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Aviation Research Report 2008

DVB

Contents

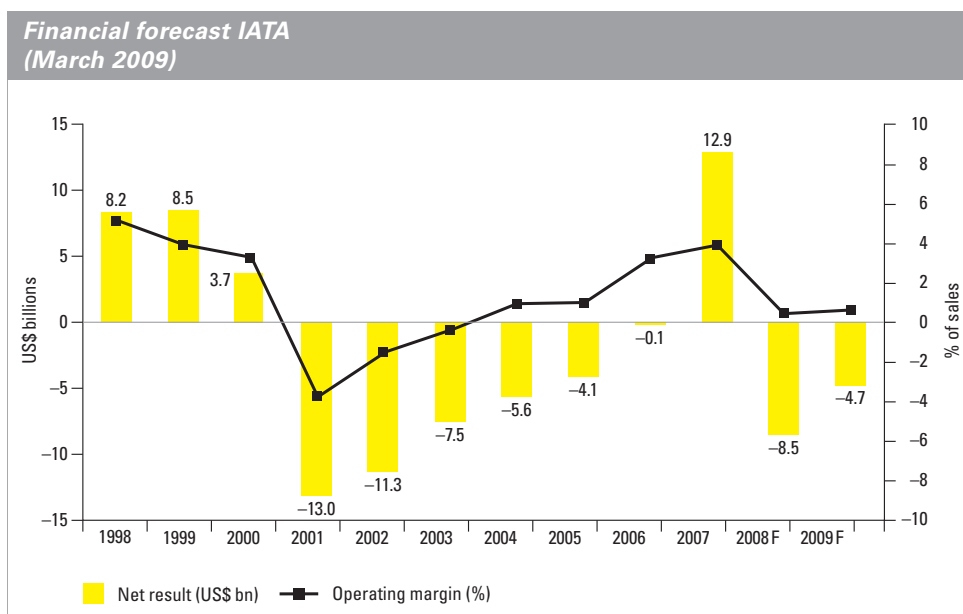


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DEVELOPMENTS DURING 2008 IN KEY AVIATION MARKETS

The storm clouds already signaled in our 2007 annual report did not blow over and – as anticipated – resulted in a harsh climate for the aviation industry towards the end of 2008, as a first indication of the hurricane that would be unavoidable during 2009 at least. During the first half of 2008, airlines worldwide were confronted with an accelerating increase in the cost of jet fuel, resulting in a financial weakening of the many carriers possessing inadequate fuel hedging contracts. The second half of 2008 witnessed a strong reduction in jet fuel prices as the global economy started to slow down. With the global banking system still in the doldrums, global trade in a tailspin and a wave of unemployment building from the US to Europe and the Middle East to China, the target for most industry players will simply be “survival”.

Global airlines could not repeat the – in hindsight, surprisingly strong – positive financial result of a net US\$12.9 billion profit from 2007 (estimate revised by ICAO from US\$4.7 billion to US\$12.9 billion based on new “below the line” data at the end of 2008), plunging back into the red during 2008 to an estimated US\$8.5 billion net loss, according to IATA. Contrary to previous years, all global regions except Europe are expected to report negative net results for 2008. Commercial jet manufacturers and engine suppliers were still able to book new orders during the first half of 2008, albeit with the main driving force changing from “growth” to “replacement” of older, less fuel efficient aircraft. During the second half of 2008 aircraft sales stagnated, and the first signs of order deferrals and cancellations became apparent. The slightly overheated aircraft leasing and trading market from 2007 initially held up fairly well, but towards the end of the year lease rates were starting to come down. Whereas the “gas guzzlers” were the initial victims – with plummeting lease rates and equipment values – towards the end of 2008, even the more modern equipment was coming under pressure as airlines switched to capacity reduction mode. Program delays in the widebody segment and industrial actions in Seattle resulted in a lower number of deliveries compared to



originally projected volume, which – ironically – prevented a more significant oversupply situation from developing. While the widebody passenger market remained fairly strong, the unprecedented drop in global air cargo volume had a devastating effect on the freighter market.

Air transport developments

According to ICAO figures, growth of passenger traffic – expressed in terms of passenger kilometers – dropped to a disappointingly low level in 2008. Whereas in 2007 growth still stood at 5.3%, the preliminary 2008 figure is 1.8% on a year-over-year basis, a level significantly below the long-term trend. International traffic increased by 4.1% in 2008, compared to as much as 7.6% in 2007. Europe, the largest region for international traffic enjoyed growth of 5.2%. Asia/Pacific, the traditional growth engine, representing 27% of international traffic, showed extremely disappointing figures with near-zero growth. North America, the third largest region for international traffic, did relatively well in reporting a healthy 5.3% growth. The Middle East was able to still report strong international growth with a 8.9% increase, while Latin America did not lag much behind with 7%. Africa could not impress, with only a 2.1% increase.

While international traffic still increased, domestic traffic showed mainly negative figures. Global domestic traffic declined by 1.6%, compared to a 6.2% growth figure during 2007. The large US domestic market, good for 58% of global domestic traffic, was the main culprit for the decline as this region shrunk by 3.1%. The increasingly important Asia/Pacific domestic markets, representing 27% of global domestic traffic stagnated at +0.1%. Europe, good for 8% of global domestic traffic, could not stay out of the red and declined by 1.1%.

As in 2007, the international air cargo market disappointed again in 2008. Cargo volume growth expressed in freight ton kilometers declined from 3.9% in 2007 to only 1.1% in 2008. Apart from the general weakness in international trade, air cargo seems to have lost market share to maritime (container) transport. The extremely high fuel cost during the initial months of 2008 forced cargo carriers to impose fuel surcharges, which made air cargo a very expensive option. The global slowdown in consumer demand during the second half of the year may have taken away the “need for speed” to get certain categories of high tech electronics to the market. Generally, cargo is seen as a “leading indicator” for commercial aviation. In a downturn, air cargo is generally the first segment to suffer, followed by premium business travel and finally leisure travel. The 2008 downturn is not an exception to this rule. IATA reported premium traffic to have fallen by 2.8% during 2008, while economy travel still increased 0.9%.

A phenomenon that has been observed for a long time continued during 2008: the increasing market share of low cost carriers (“LCC’s”). The non-IATA market share, typically LCC’s, increased to 33% of global domestic travel and 20% of total scheduled traffic. ICAO passenger numbers, including scheduled IATA and non-IATA traffic, increased by 0.8% in 2008.

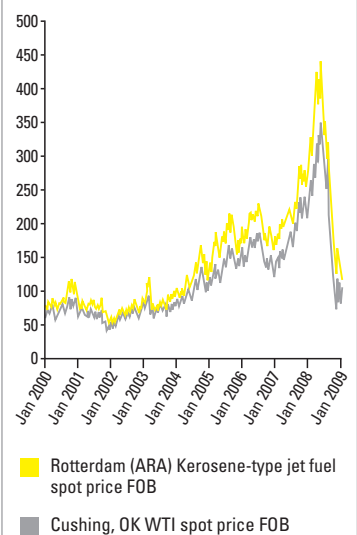
Air transport
developments

Contrary to what the order “boom” for new aircraft during the previous years suggested, global airlines managed to keep their capacity expansion level down to a modest 3% in 2008, slightly over half of the 2007 increase of 5.8%. Despite this restricted growth, weak demand resulted in a drop in passenger load factor from 76.7% in 2007 to 75.7% in 2008, historically still a very high level.

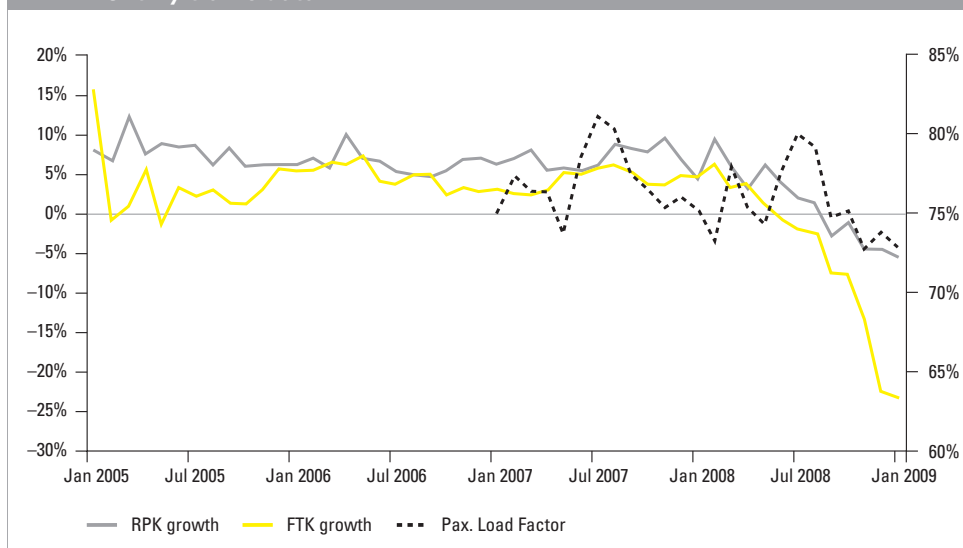
During the first half of 2008 oil prices (and consequently jet fuel prices) spiked, and when crude reached ca. US\$145 per barrel in early July, industry experts were predicting that by the end of 2008 the US\$200 level would have been reached. Reality was completely different. With the effects of the credit crunch spreading to the real economy, the world plunged into a deep recession, taking oil prices with it. By year-end a barrel of crude cost less than US\$40. Several airlines that booked significant losses due to the increase in fuel prices were criticized for not having adequate fuel hedges in place. Stung by this some of them did eventually enter into hedge contracts in mid-2008, but fuel prices promptly started to collapse – with the hedges themselves causing significant losses and the need to provide additional collateral to counterparties.

Looking at the intra-year traffic pattern on a monthly basis, it becomes clear that another huge change took place during the year. Until April–May, passenger volume grew at a reasonable satisfactory pace of about 5–6% on a year-on-year basis. Cargo showed an already disappointing 3% growth. After May however, the situation deteriorated rapidly to lower (but still positive) growth levels until September when negative growth could no longer be avoided. During the last quarter of 2008 – and in particular in December – traffic developments became dramatic. December alone saw –4.6% for global passenger traffic, and an unprecedented –22.6% for global air cargo. So far, the statistics for early 2009 do not indicate any meaningful improvement.

Crude oil & jet fuel –
Price development
(cents per gallon)



IATA monthly traffic data



As indicated before, financial results for the global airlines were disappointing. Unfortunately, initial indications for the 2008 result from IATA and ICAO had to be adjusted significantly during the first months of 2009. The latest preliminary IATA estimates seem to suggest the industry will still enjoy an **operating profit** of US\$2.2 billion (2007: US\$+19.7 billion) for global carriers. Europe realised the best result with a US\$3.9 billion (2007: US\$6.4 billion) operating profit, while Asia/Pacific lost US\$1.2 billion (2007: US\$+3.5 billion). US airlines lost US\$0.3 billion (2007: US\$+9.3 billion).

On a **net results** level, the current figure is a US\$8.5 billion loss in 2008 (2007: US\$+12.9 billion). Biggest losses seem to have been generated in North America with US\$5.0 billion (2007: US\$+5.3 billion), and Asia/Pacific with US\$3.6 billion (2007: US\$+2.1 billion). Europe as the only profitable region generated a net profit of US\$1.4 billion during 2008 (2007: US\$5.4 billion). The above figures are preliminary estimates based on IATA March 2009 figures.

With respect to intra-industry developments, 2008 finally saw some major consolidation. In Europe the Alitalia drama drew to a close with the airline being taken over by investors linked to Air One, called Compagnia Aerea Italiana (CAI), a group of private companies. Furthermore, early in 2009, Air France/KLM was announced as strategic partner, with a 25% equity share in the Italian carrier. In the US, Delta Air Lines merged with Northwest Airlines, with the Delta identity as the surviving brand name.

Less positive news was noted from the transatlantic market, with the demise of virtually all the new premium carriers. Already by late 2007, all-premium carrier Maxjet had entered into Chapter 11 bankruptcy protection after failing to finalize a new round of financing. In a similar scenario, US-based all-premium carrier Eos ceased operations in April 2008 and filed for Chapter 11 bankruptcy protection, after failing to secure a new financing package as well. Both were followed in May by Silverjet, which went into administration after similarly failing to secure additional funding. The French equivalent of the three failing premium carriers, l'Avion, saw a different end to its existence – in July the carrier was taken over by British Airways and added to its "OpenSkies" unit. Other European airline failures included XL Airways and Futura International in September.

In the US, April 2008 saw Aloha, ATA and Skybus Airlines shutting down their operations, citing rising fuel prices and competitive pressures. Later, Frontier Airlines filed for Chapter 11, although the carrier is still in business. Canada's Zoom also gave up the ghost, in August.

Asia had its share of airline defaults too, when long-haul low-cost carrier Oasis Hong Kong Airlines became the second casualty in the region, after the failure of Indonesia's Adam Air.

Although the increasing impact of the economic crisis caused the spotlight to turn away from the environmental problems that were the centre of many aviation discussions during 2007, the industry nevertheless started feeling the impact of more stringent legislation. In October, European ministers formally cleared the inclusion of flights within, departing and arriving into the EU in the European Union's emissions trading scheme (ETS) from the start of 2012. Emissions from the aviation sector initially will be set at the equivalent of 97% of its average annual emissions for 2004–2006, being reduced to 95% in 2013.

A total of 85% of the allowances will be free of charge. Airline organizations were not overly enthusiastic about the ETS. IATA director general Giovanni Bisignani said that more efficient European air traffic management could reduce carbon dioxide emissions more effectively. Europe's go-it-alone approach was also deemed counterproductive. The Association of European Airlines called the ETS a "massive blow" to the competitiveness of the industry, and a "barely measurable step" for the environment.

New aircraft market

After a few years of record order volumes, the manufacturers had to be satisfied with smaller numbers. With a total gross order volume of 1,786 "western-built jets" for standard airline use, order intake declined by about 45% compared to 2007 (data from independent Ascend CASE database may deviate slightly from figures reported by the manufacturers, due to different accounting of type-changes, cancellations, non-standard airline orders and "undisclosed" orders).

Although not as eagerly watched as in previous years, Airbus won the order race in 2008, booking a total of 900 new orders. The Toulouse-based manufacturer also lost about 123 of those orders during the year, resulting in a net order intake of 777 jet airliners, compared with the net intake of 1,341 orders during 2007 (-42%). Boeing came second in 2008 with 668 new orders and just six cancellations, resulting in 662 net order, compared to 1,413 the year before (-53%). Brazilian jet manufacturer Embraer's gross order intake during 2008 was 166 jets according to the Ascend CASE2 database; and with 15 cancellations, the net intake was 151. Canada's Bombardier booked 53 gross orders for its CRJ regional jets: two cancellations resulted in 51 net orders.

The A320 Family was once more the best-seller in the Airbus stable with 466 net orders for the A320 base model. Major orders were placed by leasing companies ACG, DAE and AWAS, while China Aviation Supplies contributed nicely with a commitment for 110 units. Toward the end of the year, Chinese airlines appeared to have bitten off a bit more than they could chew, and airlines were encouraged to offload any aircraft they could. Low-cost carriers AirAsia and easyJet also booked significant orders for the A320.

The stretched A321 was remarkably successful with net 86 new orders, many of them conversions from other A320 Family variants. Significant orders were placed by Vietnam Airlines, TAM, Aeroflot and Nile Air.

The success of the A320 stood in sharp contrast to the short-body A319 that lost many orders as clients switched to the larger variants. However, useful orders came in from lessors BOC and CIT. The A319 ended the year with a negative 63 net order loss. The "double shrink" A318 confirmed its position as the problem child of the A320 Family as it lost net 17 orders thereby reducing its backlog to only 20 aircraft. BA committed to two aircraft for the London City – Shannon – New York route.

The second most successful Airbus "family" turned out to be the new A350 series, gaining a net 163 orders, thereby boosting the backlog to 483 aircraft. Of course DAE and Etihad were amongst the major new clients for the type, but Asiana, TAM, Air One and China Airlines were not left far behind.

Maybe even more impressive was the continuation of the A330 comeback, with 142 new net orders, coming from (amongst others) Air China, AirAsiaX, Gulf Air, China Southern and Air One. A number of these orders should most likely be considered as "interim lift" to bridge the gap till the new A350 enters into service. The A330-200F was not (yet) able to celebrate a real breakthrough, but orders were received from lessor BOC Aviation and cargo holding company Matlin Patterson.

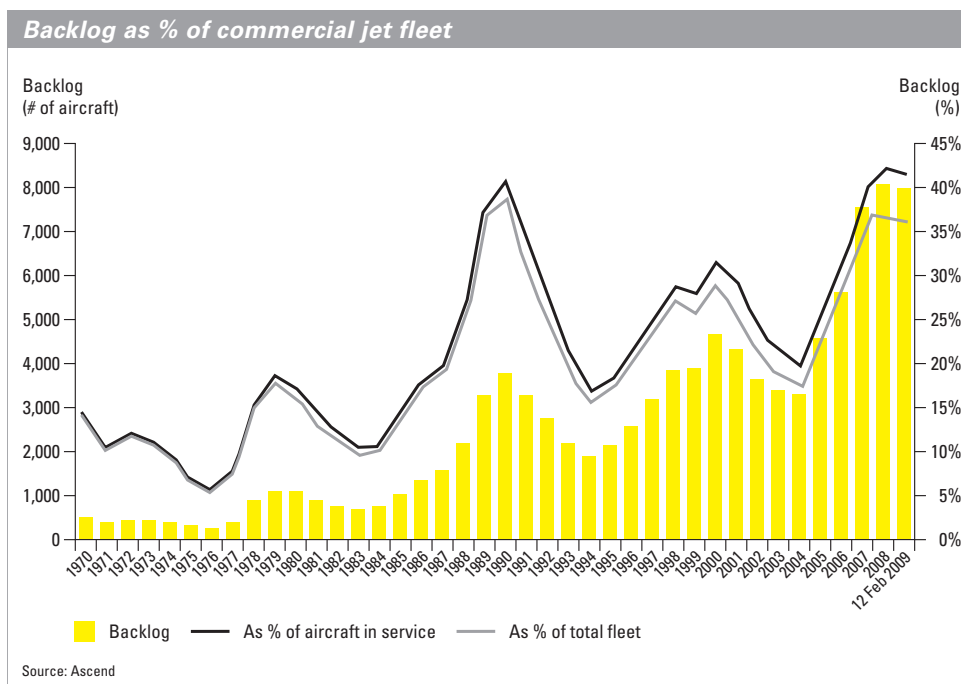
The A380 mega-jet was the only other type that ended the year with a net gain, with nine more orders going into Airbus' book, coming from Korean and of course Etihad. The manufacturer finally decided to clean out the orderbook for the good old A300/A310, and by cancelling five orders that "were never to be" the backlog dropped to zero. Finally – and maybe a bit more painful – orders for the four-engined A340s ended with –4 net orders, reducing backlog to a modest 24 aircraft. Iberia and Arik Air were amongst those brave enough to place orders.

Boeing – like Airbus – had to rely on its own best-seller for the bulk of the orders. The B737 "Next Generation"(NG) was still able to generate a net 484 new orders for Seattle. Lion Air from Indonesia clearly wasn't satisfied with its existing B737-900ER order, and booked 56 more of this stretched version of the type. Start-up Emirates offshoot "FlyDubai" jumped in – in typical style – by ordering 50 NGs. MAS and American booked B737 slots for clear replacement purposes, and lessor ACG spread its risk by ordering B737s next to its A320s.

The high-tech, but much delayed B787 "Dreamliner" convinced several airlines to place additional orders and this next-generation widebody clocked up a solid 93 new net orders, with interest coming mainly from Gulf Air and (again) Etihad. The B777 continued to be a solid performer in the widebody category with 54 new orders (including Etihad) and no cancellations, while the once written-off B767 proved it is still very much alive with 29 new orders and only one cancellation. Whereas the exiting generation of the B747-400 "Jumbo" is sold out, its stretched and re-engined B747-8 successor didn't give the American manufacturer much to smile about. Very disappointing for such a new design, only three orders (none from commercial airlines) were booked, bringing the backlog to 106 aircraft.

Brazil's Embraer continued to expand the operator base for its E-Jets. The smallest of these, the 170, booked an estimated 23 orders, including from BA. Its slightly larger sister, the 175, remained the wallflower of the family with only 5 additional orders. The star performer during 2008 was the larger 190, with 68 orders, including Aeromexico, BA, Virgin Blue and lessor Jetscape. Both the 170 and 190 will be eligible for operations to London's City Airport. The largest of the E-Jets, the 195, did very well with an estimated 52 orders, including a very large one from Brazilian start-up Azul as well as from Germany's well-respected Lufthansa.

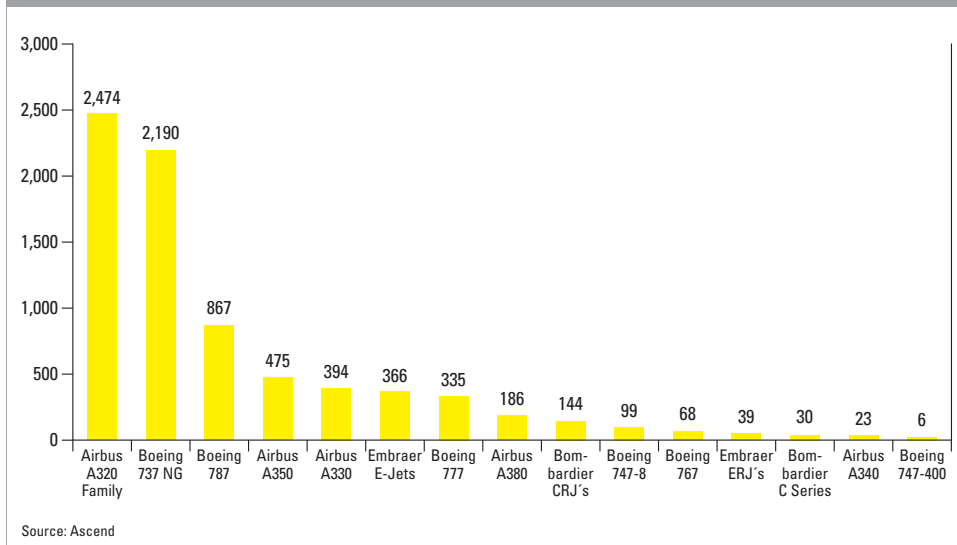
Bombardier clocked up 18 CRJ700 orders, as well as six CRJ1000 “superstretches” for Brit Air, but the Canadians’ star performer was the CRJ900, with 27 orders, including from SAS and the Republic of Iraq. The CSeries had its day during the Farnborough Air Show, with launch customer Lufthansa signing a letter of intent for 30 aircraft. Early in 2009 the CSeries made headlines again when Mongolian carrier Eznis Airways confirmed it had signed a letter of intent for seven aircraft. The CSeries will be powered by Pratt & Whitney’s “Geared Turbo Fan™”, a super-efficient engine that may prove to be the most significant differentiator for the CSeries. A prototype technology demonstrator of the “GTF™” was tested on a Boeing 747 as well as on an Airbus A340 testbed, but the outcome has not been published.



According to the CASE database, some new orders were signed during 2008 for two of the new contenders in the regional jet market. China’s CAIC booked five ARJ21 orders from GECAS, the leasing arm of the plane’s engine supplier General Electric. Sukhoi could celebrate no less than 49 orders for the Superjet, with five coming from Asset Management Advisors and 24 from Avialeasing. Mitsubishi announced commitments for 15 + 10 MRJ90’s coming from All Nippon Airways, but reportedly this commitment is not a confirmed order yet.

Although included in the figures for the various aircraft types mentioned above, it should be noted that the order intake for new freighter aircraft was extremely low during 2008. A net total of a mere nine factory freighters were ordered, eight A330-200F’s and one B777-200LRF. This was in notable contrast to 2007, when no less than 139 factory-built freighters were ordered.

Commercial jet backlog (for airline use) (March 2009)



At the end of 2008, the backlog for commercial jets on order for standard airline use (that is to say, excluding corporate and government operators) stood at 7,883 jets, clearly a record level. The previous peak in backlog level dates back to the year 2000 when 4,477 planes were on order. In just five years – between 2003 and 2008 – the order backlog has more than doubled. Expressed as a percentage of the global active fleet (in service and in storage) the ultimo 2008 backlog reached 40%, a percentage only exceeded once during the mature commercial aviation era, in the years 1989/1990 when the total reached 43%. As of mid March 2009, the backlog of western built jets for standard airline use stands at 7,696. The backlog by aircraft “family” is depicted in the chart.

The most popular individual aircraft type by backlog is the basic version of the A320 Family, the A320 itself with 1,871 unfulfilled orders. The A320 is followed by the B737-800 with a backlog of 1,428. The B787 “Dreamliner” takes the third spot with a – for a widebody – respectable 867 orders in backlog. Another member of the B737 Next Generation, the B737-700, occupies the fourth place with 559 orders. The A350 is catching up quickly and already stands at 475. The top-10 is completed by the “good old” A330 with 394 orders, the A319 with 348, the B777 with 335, the A321 with 247 and finally the only “outsider” to the Airbus/Boeing duopoly, the Embraer 190 at 228.

In terms of available technology, 2008 didn’t bring major new aircraft launches like the years before. The Mitsubishi MRJ70 and MRJ90 did become more concrete, and together with the Bombardier CSeries, will rely on the “GTF™” engine to beat the competition. During the first half of 2008, airlines and investors focused on new technology aircraft with good fuel efficiency and low emissions. There were even suggestions that Airbus was considering an interim update of the A320 family using “GTF™” engines. This move would potentially force Boeing to launch its B737 NG successor before the real A320

replacement, which would benefit Airbus by allowing them to respond to the Boeing product, in a similar fashion to their A350XWB response to the B787. Towards the end of the year, the industry focus moved away from fuel efficiency to “survival”, with both manufacturers indicating that the next generation 150-seaters should not be expected much before the year 2020. The debate on the engine front continued a bit longer. Whereas initially the competition questioned the viability of Pratt & Whitney’s “GTF™”, after Bombardier announced the commitment of Lufthansa for its CSeries, the message changed to “not enough” – implying that the “GTF™” would only be an interim step and that even more radical engines, including open rotor types, would be the true way forward.

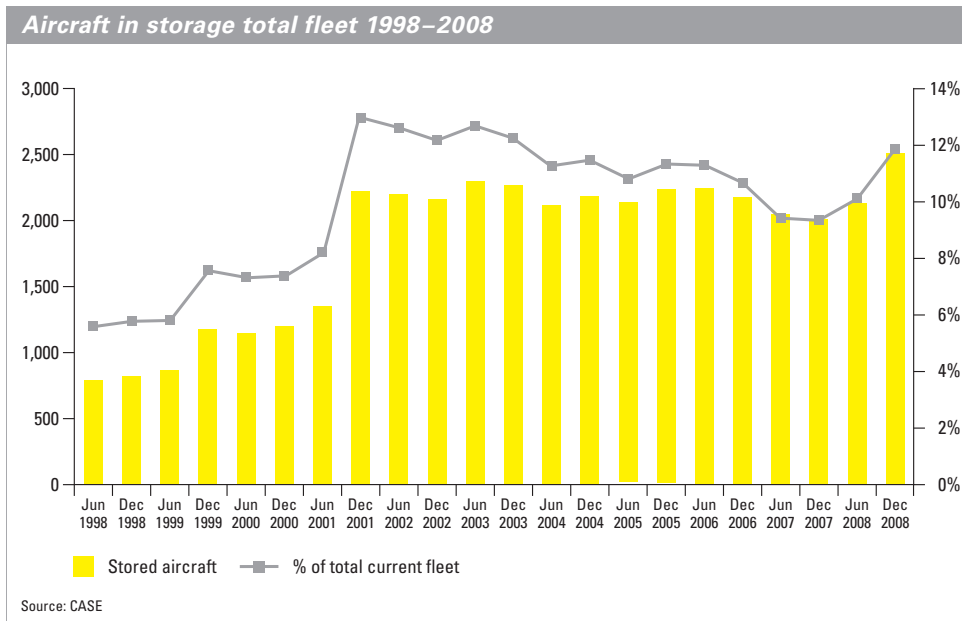
In the widebody segment, it seems the A350XWB is more and more seen as a direct competitor to the Boeing 777 and only in a limited way to the B787. Airbus’ slogan “a step ahead of the 787, a generation beyond the 777” leaves no doubt about its intentions. With the B777-300ER taking over as the most popular version of the B777 from the -200ER, and the A340-600 generally no longer seen as competitive, stretched versions of the A350 (especially the -1000) could start to impact B777-300ER sales in the near future. It is not clear what Boeing’s response would be, if any. For the time being it seems both Airbus and Boeing have very full plates in developing (respectively) the A380, the military A400M and the A350, the B787 and the B747-8. However, it cannot be excluded that for Boeing a defensive move in the B777 market could take priority over the B737 successor. Whether the response would be a B777 “facelift” or a more radically new B777 NG is unclear. With the B747-8 Intercontinental passenger “Jumbo” not proving a spectacular sales success so far, Boeing may face another challenge at the top end of its range as Airbus nicely slots in the A350-1000 in the segment below the A380.

Under the current economic circumstances however, it seems the OEMs (Original Equipment Manufacturers) will prioritise short-term problems over long-term challenges. Filling the financial “funding gap” may take priority over filling a potential future gap in the product range.

Used equipment market

Whereas the good times are clearly over, the used equipment market did not experience a significant collapse during 2008. Still, during the first half of the year, older and less fuel-efficient equipment, such as the MD80 series and the B737 “Classics” came under pressure because major airlines announced an accelerated phase-out as a result of the high fuel price. During the second half of the year the airlines reacted to the slowdown in traffic growth by “right-sizing” their older fleets.

The number of stored (or “parked”) aircraft as well as the number of aircraft offered for sale or lease (“availability”) are often used as measures to gauge excess capacity in the market. The pattern of the numbers of aircraft in storage stays similar to the pattern of aircraft availability in the past ten years, and both fluctuate along with the cyclicity of the overall aviation market.



It should be taken into account that aircraft storage figures are influenced by the number of surplus aircraft going into storage on the one hand and the number of aircraft exiting storage on the other. Exiting however can be the result of a return to service or of the scrapping of the plane. The latter is usually taken as a sign that the part-out value was expected to exceed the value of the aircraft as a whole, or ultimately that it was deemed no longer worthwhile to preserve the aircraft for future use.

The number of aircraft in storage has grown significantly since mid-2001 and reached an all-time high at 13% of the global fleet by the end of 2001. This dramatic increase in the number of aircraft in storage corresponded with the sharp decline in passenger traffic demand after the 9/11 attacks.

During 2008 the number of aircraft in storage increased rapidly (by 25%), with early 2008 being the turning point for the market. According to CASE, as per December 2008, there were a total of 2,364 western-built jets in temporary or permanent storage, representing 11% of the total current fleet. Among the stored aircraft, a significant number will be ultimately retired, especially the less efficient ones. Currently, the majority of the aircraft in storage are pre-classic or classic aircraft types which count for 78% of the total stored fleet. This once again demonstrates the market's strong preference for modern/efficient aircraft types under the current market conditions. As shown in the storage profile table which lists all aircraft types (incl. freighters) currently in storage, the B737-Classics alone count for 23% of the total fleet in storage. Other pre-Classics/Classics narrowbody aircraft types, such as MD80, B727 and DC-9 are on the top of the storage list as well.

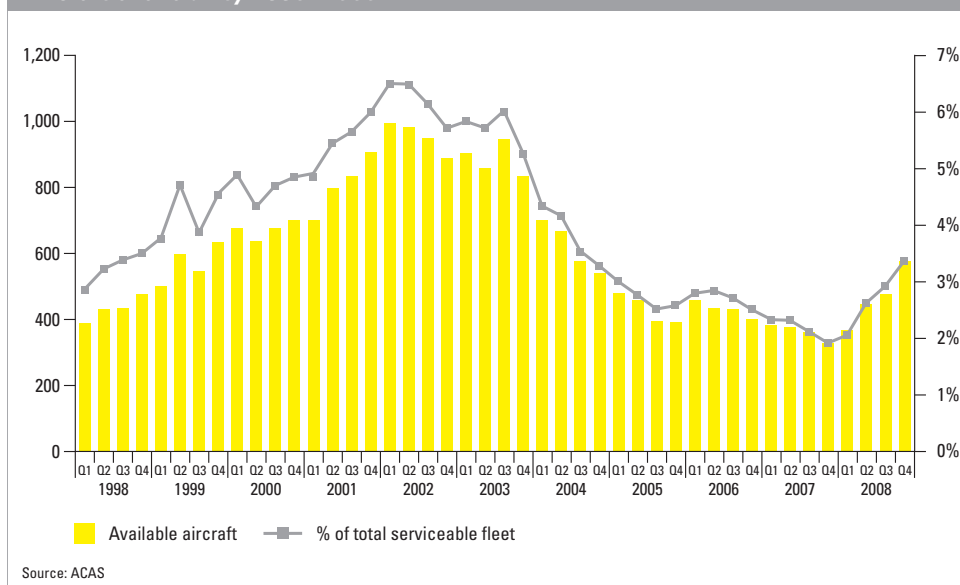
In the past year, during which the market experienced a fast deterioration as a result of the global economic recession, the number of stored aircraft as a percentage of total current fleet for widebodies has increased less dramatically than the one for narrowbodies, which has increased by 17%. This, from a different perspective, demonstrates the relatively strong demand for widebody aircraft as "interim lift" awaiting the start of deliveries of the new technology types, such as the B787 and A350. Clearly, this situation is expected to be only temporary until production volumes for the new types start taking off.

It should be taken into account that temporary factors such as seasonal traffic, or aircraft parked awaiting modifications such as passenger-to-freighter (P2F) conversions etc. contribute to the fluctuation of aircraft storage statistics. These factors must be taken out when evaluating long-term market developments. In the foreseeable future – until at least the end of 2009 – it is expected that the number of aircraft in storage will keep increasing until the moment that older, especially technologically obsolete aircraft, will be broken up in larger volumes – and/or such time as air traffic demand picks up again.

Although less measurable, aircraft availability is often seen as a sensible indicator for the supply-demand balance of the market, and it fluctuates along with the cyclical nature of the market.

As traffic growth boomed from late 2006 until the first half of 2008, airlines needed older aircraft as well as new aircraft to meet demand. The turnaround started early in 2008, and the increase of aircraft availability since summertime 2008 has clearly reflected the deteriorating market conditions. Historically, the number of available aircraft – as a percentage of total serviceable aircraft – is higher for widebodies than for narrowbodies. However, as for storage statistics, benefiting from delays of replacement deliveries from both Boeing and Airbus, the availability of so called "interim lift" widebody aircraft has increased less in comparison to narrowbodies in the current market downturn.

Aircraft availability 1998–2008



**Storage profile
(December 2008)**

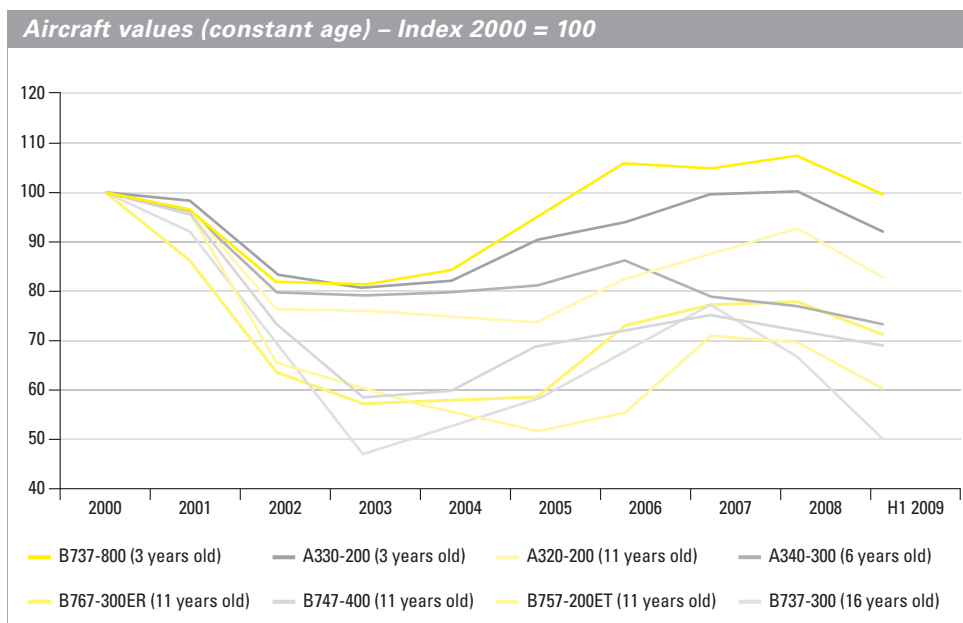
Rank	Aircraft type	Stored	%
1	B737 Classics	538	22.8
2	MD80	281	11.9
3	B727	243	10.3
4	DC-9	204	8.6
5	B747	139	5.9
6	B767	100	4.2
7	B737 NG	97	4.1
8	CRJ Regional Jet/ 700/900	97	4.1
9	BAE 146/ RJ Avroliner	86	3.6
10	B757	85	3.6
11	A320 Family	72	3.0
12	ERJ-135/145	70	3.0
13	A300	64	2.7
14	DC-10	51	2.2
15	DC-8	49	2.1
16	B707	48	2.0
17	Fokker 100/70	48	2.0
18	A310	31	1.3
19	B717	22	0.9
20	MD11	16	0.7
21	A340	11	0.5
22	A330	6	0.3
23	B720	2	0.1
24	B777	2	0.1
25	A380	1	0.0
26	Embraer 190	1	0.0
Total		2,364	100.0

Source: CASE

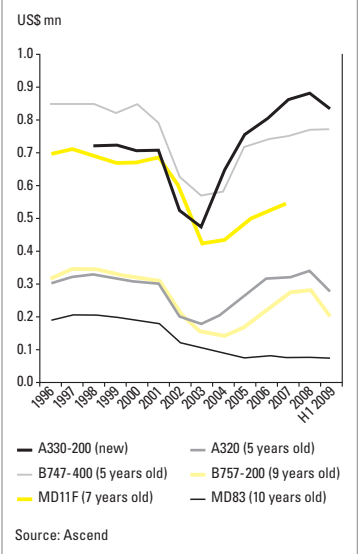
According to SpeedNews' availability information as per end-January 2009, there are almost 1,000 commercial jet aircraft (including regional jets) available for sale or lease, which represents around 4% of the current fleet. The availability level has increased by about 35% since mid-July 2008 which indicates the worsening market environment. Only approximately 10% of listed aircraft represent the more desirable economically efficient modern generation aircraft. This once more demonstrates the market's preference for modern and efficient aircraft, particularly under current market conditions.

The recovery of used aircraft prices and lease rates after the 9/11 crisis has come to a halt: a market that was on the brink of overheating has actually cooled off significantly.

Various aircraft types showed a different value performance last year and early 2009. To eliminate the influence of aircraft aging, the values of a (theoretical) constant-age aircraft were tracked. Clearly older types, such as the MD80 series and the B737-300 continued the downward trend that already started last year after a short period of recovery. Not adjusted for aging, the MD80 series – already hit very hard by the post-9/11 crisis – lost another 25-40% in value between mid-2008 and early 2009. For a number of major operators, their B737 "Classic" (-300, -400 and -500) fleets became candidates for accelerated phase-out due to initially increased fuel cost – and later, reduced demand. Consequently, Boeing 737-300s didn't fare much better than MD80s, with a value loss of about 25%. More modern and liquid narrowbodies, such as the A319, A320, B737-700 and B737-800 lost around 15% in value, with the younger samples close to 10–12% and the older planes in the 15–18% range.



Constant age lease rate developments (1996 – H1 2009)



The large Boeing B757-200 narrowbody – which recovered very nicely from the 9/11 crisis – lost between 15 and 20% in the second half of 2008, slightly more than its widebody sister, the Boeing 767-300ER, which saw values reduced by 10–18%. The larger Boeing 777-200ER lost 10–12%, while the stretched -300ER version – a version that is taking over the role of the most popular B777 from the -200ER – lost less than 10%. The four-engined Airbus A340-300 lost between 10 and 20%, with older samples suffering most. The A330 family once more was doing much better, with about 15% loss for the stretched -300 and only 12% for the shorter -200. The Boeing 747-400 lost about 10% in the passenger version, while – despite the cargo market problems – the -400 Freighter reportedly lost less than 10%. The above value changes have been derived from early 2009 value reports provided by independent consultancy firm Ascend.

Ironically, last year the strong market of 2007 (combined with increasing oil prices) caused much of the attention to be focused on the successors to current workhorses, the A320 and B737 NG. During the course of 2008, the focus returned to the short-term problems as it became clear that the successor generation will not be entering into service much before the end of the next decade. With a shrinking market toward the end of 2008 and early 2009, and airlines downsizing their fleets, the key question became which aircraft types would be parked and which one would still be operated. As already reflected in the storage and value figures, clearly the most vulnerable plane types turned out to be the MD80, followed by the B737 Classics. Next up may be early versions of the A320, powered by CFM56-5A or V2500-A1 engines.

In the widebody segment, the continuing need for interim lift saved a few older types from a last flight to the desert. Early A340-200s and -300s still found homes as did older B767s. A330s and B777s were able to maintain a strong position, although early B777 “A” market aircraft may face more challenging times soon. The B747-400 came under pressure as airlines reduced widebody capacity, and demand from the cargo market did not materialize as expected. Whereas only one or two years ago large-scale cargo conversion of passenger aircraft was prevented by a lack of affordable feedstock aircraft, in 2008 this situation changed completely. Despite cheaper feedstock, troubled cargo airlines did not take this opportunity because their own focus was very much on short-term survival.

The previously prosperous operating lease market came under pressure during 2008, not so much because of lower aircraft values or depressed lease rates but mainly because of the credit crunch. Parent companies of the operating lessors that were seen as mighty financial powerhouses were one by one brought down by the crisis. AIG, the once-mighty parent company of mega-lessor ILFC was one of the first to fall, but this insurance giant was followed by Allco, Babcock & Brown, Royal Bank of Scotland and more recently, General Electric. Although not everything is clear at this point in time (early 2009) it seems the operating lessors linked to the financial services companies mentioned above are unlikely to be able to continue their expansion strategy and a number of them, if not all, are for sale.

Only one or two years ago, the opportunity to buy a strong operating lease platform would have attracted many investors, as evidenced by the ownership changes of SALE, AWAS, Pembroke, and Pegasus. Today, whereas there may still be interest from a few remaining private equity investors and hedge funds or – more likely – sovereign wealth funds in the Middle East or Asia to take over the operating lessor platforms, the more challenging element will be to find competitively priced debt financing.

Eventually, the lack of debt funding for commercial aviation could have a significant negative effect on the used equipment market as well. The few banks that remain active in the aircraft finance market can afford to be very selective and pick only the most attractive combinations of credit risk, asset risk and remuneration profile. Financing older aircraft for second or third tier operators may not be seen as too attractive anymore, despite very high margin opportunities.

The main discussion around this subject has become known as the “funding gap” discussion, as it focuses on the question as to whether there will be sufficient debt funding available to finance all 2009/2010 aircraft deliveries.

However, there are many “moving parts” in the analysis of this “funding gap”: whereas initially the projected deliveries hinted at a very significant gap, it now seems that manufacturers will reduce the number of deliveries over 2009, implying the amounts needed for financing these new deliveries will go down. Rather than producing a significant number of non-financeable “white tails”, the manufacturers apparently have decided to reduce their production and delivery volume.

The other variable in the funding gap discussion is the answer to the question as to which ways governments will be prepared to assist the aerospace industry, in addition to the already expected increase in ECA covered deals. Already France and Germany are indicating they are prepared to come to the rescue, although the current proposals are not very clear. So, whilst normal market dynamics would suggest that a funding gap was almost unavoidable, a reduction in aircraft deliveries – combined with new forms of government support – may close (part of) the gap.

One element that has not been taken much into account is the competition for funding between new aircraft deliveries, and used equipment re-financing. The combination of top-tier credit, conservative advance rate on relative young used equipment, and an adequate margin, often makes a re-financing transaction significantly more attractive compared to financing of new aircraft.

CONCLUSIONS AND PROGNOSIS 2009 FOR THE KEY AVIATION SEGMENTS

As predicted last year, dark clouds did bring the sunny days in aviation to a close. They took the form of (initially) a spiking fuel price, later followed by the credit crisis and finally an economic recession of historic proportions leading to a drop in demand for air travel as well as yield levels. During 2008, the market for modern commercial jets encountered increasingly strong headwinds, but the equipment market by no means collapsed. The market for older types softened significantly, however. As this development had been predictable, it did not result in major casualties amongst the traders and lessors. The same cannot be said for the impact of the credit crisis on the aircraft financing market. Towards the end of 2008 the lack of funding had already begun to cast its shadow over 2009.

With huge uncertainty overhanging the global economy, it is difficult to provide any reliable forecast for the global aviation markets. Some of the major industrial countries face stagnant or increasingly negative growth figures, resulting in lower disposable consumer income, bankruptcies and increasing unemployment. Inevitably, this kind of environment will have a strong negative impact on all segments of global air traffic; air cargo, business, as well as leisure traffic. ICAO's December 2008 forecast of 0.9% growth in global passenger kilometers for 2009 may very well prove to be optimistic. The continuing low oil price – as such, a result of the weak global economy – may offer the airline industry some relief, and financial results may not be as devastating as after the 9/11 crisis, but ICAO's 2009 forecast of US\$3.8 billion in operating profit for the industry seems optimistic as well. Besides, a weak economy is no guarantee that oil will remain at low levels.

Given the negative momentum that was building in late 2008/early 2009, it seems unlikely that the current recession will be a short one. With hardly any light at the end of the tunnel, economists are increasingly indicating that an upturn may only come in the second half of 2010 at the earliest.

For 2009, many airlines will see a further loss of profitable premium traffic, followed by pressure on leisure traffic as well. The once-lucrative international routes are coming under pressure as well. Apart from further cost-cutting, a reduction of capacity seems the only "solution" to this problem. In the cargo market, the market segment hit first and so far most severe by the recession, freighters are already being parked in larger numbers.

Older generation narrowbody passenger aircraft were already on their way to storage areas in the desert during 2008, as a result of higher fuel costs. Lower fuel prices, however, are unlikely to bring many of these planes back into operation: in the medium to longer term, oil is bound to go up again and more stringent environmental legislation will make these older "gas guzzlers" unattractive.

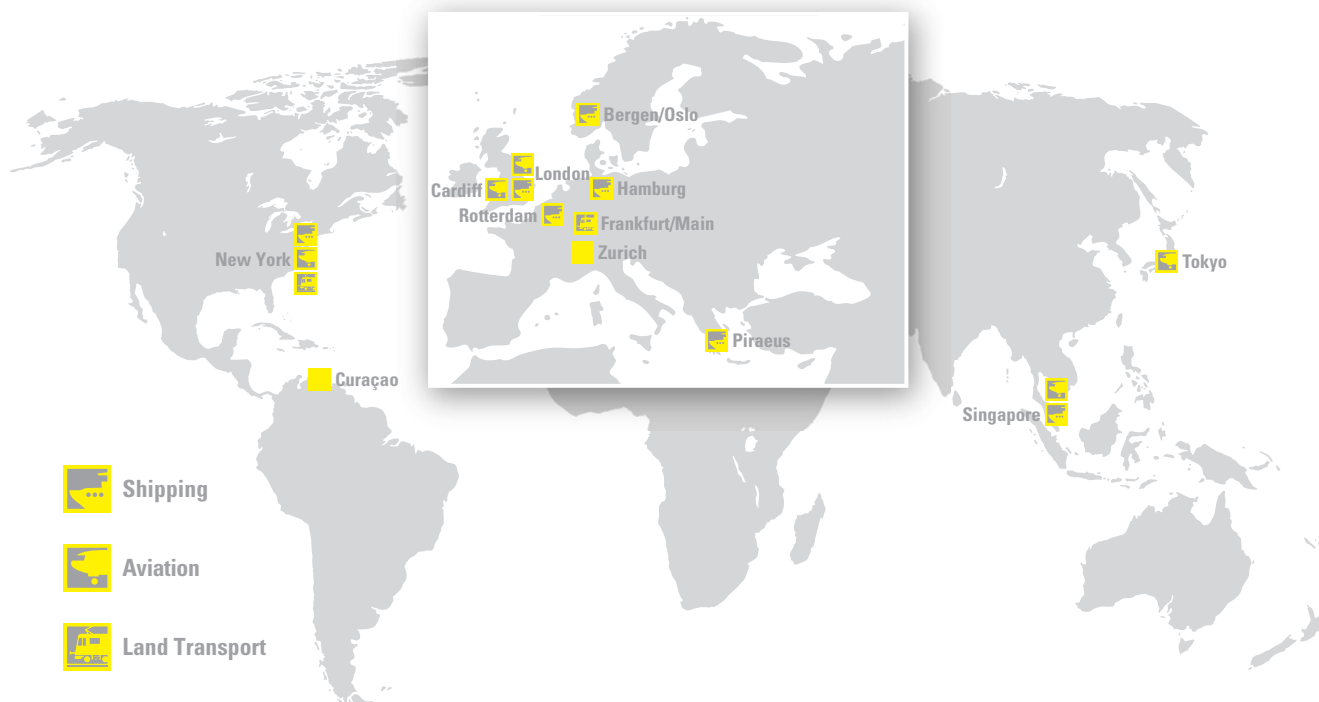
Although as yet unconfirmed by the commercial aircraft manufacturers, we expect a significant number of orders placed for modern aircraft between 2005 and the first half of 2008 to be deferred or cancelled. The manufacturers have already indicated that production will not be increased as originally planned. Because some operators who ordered aircraft for delivery in 2010 and beyond are still willing to take delivery this year, we do not expect many “white tails” (aircraft produced without a buyer) in the short term. Production discipline will be essential to maintain the fragile equilibrium in the segment of modern narrowbodies, but any major default may temporarily disrupt even this segment.

The widebody passenger aircraft market will continue to benefit from the Boeing 787 and Airbus A380 delays. While it seems the A380 problems are under control, more uncertainty is surrounding the B787. While the market position of the new Airbus A350 seems secure, other new technology aircraft developments, such as the Bombardier CSeries and the Boeing 747-8 may find it difficult to gain sufficient market momentum under current circumstances. The market for cargo aircraft and cargo conversion projects seems very depressed.

In addition to the weak demand for air travel, airlines as well as operating lessors will have significant problems securing finance for their aircraft acquisitions. While top-tier operators may still find funding, second- and third-tier operators will struggle. As many airlines are strengthening their cash positions, the remaining aerospace banks may find refinancing transactions more attractive from a risk/reward point of view, compared to funding new aircraft acquisitions. Whilst still the subject of heated debate, it is very probable that a “funding gap” will open up during the second half of 2009. Government support – in the form of increased export credit facilities as well as “special facilities” – may be the only way to compensate the shortfall in commercial “open market” financing. Leasing companies may offer limited relief, as they too are largely relying on bank funding. We expect some significant restructuring to take place in the aircraft leasing market.

Whereas the commercial aviation market is undeniably under considerable pressure, the market for modern commercial jets is showing more resilience than many other asset categories. With limited competition – allowing excellent risk/reward conditions – the 2009 outlook for DVB’s aviation business is actually surprisingly positive. Longer term, perhaps by the second half of 2010, the current stagnation may give way to a strong recovery, once more confirming the cyclical nature of the commercial aviation market.

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