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Bachelor’s thesis:

An analysis of airline’s financial performance and its influencing factors

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Executive summary

This bachelor thesis examines the relationship between the financial performance of six European airlines, internal factors that characterize these airlines and the external factors surrounding and influencing the airline industry in general, and in Europe specifically.

The number of passengers worldwide increased from 2.1 billion in 2004 to 3 billion in 2013, but airlines have only been able to generate a positive net profit margin in six of the last ten years. In 2013, airlines generated an average net profit margin of 1.5%. However, some airlines have performed better than others during this period. Furthermore, the airline industry is characterized by great competition and unpredictable events making it a complex industry to understand. This thesis is written in a pragmatic manner and based on inductive research approach and with a case study research design. This is reflected by the many sources of secondary data I have utilized and the framework that has been applied throughout the thesis.

Ultimately, the main focus of this paper was to identify factors that contribute to the good performance of some airlines, and the poor performance of others between 2004 and 2013. The relationship between financial performance and its influencing factors has been explored in three steps. First, the financial performance of the relevant airlines was compared to each other by applying various financial ratios, such as EBT margin, operating expense ratio, current ratio and debt to equity ratio. The next step was to identify internal factors that characterize full scale carriers and low cost carriers, factors that can be used to explain the difference in performance. Lastly I applied the PESTEL framework to analyse the macro- environment airlines operate in. By applying the PESTEL framework, I have been able to identify and analyse external factors that has influenced the airlines industry the past years, and the key drivers of change that will influence the industry going forward.

It was found that full service carriers (FSC’s) has struggled to be profitable the past years, whereas the low cost carriers (LCC’s) generally have generated higher EBT margins and more favourably operating expense ratios. Similarly, the LCC’s tend to achieve a higher level of liquidity and solvency than FSC’s. The characteristics that differentiate LCC’s from FSC’s provide some knowledge for why this is. Most important is the cost advantage that LCC have been able to accomplish relative to FSC’s. A consequence of FSC’s attempt to reduce this cost gap, is that they now find themselves in a situation where they primarily compete on price with LCC’s. The primarily result, as it seems, is that it has become increasingly difficult for travellers to distinguish between the two types of carriers. Due to LCC’s cost advantage, FSC’s are unable to compete without it compromising their profit margins. Furthermore, the establishment of open skies agreements have made LCC’s to take broaden its route network and compete more aggressively against FSC’s, as they are no longer bound to limitations of just operating domestic routes. Through the analysis of the external environment I also found that the demand for air travel increased with a multiple of GDP growth, but at weak economic times, like during the recent recession the three LCC’s were able to earn a positive
EBT margin, while to FSC’s were not, providing further support for LCC’s competitive advantage. Going forward, airline management need to be aware of various changes in the external environment. Some include changes in traveller spending trends, removal of cabotage rules and the fact that external shocks seem to influence the airline industry negatively in revenue per kilometre growth in every five to ten years.

I would like to thank and acknowledge my supervisor at Aarhus University, School of Business and Social Sciences, Sergejs Groskovs, for his suggestions and feedback on the topic.
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1. Introduction

1.1. Background

The aviation market in the European Common Aviation Area was formally liberalized in April 1997 (Kinnock, 1996). In practice, this meant that every airline that was established within the European Union (EU) could offer transportation at prices of their own choosing, between any airports located in EU. However, this was subject to rules established by the European Union with regards to competition, financial solvency and licencing.

Prior to 1997, European airlines operated in a regulated market. Governments decided which routes airlines could operate, as well as the price the airline could charge for the tickets (Vasigh, et al., 2014). Because of the regulation of the civil aviation industry, airlines were typically protected against competition. The national government’s protected incumbent airlines by only allowing a limited number of airlines operate certain routes. The national government’s generally priced based on a formula known as cost-plus formula. Basically, the cost-plus formula was based on the airlines cost of flying a certain route, and whereby the government merely added a profit margin. During the period of regulation, carriers tended to earn a healthy and stable profit. In fact, many European airlines was controlled and owned by governments.

The deregulation, or liberalization, of the European aviation industry changed the competitive market dramatically. On one hand, airlines could operate routes between airports of their choosing within the European Union. This gave airliners an opportunity to generate larger profits. On the other hand, popular routes would be exposed to more competition. As a consequence of increased competition in the aviation industry, airlines have become more concerned with decreasing their costs at a time where competition has put downward pressure on ticket fares. According to Vasigh (et al., 2014), the airline industry have been transformed to a more risky industry, riskier than the case was prior to the deregulation. Since the deregulation, many major airlines have struggled to compete and make a profit.

Airlines were on average able to earn a net profit margin of 1.5 % in 2013. (IATA, 2014 A). International Air Transportation Association (IATA) has reported historic net profit margins from 2004. During the ten year period between 2004 and 2013 airlines worldwide have had an average negative net profit margin in four out of ten years. Airlines have delivered these profit margins in a period where the number of passengers has increased from approximately 2.1 to 3.1 billion, representing an increase of approximately 50%. Apparently, the increase of travellers should be good business for airlines, but many airlines have showed poor financial results during this period.
1.2. Research question and delimitation
Surely, some airlines were indeed able to earn a profit the last years. Airlines like Ryanair and easyJet have generated relatively good profits, whereas Air France-KLM has struggled. This leads to my research question;

1. What have separated top performing airlines from bad performing airlines the past years?

I have focused on three separate aspects in order to answer the research question. The first aspect is concerned with the financial performance of the relevant airlines and how they compare to one another. The second aspect is concerned with the characteristics that distinguish low cost carriers from full scale carriers. The third and last aspect is concerned with the external factors that have influenced the airline industry the past years and the external factors that will influence the industry going forward.

Financial results from 2014 will not be included in this thesis, due to the fact that most of the airlines have not published their result for the year. The timeline will be the ten years between 2004 and 2013. However, the airlines chosen for this thesis will be chosen at a passenger basis by the year end 2014.

1.3. Structure of the thesis
The first part of this bachelor’s thesis is an introduction to the recent developments in the airline industry. It includes description of the changes the airline industry has experienced lately, and airlines struggle to earn a profit. Furthermore, it includes my research question and the methods I have applied to answer it. The second part of this thesis is the literature review. This part is included to explain more closely the methods I have chosen to answer the research question, and more specifically why I have chosen them. These methods include the financial ratios such as EBT margin, operating expense ratio, current ratio and debt to equity ratio. Furthermore, it provides definitions of low cost carriers and full scale carriers, and a description of the PESTEL framework I have applied, in order to identify external factors that influence the industry. The third part addresses the methods, principles and techniques I have used to collect, analyse and present the data. The fourth part is concerned with the financial performance of the relevant airlines and how internal and external factors have influenced it, and how these factors will continue to do so. The fifth part is the conclusion.
2. Literature review

2.1. Financial performance measures
Finance is a broad and diverse topic that deals with securing that firm’s has the necessary economic resources to successfully operate in a short- and long term perspective (Vasigh, et al., 2014). In order for Airlines to stay profitable in the long term, it is important to focus on financial management, as well as the general economic environment to be able to maintain a well-managed and efficient airline operation. The financial performance of airlines is important, because it influences short term decisions and their strategic planning.

Studies concerned with airline performance have often focused on operational performance, and not financial performance (Feng & Wang, 2000). Operational performance has been popular, because it measures metrics such as available seat kilometres, revenue per kilometre and load factor. So far, financial performance has not been of the same importance. However, Feng & Wang argue the importance of measuring airline performance in terms of profitability, liquidity and solvency. Metrics analysing these factors are important, because the financial condition of airlines influence the long term survival of airlines. Feng & Wang (2000) produced a performance indicator set, from where I have derived relevant financial performance indicators to use in my analysis. The profitability indicators I have chosen are income before tax ratio (also known as earnings before tax ratio) and operation expense ratio. From their performance indicator set, I have chosen the current ratio to measure airline’s liquidity, and equity to debt ratio to measure airline’s solvency. The financial ratios are relevant, because it will make it possible to compare how airlines perform relative to each other, their ability to make a profit, and their ability to settle short and long term obligations.

2.2. Internal factors
The relevant airlines are either a full service carrier (FSC) or low cost carrier (LCC). What separates them is how the airline is able to generate revenue, target customers, their product offerings and their value adding services (Cento, 2008). Cento (2008) described a FSC as an airline with characteristics such as hub-and- spoke network, operate short, medium and long haul flights and are members of alliances. Furthermore, he described LCC’s as airlines with lower fares than FSC’s, offering fewer services, and having a cost advantage over FSC’s. I have chosen to identify and analyse the characteristics that separates LCC’s and FSC’s in order to understand the difference in how they operate.

2.3. External factors
I have chosen to apply the PESTEL framework in order to analyse the macro environment the airlines operate in. The framework identifies key political, economic, social, technological, ecological and legal environments that influence the industry (Johnson, et al., 2014). However, these factors are not within the direct control of airlines. My ultimate goal when applying this framework is to identify the most important changes or issues the industry
have faced so far, and it will face going forward. It is important to keep in mind that the PESTEL framework is applied to an industry where the macro-environment often changes. Thus, to evaluate the impact these factors have had, and will have, sometime difficult to predict.

3. Methodology
The purpose of this chapter is to give the reader an overview of the methodology I have chosen to apply in this thesis. This chapter includes the research philosophy, research approach, research design, sample, data collection, data analysis and research quality of this thesis.

3.1. Research philosophy
A realistic research philosophy tells us that our senses represent the reality as it is, and there exist a reality independent of our mind. (Saunders, et al., 2009). Furthermore, realism can be separated into direct and critical realism. While the philosophy of direct realism tells us that senses show the world in an accurate manner, the philosophy of critical realism see the world as illustrations of what is real, according to our perception, which can deceive us. Moreover, critical realism may provide more detailed and accurate analysis when looking for relationships between firms and how they develop (Eriksson & Kovalainen, 2008). Critical realism is also suiting when the goal is to understand the social context surrounding the field of subject, and the phenomenon I try to develop an understanding for.

With this paper I try to gain an understanding of which factors have caused some airlines to perform better than others, and how these factors have influenced them. I will identify internal and external factors, and analyse how they have influenced the performance of various airlines. By doing so, I will assess the relationships between internal and external factors, and how they have affected airlines performance. The philosophical position of critical realism and the phenomenon I am trying to develop an understanding of suggest that this research philosophy is the suiting one.

3.2. Research approach
There are two approaches on how to conduct social science research- a deductive or an inductive approach (Eriksson & Kovalainen, 2008). A deductive research approach begins with an existing theory, which is considered to be the first source of knowledge. From the existing knowledge about the theory, the researcher is able to derive and build hypotheses. Furthermore, the hypotheses are subject to an empirical study which either accept or reject the hypotheses. As the deductive approach is considered to be a top-down approach, the inductive approach is considered to a bottom-up approach. In inductive research, theory is the outcome of empirical study, and not the initial starting point. An inductive approach is also concerned with the context of the study and why things develop as they do.
In many ways, I have adapted to an inductive research approach. This thesis does not start with an hypothesis, where the purpose of the empirical analysis is to reject or confirm it. However, the theory can be considered to be the outcome of this study. The first set of knowledge I develop in this field of study comes from the empirical materials I have made use of in order to answer the research question. Throughout the paper I have attempted to draw logic and transparent links between influencing factors and the affect it have had on the airlines, so it is easy for the reader to understand my interpretation.

### 3.3. Research design

The research design is concerned with applying the appropriate research method in order to answer the research question. The appropriate research design is decided by the research question (Eriksson & Kovalainen, 2008). There are multiple research designs such as; case study, ethnographic, grounded theory and focus group research. The essence of case study research is to collect as much information as possible about a phenomenon (Yin, 2009). Furthermore, this information should be used to provide detailed and holistic knowledge, based on multiple sources of empirical data (Eriksson & Kovalainen, 2008). A case study can either be intensive, or extensive. Intensive case studies focus on holistic research of one or few cases, whereas extensive case study focuses on the comparison of multiple cases and how the related issues can be understood and explained. Extensive case studies are concerned with adding new understanding to the case, or multiple cases that is being researched. It is also a suiting research design in order for the research to describe and explain the dynamics of the cases, or to describe the phenomenon itself. There is also a need to make a distinction between single case study or multiple-case study. Single case studies focus on one critical or unique case, whereas multiple case studies can be used to compare findings between cases (Saunders, et al., 2009).

An extensive case study will be a suiting research design when the aim is to describe and explain how and why internal and external factors influence financial performance of airlines. This will allow for a cause- and effect relationship between the influencing factors, and how it affects the relevant airlines. One of the characteristics of extensive case study is the ability to compare the impact of the influencing factors. This is also supported by the characteristic of a multiple case study, supporting the wish of making cross case comparisons. This research design, I believe, will produce an understanding the dynamic nature of the airline industry.

With regards to time horizons, the research may either be longitudinal or cross sectional studies. By conducting longitudinal studies, the researcher observes change and development over time (Saunders, et al., 2009). A study is cross- sectional if a phenomenon is researched at a particular time. This paper is going to focus on the financial performance of airlines and its influences over a period of time, between 2004 and 2013. Much of the empirical data I have used in this thesis, especially with regards to airlines performance, is
derived from annual reports and originates from the period between 2004 and 2013. Hence, I am observing changes and development over time which calls for a longitudinal study.

3.4. Sample

Airlines included in this thesis should be comparable to each other in an accurate manner. However, airlines are not easily comparable in terms of their size or their geographical presence. Therefore, as a starting point in the selection process, I chose to focus on the ten European airlines which carried the most passengers in 2014. Airlines could have been chosen by other requirements such as number of aircrafts, employees or market value. However, it is my belief that the method I have chosen will result in the best comparison of airlines, in scale and scope. The table below includes the ten largest airlines in Europe in terms of passengers carried.

Figure 1: Number of passengers carried in 2014

<table>
<thead>
<tr>
<th>Per 2014</th>
<th>Passengers carried (millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deutche Lufthansa</td>
<td>106</td>
</tr>
<tr>
<td>Air France-KLM</td>
<td>87.3</td>
</tr>
<tr>
<td>Ryanair</td>
<td>81.7</td>
</tr>
<tr>
<td>International Airlines Group</td>
<td>77</td>
</tr>
<tr>
<td>easyJet</td>
<td>64.8</td>
</tr>
<tr>
<td>Turkish Airlines</td>
<td>54.7</td>
</tr>
<tr>
<td>Air Berlin</td>
<td>31.7</td>
</tr>
<tr>
<td>Scandinavian Airlines</td>
<td>28.4</td>
</tr>
<tr>
<td>Norwegian Air Shuttle</td>
<td>24</td>
</tr>
<tr>
<td>Aeroflot</td>
<td>23.6</td>
</tr>
</tbody>
</table>

Source: Own creation, annual reports and company websites

The scale of these airlines cannot be said to be very similar to each other when Deutche Lufthansa carries more than 4 times as many passengers as Norwegian Air Shuttle (NAS) and Aeroflot. Nevertheless, these ten airlines represent the ten largest airlines by the amount of passengers carried in the European aviation market.

Furthermore, I will reduce the amount of airlines included in this thesis from ten to six, and continue the analysis with three top performing and three bad performing airlines. The reason for why I have chosen to continue with six airlines instead of ten is mostly because of the great amount of time I had to spend and the difficulty I had collecting the relevant data. In order to separate three top performing airlines and three bad performing airlines, I chose to derive them from their respective evolution of market capitalization (market cap) between 2004 and 2013. According to efficient market theory, the price of a stock reflects all available information (Nikbahkt, 2006). New information causes investors to react positively or negatively to the firm, which cause the stock price to change. Ultimately, the price of a stock is influenced by information affecting e.g. the growth potential of the firm, its potential earnings, cash-flows, its balance sheet and the risk associated with the firm. The reason for
why I have chosen the focus on the development of market cap and not share price is because firms e.g. may have issued new shares, which can affect the price of the stock, but not the market cap. I selected evolution of market cap as the criteria, because it serves as an ultimate performance measure for airlines, and it is an effective way to separate top performing airlines from poor ones.

Airlines report their financial statements in various currencies. In order to cope with this problem and be able to make a precise comparison, all financial data will be converted into euros. Five of the airlines report in euros, whereas the rest of them British pounds, Swedish krona, Norwegian krona, US dollar and Russian rouble. The relevant exchange rates have been chosen by the date of which their financial year ends.

Another issue when comparing the financial performance of these airlines is that they have adopted different financial years. A firm’s financial year is the period in which it reports its annual financial results, and can vary between firms. For examples, Scandinavian Airlines Systems, Ryanair, and EasyJet’s financial year is 1st of November to 31st of October, 1st of April to 31st of March and 1st of November to 31st of September, respectively. I realize the limitation of comparing data from the airlines annual financial report when they do not cover the same period. An occurrence that arise in the first quarter of 2013, will affect the airlines with financial year 1st of January to 31st of December annual report for 2013. On the other hand, the same occurrence will affect Ryanair’s 2012 annual report.

3.5. Data collection:

There are two different types of data, qualitative and quantitative (Eriksson & Kovalainen, 2008). Quantitative data consist of numeric data, whereas qualitative data consist of non-numeric data. Simply put, qualitative data often include words, but can also include e.g. diagrams and pictures. Quantitative data on the other hand consist of information that can be measured in numbers. Furthermore, empirical data used in research can be divided into primary and secondary data. Empirical data is considered to be primary when the researcher has collected the data themselves. However, empirical data that already exists is called secondary data. Primary data can be collected through e.g. interviews or experiments, whereas secondary data can be collected from e.g. research papers, journals and annual reports.

This thesis has used qualitative and quantitative secondary data, which have some advantages. An advantage with secondary data is that I can evaluate the data to see if it is relevant prior to me using them (Saunders, et al., 2009). Secondary data is often retrieved from public sources; hence it is easy for many to check this information. This means that the data is likely to be criticised, and corrected if they are wrong. However, the use of secondary data has some disadvantages as well. Data is collected in order to answer a research question. Secondary data that I collect, may have been collected to answer another research question than I aim to answer, thus the data can be inappropriate. Secondary data may have been collected some years ago, thus perhaps making it less relevant. Another
important disadvantage is that I lose control over the quality of the data. Even though much of the secondary data I have collected is existing empirical data, that origin from government agencies such as Eurostat, industry organisations like International Air Transportation Association (IATA) and annual reports I cannot be certain the data is of high quality. In addition to this, information is gathered from consultancy agencies such as Boston Consulting Group (BCG), journals from e.g. Journal of Air Transportation Management, books and orbis- a database I as a student have access to through Aarhus BSS library.

3.6. Data analysis

There are two main strategies on how to analyse empirical data. The first method bases the analysis on theoretical claims and coding system, whereas the second method bases the analysis on case description and interpretation of the research materials (Eriksson & Kovalainen, 2008). By applying the latter analysis strategy, I will be able to identify patterns and relationships between airlines and its influencing factors. This also coincides with the inductive research approach. Moreover, this paper uses theoretical concepts from prior research, such as e.g. Cento’s (2008) definitions of LCC’s and FSC’s, Feng & Wang’s (2000) financial performance indicators, and Vasigh (et al., 2008) economic indicators for increase in demand for air travel. The use of theoretical concepts from prior research is useful to identify central features in their research. The first step of the analysis is the financial performance of the respective airlines. The financial performance of each airline during the period is discussed, before comparing the financial performance with the others. By comparing the airlines with each other, it is possible to observe which airlines have performed best according to the various financial indicators. The second step focus on cross case analysis where the characteristics, similarities and differences of LCC’s and FSC’s will be examined. The last step in my analysis addresses external factors that influence the entire industry, its effects on LCC’s and FSC’s in general and the respective airlines. This method of analysis will be useful to find patterns, e.g. the impact of events such as external shocks and processes such as changes in consumer. By conducting the analysis in such a manner, the case will be based on my interpretation of the empirical research material.

3.7. Research quality

Assessing the quality of research is important to reduce the chance that the research question is answered incorrectly (Saunders, et al., 2009). The quality can be addressed by focusing on the reliability and the validity of the data and the research.

3.7.1. Validity

Validity refers to weather the findings represent what it appear to represent (Eriksson & Kovalainen, 2008). Findings should represent the phenomenon in an accurate manner, and the findings should be supported by evidence retrieved from data.

The financial and quantitative aspect of the thesis is based on relevant financial metrics that is suitable to answer the research question. EBT ratio and operating expense ratio is relevant
profitability metrics that can be used to compare the profitability amongst airlines. The current ratio and equity to debt ratio have been used to compare airlines ability to settle its short- and- long term obligations. By combining profitability, liquidity and solvency ratios the aim is to gain insight into the operational situation of the relevant airlines.

The qualitative aspect of the thesis is based on secondary data from various sources in order to strengthen the validity of the research. The majority of data is retrieved from press releases, annual reports, firm’s websites, international institutions such as IATA, academic journals and consultancy reports to mention some. A potential pitfall is my own interpretation of the data. Thus, it has been important for me to be critical to my interpretation and ensuring that the data I have collected is suitable to answer the research question.

### 3.7.2. Reliability
Reliability is concerned with how data have been collected, how the analysis has been conducted and if it will give consistent findings (Eriksson & Kovalainen, 2008). Furthermore, in order for research to be reliable, other researchers should be able to replicate it and get the same result.

The data used in the thesis is only retrieved from public sources. This means that others can review them as well. Moreover, the structure of the thesis is transparent and there has been provided a rich description of the research process and methodology. It should be possible for readers to understand where the data is retrieved from, how the analysis is conducted and on what basis I have come to certain conclusions.
4. Analysis of the airline’s financial performance and its influencing factors

4.1. Financial performance

4.1.1. Market capitalization

This section of the thesis will describe how the market cap of the relevant airlines has evolved the past ten years, and will be the first step to separate top performing airlines from bad performing ones. A firm’s market cap is calculated by multiplying the number of outstanding shares with the value of each share.

To best compare the evolution of the market capitalization of the different airlines, I have chosen to use a benchmarking approach. A benchmarking approach will give the possibility to understand how the market capitalization of one firm compares with competitors (Johnson, et al., 2014). By giving all the airlines the same base value (100) in year 2004, I am able to see how they have performed relative to each other.

Figure 2: Development in market cap 2004-2013

Figure 2 shows the evolution in market cap for every airline. However, it has some limitation. The International Airline group was founded in 2011, and is the parent firm of Iberia, British Airways and Vueling (International Airlines Group, n.d.). In practise, this means that I am only able to assess the market capitalization from 2011 to 2013, where 2011 is the base year. Correspondingly, Air France- KLM (Air France and KLM is separate airlines, but Air France- KLM is the parent firm) is an airline group founded in May 2004, and they did not provide a common annual report in 2004, hence the base year is 2005. In the case of Air Berlin, annual reports for 2004 and 2005 were unavailable, thus I could not to calculate market cap, due to the lack of information on outstanding stocks for these years.
NAS had the greatest increase in market cap during this period. The market cap of NAS exceeded what could be included in figure 2, without ruining it. In 2004 the firm had a market value of €30 million. Since then, the market cap has increased with 2530%, to €789 million. Another good performer is easyJet which experienced an increase in market cap of 526%, from €1160 million in 2004, to €6061 million in 2013. Ryanair had an increase in market cap of 231%, which increased the market cap from €3171 million to €10 502 million. International Airline Group market cap increased with 198%, Aeroflot’s with 103% and Deutche Lufthansa’s with 48%.

Air Berlin, which had a market value of €986 million in 2006, has since then, lost 80% of its market value. The market cap of Turkish Airline decreased from €7150 million in 2004, to €2726 million in 2013, a decrease of 62%. Air France- KLM had a drop in market cap of 39%, from €3736 million to €2277 million. Scandinavian Airlines had a market value of €1094 million in 2004, which has dropped to €729 million, a 33% reduction in market cap.

Some airlines have experienced an increase in market cap, while some have not. As figure 2 shows, NAS have had the greatest increase in market cap, while Air Berlin’s was reduced the most. 6 out of the 10 airlines have had a positive development, while 4 have had a negative development. The top performing airlines that will be further included in the analysis is NAS, easyJet and Ryanair, whereas the bad performing airlines are Turkish Airlines, Air France-KLM and Air Berlin. Figure 3 will provide key figures of the respective airlines.

**Figure 3: Key figures**

<table>
<thead>
<tr>
<th>2013 Type of airline</th>
<th>Passengers in millions</th>
<th>Aircrafts</th>
<th>Employees</th>
<th>Market cap in millions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Norwegian Air Shuttle</td>
<td>LCC</td>
<td>20.7</td>
<td>85</td>
<td>3965</td>
</tr>
<tr>
<td>easyJet</td>
<td>LCC</td>
<td>60.8</td>
<td>217</td>
<td>8945</td>
</tr>
<tr>
<td>Ryanair</td>
<td>LCC</td>
<td>79.3</td>
<td>305</td>
<td>9500</td>
</tr>
<tr>
<td>Air France-KLM</td>
<td>FSC</td>
<td>77.3</td>
<td>552</td>
<td>95961</td>
</tr>
<tr>
<td>Air Berlin</td>
<td>FSC</td>
<td>31.5</td>
<td>140</td>
<td>8905</td>
</tr>
<tr>
<td>Turkish Airlines</td>
<td>FSC</td>
<td>48.3</td>
<td>233</td>
<td>3966</td>
</tr>
</tbody>
</table>

*Source: Own creation, annual reports & social responsibility reports*
4.1.2. Profitability measurements

The following sections of the thesis will consider a set of financial ratios in order to better compare the airlines and evaluate their financial performance. According to Feng & Wang (2000), a ratio is used as an analytical technique in financial analysis. Typically, financial analyses consider a firm’s cash flows, income statements, shareholders equity and the balance sheet. In general, a financial ratio is found by dividing one item in the firm’s financial statement, with another. The profitability ratios in this thesis will include elements such as revenue, operating costs and earnings before tax - elements that will be used to calculate the airlines EBT margin and operation cost ratio.

4.1.2.1. EBT margin

The EBT margin is a ratio that displays a firm’s earnings before tax, as a percentage of revenues. When a firm have a pre-tax profit, the firm will have a positive EBT margin. On the contrary, the EBT margin will be negative if the firm have made a pre-tax loss. A high EBT margin indicates that the airline earns a high pre-tax profit, whereas as low or negative margin indicates poor pre-tax profit or none pre-tax profit. EBT margin is a sound basis for comparison, because the level of taxation is ignored. The airlines are based in various countries, with different tax levels. The EBT margin will ignore this aspect, and compare the last level of profitability, which is equal for all.

Figure 4: EBT margin

<table>
<thead>
<tr>
<th>EBT margin</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>10y-avg</th>
<th>5y-avg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ryanair</td>
<td>23.4%</td>
<td>20.0%</td>
<td>20.2%</td>
<td>16.2%</td>
<td>-6.3%</td>
<td>11.4%</td>
<td>11.6%</td>
<td>14.4%</td>
<td>13.3%</td>
<td>11.6%</td>
<td>13.6%</td>
<td>12.5%</td>
</tr>
<tr>
<td>easyJet</td>
<td></td>
<td></td>
<td>6.2%</td>
<td>8.0%</td>
<td>11.2%</td>
<td>4.7%</td>
<td>2.1%</td>
<td>5.2%</td>
<td>7.2%</td>
<td>8.2%</td>
<td>11.2%</td>
<td>7.1%</td>
</tr>
<tr>
<td>Turkish Airlines</td>
<td>4.2%</td>
<td>6.2%</td>
<td>5.0%</td>
<td>8.9%</td>
<td>21.3%</td>
<td>10.5%</td>
<td>4.3%</td>
<td>1.2%</td>
<td>9.4%</td>
<td>5.1%</td>
<td>7.6%</td>
<td>6.1%</td>
</tr>
<tr>
<td>Norwegian Air Shuttle</td>
<td>-12.6%</td>
<td>1.9%</td>
<td>-1.1%</td>
<td>2.7%</td>
<td>0.1%</td>
<td>8.5%</td>
<td>2.8%</td>
<td>1.5%</td>
<td>4.8%</td>
<td>2.7%</td>
<td>1.1%</td>
<td>4.1%</td>
</tr>
<tr>
<td>Air France-KLM</td>
<td>8.9%</td>
<td>5.5%</td>
<td>4.8%</td>
<td>4.7%</td>
<td>-5.0%</td>
<td>-10.0%</td>
<td>1.8%</td>
<td>-2.6%</td>
<td>-4.4%</td>
<td>-2.5%</td>
<td>0.1%</td>
<td>-3.6%</td>
</tr>
<tr>
<td>Air Berlin</td>
<td>1.6%</td>
<td>-5.8%</td>
<td>2.8%</td>
<td>-0.5%</td>
<td>-1.7%</td>
<td>-0.7%</td>
<td>-3.8%</td>
<td>-8.5%</td>
<td>-0.1%</td>
<td>-7.3%</td>
<td>-2.4%</td>
<td>-4.0%</td>
</tr>
<tr>
<td>Industry average</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-1.6%</td>
<td>3.3%</td>
<td>1.8%</td>
<td>1.5%</td>
<td>2.5%</td>
<td>1.1%</td>
<td></td>
</tr>
</tbody>
</table>

Source: Own creation, annual reports 2004-2013 & orbis

Clearly, Ryanair is the most profitable airline in terms of the EBT margin. The airline only experienced a negative EBT margin in 2008. According to Ryanair’s annual report, their profitability was negatively impacted by a 59% increase in fuel costs this year. Besides 2008, Ryanair have had positive EBT margins between 11 and 23% every year, a margin that is clearly superior to the other airlines discussed in the thesis. Despite this performance, Ryanair’s EBT margins shrank with 50% during the ten year period, from 23.4% to 11.7%. Ryanair’s ten year average EBT margin exceeds the five year average, which is another indication that their EBT margin have come under pressure the last years. In contrast, easyJet’s EBT margin has increased 82% the same period, from 6.2% to 11.2%, without a single year of negative EBT margins. However, the similar trend can be observed for easyJet. Even though their EBT margin has increased during the ten years, their 10 year average
exceeds the five year average, implying better margin the first years, rather than the previous five.

Turkish Airlines, which is in fact one of the bad performing airlines, have achieved positive EBT margins every single year with similar averages to easyJet. Turkish Airlines have relatively large EBT margin variations, varying between 1.2% and 21.3% as the two extremes. This airline as well has seen decreasing EBT margins the past couple of years. NAS reported negative EBT margin in 2004 and 2006, and achieved a ten- and five year average EBT margin of 1.1%, and 4.1% respectively. The modest 1.1% average can in large part be explained by the EBT margin in 2004, being -12.6%. NAS is in fact the only airline that has been able to achieve higher EBT margin the past five years rather than the first five.

Air France-KLM generated respectable EBT margins from 2004 to 2007 but has experienced negative EBT margins the remaining period, excluding 2010. The last ten years, Air France-KLM reported average EBT margins of scarce 0.1%. The last five year they reported average EBT margins of -3.6%. Air Berlin reported negative EBT margins in eight out of ten years, and as a consequence delivered average negative EBT margins both the last ten- and five years, with -2.4% and 4% respectively. Air Berlin reported its worst EBT margin in 2011 with -8.5%. According to their 2011 annual report, profitability was negatively impacted by restructuring cost.

In order to compare these airlines EBT margin with the rest of the industry, I have used orbis to calculate the industry average EBT margin. Unfortunately, orbis could only provide this financial ratio for the period 2009 to 2013. Ryanair and easyJet outperformed the average industry EBT margin by far. NAS, the remaining top performing airline have achieved higher EBT margin than industry average in three of the last five years. Turkish airlines, one of the bad performing airlines actually retained a higher EBT margin than the industry average in four of the last five years. Air France-KLM and Air Berlin on the other hand achieved lower EBT margins. During these five years, Air France-KLM was unable to outperform the industry EBT margin at all. Air Berlin outperformed the industry’s EBT in 2009, yet, it reported a negative EBT margin of 0.7%.

The EBT margin as a financial ratio has some limitation and does not tell the full story about a firm’s profitability. The EBT margin is included in order to give an overview of the firm’s capabilities to earn pre-tax profit of the revenue it generates.

### 4.1.2.2. Operating expense ratio

The operation expense ratio is found by dividing the airline’s cost of operation with revenue generated from its operations. If the cost of operation exceeds the revenue generated from operations, it will result in a value higher than 1. On the contrary, if the revenue generated from operations is greater than the cost of operations, it will generate a value lower than 1. A low value indicates profitable operations. What separates this ratio from the EBT margin is fact that this ratio focus on the profitability of the airlines operations, and it does not include
e.g. financial gains or expenses reported in the income statement. Operating expense ratio is included because it gives an indication of the airline is able to make money from its operations, excluding financial posts and taxation.

**Figure 5: Operating expense ratio**

<table>
<thead>
<tr>
<th>OER</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>10y- avg</th>
<th>5y-avg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ryanair</td>
<td>0.74</td>
<td>0.78</td>
<td>0.79</td>
<td>0.83</td>
<td>1.04</td>
<td>0.87</td>
<td>0.87</td>
<td>0.84</td>
<td>0.85</td>
<td>0.87</td>
<td>0.85</td>
<td>0.86</td>
</tr>
<tr>
<td>easyJet</td>
<td>-</td>
<td>0.95</td>
<td>0.94</td>
<td>0.90</td>
<td>0.96</td>
<td>0.98</td>
<td>0.94</td>
<td>0.92</td>
<td>0.91</td>
<td>0.88</td>
<td>0.93</td>
<td>0.93</td>
</tr>
<tr>
<td>Turkish Airlines</td>
<td>0.92</td>
<td>0.94</td>
<td>0.92</td>
<td>0.95</td>
<td>0.90</td>
<td>0.89</td>
<td>0.96</td>
<td>0.99</td>
<td>0.89</td>
<td>0.92</td>
<td>0.93</td>
<td>0.93</td>
</tr>
<tr>
<td>Air France-KLM</td>
<td>0.90</td>
<td>0.93</td>
<td>0.95</td>
<td>0.93</td>
<td>1.00</td>
<td>1.07</td>
<td>0.96</td>
<td>1.00</td>
<td>1.03</td>
<td>1.01</td>
<td>0.98</td>
<td>1.01</td>
</tr>
<tr>
<td>Norwegian Air Shuttle</td>
<td>1.13</td>
<td>0.99</td>
<td>1.01</td>
<td>0.97</td>
<td>1.05</td>
<td>1.02</td>
<td>0.98</td>
<td>0.96</td>
<td>0.94</td>
<td>0.94</td>
<td>0.99</td>
<td>0.95</td>
</tr>
<tr>
<td>Air Berlin</td>
<td>1.00</td>
<td>1.00</td>
<td>0.97</td>
<td>0.99</td>
<td>1.00</td>
<td>0.99</td>
<td>1.01</td>
<td>1.06</td>
<td>0.98</td>
<td>1.06</td>
<td>1.01</td>
<td>1.02</td>
</tr>
<tr>
<td>Average</td>
<td>0.94</td>
<td>0.93</td>
<td>0.93</td>
<td>0.93</td>
<td>0.99</td>
<td>0.96</td>
<td>0.95</td>
<td>0.96</td>
<td>0.94</td>
<td>0.95</td>
<td>0.95</td>
<td>0.95</td>
</tr>
</tbody>
</table>

Source: Own creation, annual reports & Orbis

Looking at the 10 year average operations expense ratio, it is clear that Ryanair performs better than its peer group, and makes a greater profit from operations relative to the revenue the airline generates. In fact, Ryanair have the lowest operation expense ratio than all the other airlines, except in 2008, where the airline actually made a loss of its operations. Ryanair achieved an average of 0.85 in this ten year period. The ratio was as low as 0.74 in 2004, while it had increased to 0.87 in 2013. EasyJet and Turkish Airlines are in fact the only airlines that made an operating expense ratio below 1 every year. Both EasyJet and Turkish Airlines achieved an operation expense ratio of 0.93. EasyJet’s ratio has decreased from 2005 from 0.95 to 0.88 in 2013; however, the ratio varied throughout the ten year period and have been as high as 0.98. Turkish Airlines had an operation expense ratio of 0.92 in both the beginning and the end of the period. However, 0.92 is below the average ratio for the airline these ten years of 0.93.

Air France-KLM was unable to earn a profit from its operations in four out of the ten years, where three off the unprofitable years came in the last half of the period. In average, Air France-KLM achieved an operating cost ratio of 0.98 in a ten year perspective. However, the ratio have increased the previous five years which implies that the airline have had a harder time to achieve a low ratio. Just behind Air France-KLM can it be observed that NAS achieved an operational expense ratio of 0.99. NAS made a loss from operations in three years. However, NAS’s five year average have improved from ten year average, hence they have improved the profitability from its operations. The worst performer measured on an average throughout the ten year period is Air Berlin, which has an average of 1.01, and had a ratio above 1 in six out of ten years. The best performing year was in 2006, where the airline obtained a ratio of 0.97, while the worst performing years was in 2011 and 2013 when the ratio was 1.06 both years.
4.1.3. Liquidity and solvency

Following the terrorist attack on the 11th of September 2001, two major European airlines, Sabena and Swizzair went bankrupt, as well as multiple US based airlines (Morrell, 2011). Morell argues that in times of distress like in the aftermath of the terrorist attack, or the more resent financial crisis, an evaluation of the airlines liquidity and their access to financing is very important. In fact, the airlines continuous liquidity and their access to financing are critical for the survival of the airline as well as to be able to finance aircraft deliveries. The following sections will assess the liquidity and solvency of the relevant airlines. The liquidity ratio and solvency ratio will consist of elements such as current assets, current liabilities, total liabilities and shareholder’s equity. These are necessary in order to calculate airlines current ratio and debt to equity ratio.

4.1.3.1. The current ratio – short term liquidity

The current ratio is a liquidity ratio, which is an analytical tool to measure a firm’s capability to settle its short-term obligations (Vasigh, et al., 2014). The ratio does so by investigating the relationship between the firm’s current liabilities and current assets. The purpose of the ratio is to analyse the firm’s working capital, and whether or not the firm is able to meet its short term debt obligations. Since a firm’s working capital will vary after the size of its operations, the current ratio suggest an alternative to the purely compare the airlines in euro values. Thus using a ratio, such as the current ratio, makes it possible to do cross-firm comparisons, thus ignoring the size of the different firms. The current ratio is calculated by dividing a firm’s current assets with current liabilities. The current ratio shows a proportionate amount of how much of a firm’s current liabilities are covered by its current assets.

Strong short term liquidity is indicated by a high current ratio. Vice versa, weak short term liquidity is indicated by a low current ratio. If a firm’s current liabilities is not covered by its current assets, it will result in a current ratio value below one (<1) and the working capital will be negative. However, a positive working capital will be indicated by a current ratio above one (>1). When a firm have positive working capital, all of its current liabilities are covered by its current assets.
As the illustrations of the airline’s current ratio shows, Ryanair is the airline that has been able to achieve the highest current ratio over the course of these ten years. Ryanair’s current ratio fluctuated between 1.51 and 2.55, and was above 1 and average every year. Ryanair’s average current ratio this period was 1.99. On average, Ryanair converted twice as much assets into cash relative to it short term debt obligations, thus showing strong short-term liquidity. EasyJet was the second best performer with regards to the current ratio. Both in 2006 and 2007, EasyJet was able to achieve a better current ratio than Ryanair. EasyJet’s current ratio fluctuated between 2.15 in 2005 and 1.05 in 2013, but was able to accomplish an average of 1.57 and beat the average every year and a continuous positive working capital. A current ratio of 1.57 indicates that EasyJet have converted 57% more assets into cash than they have had short term obligations. Turkish Airlines accomplishes an average of 0.99 during the ten year period, were the current ratio varied between 0.94 in 2004, to the peak of 1.58 in 2008 and only 0.38 in 2013. With an average current ratio below 1, Turkish Airlines did not convert as much assets into cash as they had obligations during the years. However, Turkish Airlines were able to achieve a current ratio above 1 in five out of ten years.

During the ten year period, NAS had an average current ratio of 0.89, with a negative working capital in six of the years. NAS’s current ratio has fluctuated around 1 the first six years, before it started declining and had fallen to 0.74 in 2013. Air France- KLM had a current ratio value excelling 1 three years, hence the Airline had negative working capital in seven years, implying that current assets did not cover current liabilities. In 2004 the airline’s current ratio was 0.91, before it had three years above1. From 2008 and onwards the current ratio had values below 1 every year. Air Berlin had negative working capital every
year, indicated by a current ratio below one every year. On average, only 81 percent of Air Berlin’s current liabilities will be covered by its current assets.

Vasigh (et al, 2014) argue that firm’s with negative working capital (current ratio <1) perhaps will try to postpone its liabilities, or acquire other means of short term funding, as for example business line of credit.

4.1.3.2. The debt to equity ratio – long term solvency

The purpose with the debt to equity ratio is to evaluate the long term solvency of a firm. The equity ratio is calculated by dividing the firm’s total liabilities by shareholders equity. The ratio measures the firm’s financial leverage by showing the proportionate distribution between debt and equity that the firm uses to finance its assets. If a firm have used much debt in order to grow to its current position, it is reflected in a high debt to equity ratio. On the contrary, if the firm have used less debt and more equity in order to finance its growth, it will be reflected in a lower equity ratio.

The higher degree of debt to equity worsens a firm’s possibility to take on more debt (Morrell, 2013). On the other hand, a low debt to equity ratio increases the firm’s ability for taking on more debt. This is due to the fact that potential lenders is regarding firm’s with a low degree of debt relative to equity as firms with lower risk. Lenders, like e.g. banks, often include condition or limitation on loans that require that firms keep the debt to equity ratio beneath a certain level (e.g. 2:1). If firms should fail to keep the ratio under a certain level, the firm would be in default.

Figure 7: Debt to equity ratio

Air Berlin, illustrated by the yellow line, has had the most extreme variation when it comes the debt to equity ratio. Between 2004 and 2010 it varied in the range between 2.5 and 5.1, before the financial leverage increased rapidly to above 19 in 2011. The ratio declined to 16 in 2012, before having a negative value of 11 in 2013. This negative value is a reflection of
the fact that Air Berlin had a negative equity of €186 million in 2013. Negative equity typically arises when the value of an asset is less than the loan taken to purchase the asset.

Another airline with a lower, but still a high debt to equity ratio is Air France-KLM. In the period 2004 to 2007 it decreased from 2.9 to 2.1 before the financial leverage increased to 4 in 2008. From 2008 to 2011 Air France-KLM’s financial leverage fluctuated between 3 and 4, before increasing to 6.4 in 2012 and 10.1 in 2013. During the ten years, NAS’s debt to equity ratio have increased from 1.9 to 4.4, hence the financial leverage have more than doubled. However, the debt to equity ratio has during this period, has fluctuated between these two extremes.

In 2004, Ryanair had a debt to equity ratio of 1.2, while it increased, with some variation, to 1.7 in 2013. Turkish Airlines had a financial leverage below one (<1). During six years, Turkish Airlines had more equity than debt, a factor that could imply that they are considered as an airline with lower risk than the previous mentioned ones. However, the last four years they have more than doubled its financial leverage. Based on the debt to equity ratio, easyJet is the airline with the greatest solvency. The ratio fluctuated around 1 between 2005-2007, before increasing to 1.8 in 2009. The ratio decreased to 1.2 in 2013.

Morrell (2013) argue that with regards to return on equity, a firm with a high degree of financial leverage will show larger variation relative to a firm with a low degree of financial leverage. In a situation where profit and working capital are equal, a highly leveraged would have a higher return on equity in a good year, relative to less leveraged airlines. However, in bad years, highly leveraged airlines will perform worse in terms of return on equity than less leveraged airlines.

All six airlines have experienced an increase in financial leverage during the period. According to Morrell (2013), higher financial leveraged firm’s is considered more risky, but would generate a higher return on equity during good times, as well as less leveraged firm’s would be considered less risky and generate higher return on equity during bad times. Now, the paper looks to examine how the airlines long term solvency has influenced their performance in market capitalization.

EasyJet is the airline that has had the lowest increase in financial leverage of the airlines, with an increase of 34%. In average, the airline achieved an average of 1.4 second only to Turkish Airlines. During the ten year period, EasyJet had an increase in market cap of 423%. However, considering Turkish Airlines who had an average financial leverage of only 0.99, and an increase on 151% lost 62% of its market value in the same period. Ryanair had an average debt to equity ratio of 1.5, where the ratio only had an increase of 40%, and an increase in market cap of 231% the same period.

NAS by far had the largest increase in market capitalization with 2530%, and had a relative high debt to equity ratio compared to the other top performing airlines. NAS’s debt to equity ratio was 3 on average, but increased 132%. Air France-KLM market cap decreased from
€3.7 billion to €2.3 in a period where they maintained an average debt to equity ratio of 4, and where it increased with 250%. Air Berlin had debt to equity ratio that peaked on 19, in 2011, before being negative 11 in 2013 saw a drop in market capitalization of 80%.

In 2014, Ryanair was ranked BBB+ (stable) by both Fitch and Standard & Poor (S&P) (Ryanair, 2014). The rating made them the highest ranked airline in the world. Credit rating agencies, such as Standard & Poor issue credit ratings, whereby these credit ratings are the agency’s own forward looking opinions about whether or not the firm will be have the necessary capacity to meet its financial commitments in the future (Standard & Poor’s, n.d.). BBB+ implies that S&P and Fitch believe Ryanair have the will and possibility to meet its financial obligations.

4.1.4. Remarks on financial performance

Part 4.1.2 assessed the profitability of the respective airlines. In terms of EBT margin, Ryanair has generated superior performance with a ten year average of 13.6%. easyJet has however increased its EBT margins the latest year, and almost achieved the same margin as Ryanair in 2013 with 11.2%. Turkish airlines are the best performing FSC and achieved an average margin of 7.6 between 2004 and 2013. NAS achieved relatively low, but positive margins since 2006. Air France- KLM has had negative EBT margins in five of ten years, whereas Air Berlin has had eight negative years.

Ryanair has had the lowest average operating expense ratio. Operating cost only exceeded revenue in 2008, the same year the airline reported negative EBT margins. EasyJet and Turkish Airlines have similar operating expense ratio, achieving the same ten- and- five year average of 0.93. Air France- KLM has achieved positive operating expense ratio six years. On a ten year average, NAS are only able to achieve a ratio of 0.99, which means the operating revenue barely exceeds operating cost. However, it has improved the latest years. Air Berlin has been able to deliver an operating expense ratio below 1 four years, but lose money on its operations on average.

Part 4.1.3 examined the respective airlines liquidity and solvency. Ryanair and EasyJet are the two airlines with the highest average current ratio, and both have seen an increase in market cap of 231% and 423% respectively. Following these airlines come’s Turkish Airlines and NAS but both have been unable to cover its current liabilities with its current assets and the airlines have had an average current ratio of 0.99 and 0.89, respectively. While NAS has increased its market cap by 2530%, Turkish Airlines have seen a negative development of -62%. The last two airlines, Air France- KLM and Air Berlin have had current ratio’s averaging 0.85 and 0.81, respectively. Air France- KLM had a loss in market cap of 39% and Air Berlin had lost 80% of its market cap. In fact, NAS was the only airline with negative working capital, and that have been unable to cover its current liabilities with its current assets, and still been able to grow in term of market cap.
Ryanair and EasyJet were two of the airlines that maintained the lowest financial leverage, and were two of the best performers in terms of market cap. NAS that could show to an increase in market cap of 2530% was among the airlines with the highest financial leverage. Air Berlin had by far the highest financial leverage, and even had negative equity in 2013 and was the airline that lost the most of its market value. Turkish Airlines maintained the lowest average debt to equity ratio but still lost 62% of its market cap. Air France-KLM lost 40% its market value, being one of the airlines with the highest financial leverage.

The LCC’s Ryanair and easyJet was the two airlines that performed the best based on the financial ratios, and can be seen in relation with the positive development in market cap during the period. Turkish airlines have been the best performing FSC’s, whereas Air France-KLM and Air Berlin generally were the worst performing ones both in financial performance and market cap. NAS have had a more positive development on most areas the later years, and the greatest increase in market cap.

4.2. Internal factors

4.2.1. Full service carriers

Cento (2008) defined a full service carrier (FSC) as an airline that previously was controlled by a state or government (state owned flag carrier). Through a deregulation process, state owned flag carriers were transformed to FSC’s.

FSC’s have multiple core businesses (Wensveen & Leick, 2009). In addition to passenger transportation by air where they target business and leisure travellers, their core businesses include cargo transportation by air and aircraft maintenance.

FSC’s use a hub- and- spoke network in order to cover as many different customer demand categories as possible (Cento, 2008). Through optimization of connectivity with the hub, the airlines are able to achieve a high coverage. In practice, a hub- and- spoke network comprises of multiple “spoke” cities, which is located around a central “hub” city. In short, the idea is that this practice makes airlines able to transport passengers from its spoke cities, through its central hub, before transporting the passengers to their final destination.

Hub- and- spoke networks can, in fact, be considered cost efficient. Airlines achieve economies of scope when they pair different spoke cities on at least a part of the transport on a single aircraft (Cento, 2008). Rather than flying directly between the “spoke” cities with smaller aircrafts, travellers travel through a “hub” city, before continuing towards their destination together in a larger aircraft. E.g. travellers from A and B are paired in the “hub” city, before travelling to C, which is the outbound destination. When an airline has achieved
economies of scope, they are also able to develop economies of density (Hendricks, et al., 1995). Hendricks (et al., 1995) argues that economies of density occur when the cost per passenger on a certain route is reduced as the number of passenger increase. Basically, economies of density can be considered as economies of scale on a certain route, and is derived from the size of the aircraft. By connecting routes that normally would have low traffic volume, into routes that support the use a larger aircraft, the airline are be able to exploit their economies of density. As the volume of traffic increase along a specific route, the average cost per passenger is reduced. The underlying reason is because traffic sensitive costs (e.g. ticket handling and food) is lower than fixed flight specific costs (e.g. cabin crew and fuel).

The hub-and-spoke network have been under criticism, as it can have anti-competitive effect (Nordic competition authorities, 2002). This network system is effective in term of economies of scope and density for the airline that is operating the hub. However, it gives the hub airline significant market power at the airport and in its surroundings. As airlines tend to operate their hubs at different airports, a few large airlines have in practice been able to divide the market between them. Very few, if any, FSC’s operate a route with the same origin and same destination. Another point of criticism is that as old flag carriers, the FSC’s have influence, both directly and indirectly, on the slot allocation process at the airport were they have established their “hub” city, as well as ground handling services and other facilities, putting the FSC in a favourable position.

FSC’s tends to be global players, and tries to satisfy domestic and international demand (Cento, 2008). To satisfy all these markets, FSC’s offer flights from its own hub to multiple destinations domestic and international. The more cities an airline operate routes to, the more travellers are likely to prefer to travel with that specific airline (Lu, 2003). However, it is difficult for an airline to establish itself a truly global airline and to offer a global route network, because of the financial commitment it would take to do so. In order to satisfy as many customers as possible, many FSC’s enter alliances with each other. Through alliances, FSC’s are able to offer better connections and an extensive route network to travellers by using alliance partner’s route network as well as their own. Hence, a FSC’s hub-and-spoke network is in fact part of multiple hub-and-spoke networks. There is a trend for airlines to enter airline alliances across borders and continents, in order to satisfy consumer preferences. The largest airline alliance in terms of yearly passengers is star alliance (Star Alliance, 2014). The 27 airlines making star alliance carried 654 million passengers in 2014, serving 193 countries. Of the relevant airlines, only Turkish Airlines is a member of star alliance. Air France-KLM is a member of the SkyTeam alliance (SkyTeam, n.d.), whereas Air Berlin is member of oneworld alliance (Oneworld, n.d.).

Close to every FSC and airline alliances offer loyalty program to their frequent flyers in order to retain them as customers (Beiske, 2002). Such loyalty programs are often called frequent flyers programs (FFP) and have become a popular way to tie customers to the airline. When
the concept of FFP first was introduced by American Airlines in 1981, it offered travellers the opportunity to fly for free with flown miles. Since then, the loyalty programs have been developed into more sophisticated systems. Today, many airlines offer their customers credit cards. When customers use these credit cards for purchases, they earn points- or miles- that can be collected from diverse partner firms. The partner firms are firms that satisfy other customer needs, such as e.g. car rental firm and hotels. The accrued points- or miles- can exchanged into various goods, such as free airline tickets, hotels and car rentals, phone services and even driving training. FFP have been incorporated into the airlines customer relationship management (CRM) (Cento, 2008). Airlines apply CRM in order to improve flyers experience, from the buying process, to the travel itself. Among different things, CRM focus on the automated service processes like the collection of personal information about travellers as well as self- service.

FSC’s apply sophisticated techniques to decide fares and optimize the use of aircrafts (Cento, 2008). These techniques are called yield management. Yield management is used when airlines have to allocate limited resources between a differentiated consumer group. Aircraft capacity puts a limitation on airline supply. The nature of aircraft capacity is scarce, because the airline cannot reduce the number of unsold seats after the plane has departed. On the other hand, the demand for air travel is characterized by heterogeneity, seasonal fluctuations, departure dates and destinations of the traveller’s journey. FSC’s apply yield management in order to navigate this complex market environment and maximize operating revenue.

FSC’s sells tickets through multiple sales channels. These sale channels include travel agencies, electronic agents, via their internet web site, through the airline call centre and the airline’s airport office.

4.2.2. Low cost carriers
The concept of low-cost carriers (LCC) originated with the US based airline Southwest Airlines in early 1970’s (Wensveen & Leick, 2009). Ryanair was the first European airline to copy the LCC model in 1991, before EasyJet followed in 1995 (Cento, 2008). Cento (2008) described a LCC as an airline that, due to lower cost, have a competitive advantage over traditional FSC’s. This competitive advantage could be achieved through a simplified business model, relative to the one applied by the FSC. The target group of LCC are leisure travellers, as well as price sensitive business travellers (Wensveen & Leick, 2009). The following elements of the LCC business models can characterize many of the LCC in this thesis.

LLC’s core business is based in traveller transportation by air (Cento, 2008). However, there is a trend among LLC’s that revenue is generated from non- ticket sources, known as ancillary revenue. Ancillary revenue is generated through sale of on- board food, baggage fees and even fees arising if the LLC where to print the travellers boarding card.
In contrast to FSC’s, LCC’s operate a point-to-point network (Holloway, 2012). LCC’s traffic does not flow through central hubs, such as in hub- and spoke networks. LCC’s have established bases on a few airports (Cento, 2008). These bases serve as the origin of the route it operates to the outbound destination. These airport bases are intended to function as maintenance and logistic bases for the LCC.

In a point-to-point network, travellers are able to travel directly from A or B, directly to C, without being pooled the hub city.

LCC’s bases are in large part established on secondary airports, or in some cases tertiary airports (Cento, 2008). The handling fees and landing taxes tend to be less costly on secondary and tertiary airports than main airports. Local authorities and small airports often strive to attract LCC’s. The traffic generated by the LCC will often motivate the smaller airports to decrease airport charges. As the LCC generate more traffic, local authorities have identified it as a factor that could increase economic and social development in the community. In some cases, local authorities provide LCC’s with financial advantages, such as e.g. reduced taxes and support with marketing. Cento (2008) argues since most secondary airports are public ones, reduced airport fees can be seen as an incentive for attracting LCC’s.

The industry standard for LCC’s has been to operate a fleet with only one type of aircraft (Vasigh, et al., 2008). By only operating a fleet of similar aircrafts, LCC’s are able to develop economies of scale, which can be considered to be the most prominent element of cost reduction for LCC’s. Fixed costs can be reduced, relative to airlines with multiple types of aircrafts, because e.g. LCC only have to buy one type of maintenance equipment fitting that aircraft type, there is common pilot requirements and standards related to maintenance. A fleet with the same type of aircraft also provides the airline with more operational flexibility. Finding a replacement aircraft is easier, if there should happen to be irregularities in their operations. In addition to finding a replacement aircraft, it would also be more convenient to find a replacement flight crew. FSC’s normally have a reserve pilot pool for each aircraft type they operate, whereas LCC’s only need one reserve pool since they only operate one type. Nevertheless, only operating one type of aircraft can have its disadvantages. A single type of aircraft might not be sufficient to cover all market segments. A fleet of aircraft only capable of short range flights will limit the potential customer base, whereas a fleet consisting of too large aircraft can be unable to fulfil its capacity. Boing 737 and Airbus A320 are the most popular aircrafts for LCC’s, given that they operate only short and medium haul routes. However, easyJet has created a fleet consisting of two types of aircrafts. EasyJet argued that they had exploited the economies of scale of their existing fleet to the maximum. The benefit of establishing a fleet with another type of aircraft outweighed the benefit of only
operating a fleet with a single type of aircraft. NAS did a similar move in 2012 when it placed the largest order in aviation history (Kjos, 2012). The order consisted of 100 Boing 737MAX8, 100 Airbus A320neo, 22 Boing 737-800. In addition to its current order book at that time, they had a total of 271 short- to- medium haul aircrafts in order, consisting of three different aircraft types.

Aircraft utilization is on average higher for LCC’s than FSC’s (Cento, 2008). This means that aircrafts operated by LCC spend more time in air per day, than aircrafts operated by FSC. This can be explained by the difference in networks applied by the two types of carriers. Where a LCC fly directly from the origin airport to its destination, FSC flies through hubs. Due to the connective schedule at the hubs, some aircrafts have longer ground time. Wensveen & Leick (2009) argue that another reason FSC’s have lower utilization than LCC’s, is because that less favourable union contracts gives limitation to the use of flight crews.

According to Cento (2008), LCC’s offers an undifferentiated service. LCC’s do not have FFP, nor do they have in flight service, they do not offer passengers the opportunity to decide seating, they have no airline lounges and tickets are non- refundable. Moreover, LCC’s only offer a single class on-board the aircraft, whereas FSC offer multiple classes (Wensveen & Leick, 2009). When Cento (2008) published his book in 2008, it may have been the case that LCC’s did not offer frequent flyer programs. Today however, all the LCC’s featured in the thesis, offer frequent flyer programs in various forms. Take easyJet- the airline introduced easyJet Plus in 2008 (easyJet, 2008). At a cost of £170 travellers with easyJet gets the opportunity to choose seats, fast track security at selected airports, faster boarding and the option to bring one additional cabin bag. NAS’s FFP is called Norwegian Reward where the frequent traveller earns cash points on tickets (Norwegian Reward, n.d.). Travellers earn between 2% and 20% cash points relative to the price of the ticket. Travellers can use cash points to buy airline tickets, ticket changes, extra luggage, seat reservations and cancellation insurance. I know, from experience that NAS gives the opportunity to reserve seats, something that may have changed since Cento wrote that LCC’s generally did not in 2008.

LCC’s uses a less complex pricing structure than FSC’s (Wensveen & Leick, 2009). LLC fare structure is built on a peak and off-peak approach. Fares are high on seasonal peaks, at times where the route is popular among travellers. Fares are low at seasonal off-peaks, where the route is not so much in demand, in order to attract more travellers. The time of booking is also important for the ticket price. Early booking often results in cheaper tickets. On average, the fares charged by LCC’s are 60% lower than the fares charged by FSC’s.

LCC only sell tickets through direct channels (Cento, 2008). In general, all tickets with LCC’s are electronic and sales are made through their internet web site or telephone call centre. In order to minimize the cost of sales or reservation, tickets are distributed to the purchaser via e-mail which contains travel details.
Ancillary services have become an increasingly important source of revenue for LCC’s (Cento, 2008). Ancillary revenue is all revenue that does not include ticket sales. Hence, ancillary services include things like in-air food, luggage fees, and advertising space. IdeaWorksCompany have examined ancillary revenue among various airlines (IdeaWorksCompany, 2014). However, relatively few airlines report ancillary revenue separately in their income statement. In 2007, only 23 airlines reported total ancillary revenue of €1.67 billion. However, in 2013, 59 airlines reported total ancillary revenue of €22.8 billion. Even though the number of airlines that reported ancillary revenue has more than doubled from 2007 to 2013, ancillary revenue increased with close to 1200%. According to IdeaWorksCompany (2014), ancillary revenue accounted for 16.2% Ryanair’s and 8.8% easyJet’s total revenue. In contrast, ancillary revenue increased to 24.8% and 19.2% of total revenue in 2013 for Ryanair and easyJet, respectively. According to IdeaWorksCompany (2014), the CEO of Ryanair, Michael O’leary seeks to enhance ancillary revenue in order to further lower passenger fares. This illustrates the importance of the increased ancillary revenue.

4.2.3. Remarks on full service carriers and low cost carriers

The purpose with the illustration below is to summarize the main features that characterise low cost carriers and full scale carriers.

Figure 10: Comparison of LLC’s and FSC’s

<table>
<thead>
<tr>
<th>Product feature</th>
<th>LCC</th>
<th>FSC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core business</td>
<td>Passenger transportation</td>
<td>Passenger- and cargo transportation, and maintenance services</td>
</tr>
<tr>
<td>Network</td>
<td>Point-to-point</td>
<td>Hub- and- spoke</td>
</tr>
<tr>
<td>Alliances</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Frequent flyer program</td>
<td>Mainly none, however all LCC in this thesis do offer various FFP</td>
<td>Yes</td>
</tr>
<tr>
<td>Target group</td>
<td>Leisure travellers, as well as price and time sensitive business travellers</td>
<td>Business and leisure travellers</td>
</tr>
<tr>
<td>Ticket prices</td>
<td>Simple pricing structure: Peak and off- peak. Cheaper tickets with early booking</td>
<td>Complex pricing structure: Yield Management</td>
</tr>
<tr>
<td>Sale channels</td>
<td>Online booking and direct booking</td>
<td>Travel agencies, electronic agents, online booking and airline call centre</td>
</tr>
<tr>
<td>Airports</td>
<td>Mainly secondary airports</td>
<td>Main airports</td>
</tr>
<tr>
<td>Fleet</td>
<td>Single type of aircraft</td>
<td>Multiple type’s of aircrafts</td>
</tr>
<tr>
<td>Aircraft utilization</td>
<td>High</td>
<td>Moderate to high</td>
</tr>
<tr>
<td>Class segmentation</td>
<td>A single class</td>
<td>Multiple classes</td>
</tr>
</tbody>
</table>

LCC’s cost advantage in terms of difference in cost per available seat kilometre between FSC’s and LCC’s has decreased substantially from 2006 to 2011 (KPMG, 2013). The study conducted by KPMG found that the cost gap between FSC’s and LCC’s have decreased 30% in
the mentioned period. This can partly be explained by FSC have started to charge travellers for in-air catering, baggage handling to decrease the fares. Hence, it is becoming increasingly hard for travellers to distinguish between FSC’s and LCC’S. During the financial crisis, FSC’s reduced costs aggressively (The Economist, 2013 A). FSC was unable, to a certain degree to cut cost related to manpower due to unionised workforces. FSC’s also tended to operate less fuel efficient, older aircrafts, which resulted in high cost as fuel prices increased. Managers of FSC’s chose to reduce costs by reducing exclusive extras and on-board catering. Air France- KLM introduced baggage handling fees on European routes in 2013, a characteristic that normally can be found with LCC’s. Reduction of fees related to baggage handling, seat reservation and sales from in-air catering have reduced LCC cost advantage over FSC by a third. According to the survey conducted by KPMG, the cost per available seat kilometre advantage for LCC was €0.023 in 2011, representing a decrease from €0.033 in 2006.

As mentioned in the previous section, it has become harder for travellers do distinguish between FSC’s and LCC’s. A problem with FSC’s cost cutting measures is that they have put themselves in a position where they are forced to compete on ticket prices against LCC (The Economist, 2013 A). FSC have lower labour productivity, inefficient ticket distribution and higher structural costs, hence they are unable to compete on prices with LCC without decreasing their profit margins.

4.3. External factors and performance

4.3.1. PESTEL analysis

I have chosen to apply the PESTEL framework in order to analyse the airline industry’s macro environment, and how it might change. The PESTEL framework is used to identify external issues and factors that can influence the industry, where the external factors are out of the industry’s control (Johnson, et al., 2014). The framework builds upon external issues in political, economic, social, technological, ecological and legal environments. By analysing the macro environment, it will be possible to identify the key drivers of change in the aviation industry. This analysis will increase the readers understanding of how changes in macro environment will affect the airline industry and how they operate. Because the similarity and interaction between some of the factors when analysing this particular industry, I have chosen to merge political with legal factors, and technological with environmental factors.

4.3.1.1. Political and legal factors

Political factors are concerned with the degree of government interference in the industry, whereas legal factors are concerned with changes due to new legislation and regulatory constraints (Johnson, et al., 2014). These factors influence how airlines are able to conduct their business. First, this section will consider how deregulation has transformed the European airline industry. Second, the impact of Open skies Agreements will be discussed. At last, it will be highlighted some countries strict rules on cabotage.
Deregulation

The aviation industry within the European Union was liberalized in 1997 (Kinnock, 1996). This meant any airline established within the EU was allowed to operate any routes with the Union, at fares of their own choosing. Prior to this, air travel was regulated by national rules and bilateral agreements between nations. However, international aviation is still subject to a regulatory environment (Vasigh, et al., 2014). Nevertheless, the trend in international aviation is less regulation. Deregulation of the aviation industry changed the competitive environment drastically. Even though airlines were able to operate a greater amount of routes at fares of their own choosing, they were also exposed to increased competition. Increased competition has forced airlines to focus on reducing cost and lower fares. The airline industry has evolved to be more a more risky industry post deregulation than it was pre deregulation. In addition to increased competition amongst FSC’s, airlines were faced to compete with LCC’s. Ryanair and easyJet was two LCC’s that challenged the established FSC’s in the European air travel market.

Ryanair, easyJet, Air France- KLM and Air Berlin are based in countries within EU. NAS is based in Norway, thus a participant in the internal aviation market of the European Union. Turkish Airlines on the other hand is based in Turkey, not an EU member state.

Open skies agreements

Open skies agreement are bilateral and sometimes multilateral agreements between two or more nations, where the aim is to liberalize the regulation of the international civil aviation industry, and ultimately leads to removal or reduction of the barriers that prevent competition (Europa, 2007). These agreements make it possible for any airline to operate routes internationally from its home country (Smith & Cox, n.d.). Furthermore, open air agreements have made it possible for airlines to enter into partnership with foreign partners. Open skies agreements between countries have proved to be an efficient way to remove barriers that prevent competition. Open skies agreements benefits travellers because a consequence of the increased competition is on average lower airline fares (Vasigh, et al., 2008). Additionally, the agreements make it possible to connect city pairs-foreign and domestic- that was not previously possible. However, for airlines, open skies agreements may lead to more variations in profitability. Depending on airlines market position, some airlines may benefit from these agreements. Airlines that have not previously had the right to operate certain routes have more to gain than airlines that already operate the same route. The incumbent airline will lose the protection against competition with open skies agreements, whereas the previous excluded airlines can challenge and gain market share on new routes.

As previously mentioned, the aviation market in Europe was liberalized in 1997, forming a single European aviation market. The single European aviation market represented Europe’s first successful open skies agreement. In addition for airlines to be able to offer routes from a domestic destination to a foreign one, the single European act made airline able to offer
routes between airports in a foreign country (within the union), something that was not previously possible. Vasigh (et al, 2008) argue that the establishment of a single European aviation market is the prominent reason for the massive expansion amongst European LCC’s like Ryanair and easyJet. These airlines, among others, were no longer bound to the limitation of just operating its domestic market, but could also operate foreign routes. The European union have been successful in the deregulating the European aviation market. The United States of America and the European Union first signed an open skies agreement in 2007, effective from 2008 (Europa, 2007). This enabled any European airline to operate routes to and from the US, from any European airport. Prior to this, many European countries had negotiated separate open skies agreements with the US. However, European airlines were not allowed to own a controlling interest of American carriers (<=50% ownership), and vice versa.

Air France- KLM has benefited from international open skies agreements. The airline operates an extensive route network from Europe to North America, South America, Africa, Asia and Australia as well as within Europe. From its main base airport in Istanbul, Turkish Airlines operates routes to all continents, apart from Oceania and Antarctica. Air- Berlin’s own route network is a bit hard to figure out, but through alliances they cover all continents, apart from Antarctica. Ryanair and easyJet however, have mainly a European route network except from Morocco in North Africa. NAS is the only LCC that have intercontinental route network, as well as inter European routes.

**Cabotage**

Many countries practice strict rules on cabotage (AOPA, 2008). Cabotage rules entails that every country have the right to deny airlines from foreign countries to operate flight between two domestic airports. Europe is among the only aviation markets that allows cabotage for all airlines from countries with open skies agreements with EU (The Economist, 2013 B). With the single European aviation market, e.g. NAS is allowed to operate between two airports in Spain. The situation outside EU is in contrast, very different. The US is one of the countries that emphasis strict cabotage rules. This means that for example Air France-KLM is not allowed to operate routes between two American cities, not even if the purpose is to continue the flight to a European destination. Less strict rules on cabotage may potentially increase the scope of competition for the airlines included in this thesis, as well as many others. American airlines can operate inter European routes, whereas European airlines are unable to compete on the domestic US routes. This has the potential to put the European airlines in an unfavourable position, where they can be exposed to increased competition in their domestic market, but are unable by law to compete on the competitor’s home market.
4.3.1.2. Economic factors

This section will examine economic factors that have an impact on the airline industry. I have chosen to focus my effort on analysing the external economic factors that I have found most relevant. Following, the relationship between gross domestic product and the demand for air travel will be examined. Next, the cyclical nature of the aviation industry will be explored and lastly the price of jet fuel and its impact on airlines will be discussed.

GDP and its impact on the demand for air travel

Gross Domestic Product (GDP) can be defined as the monetary value of all finished goods and services in a country, less the value of the goods and services used to create them (Eurostat, 2014). GDP is given within a certain timeframe, often in a certain year. GDP includes public and private consumption, government spending, investments and net exports. GDP growth can be used as a measurement to evaluate the economic performance of a country, or its prosperity. It is not accurate to translate GDP to the standards of living, but it is a good indicator, given that the population are able to benefit from a richer economy.

The figure below illustrates GDP growth rate for the 28 countries representing the European Union, over a ten year period. The GDP growth rate is positive in seven years, from 2004 to 2008, and 2010 to 2011. The GDP growth rate was negative in 2009 and 2012, with -4.4% and -0.5% respectively. The GDP growth rate has bounced back after each negative year. Passenger growth within the EU-28 is also included in the same graph, to illustrate its relationship with GDP growth rate.

Figure 11: GDP and passenger growth

Historically, the demand for air travel has increased with a multiple of GDP growth (Love, et al., 2006). More accurately, Love (et al, 2006) found that the demand for air travel has increased with a multiple between 1.5 and 2 to GDP growth. However, as the illustration
above shows, this is not always the case. For the EU-28 countries, the multiple is 1.3 in 2009, 1.8 in 2010 and 3 in 2010. The GDP growth rate was negative in 2012, whereas passenger growth rate was positive. The EU-28 countries had no growth in 2013, but the passenger growth was still positive. It can be observed that passenger growth increase at a multiple of GDP, but some deviations can be found. Vasigh (et al, 2008) identified two economic factors that increase that affected world traffic growth. Firstly, a country that has growing economic activity has a good foundation to generate employment. Furthermore, increased employment leads to more business travellers. This customer segment is the most important for airlines. A greater amount of business travellers is the main reason for the growth in air traffic in financial centres such as New York and London. Secondly, a lower level of unemployment increases household income, making leisure travelling possible for a greater amount of the population. If history is an applicable measure of future development, it is reasonable to assume that the demand air travel will continue to grow by a multiple of GDP.

During 2009, when the demand for air travel declined with 5.7% relative to 2008, the industry average EBT margin was -1.6%. Furthermore, of the airlines relevant, Air France-KLM achieved a negative EBT margin of -10% which is their worst performance during this period. However, three of the LCC’s achieved positive EBT margins. EasyJet managed a margin of 2.1%, whereas NAS achieved 8.5% and Ryanair achieved 11.4%. NAS actually achieved its highest EBT margin at a time where GDP and demand for air travel experienced negative growth

**Aviation Cycles**

The aviation industry have historically been a cyclical industry (Holloway, 2012). The industry shifts from years with high growth rates, to face declining growth rates and even negative growth. However, the more serious downturns in the global airline industry have come as a consequence of external shocks, and not because the economic and business cyclic nature of the industry. In fact, the recession at the end of the first decade of the 21st century was the first cyclical downturn that resulted in negative growth in RPK (Franke & John, 2011). Appendix 1 provides a visualization of cyclical nature of the airline industry. Negative growth rate, in terms of revenue passenger kilometres (RPK) have occurred two times previous to the recent recession, being results of external shocks. The global airline industry experienced negative growth during the Gulf War in 1990-1991 and in 2001-2002 following the terrorist attacks 9/11 and the SARS outbreak. Based on appendix 1, RPK is greatly impacted by economic downturns. According to appendix 1 it looks like RPK starts the downside trend prior to the economic downturns, where the bottom of RPK trend can be observed once the downturn has come to full effect.

There are various reasons for the fall in demand for air travel; financial recession, terrorist attacks, epidemics, war, extreme weather are among them. Through history, there are can be found examples on how forces of nature have affected the aviation history as well. An Icelandic volcano erupted in 2010, spreading volcanic ash over European air space, forcing
countries to suspend flights (ScienceNordic, 2011). In fact, the shutdown of European air traffic was the most extensive shutdown since World War 2. This incident had severe financial impact on many airlines. This helps to understand that unpredictable events can have major impact on airlines. Observing appendix 1, it appears that industry downturns occur every five to ten years, and may relate to business cycles. Still, it is complex concept trying to predict the cycles in the aviation industry when time and scope between occurrences vary, as well as their impact.

So far we have established that the industry experienced negative growth rate in RPK during the recent recession. It may be interesting to see how the recent recession and period of negative RPK growth have influenced the relevant airlines liquidity and solvency. By year end 2006 to year end 2008, Ryanair, which generally has been the most liquid airline, decreased from 2.11 to 1.84. easyJet’s current ratio fell 27%, from 2.14 to 1.56, and NAS’s decreased from 1.01 to 0.95. According to current ratio, Air France- KLM’s liquidity fell from 1.03 to 0.71. Air Berlin’s current ratio decreased from 0.88 to 0.69. Only Turkish airlines were able to improve its liquidity this period. Ryanair and easyJet were still in a position where they could cover current liabilities with current assets, whereas NAS and Air France- KLM moved from a position from being able to being unable.

Before the financial recession struck in the second half of the past decade, easyJet had a debt to equity ratio of 1.16 in 2006. The airline had just 16% more liabilities than it had equity, whereas the ratio was 1.4 at the end of 2008. Debt relative to equity had increased, even though amount of equity increased in the same year. easyJet’s solvency decreased, but was still amongst the better ones. Turkish airlines and Ryanair was actually able to improve its solvency in the same period, from 0.86 and 1.24 to 0.65 and 1.22, respectively. NAS went from having three times as much liability as equity, to two and a half. Air France- KLM almost doubled its debt relative to equity, from 2.2 to 4.2. Air Berlin also worsened its solvency. Their debt to equity ratio increased from 2.5 to 5.1, meaning that Air Berlin’s liabilities was more than five times as much as their equity.

The price of jet-fuel
Total cost of jet-fuel for the global airline industry reached $208 billion in 2013 (IATA, 2014 B). The total fuel cost in 2013 represents an increase of more 3 times relative to 2004, when fuel cost amounted to $65 billion in total. A total fuel expenditure of $208 billion is actually the highest ever recorded by IATA, but it happened twice- in 2012 and 2013. During the ten years, the average price per barrel of crude increased from $38.3 to $108.8. The price of crude oil has increased massively, but bear in mind that crude oil and jet-fuel is not the same. Jet fuel is a refinery product made from crude oil. However, the price of jet-fuel has historically been closely related to the price of crude oil, as can be observed from appendix 2.

The total fuel cost accounted for 17.3% of airlines total operating cost in 2004, whereas it accounted for 30.1% in 2013 (appendix 3). The increased impact fuel prices have had on
operating cost must be seen in connection of the increased price of crude oil. In 2008, when average price of a barrel of crude oil was $99, it accounted for 32.7% of total operating costs, which is the highest level reported. For the LCC’s Ryanair and easyJet, fuel costs as a percentage of total operating cost amounted to 45% and 33% respectively (Ryanair, 2013) (easyJet, 2013). For FSC Air France- KLM, fuel cost as percentage of total operating cost was 27% (AirFranceKLM, 2013). Fuel cost as a percentage of total operating cost varies greatly between airlines, but it represents a larger cost for LCC’s rather than FSC’s. LCC’s ‘s exposure to the price volatility of crude oil is greater than for FSC, as the price of fuel have a greater impact LCC’s costs.

Furthermore, it can be interesting to see how the increasing price of fuel has influenced the operating expense ratio. In 2004 a barrel of crude oil had an average price of $38.3 and accounted on average for 17.3% of airlines operating cost. In 2012, the average price of a barrel of crude oil was $111.8 and accounted for 30.2% of airlines average operating costs. Actually, the average operating expense ratio was 0.94 in both 2004 and 2012. The operating expense ratio peaked at 0.99 in 2008, before decreasing. This means that the airlines have able to maintain the ratio, even though the fuel cost became a larger part of operating costs. The cost of a barrel of crude oil have doubled, still, airline’s operating cost is €0.94 for each €1 of their operating revenue. There can be a number of reasons for why the operating expense ratio has not changed. Some may include e.g. that airlines have reduces or eliminated other costs, allowing fuel to be a larger part of its operating expenses without impacting the ratio. Moreover, if airlines are able to withhold the profitability of its operations even though the price of crude of oil have more than doubled, assuming fares are the same, will increase operational profitability at times of lower oil prices.

In order to manage the risk of fluctuating fuel prices, airlines can hedge their exposure (Holloway, 2012). Airlines chose to hedge future consumption for several reasons. By stabilizing the cost of fuel, the management gain knowledge of what their fuel cost will be in the short term. Airlines that chose not to hedge fuel, or only partially, speculate that fuel prices will decrease in the future. Airlines that chose to hedge large proportions of its fuel needs speculate that the cost of fuel will increase in the future. When airlines hedge the fuel requirements, it is practically an insurance against higher fuel prices. According to Holloway (2012), Air France- KLM was able to save approximately €600 million in 2006 due to fuel hedges.

4.3.1.3. Social factors
This section will include social factors that are likely to be the most important for the airline industry. The social factors I have chosen to include are e-commerce, travelling trends during economic downturns and passenger spending.

E-commerce growth
Internet penetration in Europe reached 70.5% in 2014 (Internetworldstats, 2014). Since the millennium, this represents an increase of European internet users of more than 450%,
reaching 582 million users. North America and Oceania have higher penetration rate than Europe with 88% and 73% respectively. Africa, Asia, South America have lower penetration rates than Europe, with 27%, 35% and 52% respectively. Internet purchases amongst individuals have almost doubled in the European Union the last eight years (Eurostat, 2015). In 2007 23% of the EU population made purchases online, whereas 41% made online purchases in 2014. Airlines in general, and especially LCC, experience that more of their tickets are purchased online. This must considered in connection with the change in sales strategy, due to the change in internet habits the past decade. Airlines will be able to sell more tickets online should the internet penetration rate continue to grow, hence decrease cost related to call centres.

**Travelling trends in economic downturns**

As previously discussed, economic downturns tend to occur with five to ten year intervals. During economic downturns, airline face a weakened demand for air travel (Franke & John, 2011). In the aftermath of the 9/11 and SARS outbreak, FSC’s were struggling due to weakened demand for air travel. However, during the same period, easyJet and Ryanair were able to attract 22 million new passengers even though the demand for air travel decreased. LCC’s offered a compelling service to price sensitive travellers, and were able to gain a larger market share of air travellers, at the expense of FSC’s. In addition, LCC’s were able to attract new demand by connecting new city pairs that were uncovered by FSC’s. The same travelling pattern could be observed during the recent economic recession. LCC’s were able to gain more passengers, by attracting them with low fares.

Some travellers choose airline entirely, or in large parts, by the price of the ticket (Holloway, 2012). Especially during economic downturns, where travellers become more price sensitive, they seek to obtain the cheapest fare even though this means that they must forego benefits competing airlines can offer at a higher fare. Ryanair is one airline that has specialized to serve this traveller segment. EasyJet is concerned with many of the same price sensitive customers as Ryanair, but they tend to attract passengers that wish to pay a little extra for better service than what Ryanair is offering.

**Passenger spending**

Millennials born in the US have characteristics that should suggest that they make up a generation of natural travellers (Barton, et al., 2013). Millennials are open to new experiences; they have a global perspective and value diversity, which can prove to be valuable for the airline industry. Although the generation of millennials is large, they are not the largest customer group among airlines. However, they will be in the future. In five to ten years the millennial generation’s earnings and travelling years will peak. Appendix 4 illustrates a forecast by BCG, suggesting that millennials will account for 46% of spending on business flights in 2020, 54% in 2025 and 49% in 2030. Baby boomers and generation X will account for lesser part of spending on business flights, as their generation disappear. Forward looking airlines should already consider how they can capitalize on the customer
group millennials will represent. Millennials are already forming travel habits and preferences. Airlines that are unable to connect with millennials now, may struggle to attract them as customers at a later point. Airlines should also take note that airline loyalty is low amongst millennials, and far more millennials than non-millennials think of process of booking tickets is a burden.

Barton (et al, 2013) anticipates that millennials will pay 13% more per ticket than other generations. Millennials are more likely to upgrade their seats to get extra leg room, more spacious seats, Wi-Fi and in-flight entertainment. Millennials and non millennials that travel for pleasure, will have different demands from a loyalty program then millennial business flyers. Millennials wish that loyalty programs result in discounted or free tickets, and not mile programs, rewards or higher status in loyalty programs. This can implicate airlines current strategies, and make their loyalty programs abandoned by millennials. If millennials are to a greater extent than non millennials willing to switch loyalty programs after what they perceive gives them the highest value.

The same article states that, due to the social nature of millennials, they are more likely to take make leisure travels with friends, family or organized groups. This tendency should encourage airlines to give group discounts and the possibility to reserve blocks of seats. Millennials will also take more leisure travels than non-millenials have done. They are twice as likely to travel due to a hobby, or visit friends and family or other personal interest. However, millennials take fewer but longer trips than non- millenials, search for better deals and behave more opportunistic to low prices.

Airlines must gain knowledge of millenniums preferences. This can help them better understand their new customer group and target fitting segments. Airlines must adjust in order to attract the customer segment that brings the airline the greatest value on their investments and help drive profitability. By gaining knowledge about the consumer group, airlines will be able to fulfill new customer expectations in the long term.

4.3.1.4. **Technological and environmental factors**

As previously mentioned, I have chosen to merge technological and environmental factors due to the proximity the factors represent in the airline industry. In the airline industry there is interplay between technological development, fuel efficient solutions and environment friendly focus. This section will focus on how sales have been impacted by the evolution of the internet, aircraft and engine upgrades, biojet fuels.

**Internet and its impact on sales**

After the emergence of internet, the internet have evolved to change how consumers purchase tickets, and how airlines conduct sales. As I have mentioned previously, Europe have a relatively high internet penetration rate and the e-commerce activity have increased. Through search engines, expedia.com or farecompare.com consumers are easily capable of
comparing fares and book lowest fares on any routes. As you should know by now, LCC offer cheap fares, hence they stand to profit from travellers looking for cheap tickets.

**Aircraft and Engine upgrades:**
The airline industry accounts for 2% of global carbon dioxide (CO2) emissions, and is estimated to be responsible for 3% of the human made climate change (IATA, 2013). As a consequence, IATA want to reduce emissions from the airline industry. One way IATA believe that the industry can achieve lower emissions, is by investing in new technology to design new airframes and more fuel efficient engines.

The European Commission released a guiding document for the European aviation industry called “vision 2020” in 2001 (European Commision, 2001). Among other things, there should be a 50% reduction of CO2 emission per passenger kilometre. In reality this means that there should be consumed 50% less fuel by aircrafts in 2020. Emissions of nitrogen oxide should be reduced with 80%, while noise should be eliminated outside the airport boundary. In 2011, the European Commission published “flightpath 2050”, which aimed to reduce CO2 emissions by 75%, and reduce nitrogen oxide by 90% before 2050 (IATA, 2013). Boeing’s new generation jet airplanes will have reduced the noise the aircraft makes with 90% compared to early jet airplanes (appendix 5). New generation jet airplanes will also consume 70% less fuel and thereof CO2 than previous generations of jet airplanes.

Environmental awareness has become increasingly important recent years, and it is undoubtedly important that airlines take part in environmental sustainability by reducing emissions permanently. Airlines that operate a fleet of modern, fuel efficient aircrafts sends a signal to its stakeholders that they take the environment serious. In addition to this, fuel efficient aircraft drive down operating costs of the airlines, thus creating a competitive edge.

**Biojet fuel**
The airline industry works to reduce the CO2 emissions, and is exploring alternatives to conventional jet fuel (IATA, 2014 C). Alternative fuels must be sustainable and have less carbon footprint the conventional jet fuel. Biojet fuels are, according to IATA, the best tool to meet reduced emission goals. Bioethanol and biodiesel used in the automotive industry does not meet the requirement to be used in aircraft. Biofuels can reduce emission by 80% relative to conventional jet fuel. Biojet fuels should be extracted from sustainable sources, such as e.g. camelina, jatropha and used cooking oil. In addition to reduce carbon footprint, biojet fuels will make airlines less dependent fossil fuels, and it may lessen the exposure to volatility in oil prices. It is required that sustainable alternative fuels should be able to mix with conventional jet fuel. Alternative fuels should also be able to concur with current infrastructure, and it should not be necessary to adjust either aircraft of engine for this purpose.

Some aircraft manufactures have tested blends of biojet fuel and jet fuel, and some blends contained close to 50% of biojet fuels (IATA, 2014 C). In addition, manufacturers were not
forced to make changes to the aircraft or its engines to test biojet fuel. In some cases, biojet fuel blend proved to be more fuel efficient than conventional jet fuel. Since these tests were concluded in 2011, 21 different airlines have conducted more than 1600 flights with a blend of biojet fuel and jet fuel. Among these airlines were Air France- KLM and NAS. These airlines experienced no negative effects on engines, and showed that current infrastructure could be used to support their supply chain. However, commercial jet fuel is cheaper than biojet fuels. According to IATA, this lessens the demand for biojet fuels. It makes it riskier for potential manufacturers to invest in the production of biojet fuel. They also claim that there politicians have to make further incentives to increase investments with the aim of developing new biojet fuel capacity.

4.3.1.5. Remarks on the PESTEL analysis

In the section of political and legal factors I focused the regulatory environment in European aviation and how it has changed. I focused on open skies agreements and restrictions on cabotage. European aviation has clearly changed the past twenty years, as it has moved from strict regulation, to being a deregulated industry. As European and other domestic aviation industry have been deregulated, open skies agreements have been agreed between e.g. EU and the US, enabling airlines to operate routes internationally, across borders. However, there are some restrictions to open air agreements, such as cabotage restrictions. Cabotage restrictions in e.g. US prevent European airlines to transport passengers domestic in the US.

Economic factors such as GDP and how it impacts the demand for air travel, aviation cycles and the price of jet fuel was examined. Based on historic numbers, demand for air travel increase by a multiplication factor. However, in years with negative GDP growth or impacted by external shocks there are some exceptions. Since jet fuels compose of on average 30% of operating cost, airlines are prone to great price volatility. Especially LCC’s are exposed, since jet fuel account for a higher degree of operating cost than for FSC’s. Some airlines apply hedging strategies as a way of manage the risk of fluctuation fuel prices.

Social factors such as growth in e-commerce, travelling trends during economic downturns and passenger spending have been elaborated upon. The internet penetration rate is relatively high in Europe with 70.5%, and Europeans have increased their e-commerce activity the last decade. Airlines will sell more tickets online if this trend continues. In periods of economic distress customers tend to become increasingly sensitive to prices, which attract new passengers to LCC’s. Millennials will soon become the dominating generation travelling by air, and will have other travelling habits than generations before. They will spend more on tickets, but will demand better services than current generations do. Millennials will also prefer other items than many current loyalty programs.

Many factors related to technology and environment has also been reviewed. Internet has changed buying behaviour among travellers. They are better able to screen different airlines to find the lowest fares. Next, airlines are forced to reduce emissions going forward, and as a
consequence new aircrafts are being designed and effective and fuel efficient engines developed. Another important factor is the development of biojet fuels that can blend with conventional fuel, maintain engine performance, reduce emissions further and perhaps even make airlines less dependent on conventional jet fuel.

It is a complex task to accurately predict macro environmental factors. However, some things are important to keep in mind after this PESTEL analysis. Historically, external shocks seem to have arisen regularly. Airline management should take this into account, treat it as a part of the business and be aware that external shocks happen. It is not likely that airlines are able to influence their macro environment. Nevertheless, it is important for airlines to be aware of their surroundings when they make strategic decisions aiming to minimize external risks.

5. Conclusion

The research in this thesis has been conducted in order to answer the research question; what have separated top performing airlines from bad performing airlines the past years? An analysis of the financial performance of the respective airlines serves as the backbone for identifying top and bad performing airlines. The next step towards explaining differences in performance is through a detailed description of similarities and differences between low cost carriers and full scale carriers. Furthermore, through an analysis of how the macro-environment of the airline industry have changed the latest years I have been able to identify key drivers of change that has influenced and will continue to influence the profitability in the industry.

This thesis show that FSC’s generally have struggled with its profitability the past ten years, whereas the LCC’s have accomplished stronger EBT margins and more favourably operating expense ratios. When it comes to the liquidity and solvency level of the airlines, Ryanair and easyJet, two LCC’s, generally have proven to be more liquid and more solvent than the rest. These factors have proven to be important for airlines at times of economic distress. FSC’s such as Air France- KLM and Air Berlin. The analysis of the industry’s macro-environment provided many influencing factors on the airlines. The establishment of open skies agreements, especially within the common European aviation area have made it possible for Ryanair, easyJet and NAS to expand its route network and compete with FSC’s, as they are no longer bound to the limitation of the domestic market. GDP growth has proven to be important influencing factor, because the demand for air travel increase with a multiple of GDP growth. Furthermore, at times of negative GDP growth and negative growth in demand for air travels, travellers tend to be increasingly price sensitive; giving LLC’s a competitive advantage. Ryanair, easyJet and NAS were able to achieve positive EBT margins in 2009, while two of the FSC’s did not, indicating this competitive advantage amongst the LCC’S. During and the aftermath of the recent recession LCC were able to maintain appealing liquidity and solvency ratios, whereas FSC in general, had less favourably development. The
price of jet fuel has increased the past years, and has had a greater impact on airlines operational costs, and is a larger part of LCC’s operational costs than FSC’s. However, since LCC have performed better financially during the time of increased prices it can indicate that LCC benefits from a more fuel efficient fleet.

Important reasons for why LCC seem to have performed better than FSC can be identified in their strategy. LCC’s have gained a cost advantage relative to FSC’s, due to many factors such as they operate a fleet of similar aircrafts, use secondary or tertiary airports and have high aircraft utilization. FSC’s compete with LCC’s primarily on price. Due to the cost gap between the two, FSC’s have been forced to cut cost in order to be in a more favourable competitive situation versus LLC. These costs are often are often services that LCC gets paid to perform. However, this has made it hard for travellers to distinguish between FSC’s and LCC’s. FSC’s have on average only been able to decrease the cost gap with 30%, thus they have positioned themselves in a situation where they offer an undifferentiated service at higher costs than LCC’s. FSC’s have been unable to compete on price, without compromising their profit margins.

Throughout the thesis there have been identified multiple key drivers of change in the future. Changes in political and legal factors can facilitate increased competition if the EU is successful in establishing open skies agreements with more countries and restrictions on cabotage rules are reduced or removed. Economic factors that will influence the airline industry include GDP growth, the cyclical nature of the aviation industry the price of fuel. The demand for air travel generally increases with a multiple of GDP growth. However, to this data the demand for air travel is negatively impacted by external shocks every five to ten years. Another important economic factor that directly influences the profitability of airlines is the price of jet fuel, as it becomes a larger proportion of airlines operating costs. A social factor, such as changes in passenger spending is important for airlines to be aware of. It has been projected that the millennial generations will have other spending habits, and other demands. Airlines which are in front of this trend, is likely to attract more millennial travellers when they become the dominant generation of travellers. Furthermore, environmental factors such as reduced emission requirements are forcing aircraft manufacturers to design more fuel efficient aircrafts and will continue to do so. Moreover, the industry work to develop more sustainable biojet fuels which can help reduce emissions and the cost of fuel. Even though airlines are unable to influence the macro-environmental factors, it is important for their management to be aware of its surroundings and how it is likely to develop going forward when they make strategic decisions, and in order to reduce the risk related.
6. References

AirFranceKLM, 2013. *Full Year 2013 Results*, s.l.: s.n.


7. Appendices

**Abbreviations and acronyms**

Available seat kilometre (ASK): The number of seats an airline has, multiplied by kilometres found. ASK is a measure of an airlines capacity

Cost per available seat kilometre (CASK): Airlines operating expenses before depreciation and tax, divided by available seat kilometres. CASK is used as a cost level indicator

Current assets: The value of all of a firm’s firms assets that, within a year, are expected to be converted into cash.

Current liabilities: The amount of a firm’s debt/obligations that is due within a year.

Customer relationship management (CRM): a term used about software, but it also focus on how firms plan to satisfy customer needs

FSC: Full scale carrier

GDP: Gross domestic product

LCC: Low cost carrier

Return on equity: The profit of a firm expressed as a percentage of shareholders equity. Return on equity shows the profit generated with money shareholders have invested in equity.

Revenue passenger kilometres (RPK): The number of occupied seats multiplied with the total distance flown by the airlines

Working capital: A measure of a firm’s short term liquidity as well as efficiency. It is calculated by subtracting current liabilities from current assets.
Appendix 1: Cyclical Downturns


Cyclical Downturns
This recession was the first cyclical downturn ever – opposed to disruptive events - that ended up in dropping demand

World RPK and GDP growth 1961-2011


Appendix 2: Correlation between jet-fuel and crude oil

Jet Fuel and Crude Oil Price ($/barrel)

http://www.iata.org/publications/economics/fuel-monitor/Pages/price-development.aspx
Appendix 3: Fuel impact on Operating Costs

<table>
<thead>
<tr>
<th>Year</th>
<th>% of Operating Costs</th>
<th>Average Price per Barrel of Crude (US$)</th>
<th>Break-even Price per Barrel (US$)</th>
<th>Total Fuel Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>13.6%</td>
<td>US$38.8</td>
<td>US$34.7</td>
<td>US$44 billion</td>
</tr>
<tr>
<td>2004</td>
<td>17.3%</td>
<td>US$54.5</td>
<td>US$51.9</td>
<td>US$65 billion</td>
</tr>
<tr>
<td>2005</td>
<td>22.2%</td>
<td>US$65.1</td>
<td>US$68.2</td>
<td>US$91 billion</td>
</tr>
<tr>
<td>2006</td>
<td>25.7%</td>
<td>US$73.0</td>
<td>US$81.9</td>
<td>US$116 billion</td>
</tr>
<tr>
<td>2007</td>
<td>27.2%</td>
<td>US$99.0</td>
<td>US$83.2</td>
<td>US$133 billion</td>
</tr>
<tr>
<td>2008</td>
<td>32.7%</td>
<td>US$62.0</td>
<td>US$59.1</td>
<td>US$187 billion</td>
</tr>
<tr>
<td>2009</td>
<td>25.9%</td>
<td>US$79.4</td>
<td>US$90.0</td>
<td>US$123 billion</td>
</tr>
<tr>
<td>2010</td>
<td>28.0%</td>
<td>US$111.2</td>
<td>US$116.1</td>
<td>US$138 billion</td>
</tr>
<tr>
<td>2011</td>
<td>30.2%</td>
<td>US$111.8</td>
<td>US$115.4</td>
<td>US$174 billion</td>
</tr>
<tr>
<td>2012</td>
<td>30.2%</td>
<td>US$108.8</td>
<td>US$114.9</td>
<td>US$208 billion</td>
</tr>
<tr>
<td>2013</td>
<td>30.1%</td>
<td>US$101.4</td>
<td>US$112.6</td>
<td>US$204 billion</td>
</tr>
<tr>
<td>2014</td>
<td>28.6%</td>
<td>US$85.0</td>
<td>US$96.3</td>
<td>US$192 billion</td>
</tr>
<tr>
<td>2015F</td>
<td>26.1%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Appendix 4: Millennial Spending on Business Flights Will Grow Sharply

[https://www.bcgperspectives.com/content/articles/transportation_travel_tourism_consumer_insight_traveling_with_millennials/](https://www.bcgperspectives.com/content/articles/transportation_travel_tourism_consumer_insight_traveling_with_millennials/)
Appendix 5: Improved efficiency of new generation jet airplanes

Source: Boeing