

# SAS AB Valuation

Was it a good decision of the Norwegian government to take part of the SAS AB's 2009 rights issue?



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Master thesis in finance

**NORGES HANDELSHØYSKOLE**

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## **Abstract**

This master thesis is a valuation of SAS AB seen through the angle of the Norwegian government's ownership. It is based on publicly available information up until March 2009. After an introduction of the airline industry and the SAS Group, we present relevant theory used to value the company. Then we analyze the historical economic performance of SAS and the company's strategic position.

Knowledge acquired from the historical and strategic analysis is then used to create financial forecasts. Based on this and the estimated cost of capital the net present value of the future free cash flows is estimated. After adjusting for SAS' net debt and the number of shares it gives us an estimated share value of SEK 5.67. The validity of this result is evaluated through a multiple and sensitivity analysis. The conclusion is that the government proved good ownership responsibility in participating in the 2009 rights issue.

## Preface

This thesis is written as a closure of our five years master degree at Norwegian School of Economics and Business Administration.

We both have finance as our major. In this thesis we have used the framework from BUS 425– “Valuation”. In addition we have used elements from FIE 402 - Corporate Finance, FIE 400 – Investments and MIE 401 – “Competition analysis”. To apply the theory learned in different courses through our master program on a real life problem, and to see the analysis take shape, has been of great motivation through the process. We wanted to look at a topic of current interest, and because of media’s attention towards SAS’ economical situation trough out the fall of 2008, the company became our choice.

This process has contributed to our professional and personal development through teamwork tied to a big project over a long time period. It has sometimes been professionally challenging but at the same time highly educational.

Our analysis is in its entirety bases on public available information, only with the exception of some statements from different Norwegian political Parties through mail correspondence. We made an inquiry to SAS about a mutual co-operation, but they did not have the opportunity to engage in a student project at the current time.

Finally we want to thank our supervisor, PhD student Jiehong Kong at NHH, for her great support, positive attitude, good advice and constructive criticism. She has always been available and helped us through the entire process.

Bergen, May 2009

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# 1. Introduction

## 1.1 Background and problem statement

The process of choosing a topic for our master thesis was neither obvious nor easy. Different types of problems and companies were considered during the fall semester, but it was one company that constantly came to our attention through extensively media coverage. This was Scandinavian Airlines System (SAS), the Scandinavian flag carrier airline.

Companies today operate in a fast changing environment. Some companies are more exposed than others and SAS AB is definitely one of those. Fast changing environments make it more challenging to operate profitable. Press publicity from November 2008 states that SAS AB is struggling because of unoccupied seats as a result of decreased demand and intense competition. Other external factors also make SAS AB an interesting business case. One example is the record high oil prices which created severe headache for SAS AB in the summer of 2008. The governments of Denmark, Norway and Sweden are combined the majority owner of SAS AB. In other words it is owned by the people and it is in our own interest how the ownership is governed.

Because of unprofitability and changed strategic focus, SAS AB has sold most of their shares in airlines outside the Nordic region. Intensive competition and unfavourable external factors have made several airlines go bankrupt in 2008 and we are witnessing a consolidation in the European airline industry. This resulted in speculations of a potential sale of SAS AB. Hottest were the rumours about Lufthansa being a potential buyer of SAS AB and several other companies were also mentioned. This is however unlikely to happen in near future as the company now is trying to save themselves from bankruptcy. Instead of a sale, SAS AB is raising 6 billion Swedish Kroner in new equity to meet the short term financial challenges. This is coupled with a new strategy plan which aims to make the company profitable in the future. We want to study this solution closer from an economical and strategic point of view.

Choosing a company valuation as basis for our master thesis gives us a unique possibility to use knowledge from several, if not all, courses we have participated during five years of



economic and administrative education. The focus will though remain on finance which is as mentioned our major. Our problem statement is as follows:

*“Was it a good decision of the Norwegian government to take part of SAS AB’s 2009 rights issue?”*

We have chosen to look at SAS on group level. Originally SAS was a cooperation of the flag carriers in the Scandinavian countries. But since 2001 the originally domestic companies have been totally integrated in one public listed company.

## **1.2 Purpose**

This master thesis is a part of our master degree in finance at the Norwegian School of Economics and Business Administration. The primary objective of this study is to analyze the Norwegian government’s choice of participating in the 2009 SAS AB equity issue from an economical standpoint. Fundamental values in SAS will be studied through strategic and financial statement analysis.

With this thesis we wish to prove that we have gained the ability to use acquired theory and knowledge on a business case of current interest. We also hope that our results can contribute to a better understand of the value drivers in SAS AB and perhaps be of helpful insight when making future ownership decisions regarding the company.

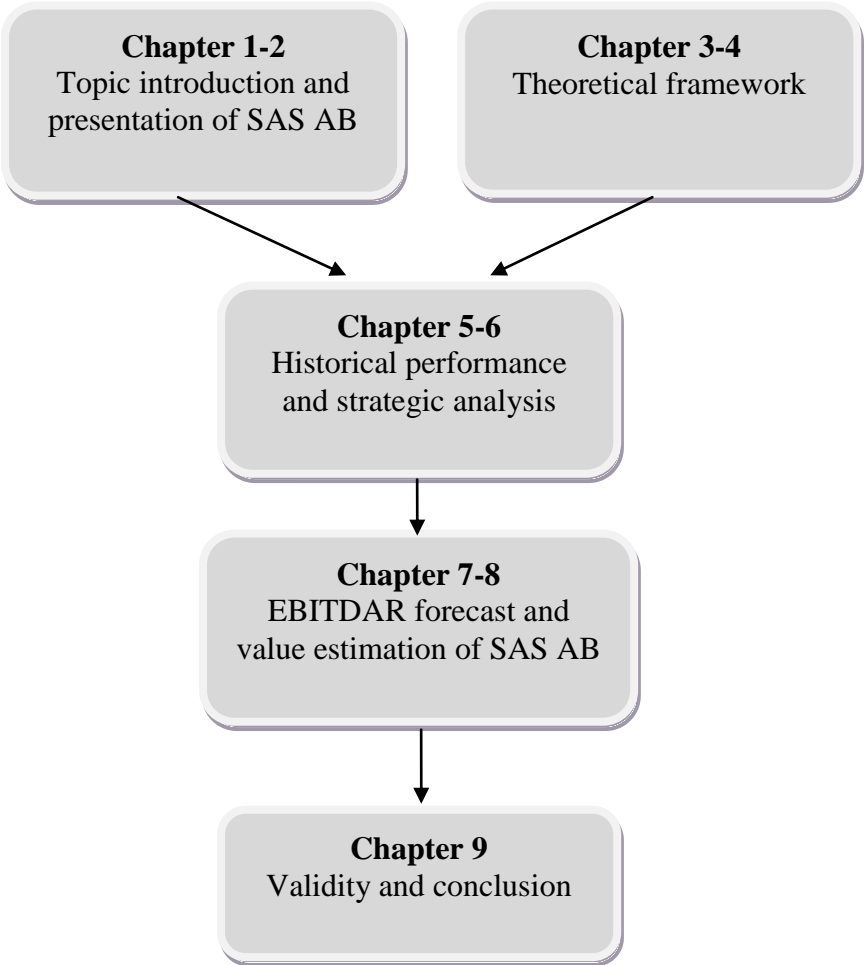
## **1.3 Paper structure**

This paper starts with an introduction and motivation for our choice of problem in *chapter one*. Then we give an overview of the airline industry and provide background information of SAS AB in *chapter two*. In *chapter three* we present our choice of valuation technique and discuss some important theoretical issues related to it. Then we follow up in *chapter four* with the strategic framework for our analysis.

In *chapter five* we present the historical performance of SAS AB and compare its previous performance to similar companies. Then in *chapter six* we give our strategic analysis of SAS AB. Based on chapter five and six we use the information provided to estimate future

operational income in *chapter seven*. These estimations are together with the calculation of free cash flows and the cost of capital used to value SAS AB in *chapter eight*.

In *chapter nine* we look into the validity of our results. We try a different valuation technique and do a sensitivity analysis to see how the estimated value of SAS AB changes with the crucial inputs in our valuation model. In this chapter we also look into the political aspect of government ownership and draw our conclusion.



**Figure 1: Paper structure**

## 2 Overview of the airline industry and SAS AB

In the following part we present an overview of the airline industry and SAS AB's history. SAS AB's home market competitors are also briefly presented. AB is Swedish for "stock company" and the company will from here on only be referred to as SAS.

### 2.1 The airline industry

The first air passenger service began in 1910 when airships started operating between several German cities. The first scheduled passenger flight by plane took place four years later in the United States when a small company transported passengers across Tampa Bay in a two-seat Benoist airplane for five dollars. In the coming years the passenger air service developed faster in Europe than in the USA. This was partly because of the First World War when the military saw the usefulness of airplanes and transportation by plane was the only possibility because of destroyed roads and railways. European colonies that had been conquered in far distant places also helped the air transport industry to boom in Europe because of the shortening of travel time. In the United States the infrastructure was not harmed in world war one and the railroad network was fast, reliable and much more comfortable than air planes at the current time. Therefore the demand for air transportation was relatively low. What saved the development of the air transport industry in USA in the early days was the government's decision to use airplanes in mail transport (Morrell 2009).

During world war two the airplane production increased dramatically and so did the available technology. The military spending on development of aircrafts did wonders for the civil air transportation industry. The planes became bigger, faster and more comfortable. By the mid-1950s more people were crossing the Atlantic Ocean by plane than by boat. The industry continued to grow enormously in the second half of the 20<sup>th</sup> century. The number of passengers increased from 177 million in 1965 to about 2.1 billion in 2007 (Morrell 2009) .

The air transport industry was in the early days mainly state controlled. High investment expenditures and strict air regulations can be viewed as main reasons for this. As a result some airline companies are still wholly or partly owned by governments. USA did not

deregulate the market until 1978 and in EU the deregulation was made in three major leaps between 1988-1991 (Lian 2006).

There are two different types of airline route systems. The traditional one is the “Hub-and-spoke”. In this system the airline uses one or several large airports as a hub. This means that there are fewer direct flights between smaller cities but they are still connected through the hub airport. This way they can have fewer flights and fill the capacity on the aircrafts in a more efficient way. The drawback is the increased flight time for passengers since they need to change plane at the hub airport. Most older and traditional airlines belong in this category.

The other type of airline system is the “point-to-point” system where passengers are flown directly to their destination. In this category we find the relatively new “no-frills-low-cost” airlines. Because of the disadvantages with the traditional “Hub-and-spoke” system and the deregulation of the air traffic, new market possibilities appeared. This resulted in a boom of new airline companies in Europe around the year 2000 and a dramatic increase in direct flights.

## **2.2 SAS Group**

The SAS group was founded on the first of August in 1946 when the flag carriers of Denmark, Sweden and Norway formed a partnership to handle intercontinental traffic. In September the same year the first intercontinental flight took place from Stockholm to New York. Two years later the cooperation was extended to also include European traffic. The SAS consortium as it appears today was established in 1951. When the fully integrated SAS group was founded it was completely government controlled by the Danish (2/7 share), Swedish (3/7 share) and Norwegian (2/7 share) government.

In the beginning the cooperation only included air traffic. After the startup the company had a steady growth in number of departures. In 1960 the SAS Group extended its business area and opened its first hotel, the “SAS Royal Hotel Copenhagen”. One year later another area of activity was included in the corporation, “SAS Catering”. The business area was expanded further in the 1970s when SAS bought Nyman and Schultz Nordic travel agency. The hotel division expanded outside Scandinavia for the first time in 1980 when the company established a hotel in Kuwait.

The first stock listing found place in 1967 when the Norwegian part of SAS (DNL) became stock listed on Oslo Stock Exchange (SAS web page 2009). SILA, which was the Swedish part of SAS, was listed on the Stockholm Stock Exchange in 1980.

In 1981 when Jan Carlzon became the new director of SAS the company was facing large financial difficulties and was publicly known for always being delayed. His focus on customer service, quality and decentralization of the organization revolutionized the airline industry. Carlzon worked towards a vision of making SAS the preferred company for business travelers and implemented necessary actions to reach the target. For the first time in 17 years SAS could in 1982 present a financial result with surplus. In 1983 the Air Transport World named SAS the Airline of the Year (SAS web page 2009).

2001 became a tough year for SAS. The Linate accident in Milano, the most terrible accident in SAS' history, and the terror attack on September 11 were both contributing factors. In 2002/2003 the economic situation worsened, and many employees were dismissed. The situation became a bit better in 2005 – 2007 when the company again reached account surplus. Unfortunately the situation changed in 2008 and the annual result was again in deficit.

Today the SAS Group is the 4<sup>th</sup> largest aviation company in Europe. In 2007 39million passengers flew with SAS to almost 150 destinations. The Company has over 1500 daily departures, and their vision is to be “the obvious choice”. Through cooperating airlines the SAS Group will offer flexible and value-for-money air travel with great freedom of choice to both business and leisure travelers in Northern Europe. The SAS Groups main objectives are to create value for its owners and to achieve a 7 % EBT margin, equivalent to a cash flow return on invested capital (CFROI) of at least 25 % of earnings or approximately SEK 4 billion (SAS Group Annual Report 2009).

Today 50 % of the SAS shares is owned by the Scandinavian governments of Sweden (21.4%), Norway (14.3 %) and Denmark (14.3 %)). The remaining 50 % are publicly traded on Stockholm, Copenhagen, and Oslo stock exchange (SAS web page 2009) .

## 2.3 Competitors

SAS' home market is characterized by a few, but large competitors. Norwegian (Norway and Sweden), Cimber-Sterling (Denmark) and Finnair (Finland) are the three main competitors in their respective countries. Below is an illustration of SAS' market shares in the Nordic countries.



Figure 2: SAS' market shares (SAS Group Annual Report 2009)

### 2.3.1 Norwegian

Norwegian Air Shuttle ASA was established in January 1993. In the beginning their fleet consisted of 3 Fokker F-50 and they operated routes on behalf of Braathens S.A.F.E. Braathens was acquired in 2001 by SAS. In 2002 Norwegian established their first independent route between Stavanger and Newcastle. This was quickly closed down because of unprofitability. Even though their first route was unsuccessful it was their first effort to compete with SAS. Soon later 7 new Boeing 737-300 were acquired and put into traffic between the major Norwegian cities. In 2003 the company was stock listed.

After continuous growth and success in the Norwegian market Norwegian expanded their geographical presence by acquiring the Swedish company FlyNordic. FlyNordic is today branded as Norwegian.se and is SAS' largest competitor on domestic traffic in Sweden.

Today Norwegian employs 1.400 people and operates 150 routes to 82 destinations. The passenger number grew from 1.2 million in 2003 to 9.1 million in 2008. By the end of 2008 Norwegian had 37 operational Boeing 737s and further 42 in order with expected delivery between 2009 and 2014.

Norwegian is positioned as a low cost company and the largest equity holder and CEO is the charismatic Bjørn Kjos who holds about 30 % of the shares.

### **2.3.2 Cimber-Sterling**

In 1950 Ingolf L. Nielsen bought Sønderjyllands aviation which later became Cimber Air. In the early days they operated taxi planes between the two Danish towns Søderborg and Copenhagen. During the 1960s' the company continuously upgraded its fleet to carry additional passengers. Cimber, SAS and Maersk Air establish a new company called Danair in 1971. Its intension was to develop and strengthen domestic aviation in Denmark. This co-operation came to an end in 1995, but SAS and Cimber resumed their partnership the same year.

By February 2003 Cimber was again hundred percent family-owned after they bought back the remaining shares from SAS. Trough the last decade Cimber has grown significantly and in December 2008 Cimber acquired parts of the bankrupt company Sterling including its well known brand. This resulted in a change of name to Cimber-Sterling and an expansion of 20 new routes from Copenhagen, Billund and Aalborg.

### **2.3.3 Finnair**

Finnair is one of the world's oldest airline companies still alive. The company was founded on the 1<sup>st</sup> of November 1923 and has today 9.500 employees. Finnair's major shareholder is the Finnish government which owns 55.8 % of the shares. Today the company transports a high number of passengers from Europe to Asia as a result of Finland's geographical position. In addition the company offers several daily departures to major European cities and 13 domestic destinations.

In 2008 Finnair carried over 8 million passengers where about 1.5 million were on domestic flights. The company's fleet is today counting 63 aircrafts. Finnair is the main competitor of Blue1 which is an individual branded company wholly owned by the SAS Group.



### 3. Theory

In this chapter we will introduce theoretical issues that will be used in later analysis.

#### 3.1 Valuation methods

There are basically three different valuation techniques. Those are fundamental valuation, comparison valuation and option-based valuation. These must not be looked upon as different options but more like supplements (Kinserdal 2008).

##### 3.1.1 Fundamental valuation

Fundamental valuation is based on the analysis of underlying or fundamental conditions. By this we mean the use of the actual income and balance sheet of the firm to estimate its value. There are two main types of fundamental valuation. The first one is the discounted cash flow method. With this method future cash flows are estimated based on historical performance and assumptions about the future. Then cash flows are discounted with a suitable cost of capital to find the net present value. The second type is the net asset value where balance sheet assets are calculated at market values and then reduced with net debt.

##### 3.1.2 Comparison valuation

Peer review is a valuation method where a key ratio for one or several companies is used in comparison with the same value of another comparable company to calculate its value. Such a popular ratio is the P/E<sup>1</sup> ratio. If value was driven by income only this would have been a good estimator. The P/E ratio of one or several companies could be solved with respect to P and then used to find the price of a second company<sup>2</sup>. The problem with this ratio is that aspects such as growth potential and capital structure are overlooked. One multiple that does take this into account is the enterprise value to earnings before interest, tax and appreciation (EBITA). This gives:

$$\frac{EV}{EBITA}$$

Formula (1)

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<sup>1</sup> P/E=Price/earnings

<sup>2</sup> P(company B)=E(company B)x[P(company A)/E(company A)]

As we see, this is a complex ratio and we need to adjust the EBITA for different accounting rules and one-off gains and losses to reflect the “normalized” EBITA. The EBITA should ideally be forward looking as well to reflect future potential. This also has to be done in a fundamental cash flow analysis and can therefore be a good tool for analyzing the result when using that technique (McKinsey & Company 2005)

### **3.1.3 Option- based valuation**

Option-based valuation is used when a company has an opportunity to get a positive cash flow in the future, but have not yet “exercised” the option. This could, for example, be an oil company that has bought an oil field at sea that are not profitable at today’s oil price, but still they have the option to develop the field if the oil price rises. The option value is decided by the intrinsic value<sup>3</sup>, time to maturity and the volatility of the underlying asset. Option value is found by using formulas such as the Black-Scholes or by using binominal modeling (Brealey, Myers and Allen 2006).

### **3.2 Choice of valuation method**

Which method to use in a valuation depends on the company’s attributes. It depends on the age of the company, industry and the assumption of continuing business. A young company with no or small earnings or a company in the high-tech industry might be suited for an option based or comparison valuation because the cash flows are potentially hard to estimate. If we assume that a company will terminate their operations and sell all their assets a net asset value should be a good choice. But if we assume continuing businesses and that the company is in an old and mature industry there should be possible to make qualified estimates of the future cash flows based on historical data and forecasts. This we assume is the case with the airline industry, so our approach to value SAS will be through a fundamental cash flow analysis.

### **3.3 Normalization of historical income**

To estimate future cash flows we need to investigate how the company has performed in the past. By analyzing historical data we can discover trends on how the business has performed earlier and then get a better idea of how the cash flows will look in the future. To make it easier to discover these trends adjustments sometimes have to be made to the past income statements. Because of various reasons the income statement is not always representative for the underlying core business. There are three reasons for this (Kinserdal 2008). First of all the

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<sup>3</sup> Intrinsic value= Difference between exercise price and current value

different accounting principles do not always give the best values for our analysis purpose. Examples of this are the handling of pension costs, leasing, appropriations and value corrections. Secondly the management occasionally tries to manipulate the accounting for their own benefit. This is often referred to as earnings management. This could for example happen when a manager wants to meet a specific target to satisfy the owners and keep his job safe. This could be done not only outside the accounting rules but also within. Some of the items in the account are set by judgment. This is for example write-offs, appropriation for loss and the choice of capitalizing an item or taking the cost instantly like you can do with research and development (R&D). Thirdly there are usually a few none recurring items. This could be loss or gains from sale of assets, one time write-downs, restructuring costs and financial items like currency loss. All in all there should not be made too many adjustments to the historical numbers. Plus and minuses tends to equal each other out so the focus should be on the large none recurring items that make an significant impact on the income sheet.

### 3.4 Leasing

There are two types of leasing: Operational and financial leasing. Financial leasing is no threat for the analyst since the leased item is treated as an asset in the balance sheet and the debt-part is treated as a liability. Operational leasing however is a threat because it appears in the income statement and consists of both a depreciation-part and an interest-part which is very hard to separate. Firstly the interest-part end up as an operating cost which is a problem when you want to analyze the operational income. But even worse is that “debt” is hidden from the balance sheet. We call it debt because the leasing taker has a contracted obligation to pay for the leasing costs over a given period. This is usually not an issue when valuating most companies, since operational leasing is usually very small and not significant. But for airlines this is a big issue. They often have large operational leasing costs. The result is that a large debt-equivalent liability is left out of the balance sheet. This will lead to wrong equity/debt ratios when calculating the cost of capital<sup>4</sup> and also affect the risk analyze. The solution is to capitalize the value of the operating leases as part of invested capital and add the estimated interest part to the income sheet. This way the leased assets are treated as if they were owned and financed with straight debt (McKinsey & Company 2005).

The capitalized value of operating leases needs to be deducted as a nonequity claim. This value can be found with the following formula:

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<sup>4</sup> See chapter 3.7

*Capatalized Operating Leases = Assset Value* Formula (2)

$$= \frac{\text{Rental Expense}}{\left(k_d + \frac{1}{\text{Asset Life}}\right)}$$

Where:

$k_d$  = Cost of debt

### 3.5 Forecasting

When buying a share of a company the owner receive a right to receive his part of the future free cash flows. Therefore the theoretic value of this share or the entire company equals the sum of all the future cash flows. Based on historical income, strategic analysis, industry trends and macro factors future cash flows are estimated in the discounted cash flow valuation method. Budgeting and forecasting is not an exact science, but are more qualified guessing. The more background information and knowledge that are gathered on the company and industry, the more likely are the forecasts to be accurate. But there will always be so called extreme events that are impossible to predict. Examples of this are the impact of 9/11<sup>5</sup> on the airline industry and the outburst of the Severe Acute Respirator Syndrome (SARS) that slowed the intercontinental traffic to Asia.

An important question is the length of the time horizon to be used in the budgeting process. The further out we go in time the harder it gets to estimate correct cash flows. Theoretically you should at least use as many years as it takes for the company to reach steady state (Kinserdal 2008). With steady state is meant the point where the company is believed to reach a constant growth. How long this will take depends on both the industry and the company. If for example the industry or company is young it will take several years to reach its full potential, but still it will not grow in eternity. In this case a long forecast horizon is necessary, perhaps 10 years or more, and as a result the estimated cash flows will be very uncertain. If the company however is old, and in a well established industry, only a few years of forecasts is necessary since the company most probably already is in steady state. Huge restructuring processes and fundamental changes in the industry (in for example technology) speaks on the

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<sup>5</sup> Terrorist attack on the world trade center in New York done by hijacked airplanes in 2001

other side for a long forecast horizon. Ideally 6-10 years should be used in any case, but 3-5 years are more normal (Kinserdal 2008).

### 3.6 Tax

A troublesome issue in valuation is corporate taxes. The reason for this is the differences between financial reporting and tax reporting (White, Sondhi og Fried 1998). With financial reporting there are more freedom in choice of estimates and accounting principles. The tax reporting system however is left with little room for judgment. Because of this we see a difference between tax expenses and tax payables in the financial statement which leads to the term deferred tax.

Deferred tax can either be seen as a liability or an asset to pay more or less tax in the future. An example of how the differences between financial and tax reporting occurs is depreciation. In the financial reporting the assets are often depreciated in a straight line, while in the tax report “reducing balance method of depreciation” has to be used. This will lead to increased tax payable in the first years and a tax asset in the balance sheet. But let’s say a new asset is bought to replace the old one before the deferred tax is canceled out and this happens over and over. This will lead to a permanent deferred tax asset until all the assets are sold. When all the assets are sold there are no cash flows left to value and continuing business is a condition for the discounted cash flow method. Together with other issues such as different tax rates between countries, income or loss that are not taxable, special tax discount rules<sup>6</sup>, and none tax refundable expenses<sup>7</sup> the effective tax rate is not equal to the statutory tax rate<sup>8</sup> (Revsine, Collins og Johnson 2005). This makes it a lot harder to predict the future cash flow after tax of a company. Especially if the company does not have a history of steady state income so that the tax actually paid can be studied and by that derive the effective tax rate. The statutory tax rate in Norway is for example 28 %, but the average effective tax rate is calculated to be around 25 % (Kinserdal 2008).

The effective tax rate is often noted in the financial report and can be of some help, but it often varies a lot from one year to another and includes previous loss that reduces taxable

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<sup>6</sup> For example tax discount on research and development costs

<sup>7</sup> For example entertainment expenses

<sup>8</sup> Tax rate for corporations set by law

income. Because of the difficulties of calculating effective tax rates practitioners often use statutory tax rate and adjust it with thumb rules.

### 3.7 Cost of capital

Although costs are normally thought of as cash paid out, cash not received have the exactly same wealth effect. The amount of cash invested in an airplane could for example instead be invested in a government bond with a given payoff. This payoff represents an alternative cost of capital. When valuating an investment we must therefore deduct the cash flows with the cost of capital (Patterson and Cleveland 1995).

There are five determinants of the cost of capital. The first one is the real risk-free rate. This reflects the price that investors charge to exchange current consumption for future consumption. The second one is the nominal risk-free rate. Because of inflation it is necessary for investors to price securities in a way that protects their purchasing power from increasing prices. The third one is the investment horizon and term structure. The return required by investors to reduce their consumption today may vary with the investment horizon. The fourth one is the risk premium. The risk premium reflects the investor's subjective attitude towards a variety of investment uncertainties over the investment horizon. These uncertainties are business risks, financial risks, inflation uncertainty, interest rate uncertainty and liquidity risk (Patterson and Cleveland 1995). The fifth one is taxes and transaction costs. Different investments might have different tax rates and transaction costs that need to be taken into account when calculating the alternative cost of capital.

There are two major capital classes: Equity and debt. The cost of these capital sources must be set individually. To do this theoretically correct is almost impossible because of the complexity of the real world. But there are simplified models available that are proven to give good approximations. The most common model used to estimate the cost of equity is the capital asset pricing model (CAPM). The standard version is given by:

$$E(R_j) = R_f + (E[R_m] - R_f)\beta_j \quad \text{Formula (3)}$$

Where:

$E(R_j)$  = Expected return on asset j.

$R_f$  = The nominal risk free rate

$E[R_m]$  = Expected market return on the value – weighted market portfolio of all risky assets

$\beta_j$  = Measure of the degree to which  $R_j$  changes as a result of changes in  $R_m$

The cost of debt is less than the cost of equity. Lenders are not owners in the company and therefore get no voting rights or dividends. But on the other hand they get a fixed income every year and have first right on the company's cash flow. If the company cannot meet the lenders yearly demand they will have to bankrupt. Since a company has the option to default on their debt the cost of debt consist of three elements. The first one is the nominal risk-free rate and the second one is a risk premium which is proportional to the probability of default. Thirdly the tax shield from debt must be removed from the total cost. When analyzing a company the cost of debt is a lot easier to obtain since it is determined by the bank or lenders and is reported in the financial statement.

The cash flow of a company is a result of the investments done in the past. Since these investments are financed by several sources of capital there is a need to use a model that takes this into account to find the total cost of capital. The most commonly model used for this is the Weighted Average Cost of Capital (WACC):

$$WACC = \frac{E}{V} * R_E + \frac{D}{V} * R_d * (1 - T_c) \quad \text{Formula (4)}$$

Where:

$R_E$  = cost of equity

$R_d$  = cost of debt

E = market value of the firm's equity

D = market value of the firm's debt

V = E + D

E/V = percentage of financing that is equity

$D/V$  = percentage of financing that is debt

$T_C$  = corporate tax rate

What the model does is to take the cost of each type of capital and then weigh it to its proportion of the total capital to find the weighted average cost of capital. The largest problem with this model is that it uses market value of equity as an input. Equity value is exactly what we want to calculate so we get a circular problem.



## 4 Strategic framework

Identification of a company's competitive position and advantage are the basics for a strategic analysis. A strategic analysis consists of an external and an internal analysis (Roos, Krogh and Roos 2002).

### 4.1 External analysis

External analysis contributes in the understanding of how a company is strategic positioned. It is important to form an image of the company's surroundings. The question is whether the company operates independently or is under constant pressure from fast and unexpected environmental changes. PEST-analysis and Porters five forces are good tools for enlightening these areas (Roos, Krogh and Roos 2002)

#### 4.1.1 PEST-Analysis

PEST-analysis is based on factors that have an effect on a company's operations. The analysis is used as a tool to identify key factors in the surroundings, and among other factors, to get a clearer view of vital conditions with importance to the company's long-term development. It can also constitute a contribution to how external factors have different influence on the organisation and its competitors. The figure below illustrates how the macro environment directly influences some or all forces in Porter's competition model. The following presentation is based on theory from Strategic Management Theory (Hill and Jones 2008) and the Norwegian book "Innføring i Strategi" (Roos, Krogh and Roos 2002).

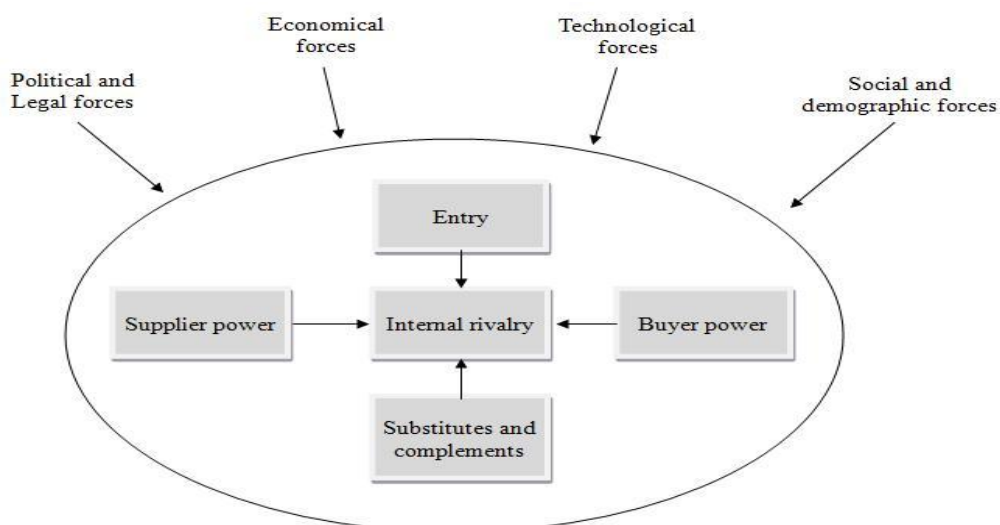


Figure 3: PEST-analysis

### **Political and legal forces**

Changes in legislation and regulations significantly affect managers and companies. Since regulation influence competitive structure in an industry, firms often seek to influence the regulations that governments enact by a number of means. In larger parts of the industrialized world, there has been a strong trend towards deregulation of industries previously controlled by the state. This also includes the airline industry.

### **Economical forces**

The growth rate of the economy, interest rates, currency exchange rates, and inflation are the four most important factors in the macro environment. Economical growth affects customers' expenditures, and this again affects competition and possible profitability in the industry. A company's investments are partly a result of the level of interest rates. The level of borrowing and spending are strongly dependent on the price of money. The interest rates are also important to a company's ability to raise funds and invest in new assets because it is decisive for the cost of capital. Currency exchange rates have a direct impact on the competitiveness of a company's products in the global marketplace. Price inflation affect all the other factors, and the key characteristic is that it makes the future less predictable.

### **Technological forces**

A technological change must be viewed as both an opportunity and a threat. Changes can on one hand result in new product possibilities, but on the other hand make established products obsolete overnight. Over the last decades technological changes has accelerated. Perhaps the most important implication of this is the reduced barriers of entry as technology is constantly changing. The result is both lower consumer prices and profit margins because of increased intensity of rivalry.

### **Social and demographic forces**

Demographic forces are outcomes of changes in the characteristics of a population, such as age, gender, ethnic origin, race and social class (Hill and Jones 2008). The percentage of women who have entered the work force, have as an example increased in many countries. Social forces refer to changes in values and lifestyle that have an impact on the industry. An

example could be changes in travel preferences because of increased terror danger or natural catastrophes. A natural consequence is reduced demand of air travel owing to fear.

#### 4.1.2 Five-Forces Analysis

In the following part we have used theory from the book “Economics of Strategy” (Besanko 2007). The five-forces framework is a tool to assess the current status quo and likely evolution of an industry. The five forces included are internal rivalry, entry, substitute and complementary products, supplier power, and buyer power. The matter of judgment is whether the forces is sufficient strong to reduce or eliminate industry profits. In the following presentation the threat of substitutes is not included because we today do not consider it to be of great importance for our following analysis of SAS.

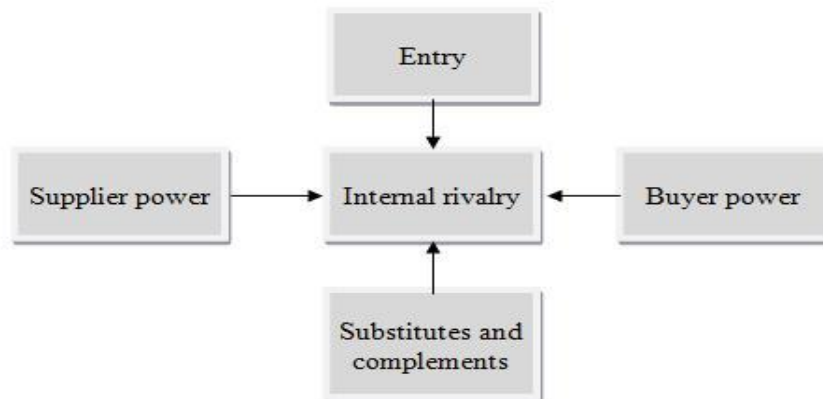


Figure 4: Porter's five forces

#### Internal rivalry

The degree of rivalry is of strong importance with regards to the competitive conditions in the market. Rivalry can reduce companies' economical profit severely, and competition intensity can depend both upon price and nonprice dimensions. Both types of competitions may reduce profits. Price competition can result in lower price-cost margins, while nonprice competition on the other hand, can increase fixed costs trough e.g. new product development and/or marginal cost trough e.g. adding product features.

Companies' incentives to engage in price competition depend on the likelihood of increased market shares. In markets with an abundance of companies of the same size and influence on total market supply, the rivalry is typically intense. Stagnant or declining markets can also

lead to intensified rivalry because companies that wish to increase their market share must do this on the expense of established competitors.

When suppliers are offering undifferentiated products, buyers have a low switching cost. This can often result in a price war between the suppliers and thereby cut margins. A price war will more likely develop when prices and terms of sale are unobservable. In this situation it is harder for competitors to quickly adjust to changes which make it more profitable for the initiator.

### **Entry**

Intruders are new participants in established markets. Motivation for entering a market can stem from the fact that one of the already existing participants is earning above-normal economic profit. If no entry barriers exist, new participants will enter the market as long as there still is profit to gain.

Intruders affect existing participant's profit in two ways. Firstly additional suppliers must share existing market demand. Secondly intruders will decrease market concentration, and intensify internal rivalry.

To what degree entry of new firms constitute a threat to existing participants depends on the barriers to entry. Barriers to entry can be economies of scale, product differentiation and government regulations.

### **The threat of buyers**

The rational customer always wants to maximize his value for money. If the buyers get too much power it will be a threat for the companies in the industry as they demand lower prices. For customers to be a threat, one or more of the following assumptions have to be fulfilled:

- A small numbers of buyers
- Undifferentiated or standardized products
- Product costs are a significant percentage of a buyer's total costs
- Buyers do not earn a significant economic profit
- Possibility for backward vertical integration

### **The threat of suppliers**

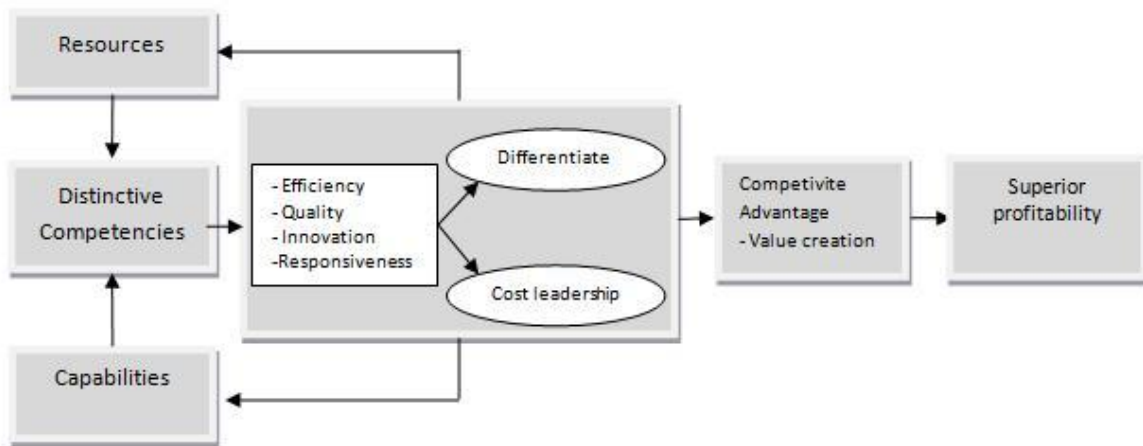
Any above-normal profits can be moved from a company to their suppliers if they increase their prices or reduce the quality of their supplies. Main reasons that suppliers constitute a threat are:

- Suppliers' industry are dominated by a small number of firms
- Suppliers sell unique or highly differentiated products
- Suppliers are not threaten by substitutes
- Suppliers threaten forward vertical integration
- Firms are not important customers for suppliers

## **4.2 Internal Analysis**

The main objective with an internal analysis is to identify a company's core strategy and see if it gives any competitive advantage. A competitive advantage is to have a profitability that is higher than the business sector's average. The core strategy is defined as a mixture of resources, competence and relations that a company controls which gives them costs- or differentiation benefits (Reve 1992).

A resource allows a company to create value for its customers and can be financial, physical, social, human, technological or organizational factors. Distinctive company competence is more likely to occur the more firm specific and difficult to imitate their resources are. Distinctive competency also depends on a company's capability to coordinate and put their resources into a productive use. Capabilities are the way a company leads its internal processes to reach their goals. These skills must be resided in company rules, routines, culture and procedures to be sustainable. The relations are illustrated in Figure 5 below.



**Figure 5: Internal processes**

In the following two analysis tools are presented. These are a resource analysis called SVIMA and a position analysis of efficiency, quality, innovation and responsiveness to customers. These are all factors that create sustainable competitive advantage in a company.

#### 4.2.1 Position-Analysis

In the following part we have used theory from the book “Strategic Management Theory” (Hill and Jones 2008).

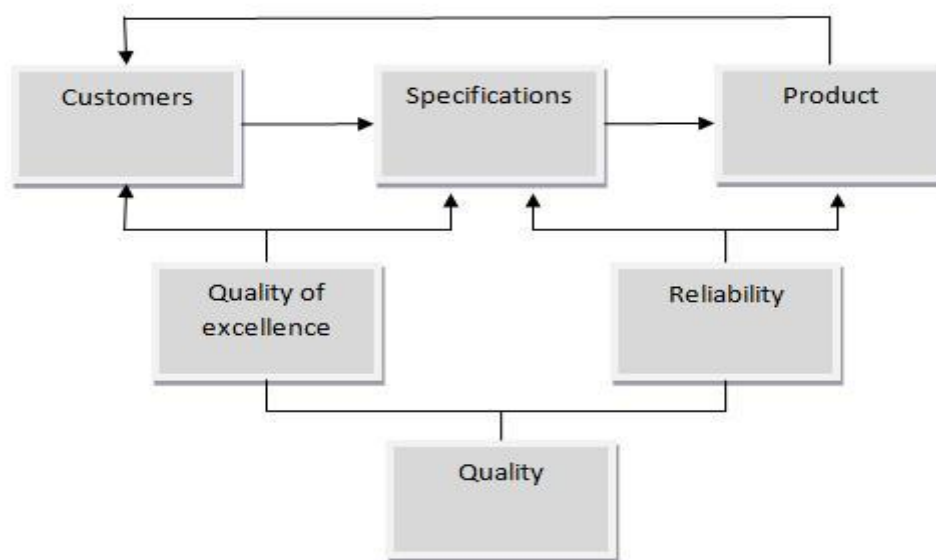
##### **Efficiency**

Efficiency (output divided by input) measures the quantity of input that is required to produce a given output. Outputs are goods and service that the business produces while input includes production factors such as labor, capital, management and technological know-how. The higher efficiency, the less input is required to produce a given output. Capital productivity and employee productivity are components that are especially important for many companies’ efficiency. In general high productivity leads to greater efficiency and lower costs.

##### **Quality**

Apprehension of quality is based on the understanding of utility. Superior quality depends on consumers emphasize on specific attributes to a given product. Attributes can be divided between quality as excellence and quality as reliability. Examples of quality as excellence are attributes such as design, styling, aesthetic appeal, feature and function, and level of service. Reliability implies trust on products to do their job and rarely, if ever, break down. The figure

below describes the interaction between different attributes of quality and how they together form total quality.



**Figure 6: The quality chain**

When excellence or reliability is “built” into a product, the consumers utility is increased, and they will pay more to consume or own it. Product quality has a twofold impact on competitive advantage. Firstly producing high-quality products increase the utility to consumers, which gives the company the choice to charge a higher price. Secondly reliable products create greater efficiency and lower unit costs.

### **Innovation**

Innovation refers to the action of creating a new process or product. Product innovation involves development of new products, or products that have superior attributes to existing products. This type of innovation creates value through expanded utility to costumers and again increases companies’ pricing options. A result of process innovation is the possibility to increase margins by lowering product costs or change cost structure. Innovation is important because it gives a company something that is unique and hard to imitate. This process is maybe one of the most important building blocks of competitive advantage. Uniqueness opens up the possibility to differentiate.

### **Responsiveness to customers**

By identifying and satisfying costumers needs, companies can better attribute utility to their service or products. Customizing goods and services to the unique demands of the customers

is an important part of responsiveness and has received an increased focus over the past years. An aspect of responsiveness, which has received increasing attention, is customer's response time. This is the time it takes from the customer to recognize his need to the product or service is delivered. Through great responsiveness companies build brand loyalty and create opportunities to charge a premium.

#### 4.2.2 SVIMA-Analysis

SVIMA is an analytical tool to map the possibility for a company resource to create and retain competitive advantage. Competitive advantage is defined by a long-term return above average in the relevant product market. Resources can be viewed as the fundamental source for competitive advantage or disadvantage. Resources are holdings of inputs which affect a company's relative ability to implement a product market strategy (Jakobsen and Lien 2001). If a resource should create an abnormal high return, the resource has to be rare, important, not possible to imitate, and possible to mobilize and appropriate. If a resource is seldom, competitors do not have the particular resource in same quantity and quality. Important resources have high impact on company costs, or customers' willingness to pay, or both. To be impossible to imitate, competitors must not have the ability to copy or replace the resource. Mobilization is process of converting resources into economic value. If the creation of value shall have any meaning to a company they must capture it. The figure below explains the degree of importance resources have to a firm based on the five mentioned characteristics:

<i>Seldom</i>	<i>Important</i>	<i>Not possible to imitate</i>	<i>Possible to mobilize</i>	<i>Possible to appropriate</i>	<i>Result</i>
No	Yes	Yes	Yes	Yes	<i>Parity</i>
Yes	No	Yes	Yes	Yes	<i>Treadious advantage</i>
Yes	Yes	No	Yes	Yes	<i>Temporary advantage</i>
Yes	Yes	Yes	No	Yes	<i>Potential advantage</i>
Yes	Yes	Yes	Yes	No	<i>Permanent, not kept advantage</i>
Yes	Yes	Yes	Yes	Yes	<i>Permanent kept advantage</i>

**Table 1: Resource matrix**



## 5 Historical performance of SAS

### 5.1 Regrouping of the financial statement

SAS' reported financial statement is not very informative and cannot be used directly in an in debt financial analysis. Both the income and expenditure are consolidated and says little about the main income and cost drivers (except from payroll expenses). Some of the Leasing cost is also included in the operating income while some leasing cost is capitalized in the balance statement. Leasing where in principal all the risk and benefits stays with the leaser is treated as operational leasing and is expensed on an ongoing basis. As discussed in chapter 3.3 and 3.4 we have reorganized the statement of income to be more informative and removed the leasing costs from the operational income for the purpose of analysis. We have mainly used data from 2001-2008 in historical analysis because 2001 was the year the SAS share was single listed in its current form.

The SAS Group has been through heavy restructuring in the past years. Companies, company shares and divisions have been bought and sold and that makes the financial statements a bit random. But fortunately income from discontinued operations is reported separately and for example excludes Spanair which is now sold and have been one of the largest sources of deficit. With SAS' new "Core Strategy" they will only keep their Nordic business divisions. As far as possible we have tried to only include this part of their historical business performance. We have not adjusted for any abnormal income or expenditures posts because none of importance is reported. However both unexplained costs and income which are stated as other income and expenditures are relatively high. For income it makes up around 7 % of revenue and for expenditures it is around 15 % of total revenue last three years. Because it has been quite stable during the last years it should not be a major threat for the analysis.

### 5.2 Passenger traffic

The most important revenue driver for SAS is the passenger traffic. Over 70 % of total revenue derives directly from ticket sales on scheduled flights. If we include charter revenue, in-flight sales and other indirect effects the number is closer to 80 %.

The total market for air transport has continued to grow over the last half century. Passenger growth has increased 5 % on average over the period. Distance flown has increased relatively

more than passenger numbers which indicates that people continue to fly longer distances (Morrell 2009).

The above average growth the industry has encountered in the last two decades can be related to the deregulation of air traffic, introduction of low-cost airlines (making air travel more affordable) and the rapid economic growth of populous countries like China and India. The increased globalization has also played an important role.

Although the air traffic has continued to grow rapidly over a long time period it is also highly dependent on macro factors and business cycles. Figure 7 below shows the relation between passenger growth and periods with recession. Revenue passenger kilometers (RPK) is calculated by multiplying the number of paying passengers with the distance they flow and is a passenger volume measure. The growth of the RPK follows the business cycles closely and indicates that air trips is something that people tends to reduce during periods of recession. This could be because private individuals go on less expensive vacations and that businesses try to use more fare distance communication instead of meeting face to face to cut costs. Right now after the burst of the financial bubble most of the world is again facing recession. Quarterly data have already shown a significant drop in air passenger traffic and the outlook is grim.

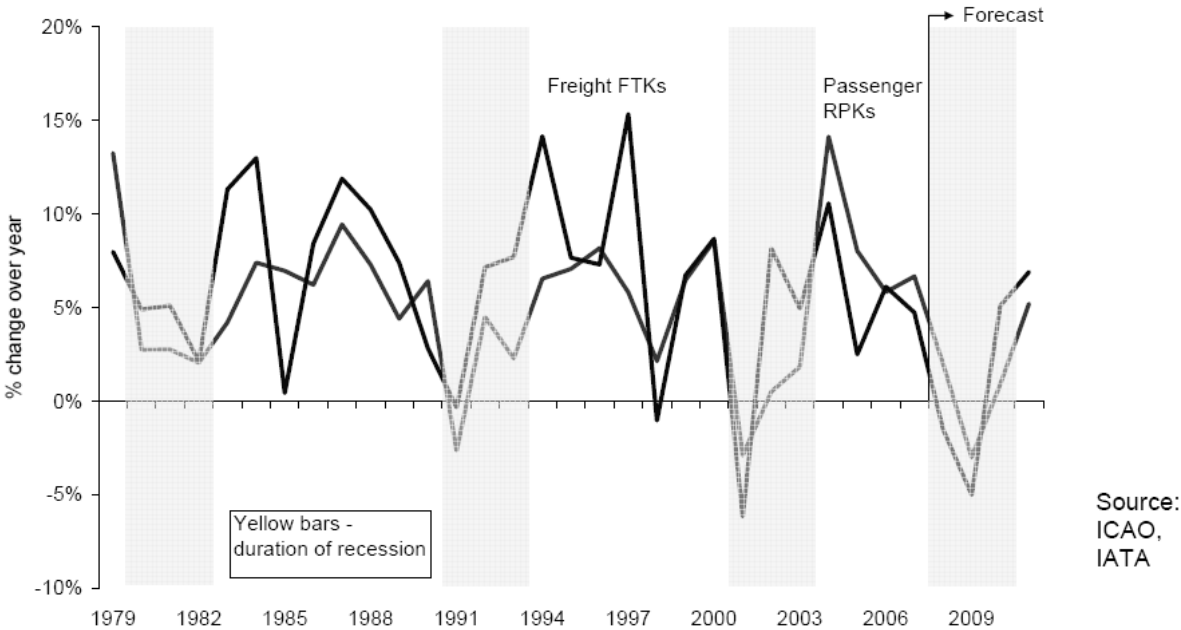


Figure 7: Business cycles and passenger traffic relationship (IATA 2008)

	2008	2007	2006	2005	2004	2003	2002	2001	Average
<i>Destinations served</i>	176	158	147	147	146	130	123	128	146,7
<i>Passengers(mill.)</i>	30,9	31,4	32,4	41,0	38,3	36,4	38,8	25,1	35,6
<i>TLF(%)</i>	72,3	74,5	73,6	71,4	68,6	67,5	68,7	62,7	70,9

**Table 2: Traffic-related key figures for SAS**

Table 2 displays SAS' passenger development over the last eight years. Passenger numbers have increased significantly over the time period together with the number of cities served. This is the result of continues market growth and acquisitions of other airliners. In 2001 the only Norwegian competitor at the time, Braathens, was acquired and in 2002 SAS also became a majority owner of Spanair. Then in 2003 49 % of Estonian Air was bought and finally in 2008 the big loss project Spanair was agreed to be sold. This has inversed the passenger growth from 2006 as Spanair passengers are not reported. With all this activity it is not easy to draw to many conclusions from the passenger numbers but we can conclude that SAS flies about 50 % more passengers today than they did ten years ago and that the passenger numbers have slightly dropped the last few years with 2008 partly being a year in recession.

An important traffic measure in the airline industry is the passenger load factor (PLF). This measure provides information about how much of an airline's passenger capacity that is being used. Airlines have heavy fixed costs and are capital intensive. On a scheduled flight the cost of transporting one more passenger is insignificant. Therefore the efficiency in which the assets are used is crucially. But it is important to remember that this measure says nothing about how much the passengers have paid for their tickets. So an airline that has low PLF but a high degree of business passengers flying on full price tickets could be just as profitable. Low fare companies that only fly between the largest and most profitable cities usually have higher PLF than traditional network companies but are not necessarily any more profitable because of lower ticket fares. In Table 2 the total load factor (TLF) ratios for SAS is listed for the last eight years. The TLF is similar to the PLF but also includes goods. There has been a positive development for this measure since the early 2000s. One reason for this is the deregulation of the Nordic aviation industry that gave the company real competition and forced the company to be more efficient. Unfortunately the good trend seems to have reversed after 2006. Although it is not a dramatic fall the TLF has fallen 1.7 points over the last two years.

<b>Company</b>	<b>2008</b>	<b>2007</b>
<i>Norwegian.no</i>	79	80
<i>Norwegian.se*</i>	79	n.a
<i>Finnair</i>	75,2	75,8
<i>Air France KLM**</i>	71,4	70,7
<i>Brithis Airways</i>	71,2	70,4
<i>SAS Group</i>	71,2	73
* Former know as FlyNordic		
** European flights only		

**Table 3: PLF ratios for SAS and nearest competitors**

Compared to some of SAS' nearest competitors their passenger load factor is quite similar to Air France KLM and British Airways which are other traditional European network companies. But in SAS' local markets in Norway, Sweden and Finland, which are the most important, we see that SAS is a bit behind their competitors in passenger efficiency.

Norwegian which operates in both Norway and Sweden and Finnair which operates in Finland have respectively 10 % and 5 % higher PLF. That Norwegian has this relatively higher PLF is no surprise since it is a typical low price airline. Association for European Airlines (AEA) presents yearly a report including statistics from 31 major European airlines (Including SAS). Their PLF average for 2007 was on an all time high of 76.5 % which is a bit above SAS' result. European aviation had a consistent growth in the PLF numbers which mean that the airline industry have become significantly more efficient over the last decades and we believe that SAS still have to improve their load factor to keep up with their competitors and improve profitability.

Although SAS' Nordic<sup>9</sup> home market is sparsely populated the Nordic people are flying more than their European Nabors. Figure 8 shows trips per capita for different European countries and all the Nordic countries is above the EU average of 2.5 trips per capita. The four Nordic countries have all together a population of only about 24.5 million (CIA 2009) , but the lack of competition from other transport modes and a widely spread population makes it a highly attractive market.

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<sup>9</sup> Excluding Iceland and associated territories

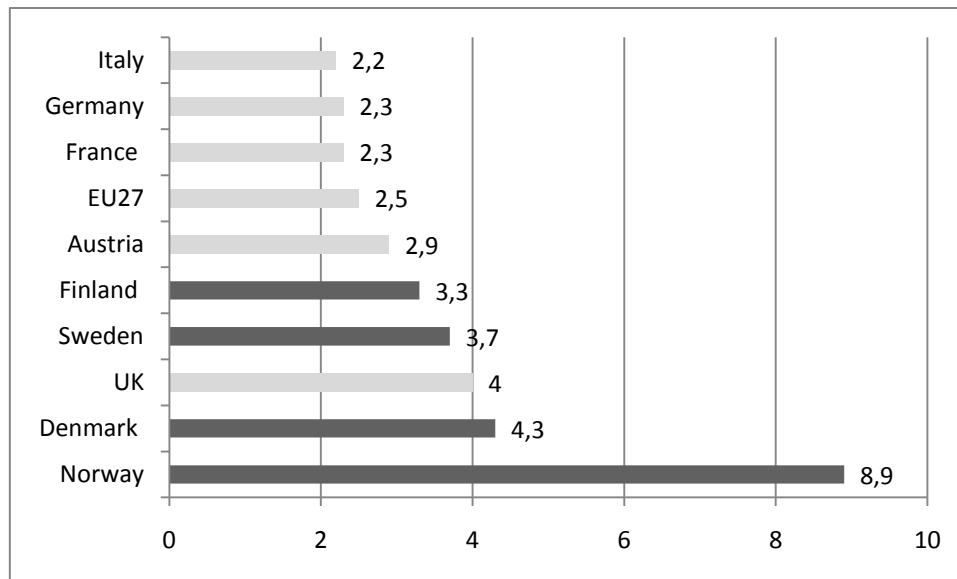


Figure 8: Flights per capita for selected European countries (SAS Group 2009)

### 5.3 Income

(MSEK)	2008	2007	2006	2005	2004	2003	2002	2001	Average
Passenger revenue	38 103	36 814	36 740	39 346	36 950	38 579	45 778	36 582	38 612
% of operating revenue	72 %	73 %	73 %	71 %	64 %	67 %	70 %	71 %	70 %
Charter revenue	1 663	1 927	1 773	4 280	3 773	n.a	n.a	n.a	2 683
% of passenger revenue	4 %	5 %	5 %	11 %	10 %	n.a	n.a	n.a	7 %
Cargo and mail revenue	1 509	1 700	2 102	2 127	2 432	2 620	2 836	2 493	2 227
% of passenger revenue	4 %	5 %	6 %	5 %	7 %	7 %	6 %	7 %	6 %
Other traffic revenue	2 159	1 295	1 684	1 767	1 644	5 265	4 454	831	2 387
% passenger revenue	6 %	4 %	5 %	4 %	4 %	14 %	10 %	2 %	6 %
Other operating revenue	9 761	8 862	7 854	7 981	13 294	11 290	11 876	11 527	10 306
% of passenger revenue	26 %	24 %	21 %	20 %	36 %	29 %	26 %	32 %	27 %
Operating revenue	53 195	50 598	50 153	55 501	58 093	57 754	64 945	51 434	55 209
% chagen from last year	5 %	1 %	-11 %	-5 %	1 %	-12 %	21 %	n.a	0 %

Table 4: SAS' historical income (SAS Group Annual Reports 2001-2008)

SAS' largest source of income comes directly from passenger revenue. Ticket sales on scheduled flights have made up around 70 % of total revenue for the last years and have been quite stable around this percentage. Revenue from charter flights and cargo and mail revenue are both only around 5 % of passenger revenue and therefore not that important. "Other operating revenue" is a large post which makes up around 25 % of operating revenue. Precise information about this revenue group is only available from the last 4 years and is shown in Table 5: Breakdown of "Other operating revenue" below.

<b>Other operating revenue</b>	<b>2008</b>	<b>2007</b>	<b>2006</b>	<b>2005</b>	<b>Average</b>
<i>In-flight sales</i>	519	511	493	588	528
<i>% of operating revenue</i>	1 %	1,0 %	1,0 %	1,1 %	1 %
<i>Ground services</i>	1265	1455	1213	1255	1 297
<i>% of operating revenue</i>	2 %	2,9 %	2,4 %	2,3 %	2 %
<i>Technical maintenance</i>	792	973	1147	752	916
<i>% of operating revenue</i>	1 %	1,9 %	2,3 %	1,4 %	2 %
<i>Terminal and forward services</i>	1916	1592	1513	1193	1 554
<i>% of operating revenue</i>	4 %	3,1 %	3,0 %	2,1 %	3 %
<i>Sales commissions and charges</i>	668	834	820	1020	836
<i>% of operating revenue</i>	1 %	1,6 %	1,6 %	1,8 %	2 %
<i>Other</i>	4601	3497	2668	3173	3 485
<i>% of operating revenue</i>	9 %	6,9 %	5,3 %	5,7 %	7 %

**Table 5: Breakdown of “Other operating revenue”**

After breaking up the “other operating revenue” we can see that ground services and terminal and forward services are other income sources that each make up around 2-3 % of total income. This is typically support functions that are necessarily for the flight operations. In-flight sales are insignificant with only 1 % of total revenue. The unexplained “other operating revenue” items are relatively unstable and makes up about 7 % of total revenue the last three years.

Total operating revenue has been quite unstable over the period and it is therefore hard to draw any conclusions. This is of course related to the company’s continuously changes in structure and the highly dependences on business cycles. An average growth of nearly 0 % over the last eight years is however pretty weak.

## 5.4 Expenditures

SAS’ largest operational expenditure is payroll expenses. This is sort of their Achilles heel. The wage level in the Scandinavian countries is high, especially in Norway, and as a former state owned monopolist the unions stand very strong. This has made salary cuts nearly impossible in the past. The payroll expenses have been quite stable over the last years and were in 2008 34 % of total revenue. Compared to other companies (Table 6) SAS is as expected above all their competitors. Compared to the other network and also formerly state owned companies, British Airways and Air France KLM, the percentage is only a few points above. But compared to the airlines in their local markets of Norway, Sweden and Finland SAS is some way above when it comes to salary cost. Especially compared to Norwegian where SAS was 18 percentage points higher in 2008. SAS is as well 10 % higher than Finnair.

<b>Payroll expenses in % of total operating cost</b>	<b>2008</b>	<b>2007</b>
<i>Norwegian</i>	18 %	17 %
<i>Finair</i>	n.a	27 %
<i>Air France KLM*</i>	34 %	34 %
<i>Brithis Airways*</i>	32 %	30 %
<i>SAS Group</i>	36 %	37 %
* 1.April-31. March		

**Table 6: Competitor payroll comparison**

Selling costs have dropped significantly over the last years. It went from 5.65 % of revenue to only 1.28 % in 2008. Before tickets were mainly purchased through telephone sale or agencies. But today more and more tickets are bought directly online which provides no or little cost for the airline.

Jet fuel expenses have really exploded over the last years. It has gone from 10 % of operating revenue in 2001 to 18 % in 2008. This has to do with the oil price boom we witnessed from 2004-2008. The oil price went from 30 dollars per barrel in 2004 and peaked at around 145 in late June 2008. The 10<sup>th</sup> of March 2009 the oil price was down to 45 dollars. Increase in oil prices has at least two effects on the airlines. First of all there will be a direct effect on profitability since many tickets are sold months before the flight so the airline has to pay for the increased fuel costs itself. Secondly when the airlines adjust their ticket prices upwards to make up for the increased oil price the demand will fall according to micro theory. Since the jet fuel cost is measured against the operating revenue the increase shows that SAS is suffering greatly from the increased jet fuel price. SAS is hedging around 50 % of their expected fuel consumption with different derivatives and this have helped them a bit when the oil prices went up but are also costly when the price goes down.

<b>Operating expenses</b>	<b>2008</b>	<b>2007</b>	<b>2006</b>	<b>2005</b>	<b>2004</b>	<b>2003</b>	<b>2002</b>	<b>2001</b>	<b>Average</b>
<i>Payroll expenses</i>	-18 153	-16 897	-16 229	-18 163	-19 585	-21 927	-22 352	-17 792	-18 887
<i>% of operating revenue</i>	34,1 %	33,4 %	32,4 %	32,7 %	33,7 %	38,0 %	34,4 %	34,6 %	34,2 %
<i>Selling costs</i>	-680	-660	-641	-997	-1 233	-1 452	-2 825	-2 467	-1 369
<i>% of operating revenue</i>	1,3 %	1,3 %	1,3 %	1,8 %	2,1 %	2,5 %	4,3 %	4,8 %	2,4 %
<i>Jet fuel</i>	-9 637	-7 554	-7 953	-8 123	-6 252	-4 743	-4 938	-4 254	-6 682
<i>% of operating revenue</i>	18,1 %	14,9 %	15,9 %	14,6 %	10,8 %	8,2 %	7,6 %	8,3 %	12,3 %
<i>Government user fees</i>	-4 662	-4 316	-4 396	-5 787	-6 139	-5 842	-5 893	-4 203	-5 155
<i>% of operating revenue</i>	8,8 %	8,5 %	8,8 %	10,4 %	10,6 %	10,1 %	9,1 %	8,2 %	9,3 %
<i>Catering costs</i>	-1 346	-1 373	-1 388	-1 821	-1 783	-2 226	-2 242	-1 735	-1 739
<i>% of operating revenue</i>	2,5 %	2,7 %	2,8 %	3,3 %	3,1 %	3,9 %	3,5 %	3,4 %	3,1 %
<i>Handling costs</i>	-1 851	-1 776	-1 893	-2 709	-2 539	-2 553	-2 584	-2 228	-2 267
<i>% of operating revenue</i>	3,5 %	3,5 %	3,8 %	4,9 %	4,4 %	4,4 %	4,0 %	4,3 %	4,1 %
<i>Technical aircraft maintenance</i>	-3 197	-3 144	-3 164	-2 049	-2 233	-2 650	-3 164	-2 733	-2 792
<i>% of operating revenue</i>	6,0 %	6,2 %	6,3 %	3,7 %	3,8 %	4,6 %	4,9 %	5,3 %	5,1 %
<i>Data and telecommunications</i>	-2 282	-2 219	-2 727	-2 878	-2 985	-2 377	-2 689	-2 646	-2 600
<i>% of operating revenue</i>	4,3 %	4,4 %	5,4 %	5,2 %	5,1 %	4,1 %	4,1 %	5,1 %	4,7 %
<i>Other expenses</i>	-8 136	-7 640	-6 662	-7 296	-10 876	-10 223	-10 963	-10 217	-9 002
<i>% of operating revenue</i>	15,3 %	15,1 %	13,3 %	13,1 %	18,7 %	17,7 %	16,9 %	19,9 %	16,2 %
<b>Operating expenses</b>	-49 944	-45 579	-45 033	-49 822	-53 625	-53 993	-57 650	-48 275	-50 490
<i>% of operating revenue</i>	93,9 %	90,1 %	89,8 %	89,8 %	92,3 %	93,5 %	88,8 %	93,9 %	91,5 %

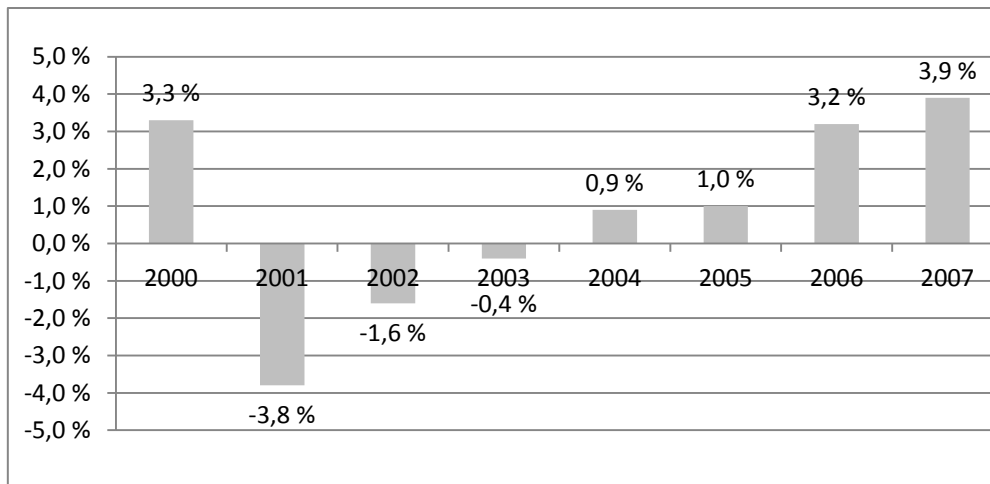
**Table 7: Historical operating expenses (SAS Group Annual Reports 2001-2008)**

Other large expenses for SAS are government user fees and something they call “other expenses”. Government user fees are not controlled by the company and have been stable around 8.5 % of operating revenue the last years. We have not been able to get more information of what “other expenses” actually is, but we believe it is related to other revenue in the income statement and contain costs like restructuring, goods, office rental and R&D. This item have been stable around 15-16 % of operating revenue the last three years and should therefore be possible to predict without future information. The rest of the items in operating expenses are stable and a quite small and will be given no further attention.

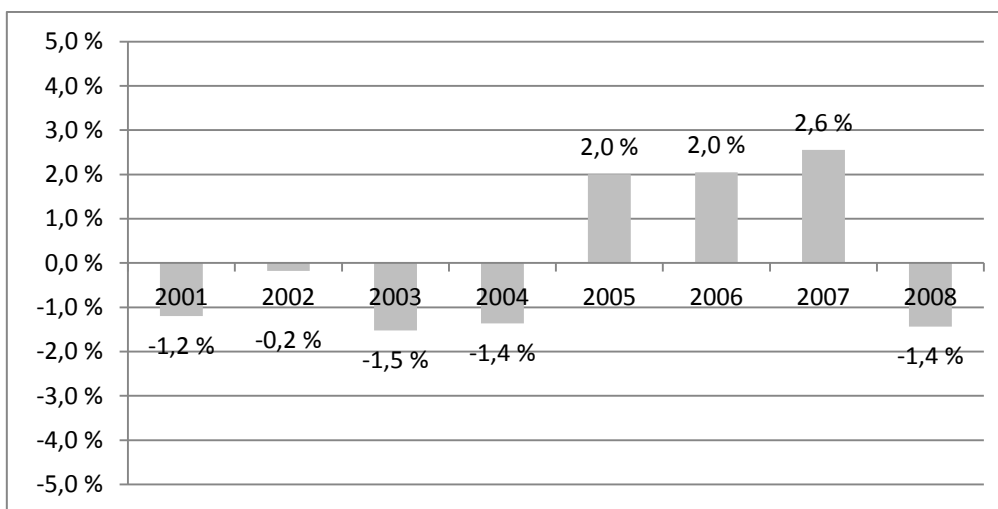
## 5.5 Profitability

In general the profitability for airlines has been remarkable low after year 2000. As Figure 9 shows the operating margins are far below what the industry needs to be genuinely sustainable which is estimated to 8 % (AEA 2008). The year of the terror attack in 2001 and the year of the SARS outburst in 2003 were especially bad ones. But on the positive side if we look away from the extreme events there seems to be a small positive trend upwards for the operating margins. This has unfortunately reversed in 2008 when most of the world went into recession. The operating margin is what is left of the revenue to cover capital cost and taxes. As we see Figure 9 this is on an unacceptable level.



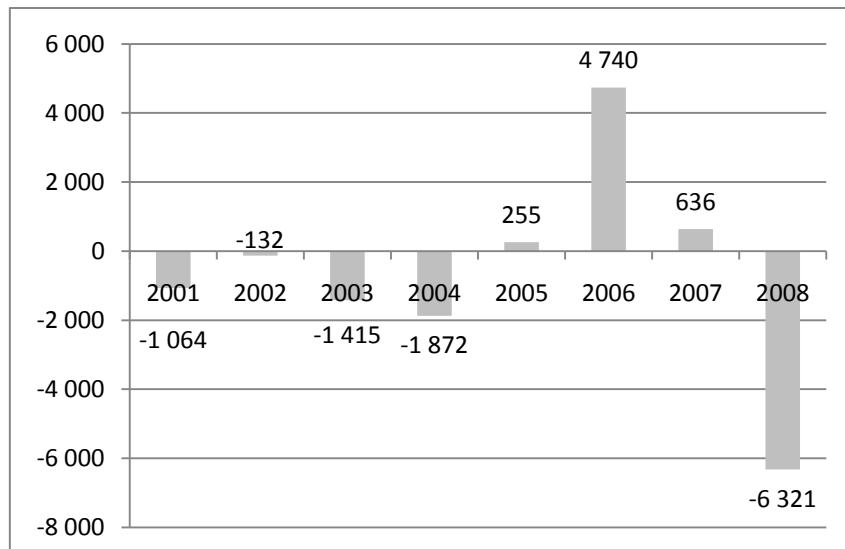


**Figure 9: World airline's historical operating margin**



**Figure 10: SAS' historical operating margin**

Compared to the rest of the world's flight industry, SAS is doing quite badly. 2005-2007 was three positive years but besides that it is not looking bright. SAS has set an earnings before tax (EBT) target of 7%. They have been nowhere close to this the last eight years. SAS did however see pretty good result in the 1990's. But this was a time when they almost were in a monopoly situation in Scandinavia and in addition the competition in the aviation industry has exploded in recent years. With the economic recession we see today, several airlines have already gone bankrupt and others have been sold for nearly nothing. What we are witnessing is a consolidation of the industry which could lead to better profitability in the future. SAS' former largest competitor in Denmark (Sterling) went bankrupt in late 2008 which shows that competition has been too intense in the Nordic region as well and that margins could improve in the future.



**Figure 11: SAS' historical net profit (MSEK)**

SAS' net income the last eight years have been nothing but disastrous. There is only one exception. In 2006 the net result was over 4 billion Swedish Kroner (BSEK). This was however almost in its entirety related to profit from discontinued operations<sup>10</sup>. The same goes for the terrible result in 2008. Spanair, which is now sold for one euro, accounted for 5.5 billion of total losses. At least SAS had weak, but positive results from 2005-2007. This shows that it should be possible to create a sustainable profitable airline company out of SAS.

If we take a look at two of the other airline companies operating in SAS home market we see that they as well are struggling to obtain impressive results. Both Norwegian and Finnair are at about the same level as SAS when it comes to EBIT margin over the last three years. This shows that it is not only SAS that are struggling in Scandinavia but also its competitor. It is obvious that changes needs to be made to make the airline industry more profitable.

If we look at the profitability from an investor's perspective one SAS share bought on the Oslo Stock Exchange 5 years ago would have given a return of approximately – 65 % (without taking the alternative cost of money into account.) The company has not paid dividends since it was listed as a single stock in 2001. If you had rather bought an index share on the same stock exchange your earnings would be close to zero (excluding dividends). It looks like SAS is doing more value destruction than value creation at the moment.

<sup>10</sup> SAS' hotel division was sold this year with a net profit of 4,5 BSEK

## 5.6 Credit risk

To this point we have only focused on the operations of the company and its ability to create value. We will now turn to look at the capital structure and measure the company's ability to meet interest demands and repay debt. The airline industry is capital intensive and therefore capital structure is an important part of its operation. Debt burden is important for future analysis because heavy debt and pay back difficulties will result in higher risk and thereby increased cost of capital. SAS has been given a rating of B by Standard and Poor's. This rating is within the "speculative grade" which is everything below BBB-. Speculative grade is a category where the debt issuer generally has the current ability to meet financial commitments but are facing significant uncertainties, such as difficult business or financial circumstances that could affect credit risk. B rating indicates major economic uncertainties (Standard & Poor's 2009).

### 5.6.1 Coverage

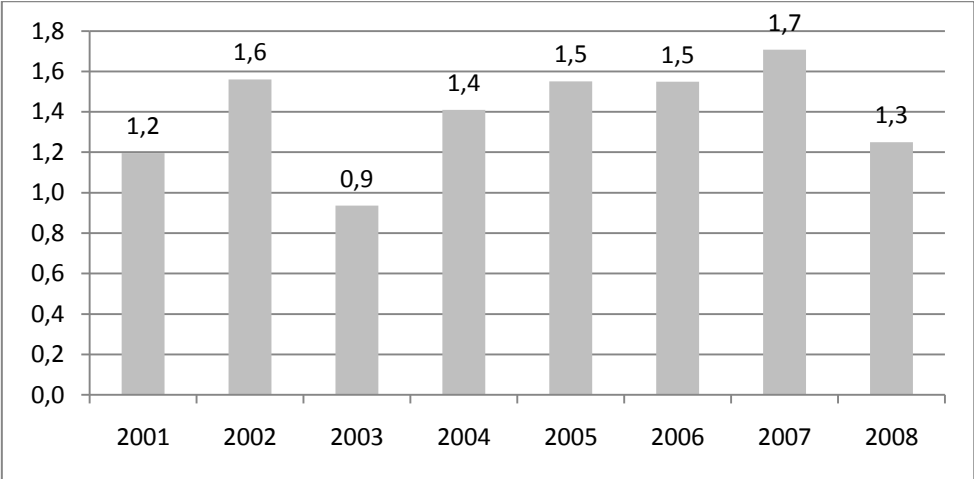
We will calculate interest coverage by dividing EBITDA by interest. This ratio measures the company's ability to meet short-term financial commitments, using both current profits and profits that should be used for replacement capital (McKinsey & Company 2005). Since we have chosen to treat operating leasing as financial cost we have added an implicit interest part from the operational leasing cost using Formula 2. We solve it with regards to cost of debt and can by that find the implicit interest rate on the leased items. This gives us:

$$k_d = \frac{\text{Rental Expense}}{\text{Asset Value}} - \frac{1}{\text{Asset Life}} \quad \text{Formula (5)}$$

Rental expense is the same as leasing cost in the formula and can be found directly in the annual report. Asset value however, the value of the leased planes, is a bit more tricky. But there is a simple rule of thumb that the capital market uses for financial evaluation of airplane leasing (SAS Annual Report 2008). They simply take the leasing cost and multiply it by 7, than you will approximately get the value of the leased planes. This 7x multiplier is used by SAS as well in their annual report for different value calculations, so we believe it should be an acceptable approach for us as well. Asset life value, or the life expectance for air planes, is set to 25 years. This is a normal approximation in the industry. Using these assumptions we

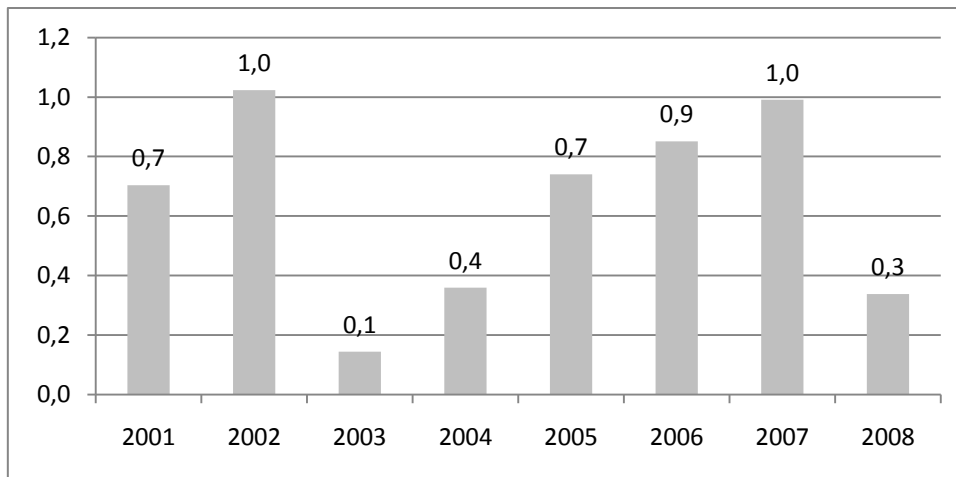
get an implicit interest rate of 10.3 % on the leased assets. If it is a good idea or not to add this implicit interest cost in the coverage calculation is a good question. But either all rental cost from leasing should be counted or none. And since some leasing is capitalized and some is not it is easier to add rental cost from the none-capitalized since we have little or none information about the other. Also when we have all the leasing rental cost includes the total interest rates appear as if all assets were owned and we eliminated the problem with changing ratio between leased and owned airplanes.

SAS interest coverage rate has improved greatly after the industry downturn in 2001. It was below one until 2003 which meant that the company had to use retained earnings to cover interest rates. From 2004 and onwards SAS had an sufficient EBITDA result to cover the short term financial interest cost but not much was left for the yearly replacement cost of assets. In 2008 the rate fell again as a result of a turbulent year. Generally this shows that SAS have the ability to repay their short term interest cost which is consistent with their investment grade.



**Figure 12: SAS' interest coverage rate**

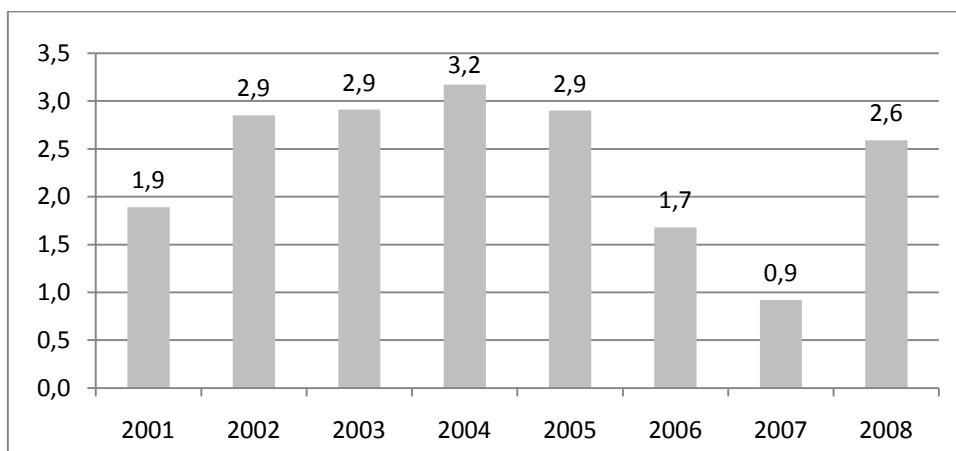
To find total depreciation costs we have used the same interest approximation for leasing as above. The implicit depreciation costs of the leased assets are then added to the depreciation cost found in the income statement. Then we can find an EBIT result (excluding nonrecurring items) and see what part of the interest costs that are covered by this income measure. Only in 2007 the ratio was close to 1, meaning that the ordinary income covered the depreciation expenses. But still nothing was left for the for the equity owners. The reason for the net operating result being positive in recent years is mainly because of income and transactions from discontinued operations.



**Figure 13: SAS' EBIT/Interest rate**

As we see in Figure 13 SAS is struggling to pay their interest rates without having to use cash that should have gone to replace depreciating equipment. This can of course not continue in the long run and if the management does not change this trend the company should not be kept alive in its current state. This also confirms why SAS' credit rating belongs in the "speculative grade" category.

### 5.6.2 Leverage



**Figure 14: SAS' adjusted debt ratio**

The SAS Group is heavy leveraged. When the operational leasing is capitalized, using the x7 rule, the company has a debt/equity ratio of 259 %. This is far above the ratio target of less than 100 % (SAS Group 2009). From what we have learned in corporate finance courses high leverage is best suited for companies with positive and predictable income. SAS has rarely benefited from the tax shield that debt provides because of negative income. The income of the company is as well unpredictable because of the industries high dependent on external factors. This makes the company vulnerable because it could struggle to pay its debt in

turbulent times. And right now we are witnessing theory in practice. After last year's heavy losses SAS has renegotiated debt for BSEK 6.5 expiring in 2010-2011 to 2012-2013 (SAS Group Annual Report 2009). And as mentioned earlier they are raising BSEK 6 in new equity. Some of this will have to be used to cover expected losses in 2009 and then whatever is left to repay debt. Over the next five years BSEK 13.7 worth of debt is expiring. This will be impossible to pay back if not margins are changed dramatically, which is unlikely in the short run, or alternatively new debt or equity is raised. The cost of new debt will most likely be even more expensive than the current one as the credit rating has fallen and the renegotiating of debt is a bad signal for the capital market. Although the government owners see SAS as an important part of their countries' infrastructure, the risk of bankruptcy should not be underestimated. There are others airlines that could operate the routes just as well, if not better.

# 6 Strategic analysis of SAS

## 6.1 External analysis

In the following part we present how environmental factors can change the premises for economic profit in the airline industry.

### 6.1.1 Environmental analysis of SAS' market area

Consumption is a social force and depends on people's desire for a good or service. The aircraft industry is strongly dependent on people's desire for travel. Fear and skepticism owing to accidents, terrorism and nature catastrophes can result in reduced air travel. In business situations telephone meetings and video conferences can replace face-to-face meetings. According to SAS annual report from 2001 the incident in New York on the 11<sup>th</sup> of September resulted in an enormous decrease in air passenger traffic. In connection with the accident the cost of insurance and air safety also increased considerably. In the period from 11<sup>th</sup> September to 31<sup>th</sup> December the traffic of the AEA-companies (Association of European Airlines) fell on average with 31 %. As the figure below describes the industry is highly sensitive to unforeseen incidents, conflicts and wars.

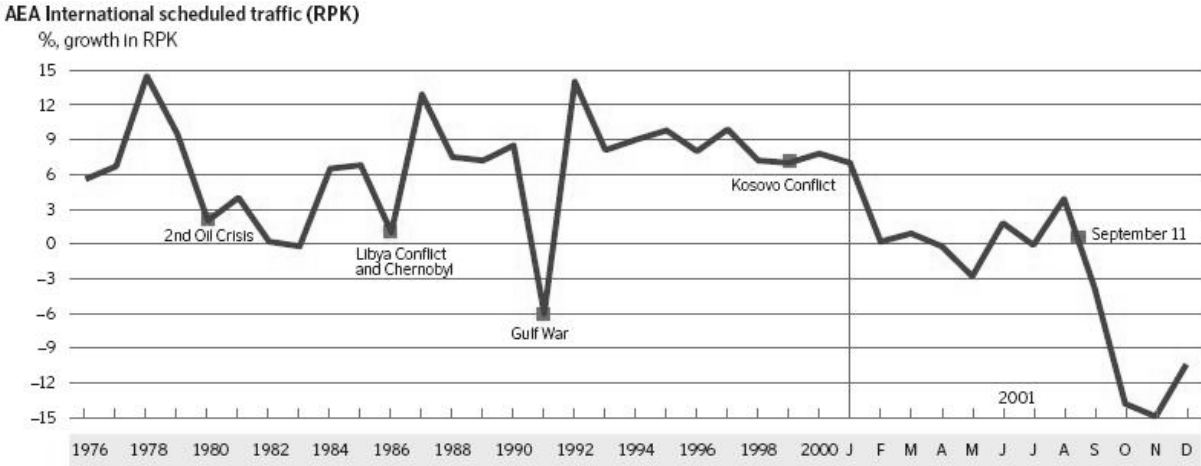


Figure 15: Extreme events and passenger decline (SAS Group Annual Report 2001)

Flying can be viewed as something people only do when they feel they can afford it and must be considered as a luxury good according to Maslow's hierarchy of needs (Maslow 1943). Owing to this, the airline industry is strongly dependent on business cycles and income level.

The median revenue in Norway has increased with 22 % from 1990 to 2002 measured in fixed prices (Kleven og Mørk 2004), which is strongly positive for the airline industry.

Inflation, consumption, unemployment and interest rates are all economic factors which are tied close together. All of them are important for the airline industry since a negative development in one of these key factors can lead to a change from consumption to saving. In a fluctuating market people are more restrictive with spending on luxury goods as mentioned above.

In the airline industry fuel prices are a critical economic factor. Fuel prices are directly connected with growth in oil prices. The last years these expenses have been the main driver on the cost side. To make jet fuel costs more predictable, SAS hedges a percentage of expected fuel consumption. On one hand this makes economic planning easier. On the other hand hedging is costly when oil prices are stable and the different financial instruments are not exercised. As mentioned earlier, SAS hedges on average 50 % of expected fuel consumption (SAS Group 2009). Only within the last two years fuel expenses have risen from about 15% of AEA members' total operating cost to 22.5% (AEA 2008). In a press release from April 2008, when the oil price was near its peak, SAS put emphasis on the challenge of high fuel costs and low yield (SAS Group 2008). This confirms how important oil prices are to the margins in the industry.

A possible increase in taxation in the airline industry can lead to lower margins. Today Norway is the only country in the world that has both a carbon tax and a NO<sub>x</sub> tax on jet fuel. Since the European Parliament and some parts of the European Commission regard this as unsatisfactory the Commission has worked through the International Civil Aviation Organisation (ICAO) trying to induce a global carbon tax on jet fuel. Temporarily this kind of regulation hasn't given any concrete result, but it constitutes a large threat to the business sector by a potential introduction (SAS Annual Report 2008).

### **6.1.2 SAS' competition market**

As described in the theory chapter competitive forces are vital for possible profits in any industry. In the airline sector a study of air traffic showed that ticket prices decreased on flights between cities where competition existed. As an example ticket prices on the distance Oslo– Bodø fell with about 30 % from 2003 to 2007 after Norwegian gave SAS competition.



In accordance to theory the offering of an identical product will transfer power to the customers and push prices downwards (Transport Økonomisk Institutt 2007).

Within the past years a competition skew occurred in the Norwegian aviation market. In 2003 the airline company Norwegian had a higher share of business travellers on distance where they competed with SAS for the first time. Today however SAS has relatively strengthened their position in the business segment on the expense of Norwegian and SAS is yet again regarded to be the businessman's choice (Transport Økonomisk Institutt 2007).

Despite of deregulations in the aviation industry high entry barriers still exists. Plans for large new airports in Europe do not exist at the moment and in any case it will take 10-15 years to complete this kind of project. The existing airport's lack of free slots<sup>11</sup> makes it difficult for new airlines to enter the market. Therefore SAS' competitors will most likely remain the same in near future (SAS Annual Report 2008). The question is whether different plans concerning possible further landing strips will become approved in the future. The management of Oslo Airport Gardermoen has for example made a proposition for a third landing strip to the Ministry of Transport. If this become approved the capacity will increase significantly. This can create an entry possibility for new airlines and in addition intensify competition to and from Norway's by far largest airport (Oslo Lufthavn Gardermoen 2007). Oslo Airport Gardermoen opened as late as in 1998, but in 2008 the capacity was already overloaded.

Air traffic control and airport service providers are mostly government controlled and are in a monopoly situation. This means they have nearly all the negotiation power. About BSEK 9.8 was paid in total fees from costumers and airlines in 2007 (SAS Annual Report 2008). Especially the low cost airlines try to deal with this problem by using smaller airports outside the biggest cities. This way they both avoid the capacity problem at the larger airports and pay less user fees.

SAS is struggling to keep their current market shares. Norwegian has now 43 % market share on key routes in Norway. The no-frills company captures an increasing part of domestic traffic as Figure 16 describes. Within the last year Norwegian has at the sacrifice of SAS

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<sup>11</sup> takeoff and landing times

increased their share with 2 % (Norwegian 2009). This trend is also reflected by that the no-frill companies have increased their share from 9 % in 2003 to 29 % in 2007 on flights from Norway to foreign countries. The growth is explained both by increased market share on exciting routes and expanded number of destinations (Transport Økonomisk Institutt 2007).

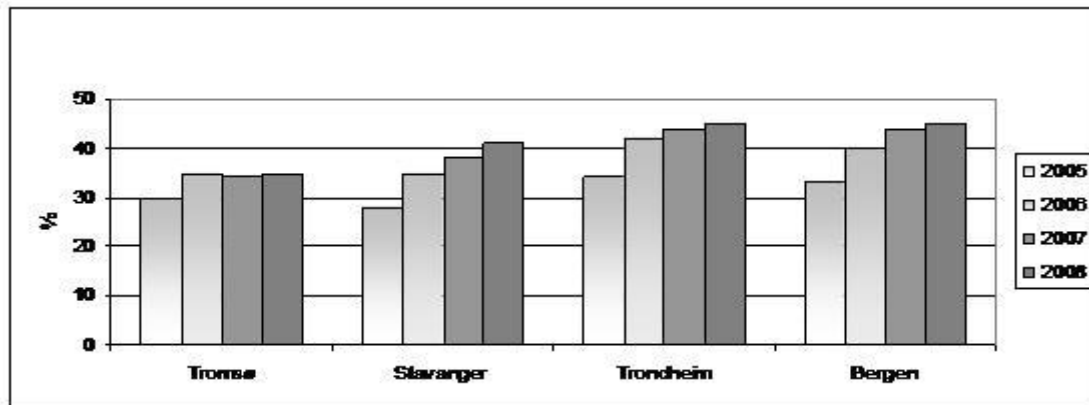


Figure 16: Norwegian's market share on key routes in Norway (Norwegian 2009)

Worldwide economic expansion up to 2008 has resulted in high growth. The optimism is reflected in the number of ordered aircrafts. As an example Norwegian is investing in 42 new aircrafts and has in addition an option on 42 more. Increased air fleet indicates even harder rivalry in SAS' home markets.

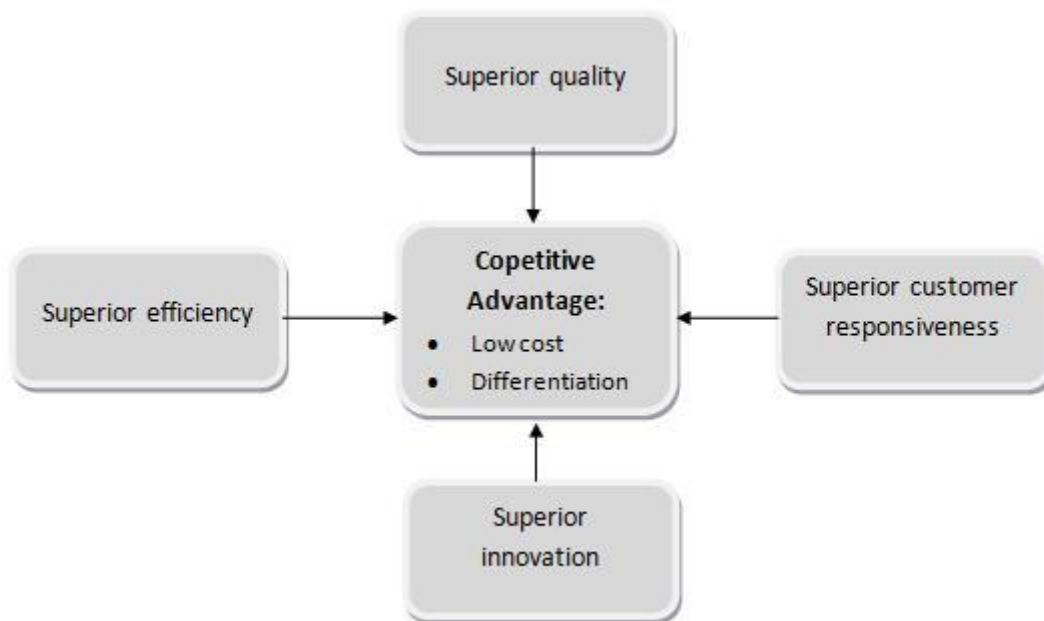
### 6.1.3 Conclusion

SAS operates in an industry which is highly affected by the environment. Incremental changes can lead to radical reductions in the possibility of gaining profits. The sector is characterised by strong rivalry which again transfer power to costumers. In addition potential profit is reduced since the negotiation power belongs to the suppliers. The external analysis of the industry indicates low profitability potential if the airline does not have the ability to handle quick changes and being precautious. To survive in this industry it is vital to get the maximum out of the utilized recourses.

## 6.2 Internal analysis

### 6.2.1 "KIKK"-Analysis of SAS

As mentioned in the theory part efficiency, quality, innovation and customer responsiveness are all building blocks in creating a strategic advantage. In the following part these factors are presented together as they highly influence each other.



**Figure 17: “KIKK”-analysis**

As a response to current internal challenges, intense competition and internal struggles SAS has decided on a new strategic direction for the Group. The new strategic approach is built on five pillars which are focus on the Nordic home market and business travellers, strengthened commercial offering and improved cost base, streamlined organization, customer oriented culture and strengthened capital structure.

The “Core SAS” strategy plan reduces the company’s geographical operation area. The new focus will be on the Nordic home market and in particular on business travellers. Since business travellers are the most profitable segment SAS wish to prioritise this group and provide the best service available. Business travellers are the most profitable group because they are the ones who usually buy the full price tickets with full flexibility. In 2006 about 60-70 % of the SAS Group’s customers flew on business purpose (SAS Group Annual Report 2007). Within the framework of Core SAS the Group has launched a concept where the aim is to minimize travel time and maximise perceived customers value. The concept also contributes to increased efficiency as unprofitable routes are being closed down. This will increase margins and release resources which can be rearranged to more profitable projects.

To improve their competitiveness the SAS Group works continuously to develop and improve their business model to increase costumer value. There are many examples of innovations in recent years. Two of them are internet check-in and continuously improved online booking

with price calendars that shows when the best offers are available. In an attempt to increase their product portfolio SAS has introduced something they call “economy extra” where passengers with an upgraded ticket get a “free” meal and a drink during the flight. Another innovation is the introduction of fast track security control dedicated to business class passengers. Since many airports have large queues in front of the security check the fast track makes a great opportunity for business travellers to save time (SAS Annual Report 2008) .

SAS also provides supplementary services such as in-flight shopping and travellers have the opportunity to book hotels and rent cars from their home page. These quality attributes are all supplementary services in an attempt to increase product value.

### **6.2.2 Analysis of SAS' resources**

For SAS it is of high importance to have resources that creates company value. In the following part an analysis of some of these resources are presented.

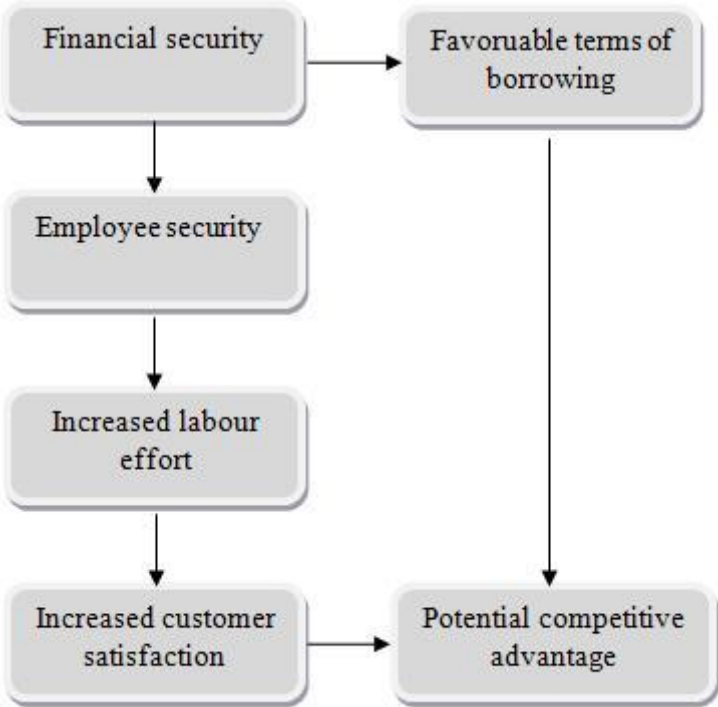
A well-known and incorporated brand can create a large excess value for a company. According to the American Marketing Association, a brand is a “name, term, sign, symbol, or design, or a combination of them, intended to identify the goods and services of one seller or group of sellers and to differentiate them from those of competition”. A search for Scandinavian Airlines on Google results in over 1 million hits which indicate what a massive amount of media coverage this company gets. SAS has established a strong brand name and image, based on quality and safety.

The SAS brand can be regarded as a competitive advantage, as the company's competitors cannot easily copy this image. However the destruction of a strong brand is easier. SAS has experienced that single episodes such as the problems with Dash q400, can greatly damage the company's image of safety and reliability. Ternert states that the company took the Dash Q400 aircrafts out of operation in order to maintain the company's brand image (Hauger 2007). This shows the managements awareness of the importance of keeping a strong brand.

SAS benefits from being the historical flag carrier and as such a national symbol. At least in the past one could say that the feeling of national pride and belonging added to SAS' brand

value. After SAS lost its monopoly the sense of national belonging has diminished. The first mover advantage is long gone and SAS struggles with the notion of being an old-fashioned, slow moving giant. Media has had a negative focus on the company in the last years, and SAS must work hard to gain renewed confidence in the market.

The Scandinavian governments that control the majority of the SAS shares provide some financial security due to their financial strength and long term commitment. Supportive for this is the current rights issue which was accepted without any conflicts. Strong capital structure must be viewed as important because it makes a guarantee to SAS employees concerning the company’s ability to handle unforeseen changes and necessary adjustments. It is minimal probability that the owners will let SAS go bankrupt, and because of this we think SAS has a lowered credit risk. Financial security creates confidence that could lead to spin-off effects among employees concerning motivation and effort as again can form a competition advantage. The connection is illustrated in the figure below.



**Figure 18: Financial strength as competitive advantage**

The workforce keeps the wheels rolling and is the fundamental pillar of any company. In SAS they constitute the public face, and are extremely vital with respect to the public’s interpretation of the company. Recently however this resource has been more of a liability. This can be supported by countless examples. One is SAS Norway’s disagreement with their

employees concerning pension terms that have result in both anger among employees and increased cost since the company lost in court (Klever 2008). Strike is unfortunately a frequently used policy instrument of different employee groups. Huge cost losses are the consequences because of cancelled flights and costumers turning their back on the company. Strike leads to a weakening of SAS' reputation and brand and people lose their company trust. According to one of the most well reputed trade union leader satisfied employees leads to satisfied customers. As support for this he also refers to Norwegian's CEO Bjørn Kjos statement in connection with the pilot strike in 2007 of how important it is to be a friend of your employee. Kjos even emphasises that this is more important than being friends with your costumers.

It is no doubt that SAS' employees are the most important intangible resource of SAS. SAS must work to improve communication with employees and ensure that there is motivation and a sense of belonging that induces the staff to work for the company rather than against it. SAS' employees have benefited from excellent beneficial terms when it comes to salary, compensations and work hours. As the company now is in a period of change it is important that the employees are informed about the situation and that they get an explanation concerning why things are changing and why the changes are necessary for survival in today's market.

SAS most important tangible asset is their air fleet, which include about 10 different kinds of aircrafts. This constitutes an advantage since it enables SAS to serve different kind of routes, i.e. long haul, short haul and intercontinental. Norwegian, on the other hand, does not have this opportunity as their fleet consists of only one type of aircrafts. The variety in aircrafts can also be a challenge. Pilot must have dedicated training to operate a specific aircraft and therefore they cannot step in to operate any aircraft in the fleet if needed. It also increase maintains costs as they have to use different providers and thereby lose the benefits from economics of scale (Kjos 2009). A compound air fleet can be viewed both as a rare and important recourse. If SAS closest competitors in the future decide to position different, their aircraft composition will not constitute an advantage for the company.

SAS' large share of leased aircrafts provides high flexibility tied to changes in demand. In times of recession it is difficult to sell owned airplanes, but it is easy to not renew expired

leasing contracts. Leasing is easily copied by competitors and cannot be said to be a competitive advantage.

SAS' membership in Star Alliance constitutes a strategic advantage. Code sharing, where alliance members share aircrafts on given routes, provides an improved service offer and increased capacity utilization. At the end of 2008, 24 airlines were members of the Star Alliance. This membership also makes it possible for SAS to offer flights to their costumers they do not operate themselves (SAS Group Annual Report 2009). Compared to almost all of SAS' closest competitors their membership in Star Alliance must be view as both rare and important. However other alliances do exist, e.g Skyteam, so SAS' competitors do have the possibility to enter such alliances. However, membership in other alliances than Star Alliance does not imply equivalent advantages to these companies. Star Alliance is today the largest worldwide airline alliance and in the end the value of being a member in an alliance depends upon the strength of the other members. Some of the current members are Lufthansa, Air China, South African Airlines, US Airways and Air Canada.

### **6.2.3 Conclusion**

Efficiency, quality, innovation and costumer response are all tied close together. It is clear that SAS must be adaptable and precautious in order to survive. Through increased focus on business travellers SAS will strengthen their position in the market. It seems like a good move to have a more differentiated strategy.

SAS holds valuable recourses and some can be classified as competitive advantages that their competitors cannot easily copy. SAS' biggest problem is their bad utilization of employees. Since SAS employees have a huge influence on the company's other recourses it is even more important. It is clear that some changes must be done in this area if SAS shall survive and operate profitable in the future.

### **6.3 Summary of the strategic analysis of SAS in a SWOT-analysis**

A comparison of a company's strength, weaknesses, opportunities and threats is often referred to as a SWOT-analysis. Its aim is to identify a strategic adjustment that will create a

company-specific business model that best will align, fit or match a company's resources and capabilities adjusted to the environment it operates within (Hill and Jones 2008).

In the previous strategic presentation different reasons whether SAS' has or has not the potential to gain competition advantage was presented. This is summarized in the SWOT-analysis below.

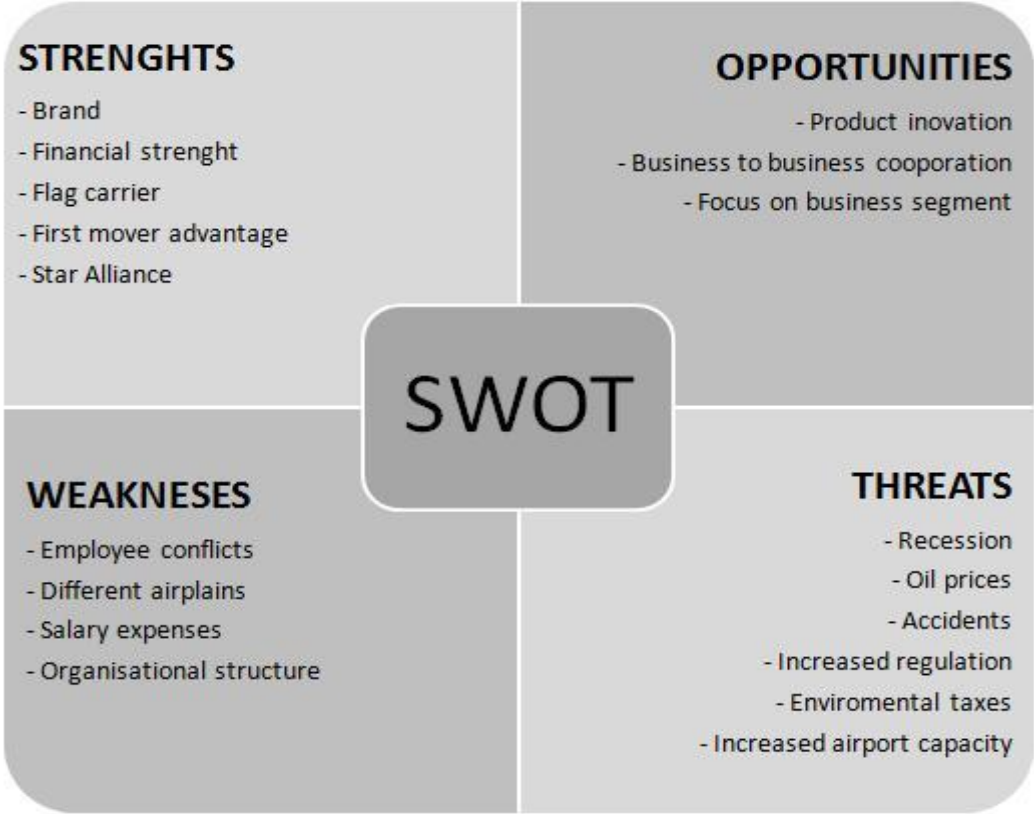


Figure 19: SWOT-analysis

To obtain sustainable profitability SAS is strongly dependent on maximising the utilization of its resources and implement a strategy that supports it. The company has from now on, according to its Core SAS strategy, intentions of focusing even more on business travellers and its home market. This is a good move since it is the company's most profitable segment. By differentiate towards this segment the company gets a clearer position in the market instead of unsuccessful trying to reach all groups. SAS cannot compete with low cost companies on price and should rather focus on product quality. By doing this well, SAS can get a sustainable competitive advantage by being the number one choice among the most profitable costumers.



# 7 Operating forecast

In this chapter we will summarize what the industry and SAS think about the future and make our own EBITDAR predictions based on that and the previous presented information.

## 7.1 Industry forecast

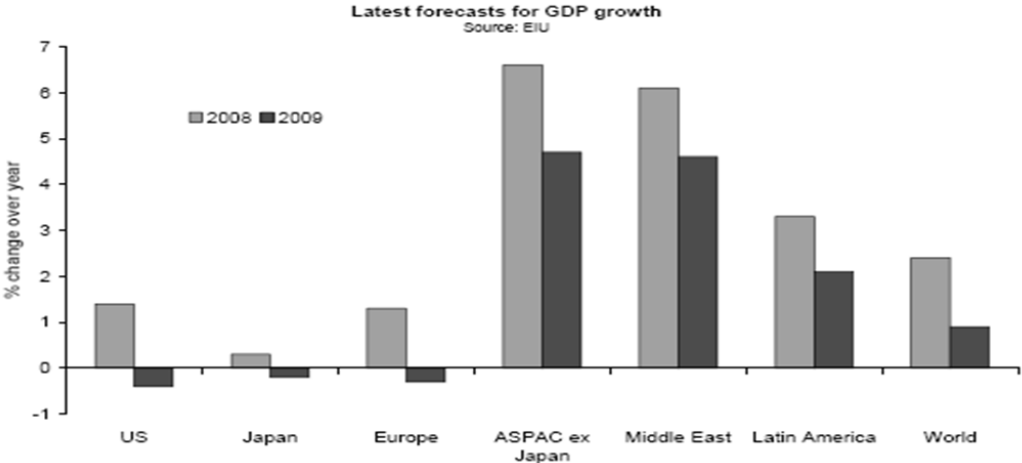


Figure 20: Forecasts for global GDP growth (IATA 2008)

Statistical evidence shows that GDP or income elasticity is high while price sensitivity is low in the aviation sector. Economic growth is the principle driver of the market, and today’s recession is extremely bad news for market prospects.

The mainstream opinion among economists in late 2008 was persisting economic growth. The three major economies of USA, Europe and Japan were expected to grow with respectively 0.5 %, 1.5 % and 1.5 %. As the figure above describes the forecast is now changed to negative growth for all of them. An even worse slowdown in growth is expected in previously robust emerging markets as for instance China and India. For the entire world the economic growth forecast is reduced from 2.6 % to 0.9 %. This is worse than both the recession in 1991 and during the downturn in 2001. The connection between GDP and passenger development over the last decades is illustrated below.

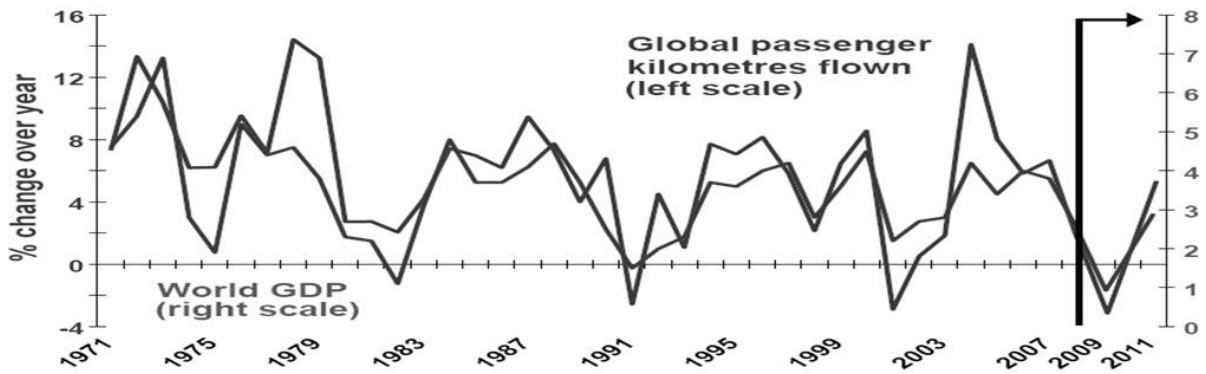


Figure 21: GDP and passenger growth (IATA 2008)

As a result of the recession US Airlines cut both domestic and international capacity in an attempt to reduce losses. This approach to save money is not as obvious in other parts of the world. In Europe fear of losing slots at congested airports makes airlines hesitate, while a large number of new ordered aircrafts must take the blame in Asia and Middle East. If forecast are correct, the result will be reduced load factors because of faster falling traffic than available seats, which again will lead to downward pressure on yield and profitability.

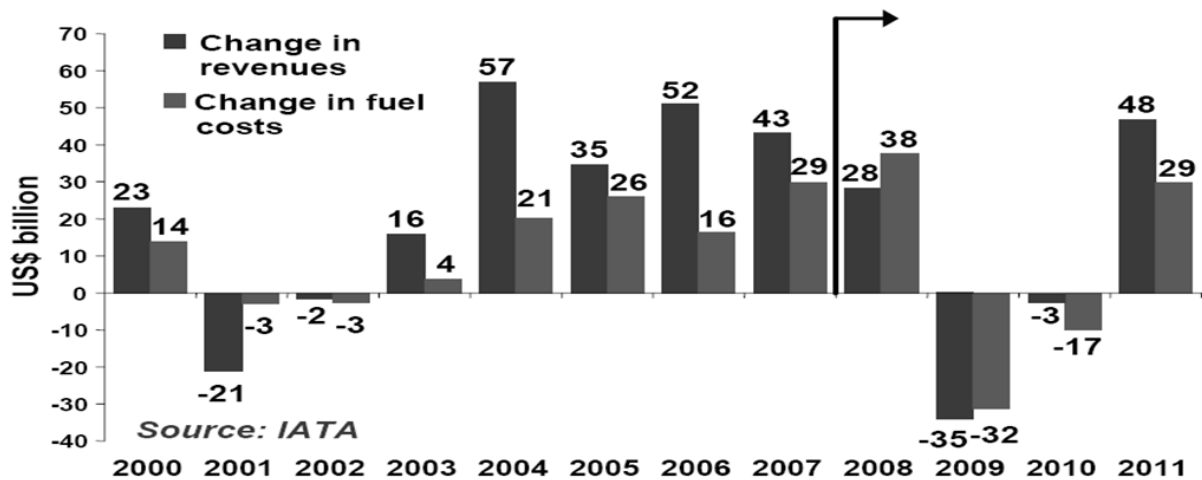


Figure 22: Predicted revenue and fuel cost reduction (IATA 2008)

Within the last 4 years oil expenses has been 20-30 % of the aviation industry's total cost. The graph below describes the oil price development from 2003 until today. Profitability in the airline sector is strongly dependent on development in fuel prices. In 2008 the price on jet fuel rose from \$ 90 per barrel in January to peak at \$ 180 per barrel in July. The result for the industry was an increased fuel cost of \$ 38 billion. In an attempt to neutralize price increases many companies have hedged a part of their oil consumption a year ahead. Because of a more drastic price bubble than consensus analysts have thought the spot and future prices in

December 08 where respectively \$60 and \$50 below 4 months earlier forecasts. This illustrates that hedging can both be an advantage and a disadvantage. The figure below shows that reduction in fuel price almost offset loss as a consequence of reduced capacity in 2009.

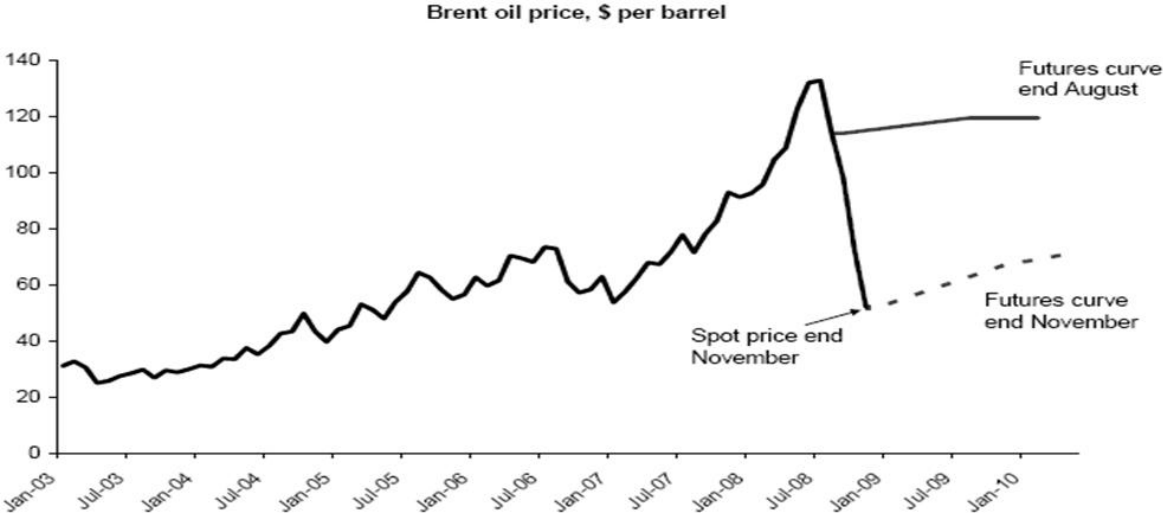


Figure 23: Oil price forecast (IATA 2008)

The current recession also affects passenger and air freight markets negatively. As world trade decreased, the air freight was reduced by almost 8 % in October 2008. As a consequence of increased unemployment and decreased average wealth the passenger market also went down 2 % the same month. Further absolute falls in both passenger and freights markets are expected. The figure shows the development in mentioned factors over the last three years.

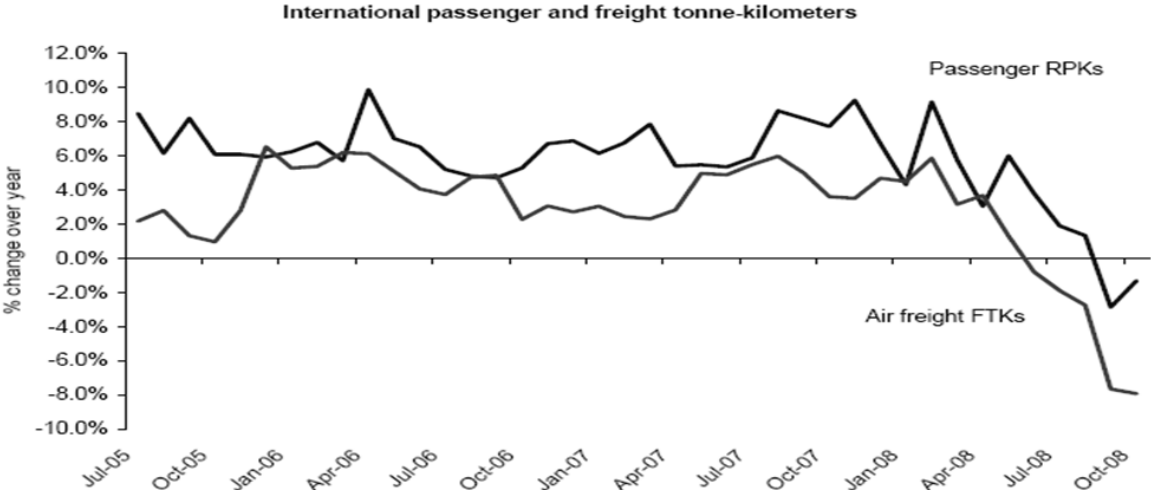


Figure 24: Traffic volume forecast (IATA 2008)

### 7.2 SAS' forecast

In this part we will look at what SAS is saying about the future themselves. With the new strategy plan (Core SAS) there are some major changes that need to be accounted for in our forecasts. SAS states that they in total will reduce cost with BSEK 4.

	SAS Group 2008*	Core SAS
Operating revenue	BSEK 63	BSEK 48
Adjusted net debt	BSEK 29	BSEK 14
Employees	23400	14600
Aircraft fleet	298	217
Passengers	40 million	28 million
Routes	200	124
Earnings effects		BSEK 7
*Including Spanair		

**Table 8: Effects of Core SAS strategy plan (SAS Group Annual Report 2009)**

Of the intended 4 billion cost reduction, 1.3 billion comprise savings from collective agreements. SAS has for many years been troubled with strong employee unions which have in the past negotiated agreements that are far better than their colleagues in competitive airlines. This has contributed to creating a negative cost gap between SAS and their nearest rivals. But in January 2009 there was a breakthrough concerning all of the 39 unions. New agreements for pilots, cabin crew and ground staff were signed (SAS Group Annual Report 2009).

Cost program 2009-2011	
MSEK	Earnings effect
Flight operations	~300
Ground	~300
Technical maintenance	~200
Outsourcing	~200
Purchasing	~500
Reorganization	~400
Sales & administration	~500
Other	~300
Total	~2700

**Table 9: Breakdown of cost savings from Core SAS (SAS Group Annual Report 2009)**

The remaining 2.7 billion will come from a new cost saving program. Of this over half of the earnings impact will occur in 2009. Of the remaining the majority will occur in 2010 and the rest in 2011. The cost measures include savings in all operational areas with the most extensive effect in sales and administration, purchasing and effects of the reorganization. The

total cost that is estimated to accrue in relation with the implementation of the Core SAS strategy is about BSEK 1.

Together with the cost reductions unprofitable routes will be closed down. SAS will reduce their capacity by about 20 %. This means that about 26 planes will be taken out of operation. Based on the income of 2008 SAS believes that this would have made up a positive income improvement of SEK 0.8 billion. SAS will also sell their shares in companies outside the Nordic countries. None of these companies are consolidated and will only have a minor income effect. It is also stated that the company might outsource more of its ground service operations. This business unit has already been up for discussion and was nearly sold in 2008 because of unprofitability (Haugedal 2008). However it was kept under the premises of a cost reduction of BSEK 0.4 within one and a half year. If this is not accomplished we believe this business unit will be sold.

SAS' long term target is an EBT-margin of at least 7 %. For this to happen they need a positive result of about BSEK 3.5 based on a revenue of 50 billion (SAS information folder, 2009). The debt ratio target is less than 100 %.

SAS has stated that they will cut their capacity by 17 percent in accordance to the new Core SAS strategy. At the same time passenger numbers are predicted to decline in 2009 due to the international banking crisis. IATA estimated in December last year that the passenger numbers would decrease by 3 % in 2009 and revenue by 6 %. The first passenger numbers available from 2009 shows that the industry so far is doing worse than predicted. The same agency is reporting that the revenue passenger kilometers (RPK) has fallen by nearly 8% during the first two months of 2009 compared to the same period last year. The available seat kilometers (ASK), which measures capacity, is reduced by about 4 %. In other words the number of passengers is decreasing faster than then capacity which will reduce profitability. Table 10 presents the latest passenger numbers from SAS which shows a significant drop in passenger numbers. Even though the capacity have been reduced by 13 % compared to November last year the RPK has dropped even further with 20 %. This has reduced the load factor which again means a less effective use of the assets employed.

	Januar		Februar	
Business area	RPK	ASK	RPK	ASK
Intercontinental	90 %	103 %	80 %	93 %
Europe	85 %	86 %	81 %	87 %
Intrascandinavia	87 %	89 %	80 %	85 %
Denmark	88 %	92 %	86 %	90 %
Norway	77 %	82 %	79 %	85 %
Sweden	76 %	74 %	74 %	71 %
<b>SAS Group</b>	85 %	90 %	80 %	87 %

**Table 10: SAS' traffic development for the first two months of 2009 in % of last year (SAS Group 2009)**

### 7.3. EBITDAR forecast

For the EBITDAR and cash flow forecast we have chosen to use ten years for our explicit period and year 11 is used to calculate the continuing value after year 10. This we believe is sufficient time for implementing the information available and for the company to reach steady state.

The most important and difficult factor in our forecast is the future passenger revenue.

Passenger revenue is not only dependent on the number of passengers that choose to fly with SAS, but also what the passengers pay for their tickets. Business travelers usually fly on full price tickets while leisure travelers usually go after the lowest fares available.

We believe that the current economic recession will reverse sometime in the end of 2009 and that the traffic will drop 5-10% in Scandinavia compared to last year. Based on these assumptions and the facts discussed in 7.1, we estimate the passenger traffic for SAS to drop by 25%. Of this 15-20% is related to capacity reduction and the remains as a result of the current recession (Appendix figure 3). We have put the passenger decline in direct relationship with the revenue and reduced it by the same amount. This because we believe that there will be no dramatic changes in customer mixture which already is in large part business customers. In 2010 however we expect an increase in passenger traffic as the recession is believed to be over its peak and we estimate a passenger growth of 5%. Low interest rates and increased government spending due to the financial crisis should have positive effects for the economy for several years. Therefore we also believe in a higher growth for 2011 and have set it to 5% as well. We do not believe that the flight transport industry in Scandinavia will grow significantly after the rebound effect of the recession. The passenger market is relatively mature and the competition is intense. SAS is also struggling to

keep its current market share in competition with low fare companies and the population growth in Scandinavia, and thereby the market size, is small. Therefore we use a cautious estimate from 2012 of 2.5%. This is equivalent to the average inflation in the Scandinavian market for the last 20 years (Appendix figure 1). In other words we believe that improved margins must be made through improved cost efficiency and product quality rather than passenger growth. With our prognosis SAS will reach their goal of carrying 28 mill passengers in five years time. From the strategically analysis we think this is realistic as the company is the number one choice for business travelers and still has a strong brand.

Income from charter operations has dropped in recent years and therefore the average percentage of passenger revenues from only the last three years have been used. Revenue from Cargo and mail has decreased continuously so the future estimates are based on last year's percentage of passenger revenue. Other traffic revenue is based on the percentage average for the whole historic period as it has been quite unstable. Other operational income have continued to grow for the last for years after dropping by 16% from 2004 to 2005, the average from the four last years have therefore been used. The above mentioned operating incomes grow proportional to the passenger growth in our forecast period.

The expenditures are mostly variable and are therefore set to a percentage of total revenue using the techniques described above (Appendix figure 4). But some of the items have been adjusted to take the new Core SAS strategy into account. Handling costs and maintenance will be reduced by accordingly 300 and 200 MSEK. Here we have found what percentage this would have made up in 2008 and used the new number in our forecast .The remaining 2.2 billion of the cost reduction program is deducted from the post "other expenses".

Jet fuel is an important and difficult expense to forecast. Although it has been unreasonable high the last years we also think that the average jet fuel cost of 12.3 percent of revenue is too small for the future. The lack of large new oil findings and increased demand for oil are arguments for a higher oil price then what we have seen historically. We have therefore put the oil price at 15 % of revenue which is between last year's high expenses of 18.1% and the historical average of 12.3 %.

Contrary to the other expenses we look at payroll expenses as a fixed cost in the short to medium run. The new collective union agreements will lower the percentage of payroll

expenses to revenue from 36 to 32% relative to the 2008 level. Laying off people is never easy, especially in a company with historically strong unions. It is therefore difficult to adjust the number of employees to the activity level of the company. We believe that it will take some time to adjust the cost level of wages and that employees will not leave the company without a fight. But SAS has to reduce these expenses if they want to be able to compete in the Nordic market. It also looks like the unions to some degree have understood this recently. We therefore believe that cost reductions are possible, but that it will take several years and battles to reach the desired cost level. In our forecast we have projected that SAS will use five years to adjust the number of employees to the new and reduced activity level and for the cost reduction program to be fully implemented. In 2013 we have set the wage level to 32% as SAS has targeted and then the difference between the 2008 and 2013 level is reduced by equal amounts over the five years (-735 millions).

In our forecast we have not tried to include any future business cycles as they are impossible to predict. However the current recession is accounted for with a negative impact in 2009 and a rebound effect the following two years. The growth after this must be seen as a predicted average growth and not as actual accounting numbers for the respectively years as the aviation industry is turbulent and full of ups and downs.

We do believe that there is potential in SAS and that the new strategy plan and rights issue will point the company in the right direction. From 2001-2008 the average operational margin (EBITDAR margin) was about 8.5 % where 5 of 8 years gave negative result. With our projections the operational margin will improve to nearly 16 % in five years time. This should not be unrealistic after the implementation of the new strategy as the margin was 10-11 % in four of the last eight years.



## 8 Valuation of SAS

In this chapter we will estimate the cost of capital and present what we believe is a fair value for a SAS share.

### 8.1 SAS' cost of capital

The ingredients in an analysis of SAS' cost of capital are risk-free rate, market premium, company beta, debt rate and equity and debt market values. In the following part these components are calculated to estimate the average cost of capital for SAS.

#### 8.1.1 Risk-free rate

Both short and long term government bonds can be used to find a measure for the risk-free rate. A common understanding among economists is that “normal” real interest rate is equal to the long term real growth in GNP (Johnsen 2006). In the period from 1990 until 2008 the growth was 2.2 % in Sweden (Appendix figure 2). This is in accordance to the average real rate of 2.0 % over the last 105 years. An average inflation of 2.5 % within the mentioned 18 years time period argues for a “risk free” nominal long term rate of 4.7 % (Appendix figure 1).

Since the past do not necessarily equal the future we have used a different approach. We have used a Swedish government bond with ten years maturity and a coupon of 4.25 % (NASDAQ OMX NORDIC 2009). This bond is forward looking and reflects the market's expectations of future interest rates rather than the historical ones. Since our cash flows are calculated after tax it is also necessary to adjust the interest rate to get them comparable. The risk-free rate after tax is 3.2%<sup>12</sup>.

#### 8.1.2 Beta estimation

For listed companies the equity beta can be estimated based on historical data. Using daily observations of the share price and the Stockholm all share index (OMXS) we have estimated SAS' beta value. The beta value is highly dependent on the time span used in the calculation. From Table 11 below we can see that the share price fluctuated less compared to the market index in the early years of the current decade than it does today. We believe that the early years of this decade is not representative for a calculation of future beta because of the lack of

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<sup>12</sup>  $4.25 \% * (1-0.25) = 3.19$  (the effective calculated tax rate for the company is 25 %)

competition and a different company structure. At the same time the last year might have been extra volatile because of the difficulties the airline industry, and in particular SAS, is facing as a result of the current recession. We have therefore chosen to use a medium range in our beta calculation using the last five years (2004-2008). This gives us a beta estimate of 1.18 (Appendix figure 8)

Period	B
2001-2005	0,72
2001-2008	1,00
2004-2008	1,18
2008	1,32

**Table 11: Beta estimations within different time spans**

A beta of 1.18 indicates that the share price fluctuates more than the market index and thereby has a relative high business risk.

**8.1.3 Risk premium**

An influential academic paper on global equity risk premiums concludes with an arithmetic average risk premium of 7.1 % for the Swedish stock market based on historical data from 1900-2001 (Dimson, Marsh and Stauton 2002). A similar study done by Thore Johnsen concludes with a premium of 7.6 % using date from 1900-2004 (Johnsen 2006).

It is highly discussable if the historical risk premiums are representative for the future. Huge technological improvements and high inflation trough the 20<sup>th</sup> century are factors that could make the calculated historical risk premium of 7.1 % higher then what we can expect for the future. But history has a tendency to repeat itself. There is no insurance against high future inflation and the technological development is still going relatively fast. The awakening of the East-Asian economies is also a potential reason for a consistent high risk premium. Because of the uncertainty we have choose to use the historical estimate of 7.1 %.

In the following calculation we need a nominal tax adjusted risk premium. To obtain this we need to add the risk free rate before tax, and then subtract the rate after tax. This gives us a risk premium of 8.15 %<sup>13</sup>.

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<sup>13</sup> (7.1 % + 4.25 %) – 3.2 % = 8.15 %

### 8.1.4 Cost of equity

We calculate the cost of equity by using the capital asset pricing model (CAPM). From the equation below we see that the estimated nominal after tax cost of equity is 12.82 %.

$$E(R_j) = R_f + (E[R_m] - R_f)\beta_j = 3.2 \% + (8.15 \%) * 1.18 = 12.82 \%$$

### 8.1.5 SAS' debt and equity ratio

	Mill. SEK	Percent
Adjusted financial net debt:		
Leasing (cost(x7))*	13 897	35,3 %
Interest-bearing liabilities	12 542	31,8 %
Equity market value**	12 954	32,9 %
Total liabilities and equity	39 393	100,0 %
* Adjusted for reduced number of leased fights		
** Ass of 07.04.2009		

**Table 12: SAS' enterprise market value**

The table above display how SAS' enterprise value is split between equity and debt. A total of 67.1% and 32.9 % are respectively debt and equity. In an attempt to get a more representative ratio for the future, interest-bearing liabilities has been reduced by the amount collected from the equity issue less forecasted financial deficit for 2009 and 2010<sup>14</sup>.

### 8.1.6 SAS' cost of debt

Accordingly to Table 13 below SAS' average interest expenditures are 6.34 %. Interest expenditures are influenced by floating interest rates and foreign exchange rates and are therefore volatile. An alternatively approximation is to use the company's credit rating. B rated companies are estimated to have an interest cost of 200 % of risk-free rate (Kinserdal 2008). According to this SAS' debt rate would currently have been 8.48 %. However this is a roughly estimation and varies a lot from company to company. SAS' future credit rating is also difficult to predict. We have therefore chosen to use the average debt rate on 6.34 %. The debt rate adjusted for tax is 4.76 %<sup>15</sup>.

<sup>14</sup> 16 117-6 000+1782+643 =12 542

<sup>15</sup> 6.34 % \* (1 - 0.25) = 4.76 %

	2008	2007	2006	2005	2004	2003	2002	2001	Average
Interest expenditures	956	1 083	1 519	1 408	1 233	1 906	1 979	897	1 373
Interest-bearing liabilities	16 117	12 042	16 478	26 337	27 280	28 866	29 782	26 124	22 878
Interest rate in %	5,93 %	8,99 %	9,22 %	5,35 %	4,52 %	6,60 %	6,64 %	3,43 %	6,34 %

**Table 13: SAS' historical interest expenditures**

### 8.1.7 SAS' cost of capital

SAS' total cost of capital is the weighted average cost. The calculation is presented in the equation below.

$$WACC = \frac{E}{V} * R_E + \frac{D}{V} * R_d * (1 - T_C) = (12\,954 / 39\,393) * 12.82 \% + ((13\,897 / 39\,393) * (10.3 \% * 0.75)) + (12\,542 / 39\,393) * 4.76 \% = 8.46 \%$$

SAS' nominal tax adjusted cost of capital is estimated to be 8.46 %. Since the rental cost on the leased airplanes is estimated to be 10.3 %, and the leasing was kept out of the calculation of average interest expenditure of 6.34 %, the two debt equivalents were included separately in the WACC calculation.

## 8.2 Cash flow value for explicit period

To obtain the predicted free cash flows we have adjust the EBITDAR we found in chapter 7 with the factors mentioned below:

### 8.2.1 Net working capital

Working capital binds up cash in the company and any changes will affect the cash flow. A buffer or reserve of cash is needed in any firm to be able to meet the short time obligations to creditors. In SAS' case they are also stating that they need a buffer to meet challenges and cover deficits in difficult financial times. Therefore they have set a goal to reach a financial preparedness of 20 % of revenue in cash equivalent assets (SAS Group 2009). Last year's working capital was 8.2 % of revenue and the average for the last eight years is 11 % (Appendix figure 12). We think that the target of reaching a financial preparedness of 20 % therefore is a long term project and we have gradually increased the percentage from 2008 level to reach the target of 20 % in 2019.

### **8.2.2 Normalized investments**

We need to find a reasonable estimate for the investments needed to upkeep a certain level of assets relative to a given activity level. Ideally we would have used historical net investments from the company's cash flow statement, but this proved to be impossible since the information given was inadequate. Cash flow from sale of aircrafts, buildings and shares were all reported on the same line and the reporting was not consistent. Therefore we have used a different approach. We have estimated the average depreciation relative to the revenue over the last 13 years. As many years as possible is used because the depreciation will be higher right after large purchases of new airplanes which makes the depreciation a bit volatile. After removing the implicit interest part from the leasing cost we also get an estimated depreciation part from leasing activities. This is added to the reported depreciation. This way we also avoid any problems with changing ratio between leased and owned airplanes in the future.

SAS has estimated that about 10 % of the aircraft value is intact after the aircraft is fully written off (SAS Group Annual Report 2009). Therefore we have deducted 10 % from the average depreciation. The reason for this is that SAS will get a positive cash flow when they sell the aircraft and therefore the net investments will be less than the accounted depreciation. In other words the aircrafts are depreciated over a time span that is too short which makes the yearly cost too high.

The average depreciation is estimated to 5.35 % of revenue and adjusted with -10 % it gives us an estimate of 4.8 % (Appendix figure 13). It is not ideal to calculate depreciation as a percentage of revenue, but this way the depreciation follows the activity level and thereby the assets employed. We could have rather calculated the future size of the air-fleet and used a percentage of assets, but this is too complex as a firm outsider.

### **8.2.3 Tax and restructuring costs**

We cannot use historical data to estimate an effective tax rate since the company has basically not earned any money the last eight years and of course not paid any significant taxes.

Therefore we have to look at nominal rates. Norway and Sweden have a nominal tax rate of respectively 28 and 26.3 %. Denmark has 25 % and Finland 26 % (OECD 2009). On one hand Norway is the country where SAS makes the most revenue and more emphasis should be put on this relative higher tax rate. But on the other hand the effective tax rate is usual

lower than the nominal for companies with heavy depreciation. When we calculated the average depreciation we also showed that this might be true since the write offs are done on a too short time span (20 years) which reduces payable taxes. Another point is that SAS most likely also will have negative result in difficult years in the future, which will reduce the tax in profitable years. Therefore we have decided to use an effective tax rate of 25 %. This is also the average calculated effective tax rate for Norwegian companies (Kinserdal 2008). Even this tax rate might be too high but it is our best guess.

In the 2008 annual report (note 10) we find that SAS has a deferred tax asset of MSEK 968 after previous year's deficits. This amount equals what is believed to be legally deductible before the right to use loss carryforwards is expired. This is together with the predicted deficits of 2009-2010 subtracted from the future estimated surplus which reduces tax significantly in 2011-2012.

The restructuring cost in relation to implementation of the Core SAS strategy plan is by SAS estimated to be BSEK 1. SAS has only stated that the majority of this cost will accrue in 2009, but not how much. We have therefore deducted the cash flow with 600 million in 2009, 300 in 2010 and 100 in 2011.

#### **8.2.4 Discounted cash flows**

To obtain the NPV of the cash flows after tax they are divided by  $(1+WACC)^N$  where N represents the year the cash flow is earned. This way the yearly cash flows becomes comparable and we can summarize them to get the NPV of the cash flows for the first 10 years which sums up to BSEK 12.4 (year 11 is included in the continuing value). You can see the results below in Table 14.

(MSEK)	2009E	2010E	2011E	2012E	2013E	2014E	2015E	2016E	2017E	2018E	2019E
<i>EBITDAR</i>	-197	2137	4587	5840	7102	7280	7462	7648	7840	8036	8236
<i>EBITDAR margin</i>	-1 %	5 %	11 %	13 %	16 %	16 %	16 %	16 %	16 %	16 %	16 %
<i>Net working capital</i>	3632	4252	4925	5521	6143	6792	7471	8179	8918	9688	10492
<i>% of operating profit</i>	9,3 %	10,4 %	11,4 %	12,5 %	13,6 %	14,7 %	15,7 %	16,8 %	17,9 %	18,9 %	20,0 %
<i>Change in working capital</i>	-745	620	673	595	622	650	678	708	739	771	803
<i>Depreciation</i>	1874	1968	2067	2118	2171	2226	2281	2338	2397	2457	2518
<i>% of operating profit</i>	4,8 %	4,8 %	4,8 %	4,8 %	4,8 %	4,8 %	4,8 %	4,8 %	4,8 %	4,8 %	4,8 %
<i>Core SAS expenditures</i>	600	300	100								
<i>Gross profit</i>	-1926	-752	1747	3127	4309	4405	4502	4602	4704	4808	4915
<i>EBT margin</i>	-4,9 %	-1,8 %	4,1 %	7,1 %	9,5 %	9,5 %	9,5 %	9,4 %	9,4 %	9,4 %	9,4 %
<i>Deffered tax assets</i>	-2894	-3646	-1899	0	0	0	0	0	0	0	0
<i>Taxable income</i>	0	0	0	1228	4309	4405	4502	4602	4704	4808	4915
<i>25% tax</i>	0	0	0	307	1077	1101	1126	1151	1176	1202	1229
<i>After tax cash flow</i>	-1926	-752	1747	2820	3232	3303	3377	3452	3528	3606	3686
<i>NPV</i>	-1776	-639	1369	2038	2153	2201	1913	1802	1699	1601	1509

**Table 14: Forecasted NPV of cash flows for 2009-2019.**

### 8.3 Continuing period

After the company has reached what we have called steady state there is no need to make explicit cash flow forecasts. When the value drivers are believed to be at constant ratios we can use Gordon's formula to estimate the continuing value after the explicit period. Gordon's formula is given by:

$$V_n = \frac{CF_{n+1}}{WACC - g} \quad \text{Formula (6)}$$

where:

$V_n$  = Value at time  $n$

$CF_{n+1}$  = Cash flow at time  $n + 1$

$g$  = growth

With this formula it is implied that the cash flow grows with a constant ratio of  $g$  at all eternity. We therefore have to be careful when setting the growth factor because it will have major impact on the company value. Practitioners often puts this factor equal the inflation or the average GDP growth. We have chosen set  $g$  at 2 % as have been the average inflation in the Nordic countries over the last 10 years. At the same time the average GDP growth of

Sweden was 2.2 % over the last 20 years (Appendix figure 2). Inserted in the equation together with the estimated cash flow for year 11 this gives:

$$V_{10} = \frac{3\,686}{8.46\% - 2.0\%} = 57\,062 \Rightarrow V_0 = \frac{57\,062}{(1 + 8.46\%)^{10}} = 25\,331$$

The NPV value of SAS cash flow from 2019 and forward is estimated to be BSEK 25.3.

#### 8.4 Share value

When we add the explicit and continuing value together we get what is called enterprise value which is basically the after tax present value of all future cash flows. But what we want to find is the equity value so we have to deduct the enterprise value with the company's net debt. The adjusted net debt was by the end of 2008 about BSEK 29.7. But company has in the beginning of 2009 brought in new equity of BSEK 6 so we have to add this to the equation. This gives us an equity value of BSEK 14 which means that one SAS share could be worth SEK 5.67 if our assumptions are correct.

<b>SAS valuation</b>	
<i>Explicit period value</i>	12361
<i>Continuing value</i>	25331
<i>Enterprise value</i>	37692
<i>- Adjusted net debt</i>	29690
<i>Cash from issue</i>	6000
<i>EQ value</i>	14002
<i>Number of shares</i>	2468
<i>Price per share</i>	5,67

**Table 15: SAS valuation**



## 9 Validity

In this chapter we have a critical look at our fundamental valuation to see if the results are reasonable. We will use a different valuation technique and look at the market price and enlighten sources of error.

### 9.1 Peer review

Multiple analysis is very popular among professionals because it supposedly is time saving and gives acceptable results. But to employ a multiple analysis correctly much of the same work has to be done as in the discounted cash flow method. This is because multiples also should be forward looking to get the most accurate result (McKinsey & Company 2005). Since multiples do not account for differences in potential growth and capital structure it is also important that the companies used to form your multiple is as similar to the company you want to value as possible when it comes to size, potential and other fundamentals.

As explained in chapter 3.1.2 a preferred multiple is the EV/EBITA. But again because of the leasing issues we have adjusted this multiple slightly. The multiple we will be using is therefore the EV/EBITDAR. To obtain the multiple we have used the average of three different companies. Those are Finnair (Finland), Iberia (Spain) and Austrian Airlines. What they all have in common with SAS are that they are flag carriers of their home nations and are, or have been, state controlled to some degree. They are all also European operators of medium size and should therefore have about the same growth opportunities and economic premises.

When we apply the EV/EBITDAR for three peer companies we get an average ratio of 6.26. But the company ratios range from 4.57 to 7.43 which show that there must be significant differences in future growth expectation and/or capital cost (Appendix figure 9-11). When applied on SAS the multiple of 6.26 gives a share value of SEK -1.36 when we use last year's EBITDAR. But as we discussed earlier the multiple should be forward looking. SAS is going through major restructuring compared to the other companies and therefore their financial improvements should be potentially greater than in the other peer companies. We have therefore looked at what the value per share would have been if the EBITDAR for 2008 was as if the company had gone through a successful restructuring process. Using the EBITDAR

we have predicted for 2013 and discounting it with the expected inflation to get it comparable to 2008 money we get a share price of SEK 5.70.

	2008	Based on 2013
<i>EV/EBITDAR average ratio</i>	6.26	
<i>SAS EBITDAR</i>	3 251	6 433
<i>SAS adjusted net debt</i>	23 690	26 190
<i>EV</i>	20 342	40 250
<i>Number of shares</i>	2 468	2 468
<i>Implied equity value</i>	-3 348	14 060
<i>Share value</i>	-1.36	5.70

**Table 16: SAS’ value by multiple analysis.**

The net debt in 2008 is adjusted for the BSEK 6.0 from the rights issue while it is higher in 2013 as the expected deficit has been accounted for. The share value of SEK 5.70 is nearly the same of what we found in the discounted cash flow method where we have a share price of SEK 5.67. When using the EBITDAR in the multiple all the figures below this point in the discounted cash flow analysis is not accounted for. This includes capital expenditures, change in work capital, taxes and capital cost. So what this peer review analysis indicates is that we cannot have missed totally on these figures since the two methods gave almost the same values.

**9.2 Sensitivity analysis**

In our forecast of SAS’ results for coming years we have tried to be as realistic as possible in an attempt to reflect the shares underlying fundamental value. Despite of this, a high degree of uncertainty exists as a consequence of extensive use of judgment and approximations. To highlight how robust and sensitive our calculation are to changes in important inputs we present a sensitivity analysis.

The most important factors to examine are the large and most unpredictable value drives. Jet fuel and payroll expenses are two factors in this category which will be under the scope. On the income side passenger revenue is the most important input we look at. In addition we have chosen to examine how changes in the cost of capital and growth influence SAS share price.

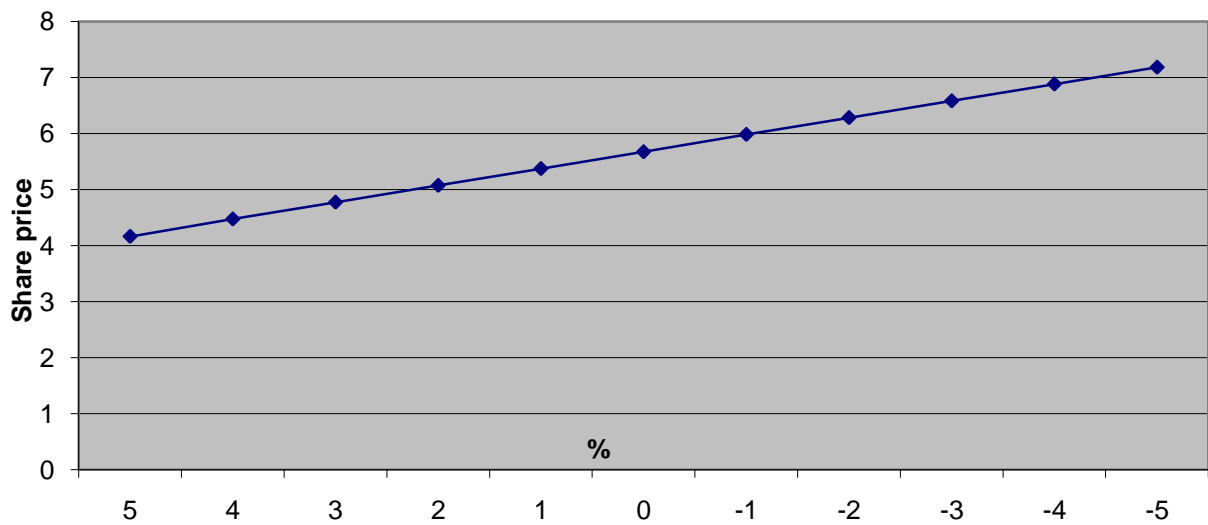


Figure 25: Share price sensitivity to changes in jet fuel costs (%)

A change in jet fuel costs of +/- 5 % implies a change in SAS' share price of 26.5 %. This confirms the importance of this factor to the industry's profitability and valuation, at least in the short run as all other variables are held constant.

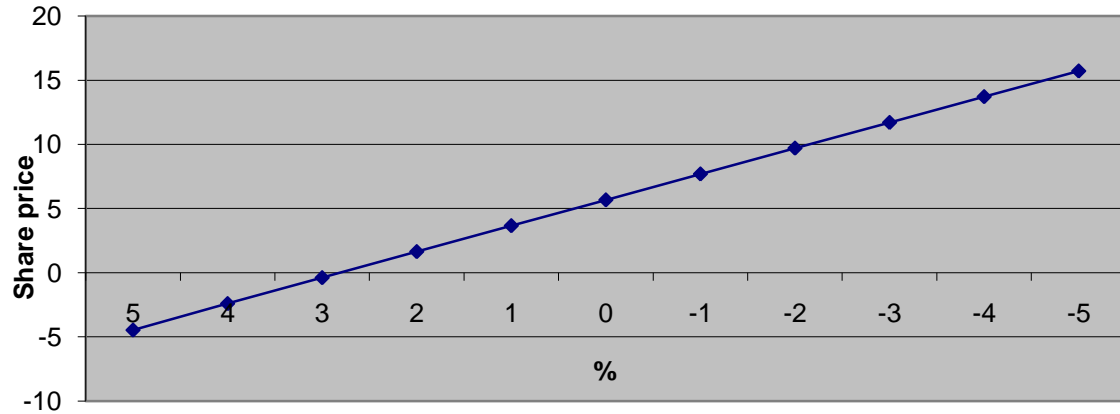
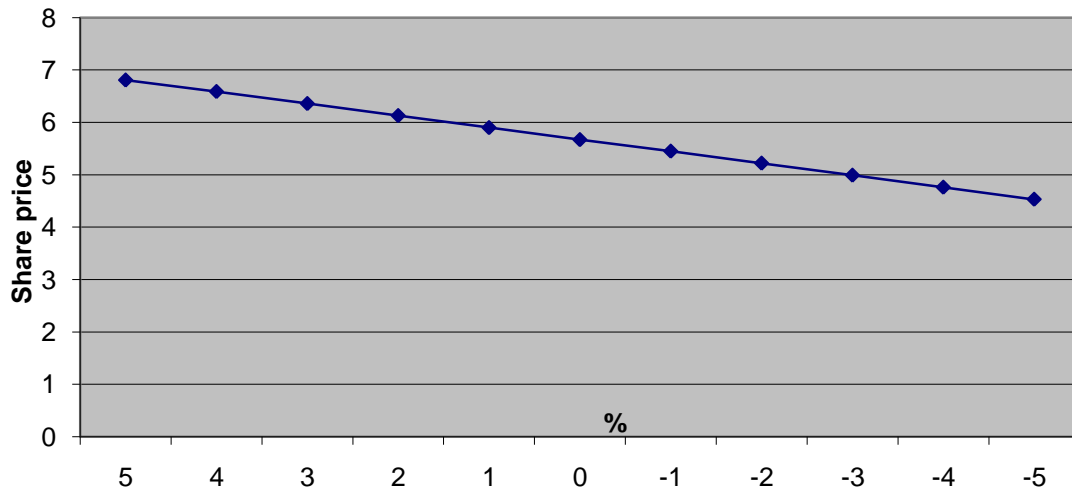


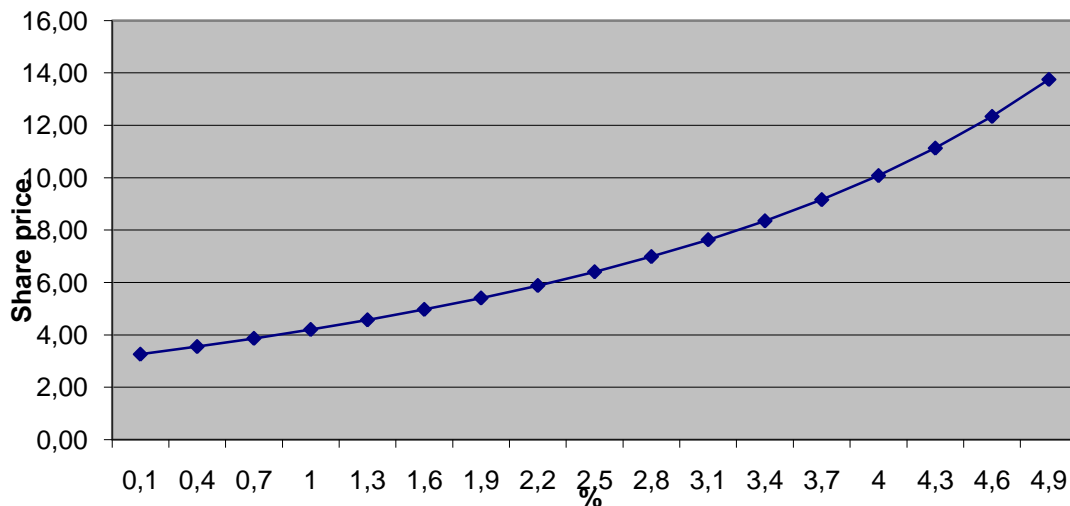
Figure 26: Share price sensitivity to changes in payroll expenses (%)

As the graph above shows, SAS' share price is more sensitive to changes in payroll expenses than it is to jet fuel costs. Changes of +/- 1 % result in a 35.5 % change in SAS' share price. This change is larger than a 5 % change in jet fuel costs. By a 5 % decrease or increase in payroll expenses the share price will change with 177 %. This shows how important it will be for the company to reduce their payroll expenses.



**Figure 27: Share price sensitivity to changes in passenger revenues (%)**

On the income side passenger revenue is the key source of income creation. Changes of +/- 5 % make the share price go up or down with about 20%.



**Figure 28: Share price sensitivity to changes in growth rate (%)**

Growth assumptions are crucial in proportion to many inputs in our analysis. Only a small change of -1 % makes the share price drop by almost 19.5 %. With an increase of 1 % the share price changes with as much as 47 %. The graph shows that an increase in growth has larger influence on share price than an equivalent decrease. Changes of +/- 2 % in growth result in almost a 78 % increase or a 42.5 % decrease in share value. This confirms the importance of neutrality when choosing growth rate in a valuation.

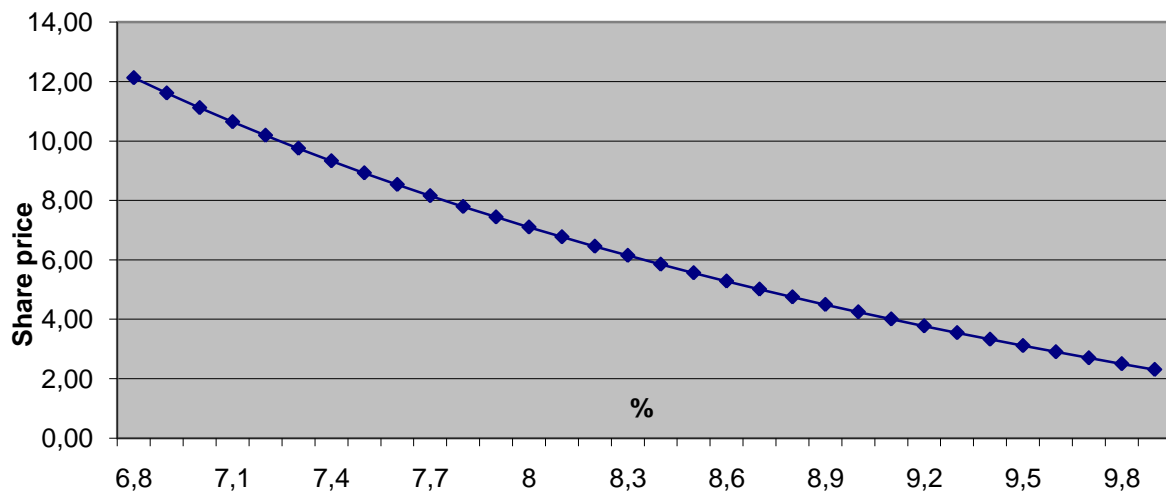


Figure 29: Share price sensitivity to changes in WACC (%)

The cost of capital is calculated based on several inputs such as risk free rate, market premium, beta, and debt rate. This makes the WACC vulnerable to changes. A decrease in WACC leads to a larger change in SAS' share price than an equal increase. If WACC is reduced to 7.5 % or increased to 9.5 % the share price is respectively changed by -57 % and 45%. It is clear that the share price also is highly sensitive to change in WACC.

### 9.3 Results compared to market value

The market price of one SAS share was at the end of Friday the first of May on SEK 3.78. With this pricing the share has lost 40 % of its value so far this year. The share has been quite volatile and has been as high as 5.70 at some point during the first three months of 2009. But still with our price target of SEK 5.67 we are above the average market price for 2009. Right now the SAS share looks like a good investment in the long run with our target price that is about 33 % higher than the market value. However we have shown that SAS has some heavy debt and there is questionable if SAS will succeed with their Core SAS strategy plan.

One factor we have not taken into account has arisen in the recent weeks. The so called swine-flu could be of great threat to the travel industry if the outbreak becomes severe. The market might have priced this into the share to some degree already. Another question is if there is a discount on the SAS share because the company is owned by the Scandinavian governments. The market is in general skeptical to state controlled businesses as their level of freedom often are reduced. The large share ratio held by the governments also reduces the

trading volume which in theory also should reduce the share value (McKinsey & Company 2005).

#### **9.4 Government ownership**

There are many other reasons than economical ones for a government to take ownership in a company like SAS. The main reasons for government ownership in national companies are control over natural resources, protect own political interests, upkeep the company's national anchoring and prevent foreign control.

National anchoring is important to keep expertise and important key functions at home. Another important task is to secure a well functional national infrastructure. This includes roads, railways, airports and power grids (Ministry of trade and industry 2008). Implied here is also a well functioning national air transport network.

The major Norwegian political parties have strong disagreements when it comes to the principal of whether or not there should be government ownership in commercial companies. But on the vote for participating in the SAS rights issue there was only one party that voted against which was FRP. KrF however stated that participation was the best way to secure the share value. It would be positive for securing the government's share values in times of financial distress and prevent negative consequences for both the functions of the company and its employees. KrF also made a point of the importance of responsible government ownership politics in times of recession. On the other side KrF expressed concern over government support for one specific company in a free market (Vatnar 2009).

Among the Department of Transport's most important tasks are to make sure that the air transport service is acceptable and well organised throughout the country. This is important in a country like Norway because a small population is scattered over a large geographical area which often makes air transport the only option. Both SAS and Norwegian are important participants in making this happen, but especially SAS as they also operate on the short haul network between smaller cities. This is the main reason for the Department's wish to secure lasting ownership in SAS (Pollestad 2009).

The Industrial comity is made up of members from all political parties. In April 2007 the comity looked through its position on active and long term ownership of SAS. From this it is

clear that the representatives from FrP did not see any reasons for the Norwegian government to be owner in a commercial airline. They therefore suggested that the “house of representatives” gave the Government authorisation to sell the SAS shares. FrP proposed this because of all the turmoil in the company over the last years. Intense competition both nationally and internationally was also put forward as a reason because they did no-longer see the need of a government controlled airline (Nilsen 2009).

Of importance is also the fact that the government’s involvement in SAS’ rights issue will have an effect on the terms of free competition. Because of today’s situation in the financial sector it is difficult to raise new capital and this creates great challenges for a lot of companies. The representative for FrP points out that when Norwegian Air Shuttle has to go out of the country to find capital to buy new airplanes, the government’s involvement in the competitor is clearly not good. This especially since SAS’ CEO Mads Jansson cannot guarantee that the rights issue will save the company.

The Norwegian government’s most important priority in the aviation market is to maintain competition, largest possible route network and low prices. Both parties of “Høyre” and “Venstre” still mean that keeping today’s level of ownership is dependent on whether Denmark and Sweden keeps their level of ownership (Nilsen 2009). In proposition number 161 to “the house of representatives” , “Høyre” underlines that a sale of SAS can only be done at a time when the sale means that the government’s financial value, Norwegian aviation and the company’s interests is kept in a good manner.

The majority of the Standing Committee of Business and Industry place emphasis on other reasons than just commercial in the question tied to participation in the rights issue. The committee emphasizes that SAS has been, and probably will be, one of the major socio-economic income sources in the Norwegian infrastructure with their network and service industry. In addition consideration for employees is of importance.

From an overall evaluation it seems like the politicians dispute whether economic or non-economic goals are most important. SAS has consistently delivered negative returns which is weakening the government’s popularity for retaining the government controlled shares.

## 9.4 Sources of error

As mentioned earlier a valuation is more an art than an exact science. So the sources of errors could be countless and the results we present are not the one correct answer.

A valuation is said to be no better than the quality of the inputs used. We have mostly used financial data from SAS' annual reports which are produced by the company itself. Any errors in these or untruthful reporting will influence the validity of our results. But the accounts found in the annual reports have been audited by a state approved auditor. It is also worth mentioning that SAS' annual reports are considered to be of high standard as they have done considerably well in e.com's worldwide annual report ranking. The report for 2007 was number six on the world ranking (SAS Group Annual Report 2009).

SAS is going through a major restructuring process with the sale of Spanair and the introduction of a major cost saving program. In our forecast we have assumed that this process will be successful. There is no guarantee for this, but the most important assumption for using the discounted cash flow valuation method is continuing operations. And without a successful turnaround the company will probably go bankrupt or be sold for nearly nothing (like when SAS sold Span Air for one euro).

We also feel that the leasing issue is a bit hairy. We have tried to find some information on how the 7x leasing capitalization is calculated but have not succeeded. Therefore we just had to put trust in these assumptions. As we looked at other airline companies we discovered that for example Iberia uses an 8x multiple, and why should their leased planes be worth more? With this approximation we get a relatively higher implicit rental cost on leasing. We know unfortunately too little about the rent premiums involved in leasing, but at first sight the rental cost might seem a bit high.

Pilots and other aircrew have a relatively early retiring age compared to other industries. This, coupled with lucrative union agreements, has resulted in huge future pension obligations. Despite of this the balance sheet shows that the company has a net pension asset and not a liability. They have also calculated that the difference between the net present value of funds and expenses is nearly nothing. The NPV of pension obligations are however calculated with a set of assumptions that include such factors as inflation, general wage growth and real return



on the pension fund. We have chosen not to go too deeply into this but there have been criticism from financial experts that the assumptions used in the pension calculations are too favorable for the company and that there might be a huge hidden pension liability.

The sensitive analysis shows how sensitive the share price is with regards to the most important values. As we saw the share price changes dramatically with only small changes in the inputs. Especially the WACC and growth factor are values that are hard to predict. When this was written we were in the middle of a recession which has influenced the beta and risk free rates used in the WACC calculation. If the calculations were done on an economical peak the results may have been different. This might be the case of the growth factor as well which might have been unconsciously set to low with today's outlook for macro economic growth. For the WACC calculation we also used Swedish numbers as this is where the stock is mainly listed. This could be questionable since the company has major operations in both Norway and Denmark and are listed in these countries as well.

## 9.5 Conclusion

SAS' historical performance over the last eight years has been unsatisfactory. Only three of eight years from 2001-2008 had a positive net result and the operating margins have been below what is necessarily for a sustainable profitable business. We also showed that this is not restricted to SAS, but is in general an industry problem. Profitability is strongly dependent on business cycles which make planning ahead difficult. Competition has also perhaps been too intense. SAS is heavily leveraged with an adjusted net debt ratio of 259 % which increases business risk and interest expenditures.

The strategic analysis showed that SAS' most important resource is their employees. Countless union conflicts have made this resource more of a liability than an asset in recent years. It has damaged both the company's profitability and its public reputation. SAS has however a strong brand, is among the most punctual airlines in Europe and is still the number one choice for most business travelers. Intense competition in the industry transfers a good deal of market power to the customers which makes it crucial important to satisfy customer demands and cope with a fast changing environment.

We have estimated an average cost of capital to be 8.46 %. Applied on the predicted free cash flows it gives us an estimated enterprise value of BSEK 37.7 and a share price of SEK 5.67. This is about the same value we found with a forward looking EV/EBITDAR multiple analysis where we found a share value SEK 5.70. These values are highly sensitive to the most important value drivers which are passenger revenue, payroll expenses, jet fuel and cost of capital.

The Norwegian Government paid SEK 2.63 per new share in connection to the rights issue. This is significantly below the value of SEK 5.67 per share we have estimated. At the same time our analysis shows that SAS was in great financial trouble before the rights issue and it would be an unfortunate time to sell such a huge amount of rights when the equity is valued at an historical low level. We have also slightly mentioned that there is more value to a government influenced airline than the market cap of the company. Our conclusion is that the Norwegian government showed good ownership governance and that it was a wise decision to take part in the 2009 rights issue.

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	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Average last 20	Average last 10	
Denmark	4,8	2,6	2,4	2,1	1,3	2,0	2,1	2,1	2,2	1,8	2,5	2,9	2,4	2,4	2,1	1,2	1,8	1,9	1,7	3,4	2,3	2,2	
Finland	6,6	6,1	4,3	2,9	2,2	1,1	0,8	0,6	1,2	1,4	1,2	3,0	2,6	1,6	0,9	0,2	0,6	1,6	2,5	4,1	2,3	1,8	
Norway	4,5	4,1	3,4	2,3	2,3	1,4	2,4	1,2	2,6	2,3	2,3	3,1	3,0	1,3	2,5	0,5	1,5	2,3	0,7	3,8	2,4	2,1	
Sweden	6,4	10,4	9,4	2,4	4,7	2,2	2,5	0,5	0,7	-0,3	0,5	0,9	2,4	2,2	1,9	0,4	0,5	1,4	2,2	3,4	2,7	1,6	
																					Nordic average	2,4	1,9

Appendix figure 1: Inflation calculation

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
GDP Growth	-1,1 %	-1,2 %	-2,1 %	3,9 %	4,0 %	1,5 %	2,5 %	3,8 %	4,6 %	4,4 %	1,1 %	2,4 %	1,9 %	4,1 %	3,3 %	4,2 %	2,6 %	-0,2 %
Average	2,2 %																	

Appendix figure 2: Sweden's average GDP growth

(MSEK)	2008	Effect of Core SAS	2009E	2010E	2011E	2012E	2013E	2014E	2015E	2016E	2017E	2018E	2019E	
Passengers carried on scheduled flights	29000000		-20 %	21750000	22837500	23979375	24578859	25193331	25823164	26468743	27130462	27808723	28503941	29216540
Estimation				-25 %	5 %	5,0 %	2,5 %	2,5 %	2,5 %	2,5 %	2,5 %	2,5 %	2,5 %	2,5 %
Passenger revenue	38 103			28577	30006	31506	32294	33101	33929	34777	35647	36538	37451	38388
Change				-25 %	5 %	5,0 %	2,5 %	2,5 %	2,5 %	2,5 %	2,5 %	2,5 %	2,5 %	2,5 %
Charter revenue	1 663			1044	1096	1151	1180	1209	1240	1270	1302	1335	1368	1402
% of passenger revenue	5 %			4 %	4 %	4 %	4 %	4 %	4 %	4 %	4 %	4 %	4 %	4 %
Cargo and mail revenue	1 509			1143	1200	1260	1292	1324	1357	1391	1426	1462	1498	1536
% of passenger revenue	5 %			4 %	4 %	4 %	4 %	4 %	4 %	4 %	4 %	4 %	4 %	4 %
Other traffic revenue	2 159			1715	1800	1890	1938	1986	2036	2087	2139	2192	2247	2303
% of passenger revenue	6 %			6 %	6 %	6 %	6 %	6 %	6 %	6 %	6 %	6 %	6 %	6 %
Other operating revenue	9 761			6573	6901	7246	7428	7613	7804	7999	8199	8404	8614	8829
% of passenger revenue	23 %			23 %	23 %	23 %	23 %	23 %	23 %	23 %	23 %	23 %	23 %	23 %
Operating revenue	53 195			39052	41004	43055	44131	45234	46365	47524	48712	49930	51178	52458
% chagen from last year				-27 %	5 %	5 %	2 %	2 %	2 %	2 %	3 %	2 %	3 %	2 %

Appendix figure 3: Forecasted operating revenue

(MSEK)	2008	Effect of Core SAS	2009E	2010E	2011E	2012E	2013E	2014E	2015E	2016E	2017E	2018E	2019E
Payroll expenses	18 153	-1300	17417	16682	15946	15211	14475	14837	15208	15588	15978	16377	16786
% of operating revenue	36 %	32 %	35 %	33 %	32 %	32 %	32 %	32 %	32 %	32 %	32 %	32 %	32 %
Selling costs	680		391	410	431	441	452	464	475	487	499	512	525
% of operating revenue	1,36 %		1 %	1 %	1 %	1 %	1 %	1 %	1 %	1 %	1 %	1 %	1 %
Jet fuel	9 637		5858	6151	6458	6620	6785	6955	7129	7307	7490	7677	7869
% of operating revenue	19 %		15 %	15 %	15 %	15 %	15 %	15 %	15 %	15 %	15 %	15 %	15 %
Government user fees	4 662		3515	3690	3875	3972	4071	4173	4277	4384	4494	4606	4721
% of operating revenue	9,3 %		9 %	9 %	9 %	9 %	9 %	9 %	9 %	9 %	9 %	9 %	9 %
Catering costs	1 346		976	1025	1076	1103	1131	1159	1188	1218	1248	1279	1311
% of operating revenue	2,7 %		2,50 %	2,50 %	2,50 %	2,50 %	2,50 %	2,50 %	2,50 %	2,50 %	2,50 %	2,50 %	2,50 %
Handling costs	1 851	-300	1289	1271	1249	1280	1312	1345	1378	1413	1448	1484	1521
% of operating revenue	3,5 %	2,9 %	3,30 %	3,10 %	2,90 %	2,90 %	2,90 %	2,90 %	2,90 %	2,90 %	2,90 %	2,90 %	2,90 %
Technical aircraft maintenance	3 197	-200	2395	2405	2411	2471	2533	2596	2661	2727	2796	2865	2937
% of operating revenue	6,4 %	5,6 %	6,1 %	5,9 %	5,6 %	5,6 %	5,6 %	5,6 %	5,6 %	5,6 %	5,6 %	5,6 %	5,6 %
Data and telecommunications costs	2 282		1562	1640	1722	1765	1809	1855	1901	1948	1997	2047	2098
% of operating revenue	4,6 %		4 %	4 %	4 %	4 %	4 %	4 %	4 %	4 %	4 %	4 %	4 %
Other expenses	8 136	-2 200	5846	5593	5300	5428	5564	5703	5845	5992	6141	6295	6452
% of operating revenue	16,3 %	12,3 %	15,0 %	13,6 %	12,3 %	12 %	12 %	12 %	12 %	12 %	12 %	12 %	12 %
Operating expenses	49 944	-4 000	39248	38868	38468	38291	38132	39085	40062	41064	42091	43143	44221
% of operating revenue	93,89 %	86,37 %	101 %	95 %	89 %	87 %	84 %	84 %	84 %	84 %	84 %	84 %	84 %

Appendix figure 4: Forecasted operating expenses

Regression Statistics								
Multiple R	0,474142861							
R Square	0,224811452							
Adjusted R Square	0,224396469							
Standard Error	0,027666368							
Observations	1870							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	1	0,414660094	0,414660094	541,7363221	1,9767E-105			
Residual	1868	1,429819313	0,000765428					
Total	1869	1,844479408						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95,0%	Upper 95,0%
Intercept	-0,000494735	0,000639788	-0,773279387	0,439454892	-0,00174951	0,00076004	-0,00174951	0,00076004
X Variable 1	1,002614965	0,04307648	23,2752298	1,9767E-105	0,918131878	1,087098052	0,918131878	1,087098052

Appendix figure 5: Beta estimation 2001-2008

Regression Statistics								
Multiple R	0,619381869							
R Square	0,3836339							
Adjusted R Square	0,381168435							
Standard Error	0,040058714							
Observations	252							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	1	0,249696384	0,249696384	155,6030983	4,34204E-28			
Residual	250	0,401175148	0,001604701					
Total	251	0,650871531						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95,0%	Upper 95,0%
Intercept	-0,000264108	0,002533746	-0,104236331	0,917065377	-0,005254318	0,004726101	-0,005254318	0,004726101
X Variable 1	1,317875429	0,105648963	12,47409709	4,34204E-28	1,109799971	1,525950886	1,109799971	1,525950886

**Appendix figure 6: Beta estimation 2008 only**

Regression Statistics								
Multiple R	0,602508473							
R Square	0,36301646							
Adjusted R Square	0,362168279							
Standard Error	0,028183384							
Observations	753							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	1	0,339957271	0,339957271	427,9943582	1,35878E-75			
Residual	751	0,596521672	0,000794303					
Total	752	0,936478943						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95,0%	Upper 95,0%
Intercept	-0,00069216	0,001027547	-0,673604407	0,500770102	-0,002709367	0,001325046	-0,002709367	0,001325046
X Variable 1	1,25099746	0,060469643	20,68802451	1,35878E-75	1,132287824	1,369707095	1,132287824	1,369707095

**Appendix figure 7: Beta estimation 2006-2008**

Regression Statistics								
Multiple R	0,548013592							
R Square	0,300318897							
Adjusted R Square	0,299762269							
Standard Error	0,025378963							
Observations	1259							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	1	0,347508596	0,347508596	539,532726	1,3562E-99			
Residual	1257	0,809623371	0,000644092					
Total	1258	1,157131967						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95,0%	Upper 95,0%
Intercept	-0,000523252	0,000715258	-0,731556724	0,464575526	-0,001926483	0,000879979	-0,001926483	0,000879979
X Variable 1	1,180348588	0,050816107	23,22784377	1,3562E-99	1,080654858	1,280042318	1,080654858	1,280042318

**Appendix figure 8: Beta estimation 2004-2008**

<b>Finnair</b>	<b>2008</b>
<i>EBITDAR</i>	140,7
<i>Net debt</i>	-90
<i>Leasing debt (7x)</i>	578,2
<i>Adjusted net debt</i>	488,2
<i>Stock quote</i>	4,35
<i>Number of shares</i>	128,14
<i>Equity value</i>	557
<i>EV</i>	1046
<i>EV/EBITDAR</i>	7,43

**Appendix figure 9: Multiple calculation for Finnair**

<b>Iberia</b>	<b>2008</b>
<i>EBITDAR</i>	559
<i>Net debt</i>	-1803
<i>Leasing debt (7x)</i>	2702
<i>Adjusted net debt</i>	899
<i>Stock quote</i>	1,74
<i>Number of shares(M)</i>	953
<i>Equity value(M)</i>	1658
<i>EV</i>	2557
<i>EV/EBITDAR</i>	4,57

**Appendix figure 10: Multiple calculation for Iberia**

<b>Austrian airlines</b>	<b>2008</b>
<i>EBITDAR</i>	256,8
<i>Net debt</i>	933,6
<i>Leasing debt (7x)</i>	472,5
<i>Adjusted net debt</i>	1406,1
<i>Stock quote</i>	4
<i>Number of shares(M)</i>	1325
<i>Equity value(M)</i>	331
<i>EV</i>	1737
<i>EV/EBITDAR</i>	6,77

**Appendix figure 11: Multiple calculation for Austrian Airlines**

	<b>2008</b>	<b>2007</b>	<b>2006</b>	<b>2005</b>	<b>2004</b>	<b>2003</b>	<b>2002</b>	<b>2001</b>	<b>Average</b>
<i>Accounts receivable</i>	1851	1951	3918	4568	4574	4168	5147	3727	3738
<i>Cash and bank balances</i>	1911	1583	1686	1419	1246	1066	1049	1280	1405
<i>Short term investments</i>	3872	7308	9117	7265	7349	8000	9672	10382	7871
<i>Short term loans</i>	1189	421	2043	3828	5479	5981	7552	4603	3887
<i>Accounts payable</i>	2068	2108	3350	4358	4251	3462	4259	2621	3310
<i>Working capital</i>	4377	8313	9328	5066	3439	3791	4057	8165	5817
<i>Revenue</i>	53 195	50 598	50 153	55 501	58 093	57 754	64 945	51 435	55209,25
<i>% of revenue</i>	8,2 %	16,4 %	18,6 %	9,1 %	5,9 %	6,6 %	6,2 %	15,9 %	10,9 %

**Appendix figure 12: Net working capital**

	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	Average
<i>Leasing</i>	2282	2578	2481	3133	2689	2935	3747	2425	1898	1346	1059	859	871	2177
<i>Depreciation</i>	<b>1 591</b>	1 457	1 757	<b>2 412</b>	2 846	3 046	<b>2 012</b>	1 785	2192	2087	2125	1880	1851	2080
<i>Revenue</i>	53 195	50 598	50 153	55 501	58 093	<b>57 754</b>	64 945	51 435	55 209	43746	40946	38928	35189	50438
<i>% dep of revenue</i>	3 %	3 %	4 %	4 %	5 %	5 %	3 %	3 %	4 %	5 %	5 %	5 %	5 %	4,19 %
<i>Depreciaton part of leasing</i>	638	722	695	877	753	822	1049	679	531	376	296	240	244	609
<i>Adjusted depreciation</i>	2229	2179	2452	3289	3599	3868	3061	2464	2723	2463	2421	2120	2095	2689
<i>% of revenue</i>	4,19 %	4,31 %	4,89 %	5,93 %	6,20 %	6,70 %	4,71 %	4,79 %	4,93 %	5,63 %	5,91 %	5,45 %	6 %	5,35 %

**Appendix figure 13: Historical depreciation**

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