

OEMs' Asian century

THE TWO big OEMs used the appropriate venue of AAPA's Assembly of Presidents, held in South Korea this October, to re-emphasise the importance of the Asian market, which is now expected to account for well over 40% of future aircraft demand.

Boeing predicts that over the next 20 years Asia will require 16,930 aircraft worth \$2.7tn, two thirds of which will be for expansion, just one third for replacement. Airbus more or less agrees: 15,900 units valued at \$2.4tn. To put the trillions of aircraft investment into some sort of perspective, the current GDP of China is about \$8.4tn, that of Japan, around \$6tn.

Boeing made an interesting observation on the accuracy of its previous forecasts: the narrowbody market had been significantly underestimated; the widebody market was correctly forecast; but demand for regional jets and ultra-widebodies had

been seriously overestimated.

Airbus, not coincidentally, has a major commitment to the latter two sectors in the form of the A220, formerly known as the Bombardier CSeries, and the A380. Despite recent disappointments, Airbus still reckons that there is potential for 480 ultra-widebodies in the Asian market alone over the next 20 years.

It is perhaps not surprising that narrowbody orders have been underestimated as investment in these types is driven by new LCCs whose raison d'être is to create new markets and generate unexpected demand for aircraft. Without legacy commitments, they are able to force the two

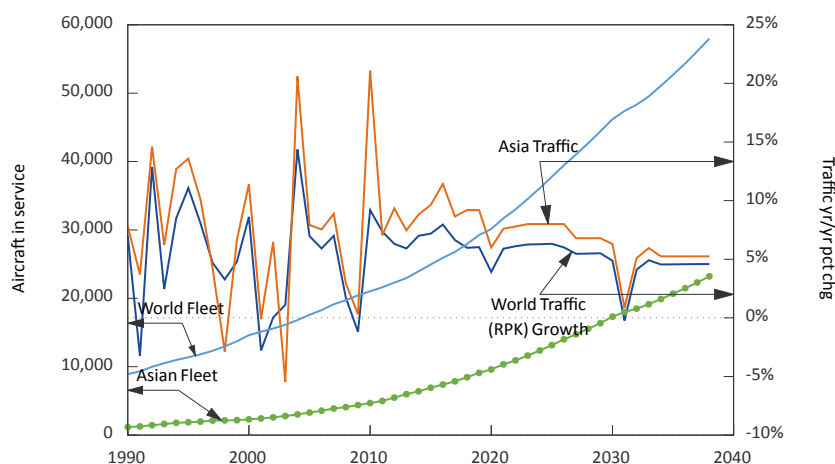
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ESG FORECAST OF ASIAN AND WORLD
TRAFFIC/FLEET GROWTH



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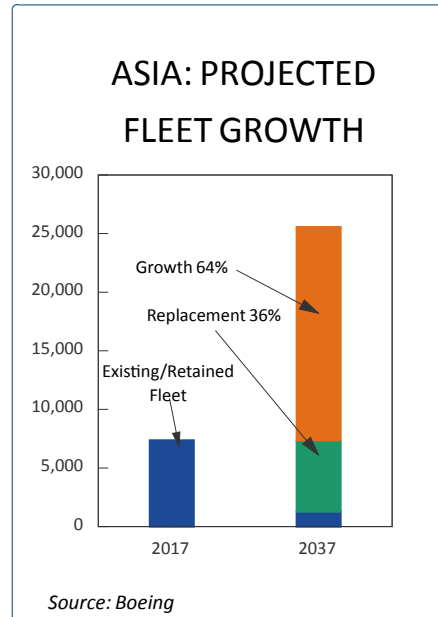
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OEMs into fierce price and condition battles between the 737 and A320s families (now MAXs vs neos). What is all-important for the LCCs is achieving the lowest possible unit capital and operating costs, and that implies bulk ordering. Boeing's NMA (New Midsize Airplane), a 757/767 replacement, is the potential disrupter in this market.

Widebody demand should be more predictable because it comes from network carriers operating largely within the constraints of complicated network planning, infrastructure constraints and bilateral regulation. However, such is the dynamism of the Chinese aviation market, that assumption may no longer be valid.

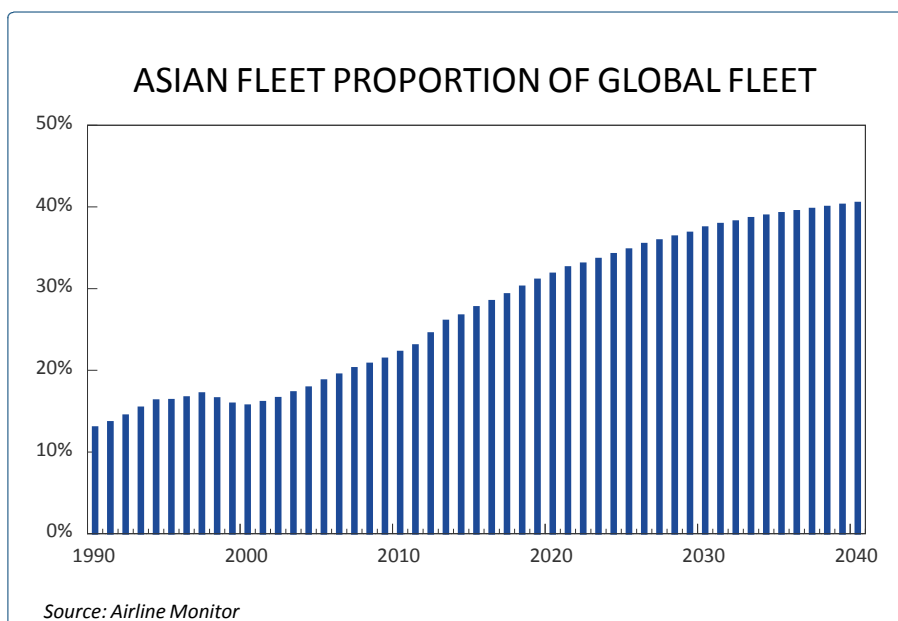
What is fascinating is the range of widebodies now being offered by the two OEMs.

Airbus is selling two variants of the A330, the -800 and -900 with 250-350 seats, claiming to have the lowest capital costs in the widebody sector. The A350 XWB also comes in two variants, the -900 and -1000 with 320-370 seats. SIA has launched



Singapore to New York with the A350-ULR (but with only 161 seats).

Boeing offers the 787 in three sizes: the -8 (~240 seats), -9 (290 seats), and -10 (330 seats). The -8 is designed to replace the 767 or A330-200, the -9 to replace the 767-200ER or A330/340 and the -10 to replace the 777-200/300 or A330/340. The larger capacity 777X, featuring folding wing tips, will be flight tested next year and should be ready for service in 2020.



Operating lessors: Chinese closing on the Big Two

THE “Big Two” lessors — GECAS and AerCap — still dominate the operating lease market, according to *Aviation Strategy’s* annual survey of lessors with a portfolio of more than 100 owned or managed jet aircraft (see table on the following page).

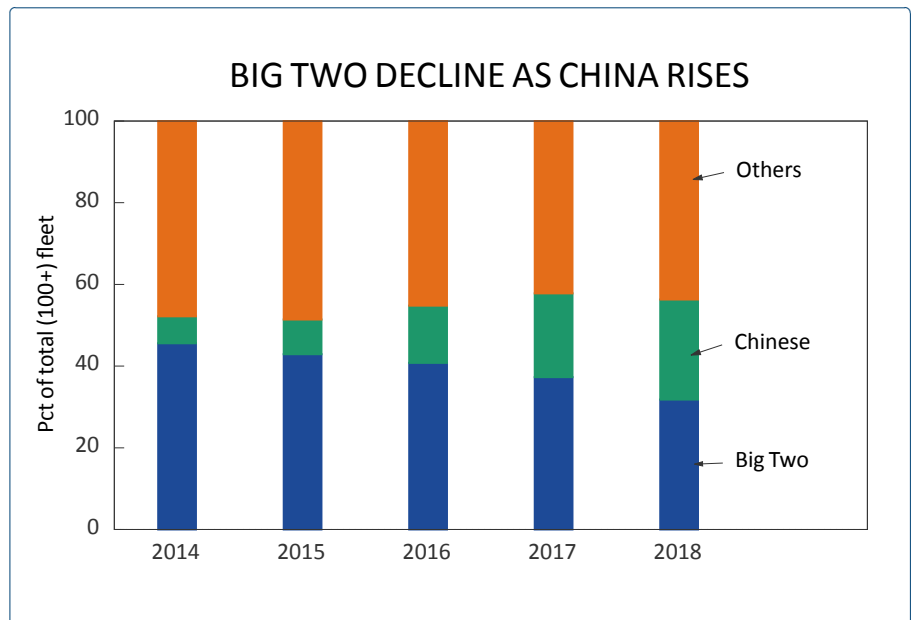
However, as they have done for the last few years, the Big Two are sticking to a strategy of trimming their portfolios (each losing 50 aircraft over the last 12 months), and as a result the chasing pack — led by the Chinese-controlled operators — gets closer and closer each year.

The total fleet stands at 7,386 aircraft — 817 units higher than last year (see *Aviation Strategy*, September 2017), although 654 aircraft of that increase come from five new entries into our table, and 163 extra units come from lessors that were in the previous 2017 table.

Indeed, GECAS and AerCap’s joint share of the total 100+ lessor fleet has fallen to 31.8%, compared with 45.6% as of four years ago (see chart above). The big risers in the table are Apollo Aviation Group (up by 65 aircraft year-on-year), and Air Lease Corporation (up 52).

Also notable is the entry of five “new” lessors into our table this year, having passed through the minimum 100 jet portfolio needed for inclusion. They are BoCom Leasing, Standard Chartered Aviation Finance, Goshawk Aviation, Castlake Aviation and China Aircraft Leasing Company.

Three of these are controlled by Chinese interests, and when added



to the four Chinese lessors already in our table (Avolon, BOC Aviation, ICBC Leasing and CDB Leasing), this means that Chinese lessors now account for 24.5% of the global leasing fleet in our table — compared with just 6.6% as of 2014 (see chart above).

In terms of firm orders, the Big Two’s share of the outstanding lessor order table has fallen to 28.5% — some 9.2 percentage points down in just 12 months.

Total outstanding orders from lessors with 100+ aircraft is 2,483, compared with 1,914 a year ago, although 228 units of this increase comes from new entries in our table, and 341 comes from lessors who were also in the table as of 12 months ago.

The biggest net order additions came from two Chinese lessors — CDB Leasing, with 130 new orders added in the last 12 months, and Avolon, with 126 extra orders. And

the addition of 22 net aircraft orders at Avolon has propelled that lessor to have the largest order book (392 units) of any in our table.

Narrowbodies continue to account for the large majority of the orderbook — 91.5% in terms of units on order. Only Air Lease Corp. and Avolon have made major investments in widebodies (and Amedeo has speculated on A380s).

Over the following pages *Aviation Strategy* profiles all the leading lessors — which we define as owning or managing more than 100 jet aircraft — in descending order of portfolio size.

General Electric Capital Aviation Services (GECAS)

GECAS is based in Dublin and has another 25 offices around the world, and remains well ahead as the world’s largest lessor, despite culling 50 air-

MAJOR LESSORS

Company	Total portfolio	Change	Orders			
			Boeing	Airbus	Total	Change
GECAS	1,290	-50	177	198	375	-18
AerCap	1,060	-50	130	203	333	5
Avolon	562	-12	147	162	309	126
SMBC Aviation Capital	431	-21	93	109	202	-1
BBAM	421	16				
BOC Aviation	324	27	86	74	160	-10
Air Lease Corporation	320	52	201	192	393	22
ICBC Leasing	305	27	6	38	44	-13
Dubai Aerospace Enterprise	302	-4				-15
ACG	295	30	99	76	175	25
Aircastle	240	37				
ORIX Aviation	225	25				
CDB Leasing	220	20	84	90	174	130
Apollo Aviation Group	200	65				
Macquarie AirFinance	196	-10		60	60	60
BCC	190	-20				
BoCom Leasing	160	na				
Jackson Square Aviation	151	31	30		30	30
Standard Chartered Aviation Finance	135	na				
Goshawk Aviation	132	na	20	20	40	na
Castlelake Aviation	120	na				
China Aircraft Leasing Company	107	na	50	138	188	na
Total	7,386	163	1,123	1,360	2,483	341

Note: This table includes jet lessors with at least 100 owned or managed aircraft; we exclude entities set up solely to manage the leasing activities of a specific airline.

craft from its jet portfolio over the last year, to 1,290 aircraft now.

Just 160 of these are widebodies, although they represent 43% of the lessor's total fleet value. In total GECAS's fleet is placed with more than 270 customers globally

In July, at Farnborough, GECAS contracted for 20 additional 737-800BCFs (Converted Freighters), bringing its total for the conversion of the passenger model to a cargo model to 50 firm orders and options. GECAS was the launch customer for the 737-800BCF, and the lessor took delivery of the first converted jet in April this year, which it leased to a Swedish cargo airline.

The outstanding order book has eased back by 18 to 375 aircraft — which means GECAS has been overtaken as the lessor with the most orders. They currently comprise

177 Boeing aircraft (167 737 MAXs, six 787-9s and four 787-10s) and 198 Airbus units (10 A320neos, 151 A320neos and 37 A321neos).

AerCap

AerCap keeps on trimming its portfolio; it shrank by another 50 aircraft over the last 12 months, to reach 1,060 today, of which 955 are owned and 105 managed.

That reduction is helping to bring down the average age of the owned fleet — in the second quarter of 2018 AerCap sold 30 aircraft, with an average age of 13 years, and as at the end of June the average age of the owned fleet stood at 6.6 years, compared with 7.3 years in June 2017.

In terms of the owned portfolio, the majority of aircraft are — as ever — narrowbodies, including

a hefty 403 A320 family aircraft and 268 737NGs. Widebodies include 77 A330s, 69 787s and 49 777s.

AerCap is headquartered in Dublin and has offices in Shannon, Los Angeles, Singapore, Amsterdam, Fort Lauderdale, Shanghai, Abu Dhabi, Seattle and Toulouse. Its fleet is placed with 174 customers in 72 countries.

AerCap's outstanding orders total 333 (virtually the same as a year ago), comprising 203 Airbus aircraft (142 A320neos, 59 A321neos and two A350-900s) and 130 Boeing models (100 737 MAX 8s and 30 787-9s).

Avolon

Having swallowed CIT Aerospace in 2017, Avolon remains firmly in third place in the leasing table this year, although its owned and managed port-

Aviation Strategy

MAJOR LESSORS: ORDERS BY TYPE

	Narrowbody								Widebody					
	737 MAX	737-800	A220-300	A320CEO	A320NEO	A321CEO	A321NEO	Total	787-9	787-10	A330-900	A350-900	A350-1000	Total
GECAS	167			10	151		37	365	6	4				10
AerCap	100				142		59	301	30			2		32
Avolon	132				92		30	254	15		30	10		55
SMBC Aviation Capital	90	3			109			202						
BBAM														
BOC Aviation	71	2			52		20	145	13		2			15
Air Lease Corporation	158				12	2	130	302	18	25	29	10	9	91
ICBC Leasing		6			25		13	44						
Dubai Aerospace Enterprise														
ACG	97			6	60		10	173	2					2
Aircastle														
ORIX Aviation														
CDB Leasing	78				58		32	168	6					6
Apollo Aviation Group														
Macquarie AirFinance			40		20			60						
BCC														
BoCom Leasing														
Jackson Square Aviation	30							30						
Standard Chartered Aviation Finance														
Goshawk Aviation	20				20			40						
Castlelake Aviation														
China Aircraft Leasing Company	50			8	130			188						
Total	993	11	40	24	871	2	331	2,272	90	29	61	22	9	211

folio has eased back by 12 aircraft over the last 12 months, to 562 today.

Avolon is a subsidiary of China's Bohai Leasing (part of Hainan-based conglomerate HNA Group), and is based in Dublin, with offices in New York, Florida, Dubai, Shanghai, Singapore and Hong Kong. See the ORIX entry below, but HNA has just agreed to sell a 30% stake in Avolon to ORIX, though it says it will retain its remaining 70% share for the long-term.

Avolon's 532 owned aircraft have an average age of 5.2 years (as of end June 2018), which is slightly up on a year ago despite selling 41 aircraft during the second quarter of 2018, with an average age of 13.2 years.

The owned portfolio is heavily weighted towards narrowbodies, with 248 A320 family ceos and neos, and 147 737s accounting for three-quarters of the fleet, although Avolon also owns 50 A330s and 18 787s. They are placed with 156 clients in 64 countries.

Avolon has 309 aircraft on outstanding order — 132 737 MAXs, 15

787-9s, 92 A320neos, 30 A321neos, 30 A330-900s, 10 A350-900s.

SMBC Aviation Capital

SMBC Aviation Capital also reduced its portfolio over the last year, by 21 aircraft, giving it a fleet today of 252 owned and 179 managed aircraft.

The portfolio has an average age of under five years, and all but a handful are narrowbodies, including 108 737-800s and 131 A320 family aircraft. In July SMBC received its first 737 MAX 8, which was delivered to Aeromexico as part of a purchase and leaseback deal for 10 aircraft with the airline.

Based in Dublin, the lessor is owned by the Sumitomo Mitsui Banking Corporation and also has offices in New York, Miami, Toulouse, Amsterdam, Tokyo, Hong Kong, Beijing, Shanghai and Singapore. SMBC's outstanding order book is just over the 200 mark, including 90 737 MAXs, three 737-800s and 109 A320neos.

BBAM

BBAM's fleet has nudged upwards by 16 aircraft in the last year, to 421 managed aircraft that are leased to more than 200 customers in around 50 countries.

The portfolio has a very wide range of models (25) ranging from 163 737s and 135 A320 family aircraft to 43 787s and two 767-300ERs.

BBAM's head office is in San Francisco and it also has a presence in New York, Santiago, London, Dublin, Zurich, Singapore and Tokyo. BBAM is owned 50% by the Onex Corporation — a Canadian private equity company — and 50% by its management. It remains the largest lessor not to have any aircraft on outstanding order.

BOC Aviation

BOC Aviation added another 27 aircraft over the last 12 months, increasing its portfolio to 324, of which 295 are owned and 29 are managed.

The owned portfolio includes 142 A320 family aircraft and 108 737s,

with the remainder of the fleet comprising 21 777-300ERs, 12 A330s, six A350s, five freighters and a single 787. The average age of the overall portfolio is just over three years, which is one of the youngest profiles in the leasing business.

Currently all the aircraft in the portfolio are leased out, to 88 airlines in 35 countries. Unsurprisingly, the most important market for BOC is the China (defined as the mainland, Hong Kong, Macau and Taiwan), which accounts for 29% of its portfolio by net book value, followed by Europe (24.6%), Asia-Pacific excluding China (22.6%), Middle East and Africa (12.7%) and the Americas (11.1%).

BOC Aviation is owned by the Bank of China and has its headquarters in Singapore, with other offices in Dublin, London, New York and Tianjin. It has 160 aircraft on outstanding order, comprising 71 737 MAX 8s, two 737-800s, 13 787-9s, 52 A320neos, 20 A321neos, and two A330-900s.

Air Lease Corporation

Based in Los Angeles and Dublin, Air Lease Corporation added 52 aircraft over the last 12 months, bringing its total portfolio to 320 aircraft, of which 271 are owned and 49 managed.

As of the end of June 2018, the owned fleet had an average age of 3.8 years, and included 118 737s, 90 A320 family aircraft, 25 777s, 20 A330s, and 11 787s.

The portfolio is placed with 93 airlines in 56 countries, and by net book value the largest market for ALC is still the Asia/Pacific region, at 41.5% (with 18.3% coming from Chinese airlines), followed by Europe with 31.0% and the Middle East and Africa with 13.3%.

ALC now has the largest order book of any lessor. In August this year it placed a firm order for 30 737-8 MAXs and three 787-9s, bringing its outstanding order book total up to a massive 393, comprising 158 737 MAXs, 18 787-9s, 25 787-10s, 12 A320neos, two A321ceos, 130 A321neos, 29 A330-900s, 10 A350-900s and nine A350-1000s.

ICBC Leasing

ICBC Leasing's portfolio has risen by another 27 aircraft over the last year, to a total of 305. All but 48 of these are narrowbodies, and the portfolio is dominated by A320 family and 737 aircraft.

Owned by the Industrial and Commercial Bank of China, ICBC Leasing is based in Beijing and has other offices in Tianjin and Dublin. It specialises in leasing to the Asia/Pacific market, and specifically to the Chinese market where demand is still strong despite worries about the Chinese economy.

Earlier this year Fitch Ratings said that ICBC Leasing planned to launch "a specialised aircraft leasing company in Hong Kong", but that while "the plan has

been approved by ICBC, no further details have been announced".

It has 48 customers globally but China the single largest market with 17 customers that include the "Big Three" and almost all the second-tier carriers in the country.

The lessor has outstanding orders for 44 aircraft — 25 A320neos, 13 A321neos, six 737-800s.

Dubai Aerospace Enterprise

Dubai Aerospace Enterprise (DAE) has a portfolio of 302 owned and managed aircraft — four fewer than

12 months ago following the full absorption of the 240-strong AWAS fleet it bought in August last year and the sale of 16 aircraft for \$900m in the second quarter of 2018.

The majority are narrowbodies, with 136 A320 family aircraft and 109 737s, and the remainder made up of an assortment of widebody types, including 29 A330s and 12 777 freighters. The fleet has an average age of 6.2 years and is placed with 110 airline customers in 55 countries.

DAE is based in Dubai and has offices in Dublin, Singapore, Miami, Seattle and New York. It has no outstanding orders, although there are various reports that DAE is negotiating with Airbus and Boeing for potential orders of up to 400 aircraft.

Aviation Capital Group

Aviation Capital Group's portfolio has risen by 30 aircraft over the last 12 months, to an estimated 295 owned or managed aircraft, the majority of which are narrowbodies. They are leased to approximately 100 airlines in 45 countries.

ACG is based Newport Beach, California and is a subsidiary of US insurance group Pacific Life. It also has offices in Dublin, Beijing, Shanghai, Singapore, Santiago and Seattle.

In July this year, at Farnborough, ACG ordered 20 737 MAX-8s, bringing its total outstanding order book for MAXs to 97. Also on order are two 787-9s, six A320ceos, 60 A320neos, and 10 A321neos.

Aircastle

Aircastle's portfolio expanded by 37 aircraft over the last year, bringing its portfolio to 228 owned and 12 managed aircraft.

The increase was all in owned aircraft, and — as at the end of June 2018

Aviation Strategy

— the owned portfolio has a net book value of \$6.7bn and an average age of 9.5 years. Aircastle is a specialist in older aircraft; in the first half of 2018 it bought 13 aircraft, with an average age of 8.4 years.

Aircastle also continues to overhaul the make-up of its owned fleet; back in June 2014 the portfolio comprised 79 new generation narrowbodies, 18 widebodies and 31 freighters or classic aircraft; today the mix has changed to 196 modern narrowbodies, 28 widebodies and just four freighters or classic narrowbodies.

The portfolio is leased to 84 customers in 45 countries globally. By net book value, Brazil is its largest market (8.1%, with 14 aircraft placed there), followed by the UK (6.8%, 32 aircraft); Indonesia (6.2%, 12) and India (5.6%, 16). Aircastle is based in Stamford, Connecticut, and with offices in Dublin and Singapore.

ORIX Aviation

ORIX Aviation is based in Dublin and has other offices in Hong Kong and Japan, and is owned by the Japanese financial services group Orix Corporation.

In August this year Orix Corp agreed to buy a 30% stake in Avolon from the HNA Group for US\$2.2bn (the deal is expected to close by November), with the latter selling a minority stake in order to reduce its overall corporate debt pile.

ORIX's portfolio has risen by an estimated 25 units over the last 12 months, to 225 owned and managed aircraft, the majority of which are older narrowbodies. They are placed with 65 customers in 30 countries.

CDB Leasing

CDB Leasing is owned by the giant China Development Bank and is based in Dublin, and Hong Kong, with a further office due to be launched in Shanghai soon.

After an IPO in 2016, CDB's shareholding in CDB Leasing fell from 89%, to 64%, but according to an analyst "the bank remains the controlling shareholder with strong influence through key management personnel appointments".

CDB leases a range of industrial equipment, but its aircraft portfolio has increased by 20 units over the last 12 months, to 220. It has a mixed fleet of narrowbodies and widebodies with an average age of under five years. It is placed with more than 50 airlines in 27 countries, the majority of which are in the Asia/Pacific region.

Its outstanding order book has increased significantly over the past 12 months to reach 174 aircraft, comprising 78 737 MAXs and six 787-9s, 58 A320neos, 32 A321neos

Apollo Aviation Group

The Apollo Aviation Group continues its steady growth, adding 65 aircraft over the last 12 months through a series of purchases of assorted narrowbodies and widebodies at a combined cost of just under \$1bn.

Based in Miami and with other offices in Dublin and Singapore, the lessor employees 70 people, and its current portfolio of 200 aircraft are placed with more than 90 airlines in 52 countries globally.

Macquarie AirFinance

Macquarie AirFinance has trimmed its portfolio yet again over the last 12 months, by 10 aircraft to 196 as of today. All of these are owned as

Macquarie AirFinance has now exited the last two aircraft that it previously managed.

The majority of aircraft are narrowbodies, comprising 110 A320 family aircraft and 71 737NGs, though the lessor also owns nine A330s. The fleet is placed with 88 customers in 50 countries, with two-thirds of the portfolio with airlines in either the Asia/Pacific or European regions (72 and 61 aircraft placed there respectively).

Part of the finance giant Macquarie Group, Macquarie AirFinance is headquartered in Dublin and has offices in London, Singapore and San Francisco.

In July the lessor ordered 20 A320neos, with 40 A220-300s (previously known as the Bombardier CS300) also on outstanding order.

Boeing Capital Corporation

Boeing Capital Corporation (BCC) is based at Renton, Washington and is a lender of last resort finance for all types of Boeing equipment.

As at the end of June 2018, the net value of BCC's portfolio's value was \$3.5bn — around \$400m lower than the value as of 12 months previously. BCC is reticent about releasing details of its portfolio, but in the first six months of 2018 BCC's revenue fell 16.5% year-on-year, which Boeing says, "is primarily driven by a smaller portfolio".

We believe BCC's portfolio of fully- and partially-owned aircraft now stands at 190 aircraft, some 20 fewer than 12 months ago.

BoCom Leasing

A new entry this year is BoCom Leasing, which has a portfolio of 130 narrowbodies and 30 widebodies. A subsidiary of Bank of Communications

(one of China's largest banks), BoCom is based in Shanghai and with another office in Beijing. The portfolio is leased to 50 airlines globally.

Jackson Square Aviation

Jackson Square Aviation is owned by the Mitsubishi UFJ Lease & Finance Company and is headquartered in San Francisco, with other offices in Dublin, Toulouse and Singapore.

It continues to grow aggressively, with another 31 jets being added to the fleet over the last 12 months, bringing it to 151 aircraft (more than 130 of which are narrowbodies). The portfolio has an average age of just over three years and is placed with 49 customers in 27 countries.

A sign of its ambition was shown at Farnborough in July this year, when JSA made its first-ever direct purchase from a manufacturer by ordering 30 737 MAX-8s.

Standard Chartered Aviation Finance

Standard Chartered Aviation Finance reappears in our table after nudging back up over the 100 aircraft level again. Based in Dublin, the lessor also has offices in Limerick, Hong Kong, London and Singapore.

It's portfolio of 135 aircraft are mostly narrowbodies and are placed with 30 airlines around the world.

Goshawk Aviation

Dublin-based Goshawk Aviation (with an office in Hong Kong) enters our table for the first time following sustained growth since being launched in 2013. Owned by Hong Kong-based shareholders Chow Tai Fook Enterprises and NWS Holdings, portfolio expansion is part of a plan

to move towards an IPO, and in July this year the lessor placed orders for 20 A320neos and 20 737 MAX-8s,

That came just one month after Goshawk announced a deal to buy the Irish subsidiary of San Francisco-based Sky Leasing. Though not yet executed (it's due to complete in Q3 this year and therefore is not included in our fleet table), the deal will add 51 aircraft to Goshawk's current fleet of 132, thereby increasing the portfolio to 183 owned and managed aircraft (141 of which will be narrowbodies) with an average age of just three years. When the deal is completed, the enhanced portfolio will be placed with 65 airlines in 35 countries.

Castlelake Aviation

Another new entry this year is Castlelake Aviation, which is based in Minneapolis, Minnesota, and has additional offices in London, Singapore and Luxembourg. It has a portfolio of 120 aircraft, 100 of which are narrowbodies, and they are placed with 60 customers globally.

China Aircraft Leasing Company

China Aircraft Leasing Company (CALC) is based in Hong Kong and just sneaks into our table this year with a portfolio of 107 jet aircraft, all but a handful of which are narrowbodies.

Owned by a number of local investment companies, CALC has eight other offices around the world, although the only one outside the Asia/Pacific region is in the leasing stronghold (ie tax haven) of Dublin. It has added more than 25 aircraft to its portfolio over the last 12 months, which has an average age of around four years. On order are 50 737 MAXs, eight A320neos and 130 A320neos.

OUTSTANDING ORDERS FROM SMALLER LESSORS

	Boeing	Airbus	Total
Alafco	40	82	122
Timaero Ireland	22	20	42
Lease Corporation International		20	20
Amedeo		20	20
GTLK		6	6
International Airfinance Corporation		4	4
Global Aircraft Trading		2	2
	62	154	216

Other lessors

Lessors with portfolios of less than 100 aircraft but with outstanding orders include **Alafco** — majority owned by the Kuwait Finance House — with 40 737 MAXs, 67 A320neos, 10 A321neos and five A350-900s.

Based in Dublin are **Timaero Ireland**, with orders for 22 737 MAXs and 20 A320neos, and **Lease Corporation International**, with 17 A220-300s and three A220-100s.

Dublin-based widebody specialist **Amedeo** still has 20 A380s on order, and is apparently embarking on a project which may involve setting up its own airline to operate them.

GTLK — a Russian state-controlled leasing company based in Dublin — has six A220-300s on order, while Dubai-based **International AirFinance** Corporation has four A320neos and Singapore's **Global Aircraft Trading** has two A320neos on order.



Spirit, Frontier and Allegiant: ULCC sector nearing 10% market share in the US

THE RYANAIR-STYLE ultra-low cost carrier (ULCC) business model continues to gain traction in the US. According to Cowen and Company, the three airlines in that sector — Spirit, Frontier and Allegiant — are on track to achieve a combined domestic market share of 10% by 2020, up from 4.3% in 2013 and 8% currently.

Compared to Europe, the ULCC business model had a late start in the US, where low-cost pioneer Southwest and up-market LCCs such as Jet-Blue have dominated the scene. If Southwest is included the LCC/ULCC share is around 29%.

Spirit Airlines, originally an LCC, became the first true ULCC in the US after Indigo Partners acquired a majority stake and control in the company in 2006. Indigo is a US private equity firm and a serial developer of ULCCs around the world.

The Fort Lauderdale-based carrier has been a huge success story, achieving industry-leading profit margins while growing extremely rapidly. Spirit went public in 2011 and is now the seventh largest US airline, with around \$3.2bn revenues in 2018.

Frontier Airlines began its LCC-to-ULCC transition in 2014, after Indigo Partners bought the Denver-based carrier from Republic Airways Holdings in December 2013.

Bill Franke, Indigo's co-founder and managing partner, had first tried to persuade his fellow directors at Spirit to make a bid for Frontier. When Spirit's board declined, Franke bid for Frontier himself, subsequently selling

his stake in Spirit and resigning as its chairman in the summer of 2013.

Frontier attained strong profitability quickly and grew its revenues to \$1.9bn in 2017. It filed for an IPO in March 2017, but those plans continue to be on hold because of a difficult situation with the pilots.

Las Vegas-based Allegiant Air — the tenth largest US carrier and publicly listed since 2006 — is also a ULCC, but it is a true niche carrier and has an unusual business model. Allegiant operates from small cities to large leisure destinations, utilising fully depreciated aircraft that give it flexibility to fly when demand dictates. It has no competition on 75-80% of its routes.

Allegiant has become a little more conventional in that it will have retired its old MD80s and switched to an all-Airbus fleet by year-end, but it has a new controversial \$420m-plus project on the horizon: building its own hotel/resort in Florida.

The three ULCCs' ultra-low fares have stimulated new traffic in the US, helping to boost growth in an already relatively mature air travel market. Their double-digit growth rates mean that they will continue to take share from the top-four US airlines (American, Delta, United and Southwest), which in 2013, after a decade of industry consolidation, accounted for around 80% of the market.

Spirit's former CEO Ben Baldanza made the point that the ULCCs had proved that a passenger segment existed in the US that had been largely ignored by airlines. "The idea that everyone who wanted to fly could fly absolutely was not true."

The fundamental reason why the ULCC business model is gaining traction in the US is that it is being more widely accepted by the travelling public.

Five years ago, Spirit was still fending off lawsuits, legislative threats and vitriolic national press coverage. But that has changed, in part because Spirit made its fares and fees transparent and educated consumers about ULCC-style pricing.

Frontier, in turn, sought to be a higher-quality ULCC with good customer service right from the start. Its slogan is "Low Fares Done Right".

The ULCCs have historically been plagued by high levels of flight delays and cancellations, which caused customer complaints to soar. But Spirit has made much progress in tackling those issues in the past two years.

It is arguably also easier for US travellers to accept ULCC-type pricing now that the legacy carriers offer a similar product. In other words, the legacies' basic economy offering has helped "legitimise" the ULCC business model in the US.

The ULCC business model is now also better understood and liked on Wall Street. The reasons are clear: consistently superior profit margins, huge cost advantages and much success in ancillary revenue generation.

Because of those attributes, airline analysts and investors in the US have been able to put aside concerns about RASM performance and accept that rapid growth is an essential part of the ULCC business model. However, analysts have never approved of ULCCs' incursions into big legacy

hubs.

According to *Airline Weekly*, Allegiant, Frontier and Spirit were among the world's top-ten most profitable airlines in the 12 months to March 2018, with operating margins of 17%, 16% and 14%, respectively.

The main challenges for the ULCCs are significant labour cost hikes, threat of labour unrest, substantially higher fuel prices and more aggressive competition from the legacies.

The two largest ULCCs currently have contrasting labour situations: Spirit is enjoying a rare respite after its pilots ratified a new four-year agreement in February, while Frontier faces a potential pilot strike in the coming months.

Legacy-ULCC battles

After many years of peaceful coexistence with the legacy carriers, US ULCCs found themselves in a much tougher competitive environment beginning in 2015. Two things have happened: first, the legacies began to aggressively match the ULCCs' fares; next, they introduced basic economy — a bare-bones product offering aimed at competing with ULCCs.

In Spirit's initial 7-8 years as a ULCC, the legacy carriers were restructuring in Chapter 11, consolidating mergers or dealing with high fuel prices. Their shrinkage in many smaller markets had created ample growth opportunities for ULCCs. In those days the legacies were not interested in the ultra-price sensitive travellers that the ULCCs targeted. Spirit was able to grow unfettered.

However, after initially focusing on non-hub markets, Spirit decided to take advantage of American's 2011-2013 bankruptcy and expand aggressively into American's Dallas DFW hub.

In May 2015, strengthened by

its restructuring and merger with US Airways, American decided to start defending its hubs and matching ULCC fares. Spirit's decision to "hunker down for the fight" (as one analyst put it) led to its share price losing almost half of its value in 2015, and it was forced to contract in Dallas in 2015-2017.

The ULCCs' dramatic growth, the legacies' improved cost structures and the decline in oil prices in 2016 made the Big Three carriers more interested in the type of passenger the ULCCs targeted.

Delta became the first legacy carrier to introduce the basic economy product in 2015, and American and United began rolling out their versions in early 2017. By 2018 the offering was broadly available nationwide. Now also Alaska and JetBlue are planning to bring out their versions of basic economy.

So far at least basic economy's impact on ULCCs has been limited. Spirit executives have repeatedly described the impact as neutral or even slightly positive (because it tends to limit the number of seats the legacies offer at the lowest prices). The ULCCs view it merely as a yield management tool that helps the legacies manage revenues in their own networks. But the jury is probably still out on the longer-term impact, which one analyst not so long ago suggested represented a "secular threat to the ULCC business model".

The summer of 2017 saw a resurgence of ULCC-legacy hub battles, this time being more widespread, involving United and affecting both Spirit and Frontier.

Claiming that it had lost connecting passengers to ULCCs after its contraction in the wake of the merger with Continental, United began to aggressively match ULCCs' fares at its

Chicago, Denver and Houston hubs. As a result, Spirit and Frontier saw their unit revenues plummet in 2017.

This year, though, the domestic revenue environment has improved, reflecting fare increases to cope with sharply higher fuel prices. Spirit has led the industry on unit revenue recovery: its TRASM rose by 5.5% in Q3 and is projected to rise by 6% in Q4, driven by network changes, better yield management and strong ancillary revenue growth.

But the longer-term challenges remain: basic economy is here to stay (and will be refined), United's hub-strengthening will continue and the legacies will continue to defend their hubs. Possible implications for the ULCCs: slightly slower growth, somewhat lower profit margins, more thoughtful hub incursions, renewed interest in smaller markets and more international expansion.

Then again, the ULCCs have proved that they can achieve industry-leading profit margins even in periods of intense legacy fare matching. They can lean on their ultra-low cost structures, have better yield management and will reap benefits from a larger scale and nationwide presence.

Frontier's nifty responses to United's pricing moves have illustrated the nimbleness of the ULCC model. When United initially made its basic economy fares too restrictive, Frontier made its own fares more flexible. When United (among other carriers) recently raised its bag fees, Frontier reduced its change fees — a strategy that could allow it to pull traffic from United, whose basic economy fares are non-refundable and non-changeable.

It is hard to predict how large the US ULCC sector could eventually be. Because of Southwest, it may never

account for 20% of the market. But 15% (by 2025?) seems well within reach based on recent trends.

Another pertinent question is whether there will be consolidation in the sector. When Robert Fornaro took over from Ben Baldanza at Spirit in early 2016, there was speculation that it would soon lead to a Spirit-Frontier merger (at AirTran Fornaro oversaw the 2011 merger with Southwest). But now the feeling is that any consolidation is years away. Spirit remains totally focused on organic growth. The ULCCs have ample further growth opportunities. And the current regulatory climate is probably not favourable to airline mergers.

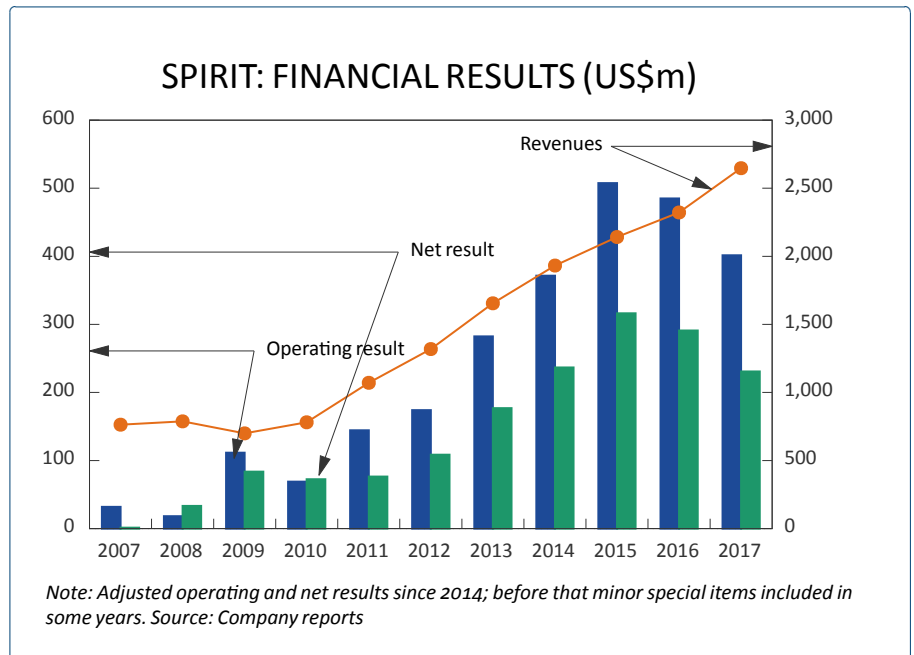
Spirit: What's next for the ULCC pioneer?

With CEO Robert Fornaro retiring at the end of this year and president Ted Christie (until recently CFO) taking charge, Spirit is seen entering its third distinct chapter as a ULCC.

The Baldanza years (2006-January 2016) were Spirit's formative era. Described by Forbes as "one of the airline industry's most successful, wildly unconventional CEOs", Baldanza oversaw the development of the ULCC model and Spirit's most rapid growth phase.

But Baldanza was forced to resign after he failed to communicate Spirit's strategy effectively to the financial community in 2015, when the skirmish with American developed and many US investors lost confidence in the ULCC model.

Another problem was that as a result of Baldanza's aggressive focus on costs, Spirit had the industry's worst on-time performance and customer complaint rates in 2015.



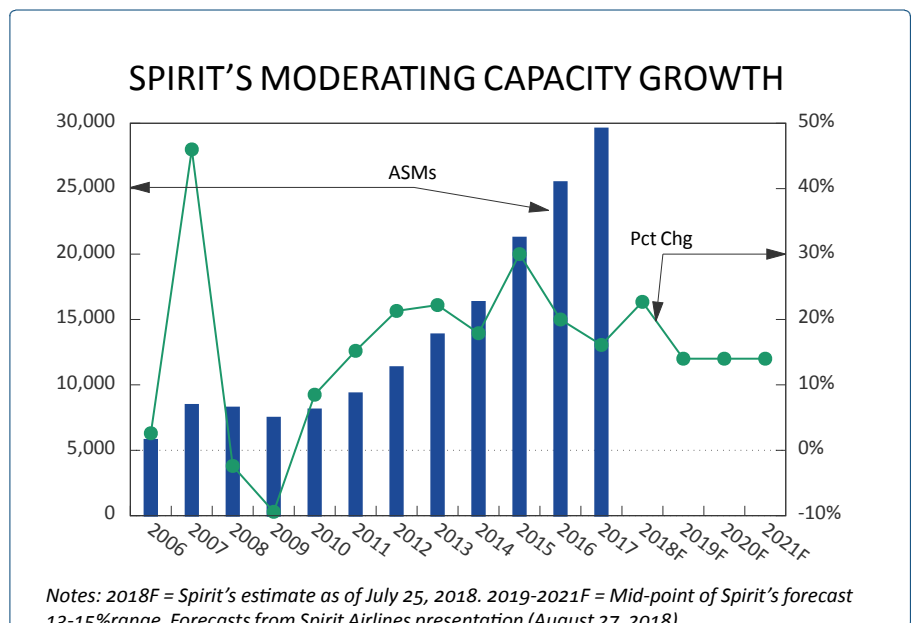
Under Fornaro's watch (2016-2018), the focus has been to improve operational reliability and customer satisfaction. Spirit has seen significant improvements in both areas. And there are many initiatives under way to improve the customer experience.

Spirit's ASM growth slowed from an annual average of 22% in 2012-2016 to 16.1% in 2017. Although this year is seeing an uptick to 22.7%, annual capacity growth is expected to moderate to 13-15% in 2019-2021.

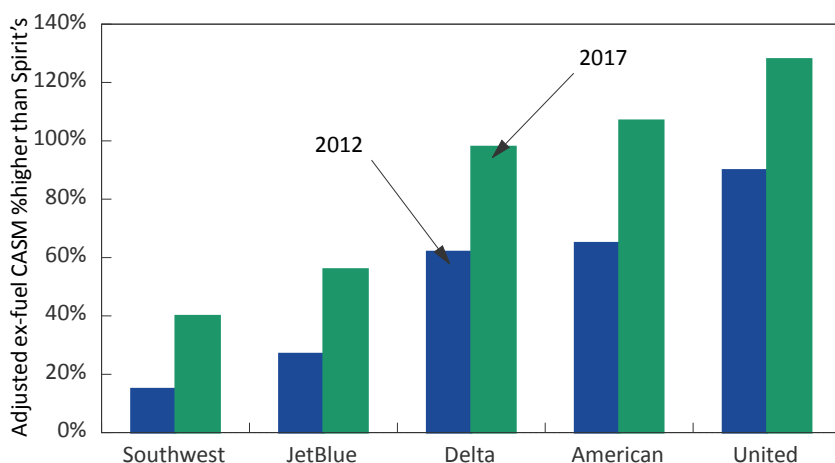
nual capacity growth is expected to moderate to 13-15% in 2019-2021.

Incoming CEO Ted Christie said in a mid-September interview with Cowen analyst Helene Becker that, in addition to continuing Spirit's operational, cost and ancillary initiatives, he would probably spend most time on the route network — "fleshing it out as the airline gets bigger".

Spirit already has an extensive, diversified network with 67 cities



SPRIT'S WIDENING COST ADVANTAGE



Source: Spirit Airlines presentation dated August 27, 2018

and 500-plus daily flights. The management divides the markets served into three main types: big cities that generate large volumes of leisure travel (such as Chicago, Detroit, Dallas, Houston, Baltimore, Los Angeles, Atlanta and New York); large leisure destinations (Orlando, Las Vegas, Myrtle Beach, New Orleans and South Florida); and international destinations (27 in the Caribbean/Latin America).

Spirit would like to grow more in big cities, especially New York, but most are gate or slot constrained. The airline benefits from being already well-established in such markets; it serves 22 of the top-25 US metro areas — a position that newer ULCCs will find hard to replicate.

In recent years much of Spirit's growth has focused on large leisure destinations, especially Orlando and Las Vegas. Growth in such markets will continue. Spirit has just launched international service from Orlando, adding 11 destinations in the Latin America/Caribbean region this autumn.

A sizable Latin America/Caribbean network, built grad-

ually since 2003 and representing 15% of total ASMs by year-end, is one of Spirit's greatest strengths. There are considerable further growth opportunities. Notably, Spirit now operates both FLL and Orlando as international gateways.

As Spirit has grown, it has naturally carried more connecting traffic — now 10% of total traffic. It is a fine balancing act for a ULCC: connecting traffic helps build international operations but puts downward pressure on ancillary revenues (for example, Spirit can collect a bag fee only once from a connecting passenger).

Spirit targets markets that can produce "mid-teens or higher" oper-

ating margins. The management has estimated that there are 500-plus such potential markets.

One important near-term task is selecting and ordering aircraft for post-2021 growth. Spirit's currently scheduled A320ceo/neo deliveries only run through 2021. The management is evaluating Airbus, Boeing and Embraer aircraft and is expected to make a decision in early 2019.

It will not be an easy decision because Spirit has good growth opportunities in many different types of markets. The management is open to adding a new aircraft type to the all-A320 family fleet, such as the CSeries/A220, which would be ideal for small and mid-sized markets. But Spirit could also benefit from a larger, longer-range model such as the A321LR, which would facilitate expansion deeper into South America.

Financially, Spirit is well positioned for the future. As well as seeing a positive unit revenue trend, it has reversed an earlier negative trend in non-ticket revenue per passenger, which is expected to be \$55-plus in 2018.

The management sees further opportunity to grow ancillary revenues through initiatives such as dynamic pricing, bundling existing products in new ways, better

SPRIT: FLEET PLAN TO 2021

	2017	2018	2019	2020	2021
A319	31	31	31	31	30
A320ceo	51	60	62	62	62
A320neo	5	7	21	37	55
A321ceo	25	30	30	30	30
Total	112	128	144	160	177

Note: Number of aircraft in service at year-end. Includes scheduled deliveries and retirements/lease expirations. Source: Spirit Airlines

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merchandising and developing loyalty-based programmes.

Spirit faces a hefty increase in labour costs, because the new pilot contract raised pilot pay by on average 43%. However, Spirit negated much of the impact on CASM by reducing aircraft leasing costs (via a deal to purchase 14 A319s off lease). Consequently, Spirit expects to reduce its ex-fuel CASM by 3.5-4% in 2018 and to keep it “flat-to-up-1%” in 2019.

With all major labour agreements set for a number of years, Spirit is currently in a happy position with labour.

Spirit enjoys a huge cost advantage over the US legacies and LCCs, and that advantage has widened significantly in recent years (see chart on the facing page).

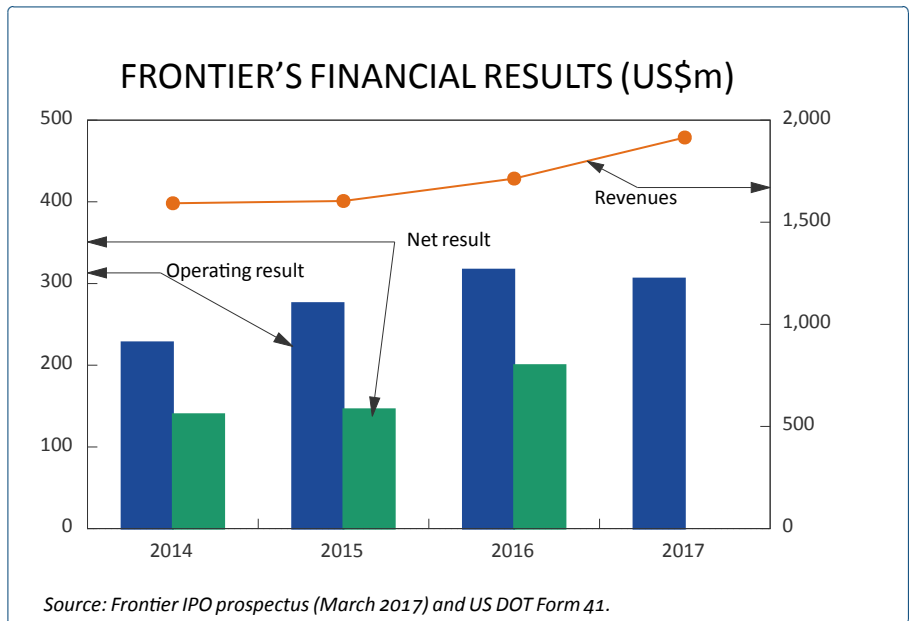
With growing overlap with the legacy networks, maintaining the cost lead is imperative. The management believes that Spirit’s cost advantage can widen further due to improved operational reliability, higher aircraft utilisation, addition of more junior pilots and scale benefits from growth.

Current consensus estimates see Spirit achieving operating margins in the low-to-mid teens in 2018-2019, after a 15.2% margin in 2017 and 21-24% in 2015-2016. However, Spirit’s operating margin lead over its peers is expected to decline to “in-line with or slightly above industry average” in 2018-2019, according to Fitch.

As a growth airline Spirit has relatively high leverage, but it also maintains a strong cash balance (31% of LTM revenues in June).

Frontier: Labour issues delay IPO

Frontier staged its LCC-to-ULCC transition in record time — perhaps not surprising given Bill Franke’s vast experience with that business model.



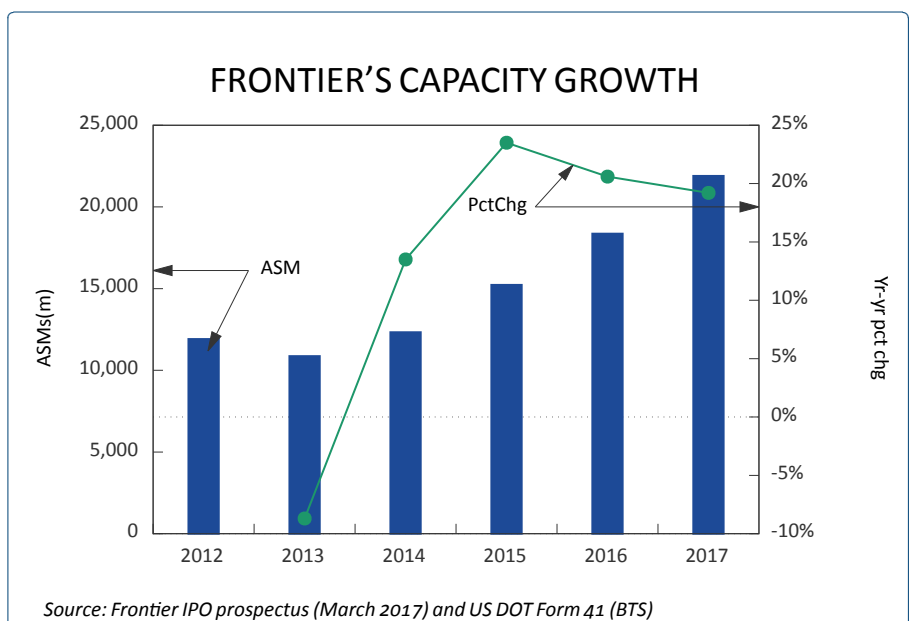
Frontier reduced its adjusted ex-fuel CASM from 7.89 cents in 2013 to 5.43 cents in 2016 — roughly the same as Spirit’s. The reduction has been attributed to factors such as increased aircraft utilisation, upgauging from A319s to A320s and A321s, higher seat density, renegotiation of distribution agreements, replacement of the reservation system, increased employee productivity and extensive outsourcing.

Rapid growth has also helped:

Frontier doubled its capacity in the four years up to and including 2017, growing its ASMs by 23.5% in 2015, 20.6% in 2016 and 19.2% last year.

Transitioning to the ULCC revenue model was equally swift. In 2016 non-ticket revenues already accounted for 42% of Frontier’s total revenues (up from 17% in 2014) and amounted to \$48.57 per passenger (up from \$21.69).

And Frontier’s efforts to position its brand as a “premier ULCC” in the



FRONTIER: FLEET DEVELOPMENT

	2013	2014	2015	2016	2017	2018	On Order	
							2018-2021	2025-2029
A319	35	35	33	22	18	10		
A320	18	20	23	27	24	21		
A320neo			4	17	28		54	100
A321			5	13	19	19		
A321neo								34
Total	53	55	61	66	78	78	54	134

US paid early dividends: it generated a unit revenue premium over Spirit in 2016.

But Frontier has had its issues with operational reliability and customer complaints. While Spirit has improved, Frontier appears to have deteriorated: in April and May it led the major carriers for complaints and had the second-worst on-time performance rate.

As a ULCC, Frontier has seen a dramatic improvement in profitability, achieving adjusted operating margins of 17.2% in 2015, 18.5% in 2016 and 16% in 2017.

But Indigo Partners has to wait longer than it would have liked to recoup its investment. The IPO was shelved in July 2017 after Frontier disclosed a \$45m hit to revenues from a work slowdown by pilots and intensified competition from United.

The pilot situation is alarming. In July ALPA, whose contract became amendable in March 2016, sued the airline in federal court for “bad-faith bargaining” and asked the federal mediator to declare an impasse; if the NMB agrees, a strike would be possible after 30 days.

Frontier will almost certainly have to agree to hefty pay increases. The pilots claim that they make 40% less than the industry average. Also, in 2011 Frontier pilots agreed to \$53m

in pay and benefit reductions after former owner Republic promised that they would share in the gains when profitability was restored. Other US carriers that asked labour for concessions kept such promises when they began to earn strong profits.

Like Spirit, Frontier should be able to retain its cost advantage through continued ASM growth and cost optimisation in non-labour areas.

Frontier’s network strategy as a ULCC has, first, reduced its dependence on Denver. The percentage of Frontier routes that touched Denver fell from 90% in December 2013 to 45% in December 2016. However, since mid-2017 Frontier has added some 21 new routes from Denver to take advantage of its “natural share of connecting passengers”, according to CEO Barry Biffle.

Second, Frontier has targeted medium-sized markets (1m-4.7m population), growing significantly in cities such as Orlando, Las Vegas, Philadelphia, Cincinnati, Cleveland, Atlanta, Trenton, Chicago and Phoenix.

Third, Frontier has sought a “broad geographic footprint” in the US. It now serves almost 100 destinations (more than Spirit), but it operates very limited frequencies and numerous seasonal services.

Frontier’s international network

is currently very small: Calgary, Puerto Rico and a few cities in Mexico and the Caribbean. Frontier did test the Denver-Havana route (insufficient traffic) and this year has begun codesharing with Mexico’s Volaris (another Indigo-backed ULCC), said to be the first such alliance between two ULCCs.

Frontier has estimated its long-term growth opportunity in the mid-sized cities niche at over 650 new routes. It has orders in place to facilitate growth through the mid-2020s.

In mid-October Frontier operated 78 A320-family aircraft and had another 200 on firm order. The orders include some 66 aircraft (mostly A320neos) from 2011/2014 purchase contracts that deliver by the end of 2021, and 134 aircraft (100 A320neos and 34 A321neos) ordered in December 2017 for delivery in 2021-2026. The latter was part of a mega Airbus order for 430 aircraft that Bill Franke negotiated for four Indigo-owned or affiliated airlines.

Allegiant: Resort developer or an airline?

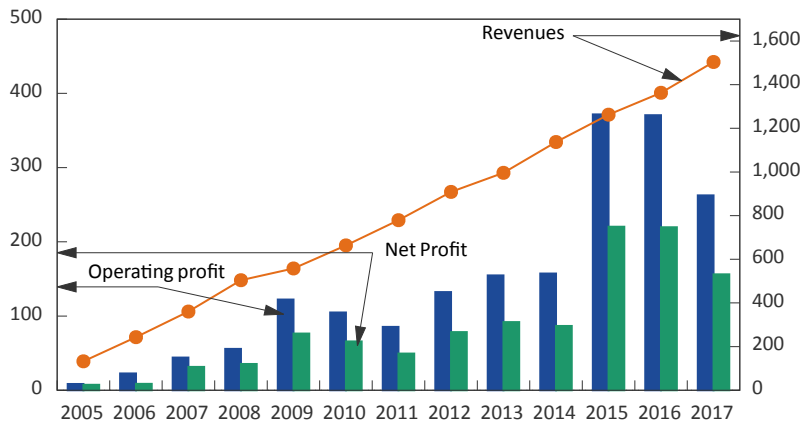
Allegiant is famed for trying out many new strategies and exiting them at great frequency. One recent example is termination of Hawaii and 757 operations in 2017 (see *Aviation Strategy*, April 2015, for Allegiant’s earlier adventures).

Currently there are two key strategies of interest: transition to a single-type, all-A320 family fleet, which should produce dramatic cost and efficiency improvements from 2019, and diversification into hotel/resort operations.

Allegiant is on track to complete the retirement of its MD-80 fleet in late November. It will have an aircraft deficit for a few quarters un-

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ALLEGIAN'T: FINANCIAL RESULTS (US\$m)



Source: Company reports

ALLEGIAN'T'S FLEET TRANSITION

	2018			
	Q1	Q2	Q3	YE
MD-80	32	27	19	
A319	26	31	31	32
A320	30	35	44	45
Total	88	93	94	77

Notes: Correct as of July 25, 2018. Includes in-service aircraft, planned retirements and future aircraft under contract (subject to change). Source: Allegiant

til more A320s have been delivered (from both Airbus and lessors). The plan is to operate 125 aircraft by the end of 2022.

The airline expects the all-A320 fleet to enable it to "maintain the same corporate model and nimbleness" it had in the past. Each A320 is projected to drive a roughly \$5m EBIT contribution.

The past two years' profits have been negatively impacted by the fleet transition and new labour deals, with higher fuel costs and A320

delivery delays also hurting the 2018 results. But Allegiant has continued to achieve strong operating margins, including 17.5% in 2017 and 17.9% in first-half 2018.

Historically, Allegiant's capacity growth has fluctuated depending on fuel prices. The fleet transition and the A320 delivery delays have temporarily reduced this year's ASM growth to only around 10%.

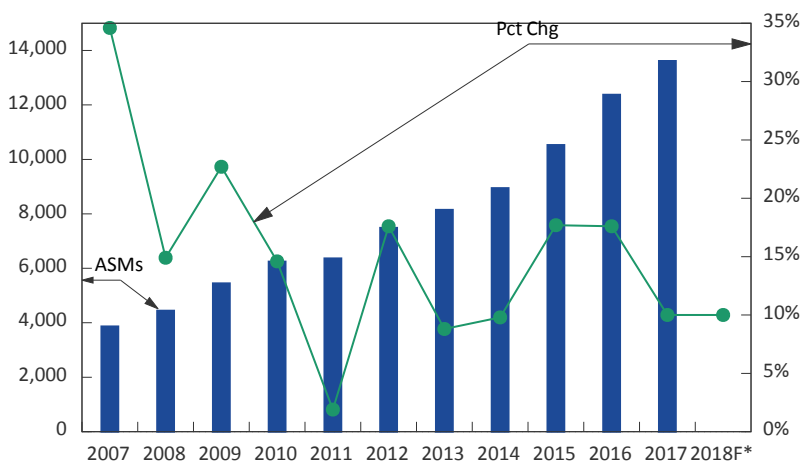
Allegiant expects to break ground on its Sunseeker Resorts project on Florida's Gulf Coast in February and

currently targets opening in late 2020. Described by management as an "important step in Allegiant's evolution as a travel company", the project takes advantage of the airline's strong growth to Florida, its dominant position in Punta Gorda, its ability to package vacations and lack of other hotel investment in the area.

Allegiant held an investor day in mid-September to try to sell the resort concept to a mostly sceptical Wall Street. Analysts are concerned that the concept has changed several times (the previous version included selling condos), and they would prefer Allegiant to focus on the much larger core airline business, given the promising prospects after the fleet transition.

If Sunseeker is successful, as most people expect it to be, Wall Street will no doubt be won over. Also, perhaps the idea is not so outlandish, after all, as Canada's Transat too has acquired land to build a beachfront resort (on Mexico's Yucatan Peninsula).

ALLEGIAN'T'S FLUCTUATING CAPACITY GROWTH



Note: 2018F = Mid-point of 9-11% range. Source: Company reports

By Heini Nuutinen

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The value of airports

WHAT DICTATES the value of an airport? To answer this question investors require a good understanding of what drives passenger demand and airport profitability.

Revenues tend to grow at a rate comparable to growth in passenger traffic and so airport commercial viability typically depends on realising economies of scale. As a result smaller airports struggle — nearly half of Europe's airports are loss making according to ACI. Indeed, if you just look at those airports handling less than 1 million passengers per an-

num, the proportion is even higher, at 76%. Net profit at these smaller airports averages minus 6% and return on capital invested averages minus 1.8%.

The overall health of the airport market is supported by around a third of airports making a solid return on investment. According to ACI the industry's net profit margin is 22% with a global return on invested capital at 7.3%. As an asset class airports have a reputation as a relatively safe haven for large amounts of capital; attracting pension funds, banks, infrastructure suppliers and sovereign

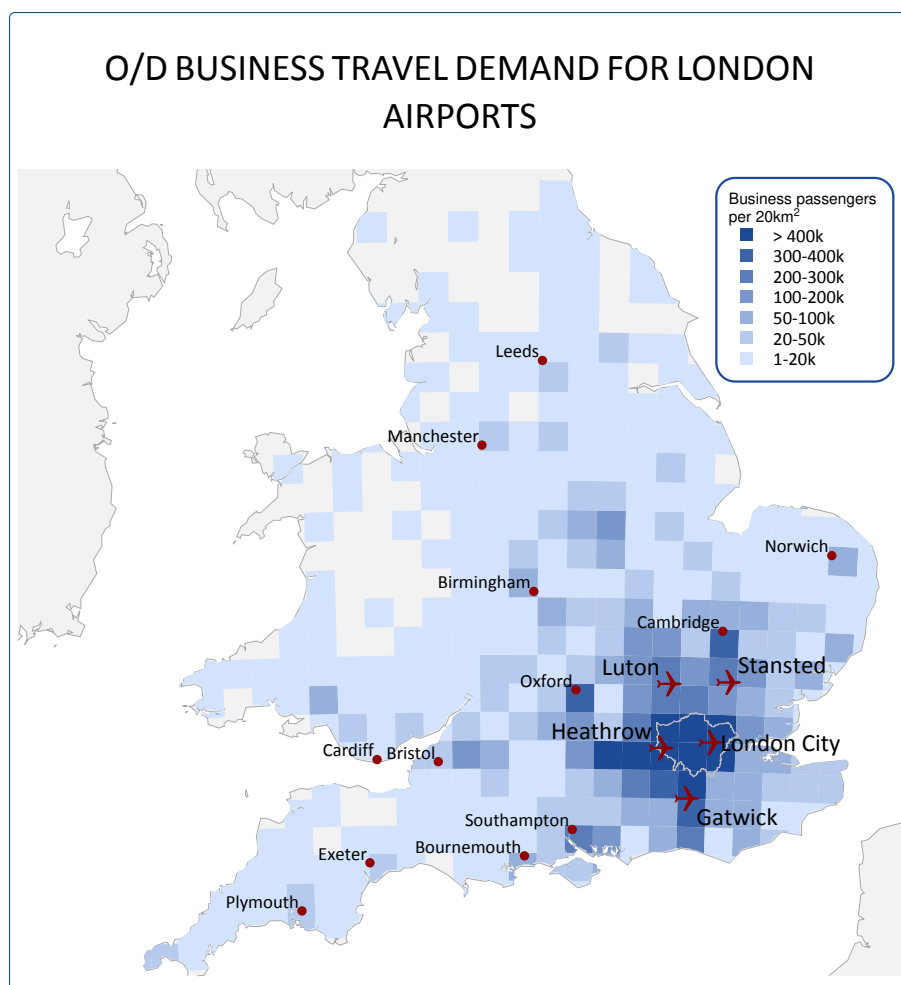
wealth funds looking to balance out their portfolio with large low risk investments. However not all airports are created equal and as with any other investment the risk incurred by investors depends on the financial health, growth strategy and market position of the airport in question.

Airport market position is largely driven by the economy of the surrounding area, its connectivity to other airports and how well it processes passengers and cargo. Anticipating future demand and deciding how this will be served dictates the investment required — creating a conflict between maximizing financial returns for investors on the one hand and improving the experience for passengers on the other. The following sections explore these drivers and the tensions between them.

Airports and passengers are prisoners of geography

Just as passengers often feel like there is no choice about which airport to fly from, airports do not choose their passenger catchment area and competitors. These are dictated by other airports and the local surface access infrastructure — primarily road and rail links. The size of the market itself depends on population affluence and propensity to fly.

The viability of competing modes or airports depends on the time and cost penalty involved for the passenger. While high speed rail can compete against aviation for journeys of up to 4 hours, beyond this air transport is the only practical means of maintaining a frequent time efficient con-



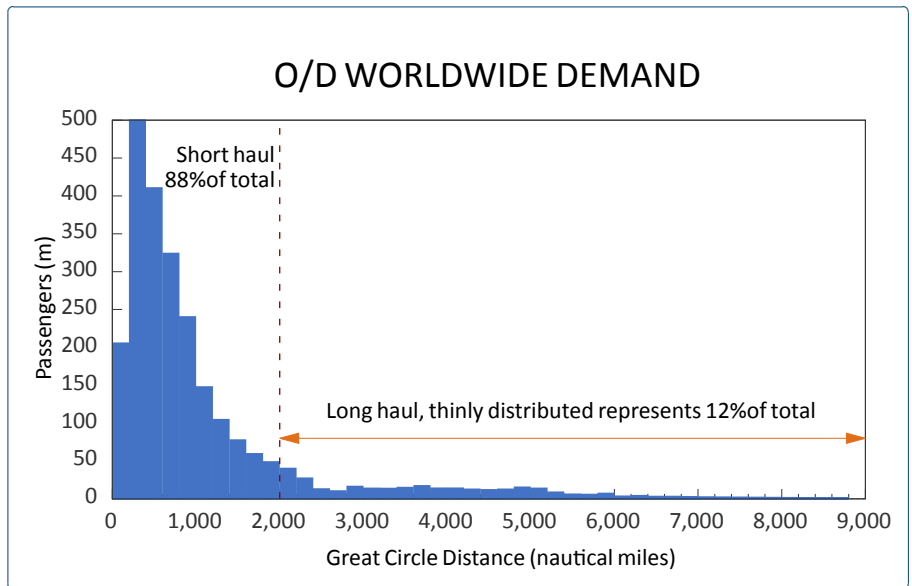
Aviation Strategy

nection. Journey time can be driven by the sheer distances between 'islands' of conurbation (which underpins US Domestic demand), underdeveloped road/rail infrastructure (particularly true in South East Asia) or, as is the case with London, natural geographical barriers.

Indeed London is the largest single air transport market in the world, partly due to its confinement by the English Channel limiting terrestrial international transport links to the Channel Tunnel rail link or time-consuming Ferry routes.

Frequent, direct connections aggregate demand

Unsurprisingly airport choice is largely dictated by direct destinations its airlines fly to. This determinant (very important for time sensitive business passengers) is followed by fare price, travel time to the airport and departure time convenience, according to the UK CAA Passenger Survey. This can create a re-enforcing cycle; the more demand an air-

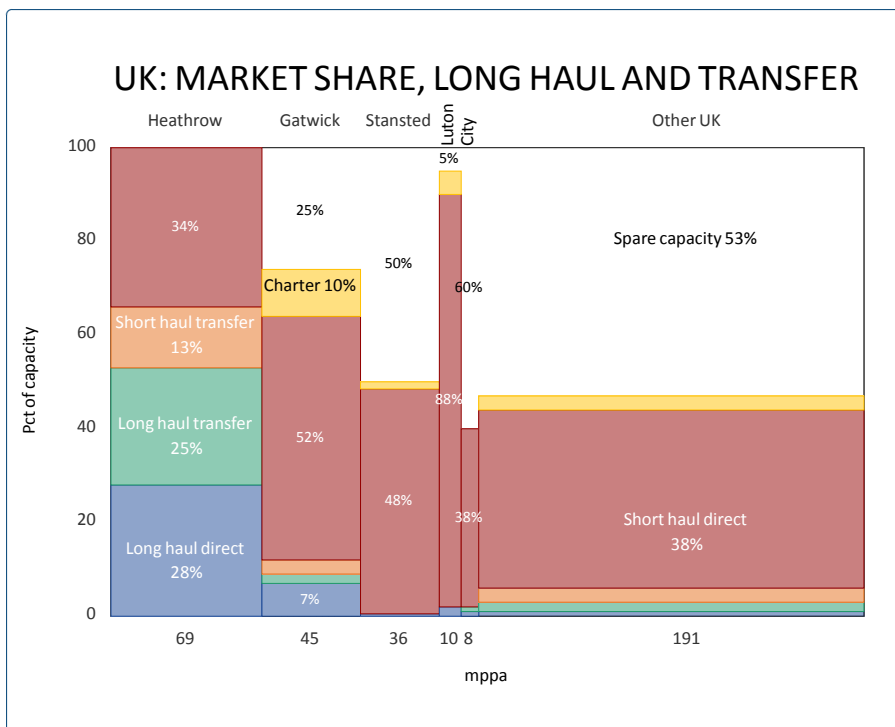


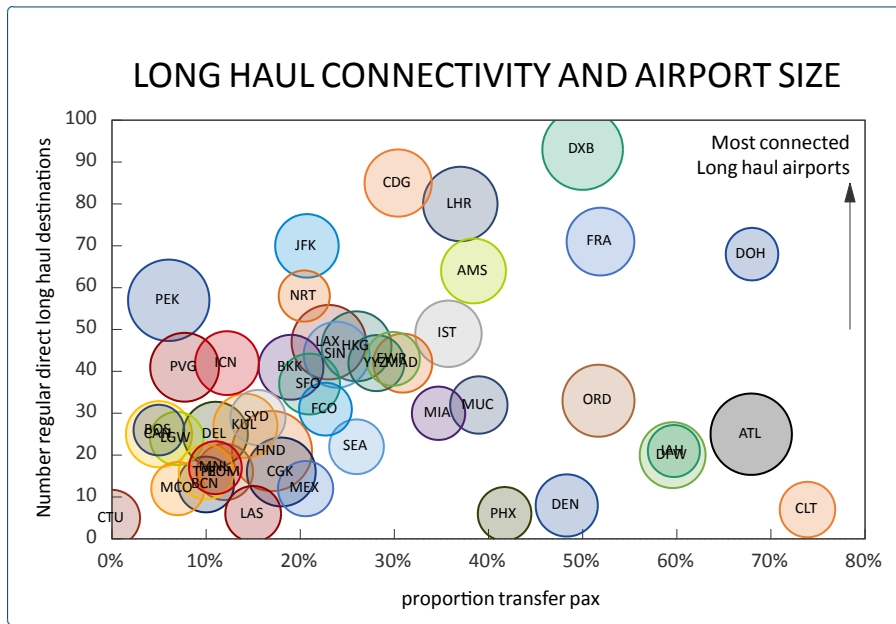
port can attract, the more direct connections it can support.

Connecting passengers are important at global hubs as they help to sustain connections which would otherwise be too thin, filling seats and improving profitability by providing a pool of flexible demand to supplement the local market. The market for connecting traffic depends on how well established an airport al-

ready is in the global transport network; requiring the presence of a network carrier with extensive hub and spoke operations. Global positioning of the airport is vital — global hubs need to be approximately equidistant from two strong O/D markets — consider the 'super-connector' Airports of the Middle East positioned between Australasia, CIS, Africa and Europe. Whilst airports' global positioning can't be changed, investment to facilitate transfers can be. Airport layout and infrastructure can also radically influence an airport's viability as a hub as these drive the airport's ability to provide short and reliable minimum connect times between aircraft. Thus while some cities will be natural homes for hubs even if the infrastructure is bad, and some will never make as hubs even if the infrastructure is good.

The aggregated demand of arriving, departing and connecting passengers dictates the number of destinations the airport connects to and the frequency with which it does so. The number of long-haul connections is a good 'bell-weather' for the health of intercontinental hubs and how well they tap into the relatively small pool





of long-haul passengers — who make up just 12% of all those flying.

Know your market — from visiting friends to getting the latest iPhone...

According to IATA global supply chains deliver \$5.5 trillion worth of goods by air every year, meeting consumer demand for products that may have their points of origin on the other side of the world. Industries driving globalisation are highly mobile relying on fast efficient and distributed networks to both design the product and deliver it to customers. An obvious example is the iPhone, along with other high-tech time-critical components such as aeroengines. Air cargo is also driven by perishable high value such as pharmaceuticals, luxury food and cut flowers.

Business travel is highly time sensitive and driven by industries hard-wired into the global economy — such as IT, Financial and Professional services — who rely on aviation to connect talent and know-how with markets around the world. This is also true of industries that achieve oper-

ability or economies of scale by standardising technology or products to a global specification such as automotive, aerospace or engineering. Just as tertiary industries require access to a strong talent pool, primary industries require access raw materials, be they oil or precious metals, and these are often located in hard-to-get-to places. These industries are a key driver of transport demand for travel to, amongst others, Central Asian 'Stans, Sub-Saharan Africa and South America. Linking the workforce to labour markets generates significant business commuter traffic — accounting for some of the densest routes being flown such as CJU-GMP in Korea and FUK-HND in Japan.

Leisure travel is driven by the demand to visit Friends and Relatives (VFR) and tourism. VFR is underpinned by cultural connections and patterns of emigration with demand concentrated on national or religious holidays, while tourist demand prevails during seasonal vacations. Where such holidays lie in quarterly reports changes from year to year often makes direct performance comparisons difficult.

Airport competition

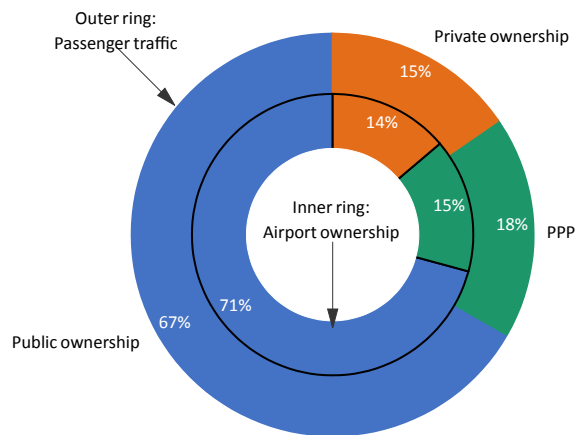
Airports compete with one another based on destinations served. Primary airports with good access to large, affluent (and typically urban) populations, and with the scale to support significant demand, tend to offer a greater number of connections, particularly to more expensive long-haul destinations. Secondary airports tend to compete on price. For example the London short haul market is distributed between Luton, Stansted, Gatwick and City; dominated by low cost carriers meeting regional business and leisure demand. Increasingly 'spilled' demand from the constrained Heathrow hub is making more long haul connections from these airports viable.

In cases where competition is lacking, as when one hub dominates long haul routes, regulatory oversight may be needed if it is deemed that an airport holds significant market power. Such regulation has, to date, been rare and focused on maintaining fair and affordable airport charges for passengers (in Europe only Heathrow, Rome, Paris and Brussels are subject to price cap economic regulation). However recent developments are increasingly focusing on the passenger experience.

Airport investment is a delicate balance

Providing a better experience for passengers costs money. Airports are capital and labour intensive, with a high proportion of fixed costs and multi-year capital investment infrastructure improvements. For example Heathrow's Terminal 5 was over 25 years in its planning, development and build — in the process setting the record for the longest public enquiry ever held. This supertanker-like

AIRPORT TRAFFIC AND OWNERSHIP BY TYPE



This exposure to a more diverse market provides them with a certain degree of financial resilience, even during global downturns, when it is likely that at least some economies will continue to grow. Their passenger markets are also likely to recover quicker — with confidence returning to high demand business orientated routes fastest partly due to a lack of alternatives.

Airports subject to economic price cap regulation have their allowable WACC set at the beginning of every regulatory cycle. This is typically determined by external benchmarking the appropriate cost of capital commensurate with the risk the investment represents to investors. A lower WACC implies a lower risk and reduces airport charges. However it reduces the attractiveness of the investment and capital investment may be delayed or cancelled, eroding the passenger experience.

This exposes a fundamental truth — airports cannot be everything to everyone and regulators must themselves take responsibility for plotting a middle course between affordability and a gold-plated passenger ex-

agility requires airports to steer the right course early on — anticipating both the number of passengers they will process and what their expectations will be. Underinvestment will erode the passenger experience, risk the reputation of the airport and diminish connectivity as airlines cut services; over-investment will reduce the ROIC and risk creating under-utilised assets.

Ownership of airports

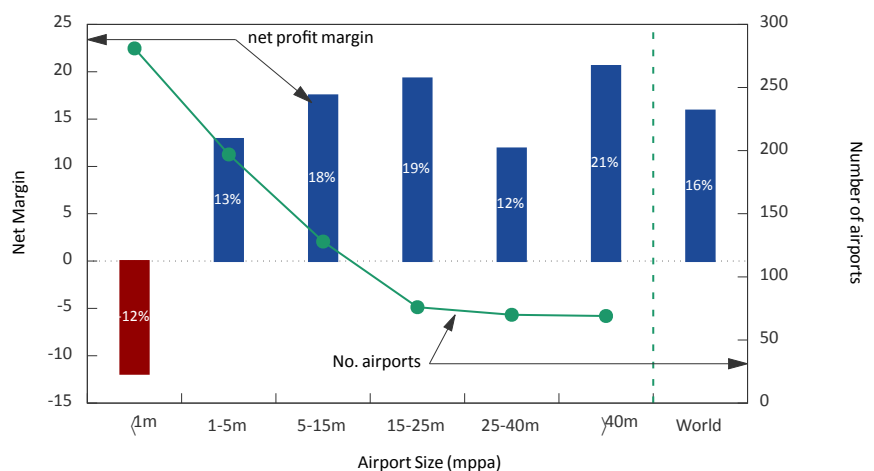
Ownership and management of airports is increasingly moving away from the public sector with around 500 airports now having some form of private sector participation in their ownerships. The drivers for the public budget are to provide receipts from airport sales and to facilitate infrastructure investment from private sources.

Governmental or local authority ownership continues for the smaller airports and investment incentives are provided by state or local authorities. However with airport capacity failing to keep pace with the continued strong growth air traffic in it is likely that we will see a greater pro-

portion of these airports become viable in their own right. An empirical observation from the available data suggests the 'magic number' appears to approximately 1m passengers per annum. There are exceptions to this rule — Private Business airports, for example, have relatively low volumes of high yielding resilient passenger traffic — however this remains a very niche market.

In addition to realising economies of scale large airports have more geographically extensive route network.

NET PROFIT MARGINS BY AIRPORT SIZE



perience. As Douglas Adams pointed out there is no expression, in any language, for 'as pretty as an airport' — perhaps this is something we should accept.

Improving airport financial performance

Just as high load factors are desirable for airlines, higher asset utilisation for airports deliver a better return. Indeed once fix costs and planned capital investment commitments are met, additional demand incurs minimal additional operating cost. Airport profitability therefore depends on exploiting improvements against forecast. Airlines know this and use it as a strong lever to negotiate favourable airport charges — Ryanair often guarantees high growth in return for very low (or non-existent) aeronautical fees.

Income improvements can be achieved by growing demand or improving spend per head; good airport management should exceed expectations in both respects. Unsurprisingly airports focus on the latter — concentrating on optimising the mix of retail concessions. There are limits to this. An overly commercialised proposition erodes passenger experience and, can, counter-intuitively, decreases spend per head — after all happy passengers spend more. Knowledge of the passenger mix and management of terminal space is vital to tailor the offering appropriately. When done well it can lead to spectacular results — providing a world class shopping experience for those that want it and keeping it out of the way for those that do not. Indeed it is an airport terminal currently has the greatest spend per square meter of any retail space in Western Europe. It is also worth noting that as commercial

revenues become more important to an airport, so its financial exposure to any downturn in passenger volume becomes ever greater.

A common denominator in the passenger experience is security and facilities management. To paraphrase Bill Clinton, the mantra of good airport management could be summarised as "it is the security queue, stupid". This, along with the provision of other 'Brilliant Basics' including clean facilities, resilient operations, well-maintained light-filled buildings and working baggage systems (the Achilles heel of many airports), should be the focus. Only once these needs have been met should airport management worry about finessing its retail offering or premium products — be they specialist goods, lounge areas or priority security lanes. Although 'magic bullets' are hard to come by there are some examples — Gatwick recently upgraded its security processing using a novel lane design and new technology which both reduced passenger processing cost and improved customer experience. The size of an airport like Gatwick means that even relatively small improvements can scale to a significant increase in profitability.

Good cost control is vital to ensuring an airport is run efficiently — particularly when it comes to capital investment. There are huge opportunities for airports to improve this through better information management, especially when surveying for infrastructure improvements. Large airports must also be mindful of 'false economies'; very aggressive cost control can destroy a supply chain, diminish quality, erode relationships and not save any money in the long run. Airports and their key suppliers must foster an atmosphere of respect and

trust and strategic partnerships with key suppliers have been shown to yield good results in this respect.

Opportunities for growth

Where an airport's prospects are recognised as integral to the region — such as in Hong Kong, Seoul or Singapore — a mindset of pursuing strategic growth prevails in public opinion, providing political capital for further expansion and investment. Where such support is more nuanced capacity constrained airports become highly skilled in managing the prevailing political consensus around their expansion. Key to this lies in developing plans and communicating arguments that simultaneously expound the economic benefits while illustrating how negative impacts around noise and air quality are mitigated against.

Conclusion

The value of an airport lies in its catchment area, air transport network connectivity and service proposition. For investors opportunities for growth should be understood, as should the robustness of the traffic forecast. For management marginal gains, particularly focused on 'brilliant basics' must be pursued to exceed expectations of both passenger and airport owner. Long-term airport strategy should focus on imaginative and collaborative means of nurturing future demand within the region.

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