period than in the last decade (2,0% CAGR 2019-2027, VS 5,2% CAGR 2010-2019), can reduce the company's high margin and ROIC they had earlier. The last decade were tremendously good years for the salmon producers where they achieved extremely high profitability and the Oslo Seafood Index was up almost 800% (Datastream 2020). This is going to be too hard to copy, with an estimated diminishing growth in the salmon production going forward (Mowi 2019, 26).

The salmon industry is in general selling a homogenous product, where it is difficult to differentiate the product. However, Bakkafrost is currently managing to sell the salmons with high premiums, achieving the highest operating margin in the industry. It is also a risk factor that they can lose this premium because of weakening in the brand or more skilled competitors. Since the operational cost of Bakkafrost were mostly in line with peers, will the operating margin go down to the industry average if that incurs. The company is anyway dependent on the salmon price, which have a high volatility that is outside of Bakkafrost`s control. Normally would the price in a homogenous product be equal to the cost of the product, but the natural barriers from biological conditions are effectively restricting the supply side in the salmon industry (Mowi 2019, 27). New technology for offshore and land-based farming is a risk factor for the natural barriers in the industry and can increase the competitive intensity.

Since Bakkafrost is a company that have showed operational performance above peers, I still forecasted a good continuing profitability in the future but with a lower ROIC (14,6% avg. 2020-2027 vs 24,5% avg. 2010-2019). My enterprise DCF valuation shows an equity value of 723 NOK per share, an upside from today's stock price of 19%. The lower margins and ROIC is partly because of the acquisition of SSC in 2019, which can be a potential upside for the company if they successfully manage to steer the operations in Scotland as they have in the Faroe Islands.

When comparing Bakkafrost to comparable companies in a relative valuation using EV/NOPLAT is Bakkafrost seemingly expensive, with an equity value of just 481 NOK per share. This is a 20% downside from today's stock price. From my analysis of the comparable

companies' historical performance is my judgement that this can be explained from the differences in operational performance and growth outlook. Bakkafrost had on a 10-year average the highest organic growth and operating margin, and the second highest ROIC. In my view is it therefore natural that the company also have higher pricing multiples.

To meet the world`s future demand in food with a growing population and a possible scarcity in new land areas for food production, is the aquaculture industry in a good position to take their part of the demand growth. Bakkafrost with its exceptional operational performance should be in a prime position to help supply the increased demand for seafood. When conducting an enterprise DCF valuation and a relative valuation weighting 80% and 20% respectively, was I arriving at an equity value per share of 674 NOK, an upside of 11 % from the share price as of 31.05.20. For investors am I therefore giving a buy recommendation of the stock, since the company have a lower market value than their intrinsic value conducted from my analysis. Bakkafrost seems to be a great company to have in the portfolio if you want to be exposed to the salmon and aquaculture sector.

13. References

American Heart Association. 2017. *Fish and Omega-3 Fatty Acids.* Dallas: American Heart Association. Accessed June 12, 2020. https://www.heart.org/en/healthy-living/healthy-eating/eat-smart/fats/fish-and-omega-3-fatty-acids

Aponte, Fabian R. & Sigbjørn Tveterås. 2019. "On the drivers of cost changes in the Norwegian salmon aquaculture sector: a decomposition of a flexible cost function from 2001 to 2014." *Aquaculture Economics & Management* 23(3):276-291. doi: https://doi.org/10.1080/13657305.2018.1551438

Barney, Jay B. 1991. "Firm Resources and Sustained Competitive Advantage.". *Journal of Management* 17(1):99-120. doi: https://doi.org/10.1177/014920639101700108

Barney, Jay B. 1995. "Looking Inside for Competitive Advantage." *Academy of Management Perspectives* 9(4). doi: https://doi.org/10.5465/ame.1995.9512032192

Danmarks Nationalbank. 2020. *Denmarks fixed exchange Rate Policy*. Copenhagen: Danmarks Nationalbank. Accessed June 10, 2020. http://www.nationalbanken.dk/en/about_danmarks_nationalbank/frequently_asked_questions/Pages/Denmarks-fixed-exchange-rate-policy.aspx

Damodaran, Aswath. 2012. *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset.* 3rd edition. New Jersey: John Wiley & Sons, Inc.

Damodaran, Aswath. 2013. "Valuing Financial Services Firms." *Journal of Financial Perspectives* 1(1). Accessed May 28, 2020. https://ssrn.com/abstract=3075980

Damodaran. 2020. *Ratings, Interest Coverage Ratios and Default Spread.* Accessed March 26, 2020. New York: Aswath Damodaran. http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ratings.htm

ECB. 2020. The Definition of Price Stability. European Central Bank. Accessed April 22, 2020. https://www.ecb.europa.eu/mopo/strategy/pricestab/html/index.en.html

Fama, Eugene F. & Kenneth R. French (1992). “The Cross-Section of Expected Stock Returns.” *Journal of Finance* 47(2):427–465. doi: https://doi.org/10.1111/j.1540-6261.1992.tb04398.x

Fama, Eugene F. & Kenneth R. French. (2015). *“*A five-factor asset pricing model.” *Journal of Financial economics* 116(1):1-22. doi: https://doi.org/10.1016/j.jfineco.2014.10.010

FAO. 2020. *FAOstat – Food Balances*. Rome: Food and Agricultural Organization of The United States. Accessed March 15, 2020. http://www.fao.org/faostat/en/#data/FBS

FAO Fisheries & Aquaculture Department. 2020. *FishStatJ.* Accessed May 25, 2020. http://www.fao.org/fishery/statistics/software/fishstatj/en

Fishpool. 2020. *Price history – weekly, monthly and annual average.* Accessed May 14, 2020. http://fishpool.eu/price-information/spot-prices/history/

Gallet, Craig A. 2009. “The Demand for Fish: a Meta-Analysis of the Own-Price Elasticity.” *Aquaculture Economics & Management* 13(3):232-245. doi: https://doi.org/10.1080/13657300903123985

IMF. 2020. *Real GDP growth – annual percent change.* Washington D.C.: International Monetary Fund. Accessed May 7, 2020. https://www.imf.org/external/datamapper/NGDP_RPCH@WEO/OEMDC/ADVEC/WEOWORLD

IPCC. 2019. *Special Report on the Ocean and Cryosphere in a Changing Climate.* Intergovernmental Panel on Climate Change. Accessed May 28, 2020. https://www.ipcc.ch/site/assets/uploads/sites/3/2019/12/SROCC_FullReport_FINAL.pdf

ISFA. 2016. *The Evolution of Land Based Atlantic Salmon Farms.* International Salmon Farmers Association. Accessed June 4, 2020. http://www.salmonfarming.org/cms/wp-content/uploads/2015/02/ISFA_LandFarmingreport_web.pdf

Iversen, Audun, Frank Asche, Øystein Hermansen & Ragnar Nystøyl. 2020. “Production cost and competitiveness in major salmon farming countries 2003–2018.” *Aquaculture* 522 doi: https://doi.org/10.1016/j.aquaculture.2020.735089

Gardar, Jogvan Hugo. 2017. Arbeiðspláss í Føroyum: Bakkafrost tvífalt so nógv í starvi sum næsta fyritøka. Vinnuvitan. July 7, 2017. http://web.archive.org/web/20170726051829/http:/portal.fo/arbeidsplass+i+foroyum+bakkafrost+tvifalt+so+nogv+i+starvi+sum+naesta+fyritoka.html

Keyser, Freya, Brendan Wringe, Nicholas W. Jeffery, J. Brian Dempson, Steven Duffy & Ian R. Bradbury. 2018. "Predicting the impacts of escaped farmed Atlantic salmon on wild salmon populations" *Canadian Journal of Fisheries and Aquatic Sciences* 75(4):506-512. doi: https://doi.org/10.1139/cjfas-2017-0386

Koller, Tim, Marc Goedhart & David Wessels. 2015. *Valuation – Measuring and Managing the Value of Companies*. 6th edition. New Jersey: John Wiley & Sons, Inc.

Kobayashi, Mimako, Siwa Msangi, Miroslav Batka, Stefania Vannuccini, Madan M. Dey & James L. Anderson. 2015. "Fish to 2030: The Role and Opportunity for Aquaculture" *Journal Aquaculture Economics & Management* 19(3):282-300. doi: https://www.tandfonline.com/doi/abs/10.1080/13657305.2015.994240

Malkiel, Burton G. & Eugene F. Fama. 1970. "Efficient Capital Markets: A Review of Theory and Empirical Work." *The Journal of Finance* 25(2): 383-417. doi: https://doi.org/10.1111/j.1540-6261.1970.tb00518.x

Mowi. 2019. *Salmon Farming Industry Handbook 2019.* Bergen: MOWI ASA. Accessed May 10, 2020. https://ml.globenewswire.com/Resource/Download/1766f220-c83b-499a-a46e-3941577e038b

Norges Bank. 2020a. *Valutakurser – DKK*. Oslo: Norges bank. Accessed June 3, 2020. https://www.norges-bank.no/tema/Statistikk/Valutakurser/?tab=currency&id=DKK

Norges Bank. 2020b. *Statsobligasjoner årsgjennomsnitt*. Oslo: Norges bank. Accessed April 18, 2020. https://www.norges- bank.no/tema/Statistikk/Rentestatistikk /Statsobligasjoner-Rente-Arsgjennomsnitt-av-daglige-noteringer/

Norges Bank. 2020c. *Valutakurser – GBP*. Oslo: Norges bank. Accessed June 6, 2020. https://www.norges-bank.no/tema/Statistikk/Valutakurser/?tab=currency&id=GBP

OECD/FAO. 2018. *OECD-FAO Agricultural Outlook 2018-2027*. Paris: Food and Agriculture Organization of the United Nations, Rome. doi: https://doi.org/10.1787/agr_outlook-2018-en

Oslo Børs. 2020. *Hovedindeksen.* Accessed May 27, 2020. https://www.oslobors.no/markedsaktivitet/#/details/OSEBX.OSE/overview

Overton, Kathy, Tim Dempster, Frode Oppedal, Tore S. Kristiansen, Kristine Gismervik & Lars H. Stien. 2018. "Salmon lice treatments and salmon mortality in Norwegian aquaculture: a review." *Reviews in Aquaculture* 11(4):1398-1417. doi. https://doi.org/10.1111/raq.12299

Penman, Stephen H. 2013. *Financial Statement Analysis and Security Valuation*. 5th edition. New York: McGraw-Hill

Porter, Michael E. 1979. "How Competitive Forces Shape Strategy." *Harvard Business Review* March/April:137-145. Accessed May 22, 2020. http://faculty.bcitbusiness.ca/KevinW/4800/porter79.pdf

P/F Bakkafrost. 2011. *Annual report 2010.* Glyvrar: P/F Bakkafrost. https://www.bakkafrost.com/media/1238/2010_annual-report_en.pdf

P/F Bakkafrost. 2012. *Annual report 2011.* Glyvrar: P/F Bakkafrost. https://www.bakkafrost.com/media/1256/2011_annual-report_en.pdf

P/F Bakkafrost. 2013. *Annual report 2012.* Glyvrar: P/F Bakkafrost. https://www.bakkafrost.com/media/1259/2012_annual-report_en.pdf

P/F Bakkafrost. 2014. *Annual report 2013.* Glyvrar: P/F Bakkafrost. https://www.bakkafrost.com/media/1277/2013_annual-report_en.pdf

P/F Bakkafrost. 2015. *Annual report 2014.* Glyvrar: P/F Bakkafrost. https://www.bakkafrost.com/media/1278/2014_annual-report_en.pdf

P/F Bakkafrost. 2016. *Annual report 2015.* Glyvrar: P/F Bakkafrost. https://www.bakkafrost.com/media/1297/2015_annual-report_en.pdf

P/F Bakkafrost. 2017. *Annual report 2016.* Glyvrar: P/F Bakkafrost. https://www.bakkafrost.com/media/1299/2016_annual-report_en.pdf

P/F Bakkafrost. 2018. *Annual report 2017.* Glyvrar: P/F Bakkafrost. https://www.bakkafrost.com/media/1772/bakkafrost_annual_report_2017.pdf

P/F Bakkafrost. 2019a. *Capital Markets Day 2019.* Glyvrar: P/F Bakkafrost. https://www.bakkafrost.com/media/2111/bf_cmd2019_presentations.pdf

P/F Bakkafrost. 2019b. *Annual report 2018.* Glyvrar: P/F Bakkafrost. https://www.bakkafrost.com/media/2022/bakkafrost_annualreport_2018_web.pdf

P/F Bakkafrost. 2019c. *Press Release – Acquisition.* Glyvrar: P/F Bakkafrost. https://www.bakkafrost.com/media/2195/press-release-acquisition.pdf

P/F Bakkafrost. 2020a. *Annual report 2019.* Glyvrar: P/F Bakkafrost. https://www.bakkafrost.com/media/2356/bf_annualreport_web_2019.pdf

P/F Bakkafrost. 2020b. *About Us – Bakkafrost History.* Accessed May 4, 2020. https://www.bakkafrost.com/en/about-us/about-us/bakkafrost-history/

P/F Bakkafrost. 2020c. *Investor – Dividend.* Accessed May 6, 2020. https://www.bakkafrost.com/en/investor-relations/financial-strategy/dividend/

P/F Bakkafrost. 2020d. *Interim report Q1 2020.* Glyvrar: P/F Bakkafrost. https://www.bakkafrost.com/media/2463/q1-20-condenced-interim-consolidated-accounts-v2.pdf

PWC. 2019. *Risikopremien i det Norske Markedet.* Accessed April 18, 2020. https://www.pwc.no/no/publikasjoner/pwc-risikopremie-2019.pdf

Kim, Moonchul & Jay, R. Ritter. (1999). "Valuing IPOs." *Journal of financial economics,* 53(3):409-437. doi: https://doi.org/10.1016/S0304-405X(99)00027-6

Salmar. 2020. *Havbasert Fiskeoppdrett.* Accessed June 4, 2020. https://www.salmar.no/havbasert-fiskeoppdrett-en-ny-aera/

Saue, Ole Alexander. 2018. “Regin Jacobsen vart økonomiansvarleg som 16-åring. Slik bygde dei opp Bakkafrost.” *iLaks.no* November 1, 2018. https://ilaks.no/regin-jacobsen-vart-okonomiansvarleg-som-16-aring-slik-bygde-dei-opp-bakkafrost/

Scholz, F., N. M. Ruane, M. Marcos-López, S. Mitchell, M. Bolton-Warberg, I. O’Connor, L. Mirimin, E. MacCarthy & H. D. Rodger. 2018. “Systemic mycoses in lumpfish (Cyclopterus lumpus L.) in Ireland: aetiology and clinical presentation.” *Bulletin-European Association of Fish Pathologists* September 2018. Accessed June 12, 2020. https://www.researchgate.net/profile/Felix_Scholz2/publication/327848406_Systemic_mycoses_in_lumpfish_Cyclopterus_lumpus_L_in_Ireland_aetiology_and_clinical_presentation/links/5bb21906a6fdccd3cb80d7dd/Systemic-mycoses-in-lumpfish-Cyclopterus-lumpus-L-in-Ireland-aetiology-and-clinical-presentation.pdf

Shiller, Robert J. 2003. “From Efficient Markets Theory to Behavioral Finance.” *Journal of Economic Perspectives* 17(1):83-104. doi: https://pubs.aeaweb.org/doi/pdfplus/10.1257/089533003321164967

Sjømat Norge. 2018. *Hva er i fôret til laksen?* Oslo: Sjømat Norge. Accessed April 27, 2020. https://laksefakta.no/hva-spiser-laksen/hva-er-i-foret-til-laksen/

Sjømat Norge. 2020. *Lakseproduksjon.* Oslo: Sjømat Norge. Accessed April 27, 2020. https://laks.no/lakseproduksjon/

SSC. 2019. *Investor presentation March 2019*. Edinburgh: Scottish Salmon Company PLC. Accessed April 4, 2020. https://newsweb.oslobors.no/message/471755

The Norwegian Seafood Council. 2020. *Sustainable Aquaculture – Our History*. Accessed May 25, 2020. https://salmon.fromnorway.com/sustainable-aquaculture/our-history/

Datastream. 2020. New York: Thomson Reuters Eikon. Subscription required. https://eikon.thomsonreuters.com/index.html Subscription required.

United Nations. 2019. *2019 Revision of World Population Prospects*. Accessed March 19, 2020. https://population.un.org/wpp/

World Bank. 2013. *Fish to 2030 – prospects for Fisheries and aquaculture*. Washington DC: World Bank Group. Accessed May 2, 2020.

http://documents.worldbank.org/curated/en/458631468152376668/Fish-to-2030-prospects-for-fisheries-and-aquaculture

World sea temperatures. 2020. *World sea temperatures.* Accessed June 8, 2020. https://www.seatemperature.org/

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16. Appendix

Appendix A – Income statement Bakkafrost 2010-2019

Income Statement Reported	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Revenue	**820 212**	**1 321 092**	**1 855 544**	**2 491 081**	**2 683 319**	**2 850 363**	**3 202 686**	**3 770 049**	**3 177 422**	**4 511 107**
Purchase of goods	-301 446	-450 815	-835 494	-1 064 666	-913 130	-1 201 208	-920 148	-883 871	-1 074 645	-1 354 921
Change in inventory and biological assets	75 501	19 796	75 990	81 924	96 560	424 143	58 874	-141 406	199 696	-29 423
Gross Profit	**594 267**	**890 073**	**1 096 040**	**1 508 339**	**1 866 749**	**2 073 298**	**2 341 412**	**2 744 772**	**2 302 473**	**3 126 763**
Salary and personell expenses	-118 409	-168 144	-210 115	-232 871	-263 897	-281 085	-327 825	-400 267	-353 756	-512 761
Other Operating Expenses	-186 813	-319 458	-482 641	-601 799	-671 908	-683 532	-715 373	-783 268	-674 907	-978 787
EBITDA	**289 045**	**402 471**	**403 284**	**673 669**	**930 944**	**1 108 681**	**1 298 214**	**1 561 237**	**1 273 810**	**1 635 215**
Depreciation	-42 257	-67 325	-80 244	-86 659	-97 169	-108 098	-133 261	-183 590	-198 898	-310 115
Operational EBIT *	**246 788**	**335 146**	**323 040**	**587 010**	**833 775**	**1 000 583**	**1 164 953**	**1 377 647**	**1 074 912**	**1 325 100**
Fair value adjustments of biological asset	83 926	-45 882	90 546	115 352	-11 547	-27 578	618 635	-693 540	195 819	-220 567
Other Unusual Expense	-12 790	-16 019	-17 546	0	0	0	0	0	0	0
Onerous contracts (expense)	-2 856	2 856	-46 078	-24 830	70 908	-51 004	-16 372	67 376	0	0
Income from associates	512	-2 021	-6 442	23 788	-845	6 757	14 821	17 302	9 369	13 812
Badwill related to aquisition	0	126 618	0	0	0	0	0	0	0	0
Revenue tax	0	0	0	0	0	0	-108 450	-119 681	-95 867	-99 128
EBIT	**315 580**	**400 698**	**343 520**	**701 320**	**892 291**	**928 758**	**1 673 587**	**649 104**	**1 184 233**	**1 019 217**
Net interest revenue	1 051	2 835	3 436	6 239	4 575	3 599	1 524	1 395	2 651	4 996
Net interest expenses	-8 180	-30 830	-20 924	-28 929	-32 376	-24 622	-25 983	-26 365	-12 477	-17 114
Net currency effects	819	-609	-145	53 151	40 448	23 350	-12 355	4 173	1 419	-12 670
Other financial expenses	-2 011	-1 898	-2 206	-4 430	-5 747	-6 614	-4 159	-4 423	-3 760	-12 513
Net Income Before Taxes	**307 259**	**370 196**	**323 681**	**727 351**	**899 191**	**924 471**	**1 632 614**	**623 884**	**1 172 066**	**981 916**
Income taxes	-47 548	-46 779	-55 806	-138 133	-252 086	-114 296	-293 727	-112 482	-211 774	-180 031
Net Income After Taxes	**259 711**	**323 417**	**267 875**	**589 218**	**647 105**	**810 175**	**1 338 887**	**511 402**	**960 292**	**801 885**
Minority Interest	0	-1 971	0	0	0	0	0	0	0	-8 382
Discontinued Operations	0	0	13 462	0	0	0	0	0	0	0
Net Income	**259 711**	**325 388**	**281 337**	**589 218**	**647 105**	**810 175**	**1 338 887**	**511 402**	**960 292**	**810 267**
Basic Weighted Average Shares	48 087	48 858	48 858	48 858	48 858	48 858	48 858	48 858	48 858	59 143
Diluted Weighted Average Shares	48 087	48 858	48 858	48 858	48 858	48 858	48 858	48 858	48 858	59 143
Diluted Earnings Per Share	**5,40**	**6,65**	**5,48**	**12,05**	**13,23**	**16,69**	**27,56**	**10,51**	**19,74**	**15,53**
Adjusted EPS for Fair Value Adjustment	3,97	7,43	5,01	10,55	12,33	17,16	17,57	21,08	16,44	19,04

Appendix A: Bakkafrost`s income statement from 2010 - 2019. Numbers in thousand`s DKK. Source: P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a).

Appendix B – Balance sheet Bakkafrost 2010-2019

Balance Sheet Reported	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
ASSETS										
Current assets										
Cash & Equivalents	9 128	16 868	25 045	182 077	405 109	101 852	234 996	309 551	316 894	1 309 546
Accounts Receivables	125 619	154 496	212 357	278 432	172 360	199 263	292 009	262 493	269 348	625 993
Other Receivables	19 628	15 299	145 998	122 153	141 912	178 083	107 088	152 834	22 936	45 520
Inventory	28 501	179 179	242 898	235 489	266 960	421 966	355 604	305 845	438 847	548 508
Biological assets (biomass)	482 091	700 336	746 958	965 896	1 013 959	1 060 273	1 858 435	1 096 664	1 358 462	1 901 729
Prepaid Expenses	262	1 263	-	-	-	1 888	2 772	4 322	-	-
Total Current Assets	**665 229**	**1 067 441**	**1 373 256**	**1 784 047**	**2 000 300**	**1 963 325**	**2 850 904**	**2 131 709**	**2 406 487**	**4 431 296**
Non-current assets										
Goodwill	3537	3537	3 537	4 537	4 537	4 537	4 537	4 537	17 607	567 129
Licences, brands	132 708	366 418	290 138	290 138	290 138	290 138	372 138	372 138	372 138	3 828 558
Total Intangible Assets	**136 245**	**369 955**	**293 675**	**294 675**	**294 675**	**294 675**	**376 675**	**376 675**	**389 745**	**4 395 687**
Property, Plant and Equipment	356 421	828 523	796 088	882 083	926 735	1 427 285	2 118 470	2 570 430	2 437 266	3 146 816
Right of use assets	-	-	-	-	-	-	-	-	-	332 824
Prepayments for purchase of PP&E	-	-	16 680	34 613	114 513	104 208	-	-	447 059	633 683
Total PP&E	**356 421**	**828 523**	**812 768**	**916 696**	**1 041 248**	**1 531 493**	**2 118 470**	**2 570 430**	**2 884 325**	**4 113 323**
Investments in associated companie	5 984	33 635	88 867	113 711	100 130	105 785	34 111	51 406	57 497	63 766
Investments in stocks and shares	19 983	2 220	2 345	1 593	25 289	25 108	25 296	25 296	55 269	55 318
Long-term receivables	796	-	-	1 504	1 291	-	12 660	-	9 200	4 422
Deferred tax assets	-	-	-	-	-	-	-	-	-	37 593
Total Non-Current Assets	**519 429**	**1 234 333**	**1 197 655**	**1 328 179**	**1 462 633**	**1 957 061**	**2 567 212**	**3 023 807**	**3 396 036**	**8 670 109**
TOTAL ASSETS	**1 184 658**	**2 301 774**	**2 570 911**	**3 112 226**	**3 462 933**	**3 920 386**	**5 418 116**	**5 155 516**	**5 802 523**	**13 101 405**
EQUITY & LIABILITIES										
Current Liabilities										
Accounts Payable	83 039	151 047	217 610	140 104	127 720	195 223	138 873	189 548	204 500	584 435
Short-term Interest-bearing Debt	41 961	100 000	100 000	100 000	100 000	-	-	378 300	-	107 808
Current tax liabilities	-	-	-	57 241	124 765	155 359	142 016	198 141	152 655	195 484
Other Current Liabilities	-	-	-	78 639	10 460	63 413	113 891	160 954	21 856	37 225
Total Current Liabilities	**125 000**	**251 047**	**317 610**	**375 984**	**362 945**	**413 995**	**394 780**	**926 943**	**379 011**	**924 952**
Non-Current Liabilities										
Long-term Interest-bearing Debt	37 357	733 693	731 948	685 151	505 393	447 559	827 146	146 696	812 053	2 328 231
Deferred Income Tax	120 009	256 023	258 441	310 925	414 014	349 546	545 699	455 448	534 430	1 123 796
Derivatives	-	-	-	74 889	116 928	128 804	101 456	-	-	1 966
Long-term leasing debt	-	-	-	-	-	-	-	-	-	225 585
Total Non-Current liabilities	**157 366**	**989 716**	**990 389**	**1 070 965**	**1 036 335**	**925 909**	**1 474 301**	**602 144**	**1 346 483**	**3 679 578**
TOTAL LIABILITIES	**282 366**	**1 240 763**	**1 307 999**	**1 446 949**	**1 399 280**	**1 339 904**	**1 869 081**	**1 529 087**	**1 725 494**	**4 604 530**
Equity										
Common Stock	48 858	48 858	48 858	48 858	48 858	48 858	48 858	48 858	48 858	59 143
Additional Paid-In Capital	306 537	306 537	306 537	306 537	306 537	306 537	306 537	306 537	306 537	4 027 375
Retained Earnings	213 387	537 290	628 751	882 867	1 250 236	1 687 997	1 986 469	2 687 313	2 945 398	3 693 242
Treasury Stock - Common	-	-	-	-28 949	-25 557	-19 679	-21 045	-18 159	-15 525	-68
Unrealized Gain (Loss)	130 792	84 910	181 050	296 402	284 855	257 277	880 491	186 951	382 720	162 203
Other Equity, total	202 715	48 859	97 716	159 562	198 724	299 492	347 725	414 929	409 041	387 360
Translation Adjustment	-	-	-	1 109	1 458	2 034	5 856	6 271	6 176	78 850
Other Equity	202 715	48 859	97 716	219 862	293 148	403 079	425 065	513 009	403 069	323 858
Other Comprehensive Income	-	-	-	-61 409	-95 882	-105 621	-83 196	-104 351	-204	-15 348
Non-controlling interest	-	34 557	-	-	-	-	-	-	-	167 620
TOTAL EQUITY	**902 289**	**1 061 011**	**1 262 912**	**1 665 277**	**2 063 653**	**2 580 482**	**3 549 035**	**3 626 429**	**4 077 029**	**8 496 875**
TOTAL EQUITY & LIABILITIES	**1 184 658**	**2 301 774**	**2 570 911**	**3 112 226**	**3 462 933**	**3 920 386**	**5 418 116**	**5 155 516**	**5 802 523**	**13 101 405**

Appendix B: Bakkafrost`s balance sheet from 2010 - 2019. Numbers in thousand`s DKK. Source: P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a).

Appendix C – Income statement SSC 2014-2018

Income Statement Reported	**2014**	**2015**	**2016**	**2017**	**2018**
Revenue	125 900	100 400	109 900	150 900	180 100
Purchase of goods	-81 200	-73 200	-76 300	-100 800	-114 200
Change in inventory and biological assets	-6 300	5 400	-1 100	15 100	22 800
Gross Profit	**38 400**	**32 600**	**32 500**	**65 200**	**88 700**
Administration and Commercial Costs	-2 200	-3 000	-3 900	-3 700	-6 400
Impairment of Financial Investments	-3 100	-	-	-	-
Salaries and related costs	-13 300	-14 400	-15 600	-18 400	-21 100
Restructuring costs	-200	-	-	-	-
Other operating expenses	-4 200	-3 400	-4 000	-4 500	-4 600
EBITDA	**15 400**	**11 800**	**9 000**	**38 600**	**56 600**
Depreciation and Impairment	-7 400	-7 700	-8 300	-8 200	-8 300
Gain on disposal of tangible / intangible	-100	-	-	-	-400
Operational EBIT	**7 900**	**4 100**	**700**	**30 400**	**47 900**
Fair value adjustments of biological assets	-8 700	3 600	-11 300	-300	-12 200
EBIT	**16 600**	**500**	**11 900**	**30 700**	**60 200**
Net interest expenses	-2 000	-1 400	-1 600	-1 100	-1 100
Net currency effects	-400	-500	-400	-700	-200
Other financial expenses (income)	-500	900	-800	400	-600
Net Income Before Taxes	13 700	-400	9 100	29 300	58 300
Income taxes	2 700	-800	200	5 200	10 600
Net Income After Taxes	**10 900**	**400**	**8 900**	**24 100**	**47 700**
Basic Weighted Average Shares	166 800	190 100	193 500	193 500	193 500
Basic EPS	0,07	0,00	0,05	0,12	0,25
Diluted Weighted Average Shares	166 800	190 100	193 500	194 700	193 700
Diluted EPS	0,07	0,00	0,05	0,12	0,25

Appendix C: Income statement for SSC from 2014-2018. Numbers in thousand`s pound. Sources: Datastream (2020).

Appendix D – Balance sheet SSC 2014-2018

Balance Sheet Reported	2010	2011	2012	2013	2014
ASSETS					
Current assets					
Cash & Equivalents	1 900	4 500	3 000	8 500	4 900
Accounts Receivables	15 600	15 200	12 600	18 800	20 600
Other Receivables	800	1 400	2 400	1 400	1 400
Inventory	2 200	3 500	2 100	2 600	3 100
Biological assets (biomass)	68 100	68 600	80 200	95 100	129 600
Prepaid Expenses	600	1 800	1 600	1 500	700
Total Current Assets	**89 200**	**95 000**	**101 900**	**127 900**	**160 100**
Non-current assets					
Goodwill	2200	2200	2200	2200	6100
Licences, brands	21900	22300	23600	24300	28000
Total Intangible Assets	**24 100**	**24 500**	**25 800**	**26 500**	**34 100**
Property, Plant and Equipment	33 800	36 900	34 800	38 100	46 500
Total Non-Current Assets	**57 900**	**61 400**	**60 600**	**64 600**	**80 600**
TOTAL ASSETS	**147 100**	**156 400**	**162 500**	**192 500**	**240 700**
EQUITY & LIABILITIES					
Current Liabilities					
Accounts Payable	11 400	15 400	13 100	15 500	23 500
Short-term Interest-bearing Debt	4 500	4 800	9 800	12 000	11 900
Current tax liabilities	300	-	-	1 400	5 000
Other Current Liabilities	4 100	4 900	6 800	7 500	10 100
Convertible bond held at fair value	12 000	-	-	-	-
Total Current Liabilities	**32 300**	**25 100**	**29 700**	**36 300**	**50 500**
Non-Current Liabilities					
Long-term Interest-bearing Debt	36 500	42 200	36 400	36 000	29 400
Deferred Income Tax	7 300	7 000	7 100	8 100	10 500
Other long term liabilities	-	-	1 400	1 700	2 000
Total Non-Current liabilities	**43 800**	**49 200**	**44 900**	**45 800**	**41 900**
TOTAL LIABILITIES	**76 100**	**74 300**	**74 600**	**82 100**	**92 400**
Equity					
Common Stock	15 400	17 500	17 500	17 500	17 500
Additional Paid-In Capital	55 100	64 000	64 000	64 000	64 000
Retained Earnings	40 200	40 600	49 500	73 600	115 300
Treasury Stock - Common	-	-	-	-	-300
Other Equity	-36 500	-36 500	-37 900	-38 000	-37 900
Discontinued operations	-900	-900	-900	-900	-900
TOTAL EQUITY	**73 300**	**84 700**	**92 200**	**116 200**	**157 700**
TOTAL EQUITY & LIABILITIES	**149 400**	**159 000**	**166 900**	**198 300**	**250 100**

Appendix D: Balance sheet for SSC from 2014 to 2018. Numbers in thousand`s GBP Source: Datastream (2020).

Appendix E – Estimated Income Statements 2019

Income Statement	2019				
	Including SSC	Excluding SSC	Farming in Scotland	Estimate of SSC 2019	Proforma numbers
Revenue	**4 511 107**	**4 073 936**	**437 171**	**1 705 967**	**5 779 903**
Purchase of goods	-1 354 921	-1 118 778	-236 143	-1 050 911	-3 859 827
Change in inventory and biological assets	-29 423	-14 381	-15 042	-	
Gross Profit	**3 126 763**	**2 940 777**	**185 986**	**655 056**	
Salary and personell expenses	-512 761	-458 867	-53 894	-194 170	
Other Operating Expenses	-978 787	-921 493	-57 294	-101 226	
EBITDA	**1 635 215**	**1 560 416**	**74 799**	**359 660**	
Depreciation	-310 115	-253 445	56 670	-250 029	503 474
Operational EBIT *	**1 325 100**	**1 306 971**	**18 129**	**109 631**	**1 416 602**
Fair value adjustments of biological assets	-220 567	21 847	-242 414	-692 611	-670 764
Income from associates	13 812	13 812	-	-	13 812
Revenue tax	-99 128	-99 128	-	0	-99 128
EBIT	**1 019 217**	**1 243 502**	**-224 285**	**-582 980**	**660 522**
Net interest revenue	4 996	4 329	667	-4 329	
Net interest expenses	-17 114	-14 831	-2 283	14 831	
Net currency effects	-12 670	-10 979	-1 691	10 979	
Other financial expenses	-12 513	-10 843	-1 670	-47 518	-58 361
Net Income Before Taxes	**981 916**	**1 211 178**	**-229 262**	**-609 017**	**602 161**
Income taxes	-180 031	-217 917	37 886	99 041	-118 876
Net Income After Taxes	**801 885**	**993 261**	**-191 376**	**-509 976**	**483 285**
Minority Interest	-8 382	-	-8 382		
Net Income	**810 267**	993 261	-182 994		

Appendix E: Presenting the 2019 income statement for Bakkafrost including SSC and the proforma numbers as presented in the annual reports. Additionally, the partly estimated segment report of farming (SCT), income statement for Bakkafrost excluding SSC and income statement for SSC in 2019 is presented. All numbers in thousand`s DKK. Source: P/F Bakkafrost (2020); Own estimates.

Appendix F – Estimated balance sheet 2019

Balance Sheet Reported	2019		
	Included SSC	Excluded SSC	SSC
ASSETS			
Current assets			
Cash & Equivalents	1 309 546	1 277 046	32 500
Accounts Receivables	625 993	502 593	123 400
Other Receivables	45 520	4 620	40 900
Inventory	548 508	516 808	31 700
Biological assets (biomass)	1 901 729	1 241 229	660 500
Prepaid Expenses	-	-	-
Total Current Assets	**4 431 296**	**3 542 296**	**889 000**
Non-current assets			
Goodwill	567 129	16 729	50 901
Licences, brands	3 828 558	495 058	201 800
Total Intangible Assets	**4 395 687**	**511 787**	**252 700**
Property, Plant and Equipment	3 146 816		
Right of use assets	332 824		
Prepayments for purchase of PP&E	633 683		
Total PP&E	**4 113 323**	**3 411 123**	**702 200**
Investments in associated companies	63 766	63 766	-
Investments in stocks and shares	55 318	55 318	-
Long-term receivables	4 422	4 422	-
Deferred tax assets	37 593	-	37 593
Total Non-Current Assets	**8 670 109**	**4 046 416**	**992 493**
TOTAL ASSETS	**13 101 405**	**7 588 712**	**1 881 493**
EQUITY & LIABILITIES			
Current Liabilities			
Accounts Payable	584 435	382 635	201 800
Short-term Interest-bearing Debt	107 808	-	107 808
Current tax liabilities	195 484	187 184	8 300
Other Current Liabilities	37 225	37 225	-
Total Current Liabilities	**924 952**	**607 044**	**317 908**
Non-Current Liabilities			
Long-term Interest-bearing Debt	2 328 231	2 164 582	163 649
Deferred Income Tax	1 123 796	570 896	192
Derivatives	1 966	1 966	-
Long-term leasing debt	225 585	-	225 585
Total Non-Current liabilities	**3 679 578**	**2 737 444**	**389 426**
TOTAL LIABILITIES	**4 604 530**	**3 344 488**	**707 334**

Appendix F: Table 3: Balance sheet 2019 for Bakkafrost included and excluded SSC, in addition to SSC alone. All numbers in thousand`s DKK. Source: P/F Bakkafrost (2020).

Appendix G – NOPLAT Bakkafrost 2010-2019

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Tax rate	15,5 %	12,6 %	17,2 %	19,0 %	28,0 %	12,4 %	18,0 %	18,0 %	18,1 %	18,3 %
Revenues	820 212	1 321 092	1 855 544	2 491 081	2 683 319	2 850 363	3 202 686	3 770 049	3 177 422	4 511 107
COGS	-225 945	-431 019	-759 504	-982 742	-816 570	-777 065	-861 274	-1 025 277	-874 949	-1 384 344
Salary and personell expenses	-118 409	-168 144	-210 115	-232 871	-263 897	-281 085	-327 825	-400 267	-353 756	-512 761
Other operating expenses	-186 813	-319 458	-482 641	-601 799	-671 908	-683 532	-715 373	-783 268	-674 907	-978 787
Depreciation	-42 257	-67 325	-80 244	-86 659	-97 169	-108 098	-133 261	-183 590	-198 020	-309 237
Revenue tax	0	0	0	0	0	0	-108 450	-119 681	-95 867	-99 128
EBITA	246 788	335 146	323 040	587 010	833 775	1 000 583	1 056 503	1 257 966	979 923	1 226 850
Operating cash taxes	38 190	42 350	55 695	111 480	233 747	123 706	190 078	226 803	177 057	224 939
NOPLAT	208 598	292 796	267 345	475 530	600 028	876 877	866 425	1 031 163	802 866	1 001 911
Reconcilation with net income										
Net income	259 711	325 388	281 337	589 218	647 105	810 175	1 338 887	511 402	960 292	810 267
(+) Amortization goodwill	0	0	0	0	0	0	0	0	878	878
(-) Fair value adjustments of biological assets	83 926	-45 882	90 546	115 352	-11 547	-27 578	618 635	-693 540	195 819	-220 567
(-) Badwill related to aquisition	0	126 618	0	0	0	0	0	0	0	0
(+) Other unusual expense	12 790	16 019	17 546	0	0	0	0	0	0	0
(-) Onerous contracts (expense)	-2 856	2 856	-46 078	-24 830	70 908	-51 004	-16 372	67 376	0	0
(-) income from associates	512	-2 021	-6 442	23 788	-845	6 757	14 821	17 302	9 369	13 812
(-) Currency effects (1-t)	819	-609	-145	53 151	40 448	23 350	-12 355	4 173	1 419	-12 670
(+) Net interest expense	8 180	30 830	20 924	28 929	32 376	24 622	25 983	26 365	12 477	17 114
(+) Other financial expense (income)	960	-937	-1 230	-1 809	1 172	3 015	2 635	3 028	1 109	7 517
Non operating expence (income)	**-60 471**	**-35 050**	**-641**	**-140 341**	**-65 416**	**76 112**	**-576 111**	**634 082**	**-192 143**	**244 934**
(+) Non operating taxes	9 358	4 429	111	26 653	18 339	-9 410	103 649	-114 321	34 717	-44 908
(+) Minority interest	0	-1 971	0	0	0	0	0	0	0	-8 382
(-) Discontinued operations	0	0	13 462	0	0	0	0	0	0	0
NOPLAT	208 598	292 796	267 345	475 530	600 028	876 877	866 425	1 031 163	802 866	1 001 911

Appendix G: NOPLAT and reconciliation with net Income for Bakkafrost, 2010 - 2019. Numbers in thousand`s DKK. Source: P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a).

Appendix H – Invested capital and total funds invested

Reorganized balance sheet	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total funds invested: Uses										
Operating cash	9 128	16 868	25 045	49 822	53 666	57 007	64 054	75 401	63 548	90 222
Accounts receivables	125 619	154 496	212 357	278 432	172 360	199 263	292 009	262 493	269 348	625 993
Other operating receivables & prepaid expenses	19 890	16 562	145 998	122 153	141 912	179 971	109 860	157 156	22 936	45 520
Inventory	28 501	179 179	242 898	235 489	266 960	421 966	355 604	305 845	438 847	548 508
Biological assets	482 091	700 336	746 958	965 896	1 013 959	1 060 273	1 858 435	1 096 664	1 358 462	1 901 729
Biological assets - Fair value adjustments	130 792	59 715	157 161	262 675	233 513	214 053	782 006	127 198	328 985	-29 888
Biological cost price (operational)	351 299	640 621	589 797	703 221	780 446	846 220	1 076 429	969 466	1 029 477	1 931 617
Operating current assets	**534 437**	**1 007 726**	**1 216 095**	**1 389 117**	**1 415 344**	**1 704 427**	**1 897 956**	**1 770 361**	**1 824 156**	**3 241 860**
Accounts payable	83 039	151 047	217 610	140 104	127 720	195 223	138 873	189 548	204 500	584 435
Current tax liabilities	0	0	0	57 241	124 765	155 359	142 016	198 141	152 655	195 484
Other operating current liabilities	0	0	0	78 639	10 460	63 413	113 891	160 954	21 856	37 225
Operating current liabilities	**83 039**	**151 047**	**217 610**	**275 984**	**262 945**	**413 995**	**394 780**	**548 643**	**379 011**	**817 144**
Operating working capital	451 398	856 679	998 485	1 113 133	1 152 399	1 290 432	1 503 176	1 221 718	1 445 145	2 424 716
Total property, plant and equipment	356 421	828 523	812 768	916 696	1 041 248	1 531 493	2 118 470	2 570 430	2 884 325	4 113 323
Other long term receivables	796	0	0	1 504	1 291	0	12 660	0	9 200	4 422
Invested capital, excl. goodwill	**808 615**	**1 685 202**	**1 811 253**	**2 031 333**	**2 194 938**	**2 821 925**	**3 634 306**	**3 792 148**	**4 338 670**	**6 542 461**
Goodwill and aqu. Intangibles, less tax gross up	112 358	304 000	241 450	241 813	228 598	241 789	309 053	309 053	322 123	3 776 765
Cumulative amortization and impairment	0	0	0	0	0	0	0	0	878	1756
Adjusted goodwill and aquired intangibles	112 358	304 000	241 450	241 813	228 598	241 789	309 053	309 053	323 001	3 778 521
Invested capital incl. Goodwill	**920 973**	**1 989 202**	**2 052 703**	**2 273 146**	**2 423 536**	**3 063 714**	**3 943 359**	**4 101 201**	**4 661 671**	**10 320 982**
Excess cash	0	0	0	132 255	351 443	44 845	170 942	234 150	253 346	1 219 324
Financial investments	25 967	35 855	91 212	115 304	125 419	130 893	59 407	76 702	112 766	119 084
Non-operating assets	25 967	35 855	91 212	247 559	476 862	175 738	230 349	310 852	366 112	1 338 408
Total funds invested	**946 940**	**2 025 057**	**2 143 915**	**2 520 705**	**2 900 398**	**3 239 452**	**4 173 708**	**4 412 053**	**5 027 783**	**11 659 390**
Total funds invested: Sources										
Short-term debt	41 961	100 000	100 000	100 000	100 000	0	0	378 300	0	107 808
Long-term debt	37 357	733 693	731 948	760 040	622 321	576 363	928 602	146 696	812 053	2 555 782
Non-controlling interest	0	34 557	0	0	0	0	0	0	0	167 620
Debt and debt equivalents	**79 318**	**868 250**	**831 948**	**860 040**	**722 321**	**576 363**	**928 602**	**524 996**	**812 053**	**2 831 210**
Equity adjustment - fair value of biological assets	-130 792	-59 715	-157 161	-262 675	-233 513	-214 053	-782 006	-127 198	-328 985	29 888
Deferred tax liabilities (assets), operating	96 122	190 068	206 216	258 063	347 937	296 660	478 077	387 826	466 808	467 281
Cum. Amortization and impairment	0	0	0	0	0	0	0	0	878	1756
Shareholders equity	902 289	1 026 454	1 262 912	1 665 277	2 063 653	2 580 482	3 549 035	3 626 429	4 077 029	8 329 255
Equity and equity equivalents	**867 619**	**1 156 807**	**1 311 967**	**1 660 665**	**2 178 077**	**2 663 089**	**3 245 106**	**3 887 057**	**4 215 730**	**8 828 180**
Total funds invested	**946 937**	**2 025 057**	**2 143 915**	**2 520 705**	**2 900 398**	**3 239 452**	**4 173 708**	**4 412 053**	**5 027 783**	**11 659 390**

Appendix H: Invested capital and total funds invested for Bakkafrost 2010 - 2019. All numbers in thousand`s DKK. Source: P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a).

Appendix I – Free cash flow Bakkafrost 2010-2019

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
NOPLAT	208 598	292 796	267 345	475 530	600 028	876 877	866 425	1 031 163	802 866	1 001 911
(+) Depreciation	42 257	67 325	80 244	86 659	97 169	108 098	133 261	183 590	198 020	250 811
Gross cash flow	**250 855**	**360 121**	**347 589**	**562 189**	**697 197**	**984 975**	**999 686**	**1 214 753**	**1 000 886**	**1 252 722**
Increase (Decrease) in working capital	166 130	405 281	141 806	114 648	39 267	138 033	212 743	-281 458	223 427	979 571
Investments in capital expenditure	167 676	539 427	64 489	190 587	221 721	598 343	720 238	635 550	511 915	1 479 809
Increase (decrease) in adjusted goodwill & aquired intangib	-	191 642	-62 550	363	-13 215	13 191	67 264	-	13 948	3 455 520
Increase (decrease) in other operating assets, net	66	-796	-	1 504	-213	-1 291	12 660	-12 660	9 200	-4 778
Foreign currency translations	-	-	-	1109	349	576	3822	415	-95	2838
(-) Gross investments	**333 872**	**1 135 554**	**143 745**	**308 210**	**247 909**	**748 852**	**1 016 727**	**341 847**	**758 395**	**5 912 960**
Adjustment for aquisition		967 770								4 532 990
(-) Gross organic investments	**333 872**	**167 784**	**143 745**	**308 210**	**247 909**	**748 852**	**1 016 727**	**341 847**	**758 395**	**1 379 969**
Organic free cash flow	-83 017	192 337	203 843	253 978	449 288	236 123	-17 041	872 906	242 491	-127 247
Free cash flow	**-83 017**	**-775 433**	**203 843**	**253 978**	**449 288**	**236 123**	**-17 041**	**872 906**	**242 491**	**-4 660 238**
Other financial income (expense)	-960	937	1 230	1 809	-1 172	-3 015	-2 635	-3 028	-1 109	-7 517
Other non-operating expense	-12 790	-16 019	-17 546	-	-	-	-	-	-	-
Income from associates	512	-2 021	-6 442	23 788	-845	6 757	14 821	17 302	9 369	13 812
Non-operating taxes	-9 358	-4 429	-111	-26 653	-18 339	9 410	-103 649	114 321	-34 717	44 908
Decrease (increase) in excess cash	-	-	-	-132 255	-219 187	306 598	-126 098	-63 208	-19 196	-965 978
Decrease (increase) in investments	295	-9 888	-55 357	-24 092	-10 115	-5 474	71 486	-17 295	-36 064	-6 318
Non-operating cash flow	-21 341	-32 357	-79 456	-159 212	-248 486	317 291	-143 440	51 120	-80 608	-913 576
Cash flow available to investors	**-104 358**	**-807 790**	**124 388**	**94 766**	**200 802**	**553 414**	**-160 481**	**924 026**	**161 883**	**-5 573 814**

Appendix I: Free cash flow to the firm and cash flow available for investors. All numbers in thousand`s DKK. Source: P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a).

Appendix J – Calculations of premium salmon price farming segment (FO)

Operating Revenue Factors (FO)	Driver	Calculation Basis	Base rate	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Exchange rate DKK/NOK	Avg. historic factor	3-year average EXR	1,32	1,05	1,04	0,98	1,12	1,21	1,29	1,22	1,32	1,33	1,32
Salmon price (NOK/kg)	Global market	Historic numbers		37,26	31,99	26,58	39,59	40,3	42,09	63,13	60,88	60,76	59,15
Salmon price (DKK/kg)	NOK price & EXR	EXR * NOK price		35,55	30,67	27,01	35,23	33,21	32,65	51,65	46,06	45,61	44,80
Revenue (DKK)		Historic numbers		771 747	982 157	1 371 660	1 991 552	2 099 473	2 273 595	2 840 870	2 986 561	2 568 366	3 152 462
Harvest volume (TGW)		Historic numbers		21 626	36 343	44 341	41 268	44 013	50 565	47 542	54 615	44 591	57 200
Revenue/kg (DKK)		Revenue / harvest volume		35,69	27,02	30,93	48,26	47,70	44,96	59,75	54,68	57,60	55,11
Premium selling price (%)	Avg. historic factor	5-year average	24,3 %	0 %	-12 %	15 %	37 %	44 %	38 %	16 %	19 %	26 %	23 %

Appendix J: Exchange rate DKK/NOK, historical salmon price, revenue (in thousand`s DKK), and achieved selling price per kg salmon in the Faroe Island. Exchange rate = EXR. Sources: Fishpool (2020); Norges Bank (2020a); P/F Bakkafrost (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019b, 2020a).

Appendix K – Calculations of premium salmon price farming segment (SCT)

Operating Revenue Factors (SCT)	Driver	Calculation Basis	Base rate	2014	2015	2016	2017	2018	2019
Exchange rate GBP/NOK	Avg. historic factor	3-year average EXR	10,91	10,37	12,34	11,37	10,64	10,85	11,23
Salmon price (NOK/kg)	Global market	Historic numbers		40,30	42,09	63,13	60,88	60,76	59,15
Salmon price (GBP/kg)	NOK price & EXR	EXR * NOK price		3,89	3,41	5,55	5,72	5,60	5,27
Revenue (GBP)		Historic numbers		125 900	100 400	109 900	150 900	180 100	191 786
Harvest volume (TGW)		Historic numbers		30 183	25 649	24 342	25 272	29 913	33 800
Revenue/kg (GBP)		Revenue / harvest volume		4,17	3,91	4,51	5,97	6,02	5,67
Premium selling price (%)	Avg. historic factor	6-year average	3,8 %	7 %	15 %	-19 %	4 %	7 %	8 %

Appendix K: Exchange rate GBP/NOK, revenue (in thousand`s GBP), historic salmon price and achieved selling price per kg salmon in Scotland. Sources: Fishpool (2020); Norges Bank (2020c); Datastream 2020; P/F Bakkafrost (2020a).

Simplified forecast period	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Revenue growth	-10,0 %	22,4 %	7,8 %	10,2 %	12,9 %	11,1 %	8,6 %	7,2 %	6,5 %	6,0 %	5,5 %	5,0 %	4,5 %	4,0 %	3,5 %
EBITA-margin	16,5 %	20,5 %	19,4 %	20,0 %	20,3 %	20,7 %	21,2 %	21,7 %	21,7 %	21,7 %	21,7 %	21,7 %	21,7 %	21,7 %	21,7 %
Operating tax-rate	18,2 %	18,1 %	18,1 %	18,1 %	18,1 %	18,1 %	18,1 %	18,2 %	18,2 %	18,2 %	18,2 %	18,2 %	18,2 %	18,2 %	18,2 %
Revenues / avg. invested capital	0,778	0,876	0,865	0,885	0,910	0,927	0,933	0,936	0,935	0,932	0,929	0,926	0,922	0,919	0,916
Revenues / end-of-year invested capital	0,762	0,827	0,841	0,846	0,869	0,891	0,902	0,907	0,906	0,905	0,904	0,903	0,902	0,901	0,900
Revenue	5 201 334	6 364 004	6 858 342	7 558 986	8 535 807	9 481 037	10 296 727	11 038 014	11 755 485	12 460 814	13 146 159	13 803 466	14 424 622	15 001 607	15 526 664
Operating EBITA	859 707	1 302 016	1 328 896	1 510 869	1 732 011	1 964 476	2 185 345	2 400 637	2 556 678	2 710 079	2 859 133	3 002 090	3 137 184	3 262 671	3 376 864
Operating tax	-156 080	-236 113	-240 578	-273 596	-313 792	-356 127	-396 429	-435 809	-464 137	-491 985	-519 045	-544 997	-569 522	-592 302	-613 033
NOPLAT	703 628	1 065 903	1 088 318	1 237 272	1 418 220	1 608 349	1 788 915	1 964 827	2 092 541	2 218 093	2 340 088	2 457 093	2 567 662	2 670 368	2 763 831
Invested Capital															
Average invested capital excl. goodwill	6 685 072	7 262 429	7 924 426	8 544 732	9 377 685	10 230 079	11 031 099	11 792 827	12 570 591	13 372 002	14 155 533	14 914 221	15 639 026	16 320 887	16 950 901
Average invested capital incl. goodwill	10 463 593	11 040 950	11 702 947	12 323 253	13 156 206	14 008 600	14 809 620	15 571 348	16 349 112	17 150 523	17 934 054	18 692 742	19 417 547	20 099 408	20 729 422
End-of-year invested capital excl. goodwill	6 827 683	7 697 176	8 151 677	8 937 786	9 817 584	10 642 575	11 419 622	12 166 033	12 975 149	13 768 855	14 542 211	15 286 231	15 991 821	16 649 953	17 251 848
End-of-year invested capital incl. goodwill	10 606 204	11 475 697	11 930 198	12 716 307	13 596 105	14 421 096	15 198 143	15 944 554	16 753 670	17 547 376	18 320 732	19 064 752	19 770 342	20 428 474	21 030 369
ROIC															
ROIC excl. goodwill (avg. inv.capital)	10,5 %	14,7 %	13,7 %	14,5 %	15,1 %	15,7 %	16,2 %	16,7 %	16,6 %	16,6 %	16,5 %	16,5 %	16,4 %	16,4 %	16,3 %
ROIC incl. goodwill (avg. inv. capital)	6,7 %	9,7 %	9,3 %	10,0 %	10,8 %	11,5 %	12,1 %	12,6 %	12,8 %	12,9 %	13,0 %	13,1 %	13,2 %	13,3 %	13,3 %
ROIC excl. goodwill (end-of-year inv. capital)	10,3 %	13,8 %	13,4 %	13,8 %	14,4 %	15,1 %	15,7 %	16,2 %	16,1 %	16,1 %	16,1 %	16,1 %	16,1 %	16,0 %	15,5 %
ROIC incl. goodwill (end-of-year inv. capital)	6,6 %	9,3 %	9,1 %	9,7 %	10,4 %	11,2 %	11,8 %	12,3 %	12,5 %	12,6 %	12,8 %	12,9 %	13,0 %	13,1 %	13,1 %
Free cash flow															
NOPLAT	703 628	1 065 903	1 088 318	1 237 272	1 418 220	1 608 349	1 788 915	1 964 827	2 092 541	2 218 093	2 340 088	2 457 093	2 567 662	2 670 368	2 763 831
- increase (decrease) in inv. capital excl. goodv	452 842	869 493	454 501	786 109	879 798	824 991	777 047	746 411	809 116	793 706	773 356	744 020	705 590	658 132	601 896
Free cash flow before goodwill	**250 786**	**196 411**	**633 816**	**451 164**	**538 422**	**783 358**	**1 011 868**	**1 218 416**	**1 283 425**	**1 424 387**	**1 566 733**	**1 713 073**	**1 862 072**	**2 012 237**	**2 161 936**
NOPLAT	703 628	1 065 903	1 088 318	1 237 272	1 418 220	1 608 349	1 788 915	1 964 827	2 092 541	2 218 093	2 340 088	2 457 093	2 567 662	2 670 368	2 763 831
- increase (decrease) in inv. capital incl. goodv	452 842	869 493	454 501	786 109	879 798	824 991	777 047	746 411	809 116	793 706	773 356	744 020	705 590	658 132	601 896
Free cash flow after goodwill	**250 786**	**196 411**	**633 816**	**451 164**	**538 422**	**783 358**	**1 011 868**	**1 218 416**	**1 283 425**	**1 424 387**	**1 566 733**	**1 713 073**	**1 862 072**	**2 012 237**	**2 161 936**
RONIC	**-105 %**	**80,0 %**	**2,6 %**	**32,8 %**	**23,0 %**	**21,6 %**	**21,9 %**	**22,6 %**	**17,1 %**	**15,5 %**	**15,4 %**	**15,1 %**	**14,9 %**	**14,6 %**	**14,2 %**

Appendix L: Shows NOPLAT, ROIC, RONIC, Invested capital and free cash flow for the detailed forecast period (blue) and the simplified forecast period (green). Source: own estimates.