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Valuation of Icelandair

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Valuation of Icelandair

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Abstract

In this thesis the value of Icelandair is estimated and the stock price on April 8th 2016 is challenged. The valuation was performed using the Residual Operating Income (ReOI) model risk adjusted with the Adjusted Present Value (APV) method. The valuation relied on both a strategic and financial analysis of Icelandair and the airline industry. The strategic analysis was carried out using the PESTEL, Porter's Five Forces and VRIO models. The strategic analysis identified key value drivers for Icelandair, as well as determining potential risks and opportunities the company might face. The company's financial statements were reformulated to separate the value creating operations from the financing part of business and then analyzed using a trend, common-size and profitability analysis. The information from the analysis was used to forecast the value drivers in the ReOI model which were then risk adjusted using the APV method, forming the base case valuation. Additionally, two scenarios were valued using the same method to observe a broader value range for better and worse scenarios than presented by the base case. A sensitivity analysis was performed to test the calculated value per share result's sensitivity to key inputs in the model. The base case valuation showed an estimated value of 26 to 29 ISK per share for Icelandair's stock. This result suggest that the market is over valuing Icelandair's equity by 30-40% on April 8th 2016. This result is backed up by a multiple analysis valuation indicating a significant over valuation by the market.

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Copenhagen Business School
15.9.2016

Kari Gunnarsson

1 | Introduction

1.1 Motivation

Valuation is the process of determining the worth of a security. For this thesis I have chosen to value the most exciting security (to me) there is: Equity. Equity is the difference between the value of assets and the cost of liabilities values and represents the owners' claim to a company. Valuing companies is an interesting and challenging task as businesses do not have contractual payments like bonds and therefore pinpointing the value of equities representing pieces of a business can be hard to do (Klarman, 1991). Investing in equities or buying stocks, means to buy a portion of a business. The price is set by the market, or the owners of the stock and those looking to buy the stock. The excitement comes from finding companies whose value differs from the price quoted by the market. Benjamin Graham (1949) described equity investing as a negotiation with a manic-depressive character called "Mr. Market" over the price of securities. Mr. Market is an analogy for the irrationality of the stock market and describes how investors should look to take advantage of the discrepancy between the intrinsic value of a security and the market price when the market is pricing securities to depressively or optimistically. Inherent in all markets is that there exist differences of opinions regarding the value of the traded good, how intrinsic the asset value is, depends on the market. Unlike a piece of painting or sculpture, a company's value can be determined from its future earning potential and not simply what other investors might be willing to pay for it later. The process of a valuation can be described as being somewhere between art and science as there are many uncertainties involved in estimating a company's intrinsic value. The act of valuing a company is a challenge towards the notion that markets are efficient and that prices reflect values. Using a fundamental analysis to challenge the idea of an efficient market however rests on the assumption that market prices will revert to fundamental values in the long-run.

The purpose of this thesis is to analyze and value Icelandair, a long standing airline operating out of Iceland. Icelandair is an interesting company in an interesting market situation. Since the economic collapse in 2008, Iceland has been under capital controls. The capital controls restrict Icelandic investors to Icelandic capital markets and for the longest have heavily limited foreign investors activity. From the collapse, Icelandair cleaned up its operations, so to focus on the air transportation and hotel business, and has since soared. These recent events and the potential lift of the capital controls make Icelandair an exciting proposition for a valuation.

The valuation is performed using a fundamental analysis approach, using a method described in Chapter 2 to estimate the intrinsic value of Icelandair. The valuation date is set after the market closes on April 8^{th} 2016 and at the date of the valuation, Icelandair's share price is at an all-time high of 37,3 ISK. The thesis sets out to investigate whether this price is justified or if Mr. Market is off.

1.2 Problem statement

"What is the Intrinsic value per share of Icelandair on April 8^{th} 2016?"

The thesis sets out to answer the question using a fundamental analysis valuation approach. The intrinsic value will be estimated using the Residual Operating Income (ReOI) model.

In order to be able to implement the model and answer the research question above, the following sub-questions are investigated and answered.

- What is Icelandair's business and what operations generate most of its earnings?
- What characteristics define the industry it operates in?
- What macro-economic factors affect Icelandair and its future earnigs potential?
- How does the competitive environment look like for Icelandair?
- What are Icelandair's internal resources and competencies?
- How are Icelandair's financials split into operating and financing? And what trends are visible from historical accounting numbers?
- How has Icelandair's profitability evolved compared to its peers in recent history?
- What are Icelandair's key value drivers and how have these value drivers evolved for the industry?
- How is Icelandair expected to perform in the near-future? And how will the value drivers fade in the long-term?
- What is the estimated cost of capital for Icelandair?

These sub-question form a general guideline throughout the thesis and are important steps when doing fundamental analysis to estimate the intrinsic value of Icelandair. They further emphasis that the valuation is based on quantitative values.

1.3 Delimitation

In order to maintain the scope of the thesis and to keep emphasis on key factors to estimate the intrinsic value of Icelandair and therefore answering the research question, it is constrained by several delimitations.

The valuation date is after market closing on April 8^{th} 2016 and no information after that date is considered in the analysis. The valuation is conducted from a public investor's perspective and therefore this report is solely based on publicly available information and data. All information is secondary information, either through information publicly provided by the company, it's annual reports or financial databases and no contact has been made to the company.

The strategic analysis will focus on Icelandair's main operations, the air transportation of passengers. This limitation, serves to keep the scope of the paper in line as it is significantly the largest of Icelandair's operations. It further ensures consistency when comparisons to peers are made.

There are many methods available to estimate the intrinsic or fair value of equity, this thesis is based on the ReOI valuation method, described in Chapter 2, and with a valuation based on multiples as accessory.

2 | Valuation Methodology

This chapter will present and describe the valuation methodology implemented in the thesis. There are many valuation methods available to investors and researchers, each with their strengths and weaknesses. For this thesis the primary valuation is performed using the Residual Operating Income (ReOI) model, risk adjusted with the Adjusted Present Value (APV) method. A secondary valuation is also performed using a multiples. Both the ReOI and APV methods will be described in the following sections.

2.1 The Residual Operating Income model

The Residual Operating Income model is an earnings based valuation model that is built upon the Residual Earnings (RE) model. The RE model is a model that measures the value added from future residual earnings, and shows present value of equity as current book value plus the present value of forecasted residual earnings. Residual earnings are comprehensive earnings less the required return for equity times the beginning-of-period book value. Equity value is thus calculated as (Penman, 2013):

$$V_0^E = \frac{RE_1}{\rho_E} + \frac{RE_2}{\rho_E^2} + \frac{RE_3}{\rho_E^3} + \cdots + \frac{RE_T}{\rho_E^T} + \frac{V_T^E - B_T}{\rho_E^T},$$

where RE_t are the expected residual earnings for equity in each period t to T and calculated as:

$$RE_t = Earn_t - (\rho_E - 1)\, CSE_{t-1}$$

$Earn_t$ represents the comprehensive earnings for period t, ρ_E is the required return for equity and CSE_{t-1} is the book value of common shareholders' equity at the beginning of the period. Residual earnings represent return on common equity, but expressed as a dollar excess return. Residual earnings can be broken down into two components that drive its value, Return On Common Equity (ROCE) and book value. Residual earnings are therefore driven by the investment of shareholders and the rate of return on this investment relative to the cost of capital. The rate of ROCE is calculated as the ratio between earnings and common shareholders' equity (Penman, 2013):

$$ROCE_t = \frac{Earn_t}{CSE_{t-1}}$$

Therefore, the residual earnings can be restated as:

$$RE_t = [ROCE_t - (\rho_E - 1)]\, CSE_{t-1}$$

Residual earnings therefore compare ROCE to $(\rho_E - 1)$ and expresses the difference as a dollar amount by multiplying it with the beginning-of-period book value of equity. This shows that an asset that is expected to earn a return on common equity equal to the required return, that is $ROCE = (\rho_E - 1)$, will not produce any residual earnings. Therefore, only activities that are expected to earn a return above the required return will have positive residual earnings and should be at a premium to its book value. Assets that are measured at market value in the

balance sheet will therefore not need to be forecasted as they will earn at their required rate of return and not produce residual earnings. Assuming that all financial assets are measured at or close to market value in the balance sheet, all residual earnings are thus assumed to stem from operating assets.

This leads us to the residual operating income model, as ReOI is residual earnings from net operating assets and calculated as (Penman, 2013):

$$ReOI_t = OI_t - (\rho_F - 1)\, NOA_{t-1}\,,$$

where OI_t is operating income for period t and NOA_{t-1} is net operating assets at beginning-of-period t. Residual operating income can be expressed as the excess return on operations in dollar amount. As with the RE model, the ReOI model can be broken down into two drivers, Return on Net Operating Assets (RNOA) and the book value of Net Operating Assets (NOA) that are put in place to earn the RNOA.

$$ReOI_t = [RNOA_t - (\rho_F - 1)]\, NOA_{t-1}\,,$$

where $RNOA_t$ and NOA_{t-1} are calculated as:

$$\begin{aligned} RNOA_t &= PM_t \times ATO_t\,, \\ NOA_{t-1} &= \frac{Sales_t}{ATO_t}\,, \end{aligned}$$

where PM is the Profit Margin and ATO represents Asset Turnover. ReOI is therefore driven by the NOA that are put in place and the profitability of those assets relative to the cost of capital. Value is then added to the book value by earning a greater RNOA than the cost of capital. As RNOA and NOA have a common driver ATO, ReOI can therefore also be determined as (Nissim & Penman, 2001):

$$ReOI_t = Sales_t \left[PM_t - \frac{\rho_E - 1}{ATO_t} \right]$$

The present value of equity is calculated as:

$$V_0^E = V_0^{NOA} - V_0^{NFO}$$

As discussed above, the expected residual net financial expenses will be zero and therefore the value of equity can be calculated using the ReOI model as:

$$V_0^E = CSE_0 + \frac{ReOI_1}{\rho_F} + \frac{ReOI_2}{\rho_F^2} + \frac{ReOI_3}{\rho_F^3} + \cdots + \frac{ReOI_T}{\rho_F^T} + \frac{CV_T^F}{\rho_F^T}\,,$$

where CV_T^F denotes the Continuing Value (CV) for the firm. The CV is calculated using two methods, using Gordon's growth formula with a constant growth rate and a market-to-book premium. Using the Gordons growth formula the CV is calculated as:

$$CV_T^F = \frac{ReOI_{T+1}}{\rho_F - g}\,,$$

where g is the constant growth rate.

The CV is also calculated using the market-to-book premium. Instead of using a forecasted growth rate to infinity, the market-to-book premium is forecasted. Using the market-to-book premium the CV is calculated as (Christensen, 2015b):

$$CV_T^F = \left(\frac{V_T^F}{NOA_T} - 1 \right) NOA_T \,,$$

where V_T^F is the Enterprise Value (EV) of the firm.

2.2 The Adjusted Present Value Model

There are generally two methods used for risk adjusting purposes in valuation, these are the Weighted Average Cost of Capital (WACC) method or the Adjusted Present Value (APV) method. The methods are similar in many ways and both adjust for risk in the denominator. The APV method calculates the Net Present Value (NPV) of all equity financed projects and then adds the value of tax and other benefits of debt to it, while the WACC method accounts for the benefits of debt by adjusting the discount rate (Hillier, Grinblatt, & Titman, 2012). Both methods will yield identical results under idealized conditions, the APV method is however preferred due to its flexibility. The APV method is also superior as it is consistent with the distinction between value creating operating activities and zero-NPV financing activities. The APV method considers the tax shield a value creating activity and thus eliminates the need to re-allocate taxes between operating and financing activities, as all taxes are assumed part of operations (Christensen & Feltham, 2009).

In the APV method a firm's value is determined as the sum of debt and equity and of the comprehensive operating assets. Equity value can therefore be expressed as (Christensen & Feltham, 2009):

$$V_\tau = (UA_\tau + TS_\tau + BC_\tau + \dots) - D_\tau \,,$$

where UA_τ is the unlevered value of the firm at any future date τ, TS_τ is the value of the future tax shield, BC_τ is the value of future bankruptcy costs and D_τ is the value of debt. This shows another advantage of the APV method, as it follows the value additivity principle so that the value of the firm is the sum of the values of its different components (Christensen & Feltham, 2009).

For this thesis the bankruptcy costs are assumed to be zero ($BC_\tau = 0$) and the assumption that the amount of future debt is continuously adjusted in order to keep the tax shield proportional to the free cash flows from operations (Christensen & Feltham, 2009; Miles & Ezzell, 1980). Therefore, all TS value is included in the expected ReOI and the value of the firm can once again be stated as:

$$V_0^E = CSE_0 + \frac{ReOI_1}{R_{t\tau_1}^F} + \frac{ReOI_2}{R_{t\tau_2}^F} + \frac{ReOI_3}{R_{t\tau_3}^F} + \dots + \frac{ReOI_T}{R_{t\tau}^F} + \frac{CV_T^F}{R_{t\tau}^F} \,,$$

where $ReOI_\tau$ now includes the value of the TS_τ and $R_{t\tau}^F$ is 1 plus the required rate of return for the firm. Assuming a constant risk premium the required rate of return can be expressed as (Christensen, 2015c; Brennan & Xia, 2003):

$$R_{t\tau}^F = (1 + \iota_{t\tau})\,(1 + RP_F) \,,$$

where $\iota_{t\tau}$ is the discretely compounded zero-coupon rate at time t with maturity at τ and RP_F the constant risk premium for the firm. This will be explained in more detail in Chapter 9 where the cost of capital is estimated.

3 | Presentation of Icelandair and the Airline industry

3.1 Icelandair Business Description

Icelandair Group is an Icelandic holding company based out of Iceland and operates within the international airline and tourism sector. Icelandair Group is listed on the Icelandic stock exchange, Nasdaq OMX Iceland, under the symbol ICEAIR.

Icelandair Group (hereafter Icelandair or the company) is the parent company of nine subsidiaries covering two business segments: route network and tourism services. The route network segment is the larger and more important of the two, comprising elements such as scheduled airlines, cargo and ground services. The tourism services play a supporting role providing value added services such as hotels and travel agencies. Icelandair's business concept is centered around Iceland's unique geographical location, between Europe and North America in the middle of the flight routes between the two continents, making it an ideal central point for an international hub-and-spoke network (Icelandair Group hf, 2015). Icelandair's fleet consists of a total of 43 aircrafts, of which 35 are owned by the company. In 2015 Icelandair carried 3.4 million passengers on its international and regional routes, increasing their total number of passengers on the international rout by nearly 18% from the previous year, while still increasing their load factor[1] at the same time, see Figure 3-1 (Icelandair Group hf, 2016b).

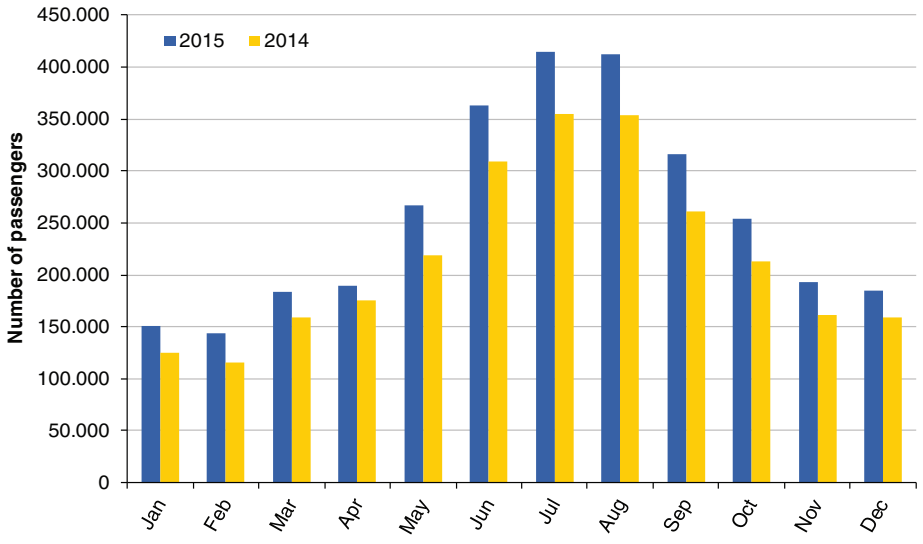

Figure 3-1: Number of Icelandair's international rout passengers per month for 2014 & 2015. Own creation, data from (Icelandair Group hf, n.d.-f).

[1]Load factor is a measure of utilization of capacity. Measures how efficiently airlines fill seats, see Section 5.4.3.

3.1.1 Route Network

The route network is Icelandair's cornerstone, bringing in close to 90% of the revenues in 2015 (see Figure 3-2). Through its route network Icelandair offers air transportation to 39 destinations, 25 European cities and 14 North American cities. The route network is operated through 7 of the company's subsidiaries: Icelandair, Icelandair Cargo, Loftleidir Icelandic, Air Iceland, Icelandair Ground Services, Feria and Fjarvakur (Icelandair Group hf, 2016a).

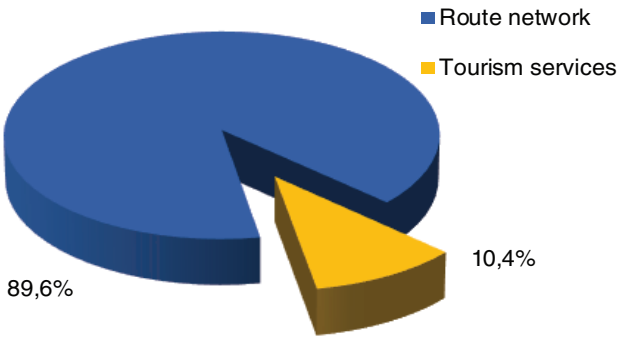

Figure 3-2: Split of business segments measured by revenues in 2015. Own creation, data from (Icelandair Group hf, 2016b).

Icelandair splits its route network into three different and independent passenger markets: FROM, TO and VIA. The FROM market serves the Icelandic domestic market, which mainly consists of Icelanders traveling abroad. The TO market serves tourists with Iceland as their final destination. And the VIA market, serving the international market traveling between Europe and North America. The VIA market is the largest of the three and has been the main driving force of growth in the Rout Network, in 2015 it accounted for 49% of the total number of passengers (Icelandair Group hf, 2016b).

Icelandair is able to take advantage of Iceland's advantageous geographical positioning by serving these three markets with the same aircrafts using the hub-and-spoke network with Iceland as the hub. Flights from Iceland to Europe take between 3 and 4 hours, and flights to North America are 5 to 8 hours long, enabling the use of a narrow-body Boeing 757 aircraft for the entire route network (Icelandair Group hf, 2015). This allows Icelandair to be efficient, by offering higher flight frequency and a greater variety of destinations while at the same time keeping costs low. Icelandair currently has 25 Boeing 757 passenger planes in its fleet, each with a seating capacity of 183 passengers (Icelandair Group hf, n.d.-b) and in 2016 the company is adding two 767-300 wide body aircrafts seating 262 passengers to its fleet. The new 767's will be a good addition to the fleet as the have a higher seating capacity that will facilitate routes with a high passenger load factor with limited airport slot availability. The new aircrafts also have a greater range that will allow Icelandair to open up new market opportunities (Icelandair Group hf, 2016b). Icelandair's Rout Network is shown visually in Figure 2 in Appendix A.

3.1.2 Tourism Services

The tourism service segment is focused on catering the growing demand for tourist services in Iceland. The segment offers a wide range of tourism value adding services, it comprises: hotels, domestic tour packages and travel agencies. Icelandair's tourism services mainly operate through two of the subsidiaries: Iceland Travel and Icelandair Hotels (Icelandair Group hf, 2015).

Icelandair Hotels is the group's hotel chain, offering hospitality services through a mix of international and local brands. The company runs Hilton Reykjavik Nordica, Icelandair Hotel Reykjavik Natura and Icelandair Hotel Reykjavik Marina in Reykjavik as well as 18 smaller hotels around the country side and in smaller towns in Iceland. The vision of the hotel operations is to create an authentic Icelandic experience for tourists (Icelandair Group hf, n.d.-d).

Iceland Travel is the company's tour operator and destination manager. It is the largest tourism service provider in Iceland, offering a wide range of services for travelers, including leisure, MICE (Meetings, Incentives, Conferences and Events) and cruise services (Icelandair Group hf, n.d.-d).

3.2 History

Icelandair's roots can be traced back to the founding of the first Icelandic airline Flugfelag Akureyrar on the north coast of Iceland in 1937. In 1943 the company moved its headquarters to Reykjavik and changed its name to Flugfelag Islands, which later assumed the international trade name Icelandair. Another important milestone in Icelandair's history is the founding of Loftleidir in 1944, which later became known as Icelandic Airlines (Icelandair Group hf, n.d.-c).

In 1945 Flugfelag Islands began its international operations with flights from Iceland to Scotland and Denmark. Loftleidir followed and began its international operation in 1947 (Icelandair Group hf, n.d.-c).

Flugfelag Islands and Loftleidir merged under a new holding company Flugleidir in 1973. In 1979 Flugleidir took up the international trade name Icelandair, but retained the Flugleidir name in the Icelandic domestic market (Icelandair Group hf, n.d.-c).

In 1987, on the company's 50^{th} anniversary, Icelandair signed a major contract agreement with Boeing to renew the fleet serving international flights. A new generation of Boeing jets (757-200 and 737-400) replaced the older fleet gradually from 1989 to 1993, before a single type fleet of 757 was established in 2003 (Icelandair Group hf, n.d.-c).

Icelandair Group became a publicly listed company in December 2006, when the company was listed on the Icelandic Stock Exchange (ICEX) under the symbol ICEAIR.

Following the collapse of 2008, in 2009 Icelandair Group started a financial restructuring. This consisted of debt restructuring through a mix of debt-to-equity conversions and extensions of loan maturities. The group further divested on most non-core assets and issued additional new equity of 4 billion ISK. In February 2011 the company announced that the financial restructuring was complete and has since been growing its core business at a good pace. In 2015 passengers in the international rout network amounted to over 3 million, increasing by roughly 107% from 2010 (Icelandair Group hf, n.d.-c).

3.3 Ownership Structure and Share Information

Total number of shares at the end of year 2015 was 5 billion of which the company held treasury shares of around 25 million leaving 4,975 billion shares outstanding. The number of shareholders at the end of year 2015 was 2.386. Figure 3-3 shows the ownership structure at year end 2015. Icelandic pension funds own close to 50% of all outstanding shares and the top 10 owners hold over 60% of Icelandair shares (see Appendix A). This is not uncommon in Iceland where local pension funds are majority owners in most listed companies.

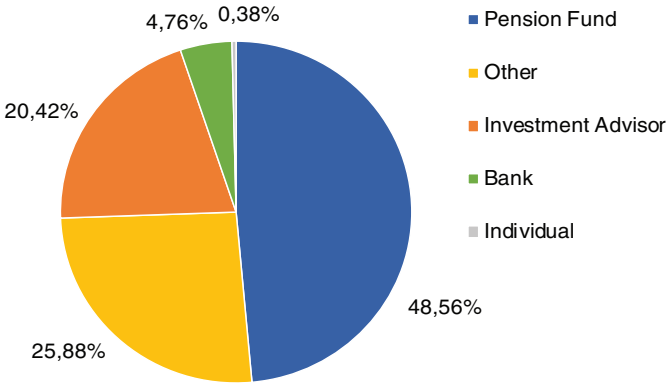

Figure 3-3: Icelandair's distribution of ownership, yearend 2015(Bloomberg, n.d.-e).

The day of valuation is the 8th of April 2016, when closing price was 37,3 ISK per share. Icelandair's historical share price and volume for the past 5 years are shown in Figure 3-4.

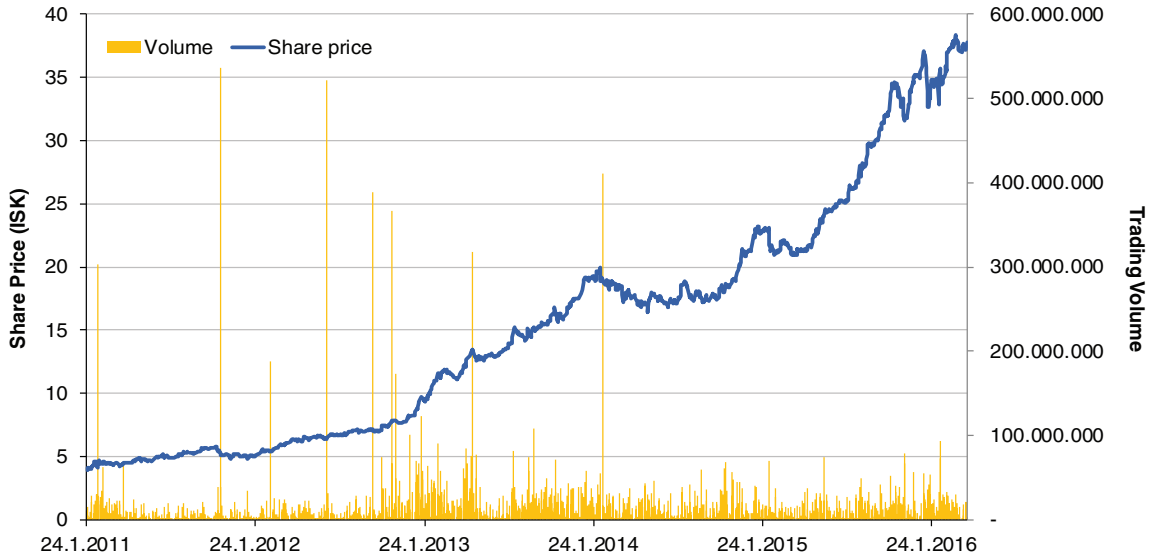

Figure 3-4: Development in share price since January 2011 (Bloomberg, n.d.-f).

3.4 Airline Industry

Few inventions have had as much impact on the world as the invention of the airplane. The introduction of jet engine aircrafts for commercial use in the 1950s and the development of the "jumbo-jets" in the 1970s had enormous effect on the global airline industry. But at that time the airline industry was heavily regulated around the globe. This regulation created

an environment that catered to technical innovation but left out any need for Airlines to be competitive and focus on profitability. This was not good for the general public and meant that air travel was expensive and only for the wealthy (by western standards) who could afford the high prices charged by airlines. It wasn't until the deregulation of the airline industry, starting in 1978 in the USA, that airlines started to focus on cost efficiency and being profitable (Belobaba, P. , Odoni, A. R. and Barnhart, C., 2009). This has completely changed the whole industry and had great effect on the world as a whole. Air travel is no longer only for the selected few but instead an integrated part of society, it is now affordable for most (in the western part of the world) to travel by plane both domestically and internationally. It has changed how people think about distance and it has made it possible to conduct business and visit places that were out of reach before.

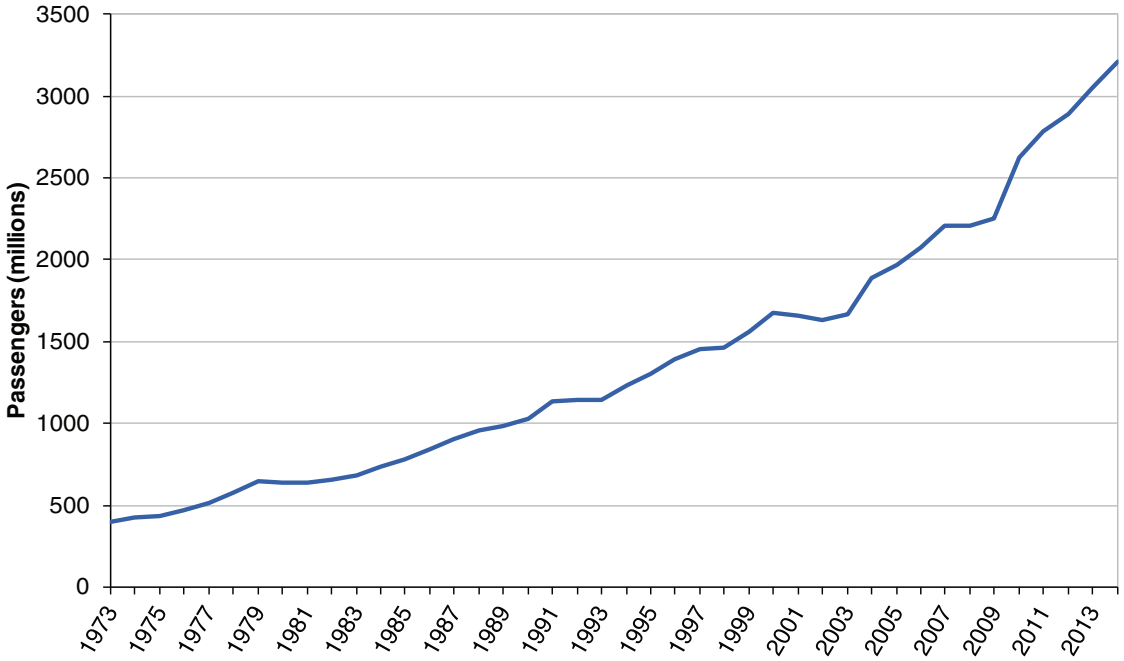

Figure 3-5: Airline passengers worldwide from 1973-2014. Own creation, data from (The World Bank, 2015).

In year end 2014 the global airline industry was valued at $585.277 million, an increase of $148.585 million since 2010 or a CAGR[2] of 7,6% (MarketLine, 2015). As we can see from Figure 3-5 the industry's passenger volume has increased rapidly and with only minor declines for short periods since the 1970s, in 2014 over 3 billion passengers were carried by airlines worldwide (The World Bank, 2015). The market can be separated into two segments: domestic and international. In terms of passengers carried the segments are roughly 60/40 with the domestic market the larger of the two. In terms of geography the value of the airline industry is mainly split among the Americas, Asia-Pacific and Europe (MarketLine, 2015). Figure 4 in Appendix A shows the global airlines industry geography segmentation at year end 2014.

[2]Compounded Annual Growth Rate

With all this growth in the global airline industry, most airlines are still finding it hard to be profitable and competition is tough. Profit margins are thin and the industry is characteristically unstable and highly cyclical. As shown in Figure 3-6 the total net profits of all airlines of the member states of the International Civil Aviation Organization (ICAO) have been very cyclical over the past four decades.

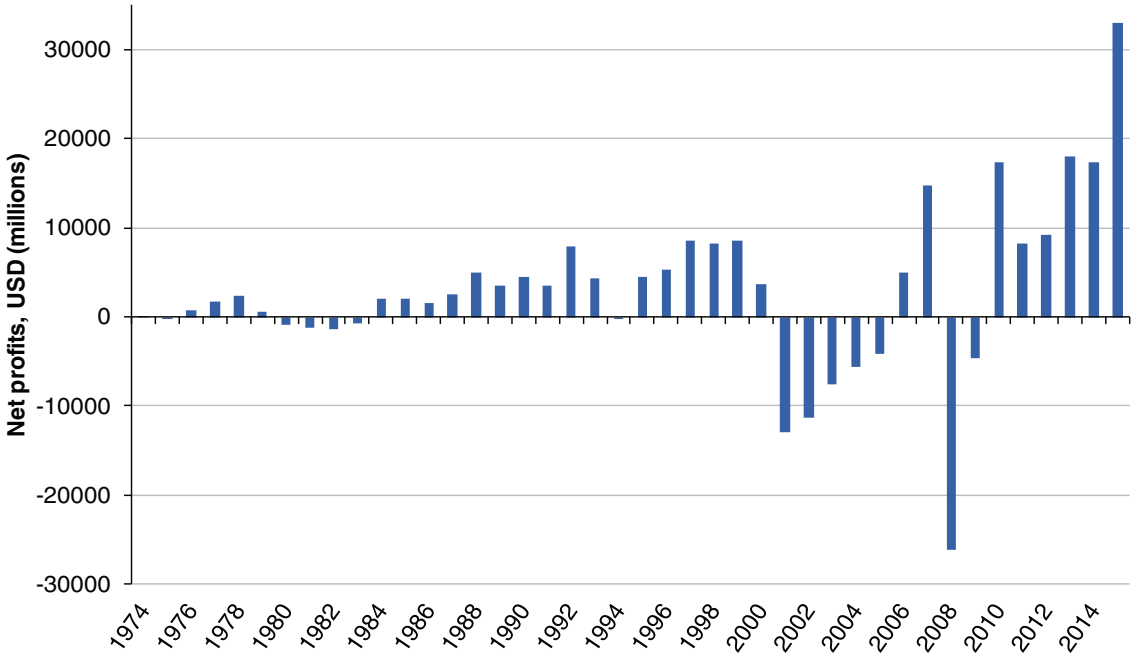

Figure 3-6: Annual net profits in millions of US dollars for world airlines, 1974 - 2015. Own creation, data from (International Civil Aviation Organization, n.d.).

The airline industry's cycles appear to be closely tied to the world economic climate, when the world economy slows down; demand for air travel seems to follow (Doganis, 2006). Airlines are also vulnerable to a host of outside factors such as wars, terrorism, natural disasters and infectious diseases to name a few. And with jet fuel as a major cost, swings in oil prices can have major impacts on the profitability of airlines. There are many factors that affect the airline industry and those will be discussed in further detail in the Strategic Analysis in Chapter 5.

Even with this strong cyclical trend in the industry there have been airlines that consistently show profit even during downturns and likewise there have also been those who are unable to profit when the industry as a whole has operated profitably. As a whole the industry is marginal, even though individual airlines have been able to be profitable the industry has not been very profitable compared to other sectors in general (Doganis, 2006).

4 | Peer Group

In this chapter the selected peer group is presented. The peer group serves as a reference that Icelandair will be measured against in the next chapters. It is important that the companies selected in the peer group are in the same industry, operate in similar markets and are somewhat similar in size to Icelandair. The peer group has been selected based on the following criteria being similar to Icelandair: fleet size, average number of employees and passengers carried. The group was further narrowed down by accounting standards and ownership. The companies selected in the final peer group are well known airlines, most of whom are larger in size than Icelandair, but follows the same accounting standards and are publicly listed on a stock exchange. The peer group selected for this analysis consists of: SAS, Norwegian, Finnair, and Air Berlin. None of these companies are exactly alike; they follow different business models and strategies, and don't operate in the exact same geographical markets. The following sections give a brief introduction of each company in the peer group and Table 4-1 shows the summary of statistics for each company in the peer group

4.1 Air Berlin

Airberlin is a full service international airline operating out of Berlin, Germany. Airberlin's core markets are Germany along with Austria and Switzerland. The company is listed on the Frankfurt Stock Exchange under the symbol AB1. Airberlin is one of Europe's leading airlines and the 8^{th} largest in terms of passengers carried. With a fleet of 153 aircrafts and 8.869 employees the company carried 30,25 million passengers to 138 destinations in 2015 (Airberlin Group, 2016). Airberlin's main hubs are in Berlin and Dusseldorf, from where it offers intercontinental flights both to North America and Asia (Airberlin Group, n.d.).

4.2 Finnair

Finnair is Finland's national carrier operating out of Helsinki, Finland, where its main base is also located. Finnair is listed on the NASDAQ OMX Helsinki stock exchange. The Finnish government is the major shareholder holding 55,8% of outstanding shares. Much like Icelandair, Finnair looks to take advantage of the competitive advantage provided by the geographical location of its hub in Helsinki. Some of the fastest routes between many destinations in Europe and Asia go through Helsinki. This allows Finnair to connect the northern regions of Europe to Asia and North America through its hub at Helsinki (Finnair Group, n.d.). In 2015 Finnair carried 10,3 million passengers, a record in the company's history. Finnair operates 46 aircrafts in its fleet, thereof 23 are owned by the company, offering 70 destinations in its route network and employed on average 4.906 people in 2015 (Finnair Group, 2016).

4.3 SAS

Scandinavian Airlines System or SAS is the national airline of Denmark, Norway and Sweden, operating primary hubs in all three countries. SAS is the largest airline in the Nordic region and the company is listed on the Stock Exchanges in Stockholm, Copenhagen and Oslo. SAS

priority is on business travelers and has corporate contracts with many companies in the Nordics. In 2015 SAS carried 26,9 million passengers with a fleet consisting of 152 aircrafts and a staff of 11.288 employees. The company offers 119 destinations all over Europe, North America and Asia (SAS AB, 2016).

4.4 Norwegian Air Shuttle ASA

Norwegian Air Shuttle or Norwegian is a low cost airline based out of Oslo, Norway. The company's shares are listed on the Oslo Stock Exchange. Norwegian's route network spans across Europe as well as into North Africa, the Middle East, North America, The Caribbean and Southeast Asia. At year end 2015 Norwegian's fleet of 99 aircrafts operated 447 routes to 138 destinations with an average number of 4.576 employees. Norwegian's mission is to offer quality service at a low fare (Norwegian Air Shuttle ASA, 2016).

Table 4-1: Summary of the peer group overview. Own creation, data from companies Annual Letters.

	Fleet	**Employees**	**Passengers (million)**	**Destinations**	**Load factor (%)**
Icelandair	43	3.384	3,40	39	83,10
Airberlin	153	8.869	30,25	138	84,18
Finnair	46	4.906	10,30	70	80,40
SAS	152	11.288	26,90	119	74,46
Norwegian	99	4.576	25,80	138	86,20

5 | Strategic Analysis

In this chapter a strategic analysis of Icelandair and its environment is conducted. The strategic analysis should give a better picture of Icelandair's macro- and micro environment and what kind of challenges and/or opportunities the company faces. This kind of analysis is important as it serves as a foundation for forecast of future outlook for the company and it reveals important factors that cannot be identified through the analysis of the company's financials alone.

For Icelandair, the strategic analysis has been split into three chapters, each looking at the company and its environment from a different point of view. The macro environment is analyzed in Section 5.1 using a PESTEL framework, in Section 5.2 Icelandair's micro economic factors are analyzed with Porter's five forces framework and chapter 2 closes with an internal analysis in Section 5.3 using the VRIO framework and a comparison of airline specific measurements with the peer group.

5.1 PESTEL Analysis

It is important to analyze the macro environment for Icelandair to understand the external factors affecting the company. The main objective of the macro analysis is to detect external factors that can affect Icelandair's potential earnings growth and risk. As an Airline Icelandair is highly dependent on these external factors and can do little to affect or influence them. It can only adjust its operation to better adapt to each situation.

The Macro analysis is conducted using a slightly modified version of the PESTEL framework. Using the PESTEL model relevant factors are grouped into categories of Political, Economic, Sociocultural, Technological, Environmental and Legal. Each category is then analyzed and the impact of possible future changes estimated. Since Icelandair operates in the airline industry it is concluded that legal issues are better dealt with under the Political section. These topics are dependent upon each other and legislation in the industry is often politically influenced and motivated. Therefore, the Macro environment is analyzed using a PESTE model. It is important to keep in mind throughout this analysis that the categories are not mutually exclusive and topics discussed are often relevant to more than one category. The PESTE model fits well to analyze the macro environment of an airline as they are affected by political decisions, are subject to strict regulations and highly dependent on economic trends.

5.1.1 Political & Legal issues

Deregulation

"Very few global industries are as deeply affected by changes in the international and domestic regulation environment as the airline industry." (Belobaba, P. , Odoni, A. R. and Barnhart, C., 2009, p. 19). The airline industry has been subjected to deregulation for the past few decades which has changed the landscape of the whole industry. The long-term trend seems to be in the direction of further deregulation and liberalization of global airlines (Belobaba, P. , Odoni, A. R. and Barnhart, C., 2009). This trend has led to more competition among global

airlines and been the main source for the growth of low cost airlines. The low cost sector has been growing rapidly worldwide for some period now, with Southwest and JetBlue in the US and Ryanair and easyJet in Europe having paved the way for an explosion of new-entrant, Low-Cost Carriers (LCC) around the world (Doganis, 2006).

Although due to Iceland's geographical position Icelandair may be marginally shielded from some of the competition, it is still affected by the LCC trend. EasyJet, SAS, Norwegian and Wizz, among others all have Iceland as a destination. But Icelandair's main competition in Iceland has been local low cost airlines, first Iceland Express founded in 2002 and now WOW Air which in 2012 acquired Iceland Express's operations and network.

Low-cost airlines are certainly not all successful and most of them will in fact not survive beyond the short to medium term. However, the low-cost business model appears to be working and the successful LCC will continue to capture market share and force prices down. Further liberalization of international air services will increase LCC's growth in new markets (Doganis, 2006).

Labor contracts and Unions

In May 9th 2014 Icelandair's pilots halted work and began a 12-hour strike. They demanded a pay increase of 2,8% on basic salary plus increases on bonuses. If these demands were not met they threatened two additional 12 hour strikes. Strikes are very costly for an airline and it is estimated that Icelandair's loss was between 1,5 and 1,7 billion ISK, this is not factoring in any affect this instability had on future booking's and possible revenue (Visir.is, n.d.-b). On May 15th 2014 the Icelandic government passed a law prohibiting the strike and gave Icelandair and the pilots' union 15 days to come to an agreement. If not, the contracts would be finalized through arbitration. A few days from the deadline, on May 28th, the parties came to an agreement, very close to the union's demands. The new contract is valid until September 30th 2017 (Visir.is, n.d.-c, n.d.-a).

It remains to be seen what will happen in next year's contract negotiations, but it is obvious that the unions, both pilot and flight attendance, are strong in Iceland. It is also evident that the Icelandic government will step in and meddle if it deems it necessary. If this instability continuous and flights have to be canceled or delayed every few years due to strikes, it could be damaging to Icelandair's image and affect passengers' choice.

5.1.2 Economic issues

The World Economy

As previously discussed the airline industry is highly correlated with shifts in the world economy and trade cycles. The airline industry is cyclical and its cycles appear to be closely linked to the world economic shifts (Doganis, 2006). We can see from Figure 5-1 that demand for airline tickets across the world from 1980 until 2014 seems to follow the world economic climate. When GDP is growing, airlines carry more passengers and when the growth slows down airlines tend to carry fewer passengers as well.

We can further see the correlation in Figure 5-2, where the data has been normalized in order to be able to see how number of passengers carried follows the growth in GDP.

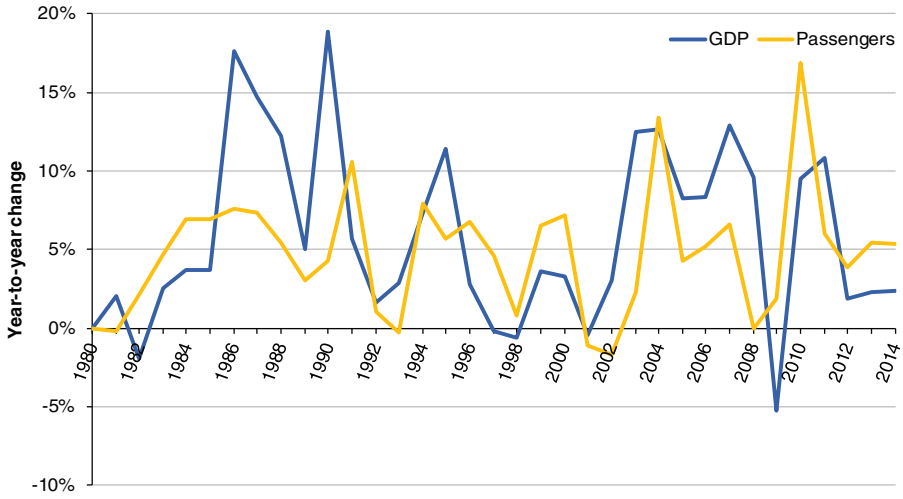

Figure 5-1: World GDP and Passengers carried globally, showing percentage change. Own creation, data from (The World Bank, 2015; International Monetary Fund, 2016).

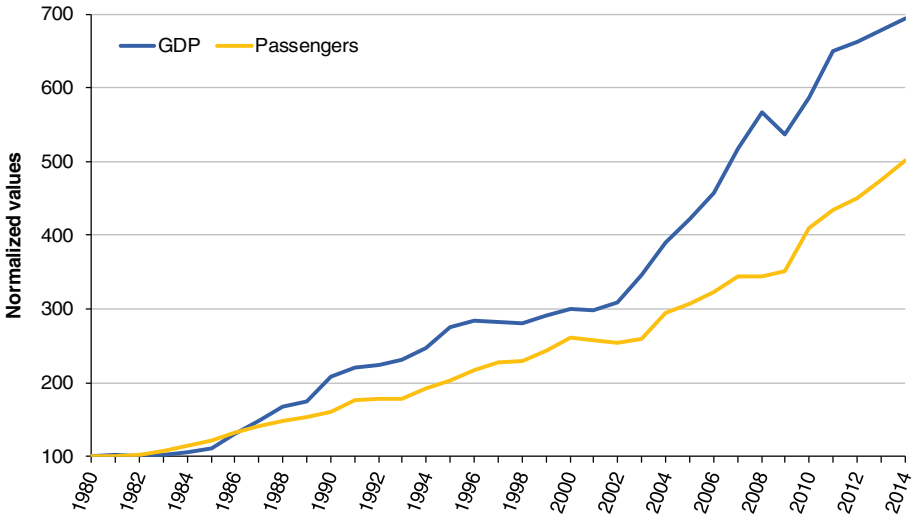

Figure 5-2: Nominal World GDP and Passengers carried worldwide, Data normalized to show correlation. Own creation, data from (The World Bank, 2015; International Monetary Fund, 2016).

It is no easy task to predict global economic trends, with so many different factors affecting it, and no attempt is done as part of this study to do so. Instead it can be useful to look at predictions from reputable organization. For example, the International Monetary Fund (IMF) estimates an average growth in world GDP from 2016 until 2020 to be 3.8% (International Monetary Fund, 2016). Estimates should obviously be taken for what they are, as nobody can predict the future. Further, since the airline industry is so correlated with the economy, it is highly sensitive to events such as war, terrorist attacks and oil crisis to name a few, which can cause quick macroeconomic shifts. These are unpredictable events and therefore

impossible to forecast accurately where and when they will occur. We can see that as an airline with 76% of its revenues in 2015 originating outside of Iceland, Icelandair is highly affected by global economic shifts that they have no power over and can only do their best to adjust to.

In 2015, Icelandair's revenues originating in Iceland amounted to 24% of total revenues and most of their non-current assets are located in Iceland. Therefore Icelandair is also very dependent on the Icelandic economy. This was particularly evident in the years following the crisis of 2008. As discussed in Section 3.2 (History), Icelandair needed to perform a financial restructuring, extending maturities on debt and adding additional equity. But this economic shift also brought new opportunities to the company. Before the collapse, Iceland was a rather expensive country for foreigners to visit, the Icelandic Krona was strong compared to the Dollar and the Euro. Since the collapse Iceland has become more competitive and attractive to foreigners and when the world economy started to grow again, demand for Iceland as a destination soared. There are of course other factors than the depreciation of the Icelandic Krona that make Iceland a popular tourism destination now. Figure 5-3 shows international visitors to Iceland from 2009 to 2014. In 2014, 97% of the visitors arrived by plane (not all with Icelandair) (Ferdamalastofnun, 2015). From the graph we can see that tourists visiting Iceland have doubled during these five years.

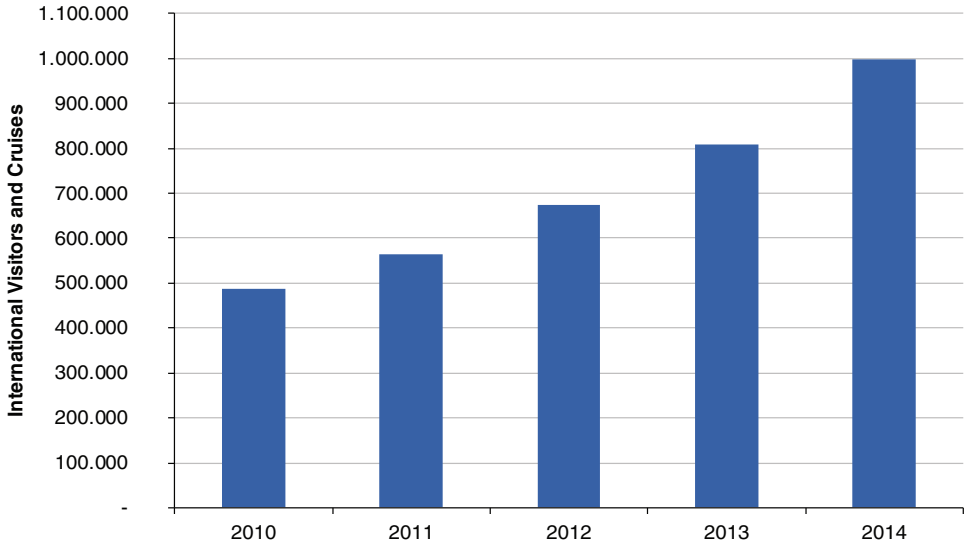

Figure 5-3: International visitors to Iceland, from 2009 to 2014. Own creation, data from (Ferdamalastofnun, 2015).

Fuel price

Another key factor affecting the airline industry is the price of fuel. For most airlines jet fuel is the largest single operating cost and Icelandair is no exception, with aircraft fuel accounting for 25% of its operating expenses in 2015 (Icelandair Group hf, 2016b). It is therefore easy to see how developments in jet fuel prices can impact the company. Figure 5-4 shows the development in jet fuel prices during the last two decades.

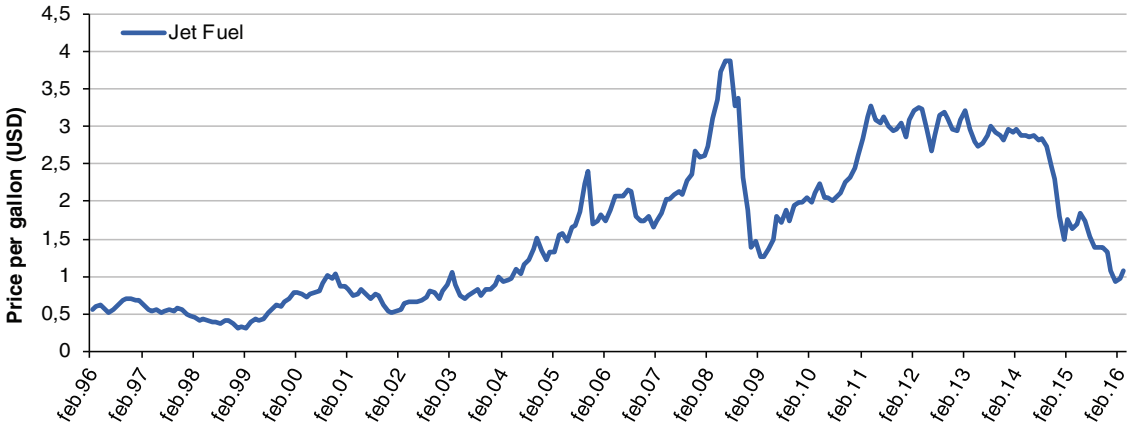

Figure 5-4: Jet fuel per gallon monthly prices in US dollars. Own creation, data from (Indexmundi, n.d.).

The price of jet fuel is not surprisingly highly correlated to oil prices and mirrors them almost exactly. This can be seen very clearly in Figure 5-5, where jet fuel prices have been converted from price per gallon to price per barrel in order to compare to crude oil prices.

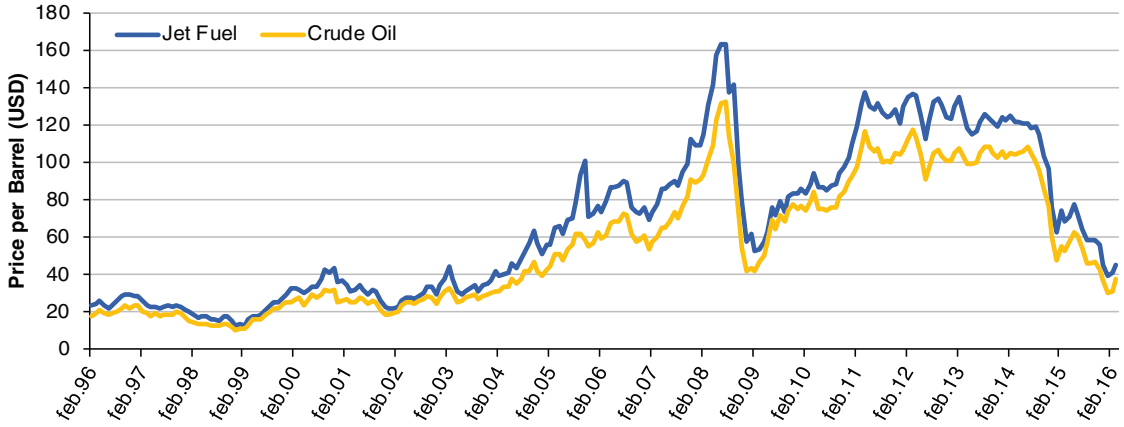

Figure 5-5: Jet fuel and Crude Oil prices per barrel, monthly prices in US dollars. Own creation, data from (Indexmundi, n.d.).

This strong correlation between the commodities indicates that price developments for crude oil will impact jet fuel prices and that oil price forecast can be used to predict future jet fuel expenses. Many factors affect and influence crude oil prices, for example: political instability, wars, global economic outlook, and supply and demand, among others. Therefore, oil prices are volatile and can often be extremely hard to predict. Historically crude oil prices have varied a lot as can be seen from Figure 5-6. The price of oil shot up dramatically on two occasions in the 1970s, during the Middle East crises. First in 1973-4 when prices more than doubled and then again in 1979 when they again doubled. These high fuel prices were one of the major causes for the cyclical downturn in the early 1980s in the airline industry (see Figure 3-6). The sharp drop in 1986 explains the high profits in the late 1980s. Between 1986 and 2002, oil- and jet fuel prices stabilized at a value little less than half the price

prevailing during the early 1980s (Doganis, 2006). Oil prices rose sharply in the years leading up to the financial collapse in 2008 when they saw a sharp decline. Prices rose again reaching slightly lower price than before in 2011 until 2014 when they began to decline. Currently oil prices have been declining very rapidly with prices reaching a 12-year low of $26 per barrel in January 2016. This recent fall in oil prices reflect concerns of over-supply in the market, intensified by additional supply from Iran. Demand outlook appears to have weakened as well in key energy-consuming countries and storage levels are near record highs. Hedging will delay some of the benefits in the airline industry but if these prices are sustained IATA estimates it would reduce the industry's annual fuel bill by approximately $12 billion in 2016 (International Air Transport Association, 2016).

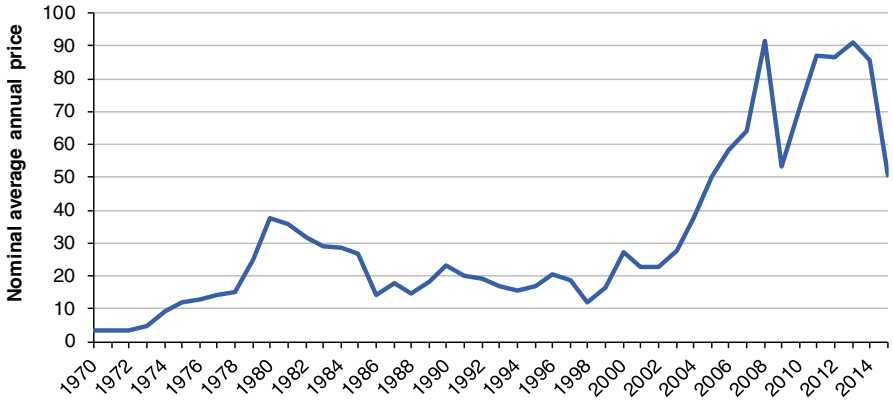

Figure 5-6: Average annual price (USD) of crude oil in nominal values not adjusted for inflation. Own creation, data from (Inflationdata, n.d.).

Declining fuel prices are good for airlines as it lowers their operating costs. Icelandair is like other airlines exposed to the risk of fuel prices increasing and chooses to minimize this risk by employing a hedging strategy. Their current strategy is to hedge between 40% and 60% of fuel consumption 12 months forward. With this strategy the company aims to provide protection against sudden and significant increases in oil prices, while still being able to take advantage of a substantial fall in prices. At yearend 2015, the company has hedged 60% of an estimated 12 months exposure with swaps (Icelandair Group hf, 2016b).

At the date of analysis (8.4.2016), crude oil is trading around $38 per barrel, a significant increase from its lowest point in mid-January when prices were around $26 per barrel (Bloomberg, n.d.-b). As previously stated oil prices can be extremely hard to predict and the future of oil is highly uncertain, some forecasts expect the price to continue declining down to $20 per barrel while others are expecting a rise to $60 per barrel. A very significant rise in 2016 seems unlikely though, given the record of oil inventories (International Air Transport Association, 2015) but as will be discussed in Chapter 8 (Forecasting) operating costs are expected to increase as oil prices rise again.

Labor cost

While aircraft fuel is Icelandair's biggest single operating expense, total salaries and other personnel expenses aggregated together represent a larger cost. Icelandair employed an average of 3.384 full time employees in 2015 (Icelandair Group hf, 2016b). As a group total

salaries and other personnel expenses accounted for 30% of the company's operating expenses (Icelandair Group hf, 2016b). With fuel prices declining, labor costs will represent a higher share of total operational costs.

Labor costs are not entirely an external factor management cannot affect. Managements influence will be discussed in the internal analysis in Section 5.3. However, some aspects of labor costs are out of the company's hands and all management can do is react. Labor costs usually follow growth in the economy in cyclical upturns, but due to strong union powers they can be difficult to reduce either through lowering wages or by laying of staff, when the economy turns. This can be dangerous if labor costs rise so high during the upturn that they become unsustainable in the next downturn.

As previously discussed, Icelandair dealt with pilots striking in 2014 and with a strong union culture in Iceland, the company can expect similar situations when labor contracts are re-negotiated.

Currency risk

Icelandair is exposed to currency risk arising from its business dealings in diverse currencies. The company seeks to reduce its exposure to currency mismatch in the cash flow by matching receipts and payments in each individual currency. After that any mismatch still left, is then dealt with using currency trade within the Group before turning to outside parties. For Icelandair the biggest currency mismatch has been where annual US dollar cash inflows fall short of outflows. This deficit is mainly due to fuel costs, lease payments and funding related payments. Historically this deficit has been approximately 100 million dollars, but due to a period of organic growth and falling fuel prices the gap has been shrinking and is expected to decrees further in the near future (Icelandair Group hf, 2015). Icelandair's hedging policy regarding currency risk is to hedge 50-80% of net currency exposure 9-12 months forward using spot and forward contracts (Icelandair Group hf, 2016a).

Interest rate risk

Airlines are affected by interest rate changes, both in their home market and globally. Interest rate increases by central banks will normally have negative effects on airlines. An increase in interest rates will result in higher debt payments for Icelandair as a large part of Icelandair's outstanding loans is directly related to aircraft financing and denominated in US dollars. The company hedges 40-80% of its net interest rate cash-flow exposure of long-term financing with up to 5-year horizon. Foreign loans are currently hedged against interest rates fluctuations using fixed-rate loan contracts or swap contracts, where a floating rate is exchanged for fixed (Icelandair Group hf, 2015). On the other hand, a reduction of interest rates by central banks could have a positive effect, both in terms of lowering debt payments and increasing consumption in the economy.

5.1.3 Sociocultural issues

Now that air travel has become more affordable and no longer a luxury reserved for the rich there has been a shift in the customer demographic and with it a change in buying behavior. Passengers are choosing lower cost flights, especially for shorter distances. This change has

relatively benefited the low cost carriers the most but increasing number of passengers is surely positive for the whole industry. As seen in Figure 3-5 (Page 11), passengers carried per year has increased rapidly during the last decades and ICAO forecasts an average annual growth rate of 4.5% until 2030 (International Civil Aviation Organization, n.d.).

While Icelandair is not an LCC its prices are still very competitive and the company possesses a strong brand in Iceland, known for quality services with reliability. Icelandair's number of passengers has been increasing very steadily and in February 2016 the company carried 181.000 passengers, an increase of 26% from last year's February (Icelandair Group hf, n.d.-f). With this increase in demand Icelandair is still maintaining its reputation for punctuality and had the highest ratio of take-offs and landings on time, 75%, in Iceland's airport in Keflavik in February 2016 (Vidskiptabladid, n.d.).

With continued demand for Iceland as a destination and passengers preferring cheaper flights, Icelandair will likely face increasing competition from LCC adding Iceland as a destination to their network and driving down prices. Icelandair already faces competition from LCC as many of them are increasing their operations in Iceland.

5.1.4 Technological issues

Technology has played a big part in the improvement of the airline industry in recent years. The development in computer reservation systems has brought dramatic changes in airline distribution, shifting from traditional travel agencies to the internet for booking and ticketing. Internet distribution channels provided airlines with an opportunity to have more control over the distribution of their own product and simultaneously reduce distribution costs. Electronic tickets (e-tickets) and web check-ins have further decreased costs. By enabling passengers to check in for their flights, select seats and other features either online or through self-check-in machines at airports allows for faster passenger processing and reduces manual labor required and costs for airlines (Belobaba, P. , Odoni, A. R. and Barnhart, C., 2009).

Technological advances in aircraft engineering have produced better and more efficient plains with higher comfort levels. Efficient plains decrees fuel consumption lowering operating costs and reduce CO2 emission making them more environmental friendly. Newer and better build airplanes should also carry fewer technical problems and less maintenance, reducing delays and cancelations due to technical problems.

Innovations in technology may also produce threats for the air travel industry. Better and more personal communications through the internet with emails, live message chats and video conferencing may have reduced the need for travel in order to do business. This is likely to be true especially with regards to intra-company dealings. This has not been a major issue for the industry and it is unlikely that this is something the airlines should need to worry too much about. Virtual reality and hologram technology may possess further threats to the industry, but more likely have a minimal impact on airlines.

5.1.5 Environmental

Air transportation is highly sensitive to environmental factors such as violent weather storms and natural disasters. Bad weather can cause delays and cancelations, which in turn increase costs for airlines.

Natural disasters can also be very costly to an airline as was evident in April 2010 when the Icelandic volcano Eyjafjallajokull erupted. Volcanic ash paralyzed much of Europe's air traffic, leaving millions of passengers stranded all over the world. Icelandair scrambled to keep its network open as long as possible and in order to bring passengers closer to their destinations special flights were organized to the few European airports still open. As European air space was opening up Iceland's airport in Keflavik, Icelandair's hub, closed down. Icelandair moved its whole hub operation to Glasgow airport along with 200 of its staff to be able to run its temporary operations. The situation lasted for 10 days and during that period 36 flights per day and 4-6 thousand passengers were carried with shuttle flights to Akureyri airport in the north of Iceland with busses running around the clock to Reykjavik. Icelandair's efforts resulted in only 20% of passengers needing to cancel their trips and minimal compensation requests (Icelandair Group hf, n.d.-a).

The Eyjafjallajokull disaster posed other kinds of threats to Icelandair, it had changed the perception of Iceland as a tourist destination, Iceland was now considered unsafe and dangerous. Icelandair saw an instant decrease in demand with flights and hotel bookings being canceled. With tourist arrivals decreasing by 22% in April, Icelandair along with the Icelandic government launched a PR campaign to try to revitalize bookings and avoid a disaster in the summer high season. The campaign was successful and the number of tourists visiting Iceland equaled the year before (Icelandair Group hf, n.d.-a).

5.2 Porters Five Forces

This chapter looks to identify key features of the airline industry that determine the strength of the competitive forces at work in the market and ultimately Icelandair's potential profitability. In order to better understand and analyze the level of competition in the airline industry, Porter's Five Forces framework is used. Whereas the PESTEL framework analyzed Icelandair's macro environment, the Five Forces framework focuses on the micro environment and highlights forces affecting the competition in the industry. Porter's Five Forces are as follows: Threat of new entrants, Bargaining power of suppliers, Bargaining power of buyers, Threat of substitutes and Rivalry among existing firms. The Five Forces can be seen in Figure 5-7. Porter's framework is generally used to analyze a specific industry, here it will be slightly modified in order to better show Icelandair's position in the industry.

5.2.1 Threat of new entrants

The airline industry is both labor and capital intensive, making it relatively hard to enter. Starting an airline requires big initial investments with high costs in setting up the fleet, hiring staff, buying fuel, maintenance and other various costs that will occur. But as with most industries, when borrowing is cheap more airlines will be formed. Icelandair has had competition from an Icelandic low-cost airline for over a decade without significant loss of market share or decreasing profits. A bigger threat to Icelandair is other established airlines adding Iceland as a destination and/or flying the same routes as Icelandair. This is already a reality, with tourism in Iceland increasing so rapidly. Already 25 airlines have confirmed their slot at Keflavik airport for the summer of 2016, this is a 25% increase from 2015 when 20 airlines landed in Keflavik and in 2010 there were only 10 (Mbl.is, n.d.).

The biggest barrier of entry for airlines adding Iceland to their route network is airport slots.

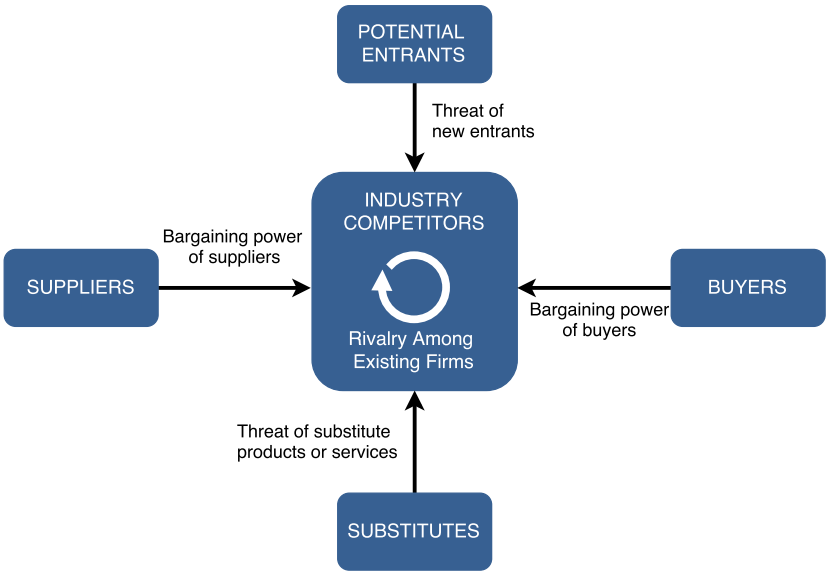

Figure 5-7: Porter's Five Forces. Own creation, data from (Porter, 1980).

An airport slot is a permission granted by the airport to an airline, allowing the use of its infrastructure to arrive or depart at a specific date and time (International Air Transport Association, 2014). Iceland only has one airport that can support international traffic and the airport can only allocate slots with in its capacity. Airport slot allocation is regulated by IATA. According to IATA's worldwide slot guidelines an airline is entitled to retain a series of slots on the basis of historic precedence. This means that if a series of slots was operated at least 80% of the time during the previous period, an airline is entitled to retain its slots. Further, slots may not be withdrawn from an airline holding rights to a slot to accommodate new entrants (International Air Transport Association, 2014). This is an advantage to Icelandair as they have a long history at Keflavik airport and operate many of the best slots. The fact that Keflavik airport is Iceland's only international airport adds to this advantage as airlines do not have an alternative airport to secure slots at.

5.2.2 Bargaining power of buyers

Buyers or customers of the airline industry can be divided into two groups, leisure- and business travelers. For most airlines leisure travelers represent a bigger portion of ticket sales. Leisure travelers are generally speaking more flexible regarding time and date and more price sensitive. For this group of customers switching costs are low and the price is frequently the deciding factor when it comes to choosing between carriers. As discussed in the technology section of the PESTEL analysis, technological advances have increased bargaining power of airline customers. Few travelers contact an airline directly, but instead look for flights on websites comparing rates between all carriers for a given trip. This price transparency and the effortlessness of gaining this information have lowered switching costs for travelers drastically. Often times the cheapest carrier is chosen by leisure travelers, driving up sales for LCC. Business travelers are generally less flexible on time and date. They are often frequent flyers who prefer access to lounges or fast tracks and usually corporations have deals with airlines. They represent a smaller portion of airlines sales, but are still important for a network

airline such as Icelandair. Business travelers are often buyers of the more expensive seats and premium services, as well as being less seasonal and therefore offer both higher margins and increase stability in sales. Both these groups have quite high bargaining power over airlines. With a dominant position and a strong brand, Icelandair may have an advantage over its competitors in terms of customers bargaining power, regarding flights to and from Iceland.

5.2.3 Bargaining power of suppliers

According to Porter (1980) the bargaining power of a supplier group is substantial if it is dominated by a few companies and is more concentrated than the industry it sells to. This is the case in the airline industry, as there are only two major global aircraft manufacturers, Boeing and Airbus, selling to most airlines in the world. This oligopoly in aircraft manufacturing is not favourable to the airlines as it wields considerable influence on the prices and terms the airlines receive. On the other hand, airlines are a major customer of both the big aircraft manufacturers and sales to them represent a significant portion of their income. The bigger the airline the more bargaining power and the big ones certainly have bargaining power. Icelandair operates a fleet of Boeing aircrafts on its international route network and is unlikely to have much bargaining power when it comes to purchasing aircrafts. Changing from Boeing to Airbus would be costly and unlikely Icelandair will opt for that.

Labor must be recognized as a supplier as well. As discussed in the PESTEL section, Icelandair's labor is tightly unionized and has leverage to bargain for high wages and compensation. This eats away a significant fraction of the potential profits for the company.

5.2.4 Substituting products

For the airline industry there are a number of substitutions available, alternative transportation like driving, busses, trains, ferries etc. can all be seen as substitutes for air travel. But since Iceland is an island in the middle of the Atlantic Ocean there is only one alternative to air travel and that is sea travel. A number of different cruses dock in Iceland, but as they represent a very different form of traveling than flying they should not be considered a direct substitution. A closer substitution is a ferry, there is currently one ferry carrying passengers to and from Iceland. The ferry sails between Iceland and Denmark each week with a stop in the Faroe Islands. Given the time it takes to sail to Iceland, it is very unlikely that it will be any kind of threat to air travel in the near future. Further, most of Icelandair's revenues come from trans-Atlantic flights, carrying passengers between north America and Europe. Unless some unforeseen technological advances, air travel seems to be the best and most efficient way of transportation on Icelandair routs.

5.2.5 Rivalry among existing firms

The level of competition is high in the airline industry. As previously discussed the liberation of the industry led to a rapid increase in low cost carriers, escalating an already competitive market to another level. The fierce competition in the airline industry stems from the lack of difference between airlines. In general airlines fly to the same destinations from the same airports for similar prices with the same cramped seats. This lack of differentiation makes air travel in general a standardized service, putting pressure on price. Icelandair faces

competition from airlines flying through Iceland on their way across the Atlantic and those with Iceland as a destination on their network. As discussed in the section on new entrants, Icelandair's competition is growing rapidly. Icelandair manages these competitive threats with marketing campaigns, focusing on brand awareness and the company's longstanding reputation for quality services.

5.2.6 Summary of Porter's 5 Forces

It is clear that the airline industry is very competitive and that airlines face many challenges trying to maintain profitability. Table 5-1 shows a summary of the Porter's five forces analysis, ranking the strength of each force in the market.

Table 5-1: Summary of Porter's Five Forces.

Porter's five forces	**Low**	**Mid**	**High**
Threat of new entrants	X		
Bargaining power of buyers		X	
Bargaining power of suppliers			X
Substituting products	X		
Rivalry among existing firms			X

Threat of new entrants for Icelandair is considered low as well as substituting products. Bargaining power of buyers rank as moderately high as buyers have bargaining power through low switching costs, but it is not significant in Icelandair's case. Icelandair has a single supplier of aircraft, with very limited options to switch. Icelandair's labor force is unionized and powerful in its wage negotiations. Bargaining power of suppliers is therefore considered high. There is high rivalry among existing firms, with air travel such a standardized product; airlines therefore compete hard to entice customers.

5.3 Internal Analysis

Until now the focus of the strategic analysis has been on the company's environment, in this section the focus is shifted onto the company itself. The objective of the internal analysis is to get a better understanding of Icelandair's internal resources and the company's capability to utilize its resources to generate value. To analyze Icelandair's internal factors a resource based theory, VRIO by Barney (1995) is used. The VRIO framework is a tool used to analyze the internal resources and competencies of a company in order to find out if the company possesses a competitive advantage and whether it can be sustained (Rothaermel, 2012). A competitive advantage is any feature of the company that allows it to be profitable beyond its competitors. Following the VRIO analysis, Icelandair's resource utilization is compared to its peer group using airline industry specific measurements in Section 5.4.

5.3.1 VRIO Analysis

In a resource based model as the VRIO, the company's resources are seen as the most important aspect in gaining an advantage over competitors. A company's resources include

all of the financial, physical, human and organizational assets used by the company to develop, manufacture, and deliver products or services to its customers (Barney, 1995). In this section financial resources will be left out as they will be dealt with in greater detail in Chapter 6 (Financial Analysis).

The name VRIO is an acronym for: Valuable, Rare, Imitability and Organization. Each of these refer to a question that needs to be answered in order to figure out if a resource can be a source of competitive advantage. The first question to be answered is whether Icelandair's resources and capabilities add value? Next is the question of rareness: How many competing firms already possess the valuable resources and capabilities of Icelandair? In order for resources to be deemed as a source of sustainable advantage it must be rare among other airlines. This does not mean that common resources are not valuable, they may in fact be vital to the company, just that they do not create a competitive advantage. Then there is a question of imitability: Do other companies without this valuable resource or capability face a cost disadvantage in obtaining it compared to the firms that already possess it? A company possessing a valuable and rare resource can gain a competitive advantage if competing firms face a cost disadvantage in imitating these resources. Lastly the question of organization needs to be answered: Is the company organized to exploit the competitive potential of its resources (Barney, 1995)? Figure 5-8 shows the process of analyzing a company's resource with the VRIO framework.

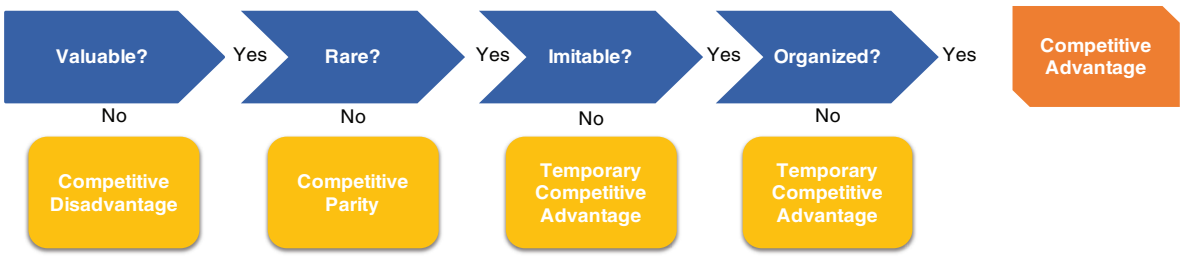

Figure 5-8: VRIO analysis process. Own creation, data from (Rothaermel, 2012).

Tangible Resources

Icelandair's physical or tangible resources are first and foremost the company's aircraft fleet. The group operates in total 43 aircrafts, of which 35 are owned directly, while the rest is leased or chartered (Icelandair Group hf, 2016b). The fleet and flight equipment is the company's largest and most valuable operating asset by far, representing 84% of operating assets at yearend 2015. Other physical resources are mostly buildings such as a maintenance hangar, freight and service buildings in Keflavik and other office buildings in Reykjavik along with other property and equipment (Icelandair Group hf, 2016a).

Intangible Resources

Icelandair possesses a number of intangible resources. Along with its longstanding brand, the company's route network and airport slots, as previously discussed, are very important for Icelandair. Iceland's geographical positioning is of significant importance for Icelandair as it allows the company to be in reach of two major continents. Icelandair currently holds

a dominant position in the home market and Icelandair has done well to maintain a strong reputation in Iceland and has been gaining awareness in other parts of the world. A significant part of that advantage is the airport slots Icelandair has rights to and the rules regarding those slots that allows Icelandair to keep them as long as they are able to use them. Another immaterial resource that is of importance to Icelandair is its human resource. The company's response to the natural disaster in 2010 when Eyjafjallajokull erupted closing down much of Europe's air travel is a testimony to both managements abilities and skilled labor force (see Section 5.1.5 (Environmental)).

Summary

As seen in Table 5-2, three resources are identified as a source of sustainable competitive advantage. All three work closely together to secure Icelandair's strong position as a market leader in flights to and from Iceland. Icelandair has a fleet that fits its size and purpose well, but it is not a rare resource and therefore cannot be identified as a source of competitive advantage, it is however along with the staff and certain buildings very valuable for the company. In light of how well Icelandair handled the flight crisis caused by Eyjafjallajokull in 2010 and the success in recent years, management and brand are identified as a temporary competitive advantage as they can be attained without much cost by some competitors.

Table 5-2: Summary of VRIO analysis.

Resource	**Valuable**	**Rare**	**Costly to imitate**	**Exploited by the organization**	**Competitive implications**
Aircraft fleet Buildings and properties Qualified staff	Yes	No	-	-	Competitive Parity
Management Brand and reputation	Yes	Yes	No	-	Temporary competitive advantage
Dominant position in Iceland Route network Airport slots	Yes	Yes	Yes	Yes	Sustainable competitive advantage

5.4 Industry Specific Analysis

In this section, Icelandair is compared to its peer group based on measurements specific to the airline industry. These measurements are specific to airlines and are used to show how efficiently resources are being used. Comparing Icelandair's measurements to those of its peer group will give an image of where it stands relative to its peers.

5.4.1 Available Seat kilometer

Available seat kilometer (ASK) is an essential measurement of an airlines passenger carrying capacity. ASK is defined as one seat, empty or filled, flying one km and is calculated as:

$$ASK = km\,flown \times available\,seats$$

It is clear from Figure 5-9 that Icelandair is very small in terms of capacity relative to its peer group. But Icelandair has been increasing its capacity year after year and in 2015 its capacity amounted to 11.083,7 million ASK an increase of 106% from 2010. With the addition of the new aircrafts in 2016 and then in 2018 the capacity is set to increase further in the coming years.

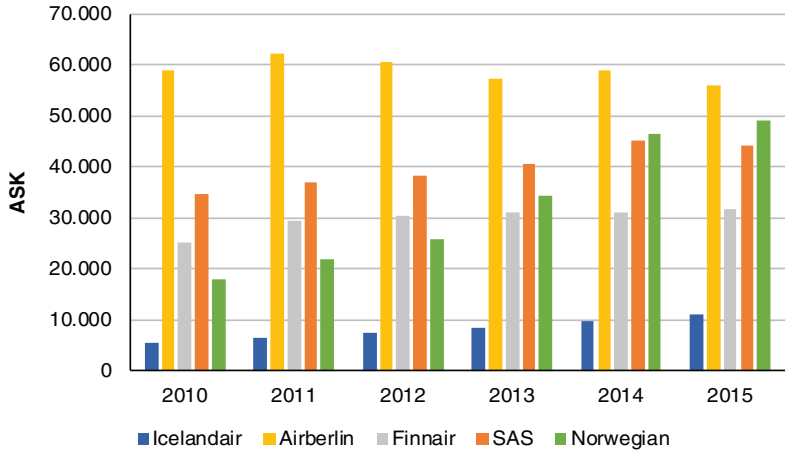

Figure 5-9: Available seat km for Icelandair and the peer group in millions. Own creation, data from (Bloomberg, n.d.-a).

5.4.2 Revenue Passenger kilometer

Revenue passenger kilometer (RPK) is a measurement of an airlines passenger traffic. RPK is a unit of one passenger flying one km and is calculated as the multiple of distance and seats sold:

$$RPK = km\,flown \times seats\,sold$$

RPK is a good measurement along with ASK, as a decreasing ASK can be good if an airline is cutting down on its less profitable routes. RPK will also show whether the increasing supply is met with demand. Figure 5-10 shows that Icelandair's traffic is significantly less then its chosen peer group, but has been growing at a faster pace than its peers, except Norwegian.

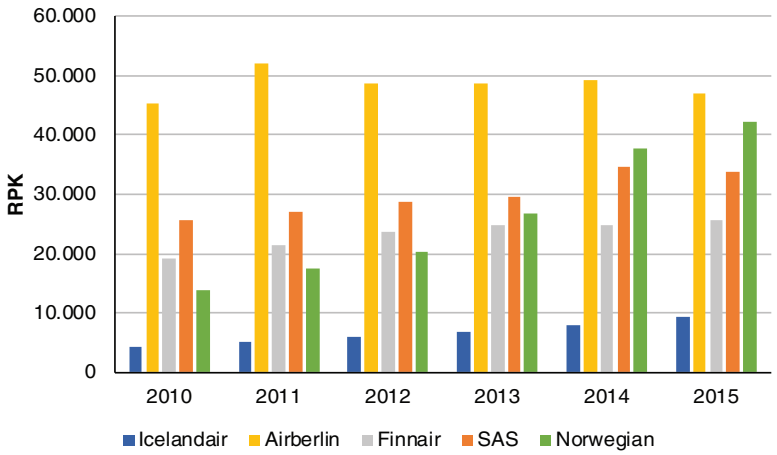

Figure 5-10: Revenue Passenger km for Icelandair and the peer group in millions. Own creation, data from (Bloomberg, n.d.-a).

5.4.3 Load Factor

Load factor is a measurement of capacity utilization of airlines. It measures how efficiently an airline fills its seats and generates revenue through fares. The load factor is calculated by dividing RPK with ASK, showing how much of the total capacity is being utilized to generate earnings for the airline.

$$Load\,factor = \frac{RPK}{ASK}$$

The load factor is a percentage based measurement and a load factor of 100% means that all available seats have been sold.

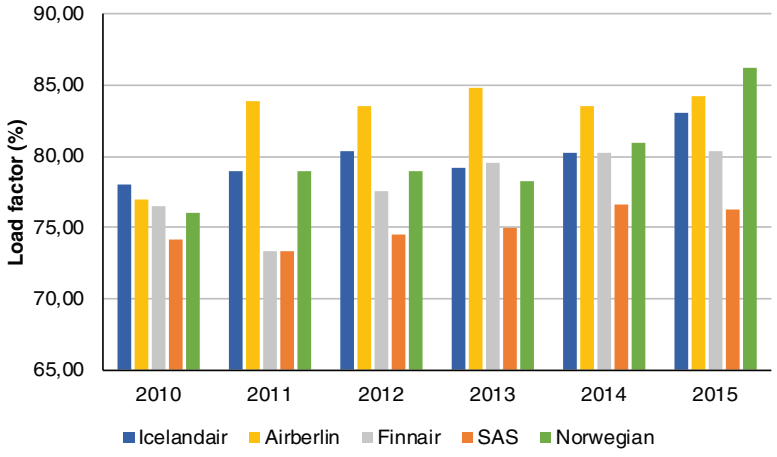

Figure 5-11: Load Factor for Icelandair and the peer group. Own creation, data from (Bloomberg, n.d.-a).

Icelandair has been increasing its load factor year from year, with 2013 as the only exception.

Figure 5-11 shows that in 2015 Icelandair's load factor was 83% and 80% on average between 2010 and 2015. Only Air berlin shows a higher load factor average for the period. For the period every one of the selected airlines has increased its load factor.

5.4.4 Yield per Passenger kilometer

The yield is a measurement of the revenue per km an airline generates. The Load factor only tells half the story, although utilizing the capacity is important a plain full of underpriced tickets is not ideal for an airline. The yield tells the other half of the story, showing how much revenue the airline is generating per each passenger km, calculated as:

$$Yield = \frac{Passenger\ Revenue}{RPK}$$

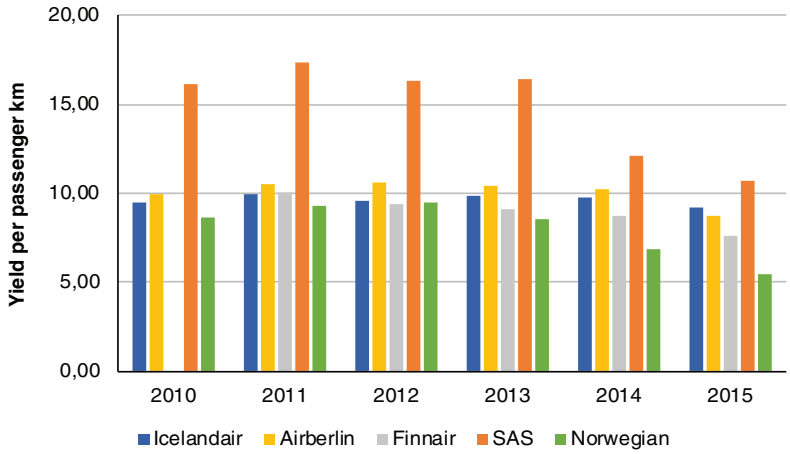

Figure 5-12: Yield per Passenger km for Icelandair and the peer group in millions. Own creation, data from (Bloomberg, n.d.-a).

From Figure 5-12, it is clear that SAS is generating significantly higher revenue per passenger km than other selected airlines, especially from 2010 to 2013 when they start to decline. This high yield is however offset by the lower Load Factor for SAS seen in Figure 5-11. Norwegian being a low cost airline only shows significantly lower yields during 2014 and 2015. Icelandair has managed to maintained its yield through the period while most of its peers have declined.

5.4.5 Cost per Available Seat kilometer

The load factor and yield show the revenue side for airlines, but equally important are the costs as an airline will not profit if costs are too high. The airline industry is very cost heavy, with both a high fixed costs and variable costs. The cost per available seat km (CASK) is a measurement of cost per each seat km, measuring the cost per available seat empty or filled, calculated as:

$$CASK = \frac{Operating\ Expenses}{ASK}$$

Figure 5-13 shows that Norwegian has significantly lower cost over the period than the others, this is to be expected given their low cost strategy and overall lower yields. Costs for the whole group are decreasing over the period and in 2015 Icelandair has 33% lower CASK than in 2010. As discussed in Section 5.1.2, fuel prices have declined significantly and explain most of the decrease in cost.

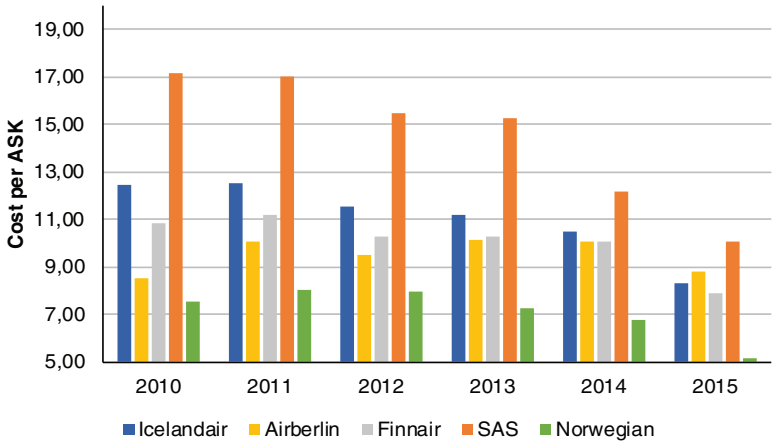

Figure 5-13: Total Cost Per Available Seat km for Icelandair and the peer group. Own creation, data from (Bloomberg, n.d.-a).

6 | Financial Analysis

In this chapter, Icelandair's financial standings will be analyzed, both independently and chosen items compared to the peer group presented in Chapter 4. The analysis is carried out with two approaches, first through a trend- and common size analysis in Section 6.2 & Section 6.3 and in Section 6.4 Icelandair's profitability is analyzed in an in-depth analysis of the return on common equity (ROCE) and compared to the selected peer group.

6.1 Financial Statement Reformulation

The first step in analyzing Icelandair's financial statement is reformulating them. Since Icelandair's financial restructuring was completed in 2011 (see Section 3.2 (History)), financial statements from 2012 to 2015 are analyzed and used for the valuation. This period is chosen as it gives the most accurate picture of Icelandair's current operations. The reformulation will follow the approach laid out in Penman (2013) "Financial Statement Analysis and Security Valuation". Reformulation of each of the statements will be given in more detail in the following sub sections and Icelandair's reformulated financial statements for the period from 2012 until 2015 can be found in Appendix B.

6.1.1 Reformulation of the Statement of Shareholders' Equity

The statement of shareholders' equity is a summary statement, explaining how equity has changed over the year. The statement shows all transactions that affect shareholders' equity as well as a beginning and ending equity balance for the year. It is the first financial statement that should be analyzed as it ensures that all aspects of the business that affect shareholders' equity are included in the analysis to value the equity (Penman, 2013).

As discussed in the valuation methodology in Chapter 2, the valuation will center on the Residual Operating Income (ReOI) model. It is therefore important that the reformulation is on a clean surplus basis and the income used for valuation needs to be comprehensive income, if not value will be lost in calculations (Penman, 2013). The equity statement has to be reformulated so that the clean surplus relation holds. The clean surplus relation:

$$CSE_t = CSE_{t-1} + NI_t - d_t\,,$$

where CSE_t represents common shareholders' equity at time t and CSE_{t-1} is the same for the previous period, NI_t is net income at time t and d_t denotes net transactions with shareholders during time t. A clean surplus accounting equity statement is one that has no income other than net income from the income statement (Penman, 2013). Then all changes in the book value of equity except transactions with common shareholders go through the income statement (Christensen & Feltham, 2009).

The reformulation of the equity statement is done in three steps. First step is to restate beginning and ending balances for the period for items that are not part of common shareholders' equity: this includes preferred shares, non-controlling interests and dividends payable. For Icelandair, the only adjustment needed is for non-controlling interests. Next step is to calculate net transactions with shareholders. Icelandair's only transaction with shareholders during

the period from 2012 to 2015 was in the form of dividend payments; no stock repurchases or share issues. Third and final step is to calculate the comprehensive income. Income reported outside net income in the income statement is referred to as other comprehensive income. For Icelandair other comprehensive income consists of: currency translation differences and items showing the effect of hedges. Comprehensive income is the sum of net income and other comprehensive income (Penman, 2013). Icelandair does not have stock based compensation and there are no outstanding options held by employees, therefore there is no hidden dirty-surplus to account for.

The reformulation of the equity statement gives a clearer picture of the growth in common equity. And the split between comprehensive income and transactions with shareholders distinguishes the source of the growth, whether it stems from investments made by the owners or from running the business (Penman, 2013).

6.1.2 Reformulation of the Balance Sheet

Balance sheets classify assets and liabilities into two categories, current and non-current, depending on: liquidity for assets and time to maturity for liabilities. This type of classification is more suitable for credit analysis rather than for equity analysis. For equity analysis the focus is on assessing a company's ability to generate profits. To facilitate that, the balance sheet is reformulated into operating and financial assets and liabilities. As it is the operating activities that create value for shareholders and not how the company finances itself. Further, financial assets and liabilities are typically close to market value in the balance sheet and therefore do not need to be valued, while operating assets and liabilities are generally not. Operating Assets (OA) and Operating Liability (OL) are those assets and liabilities that are involved in the business of the company. Net Operating Assets (NOA) is the difference between the two:

$$NOA = OA - OL$$

Financial Assets (FA) and Financial Liabilities (FL) are those assets and liabilities involved in financing the company, raising funds for operations and distributing excess funds from operations. Financial assets and liabilities net to Net Financial Assets (NFA):

$$NFA = FA - FL$$

NFA is often a negative number and is therefore called a Net Financial Obligation (NFO). Icelandair however has a rather large cash position on its balance sheet, making its financial assets larger than its financial obligations and therefore has NFA instead of NFO. NOA and NFA sum to common shareholders' equity (Penman, 2013):

$$CSE = NOA + NFA$$

Icelandair's non-controlling interest is treated as a separate line item that reduces equity available to common shareholders. CSE is thus calculated as:

$$CSE = NOA + NFA - \textit{non-controlling interest}$$

6.1.3 Reformulation of the Income Statement

The income statement reports profits and losses that net operating assets and net financial assets have produced for the year. Like with the balance sheet, the reformulation centers around grouping the items into operating and financing categories. Operating income and net financial expenses are identified. The reformulated income statement is on a comprehensive basis, so it includes all dirty surplus items found in the reformulation of the equity statement (Penman, 2013). Following Christensen and Feltham (2009) all taxes are allocated to operating income, since the tax shield from debt is potentially value creating. The "bottom line" in the reformulated income statement shows net operating income after tax and dirty surplus less financial expenses after dirty surplus giving comprehensive income. The comprehensive income calculated in the reformulated income statement is the same as from the reformulated equity statement. The reformulated statement separates income coming from interactions with customers from income from other none operating activities, making it possible to calculate residual earnings from the operating component of shareholders' equity.

6.2 Trend Analysis

Table 6-1 shows the trend analysis for Icelandair's reformulated income statement. The table has been indexed using 2012 as a base year. The trend analysis reveals relative growth (decline) for each item in the statement over time, giving a picture of how the company's financials have changed through the period.

From Table 6-1, we see that operating income has been increasing steadily over the period and although operating expenses have increased, they have done so at a slower rate than the income. The decrease in fuel prices lowers the aviation expense item of the operating expense significantly in 2015 (see Section 5.1.2. This has resulted in the operating profit doubling over the period. The trend analysis reviles big swings in the dirty surplus items. Currency translation differences are very volatile and display no trend in either direction. Icelandair's currency risk and its strategy towards the risk is analyzed in the section on Economic issues in the PESTEL analysis in Section 5.1.2 (Currency risk). The same volatility can be seen with items related to hedging. The dirty surplus items are not significant and do not contribute to value creation for Icelandair and therefore their volatility has an insignificant effect on Icelandair's long-term value. Comprehensive income displays an upward trend over the 4 years and has increased by a factor of 2,82× from 2012.

Table 6-2 uses the same format as described above, now for selected items from Icelandair's reformulated balance sheet. Operating assets remained steady from 2012 to 2014 and increased by 20% in 2015. This increase results from the acquisition of new aircrafts, four Boeing 757, one 767 and three Bombardier Q400. For an airline it is not surprising that operating assets remain the same for a period and then increase in larger chunks. Since aircrafts are very expensive, to get a better deal they are usually purchased in larger quantities each time. Operating liabilities have increased steadily over the period, resulting in stable NOA for the period. Comparing the growth in NOA to the growth in comprehensive income from Table 6-1, we see that comprehensive income out grew NOA for the period and we can expect an upward trend in RNOA in the profitability analysis. NFA have increased significantly for the period, this is due to cash and short-term investments increasing and a significant reduction of long term loans. As a result, common shareholders' equity has increased by 54%

over this four-year period.

Table 6-1: Trend Analysis for the Income Statement. Own creation, data from Icelandair's Annual Reports.

Income Statement	**Base Year**	**2012**	**2013**	**2014**	**2015**
Operating income					
Operating income	898.866	100%	114%	124%	127%
Operating expenses	789.220	100%	111%	122%	117%
Operating profit	**109.646**	**100%**	**131%**	**141%**	**200%**
Depreciation and amortisation	(58.859)	100%	120%	128%	142%
Share of profit (loss) of associates	(366)	100%	10%	59%	-125%
Operating income before tax and dirty surplus	**50.421**	**100%**	**145%**	**156%**	**269%**
Taxes reported	(13.173)	100%	111%	118%	220%
Operating income after tax, before dirty surplus	**37.248**	**100%**	**157%**	**176%**	**286%**
Currency translation differences	(2.285)	100%	-184%	236%	74%
Net loss on hedge of investment, net of tax	(46)	100%	-367%	33%	0%
Net investment hedge reclassified to profit or loss	(1.417)	100%	8%	-51%	0%
Effective portion of changes in fair value of cash flow hedge, net of tax	(1.673)	100%	-74%	1425%	7%
Operating income after tax and dirty surplus	**31.827**	**100%**	**201%**	**116%**	**329%**
Financial expenses					
Financial income	17.578	100%	39%	41%	73%
Financial costs	(10.551)	100%	82%	58%	78%
Financial expense after dirty surplus	**7.027**	**100%**	**-27%**	**16%**	**66%**
Comprehensive Income	**38.854**	**100%**	**159%**	**98%**	**282%**

Table 6-2: Trend Analysis of selected Balance Sheet items. Own creation, data from Icelandair's Annual Reports

Balance Sheet	**Base Year**	**2012**	**2013**	**2014**	**2015**
Total operating assets	626.412	100%	101%	101%	121%
Total operating liabilities	316.057	100%	115%	134%	142%
Net operating assets	310.355	100%	87%	68%	99%
Net financial assets	(14.423)	100%	537%	1066%	1030%
Common shareholder's equity	295.675	100%	117%	123%	154%

6.3 Common Size Analysis

A Common size analysis scales each line item analyzed as a percentage of a selected key item. In Table 6-3 selected items from the income statement and reformulated income statement are shown as a percentage of total operating income.

Table 6-3: Common Size Analysis for Icelandair, selected items from the Income statement. Own creation, data from Icelandair's Annual Reports

Income Statement				
	2012	**2013**	**2014**	**2015**
Total operating assets	**100%**	**100%**	**100%**	**100%**
Transport revenue	81%	80%	80%	82%
Salaries and other personnel expenses	23%	23%	25%	25%
Aviation expenses	46%	42%	41%	36%
Other operating expenses	19%	20%	21%	21%
Comprehensive income	4%	6%	3%	10%

Icelandair's core business is air transportation and from Table 6-3 we see that transport revenue's proportion of total operating income is constant from 2012 to 2015. Although Icelandair has been expanding its route network, Icelandic tourism has grown considerably in the last few years and other operating revenues has kept up with the growth in transport revenue. Labor costs as a percentage of total operating income have increase slightly for the period. The increase is in line with new pilot and flight attendant contracts in 2014 (see Section 5.1.1 (Labor contracts and Unions) and Section 5.1.2 (Labor cost)). While the decrease in aviation expenses in 2015 is mostly due to declining oil prices lowering the cost of fuel as discussed in Section 5.1.2 (Fuel price).

Common size analysis is useful when comparing Icelandair to its selected peer group, as the standardization eliminates the effect of size. Table 6-4 shows a comparison of selected income statement items between Icelandair and its selected peer group. Table 6-4 is illustrated in Figure 9 in Appendix B.

Table 6-4: Common size analysis for selected income statement items, peer group comparison. Own creation, data from companies Annual Reports

Income Statement						
	Icelandair	**Airberlin**	**Finnair**	**SAS**	**Norwegian**	**Average**
Total operating income	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Transport revenue	82%	90%	100%	99%	99%	94%
Other operating revenue	18%	10%	0%	1%	1%	6%
Salaries and other personnel expenses	25%	24%	15%	15%	14%	19%
Aviation expenses	36%	45%	68%	52%	74%	55%
Other operating expenses	21%	24%	8%	9%	18%	16%

Icelandair's transport revenue percentage of total operating income is 12% less than the average for the peer group. This is to be expected since Icelandair's tourism and hotel segment is a bigger operating segment than for the other companies in the peer group. Salaries and other personnel expenses are a greater percentage of total operating income than the for all other companies in the peer group, 6% higher on average. As discussed before, strong unions and Icelandic labor law will likely keep this cost above the average for the industry. Icelandair's aviation expenses are significantly lower in relation to total operating income than it is for all other companies in the selected peer group. The companies apply a similar

strategy when hedging fuel, so it is hard to pinpoint an exact reason for this, whether it is from timing of hedges, age and conditions of fleet or other factors. Whatever the cause, it is unlikely to be sustained in the future.

6.4 Profitability Analysis

Here Icelandair's profitability is analyzed and compared to the profitability of its selected peer group from Chapter 4. The profitability analysis is based on analyzing the drivers of ROCE with the purpose of identifying the source of value creation for the company. Icelandair's profitability is compared to the peer group over a five-year period from 2011 to 2015, showing how the company stands against its competitors and in what direction the ratios have been moving in recent years. The profitability analysis conducted here follows a similar process and structure as the DuPont scheme and the approaches described in Penman (2013) and in Nissim and Penman (2001). As before all accounting items are viewed from the common shareholders' perspective, preferred dividends represent a financial expense and preferred stock a financial obligation. To keep consistency in the comparison all figures are based on data gathered from Compustat Capital IQ Global databank (COMPUSTAT).

Return on Common Equity is usually calculated as:

$$ROCE = \frac{Comprehensive\,income}{Average\,Common\,Shareholders'\,Equity}$$

This ratio does not reveal much about where profitability or value comes from within the company. To get a better sense of this, the analysis breaks down ROCE to its lower levels. First separating operating and financing activities, and analyzing the effects of each part. First level ROCE calculated as:

$$ROCE = RNOA + [FLEV \times (RNOA - NBC)]\,,$$

where RNOA is calculated as the product of Asset Turnover (ATO) and the Profit Margin (PM), representing the operating part of the equation. Financial leverage (FLEV) is calculated as Net Financial Obligation (NFO) divided by Common Shareholders' Equity (CSE). Net Borrowing Cost (NBC) is calculated as the Net Financial Expenses divided by the Net Financial Obligation (NFO). From this we see that ROCE is driven by the return on operations with additional return from the leverage of financial activities, as before the focus is on the value creation in the operating part. This leads to the second level break down of the ROCE, where the operating part of the equation is further broken down:

$$ROCE = [PM \times ATO] + [FLEV \times (RNOA - NBC)]$$

An important note is that because of missing inputs in the database and the fact that the database does not allow for clean surplus accounting numbers to be used and therefore not all ratios will be as correct as if they would be calculated from a reformulated financial statements. Therefore, the main focus is on how Icelandair's ratios compare to ratios of the selected peer group.

6.4.1 Profit Margin

The first component of the RNOA is the PM, calculated as Operating Income after tax (OI) divided by Sales. The profit margin measures a company's ability to turn sales into profits, showing the profitability of each dollar of sales.

$$PM = \frac{OI}{Sales}$$

Where OI is calculated using an approximation suggested by Nissim and Penman (2001). Since some parts of dirty surplus income are associated with non-controlling interests (minority interests), but COMPUSTAT does not provide the necessary details to adjust the data accordingly. Therefore, operating income will be miss-stated in some cases. The difference is however expected to be small since non-controlling interest is usually very small (Nissim & Penman, 2001). OI is approximated as:

$$OI = NFE + CNI + NCI\,,$$

where NFE is Comprehensive Net financial Expence, CNI is Comprehensive Net Income and NCI is Non-Controlling Interest.

As discussed in Nissim and Penman (2001), OI can include items not incurred to generate the reported sales, these items are referred to as other items and are excluded from the calculated PM giving a Profit Margin originating from sales called core PM. Other items include: equity share of income in a subsidiary, dividends, gains and losses on equity investments marked to market. For this analysis only the core PM is used as other items are a significantly less portion of total revenues for the peer group compared to Icelandair.

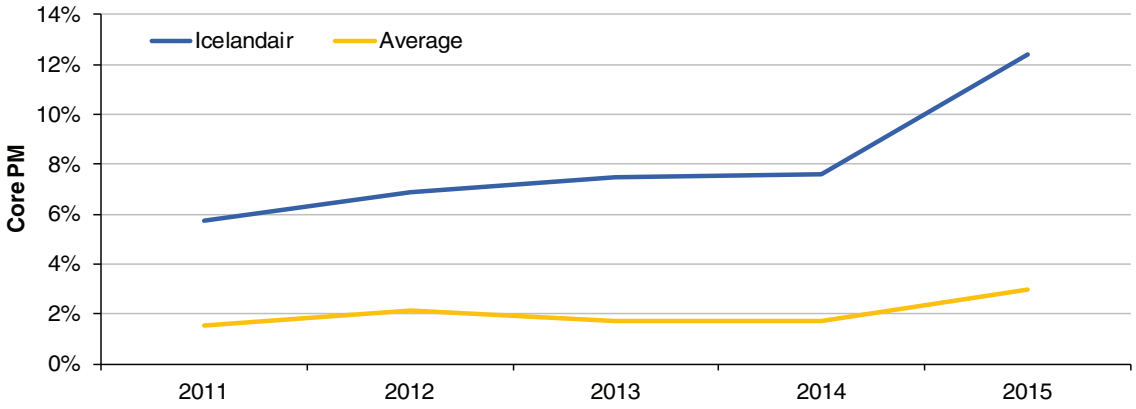

Figure 6-1: Core Profit Margin for Icelandair and the average core PM from the selected peer group. Own creation, data from (COMPUSTAT, n.d.)

From Figure 6-1, it is clear that Icelandair's core PM has been consistently higher than the peer group's, continuously for the last 5 years, and is increasing the margin even further in the last year. From 2011 to 2014 Icelandair maintained a PM between 6% and 8% while the peer group averaged only around 2%. From 2014 Icelandair's Profit Margin sored to over 12% in 2015 while the peer group averaged just under 3%. On average for the whole period Icelandair outperformed its peer group by a significant margin of 6,4%.

6.4.2 Asset Turnover

The second component of RNOA is the ATO, calculated as Sales divided by NOA from the previous year. Asset Turnover measures units of sales generated by each unit of NOA, showing NOA's ability to generate sales:

$$ATO_t = \frac{Sales_t}{NOA_{t-1}}$$

An important note is that NOA is calculated using an approximation described by Nissim and Penman (2001), since the database does not allow for clean surplus accounting numbers to be used. NOA is calculated as:

$$NOA_\tau = DCL_\tau + LTD_\tau + PS_\tau - (CSIT_\tau + IA_\tau) + CSE_\tau + NCI_\tau\,,$$

where DCL is debt in current liabilities, LTD is long-term debt, PS is preferred stock, CSTI is cash and short-term investments, IA is investments and advances-other, CSE is common shareholders' equity and NCI is Non-controlling interest. The approximation does not result in an identical ratio to the one gotten if ATO was calculated using NOA from the reformulated balance sheet, but should be a very close approximation.

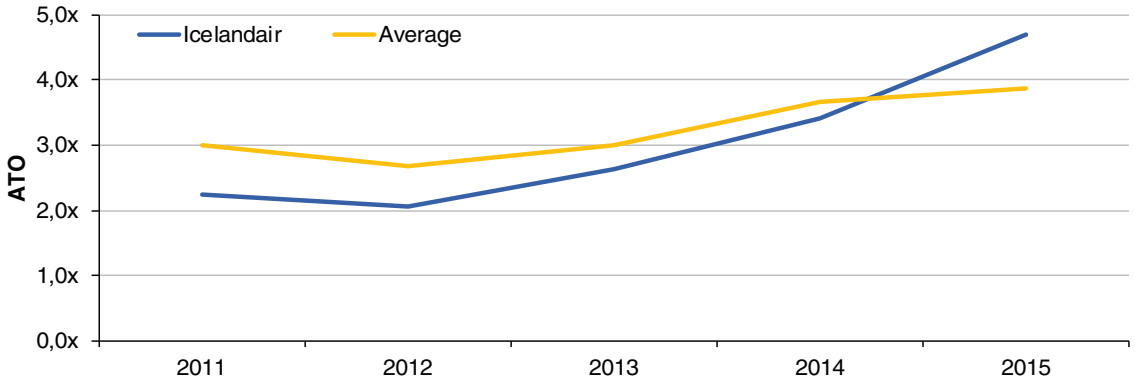

Figure 6-2: Asset Turnover of Icelandair and the average for the selected peer group. Own creation, data from (COMPUSTAT, n.d.)

Figure 6-2 shows that only recently has Icelandair's ATO performance surpassed its peer group average. From the graph, we see that Icelandair has increased the amount of revenue it has created per unit of NOA, from the low of 2,2× in 2012 to 4,7× outperforming the peer group average by 0,8× in 2015. For the whole period, Icelandair has however generated 0,7× less sales per unit of NOA than its peers on average. Two planes were added to Icelandair's fleet in 2016 and deliveries of the first of sixteen planes ordered in 2013 are expected in 2018. The effect this increase in operating assets will have on ATO will depend on future sales growth and will be discussed in the forecast in Section 8.1.

6.4.3 Return on Net Operating Assets

Return on Net Operating Assets is the product of the Profit Margin and the Asset Turnover, calculated as:

$$RNOA = PM \times ATO$$

The ratio measures the percentage return generated per unit of NOA. From the above analysis, it should be expected that Icelandair outperforms its peer group slightly during the start of the period, where ATO was low but PM high, and then increase its lead the closer we get to present, as PM and ATO both increased beyond the peer group average.

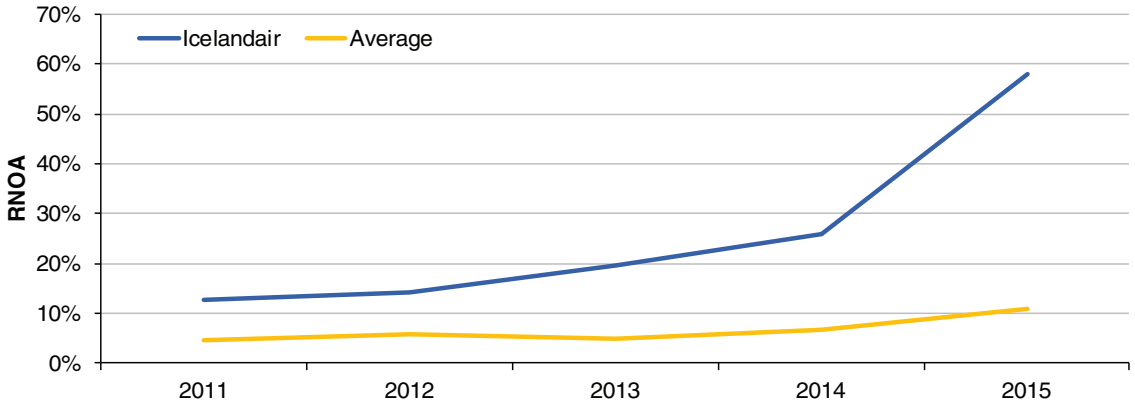

Figure 6-3: RNOA for Icelandair & the average for the selected peer group. Own creation, data from (COMPUSTAT, n.d.)

As expected, Figure 6-3 shows that Icelandair outperforms the peer group by a very significant margin in 2015 and has been increasing its lead consistently throughout the period. Current RNOA is close to 50% above the peer group average, and on average for the whole period it is 15% above its peers.

6.4.4 Financial Leverage & Operating Spread

Financial leverage (FLEV) is calculated as Net Financial Obligations divided by Common Shareholders' Equity:

$$FLEV = \frac{NFO}{CSE},$$

where NFO are calculated as Financial Obligations (FO) minus Financial Assets (FA). Penman (2013) explains FLEV as the degree to which NOA are financed by borrowing with NFO. If NOA are financed by NFO rather than equity, the return on equity is affected. If the company earns more on its operating assets than its borrowing cost, then the Financial Leverage generates higher returns for shareholders, but if borrowing costs are higher, the returns will be lower. From Figure 6-4 it is evident that Icelandair operates with a much lower financial leverage than its peers.

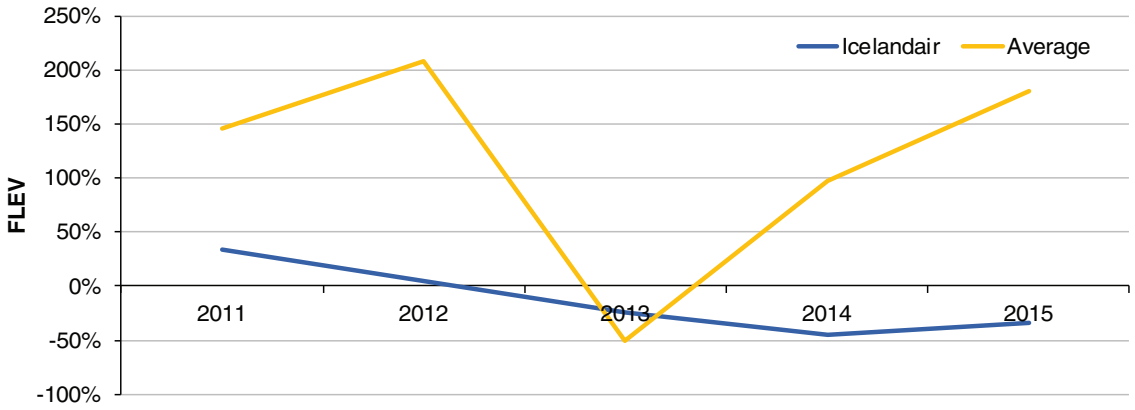

Figure 6-4: Financial Leverage of Icelandair & the average for the selected peer group. Own creation, data from (COMPUSTAT, n.d.)

The second half of the financial aspect of ROCE is the spread between the return on operations RNOA and NBC, calculated as:

$$Spread = RNOA - NBC$$

The spread shows the return to shareholders' equity created by each unit of debt. Each unit of debt acts as an operating asset and earns the return on Net Operating Assets, Net Borrowing Costs are then subtracted, and what is left can be added to the common shareholders' equity. Figure 6-5 shows that Icelandair's spread is significantly higher than the peer group average.

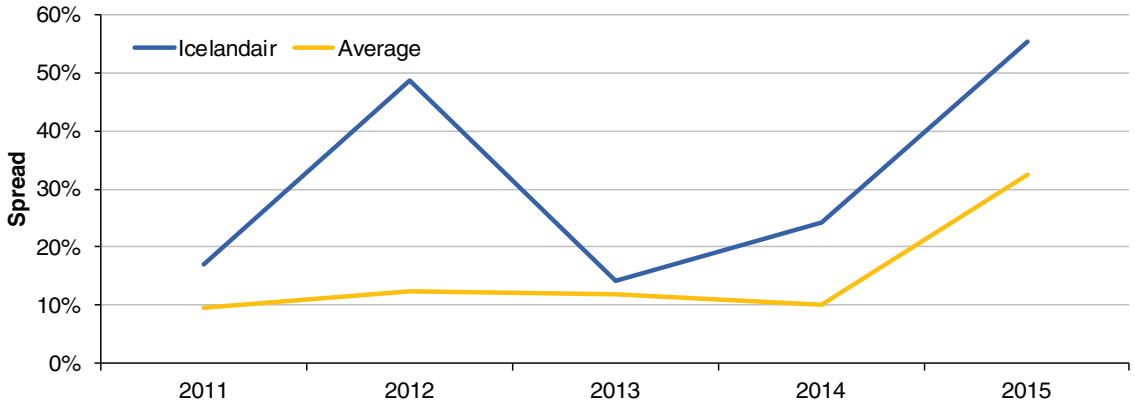

Figure 6-5: Operating Spread (RNOA-NBC) for Icelandair & the average for the selected peer group. Own creation, data from (COMPUSTAT, n.d.)

6.4.5 Return on Common Equity

$$ROCE = [PM \times ATO] + [FLEV \times SPREAD]$$

Having analyzed each component of the Return on Common Equity, it is now appropriate to have a look at the aggregate result.

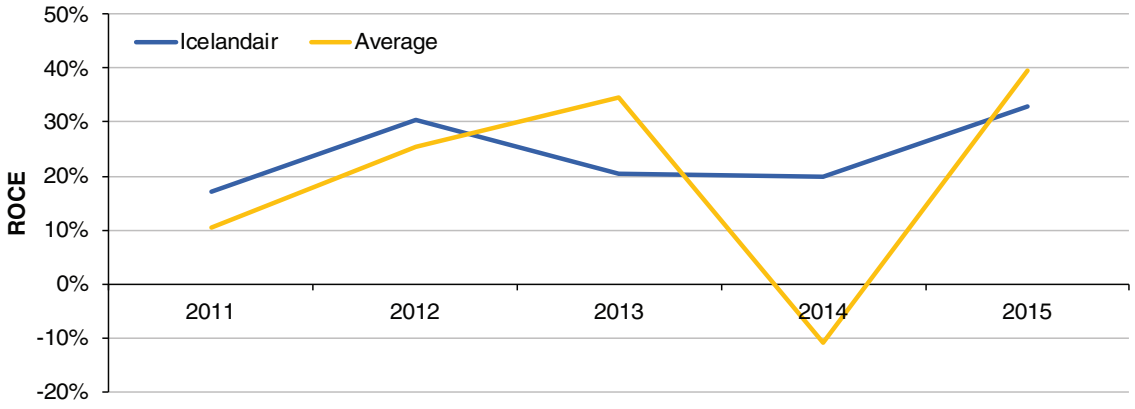

Figure 6-6: Return on Common Equity for Icelandair & the average from the selected peer group. Own creation, data from (COMPUSTAT, n.d.)

From Figure 6-6, we see that even though Icelandair's core PM is significantly higher than the peer group's average and the ATO only slightly below the average, it does not translate to a significantly higher ROCE. Increasing PM and ATO in the latter two years manage to offset the effect created by negative FLEV and increasing Spread and in 2015 Icelandair's ROCE is within 7% from the peer group average. Over the whole period Icelandair has an average ROCE of 33%, 14% above the peer group average.

7 | Quantitative Industry Analysis

Section 3.4 gave an overview of the airline industry and in Chapter 5 forces affecting the industry were examined. In this chapter, a more empirical or quantitative analysis of the airline industry will be performed. The purpose is to see how different value drivers of ReOI have evolved over a large sample of airlines for the past 25 years. This analysis is a bridge between the previous sections of the thesis, especially the profitability analysis in Section 6.4, and the forecast in Chapter 8. Providing a historical benchmark for the value drivers and showing how current drivers are likely to behave in the future, whether they are more likely to stay at current levels or revert to the industry's long-run level. The quantitative industry analysis is split up into two sections. First an analysis of how different ReOI value drivers have evolved from 1991- 2015 for the global airline industry. This analysis follows the method described by Nissim and Penman (2001) for constructing fade diagrams. Fade diagrams are good to visualize trends in the industry as they give a picture of historical evolution for the value drivers within the industry. The second part of the analysis focuses on quantifying the fade diagram analysis. That is, quantifying how persistent or mean reverting each value driver is and what it's typical "long-run" or "steady state" level is likely to be. A first-order autoregression with mean reversion to a constant long-run level is used. Being able to quantify the persistency in the value drivers and estimate it's long-run level is particularly useful for forecasting as history shows that there is a tendency for the value drivers to revert to their typical values over time.

7.1 Fade Diagrams

7.1.1 Methodology and data

The fade diagrams are constructed using the procedures described in Nissim and Penman (2001) paper "Ratio Analysis and Equity Valuation: From Research to Practice". The fade diagrams show how selected ratios, identified as value drivers of ReOI in the profitability analysis, have evolved over a selected period for an industry or group of companies. First step in the analysis is selecting companies to represent the industry and gathering relevant data. As in their paper, I have used data from COMPUSTAT for companies with SIC code[1] 4512 (Airlines), extracting accounting numbers from 1989 to 2015 for 117 different airlines. For this quantitative industry analysis five key value drivers of ReOI have been chosen; Asset Turnover (ATO), Sales Growth (SG), Profit Margin (PM), Net Operating Asset growth (NOA Growth) and Return on Net Operating Assets (RNOA). Using the data available on COMPUSTAT the value drivers are calculated as:

$$\begin{aligned} ATO_\tau &= \frac{Revenue_\tau}{NOA_{\tau-1}}, \\ SG_\tau &= \frac{Revenue_\tau - Revenue_{\tau-1}}{Revenue_{\tau-1}}, \\ PM_\tau &= \frac{Operating\ Income_\tau}{Revenue_\tau}, \end{aligned}$$

[1] SIC code is a system for classifying Industries using a four digit code.

$$
\begin{aligned}
NOA\ Growth_\tau &= \frac{NOA_\tau}{NOA_{\tau-1}} - 1\,, \\
RNOA_\tau &= \frac{Operating\ Income_\tau}{NOA_{\tau-1}}\,.
\end{aligned}
$$

The construction of the fade diagrams is done in the following steps:

- First the data is sorted, showing each companies value driver for each year.
- For each year the range of value drivers are broken down into quintile and for each year companies are ranked from 1 to 5 based on where their value driver falls within that years range. The lowest 20% receive a ranking of 1, the next 20% 2, and so on and so forth. The rankings represent what portfolio the company will be grouped in.
- Portfolios are constructed five times during the period, in 1991, 1996, 2001, 2006, 2011. The portfolios are followed for the next five years following the ranking year and for each year a median value for each portfolio is calculated. At the end of the five years the ranking is done again for the next five years, and so on until the final portfolio formation in 2011.
- At the end of the period (2015) the averages of the median values for each portfolio is calculated for the portfolio formation year and the following five years across the different time periods. Taking the average across the time periods reduces the effect of the business cycle.
- The fade diagrams are then produced by graphing the averages for each portfolio, showing the evolution of the value drivers for five years during the period from 1991 to 2015.

It is important to keep in mind that the construction of the fade diagrams does conjure up a few issues that might distort the results. For example, company weights are not relative to size but instead every company is equally weighted. There is potential for the data to represent significant survivor ship bias, as defaulting and low profiting airlines drop out. A change in the currency of accounting numbers is another thing to keep in mind as many European airlines switched to the Euro during the period and a switch in reporting currency can have very significant impact on the ratios calculated. Unlike the other problems, the currency reporting problem is easily fixable by using historical fx rates to adjust the numbers so each company's accounting data is reported in the same currency through the whole period.

7.1.2 Asset Turnover

As discussed in the profitability analysis in Section 6.4, Asset Turnover measures a company's ability to generate sales form its Net Operating Assets.

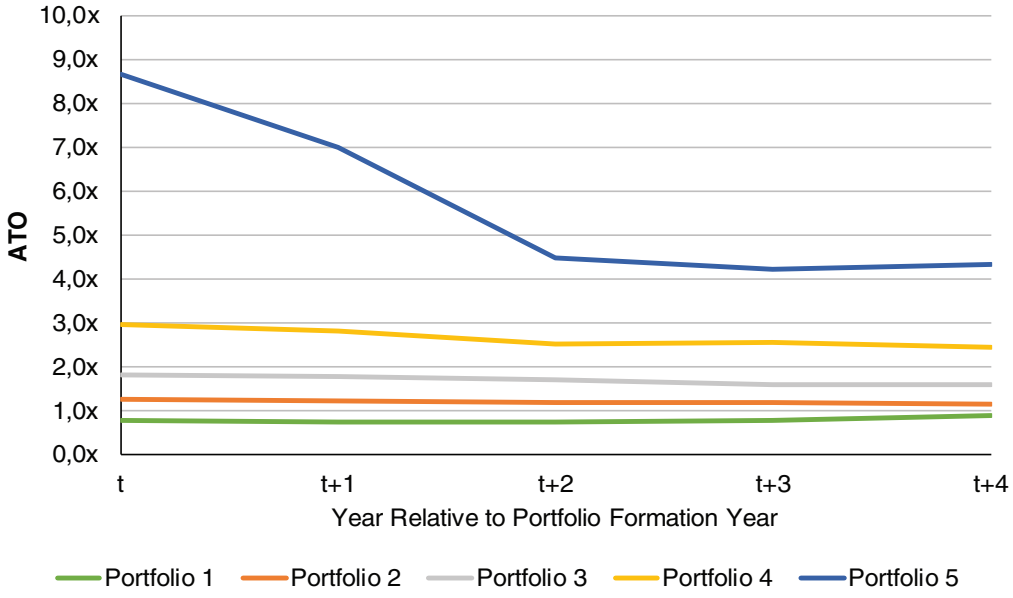

Figure 7-1: Fade Diagram, Asset Turnover for the Airline industry. Own creation, data from (COMPUSTAT, n.d.)

Figure 7-1 shows a very high persistency in ATO for the airline industry. For portfolios 1 through 4, ATO is almost constant for the whole period. Portfolio 5 shows a significant initial mean reversion but settles on level well above the next highest Portfolio 4. It is possible that Portfolio 5 might include different type of airlines (helicopter service for instance), or differences in business models and could therefore be seen as an outlier for the industry. That being said, there are a lot of well-known airlines in the 5^{th} and top portfolio. It seems therefore that ATO levels are very persistent and even high level are relatively sustainable. Judging from Figure 7-1, ATO is expected to have high persistence coefficient ω in the autoregression.

7.1.3 Profit Margin

Profit Margin measures a company's operational efficiency, showing the percentage of sales turning into profit. Figure 7-2 shows less persistency than for ATO as the portfolios seem to slowly converge towards a mean. Portfolio 5 is able to maintain its superior PM throughout the period. A high PM with relatively low mean reversion, indicates that some airlines are able to establish a competitive advantage that can be sustained. But since the data analyzed is on airlines globally, the differences in PM can be due to many different reasons, for example: differences in business models, the market the company operates in and the level of wages it is required to pay.

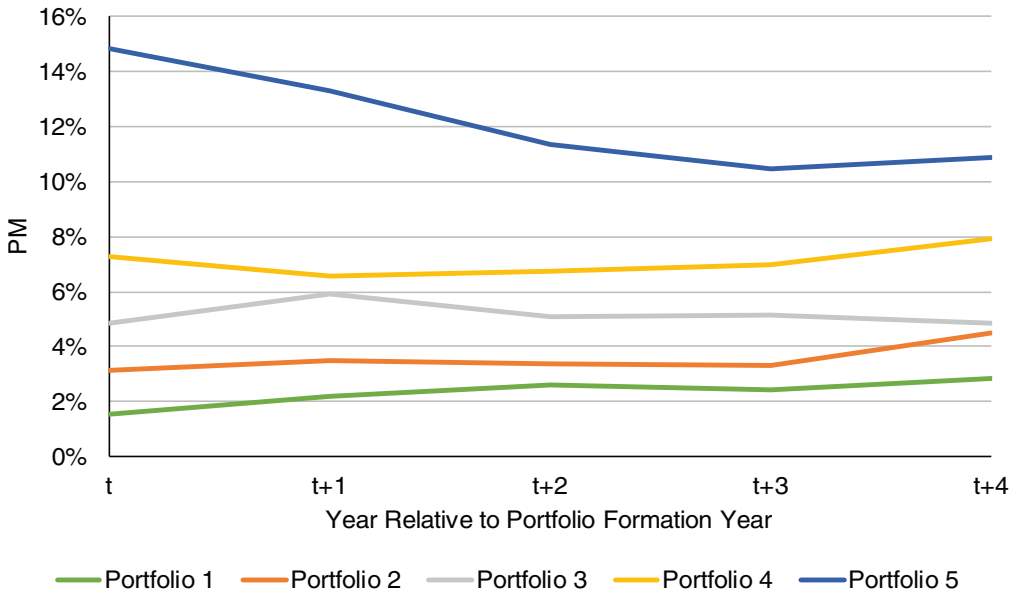

Figure 7-2: Fade Diagram, Profit Margin for the Airline industry. Own Creation, data from (COMPUSTAT, n.d.)

7.1.4 Sales Growth

Sales Growth is simply a measurement of how sales grow from one year to the next and is usually highly influenced by the state of the economy.

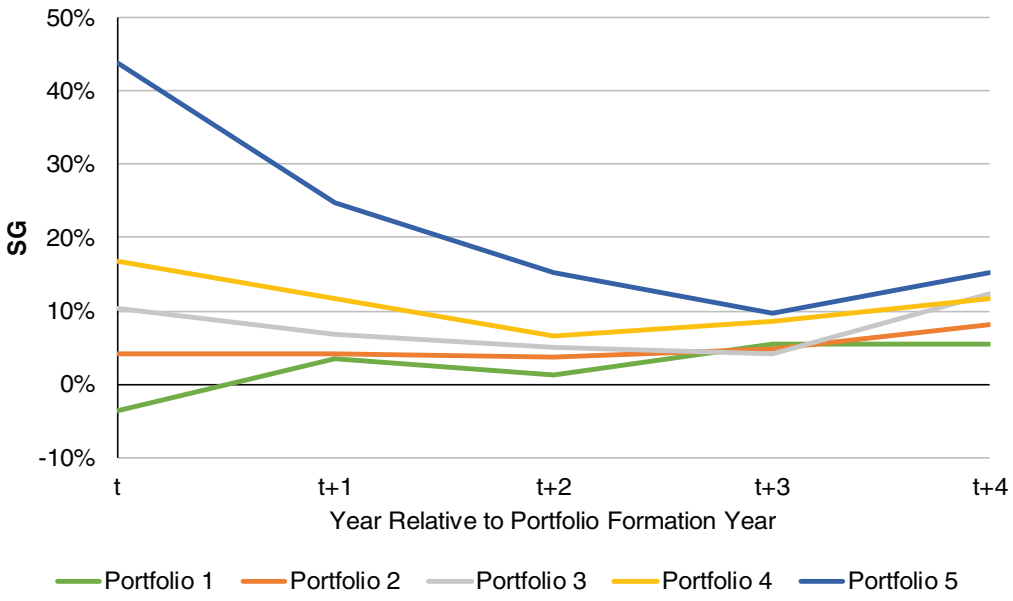

Figure 7-3: Fade Diagram, Sales Growth for the Airline industry. Own creation, data from (COMPUSTAT, n.d.)

It is evident from Figure 7-3, that SG shows much less persistency than the previous value drivers and there is a clear mean reversion in SG. This is expected as the airline industry is highly competitive and thus sustaining a high SG compared to the rest of the industry unlikely. A low persistence coefficient ω is expected in the autoregression.

7.1.5 Net Operating Asset Growth

As with SG, Net Operating Assets Growth is simply a measurement of the growth in NOA from one year to the next. Like SG, NOA growth is highly influenced by macro-economic circumstances.

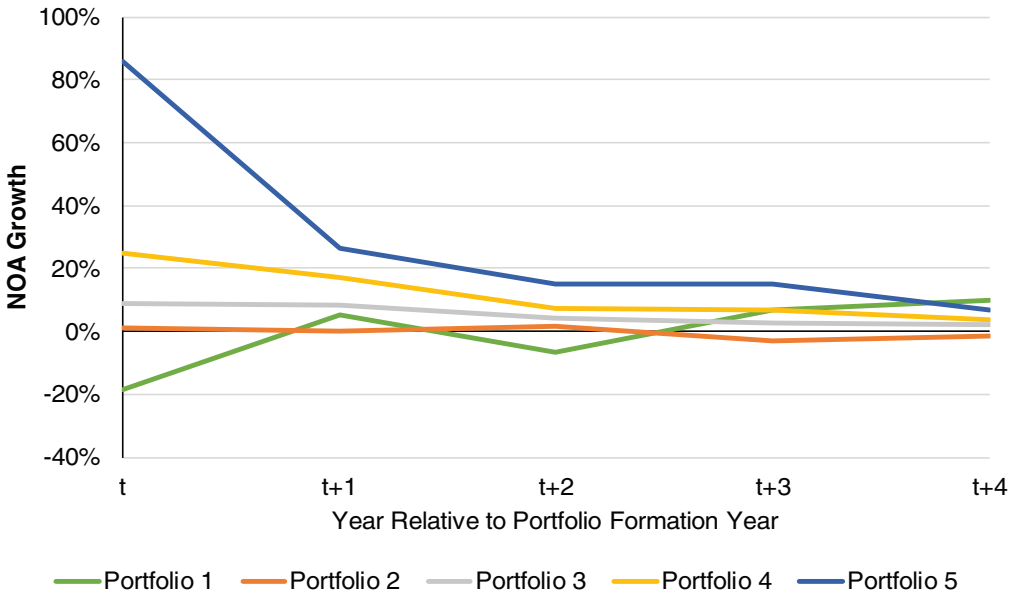

Figure 7-4: Fade Diagram, Net Operating Asset Growth for the Airline industry. Own creation, data from (COMPUSTAT, n.d.)

Figure 7-4 confirms a high mean reversion in NOA growth and a very low persistency is expected in the autoregression.

7.1.6 Return on Net Operating Assets

Return on Net Operating Assets measures the percentage of operating returns generated by one unit of net operating assets.

Figure 7-5 shows a steady conversion towards a long-run level for RNOA. The mean reversion is not as pronounced as for NOA growth but does suggest that airlines will receive similar returns on NOA in the long-run.

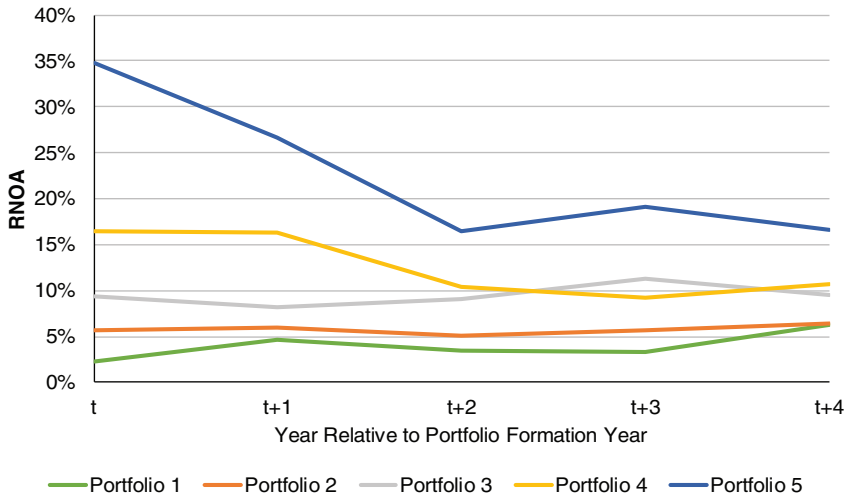

Figure 7-5: Fade Diagram, Return on Net Operating Asset Growth for the Airline industry. Own Creation, data from (COMPUSTAT, n.d.)

7.1.7 Market-to-book premium

Even though not a value driver of ReOI and will not be used to forecast future ReOI, a long-run estimate of the market-to-book ratio is need. As discussed in Chapter 2 (Valuation Methodology) and further seen in Chapter 10 (Valuation), a long-run value of the market-to-book ratio is needed as an input in calculating continuation value in one method chosen. The ratio is calculated as the Enterprise Value (EV) divided by NOA.

$$MB_\tau = \frac{EV_\tau}{NOA_\tau}$$

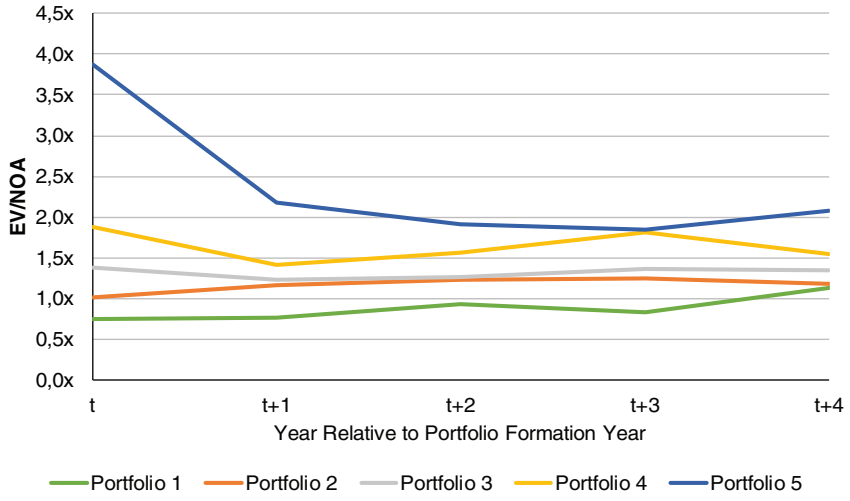

Figure 7-6: Fade Diagram, Market-to-book ratio for the Airline industry. Own creation, data from (COMPUSTAT, n.d.; Bloomberg, n.d.-d)

The EV values are gathered from Bloomberg (n.d.-d) for the same sample of companies as for previous quantitative analysis. Figure 7-6 shows an early mean reversion for the highest scoring portfolio, but over all a high persistency and judging by the graph a long term mean of EV/NOA seems to be between 1× and 1,5×.

7.2 Time-Series Analysis

From the fade diagrams, the trend of the airline industry's key ReOI value drivers have been analyzed. This section serves as an extension to that. Here a time series analysis will be performed to determine and quantify how quickly each value driver is reverting to its long-run level, as well as estimating the long-run level. This information will play a crucial role in forecasting estimations in Chapter 8 (Forecasting).

7.2.1 Methodology

The time-series analysis is performed using a first-order autoregression with mean-reversion to a constant long-run level. This process captures the persistency of the value drivers and their long-run levels. To ensure consistency, the same data for the same 25-year period used in the fade diagrams is used for the autoregression process. First-order autoregression model:

$$x_\tau - a = \omega(x_{\tau-1} - a) + \epsilon_\tau \,,$$

where x_τ is the ratio or value driver being analyzed, a is the long-run level, $\omega \in (-1, 1)$ is the persistence coefficient of the deviation from the long-run level for the driver, and ϵ_τ are IID [2] normally distributed innovations with mean zero and variance σ^2 (Christensen, 2015a). The process starts by setting up the data and choosing initial values for a and ω. Next residuals for each year and firm are calculated as:

$$u_{i\tau}(\bar{a}, \bar{\omega}) = (x_{i\tau} - \bar{a}) - \bar{\omega}(x_{i,\tau-1} - \bar{a})$$

The use of median values in the fade diagram limited the effect abnormal outliers and errors in the data had, this same problem is solved here by excluding the top and bottom 2,5% of the distribution of residuals.

Then the sum of squared residuals (SSR) is determined:

$$SSR(\bar{a}, \bar{\omega}) = \sum_{i=1}^{I} \sum_{\tau=t-T}^{t} (u_{i\tau}(\bar{a}, \bar{\omega}))^2$$

Finally, a and ω are estimated for each value driver in each group by minimizing SSR. A high persistence coefficient ω indicates that the value driver being tested will revert slowly towards the long-run mean.

7.2.2 Autoregression estimates

Since the main benefit of the time-series analysis is to aid in the process of forecasting value drivers for Icelandair, the regression was run on more than just the industry as a whole like

[2] Independent and identically distributed random variables

in the fade diagram analysis. In addition to the whole industry, the data is also sorted to group the selected peer group from Chapter 4, both including and excluding Icelandair from the selection. After persistency coefficient and long-run levels have been estimated for the three groups a simple average is calculated. This will help with the estimation of likely future values for Icelandair's value drivers. Estimates gathered in this analysis will provide the base for forecasting Icelandair's key ReOI value drivers in the fade period. Table 7-1 shows a summary of the autregression estimates for each group and value driver.

Table 7-1: Autoregression estimates on value drivers and EV/NOA. Own creation, data from (COMPUSTAT, n.d.; Bloomberg, n.d.-d)

Peer Group including Icelandair (n = 89)						
	ATO	**PM**	**SG**	**NOA g.**	**RNOA**	**EV/NOA**
Mean (a)	3,1x	4%	7%	7%	11%	1,5x
Persistence (w)	0,62	0,56	0,50	0,40	0,40	0,88
RSQ	0,71	0,31	0,28	0,12	0,34	0,55
Peer Group excluding Icelandair (n = 79)						
	ATO	**PM**	**SG**	**NOA g.**	**RNOA**	**EV/NOA**
Mean (a)	4,1x	3%	7%	7%	9%	1,1x
Persistence (w)	0,75	0,61	0,52	0,44	0,61	0,68
RSQ	0,56	0,40	0,31	0,15	0,63	0,41
Industry (n = 1598)						
	ATO	**PM**	**SG**	**NOA g.**	**RNOA**	**EV/NOA**
Mean (a)	2,2x	6%	12%	10%	12%	1,6x
Persistence (w)	0,75	0,76	0,25	0,08	0,45	0,58
RSQ	0,61	0,60	0,06	0,01	0,21	0,35
Average						
	ATO	**PM**	**SG**	**NOA g.**	**RNOA**	**EV/NOA**
Mean (a)	3,1x	4%	8%	8%	11%	1,4x
Persistence (w)	0,70	0,65	0,42	0,31	0,49	0,71
RSQ	0,63	0,44	0,22	0,09	0,40	0,43

Asset Turnover

For ATO the autoregression estimates a long-run level in the range from 2,2× to 4,1×, giving an average of 3,1× across the three groups. The peer group excluding Icelandair has a significantly higher long-term ATO level and a higher persistence coefficient than the peer group including Icelandair. This will be taken into account during the forecast, as Icelandair seems to be closer to the industry's long-run ATO level than to the selected peers. Persistence is estimated to be in the range from 0,62 to 0,75 with an average of 0,70. As expected the persistency is high for ATO and therefore companies seem able to sustain their high (or low)

ATO beyond the short term. See Figure 10 in Appendix C for visualization.

Profit Margin

The regression estimates a long-term PM range from 3,1% to 6,2%, giving an average of 4,3% across the groups. The persistency is in line with expectations from the fade diagrams, lower than for ATO but still relatively high, ranging from 0,56 to 0,76. As expected from the profitability analysis Section 6.4 the peer group including Icelandair has a higher long-term PM, but still lower than the industry's. The high persistency indicates that superior PM are possible to sustain. See Figure 11 in Appendix C for visualization.

Sales Growth

SG have an estimated long-run level ranging from 6,8% to 11,6% with an average of 8,4%. This is a wide range and is highest for the industry as a whole but the same long-term level is estimated for the peer group including and excluding Icelandair. As noted in the fade diagram SG is subject to a higher degree of mean-reversion than the two previous value drivers. SG's estimated persistency ranges from 0,25 to 0,52. The persistency is higher than expected, especially for the peer group samples where persistency is close to PM levels. See Figure 12 in Appendix C for visualization.

NOA Growth

NOA growth is estimated to have long-run levels ranging from 6,8% to 9,5%, averaging 7,7% across samples. From the fade diagram analysis of the industry where high mean-reversion was clear, a very low persistency coefficient ω was expected. The estimated persistency for the industry was as expected very low, only 0,08, but for the peer group it was however relatively high 0,4 including Icelandair and 0,44 excluding Icelandair. For an industry like the airline industry it is unlikely that certain airlines will be able to sustain a growth in NOA and keep profits above the industry's long-term level. See Figure 13 in Appendix C for visualization.

RNOA

RNOA has an estimated long-run level ranging from 9,1% to 12,2%, averaging at 10,9%. As expected from the profitability analysis in Section 6.4, the peer group including Icelandair has noticeably higher RNOA than the peer group excluding it, but still lower than the industry as a whole. Again the difference may lie in different business models or strategy. See Figure 14 in Appendix C for visualization.

EV/NOA (Market-to-book)

The autoregression reveals a long-term mean for EV/NOA at 1,5× for the peer group including Iceland air and a slightly higher 1,6× value for the industry. The ratio seems very persistent, with a persistency coefficient of 0,88 for the peer group including Icelandair and 0,71 for the industry. See Figure 15 in Appendix C for visualization.

8 | Forecasting

Valuing Icelandair using the ReOI model requires an estimation of future ReOI. In this chapter the future value drivers of ReOI will be forecasted. Forecasting involves a great deal of speculation as the future is uncertain and as can be seen in Section 3.4 (Airline Industry) especially uncertain for airlines. The quantitative industry analysis in the previous chapter serves as the basis for the forecast along with information gathered from the financial statement analysis and the strategic analysis.

For this forecast the forecasting period is split into two sections: a five-year explicit period from 2016 to 2020 and a fade period where value drivers reach their long-term level. In each section the future rate of the three value drivers Asset Turnover (ATO), Profit Margin (PM) and Sales Growth (SG) will be estimated.

8.1 Explicit Period (2016-2020)

The explicit forecast period is a short-term period spanning from 2016 to 2020. For this period the forecast is based on a combination of information gathered from the quantitative industry analysis, the strategic and financial statement analysis, as well as industry and economic indicators.

8.1.1 Sales Growth

SG is the most important ReOI value driver to forecast for airlines. As discussed in Section 3.1 Icelandair's main operation is air transportation and there of passenger transportation is most important. Therefore, growth in sales generated by passengers for the next five years is the focus of this section.

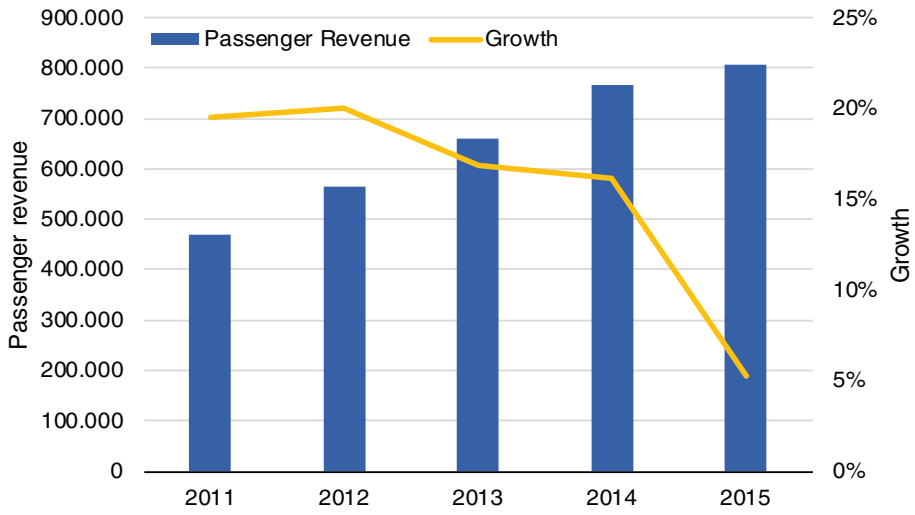

Figure 8-1: Passenger Revenue and growth from 2011 to 2015. Own creation, data from Icelandair's Annual Reports

Icelandair's operating income has grown very rapidly since the restructuring in 2010-2011 and the driving force has been the increase in passenger revenue. Since 2011 revenues stemming from passengers has increased by 105% or on average 16% annually (Icelandair Group hf, 2016b). However as is clear from Figure 8-1, growth in passenger revenue has come to a sudden halt. From a 16% growth between 2013 and 2014 to only 5% growth from 2014 and 2015. There are different possible reasons for this. One is that Icelandair had a great year in terms of utility, setting a new personal record in load factor every month during 2015. The reason for the slowdown in sales growth could be that Icelandair had reached its fleet capacity. With the addition of the two 767-300 (262 seat) aircrafts in 2016 and the first of 16 new 737's coming in at 2018 (Icelandair Group hf, 2016b), Icelandair will increase its supply and (if the demand is there) sales should increase again. Another scenario is that there might be a shift in the economy in Icelandair's main markets. After a period of growth in GDP, Iceland, the Euro area, and the world saw a decline in GDP and north America's growth declined. As established in the analysis in Section 5.1.2 (Economic issues), number of transported passengers is heavily correlated with GDP.

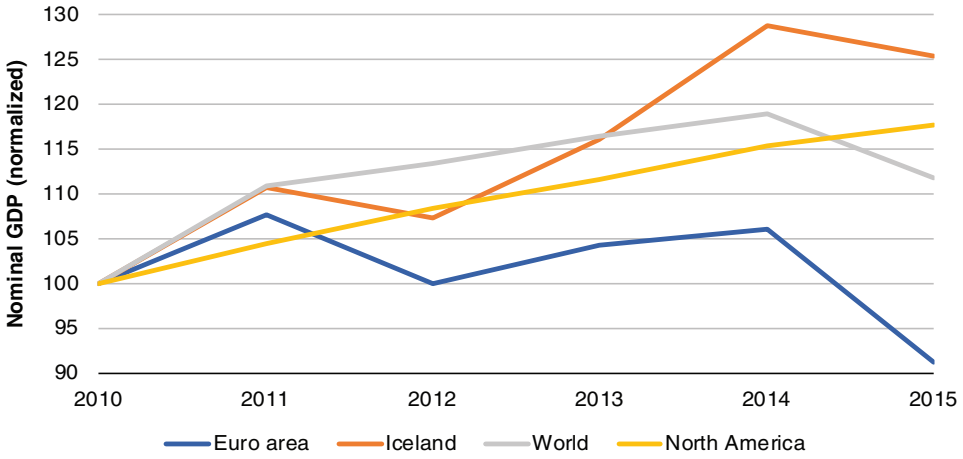

Figure 8-2: GDP Normalized data. Own creation, data from (The World Bank, 2015)

Figure 8-2 shows the 2015 decline in GDP for Iceland, the Euro area, the world and though N-America's GDP did not decline like the rest, it's growth slowed down. One year of declining GDP certainly does not mean that these areas are heading into a recession, but given the recent instability in Europe it is worth taking into consideration.

Icelandair's flight schedule assumes a 24% increase in the number of Available Seat Kilometers (ASK) for 2016 (see Section 5.4.1 for analysis). With four new destinations (43 destinations in 2016), Icelandair further estimates a 20% increase in passengers carried, or 3,7 million passengers in 2016, compared to 3,1 million in 2015. This growth is estimated based on the addition to the fleet while keeping same high load factor (see Section 5.4.3) (Icelandair Group hf, 2016b).

Iceland's tourism has grown close to 130% since 2011 and has been increasing every year (see Figure 5-3) (Ferdamalastofnun, 2015). If the trend continuous like it has for the next five years, the number of international tourists in Iceland will reach well over two million (1,3 million in 2015). Even a slowdown to a modest 10% increase per year will reach over two

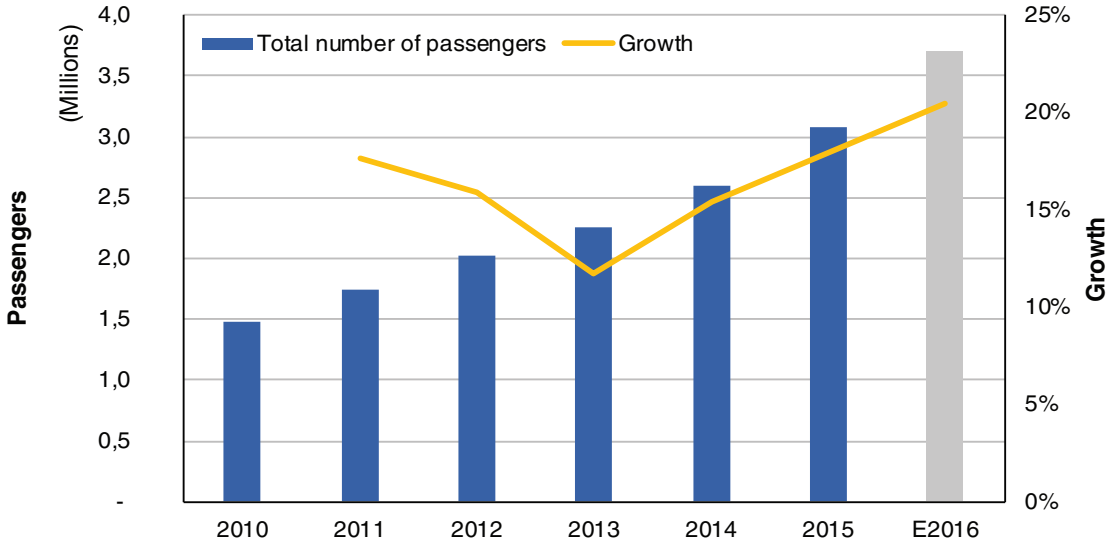

Figure 8-3: Passengers carried and growth. 2016 estimated by Icelandair. Own creation, data from Icelandair's Annual Reports

million visitors in 2020. As discussed in Section 3.1.1 (Route Network), Icelandair's route network is split into three segments: VIA, TO and FROM. The VIA market is the biggest 49% of passengers in 2015, TO is second with 36%, and FROM is the smallest with 16%. With such a high percentage of Icelandair's passengers traveling to Iceland and the increase in passengers stopping in Iceland for a layover these number reinforces the estimation of increase in sales.

As seen in the quantitative industry analysis (Chapter 7), SG is quite mean reverting. The autoregression revealed a low persistency coefficient of 0,25 with a long-term mean of around 12% for the industry as a whole. The peer group however showed a lower long-term level of 7% with a persistency of 0,5. Taking this inconsideration with the analysis given above, Icelandair's sales are expected to increase to 10% for 2016 and grow additional 1,11% during the explicit period reaching 15% in 2020 where the fade period starts.

8.1.2 Profit Margin

During the quantitative industry analysis profit margins exhibited high persistency. The airline industry had a long-term mean of 6,2% with persistency of 0,76 and the fade diagram indicated that companies within different portfolios maintained their margins quit well. During the period from 2011 to 2014 Icelandair had a steady profit margin ranging between 6% and 8%, before a rapid increase to above 11% in 2015. Icelandair's PM is well above its peer group average for the same period as well as the long-term level seen in the autoregression for the peer group excluding Icelandair. The sharp increase in PM from 2014's 7,4% to 2015's 11,4%, is largely due to the decline in oil prices during 2015 (see Section 5.1.2 (Fuel price)). As oil prices have begun to rise from the bottom in January 2016 (see Figure 5-4) they are expected to continue to rise, but without a sharp increase. Considering these factors, it seems unlikely that Icelandair will continue to grow its margins and more likely that they will decrease towards the previous range between 6 and 8%, which is close to the industry's mean.

During the explicit forecast period Icelandair's PM is estimated to decrease by 1% per year, from 11,4% in 2015 to 6,44% in 2020.

8.1.3 Asset Turnover

ATO showed a very high persistence of 0,7 and a long-run level of 2,2× for the industry in the quantitative industry analysis. While it was seen in Section 6.4 (Profitability Analysis) that Icelandair only outperformed its peer group during last year, it has been well above the industry's long-run mean in the last three years, with on average 3,0× ATO from 2011 to 2015. As discussed before, the addition to the fleet is gradual, and if aircraft utilization efficiency remains around the same level as it currently is, ATO is likely to stay at close to its current level. ATO is therefore expected to remain constant at 4,0× throughout the explicit period.

8.2 Fade Period

At the end of the five-year explicit period a longer term period starts, where the value drivers fade towards their long-term levels. This fade period derives its values from the quantitative industry analysis. The value driver approaches the selected level of a (calculated in the autocorrelation) with the persistency of ω, both of whom are based on the the analysis in Chapter 7. The expected level of a value driver at a future date τ is calculated as:

$$E[x_\tau|x_t] = a + \omega^{\tau-t}(x_t - a)$$

Here x_t will take the form of each of the three value drivers, ATO, PM and SG at the last year of the explicit period.

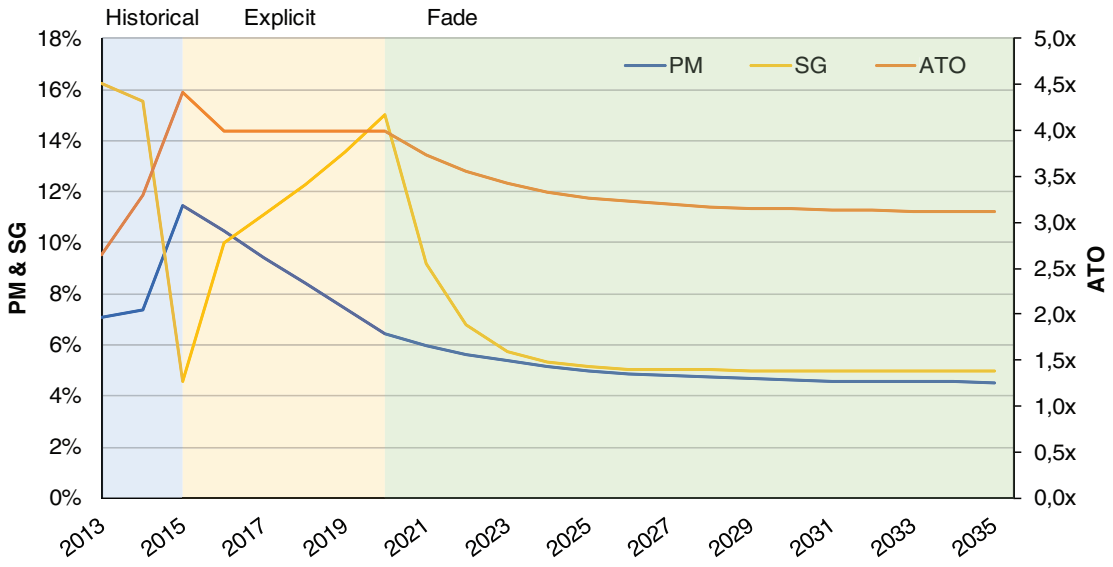

Figure 8-4: Forecast period for the ReOI value drivers: PM, SG and ATO.

8.2.1 Sales Growth

As can be seen in Figure 8-4, SG is entering the fade period at a very high level of 15%, this is almost certainly not a sustainable long-term level. From the quantitative industry analysis Sales Growth was estimated to have a long-run level ranging from 7-12%. The lower end of the range still seems rather high for a long-term growth rate, as OECD forecasts a nominal GDP growth of 4% annually for OECD countries and 2,8% for the Euro area (OECD, n.d.) and the Icelandic central bank's inflation target is 2,5% (Sedlabanki Islands, 2016). A long-term level of 5% seems more realistic and will converge with a persistency of 0,42. The peer group exhibited a higher persistency than the market and an even higher one when Icelandair was excluded, therefore an average of the three persistency coefficients is used here, giving a persistency of 0,42. It is clear form Figure 8-4 that SG converges very quickly and has almost reached its long-run level in five years.

8.2.2 Profit Margin

Profit margins displayed a high persistency in the industry analysis, but varied a lot depending on the sample. The industry as a whole showed a high long-term level of 6,25% with a persistency of 0,76, while the peer group including Icelandair had a more modest 3,6% long-term PM with a persistence of 0,56. An average of the long-term PM levels between the groups is used rounded to the next half, giving a fade rate for PM of 4,5%. This seems reasonable as a long-term level given both current profit margins and the industry's estimate. The quantitative industry analysis revealed the high persistency of PM in the airline industry and that airlines were able to sustain their level; therefore, the persistence level of the industry will be used, 0,76.

8.2.3 Asset Turnover

Like the PM, ATO showed significant persistency in the quantitative industry analysis. The industry had somewhat lower long-term level than the peer group excluding Icelandair and the peer group including Icelandair was right in the middle of the two. The peer group including Icelandair seems to give a good estimate of Icelandair's long-term ATO level, giving a long-term level of 3,1× with a persistence of 0,7.

9 | Estimation of Icelandair's Cost of Capital

As discussed in Chapter 2 (Valuation Methodology), an estimation of Icelandair's cost of capital is required to discount future ReOI and arrive at an estimation of the value on April 8th 2016. The term structure of cost of capital is calculated using a modification of the CAPM, combining an estimation of the term structure of risk free interest rates with Icelandair's risk premium. The risk premium is kept constant for the period while the term structure of interest rate is variable (Christensen, 2015c; Brennan & Xia, 2003) and the term-structure of Icelandair's cost of capital is defined as:

$$R^F_{t\tau} = (1 + \iota_{t\tau})(1 + RP_F)$$

Where $\iota_{t\tau}$ is the discretely compounded zero-coupon rate at time t with maturity at τ and a RP_F risk premium for Icelandair. Using the CAPM, the market risk is measured with a beta coefficient, which is then multiplied by the equity risk premium, giving a total risk premium for Icelandair (Damodaran, 2015). In this chapters each of these factors making up the cost of capital is estimated.

9.1 Estimating the Term Structure of Interest Rates

In this section the term structure of interest rates used in calculations of Icelandair's cost of capital is estimated. The purpose is to acquire appropriate interest rates for each date in time, giving a more accurate result than using a constant risk free rate throughout the period. Here the Nelson-Siegel model is used to approximate the term structure at any point in time, based on outstanding Icelandic government bonds. The model is globally used by central banks and financial institutions.

9.1.1 Bond Pricing

The Fundamental Theorem of Asset Pricing implies that in a non-arbitrage bond market, there exist implied zero-bond prices $Z_t(\tau)$ such that (Bliss, 1996; Christensen, 2015d):

$$B_{it} = \sum_{n=1}^{N} c_{i\tau_n} Z_t(\tau_n), \qquad i = 1, 2, ..., I$$

This is a system of I linear equations with N unknown zero-coupon bond prices. Where B_{it} is the listed price of the bond plus any accrued interest, $c_{i\tau}$ is cash flows at dates $\tau = \tau_1, \tau_2, \ldots, \tau_N$ for the chosen bond sample. If $N = I$, that is if the number of cash flow dates is equal to the number of bonds, solving the linear equation will yield a solution. However, as is usually the case in practice, $I > N$ and therefore an exact pricing relation is exchanged for an inexact relation (Bliss, 1996; Christensen, 2015d):

$$B_{it} = \sum_{n=1}^{N} c_{i\tau_n} Z_t(\tau_n) + \epsilon_{it}, \qquad i = 1, 2, ..., I$$

Here a "noise term" has been added to the equation allowing for an estimation of the parameters Z_t in a regression. By assuming a parametric functional form for the zero-coupon bond prices the distance between the theoretical prices ($B_{it}^{Th.}$) and the observed market prices (B_{it}^{M}) is then minimized by varying the parameters (Christensen, 2015d). For this the standard version of the Nelson Siegel model is used.

The Nelson Siegel Model

To estimate the yield curve, the model proposed by Nelson and Siegel (1987) in their paper "Parsimonious Modeling of Yield Curves", commonly referred to as the Nelson Siegel (NS) model, is used.

Nelson and Siegel (1987) describe the forward rate at maturity τ, $f_{t,\tau}$ as the solution to a second-order differential equation with equal roots:

$$f_{t\tau} = \theta_0 + \theta_1 e^{-(\tau-t)/\lambda} + \theta_2 \frac{\tau - t}{\lambda} e^{-(\tau-t)/\lambda}$$

where $\theta_0, \theta_1, \theta_2$ and λ are constants parameters and $(\tau - t)$ is the time to maturity. The yield curve is then given by:

$$g^{NS}(t, \tau; \theta) = \theta_0 + (\theta_1 + \theta_2)\frac{1 - e^{-(\tau-t)/\lambda}}{(\tau - t)/\lambda} - \theta_2 e^{-(\tau-t)/\lambda}$$

where θ_0 represents the long-term rate, $(\theta_1 + \theta_2)$ is the approximated short term rate, θ_2 affects the concavity (convexity) of the term structure and λ gives the location of the hump (Benninga, 2014).

The yield curve is then fitted to the market data by changing the parameters so that the distance between the prices estimated by NS and the market prices is minimized.

Estimation

As mentioned in Section 3.3, Icelandair's shareholders are almost entirely Icelandic and therefore the Icelandic government bonds are chosen as the "risk-free" rate. The capital controls also constrict many investors, especially individual investors, to consider the Icelandic government bonds as their risk-free alternative. The Icelandic bond market is very small compared to even other Nordic nations and outstanding government bonds at the date of valuation (8.4.2016) are seven non-indexed long-term government bonds and two short term government bills. The time to maturity on these bonds ranges from 0,35 years to 14,8 years. The yield curve is estimated with the method described above using the Icelandic government bonds and bills, but with so few bonds the lack of available data can impact the precision of the estimation of the yield curve.

As can be seen from Figure 9-1, the model prices still fit relatively well with the market prices. The price errors seem to be evenly and randomly distributed, going from positive to negative, this can be seen in the error plot in Appendix D.

Table 9-1 shows the estimated parameters for the NS model of the Icelandic yield curve.

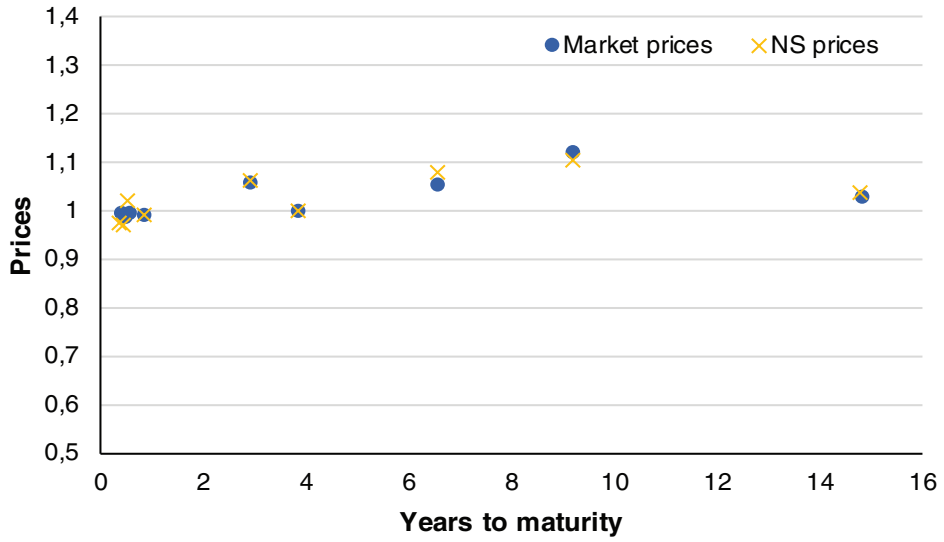

Figure 9-1: Nelson & Siegel model prices fitted to market prices. Own creation, Market price from (Sedlabanki Islands, n.d.).

Table 9-1: Nelson-Siegel model parameter estimation.

Parameter	θ_0	θ_1	θ_2	λ	$\lambda_0 + \lambda_1$	SSR
Estimate	0,069879	0,001689	-0,03638	6,291726	0,071568	0,002254

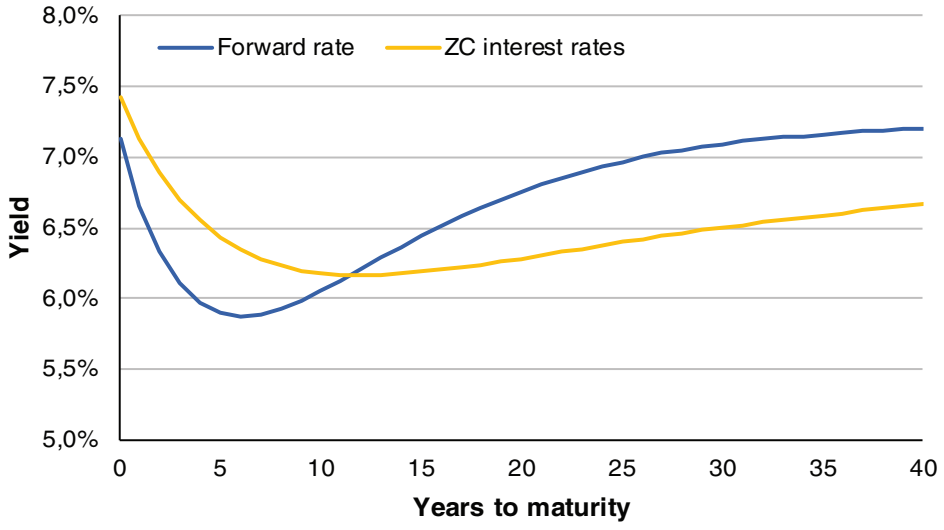

Figure 9-2: Risk free zero coupon yield curve and forward rates, discretely compounded.

Figure 9-2, shows the discretely compounded zero-coupon yields along with the discretely compounded forward rates.

Normally a yield curve is upwards sloping, as it is for most countries. However, Iceland is not like most countries and at the date of analysis the Icelandic yield curve is rather negative and flat with yields around 6,5%. Icelandic non inflation indexed bills and bonds have yields ranging from the short term RIKV bill maturing in august 2016 with a yield of 7,4% down to around 6% for the bonds with a longer maturity. These yields are very high compared to the current yields in both Scandinavia and other established markets, but Iceland's inflation is much higher than for those countries, estimated at around 3,5% for the year 2016 (Islandsbanki, 2014).

9.2 Estimation of Icelandair's Beta

A firm specific beta is the aggregate beta value of the firm's equity beta and debt beta, weighted by the capital structure of the company.

$$\beta^{Firm} = \beta^{Equity} \times \frac{E}{EV} + \beta^{Debt} \times \frac{D}{EV}$$

In this valuation β^{Debt} is assumed to be zero and therefore the focus is on the equity beta. The assumption is that the debt carries such a low market risk that it will be close to zero and have little impact on the cost of capital.

9.2.1 Equity Beta

A firm's equity beta is usually measured as the slope of a time-series regression of its equity returns on the returns of a stock index (Christensen, 2015c).

$$\beta_{\tau}^{Firm} = \frac{Cov_{\tau}(RE_{\tau}, RM_{\tau})}{Var_{\tau}(RM_{\tau})}$$

Where RE_{τ} is the return on the firm's stock returns and RM_{τ} are returns on the index used as a proxy for market returns. The beta is a measurement of how volatile the firm is compared to the market, therefore measuring macroeconomic risk exposure.

For Icelandair, weekly returns are regressed against the icelandic index OMX ICE8 for a period of the last five years. Table 9-2 shows the results from the regression. For this period Icelandair's equity beta is 1,0855.

Table 9-2: Beta estimation using five year weekly returns. Own creation, data from (Datastream, n.d.).

Market Proxy	β	α	R^2
OMX ICE8	1,0855	0,00452	0,383714

In order to get a firm specific beta value, the impact from debt needs to be removed. Therefore, the unlevered beta is calculated as:

$$\beta^{U} = \beta^{L} \times \frac{E}{EV} = 1,0855 \times 0,83$$

This method gives a firm specific beta for Icelandair equal to 0,9. However, this beta is subject to a number of different problems. The first one is that the regressed equity beta will depend on the time horizon and the return intervals selected for the regression and this can have a significant effect on the beta estimation. Another more significant problem is that the Icelandic market is small and illiquid relative to more established markets and Icelandair's weight is significant in the OMX ICE8 index. This can indicate that the result is a biased estimate of the equity beta, as Icelandair's stock returns are almost regressed against them selves.

9.2.2 Bottom-up Beta

To combat the problem with the regressed equity beta, the beta coefficient is also estimated using Damodaran's bottom-up beta approach (Damodaran, n.d.-c). This is a 4 step approach to estimating a company's beta, described by Damodaran as:

1. Find out the business that the firm operates in.
2. Find unlevered betas of other firms in the same industry.
3. Calculate a weighted average (by sales or operating income) of these unlevered betas.
4. Lever up the betas using the firm's debt to equity ratio.

The reason that the bottom up beta can give a more accurate estimate is the law of large numbers, meaning that an average of many beta estimates is more likely to yield a better estimate than a single regression.

The first step is to evaluate the business that Icelandair operates in. Icelandair is an airline and as discussed in Section 3.4 the airline industry has an elastic demand. Industries with elastic demands will generally have a higher beta than those with inelastic demands. Airlines have high fixed costs, and high fixed costs have a multiplying effect on the business and therefore increasing its variance. Airlines are therefore expected to have a mid-to-high beta value.

For the airline industry's betas, Damodaran's data from 5th January 2016 is used. Damodaran's estimations can be seen in Table 9-3.

Table 9-3: Damodaran Air Transport beta estimation - average values. Own creation, adopted from (Damodaran, n.d.-b, n.d.-a).

	Region	**# Firms**	**av. Unlevered beta**	**av. Levered beta**
Air Transport	Global	160	0,61	0,96
Air Transport	US	20	0,81	1,27

There is a large difference in the sample size between the Global and US airlines, and the beta values also show a significant difference.

9.2.3 Icelandair's Equity Beta

Icelandair's leveraged beta of 1,0855 falls between the two averages of industry levered betas from Table 9-3. However, its unleveraged beta of 0,9 is higher than the industries average. It seems most likely that the best estimate of Icelandair's unlevered beta value lies somewhere in the middle, therefore a simple average of the three unlevered betas is taken and Icelandair's beta is estimated as 0,775 [1].

9.3 Equity Risk Premium

Equity risk premium is a central component of risk and return models in finance and as seen earlier is a key input in estimating cost of capital. The equity risk premium measures the required return investors require to be compensated for the risk they take on. The equity risk premium is a market wide number that effects expected returns on all risky investments in the market it is estimated for. Equity risk premium is determined mainly by: investor risk aversion and consumption preferences, macro-economic risk, quantity and quality of information available to investors, liquidity in the market, catastrophic risk, government policy and the irrationality of investors. It is important to note the choice of equity risk premium can have a very significant impact on value. Given its importance it is therefore surprising how difficult and unstandardized the estimation is in practice (Damodaran, 2015).

ERP is generally estimated using historical returns, by investigating the difference in annual returns on stocks versus bonds over a long time period. As Damodaran (2015) explains this method has its limitations even in established markets like the US, and will likely not be effective in the Icelandic market. There are other methods like the survey method, where investors and managers are asked to assess the risk premium in a large survey. Or the implied approach, where a forward-looking estimate of the ERP is estimated using current equity prices or risk premiums in non-equity markets like bond or real-estate (Damodaran, 2015).

It is therefore not an easy task coming up with an exact estimation of the risk premium. The risk premium seems to be somewhere between 3% and 8% for most markets. Damodaran (2015) estimates the total Icelandic equity risk premium 5,76%, using equity market volatility relative to the S&P500 index. Here a risk premium of 6% seems reasonable.

9.4 Cost of Capital

As mentioned before, Icelandair's Risk Premium (RP) is the multiple of the beta and the equity premium:

$$RP_F = RP_E \times \beta^{Firm}$$

Using the estimations above, Icelandair's estimated risk premium can be calculated as:

$$RP_F = 6\% \times 0,775 = 4,65\%$$

Now with both, the term structure of risk-free interest rates and the risk premium, Icelandair's term structure of cost of capital can be estimated.

[1] $((0,906 + 0,61 + 0,81)/3)$

$$RP_{t\tau}^{F} = (1 + \iota_{t\tau})(1 + RP_F) = (1 + \iota_{t\tau})(1 + 0,465)$$

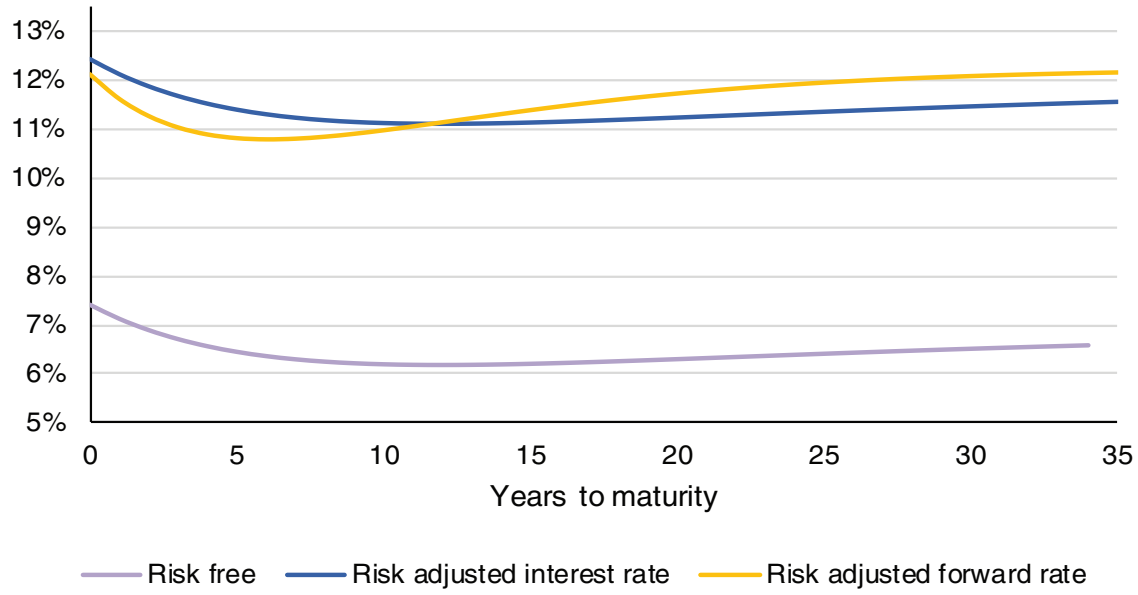

Figure 9-3: Term structure of Icelandair's cost of capital.

10 | Valuation

In this chapter all previous analysis and information is put to use in estimating Icelandair's intrinsic value. The valuation in this chapter will rely on the forecast made in Chapter 8 and the term structure of cost of capital from Chapter 9. The valuation is performed using the methods described in Chapter 2 (Valuation Methodology), where forecasted ReOI are valued using the APV valuation method. To get a broader range of the intrinsic value, two extra scenarios will be valued as well, one where the forecast exceeds expectations and another that fails to meet expectations.

10.1 Icelandair Base Case Valuation

As stated before the valuation is based on the forecasting assumptions made in Chapter 8 which were largely based on the quantitative industry analysis from Chapter 7. For the base case valuation, Icelandair is valued using two scenarios for long-term Sales Growth (SG) one in line with the forecast from Chapter 8 and another where long-term SG converges towards the central banks inflation target of 2,5%. The long-term assumptions for the ReOI value drivers' growth can be seen in Table 10-1.

Table 10-1: Base case value driver forecast assumptions.

Forcast estimation	Long-term mean (a)	Long-term mean (a)	Persistence (w)
ATO	3,1×	3,1×	0,703
PM	4,5%	4,5%	0,763
SG	5,0%	2,5%	0,419

Using these assumptions as well as the estimation of the term structure of cost of capital from Chapter 9, the valuation of Icelandair's intrinsic value is formed. As discussed in Chapter 8 the forecasting period is split up into three segments, an explicit period, a fade period and a continuation value. Here the continuation value is calculated using two different methods. First using Gordon's growth model, with the continuation growth rate set as the long-term mean of SG estimated in Section 8.2.1 of 5%. This might be a high estimate of perpetual SG and therefore, long-term SG is also set to a more modest 2,5% and the CV calculated using that growth rate. The second method is using the long-run estimation of market-to-book ratio (EV/NOA) from Section 7.2.2 to calculate the CV. The CV is also calculated for both long-term SG estimates using the multiple method. Both models are based on the same forecast for the explicit and fade period. Gordon's growth model requires a constant interest rate for discounting and therefore the term structure of interest rates needs to be stable before calculation of the CV, this results in a fade period of 15 years following the initial 5-year explicit period. The EV/NOA method does not have the same limitation and therefore uses a shorter fade period of 10 years. Table 10-2 summarizes the results from the base case valuation.

Table 10-2: Summary of Icelandair's Base case valuation.

	Gordon's growth model	EV/NOA Multiple	Gordon's growth model	EV/NOA Multiple
Long-term SG	5%		2,5%	
Terminal Growth, Multiple	5%	1,5x	2,5%	1,5x
$\sum$ PV ReOI	533.260	505.437	512.345	491.499
PV NOA	307.942	307.942	307.942	307.942
PV of CV	67.430	151.460	33.303	127.548
Firm value	908.632	964.838	853.590	926.989
NFA	148.589	148.589	148.589	148.589
Equity value	1.057.221	1.113.427	1.002.179	1.075.578
Shares outstanding	4.750.000	4.750.000	4.750.000	4.750.000
Share price (USD)	0,2226	0,2344	0,2110	0,2264
FX rate (8.4.2016)	123,74	123,74	123,74	123,74
Share price (ISK)	**27,54**	**29,01**	**26,11**	**28,02**

* All amounts are in USD thousands, except the final share price shown in ISK.

The two methods with the two long-term SG give a value per share ranging from **26,11** to **29,01** ISK per share. This is the base case estimation for Icelandair's intrinsic value per share. This is a relatively narrow range and the difference in method for CV does not yield a large difference to the overall value. The CV represents between 3,32% and 13,60% of the equity value, highest for the multiple method with a long-term SG of 5% and lowest for the Gordon's growth model using 2,5% growth. Effects of changes in assumptions on value drivers and other metrics on the estimated value per share for Icelandair will be analyzed in Chapter 11 (Sensitivity Analysis).

10.2 Scenario Analysis

The previous section portrayed a valuation based on the assumptions made throughout the thesis, however the future is uncertain and the forecasted estimations assumed for the base case may not hold. In this section two additional scenarios, one optimistic and one pessimistic, will be examined and Icelandair's intrinsic value per share calculated based on these new assumptions. The scenarios are estimated as an optimistic and pessimistic view while still maintaining realistic estimates of the future and will form additional bounds to the value range. Forecast graphs for the value drivers for both scenarios can be seen in Appendix E.

10.2.1 Optimistic Scenario Valuation

As seen in the forecast analysis in Section 8.1.1, Icelandair's SG had slowed down. For this scenario however, the explicit period SG is assumed to be stable at 15% throughout the period, but will revert to the average long-term mean of 8% from the quantitative industry analysis in Chapter 7 with a persistency of 0,42. The PM is assumed to decrease slower during the

explicit period and fade to a higher long-term level of 6% with the same persistency of 0,76 as in the base case. ATO will increase during the explicit period, from 4,4× in 2015 to 4,9× in 2020. From there it will fade to a long-term level of 4,0× with the same persistency of 0,703. Again the CV is calculated using the long-term SG level and an increased EV/NOA ratio of 3,5×. Table 10-3 show the resulting value per share given this scenario.

Table 10-3: Summary of Icelandair's Optimistic scenario valuation.

	Gordon's growth model	EV/NOA Multiple
Terminal Growth, Multiple	8,0%	3,5x
$\sum$ PV ReOI	840.081	700.418
PV NOA	307.942	307.942
PV of CV	779.116	642.921
Firm value	1.927.140	1.651.280
NFA	148.589	148.589
Equity value	2.075.729	1.799.869
Shares outstanding	4.750.000	4.750.000
Share price (USD)	0,4370	0,3789
FX rate (8.4.2016)	123,74	123,74
Share price (ISK)	**54,07**	**46,89**

* All amounts are in USD thousands, except the final share price shown in ISK.

The result is a value ranging from **46,89** to **54,07** ISK per share. Here the range is much greater and can mostly be traced to the difference in the value of the CV. A CV calculated with a growth rate of 8% is obviously very optimistic and results in 38% of the equity value in the CV.

10.2.2 Pessimistic Scenario Valuation

For this scenario the forecast is assumed to be worse than for the base case valuation. For this scenario Icelandair is not able to increase its SG to former levels and will experience less growth in sales during the explicit period. SG is expected to fade to a long-run level of 2,0% with a low persistency of 0,25. Profit margins will decline for the explicit period, and fade towards a long-run level of 3,0% with less persistency of 0,5. ATO will decline from 4,4× in 2015 to 3,4× in 2020 during the explicit period and then fade towards a long-run level of 2,5× during the fade period. EV/NOA used to calculate the CV is also lower. Table 10-4 show the resulting value per share based on this scenario.

Table 10-4: Summary of Icelandair's Pessimistic scenario valuation.

	Gordon's growth model	EV/NOA Multiple
Terminal Growth, Multiple	2,0%	0,5x
$\sum$ PV ReOI	261.567	295.026
PV NOA	307.942	307.942
PV of CV	-57.824	-76.604
Firm value	511.685	526.364
NFA	148.589	148.589
Equity value	660.274	674.953
Shares outstanding	4.750.000	4.750.000
Share price (USD)	0,1390	0,1421
FX rate (8.4.2016)	123,74	123,74
Share price (ISK)	**17,20**	**17,58**

* All amounts are in USD thousands, except the final share price shown in ISK.

This scenario results in a value per share ranging from **17,20** to **17,58** ISK per share. Here the CV using both the Gordon growth formula and the multiple method is negative. With such a high cost of capital and low estimates of growth in value drivers, ReOI become negative quickly. Given these estimates, ReOI have turned negative by 2023 and Icelandair would face a decision on how they can adapt.

11 | Sensitivity Analysis

A sensitivity analysis measures the sensitivity of an output to a change in a given input while keeping other inputs constant. This type of analysis is useful to evaluate the sensitivity of Icelandair's estimated value per share to the different inputs in the valuation and to see which inputs have the greatest effect on the calculated value.

Here Icelandair's estimated value will be tested to changes in the value drivers used to calculate future ReOI, that is the Profit Margin (PM), Asset Turnover (ATO) and Sales Growth (SG), as well as other inputs to the APV model. The sensitivity is analyzed for the valuation using both methods for calculating the CV. Figure 11-1 & 11-2 show the effect a 30% increase and decrease in the inputs have on the calculated value per share and Figure 19 & 20 in Appendix F show the percentage change in value per share.

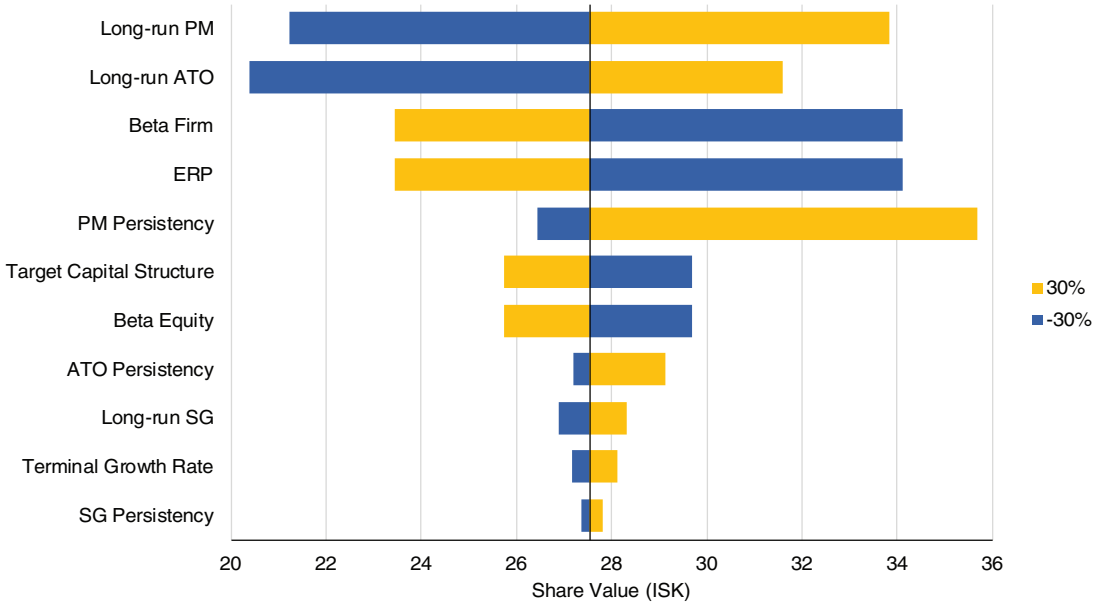

Figure 11-1: Share value sensitivity to 30% change in inputs - Gordon's Growth formula.

Figure 11-1 shows that the valuation using the Gordon's growth formula to calculate CV is most sensitive to changes in long-run PM and ATO while much less sensitive to long-run SG levels. Both PM and ATO were seen to have high persistency in Chapter 7 (Quantitative Industry Analysis), indicating that companies are able to sustain their advantage while SG had a much lower persistency. However, Figure 11-2 shows that using the market-to-book (EV/NOA) ratio method to calculate the CV, is less sensitive to long-term value driver levels. This is likely due to the fact that this method uses a shorter fade period. Instead ERP and the Firm Beta have the greatest impact on calculated value per share. Calculating the CV using the market-to-book method is obviously sensitive to the chosen long-term EV/NOA, but the valuation using the Gordon's growth model is not very sensitive to the chosen terminal growth rate. The target capital structure and equity beta seem to have similar effect on the value for both methods. Over all using the market-to-book ratio seems to be much less sensitive

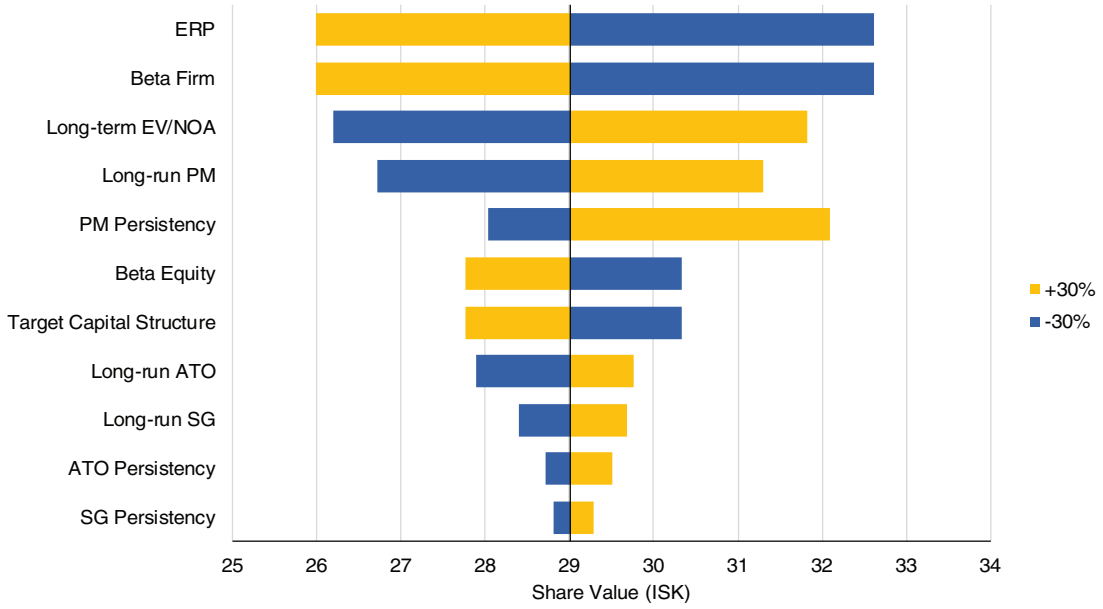

Figure 11-2: Share value sensitivity to 30% change in inputs - NOA/EV Multiple.

to input variation. As Figure 19 & 20 in Appendix F show, a ±30% change in a single input can have close to 30% increase or decrease effect on the calculated value per share using the Gordon's growth formula, but only around ±10% when using the market-to-book premium.

Table 11-1 and 11-2 show the value per share calculated for different levels of long-term PM and persistency. Sensitivity tables for other value drivers can be seen in Appendix F. The tables show clearly that an increasing estimation of the long-term value and persistency of the value drivers will increase the estimate of value per share. As discussed, the valuation using the EV/NOA multiple method of calculating the CV seems to be less sensitive to changes in long-term value drivers. However, it is necessary to keep in mind that the multiple method uses a shorter fade period than the Gordon's growth model.

Table 11-1: Sensitivity analysis for Profit Margin - Gordon's Growth formula.

		Persistence (w)				
	PM	**0**	**0,25**	**0,5**	**0,75**	**1**
Long-term (a)	**3,00%**	17,42	17,78	18,46	20,35	36,58
	3,50%	20,21	20,51	21,09	22,71	36,58
	4,00%	23,00	23,25	23,73	25,07	36,58
	4,50%	25,79	25,98	26,37	27,43	36,58
	5,00%	28,57	28,72	29,00	29,79	36,58
	5,50%	31,36	31,46	31,64	32,16	36,58
	6,00%	34,15	34,19	34,28	34,52	36,58

Table 11-3 and 11-4 show the sensitivity of the valuation to the estimation of the ERP, for both methods and long-term SG. As discussed in Section 9.3, ERP is hard to estimate with

Table 11-2: Sensitivity analysis for Profit Margin - EV/NOA method.

		Persistence (w)				
	PM	**0**	**0,25**	**0,5**	**0,75**	**1**
Long-term (a)	**3,00%**	23,56	23,92	24,60	26,31	32,30
	3,50%	24,83	25,14	25,72	27,18	32,30
	4,00%	26,10	26,36	26,84	28,05	32,30
	4,50%	27,38	27,57	27,96	28,92	32,30
	5,00%	28,65	28,79	29,08	29,79	32,30
	5,50%	29,92	30,01	30,20	30,66	32,30
	6,00%	31,19	31,23	31,32	31,54	32,30

high certainty and a ERP of 6% was chosen for the estimate of cost of capital for Icelandair. A lower ERP will lower the cost of capital and therefore increase the estimated value per share, while a higher ERP will have the inverse effect. As discussed above and clearly illustrated in Figure 11-2, ERP is the most sensitive input for the method using the long-term EV/NOA multiple to calculate EV, however Figure 19 & 20 in Appendix F and Table 11-3 and 11-4 show that variation in ERP has a greater effect on the calculated value using the Gordon's growth formula to calculate CV. This shows that even a ±1% in ERP can have a significant impact on the estimated value per share.

The sensitivity analysis shows a clear problem with the ReOI APV valuation method. Some of the most impactful inputs in the model are also some of the most uncertain. For both methods the ERP, the beta and target capital structure have significant impact on the calculated value. Since these are hard and maybe impossible to estimate correctly, it shows a clear weakness of the method.

Table 11-3: Sensitivity of valuation to ERP estimation- Long-term Sales Growth 5%.

Gordon's growth 5% SG		EV/NOA multiple, 5% SG	
ERP	Value per share (ISK)	ERP	Value per share (ISK)
4,2%	34,10	4,2%	32,62
4,5%	32,75	4,5%	31,97
4,8%	31,51	4,8%	31,34
5,1%	30,39	5,1%	30,73
5,4%	29,36	5,4%	30,14
5,7%	28,41	5,7%	29,56
6,0%	27,54	6,0%	29,01
6,3%	26,73	6,3%	28,46
6,6%	25,98	6,6%	27,94
6,9%	25,28	6,9%	27,43
7,2%	24,63	7,2%	26,94
7,5%	24,01	7,5%	26,46
7,8%	23,44	7,8%	25,99

Table 11-4: Sensitivity of valuation to ERP estimation - Long-term Sales Growth 2,5%.

Gordon's growth 2,5% SG		EV/NOA multiple, 2,5% SG	
ERP	Value per share (ISK)	ERP	Value per share (ISK)
4,2%	30,53	4,2%	31,31
4,5%	29,67	4,5%	30,72
4,8%	28,87	4,8%	30,15
5,1%	28,11	5,1%	29,59
5,4%	27,41	5,4%	29,05
5,7%	26,74	5,7%	28,53
6,0%	26,11	6,0%	28,02
6,3%	25,51	6,3%	27,53
6,6%	24,94	6,6%	27,05
6,9%	24,41	6,9%	26,58
7,2%	23,90	7,2%	26,13
7,5%	23,41	7,5%	25,69
7,8%	22,95	7,8%	25,26

12 | Multiple Valuation

A valuation based on multiples is carried out as a complement to the ReOI APV valuation. The multiple valuation is based on the assumption that the market prices companies correctly on average. With this assumption it is possible to value Icelandair based on calculated multiples for its peer group. Icelandair is valued using three commonly used multiples and a special multiple used for the airline industry, these are EV/EBIT, EV/EBITDA, P/E and EV/EBITDAR. Three of them are so called enterprise multiples where the Enterprise Value (EV) [1] of the company is divided with a chosen metric, EBIT and EBITDA are the most popular metric for this type of multiple. EV/EBITDAR is a multiple specially used for the airline industry as it can capture characteristics of the industry better than the standard enterprise multiples. EBITDAR represents the earnings before interest, taxes, depreciation, amortization and for airlines leasing costs. Therefore, enabling a comparison of airlines regardless of their strategy to finance their fleet. The price to earnings (P/E) multiple is an equity multiple, calculated as the share price divided by earnings per share. The multiples and their values can be seen in Table 12-1.

Table 12-1: Multiple valuation - peer group multiples. Own creation, data from (Bloomberg, n.d.-c).

	EV/EBIT	EV/EBITDA	EV/EBITDAR	P/E
SAS	4,9x	2,9x	2,1x	13,3x
Norwegian	82,2x	19,3x	7,7x	46,3x
Finnair	5,2x	1,6x	3,0x	7,7x
Airberlin	10,8x	7,4x	1,1x	-34,4x
Average	25,8x	7,8x	3,5x	8,2x
Median	8,0x	5,2x	2,6x	10,5x

Norwegian being the only low cost airline in the group seems to be an outlier in terms multiples, with values high above the rest. Therefore, a median rather than an average value of the multiple is used in order to give a better fit. Multiplying the estimated median multiples from the peer group with their corresponding metric from Icelandair will yield an estimation of EV for the EV multiples but the estimated share value for the earnings multiple. The equity value is then calculated by subtracting net debt from the EV and finally the value per share is gathered by dividing the equity value by the number of shares outstanding.

Table 12-2: Icelandair Value per share based on multiple valuation.

	EV/EBIT	EV/EBITDA	EV/EBITDAR	P/E
Value per share (ISK)	20,26	21,56	8,93	23,53

[1] $EV = Equity\ value + Debt - Cash\ and\ short\ term\ investments + minority\ interest$

Table 12-2 shows the results from the multiple based valuation. The P/E ratio gives the highest value of 23,53 ISK per share, while the EV/EBITDA ratio gives the lowest 8,93 ISK per share. Icelandair seems to be trading at a significantly higher EV/EBITDAR than the median for the peer group. The other three ratios give a close range between 20,26 to 23,53 ISK, which is still fairly low compared to the value from the ReOI APV valuation.

As stated before this approach to valuation rests on the assumption that the companies selected in the peer group are of the same kind as the company being valued and therefore the large value range is likely the result of the variance between the companies selected. Although the peer group was selected to be as close to Icelandair as possible within similar markets, there may still be too much difference between them to give an accurate estimation of value. An example of this is that Icelandair owns a larger portion of its fleet than the other companies. It is also likely that only four companies do not provide enough sample to use a multiple analysis with accuracy. With such few comparable companies, any miss-pricing by the market can have significant impact on the valuation.

The multiple analysis valuation method is a quick way of estimating equity value and is only done as sanity check here. The multiple analysis confirms the result from the ReOI APV valuation, that Icelandair is overpriced by the market.

13 | Conclusions

The purpose of this thesis was to determine the intrinsic value per share of Icelandair's stock and thus challenge the market price on April 8th 2016. In order to estimate the value of Icelandair's equity it was necessary to evaluate the company's future prospects. To do so the research covered both financial analysis of Icelandair as well as the airline industry's characteristics and key value drivers, both in a strategic analysis and in a quantitative industry analysis.

Following the crisis in 2008, Icelandair went through a financial restructuring, extending maturities on debt and issuing new equity and most importantly disinvesting most of its non-core operations. In my opinion this disinvestment was a crucial step in securing the company's future as it put the focus on creating value from the core operations. In 2011 Icelandair announced that its restructuring was complete and has since then been operating its core business of passenger air transportation, along with its tourism operations, with good results.

The key macro-economic factors influencing Icelandair seem to be economic prosperity (measured in GDP) in the Euro area, North America and Iceland along with fuel prices that are directly linked to crude oil prices. From the introduction of the airline industry in Section 3.4 it was seen that even as an industry of high historical growth, airlines have found it hard to be profitable in the longer term and the industry appears to be very cyclical. The strategic analysis in Chapter 5 provided evidence of this. The demand for air travel appears to be highly correlated to economic prosperity, measured in GDP. When GDP rises or declines, the demand for air travel follows. GDP had been growing until 2015 when it declined in the Euro area, Iceland and for the world.

Icelandair's largest operating costs are fuel and employee related costs. Fuel is the largest single operating cost, accounting for 25% of Icelandair's operating expenses in 2015. Fuel prices, which are strongly correlated to crude oil prices, can be extremely volatile and hard to predict. Oil prices started to decline in 2014 and reached a bottom of 26$ per barrel mid-January 2016. This is positive for airlines in general as filling their planes is now cheaper. Since the bottom in January, oil prices have been rising and in early April were already close to 40$ per barrel. Given the amount of oil reserves, a sharp increase in fuel price seems unlikely and therefore profit margins are not expected to be impacted by sudden price movements of fuel in the near future and Icelandair's hedging strategy will lessen the effect that any such movements might have. Wages and other personnel expenses together, represent 30% of Icelandair's operating costs. Strong unions in Iceland, for both pilots and the flight crew puts upwards pressure on this expense for Icelandair and further makes it difficult to reduce wages or staff if the economy turns. The power of the unions was clear in 2014 as the pilot strike set a precedent for future negotiations. With renegotiations coming up in 2017, there is a threat of instability as strikes may lead to delays and even cancellations of flights.

Deregulation of the airline industry increased competition enormously in the industry. In recent years it has mostly been the low-cost airlines driving ticket prices down. Icelandair's main competitor is an Icelandic low cost airline, WOW air. With Iceland's popularity as a tourist destination growing so rapidly competition is growing fast, and Icelandair faces increased competition as more airlines add Iceland as a destination to their route network.

However, as seen in the Internal analysis (Section 5.3), Icelandair has a sustainable advantage with its long operational history in Iceland, which grants it control over a large portion of the airport slots available at Iceland's only international airport. This along with Iceland's geographical positioning enables Icelandair to operate its unique route network and ensure a dominant position in the Icelandic market. Given that Iceland is an island in the middle of the Atlantic Ocean and most of Icelandair's revenue come from passenger transportation between North-America and Europe along with passenger to and from Iceland, there is no efficient alternative to air travel. Therefore, there are no alternative mode of transportation or substituting products that Icelandair has to worry about.

The financial statement analysis revealed the impact things analyzed in the strategic part have had on Icelandair's financials, as well as other significant factors. The trend analysis showed a high growth in operating revenues and a decrease in operating costs resulting in a doubled operating profit for Icelandair from 2012 to 2015. At the same time comprehensive income nearly tripled. This high level of growth is not expected to last long into the future, but instead slow down year from year. Operating assets have increased in 2015 as Icelandair is expanding its fleet and with further addition to the fleet in 2016 as well as the large increase starting in 2018, Icelandair's capacity (ASK) will increase. The common size analysis showed clearly the effect of declining fuel costs as Icelandair's aviation expenses decreased significantly in 2015 as a percentage of total operating income. As expected salaries and other personnel expenses increased slightly in 2014 as a percentage of total operating income and remain significantly higher than its peer group. Salaries and other personnel expenses are high for Icelandair compared to its peer group, representing 25% of total operating income for Icelandair, while only 15% for most of its selected peers.

The profitability analysis revealed that Icelandair operates with a significantly higher profit margin compared to its peer group. With the drop in fuel prices Icelandair saw its PM soar to over 12%. This is not estimated to be sustainable and is forecasted to decrease to its previous level in the next following years. Icelandair further has a significantly higher return on net operating assets over the five-year period compared to its peer group. However, return on common equity is only slightly higher for Icelandair than the peer group in 2015.

The quantitative industry analysis revealed how value drivers of ReOI have evolved for companies within the airline industry. The fade diagrams are great to visualize what to expect for the different value drivers within the industry and the autregression gives a clear quantitative value of the long-run level and the persistency for the value driver. The airline industry shows a high persistency in asset turnover, slightly less for profit margins and low for sales growth.

The forecast is split into two periods, an explicit period of 5 years and a long-term fade period. For the explicit forecasting period ReOI value drivers were forecasted using the information from previous sections of the paper to estimate how sales, asset turnover and profit margin will likely grow in the near future. The long-term forecast for the fade period relies heavily on the quantitative industry analysis, where value drivers are faded to their long-run levels.

Icelandair's cost of capital was calculated using an estimation of the term structure of risk free interest rates with a constant risk premium. The term structure of zero-coupon risk free interest rates is estimated from Icelandic non-indexed government bonds using the Nelson-Siegel model. The Icelandic bond market is unusual, as bond yields in Iceland are very high compared to Scandinavia and most other markets in Western Europe or North America and

the Icelandic yield curve is flat and slightly negative. This results in a high cost of capital used to discount future ReOI in the valuation process.

The valuation was performed using the forecasted value drivers to calculate future ReOI which were risk adjusted using the APV method. For the base case valuation two different long-run level of sales growth were used, 5% and a more conservative 2,5%. The continuing value was estimated using two different methods, the Gordon growth formula and a market-to-book premium (EV/NOA). The result is a base case value ranging from **26,11** to **29,01** ISK per share. On the valuation date (8.4.2016) Icelandair's share price was 37,3 ISK. The base case valuation therefore suggests that the market is overpricing Icelandair somewhere between 30-40%.

Along with the base case, two extra scenarios are considered, an optimistic and pessimistic, and the value estimated based on the new inputs. The optimistic scenario yields a value range from 46,89 to 54,07 ISK per share and the pessimistic scenario a value range from 17,20 to 17,58 ISK per share. The scenarios were kept realistic and not too extreme. It is worth noting that the ReOI become negative quickly in the pessimistic scenario, this is largely due to a low PM. With negative ReOI, Icelandair would need to adjust to these new situations or simply go out of business. However, I believe Icelandair is well prepared to take on less favouring market situations, with a solid financial standing and a strong equity ratio, if it came to that.

A sensitivity analysis was performed on the valuation model to see which inputs had the most impact on the calculated value. The sensitivity analysis reviled that long-run PM and ATO have the greatest impact on the calculated value when using the Gordon's growth formula to calculate CV, but ERP and the firm beta when using the market-to-book premium. The difference is mostly due to discrepancy in the fade period length. As Gordon's growth formula requires a constant interest rate for discounting and therefore needs the term-structure of cost of capital to be stable before calculating the CV, resulting in a longer fade period. ERP and the beta are next in line for the valuation using Gordon's growth formula. This high sensitivity for these two uncertain input shows a clear weakness in the APV model. The sensitivity analysis also revealed that using the Gordon's growth formula to calculate CV also results in a more input sensitive valuation than when using the market-to-book premium to calculate CV.

A multiple analysis was performed in order to triangulate the value obtained from the ReOI APV valuation. The peer group was used for this valuation. The multiple valuation gave a value ranging from 20,26 to 25,53 ISK per share with the exception of EV/EBITDAR where Icelandair was valued at 8,93 ISK per share. The peer group may have been too small to get an accurate valuation based on this method. It however confirms the base case valuation that Icelandair is overpriced by the market on April 8th 2016. Figure 13-1 shows the valuation summary for Icelandair.

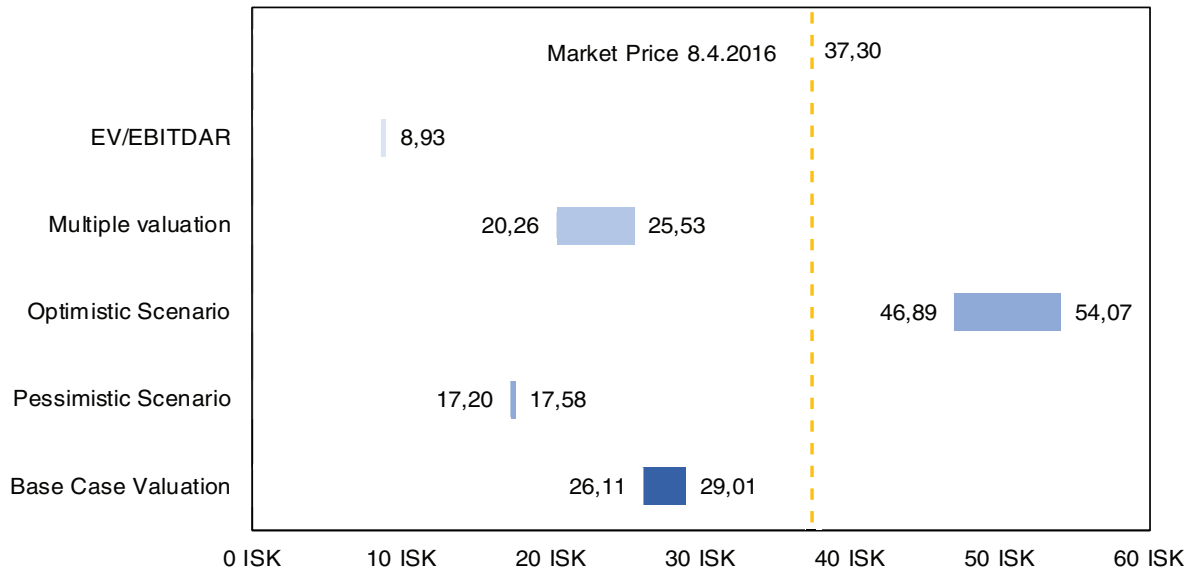

Figure 13-1: Summary of Icelandair's valuation.

I am confident that the valuation and analysis is sound and that the value of Icelandair is most likely in the range of **26** to **29** ISK per share. I therefore conclude that the market price on April 8th 2016 of 37,3 ISK is too high and Icelandair is overpriced by the market. This result is supported by the multiple analysis, which suggest a lower value ranging between 20 and 26 ISK per share. However, the scenario analysis indicates that if conditions change there is both a significant upside and downside potential.

References

Airberlin Group. (n.d.). *About airberlin, strategy and business model.* Retrieved 06.04.2016, from `http://www.airberlingroup.com/en/about-airberlin/strategy-and-business-model`

Airberlin Group. (2016). *Annual report 2015.*

Barney, J. (1995). Looking inside for competitive advantage. *Academy of Management Executive*(9), 49-61.

Belobaba, P. , Odoni, A. R. and Barnhart, C. (2009). *The global airline industry.* Chichester, U.K.: Wiley.

Benjamin Graham. (1949). *The intelligent investor: A book of practical counsel.* New York, NY:Harper Business.

Benninga, S. (2014). *Financial modeling (4th ed.).* Cambridge, MA: MIT Press.

Bliss, R. R. (1996). Testing term structure estimation methods. *Federal Reserve Bank of Atlanta, Working Paper*(96).

Bloomberg. (n.d.-a). *Airline specific ratios.* Retrieved 20.07.2016, from `BloombergTerminalDatabase`

Bloomberg. (n.d.-b). *Crud oil prices.* Retrieved 20.04.2016, from `BloombergTerminalDatabase`

Bloomberg. (n.d.-c). *Enterprise value.* Retrieved 01.08.2016, from `BloombergTerminalDatabase`

Bloomberg. (n.d.-d). *Historical enterprise value for global airlines.* Retrieved 17.07.2016, from `BloombergTerminalDatabase`

Bloomberg. (n.d.-e). *Icelandair ownership structure.* Retrieved 1.01.2016, from `BloombergTerminalDatabase`

Bloomberg. (n.d.-f). *Stock prices for icelandair.* Retrieved 20.04.2016, from `BloombergTerminalDatabase`

Brennan, M. J., & Xia, Y. (2003). Risk and valuation under an intertemporal capital asset pricing model. *Rodney L. White Center for Financial Research Working Paper*(09-03).

Christensen, P. O. (2015a). *Lecture note b5: Structuring quantitative and strategic analysis for valuation.* Valuation, Copenhagen Business School.

Christensen, P. O. (2015b). *Lecture note c2: Accounting-based models.* Valuation, Copenhagen Business School.

Christensen, P. O. (2015c). *Lecture note d2: Risk-adjusted discount rates and estimation.* Valuation, Copenhagen Business School.

Christensen, P. O. (2015d). *Lecture note d3: Structuring quantitative and strategic analysis for valuation.* Valuation, Copenhagen Business School.

Christensen, P. O., & Feltham, G. A. (2009). Equity valuation. *Foundations and Trend in Accounting*, *4*(1), 1-112.

COMPUSTAT. (n.d.). *Compustat capital iq global databank.* Retrieved 11.06.2016, from `https://wrds-web.wharton.upenn.edu/wrds/`

Damodaran, A. (n.d.-a). *Data, betas by sector - global.* Retrieved 28.07.2016, from `http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/Betas.html`

Damodaran, A. (n.d.-b). *Data, betas by sector - us.* Retrieved 28.07.2016, from `http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/Betas.html`

Damodaran, A. (n.d.-c). *Lecture notes estimating beta.* Retrieved 28.07.2016, from http://people.stern.nyu.edu/adamodar/pdfiles/eqnotes/discrate2.pdf

Damodaran, A. (2015). Equity risk premiums (erp): Determinants, estimation and implications - the 2015 edition. *Stern School of Business.*

Datastream. (n.d.). *Icelandair and omx ice8 prices.* Retrieved 17.07.2016, from DatastreamDatabase

Doganis, R. (2006). *The airline business.* London: Routledge.

Ferdamalastofnun. (2015). *Tourism in iceland in figures 2015.* Retrieved 10.03.2016, from http://www.ferdamalastofa.is/static/files/ferdamalastofa/Frettamyndir/2015/mai/tourism-in-iceland-in-figures_15.pdf

Finnair Group. (n.d.). *Finnair in brief.* Retrieved 06.04.2016, from http://www.finnairgroup.com/group/group_1.html

Finnair Group. (2016). *Annual report 2015.* Helsinki, Finnair.

Hillier, D., Grinblatt, M., & Titman, S. (2012). *Financial markets and corporate strategy.* New York: McGraw-Hill/Higher Education.

Icelandair Group hf. (n.d.-a). *Eyjafjallajokull.* Retrieved 13.03.2016, from http://www.icelandair.is/specials/pages/is/eyjafjallajokull/

Icelandair Group hf. (n.d.-b). *Fleet.* Retrieved 06.02.2016, from http://www.icelandairgroup.com/our-company/fleet/

Icelandair Group hf. (n.d.-c). *History.* Retrieved 12.02.2016, from http://www.icelandairgroup.com/our-company/history/

Icelandair Group hf. (n.d.-d). *Our company.* Retrieved 08.02.2016, from http://www.icelandairgroup.com/our-company/

Icelandair Group hf. (n.d.-e). *Routemap.* Retrieved 06.02.2016, from http://www.icelandair.is/information/travel-guide/routemap/

Icelandair Group hf. (n.d.-f). *Traffic data.* Retrieved 06.02.2016, from http://www.icelandairgroup.com/investors/traffic-data/

Icelandair Group hf. (2015). *Annual report 2014.* Reykjavik, Iceland.

Icelandair Group hf. (2016a). *4th quarter report 2015.* Reykjavik, Iceland.

Icelandair Group hf. (2016b). *Annual report 2015.* Reykjavik, Iceland.

Indexmundi. (n.d.). *Commodities.* Retrieved 11.03.2016, from http://www.indexmundi.com/commodities/?commodity=crude-oil&months=360&commodity=jet-fuel

Inflationdata. (n.d.). *Historical oil prices.* Retrieved 11.03.2016, from http://inflationdata.com/Inflation/Inflation_Rate/Historical_Oil_Prices_Table.asp

International Air Transport Association. (2014). *Worldwide slot guidelines.* Retrieved 29.03.2016, from http://www.iata.org/policy/infrastructure/slots/Documents/wsg-6.pdf

International Air Transport Association. (2015). *Economic performance of the industry end year 2015.* Retrieved 11.03.2016, from https://www.iata.org/whatwedo/Documents/economics/IATA-Economic-Performance-of-the-Industry-end-year-2015-report.pdf

International Air Transport Association. (2016). *Airlines financial monitor january 2016.* Retrieved 11.03.2016, from https://www.iata.org/whatwedo/Documents/economics/airlines-financial-monitor-jan-16.pdf

International Civil Aviation Organization. (n.d.). *Annual results world airlines.* Retrieved 22.02.2016, from http://airlines.org/data/annual-results-world-airlines/

International Monetary Fund. (2016). *World economic outlook database.* Retrieved 9.03.2016, from http://www.imf.org/external/pubs/ft/weo/2015/02/weodata/download.aspx

Islandsbanki. (2014). *Verdbolgu spa.* Retrieved 14.07.2016, from https://www.islandsbanki.is/library/Files/VS-1601.pdf

Klarman, S. (1991). *Margin of safety: Risk-averse value investing strategies for the thoughtful investor.* New York, NY:Harper Business.

MarketLine. (2015). *Global airlines (industry profile)* (Database).

Mbl.is. (n.d.). *Met fjoldi flugfelaga i sumar.* Retrieved 29.03.2016, from http://www.mbl.is/frettir/innlent/2016/03/29/25_flugfelog_fljuga_til_islands_i_sumar/

Miles, J. A., & Ezzell, J. R. (1980). The weighted average cost of capital, perfect capital markets, and project life: A clarification. *The Journal of Financial and Quantitative Analysis*, *15*(3), 719-730.

Nelson, C., & Siegel, A. F. (1987). Parsimonious modeling of yield curves. *Journal of Business*.

Nissim, D., & Penman, S. H. (2001). Ratio analysis and equity valuation: From research to practice. *Review of Accounting Studies*(6), 109-154.

Norwegian Air Shuttle ASA. (2016). *Annual report 2015.* Oslo, Norway.

OECD. (n.d.). *Nominal gdp forecast (2016).* Retrieved 11.08.2016, from https://data.oecd.org/gdp/nominal-gdp-forecast.htm#indicator-chart

Penman, S. H. (2013). *Financial statement analysis and security valuation.* New York: McGraw-Hill.

Porter, M. (1980). *Competitive strategy.* The Free Press, 1230 Avenue of the Americas, New York.

Rothaermel, F. T. (2012). *Strategic management: Concepts and cases.* McGraw-Hill/Irwin.

SAS AB. (2016). *Annual report 2015.* Stockholm, Sweden.

Sedlabanki Islands. (n.d.). *Bond.is, government debt management central bank of iceland.* Retrieved 27.07.2016, from http://www.bonds.is/

Sedlabanki Islands. (2016). *Peningastefna (2016).* Retrieved 11.08.2016, from http://www.sedlabanki.is/peningastefna/

The World Bank, W. D. I. (2015). *Air transport, passengers carried* (Database). http://data.worldbank.org/indicator/IS.AIR.PSGR.

Vidskiptabladid. (n.d.). *Icelandair stundvisast i keflavik.* Retrieved 12.03.2016, from http://vb.is/frettir/icelandair-stundvisast-i-keflavik/125736/

Visir.is. (n.d.-a). *Flugmenn fa taeplega sjo prosenta haekkun.* Retrieved 9.03.2016, from http://www.visir.is/flugmenn-fa-taeplega-sjo-prosenta-haekkun/article/2014140528923

Visir.is. (n.d.-b). *Flugmenn gagnryna yfirstjorn icelandair.* Retrieved 9.03.2016, from http://www.visir.is/flugmenn-gagnryna-yfirstjorn-icelandair/article/2014140519640

Visir.is. (n.d.-c). *Log a verkfallsadgerdir flugmanna samthykkt.* Retrieved 9.03.2016, from http://www.visir.is/log-a-verkfallsadgerdir-flugmanna-samthykkt/article/2014140519338

Glossary

List of Acronyms

APV Adjusted Present Value

ASK Available Seat Kilometer

ATO Asset Turnover

BC Bankruptcy Cost

CAGR Compound Annual Growth Rate

CAPM Capital Asset Pricing Model

CASK Cost per Available Seat Kilometer

COMPUSTAT Compustat Capital IQ Global databank

CSE Common Shareholders Equity

CV Continuing Value

ERP Equity Risk Premium

EV Enterprise Value

FA Financial Assets

FL Financial Liabilities

FLEV Financial leverage

FO Financial Obligations

g Growth Rate

GDP Gross Domestic Product

IATA International Air Transport Association

ICAO International Civil Aviation Organization

IMF International Monetary Fund

LCC Low-Cost Carrier

NBC Net Borrowing Cost

NFA Net Financial Assets

NFO Net Financial Obligation

NOA	Net Operating Assets
NPV	Net Present Value
NS	Nelson Siegel
OA	Operating Assets
OECD	Organization for Economic Co-operation and Development
OI	Operating Income
OL	Operating Liability
PESTE	Political & Legal, Economical, Sociocultural, Technological and Environmental
PESTEL	Political, Economical, Sociocultural, Technological, Environmental and Legal
VRIO	Valuable, Rare, Imitability and Organization
PM	Profit Margin
RE	Residual Earnings
ReOI	Residual Operating Income
RNOA	Return on Net Operating Assets
ROCE	Return On Common Equity
RP	Risk Premium
RPK	Revenue Passenger Kilometer
SG	Sales Growth
SIC	Standard Industrial Classification
SSR	sum of squared residuals
TS	Tax Shield
WACC	Weighted Average Cost of Capital

Appendix A

Appendix for Chapter 3 (Presentation of Icelandair and the Airline industry)

Figure 2: Icelandair's international route network (Icelandair Group hf, n.d.-e).

Table 1: Icelandair top shareholders at yearend 2015. Adopted from (Icelandair Group hf, 2016b)

Name	Shares in ISK thousand	Shares in %
Stefnir Sjodir	743.793	14,88
Lifeyrissjodur verslunarmanna	729.136	14,58
Lifeyrissjodur starfsmanna rikisins	439.300	8,79
Gildi -lifeyrissjodur	316.706	6,33
Stafir lifeyrissjodur	181.287	3,63
Stapi lifeyrissjodur	167.447	3,35
A.C.S. safnreikningur	141.899	2,84
Landsbref - Urvalsbref	141.262	2,83
Sameinadi lifeyrissjodurinn	140.745	2,81
Islandssjodir - IS Hlutabrefasjodur	127.962	2,56
	3.129.537	62,59
Other shareholders	1.845.003	36,90
Treasury shares	25.460	0,51
Total issued shares	5.000.000	100,00

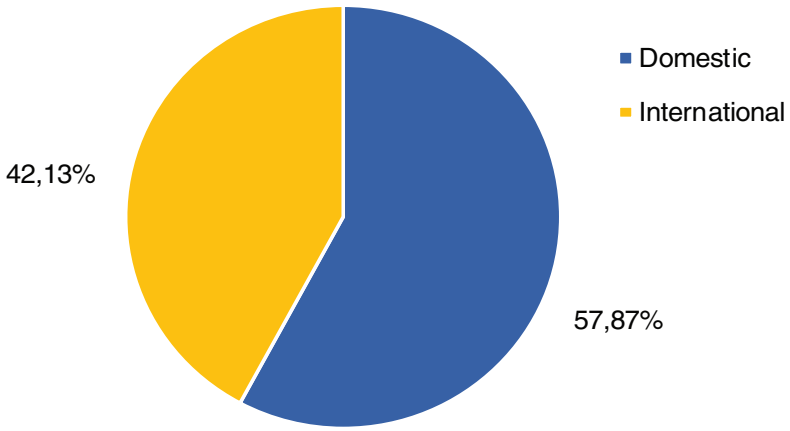

Figure 3: Market segmentation for world air travel in 2014. Own creation, data from (MarketLine, 2015).

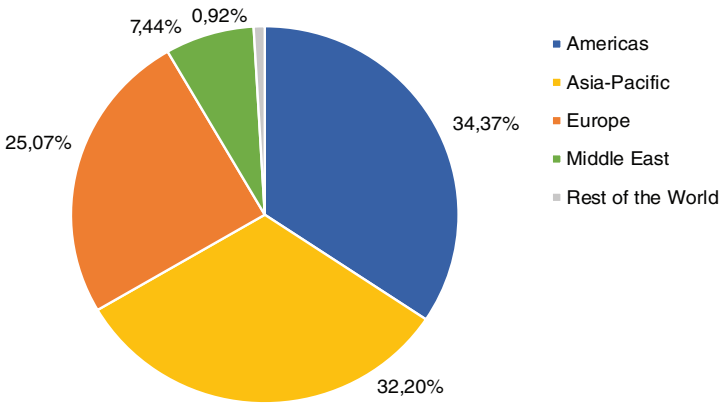

Figure 4: Geography segmentation of world air travel in 2014. Own creation, data from (MarketLine, 2015).

Appendix B

Appendix for Chapter 6 (Financial Analysis)

Reformulated Equity Statement

	2012	2013	2014	2015
Minority interest previous year	29			
Book value of shareholder equity beginning of period	**263.356**	**295.645**	**345.556**	**364.321**
Net transactions with common shareholders	**(6.308)**	**(11.760)**	**(18.994)**	**(17.943)**
Share issues				
Share repurchases				
Dividends	(6.308)	(11.760)	(18.994)	(17.943)
Comprehensive income available to common shareholders	**38.854**	**61.910**	**37.967**	**109.419**
Net Income	44.275	56.418	66.499	111.223
Other Comprehensive Income	(5.421)	5.492	(28.532)	(1.804)
Preferred dividends	0	0	0	0
Non-controlling interest	257	239	208	104
Closing book value of common equity	**295.645**	**345.556**	**364.321**	**455.693**

Figure 5: Reformulation of Icelandair's Equity Statement. Adopted from Icelandair's Annual Reports.

Ratio Analysis

	2012	2013	2014	2015
Dividend payout	16,24%	19,00%	50,03%	16,40%
Dividends-to-book value	2,09%	3,29%	4,96%	3,79%
Retention ratio	83,76%	81,00%	49,97%	83,60%
Return on Common Equity (ROCE)	13,90%	19,31%	10,70%	26,69%
Net investment rate	2,40%	3,98%	5,50%	4,93%
Growth rate of CSE	12,36%	16,96%	5,49%	25,11%

Figure 6: Ratio analysis of Icelandair's Equity Statement. Adopted from Icelandair's Annual Reports.

Reformulated Income Statement

	2012	2013	2014	2015
Operating income				
Operating income	898.866	1.022.957	1.113.297	1.139.699
Operating expenses	789.220	879.247	958.959	920.717
	109.646	143.710	154.338	218.982
Depreciation and amortisation	(58.859)	(70.699)	(75.329)	(83.826)
Share of profit (loss) of associates	(366)	(38)	(216)	459
Operating income before tax and dirty surplus	**50.421**	**72.973**	**78.793**	**135.615**
Profit from discontinued operation, net of tax	0	0	2.074	0
Tax as reported	(13.173)	(14.630)	(15.483)	(29.000)
Operating income after tax, before dirty surplus	**37.248**	**58.343**	**65.384**	**106.615**
Currency translation differences	(2.285)	4.204	(5.403)	(1.686)
Net loss on hedge of investment, net of tax	(46)	169	(15)	0
Net investment hedge reclassified to profit or loss	(1.417)	(111)	719	0
Effective portion of changes in fair value of cash flow hedge, net of tax	(1.673)	1.230	(23.833)	(118)
Operating income after tax and dirty surplus	**31.827**	**63.835**	**36.852**	**104.811**
Financial expense				
Finance income	17.578	6.777	7.194	12.818
Finance costs	(10.551)	(8.702)	(6.079)	(8.210)
Financial expense after dirty surplus	7.027	(1.925)	1.115	4.608
COMPREHENSIVE INCOME	38.854	61.910	37.967	109.419

Figure 7: Reformulation of Icelandair's Income Statement. Adopted from Icelandair's Annual Reports.

Reformulated Balance Sheet

	2012	2013	2014	2015
Net Operating Assets:				
Operating assets				
Operating assets	282.997	299.197	319.340	419.071
Intangible assets and goodwill	176.715	179.676	175.973	172.694
Investments in associates	1.327	2.035	2.324	18.223
Deferred cost	3.648	258	153	118
Receivables and deposits	9.223	15.791	16.413	27.474
Inventories	17.417	22.166	22.906	19.205
Trade and other receivables	135.085	114.259	96.470	101.075
Total operating assets	626.412	633.382	633.579	757.860
Operating liabilities				
Payables	22.060	23.742	8.291	8.644
Trade and other payables	152.237	159.504	214.315	219.680
Deferred tax liabilities	19.671	27.995	24.681	35.485
Deferred income	122.089	153.535	174.944	186.109
Total operating liabilities	316.057	364.776	422.231	449.918
Net Operating Assets	**310.355**	**268.606**	**211.348**	**307.942**
Net Financial assets:				
Financial assets				
Short term investments	15.734	7.955	30.879	19.533
Cash and cash equivalents	117.060	191.538	184.762	194.586
Assets classified as held for sale	3.689	0	0	0
Total financinal assets	136.483	199.493	215.641	214.119
Financial liabilities				
Loans and borrowings	(119.358)	(78.489)	(49.671)	(55.387)
Loans and borrowings	(31.548)	(43.528)	(12.263)	(10.143)
Total financinal liabilities	(150.906)	(122.017)	(61.934)	(65.530)
Net Financial Assets (Obligations)	**(14.423)**	**77.476**	**153.707**	**148.589**
Non-controlling interests	257	239	208	104
Common shareholders' equity	**295.675**	**345.843**	**364.847**	**456.427**

Figure 8: Reformulation of Icelandair's Balance Sheet. Adopted from Icelandair's Annual Reports.

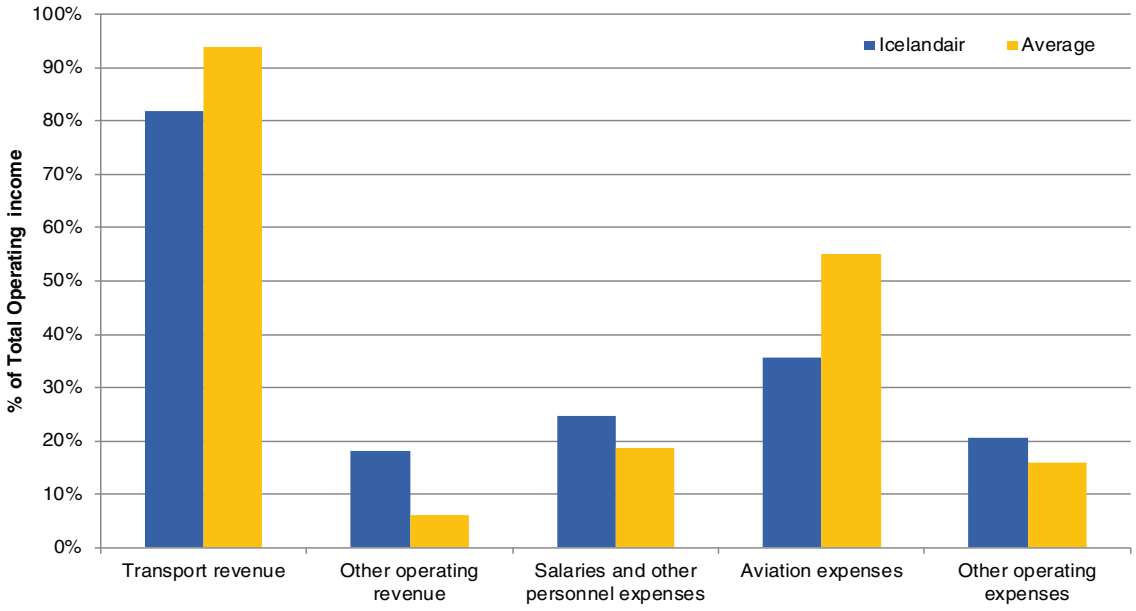

Figure 9: Common size analysis for selected income statement items, peer group comparison. Own creation, data from companies Annual Reports.

Appendix C

Appendix for Chapter 7 (Quantitative Industry Analysis)

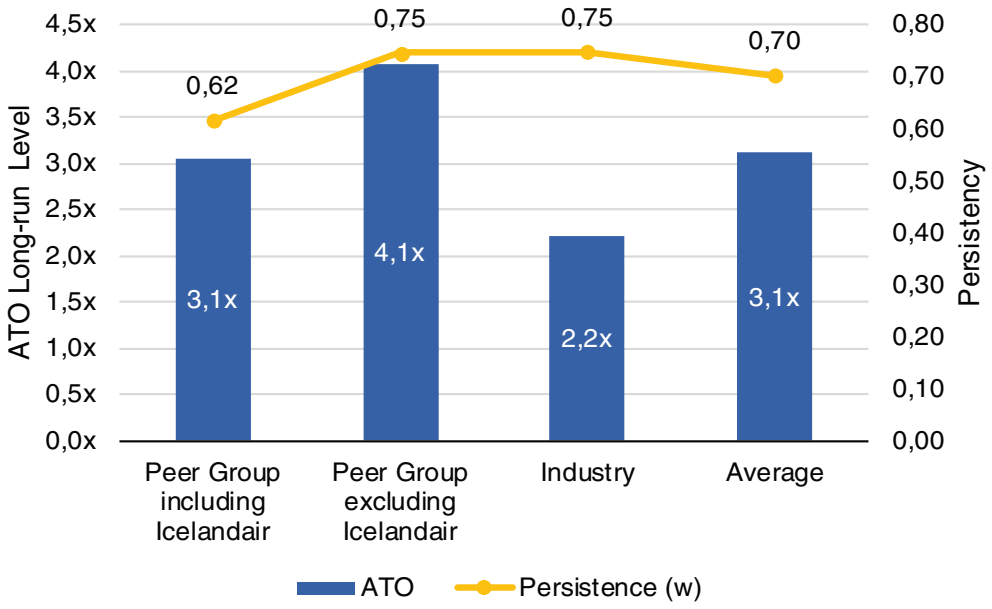

Figure 10: Long-run levels and persistency for ATO. Own creation, data from (COMPUSTAT, n.d.).

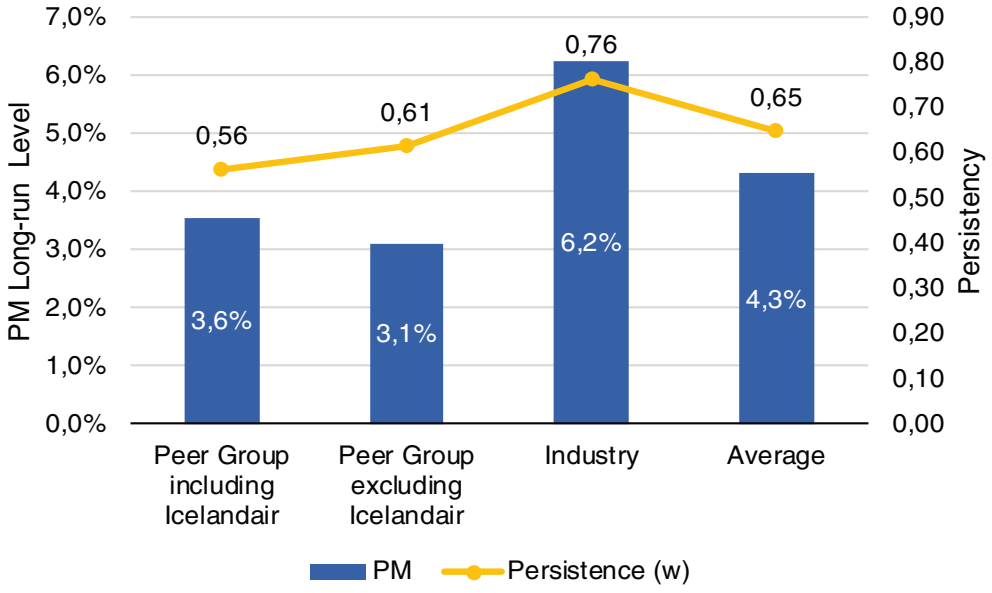

Figure 11: Long-run levels and persistency for PM. Own creation, data from (COMPUSTAT, n.d.).

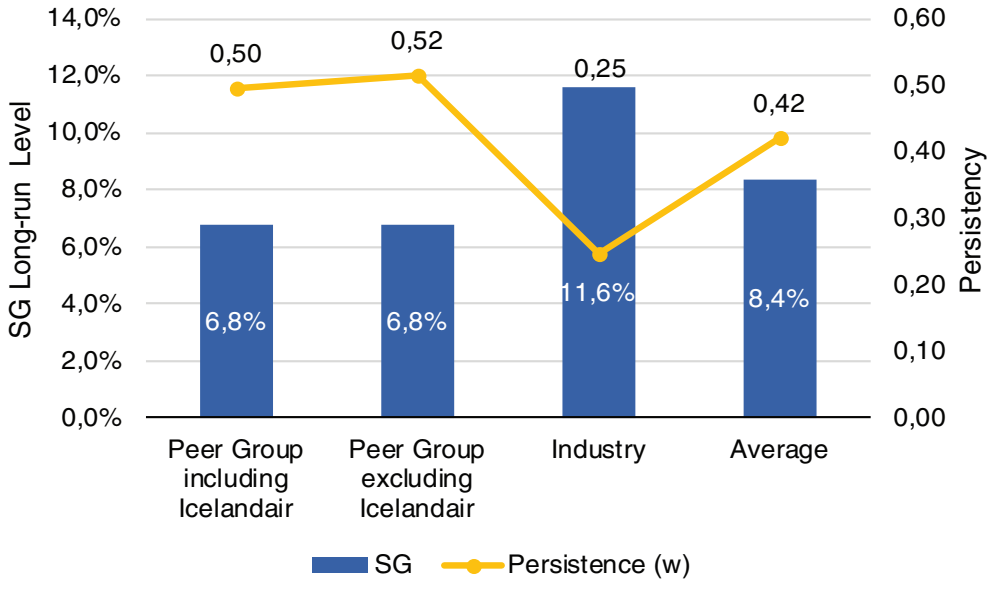

Figure 12: Long-run levels and persistency for sales growth. Own creation, data from (COMPUSTAT, n.d.).

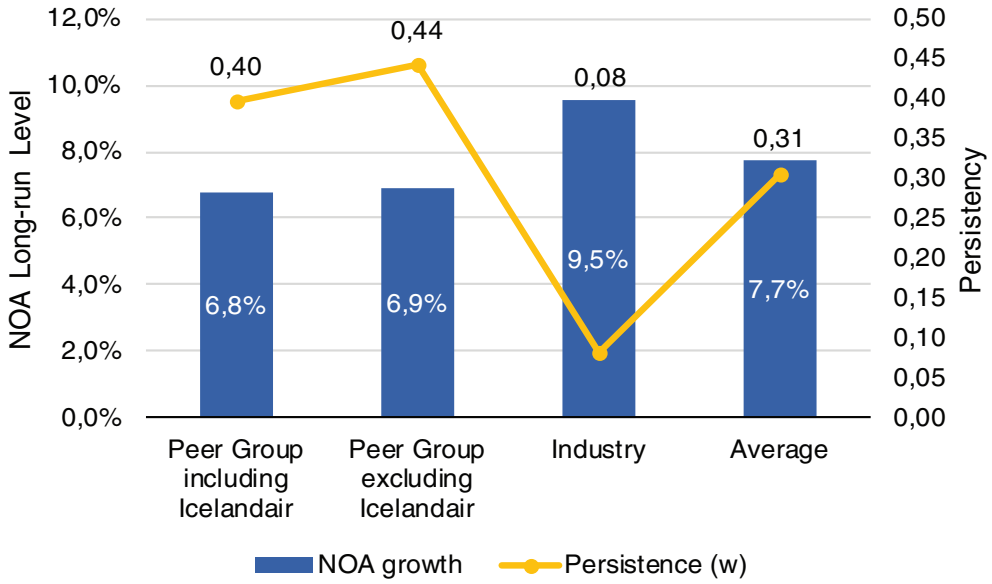

Figure 13: Long-run levels and persistency for NOA growth. Own creation, data from (COMPUSTAT, n.d.).

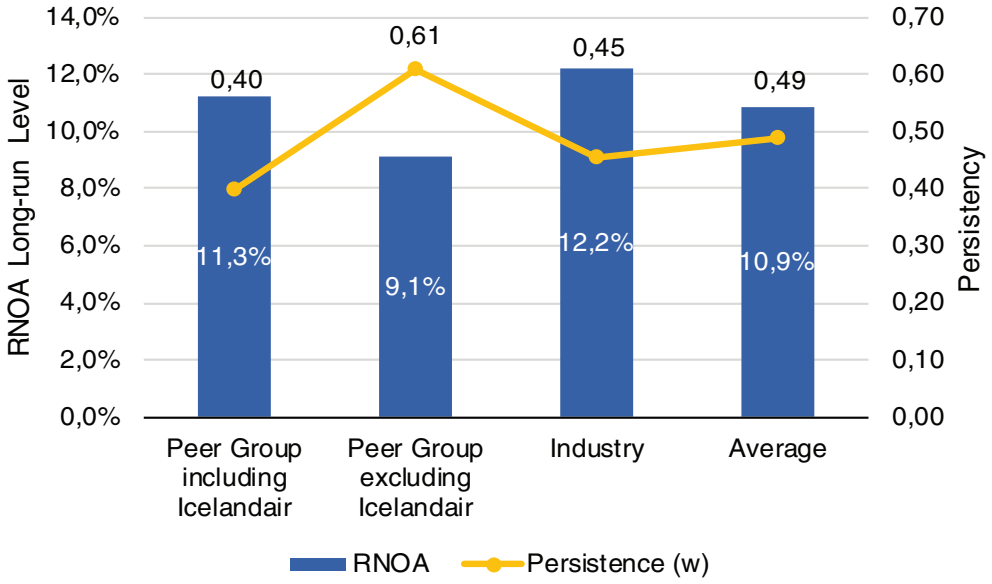

Figure 14: Long-run levels and persistency for RNOA. Own creation, data from (COMPUSTAT, n.d.).

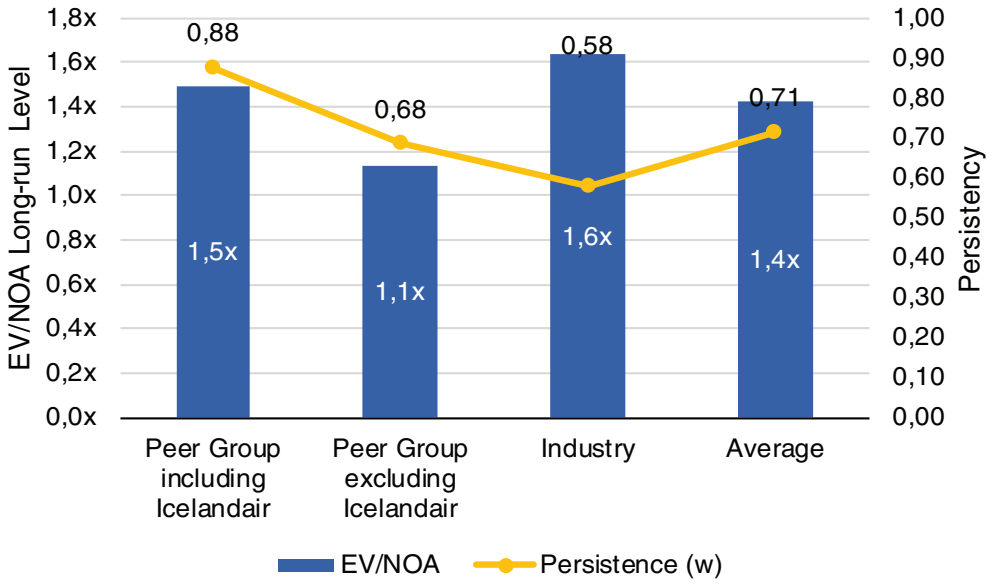

Figure 15: Long-run levels and persistency for EV/NOA growth. Own creation, data from (COMPUSTAT, n.d.).

Appendix D

Appendix for Chapter 9 (Estimation of Icelandair's Cost of Capital)

Figure 16: Nelson-Siegal pricing errors.

Table 2: Equity beta linear regression.

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0,6194
R Square	0,3837
Adjusted R Square	0,3813
Standard Error	0,0224
Observations	261,0000

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0,0808	0,0808	161,2594	5,E-29
Residual	259	0,1298	0,0005		
Total	260	0,2106			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	0,0045	0,0014	3,2138	0,0015	0,0018	0,0073	0,0018	0,0073
X Variable 1	1,0855	0,0855	12,6988	0,0000	0,9172	1,2538	0,9172	1,2538

Appendix E

Appendix for Chapter 10 (Valuation)

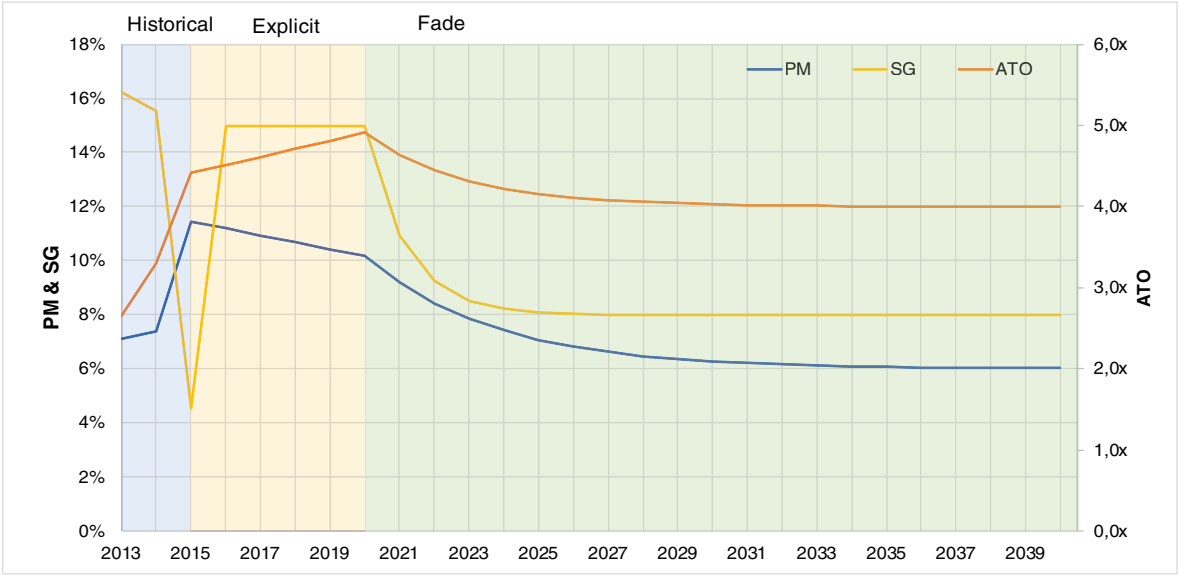

Figure 17: Forecast period for ReOI value drivers. Optimistic scenario.

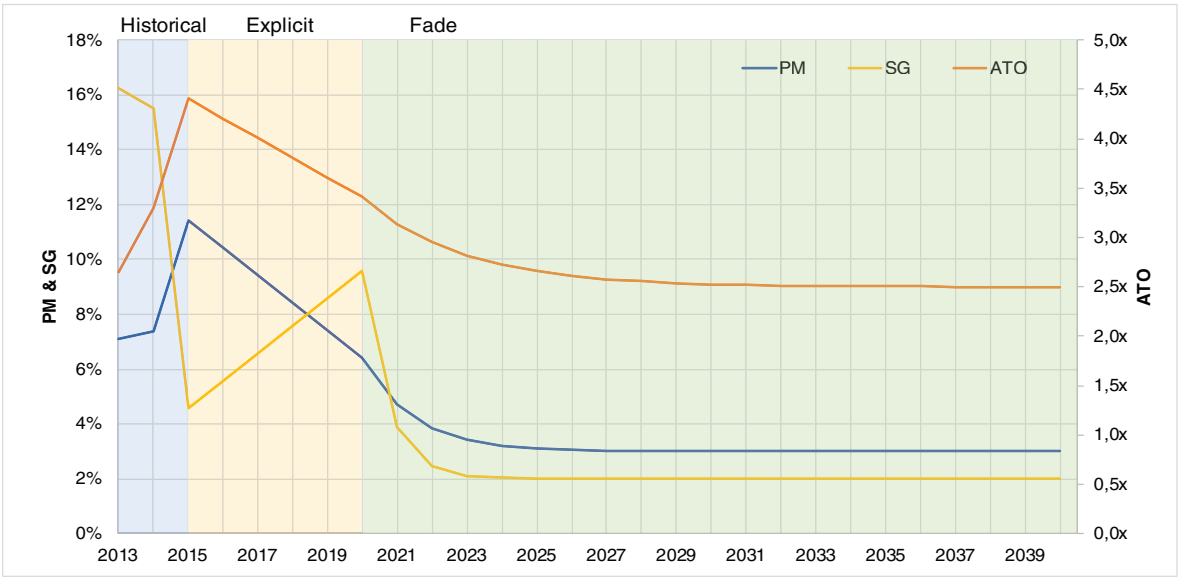

Figure 18: Forecast period for ReOI value drivers. Pessimistic scenario.

Appendix F

Appendix for Chapter 11 (Sensitivity Analysis)

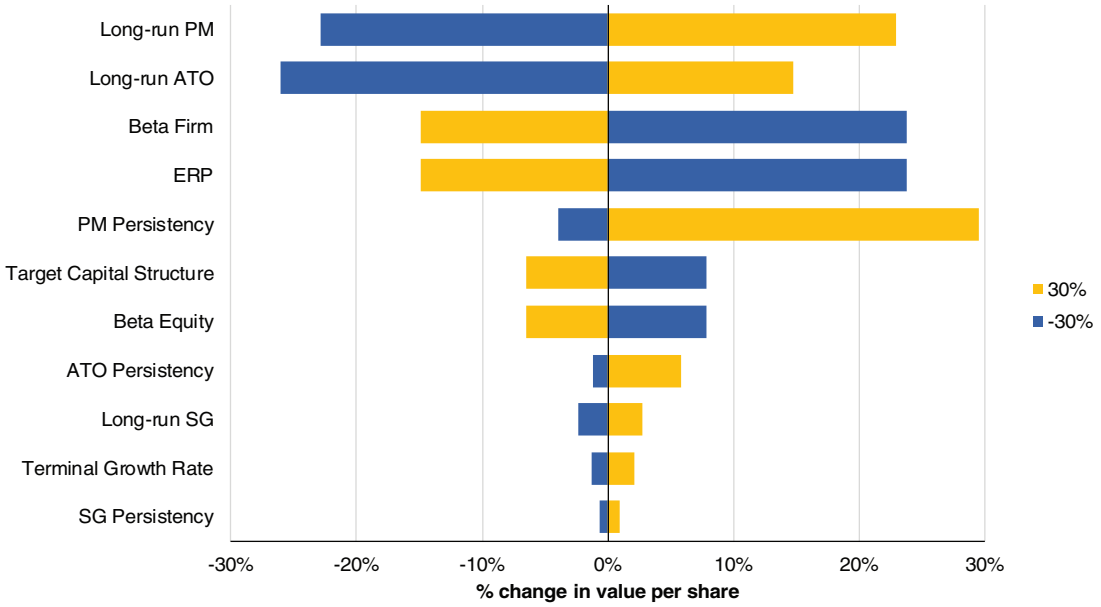

Figure 19: Share value sensitivity to 30% change in inputs - Gordon's Growth formula.

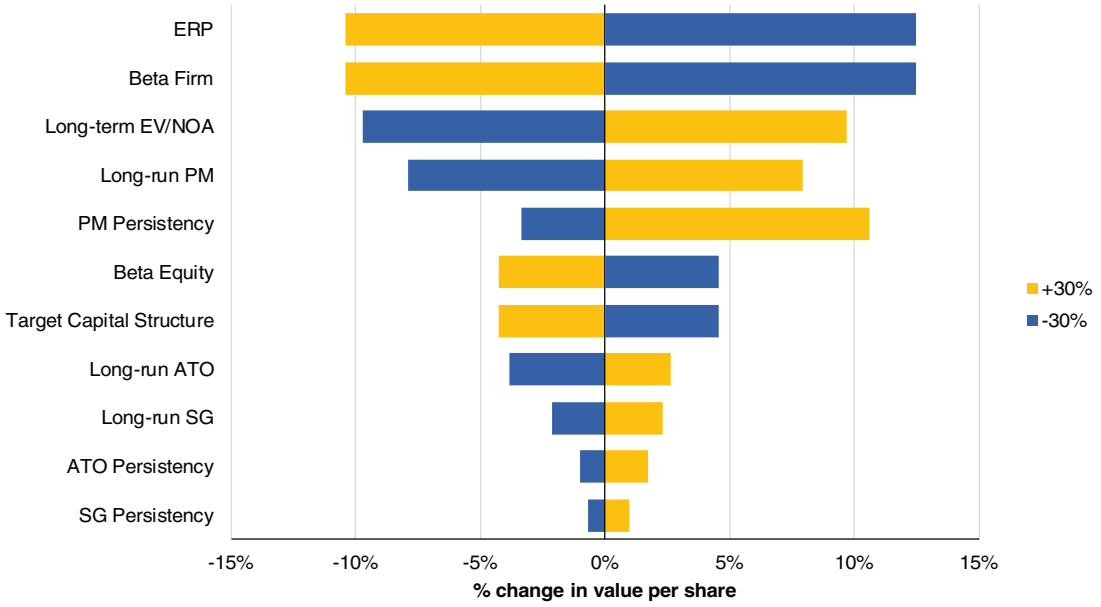

Figure 20: Share value sensitivity to 30% change in inputs - NOA/EV Multiple.

Table 3: Sensitivity analysis for Asset Turnover - Gordon's Growth formula.

		Persistence (w)				
	Asset Turnover	**0**	**0,25**	**0,5**	**0,75**	**1**
Long-term (a)	$1,6\times$	7,74	8,55	9,82	13,23	31,41
	$2,1\times$	17,13	17,54	18,22	20,06	31,41
	$2,6\times$	22,91	23,12	23,49	24,48	31,41
	$3,1\times$	26,83	26,93	27,11	27,60	31,41
	$3,6\times$	29,66	29,69	29,76	29,93	31,41
	$4,1\times$	31,80	31,79	31,78	31,74	31,41
	$4,6\times$	33,47	33,44	33,38	33,19	31,41

Table 4: Sensitivity analysis for Asset Turnover - EV/NOA method.

		Persistence (w)				
	Asset Turnover	**0**	**0,25**	**0,5**	**0,75**	**1**
Long-term (a)	$1,6\times$	22,96	23,77	25,04	27,44	29,73
	$2,1\times$	25,65	26,06	26,73	28,09	29,73
	$2,6\times$	27,30	27,51	27,87	28,64	29,73
	$3,1\times$	28,42	28,52	28,70	29,09	29,73
	$3,6\times$	29,23	29,26	29,33	29,47	29,73
	$4,1\times$	29,84	29,84	29,82	29,79	29,73
	$4,6\times$	30,32	30,29	30,22	30,07	29,73

Table 5: Sensitivity analysis for Sales Growth - Gordon's Growth formula.

		Persistence (w)				
	Sales Growth	**0**	**0,25**	**0,5**	**0,75**	**1**
Long-term (a)	**3,50%**	26,43	26,64	27,04	28,04	35,58
	4,00%	26,64	26,86	27,25	28,24	35,58
	4,50%	26,87	27,08	27,46	28,45	35,58
	5,00%	27,11	27,32	27,69	28,66	35,58
	5,50%	27,36	27,56	27,93	28,89	35,58
	6,00%	27,62	27,82	28,19	29,12	35,58
	6,50%	27,90	28,09	28,45	29,37	35,58

Table 6: Sensitivity analysis for Sales Growth - EV/NOA method.

		Persistence (w)				
	Sales Growth	**0**	**0,25**	**0,5**	**0,75**	**1**
Long-term (a)	**3,50%**	27,89	28,13	28,57	29,70	35,05
	4,00%	28,10	28,33	28,77	29,87	35,05
	4,50%	28,31	28,54	28,97	30,05	35,05
	5,00%	28,53	28,76	29,17	30,23	35,05
	5,50%	28,76	28,98	29,39	30,42	35,05
	6,00%	29,00	29,21	29,61	30,61	35,05
	6,50%	29,24	29,45	29,84	30,81	35,05

Table 7: Sensitivity analysis - Target Capital Structure

	GG 5%	EV/NOA
Target Capital Structure	Share Price	Share Price
58,4%	29,70	30,33
62,6%	29,31	30,11
66,8%	28,93	29,88
70,9%	28,57	29,66
75,1%	28,22	29,44
79,3%	27,87	29,22
83,5%	27,54	29,01
87,6%	27,22	28,79
91,8%	26,91	28,58
96,0%	26,60	28,38
100,1%	26,31	28,17
104,3%	26,02	27,97
108,5%	25,74	27,77

Table 8: Sensitivity analysis - Firm Beta

	GG 5%	EV/NOA
Beta Firm	Share Price	Share Price
54,3%	34,10	32,62
58,1%	32,75	31,97
62,0%	31,51	31,34
65,9%	30,39	30,73
69,8%	29,36	30,14
73,7%	28,41	29,56
77,5%	27,54	29,01
81,4%	26,73	28,46
85,3%	25,98	27,94
89,2%	25,28	27,43
93,0%	24,63	26,94
96,9%	24,01	26,46
100,8%	23,44	25,99

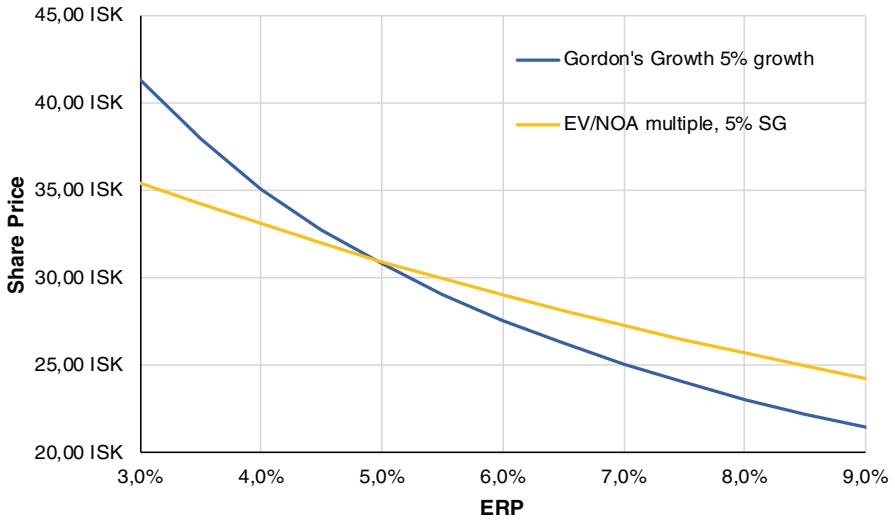

Figure 21: Value per share change - ERP.

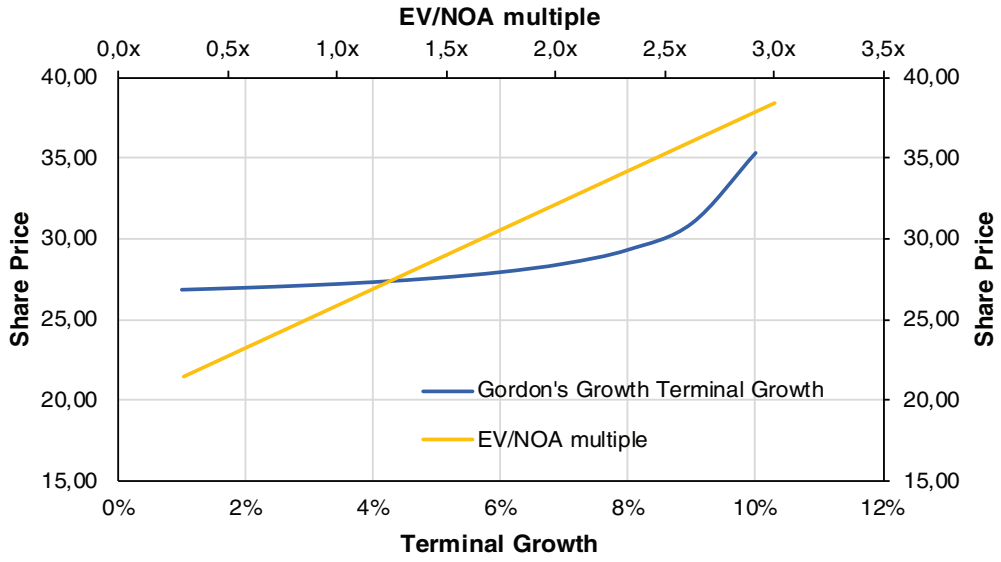

Figure 22: Value per share changes - Terminal growth and long-term EV/NOA.