

# BAKKAFROST P/F (BAKKA)

# MAY, 2020

MASSIF CAPITAL, LLC | CHARLOTTE, NC

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### **Thesis**

Bakkafrost P/F (BAKKA) is a premium grade salmon producer based in the Faroe Islands. Located 200 miles northwest of Scotland, the Faroe Islands are an ideal archipelago to farm North Atlantic salmon. The characteristics of its ecosystem are unique, and the regulations in the region are supportive of sustainable farming. Combined, these factors create a high return fish farming environment that BAKKA's management team has taken advantage of to create a business with a durable moat. Over the last ten years, management has demonstrated not only superior capital allocation acumen but also the prospectivity of the region for salmon fishing by growing operating income at a CAGR of 18%. During the recent market sell off, BAKKA's share price fell 36% during the three-week period from February 21<sup>st</sup>, 2020, and March 12<sup>th</sup>, 2020, erasing \$1.3 billion USD in market value. The downward movement in the stock price has created an opportunity for investors to buy into an industry leader at a discount of ~55% to the value of the firm.

BAKKA is a family owned and operated business founded in 1968 by the father of the current CEO. Collectively, the Jacobsen family owns 19% of the firm. As a successful family-run business, BAKKA exemplifies many of the qualities we find attractive as investors: an alignment of owner and manager interests, the presence of multigenerational time horizons, and the implementation of a value-based system versus a resource-based system. In many regards, BAKKA is a perfect case study of these traits.

### **Performance Drivers**

BAKKA is unique in the industry because they compound their strengths. Inherited, or developed, the firm has a portfolio of differentiated assets that they continually monetize to generate superior returns on an absolute and relative basis. The asset differentiation begins with the ecology and the regulatory environment of the Faroe Islands, which creates a profitability profile that is both sustainable and un-matched in the industry. When these factors are combined with a prudent but aggressive owner/operator that continually reinvests in the business, the potential for organic value growth is significant.



At present, the market price reflects a belief that either a) this sequence of traits is inaccurate, or b) the pandemic has permanently changed their business model and competitive advantage. We find few scenarios to support either claim.

#### How a geographic moat creates measurable earnings power:

BAKKA is in a league of their own when it comes to operational efficiency. Their business earns kr20 per kg of salmon harvested. This is roughly 2x the average of any global competitor. Norwegian producers average  $\sim kr$ 12 per kg harvested, Canadian producers average  $\sim kr$ 10 per kg, and Chilean producers have struggled to break kr7 per kg harvested. What drives this difference?

The salmon farming production cycle lasts about three years. Eggs are fertilized, and the fish are grown to ~100-150 grams in a controlled freshwater environment for the first year of production.<sup>3</sup> The fish are then transported to seawater cages where they are grown to 4-5 kg over 12-24 months. The growth of the fish relies heavily on seawater temperatures, which vary by time of year and region. The optimal temperature for Atlantic salmon is between 8-14 °C. Higher temperatures increase the risk of disease, and lower temperatures, usually below O°C, will kill the fish. Both scenarios cause growth rates to collapse. Farms also require a current. Like temperature, the optimal range is narrow. Ideal current flows are often in waters protected by archipelagos and fjords, which eliminate many coastlines that sit within the requisite temperature latitudes.

The salmon are then sold by weight, and the growing conditions heavily influence the ultimate weight of the fish—consequently, the weight of the fish matters for a producer's cost structure. Costs per kg harvested decline with increasing weight and rise with sub-optimal weight.

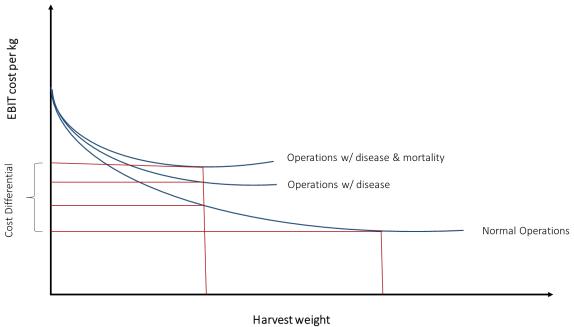


Figure 1: EBIT costs per kg

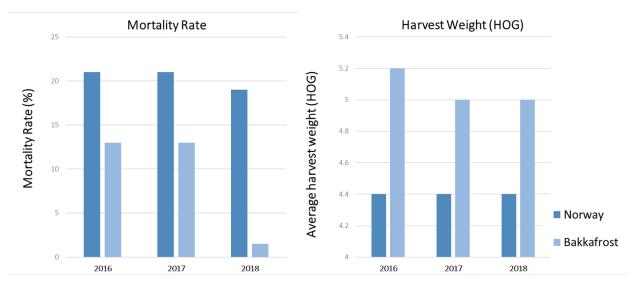
Source: Massif Capital, Salmon Farming Industry Handbook 2019

<sup>&</sup>lt;sup>1</sup> EBIT/kg has climbed as high as 30 DKK per kg harvested for brief periods in 2016 and 2018 but has oscillated around 20 DKK/kg for the better part of a decade.

<sup>&</sup>lt;sup>2</sup> All measured over the last years.

<sup>&</sup>lt;sup>3</sup> A freshwater environment cuts down on the biological risk associated with disease present in salt water.

The waters off the Faroe Islands provide excellent conditions for growth. They sit within an ideal temperature range with minimal volatility, and the land separation between the fjords creates sufficient currents. Compared to their neighbors to the east (Norway), the biological parameters of the Faroe Islands are remarkable. Not only are mortality rates for BAKKA often half that of the Norwegian producers, but harvested weights are also 15% higher (See Figure 2 below).<sup>4</sup>



Source: Massif Capital, Bakkafrost filings.

Figure 2: Biological Markers

BAKKA also benefits from a highly favorable regulatory environment. Of the major countries that farm salmon, smolt yields<sup>5</sup> have been relatively stable over the last two decades except for Chile and the Faroe Islands, both of which experienced disease outbreaks in the early 2000s.<sup>6</sup> It's important to point out that ideal growing conditions do not necessarily reflect an environment with zero biological risks. However, regulations that govern a body of water can be an important factor in minimizing the future risk of a disease outbreak.

The Faroe Islands responded to the crisis in the early 2000s by instituting a completely revised regulatory framework that has contributed to a healthier operating environment (from the perspective of potential disease), reduced production losses and resulted in the subsequent rise (and now dominance) in yields over the last 20 years. Since 2006, the smolt yields in the Faroe Islands have been unmatched. (See Figure 3).

<sup>&</sup>lt;sup>4</sup> The harvest weight chart includes the term HOG, within the context of salmon farming HOG stands for "head on gutted".

<sup>&</sup>lt;sup>5</sup> Smolts are young salmon and typically are transitioning from freshwater to saltwater. The smolt cost per kilo is measured by the price per smolt, the weight at harvest and any losses. Smolt yield is the amount of fish produced per released smolt (or what you get out vs. what you put in).

<sup>&</sup>lt;sup>6</sup> Chile did not technically announce their outbreak until 2007. Data suggests however that the disease situation was problematic long before the ISA outbreak was announced.

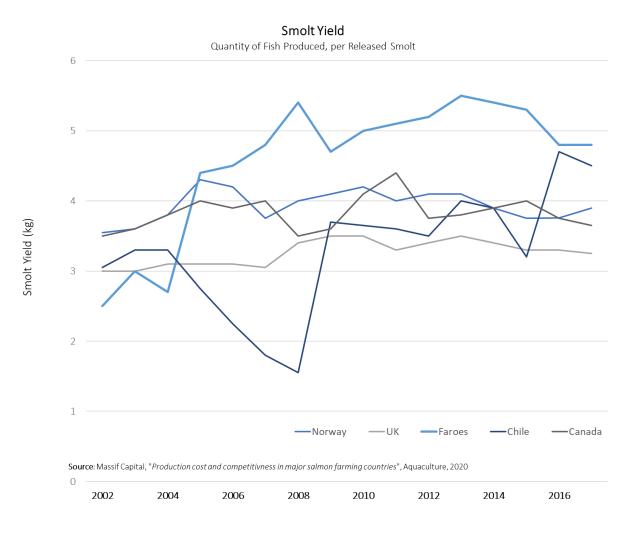


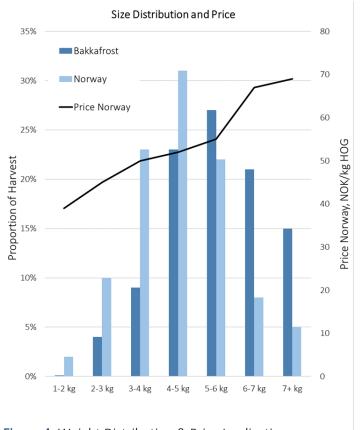
Figure 3: Smolt Yields

Faroese regulations now break farm territories into production zones with limited overlap, and each territory has the autonomy<sup>7</sup> to adjust their production cycles. Following the disease outbreak, the industry consolidated to three producers who now coordinate on unregulated matters, which is critical to avoid overfarming.

Sustained weight advantages paired with lower losses have contributed to the positively skewed salmon size distribution, which has, in turn, led to higher realized prices for the company. Figure 4 below shows that the average weight of salmon harvested by BAKKA is significantly higher than the average weight of a Norwegian producer salmon. In general, the higher the weight, the higher the price. In 2017, this weight distribution characteristic translated into a 15% price premium for BAKKA against spot prices for Norwegian exported

<sup>&</sup>lt;sup>7</sup> The Faroe regulator does not impose a Maximum Allowed Biomass (MAB) limit per license, so by investing in capacity expansion at the hatchery and farming site level, BAKKA can increase seawater fish turnover and then expand its harvesting capacity without increasing their biological risk. In essence BAKKA benefits from a regulatory environment that allows for expansion until economies of scale no longer add value. Existing licenses operate on a 12-year rolling lifespan system with automatic renewals (with the exception of a compliance violation). While there is no MAB, there are strict regulative measures on farming activity to maintain sustainability.

salmon. Over the last decade, BAKKA has consistently realized between a 13-33% price premium over a blend of global spot prices.



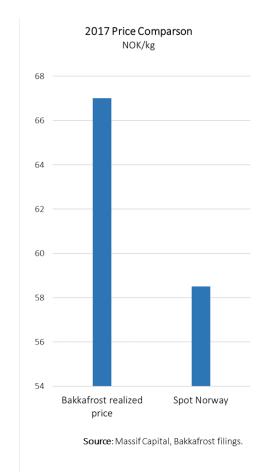


Figure 4: Weight Distribution & Price Implications

#### Capital efficiency has been outstanding, both on an absolute and relative basis:

Higher profitability yields more capital to reinvest at higher rates of return. The firm has averaged a greater than 100% reinvestment rate over the last decade and has earned, on average, a 20% return on that invested capital—this has translated into BAKKA compounding net income, organically, at 18% for a decade.

Again, BAKKA finds itself in rarified air. The firm's listed peer group has a market-cap-weighted ROIC of 3.4%. We don't anticipate historical trends to be transient. On a rolling three-year basis, BAKKA has averaged a 13% return on its *incremental* invested capital. <sup>8</sup> A reversion to an industry mean, or new entrants eating away at profitability seems unlikely. Suitable farming sites are the result of a natural mix of superior climate and geography, two variables that are nearly impossible to reproduce.

<sup>8</sup> ROIIC properly recognizes that sunk costs are irrelevant for understanding the change in returns on invested capital, not just the absolute return on invested capital. Many papers have explored the idea that the relationship between incremental earnings and incremental investments is useful. [Mauboussin & Callahan; Credit Suisse, 2014 & Buffet; Chairmen's Letter, 1992].

## **Organic Growth & Acquisitions**

A demonstrated ability to earn high returns on invested capital is good news for a prospective investor who, sitting in early 2020, is looking at how to evaluate two significant investments that occurred in the last 18 months. The first is a 5-year investment program that aims to increase the firm's daily harvest from  $^{\sim}46,000$  tons to  $^{\sim}76,000$  tons by 2023 (a  $^{\sim}10\%$  CAGR). The second is a kr4.35 billion acquisition of the Scottish Salmon Company (SSC), which closed late last year. Our view is that both will prove highly remunerative for investors.

One of the challenges with volume expansion in salmon farming is the proportional increase in biological risk that comes with more fish in the same area of water. Unless a farmed area is under-capacity, producers typically have to secure more farming rights from their host country to expand capacity, which usually means purchasing a license. A portion of BAKKA's CAPEX program is earmarked for a new production cluster, but a majority of the CAPEX program is reserved for a larger smolt (young fish) operation. The reason for this is that management believes they can increase the firm's production volume without increasingly biological risk by extending the time the smolts stay in freshwater before they are released into the seawater.<sup>9</sup>

In short, they are expanding the on-land segment of the supply chain, keeping the seawater capacity roughly the same, and then cycling the fish through the seawater stage at a faster rate. <sup>10</sup> The extended freshwater stay is not insignificant; BAKKA is looking to grow smolts to 500 grams, a *4x* increase from today's 100 grams.

The capital investment in the more extensive smolt operation is  $^{\sim}60\%$  less expensive (on a per ton output basis) compared to if the firm tried to purchase the rights to farm an equivalent increase in volume in a Norwegian auction.

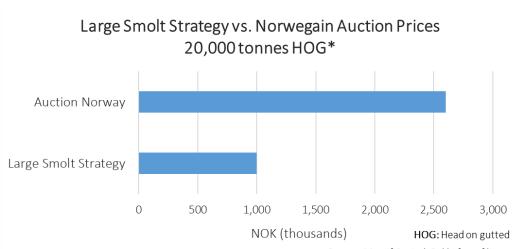


Figure 5: Smolt Strategy vs. Auction Prices

Source: Massif Capital, Bakkafrost filings.

<sup>&</sup>lt;sup>9</sup> The majority of biological risks arise from the time salmon spend in seawater not fresh waster.

<sup>&</sup>lt;sup>10</sup> Recall that the capacity available at any stage for salmon farming is dictated by both the total volume moving through the system *and* the length of time a salmon will stay at each stage. The optimization problem at hand then is to figure out where in chain an increase in capital has the most impact to alleviate the bottleneck created by more total kilograms moving through the system.

The acquisition of SSC in September 2019 cost BAKKA the equivalent of ~11% of the firm's market capitalization. <sup>11</sup> The acquisition integration is still underway, and there is not enough data to evaluate the success of integration efforts, but there is reason to be optimistic:

- 1) The acquisition will generate a more diverse customer base for the firm's product. Roughly half of SSC's sales are directed towards the UK market, a relatively underserved portion of BAKKA's total sales on the European continent.
- 2) BAKKA may implement new smolt rearing practices to reduce biological risk and improve SSC's unit economics. Right now, SSC earns  $\sim kr^2$  per kg of harvested salmon. BAKKA's earnings per kg of harvested salmon are 10x SSC's. We do not anticipate Scotland's EBIT/kg ratio to converge on the Faroese, but we do find it probable that BAKKA can improve that ratio substantially.
- 3) There are low hanging cost synergies, which include sales channel optimization and SG&A reduction (a leaner head office and the discontinuation of SCC's equity listed functions are apparent opportunities to save money). When combined with potential improvements in the unit economics of SCC's operation, BAKKA looks capable of improving SCC's ROIC while also increasing revenue growth.

Returning to our performance framework, we can expand that diagram to crystalize the sustainable and compounding nature of the business that BAKKA has generated.

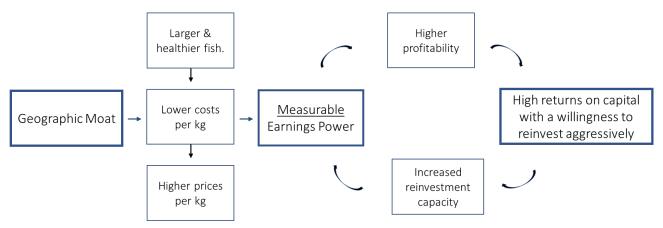


Figure 6: Performance Drivers

High levels of CAPEX and mergers are not without risk. A sustained collapse in market prices or a multi-year delay in project execution could threaten cash flow under the current expenditure run rates. Coming into 2020, capital expenditures are expected to be  $\sim kr$ 900 million per year for the next three years (about 65% directed towards the Faroe Islands operations and 35% directed towards their Scottish operations). Should cash flow from operations come under pressure, we believe the firm can ramp down the  $\sim kr$ 900 million a year in planned CAPEX to kr100-150 million a year, insulating the firm's cash flow somewhat from lower prices.

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<sup>&</sup>lt;sup>11</sup> Measured by the year-end 2019 market capitalization.

### **Valuation**

BAKKA's balance sheet has a long-term interest-bearing debt of kr2.3 billion vs. a cash balance of kr1.3 billion. Gross margins are remarkably steady at around 70%. A discounted cash flow analysis, assuming a 10% discount rate, results in a valuation of  $^{\sim}kr$ 741 NOK per share, producing an expected return of 32% at current prices.

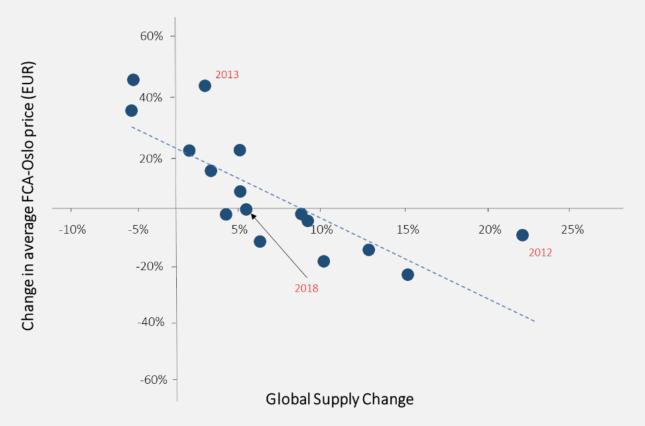
Input assumptions are, of course, not static. Across a range of scenarios, however, we find it far more likely that the firm's fair value is appreciably higher than its current valuation.

One of the critical input assumptions is the export price of salmon. Over the last decade, BAKKA's net income has been relatively correlated with export prices (79%). Although one might expect a higher correlation, there is a portion of BAKKAs business that is focused on 'value-added products (VAP)' which are sold on long term contracts that often lag spot prices. <sup>12</sup> Nonetheless, there is ample *directional* evidence that BAKKA's earnings will follow the movement in spot prices.

<sup>&</sup>lt;sup>12</sup> Contracts are typically between 6-12 months.

## Supply | Demand Dynamics of the Farmed Salmon Industry

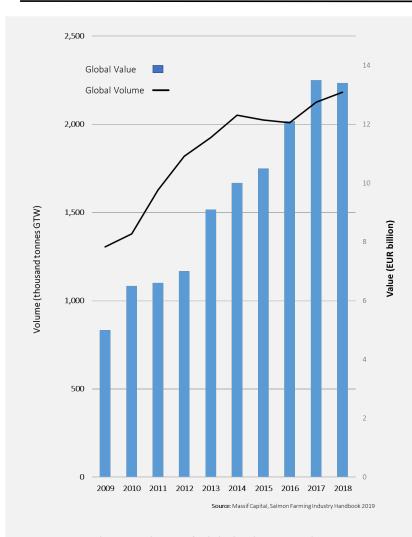
Looking for a range and distribution of future prices, we can turn to the structure of the salmon market and some historical relationships that can provide a window into spot market movement. Shared by many commodity-like businesses, Atlantic salmon producers experience high volatility for the price of their product. Historically, there is a strong relationship between changes in global supply and the average FCA Osla Price (See Figure 7).



Source: Massif Capital, Salmon Farming Industry Handbook 2019

Figure 7: Global Supply vs. Price

Said differently, the variation in supply growth rates has significant explanatory power. This makes sense for two reasons. First, demand has seen steady growth for several years, yet price volatility remains. The value of salmon sold in 2018 is two times higher than in 2009, while the volume increased by 64% (CAGR 5%) in the same period, suggesting strong demand-pull. (See Figure 10).



Second, the quantity supplied to the market is very inelastic in the short term. Salmon is perishable and marketed fresh. All production in one period must be consumed in the same period. In the short-term, production levels are difficult and expensive to adjust in a three-year production cycle. Steady demand <sup>13</sup> combined with inelastic supply yields wider, more reactionary price movements.

Caught salmon has been at capacity for years, and so global supply growth is entirely driven by aquaculture. Yet today, the industry has reached a production level where biological boundaries are being pushed. The supply of Atlantic salmon has increased by 443% since 1995, an annual growth of 8%. In recent years, growth has diminished to 6% p.a. with expectations for a further contraction to 4% for the period between 2018-2022.

Figure 8: Value & Volume of Global Salmon Market

Salmon consumption has grown, albeit unevenly, at about 6% p.a. for the last decade. Emerging economies are increasing consumption at high-double digits (South America, South-East Asia) with developed economics

	Fish	Chicken	Pig	Cow
Protein Retention	31%	34%	18%	15%
Energy Retention	23%	25%	14%	27%
Edible Yield	68%	46%	52%	41%
Feed Conversion Ratio (FCR)	1%	2%	3%	4-10
Edible Meat per 100 kg fed	61 kg	24 kg	17 kg	4-10 kg
Carbon Footprint (kg Co2 / kg edible meat)	2.9 kg	2.7 kg	5.9 kg	30 kg
Water Consumption litre / kg edible meat	2,000	4,300	6,000	15,400

Japan). Population and per capita consumption trends likely drive this dichotomy. Rising populations and disposal incomes should continue to provide demand for the fish.
Compared to land-based proteins, salmon has the best feed-conversion ratio and the highest edible yield compared to their protein alternatives. We find it unlikely that global demand for fish changes materially over the next several years.

growing at low single digits (the U.S., the EU,

Source: Massif Capital, Salmon Farming Industry Handbook 2019

Table 1: Farming & Environmental Impacts

<sup>&</sup>lt;sup>13</sup> Demand does have intra-year, seasonal patterns.

Industry supply growth is increasingly constrained given the lack of suitable locations to expand production, and there appears little evidence to suggest a structural demand shift is likely. We have chosen to evaluate the firm's value within the context of the past four years of pricing data. We have taken a similar approach to the premium that BAKKA receives on its export price, assuming a normal distribution of possible outcomes, range-bound by their historical average.

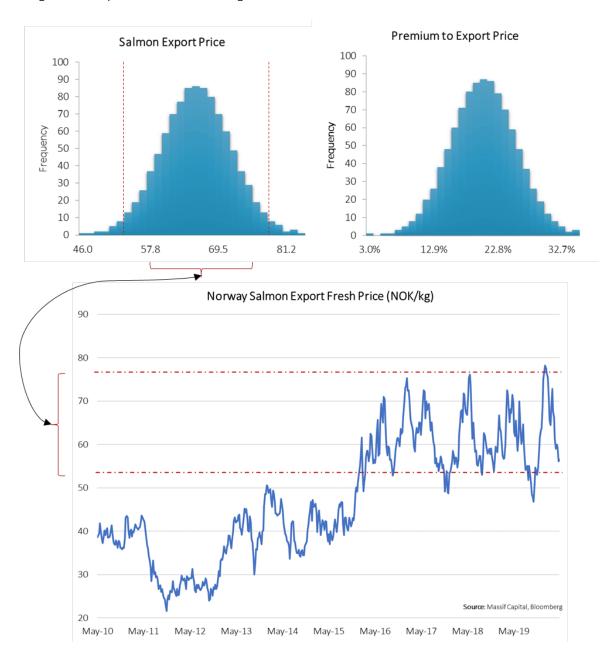


Figure 9: Distribution of Export Prices

Another way we can try and deal with our assumptions on the fair value being driven by unknown and non-deterministic inputs is to re-frame the question and ask what the current market price for BAKKA implies about the firm's future growth rates. When the share price hit kr460 NOK in the depths of March, the market was pricing in 0% growth for perpetuity. That means the roughly kr800 million a year in growth CAPEX the

firm is planning on spending produces zero volume growth for the company over the next 3-4 years and that the firm continues to have 0% growth after that. We find the assumption underlying the current price highly improbable.

### Risks to Thesis

Long term erosion of salmon prices and the presence of bacteria or parasites are the two critical risks for BAKKA. Careful stewardship, coupled with a progressive regulatory framework, can mitigate disease, but it cannot eliminate disease. Concerning prices, technology breakthroughs in land-based salmon farming could have significant impacts on the global supply capacity and like induce a sharp fall in average prices. Today, land-based fisheries are too expensive to compete on the global stage, but we cannot rule out the possibility of technology changing that paradigm over a long period of time.

Lastly, increasing volatility in sea temperature is a risk. Recent literature has noted that ocean temperatures off the coast of Norway have risen by 1 °C since 1980. <sup>14</sup> The complexity of forecasting future sea temperature changes, combined with understanding the impacts of those temperature changes on a species that is potentially adapting to a changing environment, is significant. Similar to assessing the probability of a future disease outbreak, we have little insight into the likelihood of substantial sea temperature changes, but we do know that it is possible.

The impact of COVID19 looks somewhat muted thus far. Based on the fishpool salmon futures market, average pricing for the remaining eight months of the year appears likely to be 12% lower when compared to 2019. Importantly, BAKKA still enjoys premium pricing for their larger fish. Despite weaker prices and lower harvest guidance coming out of their Q1 2020 earnings announcement, BAKKA should deliver low single-digit earnings growth this year. The operations in Scotland may exceed expectations in the second half of the year, given cost reduction measures. The number of live fish that weigh more than 4 kg is 28% higher than it was a year ago. Fish weighing in the 3-4 kg category increased by 86%. All else equal, this should support harvest growth.

<sup>14</sup> Falconer, "The importance of calibrating climate change projections to local conditions at aquaculture sites". Aquaculture. January, 2020.

## **Appendix**

We find it helpful to evaluate a range of scenarios when estimating the intrinsic <u>value</u> of a company. As noted in the report, the valuation of BAKKA will be impacted by the price they can sell their product for (amongst other variables). Instead of 'picking' a price series, we choose to run several what-if scenarios using multiple price series. Depending on the company and its value drivers, different scenarios may also include variation in other key variables, for example, gross margin or discount rate. Sometimes the variation in one or more of the input variables are correlated to the movement of other variables.

For example, it is difficult to envision a scenario in which a gold miner receives a gold price of \$1,700 an ounce and has a historical all-in sustaining cost of production of \$600 an ounce but also has the lowest gross margin in the company's history. In this case, the price of gold and the firm's gross margin are two input assumptions that have a certain degree of dependency on each other.

How a scenario is constructed is highly dependent on the company, the business model, and observable history, which is a weakness of any valuation analysis, but one we are aware of. We address this shortcoming by asking two questions.

First, what <u>has</u> been going on, and what might that mean for the <u>value</u> of the business in similar situations? Interpreting the results correctly is important and reflect a range of possible corporate <u>values assuming the future looks something like the past</u>. Whether the market ever <u>prices</u> the company at its <u>value</u> is a wholly separate question.

Second, what <u>is</u> going on and what <u>may</u> happen? These are questions that can combine both outcomes that are "on-model" and "off-model" by which we mean outcomes that are possible within the bounds of our scenario analysis and outcomes that are not. "On-model" outcomes are helpful for understanding what the business looks like in a normal operating environment. "Off-model" outcomes are useful for understanding the downside risk and upside potential of an investment.

Unless we have evidence to suggest that the business or industry is changing rapidly, our scenarios are typically bounded by historical observations. For example, in the case of BAKKA, we do not at any time assume a salmon price of 100 NOK/kg or 10 NOK/kg. Both prices are possible, but not historically observed. As such, their occurrence is possible, but uncertain. In the case of uncertainty, a qualitative analysis is far more important than quantitative analysis. "Off-model" outcomes, such as 10 NOK/kg salmon (or \$1,800 oz gold with negligent gross margins), are scenarios in which the value of the business is based more on our judgment of management's ability to navigate and lead their company through uncertainty. Quantitative scenario analysis is helpful for determining the value of a company (not the price in the open market) in a wide range of situations but it often breaks down at the extremes.

Returning to our BAKKA analysis, the prices we used are, in this case, bounded by the historical price range between 2016-2020. We believe the current supply/demand balance in the industry is suggestive of relatively stable prices. We find no evidence in our capital cycle analysis to suggest potential supply-side issues that will result in a significant price divergence from this range, nor, in our review of consumer behavior do we find evidence that demand is likely to shift in such a way as to cause a significant move of prices outside this range.

In the case of Bakkafrost, we have chosen to build our scenarios around variance in 5 key input variables:

1) The salmon export price: The majority of export prices during the period 2016 to 2020 has fallen between 55 NOK and 75 NOK and averaged ~65 NOK/KG.

- 2) The premium BAKKA receives relative to the export price: Historically, BAKKA has earned a premium over the salmon export price of between 13% and 33%.
- 3) The firm's gross margin: BAKKA has maintained a gross margin that is generally above 60% but rarely exceeded 75%.
- 4) The exchange rate between their operating currency (DKK) and the equity price currency (NOK): Exchange rate is not a typical variable we include as a moving variable in our analysis, but due to an abrupt currency move in March of this year, from ~1.3 to ~1.5 DKK to NOK, we felt it was necessary to include it in this valuation.
- 5) The discount rate: The discount rate ranges from 8% to 10% in our various scenarios.

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