

Hopes fade for early start to recovery

A fall in business jet orders this year is one of the signs pointing to a delay in the sector's return to health, says **Pilita Clark**

Shrinking revenues, more job cuts and gloomy forecasts. Such is the state of much of the business jet industry on the eve of one of the sector's biggest annual gatherings.

Two years on from the Lehman Brothers investment bank collapse that preceded the industry's savage swing from boom to bust, any hope of a recovery next year looks misplaced.

"Now it's looking very much like 2011 will be more of the same and 2012 will be when things start picking up," says Gary Crichlow, an analyst at the Ascend aviation consultancy in London who tracks business aviation trends.

The industry has spent 2010 "convalescing", says Richard Aboulafia, vice-president for analysis at the Teal Group consultancy in Virginia, who has long predicted there is unlikely to be a recovery until 2012.

The reason is simple enough given the business's sensitivity to a global economy that has continued to show weakness; fears of a double-dip recession and concerns about the impact

of government austerity programmes and the availability of financing.

The industry managed to deliver about 830 business jets last year, by Ascend's count, slightly more by some others. This year, the consultancy has counted only 445 shipments in the first three quarters, suggesting it will struggle to reach even 600 over the full year.

In the third quarter alone, there were only 125 deliveries, 39 per cent fewer than in the same quarter last year.

This is all a long way from where the corporate aviation sector was only three years ago. On the back of record corporate profits and robust economic growth, business jet deliveries surged to more than 1,000 for the first time in 2007 and jumped again in 2008, thanks to huge backlogs prompted by mounting orders.

But the gloomy forecasts for this year need putting into perspective, says Rob Wilson, president of business and general aviation at Honeywell Aerospace, recalling the industry was "very joyous" about delivering 600 or 700 jets a year as recently as 2004-05.

This is true, but of little comfort to the people hit hardest in this downturn, such as the thousands of workers laid off by US aircraft manufacturer, Cessna. In September, it announced that a further 700 jobs would be cut, on top of the 8,000 it has shed since late 2008.

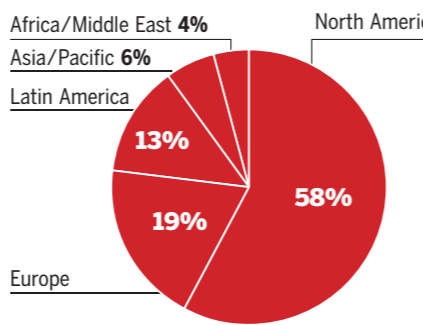
Still battling headwinds: jet sales and charter demand



FT montage Photo: Daniel Lynch

Regional demand for new jets in the next five years

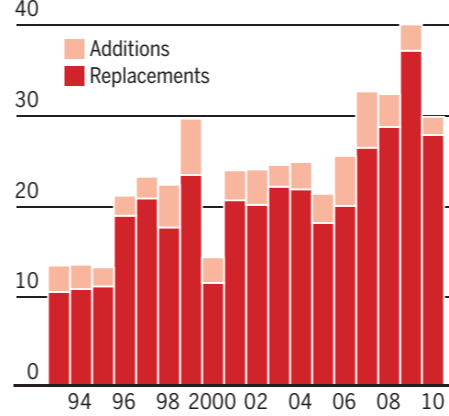
Traditional corporate & charter operator base



For an in-depth statistical guide to the sector see: www.ft.com/corporateaviation

Five-year purchase plans for new jets

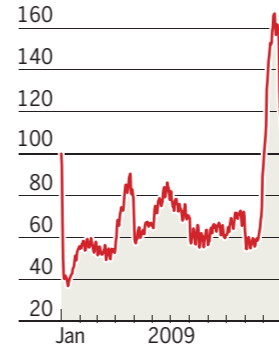
Fleet replacement and expansion (%)



Avinode Demand Index

Jan 1 2009=100

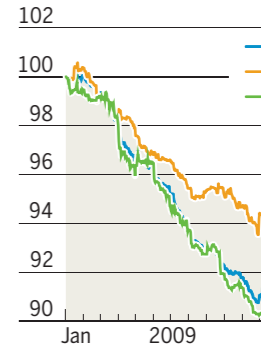
This graph displays the average daily value of the international charter market as seen in the Avinode marketplace. The index is calculated based on trips scheduled to depart within 4 weeks



Avinode Price Index

Jan 1 2009=100

This broad-based index displays average price per hour (taxi rate + fuel surcharges) for all active aircraft in Avinode's marketplace



Sources: Honeywell; Avinode

Its total workforce has been cut in half, with most of the losses at its Wichita plant, where a workforce of 12,400 has been reduced to 6,200 and will only number around 5,500 in December, after the latest layoffs.

Clearly it is going to be some time before the industry returns to its earlier peaks.

There are some signs of improvement, though. Flight activity is edging up, as are sales of used aircraft. But both indicators are far from what they used to be.

The proportion of the global business jet fleet up for sale has fallen from its record highs of 16 per cent, or more than 2,000 jets,

in May 2009, says Mr Aboulafia. But it has failed to dip below 14 per cent since the start of 2010, indicating "a severe oversupply problem".

Honeywell's latest annual business aviation outlook, published on Sunday, also suggests a recovery will not be seen until 2012, after disappointing rates of global economic recovery forestalled order rates and softened hopes of an uptick in 2011.

It is predicting deliveries of 675-700 aircraft in 2010 and expects shipments to be below 700 next year.

Longer term, Honeywell's forecasts have changed little from last year's prediction that 11,000 new jets worth \$200bn

would be delivered between 2009 and 2019.

It still thinks 11,000 jets will be delivered between 2010 and 2020, but says they will be worth slightly more, at \$225bn.

Mr Wilson says the jump in value is partly due to price escalation and partly a result of a phenomenon that has become increasingly evident in this downturn - a shift in demand for larger business jets.

Past recessions have not revealed such a trend, says Mr Aboulafia, adding: "We're moving towards an industry that favours larger planes."

Historically, he says, the busi-

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Corporate Aviation

Regional market shows an upward trend

Africa

Rohit Jaggi notes more demand for private charter flights but says infrastructure is still patchy

The football world cup saw a spike in business jet use in Africa. But there are signs that, over and above those few busy weeks, private aviation across the continent is on a robust upward trend.

Tag Aviation, the global group that has one of the largest fleets of "wide-body" jets that can serve Africa direct from Europe, has seen a 30 per cent increase in charter flights to and from the continent this year.

"This is predominantly with corporate clients that need to travel to a number of destinations in a short time," says Walter Stark, vice-president of charter services at Tag. "With the increase of economic activity in the region, it is expected that this trend will continue."

The group, which has bases in Hong Kong and across Europe including at Farnborough Airport, which it owns, is also looking at forming partnerships with airlines in Africa to provide services such as corporate shuttles, and is studying ways it can become involved in improving services – maintenance and airport operations for example.

That could have wider benefits. Mark Wooller, head of corporate aviation and consultancy at the Independent Bureau of Aviation, an advisory group, says he is advising a potential charter operator in west Africa whose options on aircraft are severely limited by the local infrastructure. "A lot of the airfields are fairly short, and some are not fully surfaced," he says. VistaJet, the Switzerland-based private aviation company, has seen particularly strong demand for flights between west Africa and Europe, and for travel between Nigeria, Congo, Ghana and Ivory Coast.

Thomas Flohr, chairman, says VistaJet sees "major potential"



One in the bush: general aviation in Africa increasingly means private jets as well as bush-capable aircraft like the Cessna Caravan

in the region, "particularly among business leaders and entrepreneurs in the energy and government sectors who fly frequently within west Africa and between there and Europe."

"We believe it has the potential to become one of VistaJet's biggest markets."

The latest Business Aviation Outlook survey from aerospace company Honeywell, released this week, says Africa-based operators of aircraft are mark-

edly less bullish about the likelihood of buying new business jets this year than they were in 2009. But, to put that into context, their plans for fleet expansion over the next five years are far ahead of North American levels, while aircraft replacement hopes have been hit by doubts about the sustainability of economic growth.

Dassault, the French manufacturer of long-range Falcon business aircraft, says the South

African market in particular has been "pretty active" over the past couple of years. It has also gained further government sales across Africa this year.

Ashurst, the international law firm, has probably seen more business aircraft finance deals in Africa during the past year than any other big international firm, says Paul Jebely, its head of aviation for Asia, the Middle East and Africa.

Deals advised on over the past

12-14 months have been for aircraft worth more than \$400m. He says lenders are more likely to remain closely involved than in a wholly European deal, for example, in order to make sure that the value of the aircraft is being maintained.

"Outside the regular concerns, what they are particularly concerned about are jurisdictional risks including political risks," he says. "And as a tertiary consideration they concern them-

selves more with maintenance."

With the support infrastructure for business aircraft still patchy, Mr Jebely says there can be a marked difference in standards of paperwork-keeping between smaller aircraft that fly within the continent, and larger aircraft, such as the Boeing Business Jet, whose purchase he previously advised on – with the paperwork on bigger aircraft more likely to be in order.

"Lenders care about this because it has a marked effect on re-marketability," he says.

The lawyer, who based himself in Hong Kong to be at the centre of Asia, points to a couple of significant African trends. "As high net worth individuals become ultra high net worth individuals, they are tending to upgrade," says Mr Jebely, who was involved in the first purchase of a private Airbus A380 superjumbo. The majority of the deals he has done in Africa are for individuals, he adds.

Another is that, despite the sharp competition between lenders, the private banks are looking for tight loan-to-value ratios – sometimes with a cap of just 50 per cent.

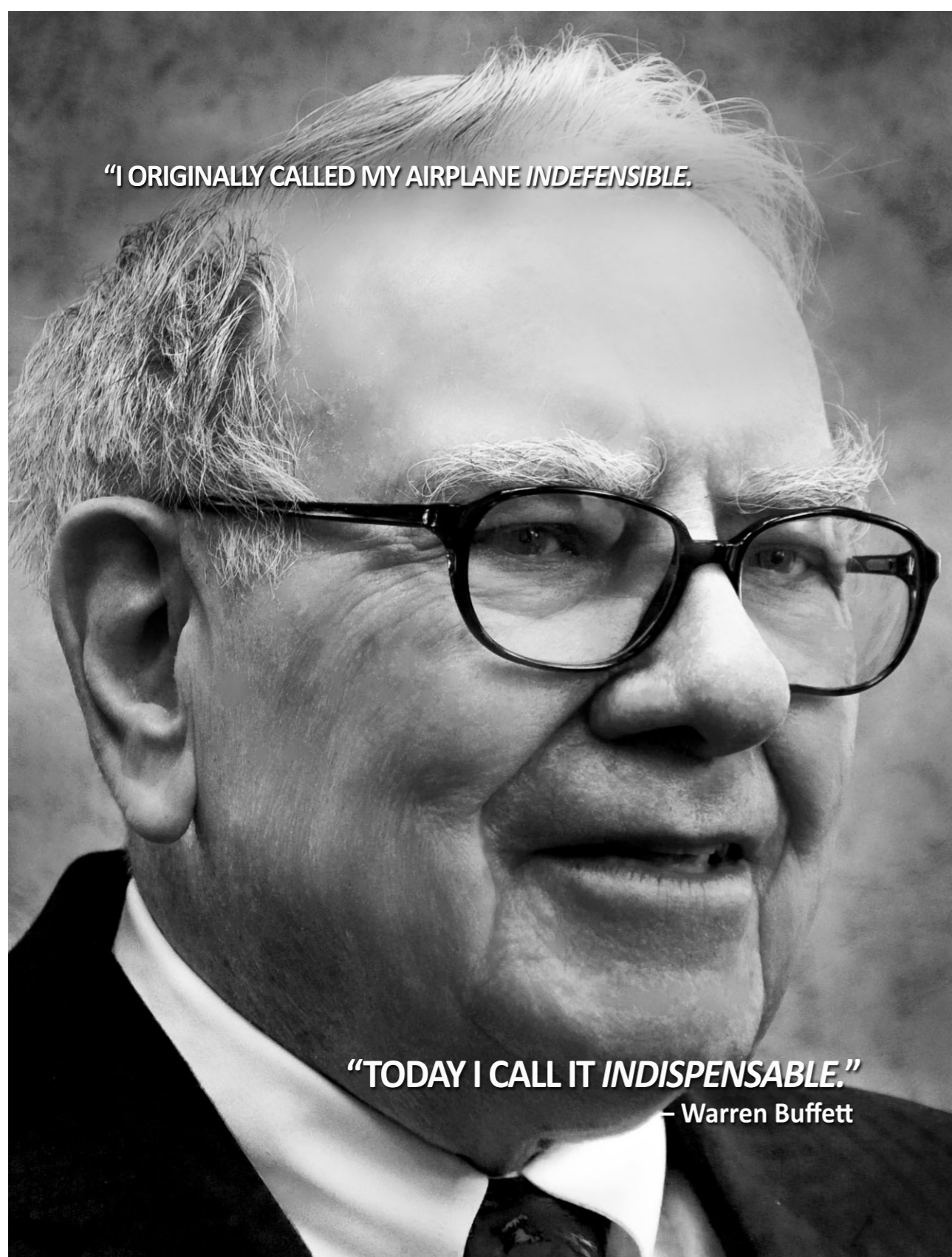
But while European financiers do lend for African business aircraft, most of the lenders are Africa-based.

Many aircraft are put on offshore registers – Bermuda and the Caymans, for example – and not just for the tax benefits. "A lot of deals will be structured so as to take advantage of regulatory oversight from a very competent aviation authority," says Mr Jebely. "That's usually driven by the financiers. And usually the borrowers are happy to go along with that."

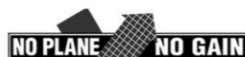
Mr Jebely reckons that South Africa and Nigeria between them account for more than half the African business aircraft deals, although Angola is a fast-rising third. He reckons that the potential is huge.

"I'm sitting in Asia, in the hottest aviation market in the world right now, and I've decided that the main focus of my practice for the next two years is going to be both Africa and Asia," he says.

"I'm certainly quite bullish about African business aviation."



More than 20 years ago, I thought my first airplane would be the perfect way to reward myself for a lot of work and the success that came with it. Before long, however, the airplane proved itself to be an incomparable tool for accomplishing a great deal more work and achieving levels of success that would have been impossible without it. I changed the airplane's name for those reasons. The airplane changed my mind forever. noplanenogain.org



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'I designed the helicopter I would want'

Profile Frank Robinson

Rohit Jaggi talks to the founder of Robinson Helicopter

Frank Robinson was a veteran of battles with regulators even before he embarked on production of the aircraft that would make his name familiar to every helicopter pilot.

Having worked for six aircraft companies, he tired of trying to interest his employers in his concept of a light, simple aircraft – and decided to build it himself. But, starting in 1973 in the garage of his California home, he ran into opposition from the planning authorities.

Unable, and unwilling, to pay the fine imposed, the fledgling manufacturer

pleaded innocence, fought for a jury trial, and defended himself. He was found not guilty.

That dogged refusal to give in was also vital when he sought certification of his two-seat helicopter. That took four long years.

In fact, the story of the Robinson R22 helicopter has striking similarities to that of the Eclipse 500 very light jet.

Both held the promise of slashing cost of entry to an exclusive club – the R22 was designed to be half the price of existing light helicopters, and like the six-seat jet from Eclipse Aviation, was intended to be produced in large numbers.

But Eclipse Aviation failed in 2009 with only 261 aircraft made. Meanwhile, Robinson Helicopter has produced not far short of 10,000 aircraft at its base in Torrance, California – becoming the world's most prolific manufacturer of civil helicopters.

After it was certified in 1979, the low-tech, piston-engined R22 sold at a faster rate than Mr Robinson had imagined.

"I underestimated the training market," he says. "I designed [the R22] to be the type of helicopter that I would want to have for my own personal use."

That meant cheap and simple. Advertisements in 1979 from Sloane Helicopters, then sole UK distributor, claimed 108mph and 15 mpg, with low maintenance and capital costs. The initial price was \$40,000.

It also meant light but reliable, with a low-inertia two-bladed main rotor that required special vigilance by pilots. So much so that US regulators imposed specific rules for instructors and students.

"In the early days, we had several problems that did give us a lot of trouble, and accidents," he says. But he shrugs off questions about the difficulty of flying the R22, instead



Extending the range: the five-seat Robinson R66

stressing the rules on who could instruct were initially far too loose.

When I learnt to fly helicopters, I found acquiring the delicacy needed to fly an R22 made it easier to graduate into larger, less responsive helicopters.

Mr Robinson's early dream was of a machine that would enable a personal transport revolution. "That hasn't happened," he says. "I had illusions it would."

But he quickly adds: "And I don't think it should. I wouldn't like to see everyone flying R22s everywhere. The average person could learn to fly, but they don't have the

original 44," Mr Robinson says. "But it took a while to make the changes we needed."

The company's latest helicopter, though, puts Robinson into a different league. A five-seater, the R66 uses a single Rolls-Royce RR300 turbine engine. It has a specific aim – to replace an ageing star of the light charter and personal market, the 206B from Bell Helicopter.

"I went ahead with the R66 because I knew there were all those Bell [206B] JetRangers out there," says Mr Robinson.

"They were getting older and dogger. I knew we would have a really good replacement."

The company has about 100 firm orders for the \$800,000 R66. The helicopter is expected to win US certification in days, and in other regions soon after.

For Robinson, like almost every company in aviation, the credit crunch has been painful. "The bottom just fell out of sales in 09," says Mr Robinson. Production of nearly 900 helicopters the year before was halved. Some 300 employees were laid off, from 1,400.

But the new helicopter should come in time to catch the upswing.

"From our perspective, everything is starting to go in the right direction. We feel very optimistic." He expects improvement: "It isn't going to shoot up like it did back in 07 and 08. It'll be more sustainable."

He stepped down as president and chief executive in August at the age of 80, handing over to his son Kurt. But he is still the sole shareholder, and very much involved.

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View a video interview with Frank Robinson

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judgment that would be necessary to keep themselves and their passengers alive."

The natural next step for the company was a four-seater – the R44, introduced in 1992 at a base price of \$135,000.

Essentially a scaled-up R22, it has the same parts replacement schedule simplified into a 2,200-hour or 12-year rebuild.

The first R44s had weightier controls than the R22 but were harder to fly. Robinson had rejected the hydraulic control systems on the market and was developing its own, so customers had to wait until 1999.

"I would have loved to have had the hydraulics in

Highflier rebuilds broken companies

Profile

Lynn Tilton

Liz Moscrop talks to the chief executive of MD Helicopters

Well-behaved women seldom make history. At least according to Lynn Tilton they don't.

The outspoken founder of global investment firm Patriarch Partners has ruffled more than a few feathers in her time. She fearlessly charges in where others do not, championing broken companies. This has paid off – her firm manages \$7bn in assets and invests in more than 70 mid-market enterprises.

The path to success has been tough. A single parent at 23, at the start of her career she worked 100-hour weeks at Morgan Stanley, juggling motherhood and spreadsheets.

Like many working mothers she feels she did not give enough to either. "I was constantly pacing back and forth between responsibilities, trying to be perfect at both," she says. She has not stopped moving since.

She prospered on Wall Street for two decades until 2000, when she founded Patriarch, which specialises in rescuing ailing businesses. She admits there are easier ways to make money, but is drawn to aiding the distressed.

A key motivator was her father's death when she was young, which shattered her and now drives her to save

companies destined for the scrapheap. She says she derives "incredible satisfaction" from changing the lives of families who would otherwise be devastated by the loss of a parent's work.

Although Ms Tilton's business acumen is genderless, her language is definitely feminine, frequently focusing on the passion behind her decisions – a trait that has jarred with some, as such talk is seldom heard in the financial world. She says it is her life's mission to rebuild broken companies.

However, she silences critics by putting her money where her mouth is. The most famous rescue in her portfolio of emergency room bailouts is MD Helicopters (MDH) – Howard Hughes' baby.

Her involvement in MDH is also the first time she publicly exploited her gender to commercial advantage. This month the manufacturer received a US diversity award as a Women's Business Enterprise, which should give it a vendor advantage with national corporations and government agencies.

Since buying the company in 2005, Ms Tilton has raised revenues by more than \$200m, mainly by selling more aircraft internationally and adding repairs to its portfolio.

Aerospace has been a steep learning curve. For someone who is constantly on the go, the procrastination and paralysis she saw when she acquired the manufacturer was a shock. "I was too naive to know what I didn't know," she says, "and too

stubborn to accept advice."

The acquisition was to prove a turning point, propelling her from passive investor to active industrialist. As chief executive, she has hired talent and pitched in to revive MDH's flagging fortunes, flying around the world meeting customers and suppliers who had given it up for dead. Wooing the angry supply chain was necessary too, as Ms Tilton had not realised that every helicopter part had to be certified as airworthy by the Federal Aviation Administration, so simply switching suppliers was not an option.

She attributes MDH's subsequent turnaround to being one of her own customers – she commutes to work in her VIP twin-engine MD 902 – and says every business that looks at itself from the customer backward is closer to understanding its clients' needs.

Her first task five years ago was to get MDH's fleet of grounded helicopters flying again. She coaxed parts manufacturers back into the fold and bought a house in Arizona, where the company is headquartered. Unlike many in the sector, she treats the aviation industry as just another market and believes vertical integration is the way forward. With 500 suppliers scattered worldwide, she elected to bring much of the production in-house to the company facility in Mexico, which saved 30 per cent in costs.

In 2008, the company delivered 53 aircraft – up from zero in 2005. Last year saw



Raised revenues: MD Helicopters is the most famous of Lynn Tilton's bailouts

Patriarch Partners

several cancellations, so Ms Tilton turned her attention to foreign government contracts, which she hints will bear fruit in 2011 with several announcements to come.

She advocates manufacturing as the way out of recession for the US, and points to the great emerging economies, such as

Brazil and China, which are based on a solid industrial base. She has frequently criticised the Obama government's bail-out of banks while seeming to ignore lending to small and mid-sized companies. Over the past decade, the US has lost 6.4m manufacturing jobs, and Ms

Tilton believes liquidation means the loss of technology, knowledge and the impossible task of restarting production. She approached the White House with plans for a public-private partnership to offer loans to small companies that are outlined on her website. Ms Tilton is likely to upset

those in high places for years to come. But she can take comfort from the fact she is making her mark among thousands who would be without employment but for her intervention.

Liz Moscrop is a journalist specialising in private aviation.

The office in the sky is nearly on board and online

WiFi

Jeremy Lemer examines the technology and finds advances have been made but there is a way to go

For years, the aviation industry talked of the "office in the sky", where laptops and BlackBerry smartphones – tied together by high-speed internet – function perfectly, allowing executives to move seamlessly from the ground to the air.

Reality has often been different, with businessmen waiting impatiently for e-mail attachments to download and web pages to refresh over a dial-up connection provided by satellite telecommunications companies.

But experts, transport companies and industry executives argue that the long promised on board office may finally have arrived, as both the

demand for in-flight broadband and the technology to enable it have reached critical mass.

"Broadband access on board aircraft is one of the hottest topics right now. There has been a tremendous amount of activity in getting high-speed access up to the aircraft," says Gary Harpster, a salesman with Duncan Aviation, a leading business jet outfitter.

After installing systems at the rate of about 10 or 15 aircraft a year for much of the past decade, Duncan Aviation is struggling to keep up with the demand. This year, it expects to fit out about 70 corporate jets and has a backlog to upgrade hundreds more.

For businessmen with more modest expense accounts too, the options have expanded. By the end of 2010, some 2,000 commercial aircraft in the US will have broadband access, up from a just a handful in 2008. By 2014, analysts argue, the global fleet could reach 5,000.

Amy Cravens, with In-Stat, a market research company, notes that con-

sumers now have a suite of wireless gadgets creating a real demand for on board browsing. "Broadband, once a differentiator, is now a competitive requirement for airlines."

At the heart of the revival is Aircell, a private company founded in 1991, which has pioneered the development of broadband access through the use of ground-based broadcast stations.

In 2006, Aircell bought a chunk of the radio frequency spectrum and by 2008 it had built a proprietary US network. Since then it has signed up most leading US airlines and kitted out more than 1,000 commercial aircraft, 200 business jets and won deals with Netjets.

Michael Small says his company's toughest challenge was to convince business people that its Gogo service did not suffer from the same drawbacks as its competitors, which rent space on satellites that were not designed to transfer lots of data.

"We seem to be just about crossing that hurdle, where people really

believe that this is better. They have seen it work on enough of their friends' jets or they know that brand-name fractional jet operators have installed it."

Crucially, he says, the Gogo system is lightweight, cheap and fast. It costs about \$100,000 per aircraft to install, and passengers are charged a connection fee (\$12.95 for a long flight). Connection speeds of up to 3.1mbps rival those found in some offices.

The cost issue marks a big breakthrough. In 2000, Boeing developed an ill-fated satellite-based system that cost about \$500,000 to install for each aircraft. By 2006, it had shut the programme, after failing to secure enough users to make it pay.

Still, Aircell is not without its drawbacks. Its air-to-ground system is limited to the US, it has yet to make a profit, and analysts worry that its network will slow down as more users are added. The company already limits access to video streaming to save on bandwidth.

Indeed, a number of satellite systems remain in place, in part because they address some of those deficiencies. Aircell itself offers some satellite-based products to give its private customers global reach, while competitors Row 44 and Panasonic are making headway.

One potential challenge to Aircell could come from ViaSat. The California-based company will launch a \$300m broadband satellite in 2011 with enough reserved capacity for aviation users to download movies at reasonable cost.

"We are trying to dispel the perception that satellite broadband is slow and expensive," says Mark Dankberg, chief executive of ViaSat. The company plans to partner with JetBlue to offer the low cost carrier's customers a mix of free and paid-for services. Crucially ViaSat will sell broadband to home users as well allowing it to spread the costs over a larger base.

There are some obstacles in the way of every operator. For one thing, the

process to certify business jets is painstaking, says Mr Harpster, because of regulations designed to prevent wireless devices from interfering with key avionics equipment.

And for commercial providers, winning over airlines and kitting out the aircraft may be the easy part. Developing the right business model to win over customers has proved more difficult says Ms Cravens.

She notes that passenger take-up rates have traditionally been low when fees are charged. This means making the business work will require innovation – partnerships with mobile telephone providers, ad sales and so on – something companies are still experimenting with.

Of course, getting things done on board is a different matter. Mr Small points out that across Aircell's business jet and commercial fleet, Facebook uses up the most capacity.

"Most people say they sign up to do work, but in reality they often do other things."

Interiors Welcome aboard

A lack of space and strict safety rules can conspire to create rather bland cabins on business jets – unless money is no object, in which case pretty much anything goes

For the uninitiated, travelling in a business jet represents the ultimate in cool. However, in reality, many cabins are cramped, uncomfortable and far from sexy, unless beige leather happens to turn you on.

What you are actually paying for is being able to fly exactly where you want, when you want avoiding queues, with space and privacy to work on board without interruption. Sounds boring, and in most cases, interiors can be described in similar terms – they are airborne offices rather than flying gin palaces.

However operating an office in the sky is not without its challenges – keeping connected to the outside world when travelling at more than 500mph at 40,000ft is a complicated affair involving satellite wizardry – and this is where most end up spending their money when specifying the cabin.

But you might as well throw in a live television system, some high-definition widescreen monitors and a Blu Ray DVD player or two, just to ensure it is not all work and no play.

Lufthansa Technik's "Nice" system is a particularly good bit of kit. Standing for Networked Integrated Cabin Equipment, it allows passengers to change a CD, watch their favourite movie or adjust the cabin lighting



Scrap the stairs: an Aerolift for a Boeing 747 costs \$35m

using one wireless touch-screen controller. It can also provide WiFi internet access or even connect to a tail fin camera, displaying images on a screen inside. I suppose you could always look out of the window, but that is so last century. And for technophiles, there is an app that allows passengers to control cabin systems using iPods or iPhones.

Unfortunately owners cannot simply pop down to the high street, buy the latest entertainment system and stick it in their aircraft – aviation authorities are sticklers for safety. Strict rules relating to fire, smoke and toxicity, as well as what happens to components during a sudden decompression or crash landing ensure only a relatively small pool of suppliers exists to cater to the market – and they are free to charge pretty much what they like.

However, if you are really stubborn you can adapt consumer equipment for aviation use.

The owner of an Avro Business Jet (ABJ) regularly chartered to rock bands insisted he wanted a 42in surround-sound Bang &

Olufsen unit on board. He eventually got his wish, but only after substantial structural modifications were made to the screen surround to get it through tests for shock, vibration and emitted signals.

"It ended up costing £50,000 to certify and install the system and at least one screen was damaged during the process," reveals Design Q's Gary Doy, who worked on the project.

Once you have finished with the entertainment, you will probably feel like taking a nap – however this is not as easy as it seems. A proper bed is impossible unless you are on the largest Gulfstream or Bombardier aircraft.

Instead, more improvised arrangements provide only marginal comfort: inflatable mattresses, collapsible seats or convertible sofas that.

For a really good night's rest, executives need to charter a Boeing Business Jet (BBJ) or Airbus Corporate Jet (ACJ). Based on the 737 or A320 aircraft respectively, these have the space for dedicated bedrooms complete with king-size beds.

Anthony James



Artistry reaches new heights

Rizon Jet is the very first business jet company licensed to operate from Doha, State of Qatar. The company was formed in 2006 and is part of the dynamic GSSG Holdings.

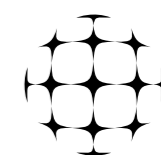
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Corporate Aviation

Dassault hopes for lift from winglets

Flight test

Rohit Jaggi flies the numbers in the more fuel-efficient Falcon 900LX

The split in the business aviation market that favours larger jets is proving good news for Dassault Aviation.

The French company will announce this week that, for its big Falcon business jets, balancing the 34 new orders from around the world in the first three-quarters of this year against cancellations, net sales so far in 2010 are minus one.

That may not sound like anything to boast about. But last year Dassault lost far more orders than it gained – the net loss stood at more than 100. By contrast, the company is confident it will end this year in positive territory.

And in what the aircraft maker calls a very tough market, the backlog of 500 orders for Falcon 2000 twin-engine jets and Falcon 900 and 7X triples that Dassault built up to the end of 2008 – before it started to feel the effects of the financial crisis – has given it some room to manoeuvre.

Despite the economic crisis, and despite all those disappearing orders, 2009 saw a record 77 Falcons delivered. This year, production is on track to beat this record again, with a tally expected to be close to 90.

But the company is already slowing production for next year. And it does not expect orders to pick up greatly in 2011. Against this backdrop, Das-

sault is hoping that its new \$42m Falcon 900LX, an upgrade to the 900EX with aerodynamic tweaks aimed at improving performance and efficiency, will help by giving extra ammunition to its sales force.

I flew one fresh from the production line in Bordeaux, before the aircraft had been certified and before the first example had been delivered to a customer – two have since, both to US buyers.

The Falcon 900 aircraft share with their Falcon 7X sibling a triple-engine layout that is unique among business jets. The first of the 900s, in the early 1980s, was the first business jet to be computer-designed. And the range-topping 7X, introduced in 2007, was not only designed using Dassault's own cutting-edge virtual design tools, but was also the first business jet with fly-by-wire controls.

The 900LX adds blended winglets to the ends of the wings of its predecessor. These vertical fins, like those on the 7X, are designed to cut drag by smoothing out the turbulent air spiralling off the wingtips.

Philip Deleume, Dassault chief test pilot, puts it in figures. "The winglets give 10 per cent better climb performance," he says, "and 5 per cent better fuel efficiency in the cruise."

As we climb aboard the unpainted 900LX on a fiercely hot day in Bordeaux, Mr Deleume points out that the winglets also leave more in reserve in high temperatures, and at high-altitude airports. And the performance of the previous model was already good. Bolivia this year decided to buy a 900EX for use as a presidential transport; El Alto airport, which



Fresh from the line: aerodynamic tweaks give the Falcon 900LX 5 per cent better fuel efficiency in the cruise

serves the administrative capital La Paz, has an elevation of 13,325ft.

Stepping inside the LX, an unfinished interior matches the outside – this aircraft's next flight will be to the Dassault Falcon completion centre in

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See Rohit Jaggi's flight test of the Falcon 900LX on video www.ft.com/falcon900lx and other flight tests at www.ft.com/corporateaviation

Arkansas. Customers can select from a range of standard interiors with seats for up to 19, a big baggage area accessible in the air, and a sizeable kitchen.

Strapped into the left-hand seat, much is familiar from the Falcon 7X that I flew last year.

The 900 does not have the auto-throttles of the 7X, however. Pushing forward the power levers at the start of Bordeaux's long runway brings in the three Honeywell TFE731-60 5,000lb-thrust turbofans.

According to Dassault, there is no maintenance cost penalty compared with twin-engine rivals – but the third engine gives higher safety reserves from short runways and crossing oceans.

We are far below the 900LX's maximum take-off weight of 49,000lbs, so acceleration is sprightly. Leading-edge slats as well as flaps help keep runway speeds low – even with full fuel and six passengers, take-off speed is 133 knots – and as we take to the air the climb rate is definitely sporty.

As is the handling. Falcon 900s use rods rather than cables for control runs, giving a direct feel to the controls that serves as a reminder of the aircraft

maker's fighter jet heritage. Mr Deleume, in the right hand seat, is a former military pilot, and the company's test pilots not only tend to come from military flying backgrounds, but also test Dassault's fighters alongside its business jets.

The range of the LX is improved over the EX by more than 250 nautical miles, giving a typical maximum, with healthy reserves, of 4,750 nautical miles, or about 11 hours 15 minutes. From New York, London and Recife are within range.

The LX is expected to receive approval to operate from London City's demanding runway next year, but even from there Halifax in Nova Scotia is within range, as is Almaty to the east.

We venture somewhat less far from Bordeaux. Returning to base, a landing speed of just 110 knots slows everything down enough for a first touchdown in an unfamiliar type, at an unfamiliar airport, to be a relaxed

affair. Landing need only take up 2,415ft.

Dassault says the fuel consumption of close rivals such as the Bombardier Global 5000 and the Gulfstream G450 is up to 60 per cent higher than that of the 900LX. And the fuel consumption of the Gulfstream is equivalent to more than half of the total variable and fixed costs, including fuel, of the Falcon.

Savings over rivals at the pump alone for a single eight-hour flight could amount to \$3,000 dollars. And of course lower fuel consumption means lower emissions, too.

With the flight path of the economy still far from clear, efficiency is a vital factor for buyers and operators of business jets. The 900LX's credentials in this area, combined with reassuringly safe handling characteristics, should make this particular bird an asset in Dassault's efforts to keep putting its Falcons into the air.

Hopes fade for early recovery

Continued from Page 1

ness jet market could be divided in half by value, with the top consisting of jets costing \$25m or more (in 2010 dollars) and the bottom of those costing less than \$25m.

These halves have risen and fallen in tandem for most of the past 20 years. But in this downturn, deliveries in the bottom half plummeted in 2009 by a huge 42.8 per cent – the worst decline of any aerospace market in this recession.

Yet deliveries at the top end stayed almost constant, falling by only 4.1 per cent by value.

The split has been evident among leading manufacturers, with companies that focus on the top end, such as Dassault of France, doing better than those more reliant on smaller aircraft, such as Cessna.

Mr Abouafia says the most obvious explanation for this divide in the market is that sales of the cheaper aircraft are more dependent on small and mid-sized businesses that are more sensitive to an economic downturn.

They are also more likely to be dependent on getting credit and since this downturn has been marked by a credit crunch, that may explain why they are hit harder than the top half customers.

Another reason could lie in continuing woes of fractional jet operators who are big customers for bottom-half planes.

According to Honeywell, deliveries of new jets to fractional fleet operators were down 80 per cent in 2009. Only three new jets were shipped to customers in this part of the market in the first half of 2010.

Looking further forward, Honeywell, which bases its outlook on a survey of 1,200 corporate flight departments around the world, says purchase expectations in North America remain largely unchanged.

But expectations in other parts of the world have softened, most noticeably in Europe and the Middle East, and to a lesser extent in Latin America and Asia.

Asian purchase plans revealed an 18-point decline compared with last year's survey, but remain high compared with other regions and historically, says Honeywell.

"The slower recovery of major trading partner economies and some concerns regarding export-fuelled growth and Chinese real estate markets has increased the caution level operators displayed in the 2010 survey."

When all the regions are counted together, Honeywell says operators plan to replace 30 per cent of the global fleet over the next five years.

That is still a relatively high figure, says Honeywell's Mr Wilson.

In addition, Honeywell says despite cancellations and deferrals, there are several thousand aircraft on order, many new models for delivery after 2011.

"Assuming economic recovery progresses, it is still likely delivery of these aircraft will be taken, proving a boost to shipment levels as we move into the 2012-2013 period," it says.

So how would Mr Wilson sum up his views on the industry? "Guarded," he said. "Cautious."

It is likely to be some time before that impression changes.

Oft-used location launches stars into the skies

Airports

California's Van Nuys has a long relationship with film, says Matthew Garrahan

For the globe-trotting actor or musician rushing from the next set or gig, flying by private jet is a convenient way to travel.

Southern California, the home of the entertainment industry, has plenty of general aviation airports from which over-scheduled or privacy-seeking celebrities can fly. But none is as big as Van Nuys, a 730-acre facility in the San Fernando Valley.

The airport has had a long relationship with Hollywood and has been used for countless film and television shoots over the years. It regularly features in *Entourage*, the HBO comedy about the life of an A-list actor and his friends, who invariably use Van Nuys when jetting off to a glamorous location.

"Film and music industry executives use Van Nuys," says Jess Romo, the

airport manager. "And there's no doubt that the airport is attractive to A-list celebrities because of its proximity to Hollywood, Beverly Hills and west Los Angeles."

Van Nuys has a pedigree that stretches back to Hollywood's golden age: the climactic scene of *Casablanca* was shot there. More recently, *True Lies*, *Lethal Weapon* and *American Beauty* have taken advantage of its size and film-friendly policy.

Van Nuys is the second busiest general aviation airport in the US, says Mr Romo: only Deer Valley in Phoenix, which is used by a large number of flight training schools, is busier.

There is plenty of local competition. Santa Monica Airport buzzes with private aircraft but has restrictions on the size of jets that can take off and land at the facility because of noise consideration for nearby residents. Camarillo Airport in Ventura County is also used by corporate jet owners.

Van Nuys, though, is on a different scale. "We're bigger and are a friendlier airport for the corporate-type aircraft than Santa Monica," says Mr Romo. Van Nuys has two runways –

the longer is 8,000 feet – and can accommodate aircraft as large as a Boeing 737.

The airport is taking steps to reduce noise pollution, though, and by 2016 will no longer allow older, noisier aircraft to take off and land. This will apply to some Learjets and Gulfstreams built in the 1980s, Mr Romo says.

The size and flexibility of Van Nuys have made it a popular choice for Los Angeles-based corporate executives and business owners, although local owners who fly for pleasure also use the airport. "Over the years we've gone from serving only local flyers to more corporate customers," explains Mr Romo. "The majority of the aircraft based here are business aircraft."

The airport's size has "helped the region grow economically," he adds, saying it has generated more than \$1.3bn for the southern California economy in indirect spending.

Supporting film and TV production has raised the airport's profile but it also ensures that money goes back into the local economy. Antonio Villaraigosa, the mayor of Los Angeles, was



Film-friendly: Van Nuys airport

kept that Van Nuys be as film-friendly as possible and although fees have to be paid to use the facility it is an inexpensive place to shoot.

"Our core business is as an airport but we also want to make sure we leverage the asset with filming," says Mr Romo. "Supporting local film shoots helps to create jobs."

The airport itself employs about 55 people full or part time, and an additional 2,000-3,000 work at the facility,

employed at its hangars, its hotel or at its aviation school. Mr Romo says about 12,000 local jobs are indirectly related to the airport and its activities.

Van Nuys is part of Los Angeles World Airports, which includes LAX, the region's main global hub, and Ontario airport, which is 35 miles east of downtown Los Angeles.

LAX featured prominently in the ABC series *Last* but Van Nuys is the more commonly used shooting location. "In any month we'll probably get as many as seven requests to shoot films," says Mr Romo. "We probably do 60 a year." These include commercials, music videos and TV programmes: *Dancing with the Stars*, *Desperate Housewives* and *Sons of Anarchy* have all shot at Van Nuys recently.

But for *Entourage*, the airport has almost become as common a location as the Beverly Wilshire hotel or the office of Hollywood super agent Ari Gold, played by Jeremy Piven. In the fourth series of the programme, the main characters run into hip-hop star Kanye West at Van Nuys, who then promptly offers them a lift to the Cannes film festival in his jet.



Rohit Jaggi
FLIGHT LINES

A factor of Ten

Cessna's unveiling of the Citation Ten, to take over from the \$21.7m Citation X that has long been billed as the fastest civilian jet, is much more than a shift away from roman numerals.

The more fuel-efficient Ten will have new Rolls-Royce engines, a new Garmin integrated avionics system, and a "revolutionary" cabin management system developed partly in-house that, says Cessna, is "all about connectivity". It will also be 15 inches longer, have a completely revamped interior, and feature as standard the winglets that are approved as aftermarket modifications for the current X, which has not had any significant changes since 2002.

But, while Cessna says it will be quicker than the old one, it is not saying by how much. Gulfstream is snapping at the heels of the Mach 0.92-capable X with its G650 ultra-long-range, ultra-long-cabin, business jet. The G650, which is currently working its way through its flight test programme, has achieved MO.925.

Maximum speed "will be something that we decide when we have tested the airplane," says Joel Mugglin, product marketing manager for the Ten.

However, Cessna's preliminary cruise speed chart shows a maximum cruise of about MO.918.

"It's fair to say it's faster than today's airplane at the upper altitudes where people are going to be operating it," says Mr Mugglin.

Jack Pelton, Cessna president and chief executive, has in the past said to me that the Citation X would keep the high-speed crown.

The Ten is aiming for certification in 2013, price yet to be announced.

The Garmin G5000 system on the Ten is an evolution of the avionics company's revolutionary systems that have brought sophisticated, flat-screen technology to even the smallest general aviation aircraft.

The Ten is the launch vehicle for the G5000, which is the first Garmin system to be aimed at commercial airliners as well as the upper strata of business aircraft.

The system, controlled by two touchscreens, has also been chosen for three other airframes, says Bill Stone, Garmin avionics product manager. "That's as of today," he told me. "Call back tomorrow – it may be different."

Lift for financing

The inaugural deal at Milestone Aviation, the first finance company to concentrate on the helicopter and private jet markets, will provide 100 per cent lease financing for Brazil's Omni Taxi Aéreo to buy two new Sikorsky S76C++ helicopters.

The deal completed last month, will allow Brazil's second largest helicopter

operator to meet growing demand from the offshore oil industry.

Hopes are high in business aviation that Milestone, set up by former NetJets executives, will help to take the crisis out of funding.

Wanting in vision

He may have extended the boundaries of helicopter ownership, and use, for ever, but even Frank Robinson's enthusiasm about spreading the H word has to bow before some forces.

One of which is the weather. Mr Robinson's attempt to visit the headquarters of one of his helicopter manufacturing company's two UK distributors was delayed by a fog that refused to burn off until much later than his scheduled arrival time.

After the usual seemingly interminable delays to see whether the weather would improve – in my experience much more a feature of flying in Northamptonshire than in Torrance, southern California, where Robinson Helicopter is based – he was forced to resort to the road to reach Sloane Helicopters at Sywell Aerodrome.

But at least the mist lifted during the afternoon. Enough for the helicopter he was due to travel in – one of his own R44 four-seaters, of course – to have no problems with the short hop to near his hotel at Heathrow.

He did not take the controls himself. In fact he tells me that he has cut back on his flying. "And I plan to continue, partly because I have given so many people my word that I am going to live to be 100 – or more."

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