

only 26.8 percent during the same period.

2. The level of long term debt will not rise much above 50 percent of total capital -- a one-to-one debt/equity ratio.
3. The historical levels of working capital, with respect to operating expenses, will be maintained.

Using these assumptions, a corporate return on investment of between 13 percent and 15 percent will be necessary to meet the \$90 billion requirement.

Profitability levels of the past ten years contrast with those needed in the 1980's. From 1969 through 1974, the airline industry's corporate ROI averaged about 3.8 percent. Beginning in 1976 it began to climb: 8 percent in 1976, 10.9 percent in 1977, and 13 percent in 1978 -- the year in which the airlines earned a record \$1.2 billion. Even then, 13 percent is the minimal level necessary for investment in the 1980's. Corporate ROI for 1979 is estimated at 9.6 percent -- well short of the minimal requirement.

ROI's between 13 percent and 15 percent would generate steadily rising net incomes ranging between \$5.8 billion and \$7.8 billion by 1989.

In 1970 long term debt represented more than 75 percent of capital. However, this ratio has declined during the past decade, indicating that the industry has taken advantage of recent earnings to restructure balance sheets. A 13 to 15 percent ROI would provide continued improvement in the debt/equity ratio during the early years of the 1980's and produce debt to total capital ratios near the 50 percent level in the later years of the decade.

Competition for Investment Funds

The airlines' low earnings history meant that small profits reduced the supply of internal funds for needed growth and prevented the airlines from attracting favorable interest rates from prime lenders. Airlines were forced to pay more for borrowed capital and thus increased indebtedness which contributed to lower earnings. U.S. non-financial corporations have increased their ROI from about 10 percent in 1969 to a little more than 12 percent in 1978. The airlines did not enter this range until 1978.

The industry reached and even exceeded the average return on investment for all U.S. non-financial corporations only in 1978. Estimates for 1979 are for 9.6 percent -- well below the 12.4 percent estimated for all U.S. non-financial corporations.

With the present shortage of capital and the forecast by non-financial industries that their capital requirements for the 1980's will be 300 percent greater than today, it is obvious there will be intense competition for investment funds. In capital market competition, long term profitability is a vital factor.

Applications and Sources of Funds

In addition to a capital requirement of \$90 billion, the airlines have other significant demands on their funds. Debt service and repayment will require an additional \$19 billion in the 1980's. Another \$11 billion will go for stockholders' dividends if the rate of 25 percent of net income is to be maintained. And about \$2 billion will be needed for additional working capital. Thus, the total funds

needed from 1979 through 1989 will amount to \$122 billion.

What will be the source of this \$122 billion? Net income, at the 15 percent ROI level, would provide \$45 billion. Funds allocated for replacement of equipment -- depreciation -- would yield another \$34 billion. The remaining \$43 billion must be secured through new debt or new equity. The ATA study assumes that these funds would come from new debt, since the debt ratio at this level of profitability would not result in an excessively high debt/equity ratio. This, of course, does not preclude the possibility of carriers seeking and receiving equity financing in the future.

FINANCING THE U.S. AIRLINE INDUSTRY IN THE 1980's Robert Schwarzenbach, Chase Manhattan Bank

The U.S. airline industry faces some financial constraints during the next decade in financing the purchase of some 2,000 aircraft, engines, and related equipment estimated to cost \$60 billion. (See Exhibit 1, "Note on the Amount of New Aircraft Investment During the 1980's").

In historical perspective, this figure is staggering. Today, the combined debt of all U.S. carriers (including capitalized leases and subordinated debt) is \$10 billion, and shareholders' equity is \$7.5 billion, for a total U.S. airline capitalization of \$17.5 billion. How will U.S. airlines get from there to the \$60 billion that they would like to be able to spend on new flight equipment during the 1980's?

The era of U.S. airline finance before the jets was, by comparison, a modest affair. Banks made loans in the hundreds of thousands, secured by fleet mortgages, to finance the DC-4's, DC-6's, DC-7's, Stratocruisers, and Constellations. When the stock market was booming, investors were tempted by exaggerated tales of the future of aviation and bought new stock issues. When inflation was low and stable, even a few bonds were sold to the public.

The arrival of the jet age brought a revolution in airline finance. The figures were no longer in hundreds of thousands, but in millions and tens of millions for whole fleets of revolutionary 707's and DC-8's that were to replace piston and turbo-prop aircraft in what the historians have termed "the great leap forward in airline productivity."

Five to seven year bank loans were no longer adequate for the financing of these \$6 million aircraft, which the manufacturers claimed would last for 12 and even 15 years. Banks were skeptical, but airline management persisted in wanting truly long term finance, and the great provider of long term capital to the American economy, the insurance industry, was induced to lend much of the long term money needed to finance the jet age.

Large fleet re-equipment programs were addressed. Typically the carrier's banks and a syndicate of insurance companies provided package financing under a master loan agreement and fleet indenture, with the banks taking the early maturities and the insurance companies waiting up to 12 years to get their final dollar back. The interest rate was in the nostalgic 6 to 7 percent range.

The productivity of the new jet aircraft brought spectacular earnings for U.S. airlines and impressive growth for the domestic and especially for the international U.S. flag carriers. Public investors were eager to participate in this growth and were receptive to new common stock, convertible debt, and some straight debt offerings. New routes

were awarded. There were mergers of weaker carriers with stronger ones, and the U.S. airline industry settled comfortably into its role - a growing provider of transportation to America under the watchful, benevolent eye of its regulator, the CAB.

In the late 1960's and early 1970's, the regional airlines began their transformation from propeller equipment to DC-9's and 737's. These aircraft were financed by seven to nine year bank term loans, and some ten to fifteen year insurance company money (part of which was guaranteed by the FAA under its program to support the purchase of jet equipment by the regionals).

The changes of the economy, labor cost pressures, and rising fuel costs induced by OPEC, starting in 1973, resulted in extreme difficulty for the U.S. trunk airlines. Faced with large losses, the U.S. trunks were in a difficult position to finance the new stretch versions of the DC-8 and DC-9, the 727, and the first generation wide-bodied 747, DC-10, and L-1011 aircraft.

The airlines turned increasingly to leveraged lease financing, exchanging tax benefits (which they could not use) and ownership for 100 percent financing and lower effective rates. The debt on these leases was generally provided by insurance companies (although public equipment trust certificates -ETC's - were introduced for airlines). But instead of fleet mortgages the insurance company lender now had a specific lien on his aircraft. It could immediately be repossessed if the airline did not pay the rent on the airplane. As insurance company confidence in the airline industry returned during the last years of the 1970's, they continued to show a preference for ETC secured lending. This was shared by some banks.

The Current State of Airline Finance

At the beginning of the decade of the 1980's, the airline industry faces an almost overwhelming array of problems:

1. Deregulation has wreaked havoc with the price structure and undermined the benefits of a "franchise" and a "regulated rate of return." These used to provide for a higher degree of stability in cash flow, which in turn allowed lenders to accept greater balance sheet leverage than would be permissible in non-regulated industries.
2. Fuel, labor, and other costs, driven by double-digit inflation, have put enormous pressure on the cash flow of some carriers. Losses are no longer in the tens of millions, but in the hundreds of millions (a major carrier may lose over \$100 million in the first quarter of this year).
3. Pressure on cash flow and fuel inefficiency are forcing airlines to ground and dispose of 707, 727, DC-8, and even wide-body aircraft. This results in a glut of used aircraft and reduced collateral value for aircraft loans by banks and insurance companies.
4. Reluctance on the part of insurance companies and even banks to provide leveraged lease and ETC debt financing against equipment which may not be economically viable as early as 1975.

In short, the need to overcome high fuel costs and to increase productivity in the 1980's required U.S. airlines to spend more money on new generation flight equipment than they ever have before, by a factor of three to four times. In the face of this perhaps insurmountable task, the airline industry (although not all carriers - Delta, U.S. Air, Frontier, Piedmont, and Southwest) has never

experienced such difficult financial conditions in the face of an unpredictable operating environment.

Cash Generation and Debt Structure

The cash-generating capability and the debt structure of the airline industry must be put into some sort of perspective to understand the financial constraints which the airline industry faces during the 1980's.

With a combined depreciation level of \$2 billion per annum, the U.S. airline industry will need to generate about \$1 billion of annual retained earnings to limit its requirement for new debt to \$30 billion in the decade of the 1980's. Today, the combined debt of all U.S. carriers (including capitalized leases and subordinated debt) is about \$10 billion, compared with shareholders' equity of \$7.5 billion. Assuming \$1 billion of average annual retained earnings for the next ten years (a figure which represents an average rate of return on equity of 9 percent in the 1980's against an actual average rate of return of only 6.4 percent in the 1970's), the capitalization of the airlines would be as follows in 1990 compared to 1980:

Table 1. Airline debt and equity.

	1980	1990	Increase, Percent
Debt (billions)	\$10.0	\$40.0	300
Equity (billions)	7.5	17.5	133
Debt/Equity	1.33	2.29	

Unless there is a dramatic rationalization of the U.S. airline industry, resulting in a cutback in planned orders for new aircraft (not too unlikely), it is clear that the airlines will have to increase their rates of return over the next decade. Alternatively, (but unlikely with such a low rate of return) they must find a market for significant amounts of new equity, if they are to maintain debt/equity ratios no higher than today's levels. A 13.5 percent return on equity, comparable to the average for U.S. industry, would reduce the requirement for new debt to around \$25 billion and the carriers' debt/equity ratio to 1.51 in 1990. In fact, some key lenders to the U.S. airlines feel that the present debt/equity ratio is too high, given the uncertainties of a non-regulated industry. They believe airlines should reduce their leverage toward the one-to-one level.

Actually, U.S. airlines' earnings exceeded \$1 billion in only one year - \$1.2 billion in 1978. The airlines earned \$200 million in 1979, the first year of deregulation, and in 1980 lost about an equal amount. This year, 1981, is unlikely to be a year of earnings recovery. The most optimistic analysts feel that the best the airlines can do on average during the first half of the 1980's will be about \$400 million annually. That is far from either the \$1 billion required to produce a 9 percent average return, or the \$1.5 billion required to produce a 13.5 percent average return. (See Tables 2 and 3.)

Table 2. Capitalization of trunk airlines (as of December 31, 1979).

	<u>\$ Millions</u>	<u>Percent Of Capitalization</u>	<u>Percent Of Senior Debt</u>
SENIOR DEBT			
<u>Short Term</u>			
Banks	40.0	0.3	1.0
Others	<u>111.3</u>	<u>0.8</u>	<u>3.0</u>
<u>Medium to Long Term</u>			
Bank Notes	689.5*	4.9	18.4
Manufacturers' Notes	364.6	2.6	9.7
Insurance Co. Notes	1,808.5	13.0	48.3
Equip. Trust Certificates	582.6	4.2	15.6
Public Debentures	68.1	0.5	1.8
Other	82.2	0.6	2.2
	<u>3,595.5</u>	<u>25.8</u>	<u>96.0</u>
TOTAL SENIOR DEBT	3,746.8	26.9	100.0
SUBORDINATED DEBT			
Manufacturers' Notes	112.0	0.8	
Straight Subordinated	417.7	3.0	
Convertible Subordinated	<u>737.6</u>	<u>5.3</u>	
TOTAL SUBORDINATED DEBT	1,267.3	9.1	
CAPITALIZED LEASES	<u>2,833.6</u>	<u>20.3</u>	
TOTAL DEBT	7,847.7	56.3	
SHAREHOLDERS' EQUITY	<u>6,099.6</u>	<u>43.7</u>	
TOTAL CAPITALIZATION	13,947.3	100.0	

* 225.4 is capped or fixed.

Table 3. Capitalization of regional airlines (as of December 31, 1979).

	<u>\$ Millions</u>	<u>Percent Of Capitalization</u>	<u>Percent Of Senior Debt</u>
SENIOR DEBT			
Bank Notes	533.3	21.2	50.6
Manufacturers' Notes	65.7	2.6	6.2
Insurance Co. Notes*	180.1	7.2	17.1
Equip. Trust Certificates	204.9	8.2	19.5
Public Issues	32.9	1.3	3.1
Other	<u>36.5</u>	<u>1.5</u>	<u>3.5</u>
TOTAL SENIOR DEBT	1,053.4	42.0	100.0
SUBORDINATE DEBT			
Straight	81.0	3.2	
Convertible	<u>128.6</u>	<u>5.1</u>	
TOTAL SUBORDINATED DEBT	209.6	8.3	
CAPITALIZED LEASES	<u>292.0</u>	<u>11.6</u>	
TOTAL DEBT	1,555.0	61.9	
SHAREHOLDERS' EQUITY	<u>955.9</u>	<u>38.1</u>	
TOTAL CAPITALIZATION	2,510.9	100.0	

* Almost all FAA-guaranteed

Who Will Lend to Airlines In The 1980's?

How much money will the U.S. airlines be able to generate themselves, raise from the outside, from whom, and under what terms and conditions? This defines the financial constraints under which they will be operating in the purchase of new flight equipment. (I must emphasize here that this is my own informed analysis and may not reflect the predictions or future policy objectives of my employer.)

Complete Deregulation

The Reagan Administration now proposes to Congress the sunset of the CAB on September 30, 1982, two years earlier than required by the Airline Deregulation Act of 1978. This will provide more impetus for early rationalization of the airline industry. The speedup may also make banks and insurance companies even more reluctant to extend further financing to some major carriers likely to be affected by price wars and resulting earnings pressure. These may come as deregulation and industry-wide rationalization become effective over the next few years.

Traditional Lenders - Banks and Insurance Companies

Banks and insurance companies have been "relationship oriented," associating themselves with particular carriers and thinking of themselves as lenders to airlines. That perception is likely to change as banks, insurance companies, pension funds, finance companies, and other lenders and lessors start to think of themselves as owners and financiers of new generation flight equipment which they "control." They will be interested primarily in making sure that equipment is employed in profitable service by some airline so that the debt can be repaid (capital cost recovered) as fast as possible and an acceptable rate of return (including equity value in the aircraft) can be realized. In other words, there will be a pool of aircraft available to the industry. But availability to particular carriers will change given the criteria by which those aircraft are made available to specific airlines, and the effects of rationalization within the industry on any one carrier. The size of that pool of new fuel-efficient flight equipment may not add up to \$60 billion. More than likely, rationalization in the U.S. airline industry will reduce numbers of new aircraft ordered and delivered to a figure below today's estimates.

Insurance companies today provide about \$5 billion of finance to the airline industry. Banks provide about \$1.5 billion of direct loans and \$2.5 billion of commitments to lend. The banks, in effect, are already providing credit availability insurance to several large carriers such as United, TWA, American, and Eastern -- that is, they provide that there will be finance available on a bridge basis for some of the new 757 and 767 aircraft to be delivered in the 1980's.

Banks, and increasingly insurance companies, are unwilling to provide loans with final maturities of greater than 15 years (banks typically 12 years at floating rates). It is possible that insurance companies will look for a rate adjustment every five years. With some sort of support available from the manufacturer, insurance companies may agree to balloon maturities, which would have the effect of a 20-year amortization schedule. Overall, it is difficult to see banks and insurance companies, the traditional lenders to the airline industry,

more than doubling their lending commitments from today's level, over the decade of the 1980's.

Pension Funds

Pension funds, and particularly state pension funds, represent a great and largely untapped source of fixed rate, long term funds for the airline industry, but they require at least "A" rated investment paper. If banks, insurance companies, and the manufacturers could get together and come up with guarantees acceptable to all parties that would produce the equivalent of "A" rated debt, then a vast new source of funding would be available to the airline industry. The distinction between credit and funding is important here, as it is only the public pension funds who have the really long term (20 years), fixed rate funds available that the airline industry would like to have. Pension funds already hold over \$300 million of FAA guaranteed debt issued under the FAA guarantee program for regional airlines. Perhaps Federal government guarantees in some form will be made available to some trunk and air cargo airlines, as part of a program to encourage the development of a military reserve fleet capability. This would allow those carriers access to the state pension funds.

The Public Securities Market

In a strong bond market environment, which may prevail in 1982-1984, the U.S. public market may be receptive to premium priced and well secured equipment trust certificates (ETC) long term issues with an equity content of 25 to 35 percent.

American Airlines has just sold a \$55 million ETC secured public issue in the Eurobond market, a first for U.S. airlines, and plans to see another such issue later this year. Other U.S. airlines such as United, Eastern, and U.S. Air may well find the Eurobond market equally receptive to ETC secured issues this year.

Lease Financing

The pattern of lease financing is also likely to change in the future. Banks and finance companies are less likely to be equity participants, because of less tax absorption capacity. But individuals, in an adaptation of the oil and gas fund-raising business, may well represent a market for limited partnership tax shelter syndication of aircraft leases, in leveraged or single investor form. Also, the captive finance companies of industrial corporations may enter the aircraft operating lease business (lease terms of two to five years with renewable "at a price" options). Although it is more expensive, some airlines may be forced to accept operating leases to obtain the use of the aircraft they need.

Manufacturer Financing of Customers

In the purchase of the Airbus, Eastern has relied heavily on French and German Export Credit Agencies for manufacturer debt support. One must assume that Airbus Industries will continue to have available ample export financing to help sell their future aircraft products.

Lockheed and Rolls Royce obtained credit support for their sale of the L-1011-500 program to Pan Am in the form of an ECGD guaranteed U.S. dollar private placement of Pan Am debt.

With certain exceptions, U.S. aircraft manufacturers have shown little interest (or perhaps need) to provide debt support to their U.S. airline customers. That situation is likely to change in the future.

Boeing, with \$2.3 billion of shareholders' equity and little senior long term debt at year end 1980, could provide perhaps \$500 million of equity for a captive finance company. That, in turn, could raise at least \$2 billion of long term debt. The finance company could further leverage its ability to support Boeing customers by financing the long maturities of loans. It could also enter into such contingent liabilities as guaranteeing a minimum residual value of new technology aircraft, and/or limiting the loss on the re-marketing of those aircraft.

Interestingly, Boeing's Chairman was quoted in the Wall Street Journal (San Francisco, March 20, 1981) as considering a further increase in Boeing's \$1.5 billion bank credit line. Boeing had a \$250 million subordinated debt issue in February, which increased its long term debt from \$76.2 million at the end of 1980 to \$326.2 million. This may signal a long term endeavor by Boeing to start using its balance sheet to help its U.S. airline customers purchase Boeing's new-generation aircraft.

McDonnell Douglas Finance Corp. already provides financing support for some regional airline customers for the DC-9-30 and DC-9-80. Presumably, this financial support will continue to be available for the DC-9 programs and the DCXX, if produced.

It was recently announced by Republic Airlines that McDonnell Douglas would purchase \$28 million of preferred stock of its Republic Airlines West subsidiary to help pay for new DC-9-80 aircraft. The preferred shares carry a 13 percent cumulative dividend rate and will be retired in 1987. Republic, which has 125 DC-9 jets in its fleet, is the largest user of DC-9's.

Conclusion

The U.S. economy will have enough debt capacity to finance the productive capital investment needed in the 1980's, provided that the Federal government reduces its level of competition with private borrowers in the capital markets, and provided that the rate of inflation can be brought down to the 6 to 8 percent level, with long term interest rates around 10 percent. This is an absolute necessity if America is to finance its tremendous capital needs for energy, industry, and transportation.

The energy industry can absorb almost \$800 billion of new capital investment during the 1980's (projections by the Chase Energy Economics Group at January 29, 1981), a large number compared with the \$60 billion needed by the airlines. This compares with a total projected amount of credit available in the U.S. capital market over the decade of \$8,137 billion.

The U.S. airline industry most likely will end up spending less than \$60 billion during the decade of the 1980's. By the middle of that period there will be fewer and stronger trunk carriers sharing the market for air transportation with a handful of regional carriers, operating with a realistic fare structure that will insure an operating margin approaching five cents for each dollar of revenue. Those carriers which emerge as the healthy survivors, operating in the environment of the rationalized airline industry of the mid-1980's, will be relatively free of financial constraints in the purchase of the new fuel-efficient aircraft which they will require to serve their markets profitably.

EXHIBIT 1

Note on the Amount of New Aircraft Investment During the 1980's

The \$60 billion total figure relates to the U.S. airline industry's new investment in transport aircraft during the 1980's and implies an average cost per aircraft of \$30 million. This average will range from \$15 million for a 737-200, \$20 million for a 737-300, \$30 million for a 757, to \$40 million for a 767.

A study by the Air Transport Association completed in 1976 forecast total capital requirements for passenger aircraft during the 1980's of \$60 billion. A new study in September 1979, which includes freight aircraft, increased this figure to \$87 billion. The same study shows a need for new aircraft investment for growth alone to \$60 billion, and an incremental \$27 billion to replace capacity which will be retired from service.

A major rationalization will probably occur within the U.S. trunk airlines before 1984, which will:

- a. Affect the number of fuel-efficient, new type aircraft (757 and 767) ultimately ordered firm between 1983-86;
- b. Encourage the continued use of 727-200 aircraft throughout the decade; and
- c. Increase the employment of older wide-body aircraft (747, DC 10, and L-1011) in high density configuration to serve vacation travel.

A rationalized airline industry with a price/cost structure adequate to earn a 15 percent return on capital employed in at least business travel (which I assume will be the primary focus of new equipment investment decisions) will operate in an environment of about 2 percent real growth in GNP and 4 percent growth in RPM's through 1985.

The regional and specialized point to point carriers (New York Air, People's Express, etc.) will continue to be low-cost producers of available seat miles, focused on the regional business traveler. This, combined with a declining rate of labor and fuel cost increases, should mean continuing emphasis by the regionals on operating up-graded versions (including re-engining for the 737-200) of existing DC-9-30, DC-9-80, and 737-200 aircraft, and carefully planned addition of 737-300 and a new type, 150 seat, 400-600 mile range aircraft.

The net is a judgment that a \$60 billion figure for new aircraft investment in the 1980's may turn out to be excessive, but in any case, elusive until we have the perspective of the changed structure of the industry and the economy at the end of 1983.