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INTERNATIONAL AVIATION

Airline Alliances Produce Benefits, but Effect on Competition is Uncertain

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GAO

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Resources, Community, and
Economic Development Division

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April 6, 1995

The Honorable Larry Pressler
Chairman
The Honorable Ernest F. Hollings
Ranking Minority Member
Committee on Commerce, Science,
and Transportation
United States Senate

The Honorable John McCain
Chairman
The Honorable Wendell H. Ford
Ranking Minority Member
Subcommittee on Aviation
Committee on Commerce, Science,
and Transportation
United States Senate

This report (1) examines the effects of marketing alliances between U.S. and foreign airlines on airlines' traffic flows and revenues and on consumers and (2) identifies the key issues concerning such alliances that need to be addressed by the Department of Transportation (DOT).

As arranged with your offices, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days after the date of this letter. We will then send copies to the Secretary of Transportation; the Secretary of State; the Director, Office of Management and Budget; and other interested parties. We will also send copies to others upon request.

This work was performed under my direction, and I can be reached at (202) 512-2834. Other major contributors are listed in appendix III.

Sincerely yours,

Kenneth M. Mead
Director, Transportation Issues

Executive Summary

Purpose

For U.S. airlines, growth in the international sector in recent years has far outpaced growth domestically. Between 1987 and 1993, the number of passengers traveling on U.S. airlines between the United States and foreign destinations increased by 47 percent, while domestic traffic increased by only 6 percent. The airlines' ability to respond to this demand is limited, however, by intergovernmental restrictions and cost constraints. As a result, the airlines have increasingly entered into alliances with foreign airlines rather than starting new service to additional foreign cities. Likewise, foreign carriers have entered into alliances with U.S. airlines to obtain increased access to the U.S. market.

The Chairmen and Ranking Minority Members of the Senate Committee on Commerce, Science, and Transportation and its Subcommittee on Aviation asked GAO to determine the (1) extent to which U.S. and foreign airlines participating in alliances benefit from those alliances in terms of added passengers and revenues and (2) effect that alliances have on other U.S. airlines and consumers. They also asked GAO to identify and examine key issues, if any, pertaining to alliances that the Department of Transportation (DOT) did not address in its November 1994 policy statement on international aviation or its recently proposed rules aimed at ensuring that consumers are notified, before purchasing a ticket, as to which airline partner will actually be operating the flight.

Background

International aviation is governed by bilateral agreements between countries that often limit the number of cities that can be served and airlines that can serve them. Historically, U.S. and foreign airlines have entered into agreements to coordinate schedules and ensure the efficient transfer of connecting passengers and baggage. In part because of bilateral restrictions, however, they have increasingly entered into closer partnerships called alliances. The alliances involve one airline using its two-character designator code (e.g., "NW" for Northwest Airlines) to advertise a flight as its own in travel agents' computer reservation systems, even though the flight is actually operated by its partner. Such "code-sharing" allows airlines to connect traffic from foreign cities, which they do not fly to, with their flights. Because one airline lists another airline's flight as its own, that flight is listed twice in computer reservation systems (once under each airline's code) and more times if connections are involved.

DOT requires that code-sharing alliances between U.S. and foreign airlines be approved by the agency and periodically reapproved, usually annually.

Between 1992 and 1994, the number of these alliances more than tripled, from 19 to 61. In 1992, DOT granted the alliance between Northwest and KLM Royal Dutch Airlines immunity from U.S. antitrust laws consistent with the accord with the Netherlands that eliminated bilateral restrictions on air travel between the two countries. In 1994, the agency issued a policy statement that supported code-sharing alliances. It also proposed rules that would require airlines and travel agents to notify customers, before booking flights, which airline will be operating a code-share flight and provide a written notice with the ticket naming the operating airline.

Results in Brief

Alliances between U.S. and foreign airlines have in several cases generated large gains for partners in terms of passengers and revenues. In general, the more global the scope of the code-sharing arrangement and the greater the degree of integration achieved by the airlines in scheduling, operations, and frequent flyer programs, the larger the benefits are for partners. Conversely, the impact on other U.S. airlines in terms of reduced ridership and revenues depends on an alliance's geographic scope and integration, the other airlines' competitive responses, and the extent to which competition between that alliance and the other airlines stimulates new traffic. Although consumers benefit from the conveniences—such as decreased layover times—that alliances provide, insufficient data exist to determine (1) what effect alliances have had on fares in the short term and (2) whether alliances will reduce or increase competition in the long term and thereby lead to higher or lower fares.

Although DOT's policy statement notes the need to monitor the effects of alliances on competition and the international competitiveness of U.S. airlines, the agency has not required U.S. and foreign airlines to report sufficient data to fully monitor these effects. DOT also has not determined, in light of the Northwest/KLM experience, whether antitrust immunity should be potentially available for other alliances in markets that allow for significantly increased access for U.S. airlines. Finally, although DOT has proposed rules to ensure that consumers are told which airline partner will actually operate a code-share flight, neither its current regulations nor its proposed rules limit how often the same flight can be listed in computer reservation systems. Multiple listings of the same flight give airlines in an alliance a competitive advantage. Recognizing this impact, the European Union in 1993 limited to two the number of times a flight can be listed.

Principal Findings

Alliances Often Produce Benefits, but Impact on Fares Is Uncertain

GAO's analysis of U.S. and foreign airlines' data indicates that strategic alliances, which involve code-sharing on a vast number of routes so as to strategically link airlines' flight networks, can produce large traffic gains for partners. The three strategic alliances entered into to date—Northwest/KLM (formed in 1992), USAir/British Airways (1993), and United/Lufthansa (1994)—are producing large increases in the number of passengers traveling on these airlines because their alliances involve (1) code-sharing on numerous routes covering a wide geographical area and (2) a great degree of operating and marketing integration. Northwest and KLM data show that their annual ridership has increased by about 350,000 as a result of their alliance, producing an increase in their combined transatlantic market share from 7 percent in 1991 to 11.5 percent in 1994. Alliances that involve code-sharing on a more limited number of routes, usually in one geographic region or between a few cities, have also resulted in increased ridership in many cases, though at much lower levels than the three strategic alliances. Although the traffic gains achieved by airlines through alliances have come largely at the expense of other U.S. and foreign airlines, at least some of the gains have come from new traffic stimulated by increased competition among alliances and between alliances and other airlines, according to most U.S. and foreign airline representatives and DOT officials that GAO interviewed.

Strategic alliances produce the largest revenue gains for partners. On the basis of its analysis of Northwest's data, GAO estimates that the alliance with KLM produced between $125 million and $175 million in revenues for Northwest in 1994 (about one-third of its transatlantic passenger revenues). By contrast, American Airlines' alliance with South African Airways, which involves only flights between New York and Johannesburg, generated less than 1 percent of American's transatlantic revenues in 1994. Whether or not the U.S. airline industry gains as a result of an alliance depends on the specifics of each deal. Because they code-share on each other's flights and split the revenues accordingly, Northwest and KLM gain revenues roughly evenly, largely at the expense of both U.S. and foreign airlines. Alternatively, British Airways gains revenues primarily at the expense of U.S. airlines because its arrangement with USAir allows only for it to code-share on USAir domestic flights and keep most of the revenues. However, this effect must be considered in the

context of British Airways' $400 million investment in USAir in 1993, which was of critical importance to the financially struggling U.S. airline.

Alliances produce several benefits for consumers. For example, close schedule coordination between partners often produces shorter layover times between connections. DOT officials believe that competition among alliances and between alliances and other airlines is resulting in lower fares, thereby stimulating new traffic. However, insufficient data exist to determine the effect of alliances on fares.

By Resolving Key Issues, DOT Can Better Address Impacts on Competition

Although DOT's policy statement held that alliances will likely increase competition in the long term, the agency noted that it needed to monitor them for potential harmful effects that could result if competition decreased. Such effects could include consumers facing higher fares if (1) strategic alliances lead to a marketplace dominated by a handful of "mega-carriers" that are not effectively competing with each other or are preventing other U.S. carriers from entering international markets or (2) foreign countries whose national airlines are in alliances fail to increase access to their markets for other U.S. airlines.

To monitor developing trends, DOT created an economic analysis unit in November 1994. Previously, DOT had approved and reapproved nearly all code-sharing arrangements with little analysis. The unit's efforts to monitor the effects of alliances will be hindered, however, because the data reported by U.S. airlines to DOT from a sample of their tickets do not identify (1) passengers who traveled on code-share flights and (2) in some cases, which airline actually operated a code-share flight. Likewise, because DOT does not collect detailed data from foreign airlines' tickets, it lacks key data on thousands of passengers traveling to and from the United States on code-share flights. Currently, foreign airlines are required to report data to DOT only on their overall traffic between gateway cities (e.g., New York-London). According to DOT analysts, such data are of limited use in analyzing the effects of alliances because they do not, among other things, identify code-share traffic or provide information on fares.

Finally, DOT's rules do not limit the number of times a flight can be listed on computer reservation systems. Computer reservation systems often list the same code-share flight option several times. For example, GAO found a Lufthansa flight from Berlin to Frankfurt that connects with a United flight from Frankfurt to Chicago listed as (1) Lufthansa throughout, (2) United

throughout, and (3) Lufthansa to Frankfurt and United to Chicago. GAO also found that such listings consumed much of the computer reservation system's first display screen in nearly 20 percent of the cases it reviewed, thereby "crowding out" competing flight options to lower screens. This situation limits competition because industry studies have shown that travel agents—who are responsible for 80 percent of all airline bookings—book flights that are listed on the computer reservation system's first screen as often as 90 percent of the time.

Recommendations

GAO recommends that the Secretary of Transportation (1) require that U.S. airlines, as part of their regular reporting of traffic data to DOT, identify which passengers traveled on code-share flights and that they take steps to ensure that they report which airlines actually operated those flights; (2) require, either by regulation or by making it a condition of approving code-sharing alliances, that foreign airlines involved in such alliances with U.S. airlines report data on their code-share traffic to DOT; (3) direct the agency's new economic unit to analyze DOT's existing data and the data obtained as described above to determine if the U.S. airline industry or consumers have been negatively affected before reapproving all strategic alliances and any other alliance that the Secretary deems significant; (4) examine, in light of the Northwest/KLM experience, whether immunity from U.S. antitrust laws should be potentially available for other alliances in markets that allow for significantly increased access for U.S. airlines; and (5) prohibit more than two listings of the same code-share flight in computer reservation systems.

Agency Comments

GAO discussed a draft of this report with senior DOT and State Department officials, including DOT's Acting Assistant Secretary for Aviation and International Affairs. They emphasized that airlines primarily enter into code-sharing alliances as a result of market forces stemming from the airlines' efforts to efficiently expand their international operations and that such alliances produce benefits for partners and consumers. Likewise, they believe that alliances increase competition. These officials agreed, however, that DOT needed more detailed data from U.S. airlines and additional data from foreign airlines to better track alliances' long-term impacts on competition. They further stated that in some cases code-sharing rights are exchanged in bilateral agreements and that because of resource constraints, it would not be practicable for the new economic unit to analyze smaller, noncontroversial arrangements before

DOT reapproves them. On the basis of their comments, GAO revised its proposed recommendation concerning the new unit.

DOT officials agreed that the agency has not determined whether immunity should be potentially available for other alliances in markets that allow for significantly increased access for U.S. airlines. Noting that this issue is sensitive and that DOT is in negotiations with several countries, they declined to comment further. Finally, they noted that American Airlines and TWA, supported by the American Society of Travel Agents, have petitioned DOT to pass rules limiting how often a flight can be listed in computer reservation systems. They stated that DOT is analyzing the petitions and therefore declined to comment on GAO's recommendation. As requested, GAO did not obtain written comments on a draft of this report.

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Abbreviations

ASTA	American Society of Travel Agents
CRS	computer reservation system
DOT	Department of Transportation
EU	European Union
GAO	General Accounting Office
GRA	Gellman Research Associates, Inc.

Introduction

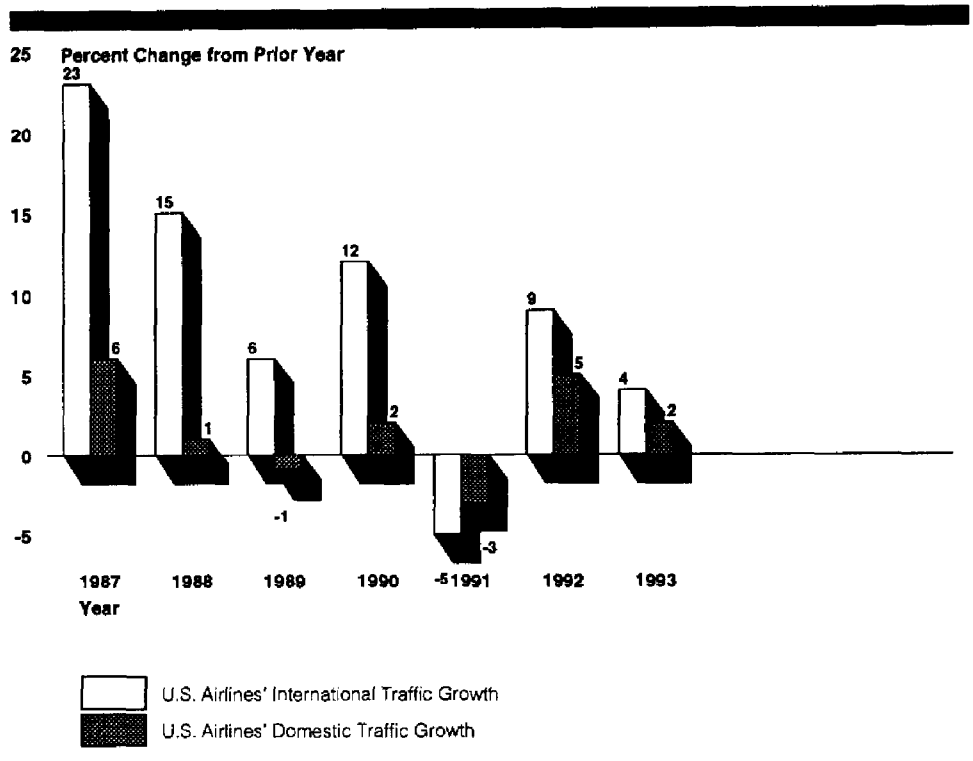
The number of passengers traveling between the United States and foreign destinations has increased dramatically since 1980, and the rate of growth in the international sector for U.S. airlines has far exceeded the rate for domestic air travel over the last several years. Unlike the domestic market, however, international air travel is heavily regulated. Airlines are often limited in the routes they can fly, how often they can serve those routes, and the fares they can charge. Because of these restrictions and cost constraints, U.S. airlines have increasingly entered into alliances with foreign airlines rather than starting up new service. Likewise, foreign carriers have entered into such alliances to obtain increased access to the U.S. market. The Department of Transportation (DOT) requires that agreements between U.S. and foreign airlines be approved by the agency when one airline markets another airline's flight as its own. Under U.S. law, the Secretary of Transportation has the authority, in certain circumstances, to grant immunity from U.S. antitrust laws to an agreement in foreign air transportation.

International Sector Is a Key Growth Area for U.S. Airlines

Largely because of the growth of international tourism and the globalization of economic activity, the demand for air travel between the United States and the rest of the world has grown rapidly since 1980. Total passenger traffic between the United States and foreign destinations increased by 134 percent from 1980 through 1993—from 39.5 million passengers to 92.6 million. The International Air Transport Association estimates that this number will increase to 226 million passengers by 2010.

U.S. airlines have captured an increasing share of this growing sector. In 1993, U.S. airlines carried 54 percent of the passengers traveling between the United States and other nations, as compared to 49 percent in 1980. In addition, U.S. scheduled airlines' international traffic has grown at a faster pace than their domestic traffic in recent years (fig. 1.1).

Figure 1.1: Growth in U.S. Scheduled Airlines' International and Domestic Passenger Traffic, 1987-93



Source: Air Transport Association.

Unlike Domestic Travel, International Air Travel Is Heavily Regulated

Despite increasing demand, the international aviation market—unlike the U.S. domestic market—remains heavily regulated. Under a framework established by the United States and 51 other nations in 1944, international air travel is largely governed by bilateral agreements. Two countries negotiate the air services between them and award their airlines the right to offer those services. In general, bilateral agreements define (1) which routes can be served between the countries and to third countries; (2) whether the fares airlines charge need government approval; and in some cases (3) how frequently flights can be offered and (4) how many airlines from each country can fly the routes.

As of February 1995, the United States was party to 72 bilateral agreements. These accords often greatly restrict U.S. airlines. The U.S. accord with the United Kingdom, for example, specifies that only two U.S. airlines—currently American Airlines and United Airlines—can serve London's Heathrow Airport, which is a key gateway for traffic traveling

between the United States and both Europe and the Middle East. Many agreements also limit U.S. airlines' ability to change their fares and the number of flights that can be operated. These restrictions constrain the airlines' ability to respond to market demand and thereby prevent the public from obtaining better airline service. By the same token, these agreements generally restrict the extent to which foreign airlines can serve U.S. destinations. For example, the U.S. agreement with the Philippines specifies that that country's airlines can serve only eight cities in the United States.

The heavily regulated international marketplace contrasts greatly with the deregulated U.S. domestic market. As a result of the Airline Deregulation Act of 1978, U.S. airlines can generally choose which routes they fly within the United States, the frequency of flights, and the fares charged. Since the late 1970s, DOT and its predecessor, the Civil Aeronautics Board, have attempted to "export" this deregulated environment by working with foreign governments to eliminate bilateral restrictions. The agencies have achieved mixed results. For example, the United States reached agreements with Austria, Belgium, Canada, Iceland, Israel, Jamaica, Korea, Luxembourg, the Netherlands, Singapore, and Switzerland that reduce or eliminate the restrictions. However, many countries, including the United Kingdom and Japan, have maintained—and in some cases added—extensive limitations on U.S. airlines' access to and beyond their markets. Others, such as France and Thailand, have renounced their accords with the United States. These countries have taken such actions principally to protect their national carriers from competition with U.S. airlines, which often have much lower operating costs.[1] A study by the European Union (EU), for example, found that the operating costs of major European airlines were about 50 percent higher than the operating costs of major U.S. airlines in 1992.

[1]We recently reported that U.S. airlines serving key European and Pacific Rim airports often face—in addition to bilateral restrictions—obstacles, such as inadequate terminal facilities, that foreign airlines operating in the United States experience to a much lesser extent. See International Aviation: DOT Needs More Information to Address U.S. Airlines' Problems in Doing Business Abroad (GAO/RCED-95-24, Nov. 29, 1994).

U.S. and Foreign Airlines Have Increasingly Entered Into Alliances Because of Cost Constraints and Bilateral Restrictions

Historically, U.S. and foreign airlines have entered into agreements to coordinate schedules and other activities. In the last few years, however, U.S. airlines have increasingly entered into more extensive partnerships with foreign airlines, often called alliances. The alliances generally involve U.S. airlines marketing foreign airlines' flights as their own rather than serving these destinations directly. U.S. airlines have entered such alliances primarily because it is uneconomical for them to serve many foreign cities with their own aircraft. In addition, bilateral restrictions limit their ability to serve many foreign markets, thus making alliances more attractive. Alliances generally allow a U.S. airline to connect passengers from foreign cities with its flights. Likewise, foreign airlines have entered into such alliances to connect passengers from U.S. cities, which they do not fly to, with their flights. These alliances require DOT's approval.

U.S. and Foreign Airlines Commonly Enter Into Agreements to Coordinate Activities

U.S. and foreign airlines coordinate schedules and attempt to ensure the efficient transfer of connecting passengers, baggage, and cargo through standard agreements, commonly referred to as "interline agreements." Interline agreements provide for the mutual acceptance by the participating airlines of passenger tickets, baggage checks, and cargo waybills, as well as establish uniform procedures in these areas. These agreements are common, and DOT has traditionally not required that they be filed for approval. In addition, airlines are also increasingly entering into simple marketing arrangements, such as linking frequent flyer programs or sharing airport facilities, which are designed to enhance the benefits of interline agreements for passengers and the participating airlines. As with interline agreements, DOT has not traditionally required that simple marketing arrangements be filed for approval.

The Number of Marketing Alliances That Involve "Code-Sharing" Have Tripled Since 1992

Over the last few years, U.S. and foreign airlines have increasingly entered into alliances that are more extensive than interline agreements and simple marketing arrangements. These alliances involve "code-sharing"—the practice of two airlines each placing its two-character designator code (e.g., "NW" for Northwest Airlines) on the same flight when listing that flight in computer reservation systems (CRS) used by travel agents to book flights. Airline designator codes are assigned to individual airlines by the International Air Transport Association and are used in reservations, schedules, and ticketing.

Code-sharing occurs when an airline, by agreement, uses its designator code to market flights operated by another carrier as its own.

Code-sharing is most often used to show connecting flights as occurring on one airline. In displaying connecting flights as being on one airline, airlines are listing them as "on-line" (same airline) rather than "interline" (two airlines). In doing so, they are responding to consumers' preferences for booking connecting flights on the same airline. Prior studies by DOT and others have shown that consumers generally prefer on-line over interline connections. DOT found that consumers generally believe that same carrier connections (1) involve shorter distances between gates in the terminal, thus making transfers to connecting flights easier, and (2) are less likely to result in lost luggage. In addition, airlines prefer to offer connecting flights as on-line because some CRSs list on-line flights before interline connections, and travel agents tend to book customers on flights listed higher on the CRS screen.

In 1987, DOT began requiring that code-sharing arrangements between U.S. and foreign airlines be filed with the agency for approval. Between January 1, 1992, and December 31, 1994, the number of code-sharing alliances approved by DOT more than tripled from 19 to 61. (App. I lists the 61 alliances and the year in which DOT approved them.) DOT also requires that code-sharing arrangements be reapproved after a specified period of time, usually annually. In November 1994, the agency issued the U.S. International Aviation Policy Statement, in which it supported the practice of code-sharing. In December 1994, a DOT contractor, Gellman Research Associates, Inc. (GRA), issued a report that also generally supported code-sharing alliances.[2]

Finally, to ensure that consumers know the nature of services they are purchasing, DOT in 1994 proposed rules to strengthen current requirements that airlines and travel agents, before making reservations for passengers on a code-share flight, tell customers which airline will actually be operating the flight. The proposed rules would require travel agents in the United States and ticket agents for U.S. and foreign airlines to, among other things, provide written notice at the time of sale naming the airline that will operate the flight for tickets sold in the United States.[3]

[2]A Study of International Airline Code Sharing, Gellman Research Associates, Inc., Dec. 1994.

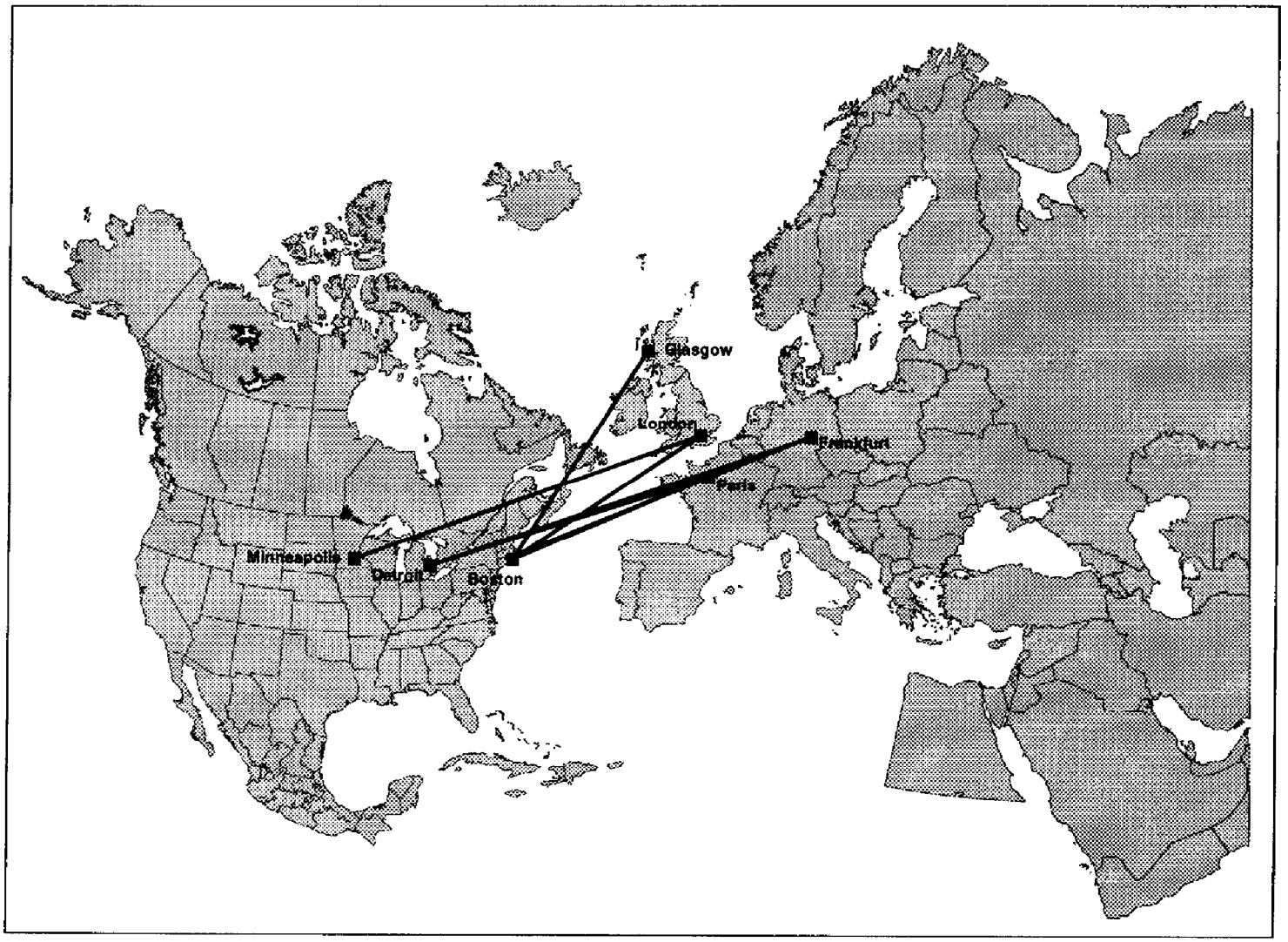
[3]As of February 1995, DOT was reviewing the public comments received on its proposed rules.

U.S. Airlines Seek Access to More Foreign Destinations Through Code-Sharing

U.S. airlines have generally entered into code-sharing alliances with foreign airlines to "feed" their international flights with passengers traveling to and from foreign cities that the U.S. airlines do not serve with their own aircraft. The airlines often do not fly to these cities because the cost of providing nonstop or direct service is too high relative to passenger demand. Bilateral restrictions also sometimes limit their ability to expand their international service. In general, foreign governments have been more willing to grant U.S. airlines authority for code-sharing than to remove restrictions on U.S. airlines' ability to directly serve their markets.

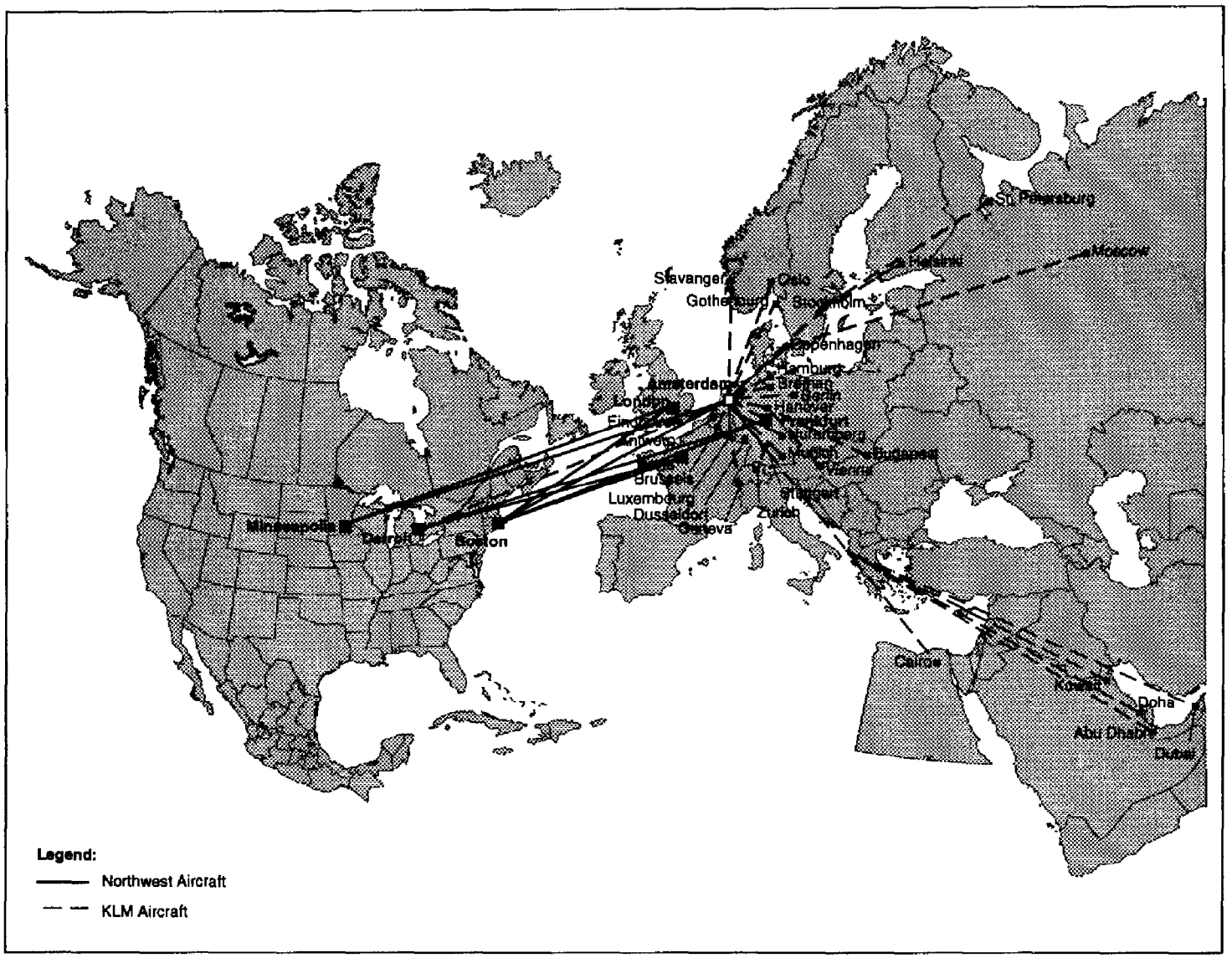
As shown in figures 1.2 and 1.3, Northwest Airlines' alliance with KLM increases Northwest's access to Europe and the Middle East by allowing it to market services through CRSs and direct advertisements to over 30 cities in Europe and the Middle East, when it actually flies to only 4 cities. By listing KLM's flights between Amsterdam and 30 cities as its own and connecting these flights with Northwest's flights between the United States and Amsterdam, Northwest can advertise that it serves these 30 cities in addition to the 4 cities to which it actually flies. Thus, Northwest can more effectively attract passengers who want to travel between the 30 cities and the United States than through a standard interline agreement.

Figure 1.2: Northwest's Flights to Europe and the Middle East Prior to Alliance With KLM



Source: GAO's illustration of information provided by Northwest.

Figure 1.3: Northwest's Flights to Europe and the Middle East and Code-Share Flights Operated by KLM as a Result of Their Alliance



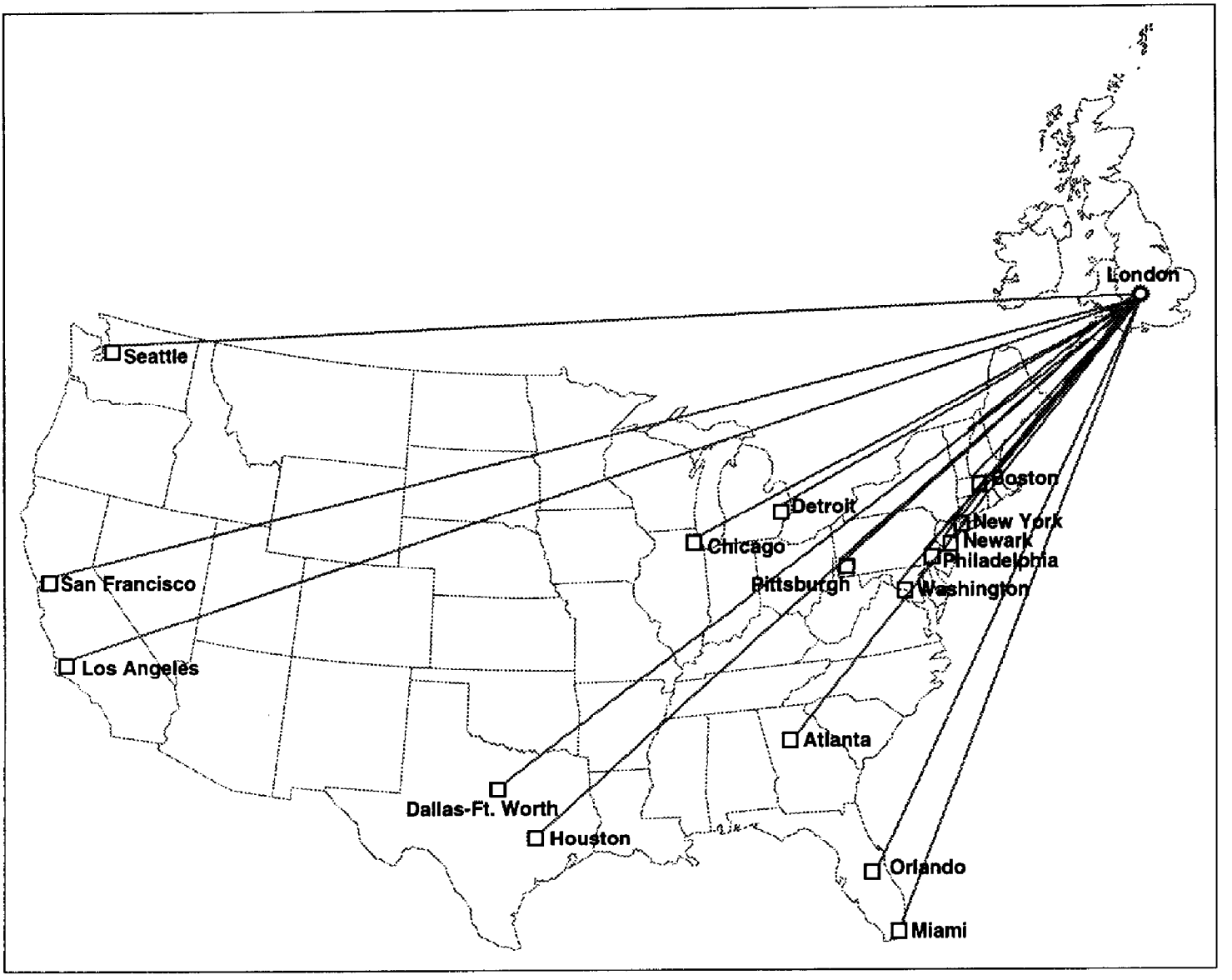
Note: Northwest flies passengers between the United States (via Boston and Minneapolis hubs) and Amsterdam, and KLM flies passengers between Amsterdam and the other cities. However, through code-sharing, Northwest is able to market in CRSs service between the United States and these foreign destinations. Finally, Northwest also markets KLM's flights between Detroit and Amsterdam as its own.

Source: GAO's illustration of information provided by Northwest.

Foreign Airlines Seek Increased Access to U.S. Domestic Market Through Code-Sharing

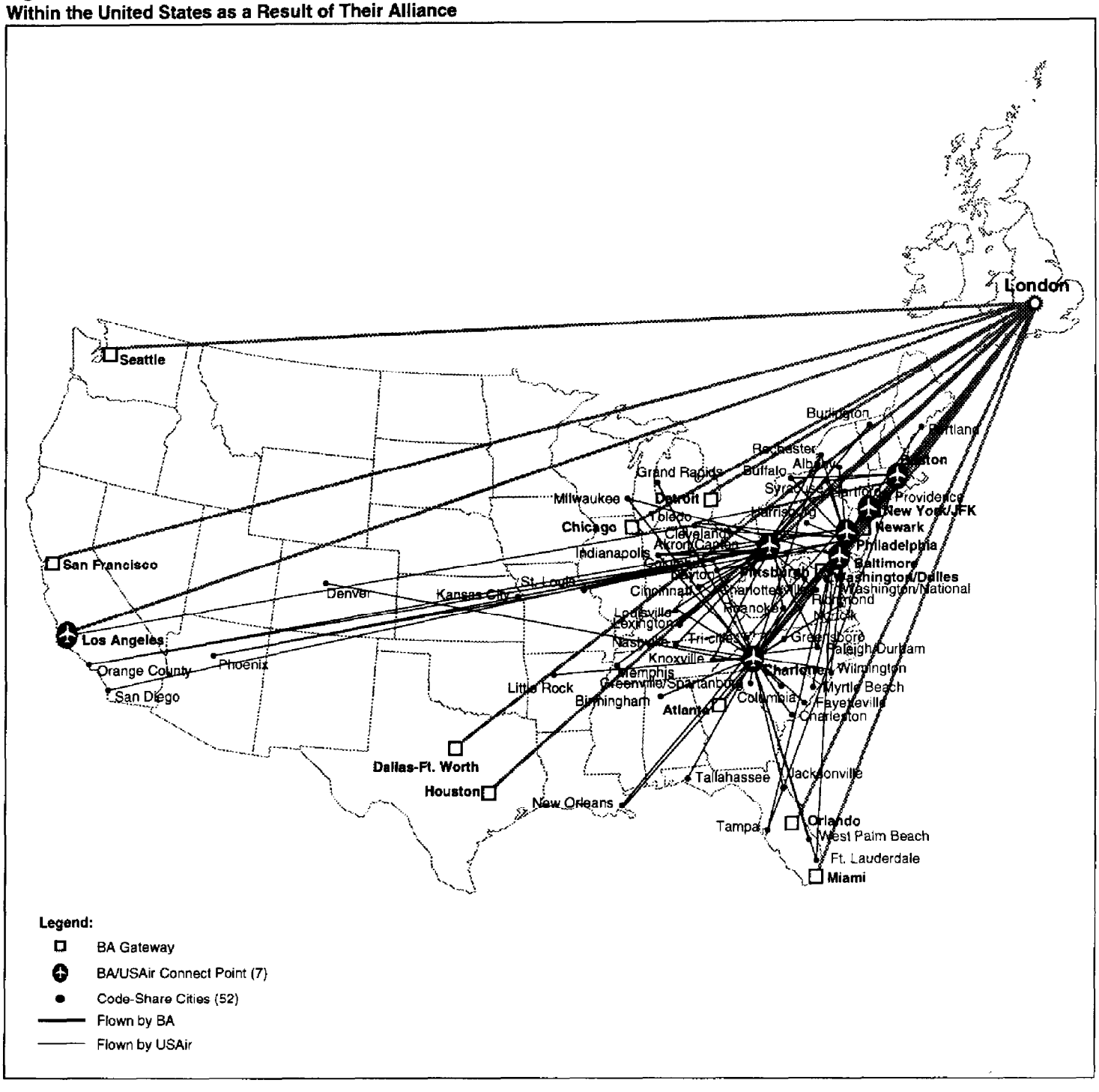
Similarly, foreign airlines have generally entered into code-sharing alliances to "feed" their international flights with passengers traveling to and from U.S. cities that those airlines do not serve with their own aircraft. Through its alliance with USAir, British Airways markets service to 52 U.S. cities that it actually does not fly to. By listing USAir's flights to and from these cities as its own, British Airways can more effectively feed its flights across the Atlantic with passengers who want to travel between those cities and London (or points beyond London) than it could under interline agreements with U.S. airlines.

Figure 1.4: British Airways' Flights Between London and the United States Prior to Alliance With USAir



Source: GAO's illustration of information provided by British Airways.

Figure 1.5: British Airways' Flights Between London and the United States and Code-Share Flights Operated by USAir Within the United States as a Result of Their Alliance



Source: GAO's illustration of information provided by USAir.

Geographic Scope of Code-Sharing Alliances Varies and Is Often Complemented by Other Types of Integration

Code-sharing alliances between U.S. and foreign airlines vary in their scope. Three of the 61 alliances—Northwest/KLM, USAir/British Airways, and United/Lufthansa—are "strategic" alliances in that they involve code-sharing on a vast number of routes so as to strategically link both airlines' flight networks. Eight "regional" alliances involve code-sharing between airlines on several routes to and from a specific region. United's alliance with Ansett Australia, for example, allows it to code-share on Ansett flights within Australia and connect those flights with United's flights between Australia and the United States. Finally, 50 alliances involve code-sharing on flights between a small number of cities (referred to in this report as "point-specific" alliances). These alliances often involve one airline's purchasing blocks of seats on another airline's flights and then reselling them (referred to as a blocked-space agreement).[4] (App. II lists the strategic, regional, and point-specific alliances.)

Code-sharing alliances often involve additional cooperation between the airlines, ranging from schedule coordination to joint operations to equity investments. Figure 1.6 summarizes the varying degrees of integration that are possible and denotes when DOT's approval has traditionally been required. U.S. antitrust laws limit the level of integration that competing airlines can achieve.[5] However, Northwest and KLM can integrate their operations in such areas as pricing without fear of legal challenge from competitors because, as discussed below, DOT granted that alliance antitrust immunity ("merger" model). In granting immunity in this case, though, DOT stated that it believed the antitrust laws would not bar the carriers from integrating their operations as planned because their cooperation would not result in a substantial lessening of competition since they were not significant competitors on most routes served by the alliance. However, the agency granted immunity, finding that "the parties are unlikely to proceed with the Agreement without antitrust immunity."

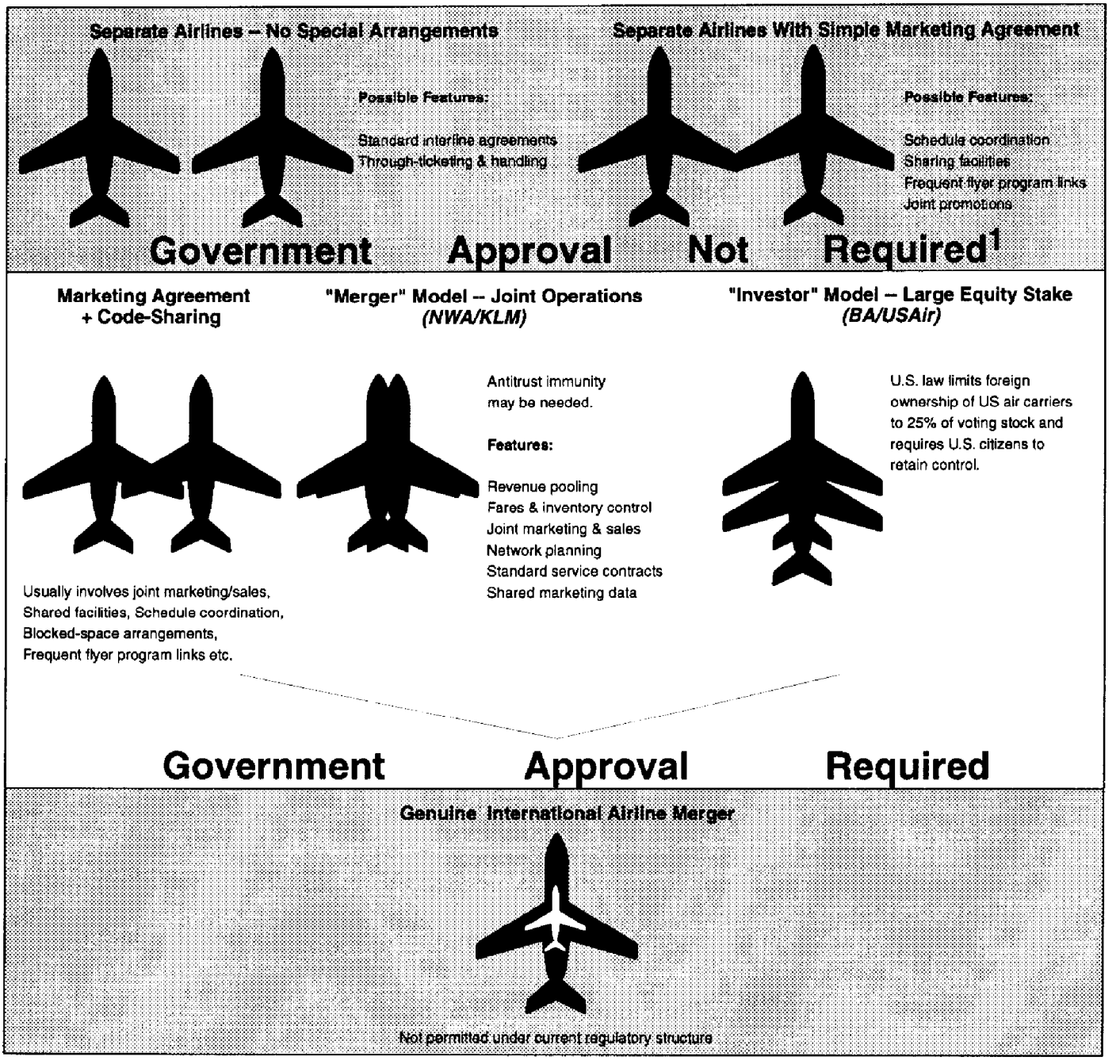
Finally, some airlines have made equity investments in other airlines in an effort to own a large portion of another airline ("investor" model). For example, in addition to its code-sharing arrangement with USAir, British Airways invested $400 million in USAir and now owns just under 25 percent of that airline and holds 3 seats on USAir's 16-member board of directors. U.S. law limits the voting interest that a foreign airline can have

[4]The airline that purchases the block of seats also lists the flight in CRSs under its own designator code.

[5]U.S. antitrust laws do not prevent two carriers that are not significant competitors from integrating their services. For example, U.S. airlines commonly integrate their operations with their commuter partners in the domestic market and have not sought—nor do they need—antitrust immunity, according to DOT and Justice Department officials.

in a U.S. airline to 25 percent and requires that control of the airline be exercised by U.S. citizens.

Figure 1.6: Levels of Integration Between U.S. and Foreign Airlines



Note: DOT has traditionally not required that interline and simple marketing agreements be filed with the agency for approval.

DOT Has Authority to Grant Alliances Immunity From U.S. Antitrust Laws

U.S. law gives the Secretary of Transportation the authority to grant immunity from U.S. antitrust laws to agreements in foreign air transportation. In general, the antitrust laws are designed to protect consumers by prohibiting competitors from colluding and engaging in such anticompetitive behavior as jointly setting prices (commonly referred to as "price fixing"). The Secretary may grant immunity if an agreement is in the public interest and is necessary to permit implementation of an approved cooperative agreement. If the Secretary finds that a cooperative agreement will substantially reduce or eliminate competition, however, the Secretary may only approve it if (1) the agreement is necessary to meet a serious transportation need or to achieve important public benefits, including international comity and foreign policy considerations, and (2) that transportation need or those public benefits cannot be achieved by reasonably available alternatives that are less anticompetitive.

Only one code-sharing alliance between a U.S. and foreign airline approved by DOT since 1987 has applied for antitrust immunity, and in that case DOT granted it. In November 1992, DOT, working in conjunction with the Department of Justice, approved the application of Northwest and KLM—an action closely linked to the September 1992 "open skies" bilateral agreement between the United States and the Netherlands.[6] As stated earlier, in granting immunity to the alliance, DOT said that it believed that the antitrust laws would not bar the carriers from integrating their operations as planned. However, DOT granted immunity on the basis of its finding that the agreement was in the public interest and that it was unlikely, without antitrust immunity, that the parties would proceed with the agreement for fear of legal challenge from competitors.

Objectives, Scope, and Methodology

Citing the increasing number of code-sharing alliances between U.S. and foreign airlines, the Chairmen and Ranking Minority Members of the Senate Committee on Commerce, Science, and Transportation and its Subcommittee on Aviation asked us to determine the (1) extent to which U.S. and foreign airlines participating in alliances benefit from those alliances in terms of additional passengers and revenues and (2) effect that alliances have on other U.S. airlines and on consumers. They also asked us to identify and examine key areas of concern, if any, pertaining to alliances that were not addressed by DOT's recent policy statement or proposed regulatory actions.

[6]The open skies accord between the United States and the Netherlands removed all restrictions on air travel between the two countries, thereby allowing any U.S. carrier to serve any point in the Netherlands and beyond from any point in the United States and allowing any Dutch carrier to do the same.

To determine the extent to which U.S. and foreign airlines participating in alliances benefit from those alliances and the alliances' impact on other U.S. airlines, we analyzed data provided by U.S. and foreign airlines on passenger traffic and revenues. Because DOT's traffic data are not sufficiently detailed to fully analyze such effects, we relied heavily on airlines' internal data in conducting most of our analyses (ch. 3 discusses the limitations of DOT's data). We also interviewed DOT's Director, Office of Aviation and International Economics, as well as analysts in that office and reviewed GRA's study of 3 months of limited DOT data on the Northwest/KLM and USAir/British Airways alliances. In addition, we interviewed representatives of the major U.S. airlines that fly internationally—American, Continental Airlines, Delta Air Lines, Northwest, TWA, United, and USAir. Likewise, we interviewed representatives of the following foreign airlines: Ansett Australia, British Airways, British Midland, Cathay Pacific, China Airlines, Lufthansa, KLM, Philippine Airlines, Qantas, Singapore International Airlines, Swissair, Thai International Airways, and Virgin Atlantic. By selecting these 7 U.S. and 13 foreign airlines, we were able to collect information on 85 percent of the 61 code-sharing alliances approved by DOT since 1987.

To assess the impacts of the alliances on consumers, we interviewed officials from the Justice Department, including the Chief of the Transportation, Energy, and Agriculture Section of Justice's Antitrust Division, and the Executive Director of the International Airline Passengers Association to obtain their views on the potential long-term effect of alliances on competition and fares. We also interviewed nine airport representatives from the organization known as U.S. Airports for Better International Air Service to obtain their perspectives on the effect of code-sharing alliances on consumers in their communities. The limitations of DOT's traffic data, however, prevented us from determining the effect that alliances have had on fares.

To identify and examine key areas of concern, if any, pertaining to alliances that were not addressed by DOT's recent policy statement or proposed regulatory actions concerning consumer notification, we analyzed DOT's policy statement and proposed rules, examined DOT's past orders approving code-sharing alliances, and reviewed relevant U.S. laws and regulations. We also discussed the implications of our analyses with DOT and State Department officials. To obtain foreign perspectives, we interviewed officials from the transportation departments and civil aviation authorities of several European and Pacific Rim nations. In Europe, we interviewed officials from Germany, the Netherlands,

Switzerland, and the United Kingdom. In the Pacific Rim, we interviewed officials from Australia, Hong Kong, the Philippines, Singapore, Taiwan, and Thailand.

To examine issues relating to the listing of code-share flights in CRSs, we interviewed DOT officials and reviewed DOT's regulations governing CRS displays. We also interviewed the Assistant Director, Industry Affairs for the American Society of Travel Agents (ASTA), representatives of seven judgmentally selected travel agencies in the United States, and representatives of several foreign travel agency associations, such as the Australian Federation of Travel Agents. We reviewed CRS listings of code-share flights and discussed with agents code-sharing's impact on their work. We also interviewed representatives of the EU to determine how it regulates the listing of code-share flights in European CRSs.

We discussed a draft of this report with senior DOT and State Department officials, including DOT's Acting Assistant Secretary for Aviation and International Affairs and the State Department's Director, Office of Aviation Programs and Policy. On the basis of their comments, we revised the report where appropriate. We have included a detailed discussion of their comments and our changes at the end of chapter 3. As requested, however, we did not obtain written comments on a draft of this report. Finally, U.S. and foreign airline representatives reviewed relevant sections of a draft of this report relating to their airlines. We incorporated their comments and suggested revisions where appropriate. We conducted our work from February 1994 to February 1995 in accordance with generally accepted government auditing standards.

Alliances' Benefits for Partners and Effects on Other Airlines Vary, and Impact on Fares Is Uncertain

The extent to which airlines participating in alliances benefit from them varies greatly and depends on the (1) geographic scope of the code-sharing arrangement, (2) level of operating and marketing integration achieved by the airlines, and (3) agreement between the airlines on how to divide revenues. Conversely, the impact on other U.S. airlines in terms of reduced ridership and revenues depends on an alliance's scope and integration, the other airlines' competitive responses, and the extent to which competition between that alliance and the other airlines leads to lower fares and stimulates new traffic. We were unable, however, to obtain sufficient data from the airlines—and DOT's data are insufficient—to determine what effect alliances have had on fares in the short term and whether alliances will reduce or enhance competition in the long term and thereby lead to higher or lower fares.

Strategic Alliances Greatly Benefit Participating Carriers and Reduce Traffic and Revenues for Other Airlines

Of the 61 alliances between U.S. and foreign airlines, 3 employ code-sharing on a vast number of routes so as to strategically link both airlines' flight networks. These strategic alliances—Northwest/KLM (formed in 1992), USAir/British Airways (1993), and United/Lufthansa (1994)—are producing large increases in the number of passengers traveling on these airlines. This effect is occurring because of the (1) broad nature of the code-sharing arrangements and (2) great degree of integration achieved by the carriers in scheduling, operations, advertising, and frequent flyer programs. However, the extent to which each airline in these alliances is benefiting in terms of added revenues varies depending on the details of each agreement. Limited data indicate that alliances' traffic and revenue gains are generally coming at the expense of other U.S. and foreign airlines, although airline representatives and DOT officials we interviewed contend that some gains have come from traffic stimulated by increased competition among the alliances and between alliances and other airlines.

Alliance Between Northwest and KLM Is Producing Sizable Benefits for Both Airlines

As a result of their strategic alliance, both Northwest's and KLM's riderships have increased dramatically over the last few years. Northwest's data indicate that for the year ended June 1994, over 353,000 passengers traveled on Northwest aircraft as part of the alliance, compared to 164,450 passengers traveling on connecting Northwest and KLM interline flights in 1991.[1] In addition to this increase of nearly 200,000 passengers on Northwest aircraft, KLM representatives estimated that about 150,000

[1]The latest available data Northwest had were for the year ended June 1994.

passengers traveled on code-share flights in which only a KLM aircraft was involved during this period.

Northwest and KLM representatives emphasized that although improving economic conditions in the United States and Europe since 1991 have helped increase their riderships, the alliance has been a key factor in their traffic growth. Northwest representatives pointed out, for example, that Northwest has never served the 30 overseas cities that they now serve by code-sharing on KLM's flights. Thus, traffic connected from these cities to Northwest's flights between Amsterdam and the United States is primarily additional traffic caused by code-sharing, not improved economic conditions. For example, they noted that it would require an investment of several airplanes and millions of dollars for Northwest to serve Oslo, Norway, via its Minneapolis hub. However, through the alliance, Northwest has added to its system over 30 passengers per day who fly on KLM's flights between Oslo and Amsterdam and connect to Northwest's flights between Amsterdam and the United States.

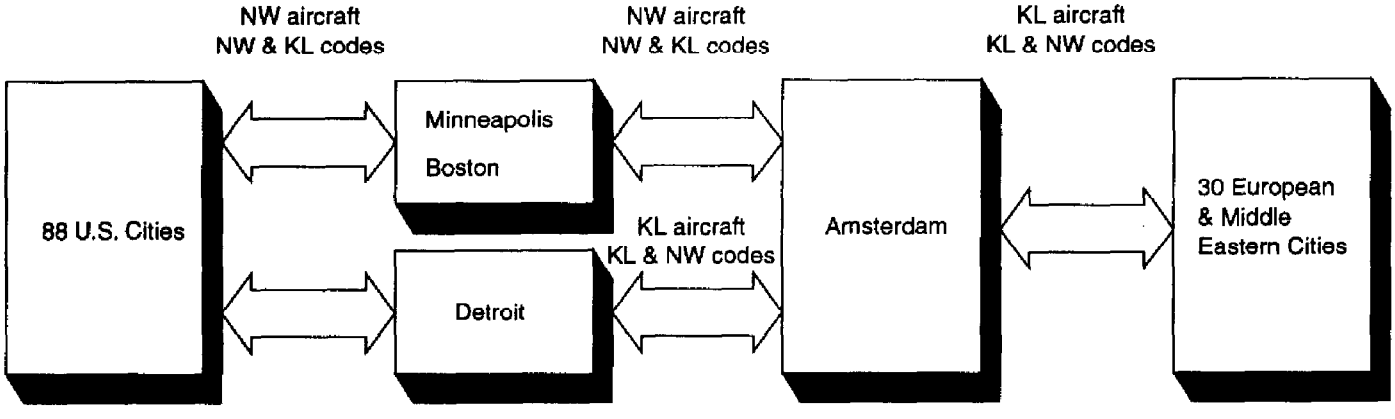
Because the airlines (1) divide the resulting revenues on the basis of an agreed prorated formula that accounts for the miles each airline flies under the alliance and (2) both airlines fly numerous long-haul routes as part of the alliance, the increased ridership resulting from the alliance has had a significant impact on both airlines' financial performances.[2] Likewise, increased interline traffic from non-code-share cities and cost savings have benefited both airlines. On the basis of our discussions with Northwest representatives and analysis of Northwest's traffic and confidential data, we estimate that the alliance produced between $125 million and $175 million in added revenues for the airline in 1994. These revenues represent about one-third of Northwest's $455 million in transatlantic passenger revenues and about 5 percent of its $3 billion in total international passenger revenues in 1994. These added revenues helped Northwest post a company record $830 million operating profit in 1994 as opposed to a loss of $60.1 million in 1991 and $141.7 million in 1990. Similarly, we estimate that KLM earned approximately $100 million in added revenues as a result of the alliance during 1994. The added revenues constitute 18 percent of KLM's transatlantic passenger revenues and 3 percent of its overall international passenger revenues.

The alliance's success is due to the broad scope of the code-sharing network and the degree of integration the airlines have achieved. First, they have scheduled flights to take advantage of Northwest's hubs

[2]If one carrier flies more of the long-haul routes, it generally accrues more of the resulting revenues.

(Boston, Detroit, and Minneapolis) and KLM's Amsterdam hub. By doing so, they link Northwest's domestic service from 88 interior U.S. cities with 30 cities in Europe and the Middle East (fig. 2.1).

Figure 2.1: Northwest/KLM's Code-Sharing Network as of Dec. 31, 1994



Legend: KL—KLM; NW—Northwest.

Notes: Northwest also code-shares on KLM's flights between Amsterdam and eight KLM gateway cities in the United States.

Source: GAO's illustration of Northwest's data.

Second, antitrust immunity has allowed Northwest and KLM to achieve a high level of integration without fear of legal challenges from competitors. Northwest and KLM representatives stated that immunity allows them to jointly develop fares for routes served by the alliance. Without immunity, airlines that are significant competitors cannot discuss pricing issues and must develop prorate agreements in "arm's length" negotiations to divide revenues, a cumbersome process when thousands of city-pairs are involved. With immunity, Northwest and KLM can develop formulas to set fares in all markets and, according to Northwest and KLM representatives, quickly enact fare reductions to attract traffic. Antitrust immunity has also allowed the carriers to develop, without fear of legal reprisal, (1) a joint identity by operating under the same service mark, which features the

names of both airlines, and (2) common incentives for their sales forces so that they market the flights of both airlines throughout the world.

DOT and Justice Department officials noted, however, that the high degree of integration that the two carriers have achieved would not violate antitrust laws if the carriers did not have immunity because before the alliance the airlines were not significant competitors on most routes. These officials stated that they believed the key benefit of immunity in this case is the protection from legal challenge by other airlines, thereby allowing Northwest and KLM to more closely integrate their operations and marketing than they otherwise would for fear of legal reprisal. DOT officials agreed with Northwest's contention that the two airlines would not have pursued the existing high level of integration—especially in the area of pricing—without immunity because of this fear.

In addition to the areas discussed above, Northwest and KLM have integrated in other areas since 1992. For example, they

- created marketing products, such as World Business Class (a special section of seats and service for business travelers), that are common to both Northwest's and KLM's flights so as to attract international business travelers;
- contracted for the same branding of airplane exteriors and interiors, uniforms, vehicles, and stationary (e.g., same style, color-scheme), and as a result, such things as the pitch to which seats recline and the type of dinner plates and napkins are the same for Northwest and KLM airplanes, thereby reducing purchase costs and highlighting for passengers the level of integration achieved; and
- produced television ads emphasizing their integration and the resulting benefits for consumers (e.g., better service, reduced layover times).

Our discussions with U.S. and foreign airline representatives indicate that much of the alliances' traffic gains have come at the expense of other U.S. and foreign airlines, although we were unable to obtain sufficient data to precisely quantify these impacts. Northwest and KLM representatives stated that the alliance has increased their combined transatlantic market share from 7 percent before the alliance to 11.5 percent in 1994. Our analysis of data provided by Northwest documents the increasing share (from 1.2 percent in 1991 to 3.3 percent in 1994) of passengers traveling on

Northwest and KLM between 34 U.S. interior cities and 30 European and Middle Eastern cities that are key to the alliance (table 2.1).[3]

Table 2.1: Number of Northwest/Klm Passengers Traveling Between 34 U.S. and 30 European and Middle Eastern Interior Cities, and Alliance's Share of Those Markets, 1991-94

	1991	1992	1993	6/93 to 6/94
Northwest/ KLM	17,150	23,260	52,510	60,630
All carriers	1,488,160	1,688,570	1,744,090	1,810,780
Northwest/ KLM market share (percent)	1.2	1.4	3.0	3.3

Source: GAO's analysis of data provided by Northwest.

Representatives of the other six U.S. airlines that fly internationally stated that their airlines had lost traffic and revenues to the Northwest/KLM alliance. For example, Continental representatives estimated that the airline lost about $1 million in revenues in 1994 because traffic it would normally fly between the United States and Europe shifted to the Northwest/KLM alliance (approximately 0.3 percent of that carrier's $325 million in transatlantic passenger revenues for that year). Representatives of Continental, which did not make a profit in 1994, emphasized that because of the small profit margins in the airline industry, such revenue is important. Likewise, representatives of several foreign carriers emphasized that they have lost traffic and revenues to Northwest and KLM. Most U.S. and foreign airlines did not have or would not provide data, however, that would allow us to determine the extent of those losses or whether U.S. airlines were losing more than foreign airlines.

Likewise, DOT's data are not sufficiently detailed to allow such a determination. However, in examining the agency's data for the first 3 months of 1994, DOT's contractor, GRA, concluded that although some U.S. carriers had lost traffic to the Northwest/KLM alliance, the U.S. industry overall was receiving a small net gain in revenues in light of the benefits accruing to Northwest. In reaching its conclusion, GRA acknowledged that the limitations of DOT's data caused it to make "important theoretical and computational compromises."

[3]These "interior" cities are cities other than Northwest or KLM gateway cities (e.g., Minneapolis, Amsterdam). Examples of interior U.S. cities in this analysis are Des Moines, Iowa, and Albuquerque, New Mexico. Examples of interior European cities used in this analysis are Hamburg, Germany, and Milan, Italy.

USAir/British Airways Alliance Is Yielding Increasing Benefits to British Airways

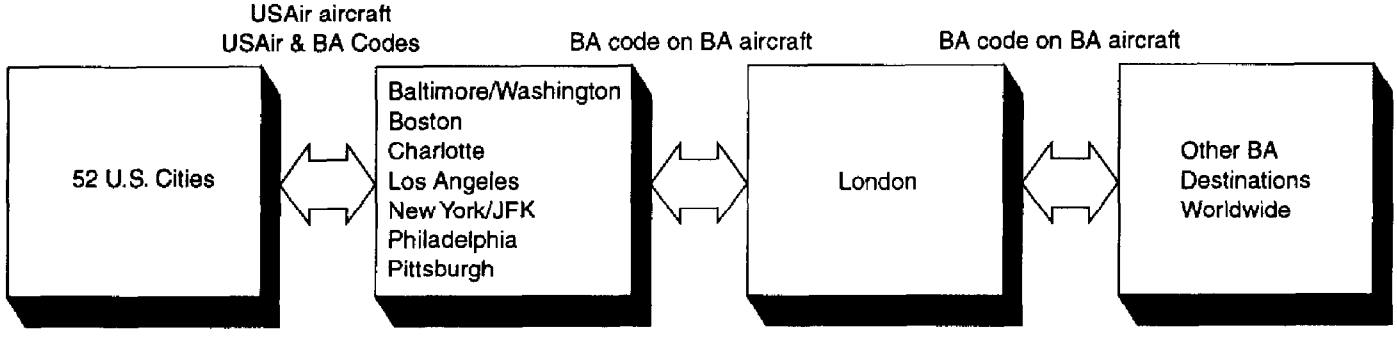
Whereas Northwest and KLM code-share on each other's routes, which yield roughly equivalent benefits for the partners, the USAir/British Airways alliance, which began in May 1993, involves only code-sharing by British Airways on USAir's flights within the United States. Under this arrangement, USAir does not list British Airways' flights as its own (fig. 2.2).[4] Because it does all of the long-haul flying across the Atlantic, British Airways under its prorate agreement with USAir keeps most of the revenues resulting from the code-sharing arrangement. In addition to the 7 percent dividend paid quarterly to British Airways by USAir on the British carrier's $400 million investment, the revenues from the code-sharing arrangement are a return on that investment for British Airways.[5] Through such equity investments in other airlines, British Airways seeks to create a global network ("investor" model in fig. 1.6). Although USAir's main benefit from the alliance was the $400 million cash-infusion—capital that was critical to the viability of the financially struggling airline—USAir also benefits from some added revenues due to the (1) code-sharing arrangement, (2) increased interline traffic resulting from frequent flyer links with British Airways, and (3) "wet leasing" of three aircraft to British Airways for transatlantic operations.[6]

[4]The right to code-share extensively within the United States was granted to British carriers in March 1991 as part of a revision to the U.S. bilateral accord with the United Kingdom. In approving the subsequent USAir/British Airways alliance, the Department of Justice required USAir to divest itself of its three U.S.-United Kingdom routes (as the USAir-British Airways agreement proposed). Subsequently, DOT awarded those routes to American Airlines. USAir does not code-share on British Airways' flights because (1) the U.S.-United Kingdom bilateral agreement does not provide for it and (2) USAir has not requested such authority.

[5]Because of its financial problems, USAir did not pay this dividend to British Airways for the fourth quarter of 1994.

[6]Under this arrangement, USAir aircraft—painted in British Airways' livery—and crew operate British Airways' flights between London and Baltimore, Charlotte, and Pittsburgh.

Figure 2.2: USAir/British Airways' Code-Sharing Network as of Dec. 31, 1994



Legend: BA—British Airways.

Source: GAO's illustration of USAir's data.

Our analysis of British Airways' data indicates that its alliance with USAir, despite its more limited scope, is attracting an increasing number of passengers. Between May 1993, when the code-sharing arrangement was implemented, and March 1994 (11 months), 14,300 passengers traveled on USAir/British Airways' code-share flights. Between April and December 1994 (9 months), 47,749 passengers traveled on those flights.

USAir's data confirm this increase in the number of code-share passengers. Their data are based on passenger bookings, which include "no shows," and as a result, are somewhat higher numbers than British Airways' data on actual ridership presented above. Table 2.2 presents USAir's data and indicates that the vast majority of bookings have come in the last 9 months of 1994.

Table 2.2: Number of Passengers Booked to Travel on USAir/ British Airways' Code-Share Flights, May 1993-Dec. 1994

Quarter	Number of code-share passengers 1993	Number of code-share passengers 1994
I (Jan-Feb-Mar)	N/A	9,189
II (Apr-May-June)	914	20,058
III (July-Aug-Sep)	3,113	21,500
IV (Oct-Nov-Dec)	4,412	16,846
Total	**8,439**	**67,593**

Notes:

1. Code-sharing arrangement did not begin until May 1993; thus, there are no data for the first quarter of 1993.

2. Bookings are as of day of flight.

Source: GAO's analysis of USAir's data.

Most passengers traveling on USAir/British Airways' code-share flights represent new traffic for British Airways because the airline did not previously serve the 52 code-share cities, having instead interline agreements with U.S. airlines. In addition, USAir and British Airways representatives stated that they believed these increasing figures were the result of an increased level of coordination and integration between the airlines. For example, they noted that as the result of the airlines' marketing efforts, USAir passengers had a growing awareness that they can use their frequent flyer miles to earn free trips on British Airways' flights.

An additional benefit of the alliance for British Airways has been a substantial increase in its interline traffic with USAir from U.S. cities other than the 52 code-share cities. For example, a comparison of British Airways' traffic data for April through December 1994 with the same time period a year earlier shows that the number of USAir/British Airways interline passengers has increased by 60 percent, from 36,396 to 58,164.

The code-share and interline traffic gains have produced sizable revenues for British Airways in the transatlantic market, although they are small compared to British Airways' overall international operating revenues. British Airways representatives estimated that between April 1994 and March 1995, the alliance will produce $100 million in revenues for the airline—$45 million from the code-share traffic and $55 million from the increased interline traffic, linked frequent flyer programs, and cost

savings.[7] The $100 million in new revenue is equivalent to 5 percent of British Airways' $2.1 billion in revenues from traffic to and from the United States and 1 percent of its $8.5 billion in total international revenues. USAir, on the other hand, earned about $20 million in added revenues from the alliance in 1994—approximately $8 million from the code-share traffic and $12 million from the increased interline traffic and the wet lease arrangement. British Airways representatives stated that the revenues it was accruing as a result of the alliance represented a reasonable return on their investment. They also noted that the alliance was producing benefits in part because a relatively high proportion of the code-share traffic was premium traffic (first and business classes), which generally pays higher fares.[8]

Finally, according to USAir and British Airways representatives, the benefits produced from their alliance will increase as the airlines increase their level of integration and add more U.S. cities to their code-share network. Although the alliance was implemented in May 1993, the airlines have been slow to integrate their operations and marketing because, according to USAir and British Airways representatives, DOT has on several occasions threatened to disapprove their code-sharing arrangements. In November 1993, for example, DOT approved code-sharing between the two airlines for only a 60-day period and warned that it may disapprove the code-sharing arrangements at the end of that period.[9] Currently, the alliance has DOT's approval until March 17, 1995. The uncertainty surrounding DOT's approval, "one-way" nature of the arrangement, and current financial distress of USAir—the company had an operating loss of $491 million in 1994—has resulted in less integration than that of the Northwest/KLM alliance and thus smaller benefits.

Unlike the Northwest/KLM experience, the results from code-sharing favor the foreign carrier more, although the difference is attributable in part to British Airways' equity investment. Gains to British Airways are largely at the expense of other U.S. airlines. Limited data and our discussions with British Civil Aviation Authority officials, including the authority's Head of Air Services Policy and Industry Affairs, and representatives of British Airways and several U.S. airlines indicate that much of the

[7]British Airways' fiscal year is from April to March. In the first 11 months of the alliance (May 1993-March 1994), it produced between $20 million and $30 million in added revenues for British Airways, according to airline representatives.

[8]USAir provided us confidential booking data that support British Airways representatives' statements.

[9]DOT officials emphasized to us that temporary approval is linked to their efforts to obtain a less-restrictive bilateral agreement with the United Kingdom. They stated that the 1991 agreement with the United Kingdom was "unbalanced" and provided too much benefit to British Airways relative to the opportunities for U.S. airlines to and beyond London's Heathrow Airport.

behind-U.S.-gateway traffic (i.e., passengers traveling to and from U.S. interior cities) now traveling on USAir's flights within the United States and connecting to British Airways' service used to be traffic traveling on (1) other U.S. airlines within the United States that interlined with U.S. or British carriers or (2) the same U.S. carrier throughout, including on-line service by USAir. For example:

- Interline Traffic. A comparison of British Airways' data for April through December 1994 with the same 9 months in 1993 show that the number of passengers traveling on United within the United States and interlining with British Airways declined by 15 percent; the number of Delta's passengers declined by 12 percent; Northwest's by 9 percent; TWA's by 6 percent; Continental's by 5 percent; and American's remained virtually the same. By comparison, the number of passengers traveling on USAir-British Airways' code-share flights grew from 6,589 (between April and December 1993) to 47,749 (between April and December 1994)—an increase of about 625 percent. Representatives from the U.S. airlines listed above told us that the decline in their interline traffic with British Airways is now traffic that is flying on the USAir/British Airways alliance. For example, Delta representatives estimated that the carrier lost about $25 million in 1994 to the alliance.
- Same U.S. Carrier Throughout. (1) One U.S. airline told us that it lost over $40 million in 1994 because traffic it used to fly between the United States and London is now taking USAir/British Airways' code-share flights. This amount represents 11 percent of that airline's transatlantic operating revenues. (2) Another U.S. airline's data show that the number of passengers it flies between eight interior U.S. cities and the United Kingdom, routes on which it competes with the USAir/British Airways alliance, declined by about 11 percent between 1992 and 1993, while its overall traffic between the United States and the United Kingdom declined by 3 percent.

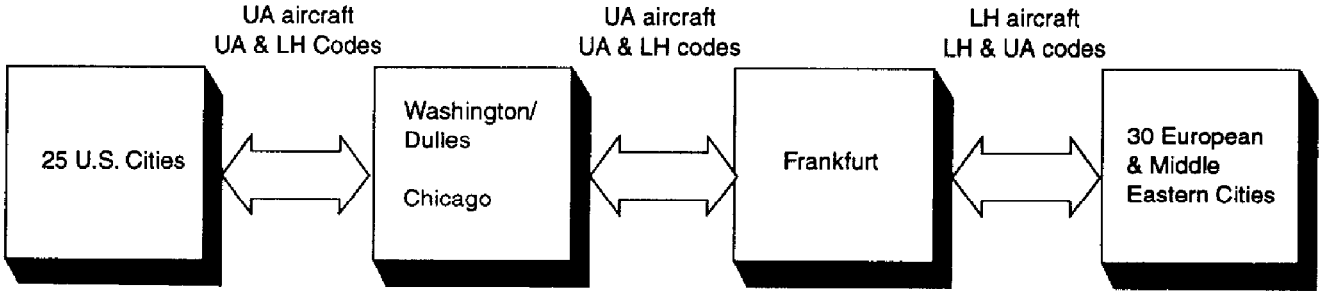
Similarly, on the basis of its analysis of DOT's data for the first 3 months of 1994, GRA concluded that the alliance was causing a net negative flow of revenues out of the U.S. airline industry. As stated earlier, however, data limitations prevent a precise determination of the losses or the extent to which competing foreign airlines have been affected.

United/Lufthansa Alliance Beginning to Produce Benefits for Both Airlines

In part to counter the success of the Northwest/KLM alliance, United and Lufthansa in June 1994 implemented a marketing alliance that uses code-sharing to link both carriers' route networks (in fig. 1.6, this is the

"marketing agreement + code-sharing" model). Under this arrangement, Lufthansa code-shares on United's flights between Frankfurt and 25 U.S. interior cities via two of United's hubs—Chicago O'Hare and Washington Dulles. United code-shares on Lufthansa flights between Frankfurt and 30 European and Middle Eastern cities (fig. 2.3). Ultimately, United and Lufthansa plan to expand the alliance to add more cities and include Thai Airways, thereby creating a global code-sharing network that spans Europe, Africa, the Middle East, and the Pacific Rim.

Figure 2.3: United/Lufthansa's Code-Sharing Network as of Dec. 31, 1994



Legend: LH—Lufthansa; UA—United.

Note: United also code-shares on Lufthansa's flights between Frankfurt and Lufthansa's 10 U.S. gateway cities. In addition, Lufthansa code-shares on United flights between Lufthansa's 10 gateway cities and the 25 U.S. interior cities.

Source: GAO's illustration of United's data.

On the basis of internal data for June through December 1994, United's Vice President, Resource Planning, stated that the alliance has increased United's total traffic by about 600 passengers per day, and he projected that the alliance will increase the airline's traffic by a total of 219,000 passengers between June 1994 and June 1995. He and other United representatives emphasized that much of this traffic represents passengers traveling between the United States and the 30 foreign cities that United previously did not serve. They also emphasized that the additional passengers per day added by the alliance has been steadily increasing as the scope of the code-sharing arrangement expands and the level of integration grows and could reach 1,000 additional passengers per day by

mid-1995. Although Lufthansa representatives declined to provide data, they stated that they believed that United's projection was accurate.

Representatives of both airlines stated that the traffic generated by the alliance is exceeding their expectations. They said that most of this traffic was being diverted from other airlines that serve those markets, but they noted that increasing competition between the alliance and the KLM/Northwest and USAir/British Airways alliances was likely generating some new traffic. Likewise, representatives from other U.S. and foreign airlines stated that they were losing traffic and revenues to the United/Lufthansa alliance, but none had data on or provided an estimate of these losses, in part because the alliance was only recently implemented. Nevertheless, United representatives emphasized that the impact of this alliance will be less than the Northwest/KLM alliance because United and Lufthansa are prevented by U.S. antitrust laws from achieving a level of integration comparable to that of Northwest and KLM. For example, they are prevented from jointly setting fares. However, DOT officials emphasized that the United/Lufthansa alliance differs from the Northwest/KLM alliance in that United and Lufthansa are significant competitors in several city-pair markets served by the alliance. As a result, they noted that competition may be reduced if they were able to integrate operations with the protection of antitrust immunity. Justice Department officials noted that significant competition issues would be raised that did not exist in the Northwest/KLM case.

Regional Alliances Also Produce Benefits for Airlines, Depending on the Level of Integration Achieved

Several regional alliances, which connect a limited number of routes to and from a specific region, have generated modest traffic gains for the carriers involved. Successful alliances have been characterized by a high level of integration. For example, over the last 2 years, United and Ansett Australia have worked closely to develop and market their alliance. Both United and Ansett representatives told us that the number of code-share passengers far exceeded their expectations. United representatives estimated that approximately 120 passengers a day (or 43,800 passengers per year) are traveling on United between Sydney and the United States that are also connecting to Ansett flights between Sydney and eight interior Australian cities. Before the alliance, United did not serve these cities. Through code-sharing with Ansett, United can market service to these cities through the CRSs.

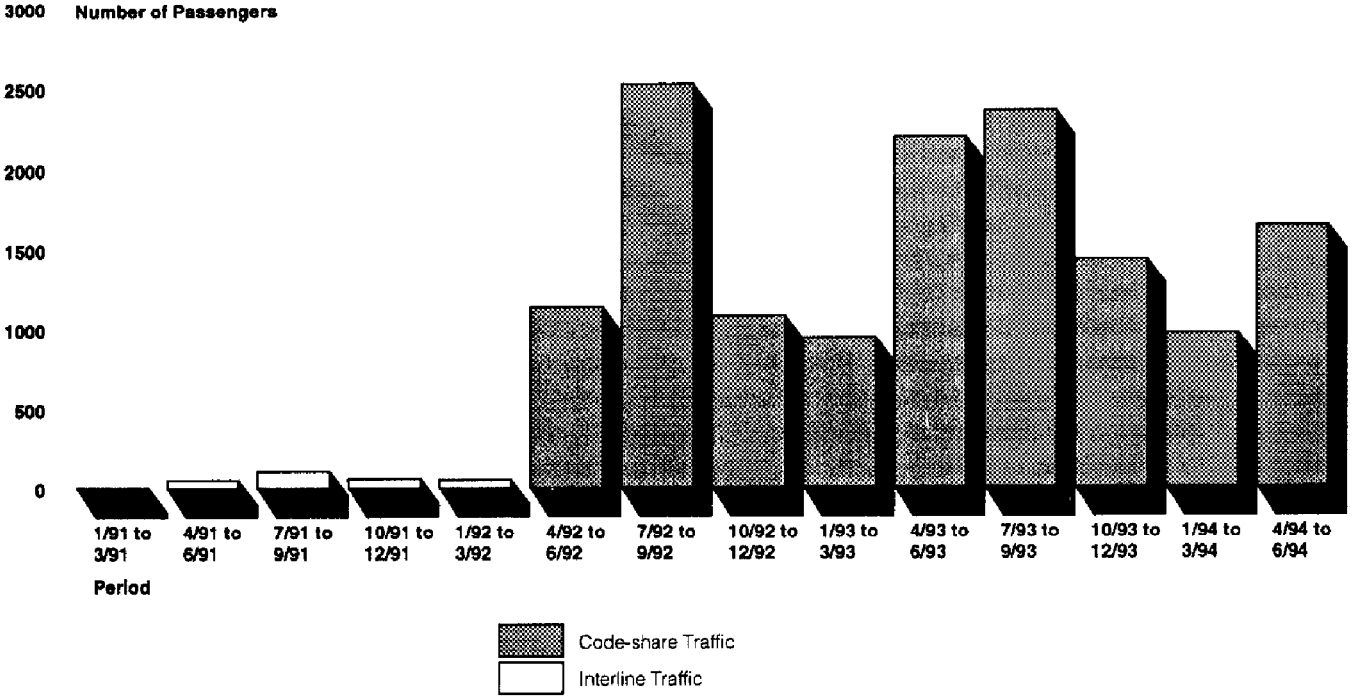
United representatives also stated that United was obtaining about $14 million in revenue from the alliance. Although less than 1 percent of

United's $2.6 billion in transpacific passenger revenues and $4.2 billion in total international passenger revenues, this revenue is important, according to United representatives, given the thin profit margins in the airline industry. For example, the $14 million provided by the Ansett alliance contributed to United's $521 million overall operating profit in 1994—only the airline's second operating profit in 5 years.

The increased ridership that United has experienced in its flights across the Pacific as a result of the alliance has come largely at the expense of its two main competitors on routes between Australia and the United States—Northwest and Qantas—according to representatives from United, Ansett, Northwest, and Qantas. United's Vice President, Resource Planning, noted, though, that some of the traffic gains were being stimulated by increased competition between the alliance, Northwest, and Qantas. However, we were unable to obtain data to determine (1) Northwest's and Qantas' traffic and revenue losses because of the alliance and (2) the extent to which traffic had been stimulated by increased competition—and presumably lower fares—as a result of the alliance.

United has also entered into a regional alliance with British Midland that has generated similar benefits, increasing the number of passengers riding on United across the Atlantic by approximately 30,000. Data provided by British Midland support this estimate. From January 1991 through March 1992, British Midland carried an average of 151 passengers per month on an interline basis with United between London's Heathrow Airport and five cities in northern Europe (United flies the passengers between the United States and Heathrow). Since beginning a code-sharing arrangement with United in April 1992, British Midland has flown an average of 2,072 United passengers per month between Heathrow and the five cities (or about 25,000 passengers per year). (Fig. 2.4 demonstrates this increase for one of the five cities.)

Figure 2.4: Comparison of the Number of Passengers Traveling on Connecting United/British Midland's Flights Between the United States and Glasgow Before and After Code-Share Alliance



Source: GAO's analysis of British Midland's data.

According to United and British Midland representatives, these gains have been the result of their joint efforts to market the alliance. They noted that the gains have come largely at the expense of one of United's main competitors across the Atlantic and British Midland's main intraeuropean competitor—British Airways. In addition, British Midland's Industry Affairs Manager stated that a small portion of the alliance's gains were resulting from the increasing competition between the alliance and British Airways. He stated that he believed that the alliance's success has caused the competing airline to respond and that this has led to better service and lower fares, thereby stimulating some new traffic. Again, however, we were unable to obtain data from the airlines to precisely determine the extent of the losses for competing airlines as a result of the alliance or the extent to which any new traffic had been generated by the alliance.

In contrast to the regional alliances described above, two regional alliances—Northwest/Ansett Australia and TWA/Gulf Air—failed to produce such results and were terminated. Before aligning with United, for example, Ansett Australia had a regional alliance with Northwest. However, the level of coordination and integration between the carriers was far less than in the United/Ansett Australia alliance, according to Ansett representatives. As a result, the alliance produced only a handful of passengers each month.

Benefits Derived by Airlines From Point-Specific Alliances Vary

The majority of the 61 alliances to date involve arrangements that are more limited than strategic or regional alliances. These arrangements entail code-sharing in a small number of city-pair markets. Oftentimes, these point-specific alliances involve blocked-space agreements in which one carrier purchases a block of seats on another carrier's flights and sells them independently. Many of these arrangements have failed because the airlines involved compete against each other rather than effectively integrating their operations. Nevertheless, although they do not produce the same magnitude of benefits for airlines as strategic and regional alliances do, these alliances can be profitable if the partners effectively integrate their operations and marketing.

As of December 31, 1994, DOT had approved 50 point-specific alliances. Roughly one-third of these alliances have been terminated by the airlines involved because they failed to produce the traffic and revenues expected. For example, in 1992 American and Cathay Pacific terminated their blocked-space arrangement through which American purchased and resold seats on Cathay Pacific's flights between Los Angeles and Hong Kong. According to American representatives, the airline entered this agreement because it believed it would be too costly to fly the route itself. However, they stated that although the number of passengers generated by the arrangement met their expectations, they were unable to make a profit on the route because they had to charge very low fares to attract passengers.[10] Although consumers benefit from such reduced fares, Cathay had reduced the fares on its seats so low, according to American representatives, that American had to lower its fares to the point that it could not make a profit.

Several point-specific, blocked-space alliances are producing benefits for partners. For example, as of December 31, 1994, Delta had blocked-space

[10]Between July 1990 and March 1992, 101,243 passengers traveled on American's block of seats (an average of about 4,800 per month).

agreements with nine airlines around the globe in which it either purchases seats on their flights to specific cities or the foreign carrier purchases seats on Delta's flights (see app. I for a listing of Delta's nine partners). According to Delta representatives, it is too costly to serve many of these points directly. In other cases, foreign carriers cannot afford to provide direct service.

Several of Delta's arrangements have been very successful for the carrier, in contrast to the airline's overall international results. The success of its alliances is occurring primarily because Delta has worked closely with each foreign partner to integrate operations and jointly market their arrangement. In its arrangement with Swissair, for example, Delta flight attendants are present on Swissair aircraft for flights between New York and Zurich. In addition, according to Delta's Director of Interline Marketing and Manager of International Route Development, the airline has strict quality assurance procedures to which it and the foreign partner agree to adhere. Although declining to provide a specific estimate of revenue gains, Delta representatives emphasized that the revenue produced by these alliances is especially important given that the airline lost $338 million on international operations in 1994.[11]

American Airlines and South African Airways have also developed a successful blocked-space arrangement. Between the alliance's implementation in November 1992 and September 1994, American sold over 16,600 seats on South African Airways' flights between New York and Johannesburg (an average of over 700 per month). American representatives emphasized that because the carrier has worked closely with South African Airways to develop their alliance and prevent situations similar to their experience with Cathay Pacific, the arrangement has been profitable for both airlines. Although declining to give an exact dollar figure, American representatives emphasized that the revenue produced by the alliance was important. However, they noted that the revenues were less than 1 percent of the airline's $1.4 billion in transatlantic passenger revenues and $3.5 billion in total international passenger revenues in 1994.[12]

Such arrangements can have negative impacts on other U.S. airlines. For example, a blocked-space arrangement between a U.S. airline and a smaller country's flag carrier can force other U.S. airlines to exit the market between the United States and that country. According to TWA

[11]Delta had an overall operating loss of $217 million in 1994.

[12]American recorded an overall operating profit of $1 billion in 1994.

representatives, for example, that airline recently exited the U.S.-Switzerland market because it could not compete with daily nonstop service from New York to both Geneva and Zurich by the alliance of Delta and Swissair.[13] However, DOT and State Department officials emphasized that other factors contributed to TWA's exit in this case. Nevertheless, to date there have been few such occurrences of alliances forcing U.S. airlines out of markets. However, such occurrences, according to several U.S. airline representatives we interviewed, are increasingly possible with the increase of code-sharing and would tend to have a negative impact on the U.S. airline industry to the extent that long-haul flights by U.S. airlines are replaced by foreign carrier operations.

Point-specific arrangements that involve only code-sharing and do not involve blocked-space agreements or any type of integration and promotion produce minimal benefits for the carriers involved and have little impact on other carriers. For example, under its arrangement with Midwest Express, Virgin Atlantic lists as its own, Midwest Express flights between Boston and Milwaukee so as to link Milwaukee passengers with Virgin's flights between Boston and London. Outside of code-sharing on this one route, the two carriers have little integration of operations, according to Virgin's Director, Strategy and Route Planning. Between December 1992 and June 1993, 203 code-share passengers traveled between Milwaukee and London under this arrangement (29 per month).

Alliances Provide Benefits for Consumers, but Insufficient Data Exist to Determine Effect on Fares

Alliances between U.S. and foreign airlines produce several benefits for consumers. For example, close schedule coordination between partners often produces shorter layover times between connections. In addition, airlines can provide one-stop check-in for passengers even though they are connecting to a flight by another airline (the alliance partner). Consumers' choices are also often enhanced. For example, a passenger who wants to fly from Indianapolis to Lyon, France, now has three competing options with minimal layover times between flights. The passenger could fly Indianapolis-Pittsburgh-London-Lyon on USAir/British Airways. Alternatively, the passenger could fly Indianapolis-Detroit-Amsterdam-Lyon on Northwest/KLM. Finally, the passenger could fly Indianapolis-Washington, D.C.-Frankfurt-Lyon on United/Lufthansa. Without the code-sharing alliances, the passenger would have to interline on several different carriers, with less convenient layover times.

[13]TWA recorded an overall operating loss of $137.4 million in 1994.

Code-sharing alliances also increase international service for customers in many U.S. cities. This service occurs when airlines join together to serve markets that otherwise would not receive such service. Continental's recent alliance with Alitalia will benefit consumers in Houston, for example, because Alitalia will provide nonstop service between Houston and Rome starting in the summer of 1995. Currently, no airlines provide such service. Before the alliance, Continental did not serve the market because it did not have the right to do so under the U.S.-Italian bilateral accord. Likewise, Alitalia did not serve the market because it believed that it could not make a profit on the route, even though it had the right to fly the route. Because it can now obtain traffic feed from Continental's domestic service, Alitalia will enter the market and provide nonstop service between Houston and Rome. Consumers in other cities have similarly benefited, or soon will benefit, from increased service due to alliances, including:

- Atlanta. As a result of Delta's blocked-space agreement with Brazilian carrier Varig, Atlanta receives daily nonstop service by Varig to and from Rio de Janeiro and direct, same-plane (one-stop) service to and from Sao Paulo. Before the alliance, no U.S. or foreign airline provided such service.
- Cincinnati. As a result of Delta's blocked-space agreement with Swissair, Cincinnati receives nonstop service by Delta to and from Zurich. Before the alliance, no U.S. or foreign airline provided such service.
- Memphis. As a result of Northwest's alliance with KLM, Memphis will receive, starting in the summer of 1995, nonstop service to Europe for the first time. The city will also receive substantially increased operations as it becomes a key hub for the alliance in which service between over 80 U.S. interior cities and 30 European and Middle Eastern cities will be linked via Memphis in the United States and Amsterdam in Europe.
- Washington, D.C. As a result of Delta's arrangement with Austrian Airways, Washington, D.C. (Dulles Airport), will receive, starting in the spring of 1995, direct, same-plane (one-stop) service by Austrian to and from Vienna. Before the alliance, no carrier provided such direct service between these two cities.

Whether consumers are currently paying higher or lower fares because of code-sharing alliances is unknown, however, because DOT's traffic data, which contain fare information, do not identify which passengers are traveling on code-share flights or contain information on the fares charged by foreign carriers (ch. 3 discusses these limitations in detail). In the long run, consumers could pay lower fares, according to many U.S. and foreign airline representatives, as (1) airlines in alliances integrate further and

achieve cost efficiencies that could be passed on to the consumer and (2) competition increases among alliances and between alliances and other airlines. According to other airline representatives, the trend toward strategic alliances could produce only a few "mega-carriers" that will dominate the international marketplace, reduce competition, and result in higher fares.

Conclusions

Alliances can be an effective strategy for airlines to increase their traffic and revenues. Although these gains are often relatively small compared to such measures as a carrier's overall international operating revenues, they represent key sources of new traffic and revenue for participating airlines in an industry characterized by razor-thin profit margins. The magnitude of these gains depends on the geographic scope of the code-sharing arrangement and the level of integration achieved by allied airlines. Most gains come at the expense of competing U.S. and foreign airlines; however, it is likely that at least some are generated by traffic stimulation caused by increased competition among alliances and between alliances and other airlines in the short term. Nevertheless, insufficient data exist to determine whether consumers are paying higher or lower fares as a result of alliances and whether alliances will reduce or increase competition in the long term and thereby lead to higher or lower fares.

Finally, whether or not the U.S. airline industry gains as a result of an alliance depends on the specifics of each deal. The experiences of Northwest and United, for example, indicate that U.S. partners can prosper greatly from such alliances. The experience of USAir, on the other hand, is more complex because of British Airways' equity investment. This alliance's code-sharing arrangement is having negative consequences for many other U.S. airlines, largely to the benefit of British Airways. Nevertheless, it is important to consider that effect in the context of British Airways' investment in USAir—an investment that was of critical importance to the viability of the financially struggling U.S. airline.

Key Issues Concerning Alliances Remain Unresolved

Although DOT's recent international policy statement strongly supports the creation of code-sharing alliances between U.S. and foreign airlines, several major issues still need to be addressed. First, as the statement points out, the agency must monitor the effects of alliances on competition and the health of the U.S. aviation industry. However, insufficient data are reported to DOT to allow the agency to track these issues. Second, the agency has not determined, in the light of the perceived benefits accruing to Northwest and KLM as a result of immunity, whether antitrust immunity should be potentially available for other alliances in markets that allow for significantly increased access for U.S. airlines. Finally, although DOT has proposed new rules to ensure that consumers are notified as to which airline will actually be operating a code-share flight before being booked on that flight, neither the agency's current regulations nor its proposed rules limit the number of times the same flight can be listed on travel agents' CRSs. The listing of the same code-share flight option several times consumes valuable screen space and crowds out competing listings of other carriers' flights.

DOT's Policy Statement Emphasizes the Need to Monitor Alliances' Effects, but Agency Lacks Necessary Data to Do So

In its November 1994 U.S. International Aviation Policy Statement, DOT reiterated its support for code-sharing alliances between U.S. and foreign airlines. Previously, the agency had approved and reapproved nearly all code-sharing arrangements, although in several cases DOT did not act until the Justice Department had completed an informal review of the agreements' competitive effects. DOT's policy statement acknowledged that some alliances could have negative effects on competition in the long term. To monitor such effects, DOT created an economic analysis unit in late 1994. The new unit will be hindered in its ability to fulfill its mission, however, because (1) U.S. airlines report traffic data to DOT that are not sufficiently detailed to analyze code-sharing and (2) foreign airlines involved in alliances with U.S. airlines are not required to report data on their code-share traffic even though that traffic is traveling to and from the United States.

DOT's Policy Statement Reconfirms Agency's Support for Code-Sharing Alliances

In November 1994, DOT reaffirmed the agency's support for international code-sharing alliances. In releasing the agency's policy statement, the Secretary of Transportation emphasized:

"We believe that enhanced airline competition and the trends of privatization, marketing alliances, code-shares and cross-border investments that fuel globalization are here to stay—and that these

developments offer great benefits for all nations. For our part, the United States will support these trends."

The policy statement also emphasized that such alliances benefit both U.S. airlines and consumers. DOT said that alliances can give the airlines access to more markets, and thus they can gain traffic. Moreover, according to DOT, the number of service options available to consumers effectively increases. This increase occurs because U.S. airlines can advertise "on-line" service to many more overseas destinations and provide more convenient, "seamless" connections via their foreign partners than under interline agreements. Likewise, the agency asserted that competition among airlines will increase as alliances compete for international passengers, thereby resulting in lower fares and increased quality of service.

Prior to its policy statement, DOT expressed similar support for code-sharing alliances. Between December 1987—when the agency first required that U.S. airlines submit their code-sharing arrangements with foreign airlines for approval—and December 31, 1994, DOT had approved 61 alliances involving nearly 150 different code-sharing arrangements. In general, DOT has approved and reapproved code-sharing arrangements with little analysis. Only in one case has DOT rejected a code-sharing arrangement. In 1991, the agency required United and British Airways to end their point-specific arrangement between Seattle and London as a condition of the agreement with the United Kingdom that allowed United to replace Pan Am as one of two U.S. carriers allowed to serve Heathrow Airport.[1] DOT also delayed approval of Delta's code-sharing arrangement with Virgin Atlantic. The carriers applied for approval in April 1994 but did not receive it until February 1995, because DOT was dissatisfied with the lack of progress in liberalizing the current restrictive bilateral accord with the United Kingdom.

Policy Statement Acknowledges That Alliances Could Have Long-Term Negative Consequences

DOT's policy statement does note that because of the greater traffic access gained by alliance partners, alliances between U.S. and foreign airlines may have negative impacts on competition in the international marketplace in the future. Discussing the potential long-run effects on competition, DOT states:

[1]In this case, DOT held that the code-sharing alliance could potentially reduce competition on this route because United and British Airways would be the only airlines serving it.

"Although we expect the expansion of cooperative arrangements (alliances between U.S. and foreign airlines) to be largely beneficial, there may be some negative effects. The greater traffic access of participants may give them considerable competitive muscle, and we may need to watch for harmful effects on competition."

Similarly, several U.S. airline representatives warned that strategic alliances may lead to an international marketplace dominated by only a handful of "mega-carriers" that are not effectively competing with each other or are preventing other U.S. airlines that are not strategically allied from entering foreign markets. They noted that such situations would result in consumers paying higher fares. Likewise, they cautioned that the potential also exists for alliances to negatively affect the health of the U.S. airline industry over the long run. Such negative effects could occur if (1) foreign airlines take traffic and revenues away from U.S. airlines with little corresponding benefit for the U.S. partner in the alliance or (2) foreign countries whose national airlines are already in strategic or regional alliances fail to increase access for other U.S. airlines to and beyond their markets. As the number of alliances continues to increase, according to nearly every U.S. and foreign government official and airline representative we interviewed, DOT and foreign governments will need to monitor alliances for such negative long-term impacts.

Acknowledging That It Has Conducted Insufficient Analysis in the Past, DOT Has Created Group to Monitor Long-Term Issues

In conjunction with the release of the policy statement, the Secretary of Transportation announced that the agency would establish an economic analysis unit "to focus solely on long-term strategy and analysis of the international airline sector." The Secretary acknowledged previously during testimony before the Subcommittee on Aviation, House Committee on Public Works and Transportation, in May 1994 that DOT had not conducted sufficient analysis of such issues as the impacts of code-sharing before key bilateral negotiations. He noted that as a result, there is concern that DOT has granted foreign airlines increased access to the U.S. market without obtaining equivalent opportunities for U.S. airlines in foreign markets.

In his testimony, the Secretary acknowledged that the agency did not conduct the analyses necessary to estimate the value of code-sharing to British Airways before concluding the 1991 accord with the United Kingdom. As a result of its desire to bolster cash-strapped Pan Am and TWA by replacing them with United and American as the U.S. airlines allowed to operate at London's Heathrow Airport (as well as United's and

American's strong desire to serve that airport), DOT agreed in March 1991 to allow British Airways extensive access to interior U.S. cities via code-sharing. At the same time, the agreement continued to limit to two the number of U.S. airlines that could serve Heathrow Airport and maintained tight restrictions on the ability of those airlines to carry local traffic between London and destinations beyond Heathrow. Many U.S. airline representatives believe that the United Kingdom no longer has any incentive to open its highly restricted market to U.S. airlines because British Airways has already secured significant access to the U.S. market through code-sharing.

In November 1994, DOT created the new economic unit—the Office of Aviation and International Economics—and allocated it five staff. According to DOT officials, the office will allow DOT to (1) take a more strategic and long-term approach to bilateral negotiations and international aviation policy-making and (2) monitor the impacts of marketing alliances between U.S. and foreign airlines on competition and on the health of the U.S. airline industry over the long run.

New Economic Analysis Unit Will Be Handicapped by Several Data Limitations

To fulfill its mission, DOT's Office of Aviation and International Economics will need complete and accurate data on passengers traveling on code-share flights to and from the United States, whether the airline flying the route is a U.S. or foreign carrier. Without such information, the office cannot effectively track an alliance's impact on traffic flows and fares. Because of three key limitations, DOT's current traffic data, which are reported quarterly by U.S. airlines from a 10-percent sample of their tickets, do not provide the complete and accurate information needed.

First, in reporting data from their ticket sample, U.S. airlines are not required to identify the traffic that traveled on code-share flights. As a result, DOT cannot readily isolate code-share passengers and analyze trends in ridership and fares. Second, DOT's reporting requirements are sufficiently vague that they result in some airlines' misreporting which airline actually operated a code-share flight. Rather than reporting which airline partner actually operated a flight, some airlines simply report what is printed on the ticket, which may be the code of the carrier that marketed the service and not the carrier that actually operated the flight. As a result, DOT's data base includes information indicating travel on a given carrier that could not have taken place. GRA found, for example, that the data show a number of passengers as traveling on a KLM aircraft from Boston through Amsterdam to Athens, even though KLM does not fly from

Boston to Amsterdam. What actually occurred was that the passengers flew on a Northwest aircraft for the Boston-Amsterdam leg and then switched to KLM for the Amsterdam-Athens leg. In its analysis of DOT's traffic data, GRA concluded that "if DOT wants to monitor individual code-sharing arrangements, it should place additional emphasis on accurate reporting." According to airline representatives we interviewed, the reporting requirements are too vague to ensure that airlines report the operating carrier.

Third, DOT's data do not include information on many foreign code-share flights operated as part of an alliance with a U.S. airline because the agency does not require foreign airlines to report data on a sample of their tickets, as U.S. airlines are required to report. Currently, foreign airlines are required to report to DOT only data on their overall traffic between their gateway cities (e.g., New York-London). According to DOT analysts, such data are of limited use in analyzing the effect of alliances because they are too general. For example, they do not identify code-share traffic or provide information on fares. Because foreign airlines are not required to report data from a sample of their tickets involving travel to or from the United States, DOT's traffic data provide information only from tickets sampled by U.S. airlines. As a result, the agency has data only on trips that at some point involve a U.S. carrier. For example, DOT does not collect detailed traffic data from tickets for flights originating in Detroit and traveling on KLM aircraft to Amsterdam. Even though the flights are Northwest/KLM code-share flights, tickets are not sampled because no U.S. carrier is involved in the actual transporting of passengers. KLM representatives estimated that KLM transported about 150,000 code-share passengers in 1994 in which no Northwest aircraft was involved. Thus, DOT does not have key data, including the fare charged, on this traffic.

Because foreign airlines are not required to report such data, DOT also does not have information on many blocked-space alliances because oftentimes only the foreign airlines' airplanes are used. DOT analysts told us that they refer to this limitation as their "foreign blind spot" and acknowledged that it prevents them from completely (1) analyzing shifts in traffic from U.S. to foreign carriers caused by code-sharing or (2) determining the extent to which code-sharing benefits foreign airlines. In discussing this limitation, GRA stated that "it is strongly suggested that DOT consider the possibility of obtaining ticketing information from foreign carriers...." GRA also emphasized that

"if DOT wants to continue to monitor the effects of international code sharing on airlines and consumers, it should consider expanding the reporting requirements for code-sharing operations, particularly those of foreign carriers."

In part to address these limitations and begin studying the effects of code-sharing alliances, DOT in 1994 required the three U.S. airlines involved in strategic alliances—Northwest, United, and USAir—to file special reports on their code-share traffic. As of December 31, 1994, only two of the airlines—Northwest and USAir—were filing the special reports. United representatives stated that they will start reporting such data in early 1995. However, according to representatives from all three airlines, it is unfair to impose a reporting requirement on them that is not imposed on the rest of the industry. In addition, the utility of these special reports is limited because they do not provide the agency with detailed data, such as the fares charged, on KLM's or Lufthansa's traffic in cases in which only they fly the routes.

DOT Has Not Examined the Role of Antitrust Immunity in Bilateral Talks in Light of the Northwest/KLM Experience

Many competing airlines and foreign government officials stated that they believe antitrust immunity has provided the Northwest/KLM alliance with a significant advantage over the other two strategic alliances and international carriers not strategically allied. DOT granted immunity to the alliance in conjunction with the 1992 "open skies" accord with the Netherlands in the hope that other countries would follow the Netherlands' lead of agreeing to eliminate all bilateral restrictions. As of March 10, 1995, only five smaller countries had, and most major aviation trading partners have rebuffed U.S. efforts to obtain open skies.[2] In light of the success of the Northwest/KLM alliance, however, many U.S. and foreign airline representatives and foreign government officials suggested that DOT reexamine its policy. Many noted that the alliance's increasingly apparent success may present DOT with a new opportunity to entice foreign governments to liberalize their accords. Others held that the anticompetitive effects of immunity, such as price fixing, outweighed any benefits that could accrue from reduced bilateral restrictions. DOT's policy statement is silent on this issue, and DOT officials have not determined, in light of the Northwest/KLM experience, whether antitrust immunity should be available for other alliances in markets that allow for significantly increased access for U.S. airlines.

[2]In February 1995, DOT also signed a liberalized accord with Canada. Because of several limitations on U.S. airlines—such as phased-in access for U.S. airlines to Montreal, Toronto, and Vancouver—it is technically not an "open skies" accord, according to DOT officials.

Many Believe That Antitrust Immunity Gives Northwest and KLM an Advantage

In November 1992, DOT approved the application of Northwest and KLM for antitrust immunity, although DOT found that the antitrust laws would not bar the carriers from integrating their operations as planned because they were not significant competitors on most routes that the alliance would serve. This action was closely linked to the September 1992 "open skies" bilateral agreement between the United States and the Netherlands that removed all restrictions on air travel between the two countries. Furthermore, the accord contemplated the antitrust immunity that Northwest and KLM sought. The accord states that the United States and the Netherlands agree

"(a) to give sympathetic consideration, in the context of the Open Skies agreement, to the concept of commercial cooperation and integration of commercial operations between airlines of the United States and the Netherlands through commercial agreements or arrangements, provided that such agreements or arrangements are in conformity with the applicable antitrust and competition laws; and (b) to provide fair and expeditious consideration to any such agreements or arrangements filed for approval and antitrust immunity."

In approving the Northwest/KLM application for antitrust immunity, DOT emphasized that the grant of such immunity was consistent with the open skies accord.[3] DOT also implied a favorable treatment of future applications by other U.S. and foreign airlines in exchange for liberal aviation accords, noting that

"we would expect that our willingness to take such action [granting antitrust immunity] might well encourage other countries to seek similar liberal aviation arrangements with the United States . . . so that comparable opportunities may become available to other U.S. carriers."

In general, however, the move to such liberal aviation accords has not occurred. In addition to the recently signed liberalized accord with Canada, five smaller countries—Austria, Belgium, Iceland, Luxembourg, and Switzerland—have agreed to open skies accords with the United States since the open skies accord was signed with the Netherlands in 1992 (as of March 10, 1995). The United States still has restrictive agreements with governments representing major aviation markets, such

[3]In granting antitrust immunity, DOT directed Northwest and KLM to submit their arrangement for reexamination after 5 years.

as the United Kingdom, and no agreement at all with France and Thailand.[4]

Differing Views Expressed Concerning DOT's Use of Antitrust Immunity

Numerous representatives of U.S. and foreign airlines and foreign government officials expressed (1) concern about the competitive impacts of allowing only one alliance to have antitrust immunity and (2) interest in obtaining such immunity for their particular alliance. United representatives, for example, noted that the level of integration their airline can achieve with Lufthansa is limited by antitrust laws, thus ensuring that the Northwest/KLM alliance will outcompete them. They noted, for example, that Northwest and KLM have an advantage in attracting lucrative corporate accounts in that they are able to make joint presentations to corporations concerning fare discounts on international travel throughout the world. Thus, U.S. corporations whose employees regularly travel to both Europe and the Pacific Rim and foreign corporations whose employees regularly travel internationally have a strong incentive to fly on the Northwest/KLM network rather than the United/Lufthansa network. Likewise, officials from several European and Pacific Rim nations stated that it was unfair for DOT to give only one alliance antitrust immunity.

In light of such sentiments, many we interviewed noted that the increasingly apparent success of the Northwest/KLM alliance presented DOT with a new "carrot" in its efforts to obtain open skies with other nations. Nevertheless, others objected to such an approach, stating that U.S. antitrust laws are designed to protect consumers and prevent anticompetitive behavior; therefore, they continued, it does not make sense to condone such anticompetitive behavior as price fixing in the hopes of increasing competition.

DOT Has Not Examined Advantages and Disadvantages of Considering Antitrust Immunity for Other Alliances

In defining the international aviation policy of the United States, DOT's statement does not address issues of antitrust immunity. DOT officials stated that the approach of exchanging antitrust immunity for open skies was one that was employed by the previous administration and that it is not necessarily the approach of the current administration. DOT's Acting Assistant Secretary for Aviation and International Affairs, for example,

[4]In 1978, the United States signed a relatively liberal accord with Germany. However, in 1994, the two nations agreed to a more restrictive accord that sets frequency and capacity growth restrictions on U.S. airlines over the next 4 years, at which time liberal provisions come back in force. In addition, the accord commits both countries to seeking an "open skies" accord that would apply at the end of this period.

noted that although antitrust immunity could be a powerful incentive for governments—which are often seeking to benefit one national flag carrier—to eliminate their restrictions on U.S. airlines, many factors must be considered. Such factors, he noted, include a government's subsidy of that airline or the anticompetitive effects of immunity on routes where the two carriers are major competitors.

DOT officials stated that they have not examined, in light of the Northwest/KLM experience, the advantages and disadvantages of granting antitrust immunity in exchange for open skies. Although the agency is currently actively pursuing open skies accords with nine smaller European nations, the proposed "model agreement" does not discuss antitrust immunity. In addition, DOT officials told us they have not determined whether they would grant antitrust immunity to an alliance in exchange for open skies with any of these nations. Finally, DOT officials stated that they have not examined whether Northwest and KLM should continue to be the only alliance that has such immunity. They noted that the grant of immunity conferred on that alliance extends until 1997, at which time it will be reviewed and either renewed or terminated.

Triple Listings of the Same Flight on CRS Displays Limit Competition and Travel Agents' Efficiency

Because code-sharing involves two carriers placing their individual designator codes on the same flight, a code-share flight is listed twice in CRSs.[5] The number of listings for the same flight can increase to three when connections are involved. When a flight is listed several times, other flights that could be listed on the first CRS display screen are "crowded out." Travel agents overwhelmingly tend to book customers on flights listed on the first screen. As a result, listings of connecting code-share flights several times limit competition and reduce consumers' choices. In addition, according to ASTA representatives and member travel agencies, they reduce the efficiency of travel agents who take time to review flight listings on lower CRS screens and make it harder for those agents to provide customers with accurate information on which airline is actually operating a code-share flight. To address this problem, the European Union (EU) issued regulations in 1993 limiting the display of code-share flights in European CRSs to a maximum of two. DOT's rules, however, do not limit the number of times a flight can be listed.

[5]U.S. travel agents, who book approximately 80 percent of all flights in the United States, generally use one of four CRSs: (1) Sabre, which is owned by American Airlines' parent corporation; (2) Apollo, which is owned by a partnership consisting of United, USAir, British Airways, KLM, and other foreign airlines; (3) Worldspan, which is owned by Delta, Northwest, TWA, and some Asian airlines; and (4) System One, which is owned by an affiliate of Continental.

Triple Listings of the Same Flight Are Prevalent in CRS Displays

CRSs consider consumer preferences in listing flight options. For example, several CRSs offer a display that ranks flights in the following order: nonstop flights, direct flights (one or more stops on the same aircraft), and connections. Connecting flights are often listed in terms of elapsed time between departure and arrival. In reviewing flight listings in Sabre, Apollo, Worldspan, and System One, we found that each CRS listed code-share flights three times when connections were involved. For example, in our examination of flight listings for 17 major U.S.-European city-pair markets listed on the first two screens of Apollo and Worldspan, we often found the same code-share flight listed three times, occurring in 38 percent of the cases reviewed in Worldspan and 47 percent in Apollo.[6] Triple listings occur because both carriers in an alliance list flight segments under their own code and because CRSs also display a third listing in which the connection is shown as an interline connection in which the airlines that are actually operating the flights are listed.

Triple Listings of the Same Flight Limit Competition and Decrease Travel Agents' Efficiency

Triple listings of the same code-share flight can limit competition. Travel agents overwhelmingly tend to book flights that are listed on the first CRS screen. Industry studies have shown that as often as 90 percent of the time, travel agents book flights listed on the first CRS screen. For example, a System One study of 5 days of bookings on its system found that 93 percent were made from the first screen. Likewise, in 1992 DOT concluded that because of time constraints, travel agents are more likely to book a flight that appears on the first screen. Triple listings of the same flight on the first screen can prevent competing flight options from being listed on that screen. Those competing options are "crowded out" and pushed to lower, less-employed screens.

We reviewed the first screen for the 17 international city-pairs on the Worldspan and Apollo systems and found that 19 percent of them contained three listings of the same flight (i.e, one flight listed three times on the first screen). In some cases, we found competing flight options, which were pushed to a lower screen, that had fares and/or elapsed times from departure to arrival that were equivalent to those of the code-share flight. As shown in figure 3.1, for example, Lufthansa flight 2423 from Berlin to Frankfurt, which connects with United flight 941 from Frankfurt to Chicago, is listed three times on the first screen. It is listed three different ways:

[6]We reviewed flight listings for round trips in each market (thus, 34 flights for the 17 city-pair markets) for judgmentally selected departure times. Although the flight listings were not drawn from a statistical sample, they were requested for flights between major U.S. cities and Europe.

- LH 2423-LH 6430 (screen one, lines 1 and 2);
- UA 3647-UA 941 (screen one, lines 3 and 4); and
- LH 2423-UA 941 (screen one, lines 5 and 6).

Because the same flight connection is listed three times and consumes six of the eight lines on the first CRS screen, a competing flight option (Lufthansa 2628—American 157 interline service) with the same fare and an equivalent elapsed time as the code-share flight has been pushed to the second screen. As a result, competition can be reduced because a travel agent who habitually books flights from the first screen would not provide consumers with information on this competing flight option.

Figure 3.1: Crowding Out of Flight Option From the First CRS Screen as a Result of Three Listings of the Same Code-Share Flight Option

CRS Screen-Worldspan:

(Screen One)

	Airline	Number	Origin	Destination	Leaving	Arriving	
1	**LH**	**2423**	**TXL**	**FRA**	**1125A**	**1235P**	Flight option involving code-sharing
2	**LH**	**6430**	**FRA**	**ORD**	**130P**	**420P**	
	LH	**6430**	**UNITED AIRLINES**				Actual operator of LH6430
3	**UA**	**3647**	**TXL**	**FRA**	**1125A**	**1235P**	Same option using code-sharing to list a different way
4	**UA**	**941**	**FRA**	**ORD**	**130P**	**420P**	
	UA	**3647**	**DLH LUFTHANSA**				Actual operator of UA3647
5	DI	7045	TXL	DUS	1135A	1240P	
6	AA	157	DUS	ORD	130P	405P	
7	**LH**	**2423**	**TXL**	**FRA**	**1125A**	**1235P**	Same option listed a third time (as interline connection)
8	**UA**	**941**	**FRA**	**ORD**	**130P**	**420P**	

(Screen Two)

	Airline	Number	Origin	Destination	Leaving	Arriving	
1	**LH**	**2628**	**TXL**	**DUS**	**1115A**	**1220P**	Competing flight option "crowded out" to second screen
2	**AA**	**157**	**DUS**	**ORD**	**130P**	**405P**	
3	UA	3645	TXL	FRA	1025A	1130A	
4	UA	941	FRA	ORD	130P	420P	
	UA	3645	DLH LUFTHANSA				
5	LH	2419	TXL	FRA	1025P	1130A	
6	LH	6430	FRA	ORD	130P	420P	
	LH	6430	UNITED AIRLINES				
7	KL	144	TXL	AMS	1150A	110P	
8	KL	615	AMS	DTW	240P	515P	
9	KL	8175	DTW	ORD	655P	717P	
	KL	8175	NORTHWEST AIR				

TXL: Berlin
FRA: Frankfurt
DUS: Dusseldorf
ORD: Chicago

(Figure notes on next page)

Note: Request was for travel from Berlin to Chicago departing around noon on Saturday, December 10, 1994.

Source: GAO's illustration of the Worldspan display.

Triple listings of the same flight option also reduce the efficiency of travel agents who attempt to identify all options for their customers. ASTA's Assistant Director, Industry Affairs, emphasized that several listings of the same flight create more work for travel agents, who must toggle back and forth between screens to determine which flight options are new and which are merely repeated listings of the same flight. Travel agency executives told us that their travel agents' productivity has decreased because agents have to work harder to provide the same level of service. The problems they characterized included the waste of valuable computer screen space and confusion caused by several CRS listings. They noted that such listings make it harder for agents to provide customers with accurate information on which airline is actually operating a code-share flight. To help alleviate this confusion, travel agent managers at one travel agency we contacted are conducting monthly staff meetings in part to discuss with their agents the status of code-share alliances.

DOT Has Not Taken Action to Limit the Number of Times the Same Flight Can Be Listed in CRSs

Although DOT proposed regulations in August 1994 aimed at ensuring that consumers are notified of which airline is the actual operator before taking a code-share flight, neither the agency's current regulations nor its proposed rules limit the number of times a code-share flight may be listed. In its 1992 revision of its regulations governing CRSs, DOT rejected proposals to impose such limits. The agency acknowledged that listing a flight several times may affect the display position of competing flights and make the display less useful for travel agents, but it noted that individual CRS vendors are not prohibited from limiting the number of listings as long as the service is listed at least once under each participant's code. DOT emphasized that such listings allow each participant in a code-share alliance to establish its own market presence.

Most airline representatives we interviewed stated that the double listing of code-share flights allows an airline to establish a market presence and preserves the consumer benefits resulting from code-sharing. Many, however, characterized the listing of the same flight more than twice as unnecessary and excessive. Northwest's Vice President, International and Regulatory Affairs, and Vice President, Government Affairs, for example,

stated that Northwest would support a DOT rule that prohibited more than two listings as long as that rule preserved code-share partners' ability to each list a given flight once (double listing). United representatives, however, cautioned that an unqualified ban on more than two listings may adversely affect future three-way alliances, such as the possible United/Lufthansa/Thai Airways alliance, in which all three partners would seek to list a given flight as their own.

Concerned about the potential for confusion and consumer deception that may result from triple listings of the same flight, however, the EU included such a ban in its October 1993 revision of its CRS rules. These rules limit to two the number of times a code-share flight can be listed (i.e., once under each partner's code). According to the Principle Administrator of the European Community's Directorate General of Transport, the EU acted because of the negative impact of numerous listings on competition, consumers, and travel agents.

American Airlines and TWA, supported by ASTA, have petitioned DOT not only to follow the EU's lead but to go farther. In June 1994, American and TWA filed petitions with DOT asking the agency to issue regulations that would prohibit the double listing of flights. Representatives from several other U.S. airlines strongly disagreed with the petition. Although generally agreeing that more than two listings of the same code-share flight should be eliminated, these representatives stated that they considered such proposals as "one flight, one listing" to be draconian actions that would seriously undercut one of the rationales behind code-sharing; that is, each airline partner is able to market the flight as its own product. According to these representatives, effective marketing requires appropriate CRS "shelf space."

Conclusions

DOT's policy statement and recent rulemaking proposal to ensure that consumers are adequately notified before traveling on a code-share flight represent important steps forward in defining U.S. international aviation objectives and protecting the flying public. However, several major issues remain unresolved. First, without complete and accurate data, DOT cannot adequately monitor the competitive effects of alliances. Although the agency already collects data from U.S. airlines based on a sampling of their tickets, the data do not identify which passengers have taken code-share flights or, in some cases, which airline actually operated a code-share flight. In addition, because it does not impose similar reporting requirements on foreign airlines, DOT lacks key data on thousands of

passengers traveling to and from the United States on foreign airlines that are flying under code-share arrangements with U.S. airlines.

Second, the question of whether DOT should, in light of the Northwest/KLM experience, grant antitrust immunity to other alliances in markets that allow for significantly increased access for U.S. airlines has yet to be examined. Because foreign governments as well as other U.S. and foreign airlines are just now discovering the success of the Northwest/KLM alliance and believe that much of its impact is due to antitrust immunity, DOT has a new opportunity to entice foreign governments to liberalize their accords with the United States. Without a thorough examination of the Northwest/KLM experience and a comparison of the benefits of open skies with the potentially anticompetitive effects of immunity, however, DOT cannot determine if the use of antitrust immunity as a carrot in other bilateral negotiations is appropriate or whether Northwest and KLM should continue to enjoy the protection of antitrust immunity.

Finally, the listing of the same flight option several times in CRSs limits competition. However, airlines enter code-share alliances precisely to market another airline's flight as their own, thereby necessitating two listings. Recognizing these factors, the EU has limited to two the number of times a code-shared flight can be listed. Outside of the concern expressed about the potential effect on possible three-way alliances, we found that general agreement exists in the airline industry that more than two listings should be prohibited. However, no such agreement exists on whether to ban the double listing of flights, and we do not believe that sufficient evidence exists to justify limiting to one the number of times a flight can be listed.

Recommendations

We recommend that the Secretary of Transportation (1) require that U.S. airlines, as part of their regular reporting of traffic data to DOT, identify passengers that traveled on code-share flights and that they take steps to ensure that they report which airline actually operated those flights; (2) require, either by regulation or by conditioning the approval of code-sharing alliances, that foreign airlines involved in code-sharing alliances with U.S. airlines report data on their code-share traffic to DOT; (3) direct the agency's new economic unit to analyze DOT's existing data and the data obtained above to determine if U.S. consumers and the aviation industry have been significantly affected in a negative way before reapproving all strategic code-sharing alliances and any other alliance that the Secretary deems significant; (4) examine, in light of the

Northwest/KLM experience, whether antitrust immunity should be potentially available for other alliances in markets that allow for significantly increased access for U.S. airlines; and (5) prohibit more than two listings of the same code-share flight in CRSs. In limiting the number of CRS listings of the same flight option to two, the Secretary may wish to examine whether an exception should be granted for alliances with three partners so that each partner may list a given flight as its own.

Agency Comments

We discussed a draft of this report with senior DOT and State Department officials, including DOT's Acting Assistant Secretary for Aviation and International Affairs and State's Director, Office of Aviation Policy and Programs. They emphasized that such alliances produce benefits for partners and consumers. Likewise, they said that they believe that alliances have increased competition as alliances compete with each other and nonallied airlines. They noted that this increased competition has likely led to lower fares and better service for consumers and stimulated new traffic. However, they stated that sufficient data do not exist to demonstrate this possibility or to determine the effects that alliances have had on fares or will have in the long term.

DOT officials noted that most carriers' views reflected in our report were consistent with views expressed directly to the Department. They stated that alliances should be viewed in the context of the global market forces that are reshaping the industry. They noted that like other marketing and service innovations, cooperative arrangements that include code-sharing now have taken root among the world's major airlines. DOT officials emphasized that the large number of passengers flying on code-sharing flights is, in their view, empirical proof of the value of these services to U.S. consumers. They stated that those benefits will not be available to flag carriers and citizens whose governments attempt to prohibit or discourage code-sharing. As a result, they stressed, the challenge for governments is to be vigilant as to potential harm without stifling innovation that could be beneficial to consumers.

DOT officials also concurred that additional data are needed to allow them to better track alliances' long-term impacts on competition. They stated that the special reports that Northwest and USAir have begun to provide—and that United will soon provide—will enable the agency to begin building a fundamental information base early in the history of these alliances, as they proceed more deliberately with respect to general reporting requirements.

They said, however, that our recommendations would improve and expand the agency's existing data and allow the new economic unit to more effectively analyze strategic and other major alliances. However, they noted that in some cases code-sharing rights are exchanged in bilateral agreements and that because of resource constraints, it would not be practicable for the unit to analyze smaller, noncontroversial alliances before DOT reapproves them. On the basis of their comments, we revised our proposed recommendation to call for the new unit to determine if U.S. consumers and aviation industry have been significantly affected in a negative way before reapproving "all strategic code-sharing alliances and any other alliance that the Secretary deems significant" rather than calling for such an analysis on "all alliances" prior to reapproving them.

DOT officials agreed that the agency has not determined whether immunity should be potentially available for other alliances in markets that allow for significantly increased access for U.S. airlines. They declined further comment on antitrust issues, stating that the issue was very sensitive and that the agency was currently in negotiations with several countries. Finally, DOT officials noted that American and TWA had petitioned DOT to pass rules limiting the number of times a flight can be listed in CRSs. They stated that DOT is currently analyzing the petitions and therefore declined to comment on our recommendation.

Code-Sharing Alliances Between U.S. and Foreign Airlines Approved by DOT, as of Dec. 31, 1994

U.S. airline	Foreign airline partner(s)	Year approved
Air L.A.	Aeromexico	1993
America West	Aeromexico	1992
American Airlines	Air New Zealand***	1991
	Airbremen GmBH***	1990
	British Midland	1993
	Cathay Pacific***	1990
	China Airways	1994
	Gulf Air	1994
	Lufthansa***	1991
	Malev Hungarian***	1989
	Qantas	1990
	South African Airways	1992
	Transwede Airways	1994
Carnival	Iberia	1993
	Linea Aerea Nacional Chile	1992
Challenge Air Cargo	Lufthansa	1992
Continental Airlines	AirBC	1994
	Alitalia	1994
	Air Nova	1994
	Air Ontario***	1993
	Ansett New Zealand***	1992
	Scandinavian Airlines Systems	1991
Delta Air Lines	Aeroflot	1991
	Aeromexico	1994
	Austrian Airlines	1994
	Malev Hungarian	1991
	Sabena	1993
	Singapore Airlines	1992
	Swissair	1993
	Transportes Aeroes Portugueses	1994
	Varig	1994
Hawaiian Airlines	Japan Air Lines***	1992
Midwest Express	Virgin Atlantic	1992
Northwest Airlines	Air UK Limited	1994
	Ansett Australia***	1992
	Asiana	1994
	KLM	1991
Pan Am	Ardia Airways***	1990
	Malev Hungarian***	1988
TWA	China Airlines***	1990
	Gulf Air***	1988
	Malev Hungarian***	1989
	Philippine Airlines	1991

(continued)

U.S. airline	Foreign airline partner(s)	Year approved
United Airlines	ALM Antillean Airlines	1993
	Ansett Australia	1992
	Ansett New Zealand	1993
	British Airways***	1987
	British Midland	1992
	Cayman Airways	1994
	Emirites Air	1993
	Lufthansa	1994
	National Airlines Chile, S.A.	1994
	Transbrasil	1993
	Transportes Aeromar	1994
USAir	Alitalia	1991
	All Nippon Airways	1992
	British Airways	1993
	Cayman Airways	1992
	Compania Mexicana de Aviacion	1994
	LADECO***	1991
	Qantas	1994

Notes:

1. "Year approved" represents the year in which DOT approved the first code-share arrangement of an alliance. Alliances often entail subsequent DOT approvals of arrangements to code-share more flights to additional cities.

2. *** denotes that alliance has been terminated by the carriers involved.

Source: DOT.

Alliances Between U.S. and Foreign Airlines by Type, as of Dec. 31, 1994

Strategic Alliances

1. Northwest Airlines/KLM
2. United Airlines/Lufthansa
3. USAir/British Airways

Regional Alliances

4. American Airlines/British Midland
5. American Airlines/Gulf Air
6. Continental Airlines/Alitalia
7. United Airlines/Ansett Australia
8. United Airlines/British Midland
9. United Airlines/National Airlines Chile, S.A.
10. Northwest Airlines/Ansett Australia***
11. TWA/Gulf Air***

Point-Specific Code-Shares

12. Air LA/Aeromexico
13. American Airlines/China Airways
14. American Airlines/Qantas
15. American Airlines/South African Airways
16. American Airlines/Transwede Airways
17. American Airlines/Airbremen GmBH***
18. American Airlines/Air New Zealand***
19. American Airlines/Cathay Pacific***
20. American Airlines/Lufthansa***
21. American Airlines/Malev Hungarian***
22. America West/Aeromexico
23. Carnival/Iberia
24. Carnival/Linea Aerea Nacional Chile
25. Challenge Air Cargo/Lufthansa
26. Continental Airlines/AirBC
27. Continental Airlines/Air Nova
28. Continental Airlines/Air Ontario
29. Continental Airlines/Scandinavian Airlines Systems
30. Continental Airlines/Ansett New Zealand***
31. Delta Air Lines/Aeroflot
32. Delta Air Lines/Aeromexico
33. Delta Air Lines/Austrian Airlines
34. Delta Air Lines/Malev Hungarian
35. Delta Air Lines/Sabena
36. Delta Air Lines/Singapore Airlines
37. Delta Air Lines/Swissair
38. Delta Air Lines/Transportes Aeroes Portugueses

39. Delta Air Lines/Varig
40. Hawaiian Airlines/Japan Air Lines***
41. Midwest Express/Virgin Atlantic
42. Northwest Airlines/Air UK Limited
43. Northwest Airlines/Asiana
44. Pan American/Ardia Airways***
45. Pan American/Malev Hungarian***
46. TWA/China Airlines***
47. TWA/Malev Hungarian
48. TWA/Philippine Airlines
49. United Airlines/ALM Antillean Airlines
50. United Airlines/Ansett New Zealand
51. United Airlines/Cayman Airways
52. United Airlines/Emirites Air
53. United Airlines/Transbrasil
54. United Airlines/Transportes Aeromar
55. United Airlines/British Airways***
56. USAir/Alitalia
57. USAir/All Nippon Airways
58. USAir/Cayman Airways
59. USAir/Compania Mexicana de Aviacion
60. USAir/LADECO***
61. USAir/Qantas

Note: *** denotes that alliance has been terminated by the carriers involved.

Source: GAO's analysis of DOT's and airlines' data.

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