

Airline Industry: demand and profitability under pressure

IATA PRESENTED its midyear economic update of the global airline industry at its AGM at the beginning of June (held this year in Seoul). Traffic in 2018 looks to have grown by 7.4% in RPK terms continuing a strong above-trend rate of 6% a year since the last peak in 2008. However, the industry association slashed its forecasts for profitability by 27% for 2019 — the fifth year of profits' decline since the 2010 peak. Should the industry expect a cyclical downturn?

In 2018 the industry generated an increase in revenues of 7.6% on the back of a 6.1% increase in capacity. Passenger load factors continued to rise, up by 0.4 percentage points to a record 81.9%. Unit revenues rose helped by a 12% jump in cargo yields — total revenues increased by nearly 8% to \$812bn — but airlines could not fully recover the increase in fuel costs. Oil prices increased — Brent Crude averaged \$71.6/bbl in the year up by 30% from \$54.9 in the prior year — and total costs were up by 9.6% year on year. Operating profits for 2018 reached \$47bn representing a margin of 5.8% but were 17% down from the level achieved in 2017 — and 15% below IATA's estimate made in December 2018. Net profits are estimated at \$30bn down from \$37.6bn in the previous year, reflecting a 3.8% margin.

Results by region (of airline establishment) vary considerably. North American airlines, reflecting the consolidation that has taken place in the USA, generated operating margins of over 9%, and produced \$15bn in net profit — more than half the industry total.

European airlines saw operating margins decline to 6.2% from 7.9% and net profits of \$8.1bn down from \$9.4bn, while for airlines in the

Asia/Pacific region operating margins fell by 180bp to 4.5% and net profits by \$1.7bn to \$6bn.

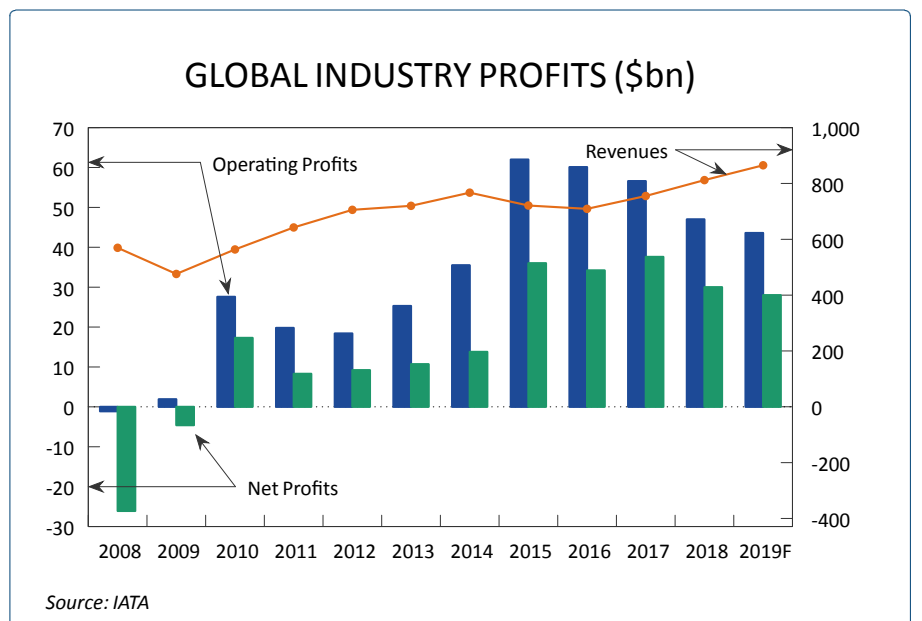
In the Middle East however, there was another year of operating losses as the combination of overcapacity, intense competition and US Dollar strength took its toll: operating margins are estimated at -2% and net losses of \$1bn. (Emirates itself, the world's largest international carrier, in May announced a 70% fall in net profits to a modest \$237m for its year ended March 2019 — a margin of 0.9%.)

Airlines in Latin America faced

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a mixed environment — improving conditions in Brazil but deterioration in Argentina and elsewhere. Operating margins fell by 3.5 percentage points to 2.7% and net losses approximated \$(0.5)bn.

Key elements for the 2019 outlook is what real impact the US trade



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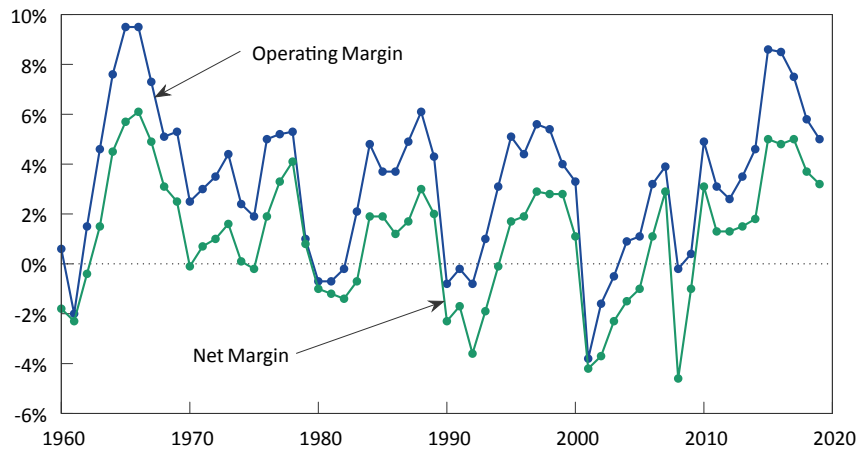
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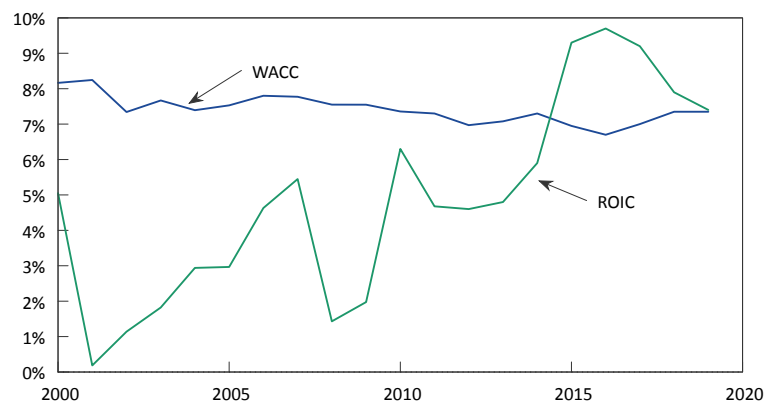
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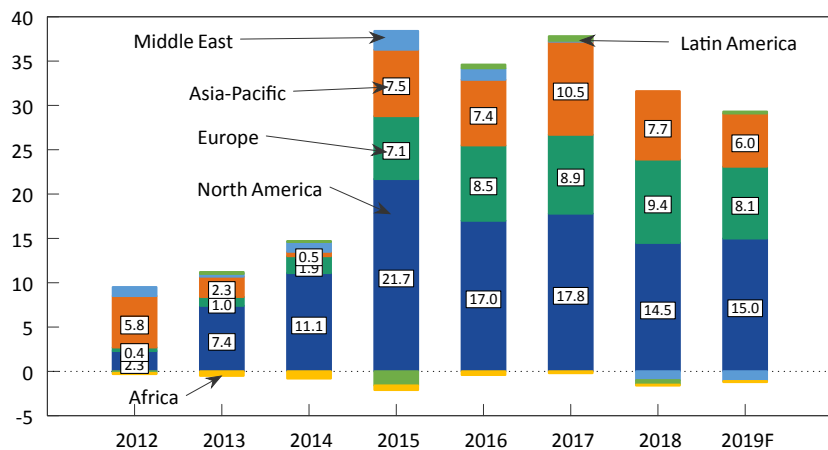
GLOBAL INDUSTRY MARGINS



ROIC AND COST OF CAPITAL

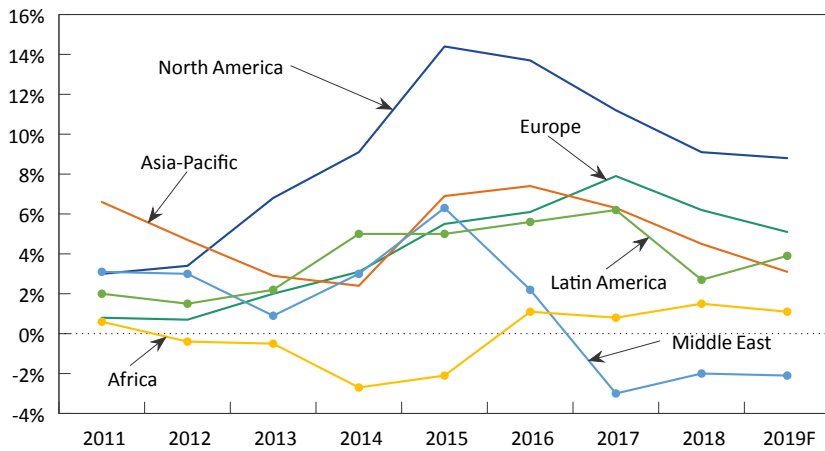


GLOBAL INDUSTRY NET PROFITS BY REGION (\$bn)

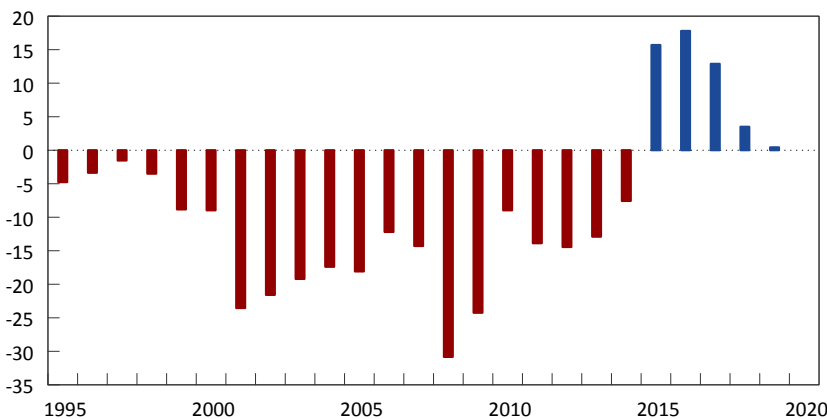


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OPERATING MARGINS BY REGION

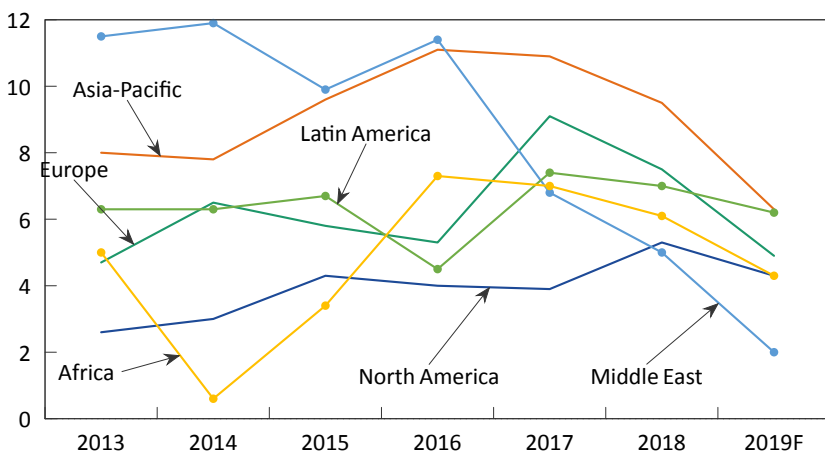


AIRLINE INDUSTRY VALUE CREATION (\$bn)



Note: reflects monetary difference between return on capital employed and weighted average cost of capital

TRAFFIC GROWTH BY REGION



wars will have, and whether unit revenues could rise to cover cost increases.

International trade growth has slumped since Donald Trump's imposition of tariffs on Chinese trade; and there has been a sudden slowdown in international freight traffic. In the face of softening world economic growth IATA is forecasting airline capacity growth of only 4.3% (down from 6.1%), passenger demand growth of 5% — with some sharp declines in growth rates in Asia and the Middle East (see chart below) — and a flat cargo performance. Recent announcements from the European airlines seem to show that there is a growing sign of demand weakness (while renewed tensions in the Gulf will not help), suggesting that unit revenues will once again not rise sufficiently to cover costs.

For the full year IATA is forecasting industry operating and net profits down by 7% at \$43.6bn and \$28bn respectively, with reductions in all areas except for North America (see chart on the preceding page). It notes that on its forecasts the industry could for the fifth consecutive year produce shareholder returns above the cost of capital "but only just". The trouble with looking at such a measure for an industry in aggregate is that it fails to recognise that some owners regard that there be greater importance to provide benefits to stakeholders other than shareholders. As a high growth commodity business perhaps zero net margins are the long term norm.

Al xandre de Juniac (IATA's DG and CEO) said "the good news is that airlines have broken the boom-and-bust cycle". This may suggest to the cynical that we *are* due a downturn: but it will be caused as usual by an external shock.

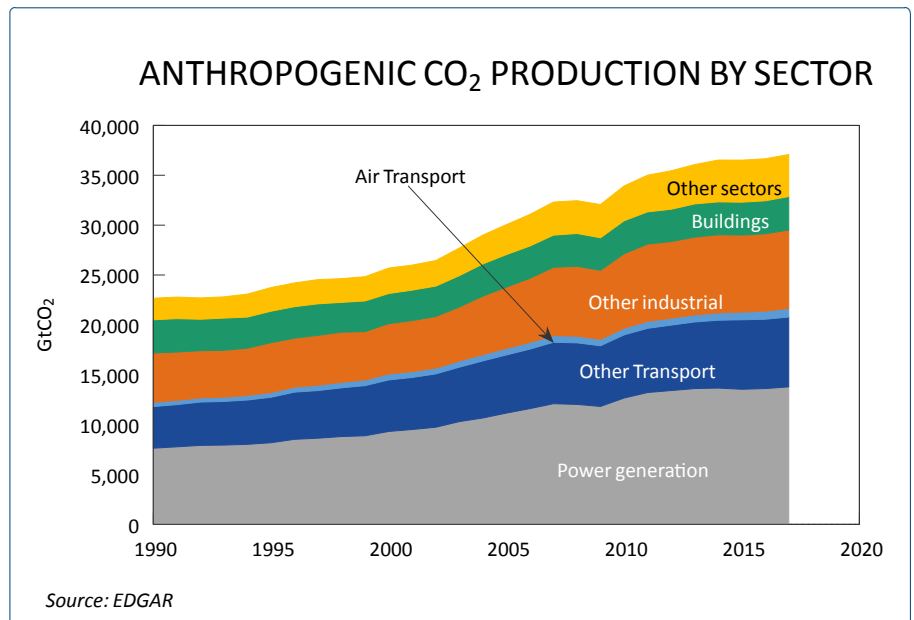
Environmental issues – Taking them really seriously

THE AVIATION industry for some time has been saying that it is taking global warming issues seriously; now it has to be *seen* to be really taking them seriously. The issues of climate change, the pollutive impact of transport and the damage to the environment imposed by the continued growth of air travel has been climbing up the social and political agenda, and activists have been getting increasingly aggressive.

Pressure group, Extinction Rebellion, formed in the UK in 2018, held London almost to ransom for two weeks in April this year, with students gluing themselves to railings and trains. The group apparently have backed down from plans to deploy drones in and around London's Heathrow airport for a week in June. The idea apparently was to disrupt air operations until the airport abandoned the idea of a third runway.

The Swedish based *flygskam* (fly shame) movement has possibly been instrumental in a reduction in domestic air traffic demand in their country (although the introduction of Swedish air transport tax in April 2018 may also have had an effect). Sixteen-year-old Greta Thunberg has made appeals to the Swedish, British and German parliaments demanding action against climate change, and has been nominated for a Nobel peace prize for her efforts.

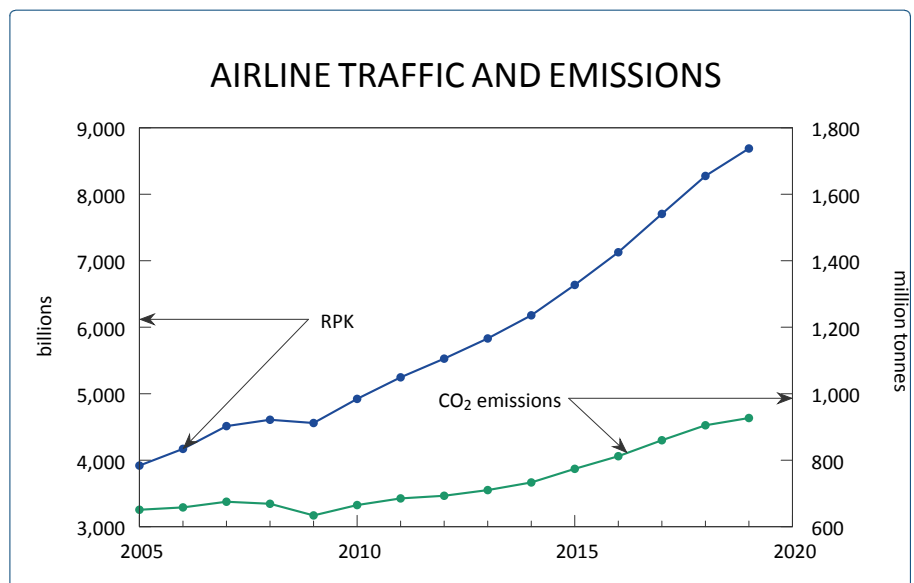
The Green Party in the UK (echoed elsewhere in Europe) has suggested that individuals should be allowed one flight a year, but that frequent fliers should be taxed on



an escalating scale according to the number of flights they take in order to counter the effects of aviation on climate change. (Strangely enough this is exactly the model for passenger departure taxes used by Iran, but only for Iranian nationals and not for the same reason).

In the US, the Sunrise Movement has focused on peaceful protests demanding decarbonisation, but has also initiated a court action against the federal government.

France has recently suggested banning domestic air travel connections altogether (prompting a



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response from Air France that global tyre manufacturer Michelin, based in Clermont Ferrand, would be “cut off from the world”) and has proposed a European-wide aviation tax “to reduce demand for air travel”. This follows a call by the Dutch Government for an EU-wide common stance on taxation of aviation to counter greenhouse gas emission growth and help reach the targets laid down in the 2018 Paris Agreement on Climate Change. In June it hosted a conference in Amsterdam exploring among other things the legality of imposing taxes on aviation fuel for cross border flights.

Meanwhile, Ryanair and Wizz have started a self-promoting counter-attack by publishing details of total CO₂ emissions along with their monthly traffic statistics each claiming to have the lowest level of emissions per passenger kilometre.

Air transport pollutes

Aviation currently accounts for around 2.3% of man-made CO₂ emissions. But it is a relatively high growth industry and one that relies on the burning of carbon-based fuels to generate the thrust sufficient to ensure that aircraft can stay up in the air. Burning carbon fuels produce carbon dioxide.

Apart from CO₂ aircraft also generate nitrous oxides (NO_x) and particulates at altitude which help to form vapour contrails with the side effect of generating ozone, and perhaps seeding cirrus cloud formation.

These contribute to global warming: but the science behind any understanding of the full impact is still not fully understood. It has been estimated that total greenhouse gas emissions from airlines account for up to 4% of total radiative forcing.

On the ground, airports attract

transport operators to bring the passengers to their flights. This generates further CO₂, NO_x and particle emissions concentrated around the ground infrastructure.

The chart on the facing page shows the growth in global man-made CO₂ emissions by sector since 1990. Total emissions have grown by 63% in the period — a compound annual growth rate of 1.7%.

Power Generation accounts for roughly 50% of the total. Transport originating emissions have grown by 70% in the period, or 2% pa. Air transport emissions have doubled, equivalent to an annual average increase of 2.5%. As the developed world wrests with the concepts of battling with climate change and limiting global warming it is hardly surprising that Aviation, reliant on carbon-based fuels gets a bad name.

Targeting sustainability

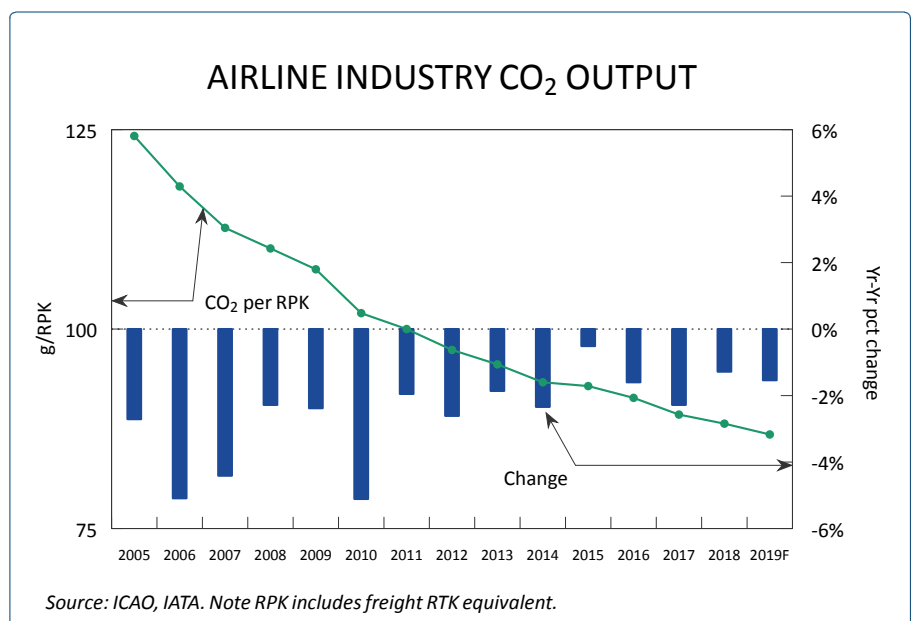
The industry has not been negligent to the problem. In 2009 IATA adopted a policy of ambitious targets to mitigate the impact of CO₂ emissions from air transport:

- a 1.5% annual increase in fuel efficiency between 2009 and 2020;
- carbon-neutral growth and a cap on net CO₂ emissions from 2020;
- a reduction in *net* aviation CO₂ emissions of 50% by 2050, relative to 2005 levels.

This policy was also based on four pillars: new technology, including the deployment of sustainable alternative fuels; more efficient aircraft operations; Infrastructure improvements, particularly including modernised air traffic management systems (the European Single Sky initiative was launched 20 years ago but is still a long way from implementation); a single Global Market-Based Measure (GMBM) to fill the remaining emissions gap.

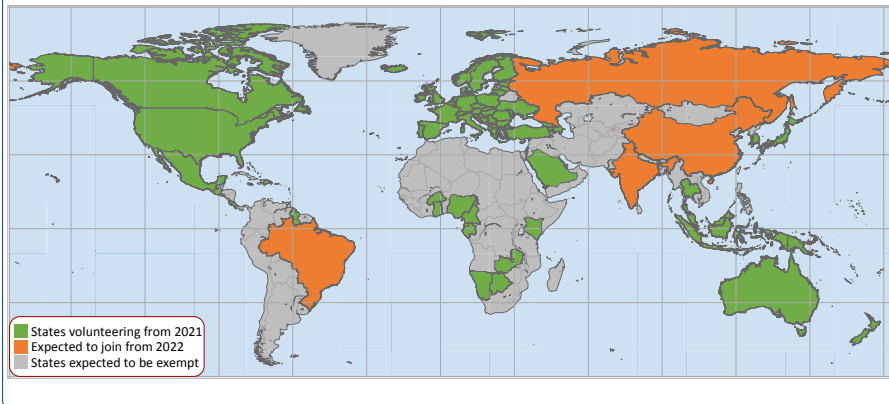
In the last ten years the performance on fuel efficiency has been a bit better than planned: there has been an annual average fall in fuel consumed per RTK of 2.2% since 2009 with a similar annual reduction in CO₂ emissions per RPK (see chart below).

But over the period passenger demand has grown by an average annual 6.8%, with RPKs nearly doubled



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CORSIA ADOPTION



to 8.6tn, while fuel consumption has grown by over 40%.

Pricing carbon

From 2012 the EU tried to extend an emissions trading scheme to all airlines entering European airspace. Under the EU ETS, all airlines operating in Europe, European and non-European alike, are required to monitor, report and verify their emissions, and to surrender allowances against those emissions. They receive tradeable allowances covering a certain level of emissions from their flights per year. Somehow the EU ignored or forgot that such a unilateral move is contrary to the Chicago Convention and had to limit the regulation to European based operations. Technically they saved face by delaying the implementation on all airlines pending ICAO's decision to develop a global scheme.

Carbon offset

In 2016 ICAO did just that. The General Assembly set up the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). This aims to stabilise CO₂ emissions at 2020 levels by requiring airlines to offset the growth of their emissions after 2020. From January 2019 all

airlines are required to monitor and report emissions on international routes. From implementation all airlines will be required to offset emissions from routes included in the scheme by purchasing eligible emission units generated by projects that reduce emissions in other sectors.

CORSIA will be implemented on a gradual basis encompassing three phases. In the pilot phase (2021-2023) and first phase (2024-2026) involvement is voluntary (see map above for those who have so far volunteered). In these phases airlines will be required to offset emissions

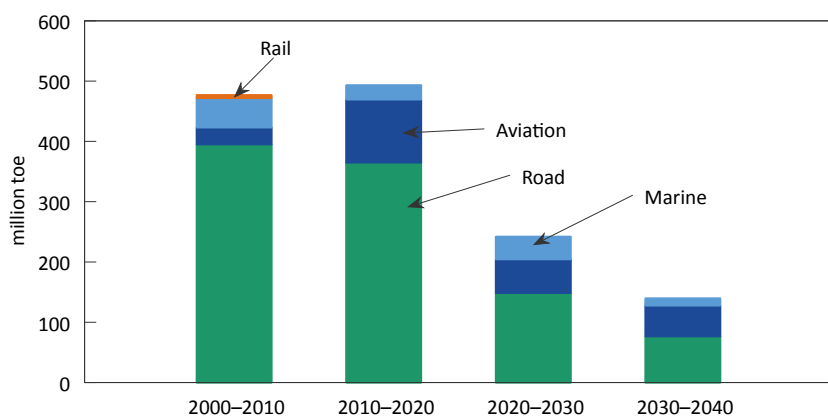
based on the *average* CO₂ growth of the aviation sector (penalising the larger, slower growing carriers to the benefit of the younger, faster growing new-entrants).

From 2027 inclusion within CORSIA will be mandatory (except for small islands, least developed countries, land-locked developing countries and states with less than 0.5% of international air traffic — unless they volunteer). It will cover all international routes involving at least one participating state in the scheme and be worked out on a route basis. From 2030 offset obligations shift to include over 20% of an individual operator's growth. From 2033 that ratio will rise to 70%.

Criticisms

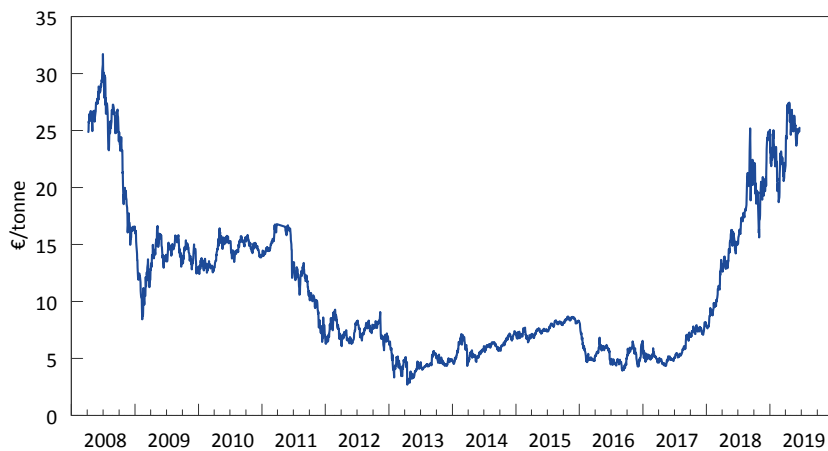
Both of these efforts have come under criticism from environmentalist groups. First of all, the industry's forecast of an average improvement in fuel efficiency of 1-2% a year is not enough to offset the anticipated annual 5% increase in demand. According to *Carbon Brief*, aviation CO₂ emissions "could grow by between 2.4 and 3.6 times by 2050, depending

FINAL ENERGY CONSUMPTION IN TRANSPORT GROWTH BY MODE



Source: BP Energy Outlook 2019

CO₂ EUROPEAN EMISSION ALLOWANCES



on efficiency improvements. New technologies, such as supersonic and urban mobility aircrafts, risk increasing emissions even further.” Further, it is pointed out that these measures do not take account of other emissions (NO_x and particulates) which further generate greenhouse gases and add to global warming.

Secondly there is a lot of doubt about how the offset scheme will work in practice, with concerns over the eligibility of individual schemes; who will be responsible for validating eligible emission units; the need to avoid “double counting” of individual schemes allocated to international aviation and then claimed by the country in which they are based as a national offset to the country’s own emissions; the difficulty of separating domestic aviation emissions (counted under the Paris agreement as part of a nation’s obligations) and those of international aviation (which will come under CORSIA).

More importantly, it only covers international routes. The large domestic markets of the USA, China, India, Brazil and Indonesia are excluded.

The ETS meanwhile also has been

criticised as being an ineffective instrument. It is argued that too many emissions allowances are freely allocated — aviation still receives 85% of its allowances in this manner — and the price of CO₂ allowances is not sufficiently high. Structural changes to the system in 2018 have helped push the price up to €25/tonne (see chart below) equivalent to a “tax” at current fuel prices of less than 2%.

Alternative fuels

One of the most important elements behind the industry’s goals is the pillar of technological change — apart from anything else involving the development of sustainable aviation fuels (SAF). The development of biofuels is still in its infancy, but the trials that have taken place (usually blended with jet kerosene) have been shown to reduce net CO₂ emissions by 50% and, importantly, lower levels of soot and other particulates at altitude. The IEA estimates that under its Sustainable Development Scenario (SDS) biofuels will reach 10% of total aviation fuel demand by 2030.

However, in 2018 there was SAF production of only 15 million litres — equivalent to 0.1% of total aviation

fuel demand — and only five airports in the world had regular biofuel distribution (Bergen, Brisbane, Los Angeles, Oslo and Stockholm). Moreover, biofuels are expensive with production costs in excess of \$100/bbl jet equivalent. Subsidies may be necessary to accelerate and derisk the build up of production of SAF.

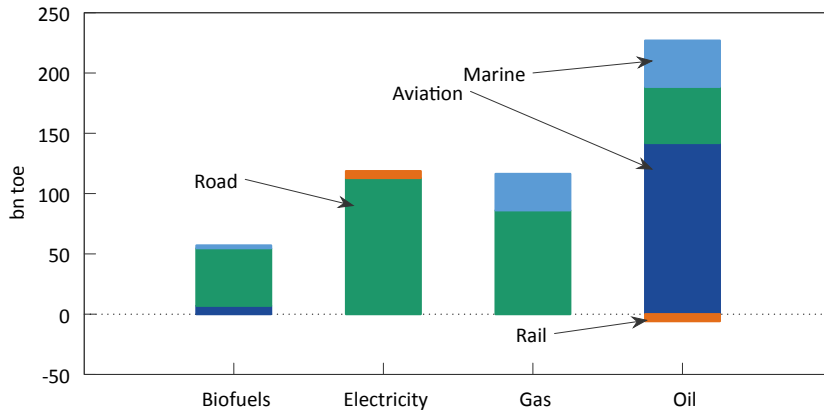
The IEA suggests that a policy to subsidise SAF production would cost \$6.5bn to achieve a target 5% of jet fuel requirements by 2025 under its SDS — which, it notes, “is far below the support for renewable power generation in 2017, which reached \$143 billion”.

Perhaps the Dutch proposal to start *really* taxing fossil aviation fuel could be a rational policy to avoid subsidies from the public purse and help force the development of these “cleaner” fuels; but unfortunately the decision will rely on political realities and it is more likely that governments will increase per passenger taxes to “reduce demand” and swell their own coffers. As Alexandre de Juniac, Director General and CEO of IATA, points out “taxation is a red herring — not a penny of the billions raised in air passenger duty has been ringfenced for environmental action”.

Meanwhile, innovation in the industry continues. Israeli start-up Eviation Aircraft gained headlines at this year’s Paris air show by announcing a “double digit” order from Massachusetts-based Cape Air for its 9-seater electric aircraft — intriguingly named Alice. With a price tag of \$4m it is designed to fly at around 260 knots (490kph) with a maximum range of 1,000km and an MTOW of 6.3 tonnes. Perfect for short commuter flights, but electric aircraft are not going to be able to replace large capacity fossil-fuel powered aircraft for a long time:

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TRANSPORT ENERGY CONSUMPTION
GROWTH BY FUEL 2017-2040



Source: BP Energy Outlook 2019

role in commercial aviation”.

The industry’s global warming response is fraught with difficulties: it is subject to international agreement; it is political; and its complexity is possibly beyond the comprehension of the man in the street.

At this year’s Geneva meeting of FEAMA (European aircraft manufacturing analysts), delegates were presented with a series of papers on the subject. All present were industry professionals, but many were confounded by the concepts presented by CORSIA. The resounding conclusion at the meeting (conducted under Chatham House rules, so we cannot say who said what) was that the industry really should do more to tell the world that it really is addressing its responsibility to be sustainable.

batteries are heavy things.

One advantage of liquid fuel based aircraft is that they lose weight as they burn the fuel, and thus can climb in altitude to achieve greater flight efficiency in cruise (although a big disadvantage is that they need to carry extra fuel just to carry sufficient fuel to fulfill the flight). A real design challenge will be to create an electrically

powered aircraft that is strong enough to carry heavy batteries on take-off but safe enough to land at the other end of the route at the same weight at which it took off.

And this design breakthrough may take a very long time: as BP stated in its recent sustainability report “by 2050, it’s unlikely that electric engines will play a significant



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Starting up airlines: The grey art of business planning

OVER THE years we have been involved in numerous airline start-up projects, constructing business plans or critiquing others as part of due diligence. Here are some thoughts on the essentials of the process.

Imagination knows no bounds when it comes to start-up airline proposals. Examples of some of the more challenging ideas: converting a Mriya (a six-engine giant Soviet freighter) into a flying casino with round-the-world schedule, taking in London, Hong Kong and Las Vegas; buying up a fleet of obsolete DC-9s, attaching floats, building mid-ocean refuelling stations, and offering an exciting transatlantic service.

Such concepts were kerosene-fuelled nonsense of course. But, on the other hand, applying conventional wisdom to new projects sometimes betrays a failure of imagination, a lack of appreciation of how markets will react to new business models.

Some airlines that are now global leaders were almost strangled at birth. Back in the 90s many experienced UK-based analysts and financiers failed to understand the LCC concept, assuming that easyJet and Ryanair would go the way of the previous generation of independent carriers — Dan-Air and Air Europe — and be forced out of business by the all-powerful flag-carriers. Experts were wheeled in to apply their industry experience, usually gained at BOAC or perhaps Imperial Airways, to the upstarts: Southwest might well work in Texas, certainly

not in northwest Europe.

Near identical attitudes were encountered when LCC start-up plans were first introduced in Asia and the Middle East. This is where much of our experience was gained in the 2000s — building from scratch business plans for Air Arabia, based at Sharjah in the UAE, and SpiceJet, where the original Indian investor group split into two and created IndiGo as well — two LCCs for the price of one.

There were many other projects which didn't work — some didn't deserve to work, others were frustrated by bureaucracy and vested interests — for example, Al Tayyar, a Saudia Arabian LCC start-up project, failed partly because the civil aviation authority opened up the (substantial) domestic market to new entrants but then imposed hideously complicated public service schedules on new entrants.

The LCC model has now gone global but there are still a lot of potential markets. For instance, Nigeria has great potential (woefully underserved local air demand, the Lagos-Abuja-Port Harcourt triangle, huge population, an emergent wealthy middle class, terrible surface transport, etc) for an indigenous LCC — and always will have, a cynic might add. We have worked on LCC start-up projects for the Nigerian and West African market, where it all looks so promising on paper but then local politics and conditions tend to frustrate.

Consultants do not start airlines; entrepreneurs do. No one is going to

invest in a start-up purely on the basis of a consultant's analysis, no matter how brilliant. Investors and financiers need to believe in the ability of the airline sponsor to develop the plan, to feel fully confident that he or she can deal with the inevitable setbacks, that as well as commercial ability he/she has political skills. Ultimately, backers have to be confident that they will achieve their required RoI.

Airline entrepreneurs come in a wide range of personality types, from thoughtful introverts to hyperactive obsessives, but one characteristic usually impresses investors — willingness to take personal risks themselves, putting their own money into the start-up.

Entrepreneurs and consultants

It is the role of the consultant to turn the entrepreneur's vision into a coherent form by subjecting it to the discipline of the spreadsheet. This is not always a smooth process. Quite often, the numbers just do not add up and often it's difficult for enthusiastic airline proponents to accept this fact, which is why there has to be a good working relationship between the sponsor and the consultant.

Original concepts can be torn up and replaced with something sounder. Tony Fernandes' original idea for Air Asia was as a full-service long-haul carrier before an ex-Ryanair adviser, Conor McCarthy, turned it into a short-haul LCC, luckily for Mr Fernandes.

Occasionally, investors understand the economics but make a political decision. As an example, our

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SUMMARY SAMPLE

Scenario	Medium Growth, Medium Competition, All Op Lease, Equity Capitalisation				
A320 USS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
No of Aircraft (annual equiv)	4.0	6.0	8.0	9.0	11.0
Passengers (one way)	1,201,250	2,041,463	2,780,450	3,394,735	4,064,349
RPK (000)	569,930	1,069,414	1,518,690	1,854,214	2,267,029
ASKs (000)	709,423	1,320,932	1,791,511	2,139,005	2,595,790
Seats	1,489,280	2,521,760	3,274,720	3,908,640	4,626,080
Block hrs	10,245	18,683	25,111	29,980	36,199
Sectors	9,308	15,761	20,467	24,429	28,913
Aircraft km (000)	4,434	8,256	11,197	13,369	16,224
Load factor	80.3%	81.0%	84.8%	86.7%	87.3%
Average sector distance (km)	476	524	547	547	561
Av block hr/sector	1.10	1.19	1.23	1.23	1.25
Weekly freq	89	151	196	234	277
Yield (USS/RPK)	0.126	0.124	0.133	0.142	0.142
Av fare (USS)	60	65	73	78	79
Op unit cost (USS/ASK)	0.113	0.107	0.108	0.108	0.108
Passenger Revenue	71,721,375	132,115,791	201,691,653	263,840,825	322,485,583
Other Passenger Revenue	3,603,750	6,124,388	8,341,350	10,184,206	12,193,047
Ex Baggage/Cargo	1,434,428	2,642,316	4,033,833	5,276,817	6,449,712
TOTAL REVENUE	76,759,553	140,882,494	214,066,836	279,301,848	341,128,342
Passenger Sales Cost	2,874,159	5,140,211	7,544,696	9,651,282	11,720,054
Passenger Insurance	1,139,860	2,138,828	3,037,380	3,708,429	4,534,057
Passenger Others	2,402,500	4,082,925	5,560,900	6,789,471	8,128,698
EAM	8,219,752	15,167,502	20,777,022	25,075,776	30,869,163
Ground Handling	11,285,950	19,492,417	25,808,887	31,397,372	37,861,574
Fuel	17,072,742	31,134,886	41,847,961	49,961,801	60,325,830
Airport, Overflight Charges	9,549,227	22,489,353	32,885,316	39,824,160	50,340,656
Cockpit Crew	3,294,000	5,201,280	7,068,701	8,105,664	10,098,131
Cabin Crew	1,080,000	1,705,320	2,316,355	2,654,778	3,305,663
Crew Expenses	930,800	1,576,100	2,046,700	2,442,900	2,891,300
Depreciation	176,667	308,000	427,000	533,667	684,667
Aircraft Insurance	1,790,000	2,685,000	3,580,000	4,027,500	4,922,500
Aircraft Debt Interest	0	0	0	0	0
Aircraft Rentals	9,600,000	14,688,000	19,975,680	22,922,093	28,576,209
Sales, Admin & Management	6,300,000	9,153,800	10,649,176	11,380,333	12,080,512
Advertising	2,200,000	3,000,000	4,000,000	5,000,000	5,000,000
Others	1,918,989	3,522,062	5,351,671	6,982,546	8,528,209
TOTAL COSTS	79,834,646	141,485,684	192,877,444	230,457,770	279,867,222
NET OPERATING RESULT	(3,075,094)	(603,190)	21,189,392	48,844,078	61,261,120
<i>Operating Margin</i>	<i>-4.0%</i>	<i>-0.4%</i>	<i>9.9%</i>	<i>17.5%</i>	<i>18.0%</i>
INTEREST CHARGES	(400,000)	(560,000)	-	-	-
PRE TAX RESULT	(3,475,094)	(1,163,190)	21,189,392	48,844,078	61,261,120
<i>Pretax Margin</i>	<i>-4.5%</i>	<i>-0.8%</i>	<i>9.9%</i>	<i>17.5%</i>	<i>18.0%</i>
CASHFLOW ANALYSIS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Op Result	(3,075,094)	(603,190)	21,189,392	48,844,078	61,261,120
Depreciation	176,667	308,000	427,000	533,667	684,667
Working capital	1,170,688	4,272,050	1,243,149	609,558	1,429,426
Capex	(2,650,000)	(1,970,000)	(1,785,000)	(1,600,000)	(2,265,000)
PDPs/Lease deposits	(3,200,000)	(1,632,000)	(1,248,480)	(636,725)	(1,298,919)
Pre ops expenditure	(4,432,667)	-	-	-	-
Interest	(400,000)	(560,000)	-	-	-
OPERATING TOTAL	(12,410,406)	(185,140)	19,826,061	47,750,577	59,811,294
EQUITY	10,000,000	-	-	-	-
DEBT	5,000,000	2,000,000	(7,000,000)	-	-
TOTAL	15,000,000	2,000,000	(7,000,000)	-	-
NET CASHFLOW AFTER CAPITALISATION	2,589,594	1,814,860	12,826,061	47,750,577	59,811,294
SUMMARY BALANCE SHEET	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Fixed assets (aircraft)	-	-	-	-	-
Depreciation accm.(aircraft)	-	-	-	-	-
Other assets	2,650,000	4,620,000	8,005,000	8,005,000	10,270,000
Other Depreciation accm.	(176,667)	(484,667)	(1,445,333)	(1,445,333)	(2,130,000)
Net assets	2,473,333	4,135,333	6,559,667	6,559,667	8,140,000
Receivables	6,823,071	10,566,187	20,947,639	20,947,639	25,584,626
Prepayments (PDPs)	3,200,000	4,832,000	6,717,205	6,717,205	8,016,123
Cash etc	2,589,594	4,404,454	64,981,093	64,981,093	124,792,387
TOTAL ASSETS	15,085,999	23,937,975	99,205,603	99,205,603	166,533,136
Start-up exp	(4,432,667)	(4,432,667)	(4,432,667)	(4,432,667)	(4,432,667)
Long term debt	5,000,000	7,000,000	-	-	-
Payables	7,993,760	16,008,925	28,243,084	28,243,084	34,309,497
Paid capital	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
P&L accm.	(3,475,094)	(4,638,284)	65,395,186	65,395,186	126,656,306
Shareholder funds	6,524,906	5,361,716	75,395,186	75,395,186	136,656,306
FINANCED BY	15,085,999	23,937,975	99,205,603	99,205,603	166,533,136

analysis of Air Lithuania presented to Vilnius City Council and Chamber of Commerce, containing some hardened businessmen with international experience, clearly showed that the proposed Regional Jet operation, no matter how efficient, would probably lose bucketfuls of money in the first three years before maybe, possibly, scraping break-even. Still local political and business interests prevailed — Lithuania was due to assume presidency of the EU, memories of Soviet occupation and fear of isolation from the West prevailed, the LCC newcomers in some Lithuanian markets, Wizz and Ryanair, could leave at any moment — so Air Lithuania was set up. It operated for about two years.

Consultants, with the exception of guru-types, normally come with clever models that can be adapted to different start-up projects. The basic purpose of any model should be to prove the basic concept through a detailed operational and financial projection of costs and revenues, with unit costs tested for accuracy, schedules for practicality and revenues for reasonableness. The model should be able to answer questions like: Can the start-up maintain a significant cost advantage against the competition and resist competitor reaction? Is the network scaleable? What is the best estimate of required capitalisation, taking into account start-up costs, capex, two or more years of operating losses, contingencies etc?

Aviation Strategy has its own specialised model, which evolved over many projects. It's not particularly complicated, written in excel, with no black box equations, but it works. Extracts from the model are plastered over these pages. The key characteristics of our model are:

➔ It uses a bottom-up approach, going from individual routes to the net-

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PAX CALCULATION SAMPLE

	1	2	3	4	5	6
Route no						
Airport pair	NYC (JFK&EWR)	IAD	PHL	LAS	MIA	MCO
Route Operated (1/0)	1	1	1	1	1	1
OPERATIONS						
Passengers (one way)	977,436	171,620	63,268	151,162	151,162	311,416
RPK (000)	5,459,959	931,036	362,906	1,273,083	1,082,469	2,182,401
ASKs (000)	6,412,326	1,089,861	432,127	1,480,453	1,234,155	2,514,414
Seats	1,147,928	200,896	75,336	175,784	172,344	358,792
Block hrs	23,010	3,918	1,548	5,209	4,372	8,916
Sectors	3,337	584	219	511	501	1,043
Aircraft km	18640482	3168200	1256184	4303642	3587661	7309344
Load factor	85%	85%	84%	86%	88%	87%
Average sector distance (km)	5586	5425	5736	8422	7161	7008
Av block hr/sector	6.90	6.71	7.07	10.19	8.73	8.55
Weekly freq	32.0	5.6	2.1	4.9	4.8	10.0
Yield (\$/RPK)	0.06	0.072	0.05	0.04	0.05	0.04
Av fare (\$)	282	363	277	318	298	268
Op unit cost (\$/ASK)	0.04	0.04	0.04	0.03	0.03	0.03
TRAFFIC						
Route no	1	2	3	4	5	6
Airport pair	NYC (JFK&EWR)	IAD	PHL	LAS	MIA	MCO
Annual Base market	2,792,675	490,342	180,766	431,890	431,890	889,759
Base Market Growth	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Seasonality for period	1	1	1	1	1	1
Predicted base market for period	2,792,675	490,342	180,766	431,890	431,890	889,759
Predicted stimulated market for period	3,071,942	539,376	198,843	475,079	475,079	978,735
Market capture factor	25%	25%	25%	25%	25%	25%
Market stimulation factor	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
Stimulated traffic for period	279,267	49,034	18,077	43,189	43,189	88,976
Predicted traffic for period	977,436	171,620	63,268	151,162	151,162	311,416
Share of predict. stim. traffic	32%	32%	32%	32%	32%	32%
FARES						
Competition Fares(see market & fares)						
economy	303	416	332	387	355	344
Average	0	0	0	0	0	0
Biz	1978	2304	1628	1817	1776	1374
Fare estimator	% of competitors' min fare					
Economy	60%	60%	60%	60%	60%	60%
Avg						
Biz	60%	60%	60%	60%	60%	60%

aircraft type only, and that it is essentially a point-to-point operation (the model is not suitable for complex hub and spoking).

Business Plan issues

Here are some of the issues and problems involved in building the business plan.

Forecasting revenues is always contentious. The first step is usually to come up with an estimate of the current core traffic, ie point to point only, on each route in the proposed network, using capacity schedules, CAA data, MIDT, whatever is available. If there is no air traffic, then be imaginative. The Indian bureaucracy provided a wealth of information for potential LCCs — meticulously compiled statistics on AC1 and AC2 (air-conditioned) train passengers throughout the sub-continent — the target customers who would be attracted by a reasonably priced air ticket for a 1½-hour flight rather than 14 hours in a train carriage.

How much of this traffic the new LCC could win depends on setting and maintaining fares at, say, 30-50%, below full service incumbents. Again, any data source that is available is used to estimate the incumbent's average fare, or fares — for instance, standard, peak and discount. To get to the traffic estimate for the LCC, the model requires that you input your estimates for market capture, market stimulation, market diversion (from other modes). This forces the forecaster to be explicit about the relationship between pricing and volumes on each route. It also enables assumptions to be challenged on a detailed level; routes differ — price-sensitive leisure routes can usually be stimulated, business-orientated routes may be price-inelastic; the incumbents may be entrenched or

work. The P&L numbers on page 10 are the sum of dozens of individual route P&Ls. It can be run on an annual, seasonal or monthly basis.

✈ It is integrated, combining traffic, schedules, capacity, competition, pricing, operating costs, aircraft choice, utilisation, crewing efficiencies, aircraft financing options and capitalisation. All the elements are inter-connected. To illustrate: change market share on one route in Year 1 and the balance sheet in Year 5 changes (if you are anal enough to look at enough decimal points).

✈ It is flexible, designed to allow immediate testing of alternative assumptions. This is very important, as the robustness of any airline proposal can only be judged by stressing it. If

you feel like, you can easily change, among many other things: market shares, demand growth, pricing by bucket, scheduled flights by route, aircraft type, average aircraft utilisation, fuel and other cost inputs, aircraft pricing, fleet lease/owned balance, debt/equity capitalisation, contingency, etc, etc. But make sure, for example, that if you decide to increase aircraft utilisation, you also check that the model doesn't also show pilot hours exceeding regulatory limits.

✈ It is a low cost model, and is designed for LCC-types. But LCC-types have evolved from the classic narrow-body, short-haul only to: long-haul, regional, business-only, etc. The basics are that the airline has to fly one

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vulnerable.

Having come up with a first estimate of traffic by route, the next step is to build the schedule. Inputting frequencies by route generates the seat capacity on each route (depending of course on the size of the aircraft deployed) by year, by season, by month. The aim is to achieve a frequency which generates slightly more seats than the predicted passenger volumes. Load factor is an output, not an input, in our model.

So now we have the passenger revenues by route (simply average LCC fare by generated traffic) volume. Add in ancillaries and others (more of this later) and we have total revenue.

The key cost drivers emerge from the traffic and capacity analysis — Passengers, RPKs, Flights and Flight/Block Hours, which directly or indirectly distribute costs among the network's routes.

The total block hours generated by the network each year is used to provide the fleet plan — simply by dividing the total hours by a target annual utilisation per aircraft (this will have to be refined later when a detailed schedule has been drawn up). A similar process generates the number of cockpit and cabin crew required, as well as inputting into the requirement for line engineers.

Aircraft questions

A key question: to lease or to buy? In general, an owned fleet will work out less expensive in terms of interest/rental payments over time, and many investors prefer ownership as it puts some fixed assets on the balance sheet. Although a start-up is unlikely to achieve deep discounts from the OEMs, they can be surprisingly generous if they perceive major growth potential.

On the other hand, operating

leasing, if that option is available, makes sense in terms of preserving precious capital for developing the operation — a starting fleet of four new narrowbodies will use up about \$60m of capital if purchased (assuming 70% debt) whereas operating lease deposits would only be about \$4m.

On the issue of aircraft choice, the model can inform the decision process. If the OEMs' presentations of their competing offers — different types, different pricing, different operating claims — can be distilled down to a some basics — price, seating, MTOW, maintenance costs, fuel

burn -then these data can be inputted to the model and a quick estimate of the viability of various options outputted. On a high level, this can be very useful as a negotiating tool.

What should be an obvious comment about the most important cost element, fuel: use the most recent, or the last 12 month average, adding in taxes and delivery charges at the main airports, and stick to this per gallon or per litre cost throughout the forecast period. Adjusting the unit cost to reflect "oil market forecasts" produces nonsense. Scenarios can be run on different kerosene prices, but then you also have to estimate the elastic-

FLEET CALCULATION SAMPLE

FLEET PLAN				OWNERSHIP		OPERATING LEASE	
	Annual equiv	Block Hr	Av.Uhl (Bl hrs/day)	Op Lease	Owned	Weighted Op. Lease rate (US\$/mth)	Exchange rate
1	787-900						
Year 1	3.00	13289	12.1	3	3	1,039,000	1
Year 2	6.00	26731	12.2	6	6	1,059,780	1
Year 3	9.00	40351	12.3	9	9	1,080,976	1
Year 4	12.00	57501	13.1	12	12	1,102,955	1
Year 5	15.00	74458	13.6	15	15	1,124,647	1

FLEET PLAN (OWNED)							
	End Year	Price	Capex Year	Capex Acc	Acc PDPs	Debt %	New Debt (\$m)
Year 1	3.0	129	387	387	395	50%	194
Year 2	6.0	132	395	782	8	50%	197
Year 3	9.0	134	403	1,184	8	50%	201
Year 4	12.0	137	411	1,595	8	50%	205
Year 5	15.0	140	419	2,014	(419)	50%	209

FUEL CONSUMPTION							
	Gals/Block hr	Block hrs	Consumption (Gals/yr)	\$US\$/gal	Annual cost (£)	Per block hr (local)	Sensitivity
Year 1	1,599	13289	21,248,966	1.50	32,192,183	2422	1
Year 2	1,599	26731	42,742,443	1.50	64,754,801	2422	1
Year 3	1,599	40351	64,521,441	1.50	97,749,982	2422	1
Year 4	1,599	57501	91,943,850	1.50	139,294,933	2422	1
Year 5	1,599	74458	119,058,913	1.50	180,374,253	2422	1

COST		OWNED AIRCRAFT COST			SPARES (Total)		
Op Lease	Per block hr (US\$)	Finance (owned aircraft)	Per block hr (US\$)	New Value	% of Value	Est Total (\$)	
0	0	7,740,000	582	129	3%	11,610,000	
0	0	12,712,950	476	132	3%	11,610,000	
0	0	17,804,709	441	134	3%	11,610,000	
0	0	22,030,803	383	137	3%	11,610,000	
0	0	25,373,919	341	140	3%	11,610,000	

AC Debt	Equity	Int Rate	Debt term	Annual Debt Repayment	Acc. Repayment	End Year Debt Outstanding	Annual Cost
194	194	4%	8	24.19	24.19	169	7,740,000
391	391	4%	8	48.86	73.05	318	12,712,950
592	592	4%	8	74.02	147.07	445	17,804,709
798	798	4%	8	99.69	246.76	551	22,030,803
1,007	1,007	4%	8	125.87	372.63	634	25,373,919

FLEET PLAN (LEASE)			DEPOSITS	
Deposit period (mths)	Adjust (US\$)	Total Deps	After Adjust	
3		-	-	
3		-	-	
3		-	-	
3		-	-	
3		-	-	

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ity effect, how much of a price change is absorbed by the passenger and how much by the company (a clue: about 50/50).

Airport related costs — landing changes, passenger and aircraft handling — can make or break an LCC start-up. The rates that can be achieved at a regional or secondary airports (as opposed to Heathrow or Frankfurt) may bear no relationship to the rack rates or those published in online databases. For the purposes of modelling you can use target rates but be prepared to justify how the discounts are arrived at. Or use the model in discounted rates/ guaranteed traffic growth negotiations with the airport management.

Overhead in an LCC operation is mostly management. Imputing each position and annual employment costs focuses the mind on what “lean management” really means. As a rule of thumb, the number of total employees per aircraft should work out in the mid 30s for a short haul LCC, otherwise it isn't an LCC.

Quality rather than quantity of managers is critical, and this has proved problematic. Note that Fast-Jet, in its original form, was staffed with managers recycled from other failed start-up airlines who then

preferred to stay at London Gatwick rather than basing themselves in Tanzania. Indigo, the LCC private equity fund, may have found a solution by utilising ex-Ryanair expertise. Ex-pat talent returning home worked brilliantly when Rakesh Gangwal was enticed from US Airways to IndiGo, the Indian LCC.

Having sorted out all the revenues and costs, the next big question is how to turn a loss-making airline, which it will be in its early years into a profitable one, which investors tend to insist on. In terms on modelling, there is only one basic way to turn a loss-making start-up into a profitable airline — the growth in unit revenue has to exceed the change in unit cost. As the airline grows, marginal changes in load factor, or yield, can translate into large change in profit margins — if unit costs are rigorously restrained.

But, after the first two years, it is difficult to find economies of scale — the company should have been set up with a low proportion of fixed to variable costs, and should have started using best industry practices, so unit costs cannot be expected to fall significantly. Although it may just be possible to ramp up utilisation rates if the airline has been set up with spare ca-

capacity in order to ensure a regular, reliable operation in the early days — an important consideration.

The revenue side of the business plan/forecast is inevitably more speculative than the cost side. Still the combination of the sponsors' local knowledge and the consultants' expertise should give solidity to the forecast. Beware the line that refers to ancillary revenue or just other revenue. In the model, this is often just a simple number based on other LCCs' reported unit ancillary income or a small percentage figure. It is worth checking how much this revenue line, which generally does not have a linked cost line, is driving the start-up's profitability. If it is substantial, make sure that you understand exactly what “ancillary” means.

Finally, there is the LCC's all-important capitalisation. Inadequate capitalisation causes bankruptcy. The quantum of equity and debt provided has to cover start-up costs, all capex, working capital, cash losses over at least two years, contingency, etc. Our model signals insufficient capitalisation simply by working out when the start-up is about to run out of cash and alerting the planner with a mild electric shock.

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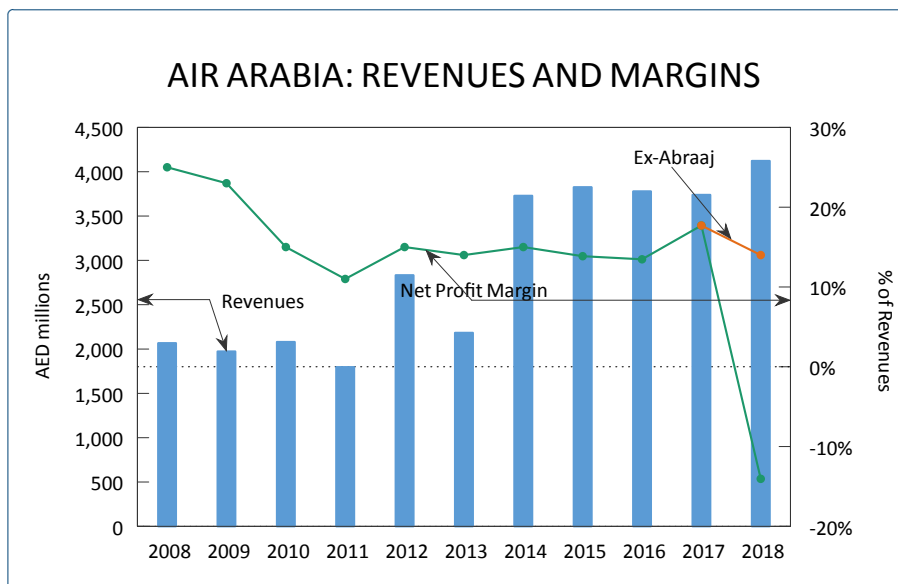
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Air Arabia versus Flydubai and Abraaj

AIR ARABIA'S record of profitability since its inception 16 years ago was shattered in 2018 when it reported a net loss of AED 579m (US\$156m). However, the cause of this loss was a one-off write-off of its investment in Abraaj Group, a private equity fund, totalling AED1.1bn (\$300m).

Air Arabia is a conservative company, making this write-off even more unusual. But until last year the Dubai-based Abraaj Group appeared to be a leading private equity fund, specialising in health care, clean energy and transport (indeed, it was an early investor in Air Arabia, as well as in Nasair in Saudi Arabia). Its collapse was a major shock with creditors now owed at least \$1bn. Disturbingly, accountants PwC's preliminary investigation found that Abraaj's revenues hadn't covered its operating costs for years, and investors' funds were being used to fill that gap rather than for investment. Another Big 4 auditor, KPMG, had signed off on Abraaj's accounts for the entire period that this activity was taking place — a sadly familiar story. Now Air Arabia, and many others, are suing the Abraaj founder, Arif Naqvi, in the hope that if any funds are recovered, which is very uncertain, Air Arabia will be able to write them back into its accounts as exceptional profit.

If it hadn't been for Abraaj, Air Arabia would have recorded a net profit (there is little difference between operating and net profit) of about AED 555m, a 13% margin on revenues, a respectable result though

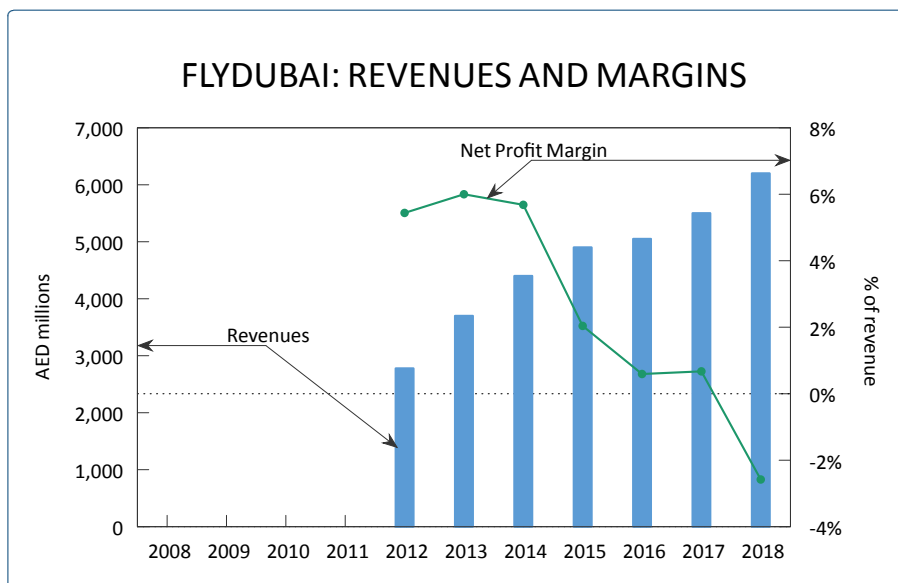


well down of the years of super-profitability a decade ago.

The airline retains many of the characteristics of a classic LCC:

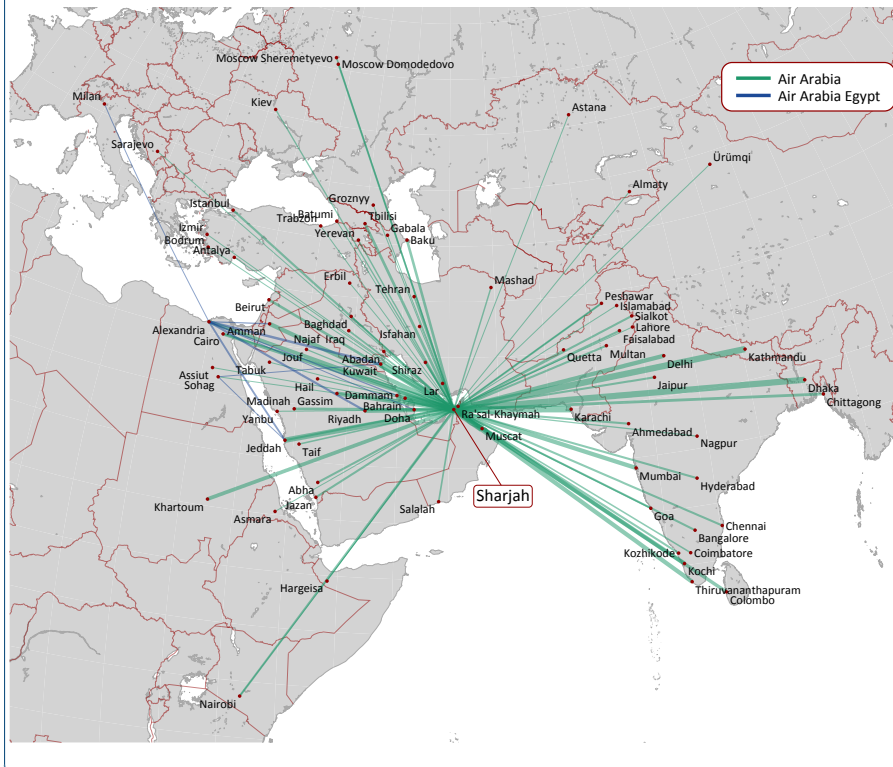
- ✈ It operates from a low-cost airport — Sharjah — owned by the Emirate, which retains an 18% stake in the carrier (82% is floated on the

Dubai stock exchange). Air Arabia enjoys a dominant position and has an attractive passenger and ground handling contract with the airport authority. Sharjah itself is less than an hour's driving time to downtown Dubai. Air Arabia is also in the process of building a secondary hub at Ras al Khaimah, another of the smaller Emi-



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AIR ARABIA ROUTE NETWORK

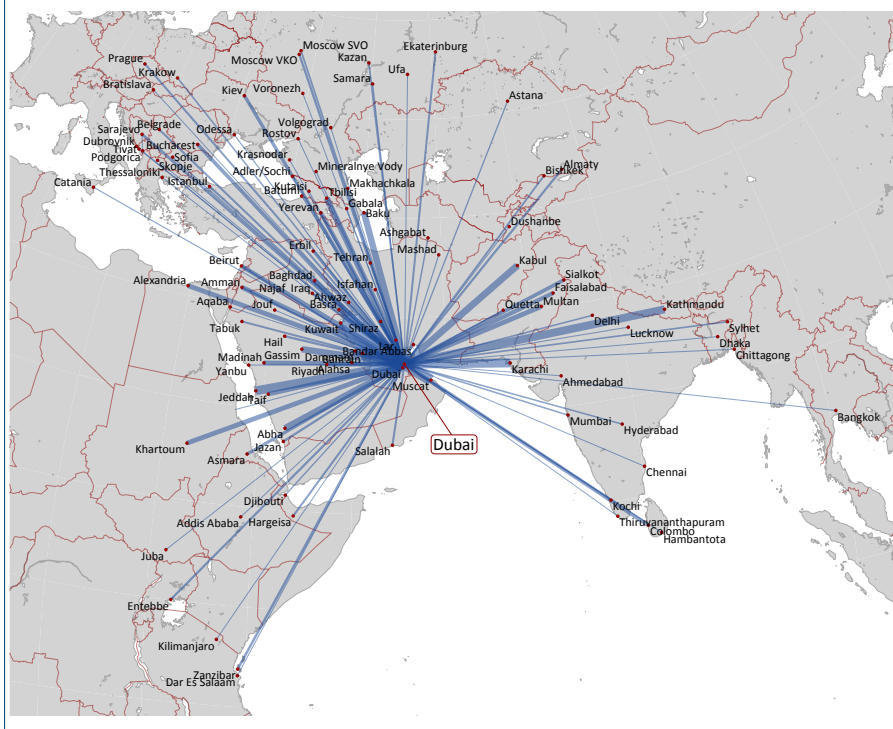


rates.

➔ According to Airbus, Air Arabia is the global leader in terms of A320 utilisation — 13 flight hours a day compared to a global average of 8.8 hours. Sharjah — like other airports in the region — operates 24 hours a day, so Air Arabia can schedule an overnight trip to, for example, Colombo in Sri Lanka after operating flights in the Gulf region throughout the day. Dispatch reliability at 99.7% is also one of the highest in the industry.

➔ The product is of good LCC standard: aircraft are configured with 162 economy seats (a bit below the maximum for A320), which allows a 32” pitch, which is slightly better than the average space for economy products in the region. Load factor is around 81%. Meals are sold on board but there are no alcohol sales as Sharjah is a dry state, which limits ancillary income, which is only about 5% of total revenue.

FLYDUBAI ROUTE NETWORK



➔ Air Arabia has had to operate in a regulatory regime that is largely based on bilateral ASAs, although the GCC (Gulf Cooperation Council) states do have an open skies regime. But Air Arabia is also a flag-carrier of the UAE (along with Emirates, Flydubai and Etihad), which greatly facilitates its negotiating position.

Air Arabia’s big challenge has been the emergence of Flydubai as Dubai’s own LCC. Although not a subsidiary of Emirates Airline, the two airlines are both owned by the state, and since 2017 have offered a connecting service at DXB which now covers 84 mutual destinations.

As the graphs on the facing page indicate, Flydubai has been outpacing Air Arabia in revenue growth — from 2102 to 2018 Flydubai increased turnover from AED2.8bn to AED6.2bn while Air Arabia’s revenues

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grew from the same total, AED2.8bn, to AED4.1bn. However, this is a little misleading as Air Arabia has been growing at its Associates' bases — Air Arabia Morocco, Air Arabia Jordan and Air Arabia Egypt — and has leased out 13 of its aircraft to these airlines. As Air Arabia holds a minority stake in these airlines, (40-49%), they are accounted for on an equity basis, ie their proportionate profit contribution shows up in Air Arabia's accounts, not their revenues. (Only Morocco makes a profit, and Air Arabia's share of that was only AED27m in 2018.)

In 2018 Flydubai carried 11m passengers while Air Arabia flew 8.7m, but it claims over 11m in total when the Associates are included. From airports less than an hour apart, the two airlines operate very similar networks — see maps on the previous page.

Flydubai has never achieved the

same level of profit margin as Air Arabia, averaging 5-6% in the early 2019s when the financial results were unaudited. In 2018 it reported a net loss of AED166m, a -3% margin on revenues of AED6.2bn, blamed on fuel prices,

A tentative comparison of Air Arabia and Flydubai 2018 results shows Air Arabia's average fare to be 18% below that of Flydubai, which has a business class on its flights. Total revenue per passenger was about 14% lower at Air Arabia. On the other hand, Air Arabia has a substantial advantage on the cost side. Operating costs per passenger were 26% lower in 2018.

Flydubai is the second most important 737MAX customer (after Southwest) and currently has 237 units on order. Unfortunately, it has had to park 14 MAXs, and has threatened to cancel and switch to Airbus for at least part of its order. Meanwhile, Air Arabia has announced

that it will place an order for at least 100 aircraft this year, probably a combination of A320s and A321s.

So together Flydubai and Air Arabia will have a firm order commitment of about 340 narrowbodies by the end of the year compared to their current A320/737 fleets of 59 and 55 units respectively. Although some of the new orders will be for replacement, this does look like potential over-capacity in a market which has reverted to much more modest traffic growth and where the super-connectors are going through a painful rationalisation process. And when the MAXs and A321s eventually come fully into service, the two LCCs may find themselves in direct competition on longer routes with the super-connectors, offering their own narrowbody connecting, or self-connecting, services.



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Delta: The real strength behind the brand

DELTA Air Lines was the one to initiate the last stage of consolidation of the US airline industry — long-awaited since the Carter deregulation Act of 1978 — with its merger with Northwest in 2008. The United/Continental and American/US Airways mergers followed in 2010 and 2013 respectively and the industry really started to make profitable returns from 2015. But Delta had the head start, and in the last decade has beaten its legacy competitors on most financial measures: superior margins, returns on equity, debt reduction, and returns to shareholders. Can this continue?

Delta has built a very strong consumer brand. It is the sixth “most relevant” company in the US according to consultants W20 Group’s 2018 ranking — up by five places on the previous year and behind Facebook, Microsoft, Google, Amazon and Apple (but above Boeing and FedEx, ranked 12th and 14th respectively).

Brand Finance in its ranking of airline brand values put Delta in the top spot for 2019 at over \$10bn, overtaking American for the first time.

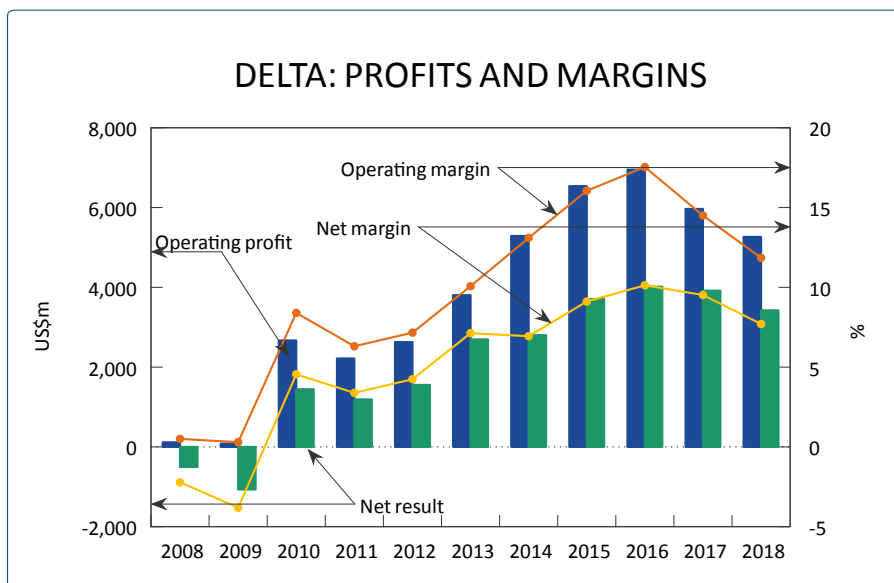
One of the reasons behind this strength, according to marketing guru Peter Horst writing in *Forbes Magazine*, is a power of alignment between its customers and employees: it broke with the NRA amidst the gun control debate and flew protestors for free in March last year stating that “our values are not for sale”; Delta was one of the first in the industry to have a black, female captain.

The management considers that the *real* strength behind the brand is the company’s unique cultural relationship with its employees — an underlying facet of the company through most of its history. Comments of Delta’s founder, CE Woolman (VP and CEO 1928-1966), that “An employee’s devotion to his or her company, dedication to the job and consideration for the customer

BRAND RELEVANCE		
Rank	Company	Overall Relevance
1	facebook	88%
2	Alphabet Google	84%
3	Microsoft	81%
4	amazon	81%
5	Apple	80%
6	Delta	78%
7	Nike	76%
8	Walt Disney	75%
9	General Motors	74%
10	JP Morgan	73%
11	Boeing	73%
12	Goldman Sachs	73%
13	Costco	72%
14	FedEx	71%
15	Chevron	71%

Source: W20 2018 Corporate Relevance Rankings. Note: 85%+ = “resilient”; 75-84 = “strong”; 65-74 = “on the fence”

determine a company’s reputation” are echoed by the current CEO, Ed Bastian: “When you take care of your employees, they will take great care of your customers, who then reward you with their business and loyalty. Every major business decision we



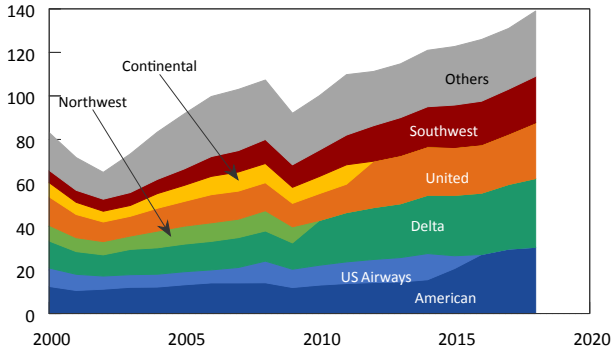
TOP 10 AIRLINE BRANDS BY VALUE				
Rank	Airline	Value (\$bn)		
		2019	2018	
1	Delta	10.11	8.71	
2	American	9.55	9.05	
3	United	8.46	7.03	
4	Southwest	6.60	5.30	
5	Emirates	6.27	5.34	
6	China Southern	4.46	4.06	
7	China Eastern	4.23	3.81	
8	British Airways	4.17	3.48	
9	Air China	4.12	3.43	
10	Lufthansa	3.15	2.91	

Source: Brand Finance

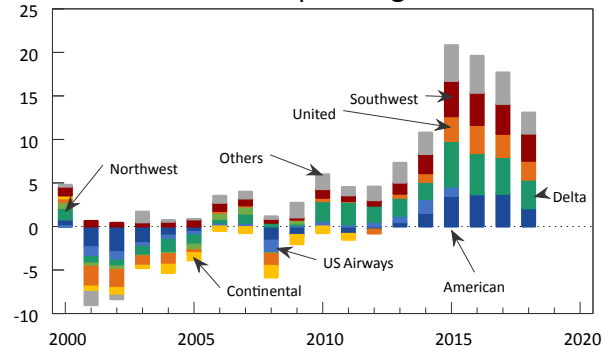
Aviation Strategy

US CONSOLIDATION: FINANCIAL RESULTS BY REGION (\$bn)

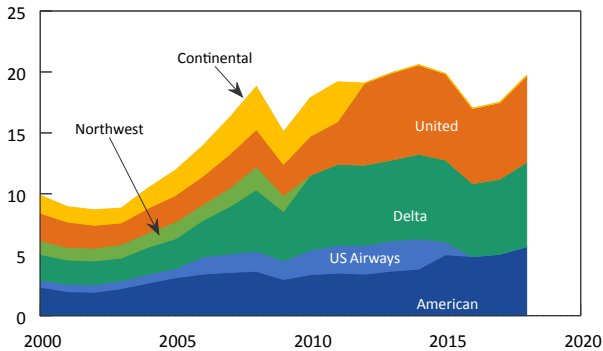
Domestic Revenues



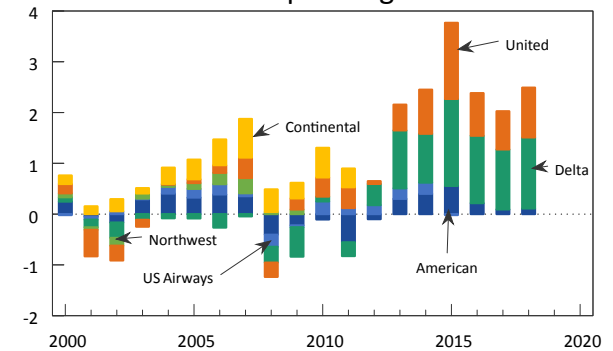
Domestic Operating Profits



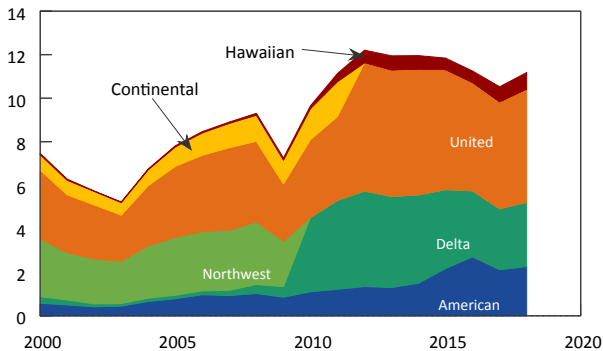
Atlantic Revenues



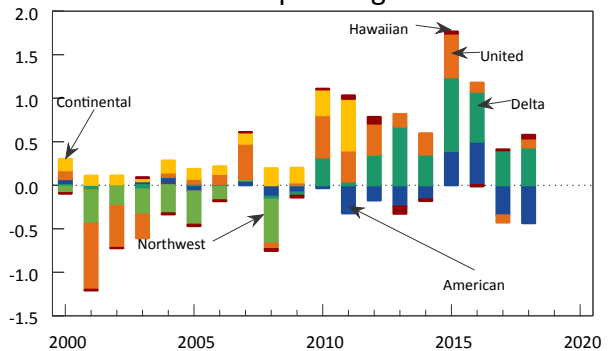
Atlantic Operating Profits



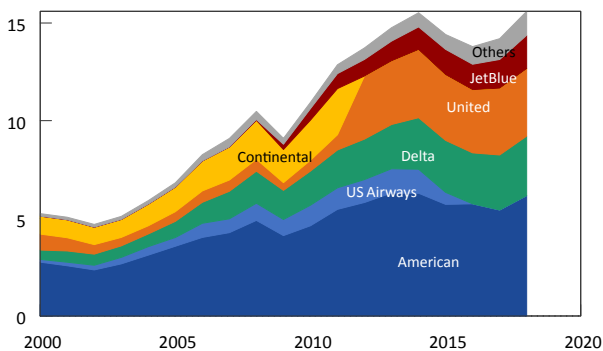
Pacific Revenues



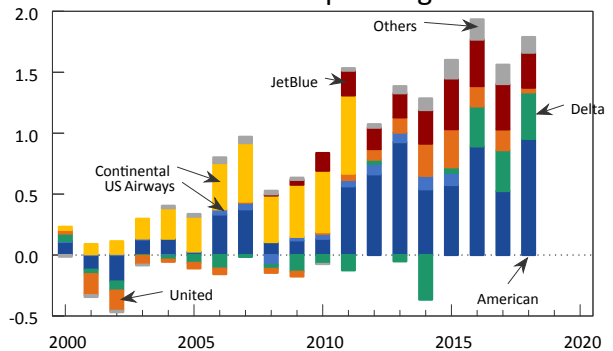
Pacific Operating Profits



Latin America Revenues



Latin America Operating Profits

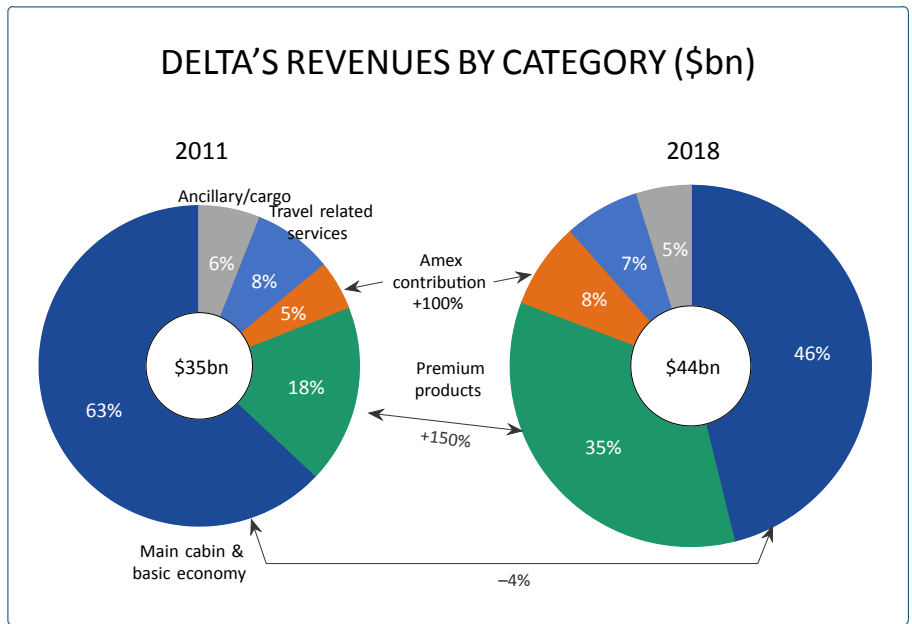


Aviation Strategy

make at Delta is based on that philosophy, and it has been very successful for us.”

This attitude seems to be reciprocated by the staff. Using feedback from the company’s own employees, career information website *comparably.com*’s 2019 annual survey ranked Delta’s executive team in tenth place — well above Southwest (at 29) the only other airline to appear in the top 50 — and named Ed Bastian as one of the “Best CEOs for Women” and “Best CEOs for Diversity”.

Customers too respond with loyalty. Although Delta only achieves a three star rating at Skytrax, it pushed Alaska from the top spot in *The Points Guy*’s annual ranking of US carriers in January, and its FFP SkyMiles regularly ranks as the best of the US carriers’ loyalty programmes. In presentations at its investor day last December, management highlighted that active membership of SkyMiles is up by more than 30% since 2012, these members provide around 60% of passenger revenue and that the revenue premium represented by SkyMiles travellers has risen by 11 percentage points in the



past six years.

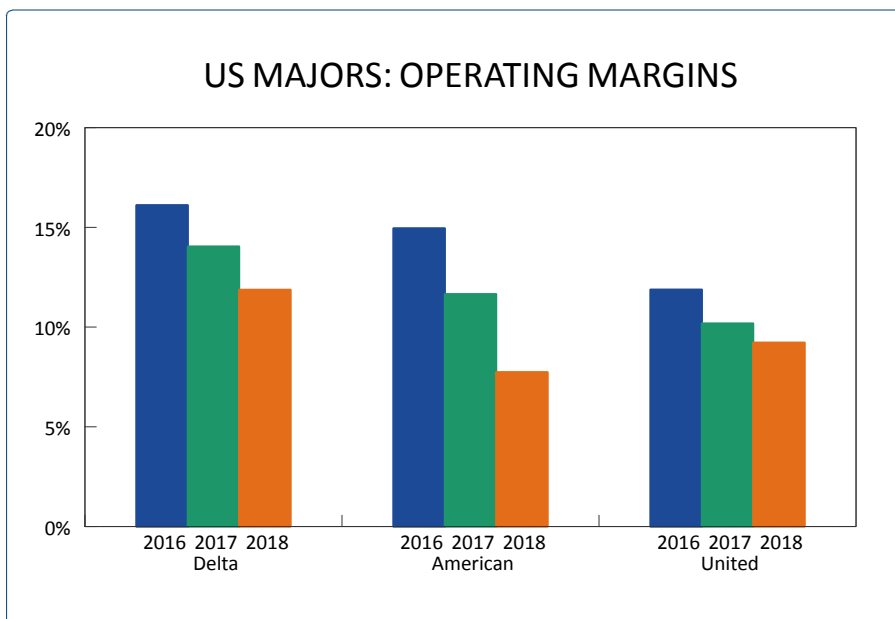
The company has also concentrated on the quality of its offering and boasts industry-leading safety, reliability (85% on-time performance and 99.6% completion factor, significantly below average lost baggage rates) and, with a 45% domestic net promoter score (NPS) in 2018 (up from 40% in 2016), record customer satisfaction. And high NPS leads to higher revenues: Delta achieves a yield premium against its peers in

most route regions (except perhaps on Latin America where historically it has been relatively weak — see charts on the facing page).

The net effect of has been an ability to create what it describes as an increasing diversity in revenue generation, with a significantly larger portion of total revenues coming from higher-margin revenue streams. In 2018 for the first time it reported that back-of-the bus (Main Cabin and Basic Economy) provided less than 50% of total revenues.

Since 2011 group revenues have grown by 25% (or 3% a year) but Main Cabin revenues have *fallen* by 4% and now account for only 46% of group revenues down from 63% at the beginning of the decade (see chart above). Over the same period it has seen premium product revenues grow by 150% (15% a year) to account for 35% of the total up from 18%.

Over the period it has been developing its inflight product segmentation, creating what it refers to as “best-in-class premium experience”; Economy Comfort was introduced in 2011, First class “upsell” in 2012, Comfort+ in 2015, Premium Select



Aviation Strategy

DELTA: FLEET PROFILE

Aircraft Type	In Service					Commitments	
	Owned	Finance Lease	Operating Lease	Total	Average Age	Orders	Options
717	3	16	72	91	17.5		
737-700/800	83	4		87	16.7		
737-900ER	80		41	121	2.8	9	
757	107	7	2	116	20.8		
767	78	1		79	21.7		
777	18			18	14.1		
A220	9			9	0.2	81	50
A319/320	110	3	6	119	20.5		
A321ceo	43		31	74	1.3	53	
A321neo						100	100
A330	39		3	42	11.2		
A330-900neo						35	
A350-900	13			13	1.1	12	
MD-88	67	12		79	28.3		
MD-90	37			37	22.0		
Total	687	43	155	885	15.6	290	150

Note: as at 31 March 2019. Source: Delta 10Q

and Delta One Suite/First Class upgrade in 2017. The proportion of premium seats has grown from 9% of the total to 28%, and the company expects it will account for 30% by 2023.

One of the other higher margin revenue streams that has grown strongly over the period is marked "Amex contribution". This has doubled since 2011 and now accounts for 8% of total revenues.

American Express

Delta's relationship with Amex, running since 1996, primarily revolves around co-branded credit cards for

SkyMiles members. In May the two announced that they had renewed the agreement early "to create industry's most valuable co-brand portfolio" and extend it to 2029.

The agreement allows American Express to market using Delta's customer database and cardholders earn mileage credits for making purchases, may check their first bag for free, are granted discounted access to Delta Sky Club lounges and receive other benefits while traveling on Delta. Additionally, participants in the American Express Membership Rewards programme can swap their points for

mileage credits in SkyMiles.

The contribution from the agreement has doubled from \$1.7bn in 2012 to \$3.4bn in 2018, while the number of Delta-Amex cards has grown by 50% in the period and the amount of money spent on the cards has increased at an annual average 12.5% to reach \$92bn. In the announcement of the renewal Delta stated that it expects the Amex contribution from the relationship to double again — to \$7bn — by 2023.

Delta also is an Amex card accepting merchant — with no cash "dam" (a base limit of revenues for future

DELTA: REGIONAL PARTNERS' FLEETS

	Endeavor†	SkyWest	Compass	Republic	GoJet	Total
CRJ-200	42	77				119
CRJ-700	3	18			22	43
CRJ-900	109	44			7	160
E170				21		21
E175		49	36	16		101
Total	154	188	36	37	29	444

Note: as at 31 March 2019. † wholly owned subsidiary. Source: Delta 10Q

travel retained by the card issuer). Also, intriguingly, has its own Amex charge card with which to pay for jet fuel having a modest credit limit of \$1.1bn).

Great Runway of Opportunity

The company's December 2018 investor day presentations show considerable optimism using the soubriquet of a "Runway of Opportunity". They describe initiatives to grow and diversify revenues and margins — the latter mentioned as a business imperative (as after all margins have slipped from the peak in 2015).

Delta prides itself on the positioning of its domestic hubs. Atlanta is the world's largest hub airport with 107m terminal pax in 2018 (although soon probably to be overtaken by Beijing). For Delta it provides access to 80% of the US population within two hours journey. Its Salt Lake City hub it describes as its gateway to the West, while the former Northwest bases in Minneapolis St Paul and Detroit respectively provide Northern domestic coverage with a strong corporate base and a premier midwest connecting hub.

But these are domestic mid-continent hubs, and Delta has missed out historically on international connectivity through coastal gateways. In the last ten years however it has built its presence in New York (*the* gateway on the Atlantic) with a near doubling in peak day departures, increased its domestic revenue share position from 3rd place to 1st and improved profit margins by 18 percentage points. It is extending this expansion policy to Boston, Seattle and Los Angeles hoping to replicate the performance in New York.

Secondly, it is going through a major fleet renewal programme and gradually increasing fleet gauge —

	Equity		Joint Venture	
	Stake	Value	Size (\$bn)	Capacity share‡
Virgin Atlantic	49.0%	\$383	3.0	24.1%
Air France-KLM	9.0%	\$408	11.0	27.2%
Alitalia				26.3%
Aeroméxico	51.0%*	\$897†	1.0	23.9%
Virgin Australia			1.0	19.7%
Korean	4.3%	\$75	3.0	57.1%
WestJet			n/a§	26.5%
GOL	9.0%	\$213		
China Eastern	3.0%	\$259		

*Source: company reports, Aviation Strategy analysis.
Notes: *49% voting † plus \$300m loan guarantee. § JV applied for, pending US approval. ‡ Korean JV capacity share ignores transfers through Incheon.*

primarily to take advantage of lower costs per seat. The current fleet has an average age of 15.6 years, but 35% of the mainline jets are over 20 years old (including some pretty ancient MD80s, 757s and 767s).

Delta was the launch customer for the A220 in the US when it placed an order for 75 of the type in 2016. Nine have been delivered, which it is operating with 109 seats in a three class configuration: 81 are on firm order with 50 options. These are being used to enable retirement of 50-seat regional jets and replace 76-seat CRJs. The 149-seat MD80s will be gone by the end of 2020, while Delta has 153 A321s on order which it operates configured with 194 seats in three classes. By 2023 it expects that 45% of domestic seats will be on large mainline aircraft up from 30% in 2018 with the average gauge increasing by around 7% over the next five years.

For the wide body fleet it has outstanding orders for 35 A330neos and 12 A350s. It is in the process of expanding its five-cabin strategy across the entire international fleet by 2021, with the Delta Premium Select product fully rolled out by then. It plans to increase the average number of seats

per aircraft by 2% a year over the next five years, and increase the number of premium seats per aircraft by 40%.

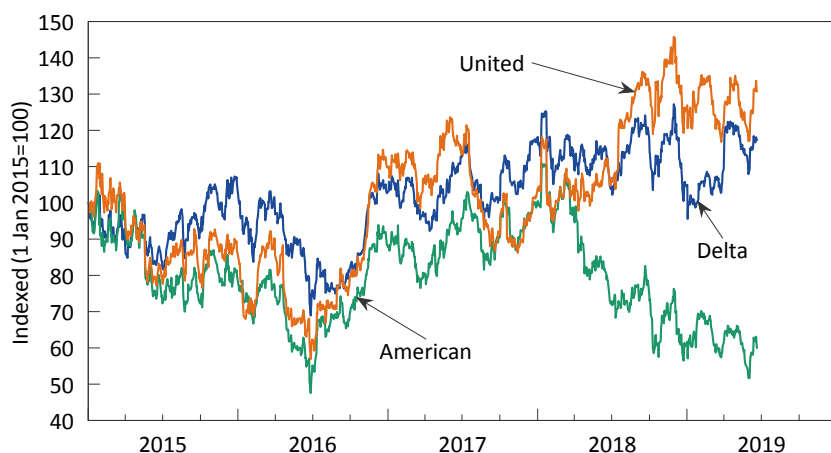
The management estimate that this strategy of replacing old generation equipment with larger aircraft will reduce fuel burn per seat by between 20% and 40%, and with the increase in the proportion of premium seats give it a bottom line margin improvement of up to 10 percentage points.

Unique JV portfolio

Over the last ten years since the merger with Northwest, Delta has built what it regards as a unique portfolio of international joint ventures and airline equity investments. Then, the SkyTeam JV with AirFrance-KLM and Alitalia on the Atlantic accounted for 35% of international revenues. In 2018 60% of Delta's international revenues were in joint ventures covering the Atlantic, North and South Pacific, and with Mexico.

In 2012 it acquired SIA's 49% stake in Virgin Atlantic for \$360m and gained anti-trust immunity for a full joint venture. And then in 2017, Delta and China Eastern invested \$887m in Air France-KLM for a 10% stake

US AIRLINES' SHARE PRICE PERFORMANCE



Margin expansion

The optimism expressed at the investor day last December and on the full year results call seems to have come true in the first quarter results. Revenues were up by 7.5% to \$10.4bn with a 2.4% increase in total revenue per seat "driven by double-digit growth in domestic corporate revenue and around one point benefit from the Ames agreement. Costs grew by 5%, primarily driven by a 5% increase in fuel costs (underlying unit costs excluding fuel fell by 0.2%), generating an adjusted operating profit of \$1.03bn — a margin of 10% up from 8.3% in the prior year period. Not bad for an off-season quarter!

In the release Delta also notes that it generated \$2bn in cash flow in the quarter despite paying out \$1.3bn profit sharing to employees for the performance in 2018. On top of that it accelerated its share buy-back programme returning \$1.6bn to shareholders in the quarter (of which \$233m were in dividends). And it upgraded its outlook for the year ahead. The company no doubt it is keeping everyone happy: customers, employees and shareholders alike.

each. This allowed Air France-KLM to announce plans to take a 31% stake in Virgin Atlantic (for £220m). The plan to bring Virgin fully into the Atlantic JV — which would represent \$13bn turnover and nearly 30% of Atlantic capacity — is still awaiting approval.

But Delta has also built ATI joint ventures with Virgin Australia, Aeroméxico and Korean while investing in Aeroméxico, China Eastern and GOL. Its proposed JV with WestJet has gained approval from the Canadian authorities, but awaits a decision from the US.

The latest move, in June this year, was for Delta to announce it had built a 4.3% stake in Hanjin KAL — the majority shareholder of Korean Air — for an estimated \$88m, with possible intentions to increase its investment to 10%. The Korean JV only started last year but Ed Bastian has described it as one of Delta's "fastest-integrating and most successful partnerships".

There is not a glorious history when airlines take minority stakes in other airlines. But international cross-holdings must be minority, and the investor cannot be seen to exercise control in order to avoid contravention of rules set down in bilat-

eral air service agreements. It does appear that Delta has been providing influence to the benefit of its partners — possibly at Air France-KLM, and hopefully at troubled Korean.

Meanwhile Delta sometimes appears over-protective of its global "franchise". It was a founder member of the "Partnership for Open and Fair Skies" (along with American, United and various unions) designed to lobby against the growth of the Gulf carriers — particularly Emirates, Etihad and Qatar — on the basis that the UAE and Qatari carriers were "unfairly" subsidised.

After Qatar took a 49% stake in Air Italy the lobby group intensified efforts claiming that this represents an unfair back-door creation of fifth freedom services and "the latest in a string of trade violations by the government of Qatar". Delta's Ed Bastian himself has called it "cheating behaviour" at investor presentations, without recognising the irony of his position as a 49% actual controlling investor in Virgin Atlantic. But then Delta is in discussions with Ferrovie dello Stato to invest in a new and revitalised Alitalia (see *Aviation Strategy*, May 2019).

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