Journal of Air Transport Management, Volume 11, Issue 3, May 2005, Pages 127-134.

The empirical analysis of the impact of alliances on airline operations

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Abstract

Airline alliances are dominating the current air transport industry with the largest carriers of the world belonging to one of the four alliance groupings – "Wings", Star Alliance, **one**world, SkyTeam – which represent 56% of world Revenue Passenger Kilometers. Although much research has been carried out to evaluate the impact of alliance membership on performance of airlines, it would be of interest to ascertain the degree of impact perceived by participating airlines in alliances. It is the purpose of this paper to gather the opinion of all the airlines, belonging to the four global alliance groupings on the impact alliances have had on their traffic and on their performance in general. To achieve this, a comprehensive survey of the alliance management departments of airlines participating in the four global strategic alliances was carried out. With this framework the survey has examined which type of cooperation among carriers (FFP, Code Share, Strategic Alliance without antitrust immunity, Strategic Alliance with antitrust immunity) has produced the most positive impact on traffic and which type of route (short haul, long haul, hub-hub, hub-non hub, non hub-non hub) has been mostly affected. In addition, the respondent airlines quantified the effect alliances have had on specific areas of their operation, such as load factors, traffic, costs, revenue and fares. Their responses have been analysed under each global alliances grouping, under airline and under geographic region to establish which group, type of carrier and geographic region has benefited most. The results show that each of the four global alliances groupings has experienced different results according to the type of collaboration agreed amongst their member airlines.

Keywords: Airline Alliances, Passenger traffic

1.0 Introduction

Alliances are generally a strategy that companies use when acquiring or internal development as means of growing is not an option. Sometimes even if internal development is possible, alliances are preferable as it provides quicker access to new markets. Alliances vary in degree of commitment from simple marketing cooperation to just short of complete mergers or acquisitions. Globally, mergers and acquisition deals exceeded $2,000 billions in 1999-2000 indicating, companies increasingly embark on partnerships to achieve their expansion goals and develop a world-class capability. According to Harbison and Pekar (1999) survey, in 1997-1999 alone more than 20,000 alliances have been formed worldwide and, interestingly, more than half of them are between competitors.

In this respect, airline industry is not an exception. There has clearly been a surge in formation of alliances amongst airlines in recent years. A large number of airlines have established or joined one of the four global airline alliances: " Wings" (1989)[1], Star Alliance (1997), **one**world (1998), SkyTeam (2000) – and they now control as allied partners 56% of world Revenue Passenger Kilometers (Airline Business, September 2002). See appendix A for the description of each alliances groupings and their memberships.

IATA (2001) defines an "airline alliance" as follows: three or more airlines participating in commercial relationship or joint venture, where (i) a joint and commonly identifiable product is marketed under a single commercial name or brand; and (ii) this commercial name or brand is promoted to the public through the airlines participating in the alliance and its agents; and (iii) the commercial name or brand is used to identify the alliance services at airports and other service delivery points in situations where bilateral agreements exist, e.g. code share agreement.

According to another definition "A strategic airline alliance is a long term partnership of two or more firms who attempt to enhance advantages collectively vis-à-vis their competitors by sharing scarce resources including brand assets and market access capability, enhancing service quality, and thereby improving profitability…a strategic alliance is one involving strategic commitment by top management to link up a substantial part of their respective route networks as well as collaborating on some key areas of airline business."

[1] Date of alliance formation

The majority of airlines are interested to extend their network beyond the markets they currently serve. However, due to regulatory restrictions on market access, ownership and control, they have been pushed towards the formation of strategic alliance groupings. Legislation aimed at protecting national interests has meant that it is virtually impossible to acquire a controlling interest in airlines in countries or trading blocks outside those in which an airline is owned and operated. For example, a non-US airline can only have up to a maximum of 25% of voting share in any US carrier. A non-EU carrier can purchase up to a maximum of 49% of a EU carrier. To grow naturally is also subject to restrictions such as the limitations in growing in home markets, or lack of regulatory approval to access foreign markets, or lack of slots at airports to which the airline wants to operate. In addition to expanding their network airlines aim at improve revenues, reduce costs and increase customer benefits.

As a result, as discussed above, in the last decade a number of alliance groupings have emerged. Given such a dynamics in the airline industry and the current crisis due to slow down in the economy and 11th September it was of interest to assess the followings:

- How do airlines perceive the impact of alliances on their operation in general and on passenger traffic in particular?
- How different types of partnership agreements have affected the results?
- Have airlines of different size, operating from different region and belonging to different alliance grouping been affected differently.

2.0 Assessing the perception of airlines about their alliances impact

To address the above questions, a comprehensive survey of the alliance management departments of airlines participating in the four global strategic alliances were carried out in 2002.

The heads of the alliance departments of all airlines – that is 28 carriers at the time this survey – belonging to the alliance groupings of Star Alliance, "Wings", **one**world and SkyTeam were contacted to participate in a questionnaire survey. The questionnaire focused on the impact of the alliances on airlines' operation as perceived by the heads of the alliance department. All 28 carriers participated in the research giving the survey a 100% response rate.

Special emphasis was given to the impact of alliances on passenger traffic, which is one of the most important factors airlines themselves and airline specialists use to determine airline and alliance performance. In assessing the impact of alliances on passenger traffic the following criteria were taken into account:

- The type of cooperation amongst the carriers themselves (FFP, Code Share, Strategic Alliance with or without antitrust immunity),
- The type of route (hub-hub, hub-non hub, non hub-non hub)
- The global alliance groupings (Wings", Star Alliance, **one**world and SkyTeam)
- The size of carriers measured by their annual output (Available Tonne Kilometers-ASK)
- The region where the carriers come from (North America, Europe, Asia, Central and South America).

This was to establish which type of cooperation, route, alliances groupings, carrier size and geographical region has benefited most, in terms of passenger traffic, as a result of the formation of alliances.

As the questionnaire survey presented a unique opportunity to collect inside information about the impact of airline alliances, the scope of the questions was extended to cover some other specific areas of airline operations that alliances may affect, such as load factors, traffic, revenue, costs and fares. These parameters were chosen since they constitute the measures airlines use to evaluate their performance and thus any carrier entering into an alliance expects to improve such measures. Furthermore, some questions were included to examine whether there has been satisfaction from the participation in the alliance, the degree of satisfaction arising from the participation in the alliances and how fast the impact of alliance on their operation has become evident.

3.0 The general impact of alliances on airlines operation

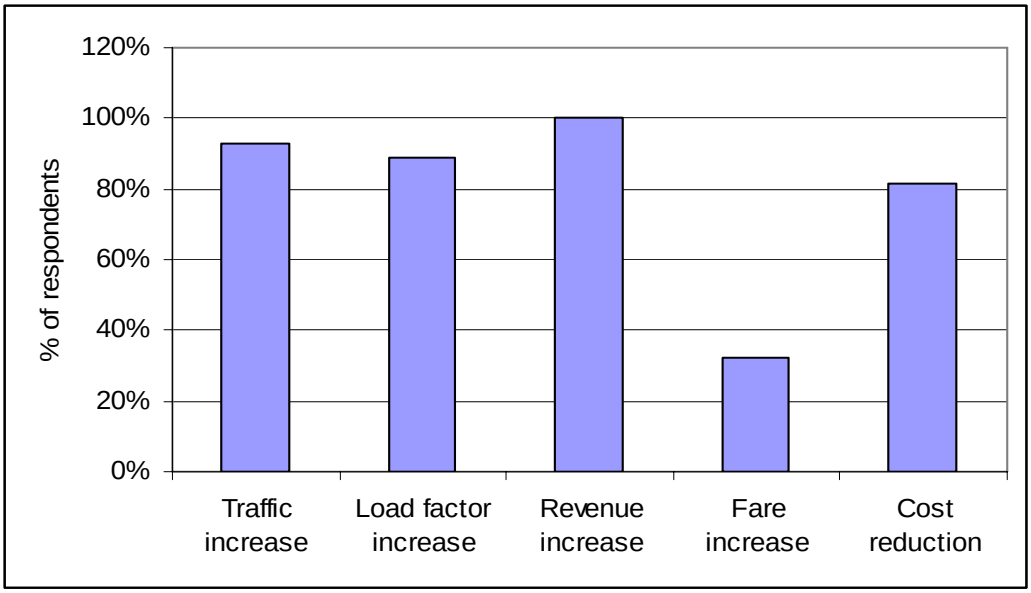
The findings of survey revealed that one of the key reasons for airlines decision to participate in an alliance has been a defensive move as they expressed the opinion that if an airline remained unaligned, it would be worse off losing traffic to other airlines in alliance groupings. They are also of the opinion that the alliance relationship is very complex and still developing.

In general the accession and participation in the alliances is considered successful. While one third of participants rate their alliance coooperation as "excellent, the rest believe that the course and operation of the alliances has been so far "good". A

number of European regional carriers expressed some reservations and preferred to take a neutral stance.

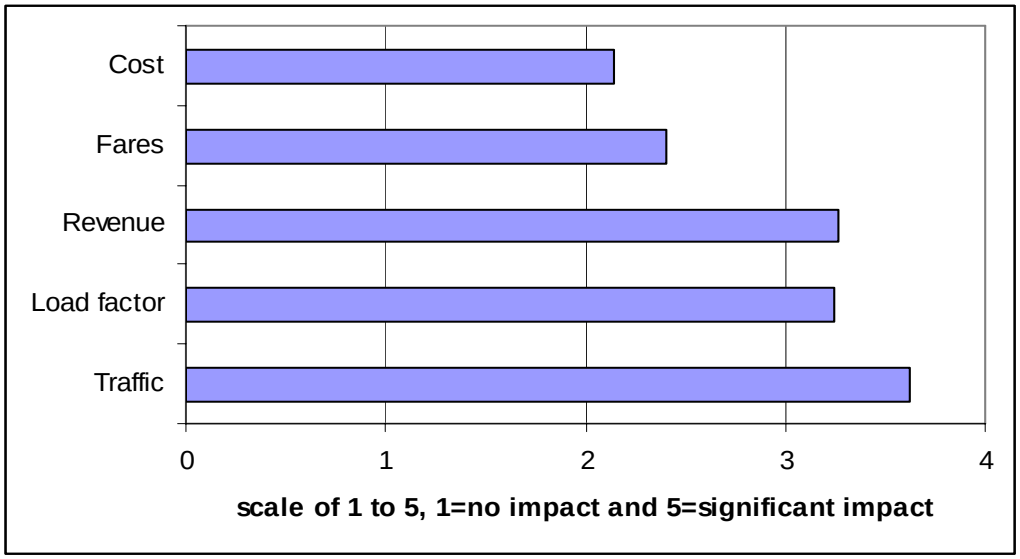
Almost all participants believe that joining the alliances grouping has led to an increase in traffic, load factor and revenue. While two thirds of participants expressed the opinion that fares have not been influenced the rest declared that fares on routes operated jointly by partners have increased. A large proportion of participating airlines affirms that costs have registered some reduction.

Figure 1: Impact of airline alliances



To establish the degree of the impact of alliances on airlines' operation, the respondents were asked to rate the impact from 1 to 5, 1 referring to" no impact" and 5 to "significant impact". It can be seen from figure 2 that the most pronounced effects have been experienced in the area of passenger traffic. Next in ranking are revenue and loaf factor. The least pronounced impacts have been observed in the areas of costs and fares. As far as costs are concerned, not only airlines have not reaped much benefit from their alliance participation but have entail certain substantial initial expenses such as IT system harmonization, marketing and advertising expenses which could put a serious strain, at least short term, on the airline costs. A significant long-term cost reductions/synergies require the alignment of some product specifications, common approach, common fleet planning and require not only some time and a high degree of integration but also a major commitment on the part of the allies

Figure 2: The degree of alliance impact on airline operation



The response on fare increases indicates that the reduction in competition due to airline alliances has not led to acute monopolistic situations – as regulators would have acted to prevent such a development. However, what remains rather alarming is the fact that the carriers that take the contrary opinion and claim that there has been an increase in fares amounting to even 10% are amongst the major players in the existing alliances on both sides of the Atlantic. Such fare increases may be related more to the policy an airline follows to deal with decreased profitability than to monopolistic situation. Each airline however, follows the policy that it sees fit even if it contradicts the policy followed by its partners. Lufthansa's strategy after September 2001 was to cut capacity and maintain fare discipline whereas United Airlines' strategy was to cut fares. The dispute between the partners ended up with the German government complaining to the US government. United's choice of policy proved to be rather questionable given that they filed for bankruptcy protection under Chapter 11 (Airline business….).

4.0 Impact of airline alliances on passenger traffic

As mentioned in the above section airlines have most benefited from participation in airline alliances in the form of increase in traffic. Almost 90% of respondents claimed that they experienced an increase in traffic between one and two years from the inception of their partnerships with other airlines. Unlike the common belief that airlines attempt to provide a seamless travel have caused the increase in passenger traffic, the respondents believe that the provision of the joint frequent flyer programme has played an important role in an upsurge in traffic. The respondents

believe that the rate of increase in traffic tend to stabilise a few years after the launch of the alliance.

4.1 The impact of alliance on traffic by route type

The greatest increase in passenger traffic was observed primarily on hub-hub routes, and secondarily on hub-non-hub routes. More specifically, the increase in passenger traffic on the hub-hub routes was assessed as "significant", with the 45% of respondents experiencing an increase of more than 16%, while the corresponding percentage increase for hub-non hub routes ranges from 6 to 15% by 52% of the respondents; as for non hub-non hub routes, all respondents have assessed the traffic increase as moderate, with the percentages equally divided between the 0-5% and the 6-15% brackets. These results seem absolutely reasonable considering that all global carriers, especially the major ones, operate on the hub-and-spoke system[2] and the whole alliance organisation aims at increasing the hub-hub traffic, especially the high-yielding and efficient transatlantic routes.

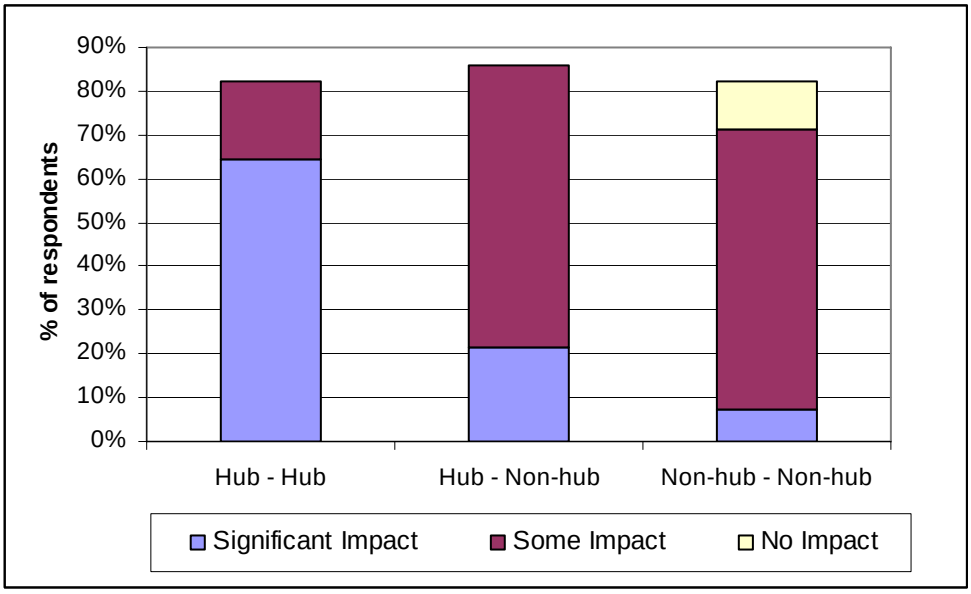
International major carriers including all the American airlines, many of the European and South American carriers claimed that alliances have had a significant impact on their hub-hub. In case of American and European carriers this is due to the fact that they were the first operators to implement the hub and spoke system. However, Asian carriers claimed a moderate increase in their traffic on their hub-hub routes. This could be due to the possibility that these carriers have not exploited their hubs operation to the same extent as their counterparts in the US and Europe. It must also be born in mind that the US and European partners in most cases have benefited from antitrust immunity[3] which allow them to harmonise their operation more effectively.

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2 An operational system for deploying aircraft that enables a carrier to increase service options at all airports encompassed by the system. It entails the use of a strategically located airport (the hub) served by more than one airline as a passenger exchange point for flights to and from outlying towns and cities (the spokes or non-hub). With this system flights from numerous points (the spokes) arrive at and then depart from a common point (the hub) within a short time from so that traffic arriving from any given point can connect to flights departing to numerous other points. At the hub airport inbound and outbound schedules, that is the connecting traffic, are coordinated with the aim of producing the most convenient and/or transshipment for passengers.

3 Antitrust immunity from US antitrust laws enables partner airlines to make joint decisions on pricing, scheduling, capacity provision and service quality. Without such immunity airline alliances would be very restricted in terms of what aspects of their business they could jointly undertake

Figure 4
Alliance impact on the traffic by route type

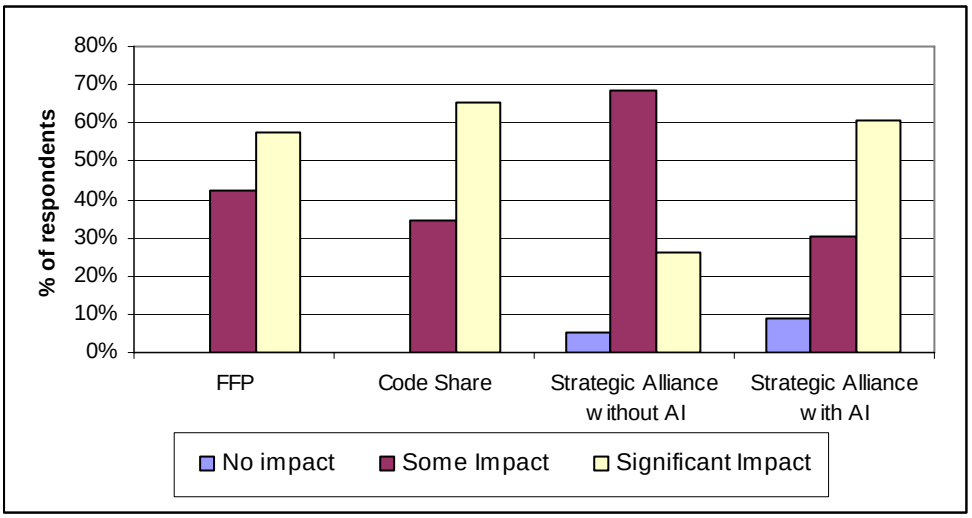


4.2 The impact of alliance on traffic by type of cooperation

It was revealing that among the chosen types of cooperation, that is FFP, Code share, Strategic Alliance with antitrust immunity and Strategic Alliance without antitrust immunity, it is the code sharing and strategic airline alliances with anti trust immunity that seem to be regarded as the most efficient form of cooperation by the airlines themselves without certainly disregarding the significance and contribution of the other two. Several respondents also stressed that the impact of antitrust immunity is just beginning to unfold but they consider it as a very important element as it provides airlines with ability and flexibility and possibility to coordinate their activities in scheduling and pricing. A few airlines stressed that they have experienced negative impact from "Strategic Alliance without antitrust immunity". A very small number of Asian carriers believe that strategic alliances have no impact on traffic. This can be

attributed to the fact that Strategic Alliances are evolving in a risky and uncertain environment in which airlines are demanded to make a commitment without being certain of the future evolution of the alliance.

Figure 5
Impact of type of airline cooperation on traffic



The provision of joint FFP is considered very effective in boosting traffic. The joint scheme should enable members to collect and redeem points or miles on any one of the partner airlines. It would also allow the recognition of elite status by a greater number of member airlines, as opposed to just the one airline to which the qualified passenger belongs. Most of the times FFP and Code Sharing co-exist and constitute a much more common form of cooperation than Strategic Alliances whether with antitrust immunity or without antitrust immunity.

4.3 The impact of alliance on traffic by alliance groupings

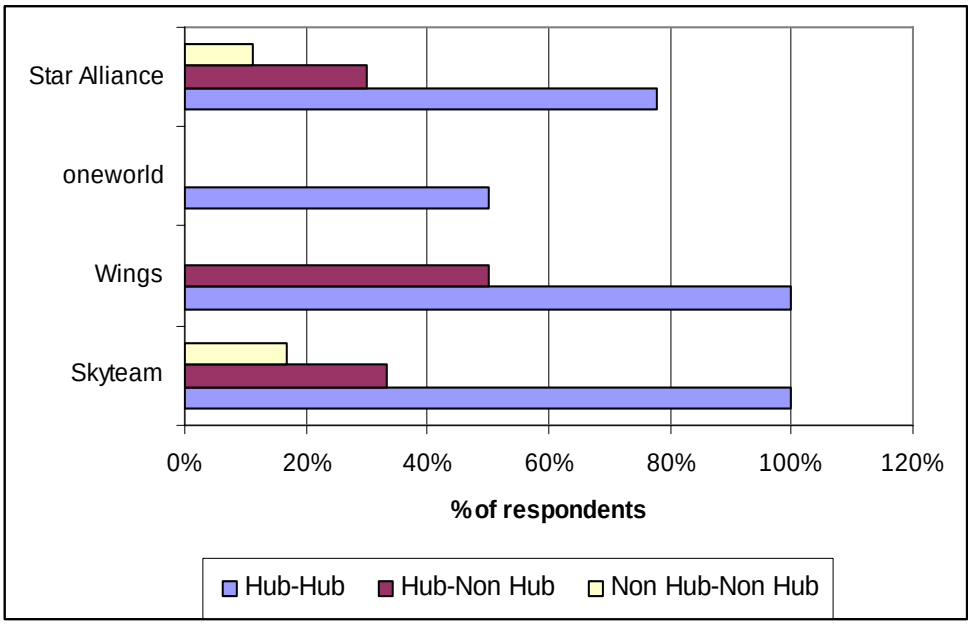
The SkyTeam members seemed to be the most satisfied from the alliance performance followed by the Star members. No member of the **one**world alliance has rated their alliance cooperation as "excellent" and it has the only carrier that has taken a neutral attitude towards alliances. This is probably due to the lack of deeper cooperation among the members. This by alliance comparative review points out that antitrust immunity is a major parameter for the success of an alliance as far as traffic is concerned.

Almost all members in the Skyteam and Wings believe that the most increase in traffic has taken place on their hub-hub routes where as the corresponding percentage for oneworld and Star alliance is 50% and 80% respectively. "Wings" has

experienced the highest increase on its hub-non hub routes. It must be born in mind that "Wings" is made up of only two carriers, therefore it is difficult to compare it with the other alliances whose membership ranges from 6 to 13 members.

Figure 6

The alliance impact on traffic by alliance groupings



Wings appears to have experienced the most positive impact in all aspects of their operations. Skyteam has benefited greatly from increase in traffic and revenue; the increase in revenue may be attributed to the deeper cooperation existing among the partners of this alliance.

Table 1 : Impact of alliances on airlines operations by alliance groupings

	Skyteam	Wings	oneworld	Star alliance
Traffic	3.8	5.0	3.5	3.3
Load factor	3.3	4.5	3.0	3.1
Revenue	3.8	4.5	2.7	3.0
Fare increases	2.0	3.5	1.8	2.1
Cost reductions	2.0	3.0	2.8	2.3

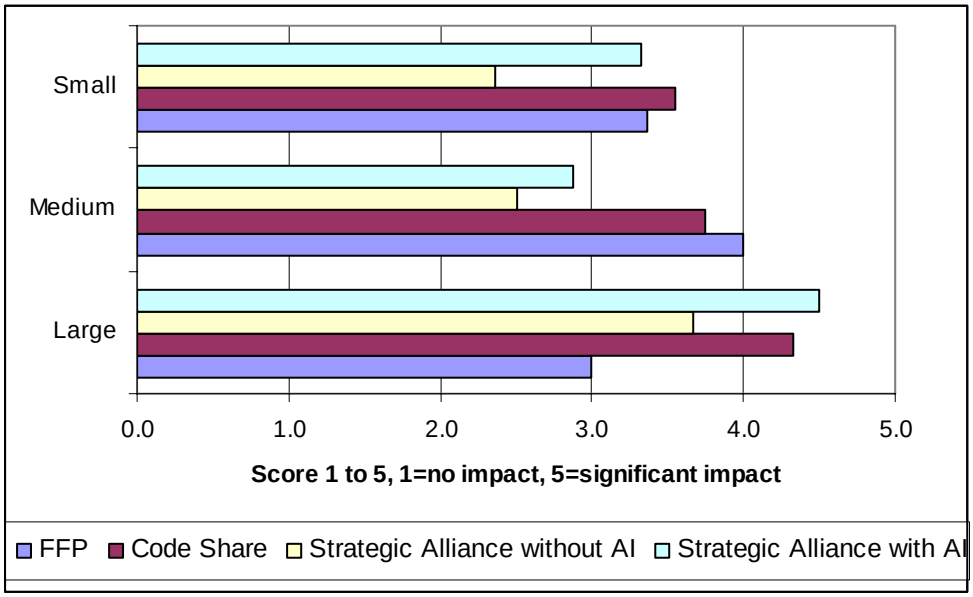
Scale of 1 to 5, 1= no impact and 5=significant impact

4.4 The impact of alliance on traffic by airline size

Large airlines, in general, seems to be satisfied with their alliance cooperation, however with some reservations. While two thirds stated that their partnership with other airlines in good only one third viewed it as excellent. The majority experienced the increase in traffic in the first year of launching their partnership. Almost half of the large carriers have experienced up to 5% increase in traffic. The increase in traffic has largely taken place for these carriers on hub to hub routes. They believe code-sharing and strategic alliance with anti-trust immunity have a significant impact on traffic, scoring them as 4.3 and 4.5 respectively on a scale of 1 to 5.

While medium size airlines are generally satisfied with their alliance cooperation small carriers have some reservation about their relationship with their partners. This could be due to their influence on the decision making within the alliance groupings. The medium and small carriers have also benefited from increase in traffic due to formation of alliances but it has taken them longer- up to two years- to experience the rise in traffic. A large proportion have experienced up to 15% increase in traffic. This could be due to the fact that their base traffic is smaller than those of the larger carriers. It is interesting to note that medium and small carriers believe frequent flyer programme cooperation and code sharing have had a significant impact on their traffic. Clearly small and medium sized carriers benefit more by joining the large airline frequent flyer programme.

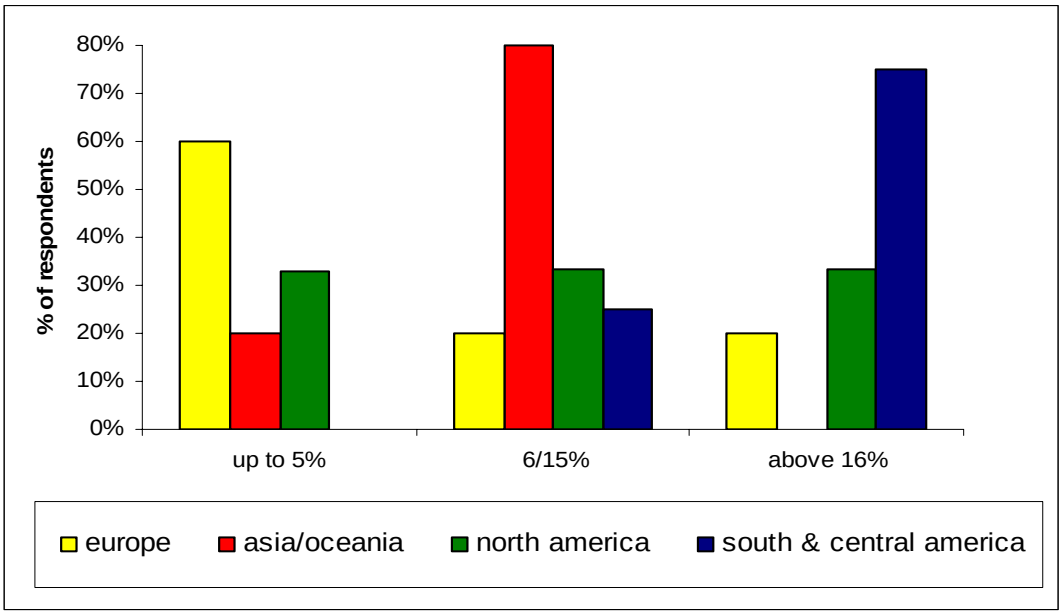
Figure 7: The impact of the different alliance cooperation types on traffic by airline size



4.5 The impact of alliance on traffic by region

The analysis of the responses indicates that Central and South America have experienced the greatest increases in traffic, load factors and revenues as a result of alliances. It should be noted though that three out of the four carriers of this region entered alliances very recently and may be experiencing the initial positive alliance effects. This is the reason also why half of the carriers from this region-the highest percentage among all regions- characterize alliances as "excellent". The greatest increase in fares has been registered in Asia, whereas as far as costs are concerned it is European carries that report the most significant decrease, and the carriers of this region are among those that feel more pressingly the need to reduce costs. As it was expected, it is the North American airlines followed by the European ones that have experienced the most significant positive impact from antitrust immunity since it is they that have the majority of these exemptions.

Figure 8: Alliance impact on traffic according to geographical region



The above figure depicts how the carriers of the different geographical regions estimate the impact of the alliances they participate to on their traffic. It is the Central and South American carriers that seem to have experienced the greatest increase in traffic, which can be explained both by the fact that it is the area that is undergoing the greatest increase in traffic and by the fact that these carriers had a rather limited network before the establishment of the alliances. No airline of this region has recorded an increase lower than 6%. Asia and Oceania is the region that has stated the second greatest increase in traffic, with the majority of carriers stating an increase in traffic ranging from 6 to 15%. This geographic region includes many developing countries and has organized in these last years many important athletic events. European carriers have declared the lowest increase since the carriers from this region

had before the formation of the alliances an extensive network and numerous connections with all the other geographical regions of the world.

Exception to this general trend were the North American and European carriers, such as the members of “Wings” (Northwest Airlines and KLM) which have been cooperating within this framework for many years and for these carriers Strategic Alliance with antitrust immunity is very important. On the contrary, Asian carriers consider FFP as the most important factor given that their Code Sharing agreements and Strategic Alliances are much more difficult to operate because of regulatory restrictions.

Conclusion

The overall substantial conclusion is that alliances, despite the form of cooperation chosen and established among the partners, entail numerous benefits for the airlines and certainly do come up to the initial expectations. Alliances bring about an increase in passenger traffic with a parallel increase in load factors and some reduction in costs. Thus, a clear improvement of revenue is observed, a fact resulting from the combination of the increase in traffic and the decrease in costs. Fares, on the contrary, do not move along the same course since in certain cases there is an increase and in others there is no increase.

The questionnaire analysis indicates that both passenger traffic and load factors of all airlines show clear increase. This in return has positively impacted revenue, while the impact on costs, even though positive, remains comparatively limited at least on a short -term basis. The impact on passenger traffic is relatively substantial and has been experienced from one to two years since the inception of alliance cooperation. The increase in traffic has mostly been experienced on hub-hub routes. As regards the impact on fares, the situation remains rather hazy, since the majority of airlines have given ambiguous answers when asked to state whether there has been increase or decrease of fares.

The greatest benefits from alliances result from the more advanced and integrated forms of cooperation, just as the one that links the carries of the “Wings” alliance, which is characterised by the existence of antitrust immunity and the establishment of a joint venture. Most alliances however, remain “strategic” only in name, at least at their present stage, basing their cooperation on Code Share and FFP coordination and have not proceeded to deeper integration.

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Appendix A

Description of airline alliances

"Wings"
Wings is the non-official name for the alliance of KLM, Northwest Airlines and Continental Airlines. KLM and Northwest have had a far reaching alliance agreement since 1989, with common branding, purchasing, management, marketing and FFP, although an equity stake that KLM had in Northwest was sold after disagreement of control of Northwest. In 1999 Northwest Airlines bought a stake in Continental Airlines, and announced co-operation including code sharing and frequent flyer participation. In 1998, KLM and Alitalia concluded an alliance agreement, setting up passenger and cargo joint-ventures to manage the airlines operations and marketing but the agreement was dismantled in August 2000. KLM and Northwest received antitrust immunity from the US DOT in November 1993.

Star Alliance
Star Alliance was launched in May 1997, by Air Canada, Lufthansa, SAS, Thai and United airlines to create a global airline network. Varig joined the alliance in October 1997, with Ansett Australia and Air New Zealand in March 1999. Ansett subsequently left as it ceased operatoins in March 2002. All Nippon Airways joined the Star Alliance in October 1999, Austrian Airlines Group including Lauda Air and Tyrolean Airways joined in March 2000 and Singapore Airlines in April 2000. British Midland and Mexicana joined in July 2000. Star Alliance has a total of almost 2000 aircraft, serves around 800 destinations in 130 countries worldwide and transports more than a quarter of a billion passengers annually, through extensive code share agreements, with 'round the world' fares for global travellers. The alliance allows access to over 500 Star Alliance lounges around the world, reciprocal FFPs, through check-in, streamlined airport operations, cargo co-operation, joint purchasing, advertising and promotions. US Airways will join the alliance as United Airlines has come up serious financial problems. Lufthansa/UA alliance has received antitrust immunity from the US DOT

oneworld
A global marketing alliance announced in September 1998. American Airlines, British Airways, Canadian, Cathay Pacific, Finnair, Iberia and Qantas offer closer linking of FFPs, reciprocal access to airport lounges, smoother transfers between carriers and a range of global products including 'oneworld Explorer' fares. After the takeover by Air Canada, Canadian Airlines left oneworld on June 1, 2000, while Lan Chile and Aer Lingus joined on the same date.

SkyTeam
It is the most recent global alliance. Formed in 1999 by Air France and Delta Air Lines, it has extended its reach with Aeromexico and Korean Air as well as Czech carrier CSA in October 2000 while Alitalia joined in July 2001. With a marketing focus on passenger service, that is, code sharing, joint marketing and reciprocal frequent flyer programs, its strategy is based on market synergies and the growth potential of Paris-CDG as a connection platform. Cargo cooperation is also part of the

alliance. SkyTeam is expanding and currently offers nearly 7,100 flights to more than 470 destinations. It also has 289 reception lounges.

The global alliance groupings – traffic/revenue totals and world market share

	Passenger traffic (RPK)		Passenger numbers		Group revenues	
	billion	share	million	share	$ billion	share
"Wings"	176	6,0%	70,1	4,3%	16	4,5%
Star Alliance	637	21,7%	279,2	17,2%	70	20,0%
oneworld	471	16,1%	198	12,2%	46	13,2%
SkyTeam	352	12,0%	207,4	12,8%	37	10,5%
Total Alliances	1636	55,8%	754,7	46,5%	169	48,2%

Source: Airline Business (September 2002)

Alliances and their members

"Wings"

	Date joined	Region
KLM	Jun-89	Europe
Northwest Airlines	Jun-89	North America

Star Alliance

	Date joined	Region
Air Canada	May-97	North America
Air New Zealand	Mar-99	Oceania/Asia
ANA	Oct-99	Oceania/Asia
Asiana	Mar-03	Oceania/Asia
Austrian	Mar-00	Europe
bmi british midland	Jul-00	Europe
Lufthansa	May-97	Europe
Mexicana	Jul-99	Central and South America
SAS	May-97	Europe
Singapore	Apr-00	Oceania/Asia
Spanair	Mar-03	Europe
Thai Airways	May-97	Oceania/Asia
United Airlines	May-97	North America
Varig	Oct-97	Central and South America

oneworld

	Date joined	Region
Aer Lingus	Jun-00	Europe
American Airlines	Sep-98	North America
British Airways	Sep-98	Europe
Cathay Pacific	Sep-98	Oceania/Asia
Finnair	Sep-99	Europe
Iberia	Sep-99	Europe
LanChile	Jun-00	Central and South America
Qantas Airways	Sep-98	Oceania/Asia

SkyTeam

	Date joined	Region
Aeromexico	Sep-99	Central and South America
Air France	Sep-99	Europe
Alitalia	Jul-01	Europe
CSA Czech Airlines	Mar-01	Europe
Delta Air Lines	Sep-99	North America
Korean Air	Jul-00	Oceania/Asia

Source: Airline Business (September 2002)



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Alamdari, Fariba; Iatrou, Kostas

2005-05
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Kostas Iatrou and Fariba Alamdari, The empirical analysis of the impact of alliances on airline operations, Journal of Air Transport Management, Volume 11, Issue 3, May 2005, Pages 127-134.

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