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FINANCIAL TRENDS IN COMMERCIAL AVIATION

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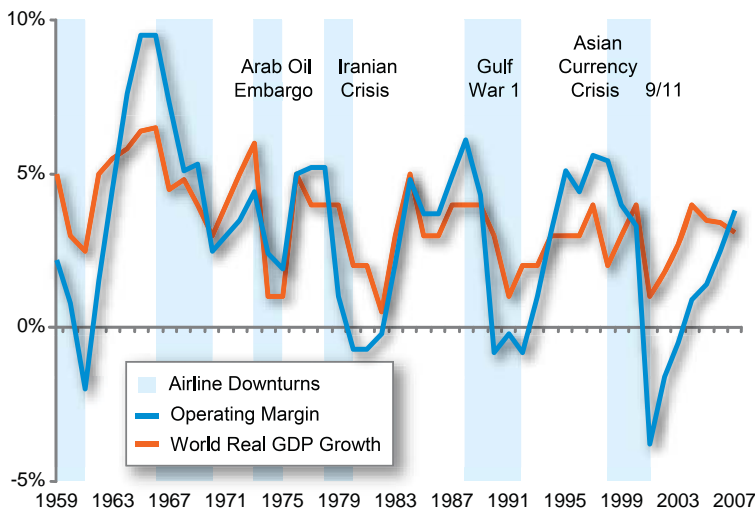
New Drivers Shaping Aviation Industry Cycles

Geographical Balance, Business Model Innovation Reduce Risk

The aviation industry is famously cyclical. In order to gauge the strength and length of particular cycles, financial analysts often track a multitude of factors, including airline profits, yields and load factors, and airplane values and lease rates.

Boeing analysis stretching back more than 50 years reveals that the best barometer of aviation industry performance is world gross domestic product (GDP). Historically, airline downturns coincide with worldwide economic slumps and airline operating margins grow as world GDP recovers.

Historical Cycles of Airline Industry and World Economy



Air transportation has become an integral part of the world economy and reflects the ups and downs of global GDP.

A healthy GDP is the primary driver of the current surge in commercial airplane demand, as it has been in previous upcycles. Yet several developments in the aviation business environment distinguish the current upcycle from those of the past.

The Market Is Diversifying Geographically

The phenomenal economic expansion of the Asia-Pacific region has unleashed demand for air transportation in a part of the world that has been underserved, based on its population and resources.

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Staying Ahead of the Curve Manage Risk and Capitalize on Investment Opportunities

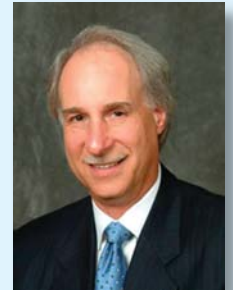
By *Walt Skowronski*

Global aviation markets are soaring. When things get this good, we begin looking for signs of irrational exuberance. Are we seeing that now? Or are we seeing a changing paradigm, where the current market continues to hold significant growth and opportunity?

We at Boeing have been slicing and dicing quite a bit of data over the past few months to better understand the drivers behind the current upcycle and how those drivers are changing.

We believe that three new fundamental forces are shaping this and future cycles:

- Geographical diversification of demand
- Airline business model diversification
- Airplane replacement requirements across the global fleet



Walter E. Skowronski
President, Boeing
Capital Corporation

As financiers, we are always interested in managing and mitigating risk. Concentration increases risk. Diversification mitigates it. Now, for the first time in the aviation market, we have truly global distribution of aircraft demand and a much greater diversity of customer airline business models.

These developments should make global airplane demand more resilient to local shocks and disruptions, creating new opportunities to deploy or redeploy airplanes during periods of regional economic volatility.

In addition, the large size of today's installed fleet portends a looming requirement for replacement airplanes. With more than 17,000 airplanes in service around the globe, a significant number of airplanes are due to reach their economic retirement age over the next two decades. In fact, replacement requirements will drive one-third of aircraft demand over the next 20 years.

Continued high fuel prices and stringent environmental regulations will increase the pressure to replace older, less efficient aircraft. Today's load factors and airplane utilization are at all-time highs, so airlines cannot rely on increased productivity to meet growth and replacement requirements.

Growing diversification of demand is creating new ways to manage risk. The unavoidable requirement to replace aging and less efficient airplanes will sustain demand through normal business cycles. We believe that these factors will produce a more resilient and stable airplane market in the coming decades. ■

In 1970, India and China together accounted for only 5% of the world economy, on the basis of purchasing power parity, and all of Asia operated only 5% of the global commercial airplane fleet. By comparison, Europe and North America generated 60% of global economic output and operated 88% of the world fleet.

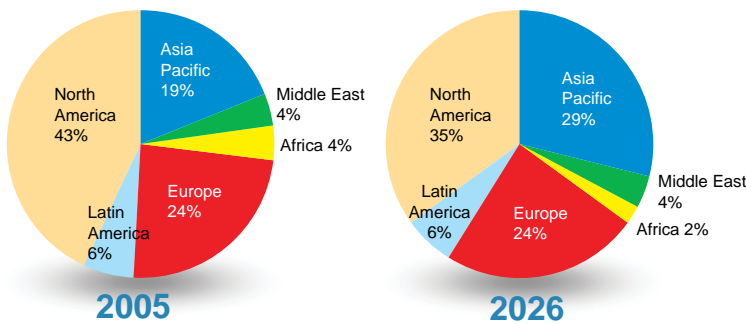
By 2000, the combined economies of India and China had grown to 17% of the global economy on a par with the economic output of Europe. North America and Europe together still operated 71% of the world fleet, but Asia's share of the fleet had grown to 17%.

Projections for the year 2012 show China's share of the global economy pulling ahead of Europe's to match the U.S. share at 18%. India and China together will generate more than a quarter of the world's total economic output. Asia's share of the world's commercial airplane fleet will become equal to Europe's share at 24%. Demand for airplanes will thus be shared more evenly between three major economic regions, rather than just two.

More Balanced Global Demand and Fleet Distribution Reduces Investment Risk

Traditionally, European and North American economies have been strongly linked, so an economic slowdown in one of these regions tended to ripple through the global aviation market, depressing demand worldwide.

Increasing Geographical Diversity of the World's Fleet



Demand for commercial airplanes is becoming more diverse geographically as Asia's share of the aviation market begins to reflect the purchasing power of the region's economy. The broadening global demand base dampens the effects of regional volatility.

As total demand for commercial airplanes continues to rise over the next 20 years, the expansion of Asia-Pacific's economies—particularly those of China and India—will increasingly moderate the effects of fluctuations of the North American and European economies. Asia-Pacific's share of the new airplane market rose to 19% of global demand in 2005. That is nearly even with Europe's 24% share. By 2026, Asia-Pacific's share will reach 29%, surpassing that of Europe. During the same period, North America's share of the demand will decline from 43% to 35%.

Though Asia's economies are stimulated by the market for Asian goods in North America and Europe, the region's indigenous consumer markets are developing rapidly. Rising average income and a growing consumer economy will foster demand for air travel and transport within the region. Robust indigenous consumer markets will help sustain the region's demand for air freighters and passenger airplanes, even in the event of slack exports to Europe or North America.

As China and India move up on the list of top 10 world economies, other economies will appear on the list for the first time. By

2040, China will lead the list and India will move up to third behind the United States. Brazil will pass up Germany, Britain, and France. Mexico and Russia will join the roster behind Japan. These rapid movers are currently under-served by commercial aviation, so growth will far outpace that in the more mature economies.

Distribution of demand among a wider base of relatively independent economies buffers global demand for airplanes against the effects of regional economic shocks or cycles.

Airline Business Models Are Evolving and Maturing

Liberalization has increased competition among airlines and spurred innovation in airline business models. A regulated market restricts innovation, allowing for a narrow range of business models. As a result, any economic or political disruption affects all airlines in a similar way. However, in liberalized markets, increased competition leads to a greater diversity of airline business models. Under a given set of market conditions, some business models will flourish, even as other models struggle.

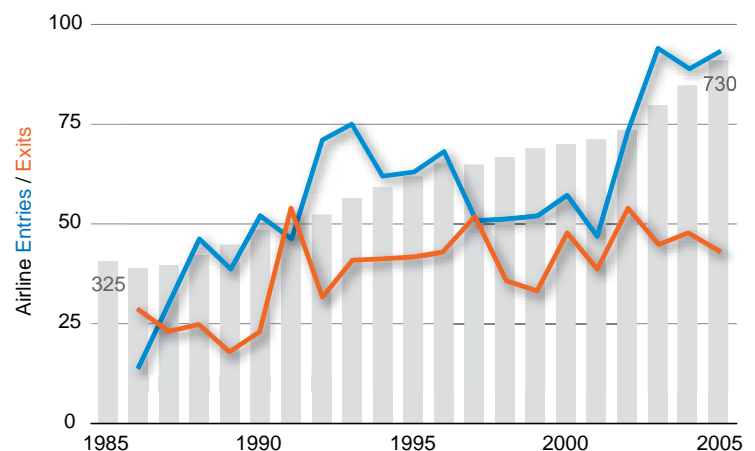
This was highly evident in the recent economic downturn, when large network carriers experienced severe losses while low-cost carriers continued to thrive. Similarly, when the market for premium fares stumbles, the market for economy fares often picks up.

The increased opportunity afforded by liberalization, and the resulting growth in the diversity of airline business models, has kept the total number of airlines worldwide on an upward path for at least 20 years. Despite heavy media attention on airline bankruptcies and mergers, the number of airlines entering the market has consistently exceeded the number of companies leaving the business. Having risen steadily since 1986, the number of airlines in service around the world is at an all-time high today.

Innovative Business Models Create Airline Opportunities

As one of the most mobile of investment assets, commercial airplanes gain significant value as a result of the geographical diversity of the aviation market and the variety of airline business models. Largely in recognition of this mobility, aircraft value has come to equal the importance of airline credit in managing airplane investment risk.

Liberalization and Diverse Business Models Keep Airlines Growing



New airlines entering the market more than offset the number of airlines that leave the business through bankruptcy or consolidation. The number of airlines in the world is at an all-time high.

The current upswing in airplane orders demonstrates how the market's growing geographical and business model diversity counteracts demand cycles driven by U.S. and European network carriers. The record number of orders during the past two years was driven largely by low-cost carriers and requirements from emerging economies. This is reflected in the order backlog of both airplane manufacturers. ■

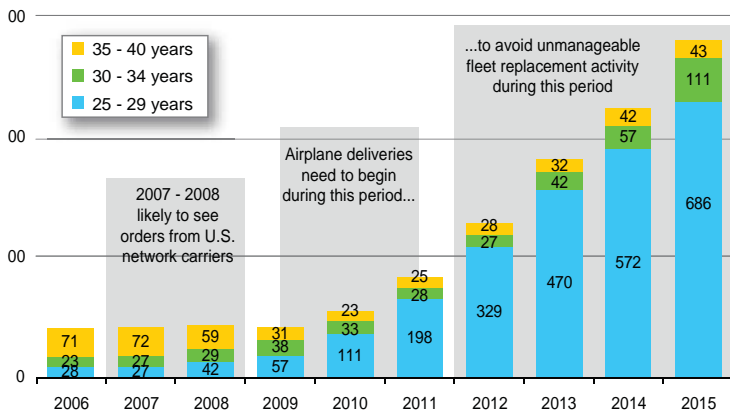
Replacement Requirements Will Stabilize Demand

For two consecutive years, airplane orders have set new records for the number of airplanes contracted in a year. Past experience leads many to believe that this must mark a peak in the upcycle and that the only way to go from here is down. However, the shape of the curve and the precise location of the peak may be different for this cycle than for historical cycles, due to the increased size of the installed fleet and the need to replace airplanes that can't compete with the latest generation of fuel-efficient jetliners.

Viewed in the broader historical perspective, the record orders for 2005 and 2006 follow a four-year period of unusually low order activity. Further, the size of the global fleet has more than doubled during the last 20 years, from just over 7,000 airplanes in 1987 to more than 17,000 airplanes today. Consequently, the number of orders recorded over the past two years represents a smaller percentage of the installed fleet than did the number of orders that mark the peak of previous upcycles.

The source of orders in this upcycle is also different from previous cycles. U.S. and European network carriers—the drivers of all prior

Looming Replacement Requirement



Unlike past upcycles, the current industrywide production increase is not driven by U.S. network carriers. Resumption of normal airplane replacement and fleet growth activities at network carriers will sustain the current upcycle, even as demand from other regions begins to level off.

order surges—have been delaying replacement of airplanes during the past five or six years. In fact, capacity at U.S. network carriers has actually declined since the year 2000 as the fleet's oldest and least efficient aircraft have been retired, but not replaced.

The most recent spike in airplane deliveries occurred about 10 years ago. Airplanes ordered during the previous upsurge will begin reaching replacement age at roughly the same time, creating a require-

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Dr. Fariba Alamdari — The Quest for Thought Leadership

Boeing was once thought of as predominantly an “engineering company,” with products designed by engineers and leadership positions often filled from the engineering ranks of the company. Times have changed. When the opportunity arose to select a new executive for its Business Strategy and Marketing organization, Boeing Commercial Airplanes turned to the academic world and chose Dr. Fariba Alamdari to lead its Market and Value Analysis Group.



Dr. Fariba Alamdari
Market and Value Analysis Group

Alamdari headed the Department of Air Transport at Cranfield University in England when Nicole Piasecki, then Vice President, Business Strategy & Marketing, presented the possibility of joining Boeing.

“Dr. Alamdari is one of the world’s top academic researchers and thought leaders for our industry. She has a deep knowledge of the airline business, and she’s worked closely with airlines around the world to help make them more profitable, productive and innovative,” said Piasecki. “We wanted to add that level of expertise and experience to the talented, world-class team we’ve been building.”

The fit is a good one. As head of Commercial Airplane’s Market Value and Analysis Group, Alamdari and her team help define future customer requirements, guide product development strategy, forecast demand and evaluate market risks and opportunities. These are among the same complex concerns she studied, analyzed, taught and wrote about as a university professor. Alamdari continues to work closely with the world’s airlines in a consultative role.

Piasecki has since moved on to a new assignment as President of Boeing Japan. Her successor, Mike Cave, emphasizes the practical value of Alamdari’s expertise to the Business Strategy & Marketing organization.

“We rely heavily on the disciplined research and detailed analysis produced by Dr. Alamdari and her team as we manage the business every day, and also as we determine our long-term strategic direction,” said Cave. “Fariba’s expertise and the resources produced by her team will help airlines make business decisions on financing, revenue growth, productivity and business model optimization.”

Alamdari is decidedly unassuming about her new role at Boeing, and considers herself as much a student of the industry as an expert or thought leader.

“Our industry is in a constant state of evolution. The harder we work to understand the roots of that evolution, and the better we are at keeping pace with ongoing developments, the more useful our questions, conclusions, and projections will be,” said Alamdari.

“That’s why I love this industry. What you already know tends to keep its relevance, although there’s always something new to learn. Understanding and contributing to the progress of commercial aviation is an intellectually vibrant and inspiring endeavor.” ■

Noteworthy Developments

Airplane Orders:

- 2006 – Boeing sets new record of 1,044 total net airplane orders in a single year, breaking previous record of 1,002 net orders in 2005.
- 2007 – Off to strong start based on global economy and strong market demand.
 - Airline customers announcing orders, commitments or intentions as of March 1, 2007 are: British Airways (4-777-200ERs), Virgin Blue (7-777-300ERs), Air New Zealand (4-787-9s), LOT Polish Airlines (1-787), UPS (27-767-300ER freighters), Azerbaijan Airlines (3-787-8s, 2-737-900ERs), GECAS (15-777s, 24-737s), Singapore Aircraft Leasing (20-737-800s), Jet Airways (10-787-8s).

Boeing Program Update:

737:

- Boeing rolls out, delivers first 737-700ER to launch customer ANA.

777:

- Boeing delivers 600th 777 (to Singapore Airlines) after 11 years in service, faster than any other twin-aisle airplane program in history.

787:

- Program on target for entry into service in May 2008.
- 747-400 Dreamlifter starts delivering 787 parts:
 - First 787 composite parts (fuselage sections from Japan) delivered to Global Aeronautica in Charleston, S.C.
 - Second Dreamlifter takes first flight in Taiwan.
- Boeing Business Jets unveils interior concepts for 787 VIP airplane.
- Boeing Composite Manufacturing Center begins fabricating 787 vertical fin, delivers first production tail cone.



747-400 Dreamlifter delivers 787 parts

FAA New Extended Twin-engine Operations (ETOPS) Ruling:

- Exceptional reliability record allows all long-range, twin-engine airplanes, including 777s and 787s, to safely fly the shortest, point-to-point, most economical and environmentally friendly routings, regardless of number of engines.

Cape Town Update:

- South Africa, Indonesia and Columbia become 14th, 15th and 16th countries to ratify Cape Town Treaty.

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ment for a large number of replacement airplanes—simply to maintain the fleet at its current capacity. As a measure of the looming replacement requirement, there were nearly 2,000 airplanes worldwide that had logged 16 to 20 years of service in 2006. About 1,000 additional airplanes had reached 21 or more years of service.

Since 2001, carriers have relied on increased productivity and airplane utilization to make up for the declining number of aircraft. The fleet is now at all-time high levels of utilization. Airlines can no longer gain more seats to meet growing demand without adding aircraft.

The replacement cycle must begin very soon, in order to avoid untenable replacement requirements a few years in the future. In particular, U.S. and European airlines must address pressing replacement requirements. Further, to remain competitive with successful low-cost carriers and to keep pace with growing passenger demand, U.S. and European airlines must soon begin to purchase airplanes to expand their fleets.

Continuing high fuel prices and fare competition increase the pressure to replace less efficient airplanes with the latest generation of reli-

able and highly economical airplanes. Strict new noise and emissions regulations in Europe could accelerate the requirement for European carriers to replace their older airplanes. Consequently, airlines will not be able to rely on older airplanes to provide stopgap capacity, as they have in the past.

Increased production rates are not likely to erode the requirement for new jetliners. Large backlogs at both airplane manufacturers mean that the requirement for airplanes will exceed manufacturer ability to supply for many years to come. In addition, the fleet-growth requirement of the Asia-Pacific region will occupy a large percentage of available delivery positions for several years into the future. This and the urgent need for replacement airplanes virtually ensures that airline capacity will continue to lag behind passenger demand and that traffic growth will outpace capacity growth—despite increased deliveries.

A customer base that is more diversified—geographically and by business model—along with a large and growing requirement to replace airplanes in the current fleet, are key factors that will shape airplane demand and guide successful future aircraft investments. ■

Please direct questions or feedback to the following:

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