The developments in the competition in the transatlantic air transport market in the periods before and after the implementation of the US-EU Open Skies Agreement

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Abstract

In 2008, the US-EU Open Skies Agreement entered into force. This agreement opened up the transatlantic air transport market by introducing liberal measures to this market. One of the objectives of the agreement is to promote competition in the transatlantic air transport market. This objective will be the guidance in this study, since this study will analyse the development of competition in the transatlantic market. In order to do so, the study will analyse various variables which are possibly related to competition. These variables are divided into two groups, on the one hand there are variables that influence competition, and on the other hand there are variables which are effects of the competition. The variables possibly related to competition will be described and analysed for periods before and after the implementation of the US-EU Open Skies Agreement.

The variables which are possibly related to competition will form the structure for the study of the five selected cases in this study. These selected cases are the following countries: the Netherlands, Austria, Ireland, the United Kingdom and Spain. Two of these cases had a bilateral Open Skies agreement with the United States before the implementation of the US-EU Open Skies Agreement (the Netherlands and Austria) and three had no Open Skies agreement with the United States before the implementation of the US-EU Open Skies Agreement (Ireland, the United Kingdom, and Spain). By analysing data from the T-100 Database, which provides data for the analysis of the variables, we will make a description of the development of the competition in the transatlantic air transport markets in these countries.

It will become clear that there are differences in the developments in the competition in the transatlantic air transport market in the periods before and after the implementation of the US-EU Open Skies Agreement. Moreover, also among the cases there are different developments. It will appear that the developments can have a negative or positive effect on the competition and that it is likely that the US-EU Open Skies Agreement have had influence in establishing these developments.

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Abbreviations

A7:	Air Comet
AA:	American Airlines
AF:	Air France
AI:	Air India
BA:	British Airways
BD:	British Midland International
BY:	Thomson Airways
CO:	Continental Airlines
DL:	Delta Airlines
EI:	Aer Lingus
IB:	Iberia
KLM:	KLM Royal Dutch Airlines
KU:	Kuwait Airlines
LY:	El Al
MP:	Martinair
MT:	Thomas Cook Airlines
NW:	Northwest Airlines
NZ:	Air New Zealand
OR:	Arkefly
PBQ:	Privatair
PK:	Pakistan International Airlines
RJ:	Royal Jordanian
SQ :	Singapore Airlines
UA:	United Airlines
US:	US Airways
US-EU:	United States-European Union
UX:	Air Europa
VS:	Virgin Atlantic
Y2:	Flyglobespan

1. Introduction

The world is globalising. Many sectors are globalising nowadays. There is one obvious industry sector that enables the world to globalise: air transport (Moselle et al., 2002). A growing inter-connective world needs global connections. Airlines make these connections tangible, by flying from one side of the globe to the other. By doing this, they make international business in a globalised world possible and airlines enable the world to globalise. Therefore, air traffic plays a key role in the world we live in today.

However, in a world which becomes more globalized and in which markets open and are more and more liberalised, the air transport market sticks mostly to its origins. These origins are characterised by protective measures for national markets. National governments are eager to protect their own airline, since this is perceived as beneficial for the public at large (Stigler, 1971). Despite the fact that national governments are protective over their markets, several countries in Europe sought liberal bilateral agreements with the United States. This resulted in the first Open Skies agreement between the United States and the Netherlands in 1992. After the implementation of the Open Skies agreement between the United States and the Netherlands, other European countries followed this example. Until 2000, ten European countries had an Open Skies agreement with the United States (Moselle, et al., 2002).

Due to further liberalisation of the market, the US-EU Open Skies Agreement was born. This agreement is a multilateral agreement that liberalises the air transport market between the United States and Europe. This market is called the transatlantic air transport market and from here on after when referred to the air transport market between the United States and Europe, this will be called the transatlantic air transport market.

1.1 The US-EU Open Skies Agreement

In 2008 the US-EU Open Skies Agreement was implemented. Due to this US-EU Open Skies Agreement, relationships between the United States and European states in the transatlantic air transport market have changed. On the one hand, there used to be European countries which already had liberalized relations with the United States. Examples from countries with liberal bilateral agreements with the United States are, the before mentioned country of the Netherlands, and Austria. On the other hand, there used to be European countries which had restrictive relations with the United States. The United Kingdom and Ireland are examples of countries with restrictive bilateral agreements with the United States and, thus, did not have an Open Skies agreement with the United States (Button, 2009).

The US-EU Open Skies Agreement has changed that situation. First of all, the US-EU Open Skies Agreement changed the relationships in the transatlantic air transport market, so that there were no single bilateral agreements between European countries and the United States anymore. Therefore, a situation with a fragmented market with differences in each relation with the United States changed into a uniformed market. Hence, a multilateral agreement between Europe and the United States was signed.

The agreement itself consists of several elements and objectives. The objectives that are addressed in the agreement are about promoting competition, facilitating expansion of international air transport opportunities, making it possible for airlines to offer the travelling

and shipping public competitive prices and services in open markets, having all sectors of the air transport industry benefit in a liberalised agreement, and ensuring the highest degree of safety and security (Commission, 2007). The first four objectives are based on the air transport market and the liberalisation of this market. The liberalisation of the transatlantic air transport market will be the cornerstone of this study, in which we put an extra emphasis on the first objective of the agreement, the promotion of competition.

We will look at the competition in the transatlantic air transport market. Since the objective of the US-EU Open Skies Agreement is that competition is to be promoted, it is interesting to examine how the influencing factors and effects of competition have developed throughout the years, both before and after the implementation of the US-EU Open Skies Agreement. Therefore, this study will be based on the examination of the factors that influence and the effects of the competition in the transatlantic air transport market in two periods, one before the implementation of the US-EU Open Skies Agreement (which is from 2002 until 2007) and one period after the implementation of the US-EU Open Skies Agreement (which is from 2008 until 2012).

1.2 Research question and thesis structure

In this study the following research question will be answered: "how did the competition, and some key variables possibly related to it, develop in the transatlantic air transport market in the periods before and after the implementation of the US-EU Open Skies Agreement?" In order to answer this question, we will make a preliminary evaluation of the objective of the US-EU Open Skies Agreement that promotes competition. The evaluation will focus on the development of competition, including five key variables which are possibly related to it, throughout two time periods. The first period is the period prior to the implementation of the US-EU Open Skies Agreement and the second is the period after the implementation of the US-EU Open Skies Agreement.

The research question will be answered through two research question. The first sub-question is: "what is competition, and which variables are possibly related to it?" In order to answer this question, we will construct an answer based on theories on competition. Various authors have written about competition and in the chapter of theoretical backgrounds, various descriptions and variables of competition will be provided. However, it is essential to put these descriptions into the perspective of aviation. Therefore, after the section of theories on competition a section of theories on Open Skies agreements will be given. In this section, various variables will be outlined which are used in other studies to examine the competition or economic impact of an Open Skies agreement. After this section, a section about the key variables in this study will follow. In this section the key variables are described and the reason why they are relevant for this study will be given. Next to this, an explanation why the variables are possibly related to competition will be given.

The methodology will be given after the theoretical background chapter. Firstly, a description of the research design of the study will be provided in this chapter. In this part, the both the type of research design and the cases which are studied will be given. Next to the research design, the data analysis will also be described.

After the theoretical background and methodology chapters, the chapters in which the countries will be analysed will follow. For these chapter, the second sub-question is formulated: "how did the variables which are possibly related to competition develop in

reality?" The key variables will be analysed for each separate country and the outcomes of the analyses will provide the answers to the second sub-question. These answers are necessary to draw clear conclusions and to answer the research question of the study, which will be done in the conclusion. After the conclusion a chapter with the limitation of the study will follow, which concludes the thesis.

2. Theoretical background

In order to understand the competition in the transatlantic air transport market, we need to understand what competition is, and what the variables that are possibly related to competition are. This chapter will outline the theoretical backgrounds of these concepts and provide an answer to the sub-question: "what is competition, and which variables are possibly related to it?" Therefore, firstly, the descriptions of competition and the variables possibly related to it will be given in a general sense. After that, we will put it in the perspective of aviation.

2.1 Theory on competition

In order to analyse the competition in the transatlantic air transport market, it is important to understand what competition is. Competition is a concept that can be defined as a situation in which various companies, or suppliers of a good or service, compete for the favour of the costumer in a specific market. With this in mind, we can investigate what the variables possibly related to competition are.

The first variables are possibly related to competition in the sense that these variables influence competition. Stigler (1972), provides a description of several variables that are possibly related to competition. He states that the amount of rivals in a market increases the amount of competition. He states that "competition is usually greater in longer periods (in which new rivals can enter) than in the short run (Stigler, 1972, p. 92)." Moreover, he states that "the probability of the existence of strong competition is believed to be positively correlated with both the number of rivals and their similarity of size, and in particular the smaller the share of industry output possessed by the largest firm, the more vigorous competition is likely to be (Stigler, 1972, p.92)."

Next to the variables that influence competition, there are variables that are the effects of competition. One of these variables that is possible related to competition is described by Adam Smith (1887). He describes that competition is a price setting mechanism operating in a market. He uses the example of green grocers: "if the capital sufficient to satisfy the demand for groceries in a particular town is divided between two different grocers, their competition will tend to make both of them sell cheaper, than if it were in the hands of one only (Smith, 1937)." Adam Smith, thus, states that one of the effects of competition is lower prices in a specific market. McNulty adds another variable that is possibly related to competition, by saying it is "the 'force' which, by equating prices and marginal costs, assures allocative efficiency in the use of resources (McNulty, 1968, p. 643)." This makes that competition is desirable for society (Mankiw & Taylor, 2006). It also relates with the fact that "lower levels of competition are associated with significantly reduced output and consumption (Bayoumi, Laxton, & Pesenti, 2004, p. 30)." Therefore, more competition promotes more output and consumption.

In conclusion, we have found several variables that are possibly related to competition, on the one hand the amount of competitors in a specific market, the size of these competitors, and the ability to enter the market and to stay in the market for a long term. These variables are the variables that influence competition. On the other hand, lower prices, and more production and consumption, which are variables that are effects of competition.

2.2 Theory on Open Skies agreements

Since various studies are conducted on the effects that Open Skies agreements have in a specific market between countries, it is important to analyse them. For this study it is important to know how other studies have put the theories on competition in the perspective of aviation. In this chapter the measures for competition from the articles will be named and they will be linked to the variables which are possibly related to competition, from the previous section.

The first article that will be analysed is by Cosmas (2009). One of the concepts that is analysed in this study is competition. In this article, competition is mostly conceptualised as the degree to which air carriers can enter markets and compete with one another. The effects of competition are also mentioned in the article, which are better services and better on time performances.

The concept of competition is measured in the study by, so called, "service levels". The authors defines service levels as "a term that can be used to describe a number of measures in air transportation (Cosmas, 2009, p. 22)." These service levels consist of four metrics: passenger enplanements, number of city pairs, total departures, and the number of carriers providing transatlantic services (Cosmas, 2009). These measures are related to several variables which are possibly related to competition. Firstly, passenger enplanements is related with consumption, since the passengers are the costumers of the airlines. The number of city-pairs and total departures related to the production, since airlines produce the routes between cities and, therefore, provide the departures. The last measure, number of carriers, is related to the number of rivals variable.

Cosmas uses measures which are related with three of the five variables that are possibly related to competition. From the four measures, two are related to the factors that influence competition (number of carriers and number of city-pairs) and two are related to the effects of competition (passenger enplanements and total departures). The variables that are not included in the analysis of competition in the study of Cosmas are lower prices and the size of the rivals. These variables are not examined, neither empirically nor theoretically. The author does not mention why these variables are not examined. The fact that those variables are not examined can have a negative influence on the accuracy of the conclusions made on competition in the study.

The second article that will be analysed is that of Moselle, et al. (2002) In this study the emphasis is put on the economic impacts of an Open Skies agreement. Several factors that can be influenced by an Open Skies agreement are analysed in this study, including employment, national safety and competition. However, we will focus on the analysis of the competition of that study.

In the study itself the impact of an Open Skies agreement on competition is measured through the growth rates in traffic volume. This means that this measurement is related to the effects of competition. In order to analyse the impact of a bilateral Open Skies agreement on competition the following countries are analysed: Austria, Belgium, France, Germany, Italy, the Netherlands, and Portugal. From these countries the period before and after the implementation of a bilateral Open Skies agreement with the United States is analysed in order to see whether changes have occurred. As stated in the article, an increase of transatlantic passenger traffic after implementing an Open Skies agreement with the United

States is consistent with the theoretical expectation that liberalisation would increase passenger traffic (Moselle et al., 2002). The variable traffic volume is related with consumption, since traffic consist of passengers which are the costumers of airlines.

The difference between the cases analysed in the study of Moselle et al. (2002) compared to the cases that will be analysed in this paper is that the cases selected by Moselle et al. (2002) are bilateral agreements between the United States and several European states. In this study the focus will be on a multilateral agreement between the United States and European states. This means that the cases analysed have different Open Skies agreements, whereas in this study the Open Skies agreement is mutual for every state. Despite the fact that most of the Open Skies agreements set up between the United States and European states that are analysed have liberalisation as their primary goal, they are all different. This is different with this study, due to the analysis of the mutual agreement.

Next to the variable traffic volume, pricing synergies is another other variable that is examined in the study. This variable is related to one of the variables that are possibly related to competition, namely lower prices. The study states that due to coordination of price setting, the fares will lower, since demand will raise this way (Moselle et al., 2002). The variable is examined empirically and relates to the effects of competition. The variable city-pairs, which is related to the variables that influence competition, is also named, but this variable is only supported by a theoretical expectation and is not examined empirically. Moreover, in the study the other two variables that influence competition, namely number of rivals and size of the rivals, are not examined. The fact that these variables are not included in the study can jeopardize the conclusions of the analysis of the impact of Open Skies agreements on competition.

Another important study for the US-EU Open Skies Agreement is the study 'The Economic Impacts of an Open Aviation Area between the EU and the US (Hamilton, 2007)'. Similar to the study of Moselle, et al. (2002), this study focuses on the economic impacts of the Open Skies agreements and analyses more factors that are affected by an Open Skies agreement. However, also in this study, we will focus on the analysis of the impact an Open Skies agreement has on competition.

In this study one variable is examined empirically, which is also possibly related to competition: traffic growth. This variable is related with consumption and is an effect of competition. Next to this variable which is examined empirically, there are two variables that are supported with theoretical expectations. These are lower prices and increased consumer choice. The latter is related with the number of rivals, since consumers choose from airlines, and these compete with each other. Hence, this variable is a variable that influence competition. However, the size of these rivals is not included in an analysis in this study. Moreover, the city-pairs are not examined either.

The previous studies showed us several variables that can be used in order to analyse competition, in the perspective of air transport markets. Therefore, variables from section 2.1 are linked with variables which can analyse competition in the perspective of air transport markets. In the next section, the variables that will be used in this study will be outlined.

2.3 Key variables

The previous section showed us the variables used in various other studies for the relation between market liberalisation and competition. In this chapter, an overview will be given of the variables that are possibly related to competition. These variables will be based on the outcomes of the two previous sections. The variables will then be analysed in order to form conclusions of the development of the competition in the transatlantic air transport market. Each variable will be analysed for the time periods, namely the period prior to the implementation of the US-EU Open Skies Agreement (2002-2007) and the period after the implementation of the agreement (2008-2012), and the findings of the variables in these periods will be compared with one another.

2.3.1 Total passenger traffic

The variable total passenger traffic will provide an overview of how many passengers have flown between the United States and a specific country for one year. Therefore, it will provide an overview of the consumption in the transatlantic air transport market. This variable represents the behaviour of the passengers, hence the costumers of the airlines. This due to the fact that we count the amount of passengers that travelled between the United States and a specific country and that the passengers are the costumers for the airlines. Therefore this variable also represents the demand side of the transatlantic market for a specific country.

The relation between this variable and competition derives from the fact that consumption is one of the variables that is expected to increase once competition increases as well (Bayoumi, Laxton, & Pesenti, 2004). Therefore, it is an effect of competition. Moreover, the studies mentioned in the previous section use this variable to measure competition as well.

2.3.2 Total departures

The second variable that is possibly related to competition is total departures. This variable shows the amount of departures performed of flights between the United States and a specific country for one year. Compared to the variable of the total passenger traffic, this variable represents the behaviour of the airlines. This variable represents the airlines, since the airlines are the ones that perform the departures. Therefore, this variable represents the supply side, and the production of the airlines, of the transatlantic market for a specific country.

The variable relates to competition since production is expected to increase once competition increases as well (Bayoumi, Laxton, & Pesenti, 2004). Therefore, it is an effect of competition. Total departures is used in one of the three analysed studies as a variable to measure competition. Since it represents the production of airlines and is therefore related to competition, it will be one of the variables used in this study.

2.3.3 Total city-pair links

In the next chapters, the total city-pair links will show the number of direct links between a specific city in one of the selected countries and the United States for a specific year. For this variable each city-pair link will count as one city-pair link. A city-pair link can be, for example, a route between Amsterdam and Los Angeles. This city-pair link will count for one city-pair link for Amsterdam. The number of direct links from a specific city relates to

competition since it is of importance to one of the other key variables in this study, namely the average number of carriers per city-pair link. Moreover, it provides an overview of the size of the market. The variable is measured in the month July from each year that is analysed. This is done because July tends to have a peak in transatlantic traffic (Cosmas, 2009).

Several American airports are combined in one city-pair link. This is the case for New York's John F. Kennedy Airport and Newark Liberty Airport, San Francisco Airport and Oakland Airport, and Orlando Airport and Orlando Sanford Airport. These airports are combined into one city-pair, since the airports are located in a 50 kilometre radius from each other.

2.3.4 Average number of carriers per city-pair link

This variable will show the average number of competitors per city-pair link in the transatlantic market for a specific city. This means that the number of carriers providing services in the transatlantic market for a specific city will be divided by the number of city-pair links in that specific transatlantic market. The final outcome, which will be visible in the tables, is the average number of carriers per city-pair link.

As mentioned in the previous section, the average number of carriers per city-pair link is related with the total city-pair links. This is the case since once the number of city-pair links increases, the average number of carriers per city-pair link can decrease. In such a situation, we consider that the competition is decreased. We consider this, since the emphasis in this study will be on the number of rivals in a market, which is represented by the average number of carriers per city-pair link. Since number of rivals in a market is a variable that is possibly related to competition and a variable that influences competition, it is relevant for this study. Moreover, it is empirically examined by Cosmas (2009), and supported with theoretical expectations by Hamilton (2007).

2.3.5 Average market share per carrier

The air transport market is a oligopoly (Brander & Zhang, 1993). An oligopoly is a market with the form of imperfect competition. This means that there is a situation in which firms are able to cooperate and act like a monopolist, allowing them to be price makers instead of price takers. In the situation of cooperation between firms, collusion and cartel forming is possible. However, collusion, which means "an agreement among firms in a market about quantities to produce or prices to charge"(Mankiw & Taylor, 2006, p.232), or cartel forming, which means "a group of firms acting in unison" (Mankiw & Taylor, 2006, p.232), is prohibited in the United States (under the Sherman Anti-trust Act(Mankiw & Taylor, 2006), and in the European Union (under the Treaty of Rome (Doganis, 2005). However, there is an exception for the air transport sector. Airlines may collude in the form of alliances. "These airline alliances that have received antitrust immunity from regulatory authorities and gain full license to cooperate in setting fares." The defence to provide this antitrust immunity is that "an interline trip is a joint product provided by two carriers, the fare is lower when it is set cooperatively than when it is determined by "arm's length" interaction between the carriers. Cooperation eliminates double marginalization, reducing the interline fare (Brueckner & Picard, 2013, p.2)." Nevertheless, alliances form a threat to competition for particular passengers. The passengers travelling between hub airports can be harmed by price setting of airlines, due to the fact that "cooperation in fare setting may lead to anticompetitive collusion,

with the result that fares in the interhub market rise. Thus, interhub passengers may be harmed by cooperative pricing (Brueckner & Picard, 2013, p.2).” Thus, alliances can result in problems for competition. Therefore, it is important to look at the market share of airlines at specific airports in order to make a better judgement on this variable that is possibly related to competition in the transatlantic market.

In order to measure this, we will use the average market share in offered seats by carrier. Each carrier will be analysed for every year in the period from 2002 until 2012. Like for the variable total city-pair links, the data for the average market share in offered seats by carrier will be derived from the month July, for the same reason as with the variable total city-pair links.

The size of rivals is important for the amount of competition in a specific market as well, since it is a variable that influences competition. It relates to the other variables that influence competition, since the average number of carriers per city-pair links represents the number of rivals in a market, whereas this variable measures the size of the rivals.

3. Methodology

The structure of the study will be based on the analysis of the development of the competition, and key variables possibly related to it, in the transatlantic air transport market. The data will provide information for the description of the competition, and key variables possibly related to it, in the transatlantic air transport market in the time period of 2002-2012. Five specific cases are selected in order to illustrate the competition, and key variables possibly related to it, in the transatlantic air transport market. Furthermore, due to focus on the differences between the two time periods, a longitudinal design will be used as research design in this study.

The longitudinal design observations will be made on a treatment group through a specific time period. In this design the "untreated state of the unit provides the control condition (Gerring, 2011, p.285)." The design consists of observations from before the treatment and after the treatment. Applying the longitudinal design to this research, the treatment group will be the transatlantic air transport market of the five selected countries and the treatment will be the implementation of the US-EU Open Skies Agreement.

This research design is most appropriate for the research, since the research will be focused on two specific periods. These periods will be the periods before and after the implementation of the US-EU Open Skies Agreement. Moreover, there is no spatial change in the research, since the only the transatlantic air transport market will be analysed. Therefore, a dynamic design cannot be applied. All in all, a longitudinal design, in which a period will be analysed and two separate observations in time are made, is the best applicable design for the research.

The time periods covered in this study are 2002-2007, as the period prior to the implementation of the US-EU Open Skies Agreement, and 2008-2012, as the period after the implementation of the US-EU Open Skies Agreement. The US-EU Open Skies Agreement entered into force on 30 march 2008 (Commission, 2007), therefore 2008 is the starting point of the second period. In this case, 2008 will not be seen as a year that is in between the implementation of the US-EU Open Skies Agreement. The reason why the data for 2008 will be used in the analyses as well is that in this study we use the data for the month July. Since July 2008 is several months after the implementation of the US-EU Open Skies Agreement, this data can be used.

In order to be able to provide a description for development of the competition in the transatlantic air transport market, several cases will be selected. This is done in order to narrow down the cases for the research and to be able to provide an in depth analysis for these countries. The countries that will be analysed on the one hand are the United Kingdom, Ireland and Spain. These countries will be analysed since they had restrictions on the routes to the United States. On the other hand, it is also interesting to analyse several countries which had already an Open Skies agreement with the United States in force and now have the US-EU Open Skies Agreement in force. The countries selected for this analysis will be the Netherlands and Austria.

Since the case selection is based on the before mentioned countries, the units of analysis will be the relation between the selected countries and the United States, regarding air traffic. Therefore, when the deeper analysis of the transatlantic air transport market is conducted in

the research, it will be conducted on the relation between the selected countries and the United States.

4. Transatlantic competition in the Netherlands

Amsterdam Schiphol Airport is the transatlantic gateway in the Netherlands. It is one of the busiest airports in Europe, with 52,569,250 passengers in 2013 (Schiphol Group, 2013). This makes Amsterdam also the second busiest airport from the airports in the countries that we analyse in this study and the 4th busiest airport in the European Union.

4.1 Background of the transatlantic market

Before the entry into force of the US-EU Open Skies Agreement, the Netherlands already had an own Open Skies agreement with the United States. This agreement entered into force in 1992 and was consequently the first Open Skies agreement between a European country and the United States. The Netherlands are seen as a good example for a country which has benefited clearly from the Open Skies agreement. As stated by Moselle et al. (Moselle, et al., 2002), the Netherlands have seen a rise in transatlantic traffic volume in the period after the implementation of the Open Skies Agreement. This rise is significantly higher than the predicted transatlantic traffic volume for that same period, when an Open Skies agreement would not exist. The actual transatlantic traffic volume rose to almost 4,500,000 passengers a year, whereas the predicted transatlantic traffic volume would have been around 2,500,000 passengers a year (Moselle, et al., 2002).

The significant growth of the transatlantic traffic volume in the Netherlands is explained by Moselle et al. in the form a hypothesis. This hypothesis states that due to the fact that the Netherlands were the first country to sign an Open Skies agreement with the United States, it gained first-mover and network advantages. These advantages are likely to account for much of growth of transatlantic traffic volume after the implementation of the Open Skies agreement. The first-mover advantages can be explained as when a company enters a market firstly or expands its market presence significantly. When a company does this, it gains long-term competitive advantage compared to others. On the other hand, network advantages arise when a company is first to start creating a network, from which consumers can benefit when they become part of that larger network (Moselle, et al., 2002).

4.2 Total transatlantic passengers

This section will provide a general overview of the transatlantic market in the Netherlands. In order to know how the Dutch transatlantic market developed in the 2002-2012 period, we will look at two variables: passenger traffic and departures.

It is important to mention that the Netherlands have one airport from which transatlantic flights are operated: Amsterdam Schiphol Airport. Therefore, in this chapter referrals will be made to Amsterdam, which is similar to the situation concerning competition for the Netherlands.

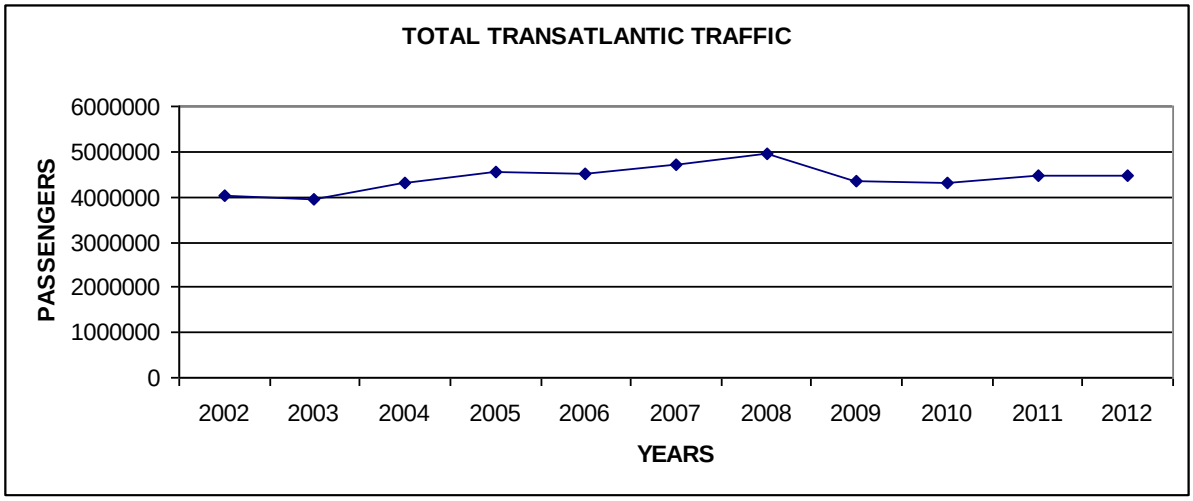

Figure 4.1: Total transatlantic traffic from the Netherlands (Source: T-100 Database)

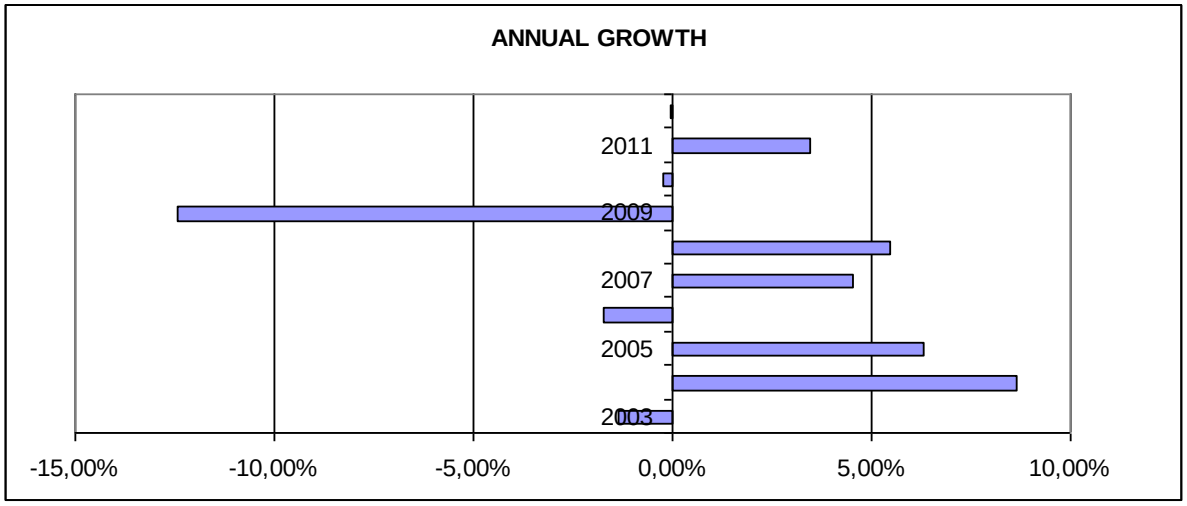

Figure 4.2: Annual growth of transatlantic traffic from the Netherlands (Source: T-100 Database)

The figures 4.1 and 4.2 indicated the transatlantic traffic volume from Amsterdam. It is visible that the transatlantic traffic volume from Amsterdam in the period 2002-2007 grew steadily, with a total growth rate for this period of 17.01 percent. In absolute terms the growth was 682,485 passengers in this period. Regarding annual growth in this period, 2003 and 2006 were the only years in which the annual growth was negative. In 2004 the annual growth was the highest, with 8.66 percent, which was also the highest amount in the entire period of 2002-2012. All in all, the five years prior to the implementation of the US-EU Open Skies Agreement, transatlantic traffic from Amsterdam grew.

In the period from 2008-2012, the traffic volume shows changes compared to the 2002-2007 period. Instead of a period with steady growth, a downturn can be seen in 2009. Despite the growth rates in 2008, a significant decline occurred in 2009. The annual growth in 2009 was -12.43 percent, the lowest in the entire 2002-2012 period. The difference in absolute terms from 2008 to 2009 was a decline of 615,272 passengers. The total amount of transatlantic traffic in 2009 dropped to the level it was in 2004. This decline can be associated with the

global economic crisis, which started in 2008. Since the air transport sector is highly dependent on the global economy, global economic crises hit the sector significantly (Doganis, 2002). For the years after 2009, only in 2011 there was annual growth in the transatlantic traffic from Amsterdam. The period after the implementation of the US-EU Open Skies Agreement can therefore be seen as a period of decline in transatlantic traffic volume.

From the data from this section we can see that the development of the total transatlantic traffic from Amsterdam is that it declined in the period after the implementation of the US-EU Open Skies Agreement. **Since this is a variable that is possibly related to competition, we can assume that this can have a negative effect on competition.**

4.3 Total transatlantic departures in the Netherlands

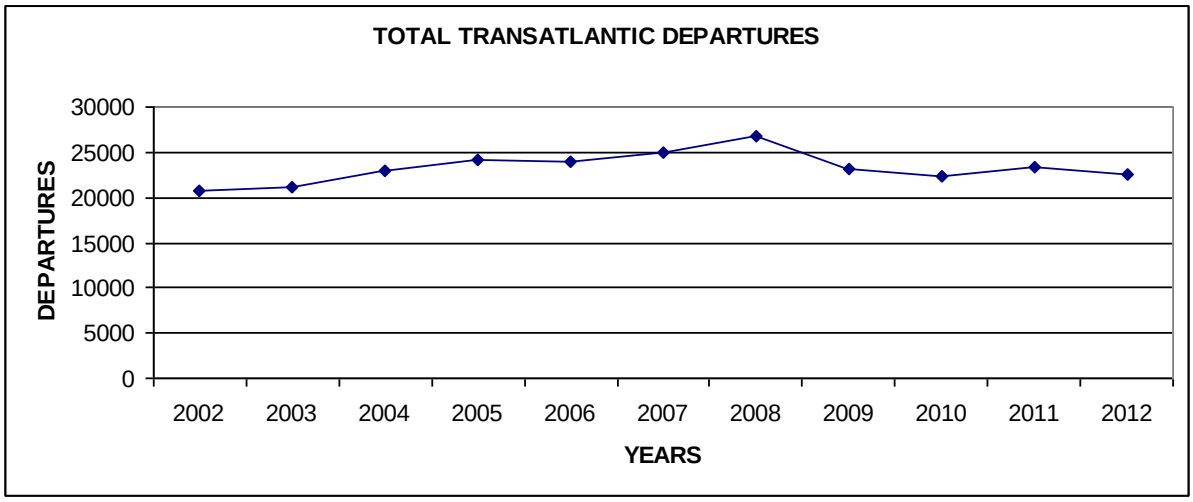

Figure 4.3: Total transatlantic departures from the Netherlands (Data: T-100 Database)

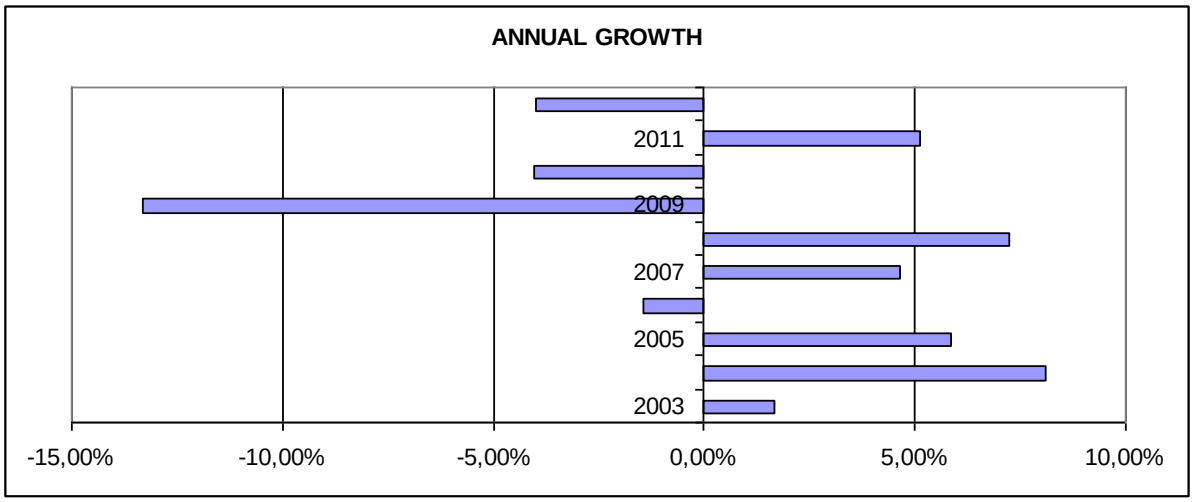

Figure 4.4: Annual growth in transatlantic departures from the Netherlands (Data: T-100 Database)

The previous data give us a insight in the transatlantic departures preformed from Amsterdam. Despite different absolute numbers, figure 4.1, which is about the transatlantic passenger traffic, and figure 4.3, which is about the transatlantic departures, show similarities in their patterns. Both tables show clear similarities for the period of 2002-2007. An increase is visible until 2006, in which there was a slight downturn. From 2006 until 2008 an increase is visible again. However, for the period after 2008 a significant downturn can be seen. In 2009 the highest decrease for transatlantic departures is visible, a decrease by -13.32 percent. This decrease is one percent point higher than the decrease in the same period in transatlantic passenger traffic. For transatlantic departures, only 2011 showed growth in the period after 2009. When the tables for annual growth in the transatlantic passenger traffic and the transatlantic departures from Amsterdam are compared, it is visible that the transatlantic departures decreases and increases in percentages are slightly higher than the percentages of the transatlantic passenger traffic.

All in all, it can be seen that there are significant differences between the period prior to the implementation of the US-EU Open Skies Agreement and the period after. Despite these differences, we cannot conclude that these differences derive from the implementation of the US-EU Open Skies Agreement. This cannot be concluded, due to the fact that the significant decrease in the transatlantic passenger traffic and the transatlantic departures from Amsterdam can also be associated with the global economic crisis, which started in the same period as well.

From the data of this section we see a similar development of the variable as with the previous variable, namely a decline after the implementation of the US-EU Open Skies Agreement in the total transatlantic departures from Amsterdam. **Since this is a variable that is possibly related to competition, we can assume that this can have a negative effect on competition.**

4.4 Average carriers per transatlantic routes and transatlantic city-pair links

At this moment, we will investigate how the US-EU Open Skies Agreement has affected the transatlantic competition in the Netherlands. To begin with, an overview of the direct links and the average amount of carriers per route operating these lines will be given.

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
TOTAL LINKS	15	15	16	16	16	17	18	17	16	17	18
AVE. CARRIERS	1.87	1.73	1.63	1.56	1.5	1.53	1.5	1.53	1.5	1.47	1.5

Table 4.1: Direct links with Amsterdam and average amount of carriers (Source: T-100 database)

At this point, we are going to investigate the data from table 4.1. It can be seen that in the period from 2002-2007, the total links remain fairly stable. A slight increase is visible, with one more link added to the total links in 2004 and one more in 2007. However, when we look at the average number of carriers, we see a decrease from 2002 till 2006 from 1.87 to 1.5 carriers.

In the period from 2002-2007, an average of 8.33 different carriers served Amsterdam. The highest point was 2002, in which ten different carriers served Amsterdam. From 2002 onwards a decline in different carriers emerged. In 2007, the number of different carriers stabilized to eight. An interesting thing to note here is that from 2002 onwards three carriers stopped operating services from Amsterdam. These three carriers were all carriers with their origin outside the Netherlands or the United States. These carriers can operate services via Amsterdam, since they have gained 'fifth freedoms', which allows carriers to operate services via one or more countries outside its original country (Weber & Dinwoodie, 2000).

When we look to the period from 2008-2012, we first see the average number of carriers and links decreasing, to its lowest point in 2010, and then increasing again till 2012. In 2012, the average number of carriers is stabilised again, as well as the direct links in terms of cities. Moreover, in the period after the implementation of the US-EU Open Skies Agreement, several new direct links were created between Amsterdam and the United States.

We can see that in the period of 2002-2007 the average carriers per route decreased and in the period 2008-2012 it mostly stabilised. In the period from 2002-2012 we see slight decreases and increases year by year in the average amount of carriers. The amount of direct links has increased in the period from 2002-2012. However, the increase is proportionately divided between the time periods 2002-2007 and 2008-2012. This means that a clear increase of competition in the period after the implementation of the US-EU Open Skies Agreement is not visible in the Netherlands from the direct links and average carriers' data.

Furthermore, when we compare the number of direct links from Amsterdam with the total traffic volume and the total departures, we do not see a direct relationship between them. When we analyse the period prior to the implementation of the US-EU Open Skies Agreement, we see that on the one hand the direct links between Amsterdam and the United States remained fairly stable. On the other hand, there was a steady growth in passenger traffic with 17.01 percent over this period. Despite this growth, there was no such significant growth visible in direct links from Amsterdam. When we look at the period after implementation a significant decline in the traffic volume was visible. However, the amount of direct links and competitors remained fairly stable, with the exception of 2010, in which there was a slight decrease in direct links and competitors. Therefore, for the case of the Netherlands, there is no direct relationship visible between number of direct links from Amsterdam and traffic volume and total departures from Amsterdam.

This section shows that the development of the total city-pair links from Amsterdam in the period after the implementation of the US-EU Open Skies Agreement is that it grew slightly. However, the average carriers per transatlantic routes have declined slightly compared to the period prior to the implementation of the US-EU Open Skies Agreement. From this developments we can assume that it has been positive for the competition in the case of the total city-pair links from Amsterdam, but that it has been negative for competition in the case of the average carriers per transatlantic routes.

4.5 Average market share per carrier

In order to analyse the competition in the transatlantic air transport market from Amsterdam, we are going to look at carriers and how their market share is divided on this market.

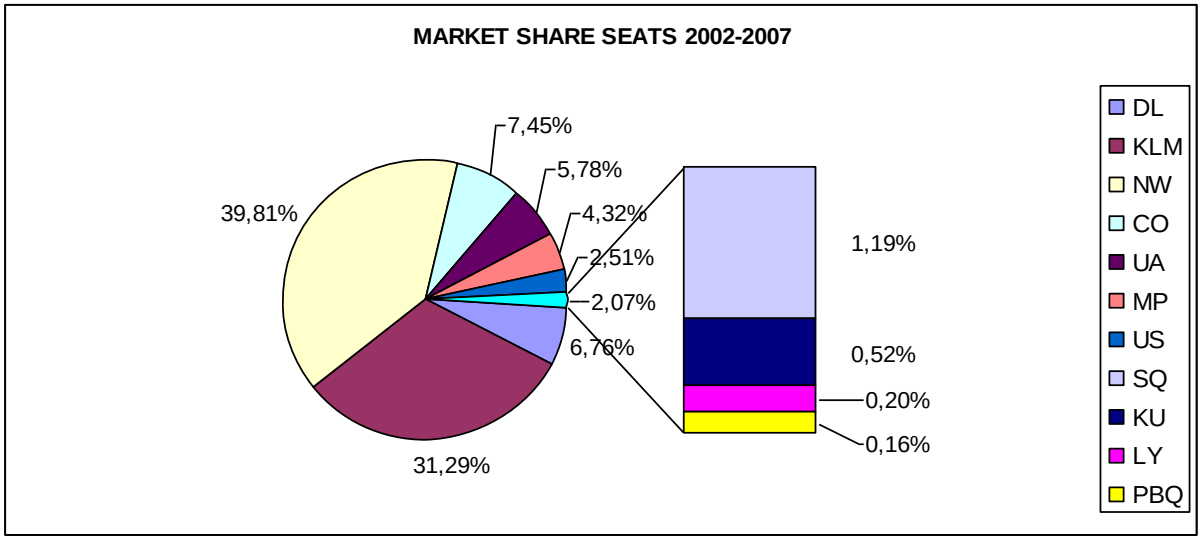

Figure 4.5: Market share in offered seats from Amsterdam for 2002-2007 (Source: T-100 Database)

In the period 2002-2007, eleven different carriers operated services between Amsterdam and the United States. In total two of these carriers were Dutch (KLM and Martinair), five were American (Delta, Northwest Airlines, United Airlines, Continental Airlines, and US Airways), and five had their origin outside the Netherlands or the United States (Singapore Airlines, Kuwait Airlines, Privatair, and El Al). From these eleven airlines, only the Dutch and American airlines operated services from Amsterdam to the United States in the entire period of 2002-2007. From the four carriers with their origin outside the Netherlands or the United States, Singapore Airlines operated services for two years (2002-2003), Kuwait Airlines for three years (2002-2004), El Al one year (2002), and Privatair two years (2006-2007). The percentage of carriers with their origin outside the Netherlands or the United States in the period 2002-2007 was 2.07, the Dutch carriers amount for 35.61 percent, and the American carriers for 62.32 percent.

In the period of 2002-2007, Northwest Airlines offered most of the seats for flights from Amsterdam to the United States, with KLM being the airline which is the second largest when it comes to offered seats. The two airlines together offered 71.10 percent of the transatlantic seats from Amsterdam, which is a significant amount of seats.

Moreover, KLM and Northwest are both part of SkyTeam. From the eleven carriers, four are member of SkyTeam. The entire market share of SkyTeam in offered seats in 85.31 percent, which is a significant amount. From the other alliances, the Star alliance had a market share of 9.48 percent and no member of Oneworld operated transatlantic services to Amsterdam in this period. The fact that SkyTeam has a market share of 85.31 shows that they have a dominant position in the transatlantic market in Amsterdam.

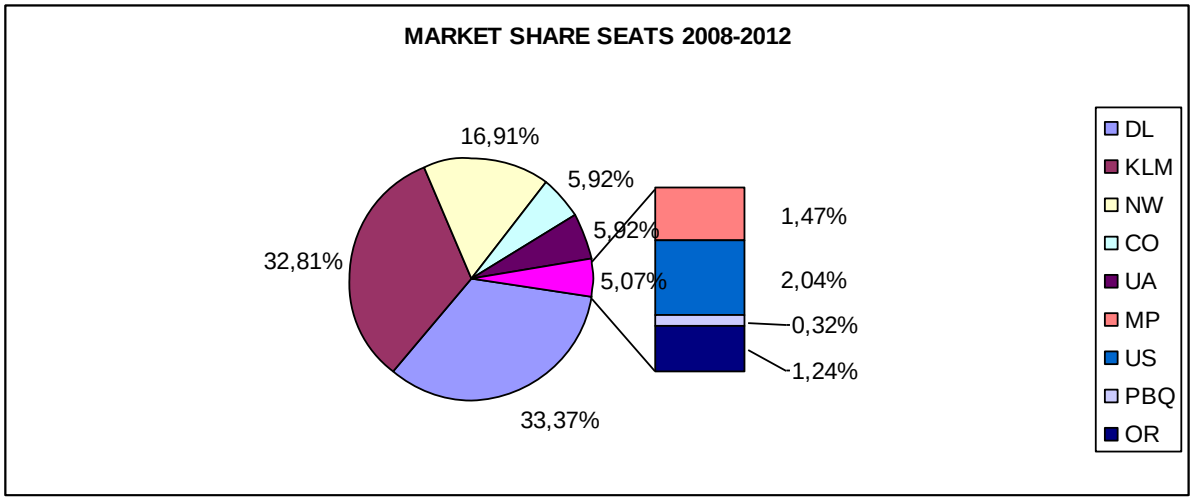

Figure 4.6: Market share in offered seats from Amsterdam for 2008-2012 (Source:: T-100 Database)

Figure 4.6 shows the data for the average transatlantic offered seats per carrier in the period of 2008-2012. In this period, nine airlines provided services between Amsterdam and the United States. From these nine airlines, three are Dutch (KLM, Martinair, and Arkefly), five are American (Delta, Northwest Airlines, Continental Airlines, United Airlines, and US Airways), and one is from a country outside the Netherlands or the United States (Privatair). When we look at figure 4.6 it shows differences with figure 4.5, which shows the market share in offered seats from Amsterdam for 2002-2007. In figure 4.5, Northwest and KLM had the largest market share, namely 71.10 percent combined. Figure 4.6 shows a different situation. From this figure, it seems that KLM, Delta and Northwest share the largest market share (83.09 percent). However, in the period of 2008-2012 Northwest Airlines and Delta merged. Therefore, figure 4.6 gives, in some way, a distorted image of the situation in this period. Moreover, Continental Airlines and United Airlines merged in this period as well. In order to provide a more adequate image of the competition of the competition in this market, an analysis of a specific year will be more useful. Therefore, we will first take a look at 2008, in which there were no mergers yet. Then we will take a look at 2012, in which both mergers had already taken place.

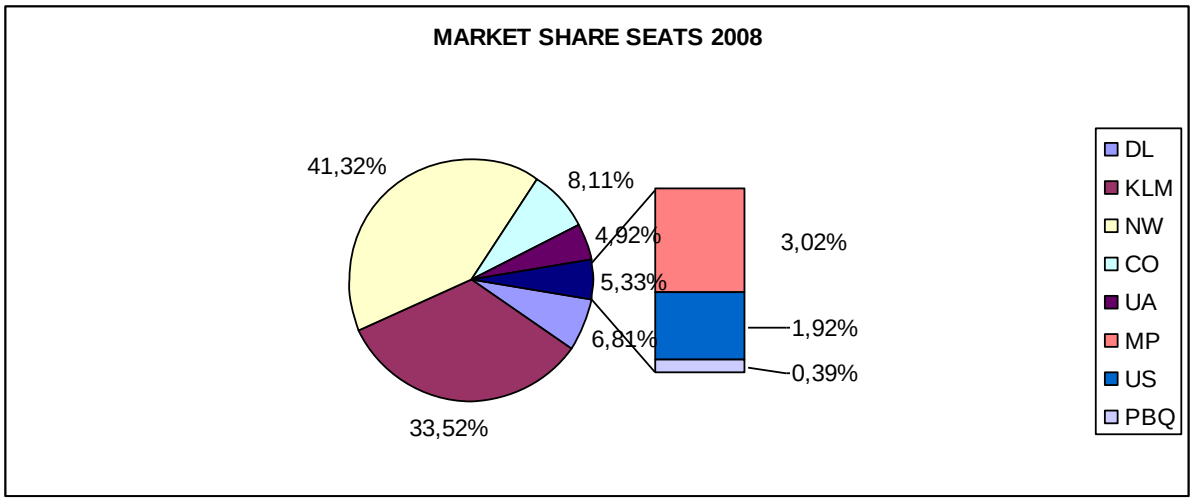

Figure 4.7: Market share in offered seats from Amsterdam for 2008 (Source: T-100 Database)

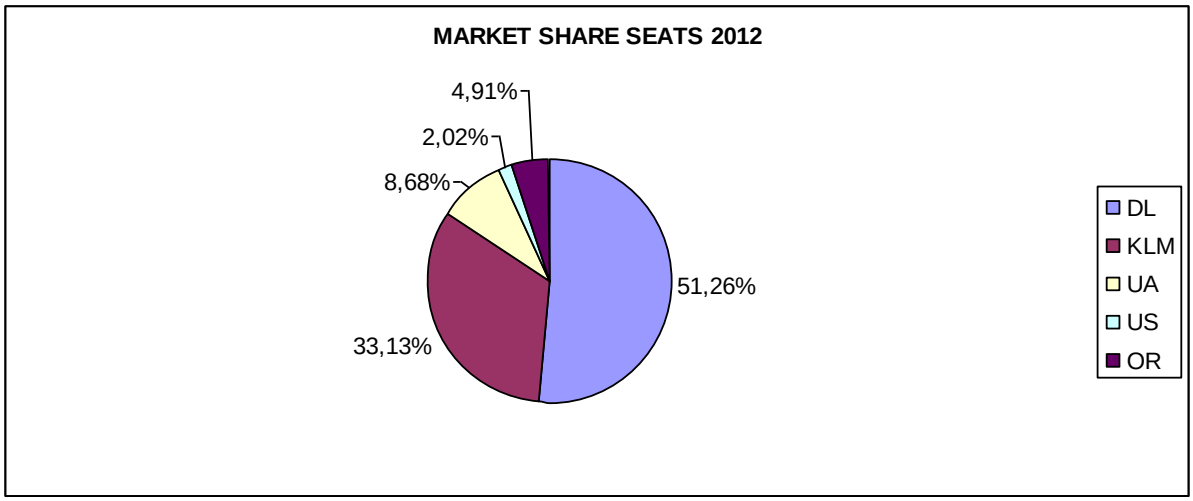

Figure 4.8: Market share in offered seats from Amsterdam for 2012 (Source: T-100 Database)

Figure 4.7 shows that in 2008 Northwest and KLM were the two carriers that had the largest market share on the transatlantic market from Amsterdam. This is comparable with the situation in the period of 2002-2007. Moreover, in 2008, there were eight different competitors on the transatlantic market from Amsterdam. Five of these airlines were from the United States, two were Dutch and one was from a country outside the Netherlands or the United States. When we compare this with the data from figure 4.8, we see that in 2012 the number of competitors decreased from eight to five.

For 2012, it is visible that Delta, after the merger with Northwest Airlines, has more than half of the market share on the transatlantic market from Amsterdam. When we add the second largest airline by seats offered, namely KLM, we see that both airlines have a combined market share of 84.39 percent. The other three carriers amount, therefore, for a substantial smaller amount of market share on the transatlantic market from Amsterdam. It is interesting to see that the airlines next to KLM and Northwest in 2008 amounted for a market share of 25.17 percent, whereas this has decreased to 15.61 by 2012.

In the perspective of alliances, the period 2002-2007 is relatively similar to the period 2008-2012. SkyTeam possessed 83.09 percent of the market share, which means a slight decrease. The Star Alliance possessed 13.88 percent, which means an increase. In 2008-2012, like in 2002-2007, there were no members of Oneworld operating transatlantic services from Amsterdam.

As the descriptions in the previous sections describe the average market share per carrier have declined in the period after the implementation of the US-EU Open Skies Agreement. This since two distinctive carriers have 84.49 percent of the market share in seats on transatlantic routes from Amsterdam. This is significantly higher than in the period prior to the implementation of the US-EU Open Skies Agreement. Therefore, we can assume that this is negative for the competition in the case of this variable. The situation of the alliances show a similar development.

4.6 Reflection

In the period 2002-2012, both total transatlantic traffic and transatlantic departures show a similar pattern, in which the period before the implementation of the US-EU Open Skies Agreement shows growth, and the period after a decline. In terms of total city-pair links, there has been an increase in the 2002-2007 period. In the 2008-2012 period, there first was a decline, but in 2012 the number grew to the level of 2008 again. In terms of average number of carriers per city-pair link, there has been a decrease in the 2002-2007. In 2008-2012 this number stabilised again. For the last variable, it was visible that in the 2002-2007 period, the most of the market share was divided between Northwest Airlines and KLM, leaving approximately 30% of market share for the rest of the market. In 2008-2012, the market share of Delta and KLM possess most of the market share, making the SkyTeam alliance the largest operating alliance at Amsterdam.

All in all, the developments in the various variables that are possibly related to competition have a similar outcome when it comes to the way they influence competition after the implementation of the US-EU Open Skies Agreement. This since it can be assumed that developments of the variables after the implementation of the US-EU Open Skies Agreement are likely to have a negative effect on the competition.

5. Transatlantic competition in Austria

Austria's air transport sector is relatively small compared to the air transport sectors in the countries which we analyse in this study. Due to the fact that the air transport sector in Austria is relatively small, it has also only one transatlantic gateway, which is Vienna Airport. Vienna Airport was with a total traffic of 21,999,926 passengers the 15th busiest airport in the European Union in 2013 (Flughafen Wien AG Press Office, 2013).Since Vienna is the sole transatlantic gateway in Austria, our analysis will focus on this airport.

5.1 Background of the transatlantic market

Austria had already an Open Skies agreement before the implementation of the US-EU Open Skies Agreement in 2008. The Open Skies agreement between Austria and the United States was signed in 1995, and was chronological speaking the 8th Open Skies agreement the United States had with a country. It was then one of the ten countries which signed an Open Skies agreement with the United States in that year (Cosmas, 2009). In the analysis of Cosmas (2009) of the period of 1990-2007, it is visible that the transatlantic monthly departures and monthly enplanements from Austria increased significantly after the implementation of the Open Skies agreement in 1995. Despite the growth in transatlantic departures and enplanements, the number of competitors decreased in the period after the implementation of the Open Skies agreement in 1995.

5.2 Total transatlantic passengers

In this section we will look at the total transatlantic passengers in Austria. This variable is possibly related to competition in the sense that it is an effect of competition.

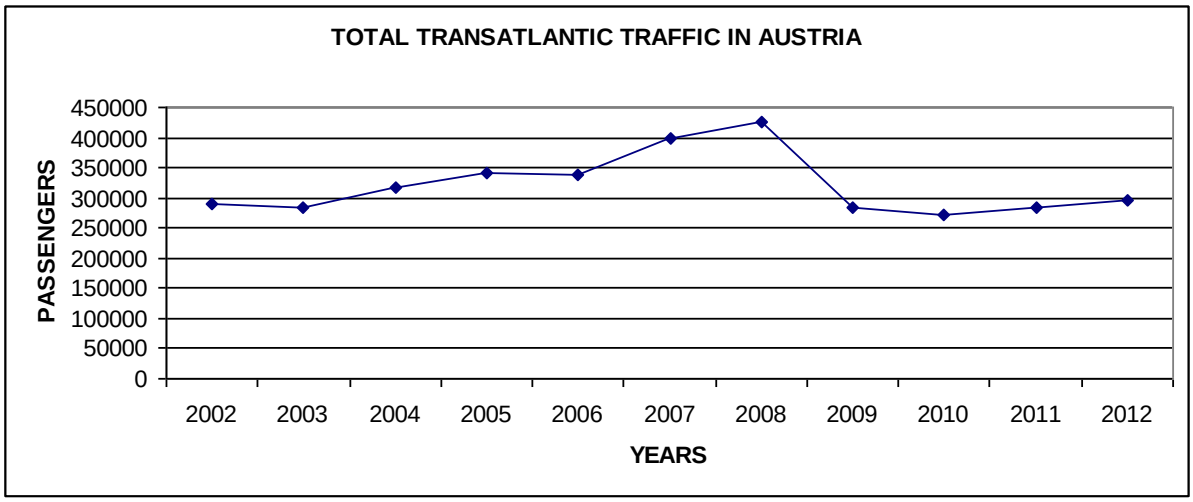

Figure 5.1: Total transatlantic traffic from Austria (Source: T-100 Database)

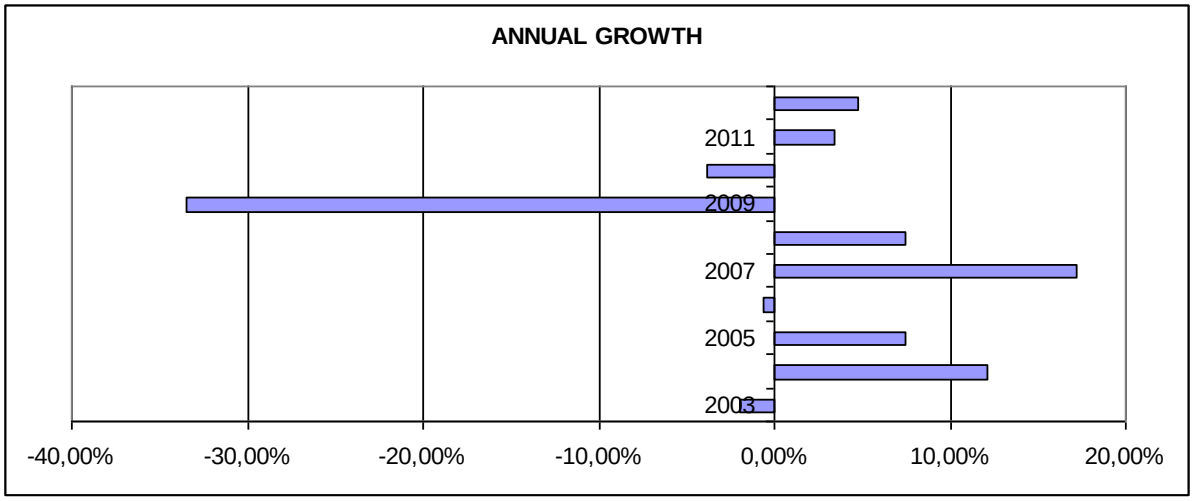

Figure 5.2: Annual growth of transatlantic traffic from Austria (Source: T-100 Database)

The data of transatlantic traffic from Austria shows differences between the periods before and after the implementation of the US-EU Open Skies Agreement. In the period before the implementation of the US-EU Open Skies Agreement we see that the transatlantic traffic increased over the years. Despite some years with negative growth, the period is characterised by growth. Especially the years 2003 and 2006 have high growth rates, ranging higher than 10 percent. The period after the implementation of the US-EU Open Skies Agreement is characterised by a significant decrease. In 2009, the total traffic shrank with 33.44%.

Due to the fact that the data for this variable that is possibly related to competition shows a major decline in the period after the implementation of the US-EU Open Skies Agreement, we can assume that it is likely that this can have a negative effect on the competition in the transatlantic air transport market from Austria.

5.3 Total transatlantic departures

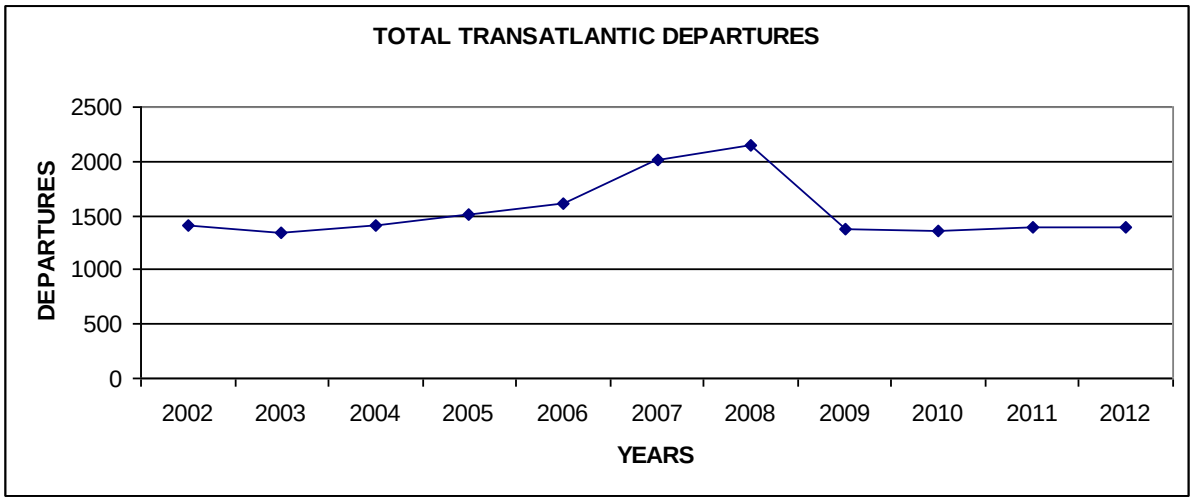

Figure 5.3: Total transatlantic departures from Vienna (Source: T-100 Database)

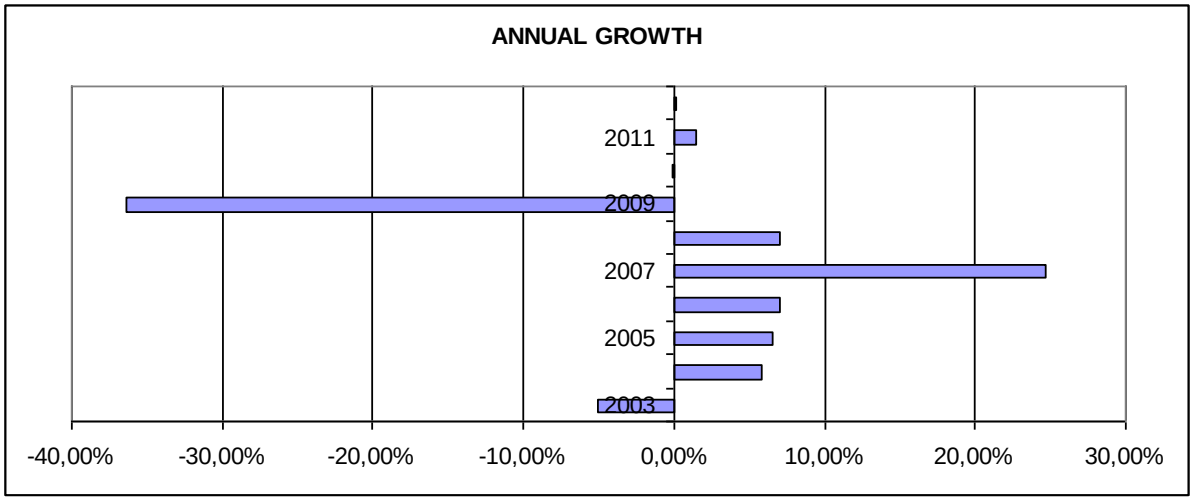

Figure 5.4: Annual growth of transatlantic departures from Vienna (Source: T-100 Database)

Figure 5.3 shows similarities with figure 5.1. The period before the implementation of the US-EU Open Skies Agreement is mainly characterised by growth. Especially in 2007, when the growth rate is 24.72%, mark the growth in this period. This growth can be related to the entry in the market of Delta Air Lines, which happened in the same year. However, the transatlantic departures from Vienna in the period after the implementation of the US-EU Open Skies Agreement is characterised by a significant downturn, like in the total traffic data. In 2009, there was a negative growth of 33.44%, which is also similar to the negative growth rates in 2009 for the total transatlantic traffic.

Due to the fact that the data of this variable that is possibly related to competition shows a similar pattern as the data for the variable total transatlantic traffic, the same conclusion as from the variable total transatlantic traffic is relevant for this variable, namely that due to the significant decline in the period after the implementation of the US-EU Open Skies Agreement we can assume that it is likely that it can have a negative effect on the competition.

5.4 Average number of carriers per transatlantic city-pair link and transatlantic city-pair links

The analysis will now turn to the competition in the transatlantic market in Austria. This will be done by using the variables direct city-pair links and average carriers per route. Austria has one transatlantic gateway, we will examine the data for Vienna Airport.

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
TOTAL LINKS	2	2	2	2	2	4	4	2	2	2	2
AVE. CARRIERS	1	1	1	1	1	1	1	1	1	1	1

Table 5.1: Direct transatlantic links with Vienna and average amount of carriers (Source: T-100 Database)

As we can see in table 5.1, the number of links remains relatively stable with only in 2007 and 2008 an increase (due to the addition of flights to Atlanta and Chicago by, respectively, Delta and Austria Airlines). The amount of links in the period after the implementation of the US-

EU Open Skies Agreement (2008-2012) is in most of the period equal to the number of links in the period prior to the implementation of the US-EU Open Skies Agreement (2002-2007), namely two links. These links are flights to Washington and New York. The average number of carriers per transatlantic city-pair link remains stable throughout the entire 2002-2012 period, which means that there are no differences in average number of carriers per city-pair link between the periods before and after the implementation of the US-EU Open Skies Agreement.

Since there are minor differences in the transatlantic city-pair links from Austria and no differences in the average number of carriers per transatlantic city-pair link, we can assume that the developments of this variable in the period after the implementation of the US-EU Open Skies Agreement compared to the period prior to the implementation do not have significant effects on the competition in this period.

5.5 Average market share per carrier

When we look at the transatlantic competition by carrier in Austria, we see that the amount of different carriers in the periods 2002-2007 and 2008-2012 is considerably low. When we look at the first period, from 2002 till 2007, we see that in the first 5 years (2002-2006), the transatlantic market in Austria was served by one carrier: Austrian Airlines. Austrian Airlines flew in this period to Washington and New York from Vienna. In 2007, Delta Air Lines entered the market, and captured a market share of 15.97% in the same year with flights to Atlanta and Chicago. Austrian Airlines was the other carrier operating in the market, making the amount of different carriers in the transatlantic market in Austria two in 2007.

In the first year of the 2008-2012 period, Delta Air Lines and Austrian Airlines still divided the market. In 2008, Delta had a market share of 16.45%, and was operating on the same links as in 2007. Austrian Airlines accounted for the rest of the market share. After 2008, Delta Air Lines left the market, leaving Austrian Airlines the sole carrier on transatlantic routes for the rest of the 2008-2012 period. As stated earlier, the amount of competitors decreased after the implementation of the Open Skies agreement between Austria and the United States of 1995.

Focusing on the alliances, we see that Austrian Airlines, as part of the Lufthansa Group (Riecken, 2009), is a member of the Star Alliance. Austrian Airlines' sole competitor on transatlantic routes from Vienna in the period of 2002-2012 was Delta Air Lines, which is a member of SkyTeam. This means that the competition that existed between Austrian Airlines and Delta Air Lines on transatlantic routes from Vienna was substantial, since there were no cooperative partnerships between the two airlines.

It is visible that in the period prior to the implementation of the US-EU Open Skies Agreement the competition was low (only one carrier) and that this amount remained low (by one carrier) in the period after the implementation of the US-EU Open Skies Agreement. Despite of an increase by one carrier in two years between the two periods (2007 and 2008), the amount of carriers remained stable.

All in all, the data suggest that the implementation of the US-EU Open Skies Agreement does not provide substantial interference with the developments of the average markets share per carrier in the period before the implementation of the US-EU Open Skies Agreement. Therefore, we can assume that it is likely that the developments of this variable in the period after the US-EU Open Skies Agreement does not have a significant effect on the competition.

5.6 Reflection

The patterns of total transatlantic passengers and total transatlantic departures, the variables which show the effects of competition, show an increase in the period prior to the implementation of the US-EU Open Skies Agreement. After the implementation, a decrease is visible in 2009, after which both variables stabilise again. The variables that influence the competition, show that the total links in the 2002-2012 period remain stable, with the exception of an increase in 2007 and 2008. The average number of carriers per city-pair links, however, remain stable during the entire 2002-2012 period. Considering the market shares, Austrian Airlines had all of the market share in the 2002-2012 period, except for 2007 and 2008, in which it had to give up some of its market share to Delta Air Lines.

These findings suggest that there are differences in the conclusions for the variables that show the effects of competition and the variables that influence the competition. Firstly, from the data for the variables that show the effects of competition, it was visible that these variables showed a decline in the period after the implementation of the US-EU Open Skies Agreement. Therefore, it can be assumed that it is likely that the developments of these variables can have a negative effect on the competition. On the other hand, there are the variables that influence competition. The developments of these variables show no substantial difference in a comparative view of both the periods before and after the implementation of the US-EU Open Skies Agreement. Therefore, we can assume that it is likely that the developments in these variables in the period after the implementation of the US-EU Open Skies Agreement do not have a significant effect on competition.

6. Transatlantic competition in Ireland

The Irish air transport sector is, compared to the other countries that are analysed in this study, relatively small. The major airport of Ireland is Dublin Airport, through which 19,099,649 passengers travelled in 2012 (Dublin Airport Authority plc, 2012). This makes Dublin Airport the least busy major gateway of the major gateways of the countries that we have analysed in this study. However, Ireland has more than one transatlantic gateway. Next to Dublin Airport, Shannon Airport operated also as a transatlantic gateway.

6.1 Background of transatlantic market

Ireland had, like the United Kingdom and Spain, no Open Skies Agreement with the United States before the implementation of the US-EU Open Skies Agreement. Instead of an Open Skies agreement with the United States, Ireland had a bilateral agreement with the United States, which put restrictive measures on transatlantic air services. These restrictive measures required one US flight through Shannon for everyone to Dublin. Moreover, Ireland limited fifth freedom rights for transatlantic services (Button, 2009). The fact that the US-EU Open Skies Agreement was implemented in 2008 meant that the transatlantic market in Ireland was liberalised.

6.2 Total transatlantic passengers

We will now analyse the transatlantic market in Ireland. First, we will look at the total transatlantic traffic in Ireland.

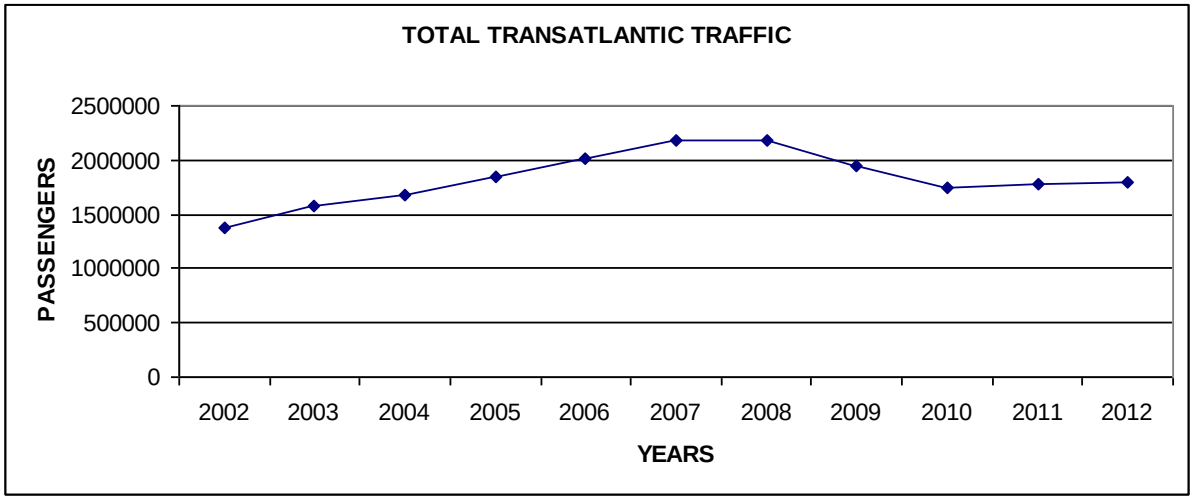

Figure 6.1: Total transatlantic traffic in Ireland (Source: T-100 Database)

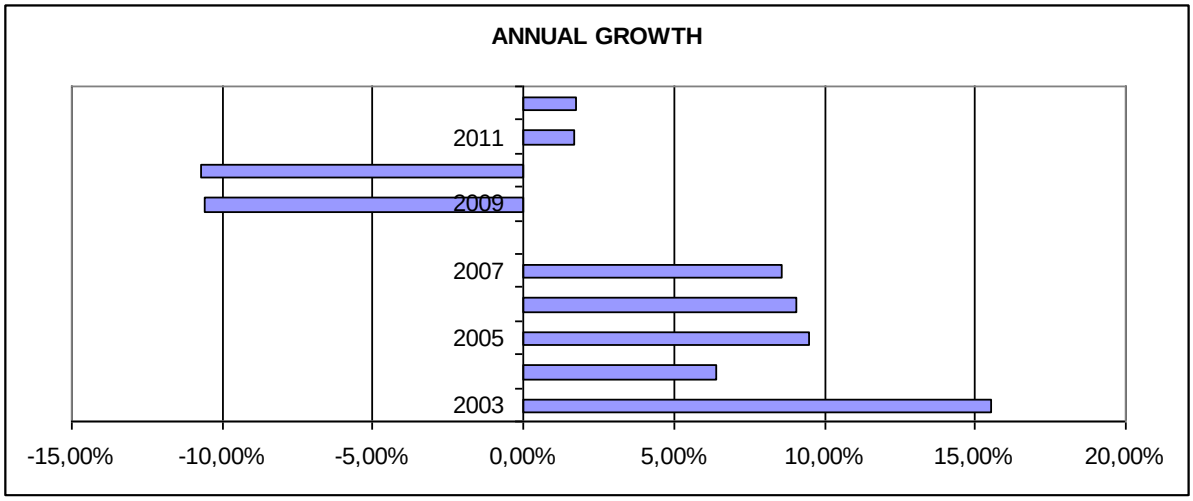

Figure 6.2: Annual growth of the transatlantic traffic in Ireland (Source: T-100 Database)

When we look at the total transatlantic traffic in Ireland, we see that the period prior to the implementation of the US-EU Open Skies Agreement is characterised by growth. In the entire period of 2002-2007, growth was visible, with 15.51% in 2003 as the highest growth rate in this period. In the period after the implementation of the US-EU Open Skies Agreement, we see a decrease in transatlantic traffic in Ireland. The years 2009 and 2010 both had negative growth rates. These negative growth rates mark this period as a period in which transatlantic traffic in Ireland shrank.

Since the developments of this variable in the period after the implementation of the US-EU Open Skies Agreement is marked with negative growth, we can assume that it is likely that the developments of this variable can have a negative effect on the competition in the transatlantic air transport market from Ireland.

6.3 Total transatlantic departures

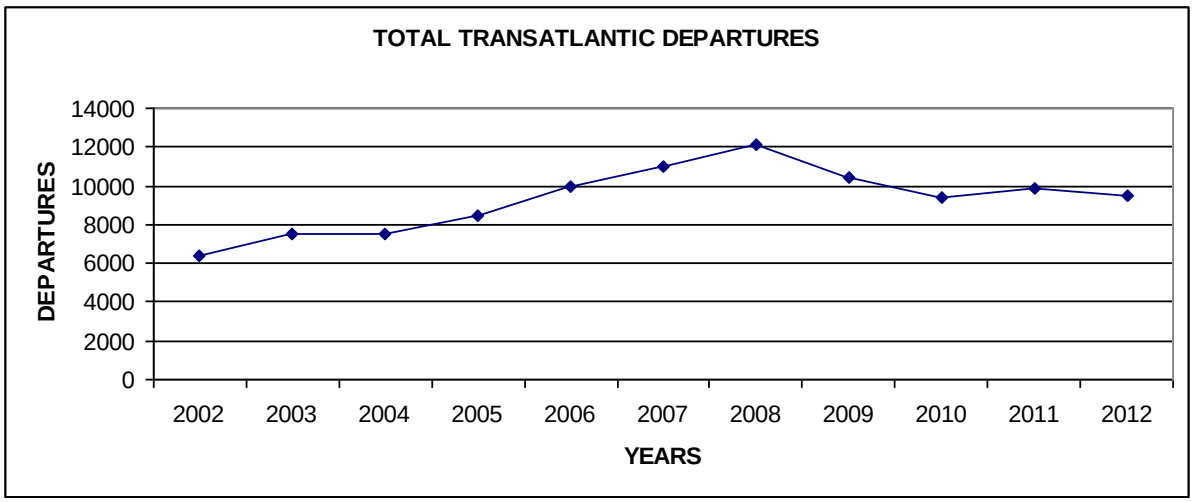

Figure 6.3: Total transatlantic departures from Ireland (Source: T-100 Database)

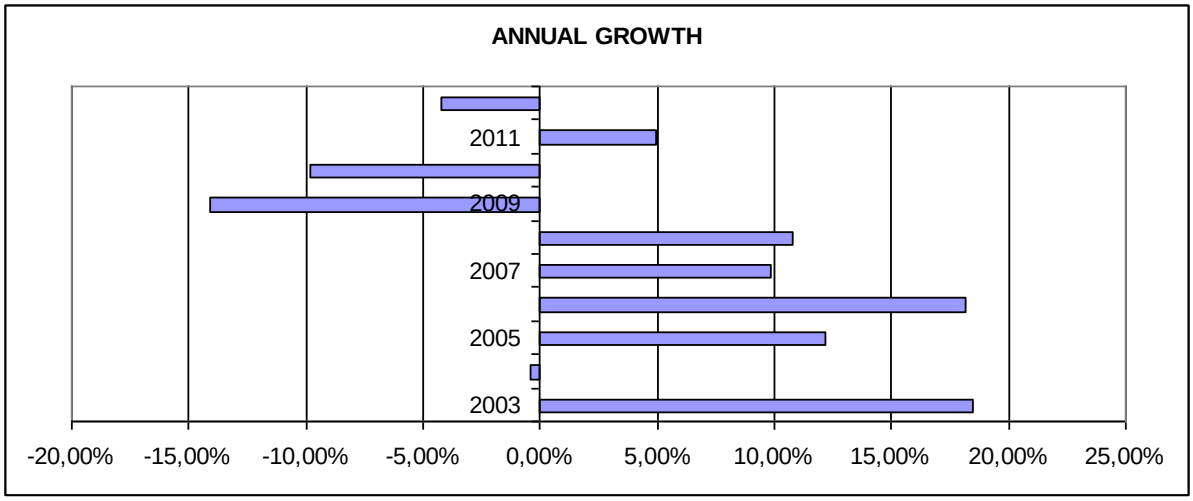

Figure 6.4: Annual growth in transatlantic departures from Ireland (Source: T-100 Database)

Figures 6.3 and 6.4 are comparable with the data for transatlantic traffic from Ireland. The period before the implementation of the US-EU Open Skies Agreement is characterised with growth, whereas the period after the implementation of the US-EU Open Skies Agreement is mostly characterised by decreases. From 2009 onwards, the transatlantic departures decreased.

All in all, we can state for the variables total transatlantic traffic and total transatlantic departures that they are relatively similar. The period before the implementation of the US-EU Open Skies Agreement is characterised with growth and the period after is characterised with decrease for both variables. Therefore the we can assume that the developments of these variables in the period after the US-EU Open Skies Agreement can have a negative effect on the competition in the transatlantic air transport market from Ireland.

6.4 Average number carriers per transatlantic city-pair link and transatlantic city-pair links

The two variables that influence competition, average number of carriers per transatlantic city-pair link and total transatlantic city-pair links in Ireland will be analysed in this section. We will examine the two transatlantic gateways of Ireland: Dublin and Shannon. Firstly, we will look at the major gateway Dublin.

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
TOTAL LINKS	4	6	6	6	6	6	9	8	7	7	8
AVE. CARRIERS	1.25	1.17	1.17	1.33	1.33	1.5	1.33	1.38	1.29	1.43	1.38

Table 6.1: Direct transatlantic links with Dublin and average amount of carriers (Source: T-100 Database)

In the period prior to the implementation of the US-EU Open Skies Agreement, we see that the total links grew in the first years (two extra links in 2003 compared to 2002). After this increase, the total links remained stable for the rest of the period. The average amount of

carriers per link, however, increased over the this period prior to the implementation of the US-EU Open Skies Agreement.

When we are going to look at the period after the implementation of the US-EU Open Skies Agreement, we see immediately a significant increase in 2008. The total links increased by three new links. From 2008 to 2010 a decrease in both average amount of carriers and links occurred, resulting in one link more than in 2007, in the period prior to the implementation of the US-EU Open Skies Agreement. By 2012, however, the total links increased to eight, which is higher than in the period prior to the implementation of the US-EU Open Skies Agreement.

Due to the fact that total links increased in the period after the implementation of the US-EU Open Skies Agreement, it can be stated that changes occurred. However, when we look at the entire period, we see that in the period prior to the implementation of the US-EU Open Skies Agreement there was a relatively similar increase. Despite this, the developments of this variable show a pattern of growth in both the period before and after the implementation of the US-EU Open Skies Agreement. Therefore, we can assume that it is likely that the developments of this variable can have a positive effect on the competition in the transatlantic air transport market from Dublin.

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
TOTAL LINKS	4	4	6	5	4	5	4	4	2	2	2
AVE. CARRIERS	1.5	1.25	1.16	1.4	1.75	1.6	1.5	1.5	2	2	2

Table 6.2: Direct transatlantic links with Shannon and average amount of carriers (Source: T-100 Database)

In table 6.2, the situation for Shannon is illustrated. The period before the implementation of the US-EU Open Skies Agreement is relatively unstable when we focus on total links. Increases and decreases are alternated over the years. The growth in the average number of carriers, however, is stable from 2005 onwards. From 2002 to 2004 a decrease is visible in the average number of carriers.

In the period after the implementation of the US-EU Open Skies Agreement, we see that the number of links decreases. In 2010 the lowest point is reached, with two links. This number remained stable until 2012. The average amount of carriers increases from 2008 to 2012, since the total links were split in half from 2010 onwards. This means that competition increases on the city-pair links in the period after the implementation of the US-EU Open Skies Agreement.

Since the transatlantic city-pair links from Shannon decrease after the implementation of the US-EU Open Skies Agreement, it can be assumed for the developments of this variable that it is likely that it is negative for the competition in the transatlantic air transport market from Shannon. On the other hand, we have the average number of carriers per transatlantic city-pair link. The developments of this variable show a different pattern as the one of the transatlantic city-pair links variable, since there is an increase in the average number of carriers per city-pair link. Therefore, we can assume this development can have a positive effect on the competition for the transatlantic air transport market from Shannon.

6.5 Average market share per carrier

In this section we will analyse the market shares of the airlines providing transatlantic services from Ireland. Firstly, we will analyse the situation of Dublin.

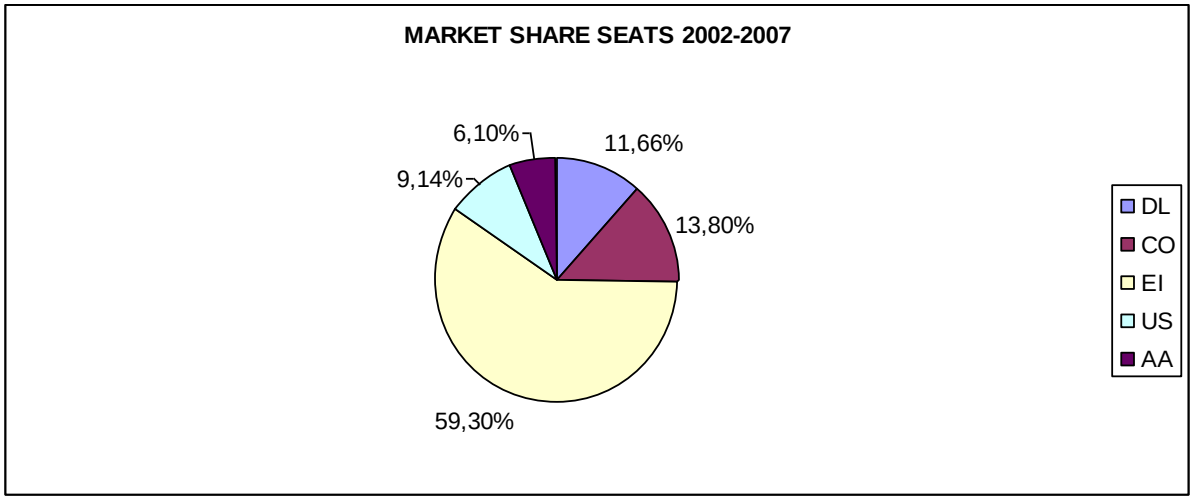

Figure 6.5: Market share in offered seats from Dublin for 2002-2007 (Source: T-100 Database)

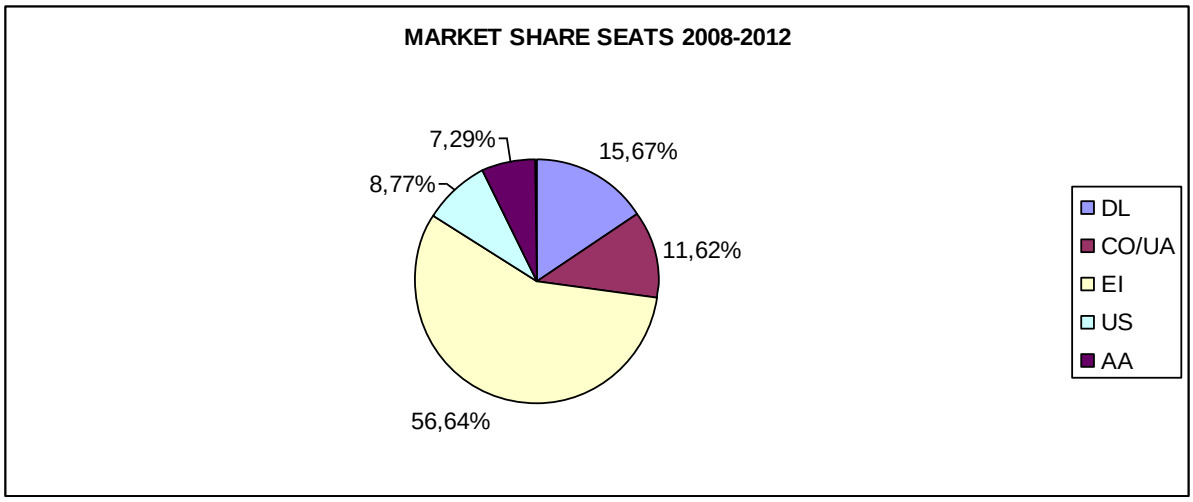

Figure 6.6: Market share in offered seats from Dublin for 2008-2012 (Source: T-100 Database)

Figure 6.5 shows that Aer Lingus, the national carrier of Ireland, possesses more than half of the market share. The rest of the market share is divided among four different American airlines, from which Continental Airlines possesses most of the market share. Figure 6.6 shows that after the implementation of the US-EU Open Skies Agreement, the market share is approximately equally divided as in the period before the implementation of the US-EU Open Skies Agreement. Aer Lingus possesses only a bit less market share, but has still more than half of the market share in its possession. The other airlines possess approximately equal market shares as before, only Delta Air Lines is in this period the American Airline with most market share.

When we focus on alliances, we fist have to mention that Aer Lingus was a member Oneworld from 2000 until 2007. In that case, Oneworld possesses most of the market share as alliance (65.40% of Aer Lingus and American Airlines), leaving the rest of the market share to SkyTeam (25.46% of Delta Air Lines and Continental Airlines) and the Star Alliance (9.14% of US Airways), for the period prior to the implementation of the US-EU Open Skies Agreement. For the period after the implementation of the US-EU Open Skies Agreement, the Star Alliance had most of the market share (20.93% of Continental Airlines/United Airlines and US Airways), leaving the rest to SkyTeam (15.67% of Delta Air Lines) and Oneworld (7.29% of American Airlines).

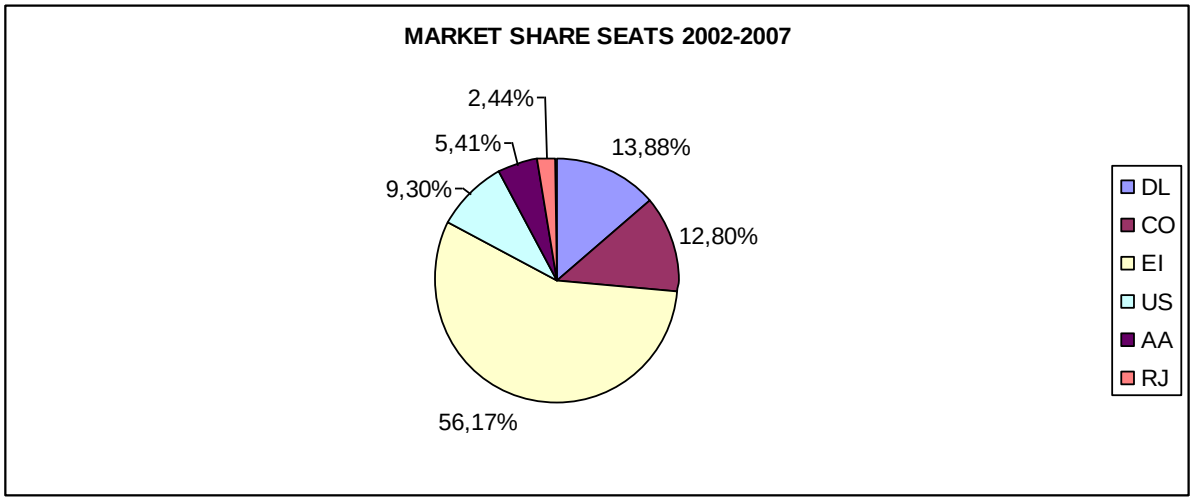

Figure 6.7: Market share in offered seats from Shannon for 2002-2007 (Source: T-100 Database)

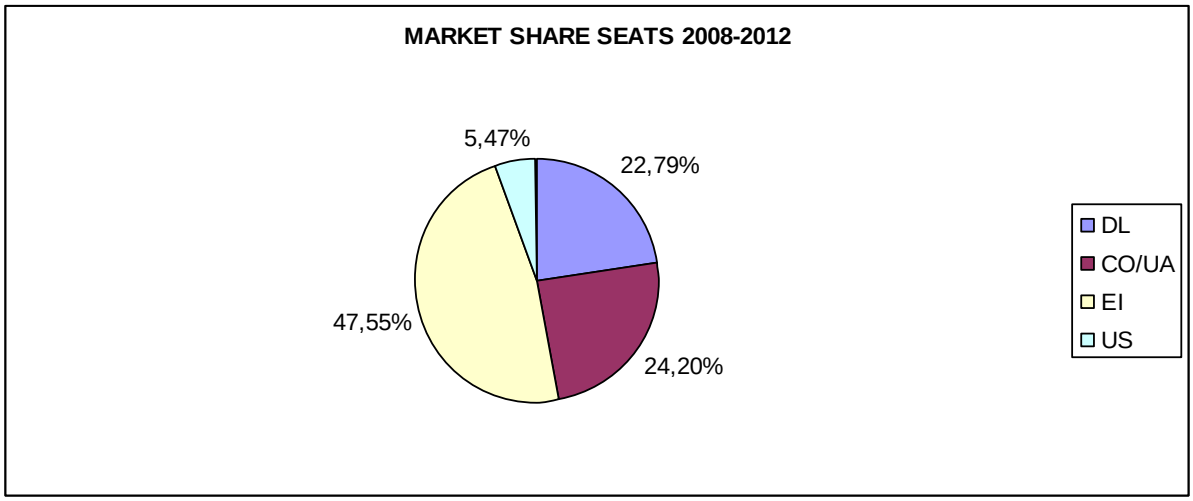

Figure 6.8: Market share in offered seats from Shannon for 2002-2007 (Source: T-100 Database)

When we compare figures 6.7 and 6.8, we can see that the amount of carriers went down considerably. On the highest point in the 2002-2007 period five airlines operated transatlantic services from Shannon. On the lowest points, from 2010-2012, three airlines provided transatlantic services from Shannon. It is also visible that the market share of Aer Lingus went down, from more than half to less than half of the entire market share. The market shares of Delta Air Lines and Continental Airlines/United Airlines went up, which can be explained due to the fact that the amount of competitors went down. When we focus on the alliances, a

similar situation as in Dublin can be observed in the period prior to the implementation of the US-EU Open Skies Agreement. Oneworld possesses most of the market share (65.81 of Aer Lingus and American Airlines), followed by SkyTeam (26.68% of Delta Air Lines and Continental Airlines) and the Star Alliance (9.30% of US Airways). In the period after the implementation of the US-EU Open Skies Agreement the Star Alliance possesses most of the market share (29.67% of US Airways and Continental Airlines) and SkyTeam as second largest (22.79% of Delta Air Lines).

The data of figures 6.7 and 6.8 show that the amount of competitors decreased in the period after the implementation of the US-EU Open Skies Agreement. In this period, Aer Lingus had still most of the market share, but the other airlines in the market kept the other half of the entire market share.

All in all, it is visible that the developments for this variable are different among Dublin and Shannon. Firstly, the developments in Dublin show minor differences between the periods before and after the implementation of the US-EU Open Skies Agreement. The only major difference is the fact that Aer Lingus left Oneworld and that therefore the market share in the perspective of alliances came closer together. Therefore, we can assume that it is likely that the developments of this variable for Dublin do not have significant effects on the competition. Secondly, there are the developments in Shannon, which show a decline in amount of different carriers in the period after the implementation of the US-EU Open Skies Agreement. Due to this development, we can assume that it is likely that the developments after the implementation can have a negative effect on competition.

6.6 Reflection

Ireland is the first country analysed in this study which had restrictive measures with the United States regarding air transport. The data for the two variables which show the effects of competition, total transatlantic passengers and total transatlantic departures, shows a pattern of growth in the period prior to the implementation of the US-EU Open Skies Agreement and a pattern of decline in the period after. The variables which influence competition show that the competition on the city-pair links in Dublin increased in the period prior to the implementation of the US-EU Open Skies Agreement, whereas it declined after the implementation of the US-EU Open Skies Agreement. In Shannon the competition on the city-pair links increased over the period from 2004-2012. In terms of market share, the differences between the two periods are minimum. However, the number of different carriers in Shannon decreased significantly in the period after the implementation of the US-EU Open Skies Agreement.

All in all, it can be stated that the conclusions in this chapter differ. These differences derive from the fact that there are differences between the developments on the two transatlantic gateways in Ireland. Firstly, we can assume that it is likely that the developments for the first two variables, that show the effects of competition, can have a negative effect on competition. However, when we look at the three other variables which influence competition, we see differences between Dublin and Shannon. In Dublin it was assumed that it was likely that the developments of those variables after the implementation of the US-EU Open Skies Agreement did not have significant effect on the competition, whereas it was assumed that it was likely that the developments of those variables could have effects on competition in Shannon after the implementation of the US-EU Open Skies Agreement.

7. Transatlantic competition in the United Kingdom

The United Kingdom is the country with the largest transatlantic market of the countries we have analysed in this study. Next to the fact that the United Kingdom is the largest transatlantic market in this study, the United Kingdom also has the busiest airport in the EU: London Heathrow. London Heathrow had a total 72,332,000 passengers in 2013 (CAA, 2013). The fact that the British transatlantic market is the largest in the study is also characterised by the fact that the United Kingdom has the most transatlantic gateways of any country analysed in this study. The United Kingdom has seven transatlantic gateways, two of which are located in the same metropolitan area.

7.1 Background of the transatlantic market

The bilateral agreements between the United Kingdom and the United States are characterised as restrictive. Especially the Bermuda I and Bermuda II agreements are examples of the restrictive measures on the air transport sector for transatlantic services with the United Kingdom. The Bermuda I and Bermuda II agreements put restrictions on transatlantic services to London Heathrow. It states that only four carriers, two British (British Airways and Virgin Atlantic) and two American (American Airlines and United Airlines) can operate transatlantic services from London Heathrow (Baily, Gordon, & Bresnahan, 1993). Since London Heathrow is the most important airport of London and the United Kingdom, these agreements are of significant influence for the British transatlantic air transport market.

7.2 Total transatlantic passengers in the United Kingdom

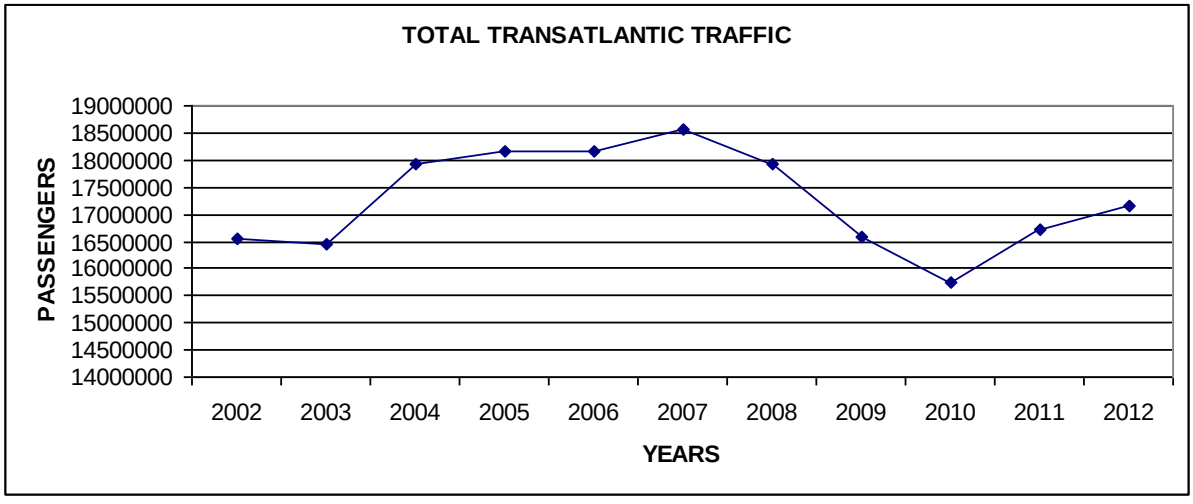

Figure 7.1: Total transatlantic traffic from the United Kingdom (Source: T-100 Database)

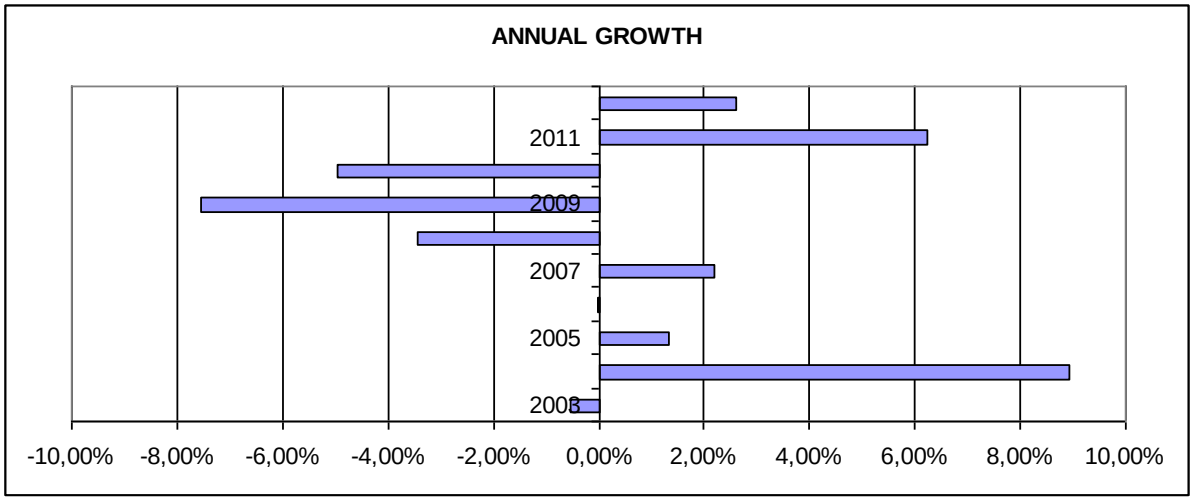

Figure 7.2: Annual growth of transatlantic traffic from the United Kingdom (Source: T-100 Database)

The data from the figures above show a familiar pattern, when we compare them to the other countries analysed. The pattern is a trend of growth in the period prior to the implementation of the US-EU Open Skies Agreement and a trend of decline in the period after the implementation of the US-EU Open Skies Agreement. This pattern was also visible for Austria, Ireland and the Netherlands. Only Spain did not have the same pattern and had a trend of growth through both periods. Despite of the years of decline in the period after the implementation of the US-EU Open Skies Agreement, we see that in 2011 a pattern of growth starts again.

Since the fact that a trend of decline is visible in most of the countries studied, whether they had liberal or restrictive measures at the time the US-EU Open Skies Agreement was implemented, the implementation of the US-EU Open Skies Agreement does not necessarily have to be the reason for the decline. As mentioned earlier, the fact that the global economic crisis started in 2008, might have influenced the passenger traffic from the United Kingdom and the other countries analysed. The airline sector is a sector that is influenced significantly by the global economy (Doganis, 2002). However, due to the developments in the period after the implementation of the US-EU Open Skies Agreement, we can assume that it is likely that these developments can have a negative effect on the competition in the transatlantic air transport market from the United Kingdom.

7.3 Total transatlantic departures

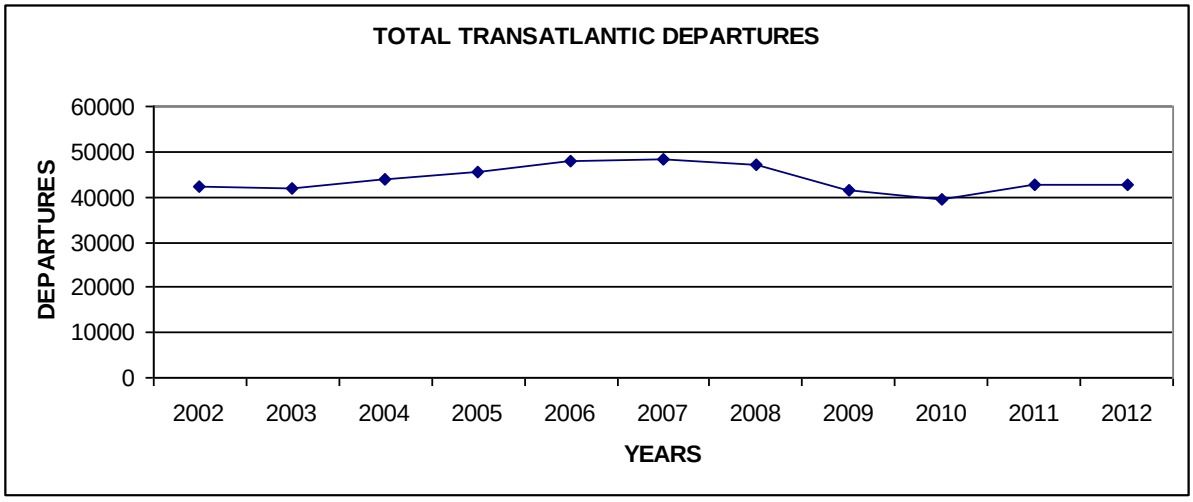

Figure 7.3: Total transatlantic departures from the United Kingdom (Source: T-100 Database)

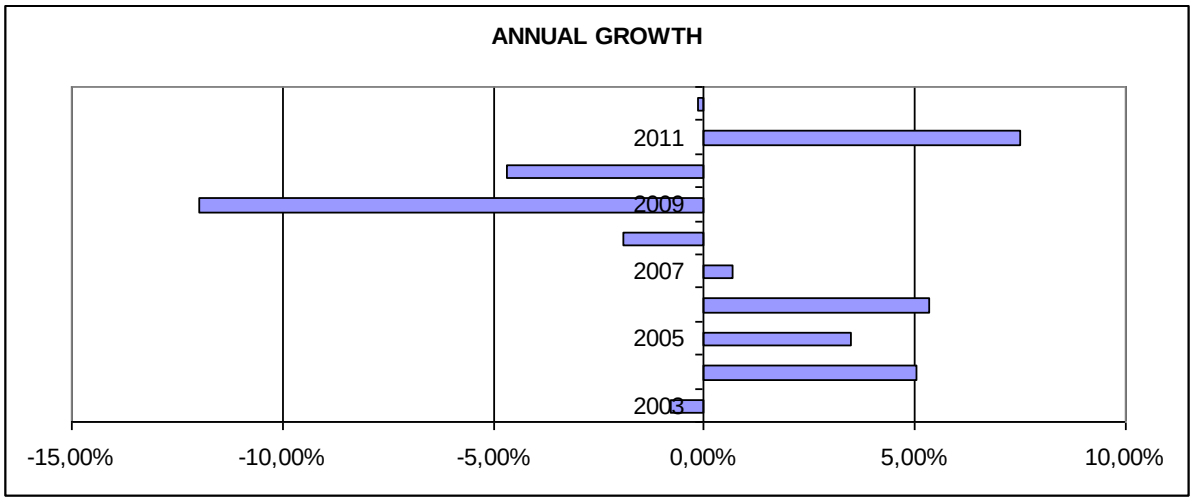

Figure 7.4: Annual growth of the transatlantic departures from the United Kingdom (Source: T-100 Database)

The data for the transatlantic departures show a similar pattern as the data for the transatlantic traffic. However, relatively spoken, the negative growth for transatlantic departures in larger than the negative growth for transatlantic traffic. Moreover, the transatlantic departures grew in 2006, whereas the transatlantic traffic declined that year. The opposite applies for 2011, in which the transatlantic departures had a negative growth, whereas the transatlantic traffic grew in that year.

Due to the developments of this variable in the period after the implementation of the US-EU Open Skies Agreement, we can assume that it is likely that the developments can have a negative effect on the competition in the transatlantic air transport market from the United Kingdom.

7.4 Average carriers per transatlantic routes and transatlantic city-pair links

In this section, the transatlantic competition for the seven transatlantic gateways in the United Kingdom will be analysed. The transatlantic gateways of London Heathrow, London Gatwick, Manchester and Glasgow all have their own table. The data for the other gateways will be mentioned after the analyses of the first three tables.

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
TOTAL LINKS	11	14	13	13	14	13	18	19	19	20	20
AVE. CARRIERS	3.18	2.64	2.69	2.69	2.57	2.69	2.66	2.42	2.42	2.4	2.35

Table 7.1: Direct transatlantic links with London Heathrow and average number of carriers (Source: T-100 Database)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
TOTAL LINKS	20	17	15	14	14	14	11	8	5	5	4
AVE. CARRIERS	1.2	1.29	1.27	1.29	1.29	1.35	1.27	1.13	1.2	1.2	1.25

Table 7.2: Direct transatlantic links with London Gatwick and average number of carriers (Source: T-100 Database)

When we look at the situation at London Heathrow in the period 2002-2007, we can see that the number of links in this period remained relatively stable. Despite a growth of three links in 2003, the number remains fairly stable afterwards. This is the same for the average number of carriers per city-pair link. This number remains also fairly stable over this period. When we look at the period after the implementation of the US-EU Open Skies Agreement, we see that the number of links grows significantly. Five new links were added in 2008, from which after the number of links grows to a total of 20 in 2012. Due to this development, we can assume that it is likely that this can have a positive effect on the competition from London Heathrow. The average number of carriers per city-pair link shows that it remained relatively stable in 2008, compared to 2007. This indicates that new carriers have entered the market at London Heathrow. After 2008 the average number of carriers per city-pair link decreases to 2.35 carriers in 2012. Due to these developments of decline we can assume that it is likely that this can have a negative effect on competition from London Heathrow.

When we look at London Gatwick we see that in the period prior to the implementation of the US-EU Open Skies Agreement, it had more city-pair links than London Heathrow. However, the number of links decreased over the years. The average number of carriers per city-pair link increased slightly in this period. In the 2008-2012 period, the total links decreased as well. In 2012, the number decreased to 4 links, whereas there were 20 links in 2002. The average number of carriers per city-pair links decreased in this period as well, which means that carriers left the market. The developments in both these variables show a situation by which we can assume that it is likely that these developments can have a negative effect on the competition from London Gatwick.

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
TOTAL LINKS	6	6	8	8	7	7	6	5	5	6	7
AVE. CARRIERS	1.5	1.67	1.63	1.5	1.71	1.71	1.67	1.4	1.4	1.5	1.14

Table 7.3: Direct transatlantic links with Manchester and average number of carriers (Source: T-100 Database)

The data for Manchester shows that the in the period prior to the implementation of the US-EU Open Skies Agreement, the average amount of carriers and links grew. After the implementation of the US-EU Open Skies Agreement the average amount of carriers and links decreased. This happened already in 2008. The fact that there has been a decrease in average amount of carriers and links from 2008 correlates with the data for transatlantic traffic and departures, which also decreased from 2008. The developments in the period after the implementation of the US-EU Open Skies Agreement make us assume that it is likely that the developments can have a negative effect on competition from Manchester.

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
TOTAL LINKS	2	2	3	3	4	5	4	4	3	4	4
AVE. CARRIERS	1	1	1	1	1	1	1	1	1	1	1

Table 7.4: Direct transatlantic links with Glasgow and average number of carriers (Source: T-100 Database)

The total links in Glasgow increased in the 2002-2007 period. In the period after the implementation of the US-EU Open Skies Agreement, the number of links remained stable, with the exception of 2010, in which a link was closed. The average number of carriers per city-pair link in Glasgow remained stable in the 2002-2012 period. Due to these developments we can assume that it is likely that the developments in the period after the implementation of the US-EU Open Skies Agreement do not have significant effect on the competition from Glasgow.

The other transatlantic gateways of the United Kingdom are Birmingham, Bristol and Belfast. These airports have significantly less links than the other four gateways. Birmingham and Bristol both have one transatlantic link. Birmingham during the entire period of 2002-2012. Bristol has the link from 2005 until 2011. From 2012, Bristol does not have any transatlantic link anymore. Belfast has one permanent link with the United States from 2005 until 2011. In 2008, 2009 and 2011, Bristol had two transatlantic links. The implementation of the US-EU Open Skies Agreement has not resulted in change in the competition for these gateways.

All in all, the data for the average carriers per transatlantic route and the transatlantic city-pair links show differences among all the transatlantic gateways in the United Kingdom. Different patterns of growth or decline are present among the different gateways. Therefore, there is no uniform conclusion for the developments of the variables from this section for the United Kingdom.

7.5 Average market share per carrier

In order to analyse the transatlantic competition by carrier in the United Kingdom, we will examine the seven British transatlantic gateways.

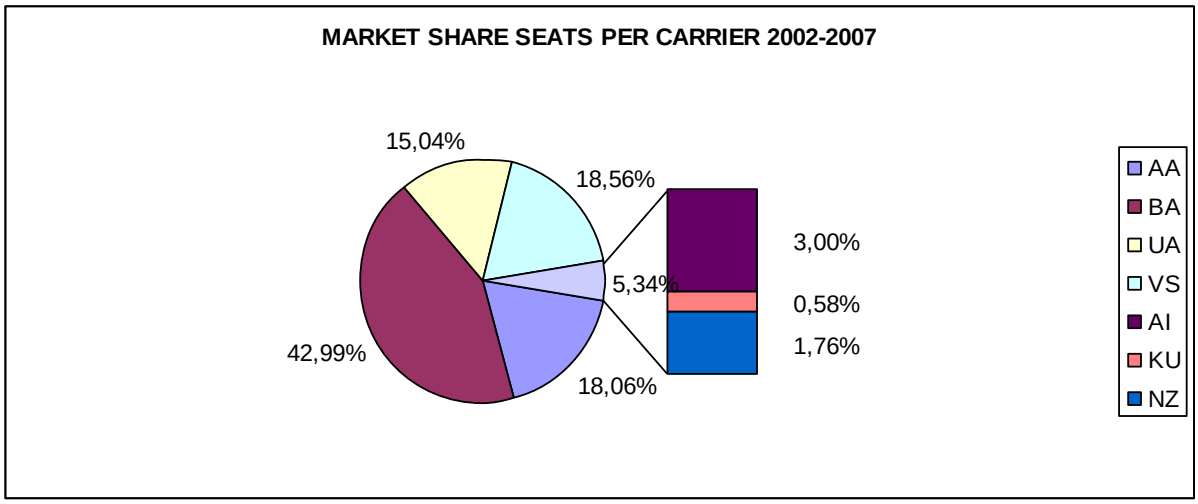

Figure 7.5: Market share in offered seats from London Heathrow for 2002-2007(Source: T-100 Database)

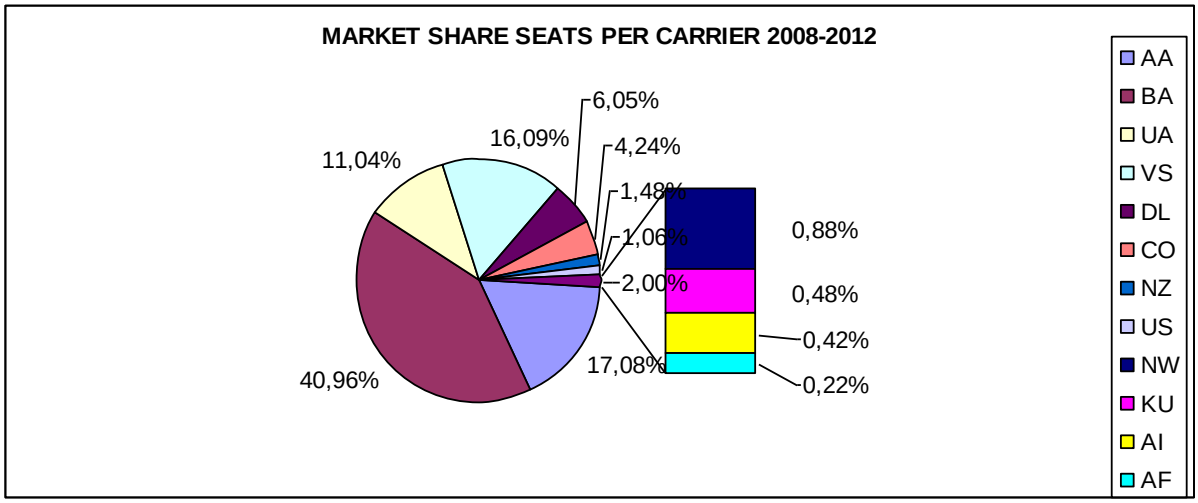

Figure 7.6: Market share in offered seats from London Heathrow for 2008-2012 (Source: T-100 Database)

Focusing on London Heathrow, it is visible that in the period 2002-2007, London Heathrow is served by several different carriers. It is visible that the largest amount of market share is divided between the two British carriers and the two American carriers. British Airways possesses most of the market share in this period, which can be explained through the fact that London Heathrow is British Airways' major hub airport. Only 5.34% of market share is possessed by carriers which fly on fifth freedom rights through London Heathrow, and are thus neither British nor American.

In the period 2008-2012, we see a large increase in different carriers. The amount of American carriers increased to six. Moreover, all the carriers that were present in the market in 2002-2007 lost market share compared to 2008-2012. The lifting of the restrictions on London Heathrow, which were that only two British carriers (British Airways and Virgin Atlantic) and two American carriers (United Airlines and American Airlines) were allowed to fly to London Heathrow, have resulted in a situation in which more carriers entered this

market. We can assume that it is likely that that development can have a positive effect on the competition from London Heathrow.

In the perspective of alliances, Oneworld has the largest market share at London Heathrow. It possessed 61.05% in 2002-2007 and 58.04% in 2008-2012. The Star Alliance is the second largest alliance, with 16.80% in 2002-2007 and 17.82% in 2008-2012. SkyTeam had no member airline that operated transatlantic services from London Heathrow before 2008, which makes that SkyTeam had a market share 7.15% in 2008-2012. Due to the fact that Oneworld possesses most of the market share in both periods, Oneworld is the most dominant alliance of the market.

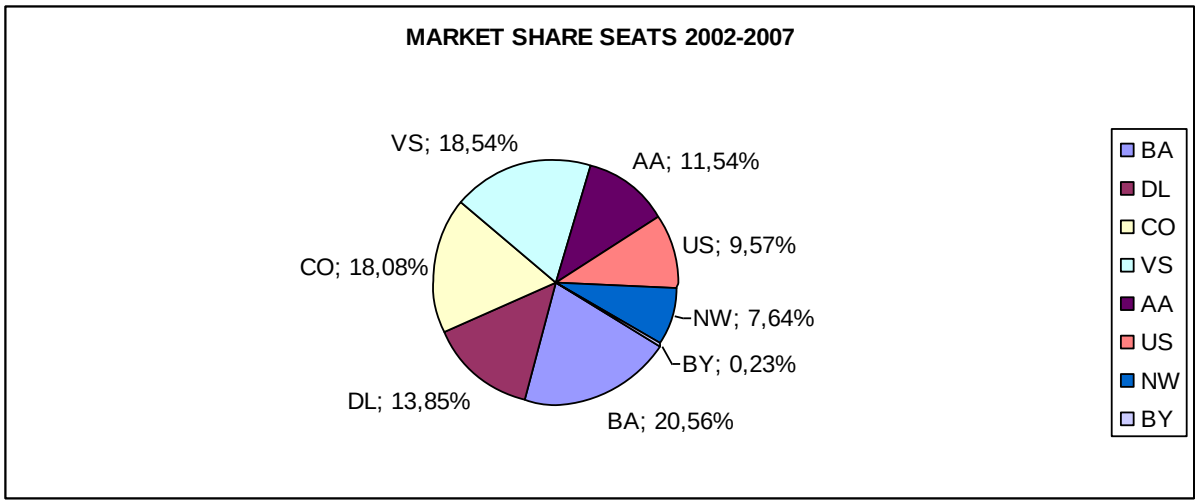

Figure 7.7: Market share in offered seats from London Gatwick for 2002-2007 (Source: T-100 Database)

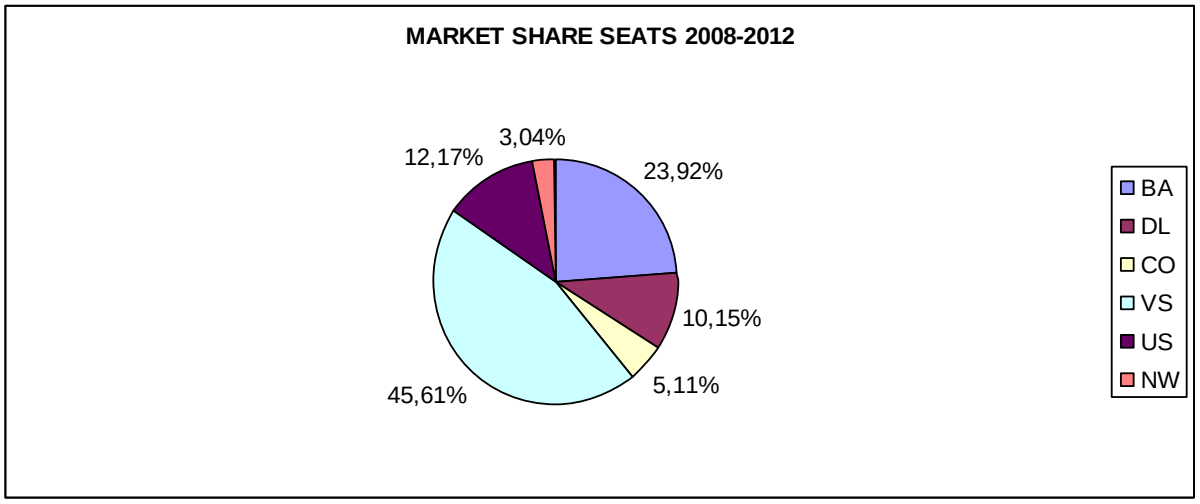

Figure 7.8: Market share in offered seats from London Gatwick for 2008-2012 (Source: T-100 Database)

When we look at the situation in London Gatwick in the period 2002-2007, we see that there operated eight different carriers transatlantic routes from London Gatwick. The largest market share is of British Airways, which had a relatively similar market share as Virgin Atlantic and Continental. The other carriers had lower market shares, from which BMI had the lowest with

only 0.23% of market share. SkyTeam, as an alliance has the largest market share of the alliances from London Gatwick in this period. This seems reasonable, since the carriers of SkyTeam were not allowed to fly to London Heathrow in this period.

In the 2008-2012 period, the amount of different carriers decreased to six. Virgin Atlantic has gained most of the market share and is with 45.61% the largest carrier from London Gatwick. It is also interesting to see that the market shares of the airlines which could not operate services from Heathrow in the period prior to the implementation of the US-EU Open Skies Agreement decreased in this period compared to 2002-2007. Due to this situation we can assume that it is likely that this development can have a negative effect on the competition from London Gatwick. The largest alliance in this period from London Gatwick was Oneworld, with only British Airways as member airline operating transatlantic services from London Gatwick. After Oneworld the Star Alliance was the second largest and SkyTeam became the smallest.

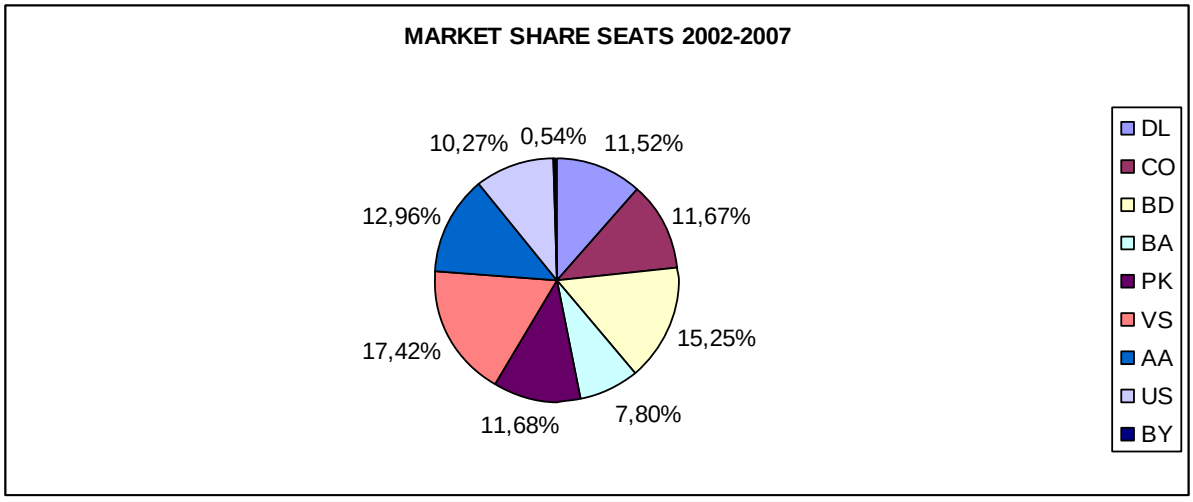

Figure 7.9: Market share in offered seats from Manchester for 2002-2007 (Source: T-100 Database)

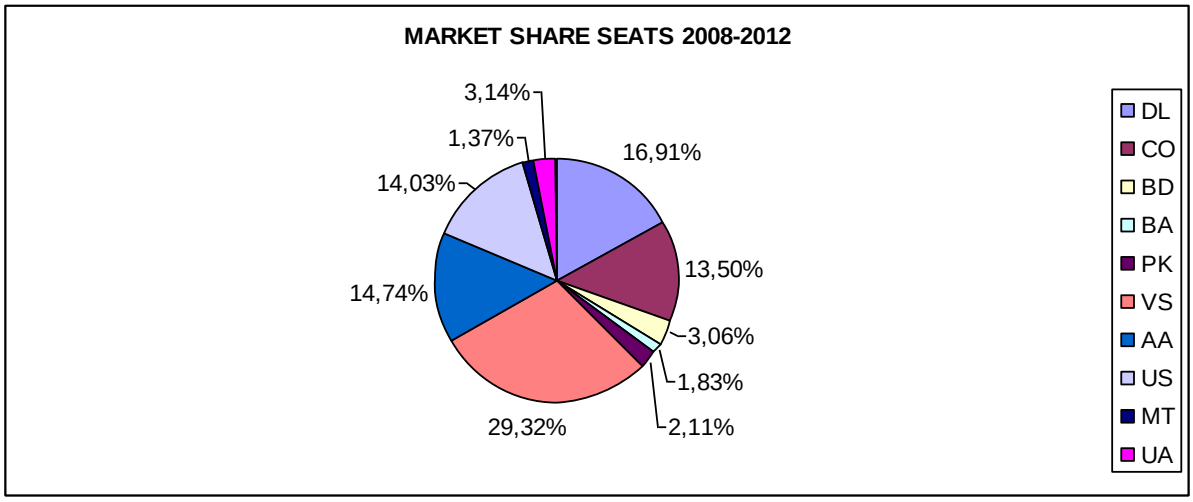

Figure 7.10: Market share in offered seats from Manchester for 2008-2012 (Source: T-100 Database)

When we compare figure 7.9 and 7.10, we see that in Manchester in the period 2002-2007, the market share was divided relatively equally among the airlines. Virgin Atlantic had a relatively high market share and British Airways relatively low, but overall the market share was relatively equal. In figure 7.10, we see that this situation has changed. For several airlines, the market share decreased significantly. This is explained through the fact that these airlines left the market after 2008. Virgin Atlantic has increased its market share significantly and is the airline with the largest market share in 2008-2012. In terms of competition, we see that in 2002-2007 the amount of different carriers with a significant amount of market share was eight. This amount is decreased to five in 2008-2012. Despite the fact that in 2008-2012 the amount of different carriers was higher (ten compared to nine in 2002-2007), the competition is decreased in this period compared to 2002-2007. The developments after the implementation of the US-EU Open Skies Agreement let us assume that it is likely that these developments can have a negative effect on competition from Manchester.

With the perspective on the alliances, the alliance with the largest market share in both periods in the Star Alliance. The Star Alliance had a market share of 25.52% in 2002-2007 and 33.37% in 2008-2012. Second largest is SkyTeam with 23.19% in 2002-2007 and 16.91% in 2008-2012. Oneworld had the smallest market share of 20.76% in 2002-2007 and 16.57% in 2008-2012. It is interesting to note that in 2002-2007 the market share of the alliances is relatively equal. These changes in the period 2008-2012, since the Star Alliance's market share is increased, whereas the market share of the other two alliances is decreased.

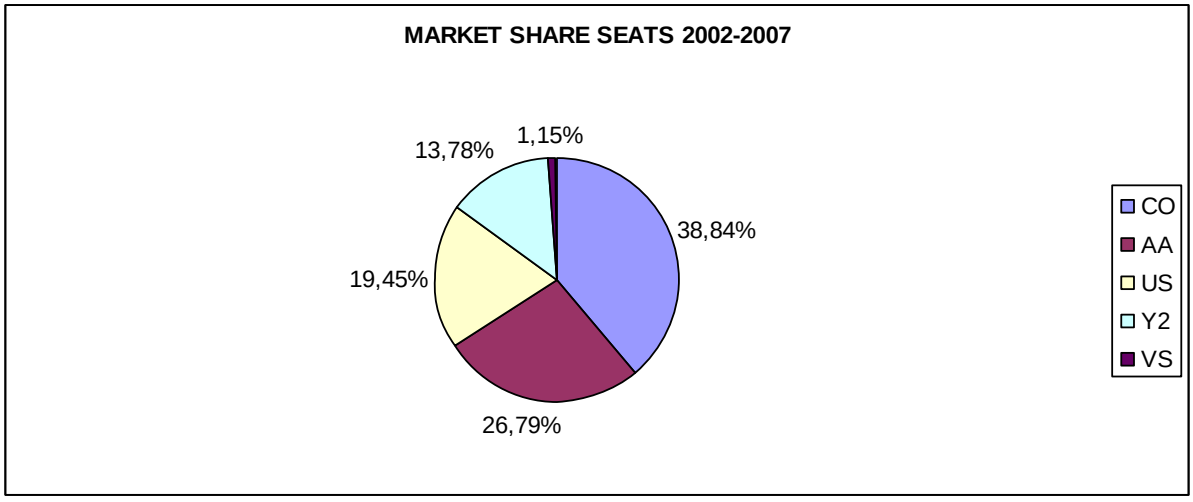

Figure 7.11: Market share in offered seats from Glasgow for 2002-2007 (Source: T-100 Database)

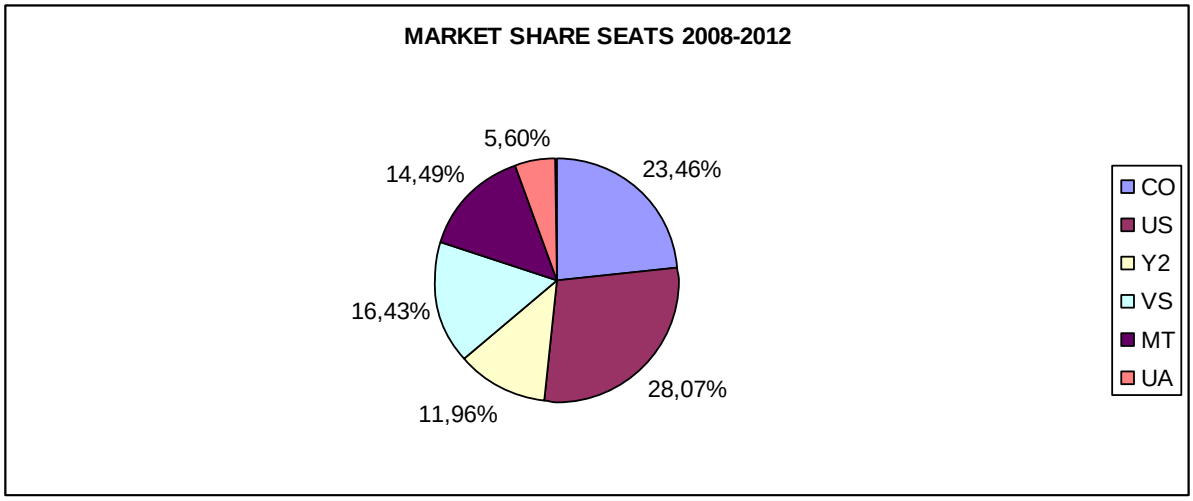

Figure 7.12: Market share in offered seats from Glasgow for 2008-2012 (Source: T-100 Database)

The situation in Glasgow before the implementation of the US-EU Open Skies Agreement is that Continental Airlines is the airline with the largest market share. In this period five different carriers flew transatlantic services from Glasgow, from which four had a substantial amount of market share. When we focus on the alliances, it is visible that from the four large carriers, three are member of an alliance. It is interesting to see that each of these members are part of different alliances.

In the period after the implementation of the US-EU Open Skies Agreement, six different carriers operated transatlantic services from Glasgow. In this period, the largest amount of market share is shifted from Continental Airlines to US Airways. The Star Alliance is in this period the largest alliance in market share (57.13%). The other airlines operating services from Glasgow are not member of an alliance, which makes the Star Alliance the only alliance operating in 2008-2012. Due to the fact that the market shares in the period after the implementation of the US-EU Open Skies Agreement are divided more equally we can assume that it is likely that those developments after the implementation of the US-EU Open Skies Agreement can have a positive effect on the competition from Glasgow.

7.6 Reflection

The United Kingdom is the country with the largest amount of transatlantic gateways in this study. For the variables that are an effect of competition, we can see that the total transatlantic passengers and the total transatlantic departures show a similar pattern as the countries analysed in the previous chapter. It is a pattern of growth, and after 2008 decline. Among the different transatlantic gateways in the United Kingdom we see differences in the pattern of growth or decline in the total city-pair links and the average number of carriers per city-pair links. On the hand growth in city-pair links is visible at London Heathrow, whereas on the other hand a decline in city-pair links is visible at London Gatwick. The same counts for the average market shares, in which differences are visible between the various gateways as well. However, an aspect which is similar between the major gateways is that at three of the four major gateways, where more than one carrier operates transatlantic services, a British carrier is the largest carrier.

Since the patterns of the variables that are an effect of competition show similarities with the patterns of these variables for the other countries analysed in the previous chapters, the conclusions for these variables are similar to the conclusions of these variables in the previous chapters as well. Therefore, we can state that it is likely to assume that the developments of the variables that are an effect of competition in the period after the implementation of the US-EU Open Skies Agreement can have a negative effect on the competition in the transatlantic air transport market from the United Kingdom.

Such a uniform conclusion for the variables that influence the competition cannot be drawn for the United Kingdom. This cannot be done because of the fact that there are differences in the developments among the different transatlantic gateways in the United Kingdom. Therefore, it can be stated that the developments in the transatlantic gateways in the United Kingdom differ and that negative and positive effects on competition are interspersed among the different gateways.

8. Transatlantic competition in Spain

Spain is one of the largest countries in Europe. With two large metropolitan regions, Madrid and Barcelona, it contains also two of the largest airports in Europe. Madrid's Adolfo Suárez Madrid-Barajas Airport was with 49,671,270 passengers in 2011, the 5th busiest airport in the European Union regarding passenger traffic. Barcelona's Barcelona-El Prat Airport, on the other hand, is with 34,398,226 passengers in 2011, is the 8th busiest airport in the European Union regarding passenger traffic (Aeropuertos Españoles y Navegación Aérea, 2011). These two airports are also the transatlantic gateways in Spain. Therefore, we will focus in this chapter on these two airports when we are examining the developments in the transatlantic competition in Spain.

8.1 Background of the transatlantic market

The bilateral agreements between Spain and the United States are known as agreements with restrictive measures. These measures are derived from the fact that the Spanish national flag carrier, Iberia, already faced tough competition from Spanish charter carriers on its domestic market. Furthermore, internationally, Iberia did not have a extensive route network like other major European airlines. The Spanish government, therefore, tried to protect its national flag carrier for competition. This protection derives also from the fact that the Spanish market is predominantly a tourist market and has a smaller amount of business travellers, which are more profitable, compared to other European states (Lucio, Turnbull, Blyton, & McGurk, 2001).

Therefore, Spain and the United States did not have an Open Skies Agreement before the implementation of the US-EU Open Skies Agreement (Mayor & Tol, 2008). Since there was no Open Skies Agreement between Spain and the United States, we can expect that the implications of the implementation of the US-EU Open Skies Agreement are significant for the transatlantic market in Spain.

8.2 Total transatlantic passengers

For this section we will analyse the variables that are effects of competition. We will examine the period of 2002-2012, in order to see how the transatlantic market developed in Spain during these years. Firstly, we will look at the passenger traffic in this period.

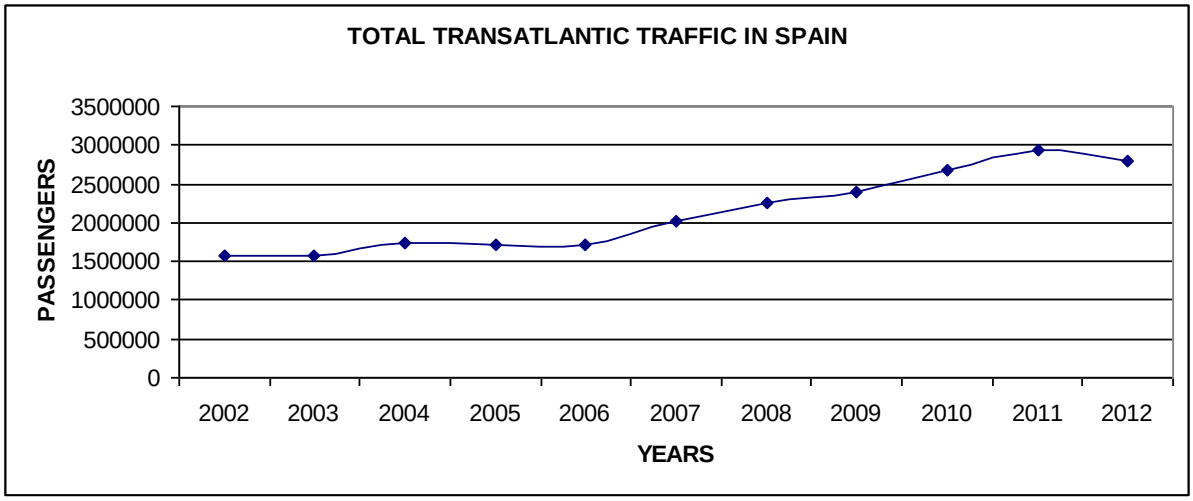

Figure 8.1: Total transatlantic passenger traffic from Spain (Source: T-100 Database)

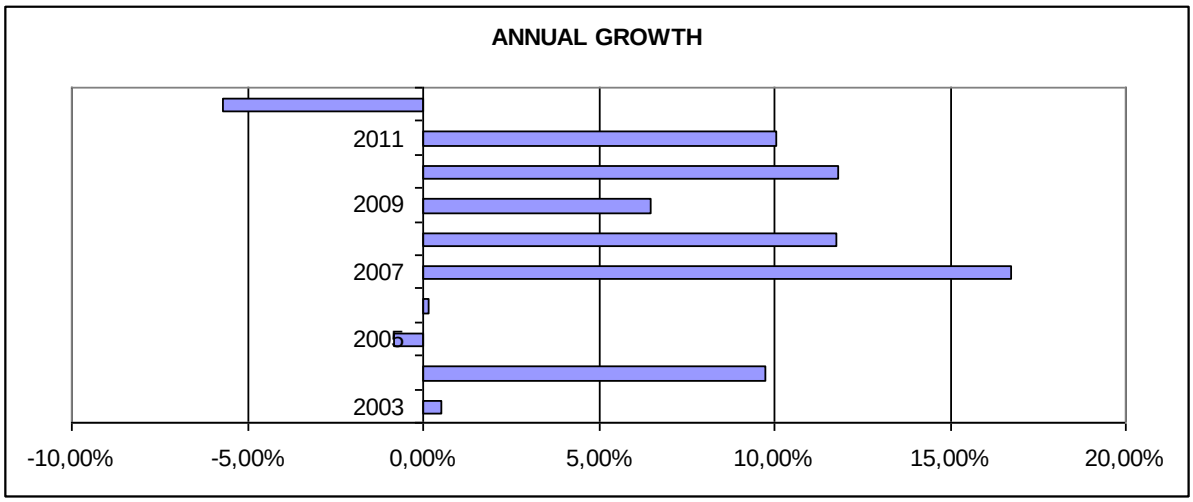

Figure 8.2: Annual growth of transatlantic passenger traffic from Spain (Source: T-100 Database)

It is visible that over the entire period of 2002-2012, the transatlantic passenger traffic from Spain grew. Moreover, despite of two years of negative growth, growth was visible in each other year. When we will look at the periods prior to and after the implementation of the US-EU Open Skies Agreement, we see that in the period prior to the implementation of the US-EU Open Skies Agreement the growth rates were relatively unstable. The years 2004 and 2007 have significant growth rates, but the other years had relatively low or negative growth rates. On the other hand, in the period after the implementation of the US-EU Open Skies Agreement, high growth rates are visible. Moreover, these growth rates are stable as well, around approximately 10% a year. Only in 2012, a fall in the growth rates is visible and growth rates turned negative that year. All in all, for the analysed period of 2002-2012 a trend of growth in transatlantic passenger traffic is visible, with several years of negative growth in transatlantic passenger traffic. However, in the period after the implementation of the US-EU Open Skies Agreement, the growth was more significant than in the period before the implementation of the US-EU Open Skies Agreement. This development let us assume that it is likely that this can have a positive effect on the competition in the transatlantic transport market in Spain.

8.3 Total transatlantic departures

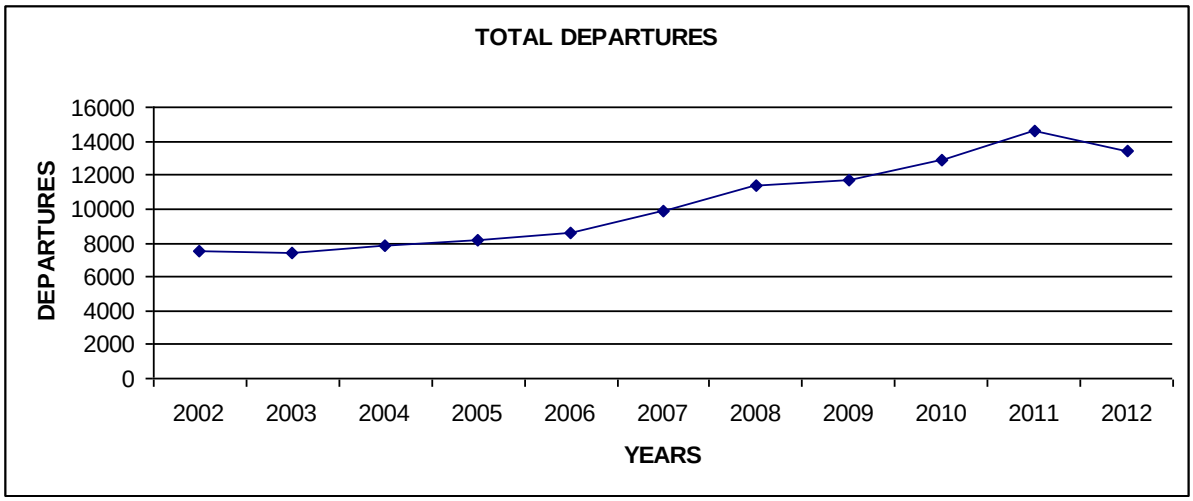

Figure 8.3: Total transatlantic departures from Spain (Source: T-100 Database)

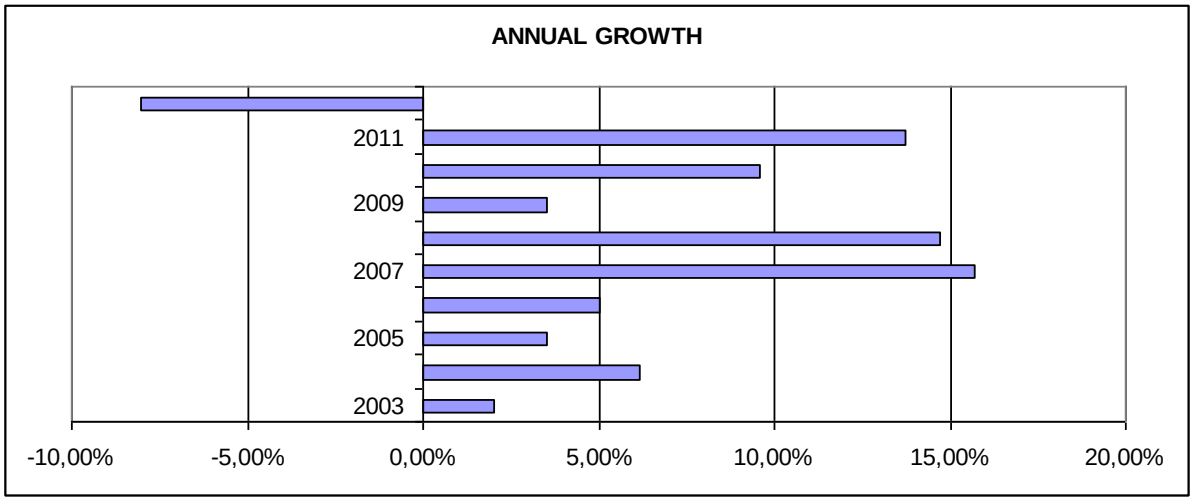

Figure 8.4: Annual growth of transatlantic departures from Spain (Source: T-100 Database)

When we look at the second indicator for providing an overview of the transatlantic market in Spain, departures, we see that the growth rates are in all years, except for 2012, positive. This means that during the period of 2002-2012, every year the amount of transatlantic departures from Spain grew, except for 2012. When we break down the 2002-2012 period into the periods prior to the implementation of the US-EU Open Skies Agreement (2002-2007) and the period after (2008-2012), we can see that the most significant growth is visible in the period after the implementation of the US-EU Open Skies Agreement. However, it is interesting to note that, like for the passenger traffic, the high growth rates started in the last year of the period prior to the implementation of the US-EU Open Skies Agreement, namely 2007. This year has also the highest growth rate for the entire 2002-2012 period, namely 15.68%.

When we compare the data for the passenger traffic with the data for the departures, we see some differences and similarities. First of all, the trend of growth is present in both variables.

Moreover, the years with the highest and lowest growth rates are similar. However, the most significant differences between the two variables is that for the growth rates for departures were more significant than the growth rates for passenger traffic. Moreover, the growth rates for departures had only one year with negative growth rates, whereas for passenger traffic there were two years with negative growth rates.

All in all, when we look at the transatlantic market is Spain, a trend of growth is visible through the entire period. Furthermore, the growth is higher in the period after the implementation of the US-EU Open Skies Agreement for both indicators. Due to this we can assume that it is likely that this development has a positive effect on the competition in the transatlantic air transport market in Spain.

8.4 Average carriers per transatlantic city-pair links and transatlantic city-pair links

The variables that influence competition will be examined in this and the following sections. In this section this will be done by using the variables direct city-pair links and average number of carriers. Since Spain has two separate transatlantic gateways, we will examine both the gateways Madrid and Barcelona. Firstly, the analysis of Madrid will be provided.

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
TOTAL LINKS	6	6	6	6	6	8	8	9	9	11	11
AVE. CARRIERS	1.5	1.5	1.5	1.67	1.67	1.38	1.38	1.44	1.78	1.55	1.46

Table 8.1: Direct transatlantic links with Madrid and average amount of carriers (Source: T-100 Database)

Table 8.1 shows us the total links and average amount of carriers per city-pair link in Madrid. When we look at the period before the implementation of the US-EU Open Skies Agreement, we see that the total links remained completely stable until 2006. In 2007, still in the period prior to the implementation of the US-EU Open Skies Agreement, we see that the amount of links between the United States and Madrid has grown, with two more links. The average amount of carriers in this period grew slightly with a decline in 2007. When we look at the period after the implementation of the US-EU Open Skies Agreement, we see that the total links has grown. The total links grew to eleven links, compared with eight in the last year of the period prior to the implementation of the US-EU Open Skies Agreement. The average amount of carriers grew from 2008 until 2010, after which it declined again. What is interesting to note is that in the period after the implementation of the US-EU Open Skies Agreement another Spanish carrier started operations from Madrid besides Iberia, what means that competition of Spanish carriers grew in this period. This means that due to the developments in the period after the implementation of the US-EU Open Skies Agreement we can assume that it is likely that those developments can have a positive effect on competition from Madrid.

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
TOTAL LINKS	2	2	2	3	3	3	3	3	3	4	4
AVE. CARRIERS	1	1	1	1	1.33	1.33	1.67	1.67	1.67	1.5	1.5

Table 8.2: Direct transatlantic links with Barcelona and average amount of carriers (Source: T-100 Database)

Table 8.2 shows the situation for Barcelona. When we first look at the period prior to the implementation of the US-EU Open Skies Agreement, we see that the amount of links increased with one in this period. The average amount of carriers on the other hand grew also in this period. When we look at the period after the implementation of the US-EU Open Skies Agreement, we see that the increase continues. The total links are increased by one new link. Moreover, the average amount of carriers increased in the period compared to the period before the implementation of the US-EU Open Skies Agreement. Like in the situation of Madrid, we can assume that, due to the developments in the period after the implementation of the US-EU Open Skies Agreement, it is likely that the developments can have a positive effect on the competition from Barcelona.

All in all, we see that the amount of links increased over the entire period of 2002-2012. However, in Madrid the differences in the increase of the amount of links between the periods before and after the implementation of the US-EU Open Skies Agreement are more significant than the differences in Barcelona.

8.5 Average market share per carrier

In this section we will take a look at one of the variables that influence competition: the market shares of the airlines. As in the previous sections, we will start with Madrid.

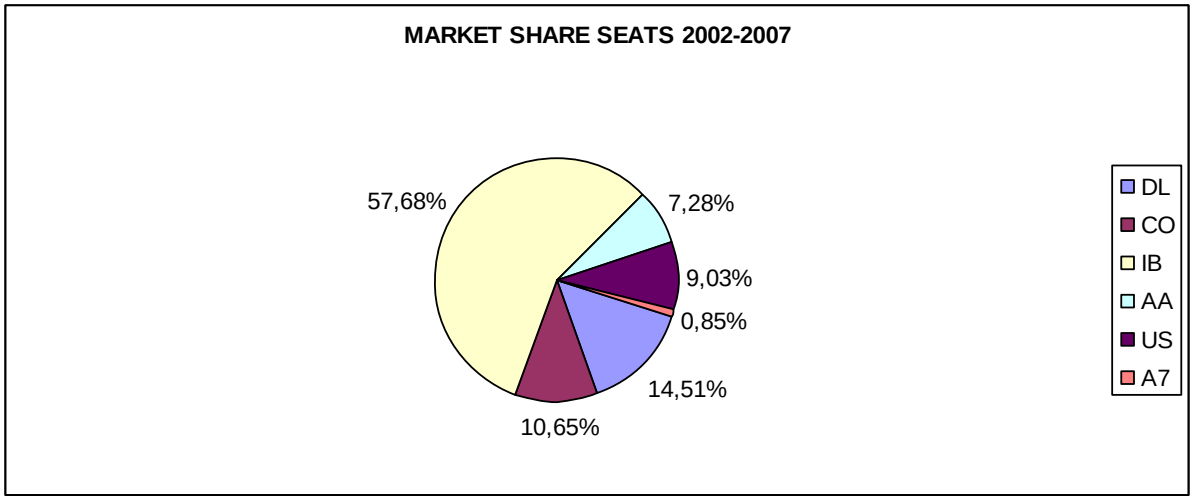

Figure 8.5: Market share in offered seats from Madrid from 2002-2007 (Source: T-100 Database)

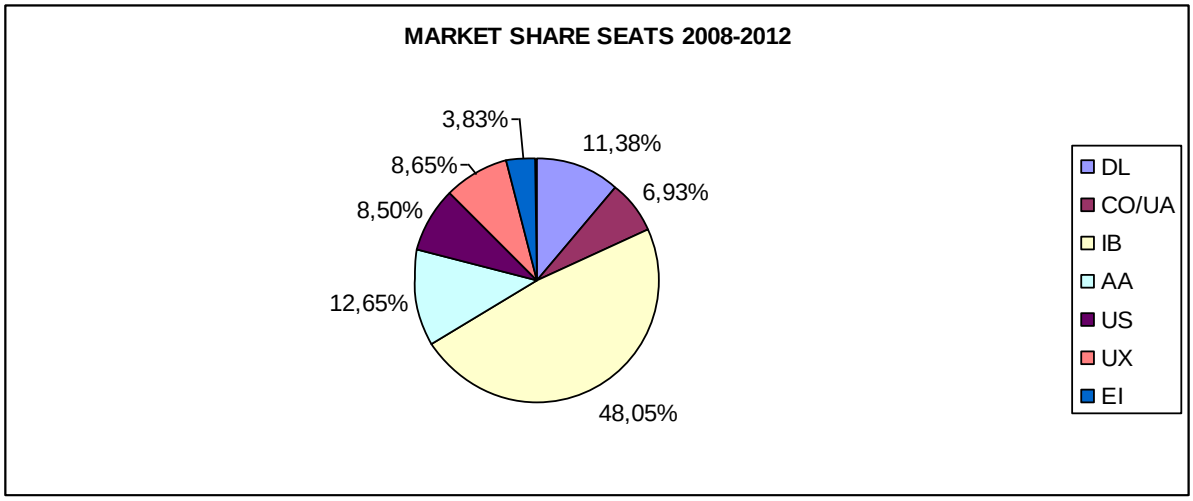

Figure 8.6: Market share in offered seats from Madrid from 2008-2012 (Source: T-100 Database)

Figure 8.5 shows that Iberia has the largest market share and possesses more than half of the market in the period prior to the implementation of the US-EU Open Skies Agreement. All the other carriers, beside Air Comet, are American carriers. In total, six different airlines provide services between the United States and Madrid. When we are going to look at the alliances, Oneworld has the largest market share, namely 64.96% (Iberia and American Airlines). From the other two alliances Star Alliance and SkyTeam, SkyTeam has the second largest market share 24.80% (Delta Air Lines and Continental Airlines) and the Star Alliance has 9.03%.

When we are going to compare this with figure 8.6, we firstly see that the amount of different carriers is increased to seven. From the carriers operating transatlantic services from Madrid, two are Spanish (Iberia and Air Europa), four are American (Delta Air Lines, Continental/United Airlines, American Airlines and US Airways), and one is from a country outside Spain or the United States (Aer Lingus). Moreover, the vast market share of Iberia decreased in this period, with 9.63 percent point. Despite this decrease, Iberia possesses still approximately half of the market share. When we look at the other carriers serving Madrid, we see that the market share among the airlines is relatively equally divided. Only Aer Lingus has a relatively low market share compared to the other five airlines. When we focus on the alliances, Oneworld still possesses most of the market share in Madrid (60.7%). SkyTeam increased its market share, due to the fact that Air Europa started operating transatlantic services in the period after the implementation of the US-EU Open Skies Agreement, to 20.03%. The Star Alliance has the lowest market share of the three alliances, with 15.43%. Aer Lingus is the sole airline with transatlantic operations in Madrid which is not part of a alliance.

Now we turn our analysis to the second transatlantic gateway in Spain: Barcelona. The situation in Barcelona is different than in Madrid, since in Barcelona different carriers entered the market gradually during both periods before and after the implementation of the US-EU Open Skies Agreement. Therefore, the following figures will illustrate the situations from 2007 and 2011, in which for both periods most competitors were in the market.

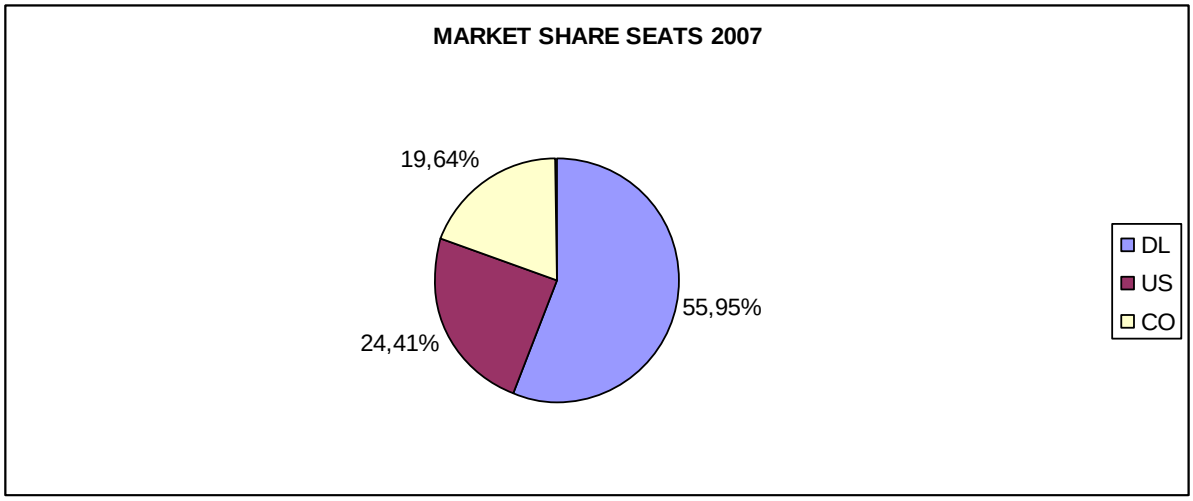

Figure 8.7: Market share in offered seats from Barcelona in 2007 (Source: T-100 Database)

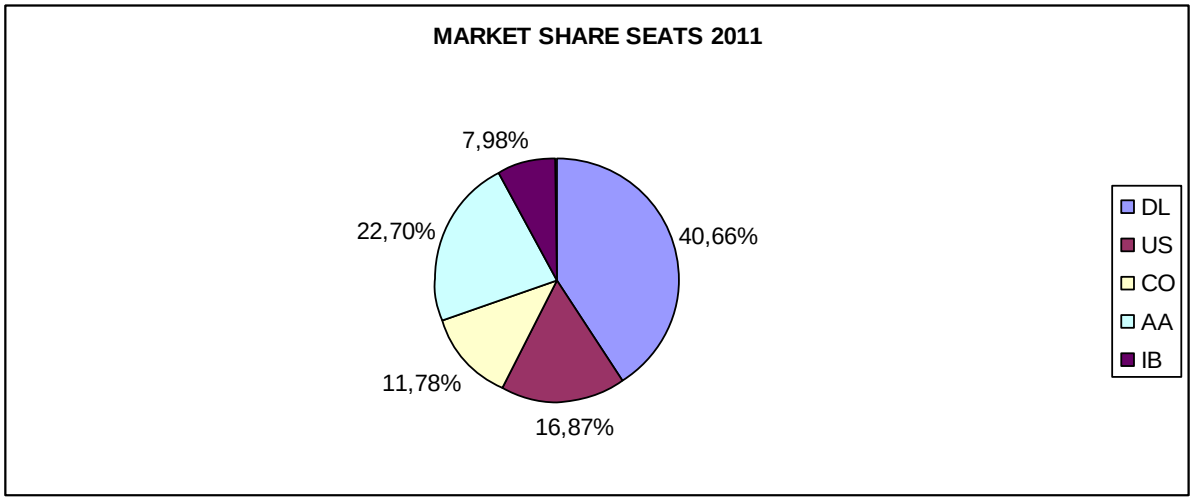

Figure 8.8: Market share in offered seats from Barcelona in 2011 (Source: T-100 Database)

Figure 8.7 and figure 8.8 show significant differences in the amount of different carriers operating transatlantic flights from Barcelona. In 2007 there were three airlines, which increased to five in 2011. Moreover, it is interesting to see that in 2007, and the entire 2002-2007 period, only American airlines operated transatlantic services from Barcelona. In 2007, Iberia joined as sole Spanish carrier, but had the lowest market share. Moreover, it is interesting to see that American Airlines entered the market in the 2008-2012 period and had the second largest market share in 2011. In both periods Delta Air Lines had the largest market share. When we look at the alliances, we can see that in 2007 only SkyTeam and the Star Alliance were present. In 2011, Oneworld was present as well with a market share of 30.68%. The Star Alliance had a market share of 28.56% and SkyTeam 40.66%. This means that the market is relatively equally divided among the three alliances in 2011.

When we look at the differences between the two periods in the amount of competitors and their market shares for the two transatlantic gateways in Spain, we can see that the market shares are more equally divided in the period after the implementation of the US-EU Open Skies Agreement and that the amount of different carriers has increased in this period as well.

Therefore we can assume that it is likely that these developments can have a positive effect on the competition at the two transatlantic gateways in Spain for the transatlantic air transport market from Spain.

8.6 Reflection

The variables which are an effect of competition, the variables from the first two sections, for Spain show a different pattern than the pattern we have seen in the other countries we analysed in this study. Over the 2002-2011 period we see growth, with only a decline in 2012. For the variables which influence competition we see that the total city-pair links increase at both the Spanish transatlantic gateways. In Madrid the average number of carriers per city-pair link increases in the 2002-2007 period, however a decline is visible in 2007. In the 2008-2012 increases and decreases are alternated by the year. In Barcelona, a pattern of slight growth is visible in the 2002-2007, which started in 2006. In the period 2008-2012, an increase is visible until 2010, from which after it decreases. Concerning the market shares, the data shows that in Madrid the market shares are more equally divided in the period after the implementation of the US-EU Open Skies Agreement compared with the period prior to it. In Barcelona, the growth of different carriers in the period after the implementation of the US-EU Open Skies Agreement is a significant development.

The developments that occurred after the implementation of the US-EU Open Skies Agreement in Spain are mostly characterised by growth. All the variables analysed in this chapter show developments from which we assume that it is likely that these developments can have a positive effect on the competition in the transatlantic air transport market from Spain. In this research Spain is the only country in which it is the case that all developments are assumed to have a positive effect on the competition.

9. Conclusion

In this chapter we will look back to the outcomes of the analyses of the transatlantic competition in the selected cases in order to provide an answer to the research question of this study: “how did the competition, and some key variables possibly related to it, develop in the transatlantic air transport market in the periods before and after the implementation of the US-EU Open Skies Agreement?” In order to answer this research question, we have answered two sub-questions. The first was “what is competition, and which variables are possibly related to it?” and the second was “how did the variables which are possibly related to competition develop in reality?”.

The answer to the first sub-question is that competition can be defined as a situation in which various companies, or suppliers of a good or a service, compete for the favour of the costumer in a specific market. Competition has several variables that are possibly related to it. These variables can be divided into two groups: variables that influence competition and variables that are effects of competition. The variables that influence competition are amount of competitors in a specific market, the size of these competitors, and the ability to enter the market and to stay in the market for a long term. The variables that are an effect of competition are lower prices and more production and output.

For the second sub-question, we looked at the variables that are possibly related to competition and we analysed them in five specific cases. We will look at the total transatlantic passengers and departures. This variable is related to production and output and is therefore an effect of competition. The outcomes of the analyses of the total transatlantic passengers and departures of the selected cases show that there is a difference between the two time periods that are analysed. In the period 2002-2007, a growing trend is present in transatlantic traffic and transatlantic departures in all countries that are analysed. However, in the period after the implementation of the US-EU Open Skies Agreement, we see a change in this growing trend. In four of the five countries that are studied, a decline in transatlantic traffic and transatlantic departures is present. This happens for most countries in 2009. As mentioned in the previous chapters, an explanation for this decrease can be given, since the global economic crisis incepted in that year. The only exception for this situation is Spain, in which a growing trend was present in the period after the implementation of the US-EU Open Skies Agreement as well.

The variables average number of carriers per city-pair link and total transatlantic links are variables that influence competition. The average number of city-pair links analyses the number of competitors in the market, and in this case per city-pair link. The outcomes of the analyses of these two variables in the selected countries for the entire 2002-2012 period show that growth was present in two of the five cases, a stable situation was present in two cases and a mixture of growth and stabilisation was present in one. The two countries in which a stable situation was present (Austria and the Netherlands), both had Open Skies agreements with the United States prior to the implementation of the US-EU Open Skies Agreement. The two countries with growth (Spain and Ireland), did not have an Open Skies agreement prior to the implementation of the US-EU Open Skies Agreement. The United Kingdom is the only country in this study that did not have an Open Skies agreement with the United States before the implementation of the US-EU Open Skies Agreement and did not have only growth in terms of carriers and links. The United Kingdom has several transatlantic gateways, in which growth, decline and stabilisation is present.

The last variable is transatlantic competition by carrier. This variable is also a variable that influence the competition and it investigates the size of the competitors in the market. The outcomes of the analyses of the transatlantic competition by carrier show differences among the studied countries. In several countries the changes are not significant. In Ireland, Austria and the United Kingdom the changes in market share between the period before and after the implementation of the US-EU Open Skies Agreement are not large and there had not been major shifts in market shares among the airlines. In the Netherlands and Spain, however, change is visible. In Spain, the entry of new carriers is visible in the change of market share and for the Netherlands the exit of carriers from the market has resulted in consolidation and enlargement of market shares by several airlines. In the perspective of alliances, we can see that in several countries the dominant position of an alliance is obvious. This is the case in the Netherlands, Austria, Spain, and the United Kingdom. Ireland is the exception in this case, for the 2008-2012 period. The explanation for this is that the major carrier of Ireland, Aer Lingus, is not part of an alliance in the period 2008-2012.

All in all, we can see that the analyses of the variables that are possibly related to competition show that there are differences between the developments in the periods before and after the implementation of the US-EU Open Skies Agreement. In each case and variable differences were visible in the development of the competition in the two periods. Therefore, different conclusions have been drawn per case in the previous chapters in which the variables that are possibly related to competition were analysed for the cases. However, it became obvious that the US-EU Open Skies Agreement has had influence in various cases for the developments of the competition. In these cases the developments in the competition after the implementation of the US-EU Open Skies Agreement could be seen as negative or positive for the competition. Therefore, we can conclude that it is likely that the implementation of the US-EU Open Skies Agreement have had influence on the developments in the competition in the cases that are analysed in this study.

10. Limitations

Several limitations are present in this research on the developments of competition in the transatlantic air transport market. First of all, the study consists of five countries, whereas more countries have implemented the US-EU Open Skies Agreement. Ideally, in order to understand the developments in the entire transatlantic air transport market, all countries would be analysed. However, in order to do so, the time span to analyse all countries would be too long. Therefore, this study consists of five countries and there is made a distinction between countries with an Open Skies agreement with the United States before the implementation of the US-EU Open Skies Agreement and countries without an Open Skies agreement with the United States before the implementation of the US-EU Open Skies Agreement.

A second limitation of the study is the concept of competition. Competition is a wide concept, including for example lower prices. Due to the fact that competition is such a wide concept, the study could have focussed on more elements of competition. However, like with the previous limitation, this would require a lot of time. In order to narrow down the study, the focus on competition has been on the variables that influence competition, which are the number of competitors and their size, and various variables which are an effect of competition, for which the production and output in measured. Due to the specification of the concept, we do not study the entire concept of competition.

Furthermore, competition can be influenced by many factors that are outside the scope of the US-EU Open Skies Agreement, which tries to promote the competition in the transatlantic air transport market by the introduction of liberal measures. In order to cope with this limitation, the study is a descriptive study. Therefore, we have described the developments of the competition in the transatlantic air transport market.

Due to the fact that this study is limited in its scope, like for example to a few variables that are related to competition and to only five cases, follow-up studies on this study are very well possible. These studies could take into account various elements that were not analysed in this study, like elements that are possible related to competition, for example prices. Due to this, the conclusions drawn ultimately will be more accurate. Moreover, the amount of cases can be expanded, through which the magnitude of the implementation of the US-EU Open Skies Agreement for its entire scope will become more obvious. However, one can also suggest to do case studies based on solely one case, hence one airport or city for which the implications of the US-EU Open Skies Agreement on developments in the competition on that airport will be examined. Therefore, this study can be used as a starting point for studies focusing on the developments in competition in combination with the implementation of the US-EU Open Skies Agreement.

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Annex

Annex A: The Netherlands

Tables and figures related to Chapter 4

YEAR	TOTAL TRAFFIC	ANNUAL GROWTH
2002	4011362	
2003	3956652	-1,36%
2004	4299430	8,66%
2005	4570452	6,30%
2006	4490561	-1,75%
2007	4693847	4,53%
2008	4949887	5,45%
2009	4334615	-12,43%
2010	4324921	-0,22%
2011	4473522	3,44%
2012	4470551	-0,07%

Table A.1: Transatlantic passenger traffic from Amsterdam (Source: T-100 Database)

YEAR	TOTAL DEPARTURES	ANNUAL GROWTH
2002	20825	
2003	21170	1,66%
2004	22881	8,08%
2005	24225	5,87%
2006	23878	-1,43%
2007	24986	4,64%
2008	26792	7,23%
2009	23223	-13,32%
2010	22285	-4,04%
2011	23426	5,12%
2012	22493	-3,98%

Table A.2: Transatlantic departures from Amsterdam (Source: T-100 Database)

	2002		2003		2004		2005		2006	
CITY	**CARRIERS**	**CARRIER NAME**	**CARRIERS**	**CARRIER NAME**	**CARRIERS**	**CARRIER NAME**	**CARRIERS**	**CARRIER NAME**	**CARRIERS**	**CARRIER NAME**
Atlanta (ATL)	1	DL	1	DL	1	DL	2	KLM, DL	2	KLM, DL
Windsor Locks (BDL)	0	-	0	-	0	-	0	-	0	-
Boston (BOS)	1	NW	1	NW	2	NW, UA	1	NW	1	NW
Cincinnati (CVG)	0	-	0	-	1	DL	1	DL	1	DL
Dallas (DFW)	0	-	0	-	0	-	0	-	0	-
Detroit (DTW)	2	KLM, NW	1	NW	1	NW	1	NW	1	NW
Newark (EWR)	3	CO, NW, SQ	4	CO, KU, NW, SQ	2	KL, CO	2	KLM, CO	2	KLM, CO
Washington Dulles (IAD)	2	NW, UA	2	KL, UA	2	KL, UA	2	KLM, UA	2	KLM, UA
Houston (IAH)	2	KLM, CO	2	KLM, CO	2	KL, CO	2	CO, KLM	3	CO, KLM, PBQ
New York (JFK)	4	DL, KLM, NW, LY	2	KLM, DL	2	KLM, DL	3	KLM, DL, UA	2	KLM, DL
Las Vegas (LAS)	0	-	0	-	0	-	0	-	0	-
Los Angeles (LAX)	1	KLM	1	KLM	1	KLM	1	KLM	1	KLM
Orlando (MCO)	1	MP	1	MP	1	MP	1	MP	1	MP
Memphis (MEM)	1	KLM	2	KLM, NW	1	NW	1	NW	1	NW
Miami (MIA)	2	MP, NW	2	MP, KLM	2	MP, KLM	1	MP	1	MP
Minneapolis (MSP)	1	NW	1	NW	2	NW, KLM	1	NW	1	NW
Oakland (OAK)	0	-	0	-	0	-	0	-	0	-
Chicago (ORD)	4	KLM, KU, SQ, UA	3	KLM, KU, UA	3	KLM, KU, UA	2	KLM, UA	2	KLM, UA
Portland (PDX)	0	-	0	-	0	-	0	-	0	-
Philadelphia (PHL)	1	US	1	US	1	US	2	CO, US	1	US
Seattle (SEA)	1	NW	1	NW	1	NW	1	NW	1	NW
Orlando Sanford (SFB)	0	-	0	-	0	-	0	-	0	-
San Francisco (SFO)	1	KLM	1	KLM	1	KLM	1	KLM	1	KLM
TOTAL CARRIERS	**28**		**26**		**26**		**25**		**24**	
TOTAL LINKS	**15**		**15**		**16**		**16**		**16**	

Figure A.1: Direct links from Amsterdam with amount of carriers and carriers' names (2002-2006) (Source: T-100 Database)

2007		2008		2009		2010		2011		2012	
CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME
2	KLM, DL	2	KLM, DL	2	KLM, NW	2	KLM, DL	2	KLM, DL	2	KLM, DL
1	NW	1	NW	0	-	0	-	0	-	0	-
2	KLM, NW	1	NW	1	DL	1	DL	1	DL	1	DL
1	DL	1	DL	1	DL, NW	0	-	0	-	0	-
0	-	1	KLM	1	KLM	1	KLM	1	KLM	1	KLM
1	NW	2	KLM, NW	1	NW	1	DL	1	DL	1	DL
2	KLM, CO	2	CO, NW	1	CO, NW	2	CO, DL	2	CO, DL	2	DL, UA
2	KLM, UA	2	KLM, UA	2	KLM, UA	2	KLM, UA	2	KLM, UA	2	KLM, UA
3	CO, KLM, PBQ	3	CO, KLM, PBQ	3	CO, KLM, PBQ	3	CO, KLM, PBQ	3	CO, KLM, PBQ	2	KLM, UA
2	KLM, DL	2	KLM, DL	4	KLM, DL, OOCQ, AO	2	KLM, DL	2	KLM, DL	2	KLM, DL
0	-	0	-	0	-	0	-	0	-	1	OR
1	KLM	1	KLM	1	KLM	1	KLM	1	KLM	2	KLM, OR
1	MP	0	-	0	-	1	MP	0	-	0	-
1	NW	1	NW	1	NW	1	DL	1	DL	1	DL
1	MP	1	MP	1	MP	0	-	1	KLM	1	OR
1	NW	1	NW	1	NW	1	DL	1	DL	1	DL
0	-	0	-	0	-	0	-	0	-	1	OR
2	KLM, UA	2	KLM, UA	2	KLM, UA	2	KLM, UA	2	KLM, UA	2	KLM, UA
0	-	1	NW	1	DL	1	DL	1	DL	1	DL
1	US	1	US	1	US	1	US	1	US	1	US
1	NW	1	NW	1	NW	1	DL	1	DL	1	DL
0	-	0	-	0	-	0	-	1	OR	1	OR
1	KLM	1	KLM	1	KLM	1	KLM	1	KLM	1	KLM
26		**27**		**26**		**24**		**25**		**27**	
17		**18**		**17**		**16**		**17**		**18**	

Figure A.2: Direct links from Amsterdam with amount of carriers and carriers' names (2007-2012) (Source: T-100 Database)

	2002-2007		
CARRIER	SEATS	AVERAGE PER YEAR	MARKET SHARE
DL	195293	32549	6,76%
KLM	903319	150553	31,29%
NW	1149399	191567	39,81%
CO	215148	35858	7,45%
UA	166867	27811	5,78%
MP	124759	20793	4,32%
US	72375	12063	2,51%
SQ	34300	5717	1,19%
KU	14984	2497	0,52%
LY	5883	981	0,20%
PBQ	4664	777	0,16%
TOTAL	**2886992**	**481165**	**100,00%**

Table A.3: Average amount of market share in Amsterdam from 2002-2007(Source: T-100 Database)

	2008-2012		
CARRIER	SEATS	AVERAGE PER YEAR	MARKET SHARE
DL	881.687	176337	33,37%
KLM	866648	173330	32,81%
NW	446665	89333	16,91%
CO	156466	31293	5,92%
UA	156303	31261	5,92%
MP	38908	7782	1,47%
US	53966	10793	2,04%
PBQ	8360	1672	0,32%
OR	32800	6560	1,24%
TOTAL	**2.641.803**	**528361**	**100,00%**

Table A.4: Average amount of market share in Amsterdam from 2008-2012 (Source: T-100 Database)

Annex B: Austria

Tables and figures related to Chapter 5

YEAR	TOTAL TRAFFIC	ANNUAL GROWTH
2002	288948	
2003	283301	-1,95%
2004	317695	12,14%
2005	341305	7,43%
2006	339057	-0,66%
2007	397391	17,20%
2008	426903	7,43%
2009	284151	-33,44%
2010	273200	-3,85%
2011	282509	3,41%
2012	295919	4,75%

Table B.1: Transatlantic passenger traffic from Vienna (Source: T-100 Database)

YEAR	TOTAL DEPARTURES	ANNUAL GROWTH
2002	1408	
2003	1336	-5,11%
2004	1413	5,76%
2005	1505	6,51%
2006	1610	6,98%
2007	2008	24,72%
2008	2150	7,07%
2009	1368	-36,37%
2010	1367	-0,07%
2011	1387	1,46%
2012	1389	0,14%

Table B.2: Transatlantic departures from Vienna (Source: T-100 Database)

	2002		2003		2004		2005		2006	
CITY	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME
Atlanta (ATL)	0	-	0	-	0	-	0	-	0	-
Washington (IAD)	1	OS	1	OS	1	OS	1	OS	1	OS
New York (JFK)	1	OS	1	OS	1	OS	1	OS	1	OS
Chicago (ORD)	0	-	0	-	0	-	0	-	0	-
TOTAL CARRIERS	**2**		**2**		**2**		**2**		**2**	
TOTAL LINKS	**2**		**2**		**2**		**2**		**2**	

Figure B.1: Direct links from Vienna with amount of carriers and carriers' names (2002-2006) (Source: T-100 Database)

2007		2008		2009		2010		2011		2012	
CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME
1	DL	1	DL	0	-	0	-	0	-	0	-
1	OS	1	OS	1	OS	1	OS	1	OS	1	OS
1	OS	1	OS	1	OS	1	OS	1	OS	1	OS
1	OS	1	OS	0	-	0	-	0	-	0	-
4		**4**		**2**		**2**		**2**		**2**	
4		**4**		**2**		**2**		**2**		**2**	

Figure B.2: Direct links from Vienna with amount of carriers and carriers' names (2008-2012) (Source: T-100 Database)

	2002		2003		2004		2005		2006		2007	
CARRIER	SEATS	MARKET SHARE	SEATS	MARKET SHARE	SEATS	MARKET SHARE	SEATS	MARKET SHARE	SEATS	MARKET SHARE	SEATS	MARKET SHARE
OS	32116	100%	32116	100%	33920	100%	41780	100%	44294	100%	48446	84,03%
DL	0	0%	0	0%	0	0%	0	0%	0	0%	9205	15,97%
	32116		32116		33920		41780		44294		57651	

Table B.3: Average amount of market share in Vienna from 2002-2007 (Source: T-100 Database)

	2008		2009		2010		2011		2012	
CARRIER	SEATS	MARKET SHARE	SEATS	MARKET SHARE	SEATS	MARKET SHARE	SEATS	MARKET SHARE	SEATS	MARKET SHARE
OS	47930	83,55%	33294	100%	33754	100%	33294	100%	31372	100%
DL	9438	16,45%	0	0%	0	0%	0	0%	0	0%
	57368		33294		33754	100%	33294	100%	31372	100%

Table B.4: Average amount of market share in Vienna from 2008-2012 (Source: T-100 Database)

Annex C: Ireland

Tables and figures related to Chapter 6

YEAR	TOTAL TRAFFIC	ANNUAL GROWTH
2002	1368303	
2003	1580583	15,51%
2004	1682104	6,42%
2005	1841730	9,49%
2006	2008608	9,06%
2007	2181188	8,59%
2008	2181342	0,01%
2009	1950810	-10,57%
2010	1741522	-10,73%
2011	1771151	1,70%
2012	1801705	1,73%

Table C.1: Transatlantic passenger traffic from Ireland (Source: T-100 Database)

YEAR	TOTAL DEPARTURES	ANNUAL GROWTH
2002	6384	
2003	7562	18,45%
2004	7528	-0,45%
2005	8445	12,18%
2006	9981	18,19%
2007	10965	9,86%
2008	12147	10,78%
2009	10433	-14,11%
2010	9405	-9,85%
2011	9874	4,99%
2012	9456	-4,23%

Table C.2: Transatlantic departures from Ireland (Source: T-100 Database)

CITY	2002 CARRIERS	2002 CARRIER NAME	2003 CARRIERS	2003 CARRIER NAME	2004 CARRIERS	2004 CARRIER NAME	2005 CARRIERS	2005 CARRIER NAME	2006 CARRIERS	2006 CARRIER NAME
Atlanta (ATL)	1	DL	1	DL	1	DL	1	DL	1	DL
Boston (BOS)	0	-	1	EI	1	EI	0	-	0	-
Charlotte (CLT)	0	-	0	-	0	-	0	-	0	-
Newark (EWR)	1	CO	1	CO	1	CO	1	CO	1	CO
Washington (IAD)	0	-	0	-	0	-	0	-	0	-
New York (JFK)	1	EI	1	EI	1	EI	1	EI	2	DL, EI
Los Angeles (LAX)	1	EI	1	EI	1	EI	1	EI	1	EI
Orlando (MCO)	0	-	0	-	0	-	1	EI	0	-
Chicago (ORD)	1	EI	1	EI	1	EI	2	AA, EI	2	AA, EI
Philadelphia (PHL)	0	-	1	US	1	US	1	US	1	US
San Francisco (SFO)	0	-	0	-	0	-	0	-	0	-
TOTAL CARRIERS	**5**		**7**		**7**		**8**		**8**	
TOTAL LINKS	**4**		**6**		**6**		**6**		**6**	

Figure C.1: Direct links from Dublin with amount of carriers and carriers' names (2002-2006 (Source: T-100 Database))

2007 CARRIERS	2007 CARRIER NAME	2008 CARRIERS	2008 CARRIER NAME	2009 CARRIERS	2009 CARRIER NAME	2010 CARRIERS	2010 CARRIER NAME	2011 CARRIERS	2011 CARRIER NAME	2012 CARRIERS	2012 CARRIER NAME
1	DL	1	DL	1	DL	1	DL	1	DL	1	DL
1	EI	1	EI	1	EI	1	EI	1	EI	1	EI
0	-	0	-	0	-	0	-	1	US	1	US
1	CO	1	CO	1	CO	1	CO	1	CO	1	UA
0	-	1	EI	1	EI	0	-	0	-	1	UA
2	DL, EI	2	DL, EI	2	DL, EI	2	DL, EI	2	DL, EI	2	DL, EI
1	EI	1	EI	0	-	0	-	0	-	0	-
0	-	1	EI	1	EI	1	EI	1	EI	1	EI
2	AA, EI	2	AA, EI	2	AA, EI	1	AA	2	AA, EI	2	AA, EI
1	US	1	US	1	US	1	US	1	US	1	US
0	-	1	EI	1	EI	1	EI	0	-	0	-
9		**12**		**11**		**9**		**10**		**11**	
6		**9**		**8**		**7**		**7**		**8**	

Figure C.2: Direct links from Dublin with amount of carriers and carriers' names (2007-2012) (Source: T-100 Database)

CITY	2002 CARRIERS	2002 CARRIER NAME	2003 CARRIERS	2003 CARRIER NAME	2004 CARRIERS	2004 CARRIER NAME	2005 CARRIERS	2005 CARRIER NAME	2006 CARRIERS	2006 CARRIER NAME
Atlanta (ATL)	1	DL	1	DL	1	DL	1	DL	1	DL
Boston (BOS)	1	EI	0	-	1	EI	2	AA, EI	2	AA, EI
Baltimore (BWI)	0	-	1	EI	1	EI	0	-	0	-
Newark (EWR)	1	CO	1	CO	1	CO	1	CO	1	CO
New York (JFK)	2	EI, RJ	1	EI	1	EI	1	EI	2	DL, EI
Los Angeles (LAX)	0	-	0	-	0	-	0	-	0	-
Orlando (MCO)	0	-	0	-	0	-	1	EI	0	-
Chicago (ORD)	1	RJ	0	-	1	EI	0	-	0	-
Philadelphia (PHL)	0	-	1	US	1	US	1	US	1	US
TOTAL CARRIERS	**6**		**5**		**7**		**7**		**7**	
TOTAL LINKS	**4**		**4**		**6**		**5**		**4**	

Figure C.3: Direct links from Shannon with amount of carriers and carriers' names (2002-2006) (Source: T-100 Database)

2007 CARRIERS	2007 CARRIER NAME	2008 CARRIERS	2008 CARRIER NAME	2009 CARRIERS	2009 CARRIER NAME	2010 CARRIERS	2010 CARRIER NAME	2011 CARRIERS	2011 CARRIER NAME	2012 CARRIERS	2012 CARRIER NAME
1	DL	1	DL	0	-	0	-	0	-	0	-
1	EI	1	EI	1	EI	1	EI	1	EI	1	EI
0	-	0	-	0	-	0	-	0	-	0	-
1	CO	1	CO	1	CO	1	CO	1	CO	1	UA
2	DL, EI	2	DL, EI	2	DL, EI	2	DL, EI	2	DL, EI	2	DL, EI
0	-	0	-	0	-	0	-	0	-	0	-
0	-	0	-	0	-	0	-	0	-	0	-
2	AA, EI	0	-	1	EI	0	-	0	-	0	-
1	US	1	US	1	US	0	-	0	-	0	-
8		**6**		**6**		**4**		**4**		**4**	
5		**4**		**4**		**2**		**2**		**2**	

Figure C.4: Direct links from Shannon with amount of carriers and carriers' names (2007-2012) (Source: T-100 Database)

CARRIER	2002-2007 SEATS	AVERAGE PER YEAR	MARKET SHARE
DL	76690	12782	11,66%
CO/UA	90769	15128	13,80%
EI	389958	64993	59,30%
US	60090	10015	9,14%
AA	40123	6687	6,10%
UA	0	0	0,00%
TOTAL	**657630**	**109605**	**100,00%**

Table C3: Average amount of market share in Dublin from 2002-2007 (Source: T-100 Database)

2008-2012 SEATS	AVERAGE PER YEAR	MARKET SHARE
145050	29010	15,67%
86625	21516	11,62%
524272	104854	56,64%
81189	16238	8,77%
67494	13499	7,29%
20956	4191	2,26%
925586	**185117**	**100,00%**

Table C.4: Average amount of market share in Dublin from 2008-2012 (Source: T-100 Database)

CARRIER	2002-2007 SEATS	AVERAGE PER YEAR	MARKET SHARE
DL	89387	14898	13,88%
CO/UA	82458	13743	12,80%
EI	361868	60311	56,17%
US	59941	9990	9,30%
AA	34840	5807	5,41%
RJ	15708	2618	2,44%
UA	0	0	0,00%
TOTAL	**644202**	**107367**	**100,00%**

Table C.5: Average amount of market share in Shannon from 2002-2007 (Source: T-100 Database)

2008-2012 SEATS	AVERAGE PER YEAR	MARKET SHARE
64633	12927	22,79%
55770	11154	24,20%
134833	26967	47,55%
15506	3101	5,47%
0	0	0,00%
0	0	0,00%
12844	2569	4,53%
283586	**56717**	**100,00%**

Table C.6: Average amount of market share in Shannon from 2008-2012 (Source: T-100 Database)

Annex D: The United Kingdom

Tables and figures related to chapter 7

YEAR	TOTAL TRAFFIC	ANNUAL GROWTH
2002	16543423	
2003	16454775	-0,54%
2004	17924757	8,93%
2005	18161558	1,32%
2006	18158634	-0,02%
2007	18554041	2,18%
2008	17919270	-3,42%
2009	16568453	-7,54%
2010	15746237	-4,96%
2011	16725794	6,22%
2012	17164385	2,62%

Table D.1: Transatlantic passenger traffic from the United Kingdom (Source: T-100 Database)

YEAR	TOTAL DEPARTURES	ANNUAL GROWTH
2002	42142	
2003	41801	-0,81%
2004	43914	5,05%
2005	45448	3,49%
2006	47872	5,33%
2007	48189	0,66%
2008	47261	-1,93%
2009	41598	-11,98%
2010	39649	-4,69%
2011	42624	7,50%
2012	42568	-0,13%

Table D.2: Transatlantic departures from the United Kingdom (Source: T-100 Database)

CITY	2002 CARRIERS	2002 CARRIER NAME	2003 CARRIERS	2003 CARRIER NAME	2004 CARRIERS	2004 CARRIER NAME
Atlanta (ATL)	0	-	0	-	0	-
Boston (BOS)	4	AA, BA, UA, VS	3	AA, BA, VS	3	AA, BA, VS
Baltimore (BWI)	1	BA	1	BA	1	BA
Cleveland (CLE)	0	-	0	-	0	-
Denver (DEN)	0	-	1	BA	1	BA
Dallas (DFW)	0	-	0	-	0	-
Detroit (DTW)	1	BA	1	BA	1	BA
Newark (EWR)	4	AA, BA, UA, VS	3	BA, UA, VS	2	BA, VS
Washington (IAD)	3	BA, UA, VS	3	BA, UA, VS	3	BA, UA, VS
Houston (IAH)	0	-	0	-	0	-
New York (JFK)	6	AA, AI, BA, KU, UA, VS	6	AA, AI, BA , KU, UA, VS	6	AA, AI, BA, KU, UA, VS
Las Vegas (LAS)	0	-	0	-	0	-
Los Angeles (LAX	5	AA, BA, UA, VS, NZ	5	AA, BA, UA, VS, NZ	5	AA, BA, UA, VS, NZ
Miami (MIA)	2	AA, BA	3	AA, BA, VS	3	AA, BA, VS
Minneapolis (MSP)	0	-	0	-	0	-
Chicago (ORD)	4	AA, AI, BA, UA	4	AA, AI, BA, UA	4	AA, AI, BA, UA
Philadelphia (PHL)	1	BA	1	BA	1	BA
Phoenix (PHX)	0	-	1	BA	1	BA
Raleigh (RDU)	0	-	0	-	0	-
San Diego (SAN)	0	-	1	BA	0	-
Seattle (SEA)	1	BA	1	BA	1	BA
San Francisco (SFO)	3	BA, UA, VS	3	BA, UA, VS	3	BA, UA, VS
TOTAL CARRIERS	**35**		**37**		**35**	
TOTAL LINKS	**11**		**14**		**13**	

Figure D.1: Direct links from London Heathrow with amount of carriers and carriers' names (2002-2004) (Source: T-100 Database)

2005 CARRIERS	CARRIER NAME	2006 CARRIERS	CARRIER NAME	2007 CARRIERS	CARRIER NAME	2008 CARRIERS	CARRIER NAME
0	-	0	-	0	-	1	DL
3	AA, BA, VS	3	AA, BA, VS	3	AA, BA, VS	3	AA, BA, VS
1	BA	1	BA	1	BA	1	BA
0	-	0	-	0	-	0	-
1	BA	1	BA	1	BA	2	BA, UA
0	-	1	BA	0	-	2	AA, BA
1	BA	1	BA	1	BA	1	NW
2	BA, VS	2	BA, VS	2	BA, VS	3	BA, CO, VS
3	BA, UA, VS	3	BA, UA, VS	3	BA, UA, VS	3	BA, UA, VS
0	-	0	-	0	-	2	BA, CO
6	AA, AI, BA, KU, UA, VS	6	AA, AI, BA, KU, UA, VS	5	AA, AI, BA, KU, VS	6	AA, AI, BA, DL, KU, VS
0	-	0	-	0	-	0	-
5	AA, BA, UA, VS, NZ	5	AA, BA, NZ, UA, VS	5	AA, BA, NZ, UA, VS	6	AA, AF, BA, NZ, UA, VS
3	AA, BA, VS	3	AA, BA, VS	3	AA, BA, VS	3	AA, BA, VS
0	-	0	-	0	-	1	NW
4	AA, AI, BA, UA	4	AA, AI, BA, UA	5	AA, AI, BA, UA, VS	5	AA, AI, BA, UA, VS
1	BA	1	BA	1	BA	2	BA, US
1	BA	1	BA	1	BA	1	BA
0	-	0	-	0	-	1	AA
0	-	0	-	0	-	0	-
1	BA	1	BA	1	BA	2	BA, NW
3	BA, UA, VS	3	BA, UA, VS	3	BA, UA, VS	3	BA, UA, VS
35		**36**		**35**		**48**	
13		**14**		**13**		**18**	

Figure D.2: Direct links from London Heathrow with amount of carriers and carriers' names (2005-2008) (Source: T-100 Database)

2009 CARRIERS	CARRIER NAME	2010 CARRIERS	CARRIER NAME	2011 CARRIERS	CARRIER NAME	2012 CARRIERS	CARRIER NAME
2	BA, DL	2	BA, DL	2	BA, DL	2	BA, DL
3	AA, BA, VS	3	AA, BA, VS	4	AA, BA, DL, VS	4	AA, BA, DL, VS
1	BA	1	BA	1	BA	1	BA
1	CO	0	-	0	-	0	-
2	BA, UA	2	BA, UA	1	BA	1	BA
2	AA, BA	2	AA, BA	2	AA, BA	2	AA, BA
1	DL	1	DL	1	DL	1	DL
3	BA, CO, VS	3	BA, CO, VS	3	BA, CO, VS	3	BA, UA, VS
3	BA, UA, VS	3	BA, UA, VS	3	BA, UA, VS	3	BA, UA, VS
2	BA, CO	2	BA, CO	2	BA, CO	2	BA, UA
5	AA, BA, DL, KU, VS	5	AA, BA, DL, KU, VS	5	AA, BA, DL, KU, VS	5	AA, BA, DL, VS, KU
0	-	1	BA	1	BA	1	BA
5	AA, BA, NZ, UA, VS	5	AA, BA, NZ, UA, VS	5	AA, BA, NZ, UA, VS	5	AA, BA, UA, VS, NZ
3	AA, BA, VS	3	AA, BA, VS	4	AA, BA, DL, VS	3	AA, BA, VS
1	NW	1	DL	1	DL	1	DL
4	AA, BA, UA, VS	4	AA, BA, UA, VS	4	AA, BA, UA, VS	4	AA, BA, UA, VS
2	BA, US	2	BA, US	2	BA, US	2	BA, US
1	BA	1	BA	1	BA	1	BA
1	AA	1	AA	1	AA	1	AA
0	-	0	-	1	BA	1	BA
1	BA	1	BA	1	BA	1	BA
3	BA, UA, VS	3	BA, UA, VS	3	BA, UA, VS	3	BA, UA, VS
46		**46**		**48**		**47**	
19		**19**		**20**		**20**	

Figure D.3: Direct links from London Heathrow with amount of carriers and carriers' names (2009-2012) (Source: T-100 Database)

	2002		2003		2004		2005		2006	
CITY	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME
Atlanta (ATL)	2	BA, DL	2	BA, DL	2	BA, DL	2	BA, DL	2	BA, DL
Cleveland (CLE)	1	CO	1	CO	1	CO	1	CO	1	CO
Charlotte (CLT)	1	US	1	US	1	US	1	US	1	US
Cincinnati (CVG)	1	DL	1	DL	1	DL	1	DL	1	DL
Denver (DEN)	1	BA	0	-	0	-	0	-	0	-
Dallas (DFW)	2	BA, AA	2	BA, AA	2	BA, AA	2	BA, AA	2	BA, AA
Detroit (DTW)	1	NW	1	NW	1	NW	1	NW	1	NW
Newark (EWR)	1	CO	1	CO	1	CO	1	CO	1	CO
Houston (IAH)	2	BA, CO	2	BA, CO	2	BA, CO	2	BA, CO	2	BA, CO
New York (JFK)	0	-	0	-	0	-	0	-	0	-
Las Vegas (LAS)	1	VS	1	VS	1	VS	1	VS	1	VS
Orlando (MCO)	2	BA, VS	2	BA, VS	2	BA, VS	2	BA, VS	2	BA, VS
Miami (MIA)	1	VS	1	VS	0	-	0	-	0	-
Minneapolis (MSP)	1	NW	1	NW	1	NW	1	NW	1	NW
Philadelphia (PHL)	1	US	1	US	1	US	1	US	1	US
Phoenix (PHX)	1	BA	0	-	0	-	0	-	0	-
Pittsburg (PIT)	1	US	1	US	1	US	0	-	0	-
Raleigh (RDU)	1	AA	1	AA	1	AA	1	AA	1	AA
Orlando Sanford (SFB)	0	-	1	BY	0	-	0	-	0	-
San Diego (SAN)	1	BA	0	-	0	-	0	-	0	-
St. Louis (STL)	1	AA	1	AA	0	-	0	-	0	-
Tampa (TPA)	1	BA	1	BA	1	BA	1	BA	1	BA
TOTAL CARRIERS	**24**		**22**		**19**		**18**		**18**	
TOTAL LINKS	**20**		**17**		**15**		**14**		**14**	

Figure D.4: Direct links from London Gatwick with amount of carriers and carriers' names (2002-2006) (Source: T-100 Database)

2007		2008		2009		2010		2011		2012	
CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME
2	BA, DL	2	BA, DL	1	NW	1	DL	1	DL	0	-
1	CO	1	CO	0	-	0	-	0	-	0	-
1	US	1	US	1	US	1	US	1	US	1	US
1	DL	1	DL	1	DL	0	-	0	-	0	-
0	-	0	-	0	-	0	-	0	-	0	-
2	BA, AA	0	-	0	-	0	-	0	-	0	-
1	NW	1	NW	0	-	0	-	0	-	0	-
1	CO	1	CO	0	-	0	-	0	-	0	-
2	BA, CO	1	CO	0	-	0	-	0	-	0	-
1	DL	1	DL	1	DL	0	-	0	-	0	-
1	VS	1	VS	1	VS	1	VS	1	VS	1	VS
2	BA, VS	2	BA, VS	2	BA, VS	2	BA, VS	2	BA, VS	2	BA, VS
0	-	0	-	0	-	0	-	0	-	0	-
1	NW	0	-	0	-	0	-	0	-	0	-
1	US	1	US	1	US	0	-	0	-	0	-
0	-	0	-	0	-	0	-	0	-	0	-
0	-	0	-	0	-	0	-	0	-	0	-
1	AA	0	-	0	-	0	-	0	-	0	-
0	-	0	-	0	-	0	-	0	-	0	-
0	-	0	-	0	-	0	-	0	-	0	-
0	-	0	-	0	-	0	-	0	-	0	-
1	BA	1	BA	1	BA	1	BA	1	BA	1	BA
19		**14**		**9**		**6**		**6**		**5**	
14		**11**		**8**		**5**		**5**		**4**	

Figure D.5: Direct links from London Gatwick with amount of carriers and carriers' names (2007-2012) (Source: T-100 Database)

	2002		2003		2004		2005		2006	
CITY	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME
Atlanta (ATL)	1	DL	1	DL	1	DL	1	DL	1	DL
Boston (BOS)	0	-	0	-	1	AA	1	AA	1	AA
Newark (EWR)	1	CO	1	CO	1	CO	1	CO	1	CO
Washington (IAD)	1	BD	1	BD	1	BD	0	-	0	-
Houston (IAH)	0	-	0	-	1	PK	1	PK	0	-
New York (JFK)	2	BA, PK	2	BA, PK	2	BA, PK	2	BA, PK	3	BA, DL, PK
Las Vegas (LAS)	0	-	0	-	0	-	1	BD	1	BD
Orlando (MCO)	1	VS	1	VS	1	VS	1	VS	1	VS
Chicago (ORD)	2	AA, BD	2	AA, BD	3	AA, BD, PK	3	AA, BD, PK	3	AA, BD, PK
Philadelphia	1	US	1	US	1	US	1	US	1	US
Orlando Sanford (SFB)	0	-	1	BY	1	EUQ	0	-	0	-
TOTAL CARRIERS	**9**		**10**		**13**		**12**		**12**	
TOTAL LINKS	**6**		**6**		**8**		**8**		**7**	

Figure D.6: Direct links from Manchester with amount of carriers and carriers' names (2002-2006) (Source: T-100 Database)

2007		2008		2009		2010		2011		2012	
CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME
1	DL	1	DL	1	DL	1	DL	1	DL	1	DL
1	AA	0	-	0	-	0	-	0	-	0	-
1	CO	1	CO	1	CO	1	CO	1	CO	1	UA
0	-	0	-	0	-	0	-	0	-	1	UA
0	-	0	-	0	-	0	-	0	-	0	-
3	BA, DL, PK	3	BA, DL, PK	2	DL, PK	2	AA, DL	2	AA, DL	1	AA
1	BD	1	BD	0	-	0	-	1	VS	1	VS
1	VS	1	VS	1	VS	1	VS	1	VS	1	VS
3	AA, BD, PK	2	AA, BD	1	AA	1	AA	1	AA	1	AA
1	US	1	US	1	US	1	US	1	US	1	US
0	-	0	-	0	-	0	-	1	MT	0	-
12		**10**		**7**		**7**		**9**		**8**	
7		**6**		**5**		**5**		**6**		**7**	

Figure D.7: Direct links from Manchester with amount of carriers and carriers' names (2007-2012) (Source: T-100 Database)

CITY	2002 CARRIERS	2002 CARRIER NAME	2003 CARRIERS	2003 CARRIER NAME	2004 CARRIERS	2004 CARRIER NAME	2005 CARRIERS	2005 CARRIER NAME	2006 CARRIERS	2006 CARRIER NAME
Boston (BOS)	0	-	0	-	0	-	0	-	0	-
Newark (EWR)	1	CO	1	CO	1	CO	1	CO	1	CO
Orlando (MCO)	0	-	0	-	0	-	0	-	0	-
Chicago (ORD)	1	AA	1	AA	1	AA	1	AA	1	AA
Philadelphia (PHL)	0	-	0	-	1	US	1	US	1	US
Orlando Sanford (SFB)	0	-	0	-	0	-	0	-	1	Y2
TOTAL CARRIERS	**2**		**2**		**3**		**3**		**4**	
TOTAL LINKS	**2**		**2**		**3**		**3**		**4**	

Figure D.8: Direct links from Glasgow with amount of carriers and carriers' names (2002-2006) (Source: T-100 Database)

2007 CARRIERS	2007 CARRIER NAME	2008 CARRIERS	2008 CARRIER NAME	2009 CARRIERS	2009 CARRIER NAME	2010 CARRIERS	2010 CARRIER NAME	2011 CARRIERS	2011 CARRIER NAME	2012 CARRIERS	2012 CARRIER NAME
1	Y2	0	-	0	-	0	-	0	-	0	-
1	CO	1	CO	1	CO	1	CO	1	CO	1	UA
1	VS	1	VS	1	VS	1	VS	1	VS	1	VS
0	-	0	-	0	-	0	-	0	-	0	-
1	US	1	US	1	US	1	US	1	US	1	US
1	Y2	1	YR	1	YR	0	-	1	MT	1	MT
5		**4**		**4**		**3**		**4**		**4**	
5		**4**		**4**		**3**		**4**		**4**	

Figure D.9: Direct links from Glasgow with amount of carriers and carriers' names (2007-2012) (Source: T-100 Database)

CITY	2002 CARRIERS	2002 CARRIER NAME	2003 CARRIERS	2003 CARRIER NAME	2004 CARRIERS	2004 CARRIER NAME	2005 CARRIERS	2005 CARRIER NAME	2006 CARRIERS
Newark (EWR)	1	CO	1	CO	1	CO	1	CO	1
Chicago (ORD)	1	AA	0	-	0	-	0	-	0
TOTAL CARRIERS	**2**		**1**		**1**		**1**		**1**
TOTAL LINKS	**2**		**1**		**1**		**1**		**1**

Figure D.10: Direct links from Birmingham with amount of carriers and carriers' names (2002-2006) (Source: T-100 Database)

2007 CARRIERS	2007 CARRIER NAME	2008 CARRIERS	2008 CARRIER NAME	2009 CARRIERS	2009 CARRIER NAME	2010 CARRIERS	2010 CARRIER NAME	2011 CARRIERS	2011 CARRIER NAME	2012 CARRIERS	2012 CARRIER NAME
1	CO	1	CO	1	CO	1	CO	1	CO	1	CO
0	-	0	-	0	-	0	-	0	-	0	-
1		**1**		**1**		**1**		**1**		**1**	
1		**1**		**1**		**1**		**1**		**1**	

Figure D.11: Direct links from Birmingham with amount of carriers and carriers' names (2007-2012) (Source: T-100 Database)

CITY	2002 CARRIERS	2002 CARRIER NAME	2003 CARRIERS	2003 CARRIER NAME	2004 CARRIERS	2004 CARRIER NAME	2005 CARRIERS	2005 CARRIER NAME	2006 CARRIERS	2006 CARRIER NAME
Newark (EWR)	0	-	0	-	0	-	1	CO	1	CO
TOTAL CARRIERS	**0**		**0**		**0**		**1**		**1**	
TOTAL LINKS	**0**		**0**		**0**		**1**		**1**	

Figure D.12: Direct links from Bristol with amount of carriers and carriers' names (2002-2006) (Source: T-100 Database)

2007 CARRIERS	2007 CARRIER NAME	2008 CARRIERS	2008 CARRIER NAME	2009 CARRIERS	2009 CARRIER NAME	2010 CARRIERS	2010 CARRIER NAME	2011 CARRIERS	2011 CARRIER NAME	2012 CARRIERS	2012 CARRIER NAME
1	CO	1	CO	1	CO	1	CO	1	CO	0	-
1		**1**		**1**		**1**		**1**		**0**	
1		**1**		**1**		**1**		**1**		**0**	

Figure D.13: Direct links from Bristol with amount of carriers and carriers' names (2007-2012) (Source: T-100 Database)

	2002		2003		2004		2005		2006	
CITY	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME
Newark (EWR)	0	-	0	-	0	-	1	CO	1	CO
Orlando Sanford (SFB)	0	-	0	-	0	-	0	-	0	-
TOTAL CARRIERS	**0**		**0**		**0**		**1**		**1**	
TOTAL LINKS	**0**		**0**		**0**		**1**		**1**	

Figure D.14: Direct links from Belfast with amount of carriers and carriers' name (2002-2006) (Source: T-100 Database)

2007		2008		2009		2010		2011		2012	
CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME	CARRIERS	CARRIER NAME
1	CO	1	CO	1	CO	1	CO	1	CO	1	UA
0	-	1	Y2	1	Y2	0	-	1	MT	0	-
1		**2**		**2**		**1**		**2**		**1**	
1		**2**		**2**		**1**		**2**		**1**	

Figure D.15: Direct links from Belfast with amount of carriers and carriers' name (2007-2012) (Source: T-100 Database)

	2002-2007 TOTAL SEATS	AVERAGE PER YEAR	MARKET SHARE
AA	1359250	226542	18,06%
BA	3235099	539183	42,99%
UA	1131940	188657	15,04%
VS	1396468	232745	18,56%
AI	225456	37576	3,00%
KU	43807	7301	0,58%
NZ	132741	22124	1,76%
DL	0	0	0,00%
CO	0	0	0,00%
NW	0	0	0,00%
AF	0	0	0,00%
US	0	0	0,00%
	7524761	**1254127**	**100,00%**

Table D.4: Average amount of market share in London Heathrow from 2002-2007 (Source: T-100 Database)

	2008-2012 TOTAL SEATS	AVERAGE PER YEAR	MARKET SHARE
AA	1289171	257834	17,08%
BA	3092530	618506	40,96%
UA	833339	166668	11,04%
VS	1214995	242999	16,09%
AI	31518	6304	0,42%
KU	36588	7318	0,48%
NZ	111413	22283	1,48%
DL	456970	91394	6,05%
CO	319953	63991	4,24%
NW	66786	13357	0,88%
AF	16306	3261	0,22%
US	80170	16034	1,06%
	7549739	**1509948**	**100,00%**

Table D.5: Average amount of market share in London Heathrow from 2008-2012 (Source: T-100 Database)

	2002-2007 TOTAL SEATS	AVERAGE PER YEAR	MARKET SHARE
BA	557748	92958	20,56%
DL	375748	62625	13,85%
CO	490519	81753	18,08%
US	259671	43279	9,57%
AA	313026	52171	11,54%
NW	207216	34536	7,64%
VS	503184	83864	18,54%
BY	6300	1050	0,23%
	2713412	**452235**	**100,00%**

Table D.6: Average amount of market share in London Gatwick from 2002-2007 (Source: T-100 Database)

	2008-2012 TOTAL SEATS	AVERAGE PER YEAR	MARKET SHARE
BA	219451	43890	23,92%
DL	93091	18618	10,15%
CO	46885	9377	5,11%
US	111624	22325	12,17%
AA	0	0	0,00%
NW	27894	5579	3,04%
VS	418390	83678	45,61%
BY	0	0	0,00%
	917335	**183467**	**100,00%**

Table D.7: Average amount of market share in London Gatwick from 2008-2012 (Source: T-100 Database)

	2002-2007 SEATS	AVERAGE PER YEAR	MARKET SHARE
DL	109711	18285	11,52%
CO	111107	18518	11,67%
BD	145180	24197	15,25%
BA	74279	12380	7,80%
PK	111190	18532	11,68%
VS	165916	27653	17,42%
AA	123378	20563	12,96%
US	97772	16295	10,27%
BY	5144	857	0,54%
EUQ	8496	1416	0,89%
MT	0	0	0,00%
UA	0	0	0,00%
	952173	**158696**	**100,00%**

Table D.8: Average amount of market share in Manchester from 2002-2007 (Source: T-100 Database)

	2008-2012 SEATS	AVERAGE PER YEAR	MARKET SHARE
DL	108494	21699	16,91%
CO	86625	17325	13,50%
BD	19620	3924	3,06%
BA	11718	2344	1,83%
PK	13514	2703	2,11%
VS	188062	37612	29,32%
AA	94524	18905	14,74%
US	89987	17997	14,03%
BY	0	0	0,00%
EUQ	0	0	0,00%
MT	8810	1762	1,37%
UA	20111	4022	3,14%
	641465	**128293**	**100,00%**

Table D.9: Average amount of market share in Manchester from 2008-2012 (Source: T-100 Database)

	2002-2007 SEATS	AVERAGE PER YEAR	MARKET SHARE
CO	91817	15303	38,84%
AA	63337	10556	26,79%
US	45980	7663	19,45%
Y2	32572	5429	13,78%
VS	2709	452	1,15%
MT	0	0	0,00%
UA	0	0	0,00%
	236415	**39403**	**100,00%**

Table D.10: Average amount of market share in Glasgow from 2002-2007 (Source: T-100 Database)

	2008-2012 SEATS	AVERAGE PER YEAR	MARKET SHARE
CO	43225	8645	23,46%
AA	0	0	0,00%
US	51715	10343	28,07%
Y2	22034	4407	11,96%
VS	30263	6053	16,43%
MT	26700	5340	14,49%
UA	10309	2062	5,60%
	184246	**36849**	**100,00%**

Table D.11: Average amount of market share in Glasgow from 2008-2012 (Source: T-100 Database)

Annex E: Spain

Tables and figures related to chapter 8

YEAR	TOTAL TRAFFIC	ANNUAL GROWTH
2002	1147249	
2003	1118236	-2,53%
2004	1303798	16,59%
2005	1498633	14,94%
2006	1424505	-4,95%
2007	1596272	12,06%
2008	1644182	3,00%
2009	1741892	5,94%
2010	2011013	15,45%
2011	2164785	7,65%
2012	2030584	-6,20%

Table E.1: Transatlantic passenger traffic from Spain 2002-2012 (Source: T-100 Database)

YEAR	TOTAL DEPARTURES	ANNUAL GROWTH
2002	6897	
2003	6819	-1,13%
2004	7011	2,82%
2005	6921	-1,28%
2006	6834	-1,26%
2007	7763	13,59%
2008	8154	5,04%
2009	8719	6,93%
2010	9765	12,00%
2011	10940	12,03%
2012	9927	-9,26%

Table E.2: Transatlantic departures from Spain 2002-2012 (Source: T-100 Database)

CITY	2002 CARRIERS	2002 CARRIER NAME	2003 CARRIERS	2003 CARRIER NAME	2004 CARRIERS	2004 CARRIER NAME	2005 CARRIERS	2005 CARRIER NAME	2006 CARRIERS	2006 CARRIER NAME
Atlanta (ATL)	1	DL	1	DL	1	DL	1	DL	1	DL
Boston (BOS)	0	-	0	-	0	-	0	-	0	-
Charlotte (CLT)	0	-	0	-	0	-	0	-	0	-
Dallas (DFW)	0	-	0	-	0	-	0	-	0	-
Newark (EWR)	1	CO	1	CO	1	CO	1	CO	1	CO
Washington (IAD)	0	-	0	-	0	-	0	-	0	-
New York (JFK)	2	DL, IB	2	DL, IB	2	DL, IB	3	A7, DL, IB	3	A7, DL, IB
Los Angeles (LAX)	0	-	0	-	0	-	0	-	0	-
Miami (MIA)	2	AA, IB	2	AA, IB	2	AA, IB	2	AA, IB	2	AA, IB
Chicago (ORD)	1	IB	1	IB	1	IB	1	IB	1	IB
Philadelphia (PHL)	1	US	1	US	1	US	1	US	1	US
San Juan (SJU)	1	IB	1	IB	1	IB	1	IB	1	IB
TOTAL CARRIERS	**9**		**9**		**9**		**10**		**10**	
TOTAL LINKS	**6**		**6**		**6**		**6**		**6**	

Figure E.1: Direct links from Madrid with amount of carriers and carriers' name (2002-2007) (Source: T-100 Database)

2007 CARRIERS	2007 CARRIER NAME	2008 CARRIERS	2008 CARRIER NAME	2009 CARRIERS	2009 CARRIER NAME	2010 CARRIERS	2010 CARRIER NAME	2011 CARRIERS	2011 CARRIER NAME	2012 CARRIERS	2012 CARRIER NAME
1	DL	1	DL	1	DL	1	DL	1	DL	1	DL
1	IB	1	IB	1	IB	1	IB	1	IB	1	IB
0	-	0	-	0	-	0	-	1	US	1	US
0	-	0	-	1	IB	1	AA	1	AA	1	AA
1	CO	1	CO	1	CO	1	CO	1	CO	1	UA
1	IB	1	IB	1	IB	2	EI, IB	1	EI	1	EI
2	DL, IB	2	DL, IB	3	DL, IB, UX	4	AA, DL, IB, UX	4	AA, DL, IB, UX	4	AA, DL, IB, UX
0	-	0	-	0	-	0	-	1	IB	1	IB
2	AA, IB	2	AA, IB	2	AA, IB	3	AA, IB, UX	3	AA, IB, UX	2	AA, IB
1	IB	1	IB	1	IB	1	IB	1	IB	1	IB
1	US	1	US	1	US	1	US	1	US	1	US
1	IB	1	IB	1	IB	1	IB	1	IB	1	IB
11		**11**		**13**		**16**		**17**		**16**	
8		**8**		**9**		**9**		**11**		**11**	

Figure E.2: Direct links from Madrid with amount of carriers and carriers' name (2007-2012) (Source: T-100 Database)

CITY	2002 CARRIERS	2002 CARRIER NAME	2003 CARRIERS	2003 CARRIER NAME	2004 CARRIERS	2004 CARRIER NAME	2005 CARRIERS	2005 CARRIER NAME	2006 CARRIERS	2006 CARRIER NAME
Atlanta (ATL)	1	DL	1	DL	1	DL	1	DL	1	DL
Newark (EWR)	0	-	0	-	0	-	0	-	1	CO
New York (JFK)	1	DL	1	DL	1	DL	1	DL	1	DL
Miami (MIA)	0	-	0	-	0	-	0	-	0	-
Philadelphia (PHL)	0	-	0	-	0	-	1	US	1	US
TOTAL CARRIERS	**2**		**2**		**2**		**3**		**4**	
TOTAL LINKS	**2**		**2**		**2**		**3**		**3**	

Figure E.3: Direct links from Barcelona with amount of carriers and carriers' name (2002-2006) (Source: T-100 Database)

2007 CARRIERS	2007 CARRIER NAME	2008 CARRIERS	2008 CARRIER NAME	2009 CARRIERS	2009 CARRIER NAME	2010 CARRIERS	2010 CARRIER NAME	2011 CARRIERS	2011 CARRIER NAME	2012 CARRIERS	2012 CARRIER NAME
1	DL	1	DL	1	DL	1	DL	1	DL	1	DL
1	CO	1	CO	1	CO	1	CO	1	CO	1	UA
1	DL	2	AA, DL	2	AA, DL	2	AA, DL	2	AA, DL	2	AA, DL
0	-	0	-	0	-	0	-	1	IB	1	AA
1	US	1	US	1	US	1	US	1	US	1	US
4		**5**		**5**		**5**		**6**		**6**	
3		**3**		**3**		**3**		**4**		**4**	

Figure E.4: Direct links from Barcelona with amount of carriers and carriers' name (2007-2012) (Source: T-100 Database)

	2002-2007 SEATS	AVERAGE PER YEAR	MARKET SHARE
DL	152946	25491	14,51%
CO	112267	18711	10,65%
IB	608091	101349	57,68%
AA	76782	12797	7,28%
US	95174	15862	9,03%
A7	9000	1500	0,85%
UX	0	0	0,00%
EI	0	0	0,00%
UA	0	0	0,00%
	1054260	**175710**	**100,00%**

Table E.3: Average amount of market share in Madrid from 2002-2007 (Source: T-100 Database)

	2008-2012 SEATS	AVERAGE PER YEAR	
DL	144709	28942	11,38%
CO	78232	15646	6,15%
IB	610843	122169	48,05%
AA	160826	32165	12,65%
US	108033	21607	8,50%
A7	0	0	0,00%
UX	110020	22004	8,65%
EI	48744	9749	3,83%
UA	9971	1994	0,78%
	1271378	**254276**	**100,00%**

Table E.4: Average amount of market share in Madrid from 2008-2012 (Source: T-100 Database)

	2002-2007 SEATS	AVERAGE PER YEAR	MARKET SHARE
DL	146143	24357	71,95%
US	36856	6143	18,15%
CO	20119	3353	9,91%
AA	0	0	0,00%
IB	0	0	0,00%
UA	0	0	0,00%
	203118	**33853**	**100,00%**

Table E.5: Average amount of market share in Barcelona from 2002-2007 (Source: T-100 Database)

	2008-2012 SEATS	AVERAGE PER YEAR	MARKET SHARE
DL	160913	32183	41,75%
US	68858	13772	17,87%
CO	51450	10290	13,35%
AA	86653	17331	22,48%
IB	7112	1422	1,85%
UA	10441	2088	2,71%
	385427	**77085**	**100,00%**

Table E.6: Average amount of market share in Barcelona from 2008-2012 (Source: T-100 Database)

Alliance member overview

Star Alliance

Member airline	Code	Member since	Nationality
Adria Airways	JP	2004	Slovenia
Aegean Airlines	A3	2010	Greece
Air Canada	AC	1997	Canada
Air China	CA	2007	China
Air India	AI	2014	India
Air New Zealand	NZ	1999	New Zealand
ANA	NH	1999	Japan
Asiana Airlines	OZ	2003	Korea
Austrian Airlines	OS	2000	Austria
Avianca	AV	2012	Colombia
Brussels Airlines	SN	2009	Belgium
Continental Airlines	CO	2009-2012	United States
Copa Airlines	CM	2012	Panama
Croatia Airlines	OU	2004	Croatia
EGYPTAIR	MS	2008	Egypt
Ethiopian Airlines	ET	2011	Ethiopia
EVA Air	BR	2013	Taiwan
LOT Polish Airlines	LO	2003	Poland
Lufthansa	LH	1997	Germany
Scandinavian Airlines	SK	1997	Denmark, Sweden, Norway
Shenzhen Airlines	ZH	2012	China
Singapore Airlines	SQ	2000	Singapore
South African Airways	SA	2007	South Africa
SWISS	LX	2006	Switzerland
TAP Portugal	TP	2005	Portugal
THAI	TG	1997	Thailand
Turkish Airlines	TK	2008	Turkey
United	UA	1997	United States
*US Airways	US	2004-2014	United States

* From 2014 part of Oneworld Alliance.

SkyTeam

Member airline	Code	Member since	Nationality
Aeroflot	SU	2006	Russia
Aerolíneas Argentinas	AR	2012	Argentina
Aeroméxico	AM	2000	Mexico
Air Europa	UX	2007	Spain
Air France	AF	2000	France
Alitalia	AZ	2009	Italy
China Airlines	CI	2011	Taiwan
China Eastern Airlines	MU	2011	China
China Southern Airlines	CZ	2007	China
Continental Airlines	CO	2004-2009	United States
Czech Airlines	OK	2001	Czech Republic
Delta Air Lines	DL	2000	United States
Garuda Indonesia	GA	2014	Indonesia
Kenya Airways	KQ	2007	Kenya
KLM	KL	2014	The Netherlands
Korean Air	KE	2000	South Korea
Middle East Airlines	ME	2012	Lebanon
Northwest Airlines*	NW	2004-2010	United States
Saudia	SV	2012	Saudi Arabia
TAROM	RO	2010	Romania
Vietnam Airlines	VN	2012	Vietnam
Xiamen Airlines	MF	2012	China

*Merged with Delta Airlines in 2010

Oneworld

Member airline	Code	Member since	Nationality
Aer Lingus	EI	2000-2007	Ireland
Air Berlin	AB	2012	Germany
American Airlines	AA	1999	United States
British Airways	BA	1999	United Kingdom
Cathay Pacific	CX	1999	Hong Kong
Finnair	AY	1999	Finland
Iberia	IB	1999	Spain
Japan Airlines	JL	2007	Japan
LAN Airlines	LA	2000	Chile
Malaysia Airlines	MH	2013	Malaysia
Qantas	QF	1999	Australia
Qatar Airways	QR	2013	Qatar
Royal Jordanian	RJ	2007	Jordan
S7 Airlines	S7	2010	Russia
SriLankan Airlines	UL	2014	Sri Lanka
TAM Airlines	JJ	2014	Brazil
US Airways*	US	2014	United States

*Affiliate of American Airlines due to merger


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