Airline Alliances and Mergers in Europe: An Analysis with special focus on the merger of Air France and KLM*

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Abstract[1]

Alliances[2] have proven to be one of the driving factors of air transport development in the past decade. Since the late 1990s, oneworld, SkyTeam and StarAlliance have emerged as the dominating airline alliances, operating combined about two-thirds of the total IATA traffic. The following paper gives a comprehensive overview on the existing literature on airline alliances, their driving forces as well as benefits and problems, for passengers, the industry itself and competition policy. We also discuss the question, whether airline alliances act as a substitute for mergers, which are impeded due to a potential loss of traffic rights as a consequence of cross-border mergers. A considerable part of the analysis will be given to the exemplary cases of the blocked British Airways – American Airlines alliance and Air France's takeover of KLM, which is in many respects interesting, from the managerial, as well as competition policy point of view. The paper closes with a summary and an agenda for future research.

[1] The paper is based on a master thesis at the University of Hamburg supervised by Wilhelm Pfähler and Hans-Martin Niemeier.

[2] Strategic alliances may be defined as long term voluntary contracts between a minimum of two independent firms. They are founded to create mutual benefits to the partners which, by this means, try to increase their competitiveness and/or their market power. Alliance partners coordinate their strategies and behavior without a major share in each other. See Netzer (1999).

1. Introduction

Ten years ago the final package of EU liberalization was implemented and also ten years ago the Star Alliance was created. This coincidence raises a lot of interesting issues. Firstly, how successful are alliances to cope with the challenges of a liberalized market? Jürgen Weber, the former CEO and one of the founders of Star Alliance judges alliances enthusiastically: “If there were not already alliances, then they should be invented.” (Kewes, 2007) Less optimistic is the judgement of Michael Porter “Alliances are a toll for extending or reinforcing competitive advantage, bur rarely a sustainable means for creating it.” (Porter, 1990) Secondly, as EU liberalization is part of an overall process of liberalization will the future liberalization of air transport make alliances unnecessary. Alliances are sometimes seen as second best solutions to circumvent restrictive bilateral agreements. With further liberalization will alliances be transformed into mergers? Thirdly, alliances raise concern about uncompetitive behaviour. Have alliances gained market power and is there evidence of abusing a dominant market position? How have the cartel offices reacted to alliances?

The paper tries to give an answer to these questions by reviewing the literature. We firstly outline the development of airline alliances in Europe over the last decade. Secondly, we look at the drivers of alliances. Alliances can create economies of scale, scope and density and overcome the obstacles of restrictive bilateral air service agreements. On the other hand they can create diseconomies. Thirdly, we analyse the effects of alliances on economic welfare and review decisions of cartel offices on alliances. Fourthly, we analyse the case of the merger between KLM and Air France. In the last paragraph we sum up the results and define an agenda for further research.

2. The Development of Airline Alliances

Modern alliances in Europe have developed in a transmission phase from a highly regulated environment to a deregulated one. The development in Europe towards liberalized markets was at the same time bilateral via new contracts between member states, as also multilateral, through policy instruments of the EU-Commission and the European Court. Contrary to the US-authorities who had

established a one-step deregulation in 1978, the European Commission preferred a step by step development during three phases which ended in the 8th freedom within the European Union in 1997, the year of the establishment of Star Alliance.
This is a reason why we observe the same industry developments in Europe, like establishment of LCC, concentration of Flag Carriers, or growth of Mega-hubs certain years after their same counterparts in the United States.
Nowadays, there are two different regimes in aviation as described by Doganis (2002, p 26f). On the one hand we observe open skies within Europe and on the other hand there exist bilateral agreements with restrictive boundaries for airlines in between countries. In this environment it was not an aim of companies to combine their businesses neither to merge, nor to make acquisitions. The only opportunity of worldwide growth was establishing loose alliances.

Bilateral alliances with code sharing agreements were established during the 80ies. KLM and NWA formed the first and most important alliance of this kind in 1988. The starting point for global airline alliances can be fixed in 1995 during a meeting of airline executives in Wyoming. It was Jürgen Weber's idea to organize airlines in this weak kind of organization to generate following advantages:

- Establishing a network of worldwide destinations via code sharing without integrating other airlines into one company
- Formation of a network of partners during times of financial instability to increase market power
- Marketing advantages via growth of integrated FFP, one branding at all important international airports,

Jan Stenberg, then Chairman of SAS, said during the signing of the contracts "The partnership only entails collaboration on industry standards. It is nothing more than the transformation of what has already been agreed, under previously approved bilateral agreements, into a multilateral format".
Today we observe three global airline alliances, **one**world, SkyTeam and Star Alliance and a considerable level of concentration, as nearly two thirds of all IATA-flights worldwide are executed by members of these three alliances. Tables 1 and 2 demonstrate the key facts:

Table 1: Members of the three global Alliances

	Star Alliance	oneworld	SkyTeam
North America	United, US Airways, Air Canada	American Airlines	Delta, NWA, Continental
South- and Middle America	-	LAN Chile	Aeromexico
Europe	Bmi, Lufthansa-Swiss, SAS, Austrian Airlines, LOT, TAP, Spanair	BA, Iberia, Finnair, Malev	Air France-KLM, Alitalia, CSA, Aeroflot
Africa	South African Airways	-	-
Asia, Pacific	Thai, Singapore Airlines, ANA, Asiana Airlines, Air New Zealand	Royal Jordanian, Qantas, Cathay Pacific Airways, JAL	Korean Airlines

Source: **one**world (2007), SkyTeam (2007), Star Alliance (2007),

The EU-US open skies agreement, which will become effective from March 2008, will result in considerable changes for the transatlantic market. This development will change the structure of the European and American airline industry. Competition will

Table 2: Key values of Star Alliance, **one**world and SkyTeam

Alliance	Star Alliance	Oneworld	SkyTeam
Founded in	1997	1999	2000
Member Airlines	17	10	10
Countries served	155	142	148
Airports served	855	692	728
Daily Departures	>16,000	9,190	14,615
Passengers/Year	405.7 Mio.	319.7 Mio	327.9 Mio
Employees	357,761	266,426	286,958
Fleet	2,777	2,453	2,018
RPK	859,000M.	688,150M.	660,680M.
global airline traffic share	27.0%	22.0%	21.6%

Source: oneworld (2007), SkyTeam (2007), Star Alliance (2007).

increase and profits decrease on specific routes while new entrants will enter the market. Thus we will observe a change in the competition and maybe in the situation and the stability of alliances. A new step is passed: BA tries to make the acquisition of Iberia; AUA, bmi and Alitalia are candidates for a takeover.

A key question is: Shall Airlines organize their future business in alliances or should they merge to transnational, global enterprises? This question is a starting point for this article. We will discuss further in chapter 3 the question what drives alliances: the economics behind alliances

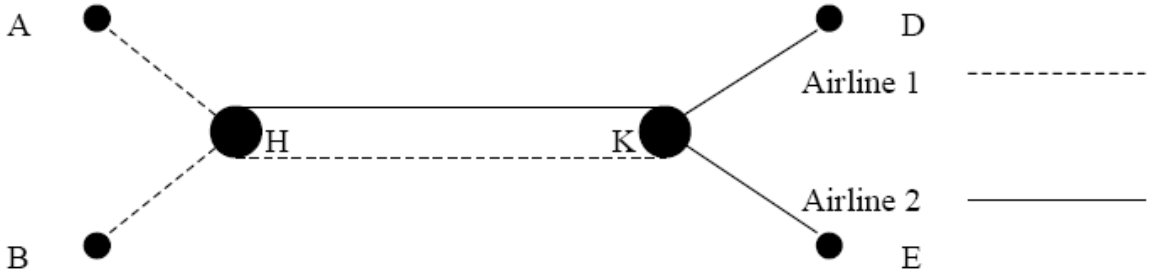
3. What drives Alliances?

In this section we outline the major drivers of airlines alliances. We start with those drivers which have a positive effect namely economies of sale, scope and density, marketing advantages, circumvention of restrictive bilaterals and market power. Then under the heading of diseconomies we look also on those drivers which will limit alliances.

3.1 Economies of Scale, Scope and density

According to Gellman Research Associates (1994, ES 7) “carriers enter into transnational alliances to take advantage of economies of scope and density by increasing the size and reach of their networks.” This point is shared by numerous studies (see for example Oum et al., 2000) and it certainly has been the major driving force of code share agreements - a relatively loose, but highly popular form. Brueckner and Whalen (2000) differentiate between parallel and complementary code sharing (see figure 3.1).

Figure 3.1: A code sharing-model with two airlines



Source: Brueckner, Whalen (2000)

Parallel code sharing is given if both airlines operate the long haul route between the hubs H and K so that frequency is increased. Complementary code sharing increases the size of the network for each carrier by connecting the cities served by the partner carrier. Airlines 1 adds D and E to its network and airline 2 adds A and B to its network. Both forms are common in the airlines industry (Oum et al. 2000). Economies of scale scope and density are not only restricted to the network of flights, but are also reaped through shared lounges, check-in and baggage handling systems (Holloway, 2003, 414, Kleymann and Seristö, 2004, 13).

3.2 Marketing advantages

Integration of networks offers substantial marketing advantages to the alliance partners. Most alliances integrate their frequent flyer programmes and computer reservation programmes and run common advertisements. From the point of the traveller the airline is offering a superior good by seamless travel to all points of the network (Schäfer, 2003). By alliances carriers can increase the loyalty of their passengers. Higher switching costs allow airline alliances to earn a premium on their flights and be more effective in their response to competitors (Doganis, 2006, 87). The spreading of common costs for marketing over a larger number reduces the average costs of marketing (Hanlon, 2003)

3.3 Circumvention of restrictive bilateral Air Service Agreements

All major alliances try to achieve a balanced geographical distribution of their members in order to cover a broad range of destinations in different continents and countries, This strategy is mainly applied for circumventing restrictions from bilateral air services agreements, which very often do not allow foreign airlines to offer domestic or fifth freedom services beyond designated gateways. Even in the most liberalised forms of bilateral ASAs, called open skies agreements, it is generally not allowed to set up a network in the foreign country and to conduct cabotage.

3.4 Market power

Part of every successful strategy is it to gain market power and alliances might be a very effective instrument. Youssef and Hansen (1994, p. 416) point out that “alliances may create virtual monopolies in markets between the hubs of alliance partners”. In these long haul markets which are often very important for the carriers alliances reduce the number of competitors and might give the carrier the power to restrict output and raise prices. This can be effective for parallel alliances like for e.g. the attempted alliances between American Airlines and British Airways where the size of the network is not increased substantially and the competition on the route between London and Miami, Chicago and Dallas might be reduced. A pure complementary alliance would not create market power.

3.5 Diseconomies of alliances

A well known limiting factor for increasing the size of the firm is the management factor (see Church and Ware, 2000). While alliances might be a way to increase the scarce factor of effective management alliances can also create major diseconomies of size through management problems. Kleymann and Seristo (2004, 26) explain the failure of alliances such as Swissair-Qualiflyer, KLM-Alitalia, KLM-British Airways by factors such as overextension of financial resources, unwillingness of managers to cooperate, and strategic overlap so that no partner is willing to play the specific role

(for e.g. feeder role) in the alliance. Goel (2003) and Meyer (2004) add further factors such as ill-defined common goals, asymmetric size of carrier, divergent expectations on profitability. Another significant contributing factor to problems associated with alliances are cultural differences, which are a major factor in the complexity of the management of international firms.

4. Alliances and Welfare?

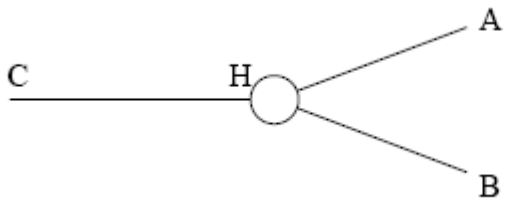
Airline alliances have been seen as the most important change of aviation in terms of competition (see Knorr, 2001). Given the rise of low cost carrier this seems to be an overstatement, but nevertheless alliances create a lot of interesting points for competition policy. We will firstly outline the theoretical relationship between alliances and welfare and secondly review the empirical evidence and thirdly look at the decision of cartel offices in Europe focusing on the major decision on the blocked alliance between American Airlines (AA) and British Airways (BA).

4.1 Theoretical Framework

Alliances can create on the hand substantial economic benefits in terms of consumer and producer surplus through various forms of cost savings. On the other hand alliances can create market power which might lead to higher air fares lower output and lower economic welfare. These divergent effects have to be assessed from the viewpoint of competition policy. In this respect airline alliances are similar to alliances and mergers in other industries. However, airline alliances create some peculiar problems which make them harder to asses in terms of competition and welfare. These peculiarities stem from the network character of hub and spoke systems. Alliances can create substantial economies of density and avoid double marginalization. These effects can be assessed by models based on the Brueckner – Spiller model 1991.

According to Brueckner and Spiller (1991) a monopolist (for example an alliance) can create economies of density which are lost if competitors enter the market. Exhibit 4.1 depicts a monopolist who serves the destinations C, H, A and B. H is the hub.

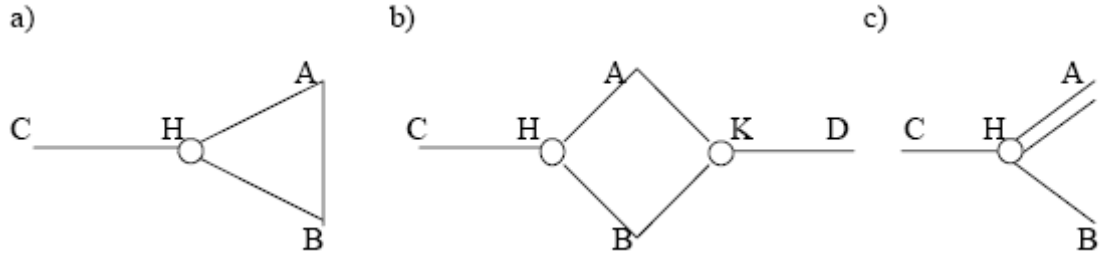
Exhibit 4.1: Hub and spoke-network



Source: Brueckner, Spiller (1991)

If a competitor enters the market and connects directly the spokes A to B (see 4.2. a) fares will fall in this market, but due to the lost economies of density prices will increase in the other markets. Competition on the spoke to hub connection A to H (see 4.2.c) lowers prices and increases output, but creates higher marginal costs for the monopolistic routes. Competition between the hubs (see 4.2.) leads to lower fares in this market, but to higher costs and fares at the other connections.

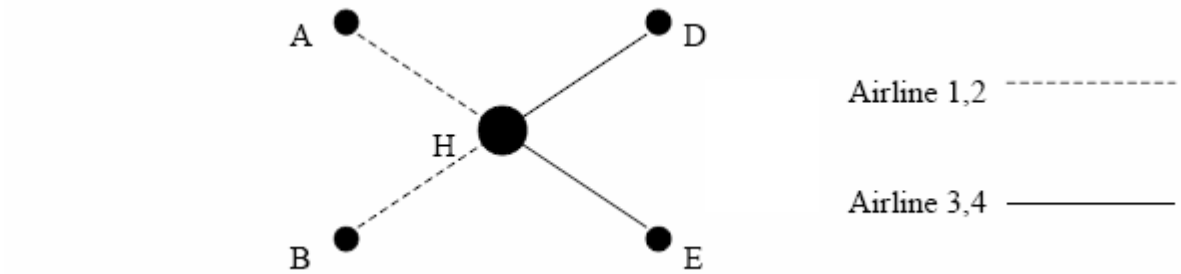
Exhibit 4.2: Brueckner-Spiller-models



Source: Brueckner, Spiller (1991)

Building on this model Brueckner and Wahlen (2000) analyse the effects of alliances. Initially the network is served by four independent airlines (exhibit 4.3.) then airline 1 and 2 and airline 3 and 4 form an alliance, respectively.

Exhibit 4.3: A Network with four airlines



Source: Brueckner, Whalen (2000)

Firstly, each alliance enlarges the network. Secondly, the alliance can avoid double marginalization. For example, prior to the alliance airline 1 could offer the flight to B by interlining the passenger. The service of airline 2 is an input to this service. As in this vertical chain airline 1 and airline 2 are monopolist each separately would chose the monopoly price output combination. Compared to a vertical integrated monopoly the two independent airlines chose a higher price and a lower output which leads to lower profits. An alliance would chose the cooperative solution for example by code-sharing and jointly monopolize the market which leads to a lower fare and higher output hence to an increase of economic welfare.

From the theoretical discussion it clearly emerges that each alliance has to be assessed on its own and no general rule about the competitive effects can be established (Laaser, 2001). It also emerges that complementary alliances which enlarge networks and increase economies of density are very often welfare enhancing and pure parallel alliances might decrease welfare (see Park, 1997).

4.2 Review of empirical studies

Empirical studies show that most, but not all alliances had a positive effect on welfare. This is due to the fact that real world alliances are a mixture of complementary and parallel integrations of networks in markets with different degrees of competition and potentials for economies of scale, scope and density.
Interlining versus code sharing with anti-trust immunity was analysed by Brueckner and his colleagues (see Brueckner, Whalen, 2000, Brueckner, 2001 and Brueckner 2003). According to these studies code sharing reduces air fares in the range of 8 to 17 % and anti trust immunity reduces fairs by 13 to 21%. For the Star Alliance Brueckner (2003) estimate 27 lower fares in the year 1999 and an increase in consumer rent of about US-$ 100m. For the four alliances KLM/NWA, BA/USAir, and Lufthansa/United Park and Zangh (2000) estimate a welfare gain due to about 20% lower air fares for the period 1990 to 1994 because of the largely complementary networks. The gain in consumer surplus was estimated to be $ 193 million for KLM/NWA[3], 223 million for BA/USAir and 122 million for Lufthansa/United. In contrast to this the alliance Delta/Sabena/Swissair leads to welfare losses of US-$

[3] Shibita (2001) confirms the beneficial effects of the KLM/NW alliance.

120m in the same period because their networks were largely parallel so that the partner airlines could reduce capacity and increase fares Park and Zangh (2000).

Oum et al. (2000) analyse the effects of alliances on productivity, air fares and profits. Overall they have found positive effects for what they call major alliances[4] like KLM/NWA and insignificant effects for minor alliances. Major alliances increase total factor productivity by 4.9 %, lower revenues (due to lower fares) per output by 1.5 % and increase profitability by 1.5 %. In addition they benefit passengers directly by better connecting times as for e.g. the alliances of Lufthansa/UA and KLM/NWA have reduced average waiting times Oum et al (2000).

4.3 Blocked alliances: the case of American Airlines and British Airways

While competition authorities provided Star Alliance and the SkyTeam with antitrust immunity this was not the case with **one**world. In 1996 AA and BA applied for antitrust immunity to the American and European competition authorities (see Doganis, 2001). The European Commission approved the alliance but only on the condition that 267 weekly slots at Gatwick and Heathrow airport were released so that in particular the dominant position of alliance which at that time would have 64 per cent of seat capacity of flights between Heathrow and the US could be contested. The European Commission was critical to the dominant position in the hub to hub market between London to Miami, Chicago and Dallas. AA and BA did not pursue the strategy to build a close alliance, but downsized the alliance plan to a loose marketing alliance and kept the valuable slots. In 2001 both Airlines applied again but essentially the controversy about access to Heathrow blocked the plans again. Besides the slot issue also the restrictive bilateral air service agreement between the US and UK was of much concern. How much this will change due to the Open Aviation Area between the EU and US which will be established in March 2008 remains to be seen (Economist, 2007) Currently, only code sharing on a limited scale is allowed.

[4] Major alliances are larger in scope of cooperation than minor alliances; it has nothing to do with the size of the firms. See Oum, et al. (2000).

5. The Case of Air France and KLM

The merger between KLM and Air France was a unique exhibit in Europe. Neither a Full Service Network Carrier (FSNC), nor a Low Cost Carrier (LCC) had performed a merger in this manner before. Two airlines with different cultures formed one company under a system of two operating airlines, which did not change their brand in the public.

At first we will explain the procedure of the merger. Afterwards we will examine the welfare question of the AF-KLM-case. There were several arguments to disapprove the merger, while there were other contradictions in the valuation of the examination. In the end we sum up and conclude and demonstrate the role of Alliances

5.1 The merger itself and how it was worked out

Performed in 2004, KLM and Air France merged via an exchange of stock and established a holding with two operating carriers under a national regime, so that no airline would lose its international traffic rights. A Dutch foundation and the state control more than 50% of the voting rights up to the year 2007. Figure 5.1 shows the organization during this period:

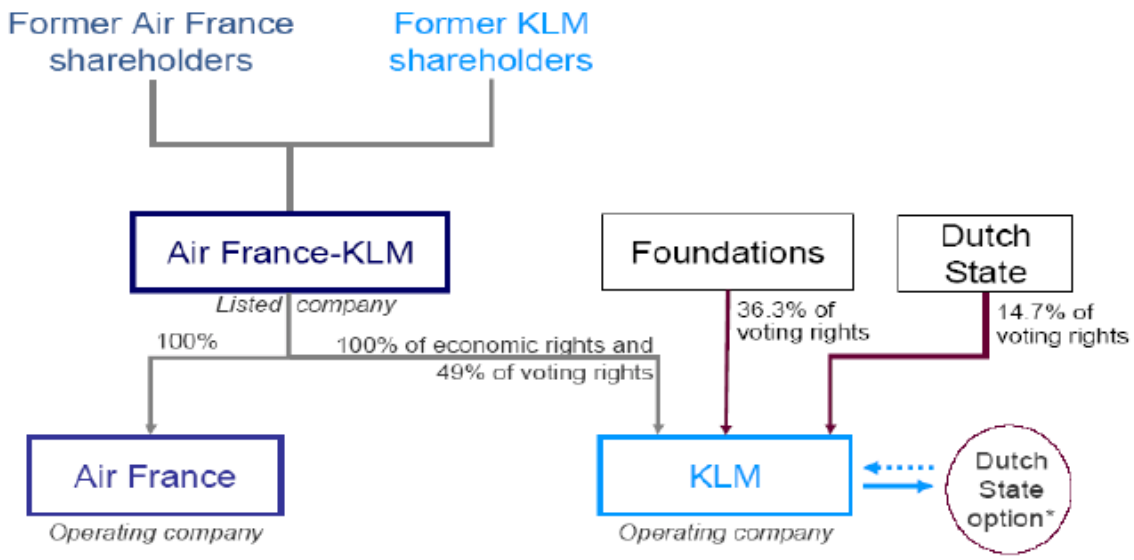


Figure 5.1: The new structure of AF-KLM

The Dutch government will retain the majority of voting rights in KLM for an eight-year period. Therefore it will allow the merged entity to keep its traffic rights to third countries. The new EU-US open skies agreement allows the new company to change

the owner structure as it was presumed during the year 2007, however problems might arise with other countries such as China or Japan. This was scheduled during the planning phase before the merger was announced. The new structure from 2007 on is shown in Figure 5.2:

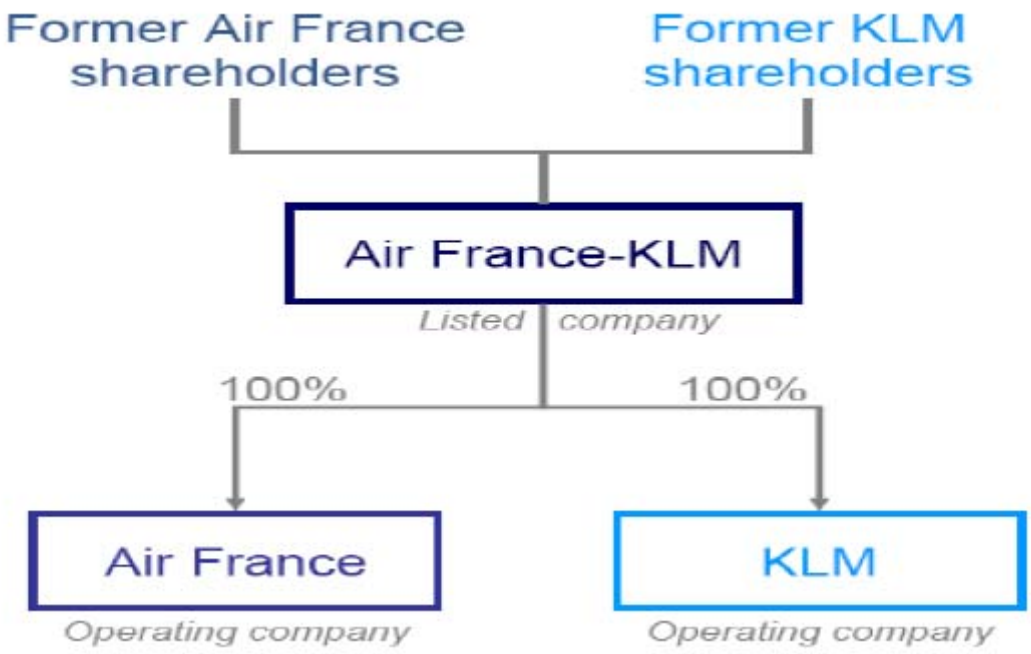


Figure 5.2: Owner structure in 2007

The two carriers have declared that they will follow a two-hub-strategy based around Paris-Charles de Gaulle and Amsterdam-Schiphol. A common management entity was created with synergies in procurement, marketing, maintenance, etc.

5.2 Arguments supporting the merger

We will first show a number of reasons why it made sense for the companies to merge and then show competition reasons.

Why did Air France and KLM merge, although they could organize their cooperation in a weak form of an alliance?

KLM was a takeover candidate long time before the collaboration with AF. British Airways tried several times to buy the Dutch flagship carrier. KLM has the dominant position on the important Schiphol airport which is a top 5 airport in Europe and KLM owns a very important number of slots. A weak alliance would have had always the risk of a takeover via a competitor of AF. The merger bounded the two companies

and transferred the important Schiphol slots to the AF-Shareholders.A second reason was the industry development in the US after post regulation phase during the 80ies: The number of airlines decreased to the number of 6 FSNC today, which have had considerable economic problems during the downturn in the aftermath of September 11, 2001. It was predictable that not every European state can have a national airline. Sabena and Swissair declared bankruptcy before the AF-KLM merger. KLM was therefore under risk to fail considering the industry development of the post 9-11 and SARS-period. A final reason was the importance to grow for the alliance SkyTeam, which got KLM, Continental and NWA as partners and has a more important role on the transatlantic market now.

Where is the consumer surplus? What are the competition effects?
The consumer gains, according to results of Brueckner and Spiller (1991) described in the previous chapter when the networks are complementary.
Within Europe the networks of the airlines had almost the same destinations, but more interesting for this question is the focus on the worldwide network: According to AF KLM (2005), there were 31 common destinations, 43 destinations were only reached by AF and 27 destinations were only offered by KLM. AF was traditionally strong in Africa, the two carriers had really a complementary network in South America and a large amount of common destinations are in the US and in East Asia, which are the most important long-haul-markets. According to Iatrou, Oretti (2007) the networks show a high degree of complementary.

5.3 Arguments against the merger

As described by Brueckner, Pels (2005), we had some usual insights for the merger with respect to the global alliance development: The growth of the SkyTeam Alliance was achieved by the integration of Continental, NWA and KLM with a highly important concentration of three Major American Network Carriers (Delta was an Air France partner before)

Brueckner and Pels (2005) show the effects on the North Atlantic market and propose a dominant position for SkyTeam-Airlines. It can be added, that BA is the most important supplier for transatlantic travel.

Easyjet claimed that the remedies of the European Commission concerning the release of slots to competitors were inadequate. High entry barriers on the two airports in Paris were criticized! Iatrou, Oretti (2007) state that easyjets on the one hand supports the merger for the ‘much needed consolidation’ in Europe, but on the other it increases the Air France’s dominance on CDG airport with significant entry barriers.

5.4 Evaluation

It is difficult to evaluate the effects of the merger since a ceteris paribus-case (a case without the merger) cannot be analysed. The overall result of the cooperation is quite successful, but it was performed during a growth path of the airline industry with weak competitors in the United States und during huge delivery problems of the A380 for Emirates Airlines.

But the AF-KLM merger has become a success story in the last three years, because it anticipated the needs of integration and consolidation in Europe. Butcher, et al. (2007) enhance that the market is still underestimating the revenue potential of the group. The merger of Lufthansa and Swiss was an ex post appraisal of a major competitor contributing to this strategy.

What are the key success-drivers of AF-KLM und will their success last?

- Double hub-strategy with a dominant role on two key airports of Europe
- Market Power within Europe
- Complementary networks
- Growth path of the business cycle in the European economy with high earnings of every major airline in Europe.

Only the fourth point shows a critical estimation of the status quo at AF-KLM. According to Butcher et al. (2007), a rise in the share price can be estimated to a value of € 40 in the medium term. There can be seen a potential of € 400 million cost reduction due to merger synergies within the two airlines. AF will move soon to the new Satellite 3 in CDG-Airport which will save € 40 million in 2007 and gain also benefits from the reopening of terminals 2E and 2G.

The risks for the future are the following:

- Delay in the A380 delivery and growth problems on long-haul routes
- Jet Fuel price increase

- Strong growth of LCC within Europe and strong competition from middle east Airlines
- High competition in the cross-Atlantic market due to the new Open skies agreement.
- Depression of the world economy or external shocks like terroristic attacks, etc.

We have seen that this merger was a successful cooperation. Finally we stress out the alliance strategy of this merger and its role within it.

5.5 Alliances as a core strategy against risk and competition – a key role in the AF-KLM case

The case of AF-KLM can be described as a way to handle competition. What were the options for Air France to grow in the European market?

- Self investment
- Acquisitions
- Alliances

The position of airlines is too weak and highly dependent of national interest, meaning policy and airport interests, so that an airline can hardly compete in another European market with another flag carrier.

It is the strategy of every airline to weaken competition on certain routes and to gain partial market share. The necessity of growth for the SkyTeam alliance was important overall. There were two large global alliances before the merger and the small size of the SkyTeam alliance was a major disadvantage for AF against their key competitors BA and Lufthanse. No traditional international carrier competes without an global airline alliance. On the other hand do Arabian airlines prefer to be non-aligned, also Virgin Airlines! The financial strength of Emirates could be an explanation, also the business model and the unique marketing of Emirates and Virgin. These are further research questions.

AF was the last flagship carrier which integrated its business within a global alliance, but it was the first major carrier to form a cross border merger. The next five years will show whether the diseconomies of Alliances will gain importance for the new company or whether the profits of a lean company will raise the company value.

6. Summary and agenda for further research

In this paper we have reviewed the development of strategic airline alliances as part of the liberalization of EU air transport. No doubt alliances have proven to be one of the driving factors of air transport development in the past decade. Oneworld, SkyTeam and StarAlliance have emerged as the dominating airline alliances, operating combined about two-thirds of the total IATA traffic. They are also dominating EU air transport although they are seriously challenged by the emerging LCC in the inner European market, but not yet in the intercontinental market. From the existing literature on airline alliances we have identified economies of density, marketing advantages, gain of market power and the circumvention of restrictive bilateral air service agreements as their driving forces. Economies of scale and scope are are not at all less or les important. Alliances might also lead to substantial diseconomies of size and the failure of several alliances show that management cannot cope with factors like ill-defined common goals, asymmetric size and cultural differences. Alliances are also a mixed bag in terms of competition policy. Most alliances especially if they are of a complementary nature increase economic welfare, but not all. In particular parallel alliances might endanger welfare as the gain in market power is not outweighed by better economies. Competition policy faces serous problems in assessing the benefits and cost of alliances because the network effects in terms of economies of density and avoidance of double marginalization are complex and difficult to assess. British Airways – American Airlines alliance have been blocked by the competition authorities. Air France's takeover of KLM is interesting from the competition policy point of view as well as from the managerial. According to Iatrou and Oretti (2007) the networks show a high degree of complementary, but Brueckner and Pels (2005) show the effects on the North Atlantic market and propose a dominant position for SkyTeam-Airlines. A final assessment is faced with the problem that the alliance was established during a growth path of the airline industry with weak competitors in the United States und during huge delivery problems of the A380 for Emirates Airlines. From a managerial point of view the AF-KLM merger can be interpreted as a core strategy against risk and competition.

The emergence of airline alliances and mergers are raising a wide field for future research. Firstly, to our knowledge a comprehensive review of the anti-trust decisions on airline alliances in Europe is missing in the literature. As airline alliances create

complex problems due to economies of density and double marginalization it might be analysed if the procedure of the cartel office captures these aspects. Given the accelerating liberalization and a reform of slot allocation the cartel offices will be faced with particular challenges.

Secondly, the Open Aviation Area makes alliances and mergers easier and observers expect a wave of mergers and alliances in the aviation industry. With a stepwise more and more liberal environment the pro and cons of alliances versus mergers become an important management problem. As structure should follow strategy this question is linked to the overall strategies of airlines. Should low cost carriers align or merge? The answer to this question is probably different for full service airlines.

Thirdly, alliances and mergers are partially driven by economies of density. Together with the successful entry of low cost carrier the competitive position of small European carriers like AUA, Iberia, Finnair and SAS might become critical especially if they have not reached the threshold of minimum efficient scale. Will they stay independent, will they remain an alliance partner or will the merge in one of the global airline alliances?

Another area where further research is required seems the question to what extent the described economies of alliances and code sharing can also be exploited by low-cost carriers. So far, most low cost carriers do abstain from concluding agreements with others, as they fear the raised operational complexity will outnumber benefits generated by interlining passengers. However, if the US are seen as a more mature market and a role model for other parts of the world, low-cost carrier alliances, as those between ATA and Southwest or code sharing of JetBlue with Aer Lingus and several smaller regional airlines, similar developments may be encountered in Europe for instance. This may particularly come true when the ambitious plans of some airlines that want to offer low-cost long-haul services will materialise, as a certain level of feeder services is seen as essential to economically operate a long-haul service.

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