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SalMar ASA

Strategic Analysis and Valuation

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Executive Summary

The objective of this thesis is to estimate the theoretical value of equity for SalMar ASA and thereby the value per share at 27.11.2017. Fundamental valuation through a two-stage discounted cash flow model is chosen as the main method, while a valuation using comparable firms is performed as a supplement. In the fundamental valuation I have estimated the enterprise value by discounting the expected future cash flows to present value. To find the value of equity, the net-interest bearing debt is subtracted from the enterprise value.

The first part of the thesis provides a presentation and analysis of the fish farming industry and SalMar. It shows that the largest opportunities for the industry lies in technological development, which can among other things contribute to reduce salmon lice. The analysis of SalMar´s internal resources shows that SalMar do not possess many resources considered to give sustainable competitive advantages. In general, the resources can be imitated and SalMar has a temporary competitive advantage at best.

In the second part of the thesis a financial statement analysis of SalMar and the industry is performed. It proves an industry that is currently enjoying good times, but also an industry with several risks involved. The thesis then moves on to estimate a weighted average cost of capital based on estimates of risk-free rate, beta, market risk premium and debt cost of capital. The weighted average cost of capital and thus the factor used to discount the future cash flows is calculated to be 5,14%.

In the third part of the thesis, a forecast is performed based on historical numbers and insights from part one and two. The forecast builds the foundation for the last part where the valuation is completed with the discounted cash flow model. The uncertainty of my value estimate is then clarified through sensitivity analyses, a Monte Carlo simulation, and a scenario analysis.

The value per share is assessed to be 234 NOK, which results in a hold-recommendation.

Preface

The master thesis is a mandatory part in the finance program at NHH. The objective of this thesis is to arrive at an estimate of value of equity for SalMar.

Through my five years of higher education, I have gained knowledge within a variety of different fields. Performing a valuation demands a good understanding of several topics within these different fields. In this thesis I have been able to implement much of this knowledge in practice, which has been very educational but also challenging.

The thesis is based on available public information, but I still find that the information has been sufficient to reach a fundamental value estimate of good quality.

Finally, I would like to express gratitude to my supervisor Thomas de Haan for his advises and guidance through the process.

Contents

Executive Summary 2
Preface 3
1. Introduction 7
1.1 Choice of company 7
1.2 Research question and objective 7
1.3 Structure 7
2. Presentation of the industry and SalMar 8
2.1 Introduction to the fish farming industry 8
2.1.1 Historical retrospection and today`s situation 9
2.1.2 Value chain 9
2.1.3 Pricing 11
2.2 Competitors 12
2.3 SalMar 14
2.3.1 History 14
2.3.2 Business areas 15
2.3.3 Research and development 16
2.3.4 Historical stock development and ownership structure 17
3. Strategic analysis 17
3.1 External analysis 17
3.1.1 Porter´s five forces 18
3.2 PESTEL-analysis 23
3.2.1 Political-and Legal Factors 23
3.2.2 Economic Factors 24
3.2.3 Social factors 25
3.2.4 Technological factors 25
3.2.5 Environmental Factors 26
3.3 Summary of external analysis 26
3.4 Internal analysis 27
3.4.1 VRIO analysis 27
3.5 Summary of internal analysis 30
4. Valuation techniques 31
4.1 Valuation using comparable firms 31
4.2 Discounted cash flow analysis 32

4.2.1 Free cash flow to the firm (FCFF) *33*
4.3 Precedent transaction analysis 34
5. Financial Statement Analysis 35
5.1 Profitability 35
5.2 Solidity 37
5.3 Risks 38
5.3.1 Operational risks *38*
5.3.2 Financial risks *39*
5.4 Summary financial statement analysis 41
6. Required Rate of Return 41
6.1 WACC 41
6.2 Equity cost of capital 42
6.2.1 Beta estimation *42*
6.2.2 Risk-free rate *44*
6.2.3 Market risk premium *45*
6.2.4 Estimating the equity cost of capital *45*
6.3 The debt cost of capital 45
6.4 Estimating the WACC 47
7. Forecast 47
8. Valuation 54
9. Valuation Based on Comparable Firms 55
9.1 Valuation Multiples 56
9.1.1 Price-Earnings Ratio *56*
9.1.2 EV/EBIT and EV/EBITDA *56*
9.1.3 EV/kg *56*
9.1.4 P/B *56*
9.2 Valuation 57
10. Sensitivity Analysis 58
10.1 Risk-Free Rate 59
10.2 Beta 59
10.3 Constant Growth Rate 60
10.4 Simulation 60
11. Scenario Analysis 63
11.1 Best-Case 63
11.2 Worst-Case 64

12. Summary and Conclusion 65
References 67
Appendix 71

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1. Introduction

In this chapter I will explain the choice of company, the research question and objective of the thesis, and the structure of the thesis.

1.1 Choice of company

The fish farming industry is, next to the oil industry, a cornerstone in the Norwegian business sector. The industry is frequently mentioned in different medias, both positively and negatively. It has even been suggested that salmon is the "new oil" for Norway. This made me want to find out more about this industry. SalMar was chosen as the company to analyze as it is a major player in the market and have proved high profitability and growth the last years.

1.2 Research question and objective

The objective of this thesis is to estimate the value of equity for SalMar. The thesis should result in a reasonable value that reflects SalMar´s underlying economic circumstances and future outlook. As an analyst I will arrive at a value estimate that reflects my opinion of the company´s real value. The value is based on a forecast of an uncertain future, and will hence by influenced by my own assumptions and expectations. By comparing my value estimate to the company´s market value at Oslo Børs, I can assess whether the stock seems to be under-or overpriced.
The research question in the thesis is as follow:
"*What is SalMar´s value of equity, and thereby their value per share?"*

1.3 Structure

The thesis is divided in three parts. Part one consists of chapter 2-4 where I firstly begin with a presentation of SalMar and the industry. Chapter 3 covers a strategic analysis of the external and internal environment for the industry and SalMar. This analysis builds the foundation for the rest of the thesis. In chapter 4 I present different valuation techniques, and explain my choice of valuation technique.

Part two consists of chapter 5-6. Chapter 5 provides a financial statement analysis for SalMar and the industry. Chapter 6 estimates the weighted average cost of capital, which is used to discount the expected future cash flows.

Part three covers the fundamental- and comparative valuation. Firstly, a forecast is done to calculate the future cash flows that builds the basis for my value estimate. The value of equity is estimated, and supplemented by a value using comparable firms. To assess the reasonableness of my value estimate, sensitivity analyses and a scenario analysis is performed. Lastly, a summary of the results is provided.

2. Presentation of the industry and SalMar

This chapter will cover some background information about the Norwegian fish farming industry. The chapter will then move on to cover competitors. Finally, a more detailed description of SalMar will be given.

2.1 Introduction to the fish farming industry

Fish farming started in a small scale in Norway in the 1970s, which makes it a relatively new industry. The last decades however, the industry has grown substantially and Norway is now the largest exporter in the world of farmed salmon (Fiskeoppdrett, 2015). Norwegian seafood is actually our second largest export industry after oil and gas. Very beneficial conditions such as a long coastline, cold climate and deep fjords, has been crucial for the rapid development in Norway. When we talk about fish farming in Norway, it primarily involves the farming of salmon and rainbow trout (Hallenstvedt, 2015).

Before going any further in the introduction of the fish farming industry, I find it appropriate to make some constraints to the industry that will be used to value SalMar. Norwegian aquaculture and fish farming involves multiple various products. SalMar however, focuses its business around the farming of Atlantic salmon. I therefore find it suitable to constraint the industry to farming of Atlantic salmon. Fish farming of salmon also has the largest share in the industry. Furthermore, I find that a geographical constraint is fitting. Fish farming of salmon is an international industry with competitors in countries like Chile, Canada, and Great Britain for instance (Salmo salar, 2004). Nevertheless, I find it most appropriate to not compare SalMar with foreign companies as they might have different cost structures and other differences. I will therefore constraint the industry to Norwegian companies. The industry is then defined as fish farming of Atlantic salmon by Norwegian companies.

2.1.1 Historical retrospection and today`s situation

The substantial growth in the fish farming industry is mainly due to technological improvements. In commercial fishing however, the volume harvested and production value has remained relatively constant. This can indicate that the long-term sustainability for commercial fishing has reached its maximum. It therefore seems like the potential in the fishing industry lies in fish farming. This can be seen in figure 1 which shows the export of Norwegian seafood (Sjømatåret 2016, 2017).

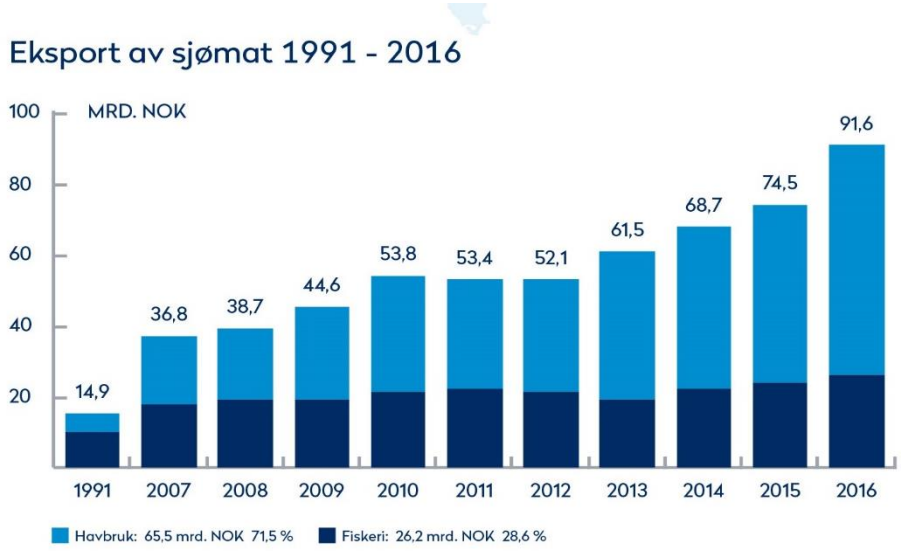

Figure 1: Export of Norwegian seafood in billions (NOK). The light blue represents export from fish farming, and the dark blue represents export from commercial fishing.

The fish farming industry are enjoying great times economically. 2016 represented a record year where 2.4 million tons were exported for a value of 91.6 billion NOK. Farmed salmon represented 65.3 billion NOK from the total, and that is a 31% increase from the previous year (Sjømatåret 2016, 2017). The quarterly reports from 2017 gives promising results, which indicates continuous good results.

2.1.2 Value chain

The following will present the value chain for salmon farming. The value chain consists of multiple activities before the salmon is ready for sale and distribution.

Broodstock

The broodstock are the parent fish which provide the eggs required to produce new generations. The fertilized eggs take 60 days to hatch when placed in an incubator with a temperature of eight degrees Celsius (ABC of Salmon Farming, n.d.)

Fry

The eggshell cracks open and liberates the baby fish (fry) inside. When it hatches the fry is attached to a yolk sac, which provides it with the nutrition it needs during its first few weeks. From now on the fish`s growth and development will all depend on temperature (ABC of Salmon Farming, n.d.)

Initial feeding and Smoltification

After absorbing the yolk sac, the fry is moved from the incubator to a fish tank. The water temperature is kept at 10-14 degrees, the light is dimmed 24 hours a day, and the fry is ready for initial feeding. The initial feeding period lasts for 6 weeks, and the fry is moved to larger tanks as they grow and are vaccinated. After arriving by well-boat at the marine net-pens, the smoltification starts. Smoltification is the process whereby the young fish transition from a life in freshwater to a life in seawater (ABC of Salmon Farming, n.d.).

On-growing

When the smolt is sufficiently large, it is placed in the net-pens which are large enclosed nets suspended in the sea by flotation devices. In addition to a solid anchorage, net-pens require regular cleaning and adequate measures to prevent the farmed fish from escaping. Growth in the net-pens is reliant on feeding, light, and water quality (ABC of Salmon Farming, n.d.).

Harvesting and processing

Around a year later, the first fishes are ready for harvesting. The fishes are transported alive by well-boat to the processing plant. The fishes are killed and bled out using high-tech equipment, and always in accordance with public regulations. After harvesting, the salmon is subject to numerous degrees of processing (ABC of Salmon Farming, n.d.).

Sales and distribution

The fish is sold either as whole gutted salmon (fresh or frozen), fillets or a wide range of other products, which are distributed around to markets all over the world (ABC of Salmon Farming, n.d.). EU is the most important export market for Norwegian salmon, and represented 67 percent of the export in 2016. East-Asia and USA are also large markets. Norway is actually exporting 95 percent of all the salmon produced. The rest is distributed as fresh fish in the Norwegian market (Jensen, 2017).

2.1.3 Pricing

The market price of salmon is a crucial variable for the financial performance of Norwegian fish farming companies. It is therefore vital to be able to predict the future development in the price of salmon. The future price will give valuable insights regarding future operations and investment decisions.

Supply and Demand

Most of the exported Norwegian salmon is sold whole or in fillets, and can therefore be said to be a homogenous product. Due to the low product differentiation between the competitors, the competition is generally based on price. Low production costs and cost-efficient operations is therefore crucial to achieve high margins.

Pricing of salmon is determined by supply and demand. In equilibrium, the quantity supplied will equal the quantity demanded, and this relationship will determine the price. This suggests that a surplus of supply will lower the salmon price, while a shortage of supply will increase the salmon price. The price of salmon has increased significantly from 2012 till 2017. The reason for this increase is mainly due to an increasing global demand for salmon and supply limitations because of biological factors. Analyzer for Norges Sjømatsråd, Paul Aandahl, believes we will experience a similar trend also in the near future. He expects a reduction in supply (salmon produced) and thereby still high prices. Furthermore, Aandahl states that the high prices lead to greater volatility in the market, and there is a risk of larger fluctuations in the market (Soltveit, 2016). The development of salmon prices can be seen in figure 2. (SSB,2017).

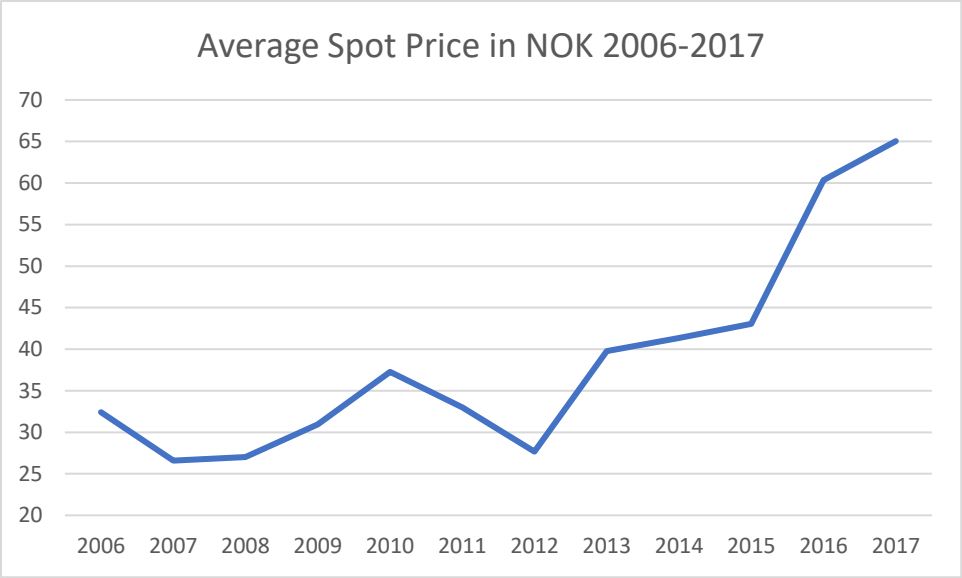

Figure 2: Average spot price in NOK from 2006 to 2017.

2.2 Competitors

There are over 100 companies responsible for salmon production in Norway. SalMar is the third largest fish farming company in Norway, and is one out of eight listed aquaculture companies on Oslo Stock Exchange (Nodland, 2016). I would like to find comparable companies, that together with SalMar will represent the industry. I have looked at the size of the companies, areas of business, and revenue when selecting the comparable companies. The selected comparable companies are therefore Marine Harvest, Lerøy Seafood Group, and Grieg Seafood. Together with SalMar, these companies comprise the four largest salmon farming companies in Norway. The competitors will now be further presented.

Marine Harvest

Marine Harvest is the world's largest salmon farming company measured in revenue. The revenue in 2016 was over 32 billion NOK and the volume of salmon harvested 380 621 tonnes. Since Marine Harvest was started as a small business in 1965, it has today moved on to become a global corporation with representation in 24 countries. In Norway, they cover the whole value chain from production of fish feed, to farming of salmon, and finally the processing of salmon. Marine Harvest differentiate from the other comparable companies by producing their own fish feed. They started this in 2012, and their goal is to expand by building factories in for example Scotland to serve the internal demand from the region. As with SalMar, Europe, East-Asia, and USA represents the largest markets. Marine Harvest

produces salmon, halibut, fish meal, and fish oil, where fish meal and oil are important in the production of fish feed. The company is investing heavily in research and development to try to solve environmental issues related to sea lice, losses at sea, and other biological challenges. As mentioned earlier, what separates Marine Harvest from its competitors, except its solid market position, is the fact that they are self-reliant on fish feed (Marine Harvest Annual Report 2016).

Lerøy Seafood Group

Lerøy Seafood Group has roots that can be traced back to the late 1800s. It is currently the world's third largest producer of salmon measured in revenue. In 2016, they harvested 150 182 tonnes of salmon and had revenues of 17.3 billion NOK. They were listed on the Oslo Stock Exchange in 2002. Equally to SalMar, their business areas include the whole value chain except fish feed production. But in addition, they offer multiple other types of fish and shellfish. The company has several subsidiaries in Europe, and currently distribute to more than 70 markets all over the world. As of second quarter in 2017, EU and Norway are the largest markets for Lerøy. Also Lerøy is investing heavily in research and development to address environmental issues. Lerøy is especially invested in cleaner fish as a tool to defeat sea lice. Due to promising results with cleaner fish, Lerøy has invested in production of the fish at their facilities and plans to be self-reliant with cleaner fish. Lerøy is a growing company, where the growth is mostly driven by acquisitions of other businesses. Additionally, Lerøy has a cooperation with SalMar which involves a shared ownership of the second largest salmon producer in Great Britain, Scottish Sea Farms Ltd. What separates Lerøy from its competitors is the fact that they have their own brand. That makes them visible for the Norwegian consumers, which leads to greater communication with the consumers (Lerøy Annual Report 2016).

Grieg Seafood

Grieg Seafood are the fourth largest salmon fish farming company in Norway, and the seventh largest in the world. In 2016 Grieg Seafood had revenues of 6.5 billion NOK and the volume harvested was 64 726 tonnes. Grieg Seafood was listed on Oslo Stock Exchange in 2007. Today the company has operations in Rogaland, Finnmark, Shetland, and British Columbia in Canada. As with its competitors, Europe is the most important market followed by USA and East-Asia. All salmon produced by Grieg is sold by their Norwegian sales company, Ocean Quality AS. In 2016, the Group launched their hitherto largest research and development

project by submitting an application to the government for 10 development licenses, intended to make an operating plan for fish farming in the open sea. What separates the group from its competitors is the fact that Grieg also operates in other business areas, namely shipping and logistics (Grieg Seafood Annual Report 2016).

Table 1 provides a summary of revenue and volume harvested for the four companies. The numbers are collected from the companies´ 2016 annual reports.

Company	Revenue	Volume Harvested
Marine Harvest	**32 billion NOK**	**380 621 tonnes**
Lerøy Seafood Group	**17.3 billion NOK**	**150 182 tonnes**
SalMar	**9 billion NOK**	**129 600 tonnes**
Grieg Seafood	**6.5 billion NOK**	**64 726 tonnes**

Table 1: Revenue and volume harvested for the four companies.

2.3 SalMar

The following will give a thorough presentation of SalMar.

2.3.1 History

SalMar is a Norwegian company in the business of farming and processing of salmon. The company was founded in 1991 at Frøya in Sør-Trøndelag by Gustav Witzøe. It was founded during one of the most turbulent periods in the history of the Norwegian aquaculture industry. The turbulent period led to the collapse of the fish farmer´s own sales organization (Fiskeoppdretternes Salgslag) in November the same year. This company's collapse, helped lay the foundations for the secondary processing operations which are a cornerstone of the SalMar story. Up until then the clear majority of Norwegian salmon had been exported as fresh or frozen round gutted fish. The collapse marked the beginning of a major restructuring of the Norwegian fish farming sector, which gradually led to a substantial increase in its level of industrialization (SalMar History, n.d.). SalMar started its business by processing frozen salmon, but has since developed into a vertically integrated company, whose production stretches from broodfish, production of fry, to the sale of the finished product (SalMar History, n.d).

SalMar has been a major player in the substantial growth in the industry the last 26 years. A large factor for SalMar´s growth is the number of mergers and acquisitions. Until 2000 SalMar was only situated in Mid-Norway. By buying 49% of Senja Sjøfarm As in Tromsø in 2000 and by starting Norskott Havbruk AS (sole owner of the second largest salmon producer in Great Britain) together with Lerøy in 2001, SalMar was able to expand. In addition to the shareholdings in Great Britain, SalMar now has over 100 fish farming licenses in different parts of Norway (SalMar History, n.d.).

2005 was a crossroad for SalMar. Divestment of operations that were not considered to be core businesses, including the production of herring, herring oil and fish meal occurred. Instead SalMar put greater focus on core business activities, i.e. farming, harvesting and processing of salmon. The production numbers demonstrate the rapid growth that the company has experienced. In 2000 the total volume harvested was 11,000 tonnes gutted weight, while in 2016 the total volume harvested was 129,600 tonnes gutted weight (SalMar History, n.d.). SalMar was listed on Oslo Stock Exchange in 2007, and are today the third largest salmon producer in Norway and the fourth largest in the world (Salmar History, n.d.).

2.3.2 Business areas

SalMar is currently operating in the entire value chain for salmon. This value chain can be divided into four different areas. These areas are: *smolt, farming, processing, and sales and distribution.*

Fry and smolt-hatchery production

As a leading international producer of farmed salmon, having access to high quality smolt is crucial. It is therefore of strategic importance for SalMar to be self-sufficient in smolt, which they currently are. SalMar produces fry and smolt at six separate facilities in Norway, and in addition they have one cleaner fish production unit to help combat sea lice (SalMar Business Areas, n.d.).

Farming

Most of SalMar´s fish farming activities takes place in Central-Norway, and is organized in SalMar Farming AS. Central-Norway is the ideal location for farming of salmon as the temperatures are favorable all year round thanks to the Gulf Stream, good circulation of seawater and good access to appropriate sites. SalMar is also conducting farming activities in Northern Norway, a region with strong potential for further growth. The region faces fewer

challenges with respect to disease and salmon lice, and has environmental conditions for sustainable production. SalMar´s fish farms focus on cost-effective operations, but the largest cost is associated with fish feed. Since SalMar is not self-sufficient with fish feed, it represents a significant part of the total costs (SalMar Business Areas, n.d.).

Harvesting, packing and processing (VAP)

VAP operations are very closely linked with the farming operations and have been an important part of the company´s development. InnovaMar is the newest harvesting and processing facility. It is located in Frøya (Central-Norway), and aims to be the world´s most innovative and efficient facility for harvesting and processing of farmed salmon. It has a capacity to process 150 000 tons a year, which makes it the largest facility in Norway. The ability to bring large harvesting volumes to the plant affords economies of scale, as well as providing flexibility and a better utilization of the entire salmon (SalMar Business Areas, n.d.).

Sales and distribution

The processed salmon is sold through an in-house salesforce and/or through close partners. SalMar sells its product to more than 40 countries all over the world. The largest market is Europe, with Polen, Lithuania, and Great Britain as the most important players. East-Asia represents the second largest market. After the import-ban in Russia in 2014, North-America has taken over as the third largest market. To cut costs and be environmentally friendly, SalMar has decided to sell more fish fillets instead of the whole fish as large parts of the fish is not used anyway. Fillets reduces the weight by around 40%, and this reduces the transportation costs (SalMar Business Areas, n.d.).

2.3.3 Research and development

SalMar has always been investing heavily in research and development in order to try to find solutions to common problems related to sea lice, losses of salmon at sea, and acreage challenges. SalMar is currently looking into offshore fish farming as a solution, and Ocean Farm 1- the world´s first offshore fish farm- was recently launched as a full-scale pilot facility for testing, learning, research and development. The objective of the offshore fish farms is to spur innovative technology concepts that can ensure sufficient growth whilst also ensuring environmental sustainability. It is also supposed to help combat the problems of sea lice and losses of salmon at sea. The Norwegian Ministry of Fisheries and Coastal Affairs decided to

support this effort, and have recently awarded development licenses for aquaculture purposes. SalMar was the first seafood producer in Norway to receive this type of development license (SalMar Offshore Fish Farming, n.d.).

2.3.4 Historical stock development and ownership structure

SalMar has been listed on Oslo Stock Exchange since May 8th, 2007. As of November 27, the stock was listed at 244,50 NOK per share. The stock returns the last five years has been 503%. As a comparison, the benchmark index has had a return of 79,5% in the same period (Oslo Børs, 27.11.2017). In other words, SalMar has experienced a tremendous increase in stock price. A key factor for the development is the fact that the stock price of fish farming companies is strongly correlated with prices of salmon, and the salmon prices has increased significantly during the last five years.

SalMar has a dominant owner in Kverva AS which owns 53,40% as of 31.12.2016. Folketrygdfondet is the second largest owner with a share of 7,35%. The remaining owners holds a share of less than 3%.

3. Strategic analysis

This chapter will provide an external analysis of the industry and an internal analysis of SalMar. The purpose of the external analysis is to get a better understanding of the opportunities and threats that could affect SalMar. The internal analysis focuses on strengths and weakness that could give SalMar competitive advantages or disadvantages over its competitors.

3.1 External analysis

The external analysis is performed using Porter´s five forces and the PESTEL framework. I decided to use both frameworks to draw a very clear picture of the macroenvironment. Porter´s five forces will look at the industry as a whole, while the PESTEL framework will look at out-of-direct-control macro factors that affects the industry.

3.1.1 Porter´s five forces

Michael Porter`s five forces are a framework for understanding the competitive forces at work in an industry. The five forces are provided in figure 3 below:

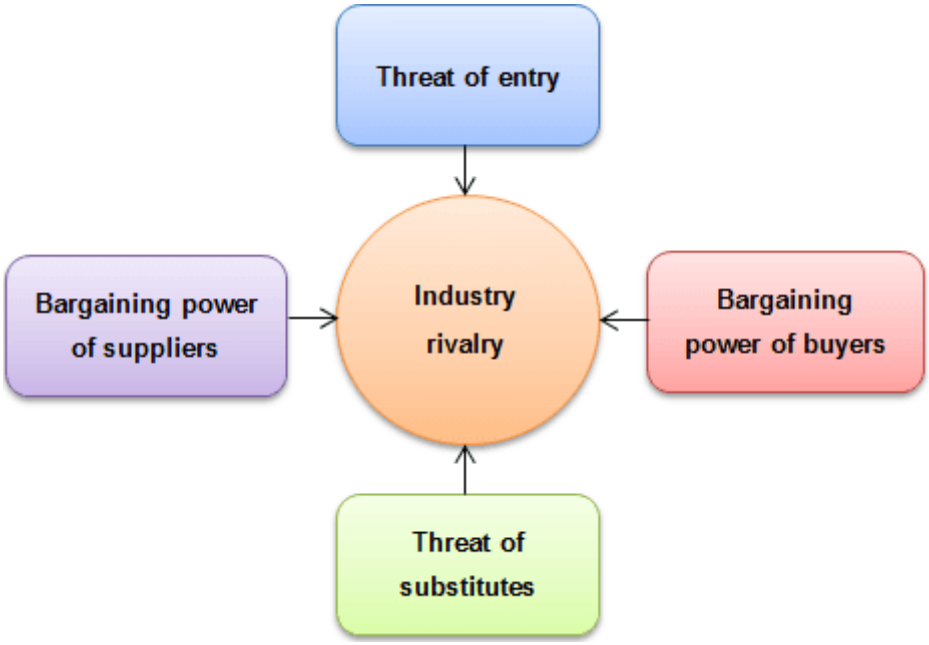

Figure 3: Porter´s five forces (Jurevicius, 2013).

Threat of new entrants

The threat of new entrants into an industry depends on the size of a series of barriers to entry, including economies of scale, the cost of building brand awareness, access to distribution channels, and government restrictions. What types of entrance barriers that needs to be overcame is crucial in assessing the threat of new entrants (The Five Forces, n.d.).

There are not many areas in the world that are suitable for fish farming as several natural conditions often must be present to ensure optimal salmon farming production. Such conditions include cold water temperatures (8-14 °C), a sheltered coastline, and optimal biological conditions. That makes Norway, Canada, Scotland and Chile the most suitable for salmon farming (What is salmon farming and why do we need it, n.d.). Hence, the fish farming industry has a natural barrier of entry as new entrants are very limited geographically.

The fish farming industry is also strongly regulated by local authorities and the government. According to the Aquaculture Act nobody can operate within the aquaculture industry without a license. To receive this license, the operations needs to be environmentally sustainable. The

act also provides a framework for monitoring, requirements of equipment, cleanup procedures, and recapturing duties upon salmons escaping. The Norwegian Ministry of Fisheries is responsible for assigning these licenses. In order to secure sustainable growth, very few licenses are assigned though. The strong regulation of the industry makes the barrier to entry very high (Norske regler for miljø og oppdrett, 2016).

The fish farming industry are characterized by few, but very large producers. Norway is the country in the world with the most producers. However, the ten largest producers represent 69% of the total share. In a global perspective, the largest producers represent an even larger percentage of the total share (Nodland, 2016). The reason for this is mainly due to large producers acquiring and merging with smaller producers. The fact that the industry is characterized by few, but large producers also makes the barriers to entry high.

It is now clear that the barriers to entry is very high in the fish farming industry. That makes the threat of new entrants' low.

Threat of substitutes

Substitutes are products or services that meets the same basic need in a different way. Salmon farming companies deals with various distribution channels before the salmon ends up with the consumer, but at the end the consumers preferences are what matters. In other words, the substitutes for salmon are other types of food. Specifically, protein rich products such as poultry, beef, pork and other types of fish.

Along with some other major food sources containing animal protein, like pork and lamb, salmon has become relatively cheaper over the past few decades. However, recently the price of salmon has increased more than other proteins, and has historically always been a rather expensive product (Salmon Farming Industry Handbook, 2017). Even though the price is higher, there are many reasons for people to choose salmon. Salmon is nutritious, rich in micronutrients, minerals, omega-3 fatty acids, very high-quality protein and several vitamins. Compared to the substitutes, it is a healthier choice. The Norwegian Directorate of Health actually recommend eating fish at least twice a week. Although the health benefits of seafood are increasingly being promoted by global health authorities, fish has been estimated to account for only 6% of the global protein consumption and salmonids contribute to only 4.4% of the global seafood supply (Salmon Farming Industry Handbook, 2017).

Given the expected production growth of 17% during 2015-2025 and the projected world population growth of 11% during 2015-2025, it is realistic to see a global increase in the average fish consumption level. Increasing production will most likely lower the prices. There are huge growth opportunities for the salmon industry, and the threat from substitutes are therefore considered as moderate (Salmon Farming Industry Handbook, 2017).

Bargaining power of buyers

Powerful customers can use their influence to force prices down or demand more service at existing prices. Hence, capturing more value for themselves. The bargaining power of buyers is high when buyers are large relative to the competitors serving them, products are undifferentiated and represent a significant cost for the buyer, and there are few switching costs to shifting business from one competitor to another. In an industry like fish farming, where the products are undifferentiated, it is inexpensive to switch loyalties and price trumps quality (The Five Forces, n.d.). Typical buyers in the fish farming industry are wholesalers, retailers, the processing industry, and restaurants.

Most of the slaughtered and gutted European farmed salmon is sold to the processing industry (VAP, value-added processing/secondary processing). What happens here is filleting, filet trimming, portioning, producing different cuts, smoking, making ready meals or packing with modified atmosphere (MAP). The secondary processing industry in Europe is fragmented with more than 4,000 players. Most of the companies are fairly small, but there are also some companies of significant size involved in the secondary processing industry, for example Marine Harvest, Lerøy Seafood, and SalMar (Salmon Farming Industry Handbook, 2017). The fact that the industry is fragmented with more than 4,000 players reduces the bargaining power of buyers as they do not purchase a substantial amount of the producer´s product.

Farmed salmon is a homogenous product and the product differentiation between producers are minimal. The lack of differentiation increases the bargaining power of buyer as it gives them an opportunity to force down prices. Since the products are undifferentiated, it is also inexpensive to switch loyalties and prices trumps quality.

Despite the fragmentation of buyers, salmon farmers have a hard time differentiating themselves and creating customer loyalty. Switching costs are also nearly non-existent, and therefore the bargaining power of buyers are considered high.

Bargaining power of suppliers

The bargaining power of suppliers is high when they are able to use their negotiating leverage to charge higher prices or demand more favorable terms from industry competitors. The degree of this power depends on the number of suppliers, how expensive it is to change supplier, and the competition between the suppliers (The Five Forces, n.d.).

Feed makes up the largest share of the total cost (between 55-60%). The feed prices set by the suppliers is therefore crucial for a company´s profitability. The feed industry is dominated by three producers that have controlled the majority of the salmonid feed output since 2008. Skretting, BioMar, and EWOS are basically supplying the entire Norwegian salmon farming industry with salmonid feed. The exception is Marine Harvest, who began production of feed on their own in 2014 in order to be self-sufficient. As three suppliers controls the majority of salmonid feed, it is clear that they have a very high bargaining power. The cost-plus contracts exemplify this high bargaining power. The feed producers usually operate on cost-plus contracts, leaving the exposure of raw material (used in production of feed) prices with the farming company (Salmon Farming Industry Handbook, 2017).

Fish farming companies deals with numerous other suppliers of products and services. Separately, these products and services represents a much smaller part of the costs. The bargaining power of suppliers are therefore significantly lower for other products and services compared to the suppliers of feed.

When fish farming companies extend their business areas to operations that eliminates the need for external suppliers, the bargaining power of suppliers' decreases. That is why companies in the industry are becoming increasingly more vertically integrated, and supplies various products and services within the company. Marine Harvest´s relatively new feed plant is a fitting example of exactly that. The other companies in the industry are not self-sufficient on feed though, and the bargaining power of suppliers is therefore considered to be high.

Industry rivalry

As illustrated in figure 3, the four forces already analyzed will influence the industry rivalry. Additionally, there are some other factors that indicates fierce rivalry:

- "Competitors are numerous or are roughly equal in size and market position
- Industry growth is slow
- There are high fixed costs, which create incentives for price cutting

- Exit barriers are high
- Firms have differing goals, diverse approaches to competing, or lack familiarity with one another" (The Five Forces, n.d.)

The fish farming industry has experienced substantial growth the last twenty years, mainly due to increasing demand. As salmon is a homogenous product there will not be large variations in price between competitors, and the companies are basically competing on volume supplied. It should be mentioned that there will be some differences in price because of the forward contracts that companies enter into. The price level is crucial though, as the fixed costs in the industry are high.

Fish farming companies tries to differentiate themselves by coming up with new products in the secondary processing industry. Examples include new flavors on existing products and innovative ways of incorporating salmon in the marketplace. If a company manages to introduce a unique product however, it is likely to last for only a brief period. The rivals are quick to imitate each other, which makes the differentiation even lower.

Restrictions and regulations is implemented in Norway to uphold competitiveness between companies in the industry. Nevertheless, the industry is characterized by a few major players and the strict licensing regulations often results in acquisitions of smaller companies to expand. This ultimately leads to the major players becoming larger and larger, and the industry rivalry is technically only between a few companies. The desire of continuous growth will further enforce this trend where major players acquire smaller companies.

Due to the strict license regulations and the fact that larger companies acquire smaller companies, the exit barriers are low. When a company is exiting the industry, it is realistic to assume that several companies will be interested in taking over the operations and licenses.

To summarize, the competition for new and existing licenses are high. Also, differentiation is low and fixed costs are high, and that makes the industry rivalry high.

Summary of Porter´s five forces

The analysis of Porter´s five forces shows that the bargaining power of buyers, the bargaining power of suppliers, and the industry rivalry are high and affects the companies in the industry the most. The threat of new entrants and the threat of substitutes is however low and moderate.

3.2 PESTEL-analysis

PESTEL is a strategic framework for understanding external influences on a company. The macro-environment factors analyzed are: political factors, economic factors, social factors, technological factors, environmental factors, and legal factors. Together with the analysis of Porter´s five forces, the two analyses will give a solid understanding of the opportunities and threats that SalMar and the industry are facing.

3.2.1 Political-and Legal Factors

Political and legal factors are closely related to each other, and this subchapter will focus on trade barriers, the Norwegian licensing system, and Norwegian and international laws.

The political relationship between Norway and different countries directly affects the Norwegian fish farming industry. In recent years, China has imposed trade barriers against Norwegian salmon twice for example. The first boycott came as a reaction to the selection of Liu Xiabo as the Noble Peace Prize Winner in 2010. Four years later, China banned import from certain regions due to fear of the disease called infectious salmon anemia virus. The sanctions imposed by Western countries against Russia in 2014, also led to an import ban by Russian authorities. The events mentioned are things that the fish farming companies cannot control, and they can cause severe losses. This underlines how political relationships can directly influence the profitability for the Norwegian fish farming industry (Mortensen, 2017).

As earlier mentioned, the issuing of licenses is a heavily regulated process in Norway. Every license must also be operated in accordance with the Aquaculture Act from 2005. The strict regulations are a result of the increasing focus on sustainability in the industry. By having strict regulations and restrictions, Norwegian authorities can constantly control the amount of salmon produced. Hence, larger companies acquire smaller companies and their licenses to expand production.

The EEA Agreement also has implications for the fish farming industry. The agreement gives Norway access to free movement of goods in the EU. An exception is salmon however, where there are a two percent tariff on whole salmon and thirteen percent on processed salmon. The great access to EU, which is the largest marketplace for Norwegian salmon, is extremely important. If Norway were to leave the EEA, it is hard to say if bilateral free-trade agreements would be as good for the export of salmon. The risk of worse access to the EU would certainly be a concern though (Mortensen, 2017).

3.2.2 Economic Factors

Economic factors have a significant effect on the industry. Most of the salmonids produced in Norway is exported abroad. In 2016, salmonids were exported for the total of 65.3 billion NOK. Norway exported to 146 different countries, but the majority is exported to the EU (Sjømatåret 2016, 2017). The extensive exporting leads to Norwegian fish farmers receiving most of their income in foreign currency, and having costs in NOK. The value of the Norwegian krone against foreign currency is therefore crucial for the industry´s profitability. Figure 4 from *Norges Bank* shows the fluctuations of the Euro the last seventeen years.

Figure 4: Fluctuations of Euro against NOK from 2000-2016

The figure shows large fluctuations in the period, and a strong Euro against the NOK in 2016. The weak NOK is a significant factor for the record year for Norwegian export in 2016. Companies use forward contracts and other instruments to reduce the magnitude of currency fluctuations, but the fluctuations still matter for the turnover. The substantial drop in oil prices is the main reason for the weakening of the Norwegian kroner. The low oil price has weakened the Norwegian economy in general, but it has strengthened the fish farming industry´s profitability indirectly.

The relationship between supply and demand is important for the salmon prices. In 2016 the volume harvested decreased in the industry, while there was a strong increase in demand. This led to very high salmon prices. It is expected that demand will continue to increase at a relatively constant rate, but the supply growth rate is more uncertain. Biological and environmental factors could lead to variations in supply, and thereby lead to large volatilities in price. These price variations will have an immediate impact on a company´s profitability.

3.2.3 Social factors

Social factors could describe various characteristics of the consumer group. This subchapter will discuss the increasing population and food trends.

There has been an almost exponential growth in population the last 200 years, and the UN estimates that the global population will grow to approximately 9.7 billion by 2050. Assuming consumption per capita stays constant, this implies a 35% increase in demand for protein. With a rapidly growing population, we know that resources for increased land based protein production will be scarce. So, the key question for fish farmers is how the production of salmon can be expanded (Salmon Farming Industry Handbook, 2017). As there are geographic limitations to where salmon can be farmed, ocean farming is now being considered. If the industry is successful in developing new methods that will help to supply an increasing demand for protein, there are large growth opportunities for the industry in the long-run.

There has been a considerable increase in total and per capita fish supply over the past few decades. The aquaculture sector is actually the fastest growing animal-based food producing sector. However, fish has been estimated to account for only 6% of the global protein consumption. The health benefits of seafood and benefits of aquaculture in general are therefore increasingly being promoted by global authorities. As the middle class is growing in large emerging markets and the global demand for food is increasing, it is expected that consumption of salmon will increase (Salmon Farming Industry Handbook, 2017).

3.2.4 Technological factors

The fish farming industry has experienced tremendous technological progress since its start in Norway. Companies are constantly working to develop new methods that reduce costs and create a more efficient production process. InnovaMar, SalMar´s relatively new harvesting and processing plant, is a good example of the technological progress. InnovaMar was opened in 2011, and is today one of the most innovative and cost-effective facilities for the landing, harvesting, and processing of salmon (InnovaMar, n.d).

Since the start of the 2000s, salmon escapes, salmon lice, and other diseases has become a growing problem. These problems are therefore a major focus area for the industry, and more and more money are spent on research and development to fight the problems. A reduction in salmon escapes, salmon lice, and diseases would not only satisfy the authorities, it would also

reduce costs and thereby increase the margins. The industry is currently looking into offshore farming as a solution to the issues. Offshore farming is aiming to reduce environmental footprints, improve fish welfare and answer acreage challenges. SalMar recently launched a full scaled pilot facility called Ocean Farm 1, which is the world´s first offshore fish farm. This facility may represent the first step towards a new era in aquaculture (Offshore fish farming, n.d).

3.2.5 Environmental Factors

As mentioned earlier in the analysis, the main environmental issues are related to escaping of salmon, sea lice, and diseases. But also fluctuations in sea temperature could affect the supply of salmon.

When farmed salmon escapes from farming facilities, it has a negative effect on wild salmons in rivers. The farmed salmon spawns with the wild salmon, which change the genetics of wild salmon and makes it more receptive to diseases and environmental changes. In addition to a reduction in income, companies receive a fine whenever salmons escape from a facility. The industry is working hard toward achieving their goal, a level of salmon escapes that does not negatively affect wild salmons. By spending large amounts of resources and implementing several initiatives, the industry is getting closer to their goal. From 2006 to 2016, the number of salmon escapes has been reduced from 921 000 to 126 000. That is an 86% reduction (Hvorfor rømmer laksen, 2016).

Salmon lice is a parasite that lives naturally in all seawaters in the northern hemisphere, and it presents a major challenge for the fish farming industry. Salmon lice reproduce especially well when the number of salmon in one place is high. The lice create wounds that can cause infections, damage the fish´s salt balance and in the worst-case cause death. There has been introduced a number of measures to control the amount of lice, but the challenge is that the lice have developed resistance to several treatments. Some of the measures, such as chemicals, has also been suggested to damage the sea environment and its ecosystem. Therefore, a number of alternatives are currently being looked at (Salmon lice, 2016).

3.3 Summary of external analysis

The external analysis reveals an industry that have experienced considerable growth for a long time, and where the future opportunities look good. The barriers to entry are high due to the licensing system and the high capital requirements as the most significant factors. The

industry is affected by factors that are out of their direct control, especially from legislative authorities internationally and in Norway. But also from biological and environmental issues related to fish farming. Technological innovations and improvements are essential to continue growth.

3.4 Internal analysis

An internal analysis is the process of identifying and evaluating an organization's specific characteristics. That includes resources, capabilities, and core competencies. The following will analyze five different characteristics of SalMar; *InnovaMar, Ocean Farm 1, licenses in Northern-Norway, organic salmon, and product focus.* The characteristics has been chosen based on insights from the industry and SalMar, and also from the industry´s future outlook. A VRIO framework will be used to analyze these characteristics, and find out if SalMar can be a source of sustained competitive advantage.

3.4.1 VRIO analysis

VRIO is a framework used to analyze a firm´s internal resources and capabilities to find out if they can be a source of sustained competitive advantage. VRIO stands for four questions that ask if a resource is: valuable, rare, costly to imitate, and effectively organized. The last one is in other words described as the degree to which a firm is organized to capture the value of the resources. A resource or capability that meets all four requirements can be said to bring sustained competitive advantage for the company (Jurevicius, 2013).

InnovaMar

InnovaMar is SalMar´s largest facility for the landing, harvesting, and processing of salmon and is according to SalMar one of the world´s most innovative and cost-effective facilities. The facility has adopted innovative technologies in production, which increase the quality of the final product, reduce costs and improve the employees´ working environment. The facility also has a capacity of around 150,000 tons of salmon, which makes it the largest in the industry. This results in lower production costs per kilo salmon, which increase the margins for SalMar. InnovaMar is therefore considered as valuable. The question of rarity depends on the time horizon. In the short-run it could be considered rare as it is a high-cost investment and currently none of the competitors possesses a similar innovative facility. In the long-run however, it is likely that competitors will invest in similar facilities. The resource is possible to imitate. Regarding the organizing of InnovaMar, SalMar is working systematically to

ensure optimal utilization of the facility. They are selling harvesting and processing services to other fish farmers in central Norway to ensure optimization. The facility also has a higher rate of automation and new combinations of technical solutions which increase capacity, flexibility, and the quality of the product. InnovoMar could therefore be considered as organized to capture value (InnovaMar, n.d).

Ocean Farm 1

Ocean Farm 1 is the world´s first offshore farm. It is a full-scale pilot facility that is designed to test out both the biological and technological aspects of offshore fish farming. The facility is aiming to reduce environmental footprints, improve fish welfare and answer acreage challenges. Additionally, it is a respond to the growing demand for more and healthier food in the world. Ocean Farm 1 could represent a new era in sustainable seafood production, and is therefore considered as valuable (Offshore fish farming, n.d.). Since Ocean Farm 1 is the world´s first offshore farm it could also be considered rare. If the pilot facility proves to be a success, competitors are likely to imitate and invest in similar facilities. Regarding the organizing of Ocean Farm 1, SalMar states that: "Through the development and implementation of new technologies and the build-up of operational experience, Ocean Farming will acquire the specialist expertise needed for this next generation of fish farming facilities to achieve its full potential" (Offshore fish farming, n.d). Ocean Farm 1 is therefore considered as organized to capture value.

Licenses in Northern-Norway

SalMar owns 100 licenses for marine production of Atlantic salmon in Norway; 68 licenses in the company´s principal producing region in Mid-Norway and 32 licenses in Northern-Norway. Farming in Northern-Norway, and thereby a colder area, reduces the occurrence of salmon lice and other diseases. That raises the quality of the salmon (SalMar Annual Report 2016). Yet, a good location is probably not of value to the customers as high-quality salmon is also produced by competitors further south. There is a limited amount of locations to farm along the Norwegian coastline, but still SalMar is not the only company with licenses in Northern-Norway. The resource is therefore not rare either. Whether the resource is imitable depends on how easy it is for a company to establish a fish farm in the region. From one perspective, it seems like the Norwegian coastline is almost fully exploited. But from another perspective, it is possible for companies to merge with or acquire companies with licenses. So, the resource is imitable. Even though Northern-Norway is a topographically great location

for farming, it is also a weakness. If an outbreak of salmon lice or other diseases were to happen, it would be disastrous for SalMar. They would most likely have to harvest large volumes of salmon, and experience financial loss. The fairly centralized approach and lack of global presences makes them vulnerable. Competitors like Marine Harvest and Grieg Seafood have an advantage as they are located in different parts of the world. The resource is therefore not considered as effectively organized.

Organic salmon

There has been an increasing demand for organic salmon and organic products in general from the market. In 2009, SalMar capitalized on the increasing demand by being certified to farm, process and sell organic salmon. Since the start the development has been nothing but positive, and SalMar is now the world´s largest producer of organic salmon. The resource can be considered valuable as some consumers demand salmon of unique quality (Norwegian organic salmon, n.d.).

Today SalMar has 5 organic licenses, and are by far the largest producer of organic salmon in Norway. It takes at least a couple of years for a company to be certified and harvest the first organic salmon. SalMar will therefore continue to be dominant in this area, and the resource is considered rare. Whether the resource is imitable or not depends on the number of new organic licenses issued. A company receiving a license will still use at least a couple of years to get their products to the market, and the resource is therefore not considered imitable in the short-run.

In the past, EU´s regulations for organic production was not incorporated into the EEA Agreement, and SalMar was not able to sell organic salmon in the EU. The product was only sold in Norway, and the resource was not organized to capture maximal value. Earlier this year however, EU´s regulations for organic production was incorporated into the EEA Agreement and Norway can yet again sell organic salmon in the EU (Andersen, 2017). The resource can now capture more value, and has the potential to give SalMar a sustained competitive advantage.

Product focus

SalMar is only producing salmon, and by focusing on one species they canalize their competence toward salmon and becoming “experts” on this species. They will also achieve economies of scale. The increasing competence will contribute toward higher quality in all

areas of the value chain. This is valuable for the customers as they are doing business with an expert in the field. By focusing on one species, SalMar could also strengthen its position in the industry in the long run.

Several of SalMar´s competitors are also only producing salmon. The product focus is therefore not a rare resource in the market. Focusing on one product is also highly imitable. A competitor like Lerøy could for example liquidate its production of whitefish, and solely focus on salmon. SalMar produces a wide variety of fresh and frozen salmon products, and the customer base is global and includes small and large importers/exporters. The resource is therefore considered to be organized to capture value (Business areas, n.d.).

3.5 Summary of internal analysis

Table 2 summarizes the results from the VRIO analysis. InnovaMar and Ocean Farm 1 represents a temporary competitive advantage as competitors could imitate the resources in the future. Licenses in Northern-Norway is categorized as a competitive disadvantage. It is not valuable for customers, not rare, and is possible to imitate. Organic salmon on the other hand represents a sustainable competitive advantage. It is valuable for customers, rare and organized to capture value. It will also take many years for competitors to imitate the resource. Lastly, product focus is categorized as competitive parity. Hence, competitors have the same resource and it will be difficult for SalMar to gain a competitive advantage.

Resource	**Valuable**	**Rare**	**Imitable**	**Organized to capture value**	**Impact on competitive advantage**
InnovaMar	Yes	Yes	Yes	Yes	Temporary competitive advantage
Ocean Farm 1	Yes	Yes	Yes	Yes	Temporary competitive advantage
Licenses in Northern-Norway	No	No	Yes	No	Competitive disadvantage
Organic salmon	Yes	Yes	No	Yes	Sustainable competitive advantage
Product focus	Yes	No	Yes	Yes	Competitive parity

Table 2: Summary of VRIO analysis

As a conclusion to the internal analysis, we can say that SalMar do not possess many resources considered to give sustainable competitive advantage. In general, the resources can

be imitated and SalMar has a temporary competitive advantage at best. In other words, there are small differences between SalMar and its competitors. The only sustainable competitive advantage is organic salmon. SalMar is a pioneer in the area, and it will take years for competitors to imitate the resource. Organic salmon represents a very small part of total volume harvested however, and is in the big picture relatively insignificant for total revenues. The fact that SalMar is only present in Norway, could be a problem and a potential competitive disadvantage for SalMar. It makes them more vulnerable to an outbreak of salmon lice and other diseases in Norway.

4. Valuation techniques

While there are several different possible techniques to arrive at the value of a company, there is a relatively small subset of generally accepted valuation techniques that is used quite frequently. Three commonly used techniques are: valuation using comparable firms, discounted cash flow analysis, and precedent transaction analysis. The method using comparable firm is about evaluating other, similar companies´ current valuation metrics and applying them to the company being valued. Discounted cash flow analysis is about valuing a company by projecting its future cash flows and then using the Net Present Value method to value the firm. Lastly, precedent transaction analysis looks at historical prices for completed mergers and acquisition transaction involving similar companies to get a range of valuation multiples. The analysis attempts to arrive at a "control premium" paid by an acquirer to have control of the business (Valuation Techniques Overview, n.d.).

In this thesis I will use valuation based on comparable firms and discounted cash flow analysis as my valuation techniques. These methods will be further explained and discussed. Precedent transaction analysis will also be commented to give the reader an overview of the alternatives available when performing a valuation.

4.1 Valuation using comparable firms

Valuation using comparable firms are a relative valuation technique used to value a company by comparing a company´s valuation multiples to those of its peers. There are various types of multiples, and typical multiples include:

- EV/Sales: Enterprise value of the company divided by sales

- EV/EBITDA: Enterprise value of the company divided by earnings before interest, taxes, depreciation and amortization
- P/E: Price/Earnings ratio for a company
- P/B: Price/Book ratio for a company

This valuation method is relatively easy to perform as the data for similar companies (that are publicly traded) are widely available. Assuming that the market is efficiently pricing the securities of other companies, a comparable analysis should provide a reasonable valuation range. Other valuation methods such as discounted cash flow analysis is more dependent upon a range of assumptions. These factors make comparable analysis one of the most widely-used valuation techniques. The technique has it disadvantages however. It is influenced by temporary market conditions or non-fundamental factors. Also, no two companies are perfectly alike, and as such, their valuation should not be identical either (Valuation Techniques Overview, n.d.). SalMar and its competitors are very similar in many ways however, and this type of analysis should work well on SalMar and provide a reasonable valuation.

In this thesis the main focus will be on the DCF technique as it is the most the theoretically correct valuation method available. But the valuation using comparable firms will be an important supplement. The result from this valuation technique will be analyzed and compared with regards to the DCF results.

4.2 Discounted cash flow analysis

Discounted cash flow analysis is a direct valuation technique that values a company by projecting its future cash flows and then using the Net Present Value (NPV) method to value those cash flows.

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

Where:

n= number of time periods

CF_t= Cashflow in period t

r= the discount rate

It is the most theoretically correct valuation method available as it attempts to measure the value created by a business directly and precisely. However, the valuation obtained is very sensitive to a large number of assumptions/forecasts, and can therefore vary over a wide range. Therefore, the DCF analysis is performed alongside the comparable company analysis to achieve the best result possible and compare the outputs (Valuation Techniques Overview, n.d.).

There are several DCF-models, but we often hear about three models. The first method values a company by measuring the equity capital usage. This measure is called *free cash flow to equity* (FCFE), and the cash flows are discounted to net present value. The second method is called *free cash flow to the firm* (FCFF), and is the one that will be used in this discounted cash flow analysis. FCFF is the cash available to all investors, both equity and debt holders. The method is very similar to the first one as the cash flows are discounted to net present value. The last method values a company in different parts. Firstly, the NPV of the company without debt is calculated. Then, the NPV is adjusted to include the benefits of financing. This method is called *Adjusted Present Value* (APV) (Berk & DeMarzo, 2014).

Even though these three methods are different, they will in theory lead to the same result if the assumptions and forecasts are consistent in the valuation.

4.2.1 Free cash flow to the firm (FCFF)

I will now further explain the FCFF approach as this is the approach that this valuation will be built upon. FCFF is connected to FCFE like this:

FCFF= FCFE+Interest payments+Debt repaid-Debt raised

We can see that FCFF and FCFE should logically provide the same result if the assumptions are consistent for both methods. The FCFF approach is however more suitable for companies with high leverage and in cases where we are more interested in valuing the firm rather than equity. FCFE are also more sensitive to changes in growth and risk, and the FCFF approach is therefore chosen in the case of SalMar ASA.

A common way to find the free cash flow to the firm is by using this formula:

FCFF= EBIT(1-t) + Depreciation - Capital expenditures - ΔWorking capital

The estimated cash flows are then discounted to find the present value:

$$Value\ of\ firm = \sum_{t=1}^{t=\infty} \frac{FCFF_t}{(1+WACC)^t}$$

Where,

$FCFF_t$=Free cash flow to the firm in year t

WACC=Weighted Average Cost of Capital

Estimation of all future cashflows is however too much work and becomes meaningless on a year-by-year basis at some point. A simplification that assumes that a company reaches a *steady state* after some years with a constant growth rate g_n is therefore implemented (Valuation Techniques Overview, n.d.). The formula then becomes:

$$Value\ of\ firm = \sum_{t=1}^{t=n} \frac{FCFF_t}{(1+WACC)^t} + \frac{[\frac{FCFF_{n+1}}{WACC - g_n}]}{(1+WACC)^n}$$

This formula stands as the foundation for the DCF-valuation of SalMar ASA, and will be used in practice later in this thesis.

4.3 Precedent transaction analysis

Precedent transaction analysis uses previously completed mergers and acquisitions deals involving similar companies to value a business. This analysis is in other words similar to the comparable company analysis and uses many of the same multiples. However, unlike in comparable company analysis, the basis for value comparison is the price paid by the purchaser for a business, rather than the traded market values of the company´s securities. These prices can be different because there is a control premium, meaning the value ascribed to control a business rather than simply own a percentage of the equity in it (Valuation Techniques Overview, n.d.). Also, this technique has its disadvantages. Values and multiples obtained may vary over a wide range and the summary metrics may be of limited usefulness, and other factors such as governance issues, specific agreements and synergies may affect the multiples (Valuation Techniques Overview, n.d.). For that reason, I do not find this technique suitable in the case of SalMar ASA.

5. Financial Statement Analysis

In a valuation it is essential to get insights about a company´s financial history. By looking at SalMar´s previous accomplishments, we can say something about the future. Koller, Goedhart and Wessels (2010) states that in order to say anything about a company´s future accomplishments, we need to understand its history.

This analysis will look at SalMar´s key numbers and compare those to the numbers of competitors listed in this thesis, namely Marine Harvest, Lerøy Seafood and Grieg Seafood. The numbers used in this chapter is collected from the companies' annual reports.

5.1 Profitability

High profitability is crucial for SalMar to survive in the industry in the long-run.

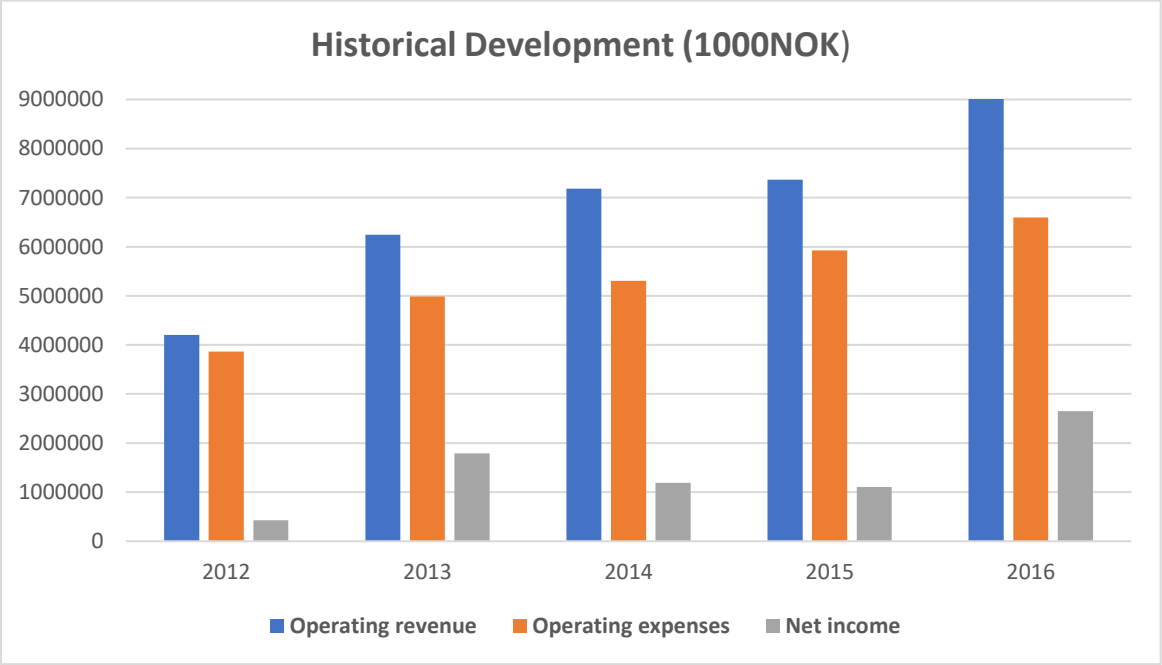

Figure 5: The figure shows the historical development of operating revenue, operating expenses and net income for 2012-2016.

The historical development shows a significant increase in operating revenue and a steadier increase in operating expenses. In 2012 operating expenses/operating revenue was around 92%, while in 2016 the relationship was around 73%. This beneficial decrease is mainly due to an increase in demand and thereby salmon prices and a weak NOK.

In figure 6, we can see SalMar´s development through a couple of key numbers for profitability from 2012-2016. Return on assets shows the percentage of how profitable a company´s assets are in generating revenue, and operating margin is the ratio of operating income to revenue (Berk&DeMarzo, 2014). We notice that 2016 was the best of the five years. This is primarily due to the high salmon spot price, which gave uncommonly high margins. We also notice the dip from 2013-2015 where SalMar experienced severe biological problems that increased the expenses.

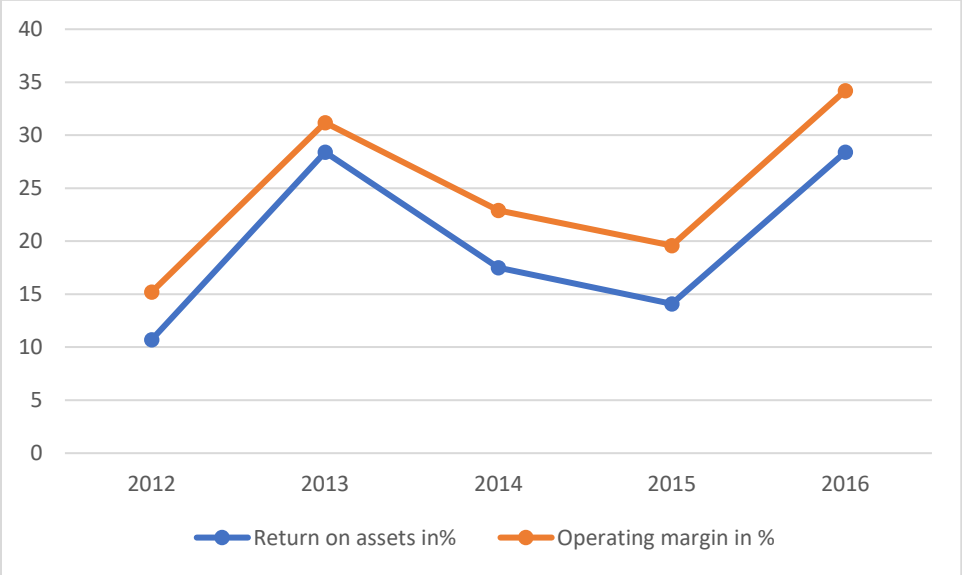

Figure 6: The figure shows a couple of key numbers for profitability for 2012-2016, i.e. return on assets and operating margin.

In table 3, I have provided the same numbers for SalMars´s competitors in order to compare them. It should be mentioned that I have not included SalMar in the arithmetic mean formula applied to the industry. Including SalMar will move the mean closer to SalMar´s values and thereby make the comparison more biased.

2015	**SalMar**	**Lerøy Seafood**	**Grieg Seafood**	**Marine Harvest**	**Industry**
Return on assets	14.1%	10.6%	2.2%	8%	6.9%
Operating margin	19.6%	11.6%	1.7%	11.1%	8.1%
2016	**SalMar**	**Lerøy Seafood**	**Grieg Seafood**	**Marine Harvest**	**Industry**
Return on assets	34.2%	22.4%	27%	20.6%	23.3%
Operating margin	28.4%	25%	23.6%	28.2%	25.6%

Table 3: Profitability in Norwegian fish farming industry

We can see that SalMar is performing better than all of its competitors in both 2015 and 2016 with regards to profitability.

5.2 Solidity

Solidity indicates a company´s ability to handle losses. Table 4 provides some key numbers that gives us an indication of the situation in SalMar.

SalMar	2012	2013	2014	2015	2016
Equity Ratio in %	38,9%	51%	50,7%	47,8%	49,9%
Debt Ratio	1,6	1	1	1,1	1

Table 4: Solidity SalMar. (Equity ratio=E/E+D, Debt ratio=D/E)

We register that the debt ratio has decreased the last years, and has stabilized around 1. This can be said to be reasonable. The equity ratio has stabilized around 50%, which is also considered good.

2015	SalMar	Lerøy Seafood	Grieg Seafood	Marine Harvest	Industry
Equity ratio in %	47,8%	54,8%	37,7%	45,2%	45,9%
Debt ratio	1.1	0.8	1.7	1.2	1.2
2016	**SalMar**	**Lerøy Seafood**	**Grieg Seafood**	**Marine Harvest**	**Industry**
Equity ratio in %	49,9%	53,7%	47,4%	43%	48%
Debt ratio	1	0.9	1.1	1.3	1.1

Table 5: Solidity in the Norwegian fish farming industry

If we compare SalMar with the competitors in the industry, we can see that they have a higher equity ratio and a lower debt ratio than all of the competitors except Lerøy Seafood. This can indicate that SalMar have lower risk associated with their operations and might have more financial flexibility than Grieg Seafood and Marine Harvest. The numbers are however very similar for the industry, and there are most likely not big differences between the companies.

5.3 Risks

An analysis of risks is critical to understand the challenges that SalMar face, and much of the financial statement analysis will therefore discuss the different risks. Firstly, we look at key numbers with regards to liquidity.

SalMar	2012	2013	2014	2015	2016
Liquidity ratio	2.08	4.24	3.05	2.89	2.29

Table 6: Liquidity SalMar

The liquidity ratio is a measure of dividing current assets by current liabilities. It is an indicator of a company's liquidity and thus its ability to meet short-term obligations. The rule of thumb states that this ratio should be above 2 (Berk&DeMarzo, 2014). SalMar´s ratio has been above 2 the last five years, but the ratio has been moving closer to 2 since 2013.

2015	SalMar	Lerøy Seafood	Grieg Seafood	Marine Harvest	Industry
Liquidity Ratio	2.89	2.54	2.34	3.35	2.74
2016	**SalMar**	**Lerøy Seafood**	**Grieg Seafood**	**Marine Harvest**	**Industry**
Liquidity ratio	2.29	2.9	2.5	3.03	2.81

Table 7: Liquidity in the Norwegian fish farming industry.

We can see that compared to its competitors SalMar has experienced a declining liquidity ratio. In 2016 SalMar was less liquid than all the competitors. There should not be too much concern though as SalMar has a high equity ratio and the outlook for further positive results is likely. SalMar is also running frequent cash flow-forecasts to ensure that they can meet their short-term obligations.

SalMar is stating that the most important risk factors are: financial risks (consisting of currency risk, credit risk, price risk and interest rate risk), and operational risk related to biological issues.

5.3.1 Operational risks

The main operational risk for SalMar is related to biological issues. Even though the industry is constantly establishing and developing measures to battle the issues, the risk will always be there. The last few years there has been a growing prevalence of salmon lice, and a problem is that the lice is becoming resistant to traditional treatments. This has led to a need for new

methods to handle salmon lice. Ocean farming and cleaner fish has been introduced as a potential solution. Further information about the biological issues has been provided earlier in chapter 3 (environmental issues).

5.3.2 Financial risks

SalMar is exposed to financial risks through currency risk, interest rate risk, price risk and credit risk.

Currency risk

SalMar is operating internationally and is exposed to currency risks in several different currencies. The risk is especially significant with regards to Euro, US dollar, British Pound, and Japanese Yen. Since most of SalMar´s products are sold internationally and the income is received in foreign currency, changes in currency rates represents both a direct and an indirect economic risk for the company. The currency risk related to the company's costs is however more insignificant. Most purchases of inputs and salaries is mainly paid in NOK. To reduce the effect of currency fluctuations, SalMar is using financial instruments such as futures contracts. As an example to show the magnitude of these financial instruments: Based on the financial instruments existing at 31.12.2016, a 10% reduction in the NOK would change SalMar´s earnings before tax by NOK 359,453 million.

Interest rate risk

SalMar´s interest rate risk is mainly tied to their loan portfolio. The loan portfolio has a floating interest rate; hence the company is affected by changes in the interest rate level. We can assume the effective interest rate by dividing the interest expenses by net interest-bearing debt.

1000NOK	**2012**	**2013**	**2014**	**2015**	**2016**
Interest expenses	177398	168053	124193	98780	106328
Net interest-bearing debt	2764400	1772400	2301300	2619500	2364100
Effective interest rate	**6.42%**	**9.48%**	**5.40%**	**3.77%**	**4.5%**
Key policy rate	1.55%	1.50%	1.49%	1.05%	0.55%

Premium	4.87%	7.98%	3.91%	2.72%	3.95%

Table 8: Effective interest rate

The table shows SalMar´s effective interest rate and Norges Banks key policy rate for 2012-2016 (Styringsrente, n.d.). If we for simplicity compare the two numbers and defines the difference as a risk premium, we get an indication about the interest expense that SalMar face.

Based on the financial instruments existing 31.12.2016, a 0,5% increase in the interest rate level will reduce SalMar´s profits by 13.189 million NOK.

Price risk

All of SalMar´s operations are related to salmon, and is therefore directly or indirectly affected by salmon prices. The company´s profitability and cash flows are strongly correlated with the development in salmon prices. The demand has over the last several years been relatively stable, while the supply has been more inconstant from year to year. Additionally, supply is affected by a series of external factors such as fluctuations in sea temperature salmon lice and diseases. The relatively large supply fluctuations and the stable demand leads to large volatilities in prices. SalMar is partially securing themselves against volatile prices by selling salmon with forward contracts. In 2016 around 51% of the volume harvested was sold with forward contracts.

Credit risk

Credit risk with regards to account receivables is considered low. Historically, losses with regards to accounts receivable has been relatively low.

1000NOK	**2015**	**2016**
Accounts receivable	826701	602388
Realized loss	393	5297
Realized loss in % of receivables	0.05%	0.88%

Table 9: Loss in accounts receivables

SalMar is following strict guidelines to ensure that transactions are only completed with customers that has had no problems with payments earlier. They are also using credit insurance when dealing with parties where the credit risk is higher.

5.4 Summary financial statement analysis

The financial statement analysis shows that the profitability for SalMar is rising, and the company is producing better numbers than its competitors. The company´s profitability is however strongly correlated with biological issues and salmon prices, and there are no guarantees for a continuous increase. The solidity analysis proves a balanced capital structure in which the company is liquid enough to meet its short-term obligations. The operational risks including diseases, salmon lice, salmon escapes, and changes in the environment are inevitable. SalMar is constantly working to reduce these problems, but they will always exist. Fluctuations in salmon prices and currencies are also critical for the profitability of SalMar even though they are partly insured through forward-contracts. Lastly, SalMar experiences risk through interest rates. SalMar has a floating interest rate on their loans, and is affected by a change in the interest rate. Norges Bank is expecting the key policy rate to increase the next few years, but not to levels that would reduce SalMar´s profitability significantly.

6. Required Rate of Return

In the valuation of SalMar we need to estimate a reasonable required rate of return which can be used to discount the future cash flows. We use the weighted average cost of capital (WACC) calculation to find this number.

6.1 WACC

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

Where,

E=market value of equity

D=market value of debt

r_e=equity cost of capital

r_d=debt cost of capital

t=corporate tax rate

WACC is a calculation of a firm´s cost of capital in which each category of capital is proportionately weighted (Berk&DeMarzo, 2014).

6.2 Equity cost of capital

Equity cost of capital is the return a company requires to decide if an investment meets capital requirements. The equity cost of capital is found by using the Capital Asset Pricing Model (CAPM) (Berk&DeMarzo, 2014).

$$r_e = r_f + \beta \times (E[R_{Mkt}] - r_f)$$

Where,

r_e=equity cost of capital

r_f=risk-free interest rate

β=beta

$(E[R_{Mkt}]-r_f)$ = market risk premium

6.2.1 Beta estimation

Beta is a measure to determine the systematic risk of a stock or portfolio in relation to the overall market. In other words, the beta of a stock is the expected % change in its return given a 1% change in the return of the market portfolio. It can be defined as the covariance of the return between stock j and the market m, divided by the variance of the return of the market (Berk&DeMarzo, 2014).

$$\beta_j = \frac{\rho_{jm}}{\sigma^2{}_m}$$

Where,

β_j=beta coefficient

ρ_{jm}= covariance between stock and market

$\sigma^2{}_m$= market variance

The market portfolio has a beta equal to 1. So, a beta coefficient below 1 suggests a stock that is less volatile than the market. It will therefore underperform the index in up markets and outperform the index during down markets. The opposite is the case for a beta coefficient above 1.

To estimate SalMar´s beta, I use a OLS regression. Here we measure variations in the stock return in comparison with an index (such as Oslo Børs Market Index). For the OLS regression to be satisfactory it is necessary with a minimum of 50-60 observations. I will therefore

perform a regression based on SalMar against OSEBX (Oslo Børs), where I include 60 data points (five years of monthly returns). This is the method recommended by Koller, Goedhart and Wessels (2010) as daily and weekly returns leads to systematic biases. The result will be represented by a solid line called “best fit” relationship between SalMar´s stock returns and the index, and the slope of this line is denoted as the beta. The result is provided below.

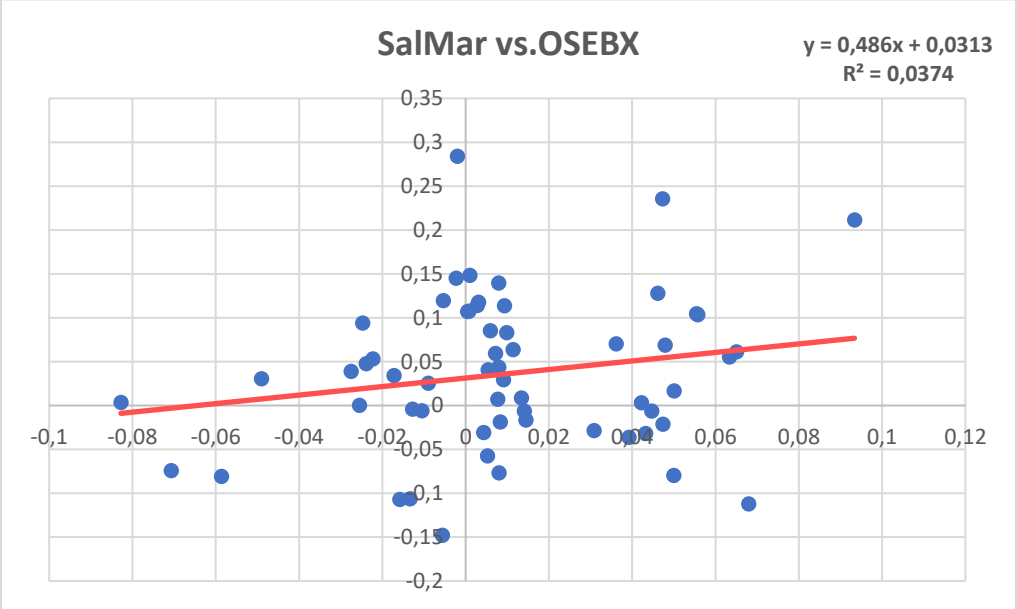

Figure 7: Regression-average monthly returns SalMar and OSEBX

Figure 7 shows that the regression gives us a beta of 0.486. The beta coefficient tells us that a 1% increase of OSEBX leads to an average of 0,486% increase in SalMar´s stock price. A beta lower than 1 indicates that SalMar has been less volatile than OSEBX during the last five years. A reason for that might be the fact that Oslo Børs is heavily represented by oil related companies, and fluctuations in oil price is therefore of great importance to the index. Since there seems to be a negative correlation between oil prices and salmon prices, it is not surprising that the large fluctuations in oil prices the last five years has led to a beta below 1 for SalMar. When running the same regression for a shorter time period (48 months and 36 months), the results were very similar. The unadjusted beta then turned out to be just over 0,50. I also ran a regression using daily returns over a five-year period. This regression gave an unadjusted beta of only 0,18, which shows the difference between using monthly and daily returns.

The r-squared value 0,0374 indicates that 3,74% of SalMar´s movement can be explained by movements in the OSEBX index. The rest, 96,26%, is related to unsystematic risk that is diversifiable risk. The very low r-square value is probably related to the negative correlation

between oil prices and salmon prices as fluctuations in salmon prices can explain much of SalMar´s stock price development. Additionally, the relatively limited number of 60 observations may also be a reason for the low r-square value.

I have performed the same regression analysis on SalMar´s competitors in order to compare them. The results can be seen below.

	SalMar	Lerøy Seafood	Grieg Seafood	Marine Harvest	Industry
Beta	0,486	0,523	0,963	0,175	0,537
Adjusted Beta	0,657	0,682	0,975	0,45	0,691

Table 10: Beta´s in the fish farming industry

There are large variations in the raw estimates. A method used to improve the estimates of beta is smoothing. Smoothing dampens extreme observations toward the overall average.

$$\text{Adjusted beta} = 0.33 + 0.67 * \text{Raw Beta}$$

Using this formula smooths raw regression estimates toward 1. (Koller, Goedhart, Wessels, 2010). SalMar´s beta then moves to 0,657 which is the estimate that will be used to calculate the cost of equity. *Infinancials* provides a beta of 0.68 which is very close to the beta found from my calculations.

6.2.2 Risk-free rate

The risk-free interest rate in the CAPM model corresponds to the risk-free rate at which investors can both borrow and save. To estimate the risk-free rate, we look to government default-free bonds. When surveyed, the vast majority of large firms and financial analysts report using the yields of long-term (10- to 30-year) bonds to determine the risk-free interest rate (Berk&DeMarzo, 2014). I will therefore use a risk-free rate based on the rate of Norwegian 10-year government bonds. The last two years the annual average for 10-year bonds has been under 2%, but historically the rate has been much higher than we experience today. In this thesis we need a required rate of return to discount future cashflows, and it is therefore more interesting to look at the future risk-free rate. The annual average from 2016 was 1,33% but has increased to 1,65% in 2017 (Norges Bank, n.d.). The rate is assumed to remain low also in the future, but I think it is appropriate to adjust it a bit upwards as we are experiencing historically low interest rate levels at the moment. In the long-run, it is reasonable to expect a higher risk-free rate. The risk-free rate is therefore assessed to be 2%.

6.2.3 Market risk premium

Market risk premium is the difference between the market´s expected return and the risk-free rate. No single model for estimating the market risk premium has gained universal acceptance, and it is therefore several methods to estimate the market risk premium. However, none of today´s models estimate the market risk premium precisely. Still, based on evidence from some of the models, it is believed that the market risk premium varies continually between 4.5-5.5% (Koller, Goedhart, Wessels, 2010). According to *PWC* in collaboration with *Norske Finansanalytikeres Forening*, the market risk premium at the end of 2016 was stable at 5% (Mjelde, 2017). A market risk premium of 5% is therefore chosen in this thesis.

6.2.4 Estimating the equity cost of capital

We can now estimate the equity cost of capital by using CAPM:

$$r_e = r_f + \beta \times (E[R_{Mkt}] - r_f)$$

$$r_e = 0.02 + 0.657 * [0.05] = 5.285\%$$

The equity cost of capital is estimated to be 5.285%.

6.3 The debt cost of capital

Aswath Damodaran (2016) provides a way to compute the cost of debt:

Cost of debt=riskfree rate+2/3 country default spread+ company default spread

An argument against this approach is the fact that larger companies that derive a significant portion of their revenues in global markets may be less exposed to country default risk. In other words, they may be able to borrow at a rate lower than the government (Damodaran, 2016). Berk & DeMarzo (2014) provides an alternative approach where we approximate beta using estimates of betas of bond indices by rating category. The debt cost of capital is then estimated using the CAPM. In order to use this method, we need to find SalMar´s synthetic rating. As there is no rating existing for SalMar, I need to calculate this rating. Table 11 has been developed using *Standard & Poor´s* rating system.

Rating	Liquidity Ratio	Interest Coverage Ratio	Equity Ratio
AAA	11,6	16,9	0,940
	8,9	11,6	0,895
AA	6,2	6,3	0,85
	4,6	4,825	0,755
A	3	3,350	0,66
	2,350	2,755	0,55
BBB	1,7	2,16	0,44
	1,450	1,69	0,38
BB	1,2	1,22	0,32
	1,050	1,06	0,27
B	0,9	0,9	0,22
	0,750	0,485	0,175
CCC	0,6	0,07	0,13
	0,55	-0,345	0,105
CC	0,5	-0,760	0,08
	0,45	-1,170	0,03
C	0,4	-1,580	-0,020
	0,35	-1,995	-0,1
D	0,3	-2,41	-0,180

Table 11: Numbers to estimate synthetic rating

With these numbers, SalMar´s synthetic rating can be estimated. The liquidity ratio has earlier been provided as 2,29 in 2016 which put SalMar at an BBB+ rating. The interest coverage ratio is very high and is considered AAA. Lastly, SalMar had an equity ratio of 0,499 which gives them a rating of BBB+. Based on these results, A is a fitting rating for SalMar. Average debt beta for companies with A and above rating is less than 0.05. Debt betas are also expected to be lower for industries that are less exposed to market risk. It is therefore assumed that SalMar´s debt beta is 0.04. The numbers can now be put into the CAPM in order to calculate the debt cost of capital:

Debt cost of capital=riskfree rate+β*market risk premium

r_d=2%+0.04*5%=2,2%

The debt cost of capital and the cost of capital that SalMar must pay on its debt is estimated to be 2,2%. This is a relatively low number, and is probably not a good indication of SalMar´s actual cost of debt. An alternative is to apply a method where interest expenses are divided by net interest-bearing debt. This method often gives a better indication of the actual cost of debt for SalMar.

$NIBD_{2016}$=2 364 100

Interest expenses$_{2016}$=106 328

Then we have an implied cost of debt equal to:

r_d=106 328/2 364 100=4,5%

The debt cost of capital is estimated to be 4,5% which gives a 2,3% risk premium on top of the risk-free rate. This number seems more plausible.

6.4 Estimating the WACC

We now have the values necessary to estimate the WACC for SalMar.

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

The market value of equity is calculated by multiplying total shares outstanding and price per share (27.11.2017). The corporate income tax of 24% is also incorporated into the model. We get a WACC of 5,14%.

WACC	
Shares Outstanding	113 299 999
Price per Share (27.11)	244,50
Market Value of Equity	27 701 849 756
Debt	2 364 100 000
Equity Cost of Capital	5,29 %
Debt Cost of Capital	4,50 %
Tax 24%	76,00 %
Beta	0,657
Risk-Free Rate	2,00 %
Market Risk Premium	5 %
WACC	**5,14 %**

Table 12: Estimation of WACC

7. Forecast

The discounted cash flow valuation model relies on forecasted free cash flow. To arrive at future cash flows, I forecast the income statement, balance sheet, and cash flow statement. The forecasted financial statements provide the information necessary to compute net operating profit less adjusted taxes (NOPLAT), capital expenditures, change in non-cash

working capital, and lastly free cash flow to the firm. In this process, the forecasting of revenue is especially critical. Almost everything forecasted will be either directly or indirectly driven by revenues (Koeller, Goedhart, Wessels, 2010).

The numbers used in this chapter is based on SalMar´s Annual- and Quarterly Reports from 2012 to 2017. For 2017, trailing 12-month data from third quarter is used. For example to get trailing 12-month revenue, I take: Revenue (2016)- Revenue from first three quarters (2016) + Revenue from first three quarters in 2017 (Damodaran, 2014).

Revenue

SalMar´s revenues in the future will primarily depend on the salmon prices and the volume harvested. As earlier mentioned, the increase in demand has been relatively steady the last few years. But since supply of salmon is constantly fluctuating, there will be large fluctuations in salmon prices. After an increase in the volume harvested from 2012-2014, the volume harvested decreased in 2015 and 2016. In 2017 the volume is again expected to increase, which proves the volatility in supply. Uncertainty with regards to the environment, sea lice, and other diseases makes it hard to forecast the future supply. I will therefore take the average increase in volume harvested the last six years, and apply that in my forecast. The average increase in volume harvested on yearly basis the last six years has been 3,5%. However, in 2017 I use SalMar´s expected volume harvested of 134 000 tons (3,4% increase from 2016). Also in 2018 I apply the expected value of volume harvested. SalMar expects to harvest 143 000 tons in 2018, which is an expected increase of 6,72%. Further, the mean of 3,5% percent increase will be used as new innovations will potentially decrease the biological and environmental issues and thereby maintain an increasing trend. Since demand seems to increase steadily and the industry is growing, I find these estimates reasonable. The development of volume harvested can be seen below.

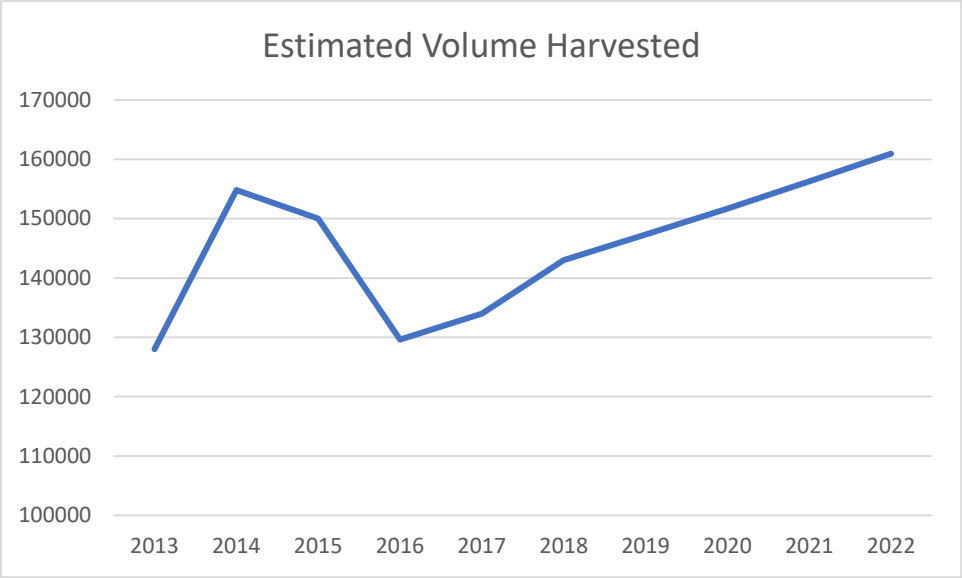

Figure 8: The figure shows the volume harvested for 2012-2016 and the estimated volume harvested for 2017-2022.

Another crucial part of revenue is the price of salmon. To forecast future prices, I use forward prices provided by *Fish Pool*, while also taking the future outlook into account. If we look at the historically achieved spot price and SalMar´s revenue, we can see that there are discrepancies.

1000 NOK	2012	2013	2014	2015	2016	Mean
Revenue	4 180 414	6 228 305	7 160 010	7 303 506	8 963 239	
Volume Harvested in tons	116 100	128 000	154 800	150 000	129 600	
Average Spot Price in NOK/kg	26,58	39,59	40,30	42,09	63,13	
Revenue (theroretically)	3 085 938	5 067 520	6 238 440	6 313 500	8 181 648	
Discrepancy	1 094 476	1 160 785	921 570	990 006	781 591	
In % of revenues	26,18 %	18,64 %	12,87 %	13,56 %	8,72 %	16,87 %

Table 13: Past revenues SalMar

The reason for the discrepancy is mainly due to VAP (value-added processing) which increase the revenue beyond harvested salmon, and the use of forward contracts which occasionally leads to a price above the spot price. By taking this discrepancy into account, we can forecast the future revenues based on forward prices of salmon and the expected volume harvested. *Fish Pool* only provides forward prices for 2018 and 2019, so after 2019 I expect the price of salmon to move toward a “normal” price as volume harvested continues to increase steadily.

1000 NOK	2017T	2018	2019	2020	2021	2022
Volume Harvested	134 000	143 000	148 005	153 185	158 547	164 096
Growth in volume harvested	3,40 %	6,72 %	3,5 %	3,5 %	3,5 %	3,5 %
Average Price	61,8	56	57,83	55	52	50
Revenue (theoretically)	8 281 200	8 008 000	8 559 129	8 425 185	8 244 426	8 204 789
Discrepancy	2 231 700	1 281 280	1 369 461	1 348 030	1 319 108	1 312 766
Total Revenue	**10 512 900**	**9 289 280**	**9 928 590**	**9 773 214**	**9 563 534**	**9 517 556**

Table 14: Forecasted future revenues

Cost of goods sold

Cost of goods sold is forecasted by multiplying the forecast ratio by an estimate of its driver. Since most items are driven by revenues, most forecast ratios, such as cost of goods sold to revenues, should be applied to estimates of future revenues. This is why a good revenue forecast is critical (Koller, Goedhart, Wessel, 2010). The historic ratios for cost of goods sold/revenues can be seen in table 15.

1000 NOK	2012	2013	2014	2015	2016
Cost of Goods Sold	2 715 056	3 376 109	3 337 411	3 809 523	4 396 689
Revenue	4 180 414	6 228 305	7 160 010	7 303 506	8 963 239
Ratio	64,95 %	54,21 %	46,61 %	52,16 %	49,05 %

Table 15: The historical ratios for COGS/revenues

The table shows that the ratio is revolving around 50% except for in 2012. The largest component in cost of goods sold is as earlier mentioned the cost of feed. In 2016 this cost represented 55-60% of cost of goods sold. In 2012 this number was 45%-50%, so the cost of feed is steadily increasing. The ratio is not increasing however, which can indicate that SalMar is able to be more efficient and cut costs in other areas. For 2017, there is no indication of a significant change in the price of feed, and there are indications of a slightly lower ratio between COGS and revenue. From 2018 and onwards, I expect the ratio to continue to be around 50%. The bargaining power of suppliers of fish feed is high and they will probably continue to increase prices of feed, but the fact that SalMar has some exciting investments could potentially make production more efficient and cut costs in other areas.

1000 NOK	2017T	2018	2019	2020	2021	2022
Revenue	10 512 900	9 289 280	9 928 590	9 773 214	9 563 534	9 517 556
Ratio	48,28 %	51,00 %	50,00 %	50,00 %	50,00 %	50,00 %
Cost of Goods Sold	**5 075 789**	**4 737 533**	**4 964 295**	**4 886 607**	**4 781 767**	**4 758 778**

Table 16: Forecasted future cost of goods sold

Wage costs and other operating costs

Also these operating expenses on the income statement is forecasted based on revenues. The costs are divided by revenues, and historical ratios are found.

1000 NOK	2012	2013	2014	2015	2016	Mean
Wage Cost	483 215	623 053	710 430	765 881	861 534	
Ratio Wage Cost/Revenue	11,56 %	10,00 %	9,92 %	10,49 %	9,61 %	10,07 %
Other Operating Costs	885 983	1 086 299	1 142 953	1 272 186	1 377 795	
Ratio Other Cost/Revenue	21,19 %	17,44 %	15,96 %	17,42 %	15,37 %	16,95 %

Table 17: Historical ratios for wage cost and other operating costs divided by revenues

Both wage costs and other operating costs have high correlation with revenue. As revenue increase, these costs basically increase proportionally. The wage cost to revenue is around 10% for all 6 years, and the mean (including 2017) is 10,07%. I also looked at the mean for the three years before 2012, and the result was 10,17%. That strengthens the indication of a wage cost to revenue of around 10% also in the future. In the forecast, the mean of 10% will therefore be used as the forecast ratio. Other operating expenses are fairly consistent over the last five years (between 14,3% and 17,4%). Also here I looked at the mean for the four years before 2012 and the result was 15,35%. That strengthens the indication of other operating cost to revenue of around 15-18% also in the future. 16,5% will therefore be used as the forecast ratio.

1000 NOK	2017T	2018	2019	2020	2021	2022
Wage Cost	**926 400**	**928 928**	**992 859**	**977 321**	**956 353**	**951 756**
Ratio Wage Cost/Revenue	8,81 %	10,00 %	10,00 %	10,00 %	10,00 %	10,00 %
Other Operating Costs	**1 502 600**	**1 532 731**	**1 638 217**	**1 612 580**	**1 577 983**	**1 570 397**
Ratio Other Cost/Revenue	14,29 %	16,50 %	16,50 %	16,50 %	16,50 %	16,50 %

Table 18: Forecasted future wage costs and other operating costs

Depreciation

Koller, Goedhart, Wessel (2010) provides a pair of options to forecast depreciation. Depreciation can be forecasted as a percentage of revenues or as a percentage of property, plant, and equipment. I have chosen the first method as depreciation represents approximately the same value every year which can be seen below.

1000 NOK	2012	2013	2014	2015	2016	Mean
Depreciation	169 621	220 820	275 765	307 280	358 020	
Revenue	4 180 414	6 228 305	7 160 010	7 303 506	8 963 239	
Ratio	4,06 %	3,55 %	3,85 %	4,21 %	3,99 %	3,90 %

Table 19: Historical ratios for depreciation divided by revenue.

The historical ratio is constantly between 3,5-4,2%, and the mean (including 2017) is 3,9%. I expect this relationship to continue and the forecast ratio is therefore set to 3,9%.

1000 NOK	2017T	2018	2019	2020	2021	2022
Revenue	10 512 900	9 289 280	9 928 590	9 773 214	9 563 534	9 517 556
Ratio	3,73 %	3,90 %	3,90 %	3,90 %	3,90 %	3,90 %
Depreciation	**392 000**	**362 282**	**387 215**	**381 155**	**372 978**	**371 185**

Table 20: Forecasted future depreciation

Working Capital

Net working capital is defined as a company´s current assets minus its current liabilities. Net working capital is the capital required in the short-term to run the business (Berk&DeMarzo, 2014). As recommended by Koller, Goedhart, Wessels (2010), nonoperating items such as excess cash and short-term debt is excluded.

1000 NOK	2012	2013	2014	2015	2016
Total Current Liabilities	1 562 768	1 224 973	1 532 974	1 724 273	2 785 996
Current Liabilities-Short-Term Debt	966 480	827 787	1 256 307	1 583 852	2 587 383
Total Current Assets	3 196 340	4 128 422	4 502 001	4 708 096	6 119 635
ΔNon-interest bearing current liabilities		- 138 693	428 520	327 545	1 003 531
ΔCurrent assets		932 082	373 579	206 095	1 411 539
ΔNon-Cash Working Capital		**1 070 775**	**- 54 941**	**- 121 450**	**408 008**

Table 21: Historical change in non-cash working capital

By estimating every current liability and asset items in the balance sheet as a percentage of revenue or cost of goods sold, the change in non-cash working capital is found. The complete forecast of the items in the balance sheet can be found in the appendix.

1000 NOK	2017T	2018	2019	2020	2021	2022
Total Current Liabilities	2 578 742	2 387 345	2 531 790	2 492 170	2 438 701	2 426 977
Non-interest bearing current liabilities	2 119 012	1 922 881	2 035 361	2 003 509	1 960 525	1 951 099
Total current assets	6 878 660	6 038 032	6 354 297	6 254 857	6 120 662	6 091 236
ΔNon-interest bearing current liabilities	- 468 371	- 196 131	112 480	- 31 852	- 42 984	- 9 426
ΔCurrent assets	759 025	- 840 628	316 265	- 99 440	- 134 195	- 29 426
ΔNon-Cash Working Capital	**1 227 396**	**- 644 497**	**203 786**	**- 67 588**	**- 91 211**	**- 20 001**

Table 22: Forecasted future change in non-cash working capital

Capital Expenditures

Capital expenditures are funds used by a company to acquire or upgrade physical assets such as properties, plants or equipment (Berk&DeMarzo, 2014). We find the yearly capital expenditures by looking at cash flows from investing activities minus depreciation.

1000 NOK	2012	2013	2014	2015	2016	Mean
Revenue	4 180 414	6 228 305	7 160 010	7 303 506	8 963 239	
Cash Flow from Investing Activities	399 664	698 700	1 031 871	724 745	1 231 282	
Depreciation	170 168	225 820	278 164	321 449	358 020	
Net CAPEX	229 496	472 880	753 707	403 296	873 262	
In % of revenue	5,49 %	7,59 %	10,53 %	5,52 %	9,74 %	7,11 %

Table 23: Historical Capital Expenditures

The capital expenditures as percentage of revenue is relatively steady between 5,5% and 10,5%. The mean (including 2017) of 7,11% is therefore used as the forecast ratio.

1000 NOK	2017T	2018	2019	2020	2021	2022
Revenue	10 512 900	9 289 280	9 928 590	9 773 214	9 563 534	9 517 556
Net CAPEX	395 100	660 030	705 455	694 415	679 517	676 698
In % of revenue	3,76 %	7,11 %	7,11 %	7,11 %	7,11 %	7,11 %

Table 24: Forecasted future capital expenditures

NOPLAT

Free cash flows are the cash flows available to all investors; equity holders, debt holders, and any other non-equity investors. The theory was discussed earlier in this thesis, and it is now being implemented. We need to calculate NOPLAT (net operating profit less adjusted taxes) as the free cash flows are derived by:

$$FCFF = NOPLAT + Depreciation - Capital\ expenditures - \Delta Working\ capital$$

The calculation is provided below:

1000 NOK	2017T	2018	2019	2020	2021	2022
Revenue	10 512 900	9 289 280	9 928 590	9 773 214	9 563 534	9 517 556
COGS	5 075 789	4 737 533	4 964 295	4 886 607	4 781 767	4 758 778
Wage Cost	926 400	928 928	992 859	977 321	956 353	951 755,58
Other Operating Cost	1 502 600	1 532 731	1 638 217	1 612 580	1 577 983	1 570 397
Depreciation	392 000	362 282	387 215	381 155	372 978	371 185
Operating Profit	2 616 111	1 727 806	1 946 004	1 915 550	1 874 453	1 865 441
Taxes(24%)	627 867	414 673	467 041	459 732	449 869	447 706
NOPLAT	**1 988 244**	**1 313 133**	**1 478 963**	**1 455 818**	**1 424 584**	**1 417 735**

Table 25: Forecasted future NOPLAT

We now have all the values needed to calculate future FCFF, and we can value SalMar.

8. Valuation

In the valuation of SalMar a two-stage forecast model is applied as mentioned in the valuation techniques chapter. The value of the firm can be written as:

$$Value\ of\ firm = \sum_{t=1}^{t=n} \frac{FCFF_t}{(1+WACC)^t} + \frac{[\frac{FCFF_{n+1}}{WACC - g_n}]}{(1+WACC)^n}$$

The first term represents the present value of expected free cash flows to the firm during the explicit forecast period. The second term is the present value of cash flows after the explicit forecast period, also known as the continuation value or terminal value. Here we assume that the firm reaches a steady state after five years and starts growing at a constant growth rate *g*. Like all stable growth models, this one is sensitive to assumptions about the expected growth rate as the terminal value account for a large percentage of a company´s total value (Damodaran, 2012). The stable growth rate cannot exceed the growth rate of the economy in perpetuity. The annual GDP growth in Norway has historically been between 2-3 percent, but with the current economic environment the growth is assumed to stay a bit lower than the historical rate. SalMar´s growth rate should also be a bit lower than the growth in GDP as GDP is the sum of different industries and companies. With the assumption that the GDP growth rate will return to more "normal" values, a growth rate of 1,5% is set (Damodaran, 2012).

Koller, Goedhart, Wessels (2010) argues that a five-year forecast period often underestimates the value of company. However, there is a growing uncertainty around values and growth as the estimation period increase and is therefore common to limit the period to five years. So, after 2022, I assume a steady state with a constant growth rate of 1,5%.

When the cash flows are discounted and added together, we have the enterprise value. The net-interest bearing debt is deducted, and we get:

Enterprise DCF				
Year	**FCF**		**Discount Factor(5,14%)**	**PV FCF**
2017	757 749		0,95	720 717
2018	1 659 881		0,90	1 501 605
2019	956 937		0,86	823 382
2020	1 210 147		0,82	990 366
2021	1 209 256		0,78	941 272
2022	1 132 222		0,74	838 240
Terminal Value	31 120 299		0,74	23 039 882
NPV FCF				28 855 464
		Enterprise Value		**28 855 464**
g=1,5%		Net Interest-Bearing Debt		2 364 100
WACC=5,14%				
		Value of equity		**26 491 364 121**
		Shares outstanding		113 299 999
		Value per Share		**234**

Table 26: Enterprise DCF

The model gives a theoretical value per share of 234 NOK. This is a lower quote than the one provided by Oslo Børs (27.11.17) at 244,50 NOK, which indicates that SalMar is slightly overpriced and should be moving towards 234 NOK.

9. Valuation Based on Comparable Firms

In this chapter a valuation based on comparable firms will be performed in order to compare and support the results found in the previous chapter. In this method we estimate the value of SalMar based on the value of other, comparable firms that we expect will generate very similar cash flows in the future. Of course, identical companies do not exist, but we can adjust for differences in scale between firms by expressing their value in terms of a valuation multiple (Berk&DeMarzo, 2014). The use of multiples to value a firm is best viewed as a "shortcut" to the discounted cash flow method of valuation, but it can be used as a good supplement to the fundamental valuation. The comparable firms that will be used in this method is the competitors discussed earlier; Marine Harvest, Grieg Seafood, and Lerøy Seafood. I am also including Norwegian Royal Salmon to get a larger peer group.

9.1 Valuation Multiples

The multiples chosen are P/E, EV/EBIT, EV/kg, EV/EBITDA, and P/B. These multiples will now be further be explained.

9.1.1 Price-Earnings Ratio

The most common valuation multiple is the price-earnings ratio which equals the share price divided by its earnings per share.

P/E=Market price per share/Earnings per share

The P here is the market price per share at 27.11.2017 for the mentioned companies. The biggest problem with P/E ratios is the variations on earnings per share used in computing the multiple. There are several variations of earnings per share, and the P/E ratio can be very different depending on which measure of earnings per share is used. It is therefore important to be consistent when computing this multiple (Damodaran, 2012).

9.1.2 EV/EBIT and EV/EBITDA

EV/EBIT is the connection between enterprise value and earnings before interest and taxes, while EV/EBITDA is the connection between enterprise value and earnings before interest, taxes, depreciation and amortization. Since the enterprise value represents the total value of a firm´s underlying business rather than just the value of equity, the multiples are advantageous if we want to compare firms with different amounts of leverage. EV/EBITDA is most relied upon however, as capital expenditures can vary substantially from period to period (Berk&DeMarzo, 2014).

9.1.3 EV/kg

EV/kg is the connection between enterprise value and volume harvested. It is a measure of production that gives the value per kg produced salmon. This multiple could be interesting as it gives an impression about how the enterprise value fluctuates with produced and sold volume. A high multiple indicates a high value per produced kg salmon.

9.1.4 P/B

P/B is here defined as the market value of equity divided by the book value of equity. The book value of equity is the difference between the book value of assets and the book value of

liabilities, a number that is largely determined by accounting conventions. It is therefore again important to use the same measure of book equity for all firms in the sample. The most current book value of equity (from Q3) is thus used (Damordaran, 2012).

9.2 Valuation

To value SalMar, the mean of the industry´s multiples will be used. By using the mean, we are taking differences between the companies into account. The market value of equity for the companies is calculated based on the share quote on 27.11.2017 and multiplied by shares outstanding. The other values are trailing 12-month values gathered from their respective Q3 reports. Table 27 provides the numbers used in the valuation.

1000 NOK	SalMar	Marine Harvest	Grieg Seafood	Lerøy Seafood	NRS
Share Quote(27.11.2017)	244,50	146,6	75,9	45,79	135,5
Shares Outstanding	113 299 999	490 167 777	111 662 000	595 773 680	43 572 191
Market Value of Equity	27 701 850	71 858 596	8 475 146	27 280 477	5 904 032
Net Interest-Bearing Debt	2 364 100	8 268 011	1 411 000	3 433 487	2 821 600
Enterpris Value	30 065 950	80 126 607	9 886 146	30 713 964	8 725 632
Book Value Equity	7 338 000	24 535 224	3 216 111	14 468 361	1 978 244
EBIT	2 616 111	8 463 204	1 209 187	3 956 468	634 096
EBITDA	3 008 111	10 194 000	1 401 999	4 549 089	707 988
EPS	23,06	13,02	7,14	5,02	13,19
Volume harvested	134 000	369 000	66 000	176 000	32 500

Table 27: Selected financial values for computing multiples

In table 28 SalMar and the industry´s multiples are computed. SalMar´s multiples are only computed for comparison purposes, and it is interesting to see that SalMar is priced higher than the industry´s mean in every multiple. This can indicate that SalMar is overvalued.

Multiple	P/E	EV/EBIT	EV/EBITDA	EV/kg	P/B
SalMar	10,60	11,49	9,99	224,37	3,78
Marine Harvest	11,26	9,47	7,86	217,15	3,27
Grieg Seafood	10,63	8,18	7,05	149,79	3,07
Lerøy Seafood	9,12	7,76	6,75	174,51	1,89
NRS	10,27	13,76	12,32	268,48	2,98
Industry Mean	**10,32**	**9,79**	**8,50**	**202,48**	**2,80**

Table 28.: Multiples for SalMar and the industry

By multiplying the industry mean with SalMar´s financial values, we get a value estimate per share. As can be seen in table 29, the spread between the values are relatively large. P/E gave the highest estimate with 238 NOK, while P/B gave the lowest estimate of 181,50 NOK. The concluding value is found by the mean of the five values. It gives an average value estimate of 209,60 NOK.

Multiple	P/E	EV/EBIT	EV/EBITDA	EV/kg	P/B
Estimated value per share	238,0	205	204,73	218,61	181,50
Average value estimated	**209,6**				

Table 29: Valuation based on comparable firms

The results from this relative valuation also shows that SalMar might be overpriced, and supports the results from the DCF-analysis in that way. It suggests that the stock is significantly more overpriced though. But as earlier mentioned, no firms are identical and the differences in the multiples are most likely due to differences in their expected future growth rates, profitability, risk, and cost of capital (Berk&DeMarzo, 2014). Anyhow, the multiples method takes the market´s expectations into consideration and estimates SalMar´s value per share in an indirect way through the industry´s relative pricing. So, the valuation using comparable firms gives valuable insights of the market´s expectations. I do not want to put too much weight on the results from this valuation, but it gives me an indication on how the stock should be moving from today´s quote. The valuation using comparable firms confirms the results of the DCF-model in that way.

10. Sensitivity Analysis

Valuation is no exact science. I have applied well-recognized methods to arrive at value estimate for SalMar, but the model is still influenced by several assumptions. Hence, there will be uncertainty in my value estimate. A sensitivity analysis could therefore be a useful tool as it shows how the value estimate varies as the underlying key assumptions change (Berk&DeMarzo, 2014), The fundamental valuation of SalMar resulted in a market value of equity of 26 500 MNOK, which equals a share price of 234 NOK. This value is lower than the quoted value on Oslo Børs at the time of the valuation. There are several factors affecting my estimate. The components in the weighted average cost of capital and the constant growth rate are particularly sources of uncertainty and of high importance in the model. As SalMar has a very high equity ratio in the WACC, the components in the equity cost of capital will impact

the value of the company the most. The debt cost of capital is therefore ignored in this analysis due to its low impact in the model. Also the market risk premium is ignored in the analysis as there are less uncertainty regarding this component. The market risk premium has been relatively stable at around 5% for a relatively long period. Hence, the components risk-free rate, beta and growth rate will be analyzed further.

First of all, I will perform a sensitivity analysis where I change the parameters one by one. After changing the parameters one by one, I will run a Monte Carlo simulation where multiple parameters are changed simultaneously.

10.1 Risk-Free Rate

In chapter 6.2.2, I arrived at a risk-free rate of 2%. It could be useful to see how a change in this factor changes the share price for SalMar. This component is especially interesting as the current interest rate level is historically low. I therefore find it more probable that we will experience an increase rather than a decrease in the interest rate in the future. The risk-free rate of 2% takes this assumption into consideration, but it might still be too low. I increase/decrease the risk-free rate by 0,25%, and observe the resulting value per share.

Risk-Free Rate	1,50 %	1,75 %	2 %	2,25 %	2,50 %	2,75 %	3 %
WACC	4,68 %	4,91 %	5,14 %	5,37 %	5,60 %	5,83 %	6,06 %
Value per Share	270	251	234	219	206	194	183

Table 30: Change in WACC and value per share as a result of changing risk-free rate

As seen in the table, the value per share changes substantially as the risk-free rate changes. If the risk-free rate is adjusted upwards to 3% for example, we get a value per share of only 183 NOK. A change in the risk-free rate will probably also affect other parameters however. It could be misinterpreting to look at changes in risk-free rate and its effect on value per share without changing other parameters as well.

10.2 Beta

I have estimated SalMar´s beta to be 0.657. This analysis will show the change in WACC and thereby value per share for beta values between 0,4 and 1. Beta values are not stable, and SalMar´s beta will vary against the benchmark index in different time periods.

Beta	0,4	0,5	0,6	0,657	0,7	0,8	0,9	1
WACC	3,95 %	4,41 %	4,88 %	5,14 %	5,34 %	5,80 %	6,26 %	6,72 %
Value per Share	355	296	253	234	221	195	175	158

Table 31: Change in WACC and value per share as a result of changing beta

The table proves that a slight change in beta has a significant effect on value per share for SalMar. Beta is implemented in the calculation of equity cost of capital. As SalMar has a very high equity/debt ratio in the calculation of WACC, slight changes in beta leads to large differences in WACC and thereby the value per share. If we assume that SalMar´stock return is moving more like the market, we get a higher beta and a lower value per share. A beta of 1 will for example give a value of 158 NOK. On the other side, a beta of 0,4 gives a value of 355 NOK.

10.3 Constant Growth Rate

The terminal value represents almost 80% of SalMar´s enterprise value and changes in the constant growth will therefore have large implications on the value estimate. As the growth rate for SalMar cannot exceed the growth rate of the economy in perpetuity, it is reasonable to look at a constant growth rate between 0-2,5%.

Growth Rate	0 %	0,5 %	1 %	1,5 %	2 %	2,5 %
Value per Share	174	190	209	234	266	311

Table 32: Change in value per share as a result of changing the constant growth rate

We observe that a 0,5% increase in the constant growth rate increase the value per share to 266 NOK. A 0,5% decrease in the growth rate reduce the value to 209 NOK. I believe that my choice of growth rate is reasonable as the constant growth rate should not exceed the risk-free rate. Further, the growth rate of the economy is not expected to exceed the historical level of 2-3%. With the current economy and its outlook, a growth rate between 1-2% seems most likely.

10.4 Simulation

The sensitivity analysis has so far showed how changes in one key variable will affect the value estimate. To increase the validity of this thesis, I will now perform a more comprehensive simulation where multiple variables can be changed at the same time. This can be done using a Monte Carlo simulation. In a Monte Carlo simulation, values are sampled at random from probability distributions. Each set of samples, also called an iteration, is recorded and performed thousands of times. The result is a probability distribution of possible values for SalMar (Monte Carlo simulation, n.d.).

I choose to analyze the same variables as above; risk-free rate, beta and constant growth rate. It could have been useful to include other variables from the forecast. But most of the numbers in the forecast are driven by a percentage of revenue and forecast inputs will therefore change according to revenue. This makes it difficult to implement these inputs into the simulation. Instead I find it more suitable to run a scenario analysis where changes in these variables are taken into account.

I have chosen a triangular distribution in the Monte Carlo simulation. This is a continuous probability distribution with a minimum, most likely, and maximum value (Monte Carlo simulation, n.d.). This probability distribution is chosen because I assume that the values are most likely equal to the values that I used in the fundamental valuation. However, I still believe that the variables can fluctuate between a certain interval. If we look at risk-free rate for example, it is assumed to be 2% based on the current and expected future yields on Norwegian 10-year government bonds. There is still uncertainty to whether the risk-free rate will remain at the current low level or move towards higher levels though. I therefore set a minimum value of 1,5% and a maximum value of 2,5%. The same approach is done with the constant growth rate. I assume 1,5% as the most likely. It is still chances for an upswing and a maximum value of 2,5%, or a decrease and a minimum value of 0,5%.

When it comes to beta, I have chosen a uniform probability distribution where all values within an interval have an equal chance of occurring (Monte Carlo simulation, n.d.) I find this distribution more suitable for beta as there are great uncertainty associated with this variable. I estimated the value to be 0.657 from a regression analysis in chapter 6.2.1, but beta is very sensitive to different measurement periods and the value will fluctuate. A minimum value of 0.45 and maximum value of 0.85 is set. Table 33 outlines the estimates of minimum, maximum and most likely values for the values in the Monte Carlo Simulation.

Variable	Probability Distribution	Minimum	Most Likely	Maximum
Risk-Free Rate	Triangular	1,5%	2%	2,5%
Growth Rate	Triangular	0,5%	1,5%	2,5%
Beta	Uniform	0.45		0.85

Table 33:Interval for the variables in the Monte Carlo Simulation

I ran 20 000 iterations in a constructed Monte Carlo model in Excel and it resulted in a frequency distribution of value per share as seen in figure 9. The mean value is 244 NOK and

the median is 234 NOK. The probability for a value per share that is higher than 234 NOK (base case) is higher than the probability of a value lower than 234 NOK, and the mean value is thereby naturally higher than the base case of 234 NOK.

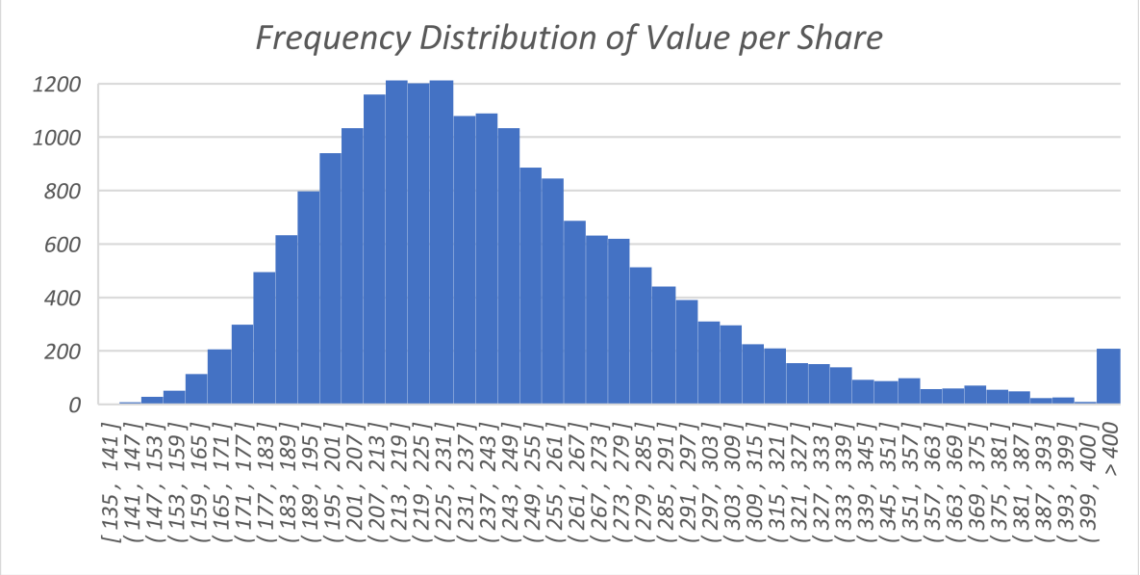

Figure 9: Frequency distribution of value per share

The table below shows some key result from the simulation:

Trials	20 000
Base Case	234 NOK
Mean	243,96 NOK
Median	234,24 NOK
Standard Deviation	54,19
Minimum	134,07 NOK
Maximum	812,39 NOK
Probability of a value below 234 NOK	45%

Table 34: Output from the Monte Carlo simulation

The upside and downside risk are the probability for the value to be higher or lower than my value estimate of 234 NOK. As table 34 shows, the probability of a lower value is around 45% and the probability of a higher value is 55%. It is in other words a relatively similar probability of a value above or below my value estimate. If the probability for a higher value estimate had been much higher than the probability of a lower value estimate, it would have created additional uncertainty in my value estimate. Hence, it can be an advantage that the probability is roughly the same for a higher or lower value per share. If something, my value estimate is slightly undervalued and the real value is actually higher and closer to the value provided by the market.

As we have now seen in the sensitivity analysis and simulation, there are great uncertainty regarding my value estimate. The model I have used is based on assumptions, and small changes in the assumptions leads to large fluctuations in the value estimate. This analysis has underlined how important and fragile the assumptions are in this valuation model. I find the fact that the model assumes a constant growth rate and WACC in perpetuity especially thought-provoking. The terminal value accounts for 80% of the total value in my model, and one can ask oneself if it is realistic to assume a constant growth rate and a WACC in perpetuity.

11. Scenario Analysis

The future is uncertain and the sensitivity analysis proved the uncertainty in my value estimate. Due to this uncertainty, I find it suitable to perform a scenario analysis in addition to the sensitivity analysis. In the scenario analysis I will provide two alternative scenarios: a best-case and a worst-case scenario.

11.1 Best-Case

It is not realistic to expect that the current very high prices of salmon will last in the long-term, so I expect the salmon prices to decrease also in this scenario. Strong demand for salmon will however contribute to maintain a relatively high price level. As it is not realistic to expect an increase in salmon prices, the increase in revenue must come from an increase in volume harvested. Biological issues such as salmon lice are probably reduced, which contributes to SalMar being able to sell more. The increase in supply will not lead to a large reduction in salmon price however, as the growth in global demand offset the growth in supply. The beneficial weak NOK will also last for a while, which contributes to higher revenues. I assume estimates of revenue that are 5% percent higher than the estimates in the base case.

As this is an optimistic scenario, it is also assumed that SalMar will experience a little lower COGS/revenue ratio than in the base case. The ratio will be reduced with 2% from 50% to 48%. Further, I assume that wage cost, other operating costs, depreciation, capital expenditures, and change in working capital will follow the same development (have the same ratio) as in the base case.

Since SalMar is accomplishing higher margins, they are in a stronger position to meet short-term obligations and the risk for shareholders are reduced. This leads to a lower average weighted cost of capital (0,2 percentage point is deducted in this case). Higher margins also give the opportunity for larger reinvestments and growth in the long-run. The constant growth rate is therefore set to 2%.

The best-case scenario results in a value of equity of 38,5 billion NOK and thus value per share of 340 NOK.

11.2 Worst-Case

In the worst-case scenario, I expect the price of salmon to drop more than in the base case. The combination of lower prices and a limited growth in volume harvested, leads to a reduction in revenue. SalMar is currently treasuring the weak NOK, but in the future a stronger NOK can contribute to less export of salmon and a decrease in demand from foreign markets. The growth in revenue are negative in the base case, but in this pessimistic scenario I assume estimates of revenue that are 5% lower than the base case estimates.

The industry is facing large biological issues, and it may take years for the companies to find sustainable solutions to the problems. If the biological issues become more prominent than they currently are, the cost of goods sold will increase. In this pessimistic scenario the COGS/revenue ratio is therefore adjusted up 2% from 50% to 52%. Further, I assume that wage cost, other operating costs, depreciation, capital expenditures, and change in working capital will follow the same development (have the same ratio) as in the base case. The argument for the constant growth rate and the weighted average cost of capital is the complete opposite from the best-case scenario. That gives a 0,2 percentage points higher WACC and a constant growth rate of 1%.

The worst-case scenario results in a value of equity of 18,5 billion NOK and thus value per share of 164 NOK.

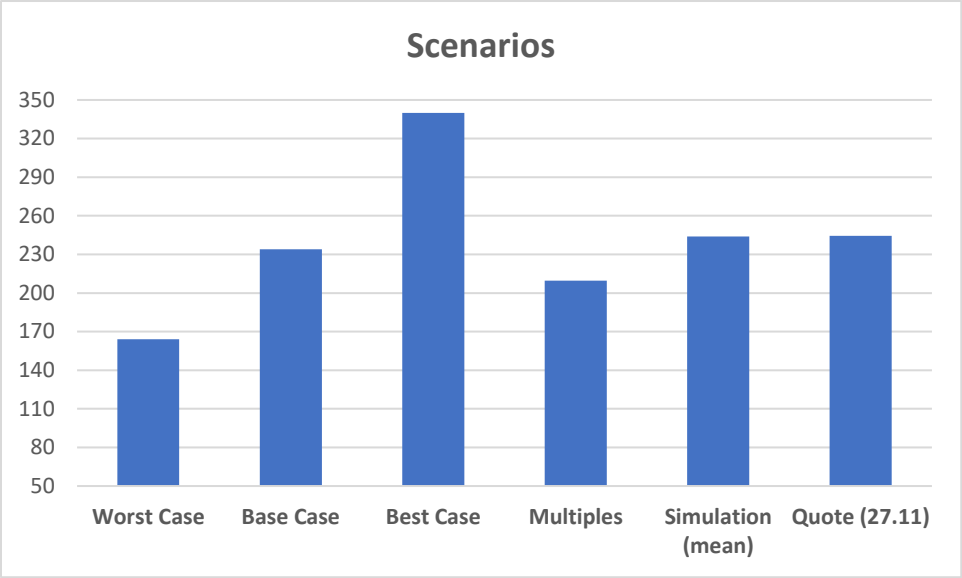

Figure 10: The value per share in different scenarios, the value per share from multiples, the mean from the Monte Carlo simulation, and the quote from Oslo Børs at 27. November.

Figure 10 illustrates the different value estimates in the thesis. Based on these results I recommend a hold strategy. Below I have provided a table that shows what 33 analysts from the financial sector recommend. This market consensus gives me indications to what the market expects. My recommendation of holding the stock equals what 30 percent of the analysts recommend. Most of these analysts recommend to buy the stock.

Recommendations	Number of Analysts
Buy	13
Outperform	7
Hold	10
Underperform	2
Sell	1

Table 35: The recommendation of 33 analysts from Reuters, Yahoo Finance, and E24.

12. Summary and Conclusion

In this thesis I have applied two techniques to estimate the value of equity for SalMar. I put the most emphasis on a fundamental valuation, where a two-stage DCF-model was used. As a supplement I also performed a valuation using multiples from comparable firms.

The fundamental valuation estimates the enterprise value by discounting future cash flows. The cashflows are discounted by the weighted average cost of capital, which are based on my

estimates of risk-free rate, beta, market risk premium, and the debt cost of capital. I also calculated a terminal value where I assume a constant growth rate of 1,5%. To arrive at a value of equity, net interest-bearing debt is subtracted from the enterprise value. The forecasted future financial statements are based on historical information and the strategic analysis of SalMar and the industry.

The DFC-model gave me a value estimate for SalMar of 26,5 billion NOK or 234 NOK per share. The valuation using comparable firms resulted in a value of 23,75 billion NOK or 210 NOK per share. The fundamental valuation is based on thorough analysis, and I therefore put the most emphasis on this approach. The valuation using comparable firms, values SalMar indirectly based on the industry´s relative pricing. My analyses indicate that SalMar is somewhat overpriced.

As earlier mentioned, valuation is no exact science and this thesis is based on several assumptions. To assess the reasonableness of my value estimate, I performed a sensitivity analysis and a scenario analysis. The analyses uncover that there is great uncertainty regarding my value estimate, and shows that the model is especially sensitive to changes in risk-free rate, beta, and constant growth rate. By performing a strategic analysis, I build a foundation for my assumptions and try to dampen the uncertainty regarding my assumptions. I still think a DCF-analysis should only be used as a foundation for valuing a firm. Due to the variety of assumptions, it should be backed up by other analyses and methods.

Lastly, I would like to propose a recommendation based on my value estimate of SalMar. Due to the uncertainty in my value estimate, I have chosen to recommend the strategy of buy, hold, or sell with a deviation of +/- 10 percent from my estimate. That gives an upper limit of 257 NOK and a lower limit of 211 NOK. As figure 11 shows, buy is recommended if the quote is below the lower limit, and sell is recommended if the quote is above the upper limit. The 27.11.2017 SalMar´s quote was 244,50 NOK, which suggests a hold recommendation.

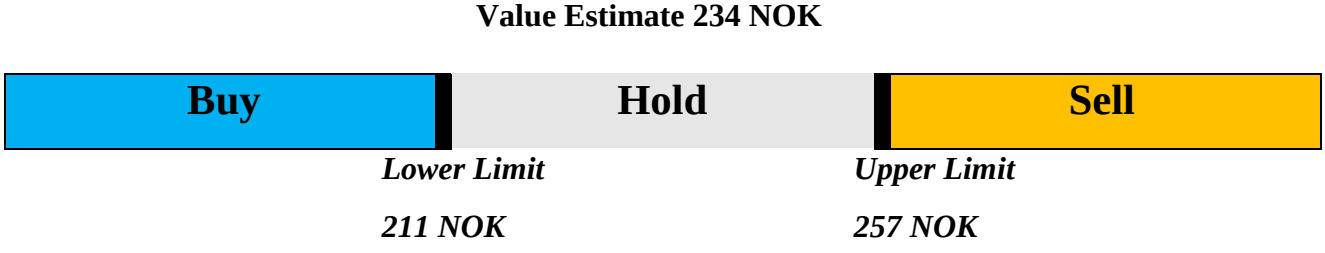

Figure 11: Trading strategy

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Appendix

Working Capital

1000 NOK	2012	2013	2014	2015	2016	Mean
Revenue	4 180 414	6 228 305	7 160 010	7 303 506	8 963 239	
COGS	2 715 056	3 376 109	3 337 411	3 809 523	4 396 689	
Short-term Debt	**596 288**	**397 186**	**276 667**	**140 421**	**198 613**	
In % of Revenue	14,26 %	6,38 %	3,86 %	1,92 %	2,22 %	5,50 %
Accounts payable	**762 765**	**515 856**	**409 485**	**649 274**	**1 199 402**	
In % of COGS	28,09 %	15,28 %	12,27 %	17,04 %	27,28 %	19,99 %
Taxes payable	**50 200**	**119 375**	**465 596**	**445 582**	**612 359**	
In % of Revenue	1,20 %	1,92 %	6,50 %	6,10 %	6,83 %	4,51 %
Other short-term liabilities	**153 515**	**192 556**	**381 226**	**488 996**	**775 622**	
In % of Revenue	3,67 %	3,09 %	5,32 %	6,70 %	8,65 %	5,49 %
Inventory	**2 289 895**	**3 248 689**	**3 321 138**	**3 634 268**	**5 221 784**	
In % of COGS	84,34 %	96,23 %	99,51 %	95,40 %	118,77 %	101,55 %
Receivables	**906 445**	**879 733**	**1 180 863**	**1 073 828**	**897 851**	
In % of Revenues	21,68 %	14,12 %	16,49 %	14,70 %	10,02 %	14,48 %

1000 NOK	2017T	2018	2019	2020	2021	2022
Revenue	10 512 900	9 289 280	9 928 590	9 773 214	9 563 534	9 517 556
COGS	5 075 789	4 737 533	4 964 295	4 886 607	4 781 767	4 758 778
Short-term Debt	**459 730**	**464 464**	**496 429**	**488 661**	**478 177**	**475 878**
In % of Revenue	4,37 %	5 %	5 %	5 %	5 %	5 %
Accounts payable	**1 015 158**	**947 507**	**992 859**	**977 321**	**956 353**	**951 756**
In % of COGS	20 %	20 %	20 %	20 %	20 %	20 %
Taxes payable	**525 645**	**464 464**	**496 429**	**488 661**	**478 177**	**475 878**
In % of Revenue	5 %	5 %	5 %	5 %	5 %	5 %
Other short-term liabilities	**578 210**	**510 910**	**546 072**	**537 527**	**525 994**	**523 466**
In % of Revenue	5,50 %	5,50 %	5,50 %	5,50 %	5,50 %	5,50 %
Inventory	**5 840 000**	**4 737 533**	**4 964 295**	**4 886 607**	**4 781 767**	**4 758 778**
In % of COGS	115 %	100 %	100 %	100 %	100 %	100 %
Receivables	**1 038 660**	**1 300 499**	**1 390 003**	**1 368 250**	**1 338 895**	**1 332 458**
In % of Revenues	10 %	14 %	14 %	14 %	14 %	14 %