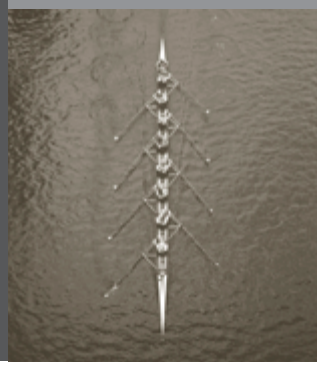
case 3

The US Airline Industry in 2007



Here's a list of 129 airlines that in the past 20 years filed for bankruptcy. Continental was smart enough to make that list twice. As of 1992, in fact – though the picture would have improved since then – the money that had been made since the dawn of aviation by all of this country's airline companies was zero. Absolutely zero.
Sizing all this up, I like to think that if I'd been at Kitty Hawk in 1903 when Orville Wright took off, I would have been farsighted enough, and public-spirited enough – I owed this to future capitalists – to shoot him down.
I mean, Karl Marx couldn't have done as much damage to capitalists as Orville did.

WARREN BUFFETT, CHAIRMAN, BERKSHIRE HATHAWAY

As they returned to work at the beginning of January 2007, the senior executives of America's leading airlines experienced a feeling of optimism and *joie de vivre* that had been largely absent for most of the previous six years.

Between 2001 and 2005, the industry had been ravaged by the horror of September 11, 2001 and the raft of new security measures that followed in its wake, by a tripling in the price of jet fuel, and by unprecedented competitive pressures from a new generation of low-cost airlines. During this period, the industry racked up losses of $35 billion and four of the countries six biggest airlines were forced into Chapter 11 bankruptcy.

Yet, 2006 appeared to be a turning point. For the first time since 2000 the industry made a profit (albeit a small one); only three of the leading carriers reported losses (see table 3.1). United Airlines followed US Airlines out of bankruptcy, leaving only Delta and Northwestern still in Chapter 11. Even the

TABLE 3.1 Revenues, profits, and employment of the seven largest US airlines

	Revenue		Net income		Return on assets*		Employees	
	2006 $ billion	2005 $ billion	2006 $ million	2005 $ million	2006 (%)	2005 (%)	2006	2002
AMR	17.4	20.7	680	(861)	0.5	(3.2)	86,800	109,500
UAL	13.7	17.4	(4,160)	(21,176)	(0.3)	(4.1)	57,000	72,000
Delta	13.3	16.2	(3,610)	(3,818)	(4.8)	(10.0)	55,700	76,100
Northwest	9.5	12.3	(3,210)	(2,533)	(2.6)	(7.0)	32,460	44,300
Continental	8.9	11.2	420	(68)	3.2	(0.4)	42,200	43,900
US Airways Group	7.0	5.1	228	(537)	2.6	(2.1)	12,100	46,600
Southwest	5.9	7.6	738	548	6.7	5.8	31,729	33,700
TOTAL	75.7	90.5	(8,914)	(28,445)	n.a.	n.a.	317,989	426,100

* Return on assets = Per-tax operating income/Total assets; n.a. = not applicable.

SOURCES: 10-K REPORTS.

battered stocks of the airline companies were experiencing revival. The AMEX Airline Index had hit a high for the year in December 2006, while the stock prices of AMR (the parent of American), Continental Airlines, and US Airlines Group had all more than doubled since the beginning of the year. Stock market interest in the sector had been stimulated by the prospects for a new round of consolidation in the industry. The merger of US Airlines Group and America West Airlines at the end of 2005 was followed by a hostile bid by the newly merged company for Delta Airlines in November 2006. Responding to news of the bid, United's CFO, Jack Brace, told investment analysts: "We think consolidation is good for the industry, and if it makes sense for us to participate, we will. Consolidation is a natural phase for the evolution of an industry as mature as ours." Brace believed that the domestic airline industry would consolidate around two to four legacy network carriers, with three being the most likely number. This would help limit seat capacity and provide more pricing power to the airlines.

Among industry executives and investment analysis, opinions on the prospects for the US airline industry were mixed. Some pointed to a new climate of realism and financial prudence in the industry. After more than five years of struggle, the major carriers had done much to get costs under control. They had confronted the labor unions and gained substantial concessions on pay, benefits, and working practices. They had gained efficiency benefits from outsourcing and better use of IT, and retired many of their fuel-inefficient older planes.

Others were less sanguine. The problems of the airline industry could not be attributed just to 9/11 and high fuel prices. For decades the industry has generated poor returns on the capital invested in it – not just in the US, but in other countries too. Nor could poor industry performance be attributed to inept management. It was notable that, while the "legacy carriers" (the major, established network operators) had cut costs and eliminated losses, many of the low-cost carriers were beginning

to struggle. Jet Blue and Air Tran were both barely profitable during 2006. "We've been here before, many times," observed one industry veteran, "Just when the industry seems to be climbing out of the mire, the industry's dire economics reaasert themselves."

From Regulation to Competition

The history of the US airline industry breaks into two main phases: the period of regulation up until 1978, and the period of deregulation since then.

The Airlines Under Regulation (Pre-1978)

The first scheduled airline services began in the 1920s – primarily for carrying mail rather than passengers. By the early 1930s, transcontinental routes were controlled by three airlines: United Airlines in the north, American Airlines in the south, and TWA through the middle. New entry and growing competition (notably from Delta and Continental) led to the threat of instability in the industry, and in 1938 Congress established the Civil Aeronautics Board (CAB) with authority to administer the structure of the industry and competition within it. The CAB awarded interstate routes to the existing 23 airlines, established safety guidelines priorities, and strict rules for passenger fares, airmail rates, route entry and exit, mergers and acquisitions, and interfirm agreements. Fares were set by CAB on the basis of cost plus a reasonable rate of return. The outcome was an ossification of industry structure – despite more than 80 applications, not a single new carrier was approved between 1938 and 1978. Instead, new entrants set up as local carriers offering intrastate routes.

Rapid expansion of the industry after World War II and a wave of technological innovations – notably the jet – led to increasing concerns over airline safety and the establishment of the Federal Aviation Administration to regulate airline safety.

During the 1970s, a major shift occurred in political opinion as increasing support for economic liberalism resulted in demands for less government regulation and greater reliance on market forces. Political arguments for deregulation were supported by new developments in economics. The case for regulation had been based traditionally on arguments about "natural monopoly" – competitive markets were impossible in industries where scale economies and network effects were important. During the early 1970s, the *theory of contestable markets* was developed. The main argument was that industries did not need to be competitively structured in order to result in competitive outcomes. So long as barriers to entry and exit were low, then the potential for "hit and run" entry would cause established firms to charge competitive prices and earn competitive rates of return. The outcome was the Airline Deregulation Act which, in October 1978, abolished the CAB and inaugurated a new era of competition in the airline industry.

The Impact of Deregulation

The elimination of restrictions over domestic routes and schedules and over domestic fares resulted in a wave of new entrants and an upsurge in price competition. By 1980, 20 new carriers – including People Express, Air Florida, and Midway – had set up.

TABLE 3.2 Financial and operating data for the US airline industry, 1978–2006

	Available seat miles (billions)	Load factor (%)	Breakeven load factor (%)	Operating revenue ($ billion)	Net income ($ million)	Operating margin (%)	Net margin (%)	Rate of return on investment[a] (%)
1978	369	61.5	57.4	22.9	1,197	6.0	5.2	13.3
1979	416	63.0	62.5	27.2	347	0.7	1.3	6.5
1980	433	59.0	59.1	33.7	17	(0.7)	0.1	5.3
1981	425	58.6	59.2	36.7	(301)	(1.2)	(0.8)	4.7
1982	440	59.0	60.0	36.4	(916)	(2.0)	(2.5)	2.1
1983	465	60.7	60.1	39.0	(188)	0.8	0.5	6.0
1984	515	59.2	56.3	43.8	825	4.9	1.9	9.9
1985	548	61.4	59.7	46.7	863	3.1	1.8	9.6
1986	607	60.3	58.7	50.5	(235)	2.6	(0.5)	4.9
1987	649	62.4	59.6	57.0	593	4.3	1.0	7.2
1988	677	62.5	58.9	64.6	1,686	5.4	2.6	10.8
1989	684	63.2	61.6	69.3	128	2.6	0.2	6.3
1990	733	62.4	64.0	76.1	(3,921)	(2.5)	(5.1)	(6.0)
1991	715	62.6	64.1	75.2	(1,940)	(2.4)	(2.6)	(0.5)
1992	753	63.6	65.6	78.1	(4,791)	(3.1)	(3.1)	(9.3)
1993	771	63.5	62.4	83.8	(2,136)	1.7	1.7	(0.4)
1994	784	66.2	66.8	88.3	(344)	3.0	(0.4)	5.2
1995	807	67.0	64.9	94.6	2,314	6.2	2.4	11.9
1996	835	69.3	66.9	101.9	2,804	6.1	2.8	11.5
1997	861	70.3	65.0	109.6	5,168	7.8	4.7	14.7
1998	874	70.7	66.7	113.5	4,903	8.2	4.3	12.0
1999	918	71.0	66.4	119.0	5,360	7.0	4.5	11.1
2000	957	71.2	70.2	130.8	2,486	5.3	2.0	6.4
2001	923	69.1	77.0	115.4	(8,275)	(5.4)	(8.9)	(6.5)
2002	893	70.3	84.1	107.0	(11,295)	(8.0)	(10.6)	(9.6)
2003	894	72.4	86.0	115.9	(3,625)	(1.9)	(3.1)	(0.3)
2004	971	75.5	90.2	134.5	(7,643)	(1.1)	(5.7)	(5.8)
2005	1,003	77.6	91.8	150.8	(5,673)	(0.2)	(3.8)	(3.4)
2006		79.9	89.6					

[a] Net income *plus* Interest expense *as a percentage of* Shareholders' equity *plus* Long-term debt.

SOURCES: AIR TRANSPORT ASSOCIATION, *ANNUAL ECONOMIC REPORTS* (VARIOUS YEARS); BUREAU OF TRANSPORTATION STATISTICS.

Deregulation was quickly followed by the oil shock of 1979, the onset of worldwide recession, and the air traffic controllers' strike of 1981. During 1978–82, the industry incurred massive losses (see table 3.2), causing widespread bankruptcy (between 1978 and 1988 over 150 carriers went bust) and a wave of mergers and acquisitions. By 1982, expansion had resumed and during the rest of the 1980s and into the 1990s mileage flown grew at a trend rate of 4% per annum. At the same time, competition and the quest for efficiency resulted in a continuous decline in real prices (see table 3.3).

TABLE 3.3 The falling price of air travel: revenue per passenger seat mile (cents)

	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005
At nominal prices	6.1	6.1	6.0	7.7	11.5	12.2	13.4	13.5	14.6	12.3
At constant 1984 prices	20.3	19.4	15.4	14.3	14.0	11.3	10.2	8.9	8.5	6.3

SOURCE: BUREAU OF TRANSPORTATION STATISTICS.

Firm Strategy and Industry Evolution After Deregulation

Changes in the structure of the airline industry during the 1980s and 1990s were primarily a result of the strategies of the airlines as they sought to adjust to the new conditions of competition in the industry and gain competitive advantage.

Route Strategies: The Hub-and-Spoke System

During the l980s the major airlines reorganized their route maps. A system of predominantly point-to-point routes was replaced by one where each airline concentrated its routes on a few major airports linked by frequent services using large aircraft, with smaller, nearby airports connected to these hubs by shorter routes using smaller aircraft. This "hub-and-spoke" system offered two major benefits:

- It allowed greater efficiency through reducing the total number of routes needed to link a finite number of cities within a network and concentrating traveler and maintenance facilities in fewer locations. It permitted the use of larger, more cost-efficient aircraft for interhub travel. The efficiency benefits of the hub-and-spoke system were reinforced by scheduling flights such that incoming short-haul arrivals were concentrated at particular times to allow passengers to be pooled for the longer haul flights on large aircraft.
- It allowed major carriers to establish dominance in major regional markets and on particular routes. In effect, the major airlines became more geographically differentiated in their route offerings. Table 3.4 shows cities where a single airline held a dominant local market share. The hub-and-spoke system also created a barrier to the entry of new carriers who often found it difficult to obtain gates and landing slots at the major hubs.

The hub-and-spoke networks of the major airlines were extended by establishing alliances with local ("commuter") airlines. Thus, American Eagle, United Express, and Delta Shuttle were franchise systems established by AMR, UAL, and Delta respectively, whereby commuter airlines used the reservation and ticketing systems of the major airlines and coordinated their operations and marketing policies with those of their bigger partners.

Mergers

New entry during the period of deregulation had reduced seller concentration in the industry (see table 3.5). However, the desire of the leading companies to build

TABLE 3.4 Local market share of largest airline for selected US cities (by number of passengers), 2005

City	Airline	Share of passengers (%)
Dallas-Forth Worth	American	72
Miami	American	68
Minneapolis-St. Paul	Northwestern	65
Detroit	Northwestern	61
Houston	Continental	61
Altanta	Delta	58
Charlotte	US Airways	55
Baltimore	Southwest	53
Newark	Continental	52
San Francisco	United	44
Denver	United	44
Cincinnati	Delta	39

SOURCE: BUREAU OF TRANSPORTATION STATISTICS.

TABLE 3.5 Concentration in the US airline industry

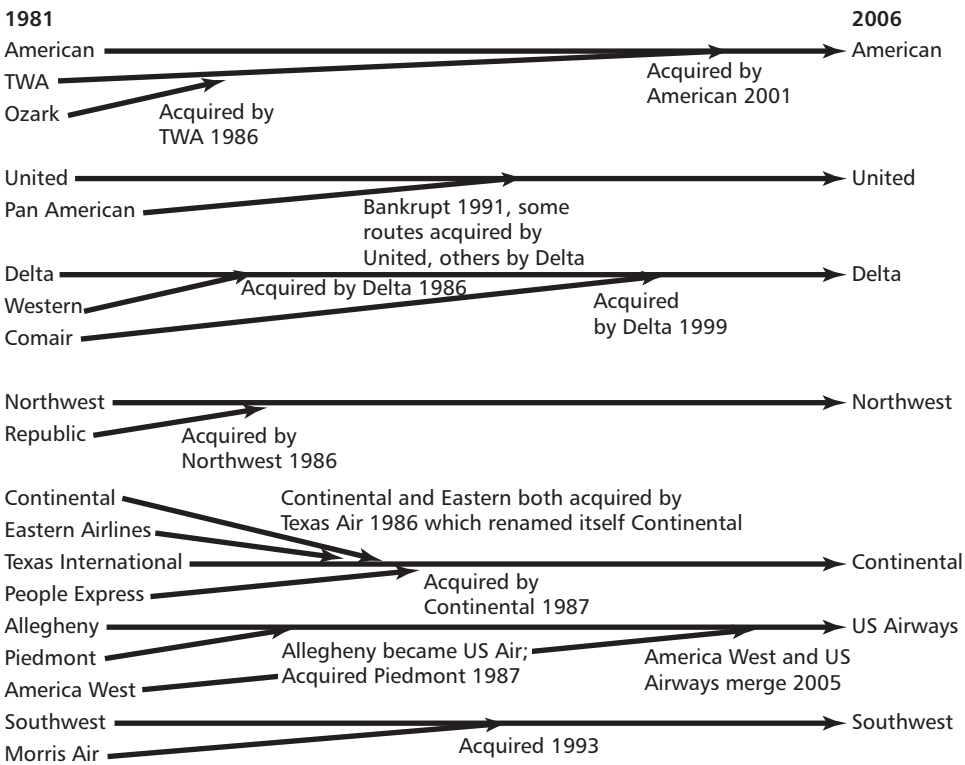
Year	Four-firm concentration ratio	Year	Four-firm concentration ratio
1935	88%	1982	54.2%
1939	82%	1987	64.8%
1949	70%	1990	61.5%
1954	71%	1999	66.4%
1977	56.2%	2002	71.0%
		2005	55.4%

Notes: The four-firm concentration ratio measures the share of the industry's passenger-miles accounted for by the four largest companies. During 1935–54, the four biggest companies were United. American, TWA, and Eastern. During 1982–2005, the four biggest companies were American, United, Delta, and Northwest.

SOURCE: US DEPT. OF TRANSPORT.

national (and international) route networks encouraged a wave of mergers and acquisitions in the industry – many of which were facilitated by the financial troubles that beset several leading airlines. Consolidation would have gone further without government intervention on antitrust grounds – the proposed merger between United and US Airways was halted in 2001. Figure 3.1 shows some of the main mergers and acquisitions. During 2002–5, concentration declined as a result of capacity reduction by the major bankrupt airlines (United, Delta, and Northwest) and the market share going by low-cost carriers.

FIGURE 3.1 Consolidation in the US airline industry after deregulation



SOURCE: UPDATED FROM S. BORENSTEIN, "THE EVOLUTION OF US AIRLINE COMPETITION," *JOURNAL OF ECONOMIC PERSPECTIVES*, VOL. 6, NO. 2, 1992, P. 48.

Prices and Costs

The growth of competition in the post-deregulation era was most apparent in the prices of air tickets. The instigators of lower prices were mainly established airlines suffering from weak revenues and excess capacity and eager for cash flow, and new entrants into the industry. The new, low-cost entrants played a critical role in stimulating the price wars that came to characterize competition after deregulation. People Express, Braniff, New York Air, and Southwest all sought aggressive expansion through rock bottom fares made possible by highly efficient cost structures and a bare-bones service (the low-cost carriers economized on in-flight meals, entertainment, and baggage handling). Although most of the low-cost newcomers failed during the early years of airline deregulation, new entrants continued to appear throughout the 1980s and 1990s.

In response to the price initiatives of the low-cost airlines, the major carriers sought to cut prices selectively. Fare structures became increasingly complex as airlines sought to separate price-sensitive leisure customers from price-inelastic business travelers. As a result, fare bands widened: advanced purchased economy fares with Saturday night stays were as little as 10% of the first-class fare for the same journey.

Price cuts were also selective by route. Typically the major airlines offered low prices on those routes where they faced competition from low-cost rivals. Southwest, the biggest and most successful of the economy carriers, complained continually of predatory price cuts by its larger rivals. However, the ability of the major airlines to compete against the budget airlines was limited by the majors' cost structures – in particular, restrictive labor agreements, infrastructure, and commitment to extensive route networks. Hence, to meet the competition of low-cost newcomers, several of the majors set up new subsidiaries to imitate the strategies and cost structures of the budget airlines. These included: Continental's Continental Lite (1994), UAL's "Shuttle by United" (1995), Delta's Song (1993), and United's Ted (1994). By 2007, only the United offshoot, Ted, was still in operation.

During the crisis years of 2001–5, the major airlines made strenuous efforts to cut costs. Union contracts were renegotiated, inefficient working practices terminated, unprofitable routes abandoned, and employment numbers reduced. Nevertheless, the budget airlines still maintained a substantial cost advantage over the majors. Higher fuel prices hit the major airlines more heavily than the low-cost carriers. Not only did the low-cost carriers have newer, more fuel-efficient planes, but their stronger financial positions allowed them to make forward purchases to protect against escalating fuel prices.

The Quest for Differentiation

Under regulation, the inability to compete on price resulted in airline competition shifting to non-price dimensions – customer service and in-flight food and entertainment. Deregulation brutally exposed the myth of customer loyalty: most travelers could not distinguish major differences between the offerings of the different major airlines and were increasingly indifferent as to which airline they flew on a particular route. Increasing evidence that airline seats were fundamentally commodity products did not stop the airlines from attempting to differentiate their offerings and build customer loyalty.

For the most part, efforts to attract customers through enhanced services and facilities were directed towards business travelers. The high margins on first- and business-class tickets provided a strong incentive to attract these customers by means of spacious seats and intensive in-flight pampering. For leisure travelers it was unclear whether their choice of carrier was responsive to anything other than price, and the low margins on these tickets limited the willingness of the airlines to increase costs by providing additional services.

The most widespread and successful initiative to build customer loyalty was the introduction of frequent flyer schemes. American's frequent flyer program was introduced in 1981 and was soon followed by all the other major airlines. By offering free tickets and upgrades on the basis of number of miles flown, and building in different threshold levels for receiving benefits, the airlines encourage customer loyalty and discourage customers from switching airlines in response to small price differentials. By the end of 2006, airlines' unredeemed frequent flyer miles had surged to over 10 trillion miles. Through involving other companies as partners – car rental companies, hotel chains, credit card issuers – frequent flyer programs had become an important source of additional revenue for the airlines, being worth over $10 billion annually.

TABLE 3.6 The US airline companies in 2006

Major airlines	ABX, Air Tran, Alaska, America West, American, American Eagle, Atlas Polar, ATA, Continental, Delta, ExpressJet, FedEx, Jet Blue, Mesa, Northwest, Skywest, Southwest, United, UPS, US Airways
National airlines	Air Transport International, Air Wisconsin, Aloha, Atlantic Southeast, Amerijet International, ASTAR, Champion, Comair, Continental Micronesia, Executive, Frontier, Florida West, Hawaiian, Horizon Air, Independence, Kalitta, Mesaba, Midwest, Pinnacle, PSA, Ryan Int'l, Spirit Air, Sun Country, Trans States, Transmeridian, USA 3000, USA Jet, World

Note: "Majors" have annual revenues exceeding $1 billion; "Nationals" have revenues between $100 million and $1 billion.

SOURCE: AIR TRANSPORT ASSOCIATION.

TABLE 3.7 Operating data for the larger airlines, 2003 and 2006

	Available seat miles (billions)		Load factor (%)		Operating revenue per available seat mile (cents)		Operating expense per available seat mile (cents)	
	2003	2006	2003	2006	2003	2006	2003	2006
American	165.2	175.9	72.8	82.0	8.7	12.48	10.2	12.47
United	136.6	139.8	76.5	82.1	9.4	13.13	10.5	13.08
Delta	134.4	133.5	73.4	77.8	9.9	12.98	10.5	13.57
Northwest	88.6	91.8	77.3	82.7	8.6	14.33	9.9	14.47
Continental	78.4	85.5	75.5	83.1	8.7	13.51	9.4	13.26
Southwest	71.8	85.2	66.8	73.0	8.3	9.52	7.6	8.46
US Airways	58.0	83.9	71.5	77.6	10.6	15.68	11.6	15.20
Air Tran	10.0	15.4	71.1	74.4	8.9	10.10	6.5	9.79
Jet Blue	13.6	23.8	84.5	82.5	7.3	7.55	6.0	7.48
Alaska	22.2	22.2	62.9	76.4	11.75	11.32	11.80	11.52

SOURCES: BUREAU OF TRANSPORTATION STATISTICS; COMPANY 10-K REPORTS.

The Industry in 2007

The Airlines

At the beginning of 2007, the US passenger airline industry comprised about 56 airline companies together with about 50 local carriers (see table 3.6). The industry was dominated by seven major passenger airlines – United, American, Delta, Northwestern, Continental, US Airways, and Southwest (see table 3.7). The importance of the leading group was enhanced by their networks of alliances with smaller airlines. Given the perilous financial state of so many of the leading airlines, most observers expected that the trend towards consolidation in the industry would continue.

Market for Air Travel

At the beginning of the 21 century, airlines provided the dominant mode of long-distance travel in the US. For shorter journeys, cars provided the major alternative. Alternative forms of public transportation – bus and rail – accounted for a small proportion of journeys in excess of a hundred miles. Only on a few routes (e.g. between Washington, New York, and Boston) did trains provide a viable alternative to air.

Most forecasts pointed to continued growth in the demand for air travel – probably below the 5% annual trend rate of the previous two decades, but most likely faster than the rate of population growth. The chances of any significant shift of demand to alternative modes of transport seemed slight: there seemed little chance that the US would develop high-speed train services similar to those of Europe and Japan. Meanwhile, the communications revolution seemed to have done little to relieve business people of the need to meet face-to-face.

More important changes were occurring within the structure of market demand. Of particular concern to the airlines was evidence that the segmentation between business and leisure customers was breaking down. Conventional wisdom dictated that while the demand for air tickets among leisure travelers was fairly price elastic, that of business travelers was highly inelastic, allowing the airlines to subsidize leisure fares with high-margin business fares. Between 2001 and 2006, the price gap between leisure fares (restricted tickets typically requiring a Saturday night stay) and business fares (first-class tickets and flexible coach tickets without advance purchase requirements) continued to grow. The primary reason was falling leisure fares as low-cost carriers offered price competition over more and more routes. Moreover, widening differentials in air fares encouraged many companies to change their travel policies: more and more business travel was on restricted coach-class tickets.

Major changes were occurring within the distribution side of the industry. Historically, the primary channel of distribution of airline tickets was travel agencies – retailers that specialized in the sale of travel tickets, hotel reservations, and vacation packages. From 1996, airlines began pruning their commissions paid to travel agents with cuts from 10% to 8%, then to 5%. By 2003, all the major airlines had stopped paying commissions to independent travel agents. By 2006, commissions paid by the airline companies amounted to only 1.3% of operating expenses (see table 3.9 below), down from 6.2% in 1991.

Meanwhile the companies were developing their direct sales organizations using both telephone and web-based reservations systems. However, the airlines were slower than e-commerce startups in exploiting the opportunities of the internet. Despite the launch of Orbitz (the airlines' own online reservations service) in June 2001, Expedia and Travelocity lead online air ticket sales. As well as wielding greater bargaining power than traditional travel agencies, they also provided consumers with unparalleled transparency of prices, permitting the lowest price deals to be quickly spotted. The traditional travel agent sector was increasingly dominated by global leaders such as American Express and Thomas Cook.

Airline Cost Conditions

A little more than one-third of airline operating costs are accounted for by flying operations while servicing and maintenance account for another one-quarter (see table 3.8). In terms of individual cost items, labor and fuel costs are by far the biggest

TABLE 3.8 The cost structure of the US airline industry by activity, 2002 and 2005

	Percentage of total operating costs	
	2002	2005
Flying operations	30.1	36.5
Aircraft and traffic servicing	15.9	14.1
Maintenance	12.2	10.3
Promotion and sales	9.3	5.7
Transport related	10.0	16.7
Passenger services	8.3	6.2
Administrative	7.5	6.0
Depreciation and amortization	6.7	4.5
TOTAL	100.0	100.0

SOURCE: AIR TRANSPORT ASSOCIATION.

TABLE 3.9 Operating costs in the US airline industry, 2006

Cost item	Increase in cost 2000–6 (%)	Percentage of total operating expenses
Labor	12.8	23.8
Fuel	15.8	25.5
Aircraft ownership	(19.6)	6.9
Non-aircraft ownership	3.9	4.6
Professional services	7.9	7.8
Food and beverage	(43.2)	1.5
Landing fees	44.7	2.0
Maintenance material	(41.4)	1.4
Aircraft insurance	46.7	0.1
Non-aircraft insurance	140.5	0.5
Passenger commissions	(69.8)	1.3
Communication	(29.8)	0.9
Advertising and promotion	(36.2)	0.8
Utilities and office supplies	(21.4)	0.5
Transport-related expenses	337.9	14.7
Other operating expenses	(4.5)	7.6
Total	**180.4**	**100.0**

SOURCE: BUREAU OF TRANSPORTATION STATISTICS.

(see table 3.9). A key feature of the industry's cost structure is the very high proportion of costs that are fixed. For example, because of union contracts, it was difficult to reduce employment and hours worked during downturns. The majors' need to maintain their route networks added to the inflexibility of costs – the desire to retain the integrity of the entire network made the airlines reluctant to shed unprofitable routes during downturns. An important implication of the industry's cost structure is that, at times of excess capacity, the marginal costs of filling empty seats on scheduled flights are extremely low.

Labor The industry's labor costs are boosted by the high level of employee remuneration – average pay in airlines was $52,732 in 2005; 40% higher than the average for all private industries. Labor costs were also boosted by low labor productivity that resulted from rigid working practices agreed with unions. Most airline workers belong to one of a dozen major unions, the Association of Flight Attendants, the Air Line Pilots Association, the International Association of Machinists and Aerospace Workers being the most important. These unions have a tradition of militancy and have been highly successful in negotiating pay increases far above the rate of inflation.

Between 2002 and 2006, the airlines forced major concessions from their employees. As a result, average compensation (including benefits) declined from $79,356 in 2003 to $73,055 in 2005. Industry employment fell from a peak of 679,967 in 2000 to 552,857 in 2005.

Fuel How much a carrier spends on fuel depends on the age of its aircraft and its average flight length. Newer planes and longer flights equate to higher fuel efficiency. Also, the fuel efficiency of different aircraft varies widely, primarily dependent on the number of engines. Fuel prices represent the most volatile and unpredictable cost item for the airlines due to fluctuations in the price of crude oil. Between January 2002 and July 2006, New York spot crude prices rose from $19 to $78 a barrel.

Equipment Aircraft were the biggest capital expenditure item for the airlines. At prices of up to $150 million apiece (the A380 will be over $200 million), the purchase of new planes represented a major source of financial strain for the airlines. While Boeing and Airbus competed fiercely for new business (especially when, as in 2002–4, they had spare capacity), aggressive discounts and generous financing terms for the purchase of new planes disguised the fact that a major source of profits for the aircraft manufacturers was aftermarket sales. Over the past 20 years the number of manufacturers of large jets declined from four to two. Lockheed ceased civilian jet manufacture in 1984; McDonnell Douglas was acquired by Boeing in 1997. The leading suppliers of regional jets were Bombardier of Canada and Embraer of Brazil. During 2005, Boeing had earned a net profit of $2.6 billion, representing a 23.3% return on equity.

Airport Facilities Airports play a critical role in the US aviation industry. They are hugely complex, expensive facilities and few in number. Only the largest cities are served by more than one airport. Despite the rapid, sustained growth in air transport over the 30 years since deregulation, only one major new airport has been built – Denver. Most airports are owned by municipalities and can generate substantial revenue flows for the cities. Landing fees are set by contracts between the airport and the airlines, and are typically based on aircraft weight. New York's La Guardia airport has the highest landing fees in the US, charging over $6,000 for a Boeing 747 to land. In 2005, the airlines paid over $2 billion to US airports in landing fees, and a further $2.6 billion in passenger facility charges.

Four US airports – JFK and La Guardia in New York, Chicago's O'Hare, and Washington's Reagan National – are officially "congested" and takeoff and landing slots are allocated to individual airlines where the airlines assume de facto ownership. Growth of air travel is likely to increase problems of congestion and increase the value of takeoff and landing slots. At London's Heathrow airport, slots have been traded between airlines at high prices: American and United paid more than $27 million each for PanAm's takeoff/landing slots; Qantas paid BA $30 million for two slots.

Cost Differences Between Airlines One of the arguments for deregulation had been that there were few major economies of scale in air transport; hence large and small airlines could coexist. Subsequently, little evidence has emerged of large airlines gaining systematic cost advantages over their smaller rivals. However, there are economies associated with network density – the greater the number of routes within a region, the easier it is for an airline to gain economies of utilization of aircraft, crews, and passenger and maintenance facilities. In practice, cost differences between airlines are due more to managerial, institutional, and historical factors rather than the influence of economies of scale, scope, or density. The industry's cost leader, Southwest, built its strategy and management systems around the goal of low costs. By offering services from minor airports, with limited customer service, a single type of airplane, job-sharing among employees, and salary levels substantially less than those paid by other major carriers, Southwest achieves one of the industry's lowest costs per available seat mile (CASM) despite flying relatively short routes. Conversely, US Airways has the highest operating costs of the majors. These are partly a result of external factors – short routes, smaller planes, and frequent adverse weather conditions in the north-east – but mainly the consequence of low productivity due to restrictive working arrangements agreed with unions.

A critical factor determining average costs is capacity utilization. Because most costs, at least in the short run, are fixed, profitable operation depends on achieving break-even levels of capacity operation. When airlines were operating below break-even capacity there are big incentives to cut prices in order to attract additional business. The industry's periodic price wars tended to occur during periods of slack demand and on routes where there were several competitors and considerable excess capacity.

Achieving high load factors while avoiding ruinously low prices is a major preoccupation for the airlines. All the major airlines have adopted yield management systems – highly sophisticated computer models that combine capacity and purchasing data and rigorous financial analysis to provide flexible price determination. The goal is to earn as much revenue on each flight as possible. Achieving this goal has meant a proliferation of pricing categories and a plethora of special deals.

Entry and Exit

Hopes by the deregulators that the US airline business would be a case study of competition in a contestable industry were thwarted by two factors: significant barriers to both entry and exit, and evidence that potential competition was no substitute for actual competition in lowering fares on individual routes. While the capital requirements of setting up an airline can be low (a single leased plane will suffice), offering an airline service requires setting up a whole system comprising gates, airline and aircraft certification, takeoff and landing slots, baggage handling services, and the marketing and distribution of tickets. At several airports, the dominance of gates and landing slots by a few major carriers made entry into particular routes difficult and forced start-up airlines to use secondary airports. Yet, despite the challenges of entry barriers and the dismal financial performance of the industry there seemed to be no shortage of willing entrepreneurs attracted to the apparent glamour of owning an airline. International airlines were also potential entrants into the US domestic market. There was the possibility that a new airline agreement between the US and the EU might lift US restriction on European airlines either acquiring US airlines or offering internal services within the US.

A key factor intensifying competition in the industry has been the barriers to exit that prevent the orderly exit of companies and capacity from the industry. The tendency for loss-making airlines to continue in the industry for long periods of time can be attributed to two key exit barriers: first, contracts (especially with employees) give rise to large closure costs; second, Chapter 11 of the bankruptcy code allows insolvent companies to seek protection from their creditors (and from their existing contracts) and continue operation under supervision of the courts. A critical problem for otherwise financially healthy airlines was meeting competition from bankrupt airlines, which had the benefit of artificially lowered costs.

Looking to the Future

The new found optimism that pervaded the US airline industry at the beginning of 2007 had its basis in several factors. The revival in industry profitability could be attributed primarily to increasing industry load factors. Strong growth in demand together with the reluctance of the major airlines to add capacity (primanily because so many were mired in Chapter 11) resulted in an unprecedentedly high load factor for 2006. This did much to reduce their incentive to engage in price competition. Simultaneously, most of the major airlines had been able to offset the escalating price of fuel by reducing operating costs elsewhere. All the major airlines had achieved significant reductions in headcount while reducing levels of employee pay and benefits. If US Airways bid for Delta marked the beginning of a new wave of industry consolidation, this could do much to create a more stable industry structure where the airlines would be much better able to avoid destructive price competition.

The key question was: Would the good times last? At the end of the 1990s, the industry had made similar progress in restoring profitability. Yet, September 11, 2001, a new wave of competition from budget airlines, and an escalation in fuel prices had brought the whole industry to the brink of financial ruin. The evidence of past revivals in the industry suggested that they came to end either as a result of external events – a terrorist attack, a series of serious crashes, or an economic recession – or as a result of internal factors. These related primarily to the tendency for any emergence of prosperity to be undermined by the entry of new airlines and the expansion of capacity by established airlines.

The success of the major airlines in improving operational efficiency also raised some perplexing questions. The widespread assumptions had been that, if the major airlines could reduce their costs to the level of Southwest and the other low-cost carriers, they could enjoy profit levels similar to those experienced by Southwest. Yet despite the efforts of the majors, Southwest, Jet Blue and the other budget airlines still retained a substantial cost advantage over the legacy carriers. But even if the major airlines could continue to reduce costs, who would the beneficiaries be: the long-suffering shareholders of the companies or travelers as competition for business encouraged the airlines to pass on cost reductions to customers in the form of lower prices?