# Impacts of the US EU open skies agreement on future network structure – possible course of action for European legacy carriers

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## Abstract

The upcoming effects of the US EU Open skies agreement will have an impact on the network structure of carriers operating transatlantic routes. This paper will focus on the possible scope of actions within the network structure of traditional legacy or network carriers. It will point out the strategic options for network carriers in the context of increased competition and consolidation with regard to the US EU Open skies agreement. Network options such as decentralization of hub traffic or increased hub operations will be examined. In terms of competition and consolidation the role of new business models, alliances and transatlantic joint ventures will be discussed. The research is mainly based on qualitative data retrieved from traditional literature and professional journals as well as quantitative data base research.

## Introduction

On March 30, 2008 the former system of individual bilateral agreements on traffic rights across the Atlantic was replaced by the new US EU open skies agreement creating a transatlantic Open Aviation Area. This first phase of this two-stage deal will mainly give EU carriers the possibility to fly from any city in the EU to any city in the US and vice versa. According to the study “The Economic Impacts of an Open Aviation Area between the EU and the US” by Booz Allen Hamilton, the transatlantic agreement will create consumer benefits and increase traffic and competition. The transatlantic open skies agreement will generate three million additional passengers this year and 26 million over the first five years.[1]

This paper will focus on the positioning and scope of actions for traditional European network carriers in the context of changing regulatory framework, increased competition, and emerging consolidation. The regulatory changes in Phase I of the open skies agreement will light the possible network options for carriers operating transatlantic services. The initial classification and transatlantic market positioning with the main European airlines clarifies their current and post-open skies network strategies. From this point of view the future scope of actions with open skies and European consolidation will be examined. Moreover this paper will shade light on the role of new business models, transatlantic joint-ventures and alliances in the context of increased competition.

We can conclude from this research that the rights granted for European carriers will only be used to a limited scope due to lacking economies of scale, scope and density which this network options provide. The major changes will occur at London Heathrow affecting British Airways as the main actor. Moreover the transatlantic liberalization and following consolidation will definitely force oligopolistic market structures. Nevertheless ownership and control regulations must change for free flow of labor and capital to reduce airline inefficiencies.

**Regulatory Changes in Phase I**

According to the European Commission (EC), Directorate-General Energy and Transport the changes in the open skies deal in the first stage are as follows:[2]

Market Access:

- US accepts Community air carrier concept
- Unlimited third/fourth and fifth freedom rights
- Seventh freedom rights: Unlimited all-cargo rights for EU airlines, but no additional rights for US airlines; limited passenger rights for EU airlines, no rights for US airlines
- Free pricing, except US carriers cannot price-lead on intra-EU routes

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Booz Allen Hamilton, The Economic Impacts of an Open Aviation Area between the EU and the US, page 228

[2] EC Presentation: EU/US First Stage Air Transport Agreement

- Unlimited code sharing
- Franchising and branding opportunities
- New opportunities for EU airlines to provide aircraft with crew (wet-lease) to US airlines on international routes
- Access for EU airlines to certain Fly America traffic
- EU airlines qualify for antitrust immunity

Ownership and Control:

- US airlines: Guarantees concerning permissible percentage ownership by EU nationals, including possibility to exceed 50% of total equity
- Guarantee of fair and expeditious consideration of transactions involving EU investment in US airlines
- EU airlines: Right to limit US investments in EU airlines reciprocally to 25% voting equity
- Acceptance by US of any EU airline owned or controlled by EU or ECAA citizens
- 3rd country airlines: Unilateral acceptance by US of EU ownership and control of any airline in the EEA, ECAA, and 18 African countries
- Joint Committee role in matters concerning ownership and control

16 EU member states already enjoyed open skies with the US.[3] Countries now additionally covered by Open skies are: UK, Spain, Ireland, Bulgaria, Cyprus, Estonia, Greece, Hungary, Latvia and Lithuania. Norway, Switzerland and Iceland though no members of the EU were already covered with the EFTA air service agreement (ASA).[4]
The paper will exclusively focus on passenger traffic with respect to network related topics as well as ownership and control issues affecting consolidation and market concentration. Due to the limited focus cargo and integrator business will be neglected. In addition this paper will rather concentrate on European network carriers instead of American carriers.

[3] Air Transport World, March 2008, page 5
[4] Booz Allen Hamilton, The Economic Impacts of an Open Aviation Area between the EU and the US,, page 10

**Classification of European network carriers**

European network or legacy carriers can be defined as former or still partially state owned flag carriers which significantly focused on hub and spoke operations in the post-deregulated European airline industry.[5] The way these airlines developed strongly depends on factors such as geographical location economies, the size and purchase parity of their home markets, the proportion of connecting traffic attracted partly by means of governmental policies (bilateral regimes) or geopolitical factors and opportunities created by trade and migration.[6] Distinct classification is therefore only possible to a limited scope. However these factors are decisive for future network strategies in the context of the changing regulatory framework with open skies. To estimate the impacts of the US EU open skies agreement on future network structure and the scope of actions that airlines can make use of, the top 10 European airlines in terms of transatlantic traffic will be classified according to the following factors:

- Regulatory change of the traffic agreement with respect to the carrier’s home country
- Market size and potential of home markets
- Transatlantic market share based on frequencies and seat capacity (OAG Data) and transatlantic stake of revenue-tonne-kilometers (RTK)

*Regulatory change of the traffic agreement with respect to the carrier’s home country:*

Airlines from countries additionally covered by the open skies will be mostly affected. The country primarily concerned is the UK. Spain and Ireland are also concerned on a medium level. Other countries which recently were covered under open skies can be neglected due to their smaller market economies and their minor or lacking stake in transatlantic operations. For the UK the carriers mostly affected are British Airways and Virgin Atlantic as these were initially covered by the Bermuda II air service agreement (ASA). This ASA granted extraordinary profitable traffic rights to the US for four carriers from London Heathrow (LHR). British Airways and Virgin Atlantic as the UK carriers and American Airlines and United Airlines as US carriers were allowed to

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[5] Williams G., The Airline Industry and the Impact of Deregulation, page 114

[6] Staniland M., Open skies - fewer planes?

operate services from LHR to the US and vice versa. [7] This 30 year old agreement made it possible for British Airways to gain around 70% of its profits on the North Atlantic.[8] Moreover Bmi is affected as the third airline for the UK. Although having a major stake in highly valuable LHR slots (Bmi's stake: 11.3%[9]), Bmi was up to now not allowed to operate transatlantic flights from LHR. In the context of intra-European consolidation the role of Bmi will be later examined.

For Spain, Iberia as the former flag carrier will be concerned. Iberia was up to now restricted concerning services over the North Atlantic. The former agreement limited the Spanish carrier to only three US gateways (New York JFK, Chicago O'Hare ORD, Miami MIA).[10]

Aer Lingus is affected as it was for a long time limited on full transatlantic traffic rights. They were forced under the old agreement to route several flights via Shannon and were restricted to the following US gateways: JFK, Boston (BOS), ORD, Los Angeles (LAX).[11] Due to its cultural bounds and near distance to the US, Aer Lingus possesses significant geographical location economies. With the announcement of the open skies agreement in 2007, Aer Lingus launched new routes to Washington Dulles (IAD), Orlando (MCO) and San Francisco (SFO).[12]

These carriers were either restricted in free market access or protected from competition. Therefore it can be assumed that their necessity and pressure to act is higher than with carriers whose countries already operated under a fairly liberal ASA with the US. In particular the abolishment of Bermuda II on LHR will influence British Airways and Virgin Atlantic in their strategic decision on transatlantic networks.

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7 Williams G., Airline Competition: Deregulation's Mixed Legacy, page 150
8 Calder S., Would transatlantic 'open skies' be good for UK airlines and, The Independent
9 Airline Business, April 2008, page 30
10 Airline Business, May 2007, page 28
11 Air Transport World, March 2008, page 30
12 Airline Business, April 2008, page 60

*Market size and potential of home markets:*

Examining European network carriers there are significant differences concerning the home market size. In 2005 the top five European countries (UK, Germany, France, Italy and Netherlands) accounted for 82% (80% in 2000) of the complete traffic between Europe and the US.[13] The following table shows the top 10 European countries in terms of total population and transatlantic passengers. The order is descending from most to least transatlantic passengers. In the last column we derive the factor transatlantic passenger per inhabitant to measure the importance of services to the US for the given market economy.

| **Country** | **Population [14] (thousands)** | **Transatlantic Passengers [15] (thousands)** | **Transatlantic Passengers per Inhabitant** |
|---|---|---|---|
| **UK** | 60,776 | 18,158 | **0.30** |
| **Germany** | 82,401 | 8,490 | **0.10** |
| **France** | 64,057 | 6,358 | **0.09** |
| **Netherlands** | 16,570 | 4,659 | **0.29** |
| **Italy** | 58,147 | 2,635 | **0.05** |
| **Ireland** | 4,109 | 1,842 | **0.45** |
| **Spain** | 40,448 | 1,722 | **0.04** |
| **Switzerland** | 7,554 | 1,431 | **0.19** |
| **Belgium** | 10,392 | 753 | **0.07** |
| **Denmark** | 5,468 | 623 | **0.11** |

Source: CIA World Factbook, Booz Allen Hamilton

The amount of transatlantic passengers per inhabitant significantly differs from country to country. It can be assumed that countries with a high value play a more significant role in transatlantic traffic than countries with a lower value taking into account their actual size. Their market size (transatlantic passengers) as well as their market potential (transatlantic passengers per inhabitant) clarifies their initial stand point for open skies. Hence the carriers from the countries with a larger market size and a higher value have a

[13] Booz Allen Hamilton, The Economic Impacts of an Open Aviation Area between the EU and the US, page 20

[14] CIA World Factbook

[15] Booz Allen Hamilton, The Economic Impacts of an Open Aviation Area between the EU and the US, page 22

stronger pressure to act under the new transatlantic treaty. Concerning market size the UK, Germany, France, the Netherlands and Italy can be seen as the most important countries for transatlantic services. Concerning market potential countries in a value range of 0.45 to 0.15 are chosen: Ireland, the UK, the Netherlands and Switzerland.

*Transatlantic market share based on frequencies and seat capacity (OAG data) and transatlantic stake of revenue tonne-kilometers (RTK):*

In order to derive a suitable classification of European network carriers the transatlantic market share based on frequencies and seat capacities will be analyzed. Therefore the top 10 European airlines will be considered. The frequency and capacity shares in the table below are calculated on a cumulated basis including all carriers (also US carriers and fifth freedom carriers).

The top 6 American carriers (Delta, Continental, American, United, Northwest, US Airways) have a cumulated frequency share of 48% whereas the Top 10 European Carriers account for 42%.

| Carrier | Frequency Share April 2008[16] | Capacity Share April 2008[17] | Transatlantic RTK share[18] |
|---|---|---|---|
| **British Airways** | **10.7%** | **11.6%** | **39.7%** |
| **Lufthansa** | **8.8%** | **10.1%** | **31.2%** |
| **Air France** | **5.1%** | **5.6%** | **23.1%** |
| **Virgin Atlantic** | **4.6%** | **6.6%** | **57.2%** |
| **KLM** | **2.9%** | **2.9%** | **19.7%** |
| **Aer Lingus** | **2.3%** | **2.7%** | **42.2%** [19] |
| **Swiss** | **2.1%** | **1.5%** | **32.2%** |
| **Alitalia** | **1.8%** | **1.8%** | **25.5%** |
| **SAS** | **1.6%** | **1.6%** | **26.5%** |

Source: Air Transport World, March 2008, page 28/29; AEA Yearbook; Aer Lingus

[16] Air Transport World, March 2008, page 28
[17] Air Transport World, March 2008, page 29
[18] AEA Yearbook 2007
[19] http://www.aerlingus.com/Corporate/Results_Presentation.pdf

British Airways, Lufthansa, Air France – KLM and Virgin Atlantic account for 76% of the frequencies offered by European carriers. Aer Lingus as a smaller carrier was able to build up frequencies for the start of open skies until end of March 2008. Consequently British Airways, Lufthansa and Air France - KLM are the clear leading European airlines in terms of frequencies provided over the Atlantic.

Regarding the seat capacity the top 6 US airlines account for 44% of the total capacity whereas the top 10 European airlines amount 46%. British Airways, Lufthansa, Air France – KLM and Virgin Atlantic with 79% of the total European seats on the market are the main capacity providers on routes to the US. Whereas US carriers are leading in terms of frequencies, European airlines tend to have a larger proportion of capacity.

Virgin Atlantic, Aer Lingus and British Airways which derive a main part of their revenues from the North Atlantic are mainly concerned in the context of RTKs. As they derive a major income factor from transatlantic operations these carriers have a vital interest in securing their historic and potential future market share over the North Atlantic. Especially Virgin Atlantic which produces more than half its RTKs on routes to the US will be seriously affected by open skies.

The main affected carriers are British Airways, Lufthansa, Air France – KLM, Virgin Atlantic and Aer Lingus. To a certain extent we can consider Iberia as another affected carrier. By means of this classification British Airways, Air France – KLM and Lufthansa can be called 1$^{st}$ tier carriers as they play an active role and their market power is predominant in the European airline industry. Virgin Atlantic, SAS, Swiss, Aer Lingus, Iberia, Alitalia, Austrian, Lot, Tap or Finnair can be seen as 2$^{nd}$ or even 3$^{rd}$ tier carriers as they are lacking sufficient economies of scale, scope and density for a long-term survival.

**Initial market positioning with respect to transatlantic network strategies**

From the classification of Europe's full service network carriers the initial market positioning with respect to transatlantic network strategies will be revealed. The following chapter will focus on the most affected and predominant European carriers: British Airways, Air France – KLM, Lufthansa, Virgin Atlantic, Aer Lingus and Iberia. Aer Lingus in the last years oriented itself along the domestic competitor Ryanair and even introduced one-way fares on long-haul flights. They are seen differentiated from the other carriers as it promotes itself as the transatlantic price leader. Virgin Atlantic as a pure long haul carrier leaves out short haul connection traffic and mainly fills its capacity from the vast and valuable London catchment area. From a geographical point of view one can recognize that the home countries of carriers such as Iberia and Aer Lingus are not capable to locate a hub for intra-European transversal connection flights. Iberia therefore and mainly due to its cultural bounds concentrated on connection routes to Latin America. Aer Lingus whose hub Dublin is also not appropriately located for transversal intra-European connection flights focused on the connection of continental-European passengers to the US creating certain economies of scale. British Airways as the major European capacity provider over the Atlantic for decades benefited from Bermuda II. In contrast to its main European rivals Air France – KLM and Lufthansa, British Airways is not so heavily dependent on connecting traffic to feed its transatlantic services due to the extraordinary London catchment area. Apart from that, London Heathrow, Europe's number one gateway to the US, is chronically congested and its lacking hub and spoke structure makes competitive connecting traffic almost impossible. In contrast to other hubs LHR can be defined as continuous hub as there is no clear cut bank structure. Also London Gatwick (LGW) is inappropriate for hub and spoke operations due to the lack of runway capacity and runway layout. British Airways consequently does not offer so many transfer connections as for example Air France – KLM or Lufthansa. KLM faces the dilemma of being to big for the Netherlands and to small for Europe.[20] Due to the small home market KLM was always dependent on international connections and hence strongly focused on transfer traffic. Moreover the Netherlands' geographical location and liberal US open skies policy ideally supported KLM concerning US hub connection traffic. Hence KLM became a precursor with the KLM – Northwest partnership in 1992. Air France, similar to British Airways, has the advantage of a huge metropolitan area generating substantial local demand at Paris. Additionally Air France developed a highly efficient hub and spoke structure at CDG exploiting excellent economies of scale, scope and density. Due to the decentralization of Germany Lufthansa strongly focuses on its hubs Frankfurt and Munich. Lufthansa is

[20] Burghouwt G., Airline Network Development in Europe and its Implications for Airport Planning, page 107

today amongst the leading European carriers partly because of Germany's excellent geographical location for serving intra-European transversal routes. Frankfurt benefits from aircraft size effects but on the other hand suffers from lack of capacity. Munich's geographically disadvantaged position concerning transatlantic connection flights is balanced with excellent connecting times and high service quality. The double hub strategy paired with a high density of frequencies enabled LH an excellent competitive positioning among other carriers in Europe.

The following table shows the number of transatlantic destinations for each carrier concerned. Moreover the average number of frequencies per transatlantic destination is shown. In terms of total destinations and average frequencies British Airways and Lufthansa are clear leaders.

| Carrier | # of transatlantic destinations[21] | # of frequencies per transatlantic destination[22] |
|---|---|---|
| **British Airways** | **24** | **2.464** |
| **Lufthansa** | **18** | **2.022** |
| **Air France** | **13** | **1.538** |
| **KLM** | **11** | **1.312** |
| **Virgin Atlantic** | **10** | **1.743** |
| **Aer Lingus** | **7** | **1.102** |
| **Iberia** | **4** | **1.286** |

Source: OAG Data

KLM and Air France together offer 15 destinations with an average frequency of 2.3 per transatlantic destination. One can assume that these four carriers might have the biggest influence in the context of US EU open skies. In the post-deregulated industry Lufthansa, Air France and KLM managed to build up economies of scale, scope and density by channeling the majority of transatlantic passengers through their hubs and by reducing competition by means of alliances and fortress hubs. British Airways and Virgin which were long protected under the Bermuda II agreement will be affected but nevertheless have built up substantial market shares. Moreover they have the essential resource of LHR slots which will finally decide whether market access is possible or not.

[21] OAG Data
[22] OAG Data

The following table shows the slot share of Europe's top hubs with the biggest 3 slot owners.[23]

| Hub | Carrier 1 | Carrier 2 | Carrier 3 |
|---|---|---|---|
| **London LHR** | **British Airways 41.4%** | **Bmi 11.3%** | **Lufthansa 4.3%** |
| **Paris CDG** | **Air France 41.8%** | **Lufthansa 4.7%** | **CityJet 3.9%** |
| **Frankfurt** | **Lufthansa 57.8** | **Condor 2.3%** | **Austrian 2.2%** |
| **Amsterdam Schiphol** | **KLM 45.2%** | **Transavia 8.2%** | **Martinair 3.2** |

Source: Airline Business, October 2007, page 72-74

The major European carriers built up anticompetitive positions in securing the majority of slots at their home airport. Special interest should be given to the fact that Lufthansa also ranks on foreign hubs among the leading carriers concerning slot share. This might be a competitive advantage in the context of open skies and the possibility of 7th freedom flights for European carriers.

With respect to open skies one can assume that despite a transatlantic liberalization market access is limited as the top European hubs are facing under-capacity on slots. Especially LHR where about 99% of all slots are used and which is one of the core targets in the recent development of open skies will not be able to provide sufficient slots for new (American) entrants.

**Competition under Open skies: Nothing but a London Heathrow gold rush?**

So far competition was most harmed in the internal EU market and in the transatlantic market. The increased competition will lead to significant cost reductions and the replacement of less efficient firms by more efficient firms. This will lead to price decreases stimulating demand and creating consumer benefits. With free access into London Heathrow a long-lasted regulatory constraint falls and clears the way for enlarged competition over the Atlantic.

The transatlantic market is currently served by 45 airlines comprising 26 EU airlines, 8 from the US and 11 other 5th freedom carriers.[24]Since 2003 capacity has increased almost

[23] Airline Business, October 2007, page 72-74
[24] ATW March 2008, page 25

40% on transatlantic routes.[25] . This raises the question whether there is really a lack of competition on the transatlantic market. Moreover as American network carriers rush into London Heathrow, one might ask the question whether this is just a London Heathrow open skies. Considering the increase of traffic for summer 2008, European airlines did not expand as fast as their American counterparts. American carriers expanded their transatlantic operations by 7.9% (available seat kilometers) while European airlines only grew 3.7%.[26] Concerning routes from London to the US traffic grew 8.5% from summer 2007 to summer 2008.[27]

Looking at an Open Aviation Area we must not forget the aviation background of the airline regimes on both sides of the Atlantic. Whereas the big four EU airlines (British Airways, Air France, Lufthansa, KLM) gain the majority of revenues on intercontinental long haul operations, American carriers' home markets account for roughly 70%.[28] Consequently, according to Doganis, US based carriers do have a competitive advantage over EU airlines as they were able to become very large and were able to build up scale on their large protected domestic market.[29] European carriers are more dependent on intercontinental revenues than American carriers and might therefore be stronger affected.

With open skies American carriers are allowed to serve intra-European 5th freedom routes. For European airlines the access to the vast US domestic market is still forbidden. These facts raise the question whether EU airlines are disadvantaged in phase I of open skies development. European 2nd and 3rd tiers such as Iberia, Alitalia, SAS, Lot, Finnair or Austrian will be seriously affected as they are lacking the economies of scale and density such as the American network carriers and Europe's 1st tiers provide.

The effects that take place in the course of open skies are at the moment very limited to London Heathrow. British Airways and Virgin Atlantic which from the European side were protected under Bermuda II will now face serious competition on the London – US routes. So far three American carriers and Air France gained access into London

[25] Airline Business, April 2008, page 58
[26] Airline Business, April 2008, page 62
[27] Airline Business, April 2008, page 62
[28] Williams G., The Aviation Industry and the Impact of deregulation, page 115
[29] Doganis R., The Airline Business, 3rd edition, page 58

Heathrow for US routes. Most of the new operations are shifted from London Gatwick to London Heathrow.

**Consolidation with regards to Open skies: On the way to an oligopolistic market?**

Following the deregulation in the US after 1978, only six full service network carriers were existent. After a time of deregulation, the foundation of new airlines, competition, bankruptcies, takeovers and consolidation less carriers were left than in a pre-deregulated industry. In the aftermath of the 9-11 terrorist attacks and the following bankruptcy of Sabena and Swissair it became clear that the European airline industry is facing overcapacity and has a need for cross border consolidation. As a consequence in 2004, KLM which was (is) definitely a 2nd tier carrier was bought by Air France creating the biggest airline worldwide in terms of revenue.[30] One year later Lufthansa acquired Swiss in order to strengthen its position in central Europe. Lufthansa's wait-and-see strategy might be surprising. The German carrier has a call option on 50% of Sir Michael Bishop' Bmi stake and SAS is willing to sell its 20% stake of Bmi.[31] With one eye on the open skies agreement Air France – KLM and Lufthansa had an interest in ailing Alitalia. Additionally British Airways extended its share in Iberia to 13.15% to gain further access into the Latin American market.[32] Therefore it is anticipated that the European 2nd and 3rd tier carriers will in the long run not have the possibility to build up economies of scale, scope and density in order to cope with the big three 1st tiers British Airways, Air France – KLM and Lufthansa. On the other hand it can be assumed that the 1st tiers which have a major active part in mergers see consolidation as a risk mitigating action which enlarges synergies and size effects. Air France – KLM and Lufthansa – Swiss let their operations and their governance separately to avoid losing traffic rights.

Regarding Phase I of the open skies agreement a transatlantic consolidation still seems to be far away. European carriers are only allowed to acquire a maximum of 25% of an American airline and US carriers can hold a maximum of 50% of an European airline. Hence a real transatlantic consolidation is not feasible. Booz Allen Hamilton postulates

[30] Iatrou K., Airline choices for the future, page 52
[31] Airline Business, April 2008, page 30
[32] http://uk.reuters.com/article/businessNews/idUKWLB880720080319

two conditions for mergers across the Atlantic:[33] First the removal of investment constraints permitting airlines to buy each other and second the ability of EU airlines to operate from any Member State to the US regardless of their country of origin (Community designation). The second point has been realized so far with the approval of full seventh freedom rights for EU carriers. Once foreign investment restrictions are liberalized, mergers and takeovers will prevail. So far, alliances have been a very effective means to make the industry more efficient, given that alliances contribute to 70% of airline synergies.[34] The main argument for American officials why not lifting the stake of foreign investment into American carriers is the CRAF (Civil Reserve Air Fleet) program. This means that US airlines guarantee military airlift in case of defense emergency. In case of an abolition of the 25% ownership rule in US carriers the US would jeopardize its national security as they were not able to trust in the dependence of foreign carriers. Otherwise the Brattle group in 2002 undertook a feasibility study concluding that an OAA between the US and EU would not jeopardize CRAF and national security if EU carriers owning US carriers are to be incorporated like any other foreign business acting within US domestic commerce.[35] Another reason for the US not to open their airline market for foreign investment might be the fact that American network carriers are currently in an economically fragile position. In comparison to their European counterparts they are lacking capital, profitability and the significant structural advantages which strengthened Europe's 1st tiers in the past years. Whereas in 2000 the top four leading airlines in terms of revenue were American carriers, the situation shifted in 2006 with Air France – KLM and Lufthansa Group ranking first in terms of revenue. This development is mainly caused by high fuel prices in connection with a weakened dollar and the EC's willingness to permit cross-border consolidation among Europe's flag carriers.[36] While intra-European consolidation gradually moves forward the US industry only shows small evidence for consolidation due to antitrust and labor union issues. Nevertheless as time is running out for antitrust review by the Bush administration,

[33] Booz Allen Hamilton, The Economic Impacts of an Open Aviation Area between the EU and the US, page 172
[34] Lelieur I., Law and Policy of Substantial Ownership and Effective Control of Airlines, page 96
[35] Brattle Group Report 2002, page 7 - 21
[36] Air Transport World, March 2008, page 5

Northwest – Delta as well as United – Continental launched merger talks.[37] However US Airways and America West, although formally merged in 2005, so far did not manage to fully join due to union pressure. In the course of the open skies development Lufthansa is a precursor with the acquisition of a 19% stake (worth $300 million) in US based Jetblue.[38] The step seems to be quite clever with Jetblue being a substantial JFK slot owner and providing a large portion of onward connections. The outcome of the American consolidation might disturb the future partnership between Lufthansa, United and US Airways. Therefore other business models such as Virgin America or Jetblue gain increased interest for US EU airline partnerships.

According to the Brattle Group report of 2002 the main benefits from a transatlantic consolidation would be the replacement of less efficient firms, the exploitation of size related economies, pricing synergies, output expansions and cross-border flows of capital and labor.[39] These benefits would create sustainable cost efficiencies resulting in extraordinary consumer benefits. However if the ongoing transatlantic liberalization will lead to an abolition of the constraints on transatlantic cross-border ownership and control, then one might assume the transatlantic airline industry to become more concentrated. As seen with the US and EU deregulation, the industry initially de-concentrated with the foundation of new competitors. After a surge of competition, bankruptcies, takeovers and consolidation there was a higher market concentration where less carriers were left than within a pre-deregulated industry.[40] This reveals the fact of oligopoly markets created by liberalization and following consolidation. Regarding the transatlantic market one can also observe today a vast concentration among the top three European airlines (BA, AF-KL, LH-LX) providing 32% of transatlantic seat capacity (see table above). Together with their European and American alliance partners these carriers dominate 81% of the total transatlantic capacity.[41] The top two airlines' (BA's and LH's share together with their alliance partners) has risen from 24% in 1999 to 57% in 2007 and they have 65% of the market between North America and continental Europe.[42] This mainly raises the

[37] Airline Business, February 2008, page 14
[38] Air Transport World, January 2008, page 5
[39] Brattle Group Report 2002, page V
[40] Hanlon P., Global Airlines, page 113
[41] Air Transport World, March 2008, page 29
[42] Air Transport World, May 2007, page 5

question whether a transatlantic consolidation focused under Phase II of the open skies agreement is creating sustainable consumer benefits within the context of an oligopolistic market.

**Network options with open skies: decentralization vs. increased hub traffic**

With open skies phase I, US and EU carriers are granted unlimited 3rd and 4th freedom rights. EU carriers are given 7th freedom rights in order to offer flights from every EU city to the US. Additionally 5th freedom rights are given to EU carriers for flights beyond the US. US carriers are granted 7th freedom rights to serve intra-European routes beyond their first stop with restrictive pricing regulations. What are the network options for European carriers arising from this new regulatory framework? – European carriers have either the chance to decentralize their operations from their hubs or increase their hub operations exploiting scale and density economies. As pointed out before, the carriers mainly concerned, either focus on hub and spoke operations such as Aer Lingus, Air France – KLM and Lufthansa or lack sufficient connecting possibilities within their hub operations such as British Airways or Virgin Atlantic. British Airways as well as Virgin Atlantic which are now particularly concerned with the lift of Bermuda II announced the start of all-premium flights from continental Europe to the US.[43] This is simply due to the fact that their home market is under heavy attack and therefore those two carriers have to react.

Concerning 7th freedom rights EU carriers have the opportunity to decentralize their operations from their hub and spoke systems and to increase competition on point to point routes. By offering a direct point to point connection, airlines can gain a more profitable positioning in the computer reservation systems and have the possibility to directly offer their product within the competitor's network.  As this possibility runs the risk of lacking connection traffic and economies of density only two European airlines considered this option so far. Air France offers a daily London Heathrow – Los Angeles service[44] and British Airways' subsidiary OpenSkies[45] announced decentralized flights from continental Europe (CDG, FRA, MAD) to JFK with smaller capacities. In June

[43] Airline Business, July 2007, page 17
[44] Air Transport World, March 2008, page 29
[45] http://flyopenskies.com/ , retrieved 6 April, 2008

2008 OpenSkies will start operations with fully depreciated B757-200s in a 52 business seats and 30 economy seats configuration.[46] The British Airways subsidiary will have a separate cost structure and separate labor contracts underlining British Airways' virtual airline strategy. Moreover British Airways' mainline plans to differentiate their product by adding services from London City Airport to JFK in an all-premium A318. This plan could be interpreted as the first step towards consumer benefits in the context of increased competition and the need for differentiation.

According to Booz Allen Hamilton, EU carriers will not seize the chance of 5th freedom beyond US rights.[47] As costs for longer flights and additional stops rise dramatically, EU carriers will prefer connections to alliance or interline partners. The main problem is the fact that 5th freedom services must attract sufficient local traffic to support the economic feasibility of such operations. This local traffic is likely to choose US airlines with a higher frequency density providing more flexibility. The similar case applies to US carriers having the right to perform intra-European flights with the restriction of not pricing below European competing carriers. Apart from the additional costs arising from extra operations, these carriers will face tremendous competition.

Airlines will not enter competitor networks in which the competitor's economies of scale, scope and density prevail. Network decentralization in the context of open skies might be successful on routes generating enough volume to sustain additional competition. As traditional long-haul capacities are too big for thinner point to point routes technological improvements with the B787 Dreamliner or A350 might facilitate such services.

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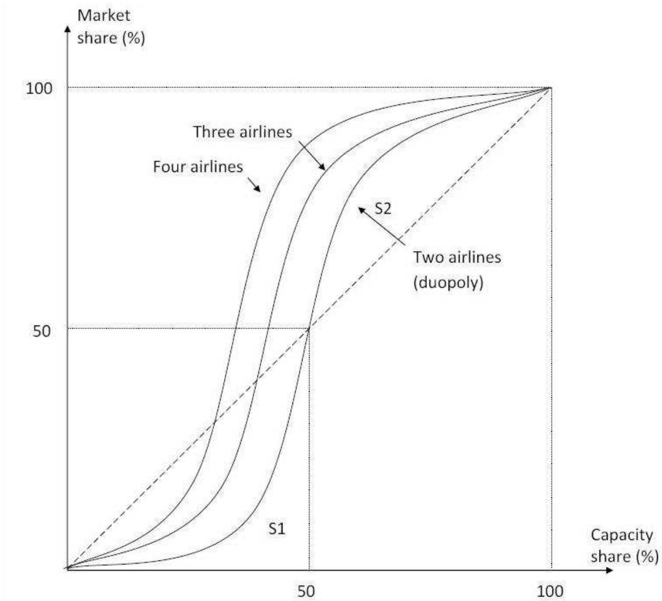
[46] Schreck A., British Airways introduces upscale OpenSkies. Deseret News FindArticles.com. 06 Apr. 2008.

[47] Booz Allen Hamilton, The Economic Impacts of an Open Aviation Area between the EU and the US, page 207




Source: Joppien M.

Taking into account the S-curve[48] effect on future hub structures of European carriers one can estimate frequencies and capacities to grow. The S-curve effect can be measured by taking the capacity or frequency share along the x-axis. Along the y-axis the market share is shown. Airlines competing in a duopoly can gain a disproportional higher market share to increased output volume (frequency, capacity). In an oligopolistic market airlines can even gain a higher market share with a small increase of their output volume. This effect can be directly applied to the transatlantic case where we can estimate the output volume to grow.

Hub and spoke operations will predominately prevail because of the aircraft size effects and economies of scope and density creating cost efficiencies. With the opening of Heathrow's Terminal 5 British Airways will have better connection opportunities to advance seamless travel. Code-share agreements will further expand over the Atlantic as it is the most common way between two airlines to combine their services, network sizes and market power. Code-sharing as well positively influences the S-curve effect without risky investments. Therefore Bmi will place its code on United flights from LHR. And Lufthansa will add its codes to UA flights from CDG.[49] However code-sharing is not

[48] Joppien M., Strategisches Airline Management, page 124,125
[49] Air Transport World, March 2008, page 29

endless, especially with the bigger carriers, because of the fact that they run out of numbers with the four digit flight number system.

**Role of new business models, alliances and transatlantic joint ventures**

Open skies sets the course for new business models, alliances and joint ventures in a new era of transatlantic travel. Apart from BA's OpenSkies airline starting flights from continental Europe to the US, other business models might also benefit from US EU open skies. Although other all-premium carriers such as PrivatAir, Silverjet, Eos or l'Avion did not announce any new routes underlying the open skies agreement, these carriers contribute to extended competition which at the end creates consumer benefits. On the other hand these business models face the burden of operating small capacity services at a low frequency out of a competitor's hub with a significant amount of routes and frequencies. In general the potential market of these carriers is limited to only very few EU - US markets which makes their survival doubtful.

Alliances in the context of open skies will play a major role. Airline alliances were mainly founded to bypass regulatory constraints such as bilateral air service agreements and cross border mergers. Moreover they generate economies of scale, scope and density with increased feeder traffic into the alliance's hubs and the increased use of code-share agreements. Alliances in general can be seen as a risk free enlargement of capacity, route network and market share at low costs creating synergies on various fields of interaction. Open skies will definitely strengthen the global airline alliances. Due to the fact that alliance partners already work under a high degree of network coordination we can assume that most of the partnering and merger activities will take place within the boundaries of each alliance. Additionally alliances, often anticipated as anticompetitive structures, will circumvent the increased competition in the course of open skies. As a result British Airways and American Airlines will apply for antitrust immunity as both carriers are affected from vanishing protectionism in LHR.

Regarding transatlantic joint-ventures Air France and Delta intend to collaborate within a joint venture similar to the KLM – Northwest transatlantic joint venture. Air France and Delta which already have antitrust immunity will start sharing revenue and profits on selected routes in April 2008 and on all transatlantic routes in 2010.[50] Additionally the joint venture is planned to include the KLM - Northwest joint venture creating a market share of 30% on the North Atlantic market.[51]

**Conclusion**

The impacts of the US EU open skies agreement will certainly create competition and enhance the current market consolidation. However regarding future network structure the agreement will only have minor effects. The 7th freedom rights as well as the 5th freedom beyond US rights in most cases will not be economically feasible.

The transatlantic market is currently served by 45 airlines with 385 daily flights in each direction. At first glance the North Atlantic seems to be competitive enough. However more than 80% of the market shares belong to alliances which reveals a vast concentration.

The rights granted for European carriers will only be used to a limited scope due to lacking economies of scale, scope and density. Decentralized point to point traffic granted under the 7th freedom requires a lean cost structure and will be an easy prey for incumbent hub carriers. Traditional hub and spoke carriers will therefore concentrate on frequency and capacity expansion to cope with the increasing competition. To exploit the "S - curve" effect increasing frequencies and capacities will be produced.

As the UK – US market accounts for 40% of total transatlantic traffic the majority of actions will be around London Heathrow and British Airways. Especially in the case of London Heathrow, slots, the most vital commodity, will be an output constraint.

The transatlantic liberalization and following consolidation will definitely enforce oligopolistic market structures which can already be seen in terms of concentrated clusters. Nevertheless intra-European consolidation is vital for European 1st tiers to secure important scale effects. Ownership and control regulations must change for free flow of labor and capital to reduce airline inefficiencies and to promote consumer benefits.

[50] Airline Business, November 2007, page 11

[51] Done K., Air France eyes joint venture with merged carrier, Financial Times, 20 February 2008, page 19

Alliances so far created global reach for airlines. They increased the airlines' networks, market shares and output. They further strengthened the leading carriers' fortress hubs and created sustainable synergies in many fields of interaction. As the rival network is better circumvented with alliance structures airlines will tend to strengthen their alliance partnerships. Hence alliances and deeper transatlantic joint ventures will dominate in a post-open skies world. Eventually constraints on cabotage, ownership and control rules must be removed to reduce airline inefficiencies and to create substantial consumer benefits. From a regulatory view common law enforcement for competition rules must be created on both sides of the Atlantic.

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