This issue includes

2017 and all that

We failed totally to foresee the political upheavals of 2016. Unabashed, here are some of our predictions, or rather observations, for 2017.

Early signs are that economic prospects for the US under President Trump are looking disconcertingly rosy. Encouraged by a $1tn infrastructure spending programme, and a more nebulous feeling that Trump is, after all, a businessman, business confidence is up — the Dow Jones index has risen steadily from 18,000 just before the election to come close to knocking at the 20,000 level, while the US purchasing managers' index rose to 53.2 in November, above expectations and the highest level for five months.

The US airline industry continues to look solidly profitable, underpinned by market consolidation plus ownership concentration (see *Aviation Strategy*, November 2016). Internationally, the Middle East super-connectors will face more effective opposition, but at least Norwegian's operating licence has been approved under the Obama Administration (and surely won't be revoked by Trump?).

If Trump's protectionist rhetoric is turned into policy, that will be a disaster, but we suspect rationality will kick in, particularly with regard to Sino-US relations. And, from a Chinese airline perspective, if the Chinese Yuan is pushed into a revaluation, making it more valuable against the dollar and related currencies, one possible effect will be to further boost Chinese outbound tourism.

On this side of the Atlantic, most normal people are feeling drained by the Brexit debate (for a comprehensive analysis of the aeropolitical fall-out, see the September edition of *Aviation Strategy*). The UK CAA, the UK Department for Transport and DG MOVE in Brussels seem to be taking a sanguine view, which may make sense as probably nothing will happen in 2017. This is because the UK airline industry will be competing with other industries — finance, car manufacturing, defence, etc — for negotiating space at the Brexit table, and all sectors, at least as an open-

Season's Greetings

to all our readers

and

best wishes for a prosperous

New Year

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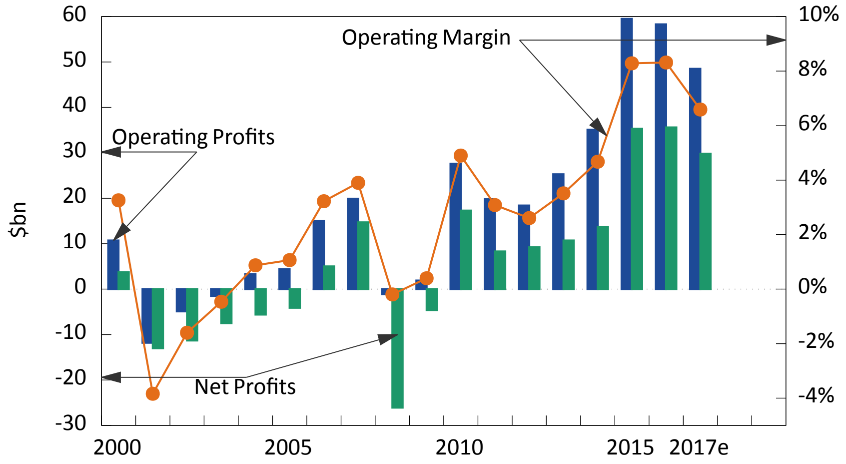
GLOBAL AIRLINE INDUSTRY PROFITS



Source: IATA

ing position, are looking to maintain as much of the status quo as possible.

The future of the continental European network sector could be a bigger issue. The Lufthansa Group and Air France-KLM have still not fundamentally restructured and have been plagued by union conflict (IAG isn't immune either); attempts to cut costs by using lower cost associates, Eurowings and Transavia, are running into brick walls. The consolidation strategy is no longer an option; if anything, de-merging KLM and Air France, might just happen.

Without UK influence, EU aviation policy may be more defensive, which is probably more bad news for the super-connectors, coming on top of a number of negative developments (see following article). But the super-connector model is economically robust, and could become stronger if some form of consolidation takes place in the Middle East.

The long-haul LCCs will be attacked by the incumbents but are not going to go away, although the full implications of this new model may only start to become apparent when the industry has gone through the next cyclical recession, and new and/or second-hand widebody capacity come onto the market. Ryanair's interlining agreement with Norwegian does not mean much in itself, but it is perhaps a warning that Ryanair, the archetypical second mover airline, is contemplating how this business could be made to fit its existing operations.

Industry profits globally are predicted to come under pressure, implying that 2015 will have been the peak of this cycle. In its latest forecast IATA is looking at total industry operating profits in 2016 of $58.3bn, down slightly from the record $59.5bn in 2015 but still on an 8.3% margin. For 2017 it is forecasting a further dip to $48.5bn (a 6.6% margin) and a decline in net profits to $29.8bn from $35.6bn. With assumptions of flat yields in the passenger and cargo markets, the risk is possibly on the downside.

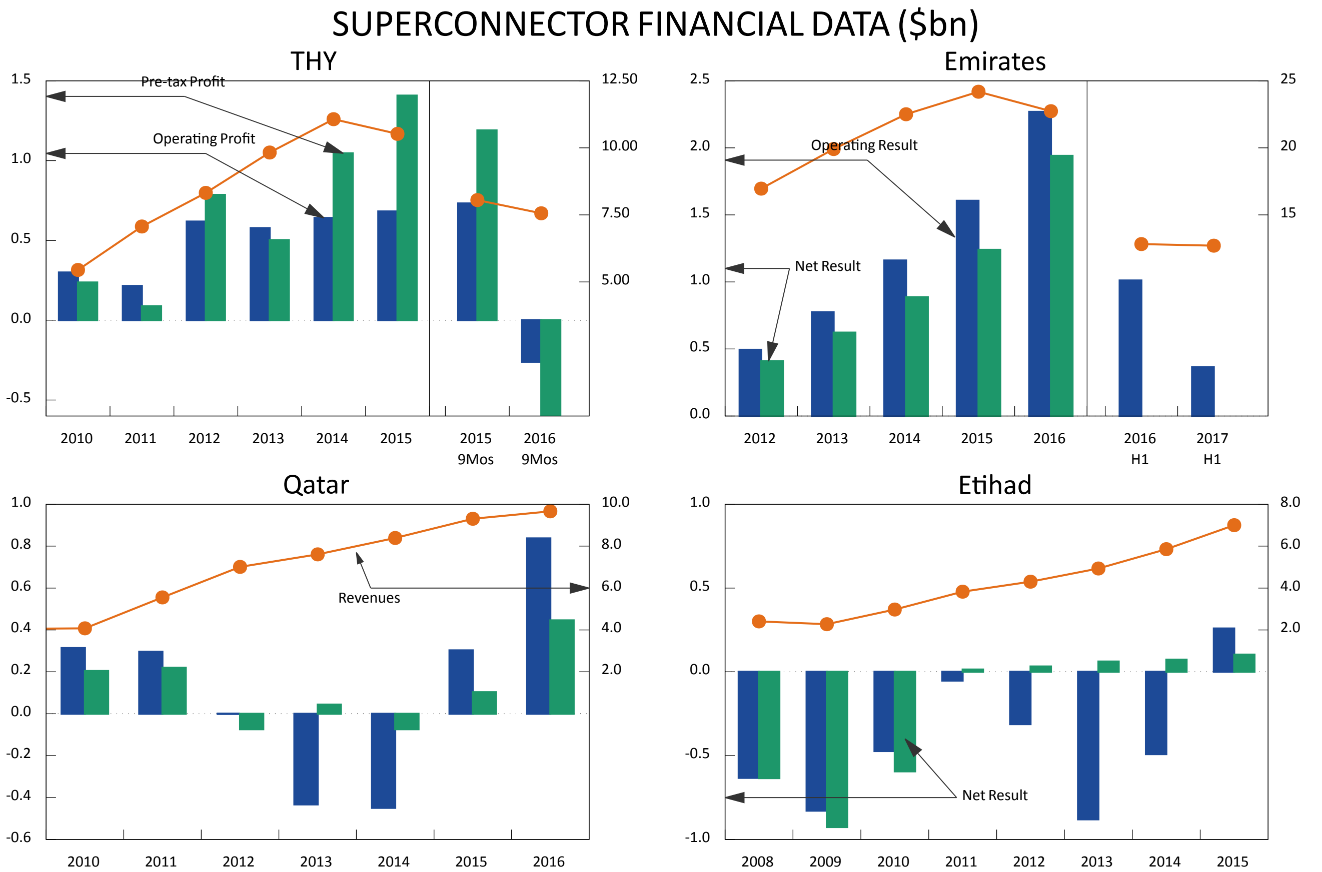
Super-connectors: competition bites

2016 HAS proven to be a period of deep discomfort for the super-connectors — the three Gulf airlines of Emirates, Qatar and Etihad plus THY. Emirates (the world's largest carrier ranked by international RPKs) recently announced a first half profit for the six months to September down by 64% year on year, while THY revealed a net operating loss of $260m for the nine months to end September down from a $732m profit in the prior year period. Does this throw doubt on the strategies of these new airlines?

Emirates stated that in the first half of the fiscal year ending March 2017 group revenues had risen by a mere 1% to AED46.5bn ($12.7bn) and profits had declined by 64% to AED1.3bn ($364m). The Emirates airline itself saw revenues fall by 1% despite a 9% increase in the number of passengers. It cited the double impact of a strong US dollar and a "challenging" operating environment.

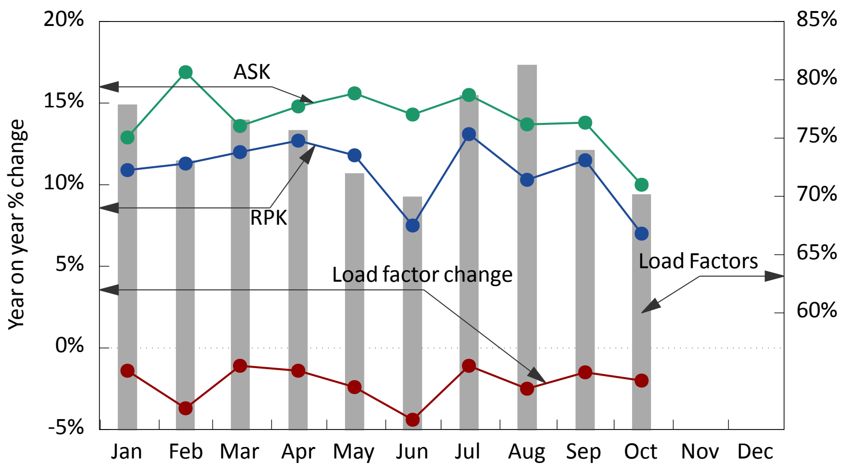
Capacity in ASK terms grew by 12% in the period while passenger demand in RPK increased by only 8% resulting in a 3 point reduction in load factor to 75.3%. Cargo traffic in tonnage was at a similar level to the prior year period. Fuel costs fell by 10% in the period and total unit costs seem to have declined by 4% year on year with total costs up by 5% and capacity in ATK terms 9% higher than in the prior year period.

The group figures include the results of Dnata (ground handling, inflight catering etc), which seems to be doing reasonably well, with revenues



Source: Company reports, Aviation Strategy, Partnership for Open and Fair Skies.
Note: Operating profits before extraordinary items. THY and Etihad FY ending December; Qatar and Emirates FY endin March. Etihad results relate to airline only: 2015 operating result may include extraordinary items.

MIDDLE EAST CARRIERS: INTERNATIONAL TRAFFIC 2016



Source: IATA

up by 14% but profits down by 1% to AED549m because of the effect of the strong US Dollar on the translation of its international operations. Emirates Airline profits apparently fell by 75% to AED786m ($214m).

Turkish woes

THY meanwhile published results showing a 10% year-on-year decline in revenues for the third quarter to $2.9bn and a 6% fall for the nine months to September to $7.6bn. Net operating profits in the quarter fell by two thirds to $226m making a total operating loss for the nine months of $(260)m compared with a profit of $732m for the same period last year.

This was on the back of a 14% increase in capacity in ASK terms over the nine month period and an 8% growth in traffic in RPKs — the load factor fell by 4 points to 74.5% — while yields collapsed by 12% on a like-for-like basis excluding currency movements. Unit revenues equally fell by 15%. Unit costs meanwhile fell by 8% in the quarter and 6.5% over the nine months; total fuel costs falling by 6.5% and 11% respectively.

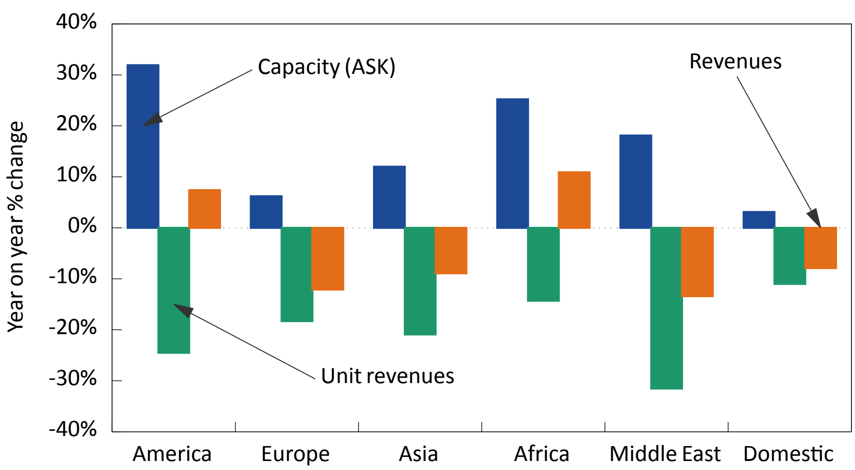
THY particularly highlighted overcapacity on some of its major markets — notably in Europe and on the North Atlantic — while the terrorist attacks in Europe earlier in the year and on Istanbul's Atatürk airport in June continue to have a dampening effect on local demand in Turkey and inbound tourist traffic. In October it announced that it had rescheduled the delivery of some 90 A320s and 10 737s originally planned for 2018-2022.

In the company's Q3 results' presentation, it showed the market development by region which makes some disturbing reading (see chart below). Its biggest growth areas in the third quarter were into the Americas and Africa with respective capacity growth of 32% and 25%. Unit revenues on these route areas fell by 23% and 12%. This you might expect, but at least total revenue on these areas seems to have grown. However, on routes to Europe, the Far East, Middle East and domestically unit revenue declines exceeded the increase in capacity.

Some of THY's data may represent its own unique problems, but it probably reflects the general trend on the super-connector routes through the Middle East. In their recent results' statements IAG highlighted an 11% decline, and Air France-KLM and Lufthansa an 8% fall in unit revenues to Asia, while the Asian majors have also commented on weak yield and unit revenue progression without necessarily putting down such fine detail.

Meanwhile in the chart above we show the results of the performance of all Middle East based carriers dur-

THY: REGIONAL PERFORMANCE Q3 2016



Source: Company Reports, Aviation Strategy ing 2016. Traffic in RPK terms has been growing at around 8% a year while capacity in ASKs has been increasing at around 10%. Load factors have dipped by an average 2 percentage points. In this environment one would expect weak yields and unit revenues beyond that to be expected from the fall in fuel prices. This probably helps to explain Emirates' comments on first half results. This will no doubt be exacerbated by the fact that the Dinar (as indeed the Qatari Riyal) is pegged to the US dollar.

The other two major Gulf carriers, Qatar and Etihad, do not publish reliable results or consistent data. However, as a result presumably of the public action by the US majors accusing the Gulf carriers of "unfair" competition and the disgrace of state "subsidies", these two are now trying to present a more open attitude towards financial and operational disclosure, even though there is no statutory requirement to do so.

Qatar's first annual report

Qatar published its "very first" annual report in July along with audited financial statements covering the year to March 2016. In that year it achieved an operating profit of QR3bn ($837m) (treble the amount achieved in the previous financial year) on revenues of QR35.6bn (up by 4%) representing an operating margin of 8.6% — probably the best operating margin in its 20 year history. This followed a 20% increase in seat capacity and a 19% growth in passenger numbers to 26.6m and benefited from a near 30% decline in fuel costs — passenger unit revenues appear to have fallen by 15% in the period.

The company doesn't say much about the operating environment in the current year, save that it will be opening 17 new destinations after the 13 introduced in 2015/16 and, with reference to a falling fuel price, that "cost offsets to date are not greater than the lost revenue opportunities". Like Emirates and Etihad, Qatar does not publish monthly traffic statistics; but we understand that it has continued to grow in 2016/17 at the same 20% rate of the previous financial year. Half the size of Emirates in the number of seats offered, it still has some way to go to catch up.

Etihad and its partners

Etihad didn't publish an "annual report" *per se* for its financial year ended 2015 but it did put out a press release with a few numbers. In that year it increased seat kilometre capacity by 21%, matched by a similar growth in passenger kilometres, while the number of passengers grew by 19% to 17.6m and load factors were little changed at 79%. Total revenues also supposedly increased by 19% while operating profits were similar to the prior year at $259m — a 3% margin.

This operating profit figure may include non-operating exceptional items at the operating level as it has in the past (see chart on page 3). We assume that it also excludes any recognition of the gains or losses at the Etihad Equity Partners — airBerlin, Alitalia, Jet, Virgin Australia, Air Serbia, Air Seychelles and Darwin.

CEO James Hogan stated that ″the airline's return on its equity investments into the seven airlines was many times more than the money it had spent. For an investment smaller than the cost of three new aircraft, we have been able to build our global network, attract five million new customers and $1.4 billion of revenues, and share massive cost synergies. That's smart business.″

Whether or not we agree with him, Etihad has had to keep pushing cash into airBerlin to keep it afloat — and the latest restructuring plan involves adding another €300m into a new airline to be created out the "bad" airBerlin and TUI (see *Aviation Strategy,* October 2016). There are rumours meanwhile that Alitalia also is running out of cash again — it is reputed to be losing €1.5m a day. The Italian flag-carrier, in which Etihad has a 49% equity stake, is proposing some further 2,000 job cuts (a sixth of its workforce) and grounding twenty aircraft with an anticipated return to break-even by 2020.

For the current year Etihad has said little. In a factsheet published in October the company indicated that the number of passengers had grown by (a modest) 7% in the nine months to September (well down on the 19% growth in 2015) and that it had cut the number of destinations served. In December however there was a news report that Etihad has isssued a statement suggesting it was cutting jobs "as part of a restructuring", adding that it was "operating in an increasingly competitive landscape, against a backdrop of weakened global economic conditions". So they are hurting too.

Reputable reports from Abu Dhabi suggest that Etihad, as well as cost cutting, is reviewing its airline investment strategy and management structure, which may mean a series of (challenging) divestments and the departure of CEO James Hogan.

Competitive overlap

The four carriers have not just been providing thorny competition to the established legacy network carriers (primarily driven by their advantage of location); they also compete heavily against each other. In the table

SUPERCONNECTORS: DESTINATION OVERLAP

Percentage "spoke" scheduled seats	*in competition with* Emirates		Etihad		Qatar		THY		Not competing	"Spoke" seats 2016 (m)
	pct†	*share‡*	pct	*share*	pct	*share*	pct	*share*		
Emirates	–	–	76%	*74%*	81%	*66%*	22%	*59%*	6%	42.3
Etihad	95%	*26%*	–	–	92%	*42%*	22%	*34%*	1%	11.8
Qatar	79%	*34%*	69%	*58%*	–	–	80%	*37%*	6%	22.0
THY	34%	*41%*	34%	*66%*	54%	*63%*	–	–	41%	55.2

Source: schedules data, Aviation Strategy analysis. "Spoke seats" defined as seats from feeder airports towards respective hubs; excludes hub-to-hub routes (eg Dubai-Istanbul). Notes: † percentage of "spoke" departing seats in direct competition; ‡share of the joint capacity.

above we show a matrix that highlights the distinct overlap between the respective hub networks. Based on the number of seats scheduled to depart from respective "spoke" cities in 2016, it is only THY with its extensive short haul network that serves a significant number of destinations that are not in competition with the other three — covering some 40% of its total planned seats.

For the Gulf carriers both Emirates and Qatar have just 6% of their network seats, and Etihad a miniscule 1%, on destinations not served by the other three. As a corollory, for example, Etihad has 95% of its spoke seat capacity competing directly against Emirates and this accounts for 26% of the joint capacity offered on these destinations, while Emirates sees 76% of its seats in direct competition with Etihad and has a 74% share.

Meanwhile, all four carriers continue to take significant numbers of new aircraft into their fleets. This year Emirates alone has taken delivery of 16 A380s and 13 777s (while disposing of 14 older A330s and 777s). All have huge orders with the manufacturers (see chart below). Qatar in October announced an order for another 30 787s and ten 777s, and a LoI for 60 737MAX 8s. It is only THY so far that has publicly announced aircraft delivery deferrals.

So where now?

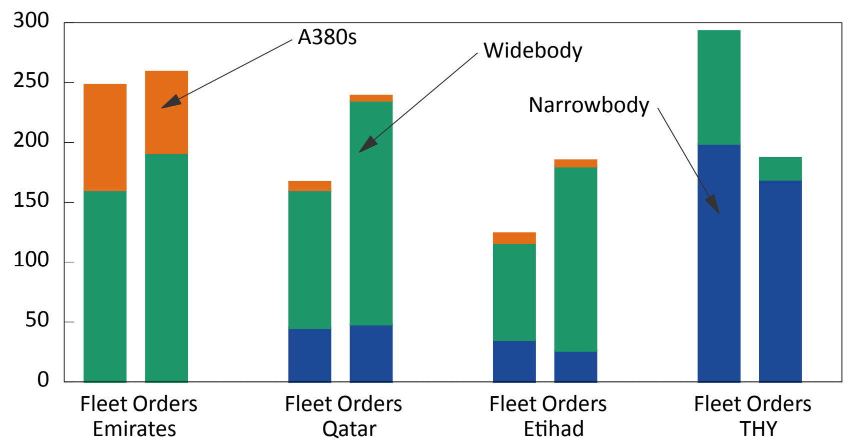
✈ The competition is intense between the four, and is unlikely to abate.

✈ In this subdued growth environment there is the prospect of a period of significant over-capacity: clearly demand, for whatever reason, is not being stimulated by the introduction of routes bypassing the traditional network hubs in Europe, Asia and North America in the same way it had in the past decade. Something will have to give.

✈ The risks to this group may be increasing. Trump's election in the US may be signalling a move towards protectionist policies that might favour the top 3 US carriers' complaints of "unfair" subsidies and bolster the campaign of the Partnership for Open and Fair Skies. The EU, following the UK referendum vote to leave the bloc, is likely to be increasingly taking the more protectionist attitudes of France and Germany without the influence of the British liberalising input.

✈ THY's problems in the current year emphasise the dangers of the political tensions that lie so close to the surface in the region.

FLEETS AND ORDERS



Korean Air: soul of northeast Asian aviation

KOREAN Air posted its best quarterly result ever in the July-September period; has South Korea's flag carrier fully recovered from its 2008 low?

Based in Seoul, South Korea's flag carrier was launched in 1962 as a direct replacement for Korean National Airlines before changing its name to Korean Air in 1984. Today it has around 18,500 employees and operates to 12 domestic destinations and 129 destinations in more than 40 countries globally.

As can be seen in the chart on the current page, Korean Air's financial results have varied widely through the 21st century, but the low point was 2008 when it reported a net loss of ₩1,942bn (US$1.8bn). However, the airline has transformed itself since then, become far better at both cost control and revenue generation — for example, passenger load factor has risen steadily over the last few years (see chart on the following page), increasing from 69.8% in 2009 to 80.9% in the 3rd quarter of calendar 2016.

In 2015, despite a 3.1% fall in revenue to ₩11,545bn ($10.0bn), it recorded a 23.5% increase in operating profit to ₩883bn ($766m) representing a 7.7% margin — although it still had a hefty net loss of ₩563bn ($488m). However, Korean Air posted its largest quarterly profit in history in the July-September 2016 period, with operating profit up 34.5% year-on-year to ₩460bn ($422m) giving a near 15% margin. Revenue rose by 4.9% in Q3 2016 to ₩3,118bn ($2.9bn) — based on a 14% increase in passengers carried — and net profit reached ₩511bn ($469m), compared with a net loss of ₩508bn in the third quarter of 2015.

For the nine months to end September the company reported a 2% growth in revenues to ₩8.8tn, a 3% decline in costs and a 78% jump in operating profits to ₩942bn delivering a margin of 11%. In the period international passenger traffic grew by 7.5% in RPK terms against an increase in capacity of 5.7% giving a 1.4 point improvement in load factors to 78.7% while unit revenues fell by 2% in dollar terms. Cargo demand on the other hand fell by 3.5% in tonne kilometre terms on the back of capacity little changed on the year before, and cargo unit revenues slumped by a further 12%. Net profits for the nine months came in at ₩85bn compared with a loss of ₩810bn in the prior year period.

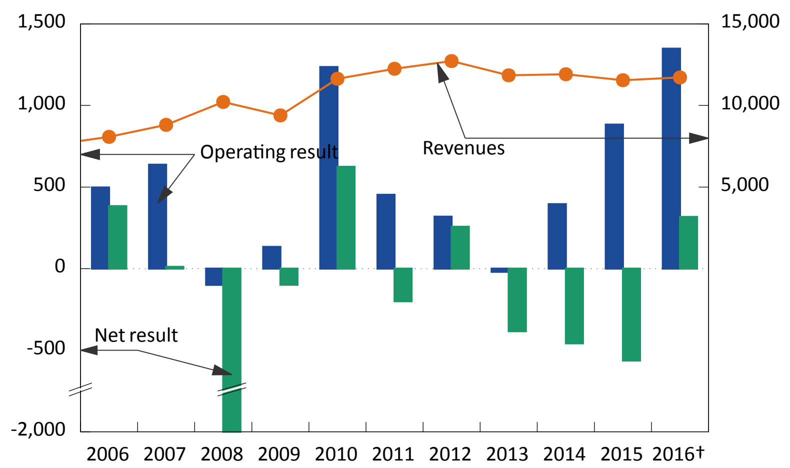
That net profit came after taking a ₩322bn impairment loss for Hanjin Shipping in the quarter — one of the world's largest container shipping companies, and a sister company of Korean Air in the Hanjin chaebol, which went into receivership earlier this year. Total impairment and associate losses for the nine month period touched ₩795bn.

Korean Air bought a 33% stake in the company in 2014 and has invested a reported US$1.8bn since then in an apparently doomed attempt by the Hanjin Chaebol to survive in a cargo shipping market that has suffered from fierce competition and massive overcapacity over the last few years.

Diverse fleet

Korean Air's fleet currently totals 161 aircraft and has a wide variety of types, comprising 40 737s, 38 777s, 29 A330s, 10 A380s, seven 747-400s and seven 747-8s on the passenger

KOREAN AIR: FINANCIAL RESULTS (₩bn)



† 12 months to September

side, plus 16 747-400Fs, eight 777Fs and six 747-8Fs. On outstanding order are 82 aircraft — 30 A321neos, 30 737s, four 747-8s (one of which is a cargo version), six 777-300ERs, two 777Fs and 10 787-9s.

Most of the outstanding orders were placed in 2015, when Korean Air ordered 30 737 MAXs, two 777-300ERs and 30 A321neos — which was the biggest ever buying spree in the airline's history. The A321neos will be delivered over the 2019 to 2015 period and the 737 MAXs from 2017, and they replace Korean Air's eldest models among the current 737 fleet (the 40 aircraft have an average age of 10 years) and enable expansion on short-haul within Asia. On long-haul, the 787-9s were converted from an initial order of 787-8s in 2011 and the first delivery will arrive in early 2017.

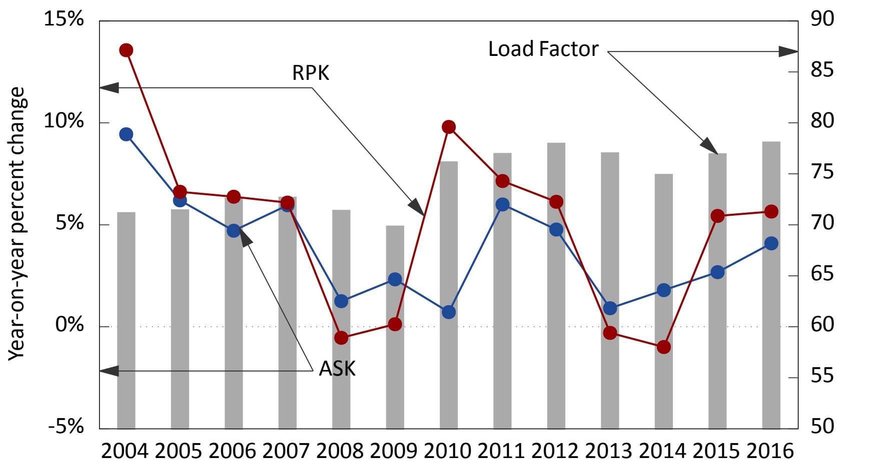
KOREAN AIR FLEET

		In service		
		Korean Air	Jin Air	On Order
Passenger	737NG	40	16	2
	737MAX			30
	777	37	3	6
	787-9			10
	747-400	11		
	747-8I	4		3
	A321neo			30
	A330	29		
	A380	10		
	C Series			10
		131	19	91
Cargo	747-400F	17		
	747-8F	6		
	777-200F	5		5
		28		5
	Total	**159**	**19**	**96**

In the third quarter of this year 60.4% of Korean Air's revenue came from international passengers, with cargo contributing 19.0% and domestic passengers just 4.6%. The international share has risen by 3.2 percentage points in just 12 months and is an indication of Korean Air's strategic priority — international capacity rose by 6.2% in Q3 2016 but traffic rose even faster — by 8.4% — leading to a 1.6 percentage point rise in load factor for the quarter, to 80.9%. In contrast, domestic capacity rose just 2.4%, though here too traffic increased at a faster rate — 8.4% — with load factor up 4.6% to 79.8%.

Most significantly, yield on international routes rose 6.1% year-on-year in the third quarter of 2016 to 8.4US¢, with domestic yield up 2.7% to 15.9¢ (though domestic revenue is a 13th the size of the international revenues).

KOREAN AIR: PASSENGER TRAFFIC



Key markets

The most important overseas market for Korean Air is the Americas, where Korea-Americas routes accounted for 30% of total revenue in the 3rd quarter of 2016 — followed by south-east Asia (16%), China (15%) and Japan (11%). Revenue on routes into China are growing the fastest for Korean Air — up by 29% in July-September 2016 compared with the same quarter of 2015, with Sino-Korean Air traffic up 30%.

A five flights a week A330 route between Incheon and Delhi was launched in December this year (its second Indian route, joining a

KOREAN AIR: ROUTE MAP

Note: Azimuthal equidistant map projection based on Seoul. Great circle routes appear as straight lines.

Mumbai service), and new routes for 2017 include one between Incheon and Barcelona from April, operating three times a week, and most likely a service between Incheon and Tehran — although a launch date has not yet been announced. On the other hand, two routes will be cancelled in February 2017: between Incheon and Jeddah (via Riyadh) and between Incheon and Siem Reap (Cambodia).

Given the importance of Americas revenue, the west coast of the US is a key target market for Korean Air, and extra services will be added to the existing routes between Incheon and San Francisco, Seattle and Los Angeles in 2017. This west coast expansion will be complemented by growing ties with fellow SkyTeam partner Delta. Although Korean Air already has codeshare deals with 35 airlines on more than 260 routes globally, in September 2016 Korean Air strengthened significantly its existing codeshare partnership on around 30 routes with Delta by adding codeshares on around 100 new destinations in the US and Canada and 30 destinations across Asia/Pacific region.

The two airlines have had a transpacific partnership for more than 30 years, but the expanded relationship will help Korean Air cement its position as the largest transpacific carrier out of the Americas — following the deal it operates more than 100 flights a week from 13 gateways in the US and Canada, comprising Atlanta, Chicago, Dallas, Honolulu, Houston, Las Vegas, Los Angeles, New York, San Francisco, Seattle, Toronto, Vancouver and Washington.

As part of the deal Delta will also launch a route between Atlanta and Incheon that will commence in June 2017 (and which will operate alongside an existing daily Korean Air service on the route) and add its code on flights operated by Korean Air in 32 cities beyond Incheon, as well as on Korean Air's services between Incheon and Houston and San Francisco.

There has been speculation that the expansion of the relationship between Korean Air and Delta may lead eventually to equity stakes being taken in each other at some point. However, this seems a long way off at the moment and will depend largely on how Delta's strategy develops under new CEO Ed Bastian. In the short-term though, this deal will certainly help Korean Air achieve better load factors on its flights into North America.

It is likely that Delta and Korean Air will move to create a transpacific immunised joint venture to mirror the ones established by American with JAL and United with ANA. Delta has been trying to put such a plan into effect with Korean for some years, but the agreement on these new code shares may bring forward a period of greater coordination. The two along with Air France set up a cargo joint venture in 2015.

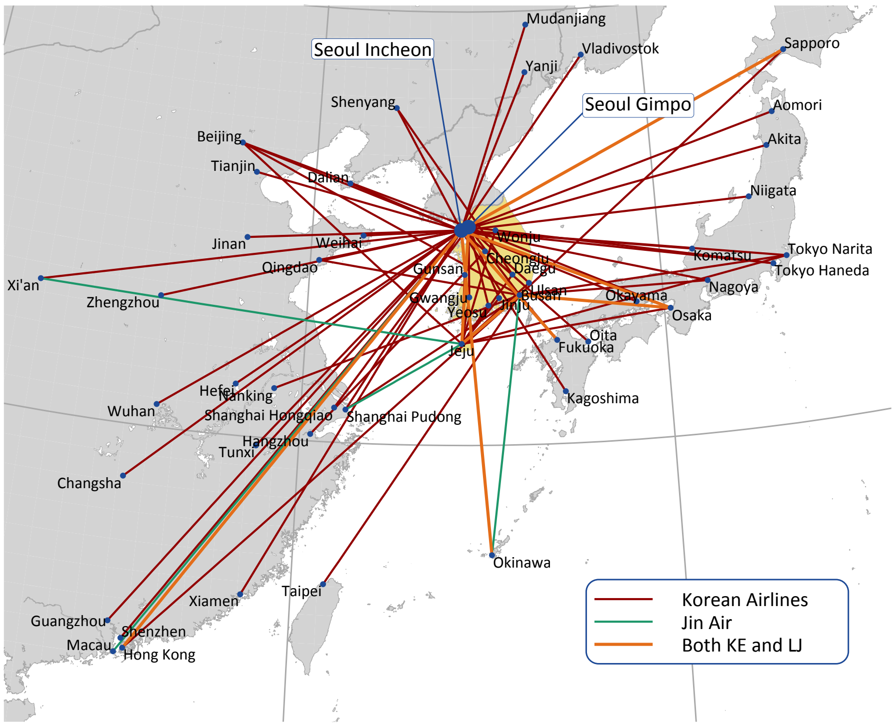
Korean Air's international routes primarily operate out of its hub operation at Incheon International airport, some 47km west of the capital and which has become the largest airport in South Korea since it launched in 2001 to partly replace Gimpo airport. In 2015 Incheon handled 49.3m passengers and 2.6m tonnes of cargo, of which Korean Air accounted for 15.4m passengers. This gave Korean Air a 31.4% share of passengers handled by the airport in 2015, reasonably ahead of nearest rival Asiana Airlines (23.2%). After that came a plethora of smaller airlines, with LCC Jeju Air accounting for 4.4% of passengers handled and subsidiary Jin Air for 3.6%.

Incheon is currently nearing the end of an expansion phase that will increase capacities to 62m passengers and 5.8m tonnes annually. This comprises a ₩4tn investment in a second passenger terminal, new cargo facilities and better ground transportation to Seoul, and is on target for completion in 2017 or 2018. Once operational, Korean Air and its fellow SkyTeam partners plan to move to this second terminal.

Another stage of expansion is expected to commence immediately afterwards, to be completed in the early 2020s. This will increase annual capacity to 100m passengers and 7m tonnes of cargo a year at Incheon, at which point it will have two more runways (bringing the total to five, including one dedicated exclusively to cargo operations).

One of the more interesting aspects of Korean Air's base in Seoul is in its geographical position in relation to Japan, and Incheon's positioning as a network transfer airport. Neither Narita nor Haneda in Tokyo are that attractive for transfer traffic; and in many cases Incheon provides more attractive connecting schedules from and to regional points in Japan.

KOREAN AIR: REGIONAL NETWORK



Strategically Korean Air benefits from a having a huge global network — cemented by the SkyTeam alliance — but like all carriers it is facing the challenge of intense competition from LCCs. But Korean Air owns LCC Jin Air (see *Aviation Strategy,* November 2016), which is designed to reduce the pressure on Korean Air from the LCC segment that already has a 15% share of the international market to/from South Korea as at the end of the 3rd quarter of 2016.

The long-term importance of Jin Air to Korean Air is not clear, but an indication may be being given by the LCC's transformation from a purely domestic airline to short-haul international routes and finally the launch of long-haul routes (in December 2015) using 777-200ERs. Although these have not yet replaced Korean Air routes; at least Jin Air provides a strategic option for its parent in the future.

Cargo troubles

The Korean Air group also has interests in other aviation and travel businesses, including hotels and aerospace (its unit collaborates with Boeing and others on defence systems) and most significantly cargo, where it is one of the world's largest cargo operators.

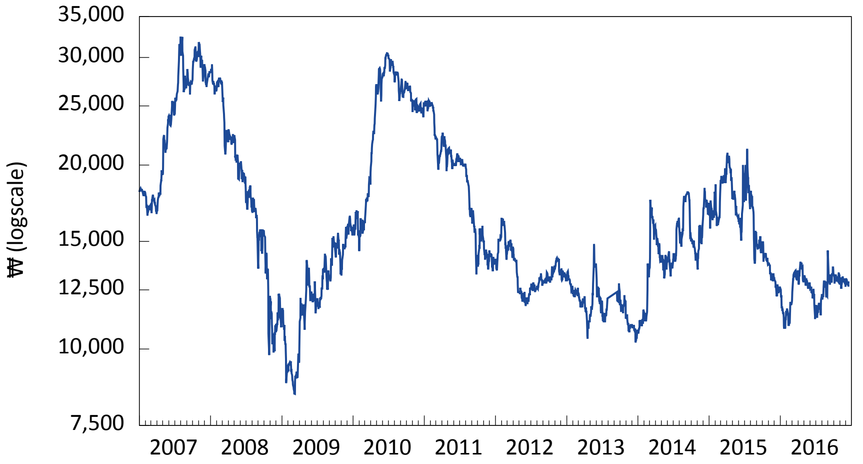
In the 3rd quarter of 2016 Korean Air recorded ₩581bn ($533m) of cargo revenue, although this was 6.1% down on July to September of 2015, which is indicative of the huge competitive pressures in the cargo market at the moment. Korean Air's cargo load factor fell by 0.6 percentage points over the 12 months to Q3 2016, to 75.6%, and more importantly yield plunged by 8.7%, to ₩257.7 (23.0¢).

Outbound cargo from South Korea fell by 6% in the 12-month period, and traffic between Korea and Europe remained flat year-on-year, while between Korea and Oceania it fell by 1%. The only good news was a 4% increase in FTKs between South Korea and the Americas (Korean Air's largest cargo market, accounting for 43% of all revenue) — although with yields plunging, overall revenue on the American routes fell by 5% in Q3 2016 compared with Q3 2015.

The airline's strategy is to improve profitability by "attracting high-yield cargo items" and "provide flexibility and reduce cost by using belly space of passenger aircraft". Korean Air's cargo fleet currently has 30 aircraft, and in September 2016 it announced a deal to sell and leaseback an order for five 777Fs, two of which remain to be delivered by the end of 2017.

Overall, Korean Air is managing to keep costs under relative control — total operating costs fell by 0.8% in the 3rd quarter of 2016, though this was largely due to a reduction in fuel prices, with fuel accounting for just 22% of total costs in Q3 2016 (₩586bn) compared with 27% (₩680bn) in Q3 2015.

KOREAN AIRLINES: SHARE PRICE PERFORMANCE



KOREAN AIR: BALANCE SHEET ITEMS

₩bn	Dec 2015
Equity	2,499
Intangibles	295
Shareholders' funds	2,204
Cash	(1,079)
ST Debt	6,030
LT Debt	10,138
Capitalised lease rentals	1,200
Net debt	16,289

Balance sheet

In terms of its balance sheet, Korean Air is relatively weak — as at the end of September 2016 it had cash and cash equivalents of ₩1.1tn ($984m) — less than 10% of annual revenues and 2.9% down on 12 months previously — while its total debt rose 3% in a year to stand at ₩16,1tn ($14.8bn). On our calculations this gives it a net debt (including capitalised operating leases) to shareholders' funds of 740%.

Its limited cash pile and poor liquidity does hold it back from making as many acquisitions as it would like — not that it has had huge success with that tactic. Korean Air bought a 44% stake in loss-making Czech Airlines in April 2013 for US$3.4bn, but although the Czech carrier returned to profitability in 2015 after drastic restructuring, the deal hasn't brought any significant strategic benefit to Korean Air.

Korean Air has been listed on the Busan-based Korea Stock Exchange since 1966, with the Hanjin Group — a South Korean chaebol — owning around a 35% stake. The share price (see chart above) has gyrated wildly in the past ten years and shown none of the performance generated from the fall in fuel prices in the last year. Today it has a market cap of around $2.3bn.

Part of the reason for this must lie with the very Korean *Chaebol* ownership system and Hanjin Group's controlling stake. This traditional ownership structure involves a (family controlled) holding company with subsidiaries that have interlocking shareholdings, all designed to keep control within the family.

This structure is not unique to South Korea but here it seems to be coming under increased criticism. The airlines's management reputation has been tarnished by nepotistic scandals: Cho Hyun-ah, daughter of the airline's CEO Cho Yang-ho resigned her executive posts at the airline and was imprisoned for endangering aviation safety after complaining about the presentation of macadamia nuts in first class service on a flight due to leave New York, causing the flight to be severely delayed.

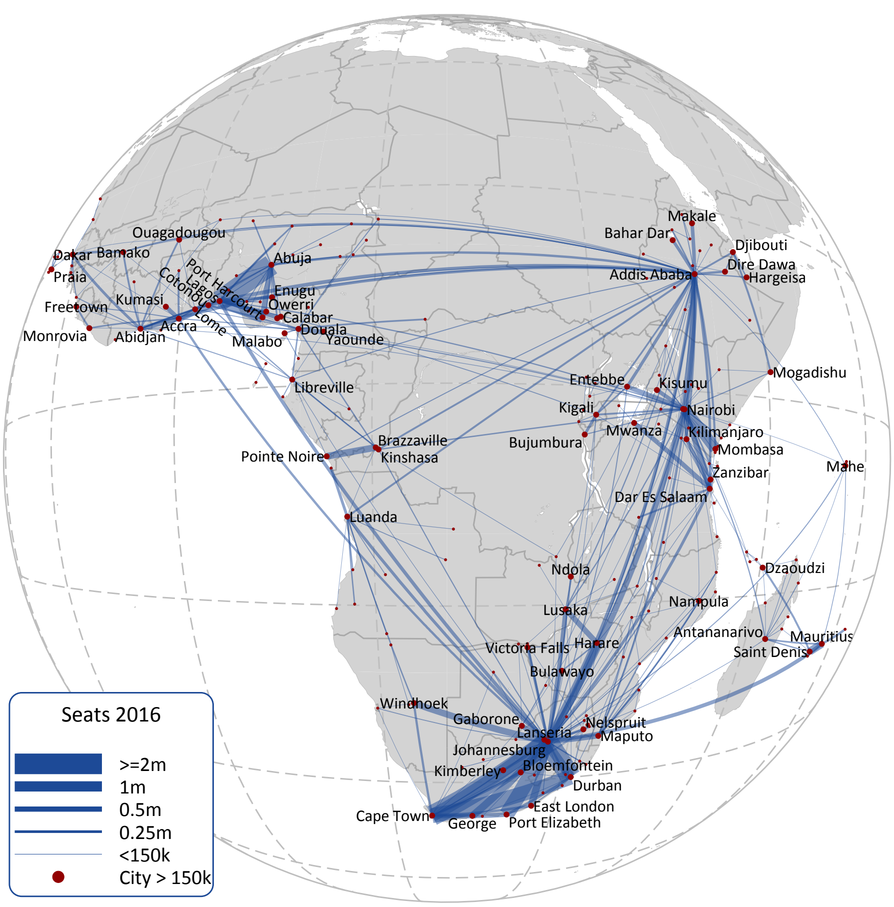
Why can't Africa be more like India?

WHEREAS the airline sector in India has been transformed over the past ten years, Africa has stagnated. LCCs have proliferated in India, but they have hardly got off the ground in Africa, and Fastjet has come to symbolise their failure.

Much was hoped for with Fastjet, which promoted itself as the first pan-African LCC, made presentations that sounded very convincing (or convincing enough to raise several tranches of funding on London's AIM). But the airline produced a series of very poor results, and its losses for the first half of 2016 were disastrous: a US$31m operating loss on revenues of $33m. The A319 operation has in effect been shut down, the main base moved from Tanzania to South Africa and the fleet downsized to Emb195s. The management, formerly led by CEO Ed Winter, have gone.

To be fair, Fastjet did some things right. It created a transnational brand (the Grey Parrot), promoted new distribution methods suited to Africa, notably bookings and payments via mobile phones, "educating" passengers about the LCC operation (most basically, this meant persuading passenger that the flight would take off as advertised) and its fleet was comprised of modern A319s, replicating on a very small scale the easyJet model.

There was unfortunately a list of formidable errors made by Fastjet.



Note: Thickness of lines directly related to number of seats

✈ The purchase of Fly540 from Lonrho was intended to facilitate multinational operations through the acquisition of various AOCs. In fact, the political barriers remained, and Fastjet found that it had bought a lot of hidden liabilities.

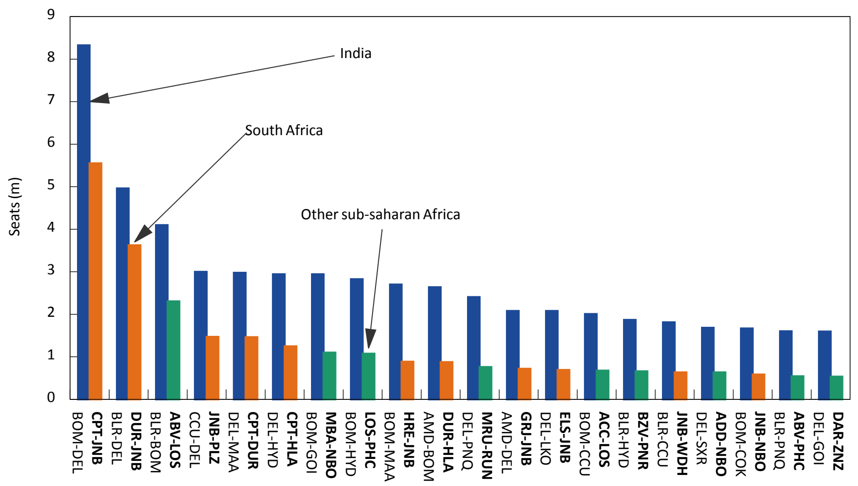
✈ Largely as the result of the Fly540 purchase, Fastjet found itself with far too many flying and other personnel, so that its efficiency ratios resembled that of a hopeless state-owned airline rather than a LCC.

✈ Similarly, its aircraft utilisation and load factors were nowhere near LCC standards as it struggled to find viable routes to operate on.

✈ Its choice of a main base at Dar-es-Salaam was probably a mistake as there were simply insufficient volumes to grow from there. Political instability in Tanzania was another factor.

✈ The airline was unwilling and/or incapable of breaking into Africa's key markets — Nigeria and South Africa — and instead focused on expanding in competition with Kenyan Airways on Tanzania-Kenya, and expand-

TOP 20 CITY PAIRS:
INDIAN SUB-CONTINENT AND AFRICA



ing from Tanzania to Uganda and Zimbabwe. It now plans to grow its operation between Harare and Johannesburg, but with Emb195s rather than A319s, and in competition with Comair.

✈ The management structure was fundamentally flawed. The airline's headquarters was situated at London Gatwick where the top executives obviously preferred to stay while operations were directed from the Dar-es-Salaam base. This just seems all wrong for developing local expertise and understanding the African experience.

✈ Similarly, bringing in Sir Stelios Haji-Iannou and granting him a substantial shareholding was plausibly seen as way of giving confidence to investors, but it all ended with acrimonious criticism and hefty consultancy fees.

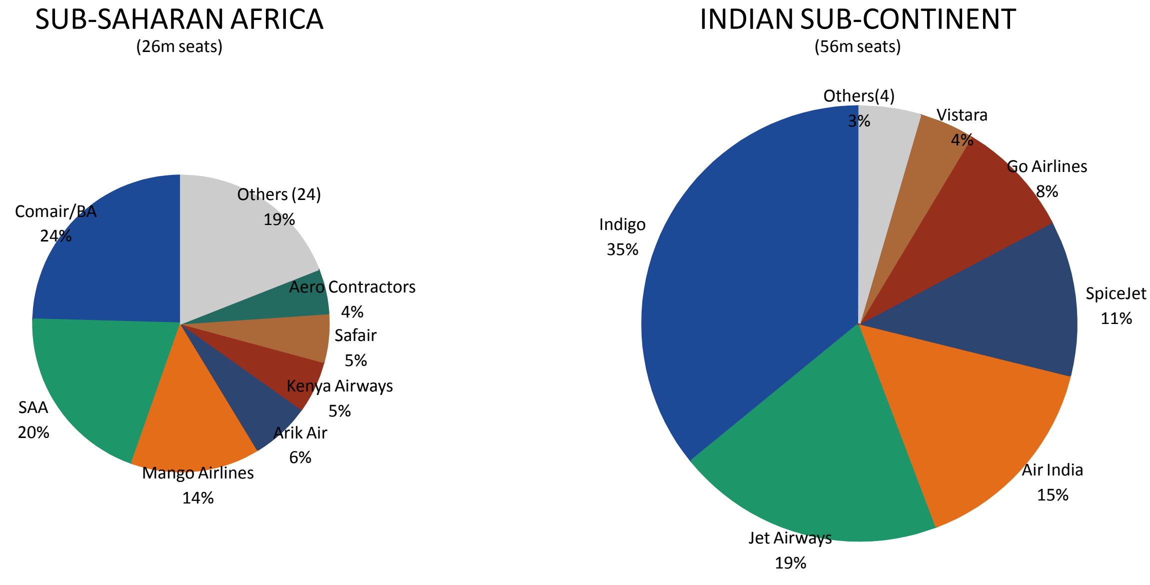
Harnessing African entrepreneurship, of which there is a plentiful supply, into a start-up airline project, is an essential, as is blending local with global capital. Much easier said than done, of course.

And the market opportunity remains an LCC start-up. The pie charts below show a contrasting picture in the Indian sub-continent and sub-Saharan Africa.

About 66% of Indian internal capacity is now provided by new LCCs in contrast to roughly zero ten years ago, though the state-owned Air India (formerly Indian Airlines) still has a market presence domestically, as does Jet Airways, unprofitable but supported by Etihad.

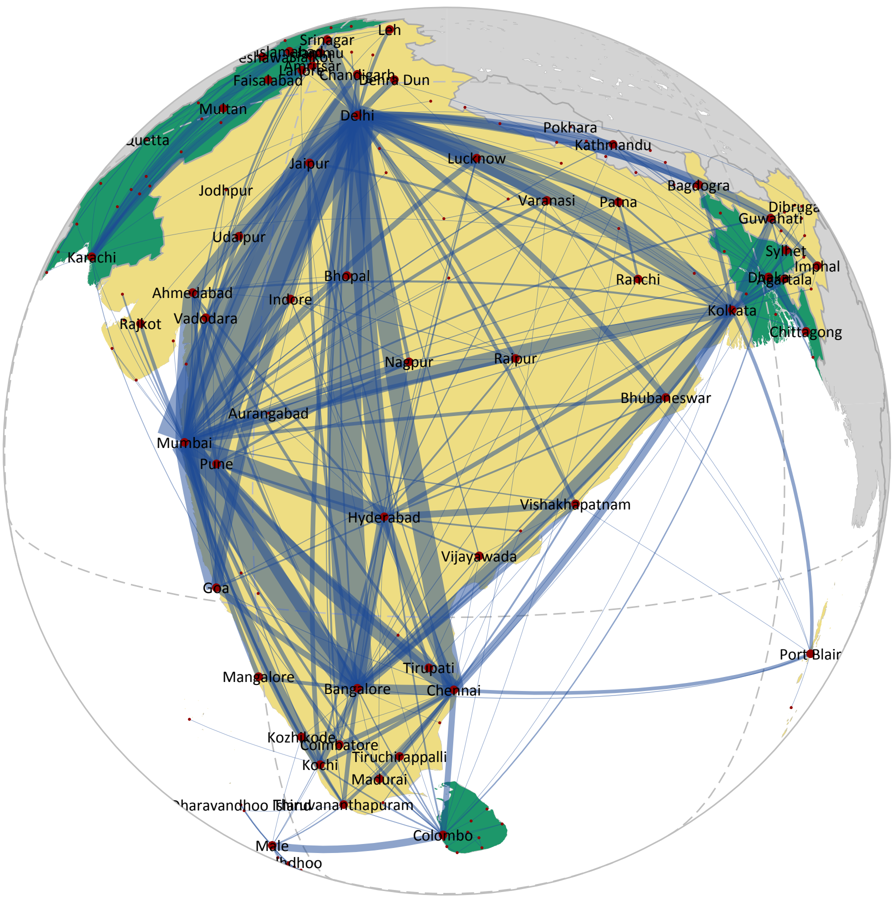
LARGEST CARRIERS BY INTRA-REGION SEATS

SUB-SAHARAN AFRICA (26m seats) — INDIAN SUB-CONTINENT (56m seats)



Source: schedules data, Aviation Strategy analysis.

INDIAN SUB-CONTINENT: BUSIEST ROUTES



Note: Thickness of lines directly related to number of seats

The development of the Indian LCC model has stimulated a surge in domestic traffic — to around 80m passengers from 14m ten years ago — and resulted from a number of inter-related factors.

✈ The emergence of the an Indian "middle class" with the propensity and income to fly. Estimates of this middle class were around 200m out of of a total of1.4bn, similar to the numbers that have been quoted for the African continent, though recent studies have questioned the definition of middle class and downsized the relevant populations.

✈ Very, very slow alternative transport on the railway in India. In planning for one of the LCC start-ups — SpiceJet — we were able to use Indian Railways' meticulously compiled data for travel in air conditioned coaches to estimate a base traffic load for an LCC. No such data applies in Africa, but there is plenty of information about the state of roads in, for example, Nigeria.

✈ The Indian authorities began to liberalise aviation, not in one big bang but gradually, starting with the dismantling of traffic allocation rules (which meant that to fly Mumbai-Delhi, one had to commit to flying a proportion those ASKs on other metropolitan routes and another percentage on remote tertiary routes) and leading to the abandonment this year of the 5/20 rule (5 years experience and a fleet of 20 before being permitted to fly internationally).

✈ Global capital became interested in the returns possible through investing at the start in Indian LCCs (see *Aviation Strategy*, October 2015 for IndiGo's success story) and was able to ally with local sources of finance. Ex-pat airline executives, a notable example being Rakesh Gangwal, who, among other achievements, was a CEO of USAirways, returned to India.

The economic geographies of India and sub-Saharan Africa are of course different. In India flight sectors are typically 1-2 hours, perfect for LCCs, there is a wide spread of important cities beyond Mumbai and Delhi, and the internal traffic is mostly point-to-point rather than connecting.

The African map on page 12 reveals two major aviation zones — South Africa, by some way the biggest, and Nigeria — unsurprisingly coinciding with the centre of economic activity and population, with a lot a blank spaces. East Africa, where Fastjet concentrated its operations, is not on the same scale.

The bar chart on the previous page shows two things: first, the top 20 city-pairs in India are all markedly larger than the equivalents in Africa, and, second, that almost all the top 20 city-pairs in Africa are either in/to/from South Africa or in/to/from Nigeria.

Going back to the African capacity pie chart, there are only two substantial African flag-carriers left — the dysfunctional SAA and the relatively successful Kenyan, and there are no pure LCCs. The closest is Mango but that is a 100%-owned subsidiary of SAA. Operating ten 737-800s, Mango has achieved a good reputation and has usually reported profits, though its results are consolidated opaquely in SAA's financials. It looks, however, as if 2015's net profit of R38m will turn into a loss of to R37m ($3m), with the local press speculating that Mango is being "squeezed" by SAA. Incidentally, former Mango CEO, Nico Bezuidenhout, now heads up the resurrected Fastjet.

Comair, a BA franchisee and 11.5% owned by IAG, is probably the continent's most successful short haul airline. Operating a fleet of 17 737-400 and -800s with another eight MAXs on order, the airline has been consistently profitable for the past ten years. Its results for the year to June 2016 show revenues of R5.9bn ($470m) and profits of R193m ($15m).

These two airlines plus the state-guaranteed SAA make South Africa a difficult market for an LCC new entrant. Nigeria should be a different prospect (should being the key word as politics tend to frustrate in that country). A prosperous middle class, even if only 10% of the 200m total population, a trading mentality and, until recently, fast GDP growth form the background. In terms of economic geography there is very strong triangle — Abuja- Lagos -Port Harcourt — and various other important points with very poor roads in between.

The airline competition appears weak but is obstinate, surviving financial crises, exchange rate shortages and sometimes dodgy safety records. Arik has a fleet of 25 jets and turboprops, with seven types in all; no financials are available. Aero Contractors operates seven aircraft, 737s and Dash 8s, and is partly owned by a Nigerian government body following a bail-out in 2013; no financials are available.

Jim O'Neill, former chief economist at Goldman Sachs, when developing his treatise on MINTs (Mexico, Indonesia, Nigeria and Turkey — the developing economies that have the potential to become drivers of global growth) has commented that what Nigeria needs most urgently is a regular electricity supply.

An effective, dynamic LCC would help greatly as well.

United: the quest to unlock full potential

WITH A new leadership in place, labour deals done and operational reliability restored, United Airlines has unveiled ambitious plans to unlock the full potential of its assets and to close the operating margin gap with its peers. How will it achieve those goals?

When United and Continental completed their merger in October 2010, there was excitement about the enormous potential offered by that union. Many in the financial community believed that combining United's powerful global network and well-located hubs and Continental's highly regarded leadership team would quickly lead to industry-leading financial results.

Instead the new United has been a big disappointment. Six years on, it continues to underperform Delta and American in terms of RASM and profit margins, and the margin differentials have only widened over time.

There are many reasons for that underperformance: structural, self-inflicted, bad luck and competitors' success.

The structural impediments include lower domestic hub concentration than at American and Delta, high costs at hubs such as Newark, exposure to the weak energy sector in Houston, and relatively heavy reliance on 50-seat regional jets.

The self-inflicted damage included a disastrous IT switchover in March 2012, which led to extensive operational and service issues. United's inability to rectify the problems for months lost it many business customers and caused costs to soar.

The consensus is that United mishandled key aspects of the merger integration. With hindsight, some analysts have made the point that the team led by ex-CEO Jeff Smisek did not have hands-on experience in that area.

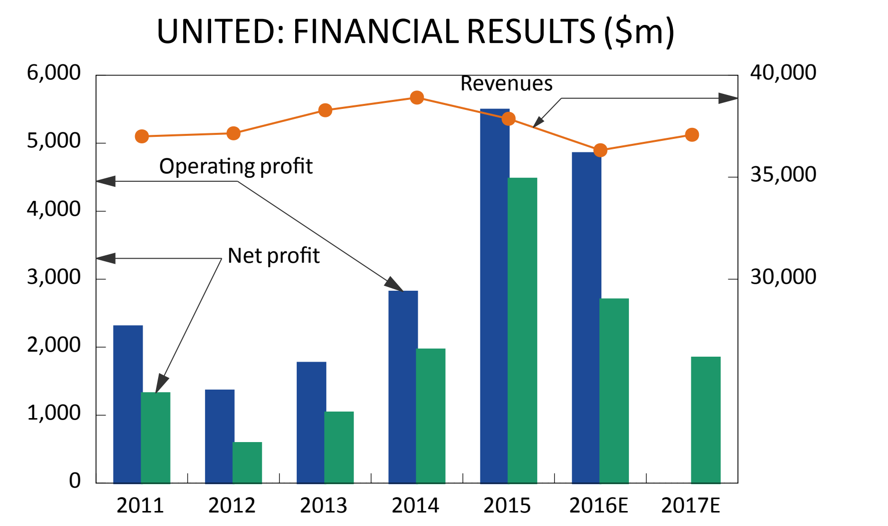
United's problems have also included an unhappy workforce (historically so) and, as one analyst has suggested, an inconsistent flight experience and an "underwhelming value proposition to peers".

Then there was the "chairman's flight" scandal, which led to the resignation of Smisek in September 2015. (After a fateful dinner attended by Smisek and the leadership of the Port Authority of New York and New Jersey, United had introduced an uneconomic twice-weekly flight from Newark to Columbia, South Carolina, where PANYNJ's chairman had a vacation home.)

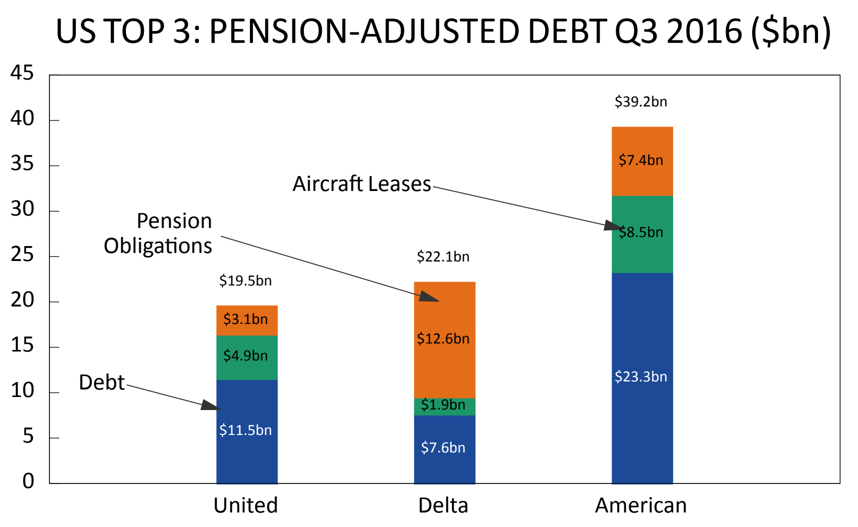
United quickly found a promising new CEO, Oscar Munoz, who had extensive and broad experience in the transportation industry (most recently as president/COO of railroad operator CSX Corp), had demonstrated strategic vision and strong leadership in his previous positions, and had sat on Continental's and later United's boards since 2004. But, unfortunately, Munoz suffered a heart attack just three weeks into his new job and subsequently underwent a heart transplant.

In early 2016, while Munoz was still on medical leave, an unusual boardroom fight developed involving two hedge funds — Altimeter Capital Management and PAR Capital Management. The activists alleged that United's board lacked airline expertise and had provided insufficient oversight.

Finally, Delta's incredible progress since its 2008 merger with Northwest, as well as its success



Note: 2016 and 2017 are analysts' consensus estimates as of December 12.
Source: Company reports



Note: Aircraft leases capitalised at 7x
Source: Company presentation

in the New York market, and American's successful reorganisation and merger with US Airways in late 2013 have also added to the pressures United faces.

However, Munoz has accomplished an impressive amount since he returned to his duties full time in mid-March.

First, the proxy contest was resolved amicably (in April) and, importantly, resulted in a much stronger board of directors. The hedge funds got their candidates in, while Air Canada ex-CEO Robert Milton joined the board as non-executive chairman. As a result, seven of the 14 directors and five of the 11 independent directors were new to the board.

Second, Munoz has had success in restoring the morale of United's frontline employees — an area that he had initially focused on.

Third, Munoz has built an impressive senior leadership team. He completed the process in August by bringing in three new highly accomplished senior executives: American's pricing/forecasting guru Scott Kirby as president, Andrew Levy as CFO (from the hugely successful ULCC Allegiant Air) and Julia Haywood as Chief Commercial Officer (from The Boston Consulting Group).

Fourth, United's operational reliability has improved significantly this year. For example, the carrier has consistently ranked among the industry's best in on-time performance, which improved by 10 percentage points in the first nine months of 2016.

Fifth, the airline has launched a "reimagined", luxurious United Polaris international business class — another move that could win back customers. Polaris will take flight in early 2017 on United's 777-300ERs, followed by 787-10s, A350-1000s, 767-300s and 777-200s.

Sixth, with the ratification of a new six-year contract by IBT-represented mechanics on December 5, United has now reached new joint agreements with all of its work groups. This is a major integration milestone that should unlock more merger benefits and further boost employee morale.

Seventh, Munoz has outlined his plans to improve United's earnings, close the margin gap to peers and realise the carrier's "full network, product and segmentation potential".

In late June Munoz held an investor meeting to announce $3.1bn of value-driving initiatives by 2018. The ideas were well-received, though details were sparse and many analysts remained sceptical given United's poor track record of delivering on its promises.

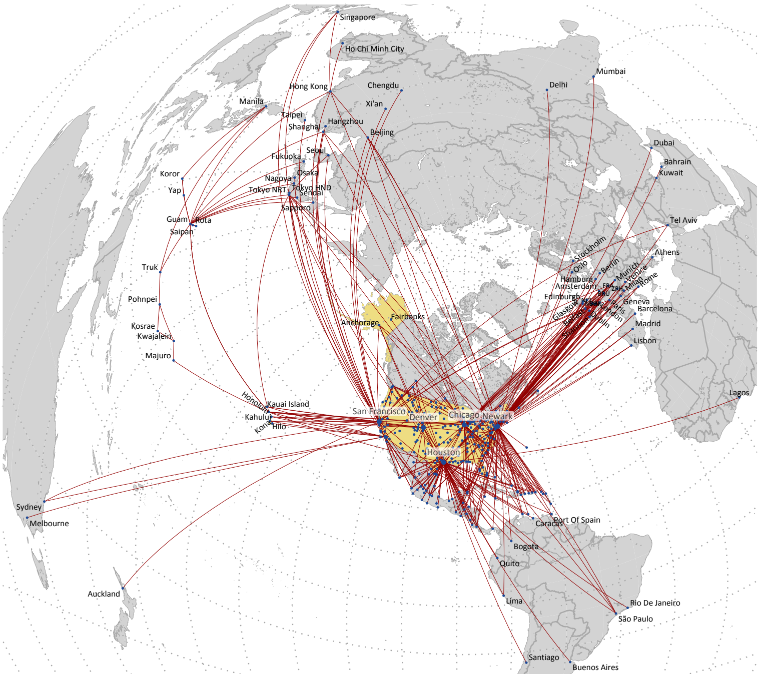
At its investor day on November 15, United outlined a more comprehensive and specific set of strategic initiatives aimed at generating $4.8bn in earnings improvement by 2020. It will be achieved through a combination of commercial initiatives, operational improvements and cost cuts.

Notably, United not only plans to close the operating margin gap with Delta, which it estimates is 5.6 points in 2016; it plans to exceed Delta's margin by 1.5 points by 2020. United expects commercial initiatives to close five points of the gap, with operational improvements and cost cuts accounting for another point each.

The most important new strategies (discussed in detail in the sections below) are Basic Economy (a promising new no-frills domestic fare category), better revenue management and various network initiatives. Those three items account for $2.5bn of the targeted $4.8bn earnings improvement between 2015 and 2020.

United is also targeting a $1bn contribution in the plan period from existing re-fleeting and upgauging programmes. The latter include adding slimmer seats and replacing the smallest regional jets with larger models. Those programmes will increase the average seats per aircraft

UNITED: ROUTE NETWORK



Note: Azimuthal equidistant map projection centred on Chicago. Great circle routes appear as straight lines.

from 105 in 2015 to 119 in 2020.

United also intends to build on the success achieved with improving operational reliability. Further measures, such as shortening aircraft turnarounds and reducing long delays and cancellations, are expected to contribute $300m in earnings improvement by 2020.

The downside of clinching all the labour deals — and having what Munoz claims is an "energised" workforce — is a substantial hike in labour costs. United hopes to offset some of that with $700m of cost efficiency improvements in the plan period.

United won praise from the financial community at the investor day when it announced narrowbody aircraft order deferrals that will reduce capex by $1.6bn in 2017-2018. The net capex savings will be around $1bn because United also announced some new Embraer aircraft orders.

And recently-appointed CFO Andrew Levy outlined very sensible balance sheet and capital deployment strategies. He emphasised the need to maintain adequate liquidity and shareholder return programs (which may include a first-time cash dividend) but not fund the latter with borrowing.

The key question is: Will United be able to deliver? Many analysts have called the plan "aggressive" or "ambitious". The stated aim to exceed Delta's margins has raised a few eyebrows. (Delta is seen as a leader among the big carriers on the financial front, with an impeccable post-bankruptcy record of delivering and a habit of constantly raising the bar.)

JP Morgan analysts wrote that the plan was "characterised by both ambition and ambiguity" but that it represented United's "first realistic path toward improved relative margins by decade's end".

More segmentation

At the investor day, United unveiled its version of Basic Economy — an unbundled, ULCC-type domestic fare category that was technically trademarked by Delta in 2014 but is now also being introduced by the other two of the US Big 3 during the first half of 2017.

Basic Economy is arguably the most important component of United's new plan in that it should allow it to both take on LCCs/ULCCs more successfully and improve the yield from corporate customers. Delta's experience has indicated that most corporations prevent their employees from booking those fares because of the onerous restrictions — and United's version is more restrictive than Delta's. In other words, as JP Morgan analysts put it, Basic Economy is effectively a "corporate fare increase".

JP Morgan analysts wrote recently: "Apart from bag fees, we consider Basic Economy to be one of the industry's most creative revenue concepts of the past decade". And American, which expects to announce the details of its version of Basic Economy in January, has described it as a "game changer" that will allow it to meet competitors' prices without the same amount of dilution.

United's Basic Economy fare offers "the same standard economy experience" but seats are only assigned on the day of departure, the boarding takes place in "group five" and customers can bring only one personal carry-on item that must fit under the seat. Flight changes or upgrades are not allowed. Customers can continue to earn redeemable miles but not status miles.

The extremely restrictive bag rule

UNITED: PLANNED EARNINGS INITIATIVES

$m	2016E	2017E	2018E	2019E	2020E	Unique United levers v Delta
Commercial enhancements						
Network initiatives		100	300	450	600	~100%
Re-fleeting and upgauge	400	700	800	900	1,000	~50%
Segmentation		200	550	700	1,000	~25%
MileagePlus enhancements	250	100	300	300	300	~100%
Revenue management improvements		100	400	700	900	~75%
Improved operations						
Operational integrity	50	200	300	300	300	~100%
Cost structure						
Cost efficiency program	200	400	500	600	700	~50%
Total	900	1,800	3,150	3,950	4,800	

Source: Company presentation.

is significant in that it will encourage more people to pay to check bags or select higher fare types that allow larger carry-ons. An added benefit is that it will simplify the boarding process as fewer people bring overhead bags on board. United will start selling Basic Economy in early 2017 for travel in Q2 and expects the fare type to boost its earnings by $1bn by 2020.

United is now evaluating another fare type — premium economy — for both domestic and international markets (analysts expect it by 2018). In this regard it is playing catch-up with American, which began rolling out its international premium cabin in October, and Delta, which has announced such plans for 2017. That type of cabin is already offered by a number of Asian and European operators and is being seriously studied by global carriers such as Emirates.

So the trend at US airlines, as elsewhere, is towards segmentation, which United notes is "part of a broader focus on personalisation": customer expectations and behaviours are changing because of increased choice.

United's investor day presentation noted that airlines have historically segmented on three dimensions — brand, fare rules and class of service. But now, consolidation has created fewer brands with broader offerings. Fare rules have eroded as LCCs and ULCCs are offering one-way fares with no advance purchase requirements. Airlines are now expanding their offering beyond the traditional two classes.

Better revenue management

It is hard to imagine that a global airline like United would not already have state-of-the-art, or at least adequate, revenue management systems, but that appears to be the case. The airline's current system, Orion, built in 1997, has some known shortcomings. Specifically, since demand today is no longer independent for each product like it was 20 years ago, the system has a "problem forecasting small numbers" and much of it has to be done manually.

So United will be revamping its revenue management system to enable it to forecast demand more accurately. It will be done in phases under the guidance of new president Scott Kirby, who was famed for those skills at American.

Amazingly, the planned improvements to the demand forecasting system are expected to boost pretax earnings by as much as $900m by 2020. The first phase, to be implemented in 2017-2018, is estimated to improve unit revenues by 1-2 points. Subsequent phases, to be rolled out within three years, will have a similar PRASM impact.

Network and hub initiatives

United has one of the world's most comprehensive route networks and well-positioned US mainline hubs. With hubs serving the nation's five largest markets (Newark, Los Angeles, San Francisco, Chicago and Washington Dulles), plus Denver and Houston (9th and 12th largest markets, respectively), clearly there is great potential to tap both international and domestic markets.

In the past, however, United focused on its lucrative international network and used the domestic market mainly to feed into international services. It "de-emphasised" domestic flying by operating smaller aircraft, offering lower frequencies and having less domestic connectivity than Delta and American.

But over the last five years, following consolidation, the domestic market has become the most profitable segment for the industry. While international remains highly profitable for United, the management feels that the biggest opportunity to improve earnings will now come from domestic flying.

So United will focus on strengthening its domestic profitability with strategies such as upgauging aircraft, de-emphasising regional operations and trying to boost connectivity. The latter means improving bank structures at key hubs such as Chicago, Houston and Newark. United will also work to improve schedules and the product in the top domestic business markets.

United feels that Newark is the "only true potential connecting hub in New York" and should be the leading airport in New York and across the Atlantic. But it lacks connectivity because of its "rolling departures and arrivals".

At Chicago O'Hare, which is well-positioned geographically for connecting passengers, United has identified opportunities to add more cities in the catchment area and improve the bank structure.

At Houston, which is a strong Latin America gateway but currently suffers from weakness in the energy sector, United has gate capacity to rebank its operations.

United remains committed to Washington Dulles, which is a high-cost airport but nevertheless a profitable international gateway.

Much of United's recent international growth has focused on San Francisco, which it regards as the best gateway from the US to Asia. This year's new 787 services from SFO have included Tel Aviv, Xi'an, Hangzhou, Singapore and Auckland.

Los Angeles is the second largest local market in the US (after New York) and a profitable international gateway for United, though United has found it difficult to connect to Star carriers there. It is trying to get more gates and improve connectivity at LAX.

United is the top US carrier to China, where it now serves five cities on the mainland. Beijing and Shanghai are served from four different US mainland hubs. China represents both an opportunity and a risk; the latter is because of United's sizable exposure, should the world's second largest economy experience a prolonged economic slowdown.

Like many of its peers, United has launched flights to Havana, Cuba in recent weeks, operating from both Houston and Newark. The industry verdict at this stage is that Cuba will be a tough market. United is reasonably well positioned serving it especially from the New York area, which has the second largest Cuban population in the US.

UNITED: FLEET PLAN

	Aircraft type	YE 2015	YE 2016	Orders
Mainline fleet	747-400	22	20	
	777	74	75	14
	787	25	30	21
	A350			35
	767	51	51	
	757	81	77	
	737NG	310	325	73
	737 MAX			99
	A320	152	158	
		715	736	242
Regional	Dash-8	34	21	
	ERJ 135/145	204	188	
	CRJ200/700	165	129	
	E170/175	118	152	
		521	490	
	Total Fleet	**1,236**	**1,226**	**242**

Source: Company reports, Aviation Strategy

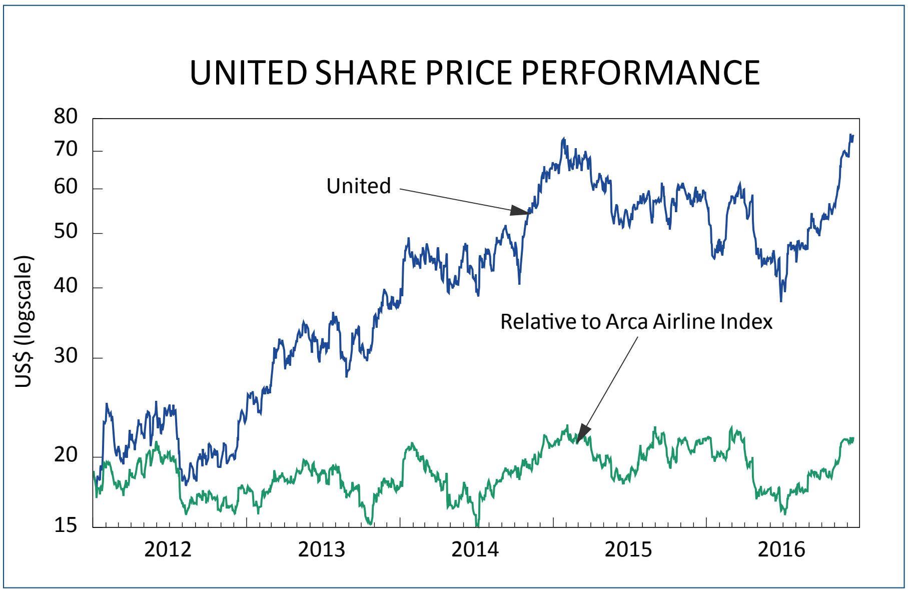
The cost challenge

United currently expects its non-fuel unit costs to rise by 3.5-4.5% in 2017, which is slightly higher than the 2.75-3.25% increase expected in 2016 and not too bad compared to what some other US airlines are projecting for next year.

Labour cost hikes will account for all but 0.5 points of the increase, i.e. 3-4 points. Half of the labour cost increase will come from new agreements ratified before December 2016, and the other half will be due to the IBT-represented workers' contract and the automatic reset provisions in the pilot deal (to match the new Delta rate).

In October United's leadership had some very positive things to say about the latest round of pay awards. CEO Oscar Munoz indicated that he was happy to grant the pay increases because "employees are very core to our product and customer experience".

President Scott Kirby also phrased



it nicely: "We can now give back, do great things for our people in contracts after the 15 years that they have been through — the post-9/11 era furloughs, concessions and losing seniority". He said it was "rewarding" to be able to give those kinds of raises and economic benefits back to the workforce.

In other words, with profit margins at record levels and significant ROIC and free cash flow being generated, US airlines can now easily afford to give decent pay awards to their workers. Airlines are a service business and will reap benefits from having happy and engaged employees.

But United has identified $700m of new cost savings by 2020 from increased operational efficiency, better utilisation of assets and people, strategic purchasing and new technology.

In part because of those savings, United expects to keep average annual non-fuel CASM growth below 1% in 2018-2020. That assumes ASM growth averaging 1.5% annually. The pilot agreement becomes amendable in 2019 and all other labour agreements after 2020.

Some analysts consider the long-term cost guidance bullish. But if United can achieve those projections, it has a decent chance of closing the operating margin gap to its peers.

Trimming capital spending

The $1.6bn capex reduction in 2017-2018 that United announced at investor day was a result of a restructuring of earlier orders for 65 737-700s. 61 of the aircraft were converted to the 737 MAX (for post-2018 delivery), and the other four were converted to the 737-800, for delivery in the second half of 2017.

Separately, United agreed to purchase 24 E175s from Embraer, instead of leasing them. The aircraft were part of a capacity-purchase agreement with Republic, which was modified during the regional partner's Chapter 11 bankruptcy. United said that the order, which increased planned capex by $550m, lowered the cost of capital, representing an NPV benefit of $100m compared to the lease agreement.

The resulting net capex saving of $1bn was well received, as previously United had planned to ramp up aircraft spending over the next few years.

United is also in the process of undertaking a review of its long-term fleet commitments. With the focus being on capital efficiency, it is considering adding more used aircraft (over the 11 used Airbus aircraft it is already due to receive in 2016-2017).

In recent weeks it has been reported that United is reviewing its $12.4bn order for A350-1000s, with the view of altering it to include smaller long-haul models. United is reportedly also considering the MAX 10X to replace some of the recently-deferred narrowbody orders.

Earlier this year United converted some of its post-2020 787 orders into 777-300ERs and 787-9s, for delivery from 2017, which will facilitate an accelerated retirement of its 20 remaining 747s by the third quarter of 2018.

United will debut the 777-300ER at its Newark and San Francisco hubs in early 2017, and the type will replace 747-400s on the San Francisco-Hong Kong route in March. It will be the first aircraft to feature the Polaris business class. The airline expects to place into service all 14 ordered 777-300ERs by the end of 2017.

United's total capex is now projected to be $4.2-4.4bn in 2017, but it will decline to the $3.3-3.5bn range in 2018 (both years include $1.1bn of non-aircraft capex).

The fleet plan has significant flexibility. By 2020 the fleet will include around 330 unencumbered aircraft (up from 250 currently), plus some 120 aircraft that could be returned to lessors.

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Freighter Values and Lease Rates

THE FOLLOWING tables reflect the current values (not "fair market") and lease rates for cargo aircraft. Figures are provided by The Aircraft Value Analysis Company (see below for contact details).

The values and rates reflect AVAC's opinion of the worth of the aircraft in the present market. In assessing current values, AVAC bases its calculations on many factors such as number of type in service, number on order and backlog, projected life span, build standard, specification etc. Lease rates are calculated independently of values and are all market based.

FREIGHTER VALUES (US$m)

	New	5 years old	10 years old	20 years old
A300-600RF			29.7	
A330F	87.7	72.8		
737-300QC				5.7
747-400M				17.5
747-400F		57.7	48.7	26.3
747-400ERF		59.3	50.7	
757-200PF				13.1
767-300F	53.4	44.0	34.6	15.8
777-200F	160.0	130.3		
MD-11C				8.2
MD-11F				11.9

Note: as at October 2016.

FREIGHTER LEASE RATES (US$'000s/month)

	New	5 years old	10 years old	20 years old
A300-600RF			236	
A330F	724	614		
737-300QC				88
747-400M				217
747-400F		667	583	362
747-400ERF		686	605	
757-200PF				132
767-300F	330	319	288	214
777-200F	1,332	1,118		
MD-11C				135
MD-11F				194

Note: lease rates are assessed inpendently from values.

Boeing and Airbus Orders 2016

Boeing is beating Airbus in the annual PR race for orders so far in 2016. By the end of November it had achieved net sales of 466 aircraft (after allowing for cancellations and conversions) down from 768 for the whole of 2015 compared with the Toulouse-based manufacturer's 403 (two fifths previous year total 1,036). Industry net orders we estimated will have totalled less than 1,000 in the year, down from the peak of 3,748 in 2014 and 2,262 in 2015.

In the narrowbody segment each had one chunky order: Vietjet ordered 100 737 MAX from Boeing and Airbus landed an order for 100 A320s from AirAsia. In the widebodies Boeing achieved an order from Qatar for 30 787s, while Airbus registered an order from China Eastern for 20 A350s. The lessors were notably absent from this year's race (unless they are hidden among the undisclosed customers).

On deliveries up to the end of November Boeing also outshone Airbus with an overall production of 681 aircraft against 577. On narrowbodies the two were relatively evenly matched delivering 450 737s and 469 A320s respectively (equivalent to around 40 aircraft a month each), but the 787 continues to fly out the door at the rate of 11.5 aircraft a month.

DELIVERIES 2016

Boeing Type	Boeing No	Boeing Rate†	Airbus Type	Airbus No	Airbus Rate†
737	450	40.9	A320	469	42.6
747	8	0.7	A330	53	4.8
767	12	1.1	A350	34	3.1
777	85	7.7	A380	21	1.9
787	126	11.5			
Total	681	61.9		577	52.5

Source: Boeing, Airbus. Note: † per month.

BOEING ORDERS 2016

Region	Customer	737 NG	737 MAX	767	777	787	747	Total
Asia	Air China				6			6
	Donghai Airlines		25					25
	Japan Transocean Air	1						1
	Malaysia Airlines		25					25
	Okay Airways		3					3
	Ruili Airlines					6		6
	VietJet Air		100					100
	Xiamen Airlines	10						10
	Total Asia	**11**	**153**		**6**	**6**		**176**
Europe	AirBridgeCargo						4	4
	Enter Air		4					4
	Norwegian		8					8
	Pegasus	5						5
	Swiss Int'l				1			1
	Timaero Ireland		2					2
	TUI Travel		10			1		11
	Total Europe	**5**	**24**		**1**	**1**	**4**	**35**
MEAF	Arik Air		8					8
	Mauritania Airlines	1						1
	Qatar Airways				10	30		40
	Middle East/Africa Total	**1**	**8**		**10**	**30**		**49**
N. America	Alaska Airlines	5						5
	Eastern Air Lines		10					10
	FedEx			7	2			9
	United Airlines	41			4			45
	UPS						14	14
	North America Total	**46**	**10**	**7**	**6**		**14**	**83**
Lessors	Air Lease Corporation		6			1		7
	Silk Road Leasing	1						1
	Standard Chartered Bank	10						10
	Total Lessors	**11**	**6**			**1**		**18**
	Unddisclosed customers	48	71			34		153
	Private customers		3					3
	Military/Defence	22		19				41
	Gross orders	**144**	**275**	**26**	**23**	**72**	**18**	**558**
	Cancellations	(81)			(6)	(4)	(1)	(92)
	Net orders	**338**		**26**	**17**	**68**	**17**	**466**

AIRBUS ORDERS 2016

Region	Customer	A320 ceo	A320 neo	A330	A350	A380	Total
Asia	AirAsia		100				100
	ANA	2					2
	Cebu	(2)	2	2			2
	China Eastern				20		20
	Garuda			7			7
	Jetstar Pacific	10					10
	Peach	3	10				13
	Philippine Airlines				6		6
	Vietjet	10	10				20
	Total Asia	**23**	**122**	**9**	**26**		**180**
Europe	Aer Lingus			2			2
	Czech	(7)	7				
	Germnia		25				25
	Virgin Atlantic				8		8
	WOW Air	4					4
	Total Europe	**(3)**	**32**	**2**	**8**		**39**
MEAF	Air Arabia	5					5
	Air Côte d'Ivoire	2	3				5
	Emirates					2	2
	Tunisair	(4)	5				1
	Total Middle East/ Africa	**3**	**8**			**2**	**13**
N. America	Allegiant	12					12
	Delta	37					37
	Hawaiian			1			1
	JetBlue	15	15				30
	Total North America	**64**	**15**	**1**			**80**
S. America	Avianca	(4)	4				
	Synergy Aerospace		62				62
	Total South America	**(4)**	**66**				**62**
Lessors	Aercap		10				10
	Air Lease Corp	1			1		2
	AWAS	15					15
	BOC Aviation	5					5
	CALC	2					2
	Total Lessors	**23**	**10**		**1**		**34**
	Undisclosed customers	35	96	23			154
	Private customers		2				2
	Military/Defence			12			12
	Gross Orders	**141**	**351**	**47**	**35**	**2**	**576**
	Cancellations	(106)	(40)	(23)	(2)	(2)	(173)
	Net Orders	**35**	**311**	**24**	**33**		**403**

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