Issue No: 64

Aviation Strategy

February 2003

Where will the orders come from?

The shakeout in the airline industry combined with impending war in Iraq has left the manufacturers and the lessors with severe headaches.

Airbus is being quite optimistic about its deliveries this year, predicting 300, the same as in 2002, while Boeing is being more cautious, forecasting 280, 100 less than in 2002. Much more problematic is where their orders are going to come from.

This table summarises the relative importance of the five main customer groups both historically - i.e. net orders for jets placed and deliveries taken - and currently - i.e. backlogs as at the end of 2002. The major carriers account for 75% of orders and 82% of

ORDERS, DELIVERIES AND BACKLOGS BY CUSTOMER GROUP

	Airbus	Boeing	Others	Customer Total	% of total Global Total
US Majors					
Net orders	605	2,856	1,080	4,541	45%
Deliveries	458	2,655	1,001	4,114	50%
Current Backlog	147	201	79	427	22%
Euro majors					
Net orders	571	987	346	1,904	19%
Deliveries	434	967	331	1,732	21%
Current Backlog	137	20	15	172	9%
Asian majors					
Net orders	157	781	139	1,077	11%
Deliveries	109	691	133	933	11%
Current Backlog	48	90	6	144	7%
LCCs					
Net orders	196	668	0	864	8%
Deliveries	28	408	0	436	5%
Current Backlog	168	260	0	428	22%
Mega-lessors					
Net orders	770	887	133	1,790	18%
Deliveries	329	639	35	1,003	12%
Current Backlog	441	248	98	787	40%
GLOBAL TOTAL					
Net orders	2,299	6,179	1,698	10,176	100%
Deliveries	1,358	5,360	1,500	8,218	100%
Current Backlog	941	819	198	1,958	100%

Source; ACAS, Dec 2002 Notes: US = AA, CO, DL, NW, UA, US; Europe = AF, AZ, BA, IB, KL, LH,: Asia= SQ, CX, QF, JL, ANA; LCCs= SW, JB, EZ, RY; Mega-lessors= ILFC, GECAS. Global Total just includes above customers. Only commercial jets directly ordered are included.

www.aviationeconomics.com

CONTENTS

Analysis

Manufacturer/lessor dilemmas **1-2**

2002 orders: Airbus and Boeing **3**

Stockmarket prices: Up, down and sideways **4-5**

Briefings

American Airlines: Et tu AMR Corp.? **6-10**

Emirates: Taking risks by going global? **11-14**

Management

Booz, Allen, Hamilton on network carriers' complexity and simplification **15-19**

Databases **20-23**

Airline traffic and financials

Regional trends

Orders

PUBLISHER

Aviation Economics

James House, LG,
22/24 Corsham Street
London N1 6DR

Tel: +44 (0) 20 7490 5215
Fax: +44 (0) 20 7490 5218

e-mail: info@aviationeconomics.com

deliveries but only 38% of the current backlog. The LCCs account for only 8% of orders and 5% of deliveries but now have 22% of the backlog. The two mega-lessors, ILFC and GECAS, dominate the current backlog, with 40%, while they have placed 18% of orders and 12% of deliveries.

The US majors are distinctly unpromising candidates for new orders. Further cancellations and deferrals are on the cards. Airbus is especially exposed to the Chapter 11 airlines, United and US Airways.

Of the Euro-majors only Lufthansa and Air France have substantial orderbooks at the moment and only Iberia seems to be active in the market, being on the point of confirming an order for A340s. The Asian majors are being targeted by Boeing and Airbus as potential customers, in particular for the new super-efficient 7E7 and the A380. Airbus is, as always, finding it very difficult to prise the Japanese airlines, JAL and ANA, away from Boeing products. Still, its latest sale of the A380 to MAS goes to prove that there is still scope for winning massive capital commitments from perpetually loss-making state-owned flag-carriers. But in the short term, demand for new aircraft is likely to come from the proposed low cost subsidiaries of these carriers, and they will be expecting the same type of terms as the LCCs have achieved.

Following easyJet's and Ryanair's mega-orders last year it might have been thought that the LCCs would have no more appetite for new aircraft. Not so; Ryanair has just announced another order for 100 737-800s (though 78 are options) and AirTran, having risen from the ashes of Valujet, is about to order 50 to 100 717s or A319s. Nevertheless, the next few years will see the LCCs concentrating on digesting their 737 and A320 deliveries.

Lessors under pressure

The recovery in the order cycle in the mid 90s was largely driven by the lessors who placed mega-orders at what seemed to be superb unit prices. Today, however, those prices no longer look so good.

Taking advantage of their bargaining power at this point in the cycle, easyJet, Ryanair and JetBlue have succeeded in driving new jet prices to unprecedented lows. Meanwhile, the lessors, having committed to escalation clauses on their orders at a time when dollar interest rates were significantly above current levels, are taking delivery of new narrowbodies at unit prices up to 30% above those negotiated by the LCCs. One of the lessors' key advantages has been severely undermined.

On the other side, the lessors are being put in an invidious position by the weakness of the major carriers which became important leasing company customers in the 90s. They have at present little choice but to concede to demands for reduced lease rates, by 40% in many cases. The alternative is to risk being frozen out if the airline goes into Chapter 11 bankruptcy.

Second-hand values have also cratered, depriving the lessors of their main source of profits, selling on aircraft at the end of their leases at prices well above the depreciated book value. Indeed, there is a very real risk that if lessors were obliged to readjust the book values of the fleets to current market values, many of them could find themselves breaching loan/value covenants.

The one alleviating factor is the historically low level of US interest rates. If rates were to rise significantly, then this sector would be in really dire straits; fortunately, that looks unlikely at the moment.

The question then becomes how does the leasing sector shake out in parallel to the airline business? Last time around, in the early 90s, the answer was simple: the defacto bankruptcy and dismantlement of the very over-extended mega-lessor, GPA. This time the solution is not clear.

ILFC and GECAS have been adversely affected but remain solidly profitable; some like Boullioun seem to have found a good niche. This leaves a large number of "others" whose parents, usually banks, entered this sector in pursuit of ILFC-type profits (see *Briefing*, November 2002), but have failed miserably to find them. Mergers and takeovers are improbable, which leaves two possibilities: liquidation or, probably more likely, support from their parents until the market eventually turns up.

Aviation Strategy
is published 11 times a year
by *Aviation Economics*
at the beginning of
the month

Editor:
Keith McMullan
kgm@aviationeconomics.com

Subscription enquiries:
Julian Longin
jil@aviationeconomics.com

Tel: +44 (0)20 7490 5215

Copyright:
Aviation Economics
All rights reserved

Aviation Economics
Registered No: 2967706
(England)

Registered Office: James House, LG 22/24 Corsham St
London N1 6DR
VAT No: 701780947

ISSN 1463-9254

The opinions expressed in this publication do not necessarily reflect the opinions of the editors, publisher or contributors. Every effort is made to ensure that the information contained in this publication is accurate, but no legal reponsibility is accepted for any errors or omissions.

The contents of this publication, either in whole or in part, may not be copied, stored or reproduced in any format, printed or electronic, without the written consent of the publisher.

2002 orders: Boeing and Airbus

Airbus's net order intake stood at 233 aircraft, representing 57% of the market in terms of aircraft units. Stressing prudence and reactivity as key, Chief Executive Noel Forgeard said that 2003 "promises to be an important turning point in Airbus' development". Boeing's bad year was compounded by a 28% decline in commercial airplane deliveries and a fall of 19% in revenues. Both manufacturer's results were boosted enormously by LCC orders. Ryanair's 103 737 orders contributed 50% of Boeing's firm orders, and easyJet's A319 order 51% of Airbus's.

AIRBUS FIRM ORDERS 2002

	A319	A320	A321	A330	A340	A380	Total
Austrian Airlines	1						1
British Airways		1					1
easyJet	120						120
GB Airways		1					1
Iberia		1			3		4
KLM Royal Dutch Airlines				6			6
Lufthansa				10			10
Swiss International Air Lines					13		13
Thomas Cook AG		2					2
European Total	**121**	**5**	**0**	**16**	**16**	**0**	**158**
CIT		6					6
Federal Express						10	10
Frontier Airlines	3						3
ILFC	5	4	3	1			13
jetBlue Airways		12					12
Northwest Airlines	4	2					6
N.American Total	**12**	**24**	**3**	**1**	**0**	**10**	**50**
Latin American Total							
Air New Zealand		5					5
Air Tahiti Nui					2		2
Cathay Pacific Airways				3			3
China Eastern Airlines		20					20
S.A.L.E.		1					1
Silkair	2	4					6
Asian Total	**2**	**30**	**0**	**3**	**2**	**0**	**37**
Emirates				2			2
Kuwait Airways		1					1
Middle East Airlines			6				6
Qatar Airways		3		2			5
South African Airways	11	15			12		38
Africa/M.East Total	**11**	**19**	**6**	**4**	**12**	**0**	**52**
Unidentified Total	**2**	**0**	**0**	**0**	**1**	**0**	**3**
Gross Total	**148**	**78**	**9**	**24**	**31**	**10**	**300**
Changes/Cancellations							-67
Net Total							**233**

BOEING FIRM ORDERS 2002

	717	737	747	767	777	Total
KLM			1		4	5
Ryanair		103				103
European Total	**0**	**103**	**1**	**0**	**4**	**108**
AirTran	7					7
Alaska Airlines		2				2
Boeing Business Jet		6				6
Midwest Express Airlines	25					25
Southwest Airlines		4				4
WestJet		6				6
N.American Total	**32**	**18**	**0**	**0**	**0**	**50**
Copa Airlines		6				6
Latin American Total		**6**	**0**	**0**	**0**	**6**
Cathay Pacific Airways					3	3
China Airlines			10			10
Japan Airlines			2			2
Korean Air					1	1
Pakistan International Airlines					8	8
Qantas		4				4
Singapore Airlines					1	1
Vietnam Airlines					4	4
Asian Total	**0**	**4**	**12**	**0**	**17**	**33**
Ethiopian Airlines		3		3		6
Kenya Airways					3	3
Africa/M.East Total	**0**	**3**	**0**	**3**	**3**	**9**
Unidentified Total	**0**	**28**	**4**	**5**	**8**	**45**
Gross Total	**32**	**162**	**17**	**8**	**32**	**251**
Changes/Cancellations	-16	-43	0	-10	-6	-75
Net Total						**176**

Notes: Airbus, no A300-600Rs or A310-300s were ordered; Boeing, no 757s were ordered in 2002.

Source: Manufacturers

Stockmarket prices: Up, down and sideways

In the October issue of *Aviation Strategy* we took a look at the stock markets' valuations and reviewed share price performance of the major airlines on both sides of the Atlantic. At the time we were looking at a position where recent massive weekly falls had put most of the share prices at all time lows. BA saw its share price at a post privatisation historic 17-year low and faced expulsion from the FTSE Index. At those levels, despite the bearish news facing the industry, there was a general gut feeling that share prices could not possibly go lower.

In this issue we revisit the data. Since then there was an improvement in sentiment towards industry - with share prices rebounding some 50%-150% from the lows encountered in October. However, recently it has all been downhill. The world's stock markets have been increasingly worried since November about the threat of war and terrorism; the global economy; and climbing fuel prices, which tend to have a disproportionate affect on airline stocks. Prices have once again tumbled to close to all-time lows - exacerbated once again by the US quarterly results season.

MAJOR AIRLINES' SHARE PRICES

	Oct 2002 Low	High since Oct	End January 2003	High compared with Oct low	Current price to recent high
Northwest	$5.14	$8.60	$6.58	+67%	-23%
United	$1.71	$4.45	$1.15	+160%	-74%
American	$3.15	$8.25	$3.13	+162%	-62%
Delta	$6.48	$13.73	$10.19	+112%	-26%
Continental	$3.65	$9.85	$6.80	+170%	-31%
Air France	€7.12	€13.28	€8.42	+87%	-37%
Alitalia	€0.21	€0.31	€0.24	+48%	-23%
BA	94p	167p	110p	+76%	-34%
KLM	€8.10	€12.90	€7.40	+59%	-43%
Lufthansa	€8.60	€12.76	€8.25	+48%	-35%
SAS	SEK45.5	SEK62.5	SEK46.5	+37%	-26%

US RESULTS 4th Quarter 2002

	American	Northwest	Continental	Delta	Southwest
Traffic	15.9%	16.9%	8.9%	15.6%	2.8%
Capacity	6.2%	9.2%	7.4%	3.3%	5.2%
Load factor (LF)	69.8%	74.4%	70.6%	71.2%	63.0%
Break Even LF	87.7%	90.6%	79.5%	79.6%	61.0%
Unit Revenues	2.6%	7.5%	5.7%	12.2%	7.5%
Unit Costs	-5.3%	-0.6%	-4.1%	-10.9%	6.3%
Revenues	$4,190m	$2,339m	$2,038m	$3,308m	$1,401m
% change	10.1%	17.8%	17.3%	15.5%	13.2%
Op profit (loss)	$(679)m	$(177)m	$(56)m	$(211)m	$88m
% change	-35.1%	-43.8%	-79.3%	-64.5%	136.6%
Net Profit (loss)	$(529)m	$(488)m	$(109)m	$(367)m	$42m
% change	-33.7%	125.9%	-26.8%	-50.3%	66.8%

At any point in time a share price has the potential to rise, fll or stay the same. History does provide a guide - in that in the short run price rises show an excess of buyers over sellers: and conversely otherwise. What the share price performance over the past two years tells us tell is that there has overwhelmingly been an excess of sellers over buyers; any feeling of cheapness in valuation towards the sector has been shelved; and this even in consideration of the bounce in share prices since October lows.

Are we in fact looking at a 'dead cat bounce' - the purely technical view of a share price performance based on the cruel idea that dead cats don't bounce more than once (and only a little bit) when you drop them?

The pattern of airline share price performance in the last quarter of 2002 has been wilder in North America than Europe - but dramatically gave investors the opportunity to make and lose significant amounts of money. Ignoring the Chapter 11 cases, United and US Airways, the major network carriers' share prices jumped by between 70% and 160% from the lows in October. In Europe the similar performance was between 40% and 90%. Since those highs were achieved, share

prices in the US have fallen another 20%-60% and in Europe by 25-45%.

The LCCs live in a different world. Ryanair goes from strength to strength; Southwest - now the only profitable major carrier in the US -- holds its own. easyJet is resilient despite fears about its expansion programme and the digestion of Go.

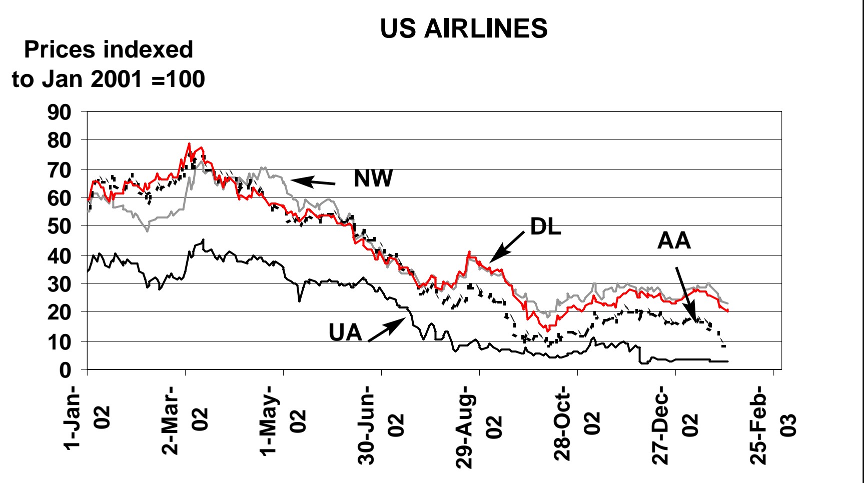
US impact

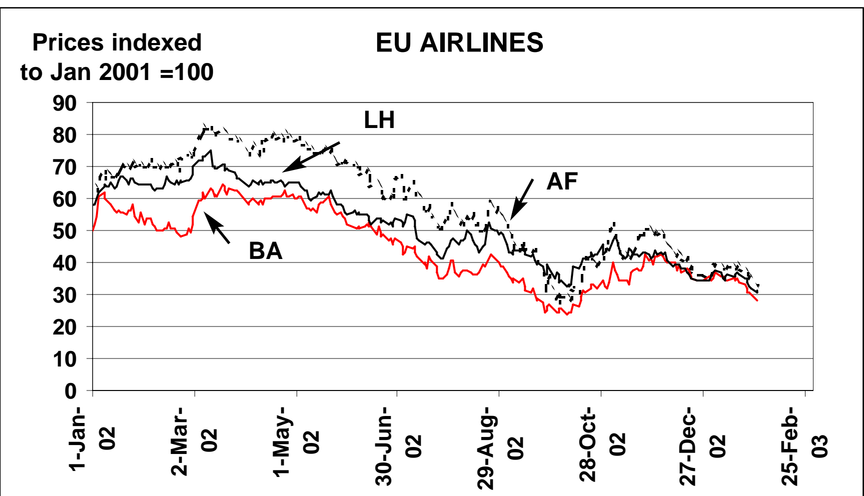
As at end-January all the non-officially-bankrupt US majors had reported their results for the December quarter and full year 2002. These make depressing reading for all but one. As traditional with bad reporting seasons there appears to have been the tendency to include the kitchen sink and stuff as much bad news as possible into the period.

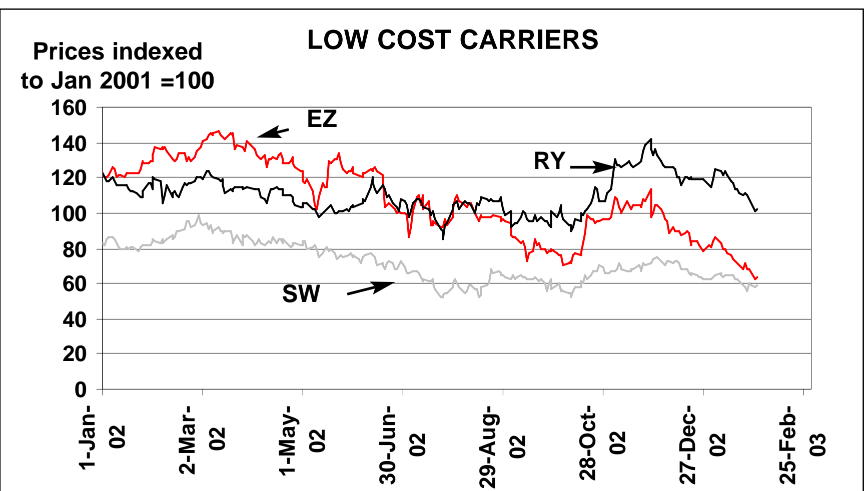
The quarter was inevitably going to show strong annual improvements for the simple reason the comparison was with the period immediately after the September 11 attacks. For the quarter the five majors who have reported show traffic up by 13% and capacity up by 6% against the prior year period. Revenues in the quarter similarly rose by 14%. Net losses fell by 22%. The full year figures show a more dismal picture. Traffic grew by a mere 2% (more than all provided by Southwest) and capacity was static. Revenues fell for the full year by some 6% (with a whopping 9% fall at American) and the overall net loss widened for these five to $5.8bn. American itself reported a net loss of $3.5bn for the full year all on its own. However, this did include some $1.5bn of special charges in the year and the underlying net loss came in at "only" $2bn up from a comparable loss of $1.4bn in the prior year.

Wall Street seems to have viewed all of the results so far as "better than expected" - but generally marked the industry down again. However, some elements are very disturbing. The position at American in particular appears dire - see *Briefing*, pages 6-10.

Moreover, all the majors are going to have to take charges to the balance sheet to cover pension fund shortfalls from current actuarial valuations reflecting lower interest rates and the significant drop in the stock market - and this will be at least $1.1bn for American, $1.6bn for Delta and $1bn for Northwest.







The current gainers are surely Delta, Northwest and Continental - if they manage to get their way in creating the domestic code share agreement that the DOJ has allowed and the DOT does not want.

American Airlines: Et tu AMR Corp.?

Until very recently, American looked like one of the US airline industry's most likely long-term survivors. Its financial losses since the September 11 terrorist attacks may not have been materially smaller than United's, but it had strong liquidity, a large pool of unencumbered aircraft and no significant debt maturities on the horizon. Most importantly, it has been able to continue to access the capital markets to raise liquidity, as it demonstrated with a $675m aircraft financing in late December.

However, investor confidence in American's ability to pull through the industry crisis has plummeted in recent weeks. The stock price hit an all-time low on January 29 - a pitiful $2.85, down from a 52-week high of $29.20 - as the markets evidently began to treat the world's largest airline as a likely Chapter 11 candidate.

While there are no near-term liquidity constraints, analysts now view American as "probably the most challenged of the solvent majors" (as Merrill Lynch's Michael Linenberg put it). In other words, American is now considered more likely than Delta, Continental or Northwest to join US Airways and United in Chapter 11 within 12-18 months. (Of course, in the event of a war with Iraq, all of those airlines become potential Chapter 11 candidates.)

As another indication that American poses increased risk, both S&P and Moody's recently singled it out for additional scrutiny. The agencies began reviewing American's corporate credit and debt ratings in view of possible downgrades.

American's prospects have worsened because of its continuing heavy losses, described by its leadership as "unsustainable", and lack of any sign of recovery. Also, as the company disclosed in its earnings conference call on January 22, there are new negative developments that - in the worst-case scenario at least - could lead to a liquidity crisis later this year.

By Heini Nuutinen
Email: HNuutinen@compuserve.com

First, as a result of heavy borrowing and a decline in aircraft values, AMR's primary sources of backup liquidity (newer, Section 1110-eligible unencumbered aircraft) are diminishing.

Second, the company warned that it is likely to face debt covenant issues in the summer. If those issues are not resolved, as much as $834m of secured revolving credit facility debt would come due prematurely. This would be in addition to about $800m of scheduled debt and capital lease payments and $300m of planned maintenance capital spending in 2003.

Third, like many other large US carriers, AMR faces hefty financial obligations in respect of the funding of its pension plans. The company recorded a significant minimum pension liability at year-end, resulting in a $1.1bn charge to stockholders' equity.

In addition, there are concerns that various industry developments will harm American's competitive position in the longer term. The biggest worry is that UAL will emerge from Chapter 11 as a lean and powerful competitor. Although it is early days yet, both UAL and US Airways appear to be making progress in tackling their unions and aircraft lessors in the bankruptcy court to obtain what could add up to significant cost savings.

Also, American has potentially the most to lose from a fully developed Continental-Delta-Northwest alliance. Since having the proposed codeshares approved last month, the three airlines are going ahead at full speed, even to the extent of ignoring the DoT's conditions.

So what is American doing to try to stem losses and ensure a competitive position in the longer term?

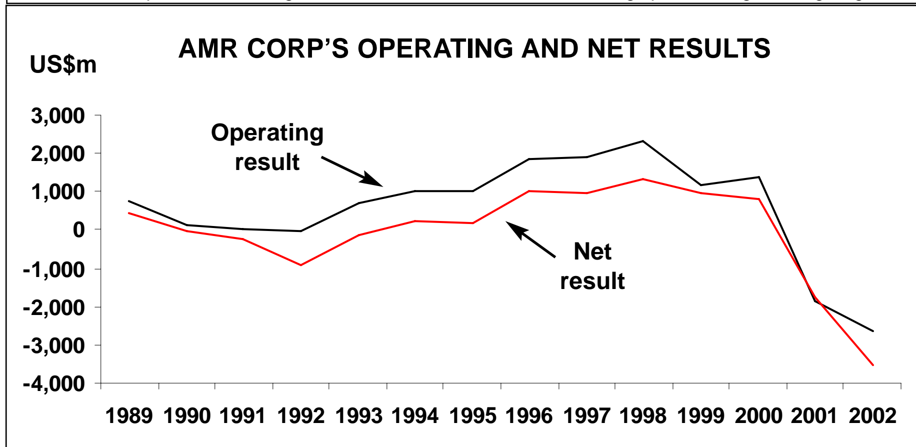
Continued heavy losses

American's parent AMR reported a horrendous $3.5bn net loss on revenues of

$17.3bn for 2002. It was double the 2001's $1.8bn net loss and earned the dubious distinction of being the largest annual loss ever recorded by any airline (even exceeding the $2.1bn and $3.2bn net losses that UAL posted for 2001 and 2002, respectively). Excluding special charges, AMR's net loss rose from $1.4bn to $2bn.

The December quarter's $529m net loss was 28% lower than the year-earlier $734m loss before charges, but it was an easy comparison over the extremely depressed final months of 2001.

Notes: results up to and including1998 include Sabre, 01 and 02 excluding special charges and gov. grants



The heavy losses reflect the fact that American has been underperforming competitors on the revenue side. In the fourth quarter, its system unit revenues (RASM) rose by only 2.6%, compared to an industry average increase of 5.9%.

The airline blamed this on its geographic mix, namely a heavy exposure to Latin America and certain US markets that have seen the biggest declines. Also, it has a small presence in Asia - a region that is now outperforming and helping competitors like Northwest and United.

Another problem is growing competition from low-cost carriers, which, by American's estimates, were present in markets that accounted for 82% of its domestic traffic in the fourth quarter, up from 75% a year earlier.

American might have been expected to benefit from some "booking-away from United" effect, given that the two share a major hub at Chicago O'Hare and compete directly in a large number of markets. However, AMR's CFO Jeff Campbell claimed that there had been no net benefit because of United's price-cutting. He suggested that the media had done a remarkably good job in educating the public about Chapter 11, which meant that few Americans these days worry about flying bankrupt carriers.

American's domestic RASM remained flat while international RASM rose by 10.4% in the fourth quarter. The latter was boosted by 19.6% RASM growth on European routes (from a very low base), mainly thanks to a 15-point load factor improvement. Continental Europe has continued to outperform the UK market.

Like other major airline executives, Campbell reported that the revenue environment remained extremely weak. However, American may gradually catch up with competitors as it continues to adjust its network. Among other things, it is cutting capacity in the weakest domestic and Latin American markets and expanding service to Tokyo.

Although American's cost performance in the fourth quarter was impressive, it nowhere near compensated for the decline in revenues since 2000. Operating costs were essentially flat and unit costs (CASM) fell by 5.3%, despite a 6.2% increase in capacity and 15% higher fuel prices.

The 7% reduction in ex-fuel CASM in the fourth quarter was driven by controls on discretionary spending and $2bn of cost-cutting initiatives. The main projects included de-peaking of the Chicago and Dallas hubs, fleet simplification and automation of ticketing and check-in. There were savings in commissions, aircraft rentals, facility rentals, landing fees and food and beverage costs.

Unit costs are expected to fall by 1% in the current quarter, despite an anticipated 36% hike in fuel prices (a non-war scenario) and 1% higher capacity. The airline has hedged 40% of its fuel needs in the first quarter and 32% in full-year 2003, both at $23 per barrel - not the strongest of hedge positions.

Heavy losses are likely to continue for the foreseeable future. Based on traffic and cost trends but excluding any impact from a possible war with Iraq, AMR expects the seasonally weak March quarter's pretax loss to be similar to the December quarter's $828m loss, with daily cash burn still averaging $5-6m.

More disturbingly, even under the non-war scenario, AMR is currently expected to lose almost as much in 2003 as it lost in 2002; the late January consensus estimate was a loss before special items of $12.82 per share this year, compared to last year's $12.97 or $2bn.

There is clearly a long way to go to get costs in line with revenues. American has identified the need to find another $2bn of annual structural cost savings, to bring the total to "at least $4bn".

Potential liquidity issues

AMR had $2.7bn in cash at year-end, after the addition of the $675m proceeds from the aircraft financing. The figure included $775m of restricted cash, of which $350m covered letters of credit backing certain facility bonds that the company plans to redeem in the near future (because they are using more cash collateral than the face value that they represent). The cash position is believed to be adequate for the near term, especially since AMR expects to receive its final tax refund (about $550m) in March.

Also on the positive side, AMR's pension problems seem lesser in magnitude than those faced by some other major carriers. The company expects its total pension expenses to rise by around $250m to $700-750m this year, but the cash contribution will only be about $200m.

Like many of the other majors, American has done a good job in reducing near-to-medium term capital expenditure to a minimum. The latest significant actions on the fleet side, undertaken last autumn, included accelerating aircraft retirements, putting 42 aircraft into temporary storage from early 2003 until "at least 2005" and deferring deliveries of 34 additional Boeing aircraft in 2003-2005. These and earlier measures shaved $4bn from AMR's 2002-2003 capital spending plan, reducing last year's spending to $1.8bn and this year's to $1.4bn.

Of the $1.4bn total, $1.1bn is covered by prearranged financings of regional jets and Boeing aircraft. Boeing is providing full financing for all 11 new aircraft scheduled for delivery in 2003 (American had wanted to defer those aircraft too but was not able to). This leaves just $300m maintenance-related capital spending to be paid for this year.

On the negative side, there is the risk posed by the debt covenant violations this summer. American currently believes that it will be able to renegotiate the covenants relating to the credit facility, which is provided by a consortium of banks. However, if the industry environment worsens, it may not be able to reach acceptable terms with the banks (for example, on the amount of additional collateral required). In such a scenario, it would have a significant $1.8bn burden of debt and capital lease payments to meet this year.

Another potential problem is that there are fewer attractive assets to put up as collateral. As a result of the December financing, AMR's pool of unencumbered aircraft declined from $4.2bn to $2.9bn. Apparently only $700m of the unencumbered aircraft are Section 1110-eligible (acceptable in EETCs).

Of course, AMR's ability to raise liquidity could change very quickly if the industry environment deteriorates. It is possible that, because of the leadership's references to "unsustainable" losses and the speculation about Chapter 11, American may already have lost access to the capital markets.

As a last resort, the company might be able to raise funds from the sale of non-core assets, such AMR Investments, though in the current market it would probably not get

the best prices for them. Based on one earlier estimate, AMR may have $3-4bn in unencumbered non-aircraft assets.

All of this, and in particular the reduction in financial flexibility, may mean a liquidity crunch for AMR by the next winter season. Much, of course, will depend on the economy and the airline's ability to restructure its labour contracts.

CFO Campbell provided a sobering reminder of a longer-term problem that American and other large network carriers will have to deal with if they succeed in pulling through the current crisis: high debt levels. At the end of 2002, AMR had $19.3bn of net debt and a net-debt-to-total-capital ratio of 95.8% - its highest-ever leverage ratio (around 70% was the norm for the company for many years).

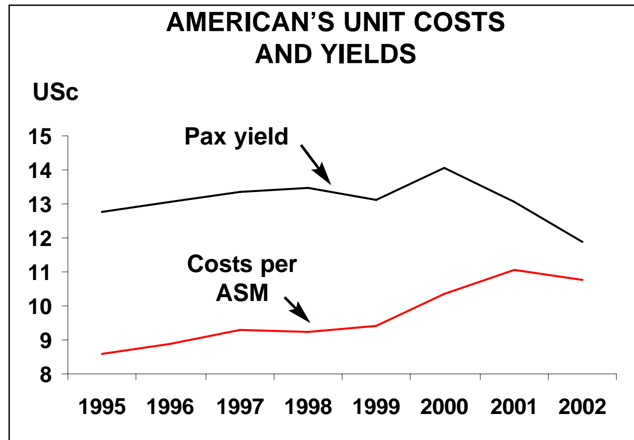
The need for cost savings

American has so far identified only half of the $4bn annual structural cost savings that it believes it needs in order to survive in a permanently changed revenue environment. Given the scale of the current losses, the cost cuts must be achieved relatively quickly.

The earlier intention (as presented in AMR's early November recovery plan) was to "engage labor constructively" to obtain perhaps $1bn of savings mainly through efficiency and productivity improvements. However, United's Chapter 11 filing in early December made it both necessary and potentially easier for American to negotiate more substantial labour concessions.

American is now counting on its workers to contribute the bulk of the $2bn required additional cost savings. It has been in "open and blunt" talks with all of its unions since October. In mid-January the company sought to step up the discussions, proposing weekly meetings and offering to open its books to the unions and their financial advisors.

Speaking as one voice under "AMR Labor Coalition", the unions have publicly pledged to help find solutions to the financial crisis. As an indication of the new spirit of



cooperation, progress has been made with the pilots on the regional jet scope clause provisions (American's single biggest competitive disadvantage in the current pilot contract). However, it will not be possible to reach any agreement on wage concessions or major contract revisions until it is known what happens at United.

Campbell summed up the situation as follows: "No airline will survive without competitive labour costs. But the definition of competitive labour costs has been changing at a blinding speed and is clearly going to continue to evolve. We are extremely mindful of that."

In many ways, American and others are looking to United to use the Chapter 11 process to lower the benchmark at least in respect of pilot pay. This is because in late 2000 United raised the bar considerably for the rest of the industry with its extremely expensive pilot contract.

American is sending a clear message that the sacrifices are shared. To date, it has cut management staff positions by 22%, deferred management pay increases for two years in a row and is consolidating its headquarters operations from 11 buildings to two.

In December the company asked employees to forgo this year's scheduled wage increases. It is not yet clear if anything could be done about the soaring pension and medical costs, which the leadership described as the most frustrating part of the cost structure. Medical costs are rising by 10-15% year-over-year for active employees and 25% for retired employees.

AMR has refuted suggestions that it

could be severely disadvantaged by UAL's and US Airways' efforts to slash aircraft ownership costs. Campbell argued, first, that the bulk of the cost savings at both UAL and US Airways were expected to come from labour. Second, most of the lease cost savings were coming from aircraft that were being rejected; in other words, the airlines were shrinking, which was not bad for American. Campbell also pointed out that the Chapter 11 process itself imposes additional costs, and that American believed that it could achieve labour cost savings outside of bankruptcy.

It is hard to speculate what UAL will look like in the longer term. Anything can happen between now and mid-to-late 1994, which is the earliest that it could emerge from Chapter 11. Of course, if UAL were liquidated, American would be the largest beneficiary.

Changes to the business model?

American's longer-term plans are based on the premise that, even with economic recovery, the high-yield segment will not recover fully and that the major network carriers will not return to their former profit levels. The airline intends to meet the market challenges through network and fare structure changes.

Network changes mean moving capacity to more profitable international routes, cutting domestic ASMs, utilising more regional jets and reducing seasonal and daily peaks in the schedule. Many of these changes are already under way.

As regards to fare structure changes, it will basically mean experimentation. As CEO Don Carty remarked in November, "everyone realises that the pricing structure is broken, but no-one knows how to fix it".

One of the basic problems is that the gap between domestic business and leisure fares has grown unacceptably wide. Late last year American became the first major carrier to start testing a simplified, lower fare structure in 25 domestic markets. The experiment reduced walk-up fares by 40% while raising some leisure fares.

Campbell suggested that American has to do more than other network carriers to readjust to the new environment, because its network, product and pricing have all been totally optimised to meet the needs of the traditional business traveller. However, the adjustments will have to be designed so that they will have minimal negative impact on the business segment.

As a hub-and-spoke carrier, American's costs will always be higher than those of point-to-point low fare carriers. Likewise, American believes that, in the longer term, it can achieve and maintain a 30% unit revenue premium over low-cost competitors - a prediction that is based on 30 years of experience of competing with Southwest.

AVIATION STRATEGY ONLINE

Subscribers can access *Aviation Strategy* (including all back numbers) through our website www.aviationeconomics.com. However, you need a personal password - to obtain it email *info@aviationeconomics.com*

Emirates: taking risks in going global?

Emirates, the national airline of the United Arab Emirates, has enjoyed steady growth since it was launched in 1985. Now however, it is launching routes to the only continents it has never served - North and South America - and has placed ambitious orders for new aircraft, including the A380. Can the Dubai-based airline continue its record of success, or is its single-minded focus on global expansion a risky strategy?

Since being founded by the government of Dubai in the 1980s, Emirates' growth has come in parallel with the rise of the UAE as a key trading centre in the Middle East as well as the development of Dubai as a major tourist destination. It has also exploited its geographical position along major east-west air routes, and 50% of the airline's passengers are in transit beyond Dubai. The attraction of Dubai as a stop-over makes transit/transfer strategy viable.

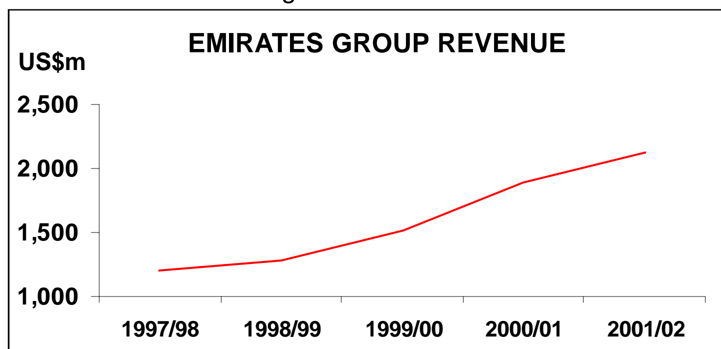
Today, the airline has established itself as a well-managed and successful international airline. With just under 9,000 employees, it currently operates to 58 destinations in 41 countries, and has a fleet of 44 aircraft.

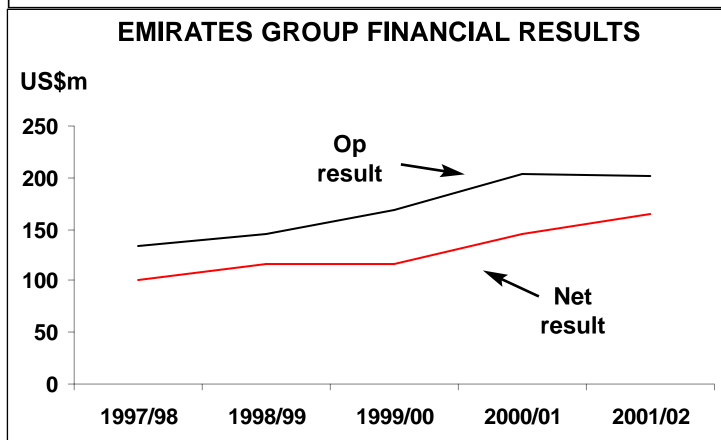
In November 2002 the Emirates Group (which also includes Dnata, an aviation services company which acts as GSA in Dubai and has the ground handling monopoly at the airport) announced net profits of US$110m for the first-half of the financial year (April-September 2002), compared with a US$45.7m net profit in the first-half of 2001/02. Operating revenue increased 27% to US$1.2bn over the same period, and cash reserves as at September 30 2002 were US$1.1bn, compared with US$763m a year earlier. The passenger load factor rose from 74% to 78% in the period, even though capacity was up 18%.

This is a considerable achievement given the effects of September 11. At the time, Emirates was immediately hit by the collapse in traffic, and in the short-term it suffered from the perception that Dubai was too close to Afghanistan to guarantee the safety of flights. But traffic recovered relatively quickly, although ironically - given its current expansion plans - one of the reasons it did so was because it did not have any exposure to the North American market.

Although costs were cut by around 5%, Emirates avoided taking the more drastic action that some of its rivals were forced into. For example, Emirates did not make any redundancies, but instead imposed a recruitment freeze. As for its route network it "marginally reduced" its schedules.

Overall, recovery from September 11 has been remarkable when compared with airlines in the West. As has Dubai's tourism industry: despite a severe dip after September 11, tourism to the Emirate was up 6.5% to 3.6m visitors in 2001, with a further increase of around 10% predicted for 2002. The official target for 2010 is 15m





tourists.

Industry rumours attribute Emirates' success to covert government support. This charge annoys the airline's management who state that the airline only ever had US$10m in investment from the government, back in 1985, and that ever since it has funded itself through its own resources.

The real issue for Emirates is whether it can continue its avowed strategy of expansion without overstretching itself. Since 1985, on average the airline has doubled in size every three or four years, and even with a higher baseline the passenger growth rate since 1997 has been more than 16% per year. After such expansion, many airlines would have chosen to consolidate for a while - but not Emirates.

After adding routes to Casablanca, Perth, Khartoum, Osaka and Mauritius earlier in the year, in November 2002 Emirates announced plans to increase frequencies on 17 routes, boosting total capacity by more than 20%, it claimed. It is also launching new services to Kochi in India (December 2002), Lagos (March 2003), Moscow (July 2003) and Shanghai (August 2003), all using A330-200s, the mainstay of its current fleet.

Daily non-stop flights from Dubai to Sydney will start in October 2003 following the first deliveries of the ultra long-range A340-500. At about the same time Osaka will also be added to Emirates' network.

But the most strategic move comes with the launch of its first routes to the Americas. Following a final agreement between the US and UAE governments on open skies, signed earlier in 2002, in August Emirates applied to the US Department of Transportation for permission for routes to New York and San Francisco. A daily service to JFK is scheduled for April 2004 with San Francisco to follow in the summer of that year. Both routes will use A340-500s. Beyond those cities, a route to Los Angeles may also be added, and other destinations are under consideration.

After North America, Emirates' management will turn its attention to the last remaining continent not currently in its route network - South America. Buenos Aires, Sao Paulo, Rio de Janeiro and Santiago are all possibilities for the first routes, which again will be flown with A340-500s. Economic turmoil in the region, however, may yet affect the timing of new routes, although Emirates' intention is clear.

But expansion will not stop even there. Emirates wants to substantially increase capacity on some of its shorter routes, and - together with the long-haul expansion - the airline is buying more than US$15bn worth of new aircraft to facilitate this growth.

Fleet expansion

Altogether, Emirates plans to almost triple its current fleet between now and 2010, and it is in the middle of a major aircraft buying exercise. The airline is currently talking to Airbus and Boeing about orders for up to 60 aircraft that it aims to place in the first half of 2003, although most of these will be confirmation of LoIs and MoUs flagged at the end of 2001 at the Dubai air show.

These include 25 777-200/300s, to be added to the existing fleet of 18 plus three confirmed orders. Subject to evaluation, all 777s may be of the 300ER version. Also likely to be confirmed are eight extended range versions of the A340-600, providing that Airbus agrees to launch this model. These would be used on long-haul routes to Australia and the US from 2005 onwards. An existing order for six ultra-long-range A340-500s (which has just won its certification from the European Joint Aviation Authorities) will start arriving in April 2003.

The only "new" order is likely to be for more A380-800s, in addition to the existing firm order for 22 aircraft (with 10 on option) that was announced in 2001 - although it is possible that any new orders here will be conversions from the 10 options already signed with Airbus.

Becoming a launch customer for the A380 was a giant step for Emirates, putting it in the same premium customer league as Singapore Airlines. In forecasting demand for the A380, Emirates appears to be assuming a continuation of its historic traffic growth and a continuation of restricted bilateral regimes as well as severe slot restric-

EMIRATES' FLEET

	Fleet	On order	Options
747-400F	1		
777-200	9		
777-300	9	3	2
A310-300	1		
A330-200	24	5	
A340-500	0	6	10
A380-800	0	20	10
A380-800F	0	2	
Total	**44**	**36**	**22**

Source: ACAS Note: As at Dec 2002

tions at airports like Heathrow. Emirates may be particularly looking at routes to the Indian sub-continent, where continuing restrictive bilaterals in a lucrative market necessitate capacity increases through larger aircraft, rather than by adding frequencies.

If the aircraft operate at high load factors, as planned, then Emirates will achieve significant costs savings per passenger kilometre. If those forecasts are wrong, then Emirates will have a lot of costly 540-plus seat A380s on its hands. Two of the A380s on order, however, are freighter versions, as cargo is an area of operations the airline is looking to expand (17% of revenue in 2001/02 came from cargo). Emirates currently wet leases a 747-400F from Atlas Air on routes to Hong Kong and Amsterdam, but is also in talks with Boeing about possible development of a cargo version of the 777.

As well as the US$15bn-plus cost of the aircraft there are engine costs, infrastructure improvements, training costs etc. Already Emirates has announced it is investing US$275m in building a maintenance hangar at Dubai, which will service the A380s that will start arriving in 2006. On the other hand, Emirates will be greatly helped by the Dubai government's US$2.5bn investment in expanding Dubai airport, which will be completed by 2006, without environmental inquiries.

Financing of such large orders will come from a variety of sources, including cash reserves, bond issues and various types of leases. The latter may include Islamic leases, which Emirates has already used for some aircraft and which comprise rental payments and balloon payments instead of regular principal and interest payments, which are not allowed under Islamic law.

A global alliance?

If Emirates is to become a truly global airline, will it be tempted to join one of the global alliances, a move it has resisted up until now?

Emirates has linked its frequent-flyer programme to the FFP of Singapore Airlines, a member of the Star alliance, but according to CEO Maurice Flanagan there is "no business case" for joining an alliance - a decision that would leave Emirates as the only global airline not to do so.

Instead it prefers to codeshare, and has current agreements with, among others, Thai Airways, Japan Airlines, British Airways and South African Airways. Air France could be the next codeshare partner, on the Dubai/Paris route, and negotiations are being held at the present. If successful, they could lead to a tripling of Emirates services on the route, although discussions are believed to be slow and painstaking.

Emirates may well prefer codesharing to investing in airlines, given the problems is has faced since buying a 42.6% stake in SriLankan Airlines (then known as Air Lanka) in 1998. At the time Emirates also signed a 10-year management contract, which included a clause that the national airline would have non-compete rights on selected routes. Unfortunately, the then opposition party, the United National Party (UNP), opposed this agreement, and in the general election held at the end of 2001 the UNP became the country's new government. The UNP promised to review the entire deal, which had become a major political issue, to see whether it gave too much protection to SriLankan Airlines, thereby restricting the emergence of new competitors.

Emirates was "invited" for talks with the Sri Lankan government in May 2002, creating a situation that few at the airline could have envisaged back in 1998. Negotiations on changes to the original deal have not

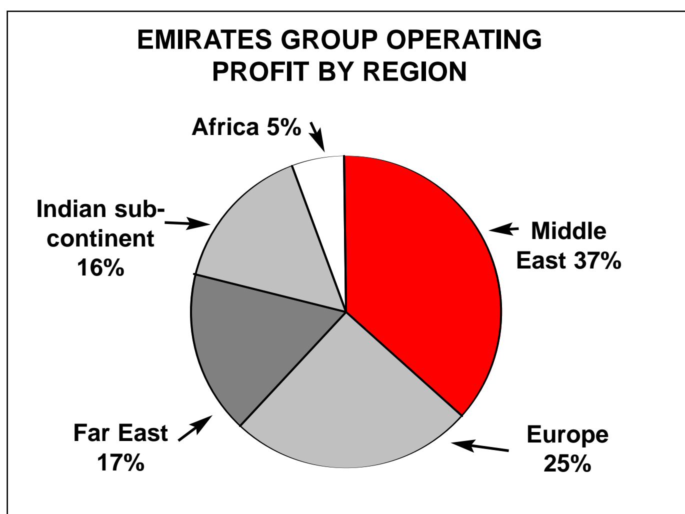
been easy, it is believed, and - according to a SriLankan source - Emirates has had to make major concessions. A MoU was supposed to be unveiled by the end of 2002, following further talks in November.

Emirates was also interested in investing in Air India in 2001, but it eventually pulled out from making a bid after showing initial interest. An outside possiblity is an investment in Iran Air. Iran, with its oil reserves and large, educated population has huge potential when normal relations with the West are restored, which looks increasingly likely.

Financing and resourcing expansion

Financing its expansion appears to pose few problems at the moment - for example, the Group's first bond issue in July 2001, for US$204m and arranged by HSBC and the National Bank of Abu Dhabi, was oversubscribed two and a half times and was closed at US$408m. A further bond issue may be arranged in 2003. But assuming finance is not a problem and that cost levels can be kept under control - which are big assumptions - it is the softer issues of management overstretch and keeping services levels high that may represent the greatest danger to Emirates.

Emirates is well known for its customer care and service levels, particularly in its premium cabins - although some of its business seating is regarded as cramped. In 2003 Emirates will unveil major improvements to its products - seat pitches will increase and more space given to passengers by, for example, reducing seating in 777-300s from 380 to 330. Already, a $30m advertising campaign has been launched to proclaim the new "global" airline. But will expansion erode these service levels? New staff will have to be hired and trained, new facilities opened, middle management will have to be expanded - while all the time trying to maintain existing service standards.



It's a risk that Emirates is prepared to take, although the reasons for the airline's attempt to become a truly global carrier are not immediately apparent. Maurice Flanagan is surely close to retirement (he has spent some 50 years in the airline business), and it would be great for him to round off his years of success at Emirates with the final piece in the global jigsaw. But there is a more fundamental reason for increasing the pace of its expansion: oil.

Dubai, one of the seven kingdoms that make up the UAE, is fast running out of the money-spinning resource. The oil is forecast to dry out completely by around 2010, and by then Dubai needs to have fully developed major companies and industries that can bring in much-needed replacement revenues.

Large-scale tourism and trade was long ago identified as a key strategic goal for the kingdom, and the necessary infrastructure for tourist and business travellers is a robust airline. As the government of Dubai owns Emirates 100% (with no official plans for privatisation), its wishes "guide" the strategy of the airline, so by 2010 Emirates' aim is to be a truly global airline, securing the passenger flows that Dubai needs. Substantial profits for the national airline would be an added bonus. However, although the reasoning for expansion for the Kingdom of Dubai may be valid, the dangers of overstretching the airline are real, whether it is in management resource, service reliability or financing.

Network carriers: service and coverage without the cost penalty

Booz Allen Hamilton* consultants have addressed the very pertinent question of how network carriers could re-invent themselves to achieve the profitability levels of successful low cost carriers.

The cost gap between full-service hub and spoke (H&S) airlines and the low cost carriers (LCCs) on both sides of the Atlantic is striking (see chart below). Cost differences exist across the board: pilots, onboard services, sales and reservations, maintenance, aircraft ownership, ground handling. This is not simply a matter of LCCs paying lower salaries or using cheaper airports; rather it is a function of fundamental differences in the two airline business models.

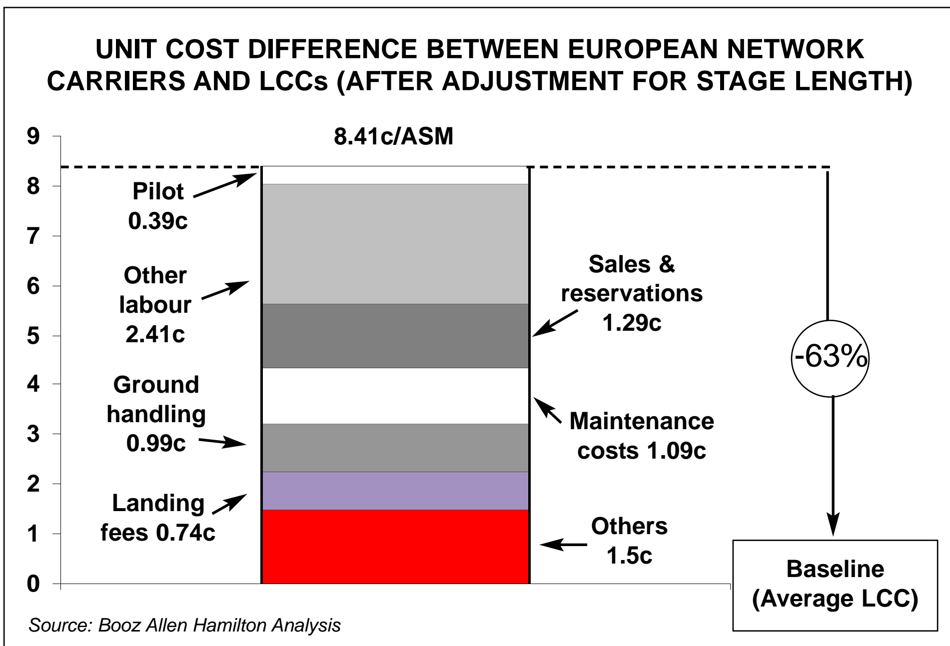
LCCs have successfully designed a focused, simple operating model around non-stop air travel to and from high-density markets. H&S carriers, on the other hand, support a highly complex system of operations. Their business model is predicated on offering consumers a broad range of destinations, significant flexibility (ranging from last-minute seat reassignments and upgrades to complete itinerary and routing changes), and frills (speciality meals, lounges, in-flight entertainment, etc.). This model builds in the cost penalties of synchronised hub operations (long aircraft turns, slack built into schedules to increase connectivity), and so implicitly accepts a slower business pace to accommodate continuous change. In addition, the H&S business model relies upon highly sophisticated information systems and infrastructure to optimise its fundamental value proposition: *to take anyone from anywhere to everywhere… seamlessly.*

*By Tom Hansson, Dr Jurgen Ringbeck and Dr Markus Franke of Booz, Allen, Hamilton

Email: hansson_tom@bah.com

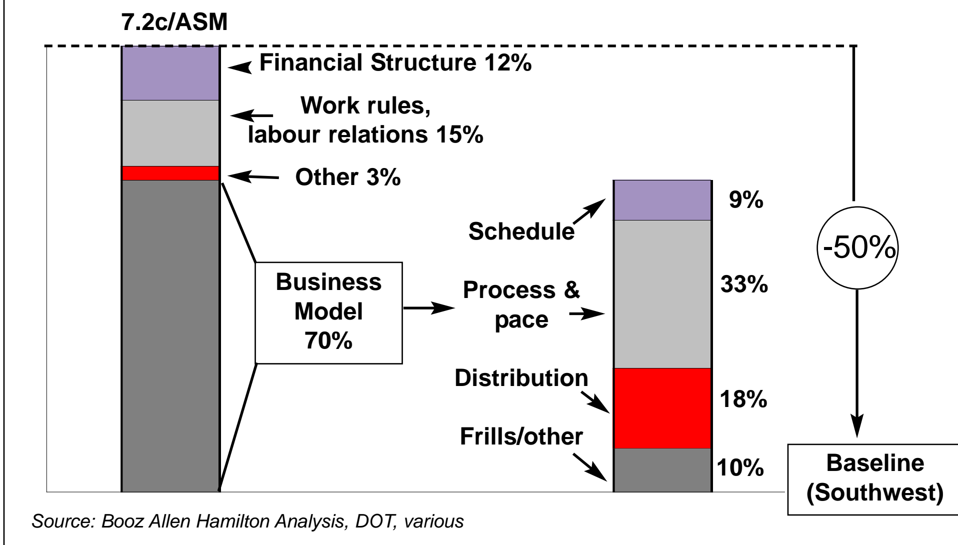
The chart on page 16 breaks down the cost differences between the H&S and LCC business models, using Southwest and the US network carriers as examples. To isolate business model effects, the comparison has been performed for 737-300s and been normalised for differences in labour rates, fuel prices, aircraft configurations, and stage lengths. Even so, the 2:1 cost differential persists. Some 70% of the difference can be attributed to explicit business model choices; another 15% percent to work rules and labour agreements; and 12% to differences in balance sheet structure and financial arrangements.

UNIT COST DIFFERENCE BETWEEN EUROPEAN NETWORK CARRIERS AND LCCs (AFTER ADJUSTMENT FOR STAGE LENGTH)



Source: Booz Allen Hamilton Analysis

Of the 70% attributable to business model differences, the largest contributing factors by far are business pace and process complexity, and distribution cost differences (which are narrowing with the elimination of commissions). A remarkably small proportion of the cost



Source: Booz Allen Hamilton Analysis, DOT, various

differential is "frills"-related. In fact, the "no frills" and "full service" labels are misleading in describing LCC and H&S carriers. It's the relative simplicity or complexity of their business models that distinguishes them.

LCCs' growth potential

The growth of Southwest in the US over the past three decades sheds useful light on the growth and development of the LCC business model. Initially a low-cost, point-to-point Texas carrier, Southwest has broadened its original market focus and stretched its business model. It has steadily and profitably expanded across the country, extending its service offering to the point where it now provides connections through pseudo-hubs and non-stop transcontinental flights. In its established markets, Southwest tends to have a frequency advantage over network carriers and is widely accepted among business travellers who value its efficient, reliable service.

Today, Southwest competes effectively in other airlines' hub markets and participates on a non-stop basis in a range of small markets (below 100,000 passengers per year). We estimate that a quarter of its revenues derive from passenger trips over 1,000 miles, and more than 5% comes from trips over 2,000 miles. Significantly, Southwest has managed to add "network" features to its point-to-point business model without incurring most of the associated complexity costs.

By Booz's estimates, LCCs could potentially participate in more than 70% of the US domestic market. The only sectors which provide H&S carriers appreciable protection are smaller "connect markets" that cannot be reasonably serviced on a non-stop basis (about 20% of the US domestic market) and longer haul markets, where onboard services are more prized and the cost differential is smaller (about 10% of the market). This projection is not meant to suggest that Southwest and its peers will take over 70% of the market. It does, however, mean that prices will continue to fall as LCCs penetrate further, undermining the profit engines of traditional carriers. Southwest typically prices 50% lower than incumbents in the one to two hour markets it enters, reducing the price realisation of traditional carriers in those markets by 25 to 35%.

It is the LCCs' impact on overall price levels - not the loss of traffic - that poses the real threat to traditional H&S carriers. LCCs actually stimulate significant new traffic as they enter a market. But they also bring down price levels, and those price pressures manifest themselves in a broad range of markets: in local markets to and from the hub, in shuttle markets, in connecting markets, and in adjacent markets (those not directly served by the LCC, but available via ground transportation).

As long as LCC penetration is limited, H&S carriers can compensate for these revenue pressures by leveraging "network effects" - by focusing on connecting flows and new destinations not yet served by LCCs. However, as LCCs expand both their geographic scope and service offering, it will become gradually more difficult and expensive to coexist. Over time, LCCs will serve more destinations, operate from a broader range of airports, and participate in more traditional connecting markets, either with their own one-stop service or by over-flying the hub.

H&S carriers, meanwhile, will find it more and more difficult to subsidise exposed traffic

COMPETITIVE EXPOSURE: TYPICAL HUB AND SPOKE CARRIER

Degree of Price Sensitivity	Non-Stop Passenger Flight	Connecting Passenger Flight
Low: Individual chooses airline, travels on business or rich personal travel	20%-30% of revenue	20%-25% of revenue **MODERATELY VULNERABLE**
Medium: Corporation is principal decision-maker, drives bargain	10%-15% of revenue **MODERATELY VULNERABLE**	10%-15% of revenue **VULNERABLE**
High: Mostly leisure travel and price-sensitive business	15% of revenue **VULNERABLE**	10%-15% of revenue **VULNERABLE**
Source: Booz Allen Hamilton Analysis	Generally product advantaged vs. other hub and spoke carriers	Product parity or disadvantage vs. other hub and spoke carriers

flows with profits earned in their remaining protected markets, including intercontinental traffic flows.

The challenges facing H&S airlines are further complicated by the fact that there are too many hubs and too many airlines. In the US, no airline provides a comprehensive nationwide service despite the network of hubs at its disposal, and no European carrier has expanded appreciably beyond its own national borders. The result has been a proliferation of smaller hubs in "secondary" markets on both continents to provide network breadth. There is probably nearly twice as much connecting capacity in the US as the underlying market requires. Large numbers of passengers travelling between major cities that already have, or can support, non-stop service still opt to take connecting flights, motivated by price or loyalty programmes. It is not just the intercontinental passenger, or those travelling to or from small communities, that connect through the hubs.

Indeed, the US market is so fragmented that 60 to 80% of most carriers' traffic is exposed to instant price competition (see chart below). H&S carriers compete aggressively in connecting flows and in leisure markets, where they price "for contribution," well below fully allocated costs. In these markets, an excessive number of hubs compete for traffic and trash prices, creating a hyper-competitive environment. Only some 20 to 40% of revenues come from local business markets where the airline is comparatively advantaged and protected from other H&S carriers. This is where profits (if any) are realised.

In Europe, the situation is similar, although less severe. A higher proportion of revenues come from business travellers, and some of Europe's connecting markets are less competitive. That said, the European market can support only three, maybe four, intercontinental network systems. Until there is consolidation, weak and strong hubs will compete vigorously for scarce intercontinental traffic, pressuring the balance sheets of all players, not just the smaller and most vulnerable flag carriers.

Alliances have offered some relief, allowing carriers to furnish their loyal, high-yielding business customers with a more competitive product offering. Still, alliances have not enabled airlines to rationalise hubs, significantly restructure networks, or realise most of the cost and revenue synergies of full consolidation.

The prospect of unilaterally shutting down weaker hubs to eliminate excess connecting capacity is not an attractive one either. Destination breadth would suffer, and many elements of the fixed-cost base would not go away. Moreover, aircraft could not be economically redeployed to other markets at current cost levels.

The continued growth of LCCs will only exacerbate these problems as they undermine the revenue generation potential of existing hubs (especially in the eastern US and Europe), increase price competition in both local business and connecting markets, and convert existing connecting markets to non-stop status. Precious few markets will be immune.

A new operating model

To continue to operate in this competitive environment, H&S carriers need to overhaul their business systems to move costs within range of the LCCs and reduce their sensitivity to economic and competitive pressures. To effect this overhaul, US carriers must urgently restruc-

ture their core operations. Labour concessions are only a starting point; they are necessary but not sufficient to overcome the cost disadvantages of a H&S business model.

The key to effectively restructuring an H&S airline's core network is implementing a lower cost structure business model without giving up the critical service and coverage attributes prized by high-value customers. Ideally, this restructuring would increase the product differentiation between high and low priced services and would occur in conjunction with network changes.

The experience of other industries - automotive assembly, certain heavy manufacturing, increasingly in financial services - that have executed fundamental business model changes yields important insights:

1. *To be successful, companies must reconfigure the product or service so that structural barriers to efficient operations are eliminated.*

2. *The "product architecture" (how the product is assembled or produced) needs to be broken down into distinct business streams so that commonalities are maximised, and the differences contributing to process complexity are minimised within each stream. The objective is to isolate the 80% of processes that are routine and unchanging from the vicissitudes of the 20% that change with each iteration.*

3. *Significant cost improvement then comes from "tailoring" each of these business streams. For example, an airline might industrialise its approach to the 80% of its activities that are routine (like domestic leisure travel), while upgrading the resources devoted to complex activities that are ever-changing like last-minute re-routing of business passengers).*

TBS approach

The governing principle in this kind of restructuring -Tailored Business Streams (TBS) - is not a new concept; it has been applied to parts of the manufacturing industry for some time. The essence of the approach is to reduce the cost of complexity, not necessarily to reduce the level of complexity. That said, many TBS initiatives result in the elimination of self-induced complexity (last-minute seat changes, overbooking) and restrict customer-driven complexity to those areas where it actually adds value.

The applicability of the TBS approach to the airline business model is striking. Many of the cost penalties inherent in the H&S system are associated with its complex business processes and slower business pace, rather than with the "frills" it offers travellers. Southwest has amply demonstrated that these complexity costs don't have to be. An airline can provide some of the benefits of the H&S system (high frequency levels, long-haul flights, connections) without incurring many of the H&S costs.

This does not imply H&S employees don't work hard (although productivity could be improved among certain labour groups), but that extraordinary manpower is required to execute relatively simple tasks. Network carriers have designed their infrastructure and business systems for the most complex requirements. This sophisticated business system is then utilised for all activities, complex or simple.

By tailoring business streams and redesigning how services are provided, we believe that it is possible to eliminate much of the H&S cost penalty (70 to 80% for leisure travel) without eliminating many of the attributes that consumers value. What does this mean for H&S carriers? It means they may have to:

- **Remove the scheduling constraints to much higher asset and personnel utilisation** H&S airlines today accept the slow turns and scheduling inefficiencies of connecting bank structures. A network designed around the needs of profitable, local passengers would eliminate these scheduling barriers and enable a significantly faster business pace. This may require rolling hubs and longer, more random connections. Local market services may well improve, especially as costs are lowered, although carriers would likely experience some share loss in the less profitable large city connecting markets. Increased connect times should not prove much of an issue in intercontinental and small community markets.
- **Create separate business systems for distinct customer and product segments** At the extreme, this might mean separate aircraft and airports for business and leisure travellers. At a minimum, it would involve a high degree of process and product separation, reflecting the different underlying values and needs of distinct market segments.
- **Tailor business streams to the needs of each customer segment** The key element is to industrialise and simplify all the handling

processes for routine work, especially leisure travellers, where the discrepancy between "customer requirement/willingness to pay" and "capability/cost" is the greatest. The objective should be to increase productivity dramatically - by as much as three times at airports-and virtually eliminate all costs associated with change, complexity, and multiple handling. This undertaking will require significant alterations in service policies, distribution approaches, systems, and processes. Ultimately, the air travel product should be so tailored to leisure traveller needs that airport processing is minimal; the vast majority of passengers will not need or want to change anything at the last minute. Moreover, the check-in process will be so intuitive that infrequent travellers can navigate the airport without significant handholding.

As for tailoring the business traveller stream, carriers should focus on streamlining processes to the greatest extent. Most business travellers simply want to get through the system reliably and quickly with minimal staff interaction. Of course, this business stream will still need to accommodate the ever-changing schedules of business travellers, a source of complexity that will not go away. The trick here will be to streamline these change activities as well, so that they are as automated and simplified as possible. This would also allow more resources to be devoted to the services the business traveller's value. Finally, airlines will need to dedicate special processing line(s) to deal with true exceptions and extraordinarily complex matters.

• **Increase the pace of all operations** This should be the natural result of the above changes, but time compression will further flush out remaining inefficiencies in the system. As in other industries, the degree of sophistication and level of cost tend to be determined by the available time rather than the underlying need - manpower costs are driven by how long the plane is at the gate or a station is manned.

In sum, the industry's major H&S carriers need to design and adopt a new business model, whose "objective function" is to eliminate the costs of complexity and provide a more differentiated service between customer/product segments. They can accomplish this goal by designing processes that reflect the simple needs of the vast majority of customers, while focusing discretionary expenditures on those areas where they add consumer value and contribute to the bottom line.

Looking Ahead

So far, no airline has undertaken a restructuring of this magnitude. It is a bold journey that will require the complete commitment of the airline's current and future leaders. To effect changes on this scale, executives need to abandon many of the tenets that have guided the industry for the past 20 years. While there are many lessons that other industries have learned as they embarked on this journey, a few stand out:

• *This is a clean-sheet redesign requiring a fundamentally new mind-set. Incremental moves will not get traditional carriers where they need to be.*

• *The results are multiplicative. Pursuing a single dimension (like rolling hubs) without simultaneously addressing other aspects of the business model will yield insufficient results. All the airlines that have rejected de-peaking have discovered this. On their own, schedule changes will have limited impact. The benefits come when processes are redesigned to capitalise on the higher pace.*

• *Changes will be system-wide and cascading from reservations to frontline staff functions to systems and from reservations to frontline staff functions to systems and infrastructure. While the resulting product may be no less complex, the organisation delivering it will be much more streamlined.*

• *Existing organisations will resist the change. Airlines will need to expend as much, if not more, effort driving the change process as they put into designing the solution.*

• *The risk of inaction is much greater than the risk of acting and getting it wrong. The first airline to recognise the need for fundamental business model change will be able to shape the new competitive landscape. The prize that awaits first-comers is significant, not just in terms of lower costs, but also in growth opportunities.*

	Group revenue US$m	Group costs US$m	Group op. profit US$m	Group net profit US$m	Operating margin	Net margin	Total ASK m	Total RPK m	Load factor	Total pax. 000s	Group employees
Alaska											
Year 2000	**2,177**	**2,198**	**-20.6**	**-70**	**-0.9%**	**-3.2%**	**27,834**	**19,277**	**69.3%**	**13,512**	**9,940**
Jul-Sep 01	583.4	570.6	12.8	25.3	2.2%	4.3%	7,536	5,351	71.0%	3,741	10,826
Oct-Dec 01	462.2	558.6	-96.4	-36.4	-20.9%	-7.9%	6,622	4389	66.4%	3,025	10,500
Year 2001	**2,141**	**2,263**	**-121.8**	**-39.5**	**-5.7%**	**-1.8%**	**28,837**	**19,712**	**68.4%**	**13,668**	**10,742**
Jan-Mar 02	497	548	-51.4	-34.4	-10.3%	-6.9%	7,189	4,791	66.6%	3,193	
Apr-Jun 02	477	480	-2.2	-2.5	-0.5%	-0.5%	7,932	5,427	68.4%	3,616	10,222
Jul-Sep 02	620	597	24	11	3.9%	1.8%	8,380	5,911	70.5%	3,978	10,465
American											
Year 2000	**19,703**	**18,322**	**1,381**	**813**	**7.0%**	**4.1%**	**258,951**	**187,507**	**72.4%**	**86,239**	**99,610**
Oct-Dec 01	3,804	4,952	-1,148	-798	-30.2%	-21.0%	54,907	35,580	64.8%		109,300
Year 2001	**18,963**	**20,823**	**-1,860**	**-1,762**	**-9.8%**	**-9.3%**	**161,030**	**176,143**	**69.4%**	**61,287**	**102,093**
Jan-Mar 02	4,136	4,865	-729	-575	-17.6%	-13.9%	64,515	44,766			
Apr-Jun 02	4,479	5,080	-601	-495	-13.4%	-11.1%	70,724	53,125	71.4%		100,100
Jul-Sep 02	4,494	5,815	-1,321	-924	-29.4%	-20.6%	73,899	53,236	72.0%		99,700
Oct-Dec 02	4,190	4,869	-679	-529	-16.2%	-12.6%	67,964	47,428	69.8%		
America West											
Year 2000	**2,344**	**2,357**	**-12,637**	**7,679**	**-539.1%**	**327.6%**	**43,580**	**30,741**	**70.5%**	**19,950**	**13,869**
Oct-Dec 01	400	538	-138	-61	-34.5%	-15.3%	9,477	6,492	68.5%	4,144	
Year 2001	**2,066**	**2,380**	**-316**	**-148**	**-15.3%**	**-7.2%**	**42,709**	**30,696**	**71.9%**	**19,576**	**13,827**
Jan-Mar 02	460	583	-123	-358	-26.7%	-77.8%	9,780	6,859	70.1%	4,303	
Apr-Jun 02	533	534	-1	-15	-0.2%	-2.8%	11,024	8,351	75.8%	5,080	
Jul-Sep 02	510	552	-42	-32	-8.2%	-6.3%	11,504	8,619	74.9%		
Oct-Dec 02	522	560	-38	-32	-7.3%	-6.1%	11,154	8,160	73.2%	4,906	
Continental											
Year 2000	**9,899**	**9,170**	**729**	**342**	**7.4%**	**3.5%**	**134,718**	**100,283**	**74.4%**	**45,139**	**45,072**
Year 2001	**8,969**	**9,119**	**-150**	**-95**	**-1.7%**	**-1.1%**	**135,962**	**98,393**	**72.4%**	**44,238**	**45,166**
Jan-Mar 02	1,993	2,180	-187	-166	-9.4%	-8.3%	30,498	22,582	74.0%	10,057	
Apr-Jun 02	2,192	2,307	-115	-139	-5.2%	-6.3%	33,108	24,922	74.6%		
Jul-Sep 02	2,178	2,132	46	-37	2.1%	-1.7%	33,839	25,625	75.0%	10,581	
Oct-Dec 02	2,036	2,094	-56	-109	-2.8%	-5.4%	31,496	22,382	70.6%	9,651	
Delta											
Year 2000	**16,741**	**15,104**	**1,637**	**828**	**9.8%**	**4.9%**	**236,665**	**173,453**	**73.1%**	**105,591**	**79,584**
Year 2001	**13,879**	**15,124**	**-1,245**	**-1,216**	**-9.0%**	**-8.8%**	**237,914**	**163,693**	**68.8%**	**104,943**	77,654
Jan-Mar 02	3,103	3,538	-435	-397	-14.0%	-12.8%	54,298	37,384	68.9%	24,618	
Apr-Jun 02	3,474	3,601	-127	-186	-3.7%	-5.4%	60,709	42,355	73.4%	27,427	75,700
Jul-Sep 02	3,420	3,805	-385	-326	-11.3%	-9.5%	59,287	44,037	74.3%	27,713	76,000
Oct-Dec 02	3,308	3,670	-362	-363	-10.9%	-11.0%	56,776	40,419	71.2%	27,290	75,100
Northwest											
Year 2000	**11,240**	**10,671**	**569**	**256**	**5.1%**	**2.3%**	**171,789**	**127,298**	**76.6%**	**56,836**	**53,131**
Oct-Dec 01	1,985	2,426	-441	-216	-22.2%	-10.9%	33,985	23,620	69.5%		
Year 2001	**9,905**	**10,773**	**-868**	**-423**	**-8.8%**	**-4.3%**	**158,284**	**117,682**	**74.3%**	**54,056**	**50,309**
Jan-Mar 02	2,180	2,376	-196	-171	-9.0%	-7.8%	35,022	26,611	76.0%	11,899	
Apr-Jun 02	2,406	2,452	-46	-93	-1.9%	-3.9%	39,848	29,902	78.9%		46,260
Jul-Sep 02	2,564	2,556	8	-46	0.3%	-1.8%	40,321	31,787	78.8%	14,365	45,466
Oct-Dec 02	2,339	2,951	-612	-488	-26.2%	-20.9%	37,115	27,611	74.4%	12,779	44,323
Southwest											
Year 2000	**5,650**	**4,628**	**1,021**	**603**	**18.1%**	**10.7%**	**96,463**	**67,961**	**70.5%**	**72,568**	**28,752**
Oct-Dec 01	1,238	1,201	37	64	3.0%	5.2%	26,888	17,343	64.5%	14,996	31,580
Year 2001	**5,555**	**4,924**	**631**	**511**	**11.4%**	**9.2%**	**105,079**	**71,604**	**68.1%**	**64,447**	**31,014**
Jan-Mar 02	1,257	1,207	49	21	3.9%	1.7%	26,586	16,726	62.9%	14,463	
Apr-Jun 02	1,473	1,284	189	102	12.8%	6.9%	29,074	20,314	69.9%	16,772	33,149
Jul-Sep 02	1,391	1,300	91	75	6.5%	5.4%	28,342	19,180	67.7%	16,256	
Oct-Dec 02	1,401	1,313	88	42	6.3%	3.0%	28,296	17,835	63.0%	15,554	33,705
United											
Year 2000	**19,351**	**18,685**	**666**	**96**	**3.4%**	**0.5%**	**282,276**	**204,188**	**72.3%**	**83,853**	**100,976**
Oct-Dec 01	2,949	3,835	-886	-308	-30.0%	-10.4%	56,421	38,140	67.6%	15,450	79,300
Year 2001	**16,138**	**18,481**	**-2,343**	**-2,145**	**-14.5%**	**-13.3%**	**265,291**	**187,701**	**70.8%**	**75,457**	**96,142**
Jan-Mar 02	3,288	3,999	-711	-510	-21.6%	-15.5%	55,056	39,761	72.2%	15,361	
Apr-Jun 02	3,793	4,278	-485	-341	-12.8%	-9.0%	60,315	44,896	74.4%	17,501	79,800
Jul-Sep 02	3,737	4,383	-646	-889	-17.3%	-23.8%	64,147	48,335	75.4%	18,900	79,900
Oct-Dec 02	3,468	4,462	-994	-1473	-28.7%	-42.5%	59,988	43,158	71.9%	16,823	77,000
US Airways											
Year 2000	**9,268**	**9,322**	**-54**	**-269**	**-0.6%**	**-2.9%**	**106,999**	**75,358**	**70.4%**	**59,772**	**45,228**
Oct-Dec 01	1,554	2,101	-547	-906	-35.2%	-58.3%	22,640	14,308	63.2%	11,151	35,232
Year 2001	**8,288**	**9,355**	**-1,067**	**-1,969**	**-12.9%**	**-23.8%**	**107,347**	**73,944**	**68.9%**	**56,114**	**43,846**
Jan-Mar 02	1,709	2,079	-370	-269	-21.7%	-15.7%	22,495	15,419	68.5%	11,825	
Apr-Jun 02	1,903	2,078	-175	-248	-9.2%	-13.0%	23,516	17,658	75.1%	13,000	
Jul-Sep 02	1,752	1,933	-181	-335	-10.3%	-19.1%	24,075	17,276	71.8%	11,994	33,302
Oct-Dec 02	1,614	2,217	-603	-794	-37.4%	-49.2%	20,631	14,096	68.3%	10,354	30,585

Note: Annual figures may not add up to sum of interim results due to adjustments and consolidation. 1 ASM = 1.6093 ASK.

		Group revenue US$m	Group costs US$m	Group op. profit US$m	Group net profit US$m	Operating margin	Net margin	Total ASK m	Total RPK m	Load factor	Total pax. 000s	Group employees
Air France												
	Year 2000/01	**11,148**	**10,746**	**402**	**382**	**3.6%**	**3.4%**	**119,562**	**93,355**	**78.1%**	**42,400**	**52,310**
	Jul-Sep 01	2,959	2,895	64		2.2%		31,738	25,481	79.2%		
	Oct-Dec 01	2,682	2,785	-103	-121	-3.8%	-4.5%	30,070	20,907	70.6%		
	Jan-Mar 02	2,667	2,647	20	1	0.7%	0.0%	29,703	22,925	77.2%		
	Year 2001/02	**11,234**	**11,017**	**217**	**141**	**1.9%**	**1.3%**	**123,777**	**94,828**	**76.6%**		
	Apr-Jun 02	3,276	3,124	163	157	5.0%	4.8%	31,687	24,435	77.1%		
	Jul-Sep 02	3,264	3,122	142	57	4.4%	1.7%	33,806	26,366	78.0%		
Alitalia												
	Year 2000	**4,968**	**5,210**	**-242**	**-236**	**-4.9%**	**-4.8%**	**57,483**	**41,433**	**72.1%**	**26,700**	**23,478**
	Jan-Jun 01	2,348	2,504	-156	-228	-6.6%	-9.7%	26,437	18,953	71.7%	12,565	24,023
	Jul-Dec 01	2,397	2,503	-106	-590	-4.4%	-24.6%	24,944	17,423	69.8%	12,204	
	Year 2001	**4,745**	**5,007**	**-262**	**-818**	**-5.5%**	**-17.2%**	**51,392**	**36,391**	**70.8%**	**24,737**	**23,667**
	Jan-Jun 02	2,462	2,574	-63	-49	-2.6%	-2.0%			69.7%		21,366
BA												
	Year 2000/01	**13,700**	**13,139**	**561**	**189**	**4.1%**	**1.4%**	**162,824**	**116,674**	**71.7%**	**44,462**	**62,844**
	Jul-Sep 01	3,219	3,116	103	33	3.2%	1.0%	39,629	29,297	73.9%	11,306	59,902
	Oct-Dec 01	2,616	2,882	-266	-205	-10.2%	-7.8%	35,449	23,106	65.2%	8,574	55,758
	Jan-Mar 02	2,842	2,908	-66	-63	-2.3%	-2.2%	34,998	25,221	72.1%	8,831	
	Year 2001/02	**12,138**	**12,298**	**-160**	**-207**	**-1.3%**	**-1.7%**	**151,046**	**106,270**	**70.4%**	**40,004**	
	Apr-Jun 02	3,127	2,886	241	61	7.7%	2.0%	35,020	24,679	70.5%	9,665	52,926
	Jul-Sep 02	3,323	2,931	392	240	11.8%	7.2%	35,608	27,301	76.7%	10,607	52,116
Iberia												
	Apr-Jun 01	1,280	1,207	106	71	8.3%	5.5%	15,003	10,812	72.1%	7,179	
	Jul-Sep 01	1,278	1,225	50	134	3.9%	10.5%	15,941	11,951	75.0%	7,780	
	Oct-Dec 01	1,086	1,118	-143	-88	-13.2%	-8.1%	14,275	9,698	67.9%	6,265	
	Year 2001	**4,240**	**4,236**	**4**	**45**	**0.1%**	**1.1%**	**59,014**	**41,297**	**70.8%**	**24,930**	
	Jan-Mar 02	1,070	1,076	-9	-5	-0.8%	-0.5%	13,502	9,429	69.8%	5,916	
	Apr-Jun 02	1,245	1,134	98	76	7.9%	6.1%	14,004	10,105	72.2%	6,726	
	Jul-Sep 02	1,229	1,103	132	104	10.7%	8.5%	14,535	11,419	78.6%	6,624	
KLM												
	Year 2000/01	**6,319**	**6,068**	**251**	**70**	**4.0%**	**1.1%**	**75,222**	**60,047**	**79.8%**	**16,100**	**30,253**
	Jul-Sep 01	1,679	1,596	83	24	4.9%	1.4%	19,554	16,049	82.1%		28,911
	Oct-Dec 01	1,291	1,358	-67	-82	-5.2%	-6.4%	17,030	12,483	73.3%		27,738
	Jan-Mar 02	1,302	1,414	-112	-97	-8.6%	-7.5%	16,473	13,215	79.9%		
	Year 20001/02	**5,933**	**6,018**	**-85**	**-141**	**-1.4%**	**-2.4%**	**72,228**	**56,947**	**78.7%**		**33,265**
	Apr-Jun 02	1,639	1,599	40	11	2.4%	0.7%	18,041	14,326	79.4%		34,366
	Jul-Sep 02	1,844	1,523	140	86	7.6%	4.7%	19,448	16,331	82.7%		34,931
Lufthansa												
	Year 2000	**14,014**	**12,648**	**1,366**	**635**	**9.7%**	**4.5%**	**123,801**	**92,160**	**74.4%**	**47,000**	**69,523**
	Jul-Sep 01	4,188	4,027	161	96	3.8%	2.3%	32,454	24,546	75.6%	12,692	83,447
	Oct-Dec 01	3,437	3,674					28,293	18,854	67.4%	9,873	
	Year 2001	**14,966**	**14,948**	**18**	**-530**	**0.1%**	**-3.5%**	**126,400**	**90,389**	**71.5%**	**45,710**	**87,975**
	Jan-Mar 02	3,556	3,513	43	-165	1.2%	-4.6%	26,451	19,409	71.0%	9,700	
	Apr-Jun 02	4,968	4,601	285	138	5.7%	2.8%	30,769	22,835		11,300	90,308
	Jul-Sep 02	4,431	4,254	454	369	10.2%	8.3%	32,409	25,189	71.1%	12,067	90,704
SAS												
	Year 2000	**5,185**	**4,853**	**332**	**233**	**6.4%**	**4.5%**	**33,782**	**22,647**	**67.0%**	**23,240**	**22,698**
	Jul-Sep 01	1,199	1,220	-21	-20	-1.8%	-1.7%	9,629	6,498	67.5%	6,463	30,896
	Oct-Dec 01	1,208	1,316	-108	-108	-8.9%	-8.9%	8,509	5,097	59.9%	5,300	
	Year 2001	**4,984**	**5,093**	**-109**	**-103**	**-2.2%**	**-2.1%**	**35,521**	**22,956**	**64.6%**	**23,060**	**22,656**
	Jan-Mar 02	1,392	1,534	-142	-133	-10.2%	-9.6%	8,228	5,229	63.1%	5,091	
	Apr-Jun 02	1,965	1,608	242	106	12.3%	5.4%	8,773	6,240	71.1%	6,034	
	Jul-Sep 02	1,821	1,587	233	56	12.8%	3.1%	8,701	6,281	70.2%	5,586	21,896
Ryanair												
	Year 2000/01	**442**	**338**	**104**	**95**	**23.5%**	**21.5%**	**6,657**	**4,656**	**69.9%**	**7,000**	**1,476**
	Jul-Sep 01	168	105	63	58	37.5%	34.5%	2,355		84.0%	2,900	
	Oct-Dec 01	122	97	25	26	20.5%	21.3%	2,304		79.0%	2,700	
	Jan-Mar 02	220	165	55	50	25.0%	22.7%	2,352				
	Year 2001/02	**642**	**474**	**168**	**155**	**26.2%**	**24.1%**	**7,011**		**81.0%**	**11,900**	**1,547**
	Apr-Jun 02	189	153	47	40	24.9%	21.2%	2,852		83.0%	3,540	
	Jul-Sep 02	272	149	123	113	45.2%	41.5%	3,138			4,300	1,676
easyJet												
	Oct 00-Mar 01	210	225	-15	-15	-7.1%	-7.1%	3,908		80.6%	3,200	
	Apr-Sep 01	314	273	41	41	13.1%	13.1%				3,915	
	Year 2000/01	**513**	**455**	**58**	**54**	**11.3%**	**10.5%**	**7,003**	**5,903**	**83.0%**	**7,115**	**1,632**
	Oct-Mar 02	285	279	6	1	2.1%	0.4%	4,266		84.2%	4,300	
	Apr-Sep 02	579	474	105	76	18.1%	13.1%	6,503			7,050	
	Year 2001/02	**864**	**656**	**111**	**77**	**12.8%**	**8.9%**	**10,769**	**9,218**	**84.8%**	**11,350**	**3,100**

Note: Annual figures may not add up to sum of interim results due to adjustments and consolidation. 1 ASM = 1.6093 ASK

	Group revenue US$m	Group costs US$m	Group op. profit US$m	Group net profit US$m	Operating margin	Net margin	Total ASK m	Total RPK m	Load factor	Total pax. 000s	Group employees
ANA											
Apr-Sep 00	5,228	4,793	495	359	9.5%	6.9%	47,586	31,753	66.7%	24,958	
Oct 00-Mar 01	5,376	5,186	190	-486	3.5%	-9.0%	46,278	29,168	63.0%	24,471	
Year 2000/01	**10,914**	**10,629**	**285**	**-137**	**2.6%**	**-1.3%**	**85,994**	**58,710**	**68.3%**	**43,700**	**14,303**
Apr-Sep 01	5,168	4,811	357	136	6.9%	2.6%	45,756	30,790	67.3%	25,876	
Oct 01-Mar 02											
Year 2001/02	**9,714**	**9,529**	**185**	**-76**	**1.9%**	**-0.8%**	**87,908**	**57,904**	**64.7%**	**49,306**	
Cathay Pacific											
Year 2000	**4,431**	**3,752**	**679**	**642**	**15.3%**	**14.5%**	**61,909**	**47,153**	**76.2%**	**11,860**	**14,293**
Jan-Jun 01	2,031	1,898	133	170	6.5%	8.4%	32,419	23,309	71.9%	5,936	
Jul-Dec 01	**1,871**	**1,897**	**-26**	**-86**	-1.4%	-4.6%	30,371	21,497	70.8%	5,378	
Year 2001	**3,902**	**3,795**	**107**	**84**	**2.7%**	**2.2%**	**62,790**	**44,792**	**71.3%**	**11,270**	**15,391**
Jan-Jun 02	1,989	1,753	235	181	11.8%	9.1%	29,537		78.1%		14,300
JAL											
Year 1999/00	**14,442**	**14,039**	**403**	**177**	**2.8%**	**1.2%**	**119,971**	**88,479**	**70.2%**	**37,200**	**18,974**
Year 2000/01	**13,740**	**13,106**	**634**	**331**	**4.6%**	**2.4%**	**129,435**	**95,264**	**73.6%**	**38,700**	**17,514**
Year 2001/02	**9,607**	**9,741**	**-135**	**-286**	**-1.4%**	**-3.0%**				**37,183**	
Korean Air											
Year 2000	**4,916**	**4,896**	**20**	**-409**	**0.4%**	**-8.3%**	**55,824**	**40,606**	**72.7%**	**22,070**	**16,000**
Year 2001	**4,309**	**4,468**	**-159**	**-448**	**-3.7%**	**-10.4%**					
Jan - Mar 02	1,113	1,060	54	23	4.9%	2.1%	13,409	9,799	73.1%	5,399	
Malaysian											
Year 1999/00	**2,148**	**2,120**	**28**	**-68**	**1.3%**	**-3.2%**	**48,158**	**34,930**	**71.3%**	**15,370**	**21,687**
Year 2000/01	**2,357**	**2,178**	**179**	**-351**	**7.6%**	**-14.9%**	**52,329**	**39,142**	**74.8%**	**16,590**	**21,518**
Qantas											
Year 1999/00	**5,710**	**5,162**	**548**	**324**	**9.6%**	**5.7%**	**85,033**	**64,149**	**75.4%**	**20,490**	**29,217**
Jul-Dec 00	2,745	2,492	224	142	8.2%	5.2%	46,060	35,451	77.0%	11,175	31,382
Year 2000/01	**5,473**	**5,099**	**374**	**223**	**6.8%**	**4.1%**	**92,943**	**70,540**	**75.9%**	**22,150**	**31,632**
Jul-Dec 01	3,050	2,904	125	84	4.1%	2.8%	48,484	37,262	76.9%	13,335	32,361
Year 2001/02	**6,133**	**5,785**	**348**	**232**	**5.7%**	**3.8%**	**95,944**	**75,134**	**78.3%**	**27,128**	**33,044**
Singapore											
Year 2000/01	**5,729**	**4,954**	**775**	**892**	**13.5%**	**15.6%**	**92,648**	**71,118**	**76.8%**	**15,000**	**14,254**
Apr-Sep 01	2,592	2,329	263	90	10.1%	3.5%	48,058	36,091	75.1%		
Oct 01-Mar 02	2,807	2,508	299		10.7%		46,501	33,904			
Year 2001/02	**5,399**	**4,837**	**562**	**395**	**10.4%**	**7.3%**	**94,559**	**69,995**	**74.0%**	**14,765**	
Apr 02-Sep 02	2,278	2,134	144	289	6.3%	12.7%	49,196	37,799	76.8%	7,775	14,252

Note: Annual figures may not add up to sum of interim results due to adjustments and consolidation. 1 ASM = 1.6093 ASK.

JET AND TURBOPROP ORDERS

	Date	Buyer	Order	Price	Delivery	Other information/engines
Boeing	Jan 15	Virgin Blue	10 737-800s		08/03	plus 40 options
	Jan 31	Ryanair	22 737-800s		2004/05	plus 78 options

MoUs and LoIs

	Date	Buyer	Order	Price	Delivery	Other information/engines
Airbus	Jan 10	Malaysia Airlines	6 A380-800s		2007	MoU
	Jan 31	Iberia	9 A340-800s			MoU

Note: Prices in US$. Only firm orders from identifiable airlines/lessors are included. *Source: Manufacturers*

AIRCRAFT AVAILABLE FOR SALE OR LEASE

	Old narrowbodies	Old widebodies	Total old	New narrowbodies	New widebodies	Total new	Total
1998	187	125	312	67	55	122	434
1999	243	134	377	101	53	154	531
2000	302	172	474	160	42	202	676
2001	368	188	556	291	101	392	948
2002 - Oct	381	145	526	278	110	388	914

Source: *BACK* **Notes:** *As at end year; Old narrowbodies = 707, DC8, DC9, 727,737-100/200, F28, BAC 1-11, Caravelle; Old widebodies = L1011, DC10, 747-100/200, A300B4; New narrow-bodies = 737-300+, 757. A320 types, BAe 146, F100, RJ; New widebodies = 747-300+, 767, 777. A600, A310, A330, A340.*

EUROPEAN SCHEDULED TRAFFIC

	Intra-Europe			North Atlantic			Europe-Far East			Total long-haul			Total Int'l		
	ASK bn	RPK bn	LF %	ASK bn	RPK bn	LF %	ASK bn	RPK bn	LF %	ASK bn	RPK bn	LF %	ASK bn	RPK bn	LF %
1994	144.7	87.7	60.6	150.3	108.8	72.4	102.8	76.1	74	334.0	243.6	72.9	503.7	346.7	68.8
1995	154.8	94.9	61.3	154.1	117.6	76.3	111.1	81.1	73	362.6	269.5	74.3	532.8	373.7	70.1
1996	165.1	100.8	61.1	163.9	126.4	77.1	121.1	88.8	73.3	391.9	292.8	74.7	583.5	410.9	70.4
1997	174.8	110.9	63.4	176.5	138.2	78.3	130.4	96.9	74.3	419.0	320.5	76.5	621.9	450.2	72.4
1998	188.3	120.3	63.9	194.2	149.7	77.1	135.4	100.6	74.3	453.6	344.2	75.9	673.2	484.8	72
1999	200.0	124.9	62.5	218.9	166.5	76.1	134.5	103.1	76.7	492.3	371.0	75.4	727.2	519.5	71.4
2000	208.2	132.8	63.8	229.9	179.4	78.1	137.8	108.0	78.3	508.9	396.5	77.9	755.0	555.2	73.5
2001	212.9	133.4	62.7	217.6	161.3	74.1	131.7	100.9	76.6	492.2	372.6	75.7	743.3	530.5	71.4
Oct-02	17.6	11.8	66.9	16.2	13.0	80.4	11.2	9.2	82.7	38.6	31.0	80.3	59.1	44.8	75.8
Ann. chng	-5.7%	8.8%	8.9	0.5%	29.4%	18.0	0.3%	20.5%	13.9	-1.6%	17.1%	12.9	-2.7%	15.4%	11.9
Jan-Oct 02	165.5	111.2	67.2	151.8	122.5	80.7	107.3	87.6	81.6	373.3	298.6	79.9	567.3	429.3	75.7
Ann. chng	-11.6%	-6.3%	3.8	-17.7%	-11.4%	5.8	-6.6%	-2.0%	3.8	-11.1%	-7.1%	3.4	-11.4%	-7.0%	3.6

Source: AEA

US MAJORS' SCHEDULED TRAFFIC

	Domestic			North Atlantic			Pacific			Latin America			Total Int'l		
	ASK bn	RPK bn	LF %	ASK bn	RPK bn	LF %	ASK bn	RPK bn	LF %	ASK bn	RPK bn	LF %	ASK bn	RPK bn	LF %
1994	886.9	575.6	64.9	136.1	99.5	73.0	107.3	78.2	72.9	56.8	35.2	62	300.3	212.9	70.9
1995	900.4	591.4	65.7	130.4	98.5	75.6	114.3	83.7	73.2	62.1	39.1	63	306.7	221.3	72.1
1996	925.7	634.4	68.5	132.6	101.9	76.8	118.0	89.2	75.6	66.1	42.3	64	316.7	233.3	73.7
1997	953.3	663.7	69.6	138.1	108.9	78.9	122.0	91.2	74.7	71.3	46.4	65.1	331.2	246.5	74.4
1998	960.8	678.8	70.7	150.5	117.8	78.3	112.7	82.5	73.2	83.5	52.4	62.8	346.7	252.7	72.9
1999	1,007.3	707.5	70.2	164.2	128.2	78.1	113.2	84.7	74.8	81.3	54.3	66.8	358.7	267.2	74.5
2000	1,033.5	740.1	71.6	178.9	141.4	79.0	127.7	97.7	76.5	83.0	57.6	69.4	380.9	289.9	76.1
2001	1,025.4	712.2	69.5	173.7	128.8	74.2	120.1	88.0	73.3	83.4	56.9	68.2	377.2	273.7	72.6
Dec - 02	81.9	60.0	73.3	12.4	9.4	76.4	8.9	7.0	78.9	7.5	5.3	70.8	28.7	21.8	75.7
Ann. chng	4.3%	13.6%	6.0	8.1%	14.4%	4.2	7.1%	10.5%	2.4	9.4%	12.0%	1.6	8.1%	12.5%	3.0
Jan-Dec 02	988.2	700.4	70.9	159.0	125.5	78.9	103.0	83.0	80.5	85.1	57.5	67.6	347.1	266.0	76.6
Ann. chng	-4.4%	-2.5%	1.4	-8.0%	-3.0%	4.0	-14.2%	-5.8%	7.2	2.9%	1.8%	-0.7	-7.6%	-2.9%	3.7

Note: US Majors = Aloha, Alaska, American, Am. West, American Transair, Continental, Cont. Micronesia, Delta, Hawaiian JetBlue, MidWest Express, Northwest,Southwest, United and US Airways **Source**: ATA

ICAO WORLD TRAFFIC AND ESG FORECAST

	Domestic			International			Total			Domestic growth rate		International growth rate		Total growth rate	
	ASK bn	RPK bn	LF %	ASK bn	RPK bn	LF %	ASK bn	RPK bn	LF %	ASK %	RPK %	ASK %	RPK %	ASK %	RPK %
1993	1,349	855	63.3	1,785	1,205	67.5	3,135	2,060	65.7	3.4	2.0	4.4	4.8	3.9	3.6
1994	1,410	922	65.3	1,909	1,320	69.1	3,318	2,240	67.5	4.6	7.9	6.9	9.4	5.9	8.8
1995	1,468	970	66.1	2,070	1,444	69.8	3,537	2,414	68.3	4.1	5.4	8.5	9.4	6.6	7.8
1996	1,540	1,043	67.7	2,211	1,559	70.5	3,751	2,602	79.4	4.9	7.4	6.8	8.0	6.0	7.8
1997	1,584	1,089	68.8	2,346	1,672	71.3	3,930	2,763	70.3	2.9	4.5	6.1	7.2	4.8	6.1
1998	1,638	1,147	70.0	2,428	1,709	70.4	4,067	2,856	70.3	3.4	5.2	3.5	2.2	3.4	3.4
1999	1,911	1,297	67.9	2,600	1,858	71.5	4,512	3,157	70.0	5.4	5.0	5.7	7.4	5.6	6.4
2000	2,005	1,392	69.4	2,745	1,969	71.8	4,750	3,390	70.8	4.9	7.2	5.6	6.0	5.3	6.5
***2001**							4,698	3,262	69.4					-1.1	-3.9
***2002**							4,607	3,294	71.1					-1.9	0.4
***2003**							4,903	3,584	73.1					6.4	9.4
***2004**							5,154	3,819	74.1					5.1	6.6

*Note: * = Forecast; ICAO traffic includes charters. Source: Airline Monitor, June 2002*

Aviation Economics

The Principals and Associates of *Aviation Economics* apply a problem-solving, creative and pragmatic approach to commercial aviation projects.

Our expertise is in strategic and financial consulting in Europe, the Americas, Asia, Africa and the Middle East, covering:

- Start-up business plans
- Antitrust investigations
- Credit analysis
- Privatisation projects
- Asset valuations
- Turnaround strategies
- Merger/takeover proposals
- Corporate strategy reviews
- IPO prospectuses
- E&M processes
- State aid applications
- Competitor analyses
- Market forecasts
- Cash flow forecasts
- Distribution policy

For further information please contact:

Tim Coombs or Keith McMullan

Aviation Economics

James House, LG, 22/24 Corsham Street, London N1 6DR

Tel: + 44 (0)20 7490 5215 Fax: +44 (0)20 7490 5218

e-mail:kgm@aviationeconomics.com

SUBSCRIPTION FORM

Please enter my Aviation Strategy subscription for:

☐ **1 year (11 issues-Jul/Aug combined) @ £390 / €625 / US$625, starting with the __________ issue**

(Discounts available for multiple subscriptions - please call for details)

Delivery address

Name __________

Position __________

Company __________

Address __________

Country __________ **Postcode** __________

Tel __________ **Fax** __________

e-mail __________

DATA PROTECTION ACT

The information you provide will be held on our database and may be used to keep you informed of our products and services or for selected third party mailings

☐ **I enclose a Sterling, Euro or US Dollar cheque, made payable to: Aviation Economics**

☐ **Please invoice me**

☐ **Please charge my AMEX/Mastercard/Visa credit card**

Card number __________

Name on card __________ Expiry date __________

☐ **I am sending a direct bank transfer of £390 net of all charges to Aviation Economics' account:** HSBC Bank Sort code: 40 04 37 Account no: 91256904

Invoice address (if different from delivery address)

Name __________

Position __________

Company __________

Address __________

Country __________ Postcode __________

PLEASE RETURN THIS FORM TO:

Aviation Economics
James House, LG
22/24 Corsham Street
London N1 6DR
Fax: +44 (0)20 7490 5218