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# Day Cruise Price Optimization

Viking Line Estonia

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<p>The target of this thesis was to find the best pricing model for Viking Line Estonia's day cruises. The target company represents Viking Line's third largest market after Finland and Sweden and the entire market-area includes Estonia, Latvia and Lithuania. The pricing model considers the dynamic pricing model of one-way trips, the fixed prices of campaigns and optimizes the day cruise pricing with regards to one-way trips.</p> <p>The study was based on a simple data analysis in three different data stages, the first data stage being the current state analysis based on information on actual customer data and trips they have taken during the years 2014-2016. The second data stage was based on a workshop between the sales department and revenue management where the different options were analysed and further tested. The final proposal was based on both the workshop and financial calculations. This thesis also looked at best practice models from Viking Line Finland and the biggest competitors Tallink and Eckerö Line.</p> <p>By analysing the different test periods and how the price changes the passenger's behaviour, the thesis came to an optimized pricing model that is comparable to the main products of the company, route trips.</p> <p>Finally the thesis presents a proposal for a dynamic pricing system that will help the target company implement it for Viking Line Estonia's day cruise products. The author recommends implementing the system as soon as possible and use "up to" –discounting in order to reach the most acceptable prices for the relevant market.</p>	
Keywords	Pricing, dynamic pricing, price optimization

## Contents

1	Introduction	1
1.1	Overview	1
1.2	Business Challenge	1
1.3	Case Company	2
1.4	Objective and Scope	3
1.5	Key terms	3
1.6	Thesis outline	3
2	Method and Material	5
2.1	Research design	5
2.2	Research approach	6
2.3	Data collection and analysis	6
2.4	Validity and reliability	6
3	Current State Analysis	7
3.1	Market analysis: Tallinn-Helsinki –route	7
3.2	BCG Growth Share Matrix of Viking Line Estonia's products	9
3.3	Price lists for normal pricing	10
3.3.1	Price list 1	10
3.3.2	Price list 2	11
3.3.3	Price list 3	11
3.3.4	Results from normal pricing	12
3.4	Campaigns	17
3.4.1	Results from campaign pricing	17
3.5	Additional campaign	22
3.5.1	Results from additional campaign pricing	22
3.6	Costs	26
3.7	Key Findings	26
3.7.1	Volumes	26
3.7.2	Average prices	28
3.8	Conclusions	32
4	Existing Knowledge / Best Practice	33
4.1	Pricing Strategy	33
4.2	Pricing Methods	34
4.3	The value of products and services	35

4.4	Segmentation	36
4.5	Dynamic pricing	37
4.6	Viking Line Finland	38
4.7	Eckerö Line Finland	39
4.8	Tallink Finland	39
4.9	Tallink Estonia	40
5	Building the Proposal	42
5.1	Develop the sales process of day cruises within Viking Line Estonia	42
5.2	Increase fixed price list of day cruises and come back to it every 3-6 months to make corrections	43
5.3	Enforce dynamic day cruise pricing	43
6	Validation of the Proposal	45
6.1	Base price list	45
6.2	Discounting principles	45
6.2.1	A universal discount is used for both outward and inward trips	46
6.2.2	An “up to” –discount is used for both outward and inward trips	47
6.2.3	A 100% discount is used for inward trip, outward trip is not discounted	48
6.3	Results	48
6.3.1	A universal discount is used for both outward and inward trips	49
6.3.2	An “up to” –discount is used for both outward and inward trips	49
6.3.3	A 100% discount is used for inward trip, outward trip is not discounted	50
6.4	Key findings	50
7	Discussion and Conclusions	52
	References	53
	Appendices	
	Appendix 1. List of Figures and Tables	

# 1 Introduction

## 1.1 Overview

The tourism industry is very strongly a seasonal industry where demand varies from low to high. To encourage people to use services during off-season, companies would often adjust their pricing to increase the demand. On the other side, when demand is high the prices would also be raised in order to maximize revenue.

In recent years different types of pricing methods have become available for companies to optimize their prices better and these have been especially popular within the tourism industry; airlines and hotels are known for dynamic pricing where customers need to buy their tickets early enough to make sure they get the best price. The last seats in the aircraft are likely to be very expensive compared to the first ones.

Viking Line in Finland has used dynamic pricing for its day cruise product already for 6 years, since 2010.

This thesis will focus on the day cruise prices of Viking Line in Estonia and we will attempt to find the most optimum way of creating a price list for future use.

## 1.2 Business Challenge

This thesis will introduce the optimization of day cruise pricing for Viking Line's Estonian market and how it can be improved for the future.

The business problem revolves around Viking Line Estonia's day cruise pricing on the Tallinn-Helsinki route. Currently the pricing is fixed on a weekday-basis. Such trips are otherwise dynamically priced, so a one-way trip in a fully-booked ship may be more expensive than a day cruise, where a fixed price is applied. The company could potentially lose money due to selling inexpensive trips as day-cruises, and the customers have learned to take advantage of this type of pricing strategy.

The thesis will look at both regular prices as well as campaign pricing, as there are several types of campaigns available.

### 1.3 Case Company

Viking Line is a ferry company operating with 7 vessels between 6 destinations on the Baltic Sea offering scheduled passenger and cargo services. It combines Estonia, Finland, the Åland Islands and Sweden with three main routes. The company was founded, and still operates, from the Åland Islands in 1963. The routes are Helsinki-Tallinn, Helsinki-Mariehamn-Stockholm, Turku-Mariehamn-Stockholm and Stockholm-Mariehamn. The company transports approximately 6,5 million customers yearly with a turnover of approx. 520 million EUR (Viking Line Annual Report 2016).

Viking Line gets revenue from a combination of services. According to Viking Line's Company Presentation these are:

1. Conference / Cruise
2. Transport
3. Cargo

Viking Line combines different types of cruises and conference services with transport and cargo traffic.

Viking Line Estonia is Viking Line's third largest market after Finland and Sweden and the entire market-area includes Estonia, Latvia and Lithuania. Based on Viking Line's internal statistics, in the year 2016 Viking Line Estonia represents approximately 10% of Viking Line's total passenger volume. 29% of that goes into their main route Tallinn-Helsinki, which is illustrated in Figure 1 below:

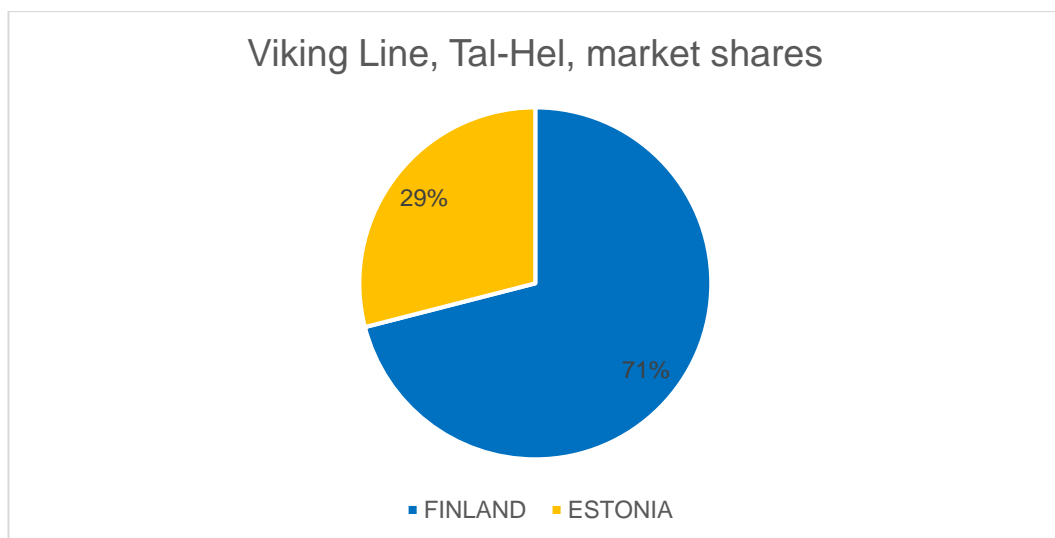


Figure 1: Viking Line's market shares on Tallinn-Helsinki route

## 1.4 Objective and Scope

The objective of the study is to find the best pricing model for the day cruises that are sold in the Estonian market for the Tallinn-Helsinki route.

The pricing model should consider the dynamic pricing model of one-way trips, the fixed prices of campaigns and optimize the day cruise pricing compared to one-way trips.

The scope of the study is a simple data analysis. There will not be any customer questionnaire because the opinion of customers is irrelevant to this study.

## 1.5 Key terms

Day cruise – a trip combination where the return takes place on the same day from the same arrival harbor to the same departure harbor.

Route trip – a one-way trip or return trip on different days, used to differentiate trips from cruises.

One-way-trip – a trip where a customer does not return on the next available trip. They might return on a later date or use a competitor's vessel for the return trip.

Dynamic price – a pricing strategy where the markets demand defines the price of the trip. The price depends on the day, time of departure and how full the ship already is. Generally, the price increases when the departure is closer to the booking moment, and popular departures will have a higher price to begin with.

Fixed price – the same price for chosen departures and it does not change based on how full the ship already is. If there are available places on the ship then the price will be fixed.

## 1.6 Thesis outline

The thesis is based on passenger data from Viking Line's ships on the Tallinn-Helsinki route. There are three test periods with different pricing models and two additional campaigns:

- 1) a fixed price for both passenger and car
- 2) a semi-fixed price for passengers, dynamic price for car
- 3) a fixed price for passengers, dynamic price for car
- 4) a fixed campaign pricing
- 5) a semi-dynamic campaign pricing

By analysing these different test periods and how the prices change passenger's behaviour we will come to an optimized pricing strategy that will compare to the main products of the company (route trips) leading to the output of the most optimum pricing model.

It is expected that with a thorough analysis, an optimized model would become available. The average price would increase and Viking Line could earn more money in terms of increased and optimized average prices per passenger.

The thesis will also look at best practice models from Viking Line Finland as well as the biggest competitors Tallink and Eckerö Line.



## 2 Method and Material

This section will introduce the method and materials used for this thesis.

### 2.1 Research design

The data stage 1 is the basis for the current state analysis. It looks at the different pricing models Viking Line Estonia has used in the past. It will also look at how changes in the past pricing models have changed the volume and ticket revenues, and how such changes could be adjusted further to optimize future price lists.

The data stage 2 will be based on the initial findings from data stage 1, and they will be discussed with relevant stakeholders to make sure that the findings are in line with the company's budgets, expectations and wishes. This stage will create the initial proposal for a future optimized pricelist.

Finally the data stage 3 will be the final testing of the optimized pricelist, which will make conclusions on whether it was a good solution for Viking Line Estonia's day cruise pricing.

Figure 2 illustrates the research design that will be used for this thesis.

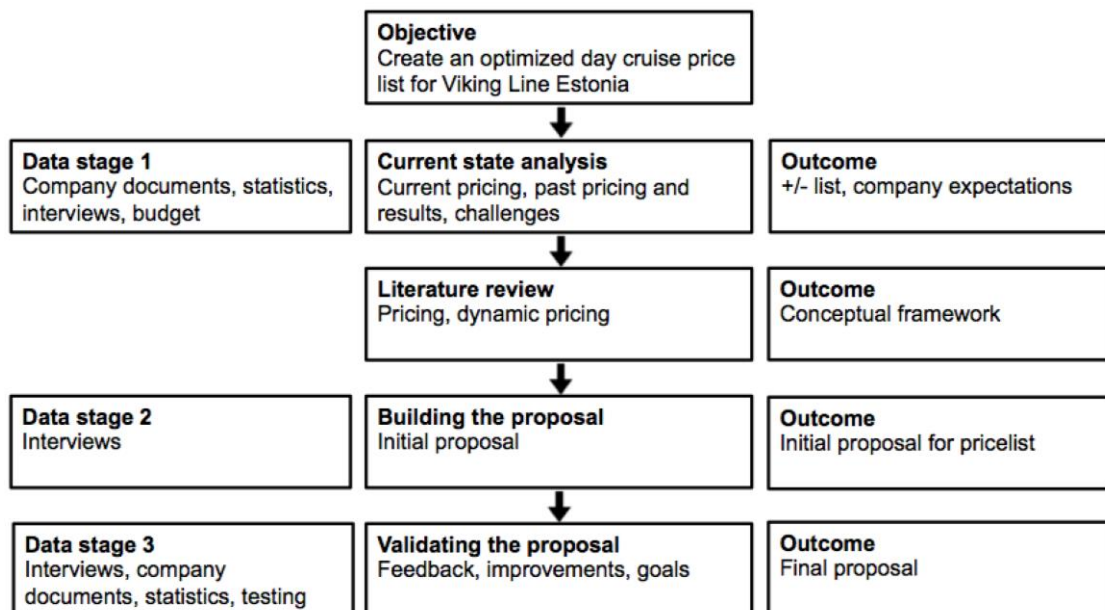


Figure 2: Research Plan

## 2.2 Research approach

This research is based on passenger data and best practices from within Viking Line's other market areas as well as the pricing models of competitors. It is a qualitative research approach looking at outcomes of past test periods and whether they met the expectations of the company.

## 2.3 Data collection and analysis

The data was collected using Viking Line's own reporting system, which is called the *BokatIncheckat* –excel table. It contains all the information about past and future trips – how many bookings were made and the outcome of those bookings. It is a statistical tool that gives numerical data on all the booking. It does not look at individual bookings and the contents of each booking so it is not possible to identify single passengers or single bookings from the system.

## 2.4 Validity and reliability

The information used in this thesis is actual data of past bookings from Viking Line's reporting system, which is called *BokatIncheckat*. It gives the actual data of passengers' bookings on-board Viking Line's vessels.

Information is presented as similarly as possible to make sure the data is comparable. The data is reliable since it's based on actual amounts of passengers and their ticket revenue and the data can be regenerated at any time if one has access to Viking Line's internal reporting system and statistics. The system does not look at individual bookings and the contents of each booking, so it is not possible to identify single passengers or single bookings from the system.

### 3 Current State Analysis

In this part of the thesis we will look at the market where Viking Line operates in. We will also identify the different price-tables for day cruises that have been used in the past by Viking Line Estonia. We will also analyse the average rates those price lists have generated.

The thesis looks at three different price groups over a three-year period and investigates the different changes that have taken place in the past. Any change in price will inevitably influence the passenger volume. The goal is to find the optimum price level and it is possible that the optimum level comes at the expense of some loss in passenger volume.

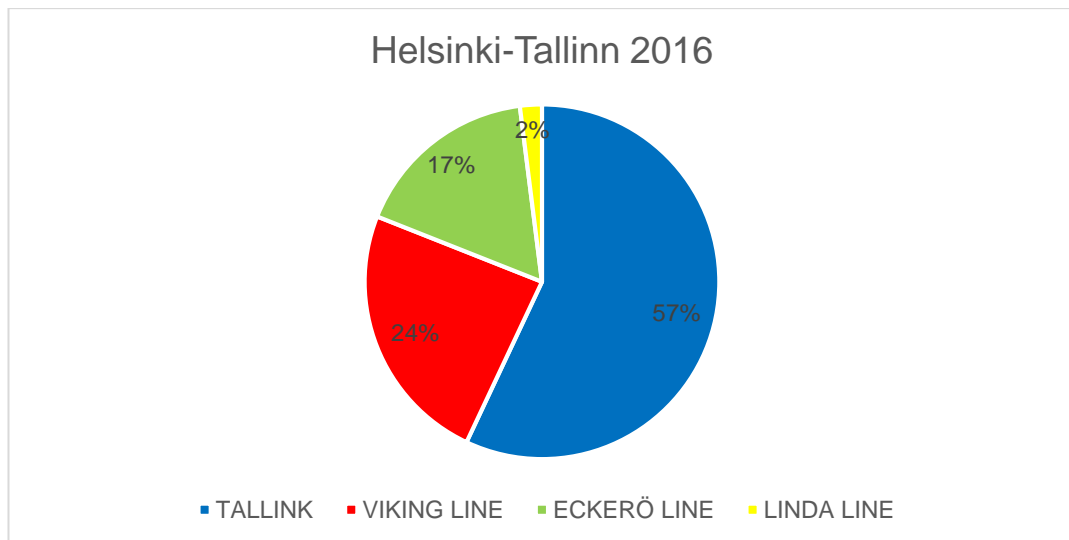
It must be noted, that Viking Line entire ticket pricing is based on an optimized sales contribution per passenger. This means that the success of a campaign, or a particular travel period is not only judged on the volume and ticket revenue it generates, but on the entire average sales contribution that each customer makes during their customer journey.

#### 3.1 Market analysis: Tallinn-Helsinki –route

Viking Line Estonia's market is the Baltic market, including Estonia, Latvia and Lithuania. Latvia and Lithuania are developing markets whereas Viking Line is already widely known in Estonia.

The market leader on the Tallinn-Helsinki route is Tallink holding approximately 57% of market share. Viking Line holds approximately 24% of the market share, and Eckerö Line approximately 17%. Linda Line carries passengers only when there is no ice on the sea, and carries approximately 1-2% of the entire market.

The competition on the Tallinn-Helsinki route is very dense. Four companies own the market share and the division between the different companies is shown on figure 2 below based on statistics from Port of Tallinn:



**Figure 3: Tallinn-Helsinki routes market shares in the year 2016**

Tallink is the market leader with three ships, M/S Star, M/S Superstar and M/S Silja Europa, and they carry approximately 57% of all the passengers on the Tallinn-Helsinki – route. In the beginning of 2017 Tallink will replace M/S Superstar with a new ship called M/S Megastar and this is expected to make changes in the market shares for the following year.

Viking Line Estonia currently carries some 500 000 passengers across the Baltic Sea, between Tallinn and Helsinki. This is approximately 24% of all the passengers with one vessel, M/S Viking XPRS, year-round, and an additional departure by M/S Mariella or M/S Gabriella during the high season. For the 2017 high season, Viking Line will add a fast catamaran HSC Viking FSTR to the route, and this is expected to make changes in the market shares for the following year.

Eckerö Line has approximately 17% of the market with one vessel, M/S Finlandia.

Linda Line operates with two small catamarans and therefore they only operate when there is no ice on the Baltic Sea. In 2016 this period was 24.3.-25.9.2016 (Linda Line 2017). They carry approximately 2% of the entire market. For the purpose of this thesis, Linda Line will not be considered as a competitor since the service they offer is not comparable to the large ships. The 2017 season will be driven with only one vessel, and this is also expected to make changes in the market shares during the following year.

Viking Line's main service on the Tallinn-Helsinki route takes place on M/S Viking XPRS, which was built in 2008. She has 4 daily departures in total between Tallinn and Helsinki. Viking XPRS combines the qualities of car ferries and entertainment as the travel time is fast enough to match the needs of frequent travellers, but slow enough to offer on-board entertainment for cruise passengers. During high season, the ships that normally travel between Helsinki and Stockholm, M/S Mariella and M/S Gabriella, make an additional trip to Tallinn during that time they would normally stay in Helsinki. This extends the amount of daily departures to 6 and making it possible for Viking Line to increase both the market as well as their market share.

### 3.2 BCG Growth Share Matrix of Viking Line Estonia's products

Viking Line offers various kinds of products to different kinds of customer groups. The most popular ones are one-way route trips and return trips. One-way trips are popular due to the nature of the route – there are many companies offering similar service and customers tend to book their trips at the last minute based on what their needs in terms of schedule are. Price plays an equally important role so if two competitors were to have the same price for the same product, then the schedule is what makes the customers decide on which company to choose from. In BCG Matrix terms, the route trips are Viking Line's *cash cow* –products, they have a high market share and have reached a saturated level where the market is no longer growing much. The only ways to grow the market shares are via campaigns or by manipulating the schedules.

Group products are also an important product group, and for this customer segment the most important factor is the price as well as group benefits. Traditionally Viking Line has offered every 20<sup>th</sup> passenger for free, but the market has shown signs that this is not a bit enough motivator and the company has tried different kinds of motivators to investigate where the appropriate deal-breaker-line is. In BCG Matrix terms, group products are *problem children*, as their profitability is low. They require investment from the company, such as more frequent group benefits, in order to keep up with budgets and targets.

Finally, day cruises are a third product group, which for the Baltic market is a very small product group and does not show signs of growth. The day cruise will never become a market leader due to the current traveling habits of customers from Baltic States – the reason for travelling between Tallinn and Helsinki is never dominantly leisure. Instead the customers are mostly business travellers who wish to travel from point A to point B,

as mentioned earlier in the cash cow –segment of this analysis. Day cruises in BCG Matrix terms are *dog products*, i.e. weak products that compete in low-growth markets. The best method forward for the day cruises would be to find a defensible niche and develop the customer journey – create more reasons and higher motivation for customers to go to Helsinki for the day.

### 3.3 Price lists for normal pricing

In this part of the thesis the different price lists for normal pricing will be explained and their results will be analysed.

#### 3.3.1 Price list 1

The first price list was in use during 2012 – 2014. It had a fixed price for both passengers and vehicles and was valid every day. There was a discounted price for Viking Club members, and a regular price for non-Viking Club members.

The price list 1 is shown in table 1:

**Table 1: Viking Line Estonia's day cruise price list 1**

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Person Viking Club ECHL	25 €	25 €	25 €	25 €	25 €	25 €	25 €
Person EHEL	28 €	28 €	28 €	28 €	28 €	28 €	28 €
Vehicle	40 €	40 €	40 €	40 €	40 €	40 €	40 €

The price list had the same fixed price across all days, both for passengers and vehicles. Viking Line had also introduced a reward price list for its Viking Club members, who would be able to book their trips at a lower price in both passenger and vehicle categories. This is per Viking Line's policy – Viking Club members always get the "best price".

The price list was built with the assumption that the day cruise is not a popular product in the Estonian market and therefore will not be used at a large scale. The price comparison between the fixed day cruise and the dynamic one-way trips was not considered. For example, on Mondays the one-way trip would actually cost much more with the dynamic price, which might have taught customers to buying a day cruise and using it only for a one-way trip, leaving the ship at an ambiguous capacity during the trip back – not to

mention having to pay for passenger fees to harbours for passengers that are not actually physically on-board the ship.

### 3.3.2 Price list 2

The second price list was in use during 2015, when changes were based on past usage. Some dynamicity was introduced to better respond to demand – slightly higher price when the usage is high and a lower price when the usage is low. A large percentage of passengers travel with a vehicle, and therefore the fixed price for cars was removed and replaced with fully dynamic prices that were tied to regular pricing instead.

It was also problematic that the same price list had been used for such a long period of time, while other one-way prices changed on a daily basis based on demand.

The new price list 2 is shown in table 2 and it was in use for the entire year of 2015.

**Table 2: Viking Line Estonia's day cruise price list 2**

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Person Viking Club ECHEL	19 €	19 €	23 €	23 €	23 €	27 €	23 €
Person EHEL	22 €	22 €	26 €	26 €	26 €	30 €	26 €
Vehicle Viking Club ECHEL	-30 %	-30 %	-30 %	-30 %	-30 %	-30 %	-30 %
Vehicle EHEL	-15 %	-15 %	-15 %	-15 %	-15 %	-15 %	-15 %

Many of the prices were in fact made less expensive than in price list 1 to encourage more travels during those days. The most popular day, Saturday, got a price increase and vehicles were changed entirely to a dynamic system. The discount came from the daily price instead of having a fixed price per each day.

### 3.3.3 Price list 3

Finally, after revising the price list in the wake of 2016, it was clear that the price level for the least expensive days, Monday and Tuesday, was too low and it was necessary to increase them. The lowest price level on Mondays and Tuesdays was brought to the same price level as Wed-Fri and Sun. Therefore the new price list had one price for Sunday-Friday and a higher price for Saturday and this is shown in table 3:

**Table 3: Viking Line Estonia's day cruise price list 3**

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Person Viking Club ECHEL	23 €	23 €	23 €	23 €	23 €	27 €	23 €
Person EHEL	26 €	26 €	26 €	26 €	26 €	30 €	26 €
Vehicle Viking Club ECHEL	-30 %	-30 %	-30 %	-30 %	-30 %	-30 %	-30 %
Vehicle EHEL	-15 %	-15 %	-15 %	-15 %	-15 %	-15 %	-15 %

### 3.3.4 Results from normal pricing

Based on Viking Line's reporting system BokatiInchekat, the normal price list gave the following volume results during the years 2014-2016 as shown below in table 4:

**Table 4: Volume results from Viking Line Estonia's day cruise price list 1**

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	TOTAL
2014	1 670	1 891	2 270	2 102	1 915	3 392	2 023	15 263
2015	2 741	2 483	1 730	1 780	1 422	2 071	1 756	13 983
2016	1 211	1 506	1 083	1 129	919	1 278	971	8 097

The average prices for each day is presented in table 5.

**Table 5: Average rate results from Viking Line Estonia's day cruise price list 1**

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
2014	29,64 €	33,44 €	32,00 €	31,62 €	32,27 €	28,00 €	28,16 €
2015	21,21 €	23,79 €	28,62 €	28,47 €	27,21 €	28,09 €	23,90 €
2016	26,48 €	28,19 €	31,94 €	27,92 €	30,68 €	29,07 €	29,48 €

The entire volume of regular day cruises has a declining trend and this can be explained by the increase of campaign products. This will be analysed further at part 3.4. of this thesis.

In 2014 the results are illustrated in figure 4.



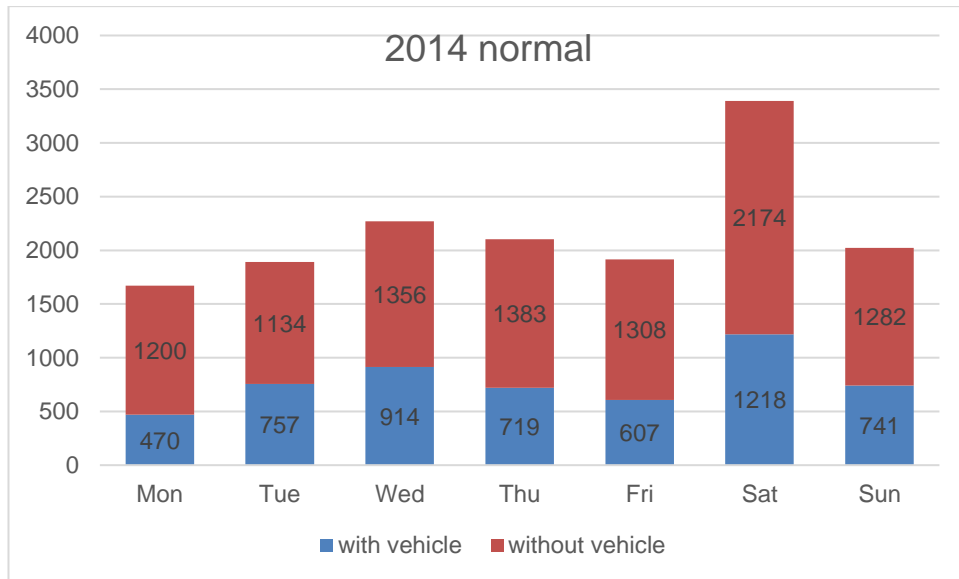


Figure 4: Volume results from Viking Line Estonia's day cruise price list 1

Saturday's are the most popular days for day cruise with 3392 passengers on a yearly level, which shows that day cruises are likely leisure trips instead of being business trips. There is a stable about of day cruises on all the other days ranging from 1670-2270 passengers per weekday on a yearly level.

The average prices have been divided between passengers with and without vehicle, and these are illustrated in figure 5.

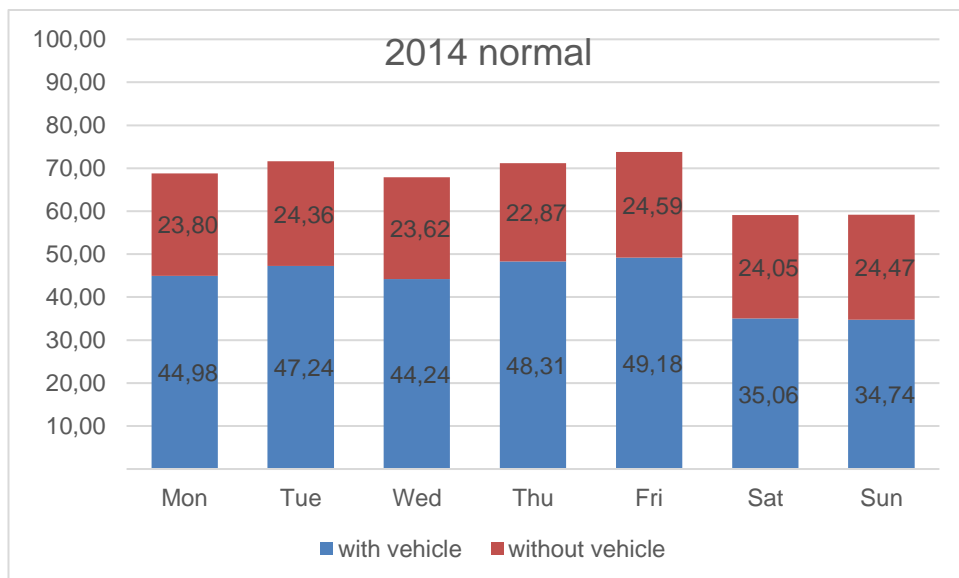


Figure 5: Average rate results from Viking Line Estonia's day cruise price list 1

There is a considerable increase in average price when a passenger travels with a car. In this example the average ticket price per car passenger is 34,74 € - 49,18 €.

The average ticket price per foot passenger is 22,87 € - 24,59 €. Viking Line allows children up to the age of 11 to travel for free, and that results in the average price per passenger being lower than the cost of the ticket.

As a whole, the results reflect the static price list well – the changes in average price are marginal in foot passengers and in car passengers also relatively small. The price range can be explained by the amount of passengers in each car. Perhaps there were many passengers who travelled alone in the car compared to having up to 5 passengers in the car in which case the price of the car would be divided between all the passengers.

The results for 2015 are illustrated in figure 6.

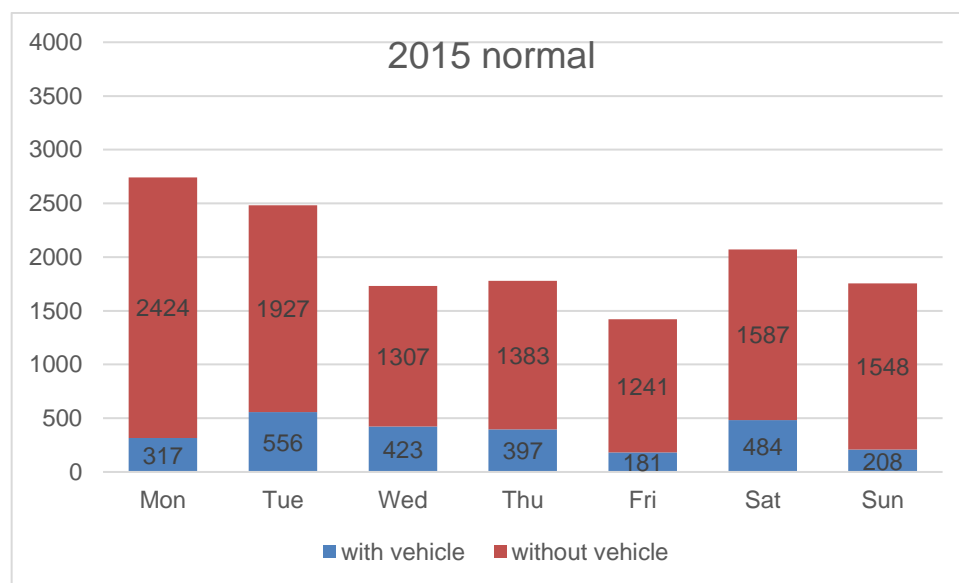
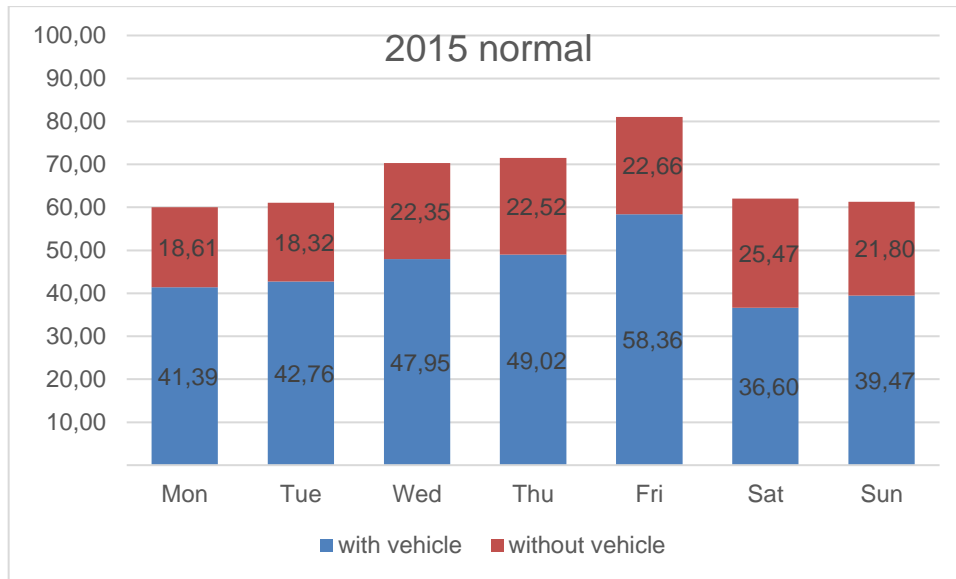


Figure 6: Volume results from Viking Line Estonia's day cruise price list 2

The nature of day cruises has changed drastically after the first change in the price list. The cheapest travel days have become the most popular and Saturday has become only the 3<sup>rd</sup> most popular. The amount of car passengers has also dropped significantly, which shows that the change of the pricing system for vehicles has not had an overall positive effect.

The average prices have been divided between passengers with and without vehicle and these are illustrated in figure 7.



**Figure 7: Average rate results from Viking Line Estonia's day cruise price list 2**

There is a clear drop on the average prices, and a very clear increase of the day cruise prices on days when it was much less expensive than previously. Car passengers now have an average rate in the price range of 36,60 € - 58,36 € and foot passengers 18,32 € - 25,47 €. The ranges have become much bigger in both car and foot passengers, which directly reflects the new price list.

This price list was, de facto, successful in increasing the amount of passengers on the previously quiet days, although day cruises with cars suffered very much. This was definitely due to the new fully dynamic pricing for vehicles and from the increase of passengers without cars.

The results for 2016 are illustrated in figure 8.

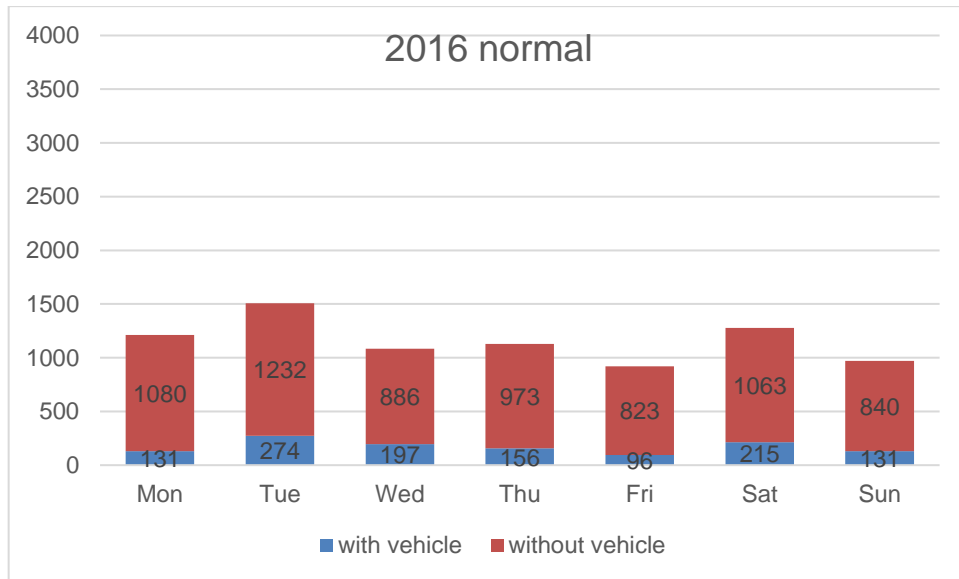


Figure 8: Volume results from Viking Line Estonia's day cruise price list 3

There is again a significant drop in the volume of normal day cruises, and this is due to the increased amount of campaign products, which became more aggressive in the years 2015 and 2016. This has a direct effect on the normal day cruise product. This will be explained in detail later in this chapter.

In addition to the clear drop in volume, there no longer is one clear day when most travels take place – instead the volume is divided very equally across all days.

The average prices have been divided between passengers with and without vehicle and these are illustrated in figure 9.

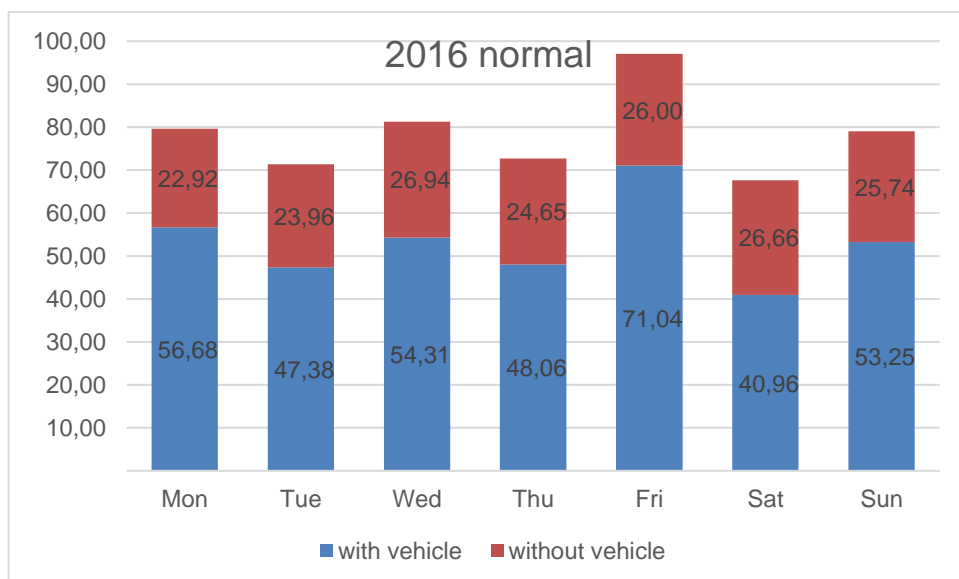


Figure 9: Average rate results from Viking Line Estonia's day cruise price list 3

Car passengers now have an average rate in the price range of 40,96 € - 71,04 € and foot passengers 22,92 € - 26,94 €. The abnormally high average price during Fridays for passengers with vehicle can be explained by the dynamic price of the vehicles and the relatively low number of passengers. Monday morning is an expensive departure just like Friday evening, which explains the average prices of over 55 €. This also explains why there were so few day cruises on Mondays and Fridays with a vehicle.

### 3.4 Campaigns

Viking Line Estonia also uses campaigns to increase volume for day cruises. The largest campaign for a day cruise product is a 2-for-1 –offer, meaning that two passengers would travel for the price of one. In statistics it simply shows as a 50% discount per each passenger.

The 2-for-1 –offers are booked with the product codes EKKAMP, ERKAMP and ECKAMP. Each product code is targeted to a different segment, but for the purpose of this thesis we will analyse them together as a campaign KAMP.

#### 3.4.1 Results from campaign pricing

Based on Viking Line’s reporting system BokatiInchekat, the campaign price reached the volume during the years 2014-2016 as shown in table 6.

**Table 6: Volume results from Viking Line Estonia’s campaign pricing**

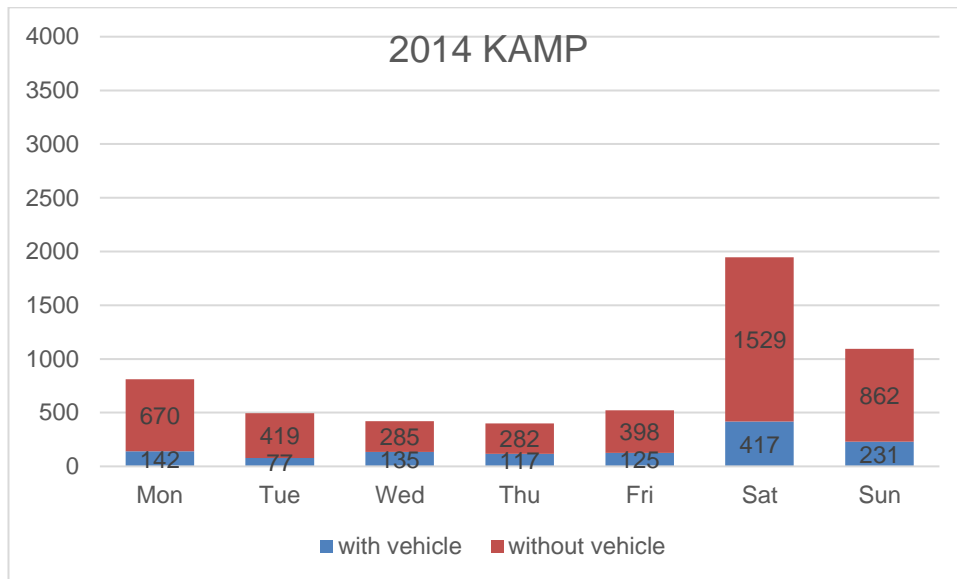
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	TOTAL
2014	812	496	420	399	523	1 946	1 093	5 689
2015	1 696	1 732	1 179	1 087	1 814	4 623	2 295	14 426
2016	1 574	1 990	1 881	1 685	1 362	3 071	1 998	13 561

The average prices for each day are shown in table 7.

**Table 7: Average rate results from Viking Line Estonia's campaign pricing**

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
2014	17,69 €	15,77 €	19,20 €	19,46 €	17,35 €	14,83 €	14,61 €
2015	12,99 €	14,04 €	15,33 €	16,98 €	15,10 €	14,43 €	12,81 €
2016	13,05 €	13,78 €	14,90 €	14,09 €	13,82 €	14,87 €	13,21 €

The volume in 2014 has been divided into passengers with vehicle and without vehicle as shown in figure 10.

**Figure 10: Volume results from Viking Line Estonia's campaign pricing in 2014**

During the first year of using the 2-for-1 pricing, the results were quite modest, as it was the first time to use the campaign message. It is also clear that the product was not distributed in many channels, and it therefore did not disrupt the use of the regular campaign products.

Saturdays were the most popular travel dates followed by Sundays. The least popular travel days are Wednesday and Thursday.

The first year's campaign pricing results are shown in figure 11:

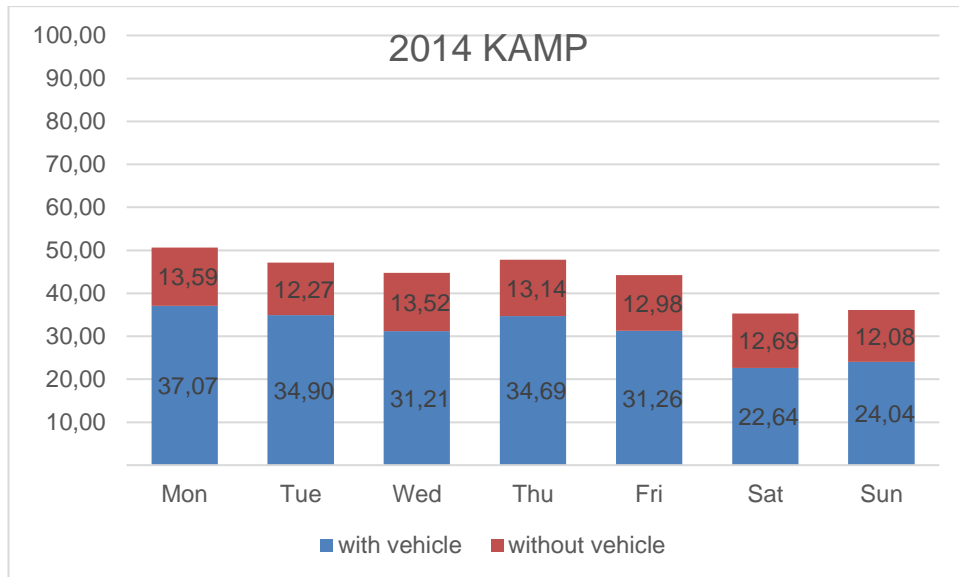


Figure 11: Average rate results from Viking Line Estonia's campaign pricing in 2014

As this price is directly connected to the regular pricing, which at the time had one price for each day, then it's clear that the average prices would also be rather static. In these results the average rate for a passenger without a vehicle is between 12,08 € – 13,59 €. For passengers with vehicles it's between 22,64 € - 37,07 €.

The following year, a new price list was implemented in regular pricing and this is mirrored also in KAMP-pricing. The 2015 campaign pricing volume results are shown in figure 12.

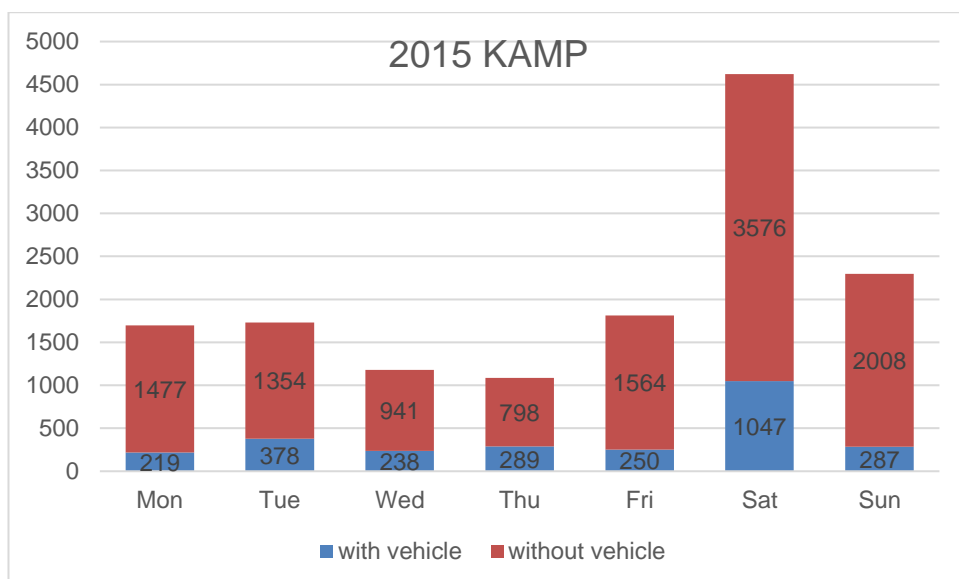


Figure 12: Volume results from Viking Line Estonia's campaign pricing in 2015

There is a very large increase of total volume and this is apparent in all days of the week. This shows that the campaign was utilized more during the year 2015. The most popular day for day cruises is Saturday and we can also see that some of the volume that was lost from normal pricing has likely moved now to the KAMP-campaign. The least popular travel dates continue to be Wednesday and Thursday.

The average price for each day is shown in figure 13.

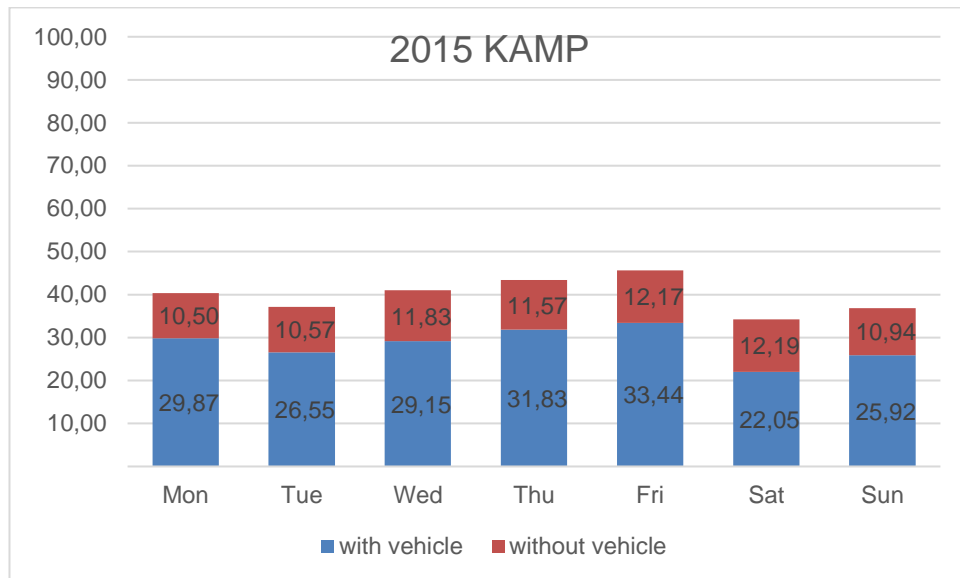


Figure 13: Average rate results from Viking Line Estonia's campaign pricing in 2015

The new regular price list is mirrored also in the average prices, resulting in passengers without vehicles at 10,50 – 12,19 €. For passengers with vehicles the average price is between 22,08 € – 33,44 €. Both customer groups show a negative trend that can be explained by both the new price list as well as the increased amount of volume.

The 2016 campaign pricing volume results are shown in figure 14.



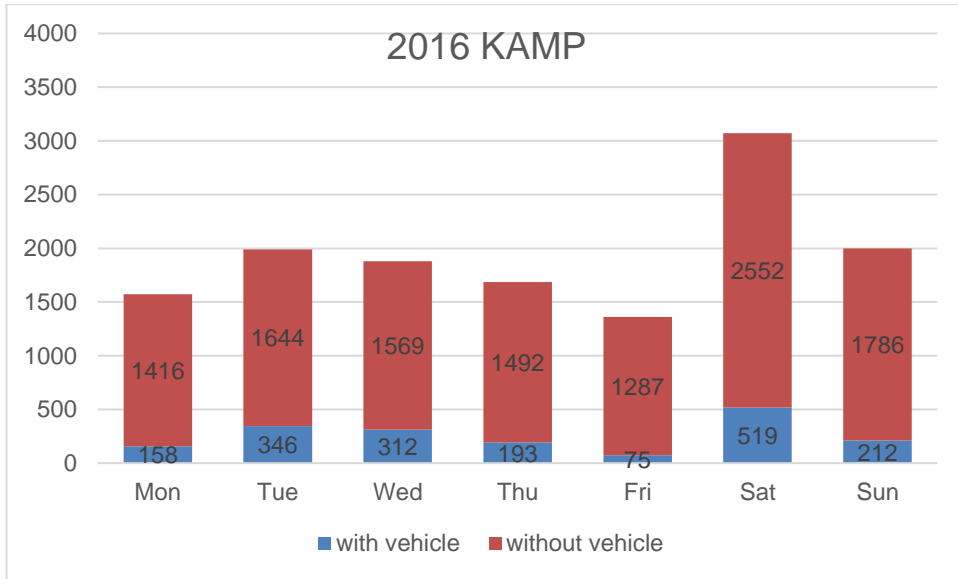


Figure 14: Volume results from Viking Line Estonia's campaign pricing in 2016

In terms of volume, the years 2015 and 2016 are very similar, the main difference comes from passengers with vehicles which has decreased. The most popular travel day continues to be Saturday and the least popular is Friday.

The average price for each day is shown in figure 15.

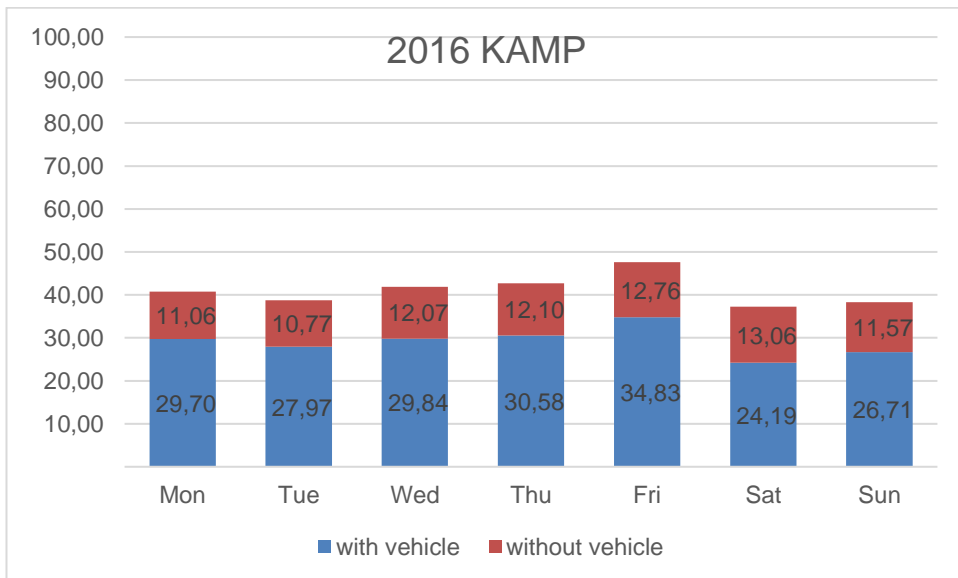


Figure 15: Average rate results from Viking Line Estonia's campaign pricing in 2016

There is a slight increase in the average prices after the second price change in regular price changes. For passengers without vehicles the average price resulted between 10,77 € – 13,06 €. Passengers with vehicles resulted in an average price between 24,19 € - 34,83 €.

### 3.5 Additional campaign

Viking Line Estonia has also a fixed day cruise offer twice a year during their large AHOI-campaigns. As shown in table 8, the price for a day cruise is 18 € every day, resulting in a discount of 10-40% depending on the day of travel.

In the first year, 2014, there was no discount on the vehicles; this was introduced in 2015 to increase the attractiveness of the product.

**Table 8: Viking Line Estonia's additional campaign pricing**

EUR	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Person	18 €	18 €	18 €	18 €	18 €	18 €	18 €
Vehicle	-40 %	-40 %	-40 %	-40 %	-40 %	-40 %	-40 %

#### 3.5.1 Results from additional campaign pricing

Based on Viking Line's reporting system BokatiInchekat and further illustrated in table 9, the additional campaign price list gave the following volume results during the years 2014-2016.

**Table 9: Volume results from Viking Line Estonia's additional campaign pricing**

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	TOTAL
2014	479	512	634	638	1 133	3 393	1 301	8 091
2015	199	278	286	326	413	1 533	603	3 638
2016	212	193	266	209	365	1 166	319	2 730

The average prices for each day are presented in table 10.

**Table 10: Average rate results from Viking Line Estonia's additional campaign pricing**

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
2014	14,62 €	15,65 €	15,90 €	15,98 €	13,91 €	13,82 €	13,40 €
2015	21,59 €	24,23 €	23,99 €	25,23 €	20,54 €	18,72 €	17,59 €
2016	25,31 €	25,16 €	27,21 €	26,07 €	24,10 €	19,30 €	20,02 €

The 2014 the AHOI-campaign pricing volume results are shown in figure 16.

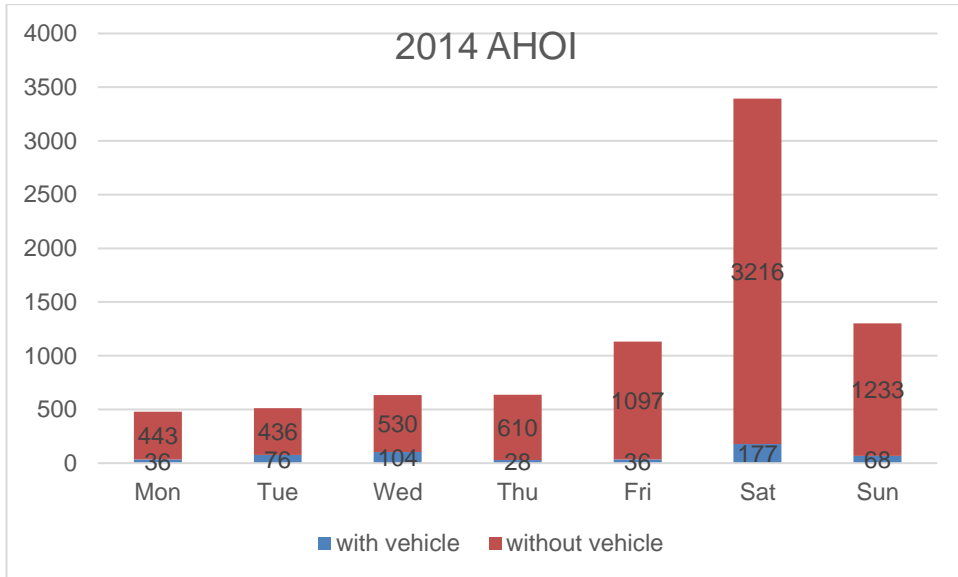


Figure 16: Volume results from Viking Line Estonia's additional campaign pricing in 2014

The first year resulted in very good volume because the KAMP-campaign was not highly utilized and it was the first time this campaign was done, which created more interest. The amount of passengers with vehicles is very small because there was no car discount during the first year of the campaign, this was discouraging and passengers opted not to take their cars with them.

Saturday was the most popular travel day and the least popular were Monday and Tuesday.

The average price for each day is shown in figure 17.

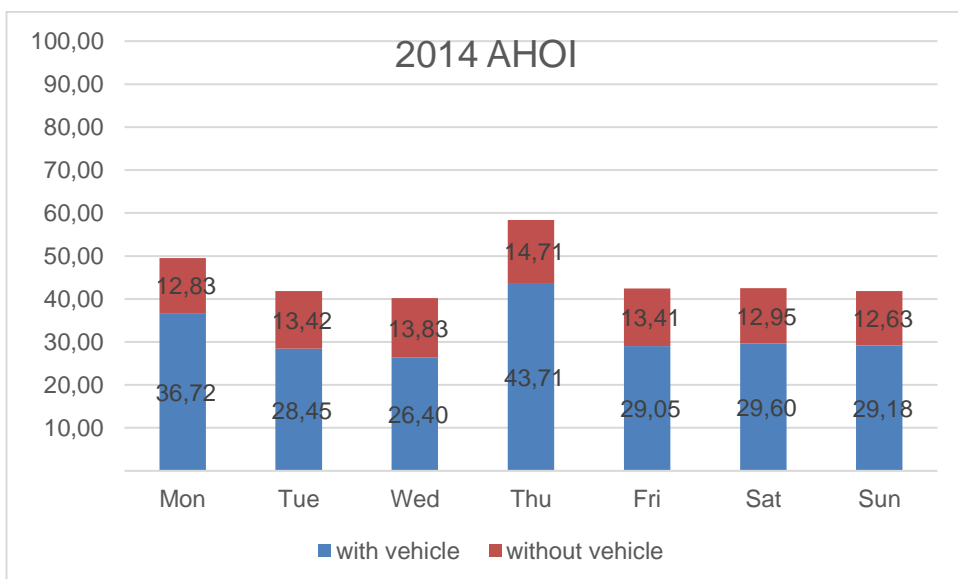
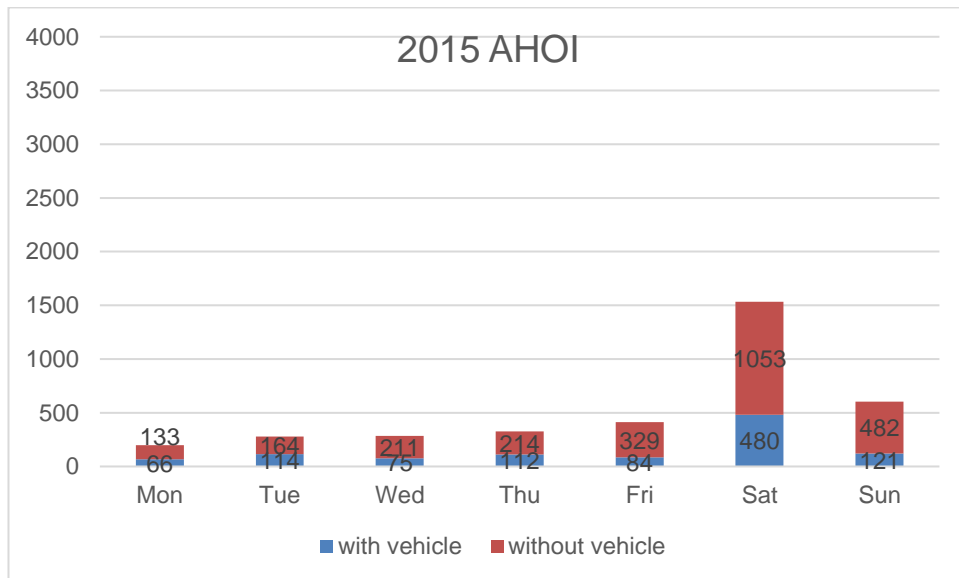


Figure 17: Average rate results from Viking Line Estonia's additional campaign pricing in 2014

The average price for passengers without vehicles resulted between 12,63 € - 14,71 €. The average price is less than the selling price, since Viking Line allows passengers under the age of 11 to travel for free – this has a negative effect to the average price. For passengers with vehicles the average price resulted between 26,40 € - 43,71 €.

The 2015 the AHOI-campaign pricing volume results are shown in figure 18.



**Figure 18: Volume results from Viking Line Estonia's additional campaign pricing in 2015**

The following year a special discount for vehicles was introduced and this resulted in an increased amount of passengers with vehicles. However, the overall volume has dropped. The most popular travel date continues to be Saturday and least popular Monday.

The average price for each day is shown in figure 19.

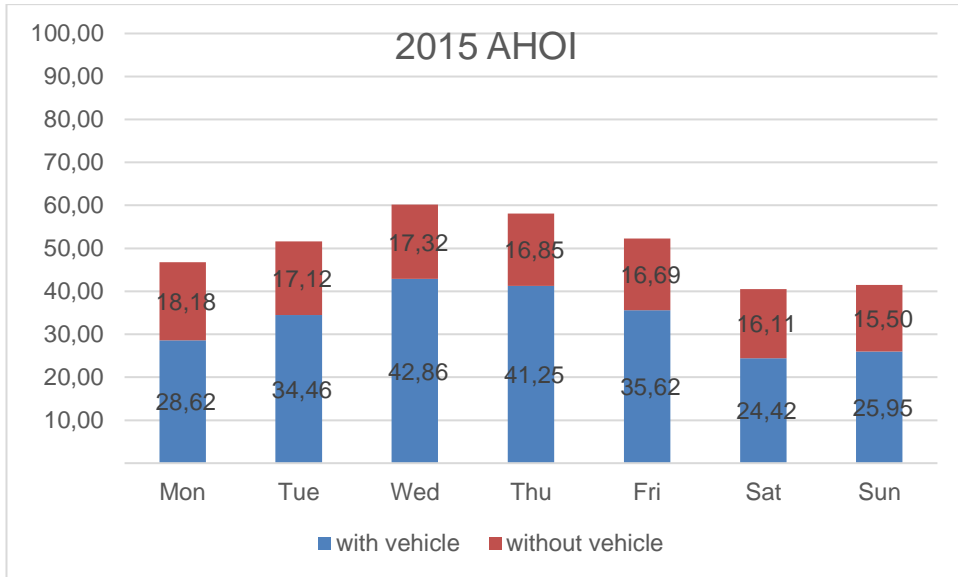


Figure 19: Average rate results from Viking Line Estonia’s additional campaign pricing in 2015

The average price for passengers without vehicles resulted in 15,50 € - 18,18 €. For passengers with vehicles the average price resulted in 24,42 € - 42,86 €.

In 2016 the total volume continued on a negative trend and resulted in a slightly smaller volume than in 2015. The campaign results in volume is illustrated in figure 20.

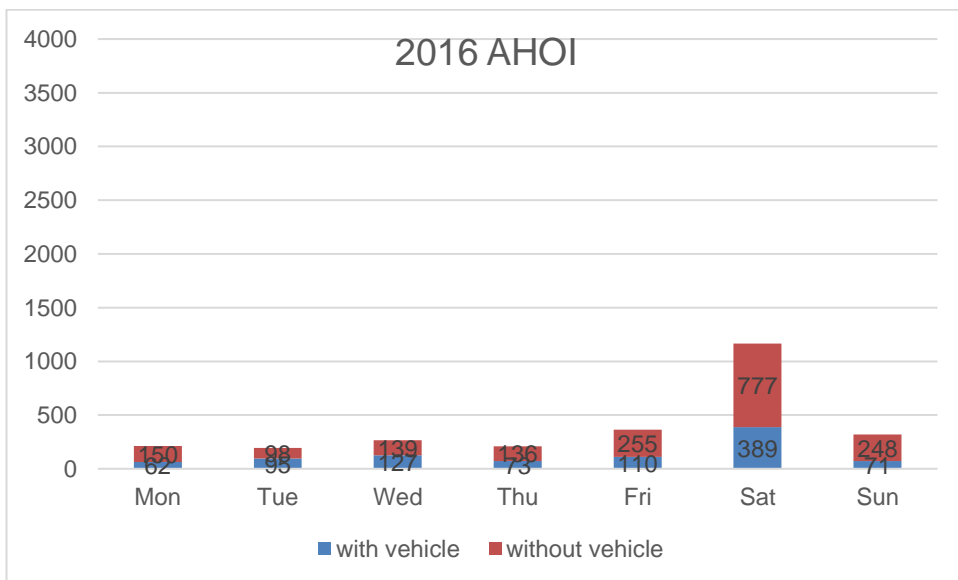


Figure 20: Volume results from Viking Line Estonia’s additional campaign pricing in 2016

Saturday was the most popular day for day cruises and least favourite was Tuesday.

The average price for each day is shown in figure 21.

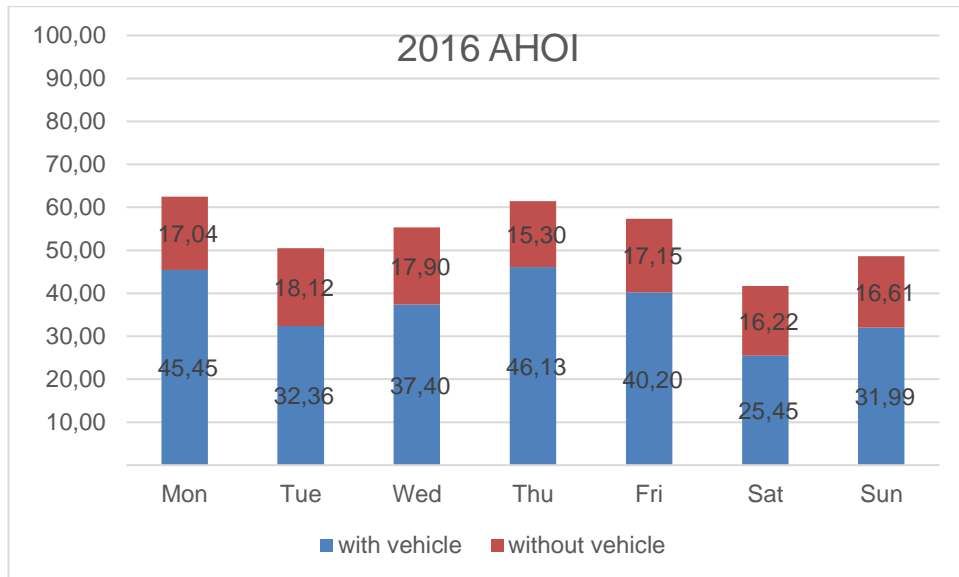


Figure 21: Average rate results from Viking Line Estonia's additional campaign pricing in 2016

The average price for passengers without vehicles resulted in 15,30 € - 18,12 €. For passengers with vehicles the average price resulted in 25,45 € - 46,13 €.

### 3.6 Costs

According to Nagle (2001), it is not possible to optimize prices without considering the costs. However, for the purpose of this thesis, the costs will not be considered as a factor because of the mass-nature of the product. There is a general budget and a budget for different customer-groups and that alone acts as a guideline for pricing decisions.

### 3.7 Key Findings

In this part of the thesis we will look at the key findings from the results from three different campaigns over the course of 3 years.

#### 3.7.1 Volumes

In 2014, we can see that the level of day cruises was on a rather stable level and the campaigns built on that base sale. Day cruises as a product are something that customers use in their spare time. This can be seen in figure 22 where Saturdays generate a peak since Saturday traditionally is a day off for most customers.

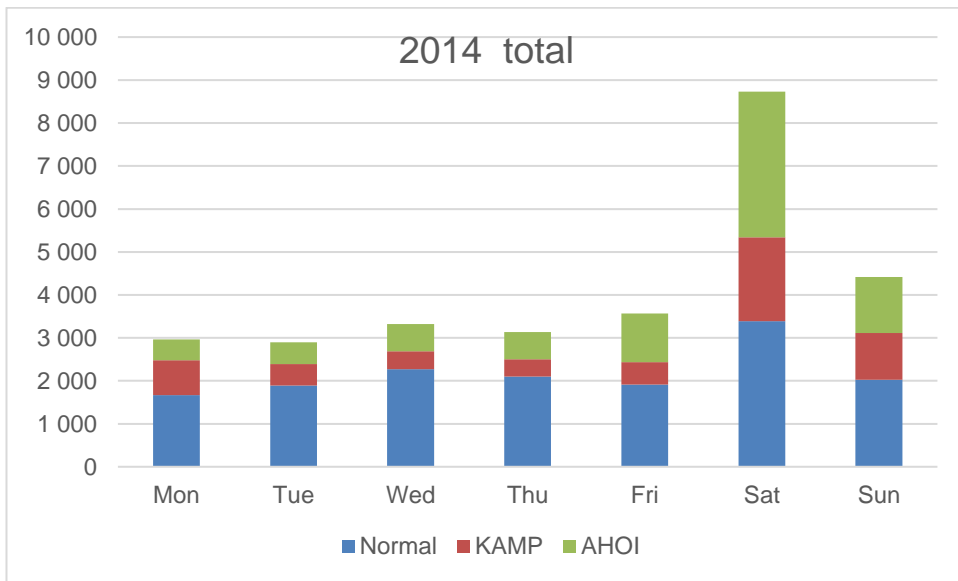


Figure 22: Volume results from all Viking Line Estonia’s price lists in 2014

In 2015 Viking Line became more aggressive with campaigns, especially with the KAMP-campaign, as there were more sales during campaigns instead of the normal pricing. As figure 23 illustrates, the entire volume grew substantially especially during the days when pricing became less expensive.

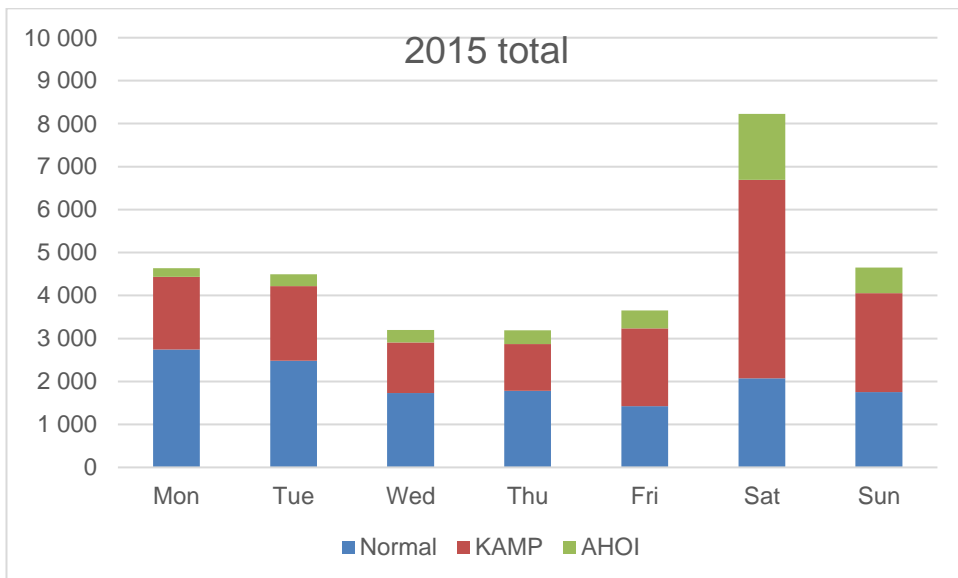


Figure 23: Volume results from all Viking Line Estonia’s price lists in 2015

In 2016 the whole level of day cruises declined in all product groups, especially in the AHOI-campaign. Figure 24 shows that Saturdays continue to be the most popular day for a day cruise, but the whole level is more static than in previous years.

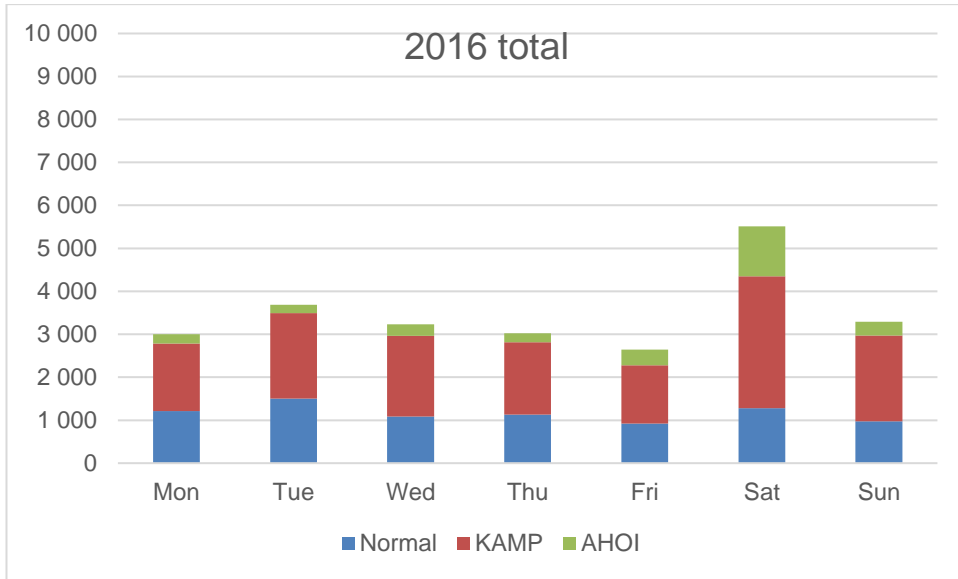


Figure 24: Volume results from all Viking Line Estonia's price lists in 2016

This also indicates that Viking Line's other campaigns have probably focused on route trips, instead of on day cruises. Especially the amount of car passengers on day cruises has dropped significantly.

### 3.7.2 Average prices

Any change made to prices, especially in campaigns, will have an effect in the volume, average rate and total ticket revenue, so it is important to evaluate whether the changes made have been successful and in line with Viking Line's budgets and focus points.

The average in 2014 is shown in figure 25. All changes that were later made have been based on prices that were used in 2014 and therefore comparisons will be made to that baseline.



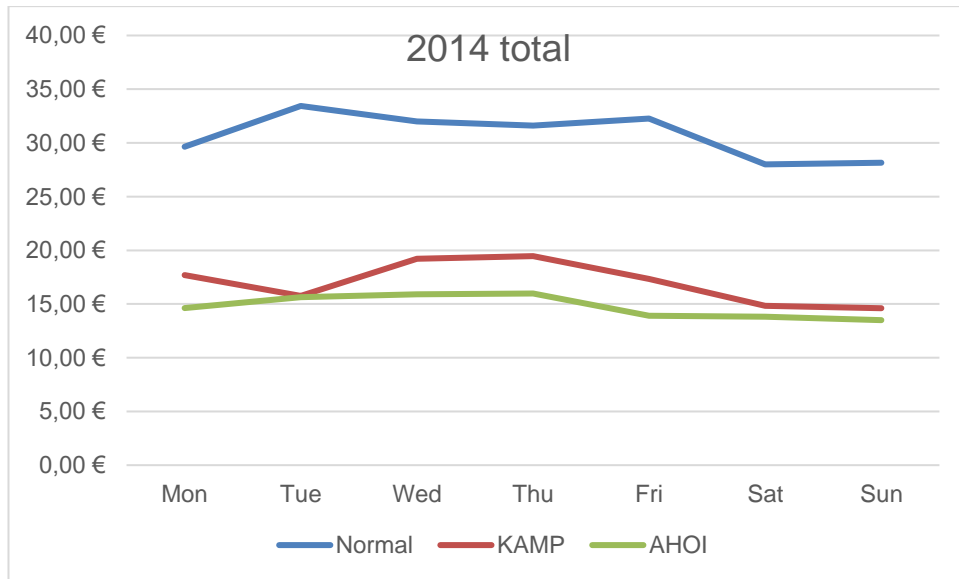


Figure 25: Average rate results from all Viking Line Estonia's price lists in 2014

Normal prices and KAMP-prices are tied together, since they are based on the same starting price. AHOI remains static due to the fixed nature of the price – same price every day.

Following the baseline of 2014, there is a clear drop in the average rate during 2015 during days when the price list was discounted from 28 € / 25 € per passenger every day to a semi-dynamic system of 22 €-30 € / 19 €-27 € per passenger. This can be seen in figure 26. This is reflected also in KAMP-pricing. AHOI's average rates on the other hand are on a clear rise due to adding a larger discount for vehicles, meaning more people travelled with cars and had a positive on the entire average rate on an annual level.

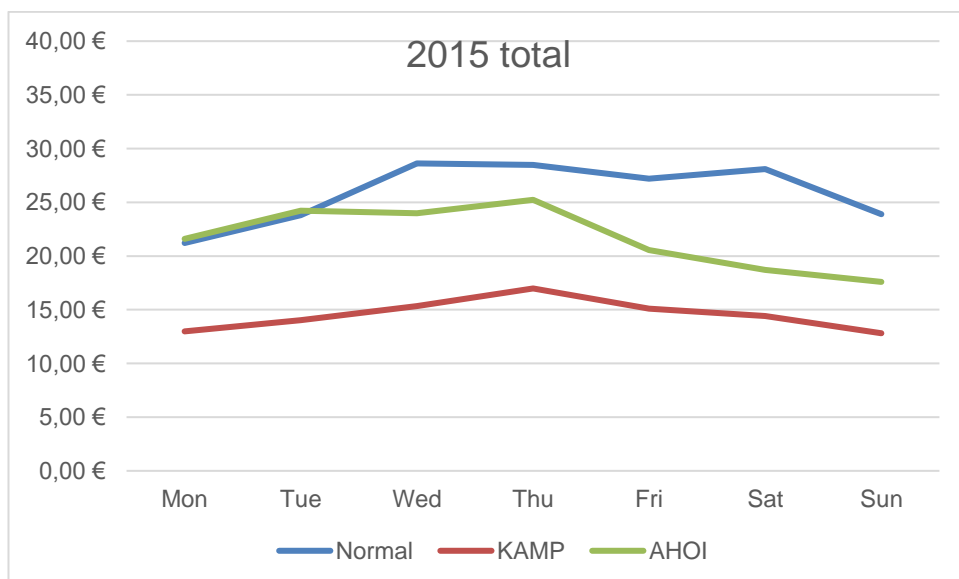


Figure 26: Average rate results from all Viking Line Estonia's price lists in 2015

In 2016 the normal price attempts to return to its previous level from 2014, while KAMP becomes even more static instead of reflecting normal pricing more clearly. AHOI has made the biggest increase. All these changes are visible in figure 27.

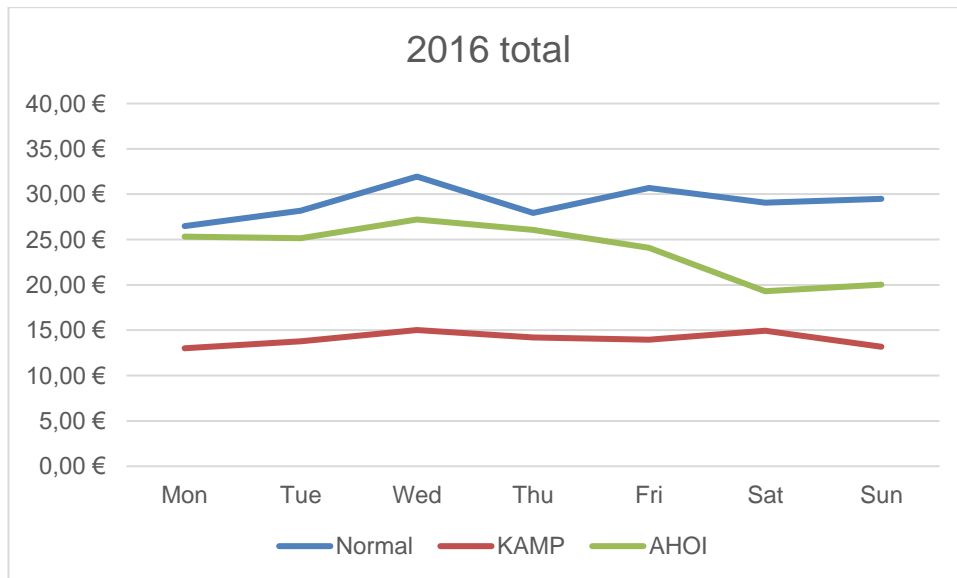


Figure 27: Average rate results from all Viking Line Estonia's price lists in 2016

Each price group on its own shows changes in prices more clearly. With normal pricing the lowest average rates occurred during the cheapest price list during 2015, as illustrated by figure 28.

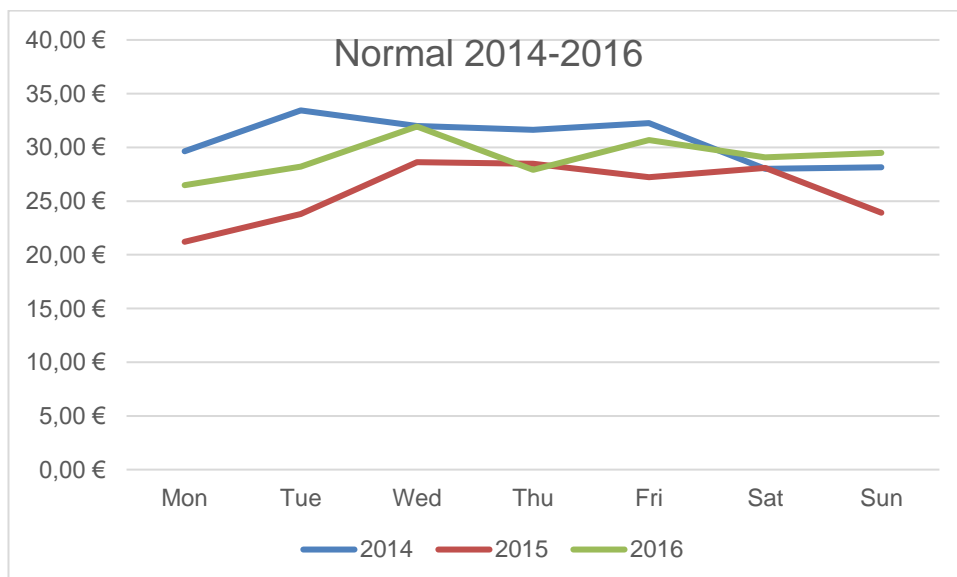


Figure 28: Average rate results from Viking Line Estonia's normal price list in 2014-2016

This figure on its own would suggest that it might be a good idea to go back to pricing every day with one price, as it has delivered the highest average rates, but since the market has changed so much during the three years then this would no longer be feasible. While in 2014 the Baltic market was not yet used to dynamic pricing, then today the market is more receptive to such a pricing system.

KAMP-pricing does not reflect the normal pricing entirely, instead it delivers lowest average rates during the third testing period in 2016 even though the prices had been increased for the third testing period. This might be due to the fact that the KAMP-products are mostly marketed only to Viking Line Club members – effectively selling more day cruises at the Viking Line Club price range of 11,50 €-13,50 € instead of the non-club price range of 13,00 €-15,00€. This is shown in figure 29:

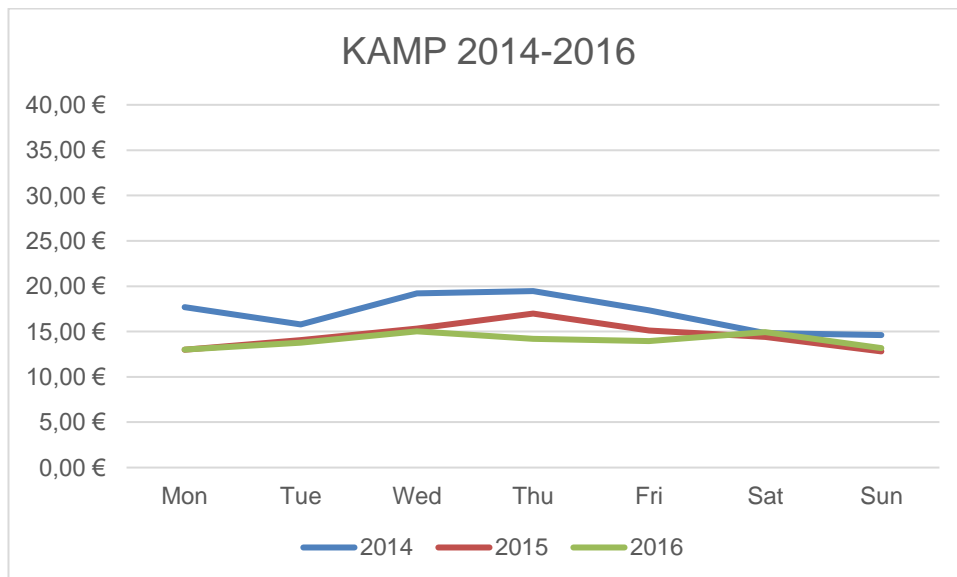


Figure 29: Average rate results from Viking Line Estonia's campaign price list in 2014-2016

AHOI is the only campaign where the average rate changes are opposite to the previously mentioned trends. While the volumes in the campaign have dropped significantly, the average rates have increased year-on-year. As previously mentioned, this is due to a change in the nature of the campaign. First the campaign discount applied only for passenger tickets, and only during the second year a discount for vehicles was introduced. When there is a discount for vehicles, then customers are more inclined to take their car with them on a day cruise and that results in the increased average rate per passenger. This is shown in figure 30:

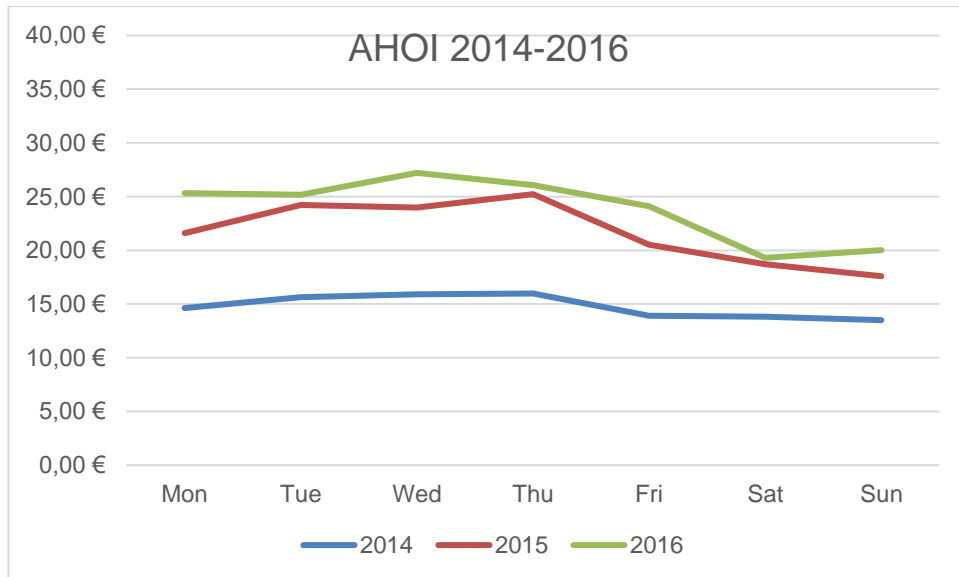


Figure 30: Average rate results from Viking Line Estonia's AHOI price list in 2014-2016

### 3.8 Conclusions

A large amount of day cruises are sold via the two large campaigns KAMP and AHOI, and the average prices would naturally suffer especially when the campaign prices are tied to normal prices for example by discounting them by 50%. Any discounts to existing prices would affect the volumes positively and any increases negatively. The three different testing periods have shown that both effects have happened and that any changes should be considered carefully before implementing them.

It all comes down to what the goal of the campaign is – to increase the amount of passengers, or to increase the amount of ticket revenue. Usually it is not possible to achieve both goals with one action, so the normal prices must be high enough in order to ensure an acceptable average price in a campaign-situation. It is a difficult task to define the right price level and in order to ensure that the company does not price itself out then it must be mindful about competitor's prices. This is what we will look into more carefully in the next chapter of this thesis.

## 4 Existing Knowledge / Best Practice

This section will explain the theory of pricing, what its requirements are and how it relates to the topic at hand. We will also look at best practices of Viking Line Finland, Tallink Finland, Tallink Estonia and Eckerö Line Finland using their existing price lists, which have been taken from their respective online-booking systems using a random week during the low season. They each use different kinds of day cruise pricing strategies and we will look at each of those to find key issues with their pricing strategies.

### 4.1 Pricing Strategy

According to Monroe (2003), price is what allocates resources in a planned economy. It determines what products and services are produced, how they should be produced and for whom they are produced. Prices have an effect on income and spending behaviour and price changes have an even bigger effect in a market economy.

Monroe continues that pricing a product or service is one of the most important decisions a company can take since it is the only variable in the marketing mix that actually generates revenue, as all the other variables in the marketing mix involve expenses.

Pricing is a vital part of the marketing mix and it is defined as the value that has been placed on a product or service based on calculations, research and analysis on the target market. The number of the price is less important whereas the value of the pricing is where the focus should be. Pricing is based on three basic questions:

1. How much does it cost to produce it?
2. Are consumers price sensitive? (I.e. what is the target market)
3. What are the competitors doing?

Once these questions have been answered it is easier to define what the pricing policy should be. We will have a look at these questions in this section of the thesis and mirror this information against Viking Line Estonia's current state analysis.

For Viking Line as well as for other ship companies, the price for the basic product (crossing the ocean) would be segmented similarly into different price-levels giving consumers different rights and flexibilities for said products. For example, if a consumer were to buy a highly discounted ticket, then it is likely that the ticket is valid only during certain days

or departures, and it would not be possible to change it to another date or departure. Similarly a higher-priced ticket would have such rights included. Therefore consumers with uncertain plans would probably opt for the higher-priced ticket in case they needed to change their plans instead of buying a new ticket since the promotional ticket does not allow changes.

Viking Line's pricing strategy is in optimizing the entire sales contribution per customer. As a whole, ticket revenue could represent approximately 40 % of the turnover, and 60 % is generated from on-board sales. For example, revenue managers would try to first sell the more expensive cabins and trips in order to ensure a certain amount of customers who are willing to spend a certain amount of money on-board. Thereafter the price level is set to attract medium-spenders who would opt for a medium-priced cabin. Finally the ships are also equipped with low-level cabins which are usually sold last and which are often filled with bonuscards or "starting from" –prices. Therefore, an approximate income can be calculated in order to reach the optimum turnover for each departure.

For Viking Line Estonia this varies quite substantially, since customers from Estonia and the rest of the Baltic States travel for a different purpose. They are less keen to spend money on-board, as the price-levels are set based on Finnish and Swedish customers and their solvency. According to Viking Line's internal reports, the sales contribution is approximately 80 % ticket revenue and 20 % on-board sales for the day cruise customers who are the target in this thesis.

#### 4.2 Pricing Methods

According to Jobber and Ellis-Chadwick (2013), pricing should be part of a strategic objective as there should be a goal to selling the product. There are four objectives named in the book Principles and Practice of Marketing, and these are:

- Build
- Hold
- Harvest
- Reposition

*Build objective* applies for price-sensitive markets where a company wants to beat the competitors prices and is slow to match any increases to the price made by the competitor.

*Hold objective* applies to holding one's sales and market share and where a company would maintain or match the price levels of the competitor.

*Harvest objective* applies when a company want to gain more profit per each sales, meaning they would start selling premium products through increasing prices.

*Reposition objective* applies when a company wants to change mental images of a product, for example when Viking Line no longer wishes to be a party boat and instead prefers to offer high-quality options for spending one's time.

The above-mentioned examples show that setting the price alone is not feasible, instead it needs to be connected to come kind of strategic objective. Instead of defining the price of a product, one should consider how the product is positioned next to other products, next to products from competitors and in the market in general.

#### 4.3 The value of products and services

There is also the aspect of value in products or services that must be considered. The concept of value has a wide spectrum. As mentioned by Beckert and Aspers (2011), as well as Jobber and Ellis-Chadwick (2013), in order to sell products and services in the market, the consumers must value them and assess their value in relation to other products.

Consumers will have a budget for whatever product or service they are purchasing, but that budget is relative to what the price level on the market is and how much the consumers are willing to pay for said product or service. There can be premium-products and budget-products and those will be relative among themselves creating an image of a price-level, which plays a role in consumers' budgets. When a consumer has a budget, which doesn't meet the price of the product it then becomes important to show what kind of value the consumer receives from said product or service. That is the moment when budgets become flexible and it's possible to change the consumers image of what they receive with the set price.

#### 4.4 Segmentation

We then arrive to the issue of segmentation. There are consumers in the market who are willing to pay different amounts of money for different amounts of value.

Rick Zeni (2013) explains this concept well in his Youtube-video using airline pricing as an example. Figure 31 acts as a simple illustration.

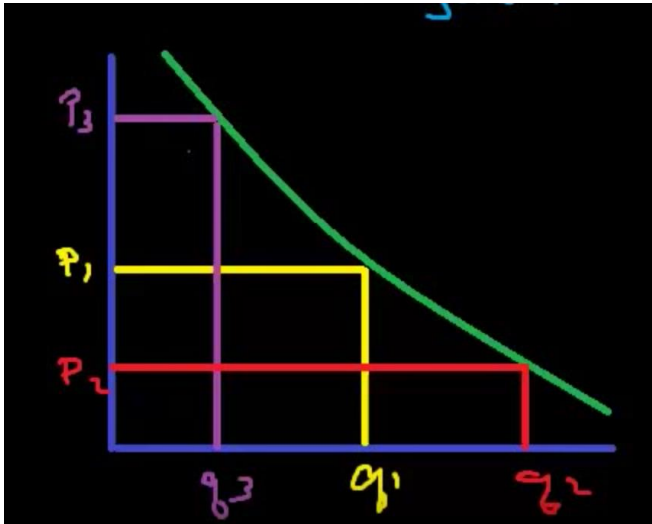


Figure 31: Screenshot from Rick Zeni's Youtube-video about segmentation

The optimum price for an airline ticket is  $P_1$  and those tickets will be sold at a  $Q_1$ -quantity resulting in revenue of  $P_1 \times Q_1$ .

However, there are people who would not travel at all with that price and they would receive a different price with different conditions. That price,  $P_2$ , will be sold at  $Q_2$ -quantity resulting in revenue of  $P_2 \times Q_2$ .

Finally there are passengers would be willing to pay more for said airline ticket if they were given for example more flexibilities or luggage space. Those tickets would be priced at  $P_3$  and sold at  $Q_3$ -quantity resulting in revenue of  $P_3 \times Q_3$ . This way the airline is able to segment it's airline tickets at a more optimum level. With this method they are able to get more volume through lower pricing ( $P_2$ ) as well as more money through higher pricing ( $P_3$ ).

For Viking Line as well as for other ship companies, the price for the basic product (i.e. crossing the ocean) would be segmented similarly into different price-levels giving consumers different rights and flexibilities for said products. For example, if a consumer were to buy a highly discounted ticket, then it would be likely that the ticket would only be valid



during certain days or departures, and it would not be possible to change the trip to another date or departure. Similarly a higher-priced ticket would have those rights included. Consumers with uncertain plans would probably opt for the higher-priced ticket in case they needed to change their plans instead of buying a new ticket since the promotional ticket does not allow changes. Another way to solve the uncertainty factor would be to offer cancellation rights with a separate fee to a low-priced ticket – some passengers might use their right to cancel and in effect get their money's worth, but other passengers would travel as planned without ever having to use their separately bought right to cancel any tickets. This results in more ticket revenue for the company without actually selling more tickets.

#### 4.5 Dynamic pricing

Dynamic pricing is best known in the airline industry where it started originally by segmentation. Airlines created a business class to cater to customers that were willing to pay more for their airfare. Such a fare would traditionally have more flexible cancellation policy and perhaps other perks that would encourage the business class segment to buy a business class ticket. Airlines have also created a less expensive budget airfare, which has the target of reaching higher volumes. Such fares would be more restrictive for example in their cancellation policy and luggage allowance.

With time this system has developed into a dynamic pricing method where seats on a specific flight are priced differently based on the level of demand for those particular seats. In simple terms, the higher the demand for seats, the higher the price for those seats.

Hotels are also known for using dynamic pricing in order to optimize revenue and increase Revenue per available room (RevPAR). Often hotels would first try to sell rooms with a lower price when booked well in advance. Closer to the stay the rates would increase. Similarly to airlines, if there is a high demand for rooms then prices for those rooms would be rated higher than usual.

Another example of a company using dynamic pricing is the online shop Amazon.

There are various definitions to dynamic pricing. An article by Jallat and Ancarani (2008) in the *Journal of Services Marketing* has reviewed various definitions: Yelkur and Neveda

DaCosta (2001) describe it as a higher level of differential pricing that allows customization by target customer further enhancing traditional segmented or differential pricing. Dimicco, Maes and Greenwals. (2003) on the other hand describe it as selling goods at prices customized to the buyer's demand, the market environment, and the seller's supply at the moment of the transaction. Finally, Jayaraman and Baker (2003) define dynamic pricing as the buying and selling of goods in markets where prices move quickly in response to supply and demand fluctuations. They continue that dynamic pricing could also be defined as a pricing strategy in which prices change over time, across consumers, or across product bundles.

#### 4.6 Viking Line Finland

Viking Line Finland's concept of a day cruise means that customers depart from Helsinki at 11:30 on the Viking XPRS, arrival is at 14:00. The return trip is 4 hours later at 18:00 arriving to Helsinki at 20:30.

Viking Line Finland uses dynamic pricing for its day cruise pricing. There is a base price list, which is then adjusted based on various discount amounts. The base price of a day cruise is 15 € and the range of a day cruise price can be anything between 1 € - 40 €. Revenue management is in charge of adjusting the discounts.

A "normal" price list is illustrated in table 11:

**Table 11: Viking Line Finland's day cruise price list**

	22.01.	23.01.	24.01.	25.01.	26.01.	27.01.	28.01.
Day cruise	Mon	Tue	Wed	Thu	Fri	Sat	Sun
HT1130 + TH1800	18 €	18 €	18 €	20 €	20 €	28 €	26 €

This does not mean that 100% of all the day cruise passengers would pay one of the prices above for their trip to Tallinn. On the contrary, in order to reach an acceptable volume there are a number of discount coupons that are distributed. Sales campaigns are also common to make sure that ships are filled sufficiently.

The day cruise price is not the only factor to consider when defining a price list. On-board sales (such as shopping, restaurant and bars, conference-services) are an important variable. Based on Viking Line's internal reporting system, Finnish customers spend on average about 50 € for on-board services, making it therefore acceptable to pay less ticket revenue. However, this is not reflected on passengers from Baltic States, who on average spend only 3 € per trip for services on-board the ship.

#### 4.7 Eckerö Line Finland

Eckerö Line seems to have a somewhat fixed price list for day cruises. When going through their prices, there was very strong consistency in the prices - the only changes being in very low season when prices were lower.

An example of their regular week for day cruises is shown in table 12.

**Table 12: Eckerö Line Finland's day cruise price list**

	22.01.	23.01.	24.01.	25.01.	26.01.	27.01.	28.01.
Day cruise	Mon	Tue	Wed	Thu	Fri	Sat	Sun
HT0830 + TH1845	19 €	19 €	19 €	25 €	25 €	34 €	19 €

The price list is quite similar to Viking Line Finland's regular day cruise price list and it also reflects the importance of Saturday as the most expensive travel day. As a day cruise Eckerö Line has a slightly better schedule arriving to Tallinn earlier and leaving slightly later as well giving passengers more time at the destination, in total about 7 hours. Viking Line's respective day cruise gives only 3,5 hours time at the destination and this competitive advantage explains the higher prices compared to Viking Line.

#### 4.8 Tallink Finland

Tallink operates the route with two vessels and they have several departures during the day making the day cruise combinations more complicated than with Viking Line. For the purpose of this thesis the departures closest to Viking Line will be used for the comparison. In the Finnish example, Hel-Tal 10:30 and Tal-Hel 19:30 will be used.

An example of a cruise price list is shown in table 13.

**Table 13: Tallink Finland's day cruise price list**

	22.01.	23.01.	24.01.	25.01.	26.01.	27.01.	28.01.
Day cruise	Mon	Tue	Wed	Thu	Fri	Sat	Sun
HT1030 + TH1930	26 €	21 €	23 €	23 €	27 €	31 €	30 €

Tallink's absolute competitive advantage is the shorter travel time and a larger amount of departures to choose from. It is possible to arrive to the destination already in the morning at 9:30, or later at 12:30. Furthermore, it is possible to return back at a choice of times. The price list is very close to Viking Line's price list indicating that the price war has had an effect in their passenger volume as well.

#### 4.9 Tallink Estonia

From Estonias side, the day cruise combination Tal-Hel 07:30 and Hel-Tal 22:30 will be used as those are closest to match Viking Line Estonia's day cruise schedule.

An example of a day cruise price list is shown in table 14.

**Table 14: Tallink Estonia's day cruise price list**

	22.01.	23.01.	24.01.	25.01.	26.01.	27.01.	28.01.
Day cruise	Mon	Tue	Wed	Thu	Fri	Sat	Sun
TH0730+HT2230	25 €	24 €	24 €	24 €	26 €	23 €	24 €

It seems that Tallink Estonia's day cruise pricing is not optimized to day cruises at all as it does not follow any of the same patterns as shown previously in this chapter. There are a number of options to explain Tallink's day cruise pricing method and the most likely is that they have programmed a certain discount to same-day-returns. Saturday-morning departures are usually quiet departures from Estonia's side, which would explain the low day cruise price on Saturday's and also support the theory that the price list is has not been prioritized.

The second, and less likely theory is that Tallink has priced their day cruises under Viking Line Estonia just to give a better price for the small amount of passengers who do want to take a day cruise, effectively making Tallink the obvious choice in such a situation.

## 5 Building the Proposal

This part of the thesis will give a possible solution to the problem stated in the beginning of the thesis – the price optimization model for Viking Line Estonia’s day cruise –product. There was collaboration with the Revenue Management team in Viking Line and therefore also acts as Data stage 2 for the purpose of this thesis.

There are three separate issues to be addressed when building the proposal. Before coming up with a solution, we need to define what is the goal for changing the current system of day cruise pricing.

Currently day cruises represent only approximately 10% of all Viking Line Estonia’s customers, which means that as a whole it is a small product group. Therefore changing the system can result in a number of goals and thereafter results. The three possible goals would be:

1. Increase the amount of day cruise passengers
2. Increase the average price of an average day cruise passenger
3. Improve the pricing structure backstage, which could result in a combination of points 1 and 2.

The proposals for solutions would therefore be listed as follows:

1. Develop the sales process of day cruises within Viking Line Estonia
2. Increase fixed price list of day cruises and come back to it every 3-6 months to make corrections
3. Enforce dynamic day cruise pricing

Each of these proposals come with clear advantages and disadvantages and ultimately the strategy will depend on what Viking Line Estonia’s goal is.

### 5.1 Develop the sales process of day cruises within Viking Line Estonia

A great way to develop the sales process of day cruises is to think of the customer as whole instead of focusing only on selling tickets for the Tallinn-Helsinki –route. The marketing and sales department must consider the reasons for customers to take a day cruise from Tallinn to Helsinki as well as what motivates them to choose Viking Line in

such a case. Is Viking Line able to offer solutions to whichever problem the customer is trying to solve and perhaps offer some extra value through its own sales channels? An example could be that a ticket to a destination would be less expensive when bought via Viking Line, compared to when purchased on site at the destination or even the destination's own online-channels.

Kotler, Rackham and Krishnaswamy (2006) describe the sales process as a funnel where the process begins with marketing functions and continues with sales functions. Both functions are important when developing such a process and cooperation across the functions are important.

#### 5.2 Increase fixed price list of day cruises and come back to it every 3-6 months to make corrections

It is likely that this would result in higher average prices in both the normal and campaign price lists, but probably would not be too beneficial since the pricing is already at its maximum. This was also clear in chapter 4 when it became clear that the biggest competitor is pricing their day cruises in an opposite manner to Viking Line Estonia. It could be possible to increase the price on some particular days, but this would likely have a negative effect on the volumes.

On the flipside, if Viking Line were to match Tallink's day cruise pricing then there could be potential to increase the volumes with the negative effect in average prices. This could be turned into a positive by developing the sales process onboard the ship and influencing customers into making a larger average sales contribution throughout their entire customer journey.

#### 5.3 Enforce dynamic day cruise pricing

A dynamic day cruise pricing requires creating an entirely new base price discounting. It technically requires "same day return discount" in order for it to work and this setting itself already exists within Viking Line's booking system. This means that the day cruises would be "discounted" from the same base price list as return trips → only when a customer chooses to come back during the same day then the system would enforce a larger discount percentage.

Dynamic pricing would allow a lower "starting from" –price, which currently is 25 € for Viking Line Club members and 29 € for non-club members. For the Estonian market this is too high for a starting price, and this has resulted in most day cruises being sold on a campaign price as shown previously in chapter 4.

Enforcing a dynamic day cruise pricing could potentially be beneficial for a number of reasons:

- 1) the whole structure of the booking-dialogue would become much simpler for the customer – instead of having to insert a product code to get the day cruise price (or campaign-price), the customer would now not need to enter any code and would automatically get the appropriate day cruise price.
- 2) The price list could remain constant and it would only need to be adjusted during high season or when departures are otherwise very full.
- 3) There would no longer be a conflict between day cruise and route trips, since the day cruise prices would always follow the route trip's base prices. Therefore, if the route trip price increases then the day cruise price would increase as well.



## 6 Validation of the Proposal

This part of the thesis is based on data stage 3, which was a meeting with the revenue management team, where a comprehensive system was created to enable a dynamic day cruise pricing for Viking Line Estonia. Currently this is a theoretical day cruise pricing system, as it has not yet been enforced into use. The results from 2016's normal and KAMP-pricing will be used to determine whether results are acceptable or not, and whether dynamic pricing on a theoretical level meets the demands set by Viking Line Estonia.

### 6.1 Base price list

The base price list that is used for the purpose of this dynamic price list is shown in table 15.

**Table 15: Viking Line Estonia's current base price list**

Base price	Mon	Tue	Wed	Thu	Fri	Sat	Sun
TH 0800	37 €	25 €	25 €	25 €	25 €	21 €	20 €
HT 2130	25 €	25 €	25 €	26 €	32 €	21 €	25 €

A separate base price list is available for Viking Line Club –members and that is shown in table 16:

**Table 16: Viking Line Estonia's current base price list for Viking Line Club members**

VLC Base Price	Mon	Tue	Wed	Thu	Fri	Sat	Sun
TH 0800	27,50 €	18,50 €	18,50 €	18,50 €	18,50 €	15,50 €	15 €
HT 2130	18,50 €	18,50 €	18,50 €	19,50 €	24 €	15,50 €	18,50 €

These are the base price lists used for route trips and shall also be used as a base for the new dynamic day cruise price list.

### 6.2 Discounting principles

Viking Line's booking system is able to understand whether a customer books a one-way route trip or a return trip and whether the return trip takes place on the same day or at a later date. However, the discounting system needs to be simple enough that it's easy

to market to customers, that it does not confuse customers and that it does not need to be constantly adjusted. It also needs to consider the loyalty program Viking Line Club, and that the club members always pay the best price – in effect making it a two-levelled system whereby one discount is applied if the customer does not enter their Viking Line Club –number into the booking, and another discount is applied when they do enter their Viking Line Club –number.

Viking Line’s booking systems allow discounting by every 5 % and rounding to the nearest 0.50 cents is used. The discounting tables in this chapter will follow this principle.

We shall look at three possible discounting principles that shall apply in the following scenarios when booking day cruises:

1. A universal discount is used for both outward and inward trips
2. An “up to” –discount is used for both outward and inward trips
3. A 100% discount is used for inward trip, outward trip is not discounted at all

#### 6.2.1 A universal discount is used for both outward and inward trips

In this option we will look at a day cruise price table where a universal discount has been applied to all trips. This price list uses the regular base price list for both customer groups – the Viking Line Club base price levels are not being used to define Viking Line Club prices.

TH 0800	40 %	40 %	40 %	40 %	40 %	40 %	40 %
HT 2130	40 %	40 %	40 %	40 %	40 %	40 %	40 %
TH 0800 VLC	50 %	50 %	50 %	50 %	50 %	50 %	50 %
HT 2130 VLC	50 %	50 %	50 %	50 %	50 %	50 %	50 %

These discounting percentages would lead to the following price list:

Non-VLC	37,00 €	30,00 €	30,00 €	30,50 €	34,00 €	25,00 €	27,00 €
VLC	31,00 €	25,00 €	25,00 €	25,50 €	28,50 €	21,00 €	22,50 €

The problem with this price list is that there clearly are days, like Monday, when a larger discount would be needed and days when a smaller discount is needed, such as Saturday. However, such a universal discount would make it easier to market the day cruise prices in a dynamic manner, for example “If return is on the same day, always 50 % off”.

This would make the marketing- and selling processes more streamlined, and most likely it would be easier for customers to better understand the principle of discounting.

It would be possible to tie KAMP-pricing to this system, but since some of the weekdays are not on an optimal price level then it would not be feasible to further discount them using the KAMP-principle.

#### 6.2.2 An “up to” –discount is used for both outward and inward trips

An “up to” –discounting principle would allow adjusting the discounts to a level where the actual prices are more acceptable for Viking Line. This discounting principle would apply when Viking Line would want to create a price list similar to what is currently being used. This price list also uses the regular base price list for both customer groups – the Viking Line Club base price levels are not being used to define Viking Line Club prices.

The discounting table would look like this:

TH 0800	55 %	40 %	40 %	40 %	40 %	20 %	25 %
HT 2130	50 %	45 %	45 %	45 %	55 %	25 %	45 %
TH 0800 VLC	55 %	50 %	50 %	50 %	50 %	30 %	40 %
HT 2130 VLC	60 %	45 %	45 %	50 %	60 %	30 %	55 %

These discounting amounts would results in the following price list:

Non-VLC	29,00 €	29,00 €	29,00 €	29,50 €	29,00 €	32,50 €	29,00 €
VLC	27,00 €	26,50 €	26,50 €	25,60 €	25,00 €	29,50 €	26,00 €

This price list is very similar to what is currently being used. It gives the opportunity to start with dynamic day cruise pricing without throwing the market completely off with a totally new price list. If this option were to take into use then it would be easy to later adjust the discounts if any changes took place in the base price list and if competitors made changes that Viking Line needed to react to.

This system is also suitable when wanting to implement KAMP-pricing. It would be possible to use the same system to create the pricing for that campaign and tie the two different products together – KAMP pricing giving -50 % off from regular pricing when entering the appropriate product code.

### 6.2.3 A 100% discount is used for inward trip, outward trip is not discounted

Finally we have a theoretical option where a discount would apply only to the return trip. In effect customers would pay for the outward trip and get the return trip for free. This is the only price list that would use the Viking Line Club base price as a source of the price since the premise is different to the other options shown in this chapter.

TH 0800	0 %	0 %	0 %	0 %	0 %	0 %	0 %
HT 2130	100 %	100 %	100 %	100 %	100 %	100 %	100 %
TH 0800 VLC	0 %	0 %	0 %	0 %	0 %	0 %	0 %
HT 2130 VLC	100 %	100 %	100 %	100 %	100 %	100 %	100 %

These discounting amounts would result in the following price list:

Non-VLC	37 €	25 €	25 €	25 €	25 €	21 €	20 €
VLC	27,50 €	18,50 €	18,50 €	18,50 €	18,50 €	15,50 €	15 €

The problem with this price list is that the discount is just too large and the cheapest trips are on days when it should be more expensive to travel, vice versa. Furthermore, it does not allow for much adjusting to take place. None of the competitors use such a system either, so implementing such a system would be very risky. Finally, when thinking about statistics, then they would also be off since one trip would be marked down with a 0 € - price. That in effect would simply bring down the average price so much that this option just becomes obsolete.

Furthermore, this option would not allow for KAMP-pricing as the price level would simply drop too low on most days.

## 6.3 Results

Let's look at a theoretical results table if we were to use the passenger data from 2016. For the purpose of this analysis we will use the actual prices as average rates, as it is not possible to define how many customers were so-called free passengers that travel for free. Furthermore, for the purpose of this calculation we will use 50 % Viking Line Club –passengers, and 50 % non-club passengers. The amount of passengers used is from the normal pricing during 2016 and the passengers were divided among the different days. This is shown in table 17.

**Table 17: Viking Line Estonia's volume results from 2016 using normal pricing**

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
2016	1211	1506	1083	1129	919	1278	971

During the year 2016 the volume results were 8 097 passengers at an average rate between 23 € -30 €.

Passengers would therefore generate the ticket revenue on a day-by-day basis shown in table 18.

**Table 18: Viking Line Estonia's ticket income results from 2016 using normal pricing**

Ticket revenue	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Non-Club	15 743 €	19 578 €	14 079 €	14 677 €	11 947 €	19 170 €	12 623 €
Viking Line Club	13 927 €	17 319 €	12 455 €	12 984 €	10 569 €	17 253 €	11 167 €

The total ticket revenue would therefore be 203 489 €.

### 6.3.1 A universal discount is used for both outward and inward trips

When using the dynamic price list where a universal discount has been applied to all trips, then the ticket revenue on a day-to-day basis would result as shown in table 19.

**Table 19: Viking Line Estonia's ticket income results when using a universal discount for outward and inward trips**

Ticket revenue	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Non-Club	22 404 €	22 590 €	16 245 €	17 217 €	15 623 €	15 975 €	13 109 €
Viking Line Club	18 771 €	18 825 €	13 538 €	14 395 €	13 096 €	13 419 €	10 924 €

The total ticket revenue would therefore be 226 129 €.

### 6.3.2 An "up to" –discount is used for both outward and inward trips

When using the dynamic price list where an “up to” –discount has been applied to all trips, then the ticket revenue on a day-to-day basis would result as shown in table 20.

**Table 20: Viking Line Estonia’s ticket income results when using an “up to” -discount for inward and outward trips**

Ticket revenue	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Non-Club	17 560 €	21 837 €	15 704 €	16 653 €	13 326 €	20 768 €	14 080 €
Viking Line Club	16 349 €	19 955 €	14 350 €	14 451 €	11 488 €	18 851 €	12 623 €

The total ticket revenue would therefore be 227 990 €.

### 6.3.3 A 100% discount is used for inward trip, outward trip is not discounted

When using the dynamic price list where a 100% discount has been applied to inward trip and the outward trip has not been discounted at all, then the ticket revenue on a day-to-day basis would result as shown in table 21.

**Table 21: Viking Line Estonia’s ticket income results when discounting only inward trip**

Ticket revenue	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Non-Club	22 404 €	18 825 €	13 538 €	14 113 €	11 488 €	13 419 €	9 710 €
Viking Line Club	16 651 €	13 931 €	10 018 €	10 443 €	8 501 €	9 905 €	7 283 €

The total ticket revenue would therefore be 180 226 €.

## 6.4 Key findings

Implementing a new dynamic pricing system would mean a completely new strategy to pricing the day cruises, and it is likely that it would take a while for customers to get accustomed to it. Furthermore, based on information on how campaigns work and how every change would ultimately also have an effect on the outcome of that campaign, then it is likely that Viking Line Estonia would not currently be ready to implement such a big change.

To ease the change in this situation, it would be important to start with discounts that reflect the current prices. Afterwards it would be easier to adjust to a simpler discounting system where the discount could be universal. Keeping that in mind, the most feasible discounting principle would therefore be an “up to” –discount where the suitable price level is found using a combination of discounts for both outward and inward trips.

The previous analysis showed that different discounting methods result in different ticket revenues. The best ticket revenue was reached by using an up to –discounting principle, in effect optimizing the day cruise price for each departure separately. This method also resulted in better ticket revenue compared to the price list used today at Viking Line Estonia.

The results are summarized in table 22.

**Table 22: Viking Line Estonia’s ticket income results in possible dynamic pricing scenarios**

	Total ticket revenue
A universal discount is used for both outward and inward trips	226 129 €
An “up to” –discount is used for both outward and inward trips	227 990 €
A 100% discount is used for inward trip, outward trip is not discounted	180 226 €

The “up to” –option would be most optimized also since it allows for KAMP-pricing as well. AHOI-campaign as itself has always been a stand-alone product and that may continue as well on the side, if the campaign needs it.

## 7 Discussion and Conclusions

This thesis has carefully looked into how Viking Line Estonia has priced its day cruise products in the past and what kinds of results it has reached using those methods. The different analyses also showed that different discounting methods result in different ticket revenues. The best ticket revenue was finally reached by using an “up to” –discounting principle, in effect optimizing the day cruise price for each departure. This method also resulted in better ticket revenue compared to the price list used today at Viking Line Estonia.

Implementing any new price lists, or a new dynamic pricing system, would mean a completely new strategy to pricing day cruises, and it is likely that it would take a while for customers to get accustomed to it. Furthermore, based on information on how campaigns work and how every change would ultimately also have an effect on the outcome of that campaign, then it can be difficult for Viking Line Estonia to implement such a big change. However, the advantages to implementing a dynamic day cruise pricing policy far outweigh the negatives and therefore it is recommended to implement a change gradually starting with one of the campaign products. After that it will be easier to learn from those results and implement a dynamic pricing policy also to other product groups.



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**List of figures and tables**

Figure 1:	Viking Line's market shares on Tallinn-Helsinki route	Page 2
Figure 2:	Research Plan	Page 5
Figure 3:	Tallinn-Helsinki routes market shares in the year 2016	Page 8
Table 1:	Viking Line Estonia's day cruise price list 1	Page 10
Table 2:	Viking Line Estonia's day cruise price list 2	Page 11
Table 3:	Viking Line Estonia's day cruise price list 3	Page 12
Table 4:	Volume results from Viking Line Estonia's day cruise price list 1	Page 12
Table 5:	Average rate results from Viking Line Estonia's day cruise price list 1	Page 12
Figure 4:	Volume results from Viking Line Estonia's day cruise price list 1	Page 13
Figure 5:	Average rate results from Viking Line Estonia's day cruise price list 1	Page 13
Figure 6:	Volume results from Viking Line Estonia's day cruise price list 2	Page 14
Figure 7:	Average rate results from Viking Line Estonia's day cruise price list 2	Page 15
Figure 8:	Volume results from Viking Line Estonia's day cruise price list 3	Page 16
Figure 9:	Average rate results from Viking Line Estonia's day cruise price list 3	Page 16
Table 6:	Volume results from Viking Line Estonia's campaign pricing	Page 17
Table 7:	Average rate results from Viking Line Estonia's campaign pricing	Page 18
Figure 10:	Volume results from Viking Line Estonia's campaign pricing in 2014	Page 18
Figure 11:	Average rate results from Viking Line Estonia's campaign pricing in 2014	Page 19
Figure 12:	Volume results from Viking Line Estonia's campaign pricing in 2015	Page 19
Figure 13:	Average rate results from Viking Line Estonia's campaign pricing in 2015	Page 20
Figure 14:	Volume results from Viking Line Estonia's campaign pricing in 2016	Page 21
Figure 15:	Average rate results from Viking Line Estonia's campaign pricing in 2016	Page 21

Table 8:	Viking Line Estonia's additional campaign pricing	Page 22
Table 9:	Volume results from Viking Line Estonia's additional campaign pricing	Page 22
Table 10:	Average rate results from Viking Line Estonia's additional campaign pricing	Page 22
Figure 16:	Volume results from Viking Line Estonia's additional campaign pricing in 2014	Page 23
Figure 17:	Average rate results from Viking Line Estonia's additional campaign pricing in 2014	Page 23
Figure 18:	Volume results from Viking Line Estonia's additional campaign pricing in 2015	Page 24
Figure 19:	Average rate results from Viking Line Estonia's additional campaign pricing in 2015	Page 25
Figure 20:	Volume results from Viking Line Estonia's additional campaign pricing in 2016	Page 25
Figure 21:	Average rate results from Viking Line Estonia's additional campaign pricing in 2016	Page 26
Figure 22:	Volume results from all Viking Line Estonia's price lists in 2014	Page 27
Figure 23:	Volume results from all Viking Line Estonia's price lists in 2015	Page 27
Figure 24:	Volume results from all Viking Line Estonia's price lists in 2016	Page 28
Figure 25:	Average rate results from all Viking Line Estonia's price lists in 2014	Page 29
Figure 26:	Average rate results from all Viking Line Estonia's price lists in 2015	Page 29
Figure 27:	Average rate results from all Viking Line Estonia's price lists in 2016	Page 30
Figure 28:	Average rate results from Viking Line Estonia's normal price list in 2014-2016	Page 30
Figure 29:	Average rate results from Viking Line Estonia's campaign price list in 2014-2016	Page 31
Figure 30:	Average rate results from Viking Line Estonia's AHOI price list in 2014-2016	Page 32
Figure 31:	Screenshot from Rick Zeni's Youtube-video about segmentation	Page 36
Table 11:	Viking Line Finland's day cruise price list	Page 38
Table 12:	Eckerö Line Finland's day cruise price list	Page 39
Table 13:	Tallink Finland's day cruise price list	Page 40
Table 14:	Tallink Estonia's day cruise price list	Page 40

Table 15:	Viking Line Estonia's current base price list	Page 45
Table 16:	Viking Line Estonia's current base price list for Viking Line Club members	Page 45
Table 17:	Viking Line Estonia's volume results from 2016 using normal pricing	Page 49
Table 18:	Viking Line Estonia's ticket income results from 2016 using normal pricing	Page 49
Table 19:	Viking Line Estonia's ticket income results when using a universal discount for outward and inward trips	Page 49
Table 20:	Viking Line Estonia's ticket income results when using an "up to" -discount for inward and outward trips	Page 50
Table 21:	Viking Line Estonia's ticket income results when discounting only inward trip	Page 50
Table 22:	Viking Line Estonia's ticket income results in possible dynamic pricing scenarios	Page 51