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The Globalizer that cannot Globalize - The world Airline Industry

Introduction

On March 20, 2002, British Airways announced that foreign ownership of its shares has increased to 48% of the total. The global securities research and economics group of Merrill Lynch explained: -

It is normal for BA to make such an announcement when foreign ownership approaches 50%, as it would be for any European airline operating services beyond the EU...[b]ecause for a carrier to be designated by a signatory government under the bilateral to serve the international route, it must be at least 50% owned by nationals of the designator state. Therefore, if control of the carrier shifted offshore, it would lose the right to service routes under all the bilaterals for which it is designated....The EU is an “open skies” area. This means the bilaterals between EU countries are no longer relevant for regulating air service between them. Any EU registered carrier can provide as much service as it chooses between any destinations within the EU and charge what it likes. Therefore for carriers serving EU destinations *only* (e.g. *Ryanair*), national ownership need only be at least 50% by EU nationals rather than Irish nationals. If Ryanair started to serve Hong Kong (a highly unlikely scenario!), the majority national ownership would immediately revert from EU to Ireland.

This quote summarizes in a succinct manner the peculiar situation of the international airlines industry. Airline transportation is essential for globalization, yet the airline industry is not allowed to operate internationally in a free market environment. Countries regard “their” airlines as sacrosanct extension of the national flag. The need to prefer “open skies” regime is preached, but no two parties can agree how open such an open skies regime should be

To be sure, the past decade have witnessed major changes in the environment in which the European airlines operate. The deregulation of airfreight in the United States in 1977 and of passengers’ flights in 1978 triggered changes in thinking about the regulation of network industries such as airlines. Disenchantment with the results of government planning and control strengthened the calls for liberalization of markets and for privatization of enterprises – including state-owned monopolies. Since 1988, the European Union, stimulated by a number of legal judgements in the European Court, moved toward free air transport from economic regulation. Unlike the United States, Europe has opted for a step-by-step approach to deregulation. The transition from a regulated environment has extended over a long period – from 1988 to 1997. The 1992 initiative of the European Community removed institutional barriers to free operations of ‘community carriers’ and to free competition among them. Pricing was freed from control and from the regulation of bilateral arrangements between countries and full cabotage¹ was allowed throughout the Union among member states since 1997. It is widely agreed that a fragmented, national based system of air transportation is too costly. It is hoped to create a competitive *European Community* airline industry.

The reform in Europe was designed to create one region of all the European Union (and also Norway, with Switzerland signing an agreement with the EU). It did not change the fundamental rules outside Europe nor did it allow open skies to non-European airlines. The ambition of many in Europe is to create a Single European Sky, to encompass all of Europe, not only the European Union countries (AEA, 1999). There are also calls for the creation of a transatlantic common aviation area (TCAA). No attempt is made to achieve a global regime of open skies. In fact, airline transportation was the one sector unanimously agreed to be excluded from the Uruguay Round agenda. By 2002, no one government – including the United States and the European Commission – is willing to free airlines from national (or Federal) controls. An intricate system of bilateral agreements among countries and restrictions on foreign ownership severely limit the strategic alternatives available to air transportation firms. A typical air-service bilateral agreement limits the number of airlines that may operate between the cities of those countries and also limit the number of flights. Foreign ownership is banned. This restrictive attitude stems from the perception that airlines are instruments of national security or at least to national prestige and crucial for the strength of the national economy.

The institutional reforms were taking place in an environment of increasing global operations of firms, the internationalization of finance and accelerating interweaving of national economies. The integration of global production results in growing flows of capital, trade, investment, technology and know-how across national borders, creating a new economic and political global environment. The reforms also come after several decades in which a surge in leisure time, rising income and zooming demand for airfreight brought about falling real prices of airfares and increased the market for air transportation. The globalization may or may not have hollowed out the authority of governments.

Certainly, the gradual changes already introduced in the environment within which European airlines operate will be followed by more changes. These changes may be toward more liberalization. They may be designed to increase competition e.g. by introducing different rules on the way slots are allocated or global relaxation of airline ownership rules. The European Commission may be able to secure the ability it desires to negotiate multilateral agreements on behalf of all member states. On the other hand, nations may return to rely on national flag carriers, protected by an array of political agreements and state ownership. True, in the past two or three decades national carriers in Europe, in Latin America and in Asia have all been opened up to private capital. Yet, in the wake of acute difficulty governments of different ideological proclivities all rescued the airlines rather than risking being left with no national carrier. The latest examples are Air New Zealand and Swissair. There are pressures to ameliorate the restrictions on competition, and these pressures may or may not create a different international regime. These and other political considerations are certain to have a major impact on the regulatory structure governing civil aviation and therefore on the future structure of the industry and on the strategy of the European airlines.

This paper offers some hypotheses and speculations about the likely strategies of large European airlines in the next decade. It also hypothesizes on the possible directions the industry structure will take in the future. As a background to these speculations, the paper discusses the evolution of the industry as well as its economic characteristics. It describes the “rules of the game” in that industry and the gradual changes in these rules. These changes, in turn, were fuelled by new technology in airplanes and in information as well as by other environmental changes and pressure to adapt “the rules of the game”. A clear understanding of how airlines compete, what affects their prices and how to they erect barriers to entry is crucial to predict the structure of the industry. Experience in the United States has taught policy makers that the process of competition in the airline industry is very complex.

In this paper I argue that economic forces of integration are only one part affecting outcomes in a global political economy. Others are domestic politics and national security. Weak firms may strive for political solutions for their trouble. Strong multinationals would attempt to influence governments to adopt policies that would increase their competitive advantage. Governments are affected by domestic political forces but also by the desire to allow increased interdependence. They must also ensure the protection of their citizens. Further, governments continue to have considerable latitude in establishing the legal framework of economic activity. In 1989, the USSR collapsed. A new era was expected to start - the era of end of history, of concentration on the improvement of standard of living rather than devoting massive amounts of economic resources to military preparedness. All nations were to be able to pursue peacefully their economic interests in the global marketplace. They would refrain from erecting trade barriers, would remove all existing ones and embrace free trade regime, in which the beneficial impetus to world growth from intensifying global competition could be given free rein. This ideal world has never become a reality and optimism turned to be short-lived. Symptoms of adversarial trade blocks became abundant and national self-interest dictated trade frictions. A pressing issue for each nation and every region has become the desire to capture more of the benefits of globalization for the citizens of that nation or region. Governments are increasingly prone to intervene to increase the share of their nations in the global pie or at least to maintain privileges earned in the past for the national airline or restrictions on flights to Heathrow airport. The September 2001 use of hijacked aircraft as a weapon added another dimension of security as well as the need to restore public confidence even at a cost of less convenience and more intervention.

The first section of the paper presents the major economic features of the global airline industry. It then gives a bird’s eye view of the European airlines. It analyzes the process of deregulation in Europe and the differences between the consequences of deregulation in the United States and that in Europe. It describes the forces leading to globalization and then proposes likely scenarios for future strategy and structure in the industry. Technical details are left to appendices-on freedoms of the air, evolution of the industry., the evolution of international regime and the major strategic alliances.

The Global Airline Industry – major economic features

The airline industry is a \$3.5 trillion a year business. The total scheduled air traffic carried by the 716 scheduled passenger service airlines and the 91 scheduled all freight service airlines from 185 contracting states of ICAO amounted in 2000 to about 1,647 million passengers and to some 30.2 million tons of freight. In 1945 the number of air passengers was meager 9 millions. It was 59,000 million in 1954; 514,496 millions in 1974 and 1,027,856 millions in 1987. About 40% of the world's manufactured exports (by value) are transported by air. In the same year, the 29 member airlines of the Association of European Airlines (AEA) used a fleet of 2,225 airplanes to fly 311 million passengers and 5 million tons of freight to and from 418 cities in Europe and 177 cities beyond Europe.

On a regional basis, by ICAO counting, about 36 percent of the total traffic volume (passengers, freight and mail) were carried by North American airlines. Asia/Pacific airlines carried 27 percent and European airlines - twenty eight percent. Latin American and Caribbean airlines accounted for 4 percent, Middle Eastern airlines – 3 percent and African airlines – 2 percent. Of the airlines of the world, US airlines accounted in 2000 for about 34 percent of the total volume of scheduled passengers, freight and mail traffic. Japanese airlines accounted for 6 percent and the UK airlines for 5 percent. On international traffic, airlines of the United States, the United Kingdom, Germany and Japan accounted for 18,8,7 and 6 percent respectively. Non scheduled share of the total international air passenger traffic was about 13 per cent, Domestic non scheduled passenger traffic represented only 2 percent of the total domestic passenger traffic worldwide and 8 percent of the total nonscheduled passenger traffic. Table 1 presents a picture of world airline industry in 2000 from another source.² Table 2 show the evolution of the industry.

The demand for international air transportation is a joint function of the business environment, the flow of tourists and the demand for airfreight. For several decades, the amount of air transportation activity has been growing consistently at about double the rate of world production. The main drivers for the acceleration of traffic are the rise of world GDP, globalization and increasing world trade and investment, higher percent of retired persons, and liberalization. This growth was equally fuelled by an increase in business persons mobility and therefore demand for air travel, by a surge of world trade and therefore more business cargo and courier services coupled with change in inventory management techniques ('just in time') as well as by significant increase in tourism.³ International tourism receipts and arrivals have been growing every year. During the decade 1990-2000 the number of tourists increased from about 450 million to 700 million. The increase in leisure travel is also caused by a rise in the percent of old age persons. In Great Britain, nearly a quarter of the leisure passengers were 55 or over (compared with under 10 percent of business passengers) (CAA, 1999).

Air transport has grown prodigiously since its inception immediately after World War I. In the last three decades, the industry has doubled in each decade. Global air passenger traffic rose since 1950 at an annual rate of 9 percent, airfreight increased by 11 percent and mail traffic – by 7 percent. The rate of growth for passengers is declining somewhat. In the period 1991-2000 international scheduled traffic grew by 9% per annum and

domestic traffic – by 7% per annum. Cargo grows faster than passengers' traffic. In Europe, the industry has doubled its revenues five times in the 40 years from 1960 to 2000. In other words, in 2000 air traffic was 32 times larger than in 1960. With these increases came also a major decline in fares. Airline yields in the last three decades have fallen at a rate of about 2.5% per annum. That means that since 1970 the real yield per RPK for all scheduled airlines has more than halved in value. The reduction was made possible by improved technology and enhanced efficiency. Lower air fares, in turn, boosted demand. Airline revenue has grown since 1980 by about 3% a year in real terms. As to the future, different forecasts predict further growth in the decade 2001 –2010 of at least 5 percent per annum. (Airbus Industrie, 1993; Boeing Commercial Airplane Group, 1996; ICAO, 1994). IATA Passenger Forecast 2000-2004 estimates worldwide annual growth of 5.6 percent. Of course, not all markets are growing at the same rate. IATA predicts annual growth within the US at 4.0 percent, in Latin America – 4.5 percent in Europe 5.5 percent and in Asia 6.9 percent. IATA also forecasts air traffic between continents. Thus Europe Asia is forecasted to grow by 6.9 percent; Europe – North America by 4.9% and Europe Latin America by 6.0 per cent.(Figure 1). By the 1990s, airline revenues in the US were growing at just over half of the growth of GDP. In mature markets, consolidation and rationalization of the industry are expected.

The airline industry is an extremely complex economic entity. First and foremost, it is a *service* industry. There is no physical product given in return to the money paid by the customer, nor is it possible to store the service in inventory for sale in a later day. Being a service industry, airlines offer non-durable and non- storable service. Once a flight takes off, it has been 'consumed'. A seat or a place in the cargo that is not sold when the airplane takes off is lost forever.

Air transportation is characterized by network attributes, high fixed costs, highly unstable demand as well as the need for great expertise and great emphasis on safety. Airline revenues are very sensitive to changes in the business cycle, to political upheavals and to other disturbances. Further, the industry as a whole shows dismal financial results. Strangely, despite the low return on investment, the industry suffers from over capacity. Moreover, after deregulation, dozens of entrants attempted to start new airlines. Indeed, it is relatively easy to finance airplanes through leasing arrangements.

The demand for air transport services is derived from the demand to enjoy some final activity. Passengers fly because they want to go to some place. Freight is moved to arrive to a certain destination, and the mail must reach the person for whom it is destined. In all these cases, the air transport is only a part of the story. The time it takes to get a parcel from a home in town A to a home in town B includes the flight, but also travel to and from the house to the airport, movements between flights and terminals, or clearing the parcel through customs. Further, customers must share the costs not only by paying for the travel but also by donating their time for the total duration of the travel. This includes going to the airport, checking the baggage, going through security, waiting for the boarding, flying, waiting for the arrival of their bags and going from the airport at destination to the place they need to go. The price one is willing to pay for the travel takes into account all of these elements as well as the complementary products (frequent

flyer points) and the possible other means of making the journey. The customer thinks of the total time of travel, not only the flight time. In short flights, this may give priority to a fast train. It also reduces the attractiveness of supersonic air travel. Finally, the customer wants convenience. That means interlining with smooth connections, no change of airports or terminals.

Unlike many service industries the airline industry is also *capital intensive*. It must purchase (or lease) very expensive airplanes in order to service its customers. The cost of these airplanes has zoomed with time.⁴ In economic terms, all of the above points out to the importance of the so-called load factor. Achieving breakeven load factor is of crucial importance. The cost of carrying a marginal customer in a designated flight is very low.

The network is not restricted to airlines alone. It operates within other networks and it depends on them. Airlines must take off and land and are dependent on airports. They must have slots and gates. These slots are more valuable when they allow several waves at certain hours in a hub, combined with feeding passengers to the hub from different spokes. As one example, KLM's five-wave system structure in Amsterdam has resulted in an expected increase of 36% in efficiency compared with the former three-wave system. (Berechman and De Wit, 1999, p. 271). Airlines must also have access to maintenance hangars and to flight simulators. To provide safe operations, airlines are dependent on air traffic control (ATC), communications systems and air navigation aids. Technological developments have meant that air traffic control systems can handle greater volume of traffic. The costs of airlines depend on infrastructure costs but also on costs related to guidelines on night flights, noise abatement, and pilot training

The question of who should gain access to the infrastructure facility and on what terms is extremely important to ensure competition. Indeed, the European Commission developed the *essential facilities doctrine*. Dominant "undertakings in the provision of such facilities are clearly under a duty to act fairly and on non-discriminatory basis" (Soames, p.222).⁵ Also, many travelers need also hotels, car rentals and other auxiliary services that may or may not be supplied by the airline. One can propose a strategy that encompasses the whole travel experience, as several airlines attempted to do since the 1970. Since the 1990s, airlines moved to the core business, divesting, moving to separate subsidiaries or outsourcing all other activities

Two interconnected crucial strategic decisions for each and every airline are the planning of the fleet for the markets the airline wants to serve and choosing the route networks. The choice of the aircraft determines costs: some are more fuel efficient⁶, cost less in maintenance or need less crew.⁷ Older airplanes must be phased out because of excessive noise and engine emissions. Finally, airlines might have chosen wide-bodied large airplanes when the numbers of flights per route were regulated. In the United States, the deregulation caused a move to a hub and spoke system with higher frequencies of flights in each routes. (Morrison and Winston, 1986, 1995). Sarkis (2000) also concluded tentatively that major hub airports are more efficient than spoke airports. This, in turn, meant an increase in the demand for smaller airplanes. State-owned airlines were often restricted in their choice of airplanes by political considerations.

Prior to World War II, more than two dozen firms designed and manufactured large commercial airplanes. Large airplane meant one with twenty seats or more. The industry was multi-domestic with each firm producing equipment for its own country's airlines. Today, only Boeing and Airbus Industrie manufacture large commercial airliners – where large now means 100 seats or more. These are. Each of these two firms accuses the other of predatory behavior and of receiving large subsidies from the government - either directly or by the grant of large military contracts to offset a large part of the R&D budget. Bombardier of Canada and EMBRAER in Brazil produces smaller airplanes, mostly turboprop (but also jets) ⁸Three manufacturers in the world produce engines: General Electric, Pratt and Whitney and Rolls Royce

There are many reasons for this winnowing out of the industry. The most important one is the huge costs of developing and designing a new aircraft. In fact, one account of the industry refers to it as “the sporty game” (Newhouse, 1982). One has to be sporty to be in this industry in which each development of a new aircraft is based on betting the entire net worth of the firm. Airplanes must be ordered several years before they are delivered – making forecasting a crucial factor. A forecasting error may result in having airplanes grounded and parked in the desert. ⁹One result is decline in the price of second hand airplanes.

The second major strategic decision is the route structure and scheduling. Scheduling entails an intricate and extraordinary complex optimization of demand considerations, aircraft and crew availability, maintenance needs, operating restrictions of different authorities and the availability of slots at the desired time. Despite – or perhaps because of – its importance, the airline management rarely makes this decision on pure business considerations..

Airlines employ rather high cost labor with specialized skills – from pilots to flight attendants to mechanics. Being a service industry, airlines also must give customers the personal attention they expect. Labor costs accounts for between 25 and 40 percent of an airline's revenues and three quarters of its controllable costs. Perhaps because of its history as a highly regulated industry, labor unions are very strong (and United States older airlines are highly unionized). Labor costs per employee are historically among the highest in any industry. European carriers typically had high labor costs and low levels of labor productivity. Labor costs per employee in Europe were 37% higher than in the US for cockpit crew, 58% higher for cabin crew and 22% higher for other staff “in spite of the fact that wage levels in the rest of the economy in general are lower in these countries.” (Ng and Seabright, 2001.p. 593). Labor productivity is on the average 45% higher in the United States (ibid.). As one would expect, there are major differences among airlines. Some share more rents with their employees (in the form of inefficient working conditions or high salaries) than others. Thus, the cockpit crew of Iberia extracted on the average 2.5 times more rents in 1990 than in 1982 (Ng and Seabright, p.603). State owned airlines habitually suffer from ‘inflated organization and extravagant policies’ (Lyth, p.68). Ng and Seabright estimate the potential for gains from hardening of budget constraints on inefficient state-owned enterprises and further privatization as

15-20 percent of current total costs. They also estimate that an increase of one percent point in the proportion of a carrier's international routes on which it faces competition from a third airlines would lower rents to employees by 3% and costs to the airline by about 2% (p.610). New entrants have much lower costs. Because of this low cost structure, Ryanair was able to introduce fares more than 50% cheaper than the lowest fares then provided by the major carriers. It was called "the best airline growth and profitability story in Europe"(Morgan Stanley reports on the firm, June 2001).

The combination of the capital needs and the cost structure means a high proportion of fixed costs in the short term, Depreciation and rentals form smaller proportion of operating expenses (10% to 20%) than the cost of labor. All in all, airlines need large sums of money to operate efficiently. To reduce costs, airlines outsource maintenance and other inputs and lease rather than purchase airplanes. Thus, Delta Airline's fleet as of December 31, 2001 consisted of 459 owned planes and 355 leased ones.

The demand of passengers for airline services is seasonal. More persons take vacations in the summer. The demand is also cyclical – affected by the rate of growth of GDP and by political events. The demand for air travel is also quite volatile and influenced strongly and immediately by exogenous events, be it recessions, wars or terrorist attacks. The onset of the Gulf war or the atrocities of September 11, 2001 resulted in a virtual collapse of demand for air travel. Market peaks and troughs have become more pronounced. The industry suffers not only from swings but also from a very low return on investment, certainly in comparison to the average rate of return of all industries. The world's scheduled airlines as a whole experienced high operating expenses and thus low rates of profits despite high and increasing load factors. In the United States, airlines have earned a net profit of between one or two percent compared to an average for US industry as a whole of five percent. According to ICAO figures world scheduled airlines showed net losses for all years between 1947 and 1962, except 1956 with profits of 0.4% of revenues. From 1963 to 1969, airlines were profitable. The only year in the history of airlines with profits of more than 6%(6.1%) was 1966. 1970 and 1975 ended with a small loss (0.1%and 0.2%) while airlines earned small profits for the other years of the 1970s. Airlines again lost in each year from 1980 to 1983 inclusive, earned low returns 1984-1989. The fortune again turned into net losses for every year from 1990 to 1994. Profits returned for 1995-2000 but 2001 ended with huge losses. All in all, during the 54 years on which figures are available, the financial results for all world's scheduled airline were losses for 26 years, profits for 28. Of the 28 profitable years, for 16 years the profit margin was 2 percent or less. There were five years with profits between 2 and 3 percent and only five years in the airlines' history with profits of over four percent of revenues. (Table 3). This performance is for an industry in which revenue ton kilometers jumped from 2110 millions in 1947 with 21 millions passengers to 401,117 millions RTKs with 1,652,653,000 passengers in 2000. The picture in Europe is even bleaker. Thus, European airlines on scheduled routes were profitable (after interest payments) in only 18 out of the 38 years between 1955 and 1992 (Lyth and Dienel, p.16)

The US air transport association calculated the cumulative profits for the U.S. airlines since 1938. According to these calculations, by 1995 the industry suffered from a

cumulative loss of more than 2.5 trillion dollars. The good years from 1996 to 2000 meant that by the end of 2000 the cumulative net profit was 18,187,795. (Table 4) Much of that was lost because of the losses in 2001. The net results after exceptional items showed losses of \$7,285 Millions. Federal aid pre-tax was 3,446 millions (*Airline Business*, March 2002 p.14)

Different scholars define the unit of input differently. The appropriate unit of output may be the plane, the segment of the service or the seat. Studies of cost show that airlines enjoy not only economies of scale (declining costs with increased output) and economies of scope (production of more than one service is cheaper than when each service is performed separately by a different airline). Airlines also enjoy economies of density (average unit cost declines when the amount of traffic served between any given points increases). Caves *et al* (1984) demonstrated that airlines achieve returns to density within a given network. They estimate a reduction of 2 percent in marginal costs for every 10 percent increase in traffic density. Brueckner and Spiller (1994) suggest even higher returns to density. The results presented by Ng and Seabright (2001) also imply the presence of economies of density. Economies of network (the average cost falls as the number of city pairs served by the airline increases) are crucial. So are economies of standardization, achieved when the airline uses a standard fleet and thus communality in maintenance procedures, spare parts and flight crews. Last but not least, economies of experience. (Cost decline with an increase over time in total market sales). Experience provides the incumbents with more knowledge on the market and perhaps a more experienced organization. For some of the evidence see, e.g. Caves *et.al.* 1983; Brueckner and Spiller, 1994).

There are wide variations in the cost structure of different airlines. These differences may only be partially explained by factors such as geography, the nature of the market in terms of length of haul or by currency exchange rates. They seem to be mainly due to the protection afforded and therefore the complacency of management and the power of labor. Indeed, airlines do not operate on their minimum cost curves and enjoy significant slack. Most flag carriers are characterized by bloated labor force; sheer waste of resources, inefficient route structure and bad management. Their financial results tend to be on the red, and of course these results affect the picture of the total world industry. If one looks at the most efficient airlines, the picture is very different. Monopolies may use their power to get rents to employees. Good *et al.* (1993) Compared the efficiency of eight European and eight U.S. airlines, They found that the European airlines could save \$4 billion a year if they were as efficient as the U.S. carriers. Moreover, the European airline level of costs has been about double that of the U.S. large domestic trunk carriers. Good *et al.* (1993a. 1993b 1995) demonstrated that in the period 1976-86, even Pan American and Eastern were more efficient than European airlines. The later were 10 to 15 percent lower in technical efficiency than the US carriers They also notes a 0.24 percent annual increase in technical efficiency per annum for US airlines but only a 0.18 annual increase for European airlines. Finally, they document a great divergence among different airlines in Europe (2% improvement for British Air, 0.7% decline for other airlines) (see also McGowan and Seabright, 1989, Forsyth *et al.*, 1986). Captain and Sickles (1997) showed that labor was paid a wage above its marginal revenue product.

Oum and Yu (1995) found Asian airlines except the Japanese to have much lower costs than their counterparts. Data from 1976 to 1994 (Postert and Sickles, 1999) show that this efficiency difference has been reduced to about 5 percent efficiency difference in favor of the US carriers. This convergence is attributed mainly to the “remarkable progress of British Air after privatization (and its large share of total revenue passengers kilometers)” (Postert and Sickles, 1999, p.49). The European Commission(1999) compared the performance of the largest EU airlines between 1990 and 1996. It found that RTKs/employee had increased by over 50 per cent while costs/ATKs fell by 10 percent. Several other studies found that US carriers have a considerable cost advantage over their European competitors. McGowen, p.470) All in all, McGowen reports that the liberalization of the EU showed resulted only in a “modest benefit to consumers” (p.476).

These studies and others were based on quite sophisticated econometric methods. Even a simple analysis of the financial statements of individual airlines shows significant differences in the cost of operations. British Airways as a state-owned airline could not stop the bleeding of resources. In preparations for its privatization it became much more cost conscious. It achieved return on capital of 10.8 percent in 1997, declining to 9.4% in 1998, 6.1% in 1999, 2.4% in 2000 and 4.7% in 2001. Southwest Airlines enjoyed return on capital of 13.9% in1997, 16.3% in1998. 15.9% in 1999 and 17.9% in 2000.

Because all planes come from one of two suppliers, airlines find it extremely hard to rely on brand loyalty and differentiation of equipment in getting their passengers. Airlines say they compete on convenience and service to the customer. Yet to a large extent airlines compete on price and on the hour and duration of services as well as the convenience of interlining. Very few passengers fly for the sheer fun of it. Most go from place to another because they have to be in a certain destination. They thus would like to reach that destination with a minimum hassle. Business travelers prefer the flexibility of several flights a day in case they need to make a last minute change in schedule. A carrier that offers several flights a day between two cities may seem to have competitive advantage. In most cases the business traveler will opt for the next available flight whatever airline offers it. A flight is not a homogeneous unit: an airline would offer different travel comforts and conveniences for different prices. In business class or first class one can discern differences in service quality among the major airlines of the world.

In the last two decades, advances in information technology(IT) allowed more differentiation. Thus, American Airlines was the first to use its computers to offer “frequent flyer” program as early as in 1981. This program was designed to enhance loyalty to the airline, in particular of the business frequent travelers. By 1986 all major US carriers were operating such a program. Businesspersons are said to adjust their demand for air travel, concentrating their travels with one or two airlines to enhance the benefits of the frequent flier programs. Morrison and Winston (1995) claim that if all US airlines would decide to abandon frequent flier programs, American and United would lose market share. See also Proussalglu and Koppelman (1995).

IT has become a major competitive weapon. Consider the use of the computer reservation systems (CRS). Travel agents do not bother to search all possible combinations of fares

to go from one destination to another. More than half of the flights are booked from the first itinerary displayed on the screen and between 70 and 90 flights – from the first CRS screen. (Oster Jr. and Pickrell, 1986). Manipulating the order of flights on the screen may thus allow a competitive advantage. Since 1991 the ICAO established a code of conduct setting standards of information display and access. As a result, the possibility of using display on CRS to achieve competitive advantage has diminished. Further, on line booking on the Internet allows a survey of all possible fares. In the United States, American's SABRE and United's Apollo controlled 71 percent of the market (Viator, p.86). By now, travel agencies of the world use one of four interchangeable GDS (global distribution systems) systems. Sabre with market share in 2000 of 33.0% with 66,123 travel agency locations. Galileo – 28.2% and 41,200. Amadeus 24.9% and 52,559. The smallest of the four was Worldspan – 13.6% market share and 20,252 travel agency locations (Garrett Communication's 2001 GDS Yearbook). All four earn revenues by charging airlines service fees. They all face a growing competition of Internet and online distribution. Sabre is 70% owner of Travelocity – a top travel web site market. Worldspan owns the Expedia and Priceline sites.

More recent developments in IT enable airlines to track sales for each service very efficiently and design pricing formulas that would maximize revenues, based on yield management, or price discrimination. Based on the previous patterns of sale of seats and predictions of how many more seats will be sold at a given price, the computer adjusts fares constantly as sales proceed. Technically speaking, yield management is designed to convert consumer surplus into producers' surplus. Today, the computer reservation systems, at least in some airlines, are so sophisticated that very few seats are sold at the same price and load factors are increasing. Alperovich and Machness, 1994 explored the importance of wealth for elasticity of demand. American Airlines' sophisticated systems of yield management involve the optimization of overbooking, the allocation of discount fares and meeting demands for connecting flights. It is said to have augmented the revenues of American Airlines by hundreds of million dollars per annum. It also turned out to be an effective deterrent to new entry by allowing a precise segmentation of customers.

The international air transport is not only a major industry by its own right. The industry provides vital services for a wide range of economic activity. It is crucial to allow the internationalization of the economy and developing tourism and leisure time activities. The airline industry is also a paradoxical industry. By its very nature, it is cosmopolitan. Its operations lubricate both trade and foreign investments across borders and facilitate the globalization of production and distribution systems: it carries people and cargo across national frontiers in an increasingly efficient and cheap way. It thus facilitates mobility of factors of production across national borders. At the same time, it is characterized by pervasive state ownership and government controls of many of its most crucial operations, fuelled by the desire to avoid ceding control of the country's airspace. Thus, an industry enabling others to escape the limits imposed by national markets and national borders cannot escape to date the limits on its operations imposed by national governments. As pointed out by Krasner (1985, chapter 8) the air transport regime is based on "authoritarian" government control. Sea transportation, in contrast, evolved on

market-oriented principles and norms. Indeed, the outcome of business activities in international air transportation has been strongly influenced by restrictions on routes and on ownership of airlines. Strong nationalistic protection has been justified for security reasons but also because of national prestige.

To be sure, airline management is not idle recipient of dictates from governments. In fact, the managers of the airlines have been active participants in government to government negotiations re air issues. Government regulators are often captured by the industry. Government executives responsible for civil aviation tend to be influenced by the airlines' views. Airlines have a substantial political influence simply because of their salience to the economy. Managers of airlines learnt to be politically savvy and use public interest arguments to tilt public policy to allow them favorable conditions for competition. As long as nations had one airline, governments backed them. Today, the scene is more complex: Virgin Atlantic, bmi and British Air do not have the same interests on whether or not Britain will sign an open skies agreement with the US.

One result of the regime is that, unlike other mature business e.g. automobiles or the producers of airplanes or engines, the industry is very fragmented. The largest five airlines controlled a world market share in 2000 of only 26.0 percent, the largest ten – 44.6 percent and the largest twenty – 66.3 percent. The industry consists of hundreds commercial carriers, most of them extremely small. Many of them exist only because of government protection of their routes and subsidies of their operations. The European situation is somewhat more complicated as a result of the deregulation and the operation of community airlines rather than national airlines.

European Airlines

European airlines are quite a diverse group. Most of them are small. According to the European Commission (1999), there were 132 scheduled airlines in Europe in 1993 and 164 in 1998. 29 airlines are members of AEA. The smallest of these members are JAT, Yugoslav airlines (320,000 passengers in 2000, 5255 employees), Balkan Air (371,700 total passengers) and Adria Airways with 628,000 passengers and only 581 employees worldwide. Others are quite big – Lufthansa carried more than 45 million passengers in 2000 and had 38094 employees worldwide. Air France – 39,204,000 (52213 employees worldwide) and British Airways - 38,260,700 (65157 employees worldwide). Only three European airlines – Air France, British Airways and Lufthansa - offered in 2001 more than 100,000 millions seat kilometers. KLM offered 73,865 million ASK. Next in size were Iberia, Alitalia, Swissair and SAS with more than 40,000 millions ASK each. Following them were Sabena, Austrian airlines, Turkish airlines, Finnair with about 20,000 millions ASK each. Others were even smaller. Yet, even the giants among Europeans are much smaller than the large United States major carriers such as United Airlines, American Airlines or Delta Airlines¹⁰

Being small may be an incentive for a merger and the creation of a large-scale competitor. However, many European airlines are not only smaller and less efficient. They also are more diverse in their culture. They all started as flag carriers and might

have more difficulties in restructuring than their US counterparts. Most important, they are protected by the “substantial ownership and effective control” rules. Three quarters of traffic of EU airlines is on routes outside the EU. These routes are still covered by thousands of ASAs (Air Service Agreements). Since these ASAs cannot be transferred to a foreign airline national carriers are protected. from acquisition. Many, e.g. Olympic were persistent loss makers. They have been able to sustain themselves because of large injection of government’s funds. It is highly unlikely that airlines would be allowed to continue operating assuming soft budgets. In the long run, therefore, this group would either cease operations or be acquired. Another possibility, of course, is that an airline of this group would restructure – reducing costs drastically, increasing revenues and enhancing productivity. Of course, as long as state aid will continue, the political considerations would prevent any meaningful consolidation. A third group of airlines consists of the charter operators. These airlines lose market share (they now have about 30% of the market for European travel, plummeting from 55% and would lose even more the better the yield management techniques of the major airlines). A fourth group includes the new entrants since deregulation – no frill operators in the domestic European market such as Ryan Air, TAT or Easyjet.

The history of the airline industry is a saga of continuing adjustment to changing economic conditions, technological developments and transformations in national and international policies. For the evolution of the industry, see appendix 2. The most important factor affecting strategies was political. Thus, the international regime after 1944 allowed the inception of new airlines e.g. from the dozens of newly independent developing countries. These airlines would not have been able to compete without the protection they received from their government and their ASAs. For more details on the international regime, see appendix 3. The EU reforms are also summarized in table 8.

The consequences of deregulation

The major change resulting from deregulation was expected to be an increased competition among existing players as well as entry of new actors. These changes were expected to increase welfare and to change the market structure. Derivative expected economic changes were improved consumer services, lower fares, market growth, and enhanced productivity. From the perspective of the firms, deregulation caused an acute need for re-examination of strategy and for a different mindset on the way the firm should be governed and managed. The management of a regulated firm must gain expertise in lobbying and influencing the political agenda. The ability to make major strategic changes is often constrained by regulatory rules. Thus airlines were confined to certain city pairs routes and could not use the hub and spoke system.

The deregulation in the United States resulted in two major changes. First a consolidation – after a turbulent period in which there has been a rash of new entrants and almost all failed. Until the deregulation, very few airlines ceded to market forces and disappeared. During the last decade, more airlines stopped operations but only four (Canadian, Pan Am, Eastern and TWA) of the largest fifty were among them – and until 2001 none of them was a major European airline. (Table 9). In the rest of the world, there have been

only small changes in the market share of different airlines and almost no bankruptcies. To be sure, US carriers gained while European and Latin American airlines lost market share in Europe and Latin America respectively. Today, there are three major integrated airlines in the US, and thus an oligopolistic structure of the industry. The number of large airlines still remaining has declined – despite the restrictions resulting from antitrust regulation. Second, a major restructuring of the routes causing a total revamping of the network and a move to hub and spoke system. The deregulation also made airlines much more marketing oriented. Since deregulation, airlines compete mainly on the basis of convenience of the schedule and on price with very little differentiation based on brand name. Few markets are as competitive as it was hoped for. It is very difficult to prove predatory pricing. (Levine, 1987).

US deregulation caused a bubbling cauldron of consolidation, entry, exit and experiments in route structure. With no barriers to entry, new firms entered the industry. In the US, the number of airlines increased from 36 in 1978 to over 120 by 1984 (McGowan, p. 449). The new entrants enjoyed the benefit of a much lower cost structure. They used lower cost airports, lower overhead, single type fleet and considerably lower labor cost. They minimized distribution costs by the use of their own telephone reservations, ticket-less travel and Internet and undercut prices. They also tended to skim the cream, concentrating e.g. on high-density segments (see GAO, 1990, 1991, 1998).

In the 1980s, economists maintained that the airline business is a perfect example of contestable market. (Baumol, 1982; Baumol and Willig, 1986). Moving airplanes to a certain routes may be done instantly. Further, there is a large second hand market for airplanes as well as very developed leasing arrangements. Therefore, new entrants would incur low cost. Given easy entry and exit in a market, even a natural monopoly could have a zero profit competitive outcome. In a contestable market the threat of potential newcomers is sufficient to compel incumbents to set competitive prices. There is no need for the actual entry of new challengers. This power has been over-estimated (Bailey and Panzar, 1981; Bailey *et al* 1985; Forsyth, 1998). Moreover, incumbents created barriers to entry by control of slots; by building customers' loyalty and by control of the CRS. US GAO, 1986). Effective methods of yield management allow incumbents to respond to low prices of an entrant by deep discounting of a few seats. Further, economies of scope and of network have been formidable barriers. The availability of smooth connections in a global network is a major competitive advantage. (Button and Keeler, 1993).

Another consequence of deregulation is reduced fares where competition increased. Average fares adjusted to inflation fell by more than 20 percent from 1990 to 1995. However, calculations of average fares were masking a greater variance in fares. The highest 5% of fare payers accounted for 8% of airline revenues from short haul in 1992 but 18% in 1998. (Meyer and Menzies, 2000, p5,.7) In Europe, the potential welfare gains from the operation of hub and spoke networks by a flag carrier and the abandoning collusive practices are significant throughout the network. In addition, with increasing returns to density a cross border merger between two flag carriers may increase the net social welfare throughout the network (Nero, 1996).

Deregulation allows firms to re-segment their markets along new groups dictated by the economics of the industry. In airlines, the ability to discriminate between business travelers and to fine tune among different groups of leisure travelers became of crucial importance. The ability to forecast demand and decide how many tickets are to be offered at what level of discount and when is essential. The pricing structure has become extremely complicated, designed to gain loyalty but also to maximize revenues. In any specific flight between two airports, different passengers may have paid a dozen different prices, and discounts from full fare may be very deep. The design of successful models for predicting peak loads and other variables related to demand has become of tremendous strategic importance. Moreover, the control of the computer reservation systems and the flexibility of these systems in controlling all these prices and the complex diversity of the conditions of sale are of great strategic significance. Further, access to data on customers and means to retain their loyalty are salient. Business travelers may be lured by the additional benefits received through frequent flier programs while the airline may gain valuable information on how to segment their important customers and how to lure them by analyzing the information it stores about them.

It is tempting to assume that one can project the competitive situation in Europe by reflecting on the United States experience. If this is the model, it can be predicted that nearly all-new entrants will be driven away through bankruptcy or through acquisition. Marin (1995) shows that survival rates among new entrants in Europe since liberalization have been very low. From 1993 to 1997, 88 new airlines started in Europe and 56 suspended their operations. (AEA yearbook, 1997). Therefore, one should expect to see consolidation among the patchwork of flag carriers and national hubs and emergence of a few large airlines using three or four European airports as hubs. However, the news of the death of the old structure seems exaggerated. Remaining regulation and politics means that the industry continues to be fragmented. In addition, several differences between the US and Europe impinge on the results. (E.g. Button, 1996). The first is the smaller size of the European airlines. Second, and related, the European routes were maintained for a long time for political and strategic reasons, not because of profitability. The political will to do so may have not been changed. Third, European airlines compete with the fast train as an alternative passenger-hauling instrument for hauls of up to 1000 kilometers. In the United States, railroads are hardly used as a means of interurban transportation. In France, passengers have a very convenient alternative to many domestic air routes. European national railways are usually state-owned, with bloated and politically powerful workforce –So airlines are not encouraged to compete against railroads.

Button, 1996 and others point out also that European airlines compete against charter operators, whose flights are confined mainly to European flights. US airlines do not face competition from charters. Of course, the market size is different. Further, European airlines suffer from much higher cost structure – partially because they are- or until recently were- state-owned. In many of them, the unions enjoy great powers and they are prone to strikes. Moreover, the European airlines suffer from less efficient and certainly less uniform infrastructure. Complex routings, nonstandard air navigation system and high airport charges increase costs and take off time. The United States has less than half of the number of air traffic control centers and a standardized mainframe computer. Air space in Europe has remained a national responsibility. It is controlled by different

national centers, with different equipment, different operating standards and different management regimes. A pilot is transferred between fifty control centers, each with its unique computer system and equipment. Until the Europeans will be able to impose solutions on the different national authorities that Euro-control attempts to coordinate the system of 'corridors' grouped into national route-maps will continue to be less than optimal. Security considerations dictate exclusive or priority accesses to the military over much of Europe's airspace

Further, the average route length in the United States is 1,300 kilometers compared to 750 kilometers in Europe. Further, only 7 of the top 75 routes in Europe have flight time of more than two and half-hours. (Button 1996:73). Clearly, passengers are reluctant to change flights in a hub and spoke manner in such short flights – the time taken to change flight is significant compared to the total flight time. The viability of an intra-European hub is doubtful also because of the additional costs and complexity of handling baggage and moving the passengers. Thus, a hub is designed with direct gate access rather than the much less expensive but time consuming busing.

All of these differences must be taken into account, but should not have created significant differences. A poor competitive posture should not be "a potential stumbling bloc towards opening up Europe" (Button and Keeler, 1993, p.1040). More competition should force the inefficient carrier to restructure – or die. As to average routes, this argument relates to European flights. Yet, at present, every European airline uses at least one national airport as a hub for international flights. An average of around 30% of the traffic is of transfer passengers fed into long flights. Swissair transfer traffic has reached 60% and over 40% of the 20 million passengers using Zurich airport were connecting. Clearly, the collapse of Swissair and Sabena affected the respective airports. At Zurich airport, operations in January 2002 were only a notch above four fifth of those in January 2001. Clearly, in a free market situation only a few airports may rely on a high percent of connecting passengers. Whether or not airports will get help for political reasons, as the canton of Zurich gave its airport, remains to be seen. If such an aid would not be forthcoming, only a few airports may hope to enjoy an intercontinental hub status.

Theory would predict that other airlines would pick up the slots and offer services to passengers. Indeed, passengers would be able to fly to any destination. However, the airport would not be used as a hub, thus losing business. Yet the main difference seems to be that the vast majority of the flights of the European airlines are international and these were not affected by the deregulation. A real restructuring will come only after "denationalization of bilateralism" (Wassenbegh, 1995). Most revenues of the U.S. airlines come from domestic operations (Table 6). European airlines, in contrast, have very little domestic operations. Certainly in small countries such as Luxembourg, Switzerland or Belgium there are no domestic operations. Even in the largest countries these operations are less than 35 percent of the revenue kilometers. Further, intra-Europe flights were only 25.1 percent (table 6). Thus, the majority of revenues of the scheduled services of the European flag carriers is generated from non-European air transport services. These flights were not affected by the deregulation. International air operations outside the EU are still subject to a strict regime of bilateral agreements. The EU

deregulation may have created one European market with more residents, land and size comparable to that of the United States in particular if the applicants to the EU are also taken into account. The market, however, is global. Again, about three quarters of the EU airlines RPKs is subject to bilateral agreements between nation-states. Therefore, EU carriers have to continue their ties with the national home base, whether or not it is the optimal hub.

The European airlines have a single hub in the national airport of one country with a radial network. The only exception is Finnair with a hub in Stockholm. Since they do not enjoy cabotage rights in the United States they have to get their passengers from the main gates from which they fly – or reach strategic alliances with United States carriers. In contrast, because of the sheer size of the United States market, it is possible to create a network with several hubs within the country. It is equally possible to create such a network in Europe, but only if national carriers would not be protected.

The excessive number of hubs in Europe means that European airlines do not dominate them. In the United States, one result of the hub and spoke system has been the dominance of airports by one airline.¹¹ One airline controls about four fifths of all flights from its hub airport. In contrast, British Airways controlled 37.9% of the flights from Heathrow airport in London and bmi/British Midland – additional 13.5%. For all European carriers, the share of flights from their major hub hovers around fifty percent¹²

Last but not least, the deregulation in Europe is expected to change the behavior of management of airlines that are very different in their culture, in their rules regarding labor and also in the environment in which they operate. In contrast, all United States carriers were (and are) profit-seeking investor owned firms catering to the same type of customers from one nation. In Europe, Excess capacity, low productivity, high costs and fragmentation were possible because the government repeatedly rescued loss-ridden airlines. Since 1993 the European Commission has attempted to enforce the Treaty of Rome ban on aids, which distort competition. The Guidelines for State Aid in aviation established in November 1994 allow funds injection by government if it can be shown that a private investor, taking into account the risk and the projected returns would have made the investment. This criterion (“market economy investor principle”) was used to permit state injection of funds in the case of Air France, for example. Aid was also allowed based on “one time, last time” principle if “external circumstances” required aid to allow the airline to adjust to the liberalized environment. Between 1991 and 1997, the EU Commission approved over \$11 billion in subsidies. The average yearly amount had since dropped by half and is expected to be phased out (OECD, 1997 pp. 78-9) State aids and considerable subsidies were allowed for several European union airlines e.g. Sabena, Iberia and Air France. These airlines suffered heavy losses as a result of recession, heightened competition and over-capacity on Atlantic routes. In 2001, two national flag carriers were bankrupt (Swissair and of Sabena). Both airlines resurrected under different names

In the United States, the airlines industry was consolidated. In Europe, fragmentation was not noticeably alleviated by consolidation. To be sure, new entrants outside the circle of the flag carriers created competition, but incumbent airlines did not attempt to enter a

third country. Only 7 per cent of European international routes are served by three or more competitors (Postert and Stickles, 1999 p. 43). To be sure, before deregulation this ratio was only 4% (McGowan, 2000, p.459). Cabotage rights have been scarcely exercised. Flag carriers did establish subsidiaries in other countries: They also attempted to reduce costs, mainly labor costs. This was done by employment reduction, increased flexibility of labor contract, salary reforms and outsourcing. The deregulation “transformed a hitherto largely non-labor sensitive industry into a highly labor-sensitive one” (Robinson, 1994 p.1). In the US, real unit labor costs for the airlines declined by almost 50 percent between 1978 and 1984 compared to 15% in Europe (Robinson, 1994).

GLOBALIZATION: THE DECLINE OF STATE POWER?

Since the early 1970s, world trade has increased every year much more than world GNP. Foreign direct investments increased even more and with it – the relative importance of multinational firms (MNEs). These firms account for a growing share of world production and trade. The MNEs establish global production systems under the common governance of a headquarters. Factors of production move within that enterprise among units located in different countries. With reduced hindrances to trade and the expansion of multinational operations, the importance of time management in logistics has increased. Worldwide supply networks depend on just-in-time supplies. These trends coupled with an increasing significance of electronic commerce and globalization made airfreight transportation and courier services essential. For a successful global operator, speed and reliable on time delivery system are essential. They in turn vastly intensify the global integration of operations.

The emergence of the Internet and a liberal trade environment increased the possibilities of integration of global operations. The airline industry has been an engine of change, allowing the globalization of production because of declining real transportation costs of both persons and goods. Without the speed and the mobility it offered and the safety it became famous for – global operations would have been much more difficult. Ironically, airlines themselves did not become global firms. While producing multinational firms’ control a growing share of the world economy, most airlines continue to be the chosen instrument of their nation. The major reason for this perhaps abnormal situation is political. Airlines must be registered in a certain nation and citizens of that nation must own the controlling interest. Foreign airlines are not permitted into the domestic market.

Globalization means, among other things, increasing mobility of capital and trade. This mobility is said to have been stripped the nation-state of the availability of tools to manage the economy. Globalists among political scientists would argue that governments have lost their ability to resist pressures from the international money markets. Markets have largely superseded national governments in the realm of economic affairs. States have become tightly integrated into a global economy over which they have little or no control. This theme is clearly stated by Susan Strange (1996): -

The argument put forward is that the impersonal forces of world markets, integrated over the postwar period more by private enterprise in finance, industry

and trade than by cooperative decisions of government, are now more powerful than the states to whom ultimate political authority over society and economy is supposed to belong (Strange, 1996:4).

The globalization thesis maintains that states have been largely stripped of their ability to carry out their traditional economic functions, including the management of the overall economy, the regulation of business activities and the provision of social insurance. Increasing intervention, giving the impression of a retention of power, has obscured the decline of state efficacy. Yet states are impotent vis a vis large business firms and global market forces. If this argument would be valid, European airlines would be consolidated.

'Institutionalists' among political scientists hold that national autonomy has not been compromised (e.g. Garrett and Lange, 1996). Others argue that "the tradeoff between the efficiency gains from cross-border economic activity and lost autonomy is far from new" (Kobrin, 1997, p.155). It is thus not related to the growing interdependence of nations and rising globalization. Clougherty (2001), in a study of 21 advanced aviation nations (the OECD members and the four more developed Latin American nations) in 1983-92 period, concluded that the "empirical tests support globalization undermining the state of domestic airline competition policy; nations facing globalization pressures practice weaker competition policy. Empirical tests also support a government's institutional commitment to anti-trust principles mediating globalization's impact on domestic airline competition policy". Thus, he argues "both perspectives are necessary for a full analysis of the globalization phenomenon." (p. 473).

Highly mobile multinational enterprises (MNEs) can play one government against another. The concerns of national governments over the activities of the MNEs have always been over the location of economic activity among countries and the distribution of benefits from it. Governments seek contributions from MNEs to national employment levels, diversity of employment technological advances and level of exports. Vernon's classical obsolescing bargaining model (Vernon, 1971) has been the main theory on government-MNE relations. Later, governments attempted to attract MNEs, shifting from confrontation to cooperation (Vernon, 1998). Political scientists differ on the importance of globalization. They would surely agree that globalization reduces the autonomy of the state.

As pointed out by Stopford and Strange (1991:2) governments today have to bargain not only with other governments but also with firms, in particular with multinational enterprises. These firms enjoy power because of their impact on the economy. They are able to affect political outcomes so that their preferences take precedence. Federal Express, the largest carrier of air packages, unilaterally applied to the British government for air traffic rights. FedEx indicated in its application that unless it would receive additional traffic rights to France it would be forced to curtail or at least reduce transatlantic flights to Prestwick, the center of Scotland's computer operations. The British Cargo Airline Alliance opposed this request. It hoped to receive some concessions in the US market to be granted by the US government. FedEx Chief Executive Officer was reported to have met with the British Deputy Prime Minister to advocate his firm's

position. The British government did grant FedEx the desired routes. Yet FedEx decided to curtail services to and from Scotland.

This ability to curtail services is a nightmare to governments, in particular those of small countries with relatively weak negotiation power. Air transportation – both of passengers and cargo- has become indispensable to the continuation of economic activities. Governments are certainly unhappy when such operations are curtailed or suspended. The probability of such an event, small as it may be, is a major consideration to continue the operation of a flag carrier as an insurance policy. National interests of a country might be perceived to dictate keeping afloat a national airline to make sure business persons and tourists are not dependent on foreign airlines for the essential service. Foreign airlines are perceived as prone to stop the service if they consider it uneconomical or plain risky. Thus, during the Gulf War most foreign airlines suspended their flights to Israel. During the war in Yugoslavia, air traffic was suspended. Yet, to maintain such a service it is enough and generally also profitable to have a regional airline, feeding passengers to a major hub– without or preferably with a code sharing agreement with a global airline alliance. It is often said that national ownership of an airline is essential for military reasons, such as moving troops to combat. The experience of the Gulf war shows that these services are available for a fee. Moreover, foreign airlines would continue to fly if the government would offer to cover the additional insurance premium

Concerns about prospects for competitiveness – and therefore growth and more jobs – are on the top of the agenda of each and every country and region. In the European union, concerns about competitiveness were on the top of the agenda for at least a whole decade. The European Commission publishes an annual report entitled *The Competitiveness of European Industry*. Many other public reports as well as consultants' studies focus on ways and means to reduce rigidities, increase the use of new methods of production, eliminate bottlenecks, avoid distortions and so on. Many of these studies claim that regulation is hindering competitiveness by impeding or discouraging, inhibiting the exit of existing inefficient actors or by causing improper functioning of the markets. The OECD (1997) expects regulatory reforms to result in major productivity gains. Governments can facilitate or hinder competitiveness. Competitiveness is first and foremost a function of the strategy and management of business firms. In a world of increasing integration the location of economic activity is the crucial factor – not the ownership of firms. A national firm producing abroad is less important to a society-based competitiveness than a foreign firm creating employment in the state. This, of course, is the famous argument of Robert Reich carried over to the EU by Strange (1998).

Economic forces have gradually eroded regulatory barriers to international competition and globalization. Political forces may play a different tune. Ramamurti and Sarathi (1997) classify countries on the basis of their airline industry policy in the mid- 1990s to three groups. Some are *efficiency seekers* e.g. the United States. Others are *late reformers* (e.g. Germany). Still others are *shelter providers* (e.g. France). The first group of nations embrace deregulation and globalization. The second adopt these policies reluctantly and slowly. The third –continue to resist the changes in every possible way.

The airline industry is a perfect candidate of being a global industry. It is mature; its services are standardized with very little ability to compete on a brand. It enjoys high level of economies of scale, economies of scope as well as economies of a network. All these factors mean that in a free market firms would become global, offering clients a dense worldwide network with several hubs. If one does not take into account any non economic considerations there is no need for flag carriers of each and every state, nor should each nation- state have its own hub. Once the industry will become global, it will consist of three or four global airlines or of three or four global networks of airlines, spanning all five continents. Certainly they will operate in the US, Asia and Europe.

In 2001, the volume of global trade was virtually stagnant after growing by 12% in 2000 and by an average of 7% a year in the 1990s. Foreign direct investments also plummeted to barely half of the more than \$1.3 trillion in 2000. The uncertainties created by the interruption of economic growth in all the world's rich economies at the same time and by the terrorist attacks may have lessened the belief that global integration is inevitable. Today, public support for the desirability of open borders is much more conditional. Questions are raised related to environmental degradation, cushioning the pain of adjustment and on the prospects for continued world peace. Many judge the rules of the game in the global economy to be unfair and slanted toward helping the rich persons and the large countries. In the specific realm of airlines its history thus far does not seem to corroborate the thesis of an impotent state. Governments helped "their" airlines and presented their point of view in bilateral negotiations. The British government negotiated Bermuda II to strengthen the competitive position of British Air and the US department of transportation represented "its" airlines.(Newhouse, 1993). The U.S. even traded anti-trust immunity for an open skies agreement¹³. Similar considerations may impede further movements to free trade.

Strategic possibilities

Having analyzed the characteristics of the airline industry, its evolution and the global environment we are ready to speculate on possible scenarios of the future of the European airline industry in the next decade. I start with the possible strategies open to a European airline. I move to possible policies of governments *vis a vis* the airlines. I then speculate the future structure of the industry

Strategies

For decades, managers of European flag carriers participated in IATA conferences, making sure that the firm they manage receive an equal share of revenues in each and every route between the country and foreign countries. In each one of these routes, passengers had a choice between the national flag carrier and a foreign airline – most likely the national flag carrier of the country of destination. The agreement between the two countries provided for high fares that allowed profitability for the firm, and an equal share of the revenues irrespective of which airline attracted more passengers. Given these assurances, the managers were happy to buy peace from strikes by paying high salaries and agreeing to generous fringe benefits and work rules.

Today, the bilateral agreements within the EU are annulled. Fares are based on free decisions in a free market. Airlines from outside the EU still cannot compete. However, within the EU any airline is free to open up new routes and to offer much lower airfares. Thus, Ryanair opened 45 scheduled routes across 11 countries, offering fares that were less than 50% of the lowest fares offered by the incumbent airlines. Indeed, one possible strategy is that of the low-cost no-frill regional airline. This is the strategy perfected by Southwest, imitated successfully by Ryanair and by others. Note that these two airlines are the most profitable in the industry. Note also that several charter firms moved to scheduled services and were unsuccessful¹⁴.

Few routes are profitable in terms of point to point traffic alone. An important part of returns come from transit and feeder traffic. A possible strategy is to become a feeder airline to a global network. This strategy makes a lot of sense for airlines for which geography put at the edge of the continent. The number of passengers and the volume of freight may not be enough to justify profitable global operations, or even transatlantic route with maximum utilization of the fleet. In a free market, most European airlines would have to adopt this strategy. To dominate operations from the country, a large carrier may take over small regional airlines.

The large European carriers could attempt to become global. These firms would not attempt to be only European – the size of the market and their existing route structure does not make such a strategy a viable one. They must be active participants in the *world* market. Airlines operate in an oligopolistic industry. The relevant competition as far as many passengers are concerned is primarily in the individual city-pairs. From the airline's point of view, economies of network are important. The relevant city pairs may be feeders to a hub from which more routes operate. Profits would accrue to a firm that offers a global network. Three viable means would lead to becoming a global airline. One is by acquiring other airlines outside Europe. Another is by being acquired by a global airline. The third is by joining a network of airlines that create a global system through an integrated strategic alliance.

A global airline by definition must be able to extend to passengers and to freight users fully integrated worldwide system. An airline that can tap enough resources to become global can achieve the needed integration by the acquisition and thus ownership of other airlines in North America, Asia, Africa and other continents. As long as a majority ownership of an airline is illegal, the second best solution is to create or join a global network. Alliances are often unstable and many of them fail. At the same time, strategic alliances will allow more airlines to survive. Moreover, mergers and acquisitions also fail very often. Deloitte Touche studied 540 large firms that were involved in more than five M&A transactions in the last five years. The study found that only 9 percent of the acquisitions or mergers were deemed successful. (Ha'aretz, April22, 2002c-13). In a truly competitive world, only a few giants will survive. In a more realistic world, only large integrated networks will survive. They would have enjoyed economies of scale, of scope, of density and of network

Can one of the large European firms become a global airline? A more pertinent question is *does it matter?* In the past, firms grew into major global players by gaining experience in a large domestic market. The inherent limitations of the size of the market are less important than they were. “Born global” are growing in number and importance. In a global financial market, the firm can tap the funds anywhere it wants. In a free market global economy, the firm can fly wherever it finds profitable. In this type of world, the national ownership does not have any significance. The relevant question for a country is the employment opportunities. A high technology global firm may maintain its R&D and other innovative and lucrative functions at home – thus giving many advantages to the domestic economy. A dominant global airline may bring to the domestic economy only the benefits of maintaining its headquarters there. In reality, the airline would choose to locate where such location would give the highest benefits in terms of taxes paid and other considerations. In short, in a global free market, ownership does not count at all. The European airline could become global by acquiring others or by being acquired itself with no economic ramifications on the national economy or on the EU.

Ownership matters only when social, cultural or political variables are added to the pure business considerations. Even then, a strategy of becoming a European - rather than a global - airline does not seem to make sense. European airlines get three quarters of their passengers and revenues from routes flown outside Europe. The hub and spoke system used in the United States is less relevant in Europe because of the restrictions imposed by the ASAs. Even without these restrictions, the area of the EU alone is geographically compact to support a hub and spoke system, but regional hubs can be developed to handle international traffic. Even today, passengers may prefer to fly to another country with a foreign airline to take advantage of the global network. A Greek passenger going to Minneapolis may find it more expedient to fly KLM to Amsterdam and take a direct flight to his destination. Thus the economics of the network may lead to some hubs becoming much more important than other hubs. To be sure, the Greek flag carrier may enter into code sharing agreement with a U.S. airline that will carry its passengers to other cities in the United States. The passengers flying the airline may be kept loyal by a frequent flight program. However, other airlines have such programs too and those that are part of a global alliance may have the upper hand. Passengers give premium to interconnectivity. They prefer on-line to inter line connections (Carlton, Landes and Posner, 1980. See also Oum, Zhang and Zhang, 1995; Star and Stinchcombe, 1992, Encaua et al., 1996). Flag carriers of small European countries get only a very miniscule part of their revenues if at all from domestic operations. If they lose passengers on transatlantic lines to nearby hubs with more connections, they are left with a strategy of becoming a feeder airline

The possibility of a cross-border merger that would create a large European airline was tried time and again – unsuccessfully (see also appendix 4 on Qualifier). There are many reasons for the lack of success. As explained, a major cause to suspect this strategy is not workable is that airlines are moving toward becoming global operators.

Cross border mergers may be a more interesting possibility for medium sized flag carriers interested in achieving a higher level of efficiency. Such a merger may be shown to increase social welfare if the returns to density are high and allow efficiency gains.¹⁵ The large airlines are more interested in becoming a global operator than in becoming a European champion. It is certainly possible that the two aims are not compatible.

Policies of countries

Most experts on the industry would have predicted a year ago that the world is moving inexorably toward a free global regime, with completely free movements of goods, services and perhaps even persons. Many governments perceive global economic integration as an inescapable fact of life and the best opportunity for economic abundance. To be sure, anti-globalization protesters claimed that globalization is the primary cause of social friction. They see it as a conspiracy to enrich bankers, to avoid environmental protection laws and to exploit child labor. For them, globalization means environmental degradation, cultural decay, and social insecurity. The terrorist atrocities of September 11th may have changed the nature of the debate. The short-term consequences of the attack were devastating to many airlines since demand for flights plummeted. In the short term they aggravated the decline of demand for tourism and for airline flights. They also caused shock waves not only and perhaps not mainly in the economic sphere.

The experience of the World Wars affected the way of thinking about the need for national ownership and control of the airspace for many decades. The first golden era of global integrated commerce was abruptly derailed by the “Guns of August” in 1914. After the War, cross-border commerce dissipated, tariff barriers zoomed and the volume of trade in goods and services spiraled down until 1930. Then, it was finally crushed by America’s Smoot- Hawley tariffs. Trade and currencies became tools of political ambition. The terrorist attacks may have caused a major shift and the pendulum will swing from a reliance on free trade in a peacefully integrated world to a primacy of security considerations and national sovereignty. Of course, security is the responsibility of the local airport. However, it does surely affect the airline operations. Thus, because of tighter security it takes more time to get on the plane and interlining arrangements are more complicated. The prospect of freer movement of people has become even more elusive. In short, the terrorist attacks vividly demonstrated the dark side of global interconnections.

Global integration benefit many countries, but many do not. Policies of governments are designed to enhance the well being of the country and its citizens. Governments may preach free trade, but their policies are influenced by strong vested interests that demand protection. The view that governments are helpless in the face of global integration seems somewhat exaggerated. Governments have lost some of their autonomy, but they still enact the laws, write the regulations and may even default on their debt. In so doing, they may perhaps pay a dire price of an economic chaos – as happened in Argentina in December 2001. When airlines policies are concerned, governments may opt for a total free sky. They may also retreat to ownership rules, regulation of landing rights and other

restrictions. Strong resistance by unions to cost cutting and rationalization may result in protective legislation that would delay any consolidation of the European airlines. Protection may be achieved even without state aid or transparent legislation. It could be achieved by erecting barriers on access to slots, or by monopoly on ground handling.

One can surmise that the EU will continue its liberalization *within* the confines of its joint borders. However, this does not mean that the EU will allow non-European ownership of “its” airlines. It simply means that the nations of the EU will be considered as one rather than different countries.

The European airline market is still in a state of flux. Key issues about the future behavior of this market can, however, be distilled. First, how many European countries would be willing to remain without a national carrier? Up to now, “even the Chilean government extended subsidies to the privatized LAN Chile to avoid bankruptcy” (Ramamurti, p.38). Would governments continue to subsidize ailing national carriers mired in problems and not renown for their efficiency or for their good service and thus encourage the world over capacity in the airline industry?¹⁶ Would Governments continue to insist on ownership and control rules or would they negotiate a multilateral agreement to replace the Bermuda type arrangements? Is the anxiety concerning terrorism transient or would it change behavior in a permanent way? Would the EU introduce auctions on slots or peak load pricing? How would the network evolve? How many hubs will operate? Where would the hubs be? How many airlines would remain? Are there any advantages for a European global airline? Would large airlines acquire smaller ones or would they continue with the alliances?

Predictions of demand in the airline industry are often based on the implicit assumption that trends and driving forces in the industry will continue. Yet in a rapidly changing and turbulent world, many fundamental changes are possible. Thus, leisure travel consists now of more than 55 percent of all air travel. The demand for such travel is a function of income and wealth. It is also affected by the degree of anxiety concerning dangers. The terrorist attacks of September 11, 2001 certainly made potential tourists quite hesitant, and this event came as a complete surprise. Even if the total number of tourists would not materially decline, certain geographical areas may be affected. These are mainly related to changes in the political environment.

Economic reality is materially affected not only by changing technologies, but also by new ideas and by political moves. The problem of projection comes with the uncertainties related to discontinuities. To predict the future, one should postulate that the European Union will (or will not) be able to control the freedoms of the air, moving the control of these precious assets from the nation-states. One has to decide if grandfather rights on gates and slots will continue to be respected. One has to assume the impact of security needs on harnessing the free forces of globalization. More difficult – one has to predict changes in mood toward global integration.¹⁷ In the short time I have only surprise-free scenarios would be discussed.

Scenarios

If one ignores political or cultural considerations, clearly the airline industry would move to become a global industry. A process of consolidation would result with three, perhaps four or five, global carriers operating all over the world and competing among them for a global market share. None of these firms would be European, nor would they be American or Asian. They will be *Global*. Needless to say, they would all work in Europe – flying passengers, mail and cargo both within the continent and to and from other destinations. Each of these airlines would have operations in Europe and thus would employ Europeans. The headquarters could be anywhere in the world, depending on tax and other considerations. These global airlines would employ persons that speak different European languages e.g. as cabin attendants in flights to Europe. Different airports in Europe – all privatized and profit seekers – would attempt to entice the airlines to use them as hubs for international flights. Clearly, the only reason Europe has more than twenty intercontinental hubs is because nations tenaciously maintain the bilateral structure. Therefore, each nation maintains the right to fly from its capital to New York. With time and perhaps through trial and error, most European airports would lose most of these flights and therefore- many of their transitory passengers. Only a few hubs will remain. A decade or two ago, it was assumed that Brussels as the capital of Europe would be one of these hubs (Wells, 1993). More recent research emphasizes relative efficiency and key quality attributes. It assesses variables such as landing charges, minimum connecting times, number of runways and passenger terminals, baggage collection points, public parking space local labor force costs airport traffic control reliability and distance to the city center as well as quality score (Adler and Berechman 2001a, 2001b, 2001c). Further, alliances are generally considered a second best to a full integration through mergers and acquisitions. Therefore, under the (very unrealistic) free market hypothesis, alliances would be replaced by a merger wave. This wave, however, would be global – not European.

Most international economists would expect the global scenario to become a reality. If it is accepted, then the term “European airline” loses any significance since by definition, airlines will lose national identity. However, economists cannot predict the future when such a prediction involves political, social, cultural and technological variables. They can simply admit that much of the future is unpredictable. John Panzar reminds us:

In spite of the wide body of deregulated experience with the intra-state California market to make predictions, economists and the industry people as well got it largely wrong! Among the major things that were not predicted were hub and spoke networks, yield management techniques, and frequent flier plans – three areas of major contribution to the U.S. industry today (Panzar in Gaudrey and Mayes, p.281).

Certainly, a scenario assuming the market will operate without any restrictive regulation in which all nation states will give up the bilateral agreements regime and agree through the World Trade Organization, to open the aviation market is not likely. The other extreme – assuming that nations will return to regulation – is also not very probable.

An intermediate possibility is that the European Commission will take over the landing rights and negotiate in the name of all of Europe. Great Britain might be the last country

to agree to that solution. However under pressures of open skies agreements of other countries and a settlement of the Gibraltar issue EU negotiations may be a preferred. The EU would strengthen its negotiating position mainly vis a vis the U.S. and would try to replace the existing open skies national agreement by a European one. However, no global consolidation would occur. Globalization of an airline is virtually impossible as long as the international regime would be based on the bilateral agreements. For the small countries, the ASAs insure their airlines from a raid by a larger foreign airline. The preferred political compromise would be to allow airlines a much greater integration of systems within a global network of independent firms. Each of these firms would agree to give up some of its autonomy to achieve coordination, agreed governance structure and a common international identity. Once systems, processes and sales are integrated, an alliance becomes almost the same as a merger, and its stability increases significantly. This network is going to be fully integrated, with a governance structure not unlike the networks developed by the large auditing firms- that moved from big eight to big six, big five and now perhaps big four. (See Aharoni, 1993)

Conclusions

The air transport industry has gone through major structural changes. These changes are a result of deregulation and other changes in governmental policies but also a reaction to changing technologies, mainly IT, and to increasing global demands for air transportation for both freight and passengers.

Air transport has been subject to a wide range of regulations almost since its inception. The industry has become less fettered only very recently. In the United States, there has been a major attempt to adapt to the new conditions. First and foremost, regulators did not pay much attention to network considerations. They awarded routes to different carriers, not a total network. One consequence of the deregulation was the rearrangement of routes and the creation of hub and spoke systems. Deregulation in the United States has led to many changes in the way airlines operate. Many firms entered and many merged, fares declined, traffic density rose. More important, network configuration changed drastically through hubs and spokes and new technology was adapted. These changes, made possible because of the relaxation of constraints on the way the industry operated, led to significant drop in costs.

Civil aviation is impacted by worldwide trends of rapid globalization and gradual liberalization. It is also one of the first to feel the impact of recession, wars or any other calamity but also of prosperity. Up to the mid 1980s, the scheduled airlines business in Europe was characterized by heavy collusion, very little price competition among regulated carriers and a regime of regulatory constraints on entry, fares, routes. These characteristics were authorized or at least accepted by captured regulators. Charter or cargo flights were both relatively free and competitive.

From the start of their operations, European scheduled airlines focused on worldwide connections. The single market, even if it will be enlarged to include the countries of central Europe, cannot by itself sustain operations of a large airline. The three packages

of airline liberalization were designed to establish a single market. They did not change the ASAs regime. The packages thus hardly dealt with the most relevant issue for the structure of the industry.

Airlines offer a standard service, common to all suppliers. The industry is mature and need mass market to be able to be profitable. In short, it is a perfect candidate for becoming global. A global carrier would enjoy significant economies of density and of network. In line with many other sectors, one would expect to see the industry consolidate to a global oligopoly structure with three or four global operators plus a large number of regional carriers. However, foreign control of an airline is not allowed. Consequently, cross-border mergers are not possible. Yet, the advantages of economies of network and economies of density have been recognized. Given these constraints, airlines had to develop alternative ways of erecting a global network. So they created a network of flights operated by different airlines but combined by integration of the routes, attempting to achieve the perceived benefits of integration while maintaining the legal independence of each member of the alliance. Because each party is independent, it may or may not continue its membership in the network. The continuity and the stability of the alliance depend on the benefits each member enjoys because of it.

Compare the air transportation industry to auditing (in which the Big Six became Big Five and they are now in the process of becoming Big Four) or to management consulting or advertising. These industries cater to global clients, who prefer “one shop” that can serve them worldwide. Nothing stops management consultants or advertising agents from offering such global service. When only economic forces are considered, one would expect airlines to do the same. However, air transportation still operates basically under the structure agreed in Chicago in 1944. Airlines responded by creating a network, linking their operations by creating a strategic alliance –not unlike auditors although for different reasons. These links are constrained also by the official ratification granted e.g. antitrust exemption .by the US and by the EU.

A possible title suggested for this paper was “will there be only one European airline?” A major conclusion of this paper is that the large trunks will *not* be Europeans, nor will they be American. They will be global firms with no national identity. If the international regime would not change, global integrated networks rather than global firms are likely. Each one of the networks will be composed of several legal entities with close ties ,code sharing and complete integration of the production, marketing and information systems. Once systems and sales are integrated, the alliance becomes almost the same as a merger, and its stability increases significantly. After all, mergers and acquisitions also fail sometimes. The global firms or the networks remaining may have enough market power to increase prices, in particular in the hubs they will control. A necessary condition for the required changes is a transformation of organizational culture. Introduction of customer focus or emphasis on quality of service need assimilation among all employees at all levels of the organization. Culture change and behavior adjustment entails intense efforts of many managers to unlearn old norms and adopt new ones. A long history of sheltered cultures, political patronage, undemanding service levels or permanent employment and featherbedding has to be changed

ENDNOTES

¹Cabotage is the right to pick up traffic in a destination country and fly it to another destination in that country. The EU allows unrestricted airline operations only within the EU Single market and *only by airlines qualified as community carriers*. The restrictions on substantial ownership and effective control of airlines now relate to the community rather to one nation within it. For details see appendix 3.

²Note that the data collected and systematically published by different sources in the aviation industry is not always comparable. Rather, published data are variable in their consistency. Major sources of data are the individual airlines, national aviation regulatory authorities, national central government departments, international aviation trade associations, the International Air Transport Association(IATA), the International Civil Aviation Organization (ICAO) and aircraft manufacturers. In most sources of data, passengers are treated as movements, not as individuals. They are counted in terms revenue passengers kilometers (RPK). Further, a passenger who makes a change in plane during a journey is counted as two passengers. This is also true for an interlining passenger, who changes from one aircraft to another.

³The World Tourism Organization estimated tourism expenditures in 2000 to be \$475 billion, spent by 700 million tourists who traveled to foreign countries.

⁴Thus, immediately after World War II, airlines re equipped and installed airplanes that replaced the “workhorse” of the time – DC3. These new airplanes cost about \$650,000. Today, a Boeing 747 cost more than \$55 millions. To be sure, these airplanes take many more passengers. A typical 747 may carry up to 500 passengers. The new generation of airplanes now on the drawing board may carry up to 900 passengers or allow amenities such as sleeping beds and so on. However, the projected Boeing is estimated to cost about \$550 million for each airplane.

⁵The question of access to essential facilities is of utmost importance to ensure competition and new entrants. Because of lack of space, I do not deal with this topic here. Note that the attempts to enforce access were not always successful. Even when they were, the process is time-consuming. As one example, the Commission started its investigation on the problem of access to ramp handling at Frankfurt airport following a complaint lodged on 20 July 1993 by Air France, British Airways and KLM. The facts were straightforward. The monopolist operator of Frankfurt airport refused to allow third party or self-handling for ramp-side ground handling activity. The commission ruled that this refusal constituted an abuse of dominant position within the meaning of Article 86 of the Rome Treaty. This decision is one of many intended “to strike down barriers to competition at national airports” (Soames, p. 221). Alas, the Commission decision was made on January 14, 1998 – almost five years after the complaint.

⁶Average cost per available seat miles for older planes is in the 6 or even 7 cents range, compared to 4.2 cents for modern aircraft. Fuel cost per available seat miles were reduced by nearly 50% since the 1950s and 35% since the 1960s. Maintenance costs for modern planes are 0.53c per ASM compared to almost 2 cents for DC9 or 737-200. Crew costs are lower on the average by 28 cents per ASM. Financing costs are about 1 US cent per ASM. Of course, old airplanes may have to be replaced because of noise restrictions. The so-called stage 3 legislation implemented at the end of the 1990s may have increased orders for new aircraft. Stage 4 phase out was put on the backburner as a result of the parlous state of civil aviation following September 11th. (Merrill Lynch 2002).

It is said that one minute of flight entails costs of about \$100. Therefore, reducing the time of flight by reducing airport congestion or finding shorter routes is very significant.

⁷Thus, the larger Boeing 757 is more fuel-efficient than the 727 it replaces. It also requires only two-person flight crew as opposed to three for the 727.

⁸).⁸ Fokker, a Dutch plane maker, collapsed because its planes were heavy, expensive, and it failed to invest in automated manufacturing processes.

⁹In fact, partially because of the plummeting of revenues because of the recession and then the aftermath of September 11, 2001 there were on March 2002 1,333 older aircraft in storage—out of a total fleet of 4,357 aircraft of these types. In addition, there were 369 current generation narrow-bodied aircraft parked out of a total fleet of 6,928. Finally, 517 wide-bodied modern airplanes were stored out of a fleet of 9,546. 413 older generation aircraft, 271 current generation narrow bodied and 360 current generation wide bodies were added to storage after September 11 2001.

¹⁰Thus, In 2001, United airlines flew 265,282 million passengers and logged 187,720 million revenue passengers' kilometers. American Airlines 251,976 million passengers and 174,388 RPK Delta Airlines – 238,017 million passengers and 163,765 million RPK. British Airways flew 151,653 million passengers and logged 104,981 million RPK. The corresponding figures for Lufthansa were 120,091 and 86,695.

In terms of fleet size, the top eight airlines in the world are American firms. (American, FedEx, United, Delta, Northwest, US Airways, Continental, Southwest). British Airways is number nine and Lufthansa – number 10. In terms of number of passengers flown, the first seven airlines are United States owned (Delta, United, American, Southwest, Northwest, US airways, Continental) number eight is All Nippon, followed by Lufthansa and Air France. (Source: Air Transport World, July 2000)

¹¹The proportion of Delta Airlines flights out of the total flights in Cincinnati was 83.0% and at Hartsfield International airport (Atlanta, Ga.) it was 74.4%. US Airways controlled 83.7% of the flights in Pittsburgh and 88.2% in Charlotte, N.C. NorthWest airlines dominated its hub in Detroit (79.0%) and at Minneapolis St Paul 79.0). Continental airlines proportion of flights in Houston was 82.2%. United and American airlines together controlled 83.7% of the flights from Chicago O'hare airport. Delta and American controlled 85.4% of the flights from Dallas/Ft. Worth

¹²KLM, Amsterdam 42.3%, Alitalia, Rome 50.0%, Milan 58.3%, Air France CDG 54.6% Orly 54.2% Iberia Madrid 53.7%Barcelona 49.2% Olympic Athens 50.7% SAS Stockholm 48.2%, Copenhagen 53.0% Oslo 46.5%; Austrian Vienna 42.8%). The one exception is Lufthansa 60.6% of the Frankfurt flights (source: *Airline Business* June 2001 pp.78-9).

¹³ Paul Gretch, director of the US Office of International Aviation said in interview: “Without that open skies agreement, there isn't even a question of giving anti-trust immunity to BA/AA” See *Aircraft Economics October 2001, p.38*

The US negotiated first with small and presumably weak countries. The first agreement was signed with Norway, Luxemburg, Iceland, Finland, Denmark and Belgium. European airlines are very dependent on international routes. By negotiating with small state, the US government presumably assumed that the greater capacity offered there would divert

traffic and reverse the opposition of larger countries. Indeed, Lufthansa changed its policy and urged the German government to reverse its policy and an open skies agreement was signed in 1996. In all of these cases, the government was instrumental in aiding the national carriers.

¹⁴Examples are Air Europe that started scheduled services in 1987 and disappeared in mid 1991 and Trans European Airways (TEA) that started a London Gatwick-Brussels service in 1990 and was bankrupt by the end of 1991.

¹⁵It is worth posing to recall the history of attempts to create a European airline. In 1951 there were discussions in the European Council about the possibility of creating a supranational aviation authority that would run Europe-wide services. These attempts foundered because each country wanted to keep its own national flag carrier. In 1957, as a result of the signing of the Treaty of Rome, Air France, Alitalia, Lufthansa and Sabena negotiated the possibility of merging their international operations on the basis of predetermined traffic quotas. The negotiations continued, albeit intermittently, for several years. In 1960, Air France agreed to release to Alitalia Caravelle airplanes earmarked for itself as a gesture of goodwill born out of the Air Union discussions (Mantzegga, p.170) BEA was not interested. (Lyth, p.77). KLM, with active support from the Dutch government, joined the negotiations in 1961. It was unhappy with the traffic share it was to receive but continued to participate in the negotiations until the final collapse of the project in 1967. (Dierikx, p. 152). The reason for the collapse was the disagreement among the four partners over the market share. The proposal to use the 1958 distribution of market would give Lufthansa 17 per cent. The Germans were unwilling to accept this share. Being sure they had a better chance for long-term growth they proposed a share of 36.3 percent to Lufthansa. This was at the expense of Sabena (9.8 percent instead of 20% and Air France (34% instead of 46%) (Dienel, p.112). Eventually the airlines reached a compromise in 1960: 34% to Air France, 30% to Lufthansa, 26% to Alitalia and 10% to Sabena. (Neiertz, p.43) However, the German government lost interest in the project. And General De Gaulle put an end to the idea: he was against any semblance of Federal Europe. "However, patriotic exclusivity triumphed...the differences between the participants over aims and methods, and their respective shares in the enterprise, were irreconcilable" (Dienel and Lyth,, p.1)

Since then, there were several discussions of mergers that would create a European airline – large enough to compete against the huge U.S. airlines. Both the proposed merger of KLM and British Airways and the proposed tie up between KLM and Alitalia failed to materialize. SAir tried to cooperate with airlines of other small European states and create such an airline. It was the first to design an alliance both with foreign airlines and with SAS and Austrian. This strategy also envisioned the creation of a single carrier in the Alcazar project. The negotiations collapsed in 1993 because KLM wanted Northwest as the US partner and the rest of the airlines preferred Delta. SAir then moved to a so-called "hunter strategy". It acquired Sabena and several other ailing European airlines. Unfortunately, it was unable to acquire more successful airlines or to turn around those it did acquire. In fact, the losses of the acquired airlines finally drowned Swissair. Its earlier strategic alliance with Delta and Singapore Airlines did not take off.

¹⁶Recent experiences seem to rectify this belief. Swissair pursued an ambitious strategy and failed. On October 2 2001 Swissair was forced to cease all flight operations. On October 4, SAir Group asked for a moratorium on debt enforcement (Nachlassstundung) The Swiss government claimed Switzerland must have its own large national flag carrier. It gave Crossair 1.3 billion Euro and jawboned the two largest commercial banks in Switzerland to finance the creation of a new firm Suisse –that started flying on April 1st, 2002. Air New Zealand received a rescue package of NZ\$885 million in January 2002 and the government now owns 82% of the airline. Of course, a country that is an integral part of the EU could not offer such state subsidies without the approval of the European council. Yet this council did approve huge injection of governmental funds to Air France or Alitalia, saying a private shareholder would have injected the same amounts. Iberia received repeated help by claiming “durable adverse condition”.

¹⁷Clearly, MNEs are now accused of causing environmental degradation, cultural decay and social insecurity as well as political instability. Further, the atrocities of September 11, 2001 sobered the mood and brought considerable doubts on the possibility of free movements of persons across borders. These new trends may impact on the future integration of markets and therefore on the airline industry.

Table 1
World Airline Industry Statistics – 2000

<u>Airline Registration</u>	<u>Airlines</u>	<u>Pax (000)</u>	<u>RPKs (mils)</u>	<u>FTKs (miles)</u>	<u>Employees</u>	<u>Aircraft</u>
Africa	19	28,086	56,502	1,431,040	58,701	361
Asia/Pacific	76	371,947	729,798	45,914,252	396,799	2,496
Canada	7	36,776	75,489	1,819,216	54,481	414
Europe	202	537,945	1,009,331	36,845,438	508,506	5,225
Latin America/Caribbean	49	92,248	135,796	5,146,300	90,227	901
Middle East	20	47,143	86,542	3,953,035	72,765	373
US Majors	15	585,791	1,056,724	33,885,457	1,102,013	5,188
US Nationals	37	83,555	75,501	7,265,134	71,127	1,391
US Regionals	83	36,478	22,154	182,456	25,407	1,411
US Cargo	15	N/A	N/A	881,830	2,822	152
Total World	523	1,819,969	3,247,837	137,324,158	2,382,848	17,912
Total US	150	705,824	1,154,379	42,214,877	1,201,369	8,142

<u>Airline Registration</u>	<u>% of Airlines</u>	<u>% of Pax</u>	<u>% of RPKs</u>	<u>% of FTKs</u>	<u>% of Employees</u>	<u>% of Aircraft</u>
Africa	3.6%	1.5%	1.7%	1.0%	2.5%	2.0%
Asia/Pacific	14.5%	20.4%	22.5%	33.4%	16.7%	13.9%
Canada	1.3%	2.0%	2.3%	1.3%	2.3%	2.3%
Europe	38.6%	29.6%	31.1%	26.8%	21.3%	29.2%
Latin America/Caribbean	9.4%	5.1%	4.2%	3.7%	3.8%	5.0%
Middle East	3.8%	2.6%	2.7%	2.9%	3.1%	2.1%
US Majors	2.9%	32.2%	32.5%	24.7%	46.2%	29.0%
US Nationals	7.1%	4.6%	2.3%	5.3%	3.0%	7.8%
US Regionals	15.9%	2.0%	0.7%	0.1%	101%	7.9%
US Cargo	N/A	N/A	N/A	0.6%	.01%	0.8%
Total World	100.0%	100.0%	10.0%	100.0%	100.0%	100.0%
Total US	28.7%	38.8%	35.5%	30.7%	50.4%	45.5%

Source: Air Transport World (July 2001)

Table 2

World Scheduled Airlines: System Scheduled Traffic and Operations, 1929-2000E
(prior to 1970, results exclude CIS/USSR; for all years, U.S. data reflects majors and nationals only)

YEAR	AIRCRAFT VOLUMES			PASSENGER VOLUMES				Freight Tons (000)	TON KILOMETERS					
	KMs (mils)	Depts (000)	Hours (000)	Psgrs (000)	RPKs (mils)	ASKs (mils)	PLF (%)		Psgr (mils)	Freight (mils)	Mail (mils)	RTKs (mils)	ATKs (mils)	WLF (%)
1929	90	N/A	N/A	N/A	170	N/A	N/A	N/A	15	N/A	N/A	15	N/A	N/A
1939	295	N/A	N/A	N/A	2,030	N/A	N/A	N/A	185	N/A	N/A	185	N/A	N/A
1947	1,140	N/A	4,200	21,000	19,000	N/A	N/A	N/A	1,710	270	130	2,110	N/A	N/A
1949	1,350	N/A	4,800	27,000	24,000	N/A	N/A	N/A	2,160	570	190	2,920	N/A	N/A
1954	2,060	N/A	6,7000	59,000	52,000	86,000	60.5	N/A	4,720	1,040	330	6,090	10,320	59.0
1959	3,090	N/A	9,000	98,000	98,000	162,000	60.5	N/A	8,670	1,830	520	11,020	19,320	57.0
1964	3,700	7,100	8,200	155,000	171,000	306,000	55.9	N/A	15,110	3,760	910	19,780	38,640	51.2
1969	6,704	9,473	11,761	293,230	350,899	674,973	52.0	3,970	31,068	9,769	2,517	43,354	90,967	47.7
1974	7,375	9,613	12,471	514,496	656,426	1,107,532	59.3	8,651	58,797	19,016	2,884	80,697	149,161	54.1
1979	9,147	10,666	14,887	754,117	1,060,236	1,607,188	66.0	10,996	95,421	28,011	3,425	126,857	212,297	59.8
1984	10,102	11,453	16,492	847,931	1,278,176	1,972,296	64.8	13,416	115,230	39,667	4,311	159,208	264,288	60.2
1989	13,493	13,945	22,815	1,109,478	1,773,703	2,608,046	68.0	18,088	160,775	57,145	5,057	222,977	366,528	60.8
1990	14,371	14,661	23,389	1,165,156	1,894,245	2,800,844	67.6	18,423	171,096	58,796	5,325	235,217	392,092	60.0
1991	14,262	14,269	23,316	1,135,185	1,845,418	2,779,494	66.4	17,465	167,093	58,556	5,074	230,723	390,682	59.1
1992	15,690	14,819	24,851	1,145,553	1,928,922	2,930,185	65.8	17,647	174,378	62,636	5,125	242,139	419,706	57.7
1993	17,118	15,777	27,322	1,142,382	1,949,421	3,013,411	64.7	18,053	176,956	68,446	5,225	250,627	429,482	58.4
1994	18,249	17,038	29,161	1,233,341	2,099,936	3,169,342	66.3	20,522	190,797	77,215	5,411	273,423	457,761	59.7
1995	19,470	17,816	30,868	1,303,645	2,248,215	3,358,601	66.9	22,189	205,168	83,132	5,633	293,933	492,051	59.7
1996	20,601	18,758	32,836	1,391,085	2,431,695	3,563,774	68.2	23,234	222,158	89,199	5,797	317,154	527,187	60.2
1997	21,630	19,320	34,350	1,456,690	2,573,010	3,727,900	69.0	26,360	235,320	102,880	5,990	344,190	566,410	60.8
1998	22,438	19,686	35,559	1,471,470	2,628,116	3,837,725	68.5	26,496	241,025	101,818	5,757	348,600	584,569	59.6
1999	23,742	20,739	37,683	1,562,324	2,797,803	4,050,783	69.1	28,103	256,047	108,655	5,718	370,420	614,461	60.3
2000E	25,144	21,424	39,790	1,652,653	3,010,173	4,254,788	70.7	30,102	276,789	118,273	6,055	401,117	652,693	61.5

Source: International Civil Aviation Organization.

Table 3
World Scheduled Airlines: System Scheduled Traffic and Operations,
1947-2000E

(prior to 1970, results exclude CIS/USSR; for all years, U.S. data reflects majors and nationals only)

YEAR	OPERATING RESULTS				NET RESULTS	
	Revenues	Expenses	Profit/(Loss)	Margin	Profit/(Loss)	Margin
	(Millions, USD)			%	(Millions, USD)	%
1947	1,050	1,170	(120)	(11.4)	(135)	(12.9)
1948	1,348	1,397	(49)	(3.6)	(74)	(5.5)
1949	1,397	1,406	(9)	(0.6)	(42)	(3.0)
1950	1,543	1,502	41	2.7	(10)	(0.6)
1951	1,804	1,780	24	1.3	(21)	(1.2)
1952	2,050	2,063	(13)	(0.6)	(45)	(2.2)
1953	2,314	2,317	(3)	(0.1)	(52)	(2.2)
1954	2,560	2,528	32	1.3	(33)	(1.3)
1955	3,205	2,947	78	2.6	(11)	(0.4)
1956	3,510	3,426	84	2.4	15	0.4
1957	3,971	4,012	(41)	(1.0)	(66)	(1.7)
1958	4,122	4,107	15	0.4	(46)	(1.1)
1959	4,805	4,700	105	2.2	(25)	(0.5)
1960	5,370	5,338	32	0.6	(97)	(1.8)
1961	5,795	5,913	(118)	(2.0)	(133)	(2.3)
1962	6,570	6,473	97	1.5	(27)	(0.4)
1963	7,153	6,824	329	4.6	106	1.5
1964	8,119	7,500	619	7.6	366	4.5
1965	9,347	8,460	887	9.5	534	5.7
1966	10,844	9,819	1,025	9.5	661	6.1
1967	12,488	11,575	913	7.3	609	4.9
1968	14,282	13,548	734	5.1	446	3.1
1969	16,431	15,557	874	5.3	409	2.5
1970	17,817	17,367	450	2.5	(10)	(0.1)
1971	20,116	19,507	609	3.0	138	0.7
1972	23,030	22,224	806	3.5	234	1.0
1973	27,438	26,243	1,195	4.4	434	1.6
1974	33,079	32,287	792	2.4	41	0.1
1975	38,309	37,579	730	1.9	(67)	(0.2)
1976	43,400	41,244	2,156	5.0	825	1.9
1977	50,344	47,715	2,629	5.2	1,656	3.3
1978	58,769	55,669	3,100	5.3	2,412	4.1
1979	70,755	70,019	736	1.0	588	0.8
1980	87,676	88,311	(635)	(0.7)	(919)	(1.0)
1981	92,992	93,684	(692)	(0.7)	(1,150)	(1.2)
1982	93,240	93,400	(160)	(0.2)	(1,300)	(1.4)
1983	98,300	96,200	2,100	2.1	(700)	(0.7)
1984	105,400	100,300	5,100	4.8	2,000	1.9
1985	112,200	108,100	4,100	3.7	2,100	1.9
1986	124,600	120,000	4,600	3.7	1,500	1.2
1987	147,000	139,800	7,200	4.9	2,500	1.7
1988	166,200	156,000	10,200	6.1	5,000	3.0
1989	177,800	170,200	7,600	4.3	3,500	2.0
1990	199,500	201,000	(1,500)	(0.8)	(4,500)	(2.3)
1991	205,500	206,000	(500)	(0.2)	(3,500)	(1.7)
1992	217,800	219,600	(1,800)	(0.8)	(7,900)	(3.6)
1993	226,000	223,700	2,300	1.0	(4,400)	(1.9)
1994	244,700	237,000	7,700	3.1	(200)	(0.1)
1995	267,000	253,500	13,500	5.1	4,500	1.7
1996	282,500	270,200	12,300	4.4	5,300	1.9
1997	291,000	274,700	16,300	5.6	8,550	2.9
1998	295,500	279,600	15,900	5.4	8,200	2.8
1999	305,500	293,200	12,300	4.0	8,500	2.8
2000E	329,100	318,300	10,800	3.3	3,930	1.2

Source: International Civil Aviation Organization (ICAO), vial ICAO Air Transport Reporting Form EF-1.

Table 4

Operating and Net Earnings Since 1938

U.S. Scheduled Airlines, All Services

YEAR	Operating Profit (000)	Net Profit (000)	Cumulative Operating Profit (000)	Cumulative Net Profit (000)
1938	(168)	N/A	(168)	N/A
1939	6,008	N/A	5,840	N/A
1940	7,224	N/A	13,064	N/A
1941	10,073	N/A	23,137	N/A
1942	32,191	N/A	55,328	N/A
1943	28,191	N/A	83,519	N/A
1944	36,022	N/A	119,541	N/A
1945	34,047	N/A	153,588	N/A
1946	1,898	N/A	155,486	N/A
1947	(21,642)	(21,400)	133,844	(21,400)
1948	16,886	13,199	150,730	(8,201)
1949	43,565	25,734	194,295	17,533
1950	75,986	42,678	270,281	60,211
1951	127,624	55,009	397,905	115,220
1952	105,167	59,537	503,072	174,757
1953	106,336	62,811	609,408	237,568
1954	124,375	67,761	733,783	305,329
1955	142,624	76,457	876,407	381,786
1956	134,890	79,662	1,011,297	461,448
1957	65,005	44,430	1,076,302	505,878
1958	107,512	50,396	1,183,814	556,274
1959	122,349	72,681	1,306,163	628,955
1960	77,591	9,140	1,383,754	638,095
1961	20,059	(37,874)	1,403,813	600,221
1962	189,999	52,319	1,593,812	652,540
1963	279,787	78,480	1,873,599	731,020
1964	470,097	223,172	2,343,696	954,192
1965	671,928	367,119	3,015,624	1,321,311
1966	775,497	427,633	3,791,121	1,748,944
1967	708,194	415,388	4,499,315	2,164,332
1968	504,888	209,952	5,004,203	2,374,284
1969	391,931	52,752	5,396,134	2,427,036
1970	43,031	(200,503)	5,439,165	2,226,533
1971	328,475	28,007	5,767,640	2,254,540
1972	584,470	214,851	6,352,110	2,469,391
1973	585,266	226,693	6,937,376	2,696,084
1974	725,740	321,641	7,663,116	3,017,725
1975	127,879	(84,204)	7,790,995	2,933,521
1976	721,933	563,354	8,512,928	3,496,875
1977	908,040	752,536	9,420,968	4,249,411
1978	1,364,863	1,196,537	10,785,831	5,445,948
1979	199,055	346,845	10,984,886	5,792,793
1980	(221,615)	17,414	10,763,271	5,810,207

1981	(454,770)	(300,826)	10,308,501	5,509,381
1982	(733,435)	(915,814)	9,575,066	4,593,567
1983	310,410	(188,051)	9,885,476	4,405,516
1984	2,151,511	824,668	12,036,987	5,230,184
1985	1,426,264	862,715	13,463,251	6,092,899
1986	1,323,101	(234,909)	14,786,352	5,857,990
1987	2,648,889	593,398	17,255,241	6,451,388
1988	3,436,503	1,685,599	20,691,744	8,136,987
1989	1,811,267	127,902	22,503,011	8,264,889
1990	(1,912,335)	(3,921,002)	20,590,676	4,343,887
1991	(1,784,741)	(1,940,157)	18,805,935	2,403,730
1992	(2,444,460)	(4,791,284)	16,361,475	(2,387,554)
1993	1,438,172	(2,135,626)	17,799,647	(4,523,180)
1994	2,713,455	(344,115)	20,513,102	(4,867,295)
1995	5,859,518	2,313,591	26,372,620	(2,553,704)
1996	6,209,069	2,803,915	32,581,689	250,211
1997	8,586,794	5,167,657	41,168,483	5,417,868
1998	9,327,810	4,903,203	50,496,293	10,321,071
1999	8,403,305	5,360,252	58,899,598	15,681,323
2000	7,073,761	2,637,472	65,973,359	18,187,795

Table 5

Airlines that Disappeared During the Year 2000

Date	Airline
24 February 2000	TAESA
27 March 2000	Caledonian Airways
27 March 2000	Flying Colours
13 April 2000	Sky-Trek
30 April 2000	TransAerCologne
25 August 2000	Istanbul Airlines
15 September 2000	Custom Air
18 September 2000	ProAir
03 October 2000	Lorair
10 October 2000	Tower Air
10 October 2000	European
20 October 2000	Regions Air
23 October 2000	Air Aruba
?? October 2000	Air Caribbean
?? November 2000	Air Belgium
01 November 2000	Seven Air
03 December 2000	LEGEND
03 December 2000	BEX – Business Express Airlines
06 December 2000	RAA – Reeve Aleutian

Updated 30 December 2001

Airlines that Disappeared During the

Year 2001

13 Feb 2001	Brussels Int'l
20 Feb 2001	ComeD Aviation
27 Feb 2001	AccessAir
10 Mar 2001	Avant
15 Mar 2001	Med Airlines
22 Mar 2001	Royal
30 Mar 2001	Guardair
31 Mar 2001	EGXpress
01 Apr 2001	Aero Zambia
01 Apr 2001	Flandre Air
01 Apr 2001	Protheus Airlines
01 Apr 2001	Air Engiadina
01 Apr 2001	KLM alps
01 Apr 2001	Jersey Europlan
06 Apr 2001	Base Airlines
24 Apr 2001	CANJET
24 Apr 2001	Qantas New Zealand
04 May 2001	Roots Air
18 May 2001	Fjuyana Airways
20 Jun 2001	Air Great Wall
16 July 2001	RUSS Air Transport
13 Aug 2001	Emery

Since 9-11

20 Sep 2001	Air Liberte
20 Sep 2001	AOM French Airlines
20 Sep 2001	Gill Airways
02 Oct 2001	Swiss Air
04 Oct 2001	City Bird
06 Oct 2001	Srflly Compagina Aera
16 Oct 2001	Royal Air Combodya
30 Oct 2001	Air Europa
31 Oct 2001	Virgin Sun
01 Nov 2001	Air ALM
01 Nov 2001	Ladeco
02 Nov 2001	Balaircta
05 Nov 2001	Muk Air
06 Nov 2001	Ariana Afghan
07 Nov 2001	Sabena
09 Nov 2001	Canada ???
11 Nov 2001	Fly FTI
20 Nov 2001	Impluse Airlines
20 Nov 2001	South Atlantic Airways
25 Nov 2001	Eurosun Turkey
30 Nov 2001	Axon
01 Dec 2001	MetroJet
02 Dec 2001	TWA
02 Dec 2001	TWExpress
03 Dec 2001	TransBrasil
14 Dec 2001	British World Airlines

Table 6

US and European Airlines

European majors (AEA members) international traffic - 2001							
Region	Passenger traffic (RPK)		Capacity change	Load factors		Freight (FTK)	
	millions	change		per cent	change	millions	change
Intra-Europe	133,4445	-0.4%	1.3%	62.7%	-1.0	826	-17.2%
North Atlantic	161,321	-10.6%	-5.9%	74.1%	-3.9	9,098	-14.3%
Mid Atlantic	41,721	11.4%	11.9%	79.2%	-0.4	1,368	16.1%
South Atlantic	27,818	-3.9%	3.2%	74.1%	-5.5	1,895	-0.7%
Far East/Australia	100,867	-7.1%	-4.8%	76.6%	-1.9	13,187	-1.5%
Sub Saharan Africa	40,532	-5.1%	-9.2%	77.5%	3.3	2,214	3.2%
N. Africa/M East	24,515	-6.8%	-1.2%	64.2%	-3.9	948	-10.4%
Total	530,525	-5.0%	-2.2%	71.4%	-2.1	29,538	-5.6%

International scheduled traffic only.

Source : Association of European Airlines

US majors (ATA members) passenger statistics - 2001							
Region	Passenger traffic (RPK)		Capacity change	Load factors		Freight (FTK)	
	millions	change		per cent	change	millions	change
Domestic USA	712,092	-6.8%	-3.8%	69.5%	-2.2	15,153	-9.7%
North Atlantic	128,747	-8.9%	-3.4%	74.6%	-4.5	-	-
Latin America	57,125	-0.8%	0.4%	68.5%	-0.9	-	-
Trans Pacific	88,073	-7.9%	-3.9%	73.4%	-3.2	-	-
All international System	273,945	-7.0%	-2.8%	72.8%	-3.3	17,111	-9.5%
	986,038	-6.8%	-3.5%	70.4%	-2.5	32,264	-9.2%

NOTE: Freight figures for previous month excludes mail. Tonnages in US tons inc mail.

Source: ATA

Table 7
US Open-Skies Agreements as at October 1 2001

1992	Netherlands
1995	Switzerland Open Skies Agreement #2
1995	Sweden Open Skies Agreement #3
1995	Norway Open Skies Agreement #4
1995	Luxembourg Open Skies Agreement #5
1995	Iceland Open Skies Agreement #6
1995	Finland Open Skies Agreement #7
1995	Denmark Open Skies Agreement #8
1995	Belgium Open Skies Agreement #9
1995	Austria Open Skies Agreement #10
1995	Czech Republic Open Skies Agreement #11
1996	Germany Open Skies Agreement #12
1996	Jordan Open Skies Agreement #13
1997	Singapore Open Skies Agreement #14
1997	Brunei Open Skies Agreement #15
1997	Taiwan Open Skies Agreement #16
1997	Panama Open Skies Agreement #17
1997	Guatemala Open Skies Agreement #18
1997	El Salvador Open Skies Agreement #19
1997	Honduras Open Skies Agreement #20
1997	Costa Rica Open Skies Agreement #21
1997	Nicaragua Open Skies Agreement #22
1997	New Zealand Open Skies Agreement #23
1997	Malaysia Open Skies Agreement #24
1997	Aruba Open Skies Agreement #25
1997	Chile Open Skies Agreement #26
1997	Romania Open Skies Agreement #27
1997	Netherlands Antilles Open Skies Agreement #28
1998	Uzbekistan Open Skies Agreement #29
1998	Korea Open Skies Agreement #30
1998	Peru Open Skies Agreement #31
1998	Italy Open Skies Agreement #32
1999	Pakistan Open Skies Agreement #33
1999	United Arab Emirates Open Skies Agreement
1999	Bahrain Open Skies Agreement #35
1999	Argentina Open Skies Agreement #36
1999	Qatar Open Skies Agreement #37
1999	Tanzania Open Skies Agreement #38
1999	Dominican Republic Open Skies Agreement #39
1999	Portugal Open Skies Agreement #40
2000	Slovak Republic Open Skies Agreement #41
2000	Namibia Open Skies Agreement #42
2000	Burkina Faso Open Skies Agreement #43
2000	Ghana Open Skies Agreement #44
2000	Turkey Open Skies Agreement #45
2000	The Gambia Open Skies Agreement #46
2000	Nigeria Open Skies Agreement #47
2000	Morocco Open Skies Agreement #48
2000	Rwanda Open Skies Agreement #49
2000	Malta Open Skies Agreement #50
2000	Benin Open Skies Agreement #51
2000	Senegal Open Skies Agreement #52
2000	Poland Open Skies Agreement #53
2001	Oman Open Skies Agreement #54
2001	France Open Skies Agreement #55

Table 8

The EU Reforms

	First package	Second package	Third package
Prices	Zonal system (standard, discount and deep discount fees) providing limited scope for independent action	Mixture of zonal system, double disapproval for passengers and free pricing for cargo	Free pricing but some safeguards for excessively high or low fares
Capacity distribution	Capacity freedom only within zone (60:40)	Capacity freedom only within zone (75:25)	No capacity controls but congestion safeguards
Market access	Full discretion on designation but subject to threshold	Full discretion on designation but subject to threshold Extended 5 th Freedoms	No controls Domestic services included (but full cabotage only in 1997)
Licensing of carriers	Full national discretion	Full national discretion	Rules for technical and economic fitness License entitlement EC ownership criteria replace national rules

Source: McGowan, p. 452

Table 9

Top 20 Airline Group Financial Rankings – 2000 versus 1990

Rank 2000	Rank 1990	Group/Airline	Revenues 2000(\$m)	Market 2000	Share 1990
1	1	AMR/American Airlines	19,703	5.9%	5.7%
2	2	UAL/United Airlines	19,352	5.8%	5.4%
3	6	Delta Air Lines	16,741	5.0%	4.3%
4	8	FedEx Express	15,534	4.7%	3.7%
5	7	Japan Airlines	15,372	4.6%	3.8%
6	4	Lufthansa Group	14,014	4.2%	4.1%
7	5	British Airways	13,700	4.1%	4.3%
8	11	ANA Group/All Nippon	11,545	3.5%	2.8%
9	9	Northwest Airlines	11,415	3.4%	3.5%
10	3	Air France	11,148	3.4%	5.1%
11	13	Continental Airlines	9,899	3.0%	2.6%
12	17	Swissair Group	9,616	2.9%	1.8%
13	10	US Airways	9,181	2.8%	3.2%
14	19	KLM Royal Dutch Airlines	6,319	1.9%	1.8%
15	20	Air Canada Corp	6,254	1.9%	1.6%
16	22	Singapore Airlines	5,728	1.7%	1.3%
17	21	Qantas Airways	5,710	1.7%	1.5%
18	40	Southwest Airlines	5,650	1.7%	0.6%
19	12	SAS Group	5,185	1.6%	2.6%
20	15	Alitalia Group	4,968	1.5%	2.2%

NOTE: Data is sourced from the Airline Business Top 100 as it ran for the year 1990 and the equivalent financial rankings for 2000.

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