The Acquisition of Grieg Seafood ASA by Bakkafrost

Marius Bratberg Lund

Dissertation written under the supervision of António Borges de Assunção

Dissertation submitted in partial fulfilment of requirements for the International MSc in Finance, at Universidade Católica Portuguesa and for the MSc in Business at BI Norwegian Business School, January 2023.

Abstract

The main goal of the dissertation is to determine a potential acquisition in the salmon farming industry among the acquirer company, Bakkafrost, and the target company, Grieg Seafood. Bakkafrost is a company from Faroe Island, selling salmon at premium prices, while Grieg Seafood is a Norwegian company. The requirements for the companies in the salmon farming industry to deliver profit are more turned towards fully integrated value chains. This has been met with several consolidations the last decade. As a result, Bakkafrost could look for potential targets. Bakkafrost and Grieg Seafood's equity value equals NOK 29 040 million and NOK 11 094 million, respectively. The synergies estimated in a potential deal among them is expected to be NOK 8 046 million. The transaction consists of a mixed offering of stocks and cash, representing a 30% price premium to current market value of Grieg Seafood.

Abstrato

O objetivo principal desta dissertação é avaliar uma aquisição na indústria da aquacultura do salmão entre a empresa compradora, a Bakkafrost, e a empresa-alvo, a Grieg Seafood. A Bakkafrost é uma empresa das Ilhas Faroe, vendendo salmão a preços premium, enquanto a Grieg Seafood é uma empresa norueguesa. Na acquacultura do salmão, são mais lucrativas as empresas com as cadeias de valor totalmente integradas. Este facto justificou várias consolidações durante a última década. A Bakkafrost justifica assim a procura de potenciais alvos. A Bakkafrost e a Grieg Seafood têm valores de capitais próprios iguais a NOK 29 040 milhão e NOK 11 094 milhão, respectivamente. As sinergias estimadas num possível acordo entre elas são de NOK 8 046 milhões. A transacção consiste na oferta mista de ações e dinheiro, representando um prémio de 30% em relação ao valor de mercado atual da Grieg Seafood.

Acknowledgements

I would like to thank Católica-Lisbon School of Business and Economics, in cooperation with BI Business School, for my opportunity to be part of MSc in Finance in my last year of the Master program. I have learned a lot during my time here and could be without it.

Also, thanks to family and friends for their support during five years of studies. Your encouragement and unconditional support have been important for me.

Finally, I would thank professor António Borges de Asunção for his guidance, insight, enthusiasm and support through the completion of the thesis.

Thanks.

Table of Contents

List of Figures and Tables

List of Figures

List of Tables

2. Literature overview

2.1 Merger and Acquisitions overview

Merger and acquisitions (M&A) refer to a process of combining companies through various types of transactions with the goal that the combined company is more valuable than the entities alone. We categorize M&A-transactions as vertical, horizontal or conglomerate. A horizontal merge occurs when two firms in the same industry combine, while vertical mergers are combination of firms in the same supply-chain. Conglomerate mergers are when two firms combine, and they do not operate in the same industry nor in the same supply-chain. (Gaughan, 2018) We also distinguish between a hostile takeover and a friendly takeover. In a hostile takeover, the bidder makes an offer directly to the shareholders of the target company without consulting management. In contrast, a friendly takeover must be approved by management alongside the shareholders. (Schnitzer, 1996)

2.1.1 Drivers/reasons/motivations M&A

Synergies (operational and financial)

An important task for all companies is to increase revenue growth, both organic and inorganic. A merge or an acquisition are examples of inorganic growth that can help the companies to increase the overall revenue growth.

Berkovitch and Narayanen (1993) argue that it is three main motives for takeovers: synergy, agency and hubris.

The synergy effect reflects the economic gain the companies can achieve by merging the two firms (Berkovitch & Narayanan, 1993) Damodaran defines synergy as the additional value two combining firms can create which had not been possible to the firms operating independently (Damodaran, 2005) Synergies are divided between operational (economics of scale, revenue growth etc.) and financial (tax benefits, cost of debt, diversification etc.)

The idea of the agency motive is that acquisitions occur because the acquirer management profit from it at the expense of the acquirer's shareholders. Managements acquire businesses that suit themselves better in terms of task responsibilities and private welfare (Berkovitch & Narayanan, 1993)

The hubris hypothesis is when management misvalue the acquisition and engage in acquisitions when there is no synergy gain. When the synergy value is zero, a payment

between the participations reflects a transfer between the target and the acquirer. Followingly, an increase of target gain gives a decrease of bidder gain with a total gain of zero. Hence, the target gain and the bidder gain are negative correlated while the total gain are uncorrelated. (Berkovitch & Narayanan, 1993)

2.1.2 Are M&A worth it?

The intention of a M&A-deal is to increase value for stakeholders. However, the history shows that not all deals have been successful. The key to success in buying another company is to know the maximum price the company can afford and have the discipline to not pay any more. (Eccles, 1999) I will briefly present a summary of studies that analyses the performance of deals.

In a study from 1995-2001, Sirower and Sahni, analysed the shareholder return and relative returns of significant M&A-deals in the US market. The results show that around deal announcement acquirers have a return of -4.1% and a year later a return of -4.3% compared to industry peers. (Sirower & Sahni, 2006) Additionally, initial reactions on return are persistent and an indicator of future returns. Deals with a negative return around deal announcement have almost the same negative return a year older and vice versa with positive returns. Other important findings are that the negative persistent performers paid significant more (40.5%) than the positive persistent performers (25.8%). Also, cash deals outperform stock deals by 4% (-1% versus -5%).

As discussed earlier, the main driver of a deal is to create synergy by the companies. Damodaran defines synergy as the additional value two combining firms can create which had not been possible to the firms operating independently (Damodaran, The Value of Synergy, 2005). The author argues that most mergers fail in delivering any synergy. The acquirer company struggles to benefit from the synergies and overpay in most acquisitions…..

2.1.3 Deal structure (payment method)

How the acquirer company will pay for the deal is an important decision. Historically, the payment methods in deals have been a choice of cash or stock – or a mix of both. In all-cash deals the acquiring shareholders are the ones that bear the potential extra synergy value and the risk of the transaction. However, in stock transaction, the risk is shared between the buyer and the seller regarding the proportion of ownership between them. This is due the fact that by

issuing new shares to buy another company, the ownership percentage in the acquirer company will be reduced. (Rappaport & Sirower, 1999)

Myers and Majluf (1984) argues that in a world of asymmetric information the choose of payment method signals information about the bidders' existing asset valuation. Hereby, when stock is used as payment method, it signals that the bidder's original assets are overvalued, and if cash is used, the assets are considered as undervalued. By this, the market will consider the cash offer as positive news while the stock offer as negative news regards to the value of bidding firm's assets. Also, Hazelkorn, Zenner & Shovdasani (2005) came to the same conclusion after an empirical analysis of excess return in stock deals versus cash deals. They found that cash deals (0.9%) outperformed stock deals (-1.9%) in a short-term period.

2.1.4 Cross border deals

Since Bakkafrost is a Faroese company and Grieg Seafood is a Norwegian company, it is relevant to discuss cross-border mergers and acquisitions. Cross borders mergers and acquisition is a way to quickly gain access to new markets and customers. However, the challenges the companies are facing can be different from a national merger. Examples are political challenges, regulatory challenges, culture and communication challenges in terms of different religions and different language spoken and tax difficulties.

Nevertheless, Erel, Liao and Weisbach (2012) argued that cross-borders mergers occur for the same reasons as the domestic ones. When the value of the combined firms exceeds the value of the individual firms, the correct decision is to merge.

Zenner, Matthews, Marks and Mago (Zenner, Matthews, Marks, & Mego, 3008) focus on three drivers of increased cross border M&A: Globalization, geographic diversification and deregulation. In a more globalized world, a company could have access to lower production costs, access to lower labour cost and access to more materials. Geographic diversification is about reducing idiosyncratic risk in particular areas. Deregulations that do it possible to have free flow of capital and goods are also an important driver of the increased cross border M&A.

In 2020, 36% of all M&A deals were cross border deals. (Statista, 2022)

2.1.5 M&A in the Seafood industry

The seafood industry has seen a record level of deal flows the last two years. Also, salmon farming has had several major deals during 2021 and 2022. One of the biggest takeovers were Salmar's acquisition of Norway Royal Salmon, completed in November 2022. According to

Pareto Securities, consolidations in the salmon farming industry will continue at great speed the following years. Henning Lund, senior partner in Pareto Securities, explains that the high M&A-activity is a result of firms realising the need of scale up their operations to adjust the current state of the market (Business Sale Report, 2022) By scaling up their operations companies can more easily meet the ongoing challenges.

Nowadays, most part of the big salmon farming companies have a fully integrated value chain. The last decades have a been a period with consolidation in all regions. Small companies have been acquired by the big ones. Around 90% of commercial licenses of Atlantic salmon are held by the 12 largest companies. (MOWI, 2022)

2.2 Valuation techniques

2.2.1 Discounted cash flow

According to the discounted cash flow method (DCF), the value of an operation or a business equals its expected future cash discounted to their present value. (Luehrman, 1997) The appropriate discount rate used is a rate that reflects their riskiness. (Luehrman, 1997) The DCF-method is an intrinsic value approach to estimate the valuation of an asset, an operation or a business. Adjusted present value (APV) is another popular intrinsic value approach. To building such models, we estimate future cash flows with an adequate discount rate as showed.

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

Where:

PV is the value of the asset today

n is the asset's number of periods, normally in years

$E(CF_t)$ is the expected cash flow in period t

r is the discount rate

t is number of periods, normally in years

Although its several methods to compute the free cash flow to firm, Kaplan & Ruback (1996) argue to start from the firm's EBIT. The taxes are adjusted to only contain operating taxes, excluding tax shields from financing activities. The operating taxes are found my multiplying EBITA (earnings before interest, taxes and amortizations) with the appropriate tax rate.

$$FCFF_t = EBIT_t - Operating\ taxes_t - Depreciations_t - \Delta WC - CapEx_t$$

Where:

$FCFF_t$ are the free cash flow to the firm in period t

$EBIT_t$ are the earnings before interest and taxes in period t

$Operating\ taxes_t$ are the operating taxes in period t

$Depreciations_t$ are the depreciations amount in year t

ΔWC are the change in working capital from year t to $t-1$

$CapEx$ are the capital expenditures in year t

Normally, the free cash flow is forecasted up to some horizon. Together with the terminal (continuation) value, we get the enterprise value of a company (Berk & DeMarzo, 2017):

$$Enterprise\ value = \sum_{t=1}^{n} \frac{FCFF_t}{(1+WACC)^t} + \frac{Terminal\ value}{(1+WACC)^n}$$

$$Terminal\ value = \frac{FCFF_n \cdot (1+g)}{WACC - g}$$

The terminal value is calculated using the last period's forecasted free cash flow together with a growth rate, g, that reflects which rate the terminal value are expected to grow forever. (Kaplan & Ruback, 1996)

2.2.2 Weighted average cost of capital (WACC)

The weighted average cost of capital (WACC) is the most used discount factor to discount cash flows to their present value. WACC assume the capital structure is constant and measure the overall cost of capital for the firm. WACC is an average of the cost of equity and the after-tax cost of debt weighed to the firm's capital structure.

WACC is suitable only for the simplest and most static capital structure (Luehrman, 1997) WACC could be poorly measure in companies with high leverage and companies in a complex tax position because of the assumption of constant capital structure. A more correct WACC approach is to calculate the WACC each period to accounting the change in leverage, but this is both difficult and tedious. (Kaplan & Ruback, 1996)

WACC is calculated as:

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

Where:

E is the market value of the firm's equity

D is the market value of the firm's debt

k_e is the cost of equity

k_d is the cost of debt

T_m is firm's marginal tax rate

2.2.3 Cost of equity

The most common method to compute the cost of equity is using the capital asset pricing model (CAPM). The CAPM-model was introduced by Sharpe (1964) and Linter (1965). The model captures the relationship between the risk-free rate, the asset's beta and the market risk premium.

$$\mathrm{E}(\mathrm{R}_i) = r_f + \beta_i[E(R_m) - r_f]$$

Where:

$\mathrm{E}(\mathrm{R}_i)$ is the expected return of asset i

r_f is the risk-free rate

β_i is the beta of asset i

$E(R_m)$ is the expected return on the market

2.2.4 Risk-free rate

According to Damodoran (1999) there are two requirements for an asset to be risk free: There cannot be any default risk and there cannot be any reinvestments risk. An appropriate rate will be a default-free zero-coupon government bond with a duration similar to the cash flows that are analysed. There is also of importance that the denominated currency of the risk-free rate and the cash flows are the same. (Damodaran, 1999)

Kaplan & Ruback (1996) also argue that a long-term Treasury bond is a good proxy for the risk-free rate.

2.2.5 Beta

Beta is a measure for the systematic risk – or volatility of a stock against the market. (Jacobs & Shivdasani, 2012) Systematic risk is referred as undiversifiable risk because the risk is inherent to the market.

We differentiate between levered and unlevered beta. The levered beta is the beta of a firm inclusive the impact of capital structure, while the unlevered beta is the beta of the firm without any debt. The type of business the firm operates, the degree of operating leverage and the firm's financial leverage are the three variables that determine the beta of the firm (Damodaran, 2012) Thus, the bottom-up approach should be used to estimate the betas independent of earlier prices of the firm. (Damodaran, 2012). This gives the following formula for the levered beta:

$$\beta_L = \beta_u \left(1 + (1 - T_m)\left(\frac{D}{E}\right)\right) - \beta_D \left(\frac{D}{E}\right)$$

Where:

β_L is the levered beta

β_u is the unlevered beta

T_m is the marginal tax rate

β_D is the beta of debt

D is the market value of the firm's debt

E is the market value of the firm's equity

When the beta of debt is zero (debt is risk-free) and the debt has a tax benefit to the firm, then we can simplify to:

$$\beta_L = \beta_u \left(1 + (1 - T)\left(\frac{D}{E}\right)\right)$$

Blume (1975) argues to adjust the estimated market betas because they tend to revert to 1. This adjustment will make the beta more accurate in the future (Blume, 1975)

$$\beta_L = \frac{2}{3}\beta_{est} + \frac{1}{3} \cdot 1$$

Where:

β_L = the adjusted leveraged beta

β_{est}= the unadjusted leveraged beta

2.2.6 Cost of debt

The cost of debt is the cost a firm as to pay on its debt. The cost of debt can be calculated in different ways. Information of corporate bond yields, credit spreads or information from the company itself are methods to estimate the cost of debt of the company.

If a form has traded bonds, the yield to maturity of liquid long-term bonds is a suitable proxy. (McKinsey & Company, 2005) Using the yield to maturity on existing debt as the cost of debt is only reasonable if the debt is very safe (Berk & DeMarzo, 2017). Otherwise, the probability of default and the expected loss rate using existing debt rating should be taken into consideration. The probability of default is set by using existing credit rating of the company. The average loss rate of unsecured debt is 60% (Berk & DeMarzo, 2017).

The expected return on an outstanding bond will be:

$$r_d = YTM - \Pr o\, b(default) \cdot Expected\ Loss\ Rate$$

Another method is to calculate the cost of debt through the risk-rate and the credit spread. The credit spread is a function of a company's credit risk, and the market price of credit risk. (Giddy, 2006) It can be estimated using the difference between a treasury and a corporate bond of the same maturity. The credit spread can also be estimated by creating a synthetical credit rating using information about the company's interest coverage ratio. (Damodaran, 2017)

The cost of debt using information about the company's credit spread:

$$r_d = R_f + credit\ spread$$

2.3 Relative valuation (Multiples)

Relative valuation is another common approach to value a company. The method involves a comparison to other comparable companies given a set of defined guidelines. Kaplan & Ruback (1996) argue that valuation by comparables relies on two main assumptions: The comparable companies should have same level of expected future cash flow growth and bear same level of risk as the analysed company. Additionally, the valuation of the company is assumed to vary proportionally with changes in the ratio analysed. If these assumptions are valid, the valuation would lead to more accurate results than other methods (Kaplan & Ruback, 1996) Nevertheless, the theoretical assumptions are difficult in practise because the challenges find perfect comparable companies.

Appropriate multiples can vary depending on the industry, but the most normal ones are earning multiples, book value multiples and revenues multiples. Examples of popular multiples are Enterprise value/EBIT (EBITDA) and Enterprise value/Revenues. The multiples ratios can be historical values or forward-looking estimates.

A multiples ratio is found by taking the average, or a weighted average, of the defined multiple of comparable companies and use this ratio as a multiplicator factor to estimate the value of the company.

3. Industry analysis

3.1 Salmon farming industry

Salmon farming became an industry in Norway in the 1980s but started on experimental levels in the 1960s. We divide between wild-caught salmon and farmed salmon. Today, about 80% of the world's salmon harvest is farmed. (MOWI, 2022) Since the supply of farmed salmon first dominated wild caught salmon in 1999, the supply of wild caught salmon has stagnated while the supply of salmon has increased year by year (Exhibit 1A) This is a general shift in the seafood industry as the global fisheries are largely exploited and struggle to meet a growing demand.

Norway, Chile, Canada and Scotland have historically dominated the salmon farming industry. Salmon farming takes also place in Iceland, Faroe Island, Australia, Ireland and New Zealand (Exhibit 1B). The optimal temperature range for salmon farming is between 8 and 14°C which excludes many coastlines. Norway represents the biggest harvester of Atlantic salmon with a total of 53% of the total quantity harvested in 2021, twice as much as the second biggest harvester, Chile. Mowi Group is the biggest producer of salmon all-around of the world, with a harvested volume of 465 600 tonnes gutted weight in 2021 (Exhibit 1C). This represents one fifth of the salmon produces on Norway and one third in UK and North America. The Japanese company, Mitsibushi/Cermaq, and the Norwegian companies, Salmar and Lerøy Seafood, are other big salmon producers with a harvested volume of almost 200 000 tonnes gutted weight (Exhibit 1D).

Since salmon is sold as a fresh product, producers are mainly focusing on the nearby markets. (Exhibit 1G). Norway's main market is Europe, Canada's main market is US and Chile's main market is US and South America. The last 10 years, consumption of farmed salmon has increased by 4% annually. Europe is the biggest market for farmed salmon (%) followed by USA (%). In the same period, the US market has grown at a significant higher rate (8%) than the European market (4%). Also, Asia and Brazil are growing at a higher growth rate than the traditional markets. While the Scandinavian countries have a consumption per capita between 6-8kg WFE, the big markets have a consumption per capita that varies between 0.06-3.24 kg WFE. This shows a growth opportunity among the largest markets.

3.2 Production cycle

The production cycle of salmon farming is about 3 years. The first 10-16 months are a freshwater production cycle while the last 12-24 months are seawater production cycle (Exhibit 1F). The first process of the production cycle is a brood stock operation where broodstocks are selected for traits such as strong health fast growth rates. This takes normally in place in the autumn. The eggs are then hatched in a manipulated freshwater environment and start the smoltification process – adapt from living in freshwater to live in seawater through a psychological change. Furthermore, the smolted fish are transferred to seawater fish farm to live and grow until they reach harvestable size of approx. 5kg. The main methods for harvesting are normally either transferring the fish to specialized harvesting vessels or the whole pen is towed towards shore where the fish are placed in a holding pen. Then the fish are sent to slaughtering and processed for sale. (RSPCA, 2021) (Grieg Seafood, 2022)

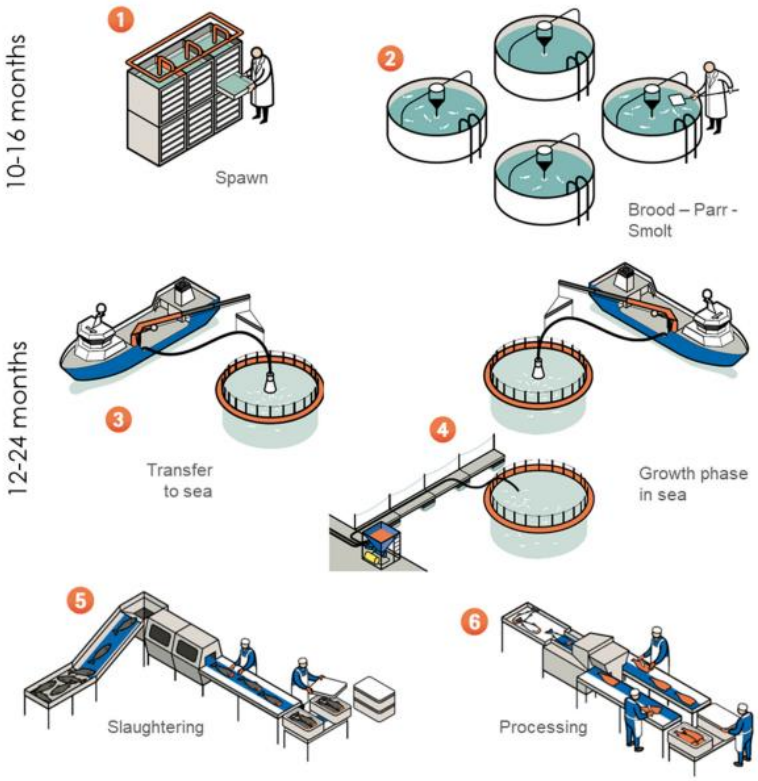

Figure 1 . Atlantic Salmon production cycle

3.3 Salmon price

Earnings and the financial position of salmon farming companies depend crucially on the farmed salmon market price. Salmon prices have historically been highly volatile with high fluctuations in the short term. The NASDAQ Salmon Index (NQSALMON) is the weighted average of weekly reported sales prices and corresponding volumes in fresh Atlantic Superior Salmon. Fishpool is another marketplace that provides purchase and sale agreements of forwards contract on salmon. Although the volume offered on Fishpool is limited, it is known as the best indicator for future salmon prices. Demand has grown at a higher rate than supply the last years and is an important driver of the increased salmon price the last 10 years. Since the production cycle is up to three years and the salmon is sold as a fresh product, the supply of salmon in the short term will be inelastic. When we also know that demand shift according to the season, we get volatile salmon prices. (Mowi, 2022)

Changes in the supply explained 84% of the changes in price from 2001-2011. Between 2011-2021 it explained 40% of the changes in price. (Nordic Credit Rating, 2021) Other important factors that drive supply and demand are government regulations, purchasing power, outbreak of disease and other direct or indirect factors that affect production. From 2013 to 2022, the price has been within the interval of 28NOK/kg and 124 NOK/kg.

In 2021, the European spot prices (3-6kg) for Atlantic salmon ended on average just above 58 NOK per kg. After the three first quarters of 2022, the price has been on average 84.9 NOK p/kg.

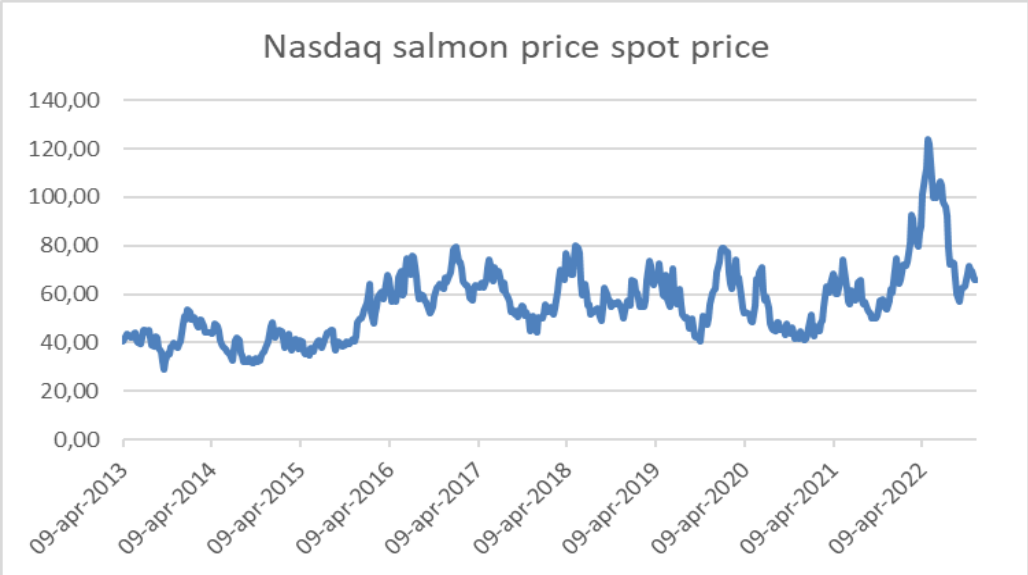

Figure 2. Historical weekly prices Nasdaq Salmon NOK Index, data from Refinitiv Eikon

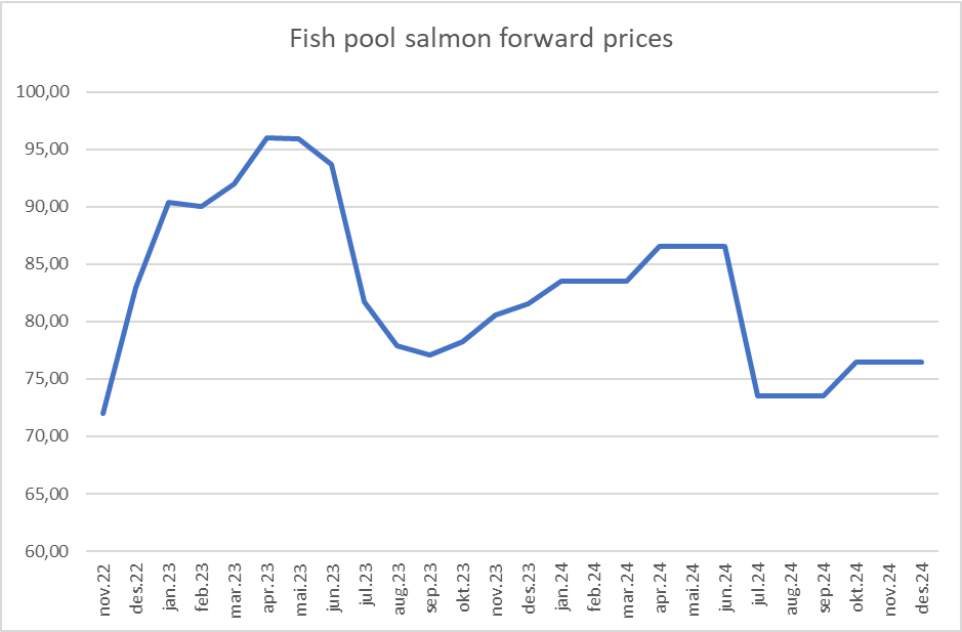

Figure 3. Forward monthly prices Fish Pool. (Fish Pool, 2022)

4. Company analysis

4.1 Bakkafrost

Bakkafrost is a company from Faroe Island, established in 1968 by the two brothers Hans and Róland Jacobsen. The company is a producer of quality salmon from Faroe Island and Scotland. Regin Jacobsen, Hans' son, is today the CEO of the company and one of the largest shareholders with a stake of 7.80%. Folketrygdfondet is the largest shareholder, holding 8.76% of the company. Regin Jacobsen's mother, Oddvør Marita Jacobsen, is also a major shareholder, accounting for 7.77% of the company. Bakkafrost's 20 largest shareholders own 56.96% of the company (As of 19. Aug). Bakkafrost is one of the largest companies in Faroe Island and make up around 1/6 of the country's GDP. (Nolsøe, 2022)

The company started fish farming activities in 1979, made a restructuring in 1992, and grew further in the start of the 2000s through mergers and acquisitions. In 2010, they merged with another company, Vestlax, to become the largest producer of farmed Atlantic salmon from the Faroe Island. Later same year, they were listed at Oslo Børs under the ticker BAKKA. In late 2019, Bakkafrost acquired The Scottish Salmon Company PLC, an integrated salmon farming company from Scotland.

Bakkafrost has 19 salmon farming sites in operation in Faroe Island and operates 44 farming sites in Scotland. In 2021, the company had a harvest volume of 67 217 tonnes gutted weight

in FO and 29 672 tonnes gutted weight in Scotland, in total a harvest volume of 96 889 tonnes gutted weight. Bakkafrost has 1653 full-time employees.

Bakkafrost is a fully integrated salmon farming company that controls all aspects in the value chain – from fish feed to sales and marketing of finished products. Their business operations consist of three main segments: fish farming, value added products (VAP) and fishmeal, -oil and feed segment (FOF). The fish farming segment exist of salmon harvest operations in Faroe Island and in Scotland where the fish is sold to markets globally and to internal VAP production. The VAP segment produces skinless and boneless portions of salmon. In 2021, 33% of the total volume of harvested salmon went to production of VAP products. The FOF segment produces fishmeal, fish oil and fish feed. 97% of the production in the FOF segment is used internally in the salmon farming segment.

Bakkafrost has performed well since their first trading day at Oslo Børs in 2010. Their IPO price was 31 implying a valuation of roughly 1.5 billion NOK. As of 01.01.2022 their valuation has increased to about 34 billion NOK. Their CAGR in revenues for the period have been 13.9%, while the CAGR for net income have been 10.4%. Bakkafrost has paid out dividend every year since they went public. Their long-term goal is that 30-50% of adjusted EPS shall be paid out as dividends.

Figure 4. 10 years historical return Bakkafrost vs Oslo Seafood Index, data from Refinitiv Eikon

Historical analysis of Bakkafrost's performance from 2017-2021. Bakkafrost's revenues has been growing 8% annually the last five years. From 2017 to 2018, revenues decreased mainly due 18% lower volume harvested and 56% volume decrease in the VAP-segment. However, they "equalized" the decrease from the year before with a 42% increase in revenues from

2018-2019. 2020 was a tougher year in terms of COVID 19-outbreak where it was change in salmon market (HoReCa segment almost down due lock-down) and a decrease in salmon price of 25%.

Bakkafrost's operational EBIT-margin was strong from 2017-2019 with an average of 35%. The last two years, it has fell to 14%.

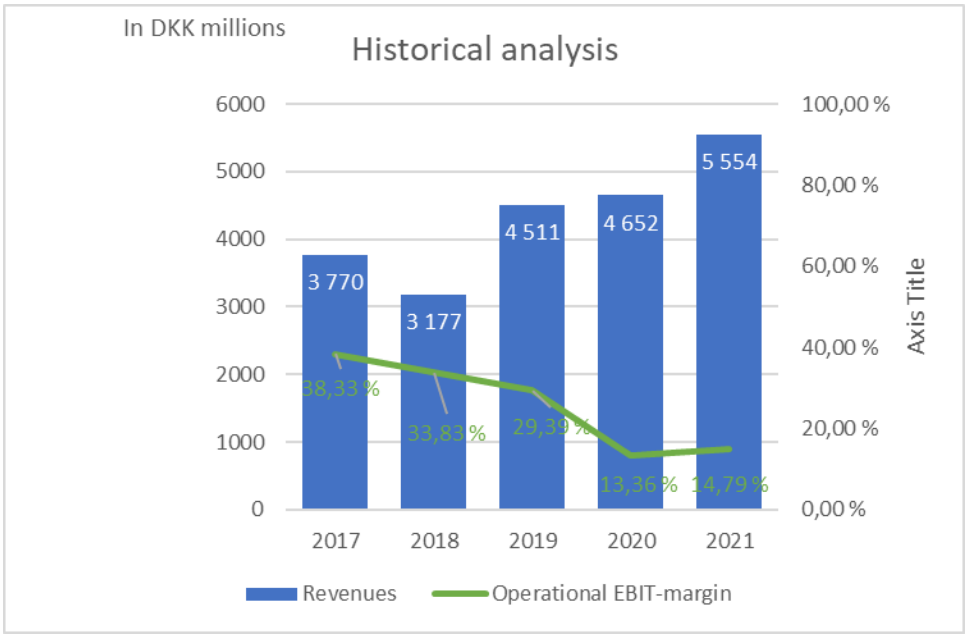

Figure 5. Revenues and operational EBIT-margin Bakkafrost 2017-2021

	2017	2018	2019	2020	2021
Revenues	3 770,0	3 177,4	4 511,1	4 651,9	5 553,8
YoY%		-15,7 %	42,0 %	3,1 %	19,4 %
COGS	1 025,3	874,9	1 384,3	1 956,9	1 870,6
in % of revenues	27,2 %	27,5 %	30,7 %	42,1 %	33,7 %
Gross profit	2 744,8	2 302,5	3 126,8	2 694,9	3 683,3
in % of revenues	72,8 %	72,5 %	69,3 %	57,9 %	66,3 %
Operational EBIT	1 445,0	1 074,9	1 326,0	621,5	821,3
in % of revenues	38,3 %	33,8 %	29,4 %	13,4 %	14,8 %
Net income	511,4	960,3	810,3	462,8	964,1
in % of revenues	13,6 %	30,2 %	18,0 %	9,9 %	17,4 %

Table 1. Bakkafrost's income statement overview 2017-2021

4.1.1 SWOT-analysis Bakkafrost

A SWOT-analysis is a method to identify characteristics of a company. It stands for strengths, weaknesses, opportunities, and threats.

Strengths	Weaknesses
- Fully integrated value chain - from fish feed to sales - Favourable area to produce salmon - Price premium for the Faroese and Scottish salmon compared to reference prices - Strong and healthy financial position - -	- Although they acquired SSC in Scotland, they are still highly dependent on Faroe Island operations and are less diversified than other comparable companies. - Difficult to adjust for changes in demand due long production cycle -
Opportunities	**Threats**
- Increased demand of salmon - Increased health focus - Tax advantage to comparable Norwegian companies given recent tax proposal - Expected high salmon prices the following years	- High biological risk - New proposal of salmon revenue tax for operations in Faroe Island - Volatile salmon prices - Lower consumer purchasing power - Rising global temperatures are a long-term threat

4.2 Grieg Seafood

Grieg Seafood is a leading fishing farming company from Norway, specialized in Atlantic Salmon. The seafood part is an underlying part of the Grieg Group who also has operations within shipping logistics and management. Grieg Group has roots back to 1884 while Grieg Seafood was established as a trading company in 1992. The salmon farming started in 1998 when Grieg Seafood Rogaland was established. Later, the company got operations in British Columbia from 2001 and in Finnmark in 2006 through mergers and acquisitions. They also

expanded to Shetland in 2007, but this was later sold in 2019. The company was listed on Oslo Stock Exchange in 2007, under the ticker GSF.

Today, GSF, has operations in Rogaland and Finnmark in Norway and in British Columbia and Newfoundland in Canada. The harvesting volume for 2021 were 26 670 tonnes in Rogaland, 34 484 in Finnmark and 14 448 in British Columbia, a total of 75 601 tonnes harvested. The operation in Newfoundland is by now only a Recirculating Aquaculture (RAS) facility but is expected to provide a harvest of 15 000 tonnes in 2025. Their goal is to achieve a total harvest of 130 000 tonnes in 2025.

Grieg Seafood's main shareholder is Grieg Group, which holds 50.17% of the total shares. OM Holding AS, led by the private investor Ole Morten Halvorsen, is the second largest shareholder with an ownership of 4.51%. Top 20 shareholders account of 72.85% of total shares in the company. Andreas Kvame is the CEO in the company, a position he has held since 2015.

The Government in Norway made in the end of September 2022 a proposal to introduce a resource rent on aquaculture beginning from 1st of January 2023. The proposal includes production of salmon and is relevant for Greig Seafood as over 80% of the production is in Norway. The taxation rate of the proposal resource rent is at an effective tax rate of 40%. There is a granting tax-free allowance of between 4000 and 5000 tonnes to ensure that the largest operators will pay the tax. (Government, 2022) the corporate tax rate of 22%, the total effective tax rate could be 62%. The Norwegians salmon companies has met the proposal with anger, and it still unclear what the Government decide.

As of 28.12.22 Grieg Seafood's market capitalization is 8.9 billion NOK. Their dividend policy is to, over time on average, pay out 30-40% of the net profit to the shareholders. Grieg Seafood has paid out dividend from 2015-2022 except the years 2020 and 2021. Their average operating EBIT the last five years has been 10.5%. They had a more challenging 2020 where biological issues in Finnmark and Shetland contributed negatively. Additionally, uncertainty following Covid 19 led to lower salmon prices.

Grieg Seafood had an increase in revenue of 8% annually between 2017-2019. Following the discounted operations in Shetland, revenues automatically fell in 2020 and 2021. They struggled to profit from the operations in Shetland due disease and high mortality. They have achieved to decrease the cost to revenue-ratio down to under 40% after the sale. The operational EBIT-margin has been stable – with a small decrease the last two years.

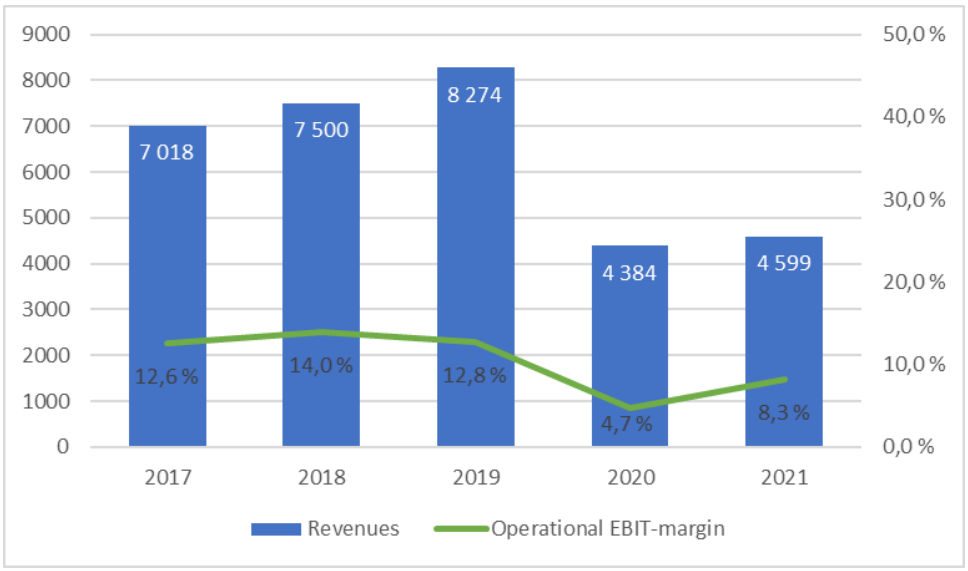

Figure 6. Revenues and operational EBIT-margin Grieg Seafood 2017-2021.

	2017	2018	2019	2020	2021
Revenues	7 017,5	7 500,3	8 273,6	4 384,4	4 598,6
YoY%	7,2 %	6,9 %	10,3 %	-47,0 %	4,9 %
COGS	3 724,2	3 852,9	4 182,0	1 717,3	1 738,3
in % of revenues	53,1 %	51,4 %	50,5 %	39,2 %	37,8 %
Gross profit	3 293,3	3 647,5	4 091,6	2 667,1	2 860,3
in % of revenues	46,9 %	48,6 %	49,5 %	60,8 %	62,2 %
Operational EBIT	884,8	1 049,2	1 057,2	205,8	379,9
in % of revenues	12,6 %	14,0 %	12,8 %	4,7 %	8,3 %
Net income	570,5	972,5	619,5	(541,1)	1 204,7
in % of revenues	8,1 %	13,0 %	7,5 %	-12,3 %	26,2 %

Table 2. Grieg Seafood's income statement overview 2017-2021.

Note: 2020 and 2021 excluding Shetland operations.

4.2.1 SWOT-analysis Grieg Seafood

It is advantageous to perform a SWOT-analysis to identifying and analysing strengths, weaknesses, opportunities, and threats within the company.

Strengths	Weaknesses
- Highly integrated value chain - Solid financial position - Strategically positioned both in European and US market	- Less diversified operations after Shetland sale - Lower operating margin than other competitors

	- Still dependent on feed suppliers
Opportunities	Threats
- Increased demand for salmon - Further increasing post-smolt program - Expected high salmon prices the following years - Develop a fully integrated value chain	- Trouble with high biological risk - Approval of resource rent proposal for Norwegian markets - Strong competition - Volatile salmon prices

Figure 7. Historical cumulative return Grieg Seafood vs. Oslo Seafood Index

4. Valuation

4.1 Bakkafrost

4.1.1 Cost of equity

I have used the 10 years Danish Government Bond as a proxy for the risk-free rate because the cash flows are estimated in Danish Kroner. Although government bonds per definition is

not risk-free, it is a good proxy because it is issued by the Danish Government that holds a credit rating of AAA from both Fitch and Standard & Poor with "stable outlook". (Refintiv Eikon, 2022) The rate given is 2.61%.

The beta is found by using a bottom-up approach by Damodaran (Damodaran, NYU Stern, 2022)First, I used Damodaran's database to find companies operating in the farming/aquaculture business. Further, we estimate the risk or beta of the business and take the weighted average of the betas within the business. The leveraged beta is found by adjusting the company's financial leverage.

The unlevered beta found for Bakkafrost is 0.63. By adjusting for the financial leverage with the average debt/equity-ratio the last three years, we get a levered beta of 0,89. Afterwards, we use Blume's (1975) adjustment and get a levered beta of 0.925.

The market risk premium is estimated by using Damodaran's implied equity risk premium of 4.49%. (Damodaran, 2022) Additionally, a country risk premium of 1.26% is found by analysing the country risk premium in the countries Bakkafrost operates. The country risk premium is found by using Damodaran's (2022) data. This gives a cost of equity of 8.12% after using the risk-free rate, the leveraged beta, the market risk premium and the country risk premium as components.

Cost of equity	
Risk free rate	2,61 %
Beta	0,93
Market risk premium	4,59 %
CRP	1,26 %
Cost of equity	8,12 %

Table 3. Bakkafrost's cost of equity

4.1.2 Cost of debt

To estimate Bakkafrost's cost of debt, I have looked to their outstanding loans. The company have issued two different 5-year loans with maturity date in 2023 and 2025. Additionally, the company agreed on a credit facility of 700 million Euros in 2022. Neither of Bakkafrost's outstanding loans are publicly traded nor more information are given in the annual report.

A potential solution could have been to calculate the interest expense to prior year's net interest bearing debt. However, the credit market has changed lately so the result could be

different from reality. Instead, I will create a synthetical credit rating. The credit rating is created by estimating the interest coverage ratio and using Damodaran's (2017) table. (Exhibit 1I) The last years, Bakkafrost has had an interest coverage ratio above 20 which gives a synthetical credit rating of AA and a credit spread of 0.60%

$$r_d = r_f + credit\ spread$$

$$r_d = 2.61\% + 0.6\% = 3.21\%$$

4.1.3 WACC

Bakkafrost's WACC is found by using information about the cost of equity, cost of debt, tax rate, market value equity and market value debt. The market value of equity is found by multiplying the share price (of 27.12.22) with total share outstanding, adjusting from NOK to DKK. Outstanding loans are used as the market value of debt, adjusted for currency changes. This gives a WACC of 7.61%.

WACC	
Cost of equity	8,12 %
Cost of debt	3,21 %
Market value equity	36372945000
Market value debt	3693663857
Tax rate	20 %
WACC	7,61 %

Table 4. Bakkafrost's WACC-calculation

4.1.4 Capital structure

Bakkafrost does not have an explicit goal for their capital structure, but they state in their annual report that the capital management's prime objective is to ensure the company maintains a good credit rating to achieve favourable borrowing terms. Moreover, they will ensure to have a good debt to equity-ratio to support its business operations. (Bakkafrost, 2022) By this, it is assumable that Bakkafrost will stick to the last years capital structure with a book value equity-ratio of 64-66%.

4.1.5 Operating segments

Bakkafrost have four segments: Farming in Faroe Island, farming in Scotland, value-added products (VAP) from Faroe Island and fishmeal, oil and feed (FOF) segment from Faroe

Island. The farming segments are forecasted by estimations of expected harvest volume and expected price. Since a share of the farming revenues from Faroe Island is used in the VAP-segment, I have forecasted the VAP-segment a percentage of the revenues from farming in Faroe Island. The FOF-segment is forecasted using historical growth as an assumption for growth rate in the future.

4.1.6 Harvest volume

Bakkafrost has had solid growth in terms of harvest volume the last 10 years. After introducing their investment plan from 2022-2026, their goal is to produce 100 000 tonnes gutted weight in Faroe Island in 2026 and 50 000 tonnes gutted weight in Scotland with a capacity total of 180.000 tonnes gutted weight. Bakkafrost's goal is to produce 68.000 tonnes gutted weight in 2023, same as in 2022. I have assumed they are one year behind their target for 2026 and will use 2026-target for 2027 instead. 2024-2026 harvest volume is estimated by assuming the growth is linear between the targets 2023 and 2027.

Nevertheless, Kontali Analyse (2021) have estimated that actual harvest volume has been 3-10% lower than guided harvest volume on average since 2015. Therefore, I will decrease all harvest volume estimates by 5%. The same method is used for the operations in Scotland. 2026 target is delayed to 2027 and harvest volume estimates is decreased with 5%. The annual harvest volume growth in Faroe Island between 2023 and 2027 is 10.1% and 5% between 2028 and 2030. For Scotland, this numbers represent a 14% increase between 2023 and 2027 and a 5% increase between 2028 and 2030.

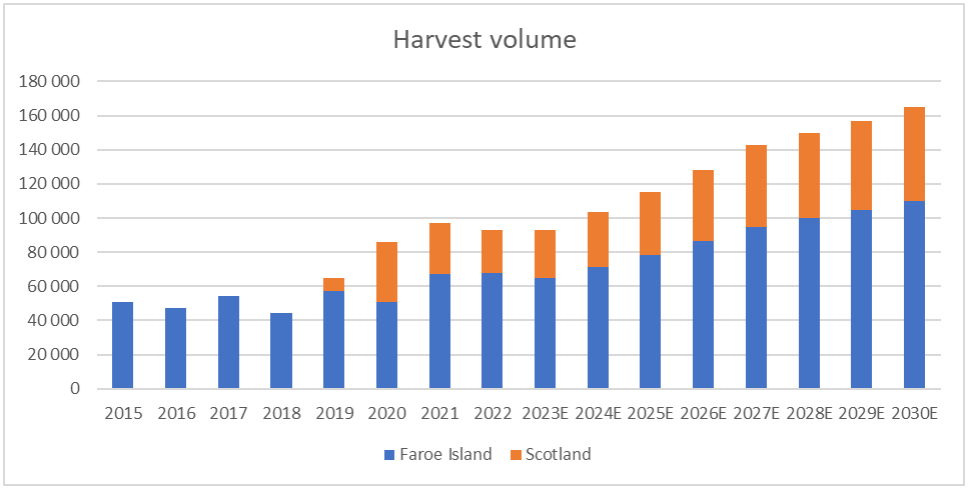

Figure 8. Bakkafrost's historical and expected future harvest volume, in tonnes gutted weight

4.1.7 Salmon price

Bakkafrost is selling quality salmon and have historically achieved a price premium. I have estimated the historical premium by calculating the average revenue per kg up against the historical salmon prices. Since 2015, Bakkafrost has made a 21.6% price premium on average compared to the spot prices on operations in Faroe Island. They have also gained 12.5%, on average, price premium in Scotland after their operations started in 2020.

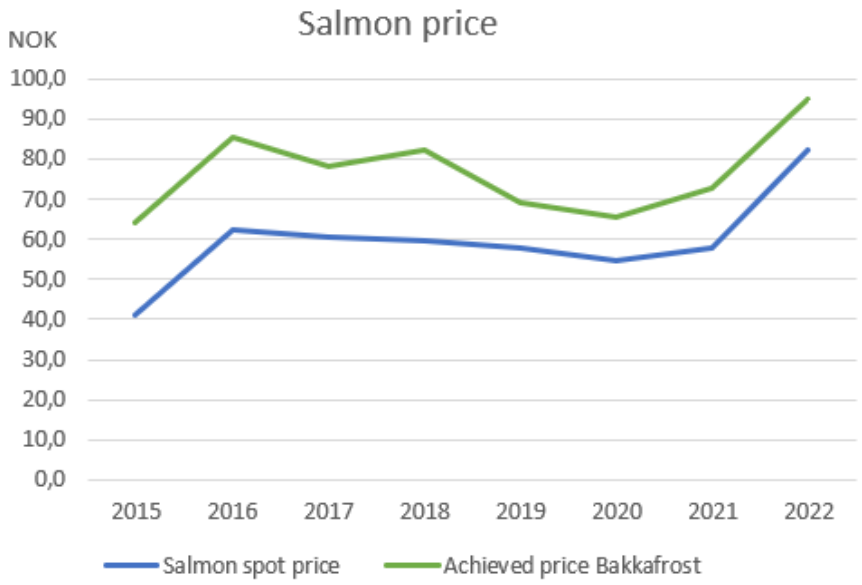

Figure 9. Bakkafrost's achieved selling price vs NASDAQ Salmon spot price

	2015	2016	2017	2018	2019	2020	2021	2022
Calculation price premium for Faroe Island operations								
Revenues	2 273 595	2 840 870	2 986 561	2 568 366	3 152 462	2 340 261	3 476 722	4 657 333
Harvested volume	50 565	47 452	54 600	44 600	57 200	50 700	67 200	68 000
NOK/DKK	0,83	0,81	0,79	0,77	0,76	0,69	0,73	0,74
Price achieved	53,9	74,4	68,9	74,4	72,7	66,6	70,8	93,1
Annual price per kg (Fish Pool)	41,2	62,2	60,4	59,7	57,8	54,5	57,6	82,3
Price premium	12,8	12,1	8,4	14,7	14,9	12,0	13,2	10,8
Calculation price premium for Scotland operations								
Revenues						1 595 561	1 455 291	1 524 124
Harvested volume						35 000	29 700	25 000
NOK/DKK						0,7	0,7	0,7
Price achieved						65,7	67,0	82,9
Annual price per kg (Fish Pool)						54,5	57,6	82,3
Price premium						11,2	9,4	0,6

Table 5. Calculation historical achieved price premium, revenues in 1000s DKK, and harvested volume in tonnes gutted weight

4.1.8 Revenues

Revenues for the farming operations in Faroe Island and Scotland are calculated by multiplying expected harvest volume and expected salmon price, together with the historical price premium. The Fish Pool forward contracts are used as a proxy for the salmon prices

2023 and 2024. From years beyond 2024, forwards are not available, so I have used a three year-moving average for the rest of the explicit period. The NOK/DKK-currency rate is assumed to be stable on current levels.

Revenues Faroe Island	2023	2024	2025	2026	2027	2028	2029	2030
Harvest volume	64 600	71 139	78 339	86 268	95 000	99 750	104 738	109 974
Salmon price	86,0	80,0	82,8	82,9	81,9	82,5	82,5	82,3
NOK/DKK	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71
Premium	21,6 %	21,6 %	21,6 %	21,6 %	21,6 %	21,6 %	21,6 %	21,6 %
Revenues	4 763	4 879	5 559	6 133	6 670	7 058	7 404	7 759
Revenues Scotland								
Harvest volume	28 500	32 382	36 793	41 805	47 500	49 875	52 369	54 987
Salmon price	86,0	80,0	82,8	82,9	81,9	82,5	82,5	82,3
NOK/DKK	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71
Premium	15,6 %	15,6 %	15,6 %	15,6 %	15,6 %	15,6 %	15,6 %	15,6 %
Revenues	1 997	2 111	2 482	2 825	3 170	3 355	3 519	3 688

Table 6. Forecasted revenues farming operations in Faroe Island and Scotland

Historically, revenues from VAP-segment have been 30-35% of total revenues from Faroe Island. The company's long-term goal is to sell around 40% as VAP products. I have assumed they manage to sell 35% as VAP products from 2023-2024 and 40% from 2025 and beyond.

Revenues VAP	2023	2024	2025	2026	2027	2028	2029	2030
% of harvested volume as VAP	35 %	35 %	40 %	40 %	40 %	40 %	40 %	40 %
Revenues farming Faroe Island	4 763	4 879	5 559	6 133	6 670	7 058	7 404	7 759
Revenues VAP	1 667	1 708	2 224	2 453	2 668	2 823	2 961	3 104

Table 7. Forecasted revenues VAP-segment

The FOF-segment has grown annually by 7.95% since 2015. I have used this growth rate as estimation for future growth.

Additionally, I have to subtract an elimination amount to the revenues since the segments also include internal revenues. It is done by multiplying an appropriate rate with the total revenues by segment. The elimination to revenue-ratio has had an upward trend the last years so I will use the average ratio of the last three years. By summing all revenues by segment and subtract the elimination amount, we get total revenues year by year.

Revenues by segment	*2023*	*2024*	*2025*	*2026*	*2027*	*2028*	*2029*	*2030*
Total revenues	**7 194**	**7 500**	**8 679**	**9 590**	**10 480**	**11 071**	**11 616**	**12 178**
Farming Faroe Island	4 763	4 879	5 559	6 133	6 670	7 058	7 404	7 759
	2,3 %	*2,4 %*	*13,9 %*	*10,3 %*	*8,8 %*	*5,8 %*	*4,9 %*	*4,8 %*
VAP Faroe Island	1 667	1 708	2 224	2 453	2 668	2 823	2 961	3 104
	2,4 %	*2,4 %*	*30,2 %*	*10,3 %*	*8,8 %*	*5,8 %*	*4,9 %*	*4,8 %*
Fishmeal, oil and feed	2 364	2 552	2 755	2 974	3 211	3 371	3 540	3 717
	8,0 %	8,0 %	8,0 %	8,0 %	8,0 %	5,0 %	5,0 %	5,0 %
Farming Scotland	1 997	2 111	2 482	2 825	3 170	3 355	3 519	3 688
	31,1 %	5,7 %	17,6 %	13,8 %	12,2 %	5,8 %	4,9 %	4,8 %
Elimination	-3 597	-3 750	-4 340	-4 795	-5 240	-5 536	-5 808	-6 089

Table 8. Total revenues by segment Bakkafrost

4.1.9 Operating costs

Purchase of costs consist of purchase of fish feed and smolts. The costs have had an upward trend the last years, mainly due increased feed costs and higher costs of large smolts. Estimation of future costs are forecasted on a three years-moving average of purchase of goods to revenue.

	2015	2016	2017	2018	2019	2020	2021	2022E
Purchase of goods as a % of Revenue	27 %	27 %	27 %	28 %	31 %	40 %	34 %	29 %

Table 9. Bakkafrost's historical cost of "Purchase of goods" as a % of revenue

Salary & other personal expenses include salaries to employees, social security taxes, pension expenses and other benefits. This post is forecasted on a three years-moving average as percentage of revenues.

	2015	2016	2017	2018	2019	2020	2021	2022E
Salary & personall expenses as % of Revenue	10 %	10 %	11 %	11 %	11 %	15 %	13 %	12 %

Table 10. Bakkafrost's historical cost of "Salary & personnel expenses" as a % of revenue.

Other operating expenses is another major cost contributor that consist of cost such that maintenance, health, freight and energy costs. Forecasted as a percentage of revenue on a three years-moving average.

	2015	2016	2017	2018	2019	2020	2021	2022E
Other operating expenses as % of Revenue	24 %	22 %	21 %	21 %	22 %	23 %	29 %	28 %

Table 11. Bakkafrost's historical cost of "Other operating expenses" as a % of revenue

Depreciations are forecasted as a percentage of property, plant & equipment (PP&E). The ratio has been close to constant the last four years, so I will forecast it on a four -year rolling average.

	2015	2016	2017	2018	2019	2020	2021	2022E
Depreciation as % of PP&E	-	8,7 %	8,7 %	7,7 %	10,8 %	10,9 %	11,6 %	10,7 %

Table 12. Bakkafrost's historical depreciation cost as a % of prior year's property, plant & equipment (PP&E)

4.1.10 Revenue tax

Revenue tax from salmon farming industry on Faroe Island has been taxed using three applicable tax rates given the salmon spot price. The last years, the salmon spot price have been above the upper threshold, and a revenue tax of 5% have been applied. The Faroese Government has presented a new proposal to adjust the existing revenue tax system. The new proposal includes three important changes to the current system. (Fishfarmingexpert, 2022)

- Changing the number of applicable tax rates from 3 to 5.
- Increasing the salmon spot price thresholds
- Linking the salmon spot price to the average production costs for the salmon farming industry on Faroe Island, which will be assessed annually.

Current Revenue Tax Faroe Island	
Salmon spot price less than 32 DKK/kg	0,50 %
Salmon spot price between 32-36 DKK/kg	2,50 %
Salmon spot price above 36 DKK/kg	5 %
New proposal Revenue Tax Faroe Island	
Salmon spot price less than 39.15 DKK/kg (55 NOK/kg)	0,50 %
Salmon spot price between 39.15-44.15 DKK/kg (52-62 NOK/kg)	2,50 %
Salmon spot price between 44.15-54.15 DKK/kg (62-76 NOK/kg)	5 %
Salmon spot price between 54.15-69.15 DKK/kg (76-97 NOK/kg)	7,50 %
Salmon spot price above 69.15 DKK/kg (97 NOK/kg)	10 %

Table 13. Current vs new proposal revenue tax Faroe Island. (Fishfarmingexpert, 2022)

For 2023, an annual production cost of 39.15 DKK/kg (55 NOK/kg) will be applied. Note that currency conversation from DKK to NOK is done using today's exchange rate of 1NOK=0.71DKK. In my forecasting period, I assume annual production cost and exchange will stay fixed. I also assume that the salmon spot price will stay between 54.15-69.16 DKK/kg (76-97 NOK/kg). However, historical revenue tax has had an average of 4.3%, which is less than the theoretical revenue tax of 5%. This is due that Bakkafrost is selling at a premium price and that the revenue tax is deducting from the theoretical spot price. Therefore, I use a revenue tax of 6.45% that implies Bakkafrost will sell at a similar premium-ratio as before.

4.1.11 Non-operating items

Fair value adjustment for biomass is a non-cash item that captures externally factors such as changes in salmon price forwards and increased raw material price. The item is highly volatile and difficult to predict. It is presumed to be zero in the future.

Onerous contract, badwill, income from associates and net financial items are considered non-operating items and do not influence the valuation of the company.

4.1.12 Taxes

The marginal tax rate in Faroe Island is 18% while Scotland has a tax rate of 25%. I will use a weighted average of 19.5% as the effective tax rate for Bakkafrost's operations. In the free-cash flow analysis, taxes are adjusted to only consist of operating taxes

4.1.13 Balance sheet forecast

Intangible assets

Intangible assets consist mainly the value of acquired farming licenses in Faroe Island and Scotland. I have decided to hold the intangibles constant during the forecast period as it is not expected they will apply for more licenses during the period.

Total property, plant and equipment (PP&E)

Lands, buildings, machinery equipment and vessels are the major contributor to the PP&E-segment.

PP&E is calculated by using information of expected investments in PP&E and the depreciations:

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

Where:

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

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

$Investments\ in\ PP\&E_t\ is\ the\ current\ year's\ investment\ in\ property,\ plant\ and\ equipment$

$Depreciations_t\ is\ the\ current\ year's\ value\ of depreciation$

$t\ is\ the\ time\ period\ in\ years$

The company launched an investment plan for 2022-2026 on the Capital Market Day in September 2021. (Bakkafrost, 2021) I have used this numbers for expected investments in PP&E in the period. For 2027 to 2030, I have forecasted annually investments of 750 million DKK each year.

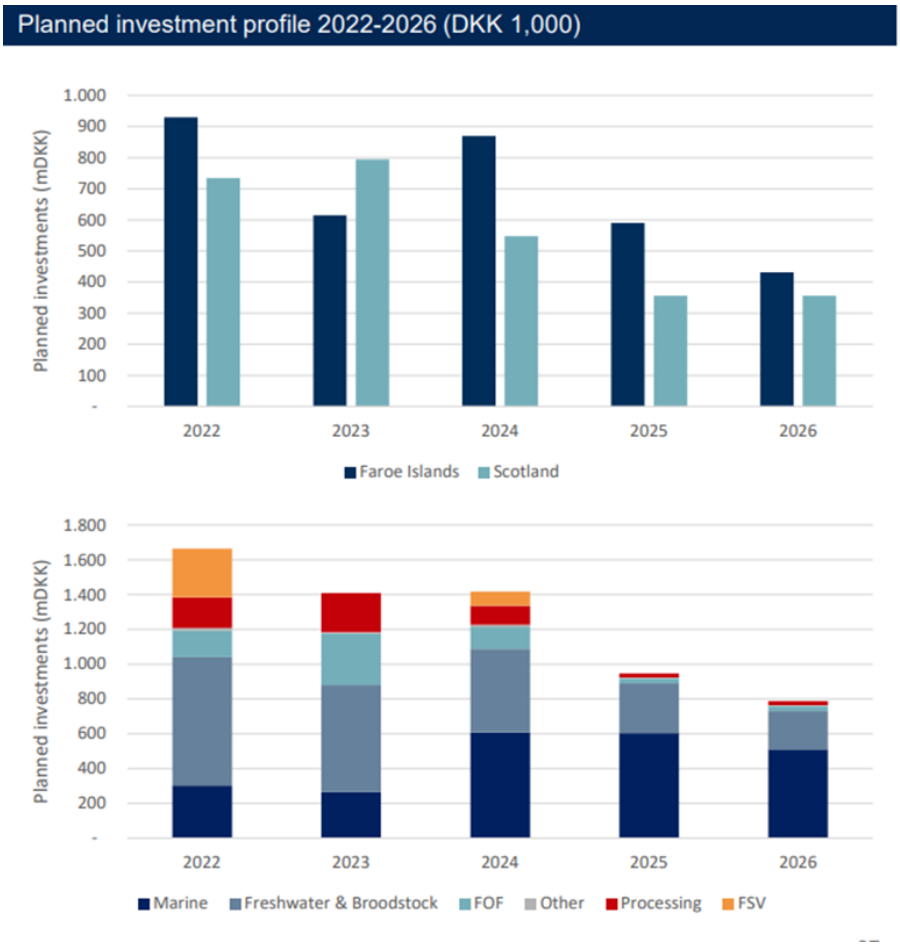

Figure 10. Bakkafrost's investment plan 2022-2026. (Bakkafrost, 2021)

Non-current financial assets

Non-current financial assets include investments in associated companies and investments in stock and shares. I presume the values will stay at current levels as it is difficult the estimate future value for the investments, nor the company will increase or decrease their ownership.

Inventory

Biological assets are salmon at all stages in the production cycle. The salmon is divided into two groups, depending on the stage of their life cycle, and are valued accordingly. The first group is valued through historical cost. The second group is valued through a valuation model of expected cash flow with volume, production costs, sales price and discount rate as

parameters. In my forecasting, I have used the biomass to cost of goods-ratio on a five-year rolling average.

Inventory is also forecasted with cost of goods as the operating driver on a five-year rolling average.

Current liabilities

- Trade payables
- Current tax liabilities
- Short-term leasing debt
- Other current liabilities

Trade payables and current tax liabilities are forecasted as a percentage of cost of goods on a five year-rolling average. Short term leasing debt is assumed to stay constant. Other current liabilities are forecasting using revenue as operating driver, on a five year-rolling average.

4.1.15 Invested capital

To complete the free cash flow-calculation, we have to forecast depreciations, changes in working capital and capital expenditures.

Depreciations are already calculated in the income statement and are as follows.

Depreciations explicit period (in million DKK)								
	2023	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Depreciations	607	633	732	809	884	934	980	1027

Table 14. Bakkafrost's forecasted depreciations in the explicit period (2023-2030)

Working capital is calculated by subtracting current assets and current liabilities, excluding financial items such as debt and cash.

Δ Working capital explicit period (in million DKK)								
	2023	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Current assets	5260	5506	6270	7187	7946	8226	8656	9025
Current liabilities	1033	1102	1264	1341	1438	1506	1609	1701
Working capital	4228	4404	5006	5847	6508	6720	7047	7323
Δ Working capital	-585	176	602	841	662	211	327	276

Table 15. Bakkafrost's forecasted change in working capital in the explicit period (2023-2030)

Capital expenditures follow the investment plan already discussed in the balance sheet.

Capital expenditures explicit period (in million DKK)								
	2023	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
CapEx	1 410	1 420	950	790	500	500	500	500

Table 16. Bakkafrost's forecasted capital expenditure in the explicit period (2023-2030)

4.1.16 Free cash flow

After analysis of expected revenues, costs and invested capital, we can forecast the free cash flow to the firm. To reach the free cash flow from the firm's NOPLAT, depreciations are added back while capital expenditures and change in working capital are subtracted.

	Explicit period							
Bakkafrost (In million DKK)	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Revenue	7641	7966	9219	10186	11131	11759	12337	12935
Cost of Revenue	-2370	-2479	-2790	-3137	-3420	-3598	-3789	-3968
Gross Profit	5271	5487	6429	7049	7710	8161	8549	8966
Salary & personnel expenses	-922	-980	-1109	-1236	-1353	-1423	-1496	-1569
Other Operating Expenses	-2004	-2209	-2505	-2755	-3040	-3196	-3353	-3521
Other income	0	0	0	0	0	0	0	0
Revenue Tax FO	-307	-315	-359	-396	-430	-455	-478	-500
EBITDA	**2039**	**1984**	**2456**	**2663**	**2887**	**3087**	**3222**	**3376**
Depreciation	-688	-772	-847	-848	-846	-836	-827	-817
EBIT	**1350**	**1212**	**1609**	**1815**	**2041**	**2250**	**2395**	**2559**
EBIT-margin	*17,7 %*	*15,2 %*	*17,5 %*	*17,8 %*	*18,3 %*	*19,1 %*	*19,4 %*	*19,8 %*
Taxes as reported	-242	-215	-293	-333	-377	-418	-446	-478
-/+ Tax shield	-21	-21	-21	-21	-21	-21	-21	-21
Operating tax	-263	-236	-314	-354	-398	-439	-467	-499
NOPLAT	**1087**	**976**	**1295**	**1461**	**1643**	**1811**	**1928**	**2060**
Depreciation	688	772	847	848	846	836	827	817
-Capex	1410	1420	950	790	750	750	750	750
-Change working capital	-519	178	612	854	672	215	333	281
FCF	**885**	**149**	**581**	**665**	**1067**	**1683**	**1672**	**1846**

Table 17. Bakkafrost's forecasted free cash flow to the firm in the explicit period (2023-2030)

4.1.17 Terminal value

From 2030 and beyond, an appropriate growth rate should be used to calculate the terminal value. This rate should reflect the expected growth rate the company will grow indefinitely. A growth rate of 2% is assumed.

Terminal value	
Terminal growth rate	2 %
FCFF 2030	1 846
WACC	7,61 %
Terminal value	**33 570**
PV terminal value	**18 669**

Table 18. Bakkafrost's terminal value

4.1.18 Equity value

To find the equity value, we start adding all discounted cash flows from the explicit period and the present value from the terminal period. The enterprise value is found by adding back non-operating assets such as cash and investments. After deducting non-operating liabilities, we get an equity value of Bakkafrost of DKK 25.3 billion. Since Bakkafrost is listed on Oslo Stock Exchange, we convert it to NOK by multiplying the DKK/NOK-rate of 1.42 and get an equity value of Bakkafrost of NOK 30.9 billion. To find the share price we divide by total outstanding shares, leading to a share price of NOK 523.

Valutation Bakkafrost (numbers in DKK million)									
	2022	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
FCFF		885	149	581	665	1 067	1 683	1 672	1 846
Terminal value									33 570
WACC		7,61 %	7,61 %	7,61 %	7,61 %	7,61 %	7,61 %	7,61 %	7,61 %
Discount factor		0,93	0,86	0,80	0,75	0,69	0,64	0,60	0,56
Present value explicit period	5 763	822	128	466	496	739	1 084	1 001	1 027
Present value terminal period	18 669								18 669
Present value	**24 433**								
Cash & equivalents	710								
Investments in associated companies	94								
Investments in stocks and shares	55								
Enterprise value	**25 292**								
Short-term interest bearing debt	80								
Long-term interest bearing det	3422,03								
Equity value (DKK)	**21 790**								
DKK/NOK	1,42								
Equity value (NOK)	**30 907**								
Number of shares outstanding	59,143								
Share price (NOK)	**523**								

Table 19. Discounted cash flow valuation Bakkafrost

4.1.19 Sensitivity analysis

A sensitivity analysis measure how sensitive the share price is to changes in important valuation inputs. Table 20 shows how the share price reacts to changes in terminal growth rate and the WACC.

		Terminal Growth Rate				
	Share Price	1 %	1,50 %	2 %	2,50 %	3 %
W	8,52 %	406	431	460	494	534
A	8,11 %	425	453	486	525	571
C	7,61 %	451	484	523	569	625
C	7,11 %	482	520	566	622	692
	6,61 %	518	564	620	689	777

Table 20. Sensitivity analysis Bakkafrost

4.1.20 Multiples

Another popular valuation method is the multiples approach. I have used an appropriate peer group and analysed the multiples EV/Sales, EV/EBITDA and EV/EBIT.

The results are presented in Table 20.

Historical multiples from 2021 and forward multiples in 2023 are captured. Forward multiples are retrieved from Refinitiv Eikon. As we can see in Table 20, all multiples decrease significantly from 2021 to the estimates in 2023. This is highly influenced by the proposal of higher tax rate on production in Norway which affect the forecast of the Norwegian companies. The tax rate is not relevant for Bakkafrost. Therefore, I will focus on the 21'-numbers instead of the forwards numbers since the 23'numbers are made on different prerequisites.

The analysis gives an enterprise value of NOK 26 538 million, equity value of NOK 21 571 million and a share price of NOK 365, giving equal weights of the 21'-multiples.

	EV/SALES		EV/EBITDA		EV/EBIT	
Company Name	**2021**	**2023e**	**2021**	**2023e**	**2021**	**2023e**
SalMar ASA	5.3x	2.6x	18.1x	8.4x	22.2x	10.0x
Mowi ASA	2.9x	1.9x	12.0x	7.5x	18.9x	9.9x
Grieg Seafood ASA	2.5x	1.5x	8.1x	5.5x	11.1x	7.2x
Leroy Seafood Group ASA	2.0x	1.5x	9,3x	7.0x	12.4x	9.2x
Mean	3.2x	1.9x	11.9x	7.1x	16.1x	9.1x
Share price	341	254	394	263	359	210

Table 21. Relative valuation Bakkafrost

4.1.21 Valuation results

Giving 80% weight to the DCF-valuation and 20% of the multiples-valuation, we get a final valuation of Bakkafrost of NOK 497.

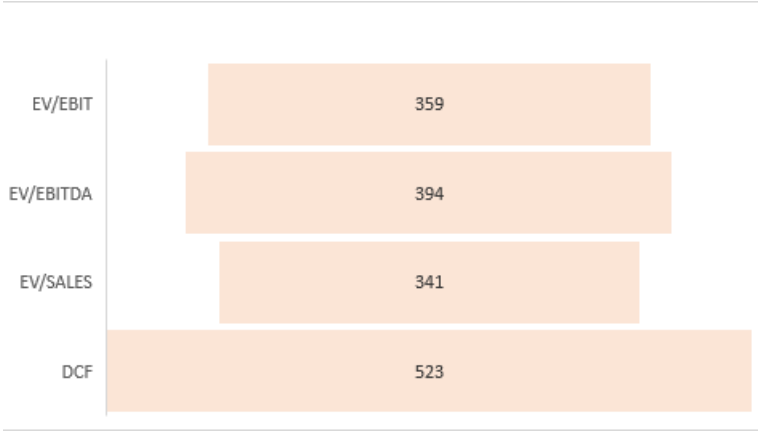

Figure 11. Valuation Bakkafrost with DCF-calculation and multiples.

4.2 Grieg Seafood

4.2.1 Cost of equity

The risk-free rate is found by looking at Norges Bank's 10-year zero coupon yield. The zero-coupon yields are based on observed effective yields on Norway Treasury bills and government bonds (Norges Bank, 2022) The rate given is 3.16%.

The beta is found by the bottom-up approach, same method as explained earlier. Beta unlevered is 0.64, while beta levered is 1.09. After use of Blume's approach, we get a beta of 1.06.

The market risk premium is estimated by using Damodaran's implied equity risk premium of 4.49%. Additionally, a country risk premium of 0.86% is found by analysing the country risk premium in the countries Grieg Seafood operates. This gives a cost of equity of 8.68% after using the risk-free rate, the leveraged beta, the market risk premium and the country risk premium as components.

Cost of equity	
Risk free rate	3,16 %
Beta	1,06
Market risk premium	4,59 %
CRP	0,86 %
Cost of equity	8,88 %

Table 22. Grieg Seafood's cost of equity

4.2.2 Cost of debt

In Q1 2022, Grieg Seafood refinanced their financial liabilities. The new debt structure consists of NOK 750 million term loan, EUR 75 million term loan, NOK 1500 million credit facility and NOK 200 million overdraft facility. The interest rate is 3m NIBOR + margin. As of today, 3m NIBOR is trading at 3.30%. The bond matures in June 2025. However, the bond is illiquid with a high bid-ask spread. Using the yield to maturity of the bond could make counterfeit conclusions.

To estimate the credit spread, I calculate previous year's interest coverage ratio, and use Damodaran's (2017) synthetical credit rating-table to estimate the credit spread. This gives a synthetical credit rating of BBB which gives a credit spread of 1.25%.

$$r_d = r_f + credit\ spread$$

$$r_d = 3.16\% + 1.25\%$$

$$r_d = 4.41\%$$

4.2.3 WACC

Grieg Seafood's estimated cost of capital is 7.11%. The market value of equity is found by multiplying the share price (as of 28.12.22) and shares outstanding. The market value of debt consists of the numbers from the new debt structure adjusted to NOK. The tax rate is 47.5%, which is the expected tax rate of the company if the new proposal from the government goes through.

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

WACC	
Market value debt	3541000000
Market value equity	8922609853
Cost of debt	4,41 %
Cost of equity	8,88 %
Tax rate	47 %
WACC	7,02 %

Table 23. Grieg Seafood's WACC-calculation

4.2.4 Operating segments

Grieg Seafood's only operating segment is production of farmed salmon. The segment is divided into four, based on the location of the production. Rogaland – Norway, Finnmark – Norway and British Colombia – Canada have had production for several years, and production from Newfoundland – Canada is expected to follow in 2023. The revenues of each activity are forecasted by estimating expected harvest volume and expected price.

4.2.5 Harvest volume

As of late 2022, Grieg Seafood is in line with a harvest volume of 28 000 tonnes in Rogaland, 32 992 tonnes in Finnmark and 20 019 tonnes in British Columbia. The company's stated estimate for 2023 is similar to the harvest volume in 2022, additionally to an expected harvest volume of 5000 tonnes in Newfoundland. By 2026, their goal is to produce a total of 120.000 –135.000 tonnes in total, 35-40.000 tonnes in Rogaland, 40-45.000 tonnes in Finnmark, 30-35.000 tonnes in British Columbia and 15.000 tonnes in Newfoundland.

In my forecasting, I will use the company's own estimation for 2023 and the bottom estimation for 2026. I assume the harvest volume grow linear in 2024 and 2025. For 2027-2030 the harvest volume is expected to grow at a 4% rate, Like I did in Bakkafrost's analysis, I decrease the expected harvest volume with 5% every year.

4.2.6 Salmon price

To obtain the expected salmon spot price, I have used the available forward price on Fish Pool in 2023 and 2024. For beyond 2024, forwards are not available, and a three-year rolling average is used.

Salmon Price	2023	2024	2025	2026	2027	2028	2029	2030
Expected salmon price	86,0	80,0	82,8	82,9	81,9	82,5	82,5	82,3

Table 24. Expected future salmon price

As we can see from Figure 12, Grieg Seafood has on average sold salmon at a discount compared with the salmon spot price. Rogaland has an average premium of 0%, Finnmark has sold at a discount of 6.4%, while British Columbia has sold at a premium of 3.66%. I will use these numbers together with the expected salmon spot price to forecast expected salmon price for each activity.

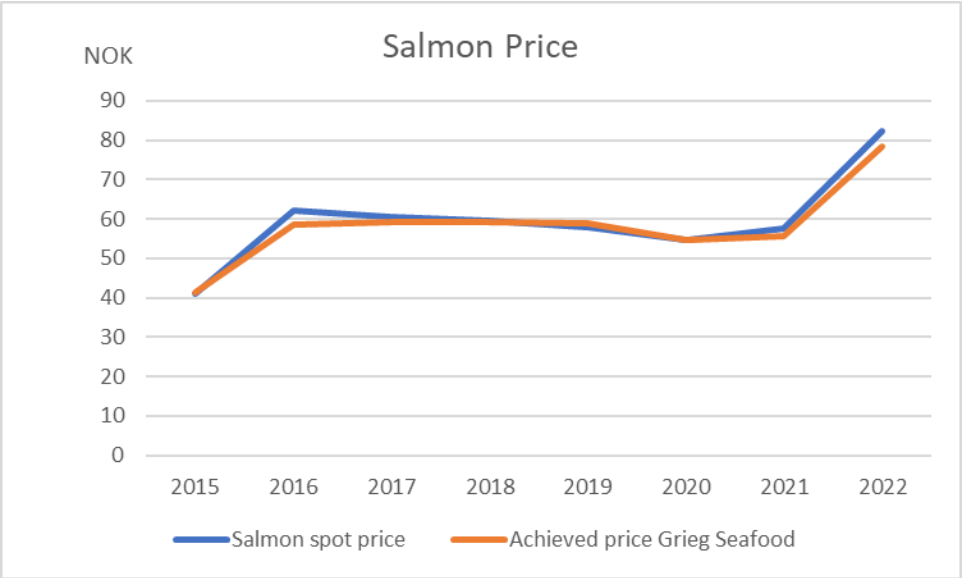

Figure 12. Historical achieved price Grieg Seafood vs NASDAQ Salmon spot price

In addition to the farming operations by location, the total revenues also include an item called elimination/other. The item is forecasted on a three-year average with respect to the sum of revenues by each location.

"Elim/Other includes bonus and share of profit from sales entities to Grieg Seafood farming entities/producers. Other items comprise the profit/loss from activities conducted by the parent company or other Group companies not related to production. Internal transactions between group companies are eliminated and included in the Elim/Other column. Sales revenue deriving from the sale of fish not produced by the Group is also included in Elim/Other". (Grieg Seafood, 2022)

Revenues Rogaland	2023	2024	2025	2026	2027	2028	2029	2030
Harvest volume	27 550	29 450	31 350	33 250	35 625	37 050	38 532	40 073
Salmon price	86	80,0	82,8	82,9	81,9	82,5	82,5	82,3
Premium	0	0	0	0	0	0	0	0
Revenues	2369	2356	2595	2757	2918	3058	3177	3298

Revenues Finnmark	2023	2024	2025	2026	2027	2028	2029	2030
Harvest volume	31 350	33 566	35 783	38 000	40 375	41 990	43 670	45 416
Salmon price	86,0	80,0	82,8	82,9	81,9	82,5	82,5	82,3
Premium	-6,4 %	-6,4 %	-6,4 %	-6,4 %	-6,4 %	-6,4 %	-6,4 %	-6,4 %
Revenues	2523	2513	2772	2949	3094	3243	3370	3498

Revenues British Columbia	2023	2024	2025	2026	2027	2028	2029	2030
Harvest volume	19 000	22 166	25 333	28 500	30 875	32 110	33 394	34 730
Salmon price	86,0	80,0	82,8	82,9	81,9	82,5	82,5	82,3
Premium	3,66 %	3,66 %	3,66 %	3,66 %	3,66 %	3,66 %	3,66 %	3,66 %
Revenues	1694	1838	2174	2450	2621	2747	2854	2963

Revenues Newfoundland	2023	2024	2025	2026	2027	2028	2029	2030
Harvest volume	4 750	7 916	11 083	14 250	16 625	19 000	21 375	23 750
Salmon price	86,0	80,0	82,8	82,9	81,9	82,5	82,5	82,3
Premium	0	0	0	0	0	0	0	0
Revenues	409	633	917	1182	1362	1568	1762	1954

Revenues Eliminiation/other	2023	2024	2025	2026	2027	2028	2029	2030
Revenues	807	847	976	1077	1153	1225	1288	1352

Table 25. Forecasted revenues by segment Grieg Seafood. Revenues in NOK million, harvest volume in tonnes.

4.2.7 Operating costs

Cost of goods

Cost of goods consist mainly of feed, roe, recognition of extraordinary mortality and external purchase of fish (GSF). The costs to revenue have decreased significantly the last three years. This is due the divestments of operations in Shetland where they struggled with high cost. Therefore, I use a three-year rolling average in the forecasting period.

	2015	2016	2017	2018	2019	2020	2021	2022
Cost of goods as a % of Revenue	59 %	50 %	53 %	51 %	51 %	39 %	38 %	31 %

Table 26. Grieg Seafood historical cost of "Cost of goods" as a % of revenue

Salaries and personnel expenses

Salaries, pension costs and other personnel expenses is forecasted as a percentage of revenue. While cost of goods decreased after sale of Shetland operations, we see that salaries and personnel expenses increased. The item is forecasted on a three-years rolling average.

	2015	2016	2017	2018	2019	2020	2021	2022
Salaries and personell expenses as a % of Revenue	8,9 %	7,4 %	6,9 %	7,2 %	7,4 %	11,4 %	12,6 %	9,8 %

Table 27. Grieg Seafood's historical costs of "Salaries and personnel expenses" as a % of revenue

Other operating expenses

Other operating costs consist of transport costs, maintenance costs, electricity, lease expenses and other production related costs such as packaging material, diving serviced and vaccination. The item has had an upward trend the last three years, and is forecasted on a three-years rolling average.

	2015	2016	2017	2018	2019	2020	2021	2022
Other operating expenses as % of Revenue	27 %	23 %	25 %	24 %	24 %	36 %	33 %	28 %

Table 28. Grieg Seafood's historical costs of "Other operating expenses" as a % of revnue

Depreciations & Amortizations

Depreciations are forecasting using the prior year's net property, plant & equipment as operating driver. We can see the depreciations rate are quite stable around 12%, expect in 2019. A three-year rolling average are used in the forecast period. Intangible assets are used as the operating driver to forecast amortizations. I use a seven year-rolling average since no pattern is found in the historical numbers.

	2015	2016	2017	2018	2019	2020	2021	2022
Depreciations as a % of prior year PP&E	-	11,4 %	13,0 %	12,3 %	17,7 %	12,2 %	12,1 %	12,3 %
Amortizations as a % of prior year intangible assets	-	0,41 %	0,41 %	0,45 %	0,45 %	0,69 %	0,33 %	0,67 %

Table 29. Grieg Seafood's historical costs of "Depreciations & Amortizations" as % of prior year's PP&E and intangible assets, respectively

Production fee

Norway introduced a production fee from 2021 that charges NOK 0.4/kg on fish harvested in Norway. The fee for Greig Seafood was about NOK 24 million in 2021 and is expected to increase linearly to harvest volume.

Fair value adjustment

Fair value adjustment is difficult to forecast and has no cash effect. The item is presumed to be zero.

Financial income

Financial income includes change of fair value of derivatives, net currency gains and other financial income. The item has historically been highly volatile with no pattern. I will use the prior year's derivatives and cash as operating drivers with a reasonable constant rate of 5%

Financial expense

Financial expenses are forecasted using the current cost of debt on prior year's interest-bearing liabilities.

Taxes

As mentioned earlier, there is unclear what happens with the taxation of companies with salmon activity in Norway. The nominal tax the last years in Norway have been 22%, but the Government has made a proposal to introduce resource rental tax with an effective tax rate of 62%. Nominal tax rates in British Columbia and Newfoundland are respectively 27% and 30%. Although there is uncertainty, I will use the Government's proposal tax rate in Norway and use a weighted average of the tax rates to find the appropriate one. The tax rates are weighted with respect to the revenues for every year in the explicit period. To find the operating tax, the appropriate tax rate is multiplied with EBITA.

	2023	2024	2025	2026	2027	2028	2029	2030
Tax rate	47 %	46 %	45 %	44 %	44 %	43 %	43 %	43 %

Table 30. Grieg Seafood's forecasting tax rate

4.2.8 Forecast of balance sheet

Intangible assets

Goodwill, licenses and other intangible assets are considered as intangible assets in the balance sheet. In the forecasting period, I set intangible assets at current levels because it is not expected investments will increase the intangible assets.

Property, plant & equipment (PP&E)

Property, plant & equipment consist of buildings and properties, production plants and barges, and nets, cages and moorings. In the company's investment plan, they have stated they will

have investments of NOK 3 billion from 2023-2026. I have assumed they will spend NOK 750 million each year in the four year-period. I have also assumed they will continue to investment same amount from 2027-2030.

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

Current assets

Inventory

Cost of goods are used as the operating driver to calculate future growth in inventory. From the balance sheet, we can see inventory has had an upward trend the last years. I have chosen to use a three year-rolling average to capture the trend the last couple of years.

Biological assets

The biological assets are forecasted using cost of goods as the operating driver. I have chosen to forecast in on a six year-rolling average, since I cannot find any trend in the numbers.

Receivables

Receivables are forecasted with respect to revenues. The trend the last three years has been lower receivables than the years before. Therefore, I will forecast it on a three years-rolling average.

Non-current liabilities

Deferred tax liabilities are forecasted with taxes as the operating driver. The item is forecasted on a three year-rolling average. However, the year 2020 is excluded since the taxes were positive this year. Borrowings and lease liabilities are assumed to stay constant.

Current liabilities

Borrowings and lease liabilities

The short-term interest-bearing debt is presumed to be constant.

Trade payables

Forecasting of trade payables are done with the use of cost of goods as the operating driver. The item is forecasted on a three year-rolling average since it has increased respectively to COGS the last years.

Tax payables

I have forecasted tax payables with respect to taxes. Due no observed trend, I have forecasted it on a seven-year rolling average.

Public duties payables

Public duties payables are forecasted on a four year-rolling average with COGS as the operating driver.

Other current liabilities

Forecasting of other current liabilities are done with revenues as the operating driver. It is forecasted on a seven year-rolling average as no trend is seen.

4.2.9 Invested capital

To complete the free cash flow analysis, forecasts of invested capital are required. Depreciations are already forecasted in the income statement. Working capital is coming from the items forecasted in the balance sheet and the capital expenditures are coming from the investment plan.

Depreciations explicit period (in million NOK)								
	2023	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Depreciations	487	520	549	574	595	614	631	645

Δ Working capital explicit period (in NOK million)								
	2023	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Current assets	4091	4431	5247	6098	6584	6556	6877	7253
Current liabilities	1373	1552	1722	1979	2144	2209	2384	2464
Working capital	2717	2879	3525	4119	4440	4347	4493	4788
Δ Working capital	120	162	646	594	322	-93	146	295

Capital expenditures explicit period (in NOK million)								
	2023	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
CAPEX	750	750	750	750	750	750	750	750

Table 31. Grieg Seafood's forecasted depreciations, change in working capital and capital expenditures in the explicit period (2023-2030

4.2.10 Free cash flow

Explicit period								
	2023	2024	2025	2026	2027	2028	2029	2030
Sales Revenues	**7802**	**8188**	**9433**	**10415**	**11148**	**11841**	**12451**	**13064**
COGS	-2821	-2878	-3232	-3569	-3897	-4104	-4300	-4521
Gross profit	**4981**	**5310**	**6201**	**6846**	**7251**	**7737**	**8151**	**8543**
Other income	53	52	57	69	79	90	95	81
Salaries and personel expenses	-802	-900	-1028	-1092	-1169	-1258	-1332	-1390
Other operating expenses	-2549	-2675	-3083	-3403	-3643	-3869	-4069	-4269
Production fee	-24	-25	-27	-29	-30	-32	-33	-34
EBITDA	**1660**	**1761**	**2121**	**2392**	**2489**	**2668**	**2812**	**2932**
Depreciatons	-487	-520	-549	-574	-595	-614	-631	-645
EBITA	**1172**	**1241**	**1571**	**1818**	**1894**	**2054**	**2182**	**2287**
Amortizations	-11	-12	-12	-12	-12	-12	-12	-12
EBIT	**1161**	**1229**	**1559**	**1806**	**1881**	**2042**	**2169**	**2274**
Taxes as reported	-490	-477	-616	-714	-736	-801	-852	-893
Tax shield from NFE	-60	-92	-90	-88	-87	-86	-86	-86
Operating tax	-550	-569	-706	-802	-823	-887	-938	-979
NOPAT	**611**	**660**	**854**	**1004**	**1059**	**1155**	**1231**	**1296**
+Depreciation	487	520	549	574	595	614	631	645
-Capex	750	750	750	750	750	750	750	750
-Change NWC	120	162	646	594	322	-93	146	295
FCFF	**228**	**268**	**7**	**234**	**582**	**1112**	**966**	**895**
(Numbers in NOK million)								

4.2.11 Terminal value

Terminal value	
Terminal growth rate	2 %
FCFF 2030	895
WACC	7,02 %
Terminal value	**18 181**
PV terminal value	**10 563**

Table 32. Grieg Seafood's terminal value

4.2.12 Equity value

All operating cash-flows are discounted back to its present value. Cash & equivalents and investments in associated companies are added to come up with the enterprise value. To have the equity value, we are deducting non-operating liabilities. We have an equity value of NOK 11 382 million. After dividing by the total number of shares, we get a share price of NOK 104.

Valuation Grieg Seafood (numbers in NOK million)									
	2022	2023	2024	2025	2026	2027	2028	2029	2030
FCFF		228	268	7	234	582	1 112	966	895
Terminal value									18 181
WACC		7,02 %	7,02 %	7,02 %	7,02 %	7,02 %	7,02 %	7,02 %	7,02 %
Discount factor		0,93	0,87	0,82	0,76	0,71	0,67	0,62	0,58
Present value explicit period	2 907	213	234	6	179	414	740	601	520
Present value terminal period	10 563								10 563
Present value	**13 470**								
Cash & cash equivalents	2 175								
Investments in associated compar	137								
Enterprise value	**15 781**								
Short-term interest bearing debt	369								
Long-term interest bearing debt	3 575								
Equity value	**11 838**								
Number of shares oustanding	113,447								
Share price	**104**								

4.2.13 Sensitivity analysis

		Terminal Growth Rate				
	Share Price	1 %	1,50 %	2 %	2,50 %	3 %
W	8,02 %	77	83	89	96	105
A	7,52 %	82	89	96	105	116
C	7,02 %	88	96	104	115	129
C	6,52 %	95	104	115	128	145
	6,02 %	103	114	127	145	167

Table 33. Sensitivity analysis Grieg Seafood

4.2.14 Multiples

The multiples approach is analyses using an appropriate peer group. I have considered the multiples EV/Sales, EV/EBITDA and EV/EBIT.

In Table 32, we can historical multiples from 2021 and forward-looking estimates for 2023. I will concentrate on the forward looking-estimates for 2023 because the 2021-values does not capture the important tax proposal from the Government that has decreases the Norwegian salmon farming companies share price with 30-40%.

The analysis gives an enterprise value of NOK 13 115 million, equity value of NOK 9 172 million and a share price of NOK 81, giving equal weights of the forward-looking 23'-multiples.

	EV/SALES		EV/EBITDA		EV/EBIT	
Company Name	**2021**	**2023e**	**2021**	**2023e**	**2021**	**2023e**
SalMar ASA	5.3x	2.6x	18.1x	8.4x	22.2x	10.0x
Mowi ASA	2.9x	1.9x	12.0x	7.5x	18.9x	9.9x
Leroy Seafood Group ASA	2.0x	1.5x	9,3x	7.0x	12.4x	9.2x
Mean	3.4x	2.0x	13.2x	7.6x	17.8x	9.7x
Share price	104	101	121	77	117	65

Table 34. Multiple results Grieg Seafood

4.2.15 Valuation results

The final valuation result is obtained by giving 80% weight to the DCF-valuation and 20% to the multiples. The valuation of Grieg Seafood is estimated to be NOK 100.

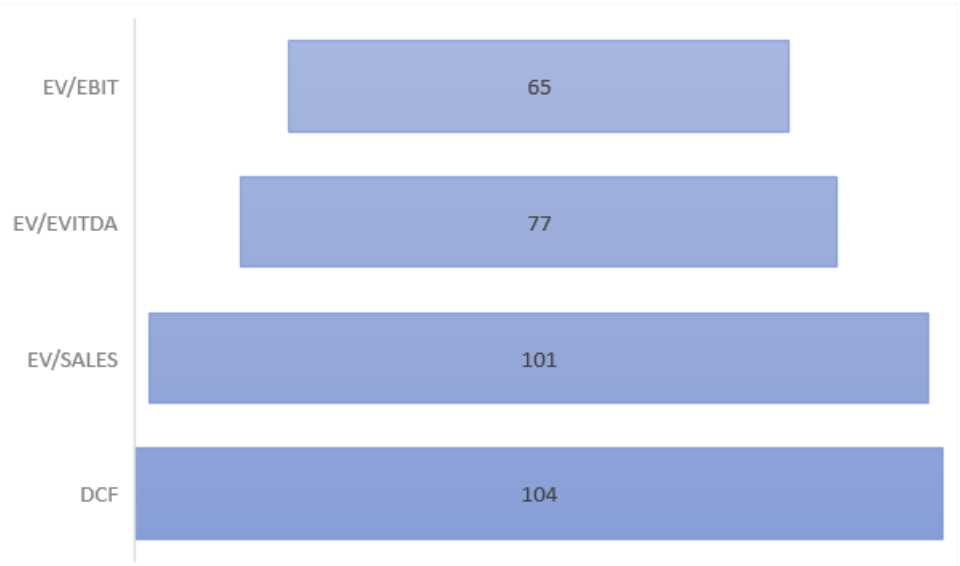

Figure 13. Valuation Grieg Seafood using DCF-calculation and multiples.

6. Valuation of merged companies

6.1 Combined firm without synergies

Before starting to analyse potential synergies for the merged company, we begin to assess the value of a combined company with no synergies. The value of the combined company will simply be the sum of the values of the stand-alone independent firms.

Since the companies are reporting its figures in different currencies, we must standardize the currencies. Although Bakkafrost is the acquirer company with figures in DKK, we convert their financial statement to NOK because NOK is a preferrable currency in the salmon industry. This is done by using the exchange rate of December 21st, 2022, equal NOK 0.70kr per DKK 1kr. The exchange rate is assumed to stay constant in the future.

The combined firm's EV would be worth NOK 49 278 million, consisting of Bakkafrost's value of NOK 34 039 million and Grieg Seafood's value of NOK 15 248 million. The combined equity value would be NOK 40 345 million. The WACC and tax rate of the combined firm are respectively 7.45% and 27.3%.

WACC merged	7,45 %	
WACC BAKKA	7,61 %	72 %
WACC GSF	7,02 %	28 %

Tax rate merged	27,3 %	
Tax rate BAKKA	19,5 %	72 %
Tax rate GSF	47,4 %	28 %

Table 35. The merged company's WACC and tax rate.

6.2 Combined form with synergies

Revenue enhancements

Bakkafrost and Grieg Seafood operate in same industry and selling their products in the same market. While Bakkafrost has achieved a significantly premium selling price, Grieg Seafood has struggled more to achieve a premium to the salmon spot price. Hence, the new enterprise could take advantage of the Bakkafrost brand and sell the salmon produced from Grieg Seafood at a higher price. I forecast that the new entity sells Grieg Seafood's salmon at a 2% higher price. It is assumed that the merged company exploit 50% of the synergy in 2024 and fully from 2025. The present value of the synergy will be NOK 4 079 million.

	2023	2024	2025	2026	2027	2028	2029	2030	T.Value	SUM
Revenue synergies	0	82	189	208	223	237	249	261	5 330	
Discount factor	0,93	0,87	0,82	0,76	0,71	0,67	0,62	0,58	0,58	
PV revenue synergies	0	71	154	159	159	158	155	152	3097	**4104**

Table 36. Revenue synergies merged company.

Both companies have made big investments the last years to focus on increasing the size of the smolts on land. This is a relatively new production strategy where the focus is to have the smolts less at the sea and decreasing the risk for any biological risks. Also, the flexibility in the operations increase. Grieg Seafood has been one of the pioneers in the post-smolt strategy and it is expected that a new entity can profit from economies of scale on the big smolt. investments

Cost savings enhancements

Reduction of costs is an important factor for the proposed transaction. Typical cost synergies are economics of scale, efficiency gains and other advantages. It relates to all operating expenses, but especially production costs and selling & administration expenses.

Today, Grieg Seafood has an integrated value chain except procurement of raw materials (feed). On the other side, Bakkafrost has a fully integrated value chain – from feed to finished products. Bakkafrost's production of fish feed have a significantly higher marine index compared to industry feed. Supplying feed internally to Grieg Seafood would be a cost efficiency. When Bakkafrost acquired SSC in 2019, they estimated supplying feed from Bakkafrost to SSC would result in a fixed cost efficiency at Bakkafrost feed facilities of NOK 2.6 per kg of SSC harvested volume. (Bakkafrost, 2019) It is reasonable that the merged company could take advantage of this, partially in 2024 and fully from 2025. We have used a more conservative 1.3 per kg of Grieg Seafood' s total harvest volume as estimate for the cost efficiency. The present value of the cost efficiency accounts for NOK 2 885 million.

	2023	2024	2025	2026	2027	2028	2029	2030	T.Value	SUM
Cost synergies	107	121	135	148	161	169	178	187	3 471	
Discount factor	0,93	0,87	0,82	0,76	0,71	0,67	0,62	0,58	0,58	
PV cost synergies	100	106	110	113	114	113	111	109	2013	2 888

Table 37. Cost synergies merged company.

Normally, one can expect 1-5% cost synergies for the target's SG&A in a takeover. (Deloitte, 2022) The synergy is related to best management practices, decrease of number of employees and centralization of corporate facilities. I expect a merge will decrease the SG&A costs of Grieg Seafood by 3%. The synergy is expected to be fully exploited from 2025. This represents a present value of the synergy of NOK 1 082 million.

$$Synergies = PV(FCFF)_{merged} - PV(FCFF)_{BAKKA} - PV(FCFF)_{GSF}$$

The synergies obtained are a total of NOK 8074 million

6.2.1 Transaction

When estimating potential synergies, together with the valuation of Grieg Seafood, the maximum price Bakkafrost can pay to acquire Greig Seafood can be determined. Potential synergies together for the combined company represent a value of NOK 70 per share of Grieg Seafood. Together with the calculation of Grieg Seafood's value if NOK 98, we get the maximum value Bakkafrost can pay of NOK 168, or an enterprise value of NOK 23 084 million. The maximum value corresponds to premium of 112% to Grieg Seafood's market price.

Although Bakkafrost can defend a high bid premium for Grieg Seafood, we advise them to launch a bid of 30% premium (NOK 101) of today's share price. This equals a transaction price base purchase of NOK 15 482 million (included GSF's debt) with the assumption that Bakkafrost buy 100% of the company. By adjusting for GSF's cash and debt, we get a purchase price of NOK 13 850 million. It is reasonable that Grieg Seafood's shareholders will accept the bid. If they don't, Bakkafrost has still a spacious range to increase their bid.

We should also consider transaction expenses. The transaction expenses relate to due diligence activity, legal advises and other financial advice from investment banks. Similar deals with respect to deal value has historically had expenses of 1% of the total value of the deal. (Layne & Flaherty, 2011). Based on this, expected transaction expenses will last for NOK 154 million.

6.2.2Payment method

At the end of Q3 2022, Bakkafrost had NOK 681 million in cash. This represents only 4.4% of the deal value of Grieg Seafood. Therefore, we should use other financing sources to fund the deal. Bakkafrost has a healthy balance sheet with interest bearing debt to enterprise value ratio of 14%. Literature has showed that cash was the dominant form of payment earlier. However, the last years a combination of stock and cash payment has dominated. (Pitchbook, 2021) When an offer includes stocks, the acquirer and the target's shareholders will have implementation risk sharing.

We suggest that Bakkafrost should offer a mixed offering of 50% stocks and 50% cash. Since out valuation of Bakkafrost is lower than the current market value, Bakkafrost can profit from selling shares at a higher price. Another positive aspect with stock purchase is that the acquirer has shared risk with target. However, with stock purchase existing shareholders of

Bakkafrost will have dilution of control. By assuming they offer shares at current price of NOK 615, they have to issue 11.26 million of new shares, increasing the number of total shares to 70.4 million. This will represent a share exchange ratio of 6.09. Bakkafrost should also issue new debt of NOK 6 924 million. Their synthetical credit rating is good so it reasonable they can issue the debt with a favourable interest rate. Additionally, it is expected the advisory fees are paid in cash. The new entity will have net interest bearing debt of NOK 11 200 million.

Purchase price and use of funds		
Equity purchase price	13 850	
Stock purchase	6 925	50 %
Debt issuance	6 925	50 %
Advisory funds (cash)	155	
Total use of funds	14 004	

Table 38. Purchase price and use of funds for Bakkafrost.

6.2.3 Post-merger integration and risks

Of the reason that M&A more often destroys value than creates value, a post-merger integration plan should be made. A such framework increases a M&A deal with 9%. (BCG, 2022) The post-merger integration plan is all about bringing together two organizations. Ideally, this process starts already from the due diligence process. Nevertheless, at this stage, all information is not discovered, and must be captured later.

The new entity should focus on the synergies, but not that much as goes beyond the maintain businesses. The two companies have expertise in same professional field and should use these human resources together, rather than the acquirer overruns the target. Cultural differences should be dealt with early before any cultural crashes appear.

Although the deal looks good on paper, there can be several risks that changes our positive outcome. It could be risk such as Grieg Seafood's shareholders will not accept the proposed bid. Grieg Group, accounting for over 50% of the shares, is a family-owned corporation that not might automatically be tempted. The macroeconomic situation has been more unstable than before and is still uncertain. Additionally, the Government in Norway is working on the proposed resource rent and can be different of what's assumed in this analysis.

7. Conclusion

The goal of the dissertation is to conclude if thr Faroese salmon farming company, Bakkafrost, should acquire the Norwegian salmon farming company, Grieg Seafood, as of 31.12.2022.

The analysis shows that Bakkafrost's fair value is NOK 491, 20% lower than current market prices. Grieg Seafood is on the other valued at NOK 97, at a premium of 23.3% to the market. Their combined enterprise value with the assumption of no synergies is valued NOK 49 078 million.

The salmon farming industry has been an industry with consolidation the last decade. Bakkafrost can profit from the acquisition in terms of better diversification and utilization of feed while Grieg Seafood tries to exploit higher prices on their salmon and better operating margins.

Bakkafrost's bid price of Grieg Seafood is suggested to NOK 101, which gives a total purchase price of NOK 13 850 million, reflecting a 30% price premium. The synergy value captured in the deal is estimated to NOK 7 892 million, subtracted the transaction costs. The deal is financed through a combination of stock offering and cash. Hence, Bakkafrost should issue 11.26 million new shares and issue new debt of a total of NOK 6 924 million to finance the deal.

Appendices

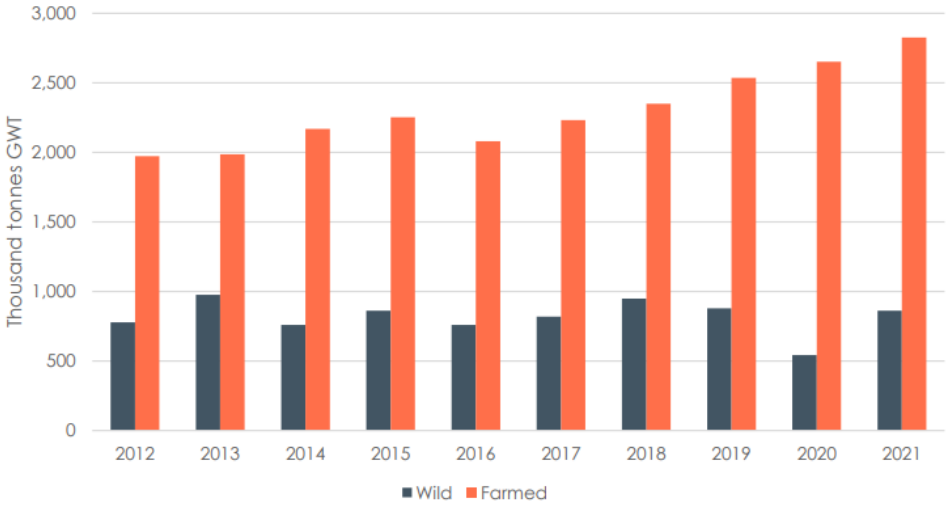

Exhibit 1A. Wild vs farmed Atlantic salmon. (MOWI, 2022)

Exhibit 1B. Coastlines with salmon farming production. (MOWI, 2022)

	Top 10 - Norway	HQ.	Top 4 - United Kingdom	HQ.	Top 4 - North America	HQ.	Top 10 - Chile	HQ.
	Company	GWT	Company	GWT	Company	GWT	Company	GWT
1	Mowi	273,000	Mowi	64,500	Cooke Aquaculture	47,000	Aquachile (Agrosuper)	128,000
2	Salmar	170,500	Scottish Sea Farms***	46,000	Mowi	45,500	Multi X (Multiexport)	88,000
3	Lerøy Seafood	161,500	Bakkafrost	30,000	Mitsubishi / Cermaq	20,000	Mitsubishi / Cermaq	79,000
4	Mitsubishi / Cermaq	92,000	Cooke****	26,000	Grieg Seafood	14,500	Mowi	66,000
5	NTS**	70,000					Australis Seafood (Joyvio)	64,000
6	Grieg Seafood	61,000					Salmones Blumar	60,000
7	Nova Sea	43,500					Salmones Camanchaca	36,000
8	Nordlaks	35,000					Salmones Austral	25,000
9	Alsaker Fjordbruk	34,000					Invermar	22,000
10	Sinkaberg-Hansen	33,000					Salmones Yadran	21,500
	Top 10	973,500	Top 4	166,500	Top 4	127,000	Top 10	589,500
	Others	405,400	Others	12,800	Others	17,900	Others	57,000
	Total	1,378,900	Total	179,300	Total	144,900	Total	646,500

* The industry in the UK and North America are best described by top 4 producers

**Including Norway Royal Salmon where NTS acquired a majority stake in 2021

*** Includes acquisition of GSF Shetland

*** 2020 estimate

Source: Kontali Analyse AS

Exhibit 1C. Top producers of Atlantic salmon. (MOWI, 2022)

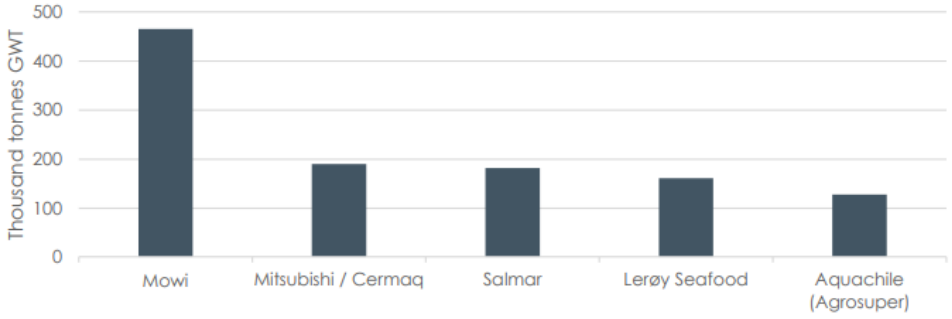

Exhibit 1D. Top 5 producers of salmon in the world. (MOWI, 2022)

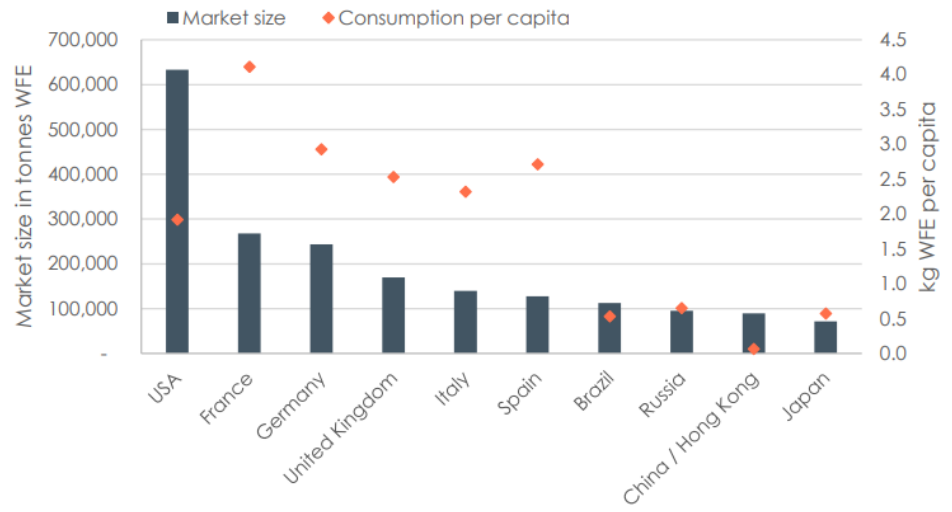

Exhibit 1E. Total market size and kg WFE per capita. (MOWI, 2022)

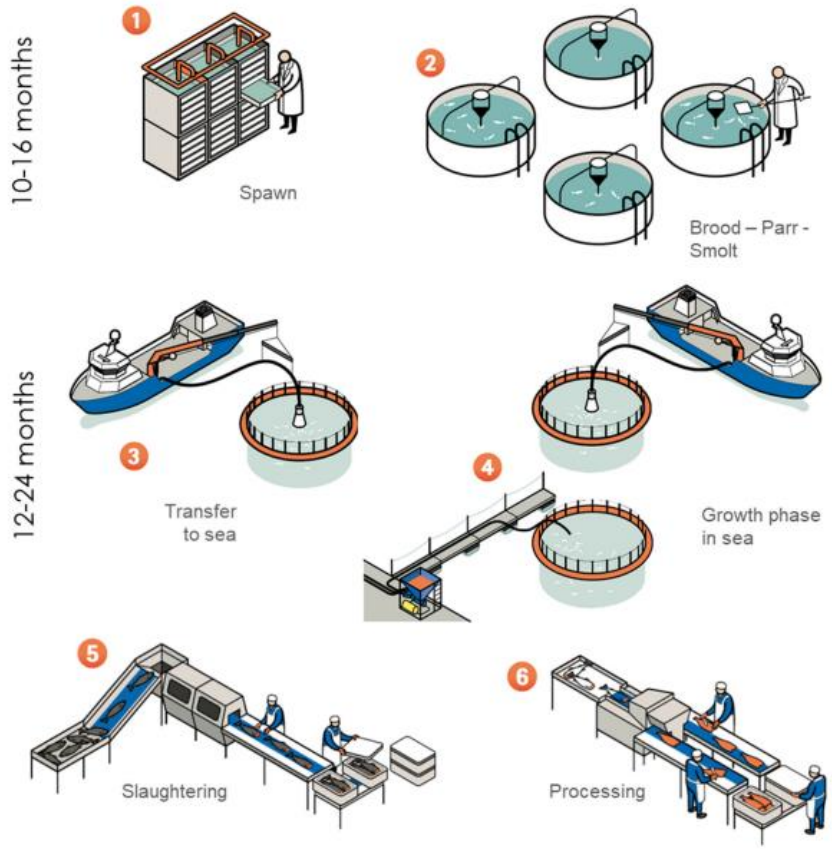

Exhibit 1F. Production cycle producing salmon. (MOWI, 2022)

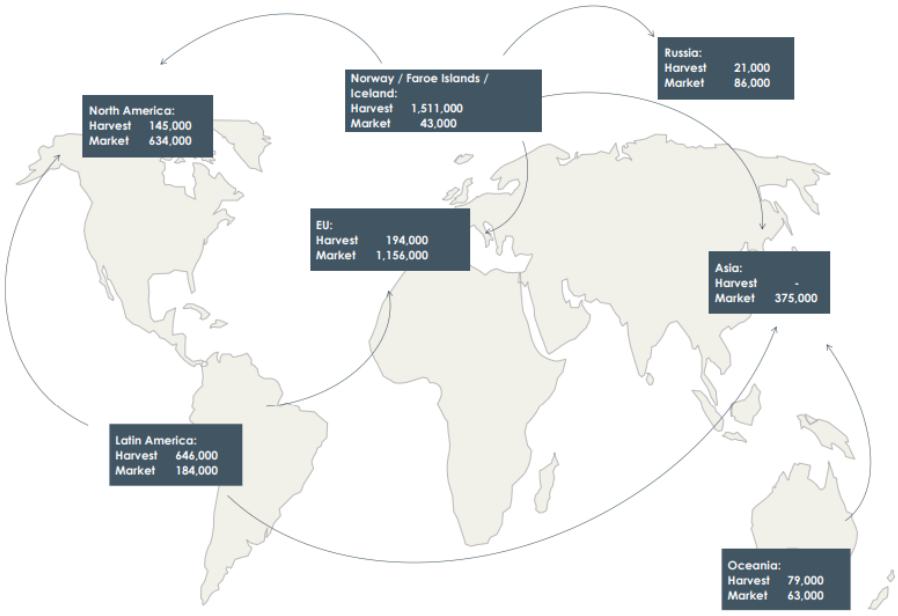

Exhibit 1G. Harvest and market size different markets. (Mowi, 2022)

Exhibit 1H. Farmed salmon by markets. (Mowi, 2022)

If interest coverage ratio is	*Column1*	*Column2*	*Column3*
>	*≤ to*	*Rating is*	*Spread is*
12.5	100000	Aaa/AAA	0.60%
9.5	12.499999	Aa2/AA	0.80%
7.5	9.499999	A1/A+	1.00%
6	7.499999	A2/A	1.10%
4.5	5.999999	A3/A-	1.25%
4	4.499999	Baa2/BBB	1.60%
3.5	3.9999999	Ba1/BB+	2.50%
3	3.499999	Ba2/BB	3.00%
2.5	2.999999	B1/B+	3.75%
2	2.499999	B2/B	4.50%
1.5	1.999999	B3/B-	5.50%
1.25	1.499999	Caa/CCC	6.50%
0.8	1.249999	Ca2/CC	8.00%
0.5	0.799999	C2/C	10.50%
-100000	0.499999	D2/D	14.00%

Exhibit 1I . Synthetical credit rating. (Damodaran, Ratings, Interest Coverage Ratio and Default Spread, 2017)

References

Bakkafrost. (2019, September 25). *Bakkafrost*. Retrieved from Bakkafrost acquires 68.6% of The Scottish Salmon Company : Bakkafrost acquires 68.6% of The Scottish Salmon Company

Bakkafrost. (2021). *Capital Market Day.* Bakkafrost.

Bakkafrost. (2022). *Annual Report 2021.* Bakkafrost.

BCG. (2022). *Boston Consulting Group*. Retrieved from Post-Merger Integration: https://www.bcg.com/capabilities/mergers-acquisitions-transactions-pmi/post-merger-integration

Berk, J., & DeMarzo, P. (2017). *Corporate Finance.* Pearson.

Berkovitch, E., & Narayanan, M. (1993, September). Motives for Takeovers: An Empirical Investigation. *Journal of Financial and Quantitative Analysis, 28*(03), 347-362.

Blume, M. E. (1975). Betas and Their Regression Tendencies. *The Journal of Finance*.

Business Sale Report. (2022, December 25). *Seafood M&A - a look at what is behind the surge*. Retrieved from BSR - Business Sale Report: https://www.business-sale.com/insights/industry-insights/seafood-ma-a-look-at-what-is-behind-the-surge-223605

Damodaran, A. (1999). *Damodaran Online.* Retrieved from Papers: https://pages.stern.nyu.edu/~adamodar/pdfiles/papers/riskfree.pdf

Damodaran, A. (2005). The Value of Synergy. 1-47.

Damodaran, A. (2012). *Estimating Beta.* Aswath Damodaran.

Damodaran, A. (2017). *Ratings, Interest Coverage Ratio and Default Spread*. Retrieved from NYU Stern: https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/smallrating.htm

Damodaran, A. (2022, 12). *NYU Stern.* Retrieved from https://pages.stern.nyu.edu/~adamodar/

Damodaran, A. (2022, January 5). *NYU Stern.* Retrieved from Country Default Spreads and Risk Premiums: https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html

Damodaran, A. (2022). *NYU Stern*. Retrieved from Ten Questions about Bottom-up Betas: https://pages.stern.nyu.edu/~adamodar/New_Home_Page/TenQs/TenQsBottomupBetas.htm

Deloitte. (2022). *Unlocking the gull potential of M&A.* Deloitte.

Eccles, R. G. (1999). Are You Paying Too Much for That Acquisition? *the Magazine* .

Erel, I., Liao, R. C., & Weisbach, M. S. (2012). Determinants of Cross-Border Mergers and Acqusitions. *The Journal of Finance*, 1045-|092.

Fishfarmingexpert. (2022, September 30). *Fishfarmingexpert*. Retrieved from Salmon tax may double for Faroes farmers: https://www.fishfarmingexpert.com/bakkafrost-hiddenfjord-mowi-faroes/salmon-tax-may-double-for-faroes-farmers/1436631

Gaughan, P. (2018). *Mergers, Acquisitions, and Corporate Restructurings.* The Wiley Corporate F&A.

Giddy, I. H. (2006). *Calculationg a Company's Cost of Capital.* Retrieved from NYU Stern: https://pages.stern.nyu.edu/~igiddy/wacc.htm

Government. (2022, September 28). *Government.* Retrieved from Resource rent tax on aquaculture: https://www.regjeringen.no/en/aktuelt/resource-rent-tax-on-aquaculture/id2929113/

Grieg Seafood. (2022). *Annual Report 2021.* Grieg Seafood.

Grieg Seafood. (2022). *Annual Report 2021.* Grieg Seafood.

Hazelkorn, T., Zenner, M., & Shivdasani, A. (2005). Creating value with mergers and acquisitions. *Journal of Applied Corporate Finance*, 81-90.

Jacobs, M. T., & Shivdasani, A. (2012). Do Yopu Know Your Cost of Capital. *Harvard Business Review*.

Kaplan, S. N., & Ruback, R. S. (1996). The Market Pricing of Cash Flow Forecasts: Discounted Cash Flow vs. the method of "Comparables". *Journal of Applied Corporate Finance*, 45-60.

Konali Analyse. (2021, March 17). *Kontali*. Retrieved from The Art of Predicting: https://www.kontali.com/b/the-art-of-predicting

Layne, N., & Flaherty, M. (2011). *Reuters*. Retrieved from Olympus's $687 million advisory fee sets M&A record: https://www.reuters.com/article/us-olympus-fee-idUSTRE79L09U20111022

Lintner, J. (1965). The valuation of risk assets on the selection of risky investments in stock portfolios and capital budgets. *Review of Economics and Staistics*, 13-37.

Luehrman, T. A. (1997). Using APV: A Better Tool for Valuing Operations. *Harvard Business Review*, 132-142.

Luehrman, T. A. (1997). What's It Worth?: A General Manager's Guide to Valuation. *Harvard Business Review*, 132-142.

McKinsey & Company. (2005). *Valuation Measuring and Managing the Value of Companies.* Wiley John Wiley & Sons, INC.

MOWI. (2021). *Salmon Farming Industry Handbook 2021.* MOWI.

Mowi. (2022). *Salmon Industry Handbook 2022.* Mowi.

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 187-221.

Nolsøe, E. (2022). *Food and film help Faroe Islands reverse population trend as economy flourishes*. Retrieved from Financial Times: https://www.ft.com/content/a21d1f55-329f-4459-b512-e3b241ad7e47

Nordic Credit Rating. (2021). *Low supply growth and strong demand drive salmon prices.* Nordoc credit rating. Retrieved from https://nordiccreditrating.com/uploads/2021-06/NCR_-_Low_supply_growth_and_strong_demand_drive_salmon_prices.pdf

Norges Bank. (2022, December 27). *Norges Bank.* Retrieved from Norwegian government securities: https://www.norges-bank.no/en/topics/Statistics/zero-coupon-yields/

Pitchbook. (2021). *Share of M&A value by form of payment.*

Rappaport, A., & Sirower, M. L. (1999). Stock or Cash?: The Trade-Offs for Buyers and Sellers in Megers and Acquisitions. *Magazine*. Retrieved from https://hbr.org/1999/11/stock-or-cash-the-trade-offs-for-buyers-and-sellers-in-mergers-and-acquisitions

Refintiv Eikon. (2022).

RSPCA. (2021). *Production process Fish - Farmed Atlantic Salmon.* Retrieved from RSPCA: https://www.rspca.org.au/sites/default/files/responsible-sourcing/documents/Production-Process-Fish-Salmon.pdf

Schnitzer, M. (1996). Hostile versus Friendly Takeovers. *Esonomica*, 37-55.

Sharpe, W. (1964). Capital asset prices: A theory of market equillibrium under conditions of risk. *Jurnal of Finance*, 425-442.

Sirower, M. L., & Sahni, S. (2006). Avoiding the "Synergy Trap": Practical Guidance on M&A Decisions for CEOs and Boards. *Journal of Applied Corporate Finance* , 83-95.

Statista. (2022). *Share of M&A deal value worlwide that were cross-border.* Statista Research Department. Retrieved from https://www.statista.com/statistics/993115/worldwide-share-of-mergers-and-acquisitions-value-that-were-cross-border/

Zenner, M., Matthews, M., Marks, J., & Mego, N. (3008). The Era of Cross-Border M&A: How Current Market Dynamics are Changing the M&A Landscape. *Journal of Applied Corporate Finance*, 84-96.