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# **Key Aspects of Global Strategic Alliances and the Impacts on the Future of Air Canada and other Canadian Air Carriers**

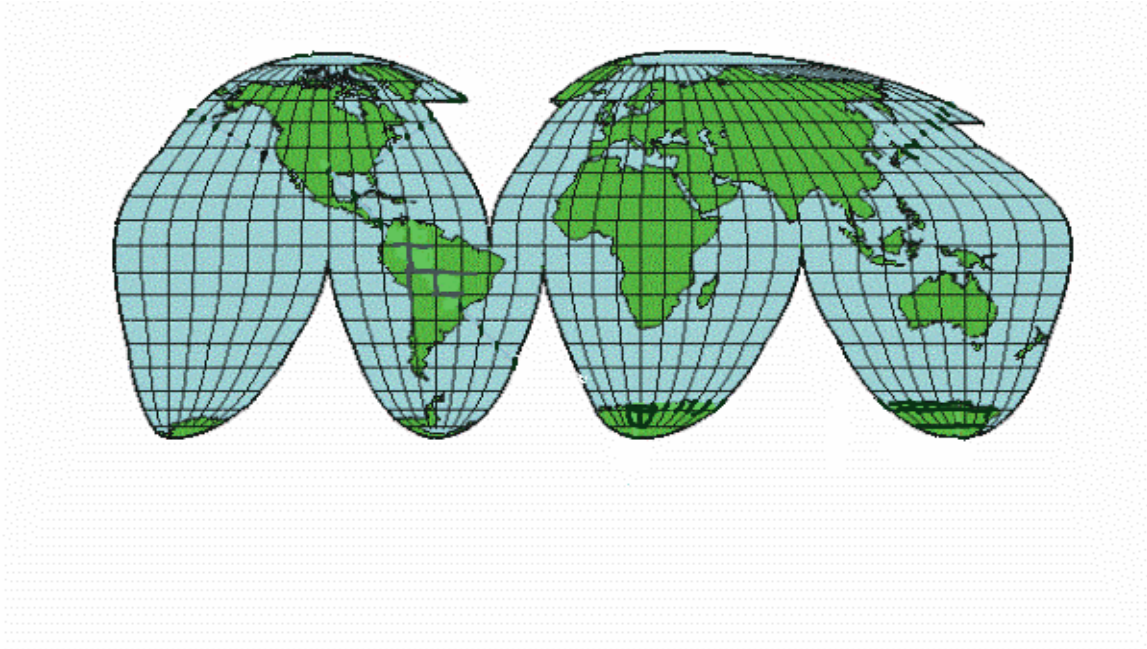
Research conducted for the Canada Transportation Act Review

Report prepared by  
Tae Hoon Oum

May 2001

## *Final Report*

# KEY ASPECTS OF GLOBAL STRATEGIC ALLIANCES AND THE IMPACTS ON THE FUTURE OF AIR CANADA AND OTHER CANADIAN AIR CARRIERS



submitted to  
Canada Transportation Act Review Panel\*\*

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by  
Dr. Tae Hoon Oum\*

\* The principal investigator claims that the opinions expressed are purely of his own as an expert in the field, not those of the Institutions he belongs.

\*\* Please note that much of the research results reported in this paper were done for other purposes and was financed by other funding. As such I claim the copyright of this report. However, I also authorize the CTA Review Panel to publish as a part of its research output as some of the research involving Canadian carriers are done specifically for CTAR Panel.

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# **KEY FEATURES OF GLOBAL STRATEGIC ALLIANCES AND THE IMPACTS ON THE FUTURE OF AIR CANADA AND OTHER CANADIAN AIR CARRIERS**

## **I. Introduction**

### **I.1 Purpose of the Project**

This report summarizes key features of and the recent developments in global strategic alliances of airlines, and investigates the potential roles of Air Canada and other Canadian air carriers in the increasingly powerful global alliance networks. The discussion on the policy options for Canada is minimized as another project by the CTAR Panel will focus on the policy issue.

### **I.2 Key components and organization of this report**

The key components of this paper will be as follows:

- Effects of alliances on productivity, pricing and profitability of partner carriers
- Effects of strategic alliances on partners' outputs, frequency of services, market outcome, and consumer welfare
- Effects of global alliance networks on inter-continental traffic routing patterns, and its impacts on traffic routing patterns in North America
- Anticipated roles of Air Canada and other Canadian carriers in North America and in the global alliance networks
- Regulatory issues concerning international alliances
- Summary and Recommendations

## II. History, Status and Prospects of Global Strategic Alliance Networks:

This section outlines the history and the current status of airline alliances. In addition, it discusses the effects of intercontinental alliances and makes predictions about the future direction of alliance network formation.

### 2.1 The History and Status of Intercontinental Alliances

The first international alliance was formed in 1986 between Air Florida and British Island. Air Florida fed US originating traffic to codeshared British Island's flights on the London-Amsterdam route. Since then, many airlines have formed a large number of alliances. Although many have dissolved over time, others have formed as airlines experiment with new partners.

**Table 2-1 The Growth of Airline Alliances**

	2000	1999	1998	1996	1995	1994	Growth, % 2000 over 1994
<b>Number of alliances</b>	579	513	502	389	324	280	107%
<b>Number of Airlines</b>	220	204	195	171	153	136	62%

Source: *Airline Business* (1994-2000)

Table 2-1 shows the growth in both the total number of alliances and the number of participating airlines. Initially, most intercontinental alliances were formed between European and North American carriers. Since about 1990, Asia Pacific carriers have joined the alliances, thus, linking Asia with North America and with Western Europe. More recently, airline alliances have been extended from the Triad (Europe, North American, and Asia-Pacific) regions to new regions including Latin America, the Caribbean, and Africa. As of June 2000, there are a total of 579 bilateral partnerships in force among more than 220 mainline airlines. At least three quarters of these are in the form of codeshare agreements.

The past experience of airline alliances has clearly been one of great instability. Many alliances have been abandoned because of management difficulties and/or the divergence of carriers' needs and interests. Table 2-2 reports the results of the Boston Consulting Group's 1995 and 1998 studies concerning the durability of airline alliances. A key finding is that the success rate for all categories of alliances has improved substantially in the 1995-98 period over the earlier three-year period.

**Table 2-2 Percentage of Alliances Survived Given Time**

	1992-95	1995-98
<b>Overall Alliances</b>	38%	68%
Equity Alliances	73%	81%
Non-equity Alliances	26%	62%
<b>Domestic Alliances</b>	65%	93%
<b>Alliances within a Continent</b>	59%	68%
<b>Intercontinental Alliances</b>	33%	58%

Source: The presentation by John Lindquist, Boston Consulting Group, at *the Maximize ROI of Airline Alliances Conference* (July 8-9, 1999; Paris), “Overview of Alliance Development in the Airline Industry”.

Towards the end of 1999, it seemed that stability was beginning to emerge from the global alliance groupings that had been rapidly coalescing. The year 1999 saw major upheavals. Swissair split from Delta following the US major's tie-up with Air France, and Austrian subsequently jumped ship, quitting its Alpine ally to join Lufthansa/United-led Star Alliance. But by year-end these changes had bedded in, while Air Canada's takeover of Canadian Airlines International (CAI), a oneworld member, was also nearing completion.

## 2.2 Global Alliance Groups

As predicted by several researchers (see, for example, Oum, Taylor and Zhang, (1993), Debbage (1994), Oum and Taylor (1995)), global alliance networks have begun to form. Currently, there are four major global alliance groups and one major intra-Europe alliance group. The current members in these global networks are listed in Table 2-3, whereas Table 2-4 reports each alliance group’s market share of the total worldwide scheduled service.

United, Lufthansa, SAS, Air Canada, Varig, and Thai International, together, formed the Star Alliance global network in 1997. Subsequently, other major global alliance groups have followed suit. American Airlines, British Airways, Canadian Airlines<sup>1</sup>, Qantas and Cathay Pacific formed the oneworld Global Alliance in 1998. Since then, both the Star and the oneworld Alliance have expanded their families by adding additional carriers. As of June 2000, the Star Alliance accounted for around 20% of the world passenger market and could edge closer to 25% as existing members bring in new partners to

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<sup>1</sup> As a result of Air Canada taking over Canadian Airlines, Canadian Airlines will officially leave oneworld as of June 1, 2000.

the fold. Star Alliance's closest competition comes from oneworld, whose share was reduced to around 16% following the CAI departure. Other alliance groups are trailing in the distance in terms of world market share.

*Table 2-3 Major Airline Alliance Groups*

<b>Air France/Delta</b>	<b>oneworld</b>	<b>Qualiflyer</b>	<b>Star Alliance</b>	<b>Wings</b>
Delta Air Lines	American Airlines	Swissair	United Airlines	Northwest
Air France	British Airways	Sabena	Lufthansa	KLM
Aeromexico	Qantas	THY Turkish	Air Canada	Continental
Aeroflot	Cathay Pacific	Tap Air	Thai Int'l	Transavia
Korean Air	LanChile	AOM	SAS	Braathens
	Iberia	Portugalia	Varig	Kenya Airways
	Finnair	Crossair	Air New Zealand	
	Aer Lingus	Air Europe	Ansett Australia	
		Lot Polish	All Nippon	
		Volare	Singapore	
		Air Littoral	Mexicana	
			British Midland	
			BWIA	
			Austrian	

Source: *Airline Business*, July 2000.

Although the KLM-Northwest (NW) alliance has operated since 1992, only recently did it expand by adding Continental and Alitalia. The resulting alliance, Wings, is trying to continue its global expansion by vigorously pursuing Asian partners. However, despite having completed most of the merger arrangements by the end of 1999, KLM terminated its agreement with Alitalia in April 2000. Flight code-sharing between Alitalia and KLM/NW has since been abandoned. Although Northwest had acquired a majority ownership of Continental Airlines, in November 2000 the two carriers have reached an agreement in which Northwest is to sell its shareholdings in Continental, while extending their alliance agreements through 2025. A successful transition from the equity alliance to a commercially based non-equity strategic alliance between Northwest and Continental is likely to help the Wings Alliance to build its market shares in North American and global markets.

In June 1999, Delta, Air France, Korean Air, and Aeromexico agreed to form another global alliance family, but the group has struggled to attract substantial new members.

In Europe, eleven small to medium size airlines, lead by Swissair, have formed an intra-European alliance group called “Qualiflyer”. They are working to develop a customer-friendly multiple hub European network with joint marketing and sales forces. However, the future of this group is quite uncertain because the partners have too many overlapping and competitive routes. Furthermore, in late 1999, Austrian Airlines and its two subsidiaries, Tyrolean Airways and Lauda Air, decided to leave Qualiflyer and join the Star Alliance (Summer, 2000).

**Table 2-4 Global Alliance Group Market Shares, 2000**

	Passenger Traffic (RPK)		Passenger Numbers		Group Revenues	
	billion	world share	million	world share	\$US billion	world share
<b>Star Alliance</b>	594	21.3%	293	18.8%	69.6	20.9%
<b>Oneworld</b>	456	16.4%	199	12.8%	50.0	15.0%
<b>Air France/Delta</b>	265	9.5%	151	9.7%	26.1	7.8%
<b>Wings</b>	177	6.4%	72	4.6%	16.8	5.0%
<b>Qualiflyer</b>	100	3.6%	52	3.3%	16.1	4.8%
<b>Total</b>	<b>1,592</b>	<b>57.2%</b>	<b>767</b>	<b>49.2%</b>	<b>178.6</b>	<b>53.5%</b>

Source: *Airline Business*, July 2000.

As shown in Table 2-4, these five alliance groups account for 57% of the world’s total revenue passenger kilometers (RPK), a widely used measure of airline industry outputs, and have swallowed up most of the world’s top 50 passenger carriers. However, a number of major airlines remain outside these global alliance groupings, including Japan Airlines, Southwest Airlines, Alitalia, etc. Despite not committing to a particular alliance group, some of these airlines have established various partnerships with individual airlines across different global alliance groups. However, as the global reach of each alliance network improves, the number and extent of ‘side (tactical) alliance deals’ are certain to decrease rapidly over time.

### 2.3 The Prospects of the Global Airline Networks

In the future, there will continue to be changes in the memberships in current global airline alliance groups and one or more new global alliances are likely to be formed. Below, I discuss how the global airline networks are likely to develop in the future.

*Global airline service networks are likely to be built by alliance groups of airlines residing in different continents.* The current alliance race will likely continue unless foreign ownership laws and nationality clauses in bilateral agreements are dismantled to allow for full mergers between foreign airlines. The basic rationale behind this prediction is as follows: A mega carrier will continue to face severe difficulty establishing an independent global network or one through mergers and acquisitions. First, tremendous financial resources, which may be beyond a carrier's ability, would be required to establish a truly global network. Second, it is expected that regulatory constraints in international aviation markets will remain in the future. Although international air transport markets are being liberalized, it is unlikely that international markets will ever be deregulated to the same extent as intra-continental or domestic markets.<sup>2</sup> Third, it is expected that legal, political, and institutional constraints on mergers and acquisitions between airlines of different nations will continue to exist. Many countries are proud of having an independent "national flag" carrier. Mergers or acquisitions of such airlines by foreign carriers would be politically unacceptable to many governments in the foreseeable future.

*Major strategic alliances will become more stable as each partner will be motivated to remain with one major strategic alliance group.* As discussed previously, alliances were much more durable in the 1995-98 period than in the 1992-95 period. In the earlier stage of the alliance frenzy, many carriers participated in the race simply because they feared being left behind. Others formed multiple alliances with different carriers without a master plan. For example, Lufthansa (LH) formed alliance with United (UA) in 1993. Air Canada (AC) formed a broad commercial alliance with UA in 1992, and then, soon after, invested in Continental (CO) in 1993. Meanwhile, in 1990, Austrian (OS), SAS (SK), and Swissair (SR) formed a trilateral European alliance, called the European Quality Alliance (EQA). EQA carriers searched for a US carrier to be their partner but SR already had formed an alliance with Delta (DL), while SK had one with CO. Therefore, as more and more credible airlines form global alliances, non-aligned carriers will have fewer opportunities to join premium global groups. This is especially true if an

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<sup>2</sup> Major airlines in North America, Europe, and Asia have been engaged in extending their networks in order to cover the entire continental markets. See Oum and Taylor (1995) for further discussions.

airline's regional competitors have already secured membership in the alliance it wishes to join. In addition, the cost of leaving a major alliance is likely to become prohibitive since the possibility of joining an equally attractive alliance diminishes over time. For these reasons global alliances will increasingly become more stable and durable.

*A limited number of future global airline networks will be formed by strategic alliances of airlines from each continent.* Since both European and North American air transport markets are quite liberalized, each global alliance is not likely to need more than one anchor carrier from each continent. Conversely, each group will need more than one anchor airline from Asia. This is because of the fragmented nature of Asian air transport markets and the sheer physical size of the continent. In the long run, the anchor carriers will carry an increasing proportion of long-haul inter-continental traffic, while the junior partners on each continent will largely provide the feeder services to their global network hubs. Economics of the global alliance networks is likely to force natural ordering of carriers into anchor and feeder carriers in the long run. Finally, because of convenience, an increasing share of travelers will choose to travel with global alliance network carriers resulting in a likely increase in their market share.

For the time being, alliances remain more revenue-driven, focused on the gains to be had from joint marketing to customers. However, alliances may already be helping to accelerate the trend towards consolidation among service providers. Alliances have been talking about starting to flex their not inconsiderable muscle to grind down procurement prices, and that practice will surely extend to many outsourced services. Alternatively, they may promote internal solutions, collecting together their ancillary business in areas such as maintenance, ground handling, catering, and information technology.

### **III. Effects of Alliances on Productivity, Price and Profitability of Partner Airlines**

Airlines enter alliances in order to improve their competitiveness in the market and to achieve a greater economic performance through the alliances. Do strategic alliances in fact improve participating airlines' economic performance, particularly bottom-line profitability? In answering this question, I rely entirely on the empirical results of an extensive econometric study by Oum, Park, Kim and Yu (1999) on the impacts of alliances on partner airlines' productivity, price, and profitability.

#### **3.1 Productivity, Price, and Profitability Measures**

The Oum *et al.* study examines the impacts of alliances on airlines' productivity, price level and profitability based on panel data of 22 international airlines for the 1986-1995 period. To obtain airlines' performance measures, five categories of airline outputs, scheduled passenger services, scheduled cargo services, mail services, non-scheduled services, and other business, are aggregated to form an overall output index using the translog multilateral index procedure (Caves, Christensen and Diewert, 1982). Similarly, five categories of airline inputs, labour, fuel, aircraft capital, ground property and equipment capital, and other materials and services, are aggregated to form an overall input index. Airline productivity performance is then measured by a ratio of aggregate output over aggregate input, commonly known as the Total Factor Productivity (TFP) index; airlines' price level is measured by dividing total revenue by aggregate output; and airlines' profitability is measured by a ratio of total revenues to total input costs, which is estimated by adding costs of labor, fuel, capital, and materials. This profitability index captures economic profit rather than accounting profit since the total input cost includes an estimated capital cost which reflects "real" capital cost of flight equipment and ground property and equipment. Readers are referred to Oum and Yu (1998, 2001) for details on the data and estimation of the various performance measures.

#### **3.2 The Effects of Alliances on Airline Performance**

A panel regression model is used to examine the relationship between alliance formation and the three measures of airline performance, i.e. productivity, price, and profitability. The model is specified as follows:

$$Y = \alpha + \beta \text{ YEAR} + \gamma \text{ ALY} + \sum \delta_j X_j + \varepsilon_{it}$$

where Y = a performance measure (productivity, price or profitability); YEAR = time trend; ALY = the number of alliances, X<sub>j</sub> = control variables. All variables except dummy variables were transformed into logarithm forms. The control variables include average *stage length*, airline *size* measured by number of employees, *output composition* measured by revenue shares, and a government ownership dummy which is equal to 1 if government owns more than 50% of an airline.

### 3.2.1 The Effects on Productivity

The results of the productivity regression are presented in Table 3-1. Results from Model 1 provide evidence of overall alliance impacts on participating airlines' productivity after controlling for changes in their network structure, output composition, government ownership, and time trend. The coefficient of ALY was estimated as 0.017 and is statistically significant, implying that a new alliance would contribute to improving participating airline's productivity by an average of 1.7 percent with all other things being equal.

In Model 2, the total number of alliances is replaced by the number of major (strategic) alliances (MAJOR) and the number of minor alliances (MINOR)<sup>3</sup>. Results from Model 2 show that *the alliance partner airlines experienced productivity gains by an average of about 5 percent following a major alliance, whereas the effect of minor alliances is statistically insignificant.*

### 3.2.2 The Effects on Prices

Table 3-2 provides results on the price regressions. The coefficient for ALY in Model 1 is negative and marginally significant, implying that alliance formation is likely to lead to lower prices. Furthermore, results from Model 2 suggest that partner airlines decreased price by an average of 5.5 percent following a major (strategic) alliance, whereas price reduction following a minor alliance is statistically insignificant. *Overall, the major strategic alliance partners appear to pass most of the productivity improvement (5%) and other cost savings via purchasing power to consumers in the form of lower prices.*

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<sup>3</sup> Major alliances refer to network based alliances in which partner airlines combine their networks to gain access to other parts of the global markets, whereas minor alliances refer to route-based alliances in

### 3.2.3 The Effects on Profitability

The regression results on profitability are shown in Table 3-3. Results from Model 1 imply that each new alliance would contribute to improving partner firm's profitability by an average of 0.3 percent, all other things being equal. Results from Model 2 further reveal that alliance partner airlines increased profitability by an average of about 1.4 percent after entering a major strategic alliance. In contrast, forming a minor alliance did not help participating firms to increase their profitability.

### 3.3 Interactions between Productivity, Price and Profitability

The study also exploits the relationship between the three performance measures (productivity, price and profitability) to further understand the process by which alliances affect airlines' performance. To do this, three sets of regressions are conducted.<sup>4</sup> The result of these regression analyses, along with that of others, is summarized in Figure 3-1, where the solid lines represent the direct (observed) effects of alliances on airline performance and the dotted lines show the relationships between productivity, price level, and profitability. The results indicate that a 1% increase in productivity would lead to a 0.6% decrease in price. The results also reveal that productivity gains improve profitability significantly, but price reduction does not improve profitability. The reason for this may be that allied firms' price reduction does not bring a proportionally additional number of passengers for greater revenues since their competitors match the reduced price (Oum *et al.*, 1996). These results suggest that improved productivity during the post-alliance period is an important source of increased profitability for partner airlines as well as for their ability to reduce prices.

### 3.4 Summary

This section examines the impacts of alliance formation on partner airlines' productivity, average price, and profitability. The results indicate that alliances contribute significantly to the enhancement of partner airlines' productivity (1.7%), and that allied airlines tend to adopt more competitive pricing after entering an alliance. On average, airlines lower price by 1.3 percent after entering an alliance. It is also

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which airlines cooperate on one or more routes without linking their entire network. See Oum and Park (1997) for details on the classification of the alliances.

<sup>4</sup> For example, the price regression is specified as  $PRICE_{it} = \alpha_i + \beta_t + \gamma TFP_{it} + \sum \delta_j X_j + \varepsilon_{it}$  where  $PRICE_{it}$  = the pricing index for firm  $i$  and year  $t$ ;  $\alpha_i$  = the effect of firm  $i$ ;  $\beta_t$  = the effect of year  $t$ ;  $\gamma$  = the effect of productivity;  $\delta_j$  = the within-firm slope for control variable  $j$ ; and  $\varepsilon_{it}$  = a normally distributed error term. The same specifications were used for examining the relationships between productivity and profitability and between pricing and profitability.

found that entering an alliance has a positive effect on profitability of allied airlines. Forming an alliance enables partner airlines to improve profitability by an average of 0.3 percent. The profitability gain is attributable mainly to their productivity improvement following an alliance.

When differentiating between the major (strategic) alliances and the minor (tactical) alliances, we obtain the following more interesting results:

- The effects of alliance formation on partner airlines' productivity, price and profitability depends largely on the scope of cooperation in the alliances, strategic (deeper) alliance vs. tactical alliance;
- Major (strategic) alliances enable partner airlines to achieve an average of 5% gain in total factor productivity and 1.4% increase in profitability while being able to lower their prices to consumers by an average of 5.5%.
- On the other hand, minor (tactical) alliances do not have statistically significant effects on partner airlines' productivity, pricing or profitability.

**Table 3-1 Effects of Alliances on Partner Airlines' Productivity**

Variables	Dependent variable: TFP	
	Model 1	Model 2
<b>Intercept</b>	-3.832***	-3.707***
<b>ALY</b>	0.017***	(0.027)
<b>MAJOR</b>		0.049***
		(0.013)
<b>MINOR</b>		0.009
		(0.007)
<b>SIZE</b>	0.108***	0.108***
	(0.018)	(0.018)
<b>LENGTH</b>	0.382***	0.373***
	(0.027)	(0.027)
<b>CARGO</b>	0.005	0.011
	(0.021)	(0.021)
<b>NSCH</b>	-0.006	-0.003
	(0.007)	(0.007)
<b>OTHERS</b>	0.045***	0.051***
	(0.009)	(0.010)
<b>GOWN</b>	-0.157***	-0.161***
	(0.022)	(0.021)
<b>YEAR</b>	0.002	0.001
	(0.005)	(0.004)
<b>Adjusted R<sup>2</sup></b>	0.61	0.64
<b>F-statistic</b>	42.2***	39.7***
<b>2 log(likelihood)</b>	283.7	291.7
<b>MAJOR - MINOR</b>		0.040***

N=215.; All variables except for dummy variables are in logarithm form.

<sup>a</sup>The numbers in parentheses are standard errors.

\*p<0.1, \*\*p<0.05, \*\*\*p<0.01.

**Table 3-2 Effects of Alliances on Average Price Charged by Partner Airlines**

Variables	Dependent variable: PRICE	
	Model 1	Model 2
<b>Intercept</b>	4.217***	4.052*** (0.449)
<b>TALLY</b>	-0.013*	
<b>MAJOR</b>		-0.055*** (0.021)
<b>MINOR</b>		-0.003 (0.011)
<b>SIZE</b>	-0.103*** (0.029)	-0.102*** (0.029)
<b>LENGTH</b>	-0.465*** (0.044)	-0.465*** (0.044)
<b>CARGO</b>	0.067** (0.034)	0.059* (0.034)
<b>NSCH</b>	-0.029** (0.012)	-0.033** (0.012)
<b>OTHERS</b>	-0.049*** (0.015)	-0.057*** (0.016)
<b>GOWN</b>	-0.003 (0.035)	0.002 (0.034)
<b>YEAR</b>	0.036*** (0.007)	0.038*** (0.007)
<b>Adjusted R<sup>2</sup></b>	0.44	0.45
<b>F-statistic</b>	20.1***	18.8***
<b>2 log(likelihood)</b>	75.8	81.1
<b>MAJOR - MINOR</b>		-0.052**

N=215; All variables except for dummy variables are in logarithm form.

<sup>a</sup>The numbers in parentheses are standard errors.

\*p<0.1, \*\*p<0.05, \*\*\*p<0.01.

**Table 3-3 Effects of Alliances on Partner Airlines' Profitability**

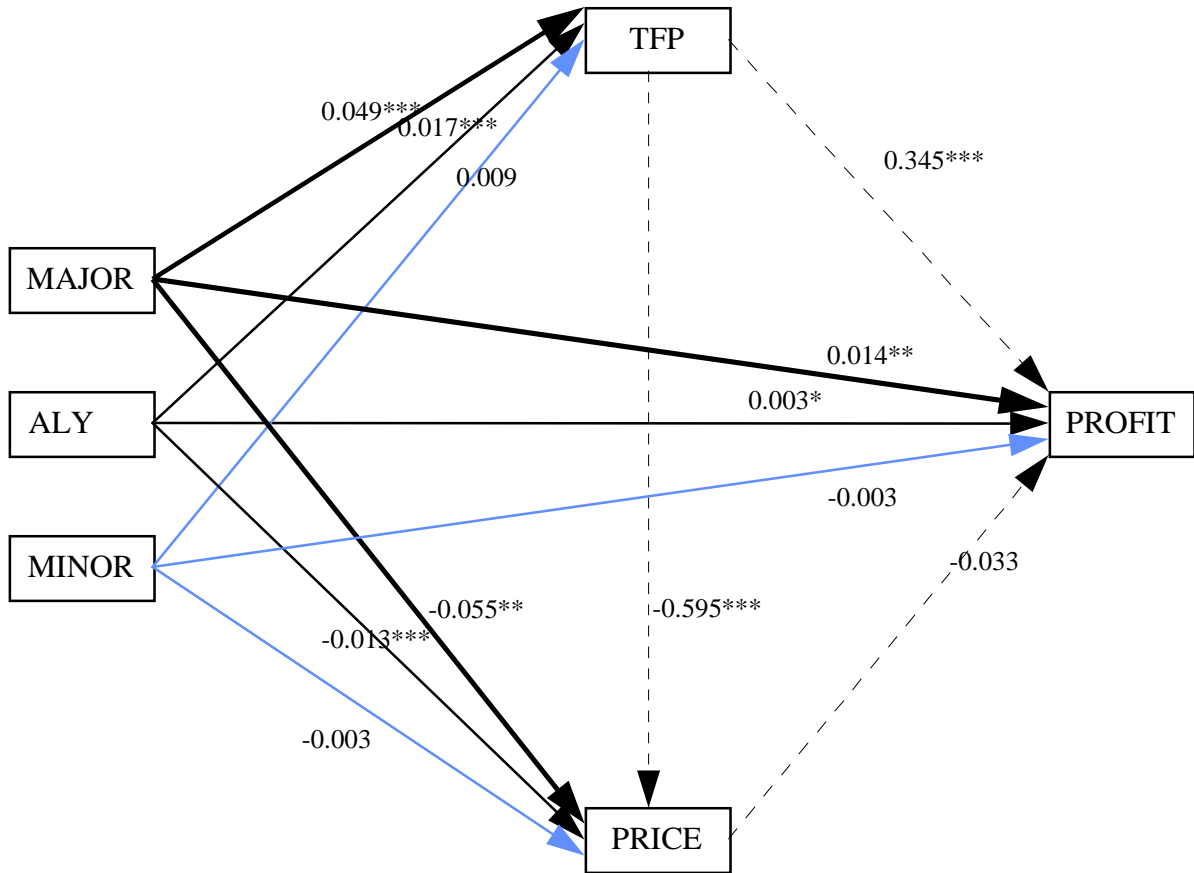
<b>Variables</b>	<b>Dependent variable: PROFIT</b>	
	<b>Model 1</b>	<b>Model 2</b>
<b>Intercept</b>	0.299**	0.355** (0.137)
<b>TALLY</b>	0.003*	
<b>MAJOR</b>		0.014** (0.006)
<b>MINOR</b>		-0.003 (0.003)
<b>SIZE</b>	-0.046*** (0.009)	-0.047*** (0.009)
<b>LENGTH</b>	0.026* (0.013)	0.022* (0.013)
<b>CARGO</b>	0.030*** (0.010)	0.032*** (0.010)
<b>NSCH</b>	-0.018*** (0.004)	-0.017*** (0.004)
<b>OTHERS</b>	-0.007 (0.005)	-0.004 (0.005)
<b>GOWN</b>	0.007 (0.011)	0.006 (0.011)
<b>YEAR</b>	0.003* (0.002)	0.002 (0.002)
<b>Adjusted R<sup>2</sup></b>	0.34	0.33
<b>F-statistic</b>	13.4***	12.9***
<b>2 log(likelihood)</b>	584.8	591.1
<b>MAJOR – MINOR</b>		0.017**

N=215; All Variables except for dummy variables are in logarithm form.

<sup>a</sup>The numbers in parentheses are standard errors.

\*p<0.1, \*\*p<0.05, \*\*\*p<0.01.

**FIGURE 3-1**  
**Process of Alliance Effect on Airline Profitability**



\*p<0.1, \*\*p<0.05, \*\*\*p<0.01.

## **IV Effects of Strategic Alliances on Partners' Outputs, Frequency of Services, Market Outcome, and Consumer Welfare**

Oum, Park and Zhang (2000, ch.4) constructed a theoretical model which allows us to examine the effects of alliances on equilibrium market outcome, in a three-firm pre-alliance setting. Two of these three firms are assumed to align with each other. The model takes into account the service quality by using 'full price' (ticket price plus passengers' schedule delay cost) in the demand model. Two prototype cases were examined: complementary alliance (alliance between two carriers without any overlapping route), and parallel alliance (alliance between two alliance carriers having an overlapping route). Their theoretical findings are summarized below:

### ***The case of complementary alliance:***

- The alliance partners produce greater output in all markets while the equilibrium output of the non-aligned carrier decreases as compared to the pre-alliance situation.
- The alliance partners earn greater profits while the non-aligned carrier's profit decreases as compared to the pre-alliance situation.
- Total market output increases, and the full price decreases on at least one of the complementary alliance routes, as compared to the pre-alliance situation. Under symmetric demands and costs, the total output increases and full price decreases on both alliance routes.
  - Consumer surplus and economic welfare are likely to increase.

### ***The case of parallel alliance:***

- The alliance partners reduce total output on alliance routes while the direction of change in the non-partner firm's output is unknown.
- The total output of the market is likely to decrease, and the full price is likely to increase, and thus, consumer surplus on the parallel alliance route is likely to decrease.

These theoretical predictions are generally confirmed by empirical tests based on an econometric model estimated from panel data of trans-Atlantic gateway-to-gateway routes (14 complementary alliance routes and 5 parallel alliance routes) on which alliances were formed during the 1990-94 period.

### **4.1 Effects of Alliances on Market Outcomes**

Overall, complementary alliances are likely to have pro-competitive effects and thus have positive effects on consumer welfare while parallel alliances are expected to have negative effects on consumer welfare

primarily due to anti-competitive behaviour. Most alliances, especially intercontinental strategic alliances, are likely to include both types of routes: parallel alliance routes (for example, routes between two intercontinental gateway airports), and complementary alliance routes (for example, linking cities beyond the partner's gateway airport). Indeed, Brueckner (1997) pointed out that while an intercontinental alliance would reduce competition in inter-hub (gateway-to-gateway) markets, cooperative pricing under *an anti-trust immunized alliance* between two airlines would lead them to gain traffic in respective connecting markets because the beyond-gateway connecting portions of a trip are complements.<sup>5</sup> This implies that depending on the mix of parallel and complementary routes, an alliance can either increase consumer welfare or decrease it. Therefore, the effects of strategic alliances on market outcomes and consumer welfare will need to be examined case by case. For this reason, Oum, Park and Zhang (2000, ch.6) attempted to measure the effects of each of the four trans-Atlantic strategic alliances formed in the 1990-94 period (BA/US Air; Delta/Swissair/Sabena; KLM/Northwest; and Lufthansa/United) in order to examine their impacts on air fares, passenger volumes and consumer surpluses.

Oum, Park and Zhang (2000) imposed the Cournot-Nash equilibrium conditions in deriving the firm-specific demand and price functions which were, in turn, estimated simultaneously using a nonlinear three-stage least square procedure. The model was estimated based on the route-specific and firm-specific (both alliance partners and non-alliance carriers) data on each of the 17 alliance routes for the 1990-94 period. In other words, each firm's yearly data on each route is used as an observation. The findings from this econometric analysis can be summarized below:

- A strategic alliance would increase the aggregate demands on alliance routes when the alliance is largely of a complementary type such as BA/US Air, KLM/Northwest, and Lufthansa/United alliances. On the other hand, a strategic alliance would decrease the aggregate demand on alliance routes when the alliance is largely of a parallel type such as the Delta/Swissair/Sabena alliance.
- The weighted average fares on the KLM/Northwest and Delta/Swissair/Sabena alliance routes

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<sup>5</sup> To my knowledge, Brueckner (1997) and Brueckner and Whelan (1998) were the first to recognize that an anti-trust immunized alliance allows the two alliance carriers to internalize the externality of pricing one carrier portion of an interline trip independently from pricing the second carrier's portion of the same interline trip. By allowing the two carriers to price the whole interline trip together, the interline carriers can afford to mutually offer better prices for the connecting portion of a trip by taking advantage of the demand complementarity between the first and second carriers' portion of a trip: i.e., internalization of the externality of pricing them independently. It is noted that Brueckner (1997) and Brueckner and Whelan (1998) does not incorporate quality of service (e.g., service frequency and/or schedule delay effects) in their model while Oum, Park and Zhang (2000) incorporate the effects of frequency of service explicitly in their model.

were reduced by 22% and 19%, respectively, due to the alliances while the alliance effects on fares were statistically insignificant for the BA/US Air and Lufthansa/United alliances.

- The four major alliances together increased consumer welfare in alliance markets by about US\$130 million per year.

## **4.2 Effects of Alliances on Service Quality**

An important aspect of an airline's service quality is frequency of services. Clearly, flight frequency is the most important quality attribute for business passengers. The main reason for the importance of flight frequency is that it determines what is known as passenger's "schedule delay", which is the time difference between a passenger's desired departure time and his/her actual departure time (Douglas and Miller, 1974). Oum, Park and Zhang (2000, ch.8) developed a methodology for measuring the effects of alliances on passengers' schedule delay, and applied this to the three transatlantic alliances for which sufficient data were available (KLM/Northwest; Lufthansa/United; and Delta/Sabena/Swissair alliances). Their empirical results measured from the North Atlantic alliance routes for the 1990-96 period reveal the following findings:

- Passengers' schedule delay time decreased following the KLM/Northwest and Lufthansa/United alliances. The partners linked up their respective networks, and either maintained or increased their flights on the alliance routes following the alliances. These increases in frequency, along with the aspects of complementary alliances, helped decrease passengers' schedule delay time.
- The schedule delay time increased following the Delta/Sabena/Swissair alliance because the alliance was largely a shut-down parallel alliance. Although this kind of alliance may allow the alliance partners to save operating costs and thus, allow them to offer a decrease in fare, it may hurt consumers if the increased schedule delay time outweighs the value of any decrease in fare.

In short, other than the case of "shut-down" parallel alliances, strategic alliances increase the flight frequency available to consumers and thus reduce their schedule delay time.

### **Summary**

A strategic alliance, especially a complimentary network alliance, leads to a market equilibrium which reduces average air fares, increases traffic volumes, and improve frequency of services. As such, it enhances consumer welfare.

## **V. Effects of Strategic Alliances on Inter-continental Traffic Routing Patterns, and its Impacts on North America**

A thorough coverage of a continental market is one of the most important features for an attractive partner for strategic alliances for linking airline networks in different continents (more on the characteristics of an attractive partners is included in section 7.2). Such an alliance network of two carriers will be able to provide convenient and frequent one or two stop services to most of the passengers originating/terminating their travel in/from the small/medium size cities of both continents.

Because of this key reason for formation of a strategic alliance, the major strategic alliances have brought a profound change in the way major airlines route their traffic, not only on intercontinental routes, but also, on domestic routes. The study by the U.S. General Accounting Office (GAO, 1995) observed that the BA-US Air, KLM-NW and LH-UA alliances have increased their traffic volume on their alliance routes more than on non-alliance routes. There are at least three reasons for this. First, strategic alliance partners find it mutually beneficial (cost saving and benefit of increased frequency of services) to route more traffic via their intercontinental alliance gateways. Second, by providing improved and higher frequency services the strategic alliance network increases market share as well as stimulating demands. Third, after forming a major strategic alliance, the partners tend to terminate tactical route-by-route alliances with a third carrier, and reroute the traffic via alliance gateways. Oum, Park and Zhang (2000, ch.7) has proved, under a fairly general conditions on demand, costs and revenue splitting rule on the overlapping routes between the alliance partners, that there is an incentive for the alliance carriers to increase traffic routing via their alliance gateways. They have also validated this hypothesis by testing empirically for the BA-US Air and LH-UA strategic alliances.

Prior to the strategic alliance with Lufthansa that began in 1993, United used the strategy of linking major U.S. cities to a mini-hub in London which has spokes into many European cities (Hamburg, Brussels, Berlin, Munich, Amsterdam, Frankfurt, etc.) utilizing its extensive 5<sup>th</sup> freedom rights (Oum and Taylor, 1995). United used its mini-hub in Heathrow in order to serve intra-European routes. After its alliance with Lufthansa, however, United shifted away from using London as a mini-hub by cancelling all but one intra-European services, London-Amsterdam (United Airlines, *Hemispheres*, December, 2000). It changed its strategy in favour of using codeshare flights via Lufthansa's Frankfurt hub, as was predicted by Oum, Taylor and Zhang (1993).

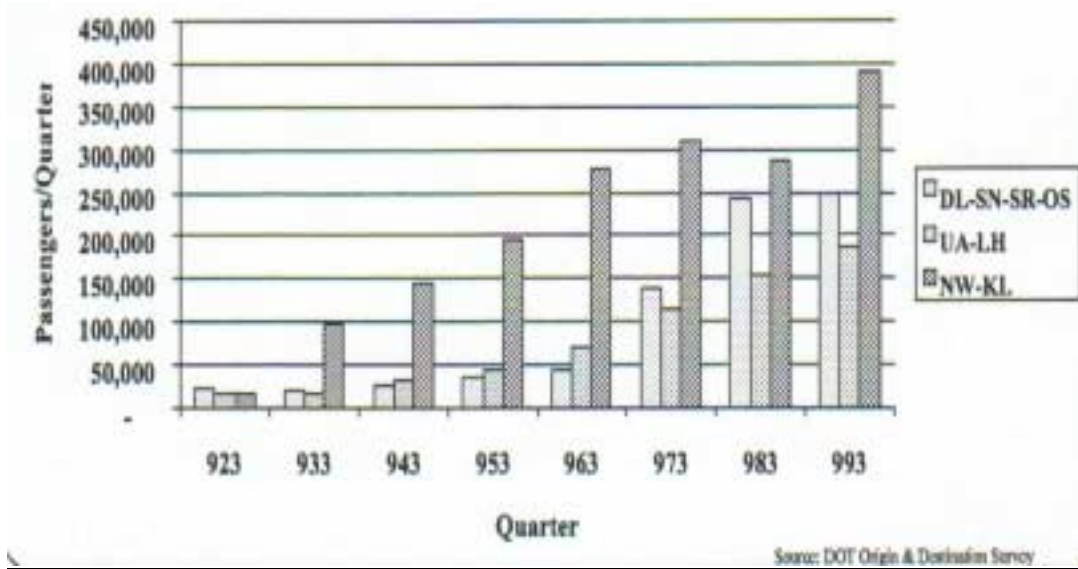
In addition, Table 5-1 shows clearly that the alliance partner increased their traffic routing via their intercontinental alliance gateway airports (shown in bold) after the KLM-Northwest and Lufthansa-United (anti-trust immunized) strategic alliances:

**Table 5-1: Passenger Traffic and Frequencies Changes After Alliance**

	1992	1995	1998
	<u>one-way pax</u>	<u>one-way pax</u>	<u>one-way pax</u>
	<u>(freq/wk)</u>	<u>(freq/wk)</u>	<u>(freq/wk)</u>
<u>KLM-NW Alliance (1992)</u>			
<b>Amsterdam-Detroit</b>	62,005 (5.4 flights)	356,384 (12.4 flights)	627,606 (17.3 flights)
<b>Amsterdam-Minneapolis</b>	43,733 (3.0 flights)	327,947 (10.9 flights)	373,986 (10.4 flights)
Amsterdam-Boston	116,310 (5.1 flights)	167,954 (6.85 flights)	164,820 (6.57 flights)
<u>Lufthansa-United Alliance (1994)</u>			
<b>Chicago-Frankfurt</b>	147,579 (7.0 flights)	358,246 (14 flights)	591,594 (23.42 flights)
<b>Frankfurt-Washington</b>	296,493 (13.93 flights)	390,909 (14.0 flights)	511,927 (19.12 flights)
Frankfurt-San Francisco	162,060 (6.32 flights)	240,850 (8.21 flights)	253,201 (7.04 flights)

Source: Compiled from ICAO, *Traffic By Flight Stage*, 1992, 1995, 1998.

**Figure 5-1 U.S. – Europe: Connecting Passengers Through Alliance Hubs**



The overall statistics on US-Europe, connecting passengers through alliance hubs measured by the U.S. Department of Transportation (2000) is shown in Figure 5-1. This Figure shows that the traffic routing via alliance hubs have increased substantially after KLM-Northwest, Delta-Sabena-Swissair-Austrian, and UA-Lufthansa alliances are formed, especially after receiving ‘anti-trust immunity’ in 1993, 1996 and 1996, respectively. This is a further evidence that alliance partners increase traffic routing via their alliance hubs.

The concentrated traffic routing via alliance hubs implies that secondary airports are likely to lose some inter-continental flights. For example, after United aligned with Lufthansa, United stopped the New York-London-Hamburg services, and routes Hamburg traffic via Frankfurt. Even if alliance carriers themselves do not purposely promote routing traffic via their alliance hubs, the high frequency and convenient services between alliance hubs will automatically induce an increasing proportion of passengers to route their own travel via alliance hubs. The same logic may be applied Canadian situation: for example, the Montreal and Toronto situation and the Vancouver and Calgary situation. Table 5-2 shows that Toronto Airport has gained an increasingly larger share of trans-Atlantic connecting passengers than Montreal. In 1993, Lufthansa (LH) carried 44,486 passengers on its Montreal – Frankfurt flights. After the AC- LH alliance (was formed in 1996), Air Canada (who replaced Lufthansa

on the Montreal – Frankfurt route) carried only 32,561 passengers in 1998.<sup>6</sup> Similarly, in 1993, the combined traffic between CAI and Lufthansa (the then, Canadian’s alliance partner in Europe) on Calgary-Frankfurt route was 76,665 passengers while the 1998 combined traffic of Air Canada and Lufthansa (Lufthansa switched its alliance partner from CAI to AC in 1996) was 84,362 passengers, only about 10% increase during the five years, a period of high air traffic growth elsewhere.

In contrast, on the Toronto-Frankfurt route, the total number of passengers of AC and LH carried was increased from 145,014 in 1993 to 216,417 passengers in 1998. In other words, while Toronto – Frankfurt traffic increased by about 50% between 1993 and 1998, Montreal-Frankfurt traffic fell by 25% during the same period. Similarly, Vancouver-Frankfurt traffic increased from 41,605 passengers in 1993 to 65,481 in 1998, an increase of 57% (Vancouver is the major gateway airport in Western Canada for the AC-LH alliance) while the total traffic on Calgary-Frankfurt routes increased only by 10% during the same period. These statistics confirm our proposition that secondary airports are likely to lose some inter-continental flights as a result of concentrated traffic routing via alliance hubs following inter-continental strategic alliances. Of course, congestion at the hub airports are likely to reduce this effect.

This concentrated traffic routing via alliance hubs will, in turn, have a negative consequence on the number and frequency of services to spoke airports from secondary major airports such as Montreal and Calgary. In other words, as Air Canada and its European partner, Lufthansa, strengthen their primary intercontinental hub airports (Toronto, Vancouver and Frankfurt), it is likely to have a negative impact on the shares of both inter- and intra-continental traffic being routed via secondary airports.<sup>7</sup>

## **Summary**

Theoretical analyses, empirical studies including those of the U.S. government agencies, and empirical facts confirm that an intercontinental strategic alliance’s partners have economic incentives to route an increasing volume of their inter-continental traffic via their mutual alliance partners’ primary hubs. This happened for the cases of KLM-Northwest alliance, Lufthansa-United alliance, and Air Canada-Lufthansa alliance.

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<sup>6</sup> Air Canada’s senior executives stated to me that the Montreal-Frankfurt traffic has increased to 135,009 passengers in year 2000. Although Montreal is a secondary major airport for Air Canada, it may constitute an exception to the general trends of traffic routing patterns by global alliance carriers for the reasons that Air Canada is headquartered in Montreal and the city and the Province is a French-speaking part of Canada.

This means that the secondary gateway airports adjacent to a primary gateway hub are likely to lose some direct intercontinental flights. This then, will have a negative spillover effect on their ability to develop hub-and-spoke network in its domestic/continental markets.

This implies that, in the absence of non-economic intervention, Montreal, Ottawa and Calgary are likely to lose some further intercontinental direct flights in the future, and this will also have a negative effect on these airports' ability to develop spoke routes and flight frequencies to other Canadian and U.S. cities.

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<sup>7</sup> As this report is being written, AC announced that it will eliminate non-stop flights between Montreal and Denver , Montreal –Edmonton as well as Ottawa – Raleigh-Durham. (Globe and Mail, Feb. 29, 2001, B4). Air Canada claims that these are a normal seasonal change in their service schedules.

**Table 5-2: Passenger Traffic and Frequencies Changes  
Before and After Air Canada - Lufthansa Alliance (1996)**

	<b>1993</b>	<b>1998</b>
	<b><u>one-way pax</u></b> <b><u>(freq/wk)</u></b>	<b><u>one-way pax</u></b> <b><u>(freq/wk)</u></b>
<b>Montreal - Frankfurt</b>		
Air Canada	n/a	32,561 (4.4 flights)
Lufthansa	44,486 (7.0 flights)	-
<b>Sub-total</b>	<b>44,486</b> <b>(7.0 flights)</b>	<b>32,561</b> <b>(4.4 flights)</b>
<b>Toronto Frankfurt</b>		
Air Canada	58,671 (8.1 flights)	105,158 (7.9 flights)
Lufthansa	86,343 (7.0 flights)	111,259 (7.0 flights)
<b>Sub-total</b>	<b>145,014</b> <b>(15.1 flights)</b>	<b>216,417</b> <b>(14.9 flights)</b>
<b>Vancouver - Frankfurt</b>		
Air Canada	n/a	6,727 (1.0)
Canadian Airlines	2,874 (0.3 flights)	n/a
Lufthansa	38,731 (5.6 flights)	58,754 (5.5 flights)
<b>Sub-total</b>	<b>41,604</b> <b>(5.9 flights)</b>	<b>65,481</b> <b>(6.5 flights)</b>
<b>Calgary – Frankfurt</b>		
Canadian Airlines	54,246	-----
Air Canada	-----	59,128
Lufthansa	22,297	25,234
Other (Delta)	222	-----
<b>Sub-Total</b>	<b>76,605</b>	<b>84,362</b>

Source: Compiled from ICAO, *Traffic By Flight Stage*, 1993, 1998.

## **VI. Roles of Air Canada and Other Canadian Carriers in the Global Alliance Networks and Related Policy Issues**

The main purposes of this section are (a) to discuss the impacts of the acquisition of Canadian Airlines International (CAI) by Air Canada on the present and future roles of Air Canada in the Star Alliance, and to assess desirability and prospects of potential tactical alliances between the remaining Canadian air carriers and foreign carriers, and (b) to make policy recommendations for improving the economic interests of Canada, consumers and Canadian carriers.

In order to accomplish these objectives, I first discuss the key characteristics of a desirable strategic alliance partner, followed by my assessment of how many global strategic alliance networks are likely to be formed eventually, and the potential roles of Canadian carriers in the global strategic alliance networks. Then, I move on to discuss long-run traffic routing patterns by the global alliance networks before discussing the policy issues related to the global strategic alliance grouping.

### **6.1 Characteristics of a Desirable Strategic Alliance Partner**

Global networks are being formed by partners who can offer a combination of the following desirable characteristics to a global alliance network:

- **Market coverage.** Complementarity in route networks is vital, so that each member brings a substantial market coverage to the network which it could not otherwise achieve.
- **Hubs and Gateways.** Candidates for senior partnership will have one or more continental hub airports that are suitable for development as international gateways. A senior partner will need to have a solid traffic base within the entire continental market along with an international scope to facilitate connections with major alliance partners in other continents.
- **Compatibility.** Compatible management philosophies, management styles, and corporate image. Network co-ordination of schedules, reservation systems, ground handling routines, and so on, will require a great deal of inter-airline cooperation. Similarity in brand (quality) image is important for the alliance to be successful.
- **Efficient cost structure.** To be attractive as an alliance partner, the airline must be perceived as a winner in the long run. Cost efficiency vis-a-vis its competitors is an important attribute for becoming a winner.
- **Financial stability.** Potential partners with high debt loads or substantial uncertainty with respect to long term economic viability will be unattractive.

In my opinion, the acquisition of CAI by Air Canada has improved Air Canada's status in the Star alliance with respect to most of the above desirable characteristics as a strategic alliance partner. By dominating intra-Canada markets and by exploiting the spillover effects (including the 'positive externality' as described in Brueckner (1997) and Brueckner and Whelan (1998)) of its domestic market dominance, Air Canada will be able to increase international traffic feeds to the Star Alliance carriers as well as securing a senior carrier position for itself in its bilateral markets. The AC-CAI merger significantly improved AC's coverage of Canadian and U.S. markets. By consolidating slots, facilities and flights at airports, AC strengthened its Toronto hub and Vancouver gateway.

As reported in Oum and Yu (1998 and 2001), CAI was a far more productively efficient (higher total factor productivity) carrier than AC ever was. Therefore, the merger is likely to shore up AC's dismal productivity performance if they succeed in doing a proper integration of the two carriers under one management. Since Air Canada has a near monopoly in its domestic market and is due to obtain advantages in its bilateral international markets, it will be able to adjust seat capacities and airfares in order to obtain a higher average yield per seat-kilometre. This will secure financial stability of Air Canada.

In summary, the acquisition of CAI by AC improved its attractiveness as a strategic partner. I am sure that Star Alliance carriers are all very happy about this.

## **6.2 How Many Global Alliance Networks Will Be Formed?**

Today, Star Alliance, oneworld, Wings and Sky Teams are vying for the global air transport markets. So far the following major carriers have not yet made formal commitment to any of these four global alliances groups:

### **North America:**

- US Airways (United has acquired, pending regulatory approval)
- TWA (acquired by American Airlines; likely to be approved)
- Southwest (type of services not suitable for alliance)
- American West
- Alaska Airlines

### **Western Europe:**

- Swissair and Qualiflyer intra-European alliance members
- Alitalia
- Olympic

**Asia:**

- Japan Airlines (codeshare alliances with American, but not a formal **oneworld** member)
- China Airlines
- Airlines in Mainland China (China Southern, China Eastern and Air China)
- Philippine Airlines
- Garuda Indonesian
- Malaysian Airlines
- Asiana Airlines

**South America:**

Still many unaligned carriers

Since **oneworld** group does not have an anchor carrier in the Northeast Asian market, JAL is likely to join **oneworld**. Most of these carriers, other than Swissair –Qualiflyer group and JAL, have neither the size nor the effective coverage of a continental market to become a senior partner of a major global alliance network. These carriers are running out of their options for joining a major global alliance network.

Since there are several major/mid-size carriers in each continent who have not joined a global strategic alliance network (especially, the Swissair/Qualiflyer group) one additional global alliance network may be formed in the future. In the end, these four or five major global alliance groups would compete for the majority of the world’s scheduled air transport market.

Although the major airlines based in the mainland China have some tactical code-share alliances with foreign carriers (e.g., Air China – Northwest; China Eastern – American; China Southern – Delta), they have not yet joined global alliance networks as strategic alliance partners. As their management know-how gets modernized, these Chinese carriers would feel comfortable to join in global alliance networks within three to five years from now. Notably, the shares of China Eastern and China Southern are being traded in Hong Kong Stock Exchange, and as such, they will face substantial pressure from their investors to open up their traditionally closed management records and also to modernize management style. This will expedite the need for these airlines to join global alliance groups. When Chinese carriers join global strategic alliances there will be a major change in pecking orders of Asian carriers in all of the global alliance groups as there will be much overlapping geographic coverage between Chinese carriers and other Northeast Asian carriers who are currently in the global alliance groups.

### **6.3 Roles of Canadian Carriers in Global Alliance Networks**

#### **Air Canada in Star Alliance:**

As a founding member of the Star Alliance, Air Canada is successfully aligned with the member airlines of the Star Alliance group, and there is no need for Air Canada to change it. At the moment, a senior executive of Air Canada chairs the Star Alliance Management Board. Air Canada will continue to be an important member of Star Alliance group. With the acquisition of Canadian Airlines International (CAI), Air Canada has become the 4<sup>th</sup> largest member of Star Alliance (smaller than United, Lufthansa and All Nippon Airways in terms of annual total revenue), enjoys near monopoly position in intra-Canadian markets, and also, is in a position to become a senior carrier in the 3<sup>rd</sup>/4<sup>th</sup> freedom international markets to/from Canada. As long as intra-Canada markets are protected from foreign carrier entry, and the spill-over effects of its domestic market dominance onto international markets are not checked vigorously by the government, Air Canada will be profitable and financially stable, albeit at high costs to consumers and despite having been the least efficient carrier (low productivity in terms of 'residual' total factor productivity) among all major U.S. and Canadian carriers since mid-1980s and throughout the 1990s (Oum and Yu, 1998, and 2001).

As stated in section 6.1, the acquisition of CAI has clearly enhanced Air Canada's position in Star Alliance by enhancing its attractiveness as a strategic alliance partner. However, it is also worth pointing out that United Airlines is clearly the North American anchor carrier in the Star Alliance. It is at least three times larger than the new merged Air Canada, and among the most efficient carriers in North America. Air Canada's role vis-à-vis United Airlines in the Star Alliance is similar to that of SAS vis-à-vis Lufthansa in the same alliance. Just in three years after the SAS-Lufthansa strategic alliance was formed, the SAS+Lufthansa traffic volume between Frankfurt and four major airports in Scandinavia (Copenhagen, Stockholm, Oslo and Gothenburg) increased by 40%, from 408,589 passengers in 1995 to 570,254 passengers in 1998. The same logic can be applied to the relationship between Air Canada and United Airlines, both of whom are in Star Alliance group. Both of these carriers will find joint economic interest to route an increasing portion of their inter-continental traffic via their U.S. super-hubs.

### **Other Canadian Carriers:**

Given that other Canadian carriers (West Jet, Can Jet, Air Transat, Canada 3000/Royal Aviation, Roots Air<sup>8</sup>, etc.) are all very small, none of these carriers would be a viable candidate as a member of any major global alliance groups. These carriers are smaller than many of the regional feeder carriers of the major U.S. airlines. Since there is no major carrier who can compete with Air Canada effectively in intra-Canada markets, there is an incentive for one or more competing global alliance carriers (or any foreign carriers who serve Toronto, Montreal or Vancouver) to make tactical alliances with some of these small carriers in Canada. Such tactical alliances between foreign carriers and small Canadian carriers should be encouraged in order to promote competition in Canada's airline markets.

## **6.4 Long-run Traffic Routing Patterns by Global Alliance Networks**

### ***Effects of Liberalizing Bilateral Agreements and Inter-Continental Markets.***

*Canada vs. U.S. Bilateral Air Services Agreements (ASAs).* During the last two decades there has been a significant increase in diversion of Canadian international air traffic (both the passengers originating their travel from within Canada and the foreign passengers travelling to Canada) to the U.S. airports. Dresner and Oum (1998) found that an increasing proportion of passengers to/from Canada are routing their travel via U.S. gateways. This trend was especially pronounced for the travellers between Canada and the countries with which the U.S. has *liberal bilateral* or open skies air services agreements while Canada has restrictive bilateral ASAs with those countries (for details, please see Dresner and Oum, 1998). This indicates that the Canadian and foreign bilateral carriers serving to/from Canadian airports lose traffic to the airlines serving the U.S. airports if Canada maintains restrictive bilateral ASAs with foreign nations when the U.S. liberalizes their bilateral ASAs with those countries.

*Deregulation of Continental and Inter-Continental Markets.* If and when the EU-proposed Trans-Atlantic Common Aviation Area (TCAA) proposal<sup>9</sup> or a similar deregulation plan becomes a reality, it is quite possible that the major Trans-Atlantic alliance carriers may increase their traffic routing via super-hubs in the United States. Even if the alliance carriers do not adopt such a policy it is quite possible that an increasing number of passengers originating from/destined to Canadian cities are likely

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<sup>8</sup> On May 3, 2001, Air Canada has announced its acquisition of Roots Air. Roots Air initiated its services only about a month ago.

<sup>9</sup> The TCAA would make Canada-US a single aviation area and the EU another single aviation area where both European and North American carriers will be able to fly freely in each other's markets including the intra-North American and intra-European markets.

to route their trans-Atlantic travel via a U.S. super-hubs, lured by higher frequency services and better options for airfare and restrictions on discount fare tickets.

### ***Effects of Geographical Locations of Canada's Gateway Airports.***

Currently, the Trans-Atlantic (Europe – North America) market is by far the largest inter-continental air passenger market, and the North Pacific (Asia – North America) market is the distant second largest market. Because Toronto and Vancouver gateways are located closer to European and Asian markets, respectively, in terms of great-circle distances, these Canadian gateways are able to enjoy a substantial geographic advantage over most of the major U.S. hubs. If an alliance network wishes to set up a entry point hub in North America, geographically Toronto, Montreal and Vancouver would be preferred to U.S. hub airports.

### ***Effects of Population Distribution in North America.***

Figure 6-1 is a map showing the top 50 metropolitan areas in Canada and the U.S. with populations of at least one million, and the current U.S. carrier hub locations. If an alliance network wishes to maximize their market potential, they are more likely to choose alliance super-hubs somewhere in the U.S. in order to minimize the total cost of collecting/distributing passengers while offering high frequency services to many of the U.S. and Canadian cities. Figure 6-2 shows the current hub locations by each of the six major U.S. carriers. Since local markets in the major U.S. hubs are much larger than those of Canadian gateway airports, it is more likely that the global alliance carrier networks will tend to concentrate their flight schedules at the major U.S. hubs as compared to any Canadian airports.

In short, although Toronto and Vancouver are strategically located for handling the North Atlantic and the North Pacific traffic, the U.S. airports have advantages for becoming the super-hubs of global alliance networks because of their population concentration in major metropolitan areas, and because of the U.S. government's proactive approach to liberalize the bilateral agreements. Therefore, Air Canada's position in Star Alliance is likely to diminish slowly over time. As the passenger traffic to/from South America increases rapidly in the future, Air Canada's position in Star Alliance will further diminish over time.

## **6.5 Key Policy Questions Concerning Global Strategic Alliances**

### ***Air Canada's Conduct After Acquisition of CAI.***

As soon as Air Canada acquired Canadian Airlines, Air Canada increased the inter-line fares they offer to non-Star Alliance foreign carriers very substantially. For example, Competition Commission of U.K. (2000) reports that Air Canada increased the interline fares on Toronto-Ottawa segment it offers to British Airways from C\$389, previously offered by CAI, to a whopping C\$1,189 after it acquired CAI.<sup>10</sup> The same report also point out that AC increased interline fares between Toronto and Calgary by similar percentage. Air Canada has also increased various fees for ground handling and other services that Air Canada provides to foreign airlines substantially. For example, from February 1, 2001 Air Canada has increased the fees they charge to Japan Airlines for passenger services, ramp handling and aircraft maintenance at Vancouver International Airport by 75-80%.<sup>11</sup> Foreign carriers serving Canadian cities including British Airways complain that because they lose virtually all passengers connecting beyond their Canadian gateway airports, they become uncompetitive even on their bilateral routes due to their reduced frequency of services that especially their business travellers value. Obviously Air Canada management knows how to use their dominance in domestic markets to obtain advantages in their international markets. The only problem is that consumers are subject to high airfares and reduced travel options.

#### ***Long-run Impacts of the Air Canada's Conduct.***

In the long run, this conduct to expand domination of both domestic and international markets does not serve the interest of Air Canada either. As indicated previously, Air Canada has been the least efficient carrier (in terms of productivity) among all of the major North American (Canadian and U.S.) carriers since mid-1980s (please see Oum and Yu, 2001, for CTA Review Panel). There are two main reasons how Air Canada has survived thus far: (a) CAI, their competitor, was a very mismanaged carrier, especially in their pricing and product design aspects. Air Canada was able to survive partly because they were able to design premium products to attract more business and high fare paying customers from whom they charge much higher prices (30-31% higher average yield per passenger-km in 1998 and 1999) than CAI was able to charge; and (b) Canadian dollars have depreciated substantially from early 1990s, making Air Canada's unit cost comparable with those of the efficient U.S. carriers who have been subjected to much higher labour and other input prices.

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<sup>10</sup> Air Canada executives claim that Canadian Airlines gave too good interline fares to British Airways.

<sup>11</sup> A reliable source in the industry informed the author that Air Canada executed 75% higher charges unilaterally for all of Japan Airlines' turn around flights while increasing the same fees for JAL's transit flights at Vancouver by even higher percentage, 80%. Since April 1, 2001, Japan Airlines reluctantly moved its passenger services to World Wide Flight Services, and its ramp handling services to Hudson General.

If the near-monopoly status in intra-Canada markets and dominance in international markets continue without a major injection of competition, in the long run Air Canada would become even more inefficient and the unions will demand higher wages without having to improve productivity. This would make Air Canada uncompetitive when a single North American market is created in the future.

## **6.6 Measures to Increase Competition**

There are several reasons why Canada should allow foreign carriers entry into intra-Canadian markets, and should prepare for eventual arrival of the single North America aviation market akin to the EU aviation market:

- We are already in free trade environment for all goods and most of the services trade with the U.S. and Mexico via NAFTA
- If Air Canada consolidates its monopoly power and exploits consumers, airfares in Canada would increase and the effective variety of fare packages (fare-restrictions trade-off) would be reduced. Then, increasingly large amounts of traffic to/from Canada will be using U.S. hub airports
- Eventually, the Government of Canada will have to give up protecting Air Canada in favour of protecting consumer interests, as they did in the mid-1980s. (Mr. Lloyd Axworthy, the then Minister of Transport introduced rather irreversible liberalization measures in 1984, which set the stage for a complete deregulation of the Southern Canadian airline markets in 1987 by Mr. Don Mazankowski ).
- When the U.S. government accepts the TCAA (Trans-Atlantic Common Aviation Area) proposed by the European Commission, the massive linkage between European carriers and American carriers for inter-continental markets will make it impossible for Air Canada to retain their share of the trans-Atlantic markets. At this point, Air Canada may lobby the government to join the TCAA. This would, in effect, create a single Canada-US aviation market.

### ***Short-run Measures To Increase Competition.***

In the short run, the following changes are suggested as being necessary in order to preserve some competition in domestic markets, and reasonable competition in the international markets. Although it is customary that a government seeks bilateral reciprocity in order to liberalize commercial rights involving

foreign airlines, Canada is in a fairly unusual situation as an advanced economy with a fairly large traffic base because Canada has essentially a unregulated near-monopoly situation in most of intra-Canada markets. There is a clear incentive for Air Canada to leverage its domestic market power and airport dominance to obtain substantial advantages over competing foreign carriers and thus to reduce competition in international markets. Under this extra-ordinary situation, the protection of consumer and travellers' welfare should take priority over protection of the dominant carrier. As such, when it is not possible to negotiate a reciprocal deals with the U.S. or other bilateral partners, Canada should consider (perhaps quantify) the costs and benefits (to its economy) of relaxing the current entry barriers imposed on foreign carriers unilaterally. Most studies on air transport policies in Canada and elsewhere have shown that the size of consumer benefit of increasing competition far exceeds any costs to domestic carriers. Since I make the following suggestions for maximizing Canada's national economic welfare including consumer welfare, some of the following suggestions may be unfair to Canadian carriers, particularly to Air Canada, especially when some of these measures may have to be undertaken unilaterally without bilateral reciprocity for a greater good for Canada.

- Require Air Canada to offer non-aligned foreign carriers the same interline airfares for domestic destinations/origins that they offer to their Star Alliance partners
- Require Air Canada to offer the same airport handling charges to both the Star Alliance members and unaligned carriers
- Study to devise methods to encourage alliances between non-Star Alliance carriers and small Canadian carriers (West Jet, Canada 3000, and Roots Air)
- As the global alliance networks get strengthened, the frequent flyer programmes (FFP) are becoming very powerful for attracting frequent travellers to global network carriers. Since the residents of Canada has advantage to accumulate Air Canada (and STAR Alliance) FFP mileages, non-STAR Alliance carriers are losing competitive battle on the markets to/from Canada. Since many studies have shown that FFPs are economically inefficient because of the perverse principal-agent incentive problems, I suggest government of Canada to consider methods to reduce powers of the FFPs for all carriers. One frequently cited and effective method of achieving this goal is to treat the frequent flyer benefits (rewards) as personal income for the purpose of income tax.

- The government of Canada (or Bureau of Competition Policy) should revisit the issue of getting Air Canada to divest the Canadian Regional system. Such a divestiture would allow the old Canadian Regional to align with non-Star Alliance foreign carriers, and thus, provide some competition even in intra-Canada markets as well as giving the foreign carriers serving Canada an effective chance to compete with Air Canada. In the first place, it was unusual for Government of Canada to set a reservation price for the sale of Canadian Regional when it was judged as being necessary for reasons of keeping some competition. I am unaware of any other Canadian case where the Bureau of Competition Policy set reservation price when it orders a firm to divest a part of business or assets in order to remedy competition.
- It would be another major mistake if the Government of Canada allowed Air Canada to establish a discount air carrier, albeit supposedly to run independently from Air Canada. Airline costing and pricing is too complex for any regulatory authority (including Bureau of Competition Policy) to monitor them effectively in order to take anti-competitive actions when they occur.

### ***Medium/Long-run Measures to Increase Competition.***

Before the proposed-TCAA (Trans-Atlantic Common Aviation Area) becomes a reality, and before the foreign ownership limitations on airlines are substantially reduced or removed, it is in Canada's advantage to negotiate with the U.S. for a single Canada-U.S. aviation market including *cabotage*. This will enhance the opportunity for Air Canada to transform itself as a North American carrier (either by acquisition or expansion into U.S. domestic markets) as CN Rail has been doing successfully since the 1990s. Air Canada ought to be encouraged to become a North American carrier rather than staying as a Canadian carrier.

## **6.7 Summary**

In summary, although Air Canada is poised to play an important role in the Star Alliance group, it will still be junior to United Airlines in the North American market. United Airlines is the anchor carrier for the Star Alliance in North American markets. Air Canada has consistently been the most inefficient carrier among all major Canadian and U.S. carriers since the mid-1980s. The near-monopoly situation in Canada is likely to increase the efficiency gap further between the major U.S. carriers and Air Canada.

This would eventually make Air Canada unable to compete head-to-head with the U.S. carriers when a single aviation market is created.

Therefore, it is important for Canada to undertake the short and long term measures for increasing competition both in the intra-Canada and the international markets, as proposed in this section.

Figure 6-1  
Top 50 North American Metropolitan Areas, 1999

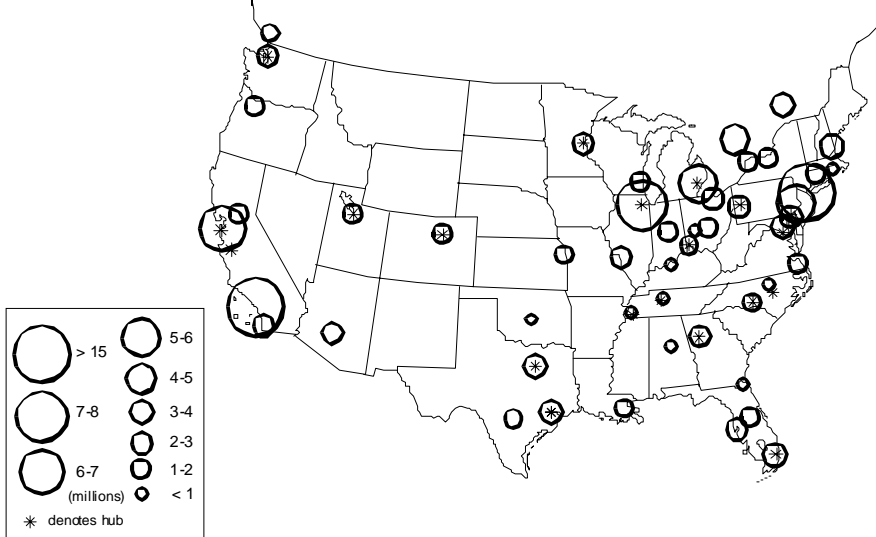
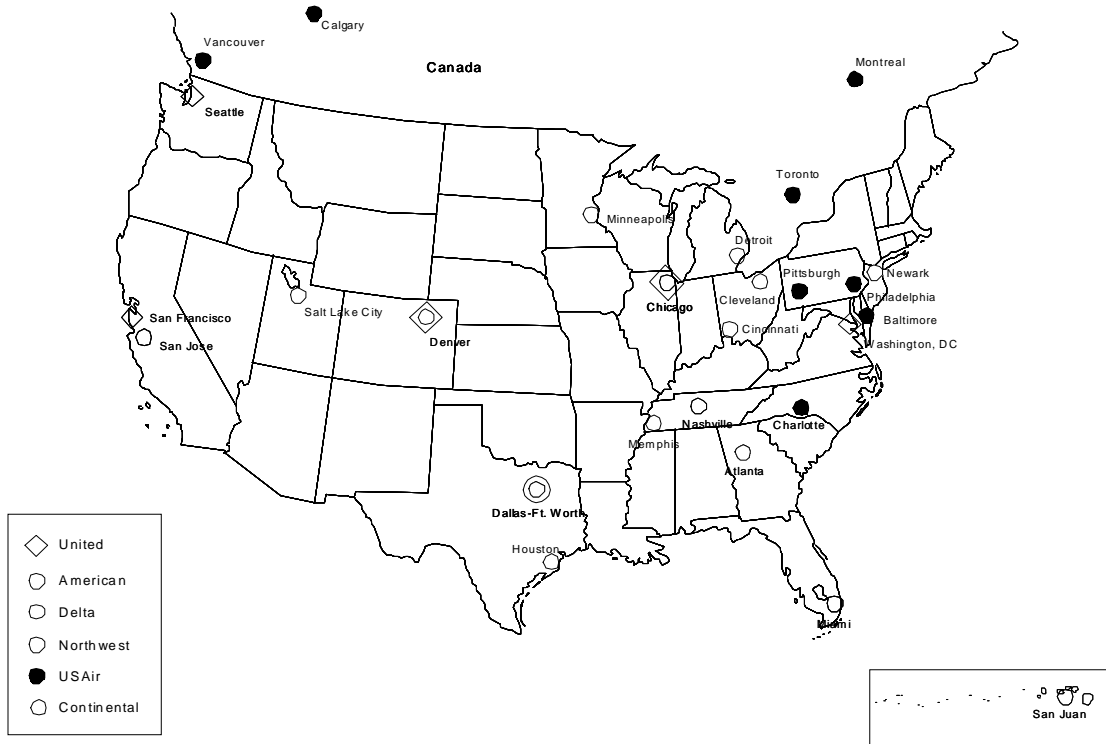


Figure 6-2 Hubs of Major US Carriers



## VII. Regulatory Issues Concerning International Airline Alliances

The number of airline alliances has rapidly expanded during the last few years. More importantly, although the scope and nature of these alliances differ, there is a tendency towards deeper alliances involving co-operation on all aspects of airline business, amounting to virtual merging of the alliance members' activities. Airline alliances, therefore, raise fundamental questions about their effect on competition in air services. This section discusses regulatory issues related to international airline alliances.

### 7.1 The Current Regulatory Framework for Airline Alliances

International air services between most countries are far from being fully liberalized. Bilateral agreements continue to restrict competition on aspects such as the number of possible flights, the number and the identity of the carriers and the airports that can be served. Even the bilateral "open skies" agreements initiated by the U.S. include provisions that limit competition. International airline alliance agreements must comply with the applicable regulations in the partner airlines' home countries. For example, alliances between airlines operating across the Atlantic are subject to the competition laws of both the EC and the U.S. The difficulty is that two or more competition authorities could reach conflicting or incoherent decisions.

Code-sharing agreements between partners is a key feature of international airline alliances, whereby one airline's designator code is shown on flights operated by its partner airline. The U.S. Department of Transportation (DOT) has taken the position that code sharing agreements between U.S. and foreign airlines require approval by DOT. Although DOT has the final authority to approve, or disapprove, a code-sharing agreement, the U.S. Department of Justice (DOJ) reviews code-sharing proposals for potential antitrust violations<sup>12</sup>. Even though international airline alliances cannot, by law, lead to a merger, DOJ approaches code-sharing agreements and associated alliances from the same perspective as a merger<sup>13</sup>. If it determines that a proposed alliance would cause anti-competitive effects, it may impose conditions on it or prohibit it altogether. Unique to the airline sector, the DOT has the right to challenge any approval by the DOJ, and it also has the power to grant antitrust immunity in international aviation agreements.

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<sup>12</sup> DOJ took over responsibility for approving airline mergers and alliances from DOT in 1989.

<sup>13</sup> The Department of Justice uses the principles contained in the 1992 Horizontal Merger Guidelines in analyzing such alliances.

While the US authorities have been consistently active in applying competition law to alliances between U.S. and EU airlines for some time, the European Commission (EC) had been relatively inactive in this aspect prior to the proposal of the British Airways/American Airlines alliance. British Airways (BA) and American Airlines (AA) first announced their proposed alliance in June 1996, which would give the pair 64 percent of all seats between London Heathrow and the U.S., and a monopoly on a number of vital routes. This set off alarms and prompted the EC to begin reviewing antitrust implications of proposed alliances, reviving its interests in airline alliances. Officials realized that they could not just restrict AA and BA without examining other alliances. The fear was that, far from benefiting consumers through efficiencies, such alliances would gain undue influence over the market.<sup>14</sup> This is in contrast to a somewhat more favourable stance towards such alliances by the U.S. DOT.

The EU also fears that the U.S. has used alliances and antitrust immunity to sign open-skies agreements with its member states, which provides advantages to U.S. airlines over EU airlines. The U.S. bilateral open-skies agreements with the Netherlands, Austria, and Belgium were signed concurrently with the U.S.' granting antitrust immunity to the KLM/Northwest and Delta/Sabena/Swissair/Austrian alliances. It is perceived that, an open-skies agreement has become a pre-requisite for the U.S. to grant antitrust immunity to proposed alliances between U.S. airlines and foreign airlines. BA and American, with limited code-sharing operations, are seeking antitrust immunity, but their request won't be granted until the U.S. and U.K can reach an open-skies pact.

The growth in international airline alliances has created a significant increase in the number of code-share services being offered. Naturally, there is a corresponding increase in the number and importance of code share provisions in bilateral air agreements. In fact, code-share has become an integral part of the bilateral process as is the formation of airline alliance. In Canada, the present international air policy contains no provisions regarding the negotiation of code-share rights. Canadian practice in this regard has generally been driven by the interests of Canadian carriers, whose focus has been on obtaining "third country" code-sharing rights. As such, Canadian Policy ended up essentially giving lip services to consumer interest.

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<sup>14</sup> For example, see *Business Week*, 2 March 1998.

## 7.2 International Coordination of Regulations

National competition policies play an important role in the international aviation market. For many countries, international operations represent a vital source of their total aviation revenues. Domestic mergers are often justified by the argument that they would help improve domestic firms' international competitiveness as international aviation is gradually being liberalized. The importance of this argument rests on the importance of economies of scale and oligopoly market structure (hence, imperfect competition). Clougherty (1996) analyzed empirically the influence of merger among domestic airlines on the international airline market. Using cases from North American airline mergers, he found that the increase of market concentration in the domestic market did contribute to an increase in domestic firms' market share in the international market.

When there is an asymmetry in merger/competition policy across countries, caution should be taken in liberalizing air transport markets. Suppose that the foreign country does not have a strong competition policy (or does not enforce it rigorously) while the home country does. Then an unconditional liberalization by the home country may lead to a situation where domestic firms are driven out of market. This is because the merged foreign firm is able to extend its reach to the domestic market and realize economies of scope and density, thereby driving its unit cost down. At the same time, the home firms may not be able to merge and have to be confined within the home market. As home firms exit from the market, merged foreign firms would become the dominant firms, putting an upward pressure on prices. As a result, unilateral liberalization may not even achieve its original intention of promoting competition in the home market, let alone it hurts home firms.

Therefore, there is a need to coordinate/harmonize competition policies among the regulatory agencies of the countries involved, or create a super-national regulatory body. As the world airline industry is undergoing changes through consolidation at both national and international levels, it is important that the restructuring be guided by an appropriate regulatory structure. The desirable international regulatory structures on strategic alliances should have some of the following features. First, national competition policies and enforcement practices for all industries should be in place and transparent. Further, they should converge to an adequate, common standard across countries. Second, as the pace of deregulation and liberalization continues in many countries, airline alliances and their competitive effects should be treated within the general framework of competition policy. Third, where relevant, international coordination of national regulatory agencies should be directed towards alliances-related matters such as slot control at each country's hub airports, disclosure of the operating carriers of

code-shared flights on CRS displays, and antitrust immunity granted by each country. An interesting question here is whether a super-national competition policy and a super-national regulatory body may be more effective in dealing with some of these matters than mere international coordination. While recognizing the potential benefits, we note that there is no precedent in other industries for such super-national competition policies and associated regulatory bodies.<sup>15</sup>

### 7.3 Summary

In the near term, alliances will remain as a dominant form of inter-airline relationship in international air transport. How to regulate alliances, therefore, becomes an important policy issue. Normally, international traffic involves (at least) two hub airports, one in each country. Controlling both hubs may require coordination of regulatory agencies of the two countries. The need for such coordination arises from the considerations that there exist asymmetries in regulatory policy across countries and that, where antitrust exemptions to aviation do exist, inconsistencies in the rules applied may occur across countries.

The desirable international regulatory structures on international alliances should include convergence of national competition policies and enforcement practices to achieve common standards and treatment of airline alliances within the general framework of competition policy. For the time being, where relevant, international coordination of national regulatory agencies should be activated towards alliances-related matters. The establishment of such coordinated regulatory structures and the liberalization of international aviation reinforce each other and should be pursued simultaneously.

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<sup>15</sup> It is particularly surprising to observe that there are no super-national competition agencies in those industries that enjoy much more commercial freedom than aviation, such as telecommunications, automobile manufacturing, computer hardware, and computer software industries despite the fact that they are covered by GATT or GATS.

## VIII Summary and Recommendations

This report reviewed key features of and the recent developments in strategic alliances of airlines, and examined the potential roles of Air Canada and other Canadian air carriers in the global alliance networks. In addition, where appropriate the related policy issues are discussed.

### 8.1 Summary

The following summarises the main discussions:

- Currently, there are four major global alliance groups and one major intra-Europe alliance group. The largest alliance group, Star Alliance, accounts for around 20% of the world passenger market, followed by **Oneworld** at around 16%. Other alliance groups are trailing in the distance in terms of world market share. Most of the top 50 airlines in the world are members of these alliance groups.
- Major global strategic alliance memberships will become increasingly stable as each partner will be motivated to remain with one major strategic alliance group because the cost of separation becomes prohibitive and the likelihood of finding another alliance group is diminishing.
- Eventually, a limited number of global airline networks will be formed by strategic alliances of airlines from each continent. Given the status of unaligned carriers in Asia, Europe and North America, it is likely that one or more new global alliance networks are to be formed.
- Most of the alliances contribute to productivity enhancement, competitive pricing and profitability gains of its partners. However, the effects of alliance formation on partner airlines' productivity, price and profitability depend largely on the scope of cooperation in the alliances, strategic (deeper) alliance vs. tactical alliance. Major (strategic) alliances enable partner airlines to achieve an average of 5% gain in total factor productivity and 1.4% increase in profitability while being able to lower their prices to consumers by an average of 5.5%. On the other hand, minor (tactical) alliances do not have statistically significant effects on partner airlines' productivity, pricing or profitability.
- Major strategic alliances have brought a profound change in the way airlines route their traffic, not only on intercontinental routes, but also, on domestic routes. Alliance partners generally increase traffic routing via their intercontinental alliance gateway airports after the strategic alliances. Even if alliance carriers themselves do not promote traffic via their alliance hubs, the high frequency and convenient services between alliance hubs will induce increasing proportions of passengers to route their travel via alliance hubs. The concentrated traffic routing via alliance hubs implies that secondary airports are likely to lose some inter-continental flights. For example, after United aligned

with Lufthansa, United stopped the New York-London-Hamburg services, and routes Hamburg traffic via Frankfurt.

- The passenger statistics presented in Section V show that there was a sharp increase in passenger traffic between KLM super-hub (Amsterdam) and Northwest hubs (Detroit, Minneapolis/St.Paul, and Boston) between 1992 and 1998. Similar sharp increases in traffic volumes were observed between Lufthansa's super-hub (Frankfurt) and United's hubs (Chicago, Washington Dulles, and San Francisco). Similarly, Air Canada-Lufthansa alliance also increased sharply their traffic routing between Frankfurt and AC+CAI's major gateways (Toronto and Vancouver) after their strategic alliance while reducing traffic routing on the Frankfurt-Montreal route significantly.
- The acquisition of CAI by Air Canada has improved Air Canada's status in Star alliance with respect to most of the desirable characteristics as a strategic alliance partner: the improved Canadian and continental market coverage, strengthened Toronto hub and Vancouver gateway, the potential to improve productivity and efficiency, and the strengthened financial stability.
- Although Air Canada is poised to play an important role in the Star Alliance group, it will still be junior to United Airlines in the North American market. United Airline is the anchor carrier for Star Alliance in North American markets. Air Canada has consistently been the most inefficient carrier among all major Canadian and U.S. carriers since mid-1980s. The near-monopoly situation in Canada is likely to increase the efficiency gap further between major U.S. carriers and Air Canada. This would eventually make Air Canada unable to compete head-to-head with the U.S. carriers when a single aviation market is created.
- It is important for Canada to undertake measures for increasing competition both in the intra-Canada and the international markets, as proposed in Section 6.6 (which are also highlighted in section 8.2 below).
- Normally, international traffic involves (at least) two hub airports, one in each country. Controlling both hubs may require coordination of regulatory agencies of the two countries. The need for such coordination arises from the considerations that there exist asymmetries in regulatory policy across countries and that, where antitrust exemptions to aviation do exist, inconsistencies in the rules applied may occur across countries. The desirable international regulatory structures on international alliances should include convergence of national competition policies and enforcement practices to achieve common standards and treatment of airline alliances within the general framework of competition policy.

## 8.2 Measures to Increase Competition

### *Short-run Measures To Increase Competition.*

Although it is customary that a government seeks bilateral reciprocity in order to liberalize commercial rights involving foreign airlines, Canada is in a fairly unusual situation as an advanced economy with a fairly large traffic base because Canada has essentially a unregulated near-monopoly situation in intra-Canada markets. There is a clear incentive for Air Canada to leverage its domestic market power and airport dominance to obtain substantial advantages over competing foreign carriers and thus to reduce competition in international markets. Under this *extra-ordinary* situation, the protection of consumer and travellers' welfare should take priority over protection of the interest of a dominant carrier. As such, when it is not possible to negotiate a reciprocal deal with the U.S. or other bilateral partners, Canada should consider (perhaps quantify) the benefits and costs (to its economy) of relaxing the current entry barriers imposed on foreign carriers *even unilaterally*. Most studies on air transport policies in Canada and elsewhere have shown that the size of consumer benefit of increasing competition far exceeds any costs to domestic carriers. Since I make the following suggestions for maximizing Canada's national economic welfare including consumer welfare, some of the following suggestions may be unfair to Canadian carriers, particularly to Air Canada, especially when some of these measures may have to be undertaken unilaterally without bilateral reciprocity.

In the short run, the following changes are suggested as being necessary in order to preserve some competition in domestic markets and reasonable competition in the international markets:

- Require Air Canada to offer non-aligned foreign carriers the same interline airfares for domestic destinations/origins that they offer to their Star Alliance partners
- Require Air Canada to offer the same airport handling charges to both the Star Alliance members and unaligned foreign carriers
- Devise methods to encourage alliances between non-Star Alliance carriers and small Canadian carriers
- As the global alliance networks get strengthened, the frequent flyer programmes (FFP) are becoming very powerful for attracting frequent travellers to global network carriers. Since the residents of Canada has advantage to accumulate Air Canada (and STAR Alliance) FFP mileages, non-STAR Alliance carriers are losing competitive battle on the markets to/from Canada. Since many studies have shown that FFPs are economically inefficient because of the perverse principal-agent incentive problems, I suggest government of Canada to consider methods to reduce powers of the FFPs for all

carriers. One frequently cited and effective method of achieving this goal is to treat the frequent flyer benefits (rewards) as personal income for the purpose of income tax.

- The government of Canada (or Bureau of Competition Policy) should revisit the issue of getting Air Canada to divest the Canadian Regional system. Such a divestiture would allow the old Canadian Regional to align with non-Star Alliance foreign carriers, and thus, provide some competition even in intra-Canada markets as well as giving the foreign carriers serving Canada an effective chance to compete with Air Canada.
- Air Canada should not be allowed to establish a discount air carrier, albeit supposedly to run independently from Air Canada. Airline costing and pricing is too complex for any regulatory authority (including Bureau of Competition Policy) to monitor them effectively in order to take anti-competitive actions when they occur.

***Medium/Long-run Measures to Increase Competition.***

Before the proposed-TCAA (Trans-Atlantic Common Aviation Area) becomes a reality, and before the foreign ownership limitations on airlines are substantially reduced or removed, it is in Canada's advantage to negotiate with the U.S. for a single Canada-U.S. aviation market including *cabotage*. This will enhance the opportunity for Air Canada to transform itself as a North American carrier (either by acquisition or expansion into U.S. domestic markets) as CN Rail has been doing successfully since the 1990s. Air Canada ought to be encouraged to become a North American carrier rather than staying as a Canadian carrier.

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