

GAO

Testimony



144790

*For Release
on Delivery
Expected at
2 p.m. EDT
Wednesday
September 11, 1991*

AIRLINE COMPETITION

**Industry Competitive and
Financial Problems**

Statement by
Kenneth M. Mead,
Director, Transportation Issues
Resources, Community, and Economic
Development Division

Before the
Subcommittee on Aviation
Committee on Commerce, Science,
and Transportation
United States Senate



Mr. Chairman and Members of the Subcommittee:

We appreciate the opportunity to testify on the current state of the airline industry. We have completed an extensive body of work over the past several years on issues related to airline competition, including reports on barriers to entry, impact of industry consolidation on fares, and the financial health of the industry.¹ Much of our work in this area has been done at the request of this Committee. In our testimony today, we will summarize our findings on the competitive problems of the airline industry and discuss how the financial problems of the industry affect competition.

Our basic points are the following:

- Although deregulation has benefitted many consumers by providing reduced fares and more frequent service on many routes, consumers on other routes pay higher fares. Our analysis of 1988 fares on routes from 15 concentrated airports found that, when one or two airlines dominated an airport, fares were about 20 percent higher than on routes from less concentrated airports.² If any or all of the four jet airlines that have filed bankruptcy within the past year cease operations, domestic concentration could increase. Because 76 percent of all passengers nationwide fly on routes served by three or fewer airlines and 45 percent fly on routes served by only one or two, the loss

¹Airline Competition: Industry Operating and Marketing Practices Limit Market Entry (GAO/RCED-90-147, August 29, 1990); Airline Competition: Higher Fares and Reduced Competition at Concentrated Airports (GAO/RCED-90-102, July 11, 1990); and Airline Competition: Weak Financial Structure Threatens Competition (GAO/RCED-91-110, April 15, 1991). A list of our recent reports and testimonies on airline competition can be found in attachment III.

²See Airline Competition: Higher Fares and Reduced Competition at Concentrated Airports (GAO/RCED-90-102, July 11, 1990).

of another competitor on those routes could erode competition and lead to higher fares. In addition, many observers predict a similar wave of consolidation among international airlines.

- As we have reported previously, barriers to entry limit competition in the airline industry. In our August 1990 report, we found that slot restrictions and restrictive lease agreements limit airlines' access to airport gates and facilities, and that restrictive marketing practices associated with computerized reservation systems (CRSs) and frequent flyer plans make it difficult for airlines to compete effectively in each other's markets. Some of these barriers raise the costs of entry or transfer revenues to the dominant airlines in a market, transfers which can mean the difference between profit and loss in an industry with profit margins as low as the airline industry. In addition, barriers harm consumers because they have a significant upward impact on airfares.

- To compete effectively, an airline, like any other business, must be financially sound. The market shares of the financially distressed airlines have fallen from over 30 percent in 1990 to less than 25 percent in 1991.³ Airlines must generate funds for day-to-day operations; for maintaining, upgrading, and replacing existing aircraft fleets; and for investing in new aircraft to support domestic and international service expansion. If airlines are unable to find enough equity capital, they must either rely more heavily on debt financing -- making them more

³Market shares are based on revenue passenger miles reported in the May 22, 1991 edition of Aviation Daily, for the first four months of 1990 and 1991. Market shares are included for Eastern (which ceased operations in January 1991), America West, Continental, Midway, and Pan Am (which have all filed Chapter 11 bankruptcy), and TWA (which has defaulted on some obligations).

vulnerable to cyclical fluctuations -- or sell valuable international route rights and other assets.

-- In past reports and testimonies, we have discussed approaches to help ensure the continued success of deregulation by strengthening competition. We believe that various proposals for reregulation of fares are not the best solution to the industry's problems. Rather, competitive access to airport facilities, a level playing field for marketing airline services, and better access to domestic and international capital markets would provide an atmosphere to enhance competition. A well-designed, broad program to reduce competitive barriers should help improve the long-term financial status of distressed airlines.

I would now like to discuss in more detail the competitive problems of the airline industry and how the financial health of U.S. airlines affects competition both in the domestic and international markets.

CHANGES IN THE AIRLINE INDUSTRY PRESENT
CHALLENGES FOR GOVERNMENT POLICYMAKERS

In the last few years, we have seen significant changes in the airline industry. Concentration has increased in some domestic markets, while declining in others. Although analysis of concentration is best made at the route level, an analysis of the changes in concentration at the airport level is also indicative of trends. Our analysis of shares of enplanements (passenger boardings) at 29 of the nation's largest airports shows that, while concentration has increased between 1987 and 1990 at 13 of the airports, it has decreased at 16 others. (See attachment I.) However, our work has also shown that significant barriers to entry and expansion exist and that such barriers raise fares. In fact, when certain barriers are present in combination on a route, we

have found that fares were 5 to 9 percent higher. Continued industry concentration could further reduce competition and, therefore, harm consumers through higher fares or reduced service.

On the domestic side, the financial weakness of several of our largest airlines could lead to additional failures and more industry concentration. Although airlines appear to charge prices in excess of competitive levels on some routes, overall industry profitability has been low. In 1990, only Southwest and United among the major airlines reported positive net income (profits); the other major airlines reported a combined \$3.95 billion net loss for the year. (See attachment II.) Eastern has ceased operations; Pan Am, Continental, Midway, and America West are reorganizing under bankruptcy court protection; and TWA has defaulted on some of its obligations. We have also seen a growing network of financial and marketing relationships between U.S. and foreign airlines as they prepare to compete on a global basis.

On the international front, we are seeing rapid growth in international service and increasing pressure for changes in the system of bilateral agreements that govern international aviation. By the year 2000, global passenger air traffic is expected to nearly double, while the U.S. market, the largest single air travel market in the world, is expected to increase by 50 percent. The European Community has proposed opening intra-Community markets to greater competition and taking responsibility for negotiating air service agreements with countries outside the Community. It remains to be seen when and how much of this program will be accomplished. Many observers predict a wave of concentration among international airlines as foreign flag airlines are privatized and international markets become more open to competition.

BARRIERS TO COMPETITION DISTORT THE
DISTRIBUTION OF CONSUMER BENEFITS
FROM DEREGULATION

The premise of deregulation was that actual and potential competition could be relied on to maintain adequate service and reasonable fares. If competition is weak, deregulation will not succeed. We have identified a number of restrictive practices in the airline industry that limit competitive opportunities for airlines wishing to begin or expand domestic service at U.S. airports and help airlines preserve dominant positions. In April of this year, we released the results of our econometric analysis, estimating the effects of some of these barriers on airline fares. Although our analysis did not identify any single practice as having a predominant effect on fares, several had a modest but statistically significant impact, typically 1 to 4 percent. Moreover, some of the practices we examined had much stronger effects on particular types of routes (such as short-haul routes) or passengers (such as business travelers).

Slot Restrictions Limit
Access to Key Airports

Access to four of the nation's key airports is limited by the Federal Aviation Administration's (FAA) High Density Rule.⁴ The High Density Rule requires airlines serving these airports to secure take-off and landing reservations (or slots) before beginning service. For the most part, the airlines with access to these airports now are the same airlines that the Civil Aeronautics Board (CAB) awarded access to before deregulation in 1978. When the Department of Transportation (DOT) amended the High Density Rule in 1985 to allow airlines to buy and sell slots, these

⁴14 C.F.R. Part 93 Subpart K. Operations are currently restricted at four airports -- Washington National, Chicago O'Hare, New York LaGuardia, and New York Kennedy.

airlines were allowed to retain slots they already held. Our analysis found that the consumer paid 4 percent higher fares, on average, on routes to and from these airports. Slot controls were associated with 11 percent higher fares on short routes and 7 percent higher fares for less price-sensitive passengers, such as business travelers.

DOT's buy/sell rule has allowed airlines to buy and sell the privilege of using publicly controlled airspace but has not produced the active market for distributing slots envisioned in the rule. In our August 1990 report,⁵ we found that allowing airlines to buy and sell slots has led to the hoarding of excess slots, which airlines then lease for relatively short periods, often to other airlines related to the holders by common ownership or code-sharing agreements.⁶ In 1988, the most recent year for which we have analyzed data, slot sales per quarter amounted to less than one percent of all slots. About 5 percent of all slots are leased, but leases are typically for a 30-day to 90-day period that does not provide a reliable basis on which to establish service.

Revisions to the slot rule could increase opportunities for airlines to establish or expand service at the four airports with slot controls. However, revisions to the slot rule should be carefully designed to provide access by new competitors to slot-controlled airports without undermining the financial viability of threatened airlines. For example, it may be possible for FAA to increase the total number of slots available and reserve the new slots for entrants, without substantially reducing the allocations

⁵Airline Competition: Industry Operating and Marketing Practices Limit Market Entry (GAO/RCED-90-147, August 29, 1990).

⁶Code-sharing is an agreement between two airlines to market services jointly by sharing one airline's two-letter airline code. In the domestic market, code-sharing is usually between a jet airline and a commuter airline that shares the jet airline's reservations code.

of incumbents. Such a revision could enhance the competitive status of airlines like America West and Midwest Express that currently have very limited access to these airports, without harming financially threatened airlines, such as TWA, that could be injured if the financial value of its slots is substantially reduced. DOT has been considering revisions to the slot rule for over 2 years. Although a proposed rule has been drafted, the Office of Management and Budget is still reviewing it.

Access to Airport Gates and Facilities Is Also Limited

Restrictive gate leases and airport use agreements also limit access to airport facilities. Airlines that were protected by CAB route regulation until 1978 are still protected by long-term exclusive-use gate leases that, in many cases, were signed before deregulation.⁷ In our August 1990 report, we found that about 88 percent of all gates are leased, that 85 percent of the leased gates are leased for the exclusive use of a single airline, and that 60 percent of the leased gates are covered by leases with more than 10 years left to run. At concentrated airports, these figures were even higher (91 percent leased, 89 percent exclusive-use, and 77 percent leased for more than 10 years). Exclusive leasing limits access to gates because the airport operator cannot offer the unused capacity to another airline, even if the incumbent uses the gates only part of the day. While entrants can usually gain access by subleasing gates, they often cannot get terms comparable to those of incumbent lessors. We also found that the more gates

⁷According to our survey of 183 airports, about 37 percent of currently leased gates are on leases signed in 1978 or earlier. Some leases go back to 1958.

an airline controls at an airport, the higher its fares tend to be.⁸

Our reports and testimony on airline competition have suggested several ways to ease access to airport facilities. For instance, in our April 1991 report, we suggested that strategies for increasing airport capacity or for making better use of existing airport capacity, such as peak hour pricing, be considered. We also supported last year's legislation, the Aviation Safety and Capacity Expansion Act of 1990 (P.L. 101-508), authorizing passenger facility charges as one step toward easing access to airports. It should allow airports to expand their facilities without seeking approval from dominant incumbent airlines. However, increasing capacity may not be possible at all of the congested airports. Fifty-eight percent of the nation's 66 largest airports reported that one or more constraints greatly impede their expansion.⁹ Another strategy we have suggested is encouraging airports to use preferential-use leases (rather than exclusive-use leases) for leasing airport facilities to airlines. Preferential-use leases allow airlines other than the primary lessee access to gates and other facilities when they are not needed by the primary airline.

CRSs Can Limit Competition

Even if an airline can gain access to an airport on reasonable terms, it still needs to be able to compete on a level playing field. After the airlines that had CAB route authority

⁸For example, holding other factors constant, doubling an airline's share of an airport's gates (e.g., from 10 percent to 20 percent), whether the gates were exclusively leased or not, was associated with 1-percent higher fares.

⁹The factors limiting airport expansion include unavailability of land, community opposition to increased noise and other consequences of expansion, and limitations on the ability of the air traffic control system to handle expansion.

established CRSs and signed up most of the travel agents in the late 1970s and early 1980s, high capital costs and restrictive contract agreements with travel agents made it virtually impossible for other airlines to establish competitive systems. Because CRSs are the primary tool for marketing airline tickets, most airlines market their tickets through systems controlled by their competitors, on terms set by their competitors.

We have found several problems with CRSs. First, the booking fees that other airlines must pay to book their tickets on the CRS have, in some cases, been set at levels far in excess of the cost of providing the service. In addition, the system software used by CRSs is often designed so that flight bookings on the host airline are easier and more reliable than on other participating airlines. This design generates increased bookings and additional ("incremental") revenues for the host airline at the expense of the participating airlines. For example, information on the number of seats available is generally more reliable for the host airlines, and bookings on the host airline may require fewer keystrokes. Finally, of the four CRS systems, two dominate the market, with a combined market share of 71 percent.¹⁰ The two dominant systems transfer significant amounts of revenue from other participating airlines to the airlines owning the two systems.¹¹ While we do not have current data to calculate an exact figure, we believe these transfers continue to be substantial. In an industry with profit

¹⁰Market share is calculated based on the number of flight segments booked through each CRS. The industry's dominant vendor, Sabre, is owned by AMR Corporation, the corporate parent of American Airlines. The second largest vendor, Covia, is owned by a consortium of domestic and foreign airlines, in which United Airlines is the managing partner.

¹¹Based on proprietary data from 1986 gathered for a 1988 DOT study, we calculated that each of the two dominant CRSs annually transfers over \$300 million to its airline owners. More recent data are not available.

margins as low as those of the airline industry, these transfers can spell the difference between profit and loss.

In our September 1989 testimony on CRSs, we presented ways of revising DOT's rules governing these systems to improve their competitive impact. These include eliminating or restricting booking fees, establishing a common CRS governed by a consortium of airlines, and eliminating the minimum-use clauses and minimum 5-year terms from contracts between CRS vendors and travel agents. Policies to eliminate the adverse effects of CRSs on competition should be designed to preserve their positive features. Consumers benefit from CRSs because the systems allow travel agents to quickly search among the fare, route, and schedule offerings of competing airlines to find the flight that best meets the passenger's needs. Finally, airlines that have invested heavily in the development of CRSs should not be deprived of fair returns on their investments. As with the slot rule, DOT considered revision of its CRS rules for more than a year; a proposed rule was issued in March 1991 that addresses many of the competitive issues we have raised, with the exception of regulating booking fees. No final rule has been issued.

Frequent Flyer Plans Benefit Dominant Airlines

Frequent flyer plans also help the dominant airline in a market to maintain its position. In our survey of travel agents, 81 percent of the agents said that business passengers chose their flights on the basis of frequent flyer plans more than half the time. Passengers earn awards such as free trips by accumulating mileage in an airline's plan, mileage that cannot generally be transferred. Because the value of awards increases with the number of miles the passenger earns, passengers have an incentive to concentrate their travel on the airline that offers the most flights to the most destinations from their local airport. This makes it more difficult for new airlines to attract enough

passengers in a local airport market to sustain competitive entry in cities that are already dominated by another airline.

Policies that would restrict frequent flyer plans might enhance competition by strengthening the competitive position of the smaller or weaker airlines. For instance, a requirement that frequent flyer plans allow their participants to transfer mileage earned to other participants who belong to the same plan would reduce the competitive problems raised by frequent flyer plans while still allowing airlines to make use of the plans as legitimate promotional vehicles. Under a transferable mileage requirement, passengers would no longer have as much incentive to concentrate all their flying on the dominant airline in each market. They could spread their flying across several airlines, selling off the miles they could not use. A transferable mileage requirement would probably not induce airlines to drop their frequent flyer plans because airlines would still be able to provide their passengers with a promotional benefit -- free travel -- whose value to passengers is normally greater than its cost to the airline.

Travel Agent Commission Overrides Influence Booking Patterns

Travel agent commission overrides are monetary bonuses paid to travel agents who book a large volume of business with the airline offering the incentive. To the extent that such incentives are effective in inducing agents to book a disproportionate number of passengers on a particular airline, they may increase the costs of marketing tickets, because other airlines may feel compelled to offer equally costly incentives. An increase in the cost of selling tickets in a market may, in turn, discourage airlines from entering the market. We found that travel agents often receive volume incentives and that these incentives have some influence on their booking patterns. Since 81 percent of airline tickets are

booked through travel agents, and since 51 percent of the agents we surveyed reported choosing the airline for their clients at least half of the time, there is a potential for these incentives to influence a large proportion of airline bookings.

The widespread use of these incentives indicates that travel agent incentives significantly raise the costs of marketing airline tickets. This may adversely affect entrant airlines, which may be less able to bear these costs than a well-established incumbent airline can. The adverse impact of incentives on competition appears to be less powerful, however, than the effects of frequent flyer plans and CRSs, because the incentives raise costs for both the entrant and the incumbent.

Code-Sharing Agreements Also Favor Dominant Airlines

In a domestic code-sharing agreement, a commuter airline enters into a partnership with a larger airline to transport connecting passengers to and from the larger airline's flights. Code-sharing agreements appear to strengthen the position of jet airlines with such agreements, especially at the airlines' hubs. In doing so, these agreements could prevent other airlines from competing effectively. Code-sharing agreements might also reduce the long-run competitiveness of the industry by making commuter airlines less independent and preventing them from potentially offering a competitive challenge to larger airlines in some markets. Our econometric analysis found that fares were, on average, 2 percent higher on routes where a major airline had a code-sharing agreement at one of the route's endpoint airports.

Code-sharing has consumer benefits that may offset its adverse effects on competition. While more than half of the agents we surveyed said that their customers have no preference between code-shared and interline flights, 66 percent of those who said their

customers do have a preference reported that the customers prefer code-shared flights. According to the agents' answers about particular aspects of code-sharing, passengers prefer code-shared flights primarily because of more convenient connecting times. In addition, agents reported fewer complaints about baggage handling and gate locations from customers on code-shared flights. Overall, it appears that code-sharing provides some consumer benefits which should be considered in relation to any adverse effects this practice may have on competition.

A COMPETITIVE AIRLINE INDUSTRY REQUIRES
FINANCIALLY SOUND AIRLINES THAT CAN
RESPOND TO CHANGING MARKET FORCES

Over the past decade, several large airlines have developed serious problems that weaken their financial position. Chief among these problems are the high levels of debt some airlines have incurred to finance leveraged buyouts and expansion plans, and the high costs of overcoming operating and marketing practices that limit competition. In the future, airlines will have to spend billions of dollars to repair and modify older aircraft to ensure safety and reduce noise. In addition, airlines must finance the acquisition of new aircraft if they are to expand domestic and international air transport service.

Reliance on Debt Financing Makes
Airlines More Vulnerable to
Market Fluctuations

Airlines require huge amounts of capital to finance the upgrading, replacement, and expansion of their fleets necessary to remain competitive. For example, we have estimated the industry's cost of retrofitting or replacing noisier Stage 2 aircraft to be

between \$2 billion and \$5 billion.¹² One way to raise this financing is through securing additional equity investment by selling stock. For airlines that cannot secure adequate equity financing, due for example to low profitability, the alternatives are taking on additional debt or selling valuable assets to generate funds. However, both of these alternatives have drawbacks. An increase in debt financing, whether through issuing debt instruments such as bonds or through the sale-leaseback of aircraft, increases fixed charges for interest, principal, and lease payments. High levels of fixed charges make highly leveraged airlines much more vulnerable either to a short-run decrease in demand due to a recession or to a short-term increase in costs. Although selling assets such as international routes or slots generates cash, it also reduces the seller's opportunities to generate future revenue.

In the past two years, the importance of a strong financial position and the effects of heavy reliance on debt financing have been made all too clear. Among the airlines which have relied heavily on debt financing, Eastern has ceased operations; Pan Am, Continental, Midway, and America West have all filed for bankruptcy court protection; and TWA has defaulted on some of its obligations. But for the stronger airlines in the industry, the troubles of their competitors have offered opportunities. American, United, and Delta have been able to expand their international and domestic route systems and acquire additional aircraft and facilities from their troubled rivals.

Federal Law Restricts U.S. Airlines'
Access to Foreign Capital

¹²Aviation Noise: Costs of Phasing Out Noisy Aircraft (GAO/RCED-91-128, July 2, 1991), p. 2.

Foreign investment is an additional source of capital for U.S. airlines. However, federal law limits foreign ownership to 25 percent of a U.S. airline's voting stock, but is silent on foreign ownership of non-voting stock. DOT announced in January that it would allow up to 49 percent of the non-voting stock of a U.S. airline to be acquired by foreign interests. Federal law also requires that two-thirds of a U.S. airline's Board of Directors and managing officers be U.S. citizens. Some industry observers have suggested that these restrictions limit the access of U.S. airlines to capital and thus reduce their ability to compete. However, we agree that relaxing foreign investment limits will not necessarily attract new foreign investment to the weaker airlines if investors do not believe that those airlines have the opportunity to compete effectively with the stronger airlines.

If the smaller airlines are to compete with the so-called "mega-carriers" with their global route networks, they must create competitive route networks, either by expanding their own route networks or by forming alliances. Because the primary motivation for most of the foreign investment overtures to U.S. airlines appears to be a desire to form such expanded global networks, the investments generally come from foreign airlines. For example, Scandinavian Airlines System (SAS) has invested in Continental, and KLM Royal Dutch Airlines has invested in Northwest. The foreign airline benefits by participating in the profits of the U.S. airline just as a similar U.S. investor would. In addition, if there are marketing agreements between the two airlines, the presence of an equity investment signals a greater degree of commitment to the relationship. While some relationships between U.S. and foreign airlines could reduce levels of competition, relationships between smaller airlines are more likely to enhance competition by allowing smaller airlines to remain in the market.

Changing Limits on Foreign Investment
Can Provide Access to New Capital Sources

Our preliminary work on foreign investment in U.S. airlines indicates that relaxing foreign investment restrictions can provide them with access to new capital sources, but that it could present problems. Specifically, we have identified potential pitfalls in the areas of bilateral negotiations, investment by government-subsidized foreign airlines, and national security.

First, foreign investment may blur the nationality of airlines and complicate the task of U.S. negotiators, especially when negotiating with a foreign airline investor's home country. Access to international aviation markets is restricted by bilateral agreements negotiated between governments. The agreements usually require that the airlines flying international routes be controlled by citizens of the country that awards them the route. In addition, the agreements specify the routes that can be flown, the number of flights that can be offered, and sometimes even the number of seats that can be offered.

Second, government owned or subsidized airlines could present special competitive problems for the privately-owned U.S. airlines, because they face an operating environment different from that faced by U.S. airlines. While some countries have begun to privatize their airlines, many foreign airlines are still substantially owned or subsidized by their governments. We have not yet finished assessing whether the existing controls over anti-competitive activities, such as predatory pricing (i.e., pricing below costs to drive competitors from the market), are sufficient to preclude harmful activity by government owned or subsidized airlines.

Finally, DOD has expressed concern that allowing greater foreign investment in U.S. airlines could compromise military

access to civilian aircraft. U.S. airlines provide peacetime and emergency airlift to DOD through voluntary contracts with the Civil Reserve Air Fleet (CRAF) program. They are paid at a rate negotiated between the participating airlines and DOD, based on the airlines' costs. By participating in CRAF, airlines become eligible for DOD's lucrative peacetime charter business, business to which foreign airlines have no access. Our preliminary work suggests that there may be several possible strategies for ensuring Department of Defense (DOD) access to an ample supply of aircraft, without continuing to limit foreign investment.

While none of the potential problems we have identified in our preliminary work appears to be insoluble, we have not yet finished our work in this area and are not ready to make specific suggestions at this time. However, our work does indicate that the conditions or limitations attached to foreign investment will affect the opportunities for U.S. airlines to attract equity capital from foreign sources. For example, continuing to limit foreign control of U.S. airlines may be necessary to ensure DOD access to civilian aircraft. However, without the ability to control the U.S. airline's management decisions, a foreign investor may be reluctant to provide equity capital to an airline that is being poorly managed.

CONCLUSIONS

We believe that the most appropriate approach to resolving the competitive and financial problems of the airline industry is to focus on long-term strategies to enhance competition. Although these goals will be difficult to achieve, barriers to competition should be reduced and solutions found to improve the financial condition of the industry. Government action by itself, of course, will not preserve a competitive airline industry. If airlines are not soundly financed, they will remain vulnerable to the cyclical swings of demand for airline services and costs of aviation fuel.

But government action can provide the structural preconditions for effective competition -- equal access to the nation's publicly financed airports, a level playing field for marketing airline services, and better access to domestic and international capital markets.

The government's interest in the survival of threatened airlines is one of ensuring that there are enough airlines to provide effective competition. To the extent that the difficulties experienced by a specific firm are the result of anti-competitive forces within the industry, government policies are appropriately directed at opposing those forces. To the extent that a specific firm's problems stem from mismanagement or inefficiency, its distress reflects the natural processes of the marketplace that favor the efficient, well-run business over an inept competitor, and government intervention harms the consumer by keeping inefficient suppliers in the industry. Thus, the primary goal of federal competition policy is to protect competition, not to protect specific competitors. However, if additional airlines cease operations, the decline in the number of competing airlines will probably harm competition. It has been suggested that the survival of four or five airlines would be enough to achieve effective competition. This would be true if several airlines served most routes, but this is often not true. On routes with less competition, the loss of a single airline could have a serious adverse effect.

That concludes my testimony. I would be happy to respond to any questions you may have.

CHANGE IN CONCENTRATION AT 29 MAJOR AIRPORTS, 1987 TO 1990Table I.1: Airports Where Concentration Has Increased since 1987

<u>Airport</u>	<u>HHI</u> ^a		<u>Percent change</u> ^d
	<u>1987</u> ^b	<u>1990</u> ^c	
Baltimore/Washington Int'l	3,909	4,827	23.48
Charlotte/Douglas Int'l	7,754	8,791	13.37
Dallas/Ft. Worth Int'l	4,606	4,874	5.83
Detroit Metro/Wayne County	4,388	5,024	14.50
McCarran Int'l (Las Vegas)	1,208	2,004	65.86
John F. Kennedy Int'l (New York)	1,982	2,386	20.40
Orlando Int'l	1,707	1,747	2.32
Sky Harbor Int'l (Phoenix)	2,217	2,636	18.88
Greater Pittsburgh Int'l	7,227	7,659	5.98
Raleigh/Durham	2,625	6,368	142.57
Salt Lake City Int'l	5,700	7,122	24.94
San Diego Int'l/Lindbergh Field	1,280	1,330	3.91
Dulles Int'l (Washington, D.C.)	3,250	4,566	40.48

^aThe Herfindahl-Hirschman Index (HHI) measures the overall concentration in a market. The HHI equals the sum of the squared enplanement shares of all airlines serving a market.

^b1987 HHIs, taken from Airline Competition at the 50 Largest U.S. Airports Since Deregulation, by Julius Maldutis, Ph.D., Salomon Brothers, Inc., are based on the period ending March 31, 1987.

^c1990 HHIs were calculated from individual airline enplanement shares taken from Aviation Daily: U.S. Carrier Market Share at Leading U.S. Airports, and are based on the first 9 months of 1990.

^dPercentage changes are rounded to the nearest hundredth.

Table I.2: Airports Where Concentration Has Decreased since 1987

<u>Airport</u>	<u>HHI</u> ^a		<u>Percent change</u> ^d
	<u>1987</u> ^b	<u>1990</u> ^c	
Hartsfield-Atlanta Int'l	4,544	4,527	(0.38)
Logan Int'l (Boston)	1,890	1,191	(36.98)
Chicago O'Hare Int'l	3,593	3,567	(0.73)
Stapleton Int'l (Denver)	3,943	3,526	(10.57)
Houston Intercontinental	6,038	6,032	(0.10)
Los Angeles Int'l	1,283	1,268	(1.15)
Miami Int'l	3,188	1,336	(58.08)
Minneapolis/St. Paul Int'l	6,698	6,523	(2.61)
LaGuardia (New York)	1,801	1,100	(38.90)
Newark Int'l	3,514	2,864	(18.50)
Philadelphia Int'l	2,583	2,580	(0.13)
Lambert-St. Louis Int'l	6,821	6,361	(6.75)
San Francisco Int'l	2,143	2,087	(2.62)
Sea-Tac Int'l (Seattle)	1,675	1,480	(11.65)
Tampa Int'l	1,870	1,491	(20.29)
Washington National	1,920	1,155	(39.85)

^aThe Herfindahl-Hirschman Index (HHI) measures the overall concentration in a market. The HHI equals the sum of the squared enplanement shares of all airlines serving a market.

^b1987 HHIs, taken from Airline Competition at the 50 Largest U.S. Airports Since Deregulation, by Julius Maldutis, Ph.D., Salomon Brothers, Inc., are based on the period ending March 31, 1987.

^c1990 HHIs were calculated from individual airline enplanement shares taken from Aviation Daily: U.S. Carrier Market Share at Leading U.S. Airports, and are based on the first 9 months of 1990.

^dPercentage changes are rounded to the nearest hundredth.

NET PROFIT (LOSS) OF U.S. MAJOR AIRLINES

Dollars in millions

	<u>Full year^a</u>		
	<u>1988</u>	<u>1989</u>	<u>1990</u>
America West	9.4	20.0	(74.7)
American	449.4	423.1	(76.8)
Continental	(315.5)	3.1	(1,236.4)
Delta	344.5	473.2	(154.0)
Eastern	(335.4)	(852.3)	(1,115.9)
Northwest	162.8	355.2	(10.4)
Pan Am	(118.3)	(414.7)	(638.1)
Southwest	57.4	71.4	47.1
Trans World	249.7	(298.5)	(237.6)
United	589.2	358.1	95.8
USAir	<u>76.2</u>	<u>(137.7)</u>	<u>(410.7)</u>
Total	<u>1,169.4</u>	<u>0.9</u>	<u>(3,811.7)</u>

^aFull year data on net income (loss) for 1988, 1989, and 1990 were provided by the Air Transport Association (ATA) for its member and associate airlines.

RELATED GAO PRODUCTS

Aviation Noise: Costs of Phasing Out Noisy Aircraft (GAO/RCED-91-128, July 2, 1991).

Airline Competition: Effects of Airline Market Concentration and Barriers to Entry on Airfares (GAO/RCED-91-101, April 26, 1991).

Airline Competition: Weak Financial Structure Threatens Competition (GAO/RCED-91-110, April 15, 1991; GAO/T-RCED-91-6, February 6, 1991).

Airline Competition: Fares and Concentration at Small-City Airports (GAO/RCED-91-51, January 18, 1991).

Airline Competition: Passenger Facility Charges Represent a New Funding Source for Airports (GAO/RCED-91-39, December 13, 1990).

Airline Deregulation: Trends in Airfares at Airports in Small and Medium-Sized Communities (GAO/RCED-91-13, November 8, 1990).

Airline Competition: Industry Operating and Marketing Practices Limit Market Entry (GAO/RCED-90-147, August 29, 1990).

Airline Competition: Higher Fares and Reduced Competition at Concentrated Airports (GAO/RCED-90-102, July 11, 1990).

Effects of Airline Entry Barriers on Fares (GAO/T-RCED-90-62, April 5, 1990).

Airline Competition: DOT and Justice Oversight of Eastern Air Lines' Bankruptcy (GAO/RCED-90-79, February 23, 1990).

Barriers to Competition in the Airline Industry (GAO/T-RCED-89-65, September 20, 1989, and GAO/T-RCED-89-66, September 21, 1989).

Airline Competition: DOT's Implementation of Airline Regulatory Authority (GAO/RCED-89-93), June 28, 1989).

Airline Competition: Fare and Service Changes at St. Louis Since the TWA-Ozark Merger (GAO/RCED-88-217BR, September 21, 1988).

Competition in the Airline Computerized Reservation System Industry (GAO/T-RCED-88-62, September 14, 1988).

Airline Competition: Impact of Computerized Reservation Systems (GAO/RCED-86-74, May 9, 1986).