

thing to do. Between the last two, there will probably be some choice between tougher restraints and an easing of goals. Clearly, there is a conflict between the Administration's fiscal policies and monetary policies. The resolution will be somewhat less tight monetary policies, and somewhat higher interest rates.

Nariman Behravesh

There are two basic Administration goals: reduce the size of the Government and reduce inflation. On inflation there is nothing in the short run working in their favor but tighter monetary policy. We think inflation has a lot of momentum and it will be very hard to slow it down. The chances of it coming down in the long run are pretty good, and better if we carry out some of the productivity enhancement programs. In the short run to get inflation down you have to do drastic things, like the U.K. I hope the Administration will not do that.

John Drake, Purdue University

My question is to Mr. Taub. He assumed, perhaps a bit strong, that there was a good chance of recovery of the automobile and steel industries. How critical is that? I foresee a problem in making cars much more competitive with the Japanese in design and appeal.

Leon Taub

We saw, in some work on automobile industry decision-making, that the Japanese sort their output into four categories based on the number of defects. Those with least defects they send to the United States. Those with the second least go to Europe and Australia. The third group goes to some more developed countries in Asia and the Middle East, and the last group to some of the less developed countries, and the home market. Where do we dump our lemons in order to keep our cars competitive? Quality and workmanship are a great factor in selling Japanese cars. If we can't compete in quality we won't get that recovery. Compare that to the French policy of sending us their worst wine, which seems more sensible. The interesting thing about the recovery of the automobile industry is that we will have less wage push inflation, not that it will make the industry recover. We believe it will recover because of investment in research and development. Perhaps kicking and screaming, Detroit has spent fantastic sums of money on research and development in the past few years and will be spending more. The technological lead, lost to Japan and Germany, is being reversed. That is my reason for optimism. In long run forecasting it does not make very much difference. The Japanese do not expect to be major automobile exporters 20 years from now. They expect to shift into high technology industries. They expect automobile production to shift to Taiwan and other places where labor is cheaper. The same thing may happen to the United States. Long run forecasts do not depend on the automobile industry, but on the health of the emerging technology industries.

William Nesbit, United Air Lines

My question is like the one on inflation. What if the unemployment rate leaps up to over eight percent and stays there, which may happen in the short run because of the elimination of public works jobs, and because larger American businesses tend to recover by closing inefficient plants, laying off workers, and not hiring back rapidly. We see this in one industry after another, great resistance to hiring

and labor force growth. So our unemployment rate may rise rapidly in the next few months and not come down very quickly. What will the Administration do in case of this bad news?

Nariman Behravesh

Both a higher inflation rate and a higher unemployment rate will raise the deficit over the next two years. What will the Administration do? Will they live with it, will they cut back further, or will they cut taxes less? How committed are they to a deficit target? If they respond by cutting spending more or cutting taxes less, then we are talking about a bleaker outlook. If on the other hand they give up the deficit target and are willing to live with fairly large deficits, then I think the outlook for the unemployment rate and for some sort of short run stimulant is better.

This question is the exact opposite of George Sarames' question because employment and productivity are the opposite sides of the same coin. The U.S. problem has been not business cutting back on employment, but hiring more people and getting low productivity. Both risks exist but my guess is that the risk is too much hiring and lower productivity.

AIRLINE CAPITAL NEEDS

Lee R. Howard, Air Transport Association of America

Summary

The growth rate of the U.S. economy is slowing while inflation goes on. The fuel shortage, with its resultant price rise, has become a grave national concern. The airlines have moved into a less regulated environment, new discount fares have been introduced, load factors have been increased, and industry profits were high for a time.

Air Transport Association research shows that the U.S. scheduled airline industry will need an average annual corporate return on investment (ROI) of 13-15 percent to meet a \$90 billion capital requirement between 1979 and 1990. This consists of \$83 billion for additional passenger aircraft and \$7 billion for freighter aircraft. To support such an enormous financial need, the airlines must maintain a record of consistently adequate profit levels. It is the only means of generating the necessary internal funds and attracting outside capital.

Determining Capital Requirements

Two primary characteristics determine the essential capital investment in the airline industry: traffic growth and aircraft replacement. Other areas such as passenger load factors, aircraft utilization rates, and average seating densities affect overall capital requirements. Therefore, each of these factors has to be evaluated and fundamental assumptions developed.

The following assumptions were used for the 1980's:

- Annual passenger traffic growth rate of 7 percent.
- Passenger load factor of 63 percent.
The 63 percent long term load factor assumed is higher than has been attained in a single year throughout the past ten-year period, but continued public acceptance of the new and varied discount fares will

necessitate future load factors above 60 percent. Such a load factor on a year-round system basis means that peak period flights will be consistently booked to the maximum and public service will be affected accordingly.

- Aircraft utilization rate of 9.5 hours per day.
Aircraft utilization increased from 8.3 hours per day in 1975 to 9 hours in 1978 due in part to better scheduling and increased cost pressures. The Airline Deregulation Act of 1978 permits carriers to acquire routes which augment their hub-and-spoke networks, thus increasing utilization.
- Annual aircraft cost inflation rate of 7 percent.
Cost per seat for new aircraft increased 7.2 percent per year from 1974 through 1978. Current estimates of U.S. inflation indicate that this rate will not drop below 7 percent per year in the 1980's.
- Annual cargo traffic growth rate (freighter aircraft) of 9 percent.
- Cargo load factor for freighter aircraft of 65 percent.
- Increase in the average seating density of 2 percent annually.

Changes in the values of these assumptions would alter the figure for capital requirements, but such variations do not change the order of magnitude. Overall, variations in the assumptions provide a range of investment from \$70 billion to \$113 billion.

Possible Constraints on Airline Expansion

Several factors could potentially restrict the growth of the airline industry in the 1980's. These factors involve handling 225 million more passengers in 1990 than today and include airport and airway capacity and the availability of fuel.

Since the average size of the new aircraft will be larger, the number of aircraft in 1989 may not be significantly greater than the number in the present fleet. However, to accommodate passenger growth, terminal capacity must be nearly doubled during the next eleven years.

The rising cost and short supply of fuel has adversely affected the airline industry. Through utilization of new aircraft, greater fuel economy, and higher load factors, the airlines have increased overall fuel efficiency. Yet the availability and cost of fuel remain serious problems.

1979 versus 1989

By 1990 the U.S. airline industry will require at least \$90 billion in capital funds to meet its present and future responsibilities. How did such a large capital requirement come about? Essentially, because the magnitude of changes in costs and capacity that will take place is enormous. The average cost for each seat added in 1979 was \$114,000. By 1989, the average cost per seat will increase to over \$210,000. The additional available seat miles (ASM's) will be 74 billion in 1989 as compared to 32 billion in 1979. Thus, the necessary

annual capital additions will increase fourfold from the \$3 billion needed in 1979 to \$12 billion in 1989.

The amount of capital to be invested by the airline industry in the 1980's is not comparable to any past period. In the five-year period 1960-1964, when jet aircraft were replacing piston aircraft, total capital additions amounted to \$3 billion. Capital additions rose to \$7 billion during 1965 through 1969, and \$9 billion during 1975 through 1979. In the next five years, a requirement double the amount spent during the past five years - \$22 billion - will be needed. However, the last five years of the decade, 1985 through 1989, will be marked by a \$65 billion airline capital investment. In that period alone, the airline capital investment will substantially exceed the total requirement over the previous 25 years.

Because of long lead times required for aircraft orders, some aircraft have already been ordered to meet the requirements for growth and replacement in the 1980's. Lead times are particularly long in the present time period because newer technology aircraft are yet to go from drawing board to production.

How close do current orders match the capacity requirements of the 1980's? Between 1980 and 1984, an additional \$22 billion in investment will be needed. Only \$8.6 billion, less than 40 percent of the total requirement for this period, is now on order. In the last half of the decade, \$65 billion of new equipment will be required. Current orders total less than \$400 million to be delivered against the need. Additional orders will be placed in the future, of course, but current orders only account for approximately 10 percent of the capacity requirements of the 1980's.

In the ATA study an aircraft's useful life was assumed to be 18 years. Under this assumption, it is striking to note that in the 1980-1984 period, the requirement to meet new traffic growth predominates. However, during the interval 1985 through 1989, the replacement factor plays a more prominent role. This shift reflects the need to replace the large numbers of jet aircraft purchased eighteen years earlier, 1967 through 1971. Of the total capital requirement of \$90 billion, \$37 billion is the replacement of aircraft as they reach the end of their service lives.

Meeting Future Capital Requirements

The early years of prosperous jet operations, beginning in the early 1960's, provided sufficient internal cash flow to finance the continuing replacement of piston aircraft, as well as substantial expansion. During this period airlines were able to acquire additional long-term debt and equity capital at relatively reasonable terms.

Beginning in 1967, however, total capital investment began to exceed internally generated funds. By 1970, this disparity grew significantly and capital investment has usually exceeded the industry's internally generated funds. Much of this divergence was temporarily overcome through special long term financing and leasing arrangements.

To examine various ways in which the airlines can meet the estimated \$90 billion capital requirement in the 1980's, several assumptions were made about the industry's financial structure including:

1. The airlines will pay 25 percent of their net income in stockholders' dividends. U.S. industry paid an average of 44.7 percent of net income in dividends from 1969 through 1978. Airlines have paid

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