



Business jet sales hit new heights

The business jet market continues to hit extraordinary new peaks. Deliveries this year will total about 1,000 aircraft worth \$16.4 billion. Values of existing planes remain excellent, and the number for sale is tight by historic standards. Given strong corporate profits and robust manufacturer backlogs, the market is unlikely to peak before 2009.

Corporate profits and related factors are the primary drivers behind these good times. And as they continue, there will likely be a return to aggressive new product development by the manufacturers.

Mostly about profits

This year's deliveries will mark the fourth straight year of business jet market growth, driven in large part by these record profits. As a percentage of U.S. GDP (gross domestic product), corporate profits rose from 7% in 2001 to over 12% in 2006. And there is a very close correlation between that increase and the im-

pressive run-up in the business jet market over the past three years.

The composition of these profits offers encouraging indicators, too. It is impossible to state empirically that one type of profit is more conducive to business jet demand than any other. But it is notable that manufacturing profits have made the strongest leap of all the business sectors. According to the Bureau of Economic Analysis, U.S. manufacturing profits skyrocketed from \$53 billion in 2001 and \$48 billion in 2002 to \$332 billion in 2006.

There is a very strong likelihood that manufacturers in the U.S. and other developed countries are prospering because they are transforming themselves into integrators. That means they are farming out labor-intensive production work to developing countries and keeping higher value integration, development, and marketing for themselves. Establishing new facilities in less developed areas increases

the attraction of private aviation. And the profits that result from a successful new manufacturing strategy are of course good for business jet demand as well.

This hypothesis is getting a boost from business jet demand in Europe. Just as U.S. companies are likely to transplant production to Latin America, European manufacturers are looking to new European Union entrants in Eastern Europe for lower cost manufacturing. These Eastern European countries lack the excellent public infrastructure—the airlines and trains—that have traditionally hobbled business jet demand in Western Europe. Increasingly, companies setting up shop in the East are looking toward private aviation. In 2001, only 10.7% of the global business jet population was domiciled in Europe. In 2006, Europe's share of the fleet was 13.7%.

Meanwhile, economic development in emerging markets is gradually boosting business jet demand from customers in many of those Eastern European countries as well. High commodity prices are further increasing demand, particularly in Latin America and the Middle East. Markets outside the U.S. accounted for 12.8% of the fleet in 2001, rising to 14% in 2006. At least two of the five business jet manufacturers are now reporting a majority of sales from outside the U.S.

Asia remains largely quiet as a source of demand, for reasons of geography, politics, and its excellent airline service, but there are signs that this could change. China, because of its economic growth, poor infrastructure, and great size, could emerge as a huge market as its airspace rules are liberalized. But as of early this year, the country has only 12 business jets in civilian use. If demand grows there, the rest of Asia could easily follow. This is particularly true since many Asian manu-

The Falcon 7X is the most ambitious new product launch among the business jet manufacturers, but the company's stock is almost entirely held by the Dassault family and EADS.



facturers in higher cost economies such as Singapore, Japan, and Taiwan look to China as a source of lower cost manufacturing sites. In short, Asian businesses could emulate their U.S. and European counterparts, looking to private aviation as they follow an integrator model of manufacturing.

The strong correlation between profits and demand growth is welcome news. The last up cycle, in 1997-2001, did not quite correlate with profits, implying overproduction. Some of this overproduction was due to fractional ownership, which provided a strong market stimulant as it lowered the barriers to private aviation access. Yet it also might have "overstimulated" the market to an unsustainable high, leading to a relatively severe drop in 2002 and 2003.

The major problem with the fractional sector is a lack of proof that fractional ownership businesses can maintain consistent profitability. In addition, the



The Gulfstream G550 is offering transpacific range and the biggest cabins yet built.

number of fractional shares has remained relatively static since it rose above the 6,000 mark in 2003, staying below 7,000 through 2006.

Clearly, the days of fractional de-

mand as a driver for growth are over. Although there is still a fractional backlog of nearly 500 business jets for the four major fractional players, deliveries to these companies are playing a smaller role in the overall market. Net fleet additions at the fractional players came to an impressive 360 aircraft between 1996 and 2001. By contrast, these players have added just 100 net planes (new deliveries minus retirements) during 2002-2006.

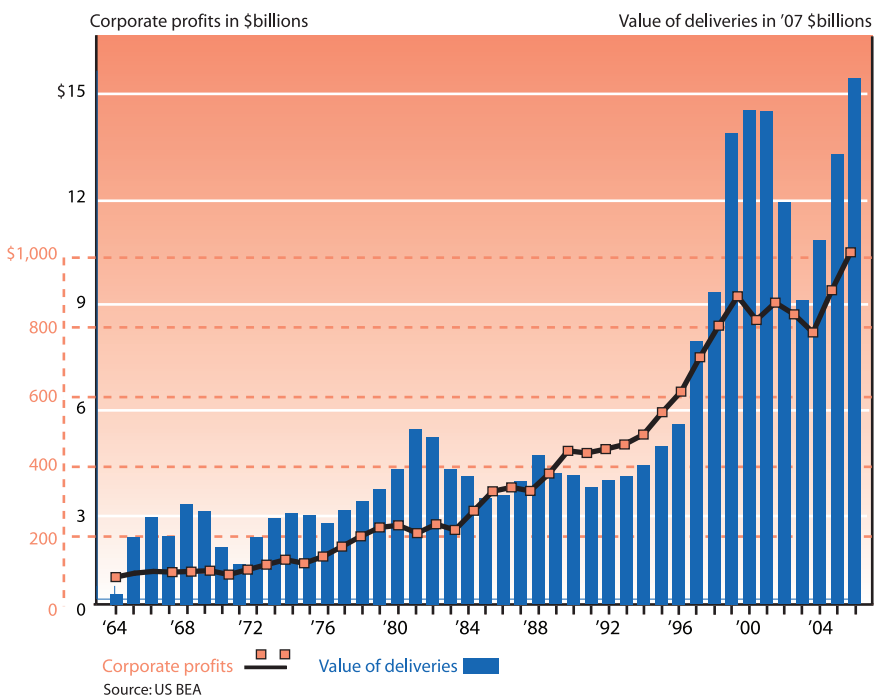
But again, this time the market's growth is all about corporate profits, and there are very strong grounds for optimism. We forecast production of 12,000 business jets worth \$173.2 billion (in 2007 dollars) over the next 10 years—a 63% increase over the \$108.7 billion in deliveries between 1997 and 2006.

Interestingly, the business jet market is now roughly the same size as the world market for combat aircraft. In fact, it was larger for the first time in the history of aviation in 1999, when the fighter market fell to \$11.1 billion, just below the \$11.8-billion business jet market. This year should see the business jets on top again, a sure sign of globalization, prosperity, and a gradual return to peace.

New product development changes

Despite a prosperous and growing market, the industry is behaving very differently from the way it did during the last

Business jets and corporate profits



upturn in terms of new product development. The past decade offered almost infinite possibilities. An unprecedented 10 new business jet models arrived in 1995-2001, including eight all-new designs. The total unit value of these new models was especially high—they included some very expensive new machines.

By contrast, just five new models arrived in 2002-2006, of which only one—



Bombardier's Challenger 300 is the only all-new model on the market.

Bombardier's Challenger 300—is an all-new model. While Hawker Beechcraft's Hawker 4000 and Dassault's Falcon 7X will enter service this year, the only other firm new products in the pipeline are low-cost VLJs (very light jets).

Limiting factors

One problem impacting new product development is an absence of new technology to serve as a stimulant. In the second half of the 1990s the industry harnessed new engines and other technologies to create some exciting new jets. The Gulfstream V (now the G500/550) and Bombardier Global Express for the first time offered transpacific range and the biggest cabins yet built. Dassault used new avionics packages to upgrade its entire product line with the 50EX, 2000EX, and 900EX. Cessna's Citation X became the fastest civil aircraft in production and, with the Concorde's retirement, the fastest civil jet in service. Raytheon (now Hawker) intro-

duced new composite-material-based aircraft such as the Hawker 4000 and the Premier I.

But aside from refinements to existing glass cockpit avionics and incremental engine improvements, it is difficult to identify any compelling new features that would enable ambitious new designs. It does not help that this is a relatively conservative market with very little incentive to lower fuel consumption with advanced technology. Aside from Hawker, nobody has rushed to embrace composite material airframes over metal ones. Even fly-by-wire controls, now standard on new jetliners and fighters, have been embraced by only one business jet manufacturer, Dassault, with its Falcon 7X.

Another limit on new product development concerns cost and risk. Intriguingly, most of the new model programs that arrived in 1995-2001 were initiated before the market's explosive rise. Either the manufacturers believed (with some justification) that these new products would help stimulate the market, or they had some excellent market forecasters. Alternatively, these manufacturers may have believed that their products were the best, and that they would prosper at the expense of their competitors, a very risky way of thinking. Business jet manufacturers are increasingly unwilling to take that risk.

Innovation vs. the bottom line

For the manufacturers, profitability is increasingly the overriding concern. In the current environment the industry is bottom line driven. Companies are reluctant to approve expensive new product development programs on their own. They need a clear business case to sell the idea to their boards and ultimately to the equities markets that purchase and judge their stock. Boeing faced the same situation in 2004 when it launched its 787 Dreamliner. Dassault, the company with the most ambitious firm new product launch (Falcon 7X), is the one business jet manufacturer that does not need to explain itself to equities markets and other sources of finance. Its shares are almost entirely held by the Dassault family or EADS.

Also, the manufacturers increasingly take a different approach to new model development. Rather than launch risky and ambitious clean-sheet standalone



The Premier I features a composite airframe.

products, they are now looking to diversify their product lines using minor derivatives. These typically use incremental engine and avionics improvements, minor interior updates, and other changes, accompanied by a new designation and some marketing buzz. Thus, the Gulfstream GIV became the G400, G300, G350, and G450, while the Hawker 800 became the 800XP, and then the 750 and 900. Although technologically unambitious, this derivative approach does allow business jet makers to cover a broader range of customer price points, with little risk or cost to the manufacturer.

However, if the present good times in the industry continue for another year, manufacturers may feel considerably more confident about the future and firmly launch new programs that are now in the planning or prelaunch phase. In particular, Gulfstream could proceed with its G600, establishing a new high end for the market in cabin size, range, and price point. Dassault could launch its new Falcon 50 replacement using 7X technology. Cessna could press ahead with its LCC or large cabin concept plane, breaking for the first time into the top half of the business jet market. Embraer could reinforce its growing presence in the industry with a new middle market jet, right between the Phenom 300 and the Legacy.

New models typically serve as catalysts for market growth. Assuming manufacturers overcome the obstacles against new product development, the introduction of a new generation of business jet models will help grow the market to new heights after 2012.

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