



The Airline Industry and the World Trade Center Disaster

On the morning of September 11, 2001, four passenger airplanes flying on domestic routes in the United States were hijacked by people associated with the al Qaeda network led by dissident Saudi millionaire Osama bin Laden. After taking the controls, the hijackers flew two of the planes directly into the twin towers of New York's World Trade Center, destroying both buildings. A third plane was crashed into the Pentagon, the headquarters of the US Defense Department, near Washington D.C. The fourth crashed in western Pennsylvania after passengers attempted to overpower the hijackers. Much of the world reacted with shock and horror at the spectacle of two of the world's tallest buildings, buildings in which some 50,000 people were employed, crashing to the ground with thousands of businesspeople, building employees, tourists, and rescue workers trapped inside. The death toll, which reached approximately 3,000, was the highest by far for any terrorist incident, and was several hundred higher than the attack on the US naval base at Pearl Harbour, Hawaii, which precipitated the United States' entry into the Second World War.

In addition to the human, political, and military impacts, the events of September 11 also would have far-ranging economic impacts. One of the industries most affected was the airline industry, an industry that already was suffering before the attacks. In addition to losing the crews, passengers, and aircraft directly involved in the attacks, the airlines would face other losses as well. Flights within and to the United States were immediately grounded. Services would be restored only gradually. Many potential passengers decided that they did not wish to risk flying at all and cancelled their trips. Airlines soon faced mounting security and insurance costs. Some airlines would close, some would see massive layoffs, and all were faced with substantially lower profits or higher losses. As the year 2002 began, managers throughout the airline industry wondered which effects would be permanent and which would be transitory. They also wondered how they and their airlines should deal with the fallout from the attacks and the other forces that already had been reshaping the airline industry.

The Airline Industry

The International Civil Aviation Organization (ICAO) estimated that the world's scheduled airlines recorded operating profits of US\$10.8 billion and net profits of US\$3.9 billion on revenues of US\$329.1 billion in the year 2000. This was after recording operating profits of US\$12.3 billion and net profits of US\$8.5 billion on revenues of US\$305.5 billion in 1999 [see **Exhibit 1**]. According to the International Air Transport Association (IATA), the international portion of the business accounted for US\$155.4 billion in revenues (and US\$6.2

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billion in operating profit) in 2000 and US\$147.1 billion in revenues (and US\$5.9 billion in operating profit) in 1999. According to *Air Transport World*, a leading trade publication, in 2000, the 523 airlines in operation around the world carried 1.8 billion passengers for 3.2 trillion revenue passenger kilometres¹ (RPKs) and carried cargo for 137 trillion freight tonne kilometres (FTKs), while employing nearly 2.4 million people and more than 17,900 aircraft [see **Exhibit 2**].

The United States was the largest single market for air transport services. United States-registered airlines accounted for 38.8 percent of all passengers, 35.5 percent of all RPKs, and 30.7 percent of all FTKs in 2000. European-registered airlines accounted for 29.6 percent, 31.1 percent and 26.8 percent respectively. Airlines registered in the Asia-Pacific accounted for 20.4 percent, 22.5 percent, and 33.4 percent respectively [see **Exhibit 2**]. The busiest interregional market was the North America-Europe market [see **Exhibit 3**], where volume had increased by 50 percent between 1992 and 1998. The fastest-growing interregional market was expected to be flights between Northeast Asia and Southeast Asia.

Although there were some airlines that were dedicated cargo carriers, and freight was becoming increasingly important in the industry, the airline industry as a whole relied on passenger transport for the bulk of its revenues. In 2000, for example, passenger revenues equalled 72.2 percent of total revenues for US registered airlines, down from 76.8 percent in 1990. Even so, by 2000, goods shipped by air accounted for over a third of the value of world merchandise trade.²

The revenues for the industry grew at a real rate of 4.7 percent in the 1980s and 2.3 percent in the 1990s. Overall, growth in volume tended to track economic growth, especially for international flows [see **Exhibit 4**]. Demand growth tended to pick up in upturns and decline in downturns. The industry had suffered during the worldwide recession of the early 1980s before bouncing back in the late 1980s. During the Gulf War and the recession that followed, the global airline industry registered cumulative net losses of more than US\$20 billion. The industry returned to profitability in the mid-1990s and registered record profits in 1997 and 1999, despite the Asian Crisis, which hit business in Asia in 1997 and 1998, and despite the fact that airfares had been dropping in most markets in the late 1990s.³ However, industry-wide profits were sharply lower in 2000 as revenue increases could not offset higher costs.

Economics of the Airline Industry

Airline economics were relatively complicated. Airlines set fares to maximise revenues on their flights, so it often happened that, even for the same seats on the same flight, different customers paid different fares because they bought their tickets through different channels at different times and with different restrictions. A business traveller who needed a last-minute flight and bought the ticket directly from the airline would pay much more than a budget traveller buying the same ticket from a travel agent (which could be 70 percent off full price). Each airline had a "break-even load factor" at the price level set by the airline. This load factor, which was approximately 66 percent in the late 1990s,⁴ was the percentage of available seats (or, more generally, available revenue passenger kilometres) that must be filled by paying customers for the airline to cover its operating costs.⁵ Historically, the airline industry

¹ RPKs = number of kilometres flown x number of revenue (paying) passengers. FTKs = number of kilometres flown x tonnes of cargo carried.

² Daniel Yergin, Richard Vietor, and Peter Evans, *Fettered Flight: Globalization and the Airline Industry*, Cambridge, Massachusetts, the United States: Cambridge Energy Research Associates, November 2000.

³ Daniel Yergin, Richard Vietor, and Peter Evans, November 2000.

⁴ Air Transport Association (2001), "Chapter 4: Airline Economics", *Airline Handbook*, URL: <http://www.airlines.org/public/publications/display1.asp?nid=964>.

⁵ Revenue passenger kilometres = Number of kilometres flown x number of tonnes of capacity available for the carriage of revenue load.

as a whole had operated very close to the break-even load factor and as a result generated profits or losses equal to a small percentage of sales.

Capital Costs

Airlines incurred significant capital costs.⁶ Sales required ticket offices, telephone lines and ticketing systems. Training required expensive flight simulators and other equipment. Flight operations required investments in aircraft, terminals, storage facilities, and maintenance and ground equipment. Although some airlines contracted out for some services and even leased airplanes, they still had to pay for the capital equipment one way or another.

Aircraft were chosen for the length of the routes they were to fly and the number of passengers they were to carry. They were also chosen on the basis of price, operating efficiency, and ease of training crew and maintaining the aircraft. In general, newer models were more efficient and cost less in fuel and personnel expense to operate than older models. However, planes were expensive, and an airline had to consider the financial, credit rating, and stock market (if the airline was listed) consequences before making a large order. In 2001, the only two providers of larger commercial aircraft were US-based Boeing and Airbus, a European consortium financed in significant part by European governments. **Exhibit 5** lists their major products, as well as 2001 list prices. Actual prices were usually much lower than the list prices, and negotiations often started with a 15 to 20 percent discount.

Other Costs

In general, operating costs could be broken down into direct and indirect items.⁷ The direct operating costs were dependent on the type of aircraft flown. They included cabin/flight crew salaries and expenses, fuel, airport charges, en-route, maintenance, depreciation, aircraft rentals, and insurance. The indirect operating costs included station costs, handling, passenger services, sales/reservations, commission, advertising/promotion, general and administration, and other items. **Exhibit 6A** lists the operating costs of international flights (labour cost being incorporated into several entries). **Exhibit 6B** lists financial information, including operating costs and other costs, for US airlines. Industry convention usually included depreciation of assets as part of operating costs.

Personnel costs were a major cost component for airlines. Each major airline employed numerous pilots, flight attendants, mechanics, baggage handlers, reservation agents, gate agents, security personnel, cooks, cleaners, managers, accountants, lawyers, executives, etc. **Exhibit 7** shows employment trends among IATA member airlines. Moreover, the industry was highly unionised, making personnel costs and flexibility an important issue in the industry. Personnel costs equalled more than one-third of revenue according to the United States' Air Transport Association.⁸ Another source stated that labour costs, including social security fund or pension contributions, accounted for 15 to 40 percent of the total costs of most airlines, and was usually the largest single cost item.⁹ Labour costs per employee for the airline industry were typically among the highest of all industries.

Fuel costs, the second-largest operating cost item, accounted for 20 percent of airline operating costs in 2000, up from the 12 to 15 percent figure of most of the 1990s, but much lower than the 30 to 33 percent in the 1980s. By 2000, aircraft had reached fuel efficiencies of around 40 passenger miles per gallon, which was comparable with the most efficient automobiles.¹⁰ Fuel prices, which had been relatively low and stable in the mid-1990s dropped to 30 cents per gallon in 1999, but rose to 80 cents per gallon in 2000 as the

⁶ Air Transport Association (2001).

⁷ Rigas Doganis (2001), *The Airline Business in the Twenty-first Century*, London, U.K.: Routledge, p. 146.

⁸ Air Transport Association (2001).

⁹ Rigas Doganis (2001), p. 101.

¹⁰ Air Transport Association (2001).

Organization of Petroleum Exporting Countries cut oil production, still low compared with the oil crises in the 1970s and 1980s, when fuel prices reached almost two US dollars per gallon.¹¹

Ticketing and sales was another important operating cost item. By the late 1990s, most passenger tickets were bought through agents using airline-owned computer reservation systems to keep track of schedules and fares. In particular, international airlines had to deal with a worldwide agent network and the inconveniences of currency conversion and delayed collection of revenues (airlines might only receive the ticket payments several months after the flight).¹² Agents' commissions took up a sizeable portion of an airline's expenditure, though an increase in online bookings was causing this cost to decrease.¹³

Airport charges included aircraft landing fees and passenger-related charges. Major airports at traffic hubs charged high fees. Secondary airports with few scheduled flights charged lower rates. In particular, discount airlines usually drove up demand whenever they entered a market; so secondary airports were willing to negotiate lower fees with new discount airlines in anticipation of increasing traffic. Landing charges were around four to five percent of operating costs for international flights and around 10 to 13 percent for short-haul flights.

Industry Developments

Among the major developments in the airline industry were deregulation and privatisation, more liberal air services agreements, and new airline business models. Before the late 1970s, many governments exerted tight control over the prices and routes of their airlines. Outside the United States, most airlines were state-owned; some were chronic money losers that relied on state subsidies to survive. In 1978, the US Congress passed the Airline Deregulation Act, which relaxed restrictions on new entrants, allowed airlines to set their own fares (instead of a government agency), determine their own routes, and to merge. Fares fell and new routes were opened. Many new airlines appeared in the United States in the 1980s, but then the market consolidated into six major players and several smaller players. Competition pushed the US domestic airlines towards low costs and low fares. Airlines tried different pricing strategies, route structures, and technologies to compete. The majors created hub-and-spoke structures, concentrating traffic and transits at large hub airports from which routes branched out to "spoke cities". They also tried to control landing and takeoff slots to limit competition.¹⁴

Deregulation in the United States inspired a trend toward privatisation of national flag carriers in the 1980s and 1990s. British Airways, once a poorly managed state-owned organisation, was restructured and then floated in 1987. JAL was privatised in 1987 and Japan's domestic fares were deregulated in 2000. The governments in many countries followed to various degrees, from fully divesting the national carrier to retaining a minority stake. Nevertheless, many national carriers were kept afloat by heavy government subsidies [see **Exhibit 8**]. Between 1990 and 1997, for example, the European Union (EU) approved over US\$12 billion in subsidies to loss-making airlines, though the subsidies had been decreasing and were expected to be phased out eventually. However, outside of the United States, Japan, and Europe, deregulation had been slow and many airlines were still state-owned.¹⁵

International air services were regulated by a series of bilateral agreements among nations. As early as 1944, the United States had suggested an "open sky" of competition, but other nations objected out of concern for security, sovereign control, and possible US dominance of the market. In 2001 international aviation was still regulated by piecemeal bilateral

¹¹ See Rigas Doganis (2001), pp. 6-8.

¹² Rigas Doganis (2001), p. 153.

¹³ See Air Transport Association (2001).

¹⁴ See Daniel Yergin, Richard Vietor, and Peter Evans, November 2000.

¹⁵ See Daniel Yergin, Richard Vietor, and Peter Evans, November 2000.

agreements. By 2001, there were eight recognised freedoms of the skies that served as a basis for bilateral agreements [see **Exhibit 9**]. There were over 1,500 bilateral, highly detailed, and often hotly contested individual agreements covering bilateral traffic rights by 2001. Most bilateral agreements specified the routes that each airline involved would serve, limited participating airlines to those owned and controlled by nationals of the designating state, and required both governments to approve tariffs. Agreements differed in the number of "Fifth Freedom" rights they granted, whether capacity was split 50-50 or not, and whether revenues on a particular route were pooled by the airlines flying the route.

Since 1978, the United States had been signing freer "open market" agreements with some Asian and European states. In 1992, it called for "Open Skies" agreements with all European countries willing to permit US carriers open access to their markets. The new agreements included open entry on all routes, unrestricted capacity and frequency, flexibility in fare-setting, liberal charter and cargo agreements, open code-sharing opportunities, and operation of computer reservation systems on a non-discriminatory basis.¹⁶ However, they did not include allowing more foreign ownership and control of designated airlines, or granting Seventh and Eighth Freedoms.¹⁷ By 2000, about 35 open skies agreements had been set up between the United States and Asian, South American, and European countries.

The EU states had also been opening up their markets to each other since the 1980s. By 2000, carriers of the 15 states were granted full traffic rights and the ability set fares within what was called the Common European Aviation Area.¹⁸ The effects of deregulation, privatisation, and open skies agreements put pressure on airlines that had relied upon government subsidies and restrictions on competition. One result was a number of mergers between airlines in the EU in the 1990s, though these were still sometimes thwarted by national sentiment.

In order to provide more seamless international travel, airlines began to form alliances in the 1980s. *Airline Business* recorded 502 separate inter-airline alliances in June 1998, when alliance forming was at a peak.¹⁹ Some alliances involved loose arrangements such as co-operation in ticketing and baggage handling. Others could include flight code sharing, joint ground service, joint marketing, and sharing aircraft. **Exhibit 10** lists information about the four major global alliances by 2000 -- Star Alliance, Oneworld, Wings, and SkyTeam. **Exhibits 11, 12, and 13** profile major airline companies.

A number of new airline business models also had emerged. Most traditional airlines were set up to be self-sufficient, with their own engineering, in-flight catering, ground handling, cargo, reservations and ticketing, sales, and management information systems. In the 1990s, however, some airlines began to adopt a "virtual airline model". In 1995, for example, British Airways began to focus on its core activities of flight operations and outsource the rest. Others, such as Lufthansa, Swissair, and Singapore Airlines, adopted the "aviation business model" or conglomerate model, putting non-core businesses into new companies that were free to maximise profits by contracting business within and outside the conglomerate.

A more disruptive change was the development of discount airlines, which flew point-to-point short-haul trips with high frequency, good punctuality, and low fares.²⁰ They did not provide in-flight meals, used high-density seating arrangements in their planes, used secondary airports with lower usage charges, and did away with selling tickets through agents as much as possible. Successful discount airlines such as Southwest in the United States and Ryanair

¹⁶ A marketing practice in which two airlines share the same two-letter code used to identify carriers in the computer reservation systems used by travel agents. From webpage: www.airlines.org/public/publications/display1.asp?nid=971.

¹⁷ Daniel Yergin, Richard Vietor, and Peter Evans, November 2000; Rigas Doganis (2001), p. 37.

¹⁸ Rigas Doganis (2001), p. 11.

¹⁹ Rigas Doganis (2001), p. 59.

²⁰ For example, a return fare from London to Barcelona by summer 2000 was between £100 and £130 for the discount airlines Go and easyJet, but with British Airways it was £169 and already a special budget offer to compete with discount airlines.

in Europe were generating very high profit margins. One expert stated that discount airlines could cut 41 percent of the costs of a conventional airline operating in the same market [see **Exhibit 14**]. The difficulties that traditional airlines (such as Continental and British Airways) had in setting up discount airlines showed the difficulty of trying to manage both types of operations.

The Airline Industry in 2001

By mid-2001, some analysts claimed that the world's commercial airline industry was "arguably facing its worst crisis in a decade".²¹ A global economic slowdown in 2001 meant both businesses and individuals cut down on travel. In July 2001, the US aviation sector reported the biggest monthly drop in revenues per airplane seat in more than 20 years. It was estimated that the US airline industry would lose US\$2.6 billion that year, as airfares kept going down with little change in passenger traffic from 2000.²² Outside of the United States, many national airlines required government subsidies to avoid bankruptcy. Pressure for consolidation was particularly high in Europe, as the European Union had begun to encourage competition and discourage government handouts. At the time, Europe had about three dozen airlines, of which only three had a truly global presence. By comparison, the United States had three-quarters of the population of European Union, but far fewer airlines.²³

Within IATA members' international scheduled services, freight traffic decreased in the first half of 2001 and passenger traffic increased only marginally [see **Exhibit 15A**]. The figures led Pierre J. Jeannot, IATA Director General & CEO, to issue this warning:²⁴

Unless IATA Members are able to drastically curtail their capacity growth during the next few months and further control their costs, all prospect of profitability for the year 2001 will quickly disappear.

While fuel prices were not at historic highs, they had doubled since 1998.²⁵ Deregulation and liberalisation in Europe and North America fostered competition, drew new entrants, forced some players out of business or into mergers, and drove down prices. And yet staff costs were still increasing. Some major airlines, such as British Airways, were experiencing losses, and others, such as Swissair and Sabena, were facing grave financial difficulty.

The September 11 Incident and its Aftermath

In the morning of September 11, 2001, four US passenger planes -- two of American Airlines and two of United Airlines -- were hijacked during transcontinental domestic flights. Two of them were crashed into the twin towers of New York's World Trade Center, leading to the collapse of both skyscrapers. Another one hit the Pentagon, the headquarters of the US Department of Defense, near Washington D.C. The fourth hijacked plane crashed in western Pennsylvania after passengers attempted to take control back from the hijackers. The death toll from the unprecedented attacks was estimated at around 3,000.²⁶ The alleged perpetrators, Middle Eastern members of the al Qaeda network of dissident Saudi Osama bin Laden, had taken flight lessons, got into the United States, boarded the planes with knives or similar weapons, taken control of the airplanes shortly after takeoff, and deliberately crashed the planes.

²¹ Joseph Lo, *South China Morning Post*, 31 July, 2001.

²² Stephanie Stoughton, "Already Facing a Bad Year, the Airlines Brace for Worse", *Boston Globe*, 13 September, 2001.

²³ Daniel Michaels, "European Airlines Commence Long-Awaited Restructuring -- Terrorist Attacks in U.S. Hasten the Shakeout", *Wall Street Journal*, 28 September, 2001.

²⁴ Press release, International Air Transport Association, 8 August, 2001.

²⁵ Joseph Lo, *South China Morning Post*, 31 July, 2001.

²⁶ "The twin towers final death toll soon", *Daily Post*, 11 January, 2002.

The United States began to put together the intelligence and forces necessary to attack the al Qaeda network of Osama bin Laden and the Taliban regime in Afghanistan that had harboured bin Laden and several al Qaeda bases. After weeks of fighting, the Taliban was removed as the de facto regime in Afghanistan. However, several al Qaeda and Taliban members who had been in Afghanistan, including bin Laden and Mullah Mohammad Omar, the Taliban's leader, had not been apprehended. In addition, al Qaeda had cells around the world committed to carrying on the battle against the United States and other Western interests. Subsequent raids resulted in arrests in the United States, United Kingdom, Malaysia, Singapore, and other nations. Analysts believed that the network was still very much alive and that the world should expect further terrorist attacks.

Airlines and airports were considered particularly likely targets for future attacks. The hijackers had gotten past airport and airline security on September 11. In subsequent weeks, further security breaches resulted in the temporary closure of several airports. Further efforts to breach airport and airline security were made, including one instance in which a passenger who was later linked to al Qaeda tried to ignite an advanced explosive material hidden in his shoe while on a transatlantic flight.

Impact on US Airlines

In the immediate aftermath of the disaster, flights in the United States were grounded for two days, during which the estimated loss for US airlines was US\$330 million per day.²⁷ Services only gradually resumed afterwards. Safety concerns reduced demand for flights, especially to and within the United States. By the end of September, major US airlines were operating with an average of 20 percent fewer flights and a load factor of only 40 percent. According to IATA data, North American airlines' passenger and freight traffic fell more than 30 percent in September 2001,²⁸ and their passenger traffic fell 33 percent in October.²⁹ In the face of falling demand airlines cut airfares. Average domestic and international airfares, which were 14.6 percent lower and 13.8 percent lower in December 2001 than they were in December 2000, were at levels not seen since December 1986. Passenger revenues in December 2001 were 27 percent lower than in the same month in 2000.³⁰ While some experts had estimated that the US airlines' loss would be comparable to the US\$4.8 billion lost in 1992 following the Gulf War, IATA's estimate for the 2001 loss in the US domestic aviation market alone was already US\$5 billion.^{31,32}

The most immediate concern was to enhance airport and airline security. National Guard troops were called out to enhance airport security and security checks in several airports were greatly intensified. Despite the substantial increase in time waiting for and at security checks, security experts believed that it would take a long time for airport security in the United States to be fully up to par. Security at US airports tended to be contracted out by the airports and airlines to private sector companies, many of which employed people with limited training and no law enforcement experience. Airlines paid for security services as part of their overall fees to the airports or directly for terminals that they themselves operated. It was assumed that enhanced security would result in higher security charges for the airlines. More time spent on security checks at airports meant flight frequency would decrease, cargo delivery would be slower, and so on, leading to a further decrease in airline revenue. Passengers would put up with long security checks for a while, but this might reduce their desire to fly in

²⁷ Tom Ramstack, "Senate Approves \$15 Billion Airline Bailout in 96-1 Vote", *The Washington Times*, 22 September, 2001.

²⁸ "IATA Traffic Confirms Effect of September 11", International Air Transport Association, URL: <http://www.iata.org/pr/pr01octh.htm>, 30 October, 2001.

²⁹ Press release, International Air Transport Association, 30 September, 2001.

³⁰ Press release, "Airfares Remain Low in December", Air Transport Association, URL: <http://www.airlines.org/public/news/display2.asp?nid=5034>, 22 January, 2002.

³¹ Barbara Nagy and Matthew Lubanko; Courant Staff Writers, "Airlines Brace for Steep Dive into Red", *The Hartford Courant*, 14 September, 2001.

³² "The Bailout", *Asiaweek*, 23 November, 2001.

the future. Enhancing security on airplanes also would be expensive. A pair of bulletproof cockpit doors could cost US\$1.2 million, for example.

In addition to other concerns, airlines faced higher insurance charges. Underwriters used to provide unlimited coverage to airlines for "unlikely" events such as a plane crashing into a building. After realising they would pay out billions of dollars for the events of September 11, and not sure what the future held, insurers withdrew coverage for such catastrophes and reduced the cap on third-party liability coverage to US\$50 million per aircraft, compared with US\$700 million previously. Banks and aircraft leasing companies then threatened to ground the airlines unless they were covered.³³ The airlines asked the US government to provide war-risk and terrorist insurance protection, which it agreed to do on a temporary basis. When the airlines renewed coverage at the end of 2001, the majors had to pay US\$200 million in premiums for less coverage than they had paid US\$40 million for the year before.³⁴

In late September, the US government decided to provide US\$5 billion in cash and US\$10 billion in loan guarantees over nine months to the embattled US airline industry. In addition, an emergency fund of US\$5 billion was released to various government agencies, part of which was used to hire armed sky marshals for US commercial flights.³⁵ Still, US airlines laid off approximately 100,000 employees as a direct result of September 11. Midway Airlines went out of business on September 12. United Airlines reduced its flights by 23 percent, laid off 20,000 employees, and saw its chairman and CEO step down under union pressure.³⁶ American Airlines announced a 20 percent reduction in flights and layoffs of at least 20,000 employees.³⁷ It suffered another blow when, in early November, an American Airlines jet crashed in New York after hitting turbulence from another plane, killing all 260 passengers. Its fourth-quarter results showed a net loss of US\$734 million.³⁸ Only Southwest Airlines, among the major US carriers, maintained a full flight schedule and avoided layoffs. Its stock price went up while that of others plunged, and its market value in late December was more than those of American, United, and a number of other top players combined.³⁹

Impact on Non-US Airlines

The immediate impact of the incident on the global airline industry was dramatic [see **Exhibit 15B**]. According to IATA, during the first 10 months of 2001, total traffic (passengers plus freight) on international services fell by more than four percent, while total capacity increased by one percent.⁴⁰ European and Far Eastern carriers experienced a 12 percent fall in passenger traffic overall in September and a 20 to 25 percent fall in October. Carriers that had a high US component in their services, such as Aer Lingus, British Airways, KLM, and Virgin Atlantic, fared worse.⁴¹ IATA estimated that the revenue losses and additional costs incurred by airlines as a result of the events of September 11 would reach US\$10 billion.⁴²

Many airlines cut down their routes, reduced schedules, cut their fleet size, delayed delivery of new planes, cut salaries, and laid off employees. More than 10 European airlines had

³³ Joseph B. Treaster, "Hard-Edged Insurance Chief is Taking on a New and Public Face", *The New York Times*, 31 October, 2001.

³⁴ Joseph B. Treaster, "Another Blow to Airlines and Their Insurers", *The New York Times*, 13 November, 2001.

³⁵ Tom Ramstack, *The Washington Times*, 22 September, 2001.

³⁶ Hoover's Company Profile Database.

³⁷ Hoover's Company Profile Database.

³⁸ Press release, "AMR Reports Fourth-Quarter Loss of \$734 Million Before Special Items", AMR Corp., URL: http://www.amrcorp.com/news/january02/16_fourq.htm, 16 January, 2002.

³⁹ Stephanie Stoughton, "Southwest Airlines Resumes Growth and Plans for Full-Year Profit", *Boston Globe*, 23 December, 2001.

⁴⁰ Press release, "October Traffic Shows Intensified Decline", International Air Transport Association, <http://www.iata.org/pr/pr01novg.htm>, 30 November, 2001.

⁴¹ Daniel Michaels, *Wall Street Journal*, 28 September, 2001.

⁴² Press release, "Quarterly Report 3rd Quarter 2001", Deutsche Lufthansa, URL: http://www.lufthansa-financials.de/avcom/english/40_archiv/qb01/03/40cont_qb03_beri.html.

grounded planes, trimmed unprofitable routes, and shed staff after the incident.⁴³ British Airways, for example, announced in late September that it would cancel 10 percent of flights, withdraw 20 aircraft from operation, and lay off 7,000 employees.⁴⁴

Many governments, such as those of Hong Kong, Japan, Taiwan, and the European Union, provided temporary insurance coverage against war and terrorism to their airlines when no private insurer would do it. Yet the airlines needed to pay premiums to the government for that. For example, Air France's annual insurance bill rose from US\$1 million to US\$81 million after September 11; of that, US\$29 million went to the French government.⁴⁵ The airlines were caught between trying to raise fares in order to pay rising insurance and security costs, while trying to attract customers back into the air. Some governments also gave emergency financial assistance to airlines. The UK government, for example, was willing to provide about US\$58 million of financial assistance to compensate airlines for losses arising directly from the September 11 attacks. The European Commission initially would not approve of its member states' giving further aid to their airlines other than direct compensation for the four days when US airspace was closed to transatlantic flights. However, it later made exceptions for a number of carriers.

Many airlines reported drastically reduced profits in the third quarter of 2001. In Japan, the government estimated that Japan Airlines and two other major carriers lost about US\$90 million in revenues during the two weeks following September 11. Even in China, where the domestic market and aviation sector were relatively little affected (because the airlines had only a limited number of overseas routes), it was expected that airlines would lose US\$41.6 million in revenues in the four months after the attacks.⁴⁶ The Association of European Airlines said that the impact of the September 11 attacks would cost its members about US\$2.3 billion in profits and US\$3.3 billion in revenues by the end of 2001, and would endanger 40,000 jobs.⁴⁷

Bucking the trend was Ryanair, which saw its revenue increase 29 percent and its profit rise 39 percent in the six months ended 30 September 2001. It was forecast that the company would earn about US\$117 million in 2001, an increase of 25 percent from 2000.⁴⁸ The reasons behind Ryanair's continued success were twofold: first, it only flew within Europe; second, it was a discount airline with all the low-cost attractions. Ryanair had cut airfares after September 11 and also cut costs by handling all ticketing by phone or the Internet.

At the other extreme, Sabena and Swissair, plagued by financial problems before the incident, started bankruptcy proceedings shortly after the September 11 attacks. Swissair, once considered one of the world's finest airlines, had made an ill-fated attempt to expand by investing in the chronically money-losing Sabena. Sabena's poor performance, and Swissair's investment commitments, brought the latter down. In October 2001, Swissair sought court protection from creditors and agreed to sell its 70 percent stake in Crossair to two Swiss banks that were its creditors.⁴⁹ It also cut 13 percent of its worldwide workforce. Eventually, Swissair managed to obtain US\$2.6 billion from the Swiss government and private investors to save the airline. Swissair would be taken over by the financially healthier Crossair to form

⁴³ Daniel Michaels, *Wall Street Journal*, 28 September, 2001.

⁴⁴ Press release, "Series of Measures Announced", British Airways, URL: http://www.britishairways.com/cgi-bin/press/view_article.pl?year_n=2001&month_n=september&year=2001&month=09&day=20&index=0&reference=113/SD/01&title=Series%20of%20measures%20announced&mail=contact&image=none&position=none&caption=, 20 September, 2001.

⁴⁵ Heather Spinetta, "Airline Insurance 80 Times as Expensive", *Independent on Sunday (London)*, 25 November, 2001.

⁴⁶ Mark O'Neill, "Red Ink \$324 million Deep for Airlines", *South China Morning Post*, 23 October, 2001.

⁴⁷ Stephen Castle and Michael Harrison, "Aviation in Crisis: Brussels Rejects Big Bail-outs for Struggling Airlines", *The Independent*, 11 October, 2001.

⁴⁸ Daniel Michaels, "Companies: Ryanair Posts Strong Growth, Averting World Aviation Crisis", *Wall Street Journal*, 6 November, 2001.

⁴⁹ Hoover's Company Profile Database.

a new, much smaller national airline (staff to be cut from 72,000 to 9,000) in early 2002.⁵⁰ Sabena went bankrupt even after the European Commission made an exception in authorising the Belgian government to give it a US\$112 million loan.⁵¹ Later, Delta Air Transport (DAT), a former regional subsidiary, resumed operation with financial backing from the Belgian government and private investors, saving half of the Sabena Group's 12,000 staff from redundancy. In January 2002, DAT was still trying to build itself into the new Belgian national airline.

Flying Into the Future

The airline industry had been hit hard by the events of September 11. The industry was already suffering from the global economic slowdown. In the United States and Europe, airlines were braced for losses and layoffs even before September 11. The events of September 11 had an immediate impact through the grounding of flights, the decrease in demand, and the rise in insurance and security costs. While some of these, such as insurance and security issues were certain to remain, it was not clear how demand would be affected in the long run. In addition, the fear of further attacks still remained. The events also accelerated the onset of a global economic downturn. Several economists believed that the events of September 11 would tip the United States and several other major economies into recession. This would have an added effect on the airline industry.

While the most direct impact of the events of September 11 was on US airlines, airlines elsewhere were in perhaps a more uncertain long run position. The consolidation that had taken place in the United States had not yet occurred in Europe. The bankruptcy of Sabena and the stance of the European Commission on subsidies showed that European airlines would not be offered unlimited help. The idea that unprofitable airlines would be restructured or would cease to exist was gaining support among European authorities.

Many airlines had not yet found appropriate responses to the pressures resulting from deregulation, privatisation, more liberal air service regimes, greater competition, and rising costs. Now, in the aftermath of the events of September 11, they faced new and unprecedented challenges.

⁵⁰ William Hall and Mark Odell, "Swiss push to see their flags flying again", *Financial Times (London)*, 10 January, 2002.

⁵¹ Steve Pain, Business Staff, "Sabena is grounded as company goes bust", *Birmingham Post*, 7 November, 2001.

**EXHIBIT 1
GLOBAL AIRLINE INDUSTRY FINANCIAL TRENDS**

| | <i>Operating revenues (US\$ million)</i> | <i>Y-O-Y change in nominal revenues (%)</i> | <i>Operating profits (US\$ million)</i> | <i>Net profits (US\$ million)</i> | <i>Margin (%)</i> | <i>US CPI** (1982-84=100)</i> |
|-------|--|---|---|-----------------------------------|-------------------|-------------------------------|
| 1980 | 87,676 | 23.9 | -635 | -919 | -1.0 | NA |
| 1981 | 92,992 | 6.1 | -692 | -1,150 | -1.2 | 90.9 |
| 1982 | 93,240 | 0.3 | -160 | -1,300 | -1.4 | 96.5 |
| 1983 | 98,300 | 5.4 | 2,100 | -700 | -0.7 | 99.5 |
| 1984 | 105,400 | 7.2 | 5,100 | 2,000 | 1.9 | 103.9 |
| 1985 | 112,200 | 6.5 | 4,100 | 2,100 | 1.9 | 107.6 |
| 1986 | 124,600 | 11.1 | 4,600 | 1,500 | 1.2 | 109.6 |
| 1987 | 147,000 | 18.0 | 7,200 | 2,500 | 1.7 | 113.6 |
| 1988 | 166,200 | 13.1 | 10,200 | 5,000 | 3.0 | 118.3 |
| 1989 | 177,800 | 7.0 | 7,600 | 3,500 | 2.0 | 124.0 |
| 1990 | 199,500 | 12.2 | -1,500 | -4,500 | -2.3 | 130.7 |
| 1991 | 205,500 | 3.0 | -500 | -3,500 | -1.7 | 136.2 |
| 1992 | 217,800 | 6.0 | -1,800 | -7,900 | -3.6 | 140.3 |
| 1993 | 226,000 | 3.8 | 1,200 | -4,400 | -1.9 | 144.5 |
| 1994 | 244,700 | 8.3 | 7,700 | -200 | -0.1 | 148.2 |
| 1995 | 267,000 | 9.1 | 13,500 | 4,500 | 1.7 | 152.4 |
| 1996 | 282,500 | 5.8 | 12,300 | 5,300 | 1.9 | 156.9 |
| 1997 | 297,000 | 3.0 | 16,300 | 8,550 | 2.9 | 160.5 |
| 1998 | 295,500 | 1.5 | 15,900 | 8,200 | 2.8 | 163.0 |
| 1999 | 305,500 | 3.4 | 12,300 | 8,500 | 2.8 | 166.6 |
| 2000* | 329,100 | 7.6 | 11,000 | 4,700 | 1.2 | 172.2 |

* estimate

** US consumer price index, 1982-84 average = 100

Source: International Civil Aviation Organization.

**EXHIBIT 2
WORLD AIRLINE INDUSTRY STATISTICS, 2000**

| Airline Registration | Airlines | Pax (000) | RPKs (mils) | FTKs (mils) | Employees | Aircraft |
|-----------------------------|-----------------|------------------|--------------------|--------------------|------------------|-----------------|
| 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 |

| Airline Registration | Airlines % | Pax % | RPKs % | FTKs % | Employees % | Aircraft % |
|-----------------------------|-------------------|---------------|---------------|---------------|--------------------|-------------------|
| 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% | 1.1% | 7.9% |
| US Cargo | 2.9% | N/A | N/A | 0.6% | 0.1% | 0.8% |
| Total World | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| Total US | 28.7% | 38.8% | 35.5% | 30.7% | 50.4% | 45.5% |

Pax = number of passengers

RPKs = number of kilometres flown x number of revenue (paying) passengers

FTKs = number of kilometres flown x tones of cargo carried

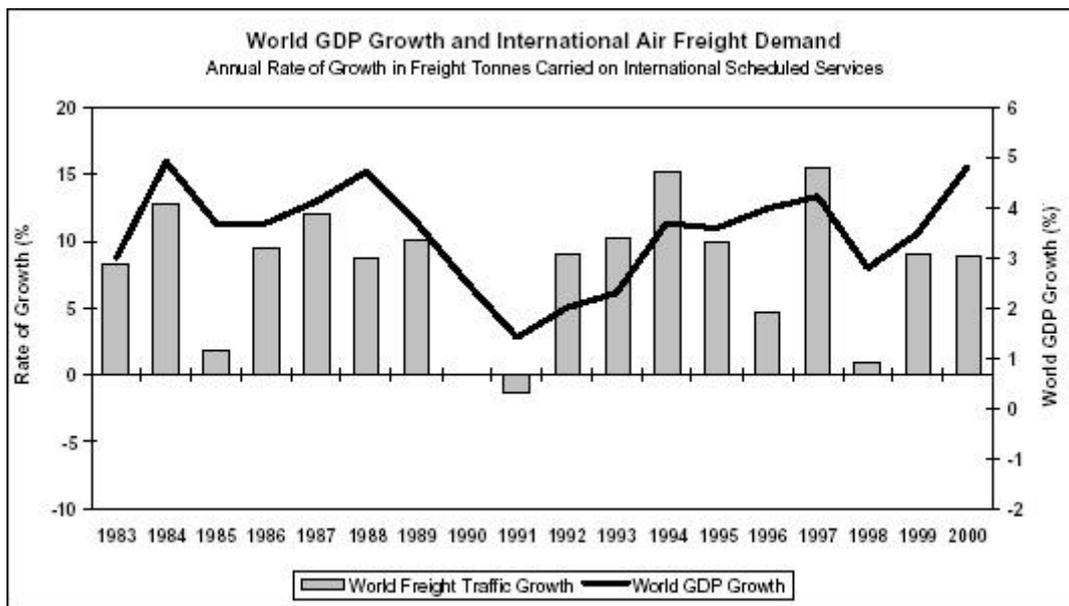
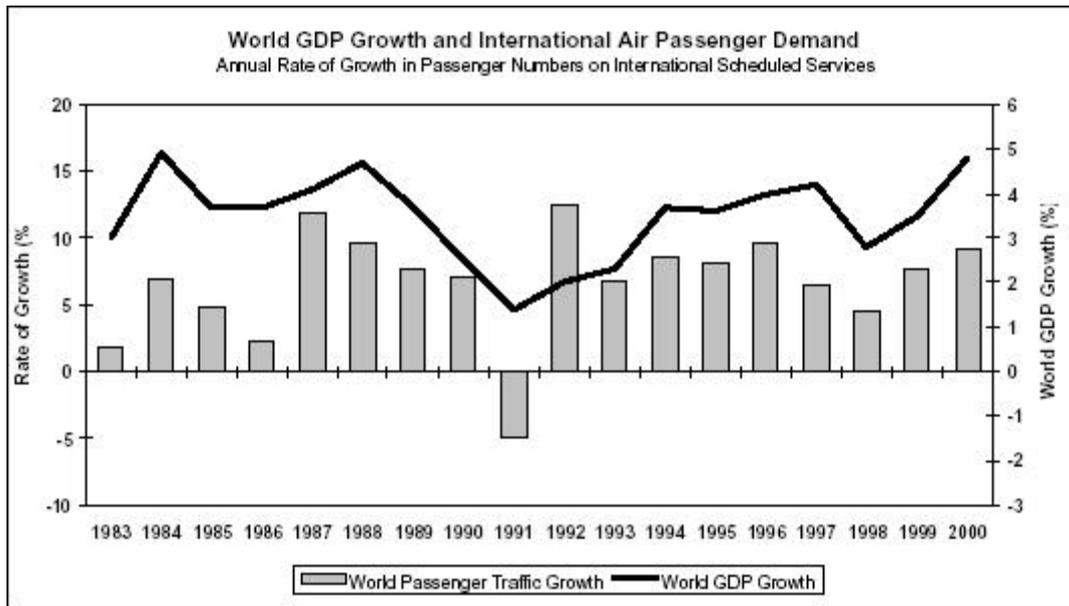
Source: *Air Transport World* (July 2001).

EXHIBIT 3
INTERREGIONAL AIR TRAFFIC STATISTICS AND PROJECTIONS

| <i>Route</i> | <i>1999 Billion RPKs</i> | <i>2009 Billion RPKs</i> | <i>Average annual growth estimate (%)</i> |
|----------------------------------|--------------------------|--------------------------|---|
| North America -- Europe | 389 | 553 | 3.6 |
| North America -- Northeast Asia | 137 | 230 | 5.3 |
| Europe -- Africa | 91 | 158 | 5.7 |
| Europe -- Southeast Asia | 90 | 149 | 5.2 |
| North America -- Central America | 80 | 125 | 4.6 |
| Europe -- Northeast Asia | 60 | 117 | 6.9 |
| Northeast Asia -- Southeast Asia | 47 | 95 | 7.3 |
| Europe -- South America | 51 | 88 | 5.6 |
| North America -- South America | 45 | 84 | 6.4 |
| North America -- Southeast Asia | 33 | 50 | 4.2 |

Source: Daniel Yergin, Richard Vietor, and Peter Evans, *Fettered Flight: Globalization and the Airline Industry*, Cambridge, Massachusetts, the United States: Cambridge Energy Research Associates, November 2000.

**EXHIBIT 4
WORLD GDP GROWTH AND INTERNATIONAL AIR TRAFFIC DEMAND**



Source: International Air Transport Association (IATA) Aviation Information and Research, "September 2001 Industry Briefing".

**EXHIBIT 5
SELECTED MAJOR AIRLINERS AND STATISTICS BY LATE 2001**

| <i>Aircraft</i> | <i>Capacity*</i> | <i>Range**</i> | <i>No. delivered (ordered)</i> | <i>Average 2001 List Price US\$ million</i> |
|-----------------|------------------|----------------|------------------------------------|---|
| AIRBUS | | | | |
| A300-600 | 266 | M | 508 (583) | 110 |
| A310 | 220 | M-L | 255 (260) | 87 |
| A318 | 107 | R | 0 (136) | 42 |
| A319 | 124 | S | 397 (698) | 49 |
| A320 | 150 | S-M | 999 (1,544) | 54 |
| A321 | 185 | S-M | 215 (411) | 66 |
| A330-200 | 253 | L | | |
| A330-300 | 295 | M-L | 207 (413) | 143 |
| A340-200 & 300 | 261 & 295 | L | | |
| A340-500 & 600 | 313 & 380 | L | 209 (309) | 154 |
| A380 | 555 | L | 0 (70) | 172 |
| | | | | 251 |
| BOEING | | | | |
| 717 | 106 | R | 93 (137) | 37 |
| 737-600 & 700 | 108 & 128 | S-M | 447 (973) | 48 |
| 737-800 & 900 | 162 & 177 | S-M | 577 (953) | 63 |
| 747-400 | 416 | L | 568 (630) | 200 |
| 757-200 | 202 | M | 969 (987) | 77 |
| 757-300 | 240 | M | 24 (63) | 85 |
| 767-200 | 216 | M-L | 239 (240) | 106 |
| 767-300 | 210 | M-L | 594 (653) | 121 |
| 767-400ER | 245 | L | 24 (40) | 132 |
| 777-200 | 305 | L | 339 (489) | 185 |
| 777-300 | 394 | L | 38 (104) | 203 |

Note: * maximum number of passengers in a typical seating arrangement.

** R - regional (e.g. Beijing - Tokyo), S - short (e.g. Beijing - Singapore), M - medium (e.g. London - New York), L - long (e.g. London - Singapore).

Sources: Airbus (URL: www.airbus.com) and Boeing (URL: www.boeing.com) company information, Airliners.net, URL: www.airliners.net/info/, and "Airbus Manages to Keep the Lid on Price Escalation", *Aircraft Value News*, 16 July, 2001.

EXHIBIT 6A
OPERATING COSTS OF INTERNATIONAL SCHEDULED SERVICES ON IATA AIRLINES, 2000

| | <i>US cents per ATK*</i> | <i>% change over 1999</i> | <i>% of total</i> |
|---|------------------------------|-------------------------------|-----------------------|
| En-route (high-altitude cruising control) Charges | 1.8 | -- | 4.7 |
| Landing Charges | 1.9 | -5.0 | 5.0 |
| General and Administrative | 2.0 | -4.8 | 5.2 |
| Cockpit Crew | 2.6 | -3.7 | 6.8 |
| Maintenance and Overhaul | 3.6 | -2.7 | 9.4 |
| Flight Equipment Insurance, Depreciation, and Rentals | 4.5 | -4.3 | 11.8 |
| Cabin Crew and Passenger Service | 5.0 | -- | 13.1 |
| Ticketing, Sales, and Promotion | 5.8 | -3.3 | 15.2 |
| Fuel and Oil | 6.9 | +16.9 | 18.1 |
| Station and Ground Costs** | 4.1 | -6.8 | 40.7 |
| Total | 38.2 | -0.3 | 100.0 |

*ATKs means "available tonne kilometres" and is equal to number of kilometres flown x number of tonnes of capacity available for the carriage of revenue load.

** Including ground staff, check-in staff, equipment, business lounges, office space, and related facilities at airports served by the airline.

Source: 2001 Annual Report, International Air Transport Association.

EXHIBIT 6B
FINANCIAL INFORMATION ON US SCHEDULED AIRLINES, 2000

| Financial Data (US\$ millions) | 1999 | 2000 |
|---------------------------------------|-------------|-------------|
| Passenger Revenues | \$84,317 | \$93,573 |
| Freight and Express Revenues | 11,415 | 11,993 |
| Mail Revenues | 1,739 | 1,975 |
| Charter Revenues | 4,030 | 4,365 |
| Other Revenues | 17,537 | 17,557 |
| Total Operating Revenues | \$119,038 | \$129,463 |
| Total Operating Expenses | (110,635) | (122,389) |
| Operating Profit | \$8,403 | \$7,074 |
| Interest Expense | (1,821) | (2,165) |
| Other Expense | (1,222) | (2,271) |
| Net Profit | \$5,360 | \$2,637 |

Source: Air Transport Association (United States).

EXHIBIT 7
IATA MEMBER AIRLINE EMPLOYMENT TRENDS
(Index: 1985=100)

| | <i>No. of employees</i> | <i>Available ATKs**</i> | <i>ATKs** per employee</i> |
|-------|-------------------------|-------------------------|----------------------------|
| 1985 | 100.0 | 100.0 | 100.0 |
| 1986 | 103.4 | 106.6 | 103.0 |
| 1987 | 108.1 | 116.3 | 102.8 |
| 1988 | 110.0 | 123.4 | 108.0 |
| 1989 | 115.6 | 127.3 | 105.6 |
| 1990 | 119.7 | 138.9 | 113.0 |
| 1991 | 115.6 | 137.4 | 121.2 |
| 1992 | 115.7 | 152.2 | 130.9 |
| 1993 | 113.0 | 157.8 | 137.2 |
| 1994 | 112.2 | 166.2 | 146.6 |
| 1995 | 112.4 | 176.8 | 158.7 |
| 1996 | 114.7 | 186.7 | 163.0 |
| 1997 | 118.6 | 197.4 | 164.9 |
| 1998 | 122.0 | 205.7 | 169.1 |
| 1999 | 125.5 | 216.2 | 172.2 |
| 2000* | 126.7 | 228.3 | 180.4 |

* projection

** ATK means Available Tonne Kilometres, the sum of the products obtained by multiplying the number of tonnes of capacity available for the carriage of revenue load on each flight stage of a flight by the flight stage distance.

Source: IATA Aviation Information and Research, "September 2001 Industry Briefing".

EXHIBIT 8
STATE AID AND CAPITAL INJECTIONS TO AIRLINES OF THE EUROPEAN UNION,
1990-97

| <i>Airline</i> | <i>Capital Injection (US\$ millions)</i> |
|---|--|
| STATE-OWNED | |
| <i>European Commission-approved state aid</i> | |
| Sabena (1991) | 1,800 |
| Iberia (1992) | 830 |
| Aer Lingus (1993) | 240 |
| TAP (1994) | 1,965 |
| Air France (1994) | 3,300 |
| Olympic (1994) | 2,245 |
| Alitalia (1997) | 1,708 |
| <i>Not classified as state aid</i> | |
| Air France (1991) | 338 |
| Sabena (1995) | 267 |
| AOM (1995) | 49 |
| Iberia (1995) | 593 |
| PRIVATE SECTOR | |
| British Airways (1993) | 690 |
| KLM (1994) | 620 |
| Lufthansa* (1994) | 710 |
| Finnair (1992, 1994, 1995) | 175 |

*The German government also contributed DM1.55 billion (about US\$1.1 billion) to the Lufthansa pension fund in 1995.

Source: Rigas Doganis (2001), *The Airline Business in the Twenty-first Century*, London, U.K.: Routledge, p. 202.

EXHIBIT 9
THE EIGHT FREEDOMS OF THE SKIES

Negotiated in Bilateral Air Services Agreements

First Freedom

The right to fly over another country without landing.

Second Freedom

The right to make a landing for technical reasons (e.g. refuelling) in another country without picking up/setting down revenue traffic (passengers or cargo).

Third Freedom

The right to carry revenue traffic from your own country (A) to the country (B) of your treaty partner.

Fourth Freedom

The right to carry traffic from country B back to your own country A.

Fifth Freedom

The right of an airline from country A to carry revenue traffic between country B and other countries such as C or D on services starting or ending in its home country A (i.e. "beyond rights"). This freedom cannot be used unless countries C or D also agree.

Supplementary rights

Sixth Freedom

The use by an airline registered in country A of two sets of Third and Fourth Freedom rights to carry traffic between two other countries but using its base at A as a transit point.

Seventh Freedom

The right of an airline to carry revenue traffic between points in two countries on services that lie entirely outside its country of registry.

Eighth Freedom or "cabotage" rights

The right of an airline to pick up or set down passengers or freight between two domestic points in another country on a service originating in its own home country.

Note: Sixth Freedoms were rarely dealt with explicitly in air services agreements but might be referred to implicitly in memoranda of understanding attached to the agreements. In many cases, there was de facto acceptance of such rights in the application of agreements. Seventh and Eighth Freedoms were very rarely granted.

Source: Rigas Doganis (2001), *The Airline Business in the Twenty-first Century*, London, U.K.: Routledge, p. 227; Kenneth Button, "Opening U.S. Skies to Global Airline Competition", The Cato Institute, URL: <http://www.freetrade.org/pubs/pas/tpa-005.pdf>, 24 November, 1998.

**EXHIBIT 10
COMPARISON BETWEEN GLOBAL ALLIANCES BY MID-2001**

| <i>Airline/Alliance</i> | <i>Operating revenue (US\$ millions)</i> | <i>Annual passengers ('000)</i> | <i>Unduplicated destinations served</i> | <i>RPMs* (millions)</i> | <i>Fleet size</i> | <i>No. of employees</i> |
|-------------------------|--|---------------------------------|---|-------------------------|-------------------|-------------------------|
| <i>Star Alliance</i> | | | | | | |
| Air Canada | 7,155 | 24,395 | 194 | 42,285 | 239 | 39,323 |
| Air New Zealand | 1,610 | 8,968 | 48 | 13,967 | 90 | 9,560 |
| ANA | 10,606 | 43,460 | 62 | 35,986 | 140 | 15,273 |
| Ansett Australia | 2,070 | 12,918 | 90 | 10,710 | 77 | 16,124 |
| Austrian | 1,387 | 4,751 | 104 | 6,424 | 97 | 8,114 |
| British Midland | 1,100 | 7,098 | 36 | 2,379 | 57 | 4,734 |
| Lufthansa | 13,662 | 45,476 | 168 | 58,385 | 307 | 56,421 |
| Mexicana | 976 | 8,801 | 60 | 8,369 | 59 | 6,354 |
| SAS | 4,900 | 23,240 | 103 | 14,041 | 199 | 25,454 |
| Singapore | 5,146 | 14,874 | 65 | 43,893 | 97 | 27,906 |
| Thai | 2,787 | 17,392 | 73 | 26,186 | 79 | 24,071 |
| United | 19,530 | 84,461 | 252 | 126,596 | 679 | 100,001 |
| Varig | 2,760 | 11,167 | 66 | 16,298 | 150 | 19,991 |
| Alliance Total | 73,689 | 307,001 | 869 | 405,519 | 2,210 | 343,326 |
| <i>Oneworld</i> | | | | | | |
| Aer Lingus | 990 | 6,639 | 28 | 5,511 | 38 | 5,635 |
| American/TWA | 23,288 | 124,885 | 361 | 139,943 | 1,205 | 124,474 |
| British Airways | 13,427 | 43,801 | 226 | 75,324 | 374 | 67,711 |
| Cathay Pacific | 4,421 | 11,844 | 45 | 29,200 | 69 | 13,159 |
| Finnair | 1,514 | 6,024 | 64 | 4,625 | 58 | 9,214 |
| Iberia | 3,642 | 24,919 | 101 | 24,809 | 159 | 27,005 |
| LanChile | 1,425 | 4,632 | 43 | 6,470 | 45 | 9,207 |
| Qantas | 5,485 | 17,815 | 91 | 39,367 | 159 | 29,217 |
| Alliance Total | 54,192 | 240,559 | 586 | 325,250 | 2,107 | 285,622 |
| <i>SkyTeam</i> | | | | | | |
| AeroMexico | 1,272 | 9,749 | 65 | 8,922 | 70 | 6,846 |
| Air France | 10,219 | 41,667 | 188 | 57,705 | 369 | 60,385 |
| CSA Czech | 390 | 2,217 | 59 | 2,042 | 30 | 3,876 |
| Delta | 16,700 | 105,645 | 240 | 107,515 | 841 | 72,000 |
| Korean | 4,900 | 21,938 | 68 | 2,509 | 115 | 14,107 |
| Alitalia | 5,034 | 25,591 | 96 | 25,183 | 168 | 20,770 |
| Alliance Total | 38,515 | 206,807 | 492 | 226,456 | 1,593 | 177,984 |
| <i>Wings</i> | | | | | | |
| Continental | 9,899 | 46,677 | 238 | 63,150 | 555 | 51,720 |
| KLM | 6,147 | 20,966 | 128 | 39,868 | 171 | 31,704 |
| Northwest | 11,415 | 60,091 | 235 | 78,941 | 487 | 35,491 |
| Alliance Total | 27,641 | 127,745 | 419 | 181,959 | 1,213 | 136,915 |

*RPMs mean "revenue passenger miles" and is equal to number of miles flown x number of revenue (paying) passengers.

Source: "Comparison of Sizes of Global Alliances", *Aviation Daily*, 27 August, 2001.

**EXHIBIT 11
TOP AIRLINES IN THE WORLD IN 1999**

| <i>Ranking</i> | <i>By revenue</i> | <i>By no. of passengers</i> | <i>By no. of employees</i> | <i>By fleet size</i> |
|----------------|-------------------|-----------------------------|----------------------------|----------------------|
| 1 | United | Delta | UPS | American |
| 2 | American | United | FedEx | FedEx |
| 3 | Japan Airlines | American | United | United |
| 4 | Delta | Southwest | American | Delta |
| 5 | FedEx | Northwest | Delta | Northwest |
| 6 | British Airways | US Airways | Lufthansa | US Airways |
| 7 | Lufthansa | Continental | DHL | Continental |
| 8 | All Nippon | All Nippon | Air France | Southwest |
| 9 | Northwest | Lufthansa | British Airways | British Airways |
| 10 | Air France | Air France | Northwest | Lufthansa |

Source: Daniel Yergin, Richard Vietor, and Peter Evans, *Fettered Flight: Globalization and the Airline Industry*, Cambridge, Massachusetts, the United States: Cambridge Energy Research Associates, November 2000.

**EXHIBIT 12
COMPARISON AMONG SELECTED AIRLINES IN EARLY 2001**

| <i>Airline</i> | <i>Home market</i> | <i>Annual operating revenue (US\$ millions)</i> | <i>Annual net profit (US\$ millions)</i> | <i>Profit margin</i> | <i>Fleet size</i> | <i>Annual no. of passengers (millions)</i> | <i>No. of employees</i> |
|----------------|--------------------|---|--|----------------------|-------------------|--|-------------------------|
| American | US | 18,117.0 | 778.0 | 4.3% | 702 | 90.3 | 99,186 |
| United | US | 19,331.0 | 52.0 | 0.3% | 679 | 84.5 | 102,000 |
| Air France | France | 9,861.3 | 338.3 | 3.4% | 242 | 42.4 | 59,190 |
| BA | UK | 14,245.0 | -33.0 | -- | 338 | 48.0 | 65,157 |
| Lufthansa | Germany | 14,312.7 | 648.8 | 4.5% | 376 | 47.0 | 69,523 |
| Sabena | Belgium | 2,297.5 | -306.0 | -- | 90 | 11 | 11,294 |
| SwissAir | Switzerland | 10,070.1 | -1,790.1 | -- | 163 | 9.8 | 71,905 |
| Cathay Pacific | Hong Kong | 4,425.8 | 641.6 | 14.5% | 65 | 11.8 | 14,300 |
| JAL | Japan | 15,080.3 | 186.2 | 1.2% | 175 | 39.0 | 18,535 |
| RyanAir | Ireland | 428.3 | 91.8 | 21.4% | 35 | 7.0 | 1,467 |
| Southwest | US | 5,649.6 | 603.1 | 10.7% | 360 | 63.7 | 29,274 |

Source: Hoover's Company Profile Database, company information.

EXHIBIT 13. PROFILE OF LEADING AIRLINES

United Airlines

US-based United Airlines, the major subsidiary under holding company UAL, was the world's top airline by 2001 in terms of revenue passenger miles. Employees controlled 55 percent of the listed UAL, making it one of the world's largest employee-owned companies. United carried passengers and cargo to more than 130 destinations in 28 countries with its 670 airliners. It had code-sharing alliances with a host of carriers, including Lufthansa and other members of the Star Alliance, which permitted revenue sharing and joint ticketing and purchasing. UAL also owned United Shuttle, a discount airline competing with Southwest Airlines and others in the western United States. It proposed to purchase rival US Airways in 2000, but the deal was called off after US antitrust regulators moved to block it.

American Airlines

American Airlines was the major subsidiary under the holding company AMR, which was listed on the New York Stock Exchange and also owned the regional airline American Eagle. By 2001, American was the second-biggest airline in the United States based on revenue passenger miles. Its fleet of about 700 planes flew to some 170 destinations (including those served by code-sharing partners) in the Caribbean, the Pacific Rim, Europe, and the Americas. It was a leader of Oneworld, a major alliance that included British Airways, Cathay Pacific, Qantas, and others, and also had code-sharing agreements with carriers such as China Eastern Airlines and Japan Airlines. American Airlines bought rival TWA Airlines, which was on the brink of bankruptcy, at the end of 2001.

Southwest Airlines

Southwest, which started flying in 1971, eventually became the leading discount airline in the United States. By 2000, it offered some 2,700 daily flights to more than 55 cities in 29 states. It centred its service in the western United States and was also expanding to the east. Southwest flew frequent point-to-point flights between secondary airports, rather than hub-and-spoke flights to major hubs. It charged low, simple, unrestricted fares and sold direct to customers, bypassing travel agents whenever possible. The flights themselves were single class service with no meals or seat assignments and no interline baggage transfer. Southwest used a single type of airplane (Boeing 737) to reduce training and maintenance costs and kept its planes in the air several more hours than competitors. As a result, Southwest had experienced 30 consecutive years of profitability.

British Airways

British Airways (BA), Europe's largest airline, served nearly 270 destinations in some 97 countries. BA was state-owned until 1987, when it was sold to the public through an initial public offering. BA aimed to create a global network, owning 25 percent of Australia's Qantas Airways and nine percent of Spain's Iberia, and participating in the Oneworld alliance with American Airlines, Cathay Pacific, and Qantas. BA and American Airlines together controlled 62 percent of the US-Heathrow (London) aviation market, a fact that caused anti-trust authorities to hold up a planned BA-AA code-sharing partnership. BA had pioneered the "virtual airline model", focusing on flight operations and outsourcing everything else. However, the initiative met with opposition from unions, failed to streamline a bloated workforce sufficiently, and left it without other sources of revenue in aviation downturns. BA reported losses in 2000; after that it cut unprofitable routes, focused on business-class customers, and sold its interests in the low-fare carrier, Go, and French carrier Air Liberte.

Lufthansa

Lufthansa, the German flag carrier, was Europe's number two airline both in terms of passengers (behind BA) and cargo (behind FedEx). Code-sharing connections included, it served about 340 destinations in more than 90 countries with its 370 airliners. Its subsidiaries provided catering, maintenance, and travel insurance services among others. Lufthansa ran 2,200 travel agency centres, owned a stake in the computer reservation system Amadeus, and indirectly had a 76 percent stake in the major global delivery firm DHL. Lufthansa was a leading member of the Star Alliance, together with United Airlines, Japan's All Nippon Airways, and others. It made a profit in 2000 and was expanding its business in catering, ground services, and information technology on the basis of an "aviation business model".⁵²

⁵² Rigas Doganis (2001), p. 215.

Air France

Air France, 56 percent owned by the French Government, was the third largest airline in Europe. Its 240 planes flew to 200 destinations in more than 90 countries. To compete with the Star Alliance and Oneworld, Air France formed SkyTeam with Korean Airline and a number of players. It owned a 23 percent interest in the major global computer reservation system Amadeus, and had also bought stakes in European regional carriers. In 2001, Air France's fleet included a mixture of Boeings and Airbuses plus five Concorde supersonic and medium range airliners. An Air France Concorde jet crashed shortly after takeoff from Paris in 2000, killing all 109 people on board and four more on the ground. Air France and British Airways suspended all Concorde flights immediately, but they were resumed the following year after extensive modifications to the plane's fuel tanks.

Ryanair

Ireland-based Ryanair started in the mid-1980s as a low-cost carrier flying mainly between the United Kingdom and Ireland. In 1990, it re-modelled its business after Southwest Airlines. Business grew rapidly afterwards. The company started service in continental Europe after the market was deregulated. In 2000, Ryanair achieved a 21.4 percent profit margin. By 2001, the airline flew more than seven million passengers a year to 55 destinations in the United Kingdom, Italy, France, Denmark, Germany, Norway, and Sweden, and was planning for expansion in Europe. Ryanair flew an all-Boeing 737 fleet, and the airline had 65 percent of its flights booked through the Internet. Founder Tony Ryan and family owned 10 percent of Ryanair; CEO Michael O'Leary owned seven percent.

Japan Airlines

The number one airline in Asia, Japan Airlines (JAL) flew some 39 million passengers each year to 80 destinations in 20 countries, mainly in the Asia/Pacific region, with its fleet of 175 planes. It also owned an international hotel chain, offered tour packages, hauled cargo, and provided maintenance and ground support. Japan's chronic economic recession meant that JAL had been in the red for much of 1990s. In 1998, JAL announced job cuts, restructured its routes, and launched low-cost carrier JAL Express. In 2000, deregulation of domestic fares sparked a price war, putting the airline in a more difficult situation. JAL actually trailed its major rival, All Nippon Airways, in domestic business. JAL, which had been completely privatised in 1987, was not a member of any airline alliance, though it had code-sharing agreements with 19 airlines including American Airlines and Air France. In 2001, it had also agreed to merge with Japan Air Systems, Japan's third largest airline.

Cathay Pacific

Based in Hong Kong, Cathay Pacific Airways flew passengers to some 50 destinations in 28 countries and delivered cargo to 16 destinations with its 65-strong fleet. Cathay was usually one of the world's most profitable airlines and recorded a profit margin of 14.5 percent in 2000. It was a member of the Oneworld alliance, which served 550 destinations worldwide, and had code-sharing agreements with Japan Airlines and Turkish Airlines. Its subsidiaries included flight catering and maintenance, among others. Cathay owned 75 percent of cargo carrier Air Hong Kong and 19 percent of Dragonair, a regional airline based in Hong Kong. Major shareholders included British-owned Swire Pacific (40 percent) and CITIC Pacific, the Hong Kong arm of a company from the Chinese Mainland (22 percent).

Source: Unless otherwise stated, this section is based on Hoover's Company Profile Database.

EXHIBIT 14
COST ADVANTAGES OF LOW-COST CARRIERS ON SHORT-HAUL ROUTES

| <i>Cost item</i> | <i>Cost per seat reduction (as % discount from the operating cost per seat of a conventional scheduled carrier)</i> |
|--|---|
| <i>Operating advantages:</i> | |
| Higher seating density | -16% |
| Higher aircraft utilisation | -3% |
| Lower flight and cabin crew salaries/expenses | -3% |
| Use cheaper secondary airports | -6% |
| Outsourcing maintenance/single aircraft type | -2% |
| <i>Product/service features:</i> | |
| Minimal station costs and out-sourced handling | -10% |
| No free in-flight catering | -6% |
| <i>Marketing differences:</i> | |
| No agents' commissions* | -8% |
| Reduced sales/reservation costs | -3% |
| <i>Other advantages:</i> | |
| Smaller administration costs | -2% |
| Total cost reduction | -41% |

* Assumes 100 percent direct sales and none through agents.

Source: Rigas Doganis (2001), *The Airline Business in the Twenty-first Century*, London, U.K.: Routledge, p. 150.

EXHIBIT 15A
IATA INTERNATIONAL SCHEDULED SERVICE STATISTICS BY MID-2001

| <i>IATA members' average (International Scheduled Services)</i> | <i>June 2001</i> | <i>January - June 2001</i> |
|---|------------------|----------------------------|
| Passenger traffic, change over '00 (Revenue-Passenger-kilometres) | +1% | +3% |
| Passenger seat supply, change over '00 (Available-Seat-kilometres) | +2% | +3% |
| Passenger load factor | 75% | 72% |
| Freight traffic, change over '00 (Revenue Tonne-kilometres) | -6% | -3% |

Source: Press release, "IATA Traffic Trends Weaken In First 6 Months", International Air Transport Association, URL: <http://www.iata.org/pr/pr01auga.htm>, 8 August, 2001.

EXHIBIT 15B
THE IMMEDIATE EFFECTS OF SEPTEMBER 11 ON INTERNATIONAL AIR TRAFFIC

| <i>IATA members' average (International Scheduled Services)</i> | <i>09/01</i> | <i>01-09/01</i> | <i>10/01</i> | <i>01-10/01</i> |
|---|--------------|-----------------|--------------|-----------------|
| Passenger traffic, change over '00 (Revenue passenger-kilometres) | -17% | 0% | -23% | -2% |
| Passenger seat supply, change over '00 (Available seat-kilometres) | -7% | +2% | -9% | +1% |
| Passenger load factor | 69% | 73% | 63% | 72% |
| Freight traffic, change over '00 (Revenue tonne-kilometres) | -9% | -7% | -15% | -7% |

Source: Press release, "IATA Traffic Confirms Effect of September 11", International Air Transport Association, URL: <http://www.iata.org/pr/pr01octh.htm>, 30 October, 2001; Press release, "October Traffic Shows Intensified Decline", International Air Transport Association, URL: <http://www.iata.org/pr/pr01novg.htm>, 30 November, 2001.