Issue no. 272
Nov/Dec 2022

Musings of an Aviation Investor

AIRLINE equities have been all over the place in recent years driven by pandemic market dislocations but have recently showed modest signs of stabilisation.

I hope to provide in this column, and on a regular basis, a bit of a synthesis and cut-through of the market with my own unique perspectives of key market drivers at play, with new take-aways and insights to be reported as observed. Hopefully, I will be able to include some interpretations that may not already have been widely written about.

My focus will be towards the lower cost and leisure side of the industry, mostly avoiding the complex financial business models of the US Majors and other international legacy network and flag carriers, which are volatile and tend to be exposed too often to unexpected influences from historic "baggage". This makes them less "investable" in the view of the writer.

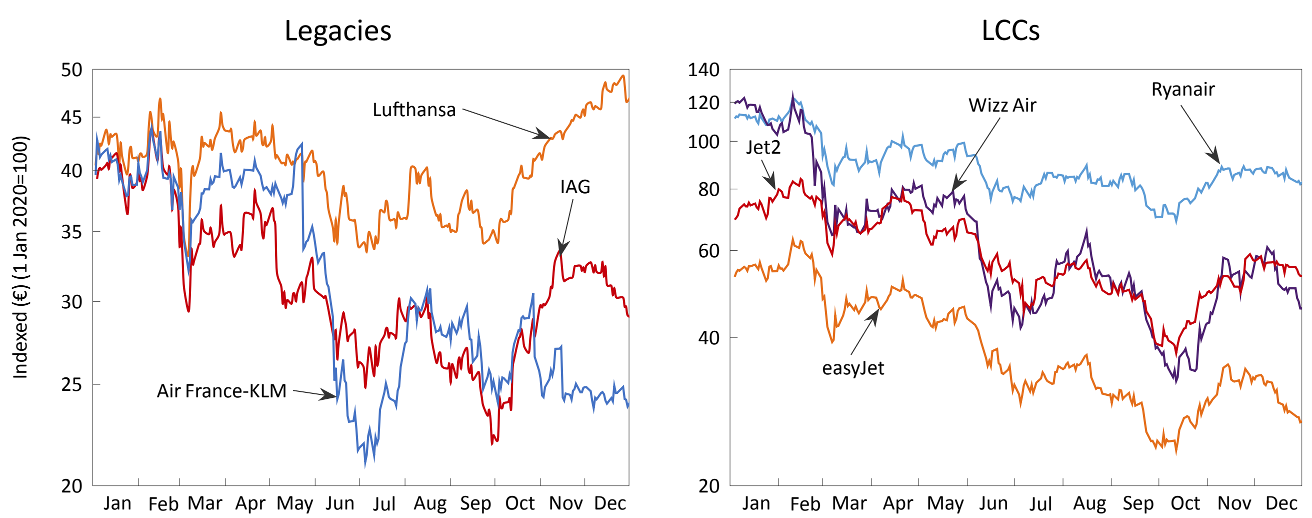
With most Q3 results published, the northern hemisphere summer season was characterised by strong earnings and reasonable profitability (vs the 20/21 pandemic period), driven by record yields and fares as pent-up demand drove traffic levels. However, fuel costs, labour and other inflationary factors caused unit costs to be also driven higher, such that overall margins whilst improved against recent two-year performances, remained weak compared to pre-COVID.

The healthiest results came from those best hedged for fuel (eg Ryanair, Pegasus, IAG, and Jet2) and the worst came from those that elected not to hedge at all (eg Wizz).

This issue includes

Average aircraft utilisation rates remained low across many markets as scheduled capacity increases did not keep pace with existing fleet numbers combined with new aircraft deliveries (Spirit and Frontier in the US provide good examples of sub-optimal utilisa-

EUROPEAN SHARE PRICE PERFORMANCE 2022



Published by Aviation Strategy Ltd

Aviation Strategy

ISSN 2041-4021 (Online)

This newsletter is published ten times a year by Aviation Strategy Limited Jan/Feb and Jul/Aug usually appear as combined issues. Our editorial policy is to analyse and cover contemporary aviation issues and airline strategies in a clear, original and objective manner. Aviation Strategy does not shy away from critical analysis, and takes a global perspective — with balanced coverage of the European, American and Asian markets.

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ISSN 2041-4021 (Online)

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tion driven by new aircraft deliveries).

OEM deliveries accelerated in 2022 in many cases catching up after initial short-term pandemic deferrals. This "excess" capacity has exacerbated unit cost pressures, but gives scope for positive earnings progress into 2023 with many LCC operators saying that their aircraft utilisation will be returning to the more optimal c12-13 Block Hours (BH) per aircraft per day by Summer 2023. This tail wind will hopefully offset other inflationary pressures which are likely to continue well into next year (labour, ownership driven by higher interest rates, airport, handling, navigation, etc).

On a more negative note, a few carriers reported operating cash-flow that was weaker than could otherwise be anticipated (Spirit and Frontier negative, Ryanair and Volaris weak) as the runoff of advance ticket sales worked through working capital. These will remain reliant upon "Christmas" bookings and continued ticket sales momentum going into Summer 2023 in order to avoid debt/equity issuances.

On a geographical perspective, yield improvements vs 2019 were seen to be more moderate in developing markets (eg Mexico, Philippines), which suggests that these markets are more exposed to cost and oil price rises and airlines may find it difficult to pass on increased fuel costs to customers. It would seem obvious that lower comparable per capita income levels in such "less rich" countries would mean air travel price elasticity would be high, but this is dangerous for local airlines faced with frail balance sheets from two years of COVID shutdown, high fuel prices as well as in many cases weak exchange rates.

In western developed markets, pent-up demand has reduced price elasticity.

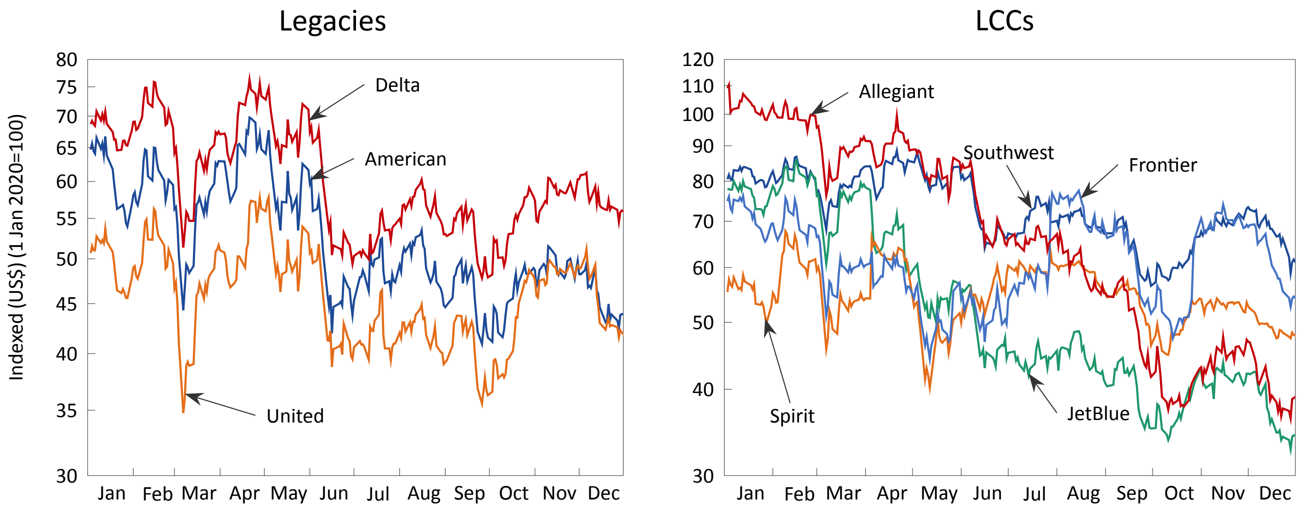
Another key factor to consider going into the new year is that fuel hedge benefits are wearing off and that hedges written for 2023 are at much higher rates, exposing those with the largest positions to significantly higher YoY unit fuel costs, but also competitively exposing them if oil prices fall. Note that Ryanair's average hedged price for 2023 is $93, which at the time of writing is appreciably higher than the market price. Notwithstanding, such hedges even at higher rates will have been committed at levels to ensure positive operating margin levels, so should only prove to be a competitive disadvantage.

In the near-term into winter 22/23, which is typically the weaker shoulder period, the majority of airlines are indicating a strong outlook (highlighted by Ryanai's recent profit upgrade), with the yield and demand environment remaining buoyant with some carriers trimming winter capacity out of cautiousness and to help keep pricing high. A final observation for this piece is to note that a long awaited China re-opening and ditching of the PRC's zero-Covid strategy may also provide a much belated resurgence of fortunes for Far-Eastern and SE Asian airlines.

by The Irrational Investor

The above is not intended to be investment advice and should not be taken as such and readers should ensure that they take independent advice prior to investing and to be aware of all the risks of equity investing, including the possibility of losing all invested capital. The writer takes no responsibility for the accuracy of the information contained.

NORTH AMERICA SHARE PRICE PERFORMANCE 2022



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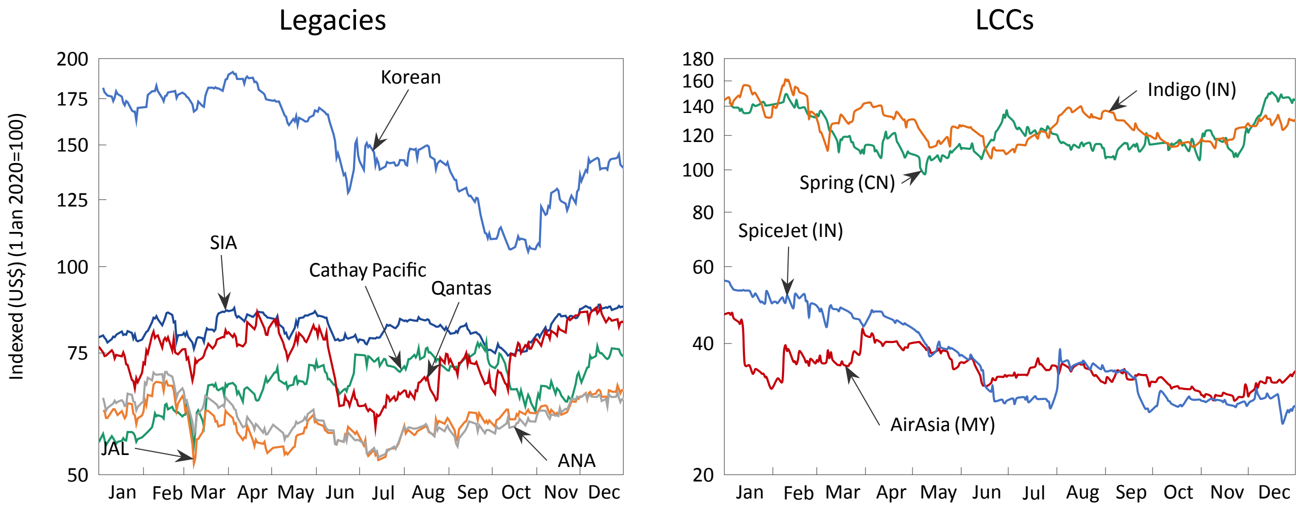


Season's Greetings

to all our readers

and

best wishes for a healthy and prosperous

New Year

Saudi Arabia's Astounding 2030 Aviation Vision

IF THE Saudi Vision 2030 project becomes a reality, Middle Eastern aviation will be transformed in the same way as Emirates Airline, copied by Etihad and Qatar, developed the super-connector concept. Saudi's aviation project goes beyond mega, it is on a giga scale.

Saudi Vision 2030 was initiated by Saudi Arabia's de facto ruler, Crown Prince Mohammed bin Salman (universally known as MBS). It aims to propel Saudi Arabia into a global post-oil power through rapid transformation of all sectors of the economy and a parallel modernisation of society. Travel and tourism are at the heart of the plan, which has been developed largely by US management consultancy firms — McKinsey has embedded itself throughout the Saudi administration (the Ministry of Planning is sometimes referred to as the Ministry of McKinsey), but the main authors of Vision 2030 were the Boston Consulting Group. Funding for Vision 2030 comes from the sovereign wealth fund, PIF, which has assets of up to US$1tn.

The economics

Saudi Arabia retains its role as the central bank for global oil. Current output is around 10.5m barrels/day, which makes it the world's largest producer after the US and by some margin the world's largest exporter, a position that has consolidated with Russia embargoed by the West. Proven reserves are still immense, enough to allow production at current rates for at least 70 years. But as the legendary late Saudi oil minister Sheik Yamani once observed: "The stone age didn't end because the world ran out of stone."

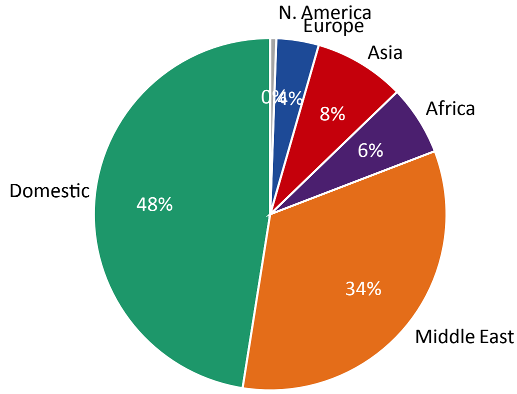
Although in 2022 the government is expected to produce a fiscal surplus of about US$25bn, the Saudi government has consistently spent more than it has taken in tax receipts: the average deficit for the previous six years was around US$55bn. Boosted by the surge in oil in crude oil prices, Saudi GDP growth will be around 7% in 2022 but preceding years have shown little or negative growth. Perhaps surprisingly average GDP per capita is only around US$27,000 which reflects the marked income and wealth inequality in the Kingdom. And economic tensions are intensified by the youthfulness of the population: over half are under 25 years old.

The participation of Saudi nationals in the workforce is less than half the potential number while 7-8 million foreigners are based in the country ranging from Filipina maids to McKinsey consultants. Job prospects for foreign professionals of all types but particularly those in the construction, aviation and tourism sectors are in theory very promising.

There is, however, the critical issue of civil rights, repression of minorities and fundamentalist religious intolerance. There are various reports from the Kingdom as to MBS's willingness to take on some elements of the Wahhabi establishment, but he is certainly no reforming liberal in the Western sense. But, overall, it may well be that opening up the Kingdom to western visitors will accelerate reform.

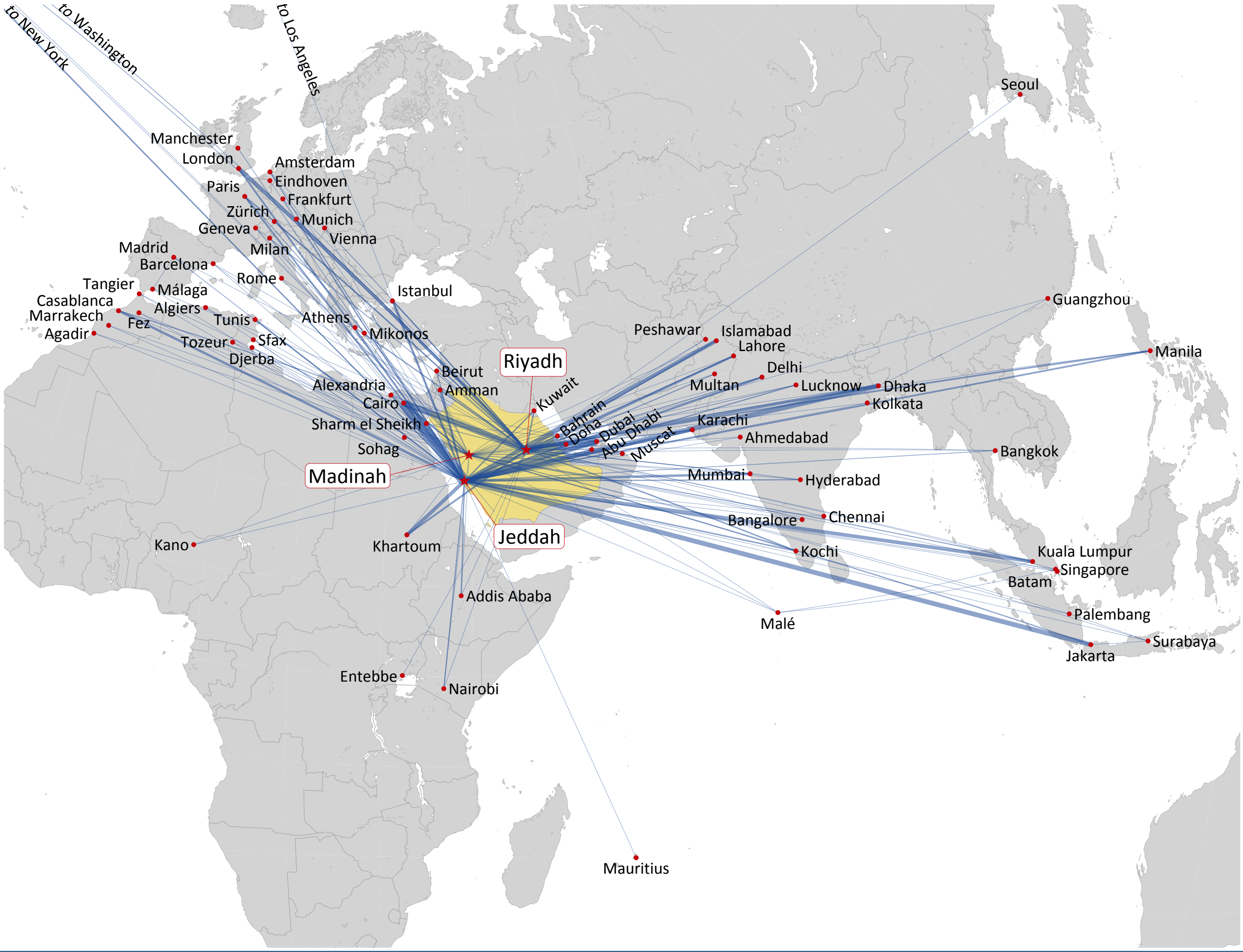
Qatar's hosting of the football World Cup in December is on balance regarded as a success: Doha looked very impressive albeit that there is now a large surfeit of stadiums. On the other hand, the Qatari authorities had to face some pretty stiff crit-

SAUDI ARABIAN AIRLINES: ESTIMATED CAPACITY DEPLOYMENT



Note: Estimated from 2022 Schedules

SAUDIA LONG HAUL ROUTE NETWORK



icism about minority rights, particularly gay rights, and the spotlight was thrown on the poor conditions under which migrant workers from Pakistan and Nepal had been working.

The Saudi government has mostly used oil revenue windfalls to invest abroad and to distribute largesse to its nationals, MBS's vision is to use these funds to invest for the long term in the Kingdom.

In the past the Saudis have nationalised foreign-owned companies — most importantly Aramco (Arab-American Oil Company) in the late 70s — but now the idea is more to invite in foreign expertise to in effect denationalise moribund state enterprises.

The scale of the Saudi aviation and tourism plans are mesmerising.

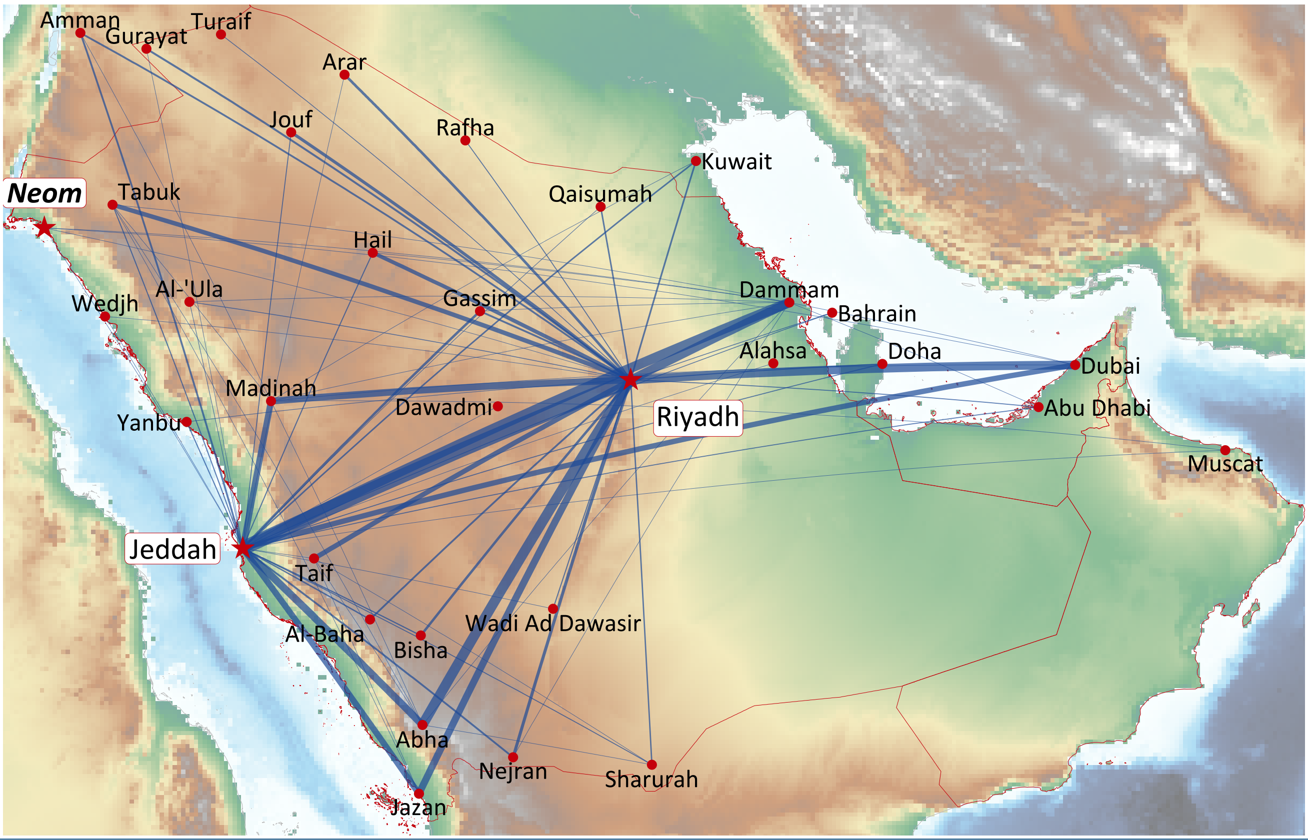
The Riyadh aerotropolis

To begin with there is the new King Salman Airport at Riyadh for which Foster+Partners, the London-based studio, has won the design competition. This is a $100bn-plus project, which of course is endorsed by MBS and financed by the PIF, and is intended to transform the Riyadh city economy into one of the world's top ten by 2030, in the process growing the population from 7.5m to 15-20m.

King Salman Airport is planned for an area of 57 square kilometres — in fact it has been designated as an aerotropolis rather than a mere global hub. It will include the world's tallest building — at a proposed 2km, more than twice the height of the Burj Khalifa in Dubai — as well as six parallel runways. The official target is for 120m passengers by 2030 then 185m by 2050, plus cargo capacity of 4.5m tons. Inevitably, it will incorporate the latest logistical technology and will have impeccable green credentials.

"King Salman Airport will become centred around a seamless customer journey, world-class efficient operations, and innovation. Riyadh's iden-

SAUDIA: DOMESTIC AND REGIONAL NETWORK

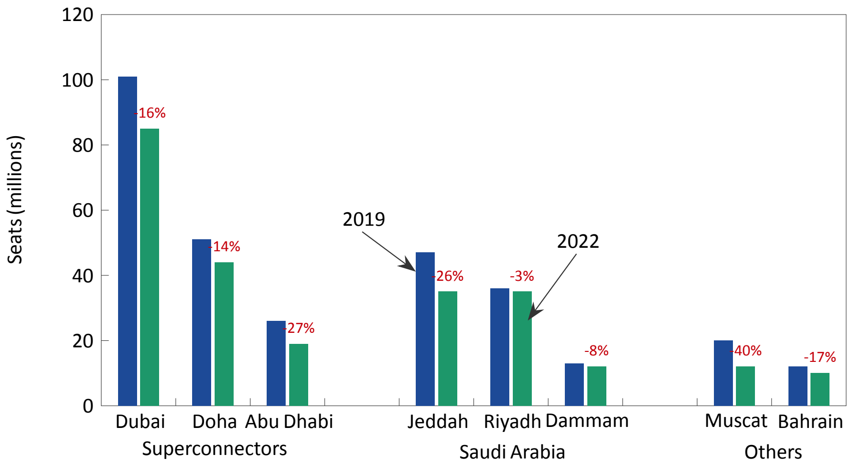


tity and the Saudi culture will be taken into consideration in the airport's design to ensure a unique travel experience for visitors and transit travellers", according to the PIF press release.

To put all this in some sort of context Dubai World Centre airport has an ultimate capacity of 160m in addition to around 90m at DXB; Doha Airport in Qatar has plans to increase its capacity to around 50m while Abu Dhabi in theory can accommodate 25m-plus. So the Riyadh investment will add 40-60% to Middle East global hub capacity. Of course, none of these facilities are currently operating at anywhere near full capacity. And then there is the new THY hub at İstanbul İGA which has medium term plans to get to 200m passengers.

One advantage that Saudi Arabia claims over the UAE and Qatar is that it has a strong domestic market with a population of over 36m. The large majority of domestic traffic, roughly 30m passengers pre-pandemic, is along the Jeddah-Riyadh-Dammam corridor from the Red Sea to the Gulf. There are another 25 airports civilian airports throughout the country

TOTAL SCHEDULED SEATS: MIDDLE EAST HUBS



of which the most significant are Madinah and Abha.

In the new Saudi Arabia it appears that you cannot have too many airports: three additional airports are planned for Neom in addition to the existing facility at Neom Bay Airport.

The main Saudi airports fared better during the pandemic than the global hubs of the super-connectors, with a much lower reliance on international to international connecting traffic, and recovery to prepandemic traffic levels has been somewhat faster at the Saudi hubs. Scheduled capacity at Riyadh, Jeddah and Dammam was 7% lower in 2022 compared to 2019 whereas capacity at Dubai, Abu Dhabi and Doha was down 17%. In total the three Saudi airports combined offered roughly the same capacity as Dubai in in 2022.

RIA — the new flag-carrier

Plans for the new Saudi flag-carrier — provisionally titled RIA (Riyadh International Airline)— are being expedited. Tony Douglas, who had previously been occupied in Abu Dhabi dismantling Etihad's reckless over-expansion, has been appointed CEO of RIA which will probably be launched in early 2023, financed by the PIF with US$30bn of capital (this figure seems excessive even by Saudi standards and must include the list price of the proposed 250 unit fleet order).

It is not entirely clear whether RIA will replace Saudia or whether there will be two flag-carriers. The most likely development would appear to be for RIA to take on the role of a superior quality medium- and long-haul carrier, a Saudi version of Emirates Airline, while Saudia would have the role of focusing on domestic and regional traffic, mostly catering for traditional passengers, including Hajj and Umrah visitors. (To confuse matter further, there have been reports of a third national carrier to be based at Neom.)

There are some tricky service issues to be sorted for RIA not least of which is the provision of alcohol on board. But the most urgent question Is fleet renewal.

Saudia's fleet is ageing: the A320 family aircraft are on average 9 years old while the A330 and 777 wide body fleet is on average 8 years old. The current orderbook consists of 50 A321s which will be split between the mainline carrier and the lower cost subsidiary Flyadeal.

It is perhaps surprising that given all the other infrastructure announcements that there has not yet been a mega-order from the Saudis. In 2021 there was speculation about an imminent order for 250 units but nothing materialised. As of the end of 2022 Saudi authorities were reported to be in negotiations with Airbus for an order of 40 A350s and with Boeing for a similar order for 787s.

Saudia, as it is currently set up, would not appear to be capable of a rapid fleet and network expansion. It is a largely unreconstructed legacy flag-carrier, completely reliant on the support of the state. It reported 37m passengers carried in 2019 but Its financials are non-existent, beyond vague statements from management to the effect that the airline expects to break even in 2023.

Greater financial transparency will be one of the challenges for RIA, especially in the light of US and European antitrust allegations against the super-connectors. To take one example, the price Saudia pays for its fuel has long been a matter of speculation; one of the reasons that Saudi low cost new entrants like Sama found it so hard to compete in the domestic market was that, slightly ironically, regulatory caps were placed on key domestic fares which could not be raised when jet kerosene prices escalated, restrictions that did not seem to impact Saudia.

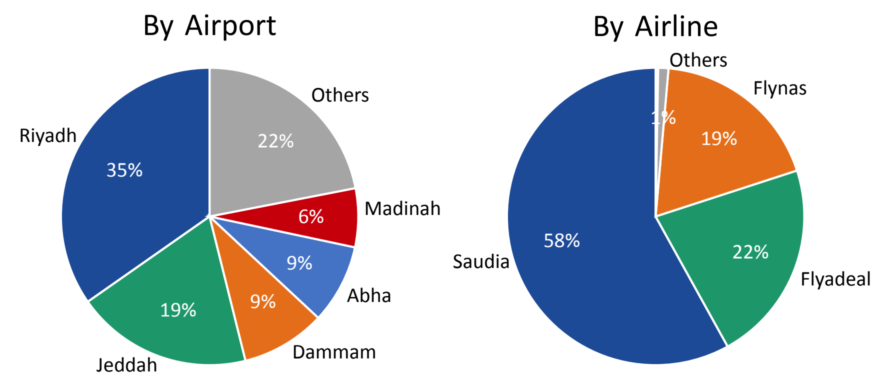
The Saudi domestic market is again dominated by Saudia and its subsidiary Flyadeal which together account for 80% of domestic seat capacity. The other airline is Flynas which was established as Nasair in 2007 when the domestic market was partly deregulated and two new entrants were permitted. It currently operates a fleet of 22 A320s but has 75 on order. In early 2022 it was reported that the airline was to increase its orderbook to a total of 250 aircraft to be used on a greatly expanded international network.

The extent to which Flynas will compete with RIA and how the Saudi aviation market could absorb potentially 500 new aircraft is a matter of speculation. However, Flynas is firmly in the Saudi establishment, being partly owned by Kingdom Holdings which is an investment fund set up by Prince Alwaleed Bin Talal and which has assets of about US$15bn

AviLease — the new leasing venture

Given the urgency of the Saudi aviation policy, one way to rapidly build a new technology fleet would be through a leasing company. In June 2022 PIF set up an operating lease company, AviLease, based in Dublin and headed by Edward O'Byrne, formerly CEO of Carlyle Aviation. The stated strategy is to grow initially through purchase-and-lease-back transactions with airlines, then portfolio acquisitions, and direct orders from aircraft manufacturers.

SAUDI ARABIA: DOMESTIC SEATS



Sovereign-type credit rating and liquidity is guaranteed through 100% ownership by PIF.

The first transaction was immediately concluded with Flynas for 12 A320neos to be delivered before the end of 2023. This was followed by a contract to deliver 20 A320neos on long term leases to Flyadeal.

All the noises coming from Saudi Arabia suggest a rapid expansion for AviLease. Conditions in the operating lease business are likely to become more challenging with the surge in dollar interest rates, so it would not be surprising to see a major portfolio purchase by AviLease or even a takeover of another lessor.

No doubt MBS is aware of the role that Sheikh Ahmed bin Saeed Al Maktoum plays in the Dubai aviation industry — heading up Emirates Airline, flydubai, the airports, the handling company, the duty free operation, and DAE the operating lessor — which he might well like to replicate in Saudi Arabia.

The new tourism

Saudi Arabia is not the most obvious tourist resort, but it is promoting itself strongly through a key series of campaigns on television, in newspapers and in social media. The target for inbound visitors is 50 million by 2030, a four-fold increase on the current level. Naturally there is a certain amount of scepticism about Saudi Arabia as efforts to reinvent itself as a welcoming exciting alternative to Bali, Majorca or Florida.

Visitors to the Kingdom have traditionally been associated with pilgrimages to the holy Islamic sites — 25% of the global population is Muslim. The Hajj to Mecca is the largest human gathering in the world with about 2.5 million pilgrims in 2019. It has been closed to foreigners during the pandemic.

Hajj visas are issued proportionate to the Muslim population in origin countries, and had been expected to increase 3% to 4% a year in line with population trends. But this growth rate is now in doubt because Ramadan, following the lunar calendar, is moving into the hottest months of the year which is raising serious safety concerns.

Umrah — religious trips at any time of the year — is, however, more or less unconstrained. Some 6 million Umrah pilgrims a year visited the Kingdom pre-pandemic. Unlike Hajj visitors Umrah travellers usually use scheduled air services rather than specialist charters. One idea is for Umrah visitors to take holidays in the Kingdom which combine religious duty with more secular pleasures.

Neom represents the new Saudi

SAUDI FLEET PROFILE

	SAUDIA ARABIAN		FLYADEAL		FLYNAS		TOTAL	
	In Service	**On Order**	**In Service**	**On Order**	**In Service**	**On Order**	**In Service**	**On Order**
A320/21ceo	46		11		14		71	
A320/21neo	15	35	16	15	22	75	53	125
A330	32				3		35	
777-300	33						33	
787-9/10	18	3					18	3
747F	3						3	
777F	4						4	
TOTAL	**151**	**38**	**27**	**15**	**39**	**75**	**217**	**128**

Notes: Saudia Arabian's A321 orders nmay be allocated to Flyadeal; Excludes order for 100 Lillum E-Jets

Arabia — see box right for a quick guide to MBS's futuristic dream — but there are many other projects under development: for example, a chain of artificial islands in the Red Sea, up to 90 apparently, and a $10bn investment in an entertainment park called Qiddiyah, which will feature the world's fastest, longest, tallest and scariest roller coaster.

And it's all about eco-tourism — the world's largest exporter of crude oil is setting itself up as the world's first zero-carbon holiday destination.

Tourists not only have to be persuaded of the charm that is Saudi Arabia but they also have to be able to fly easily to the country. The Saudi Air Connectivity Program (ACP) was established in 2021 explicitly to support tourism growth in Saudi Arabia by enhancing air connectivity and developing existing and prospective air routes. The idea is to incentivise foreign and Saudi airlines, through partnership agreements and, presumably, support payments, to start up new services to/from Saudi Arabia, and to connect air travellers to the new tourist facilities. The target is to have 250 points linked directly to Saudi Arabia.

Wizz Air is the most significant participant in the ACP so far, potentially operating 23 routes (see *Aviation Strategy*, October 2022). Emirates has also signed an MoU with the Saudi Tourism Authority designed to boost inbound tourism, though details are hazy.

NEOM: THE FUTURE?

Neom – neo plus mostaqbal, Arabic for future – is located is north-western Saudi Arabia,in the Gulf of Aqaba, not far from the Egyptian resort of Sharm El Sheik. The giga-city will in in fact be four cities, each vying for extraordinary modernism.

✈ **Sindalah** is an eco-tourism destination described as a "tech-driven destination where laidback island chic meets new-age luxury". The luxury currently consists of three hotels, a marina and offshore berth for super-yachts.

✈ **Trojena** is planned for the mountainous region (up to 2,600 metres elevation above sea level) of Tabuk province. The planned new city will be able to accommodate a remarkable 700,000 visitors by 2030. One modest ambition is for Trojena to host the Winter Olympics in 2030.

✈ **Oxagon** is designed to be the largest **floating structure** in the world, an eight-sided port city just south of the Suez Canal, operating on 100% clean energy and expected to a radical new manufacturing and trading hub.

✈ **The Line** a super-tall (500 metres), ultra-narrow (200 metres) city is the most radical and publicised of Neom's design concepts – a linear city without cars or roads, but perhaps with flying taxis. Everything is based on Artificial Intelligence and naturally powered by 100% clean energy.

Opportunities and threats

So how real are the Saudi aviation and tourism plans?

In the old Saudi Arabia, a slump in the oil price would almost certainly mean that these ambitious projects would disappear. In the new Saudi Arabia, things may well be different: it all depends on MBS. He is in a unique position with access to huge, but not unlimited, financial resources and possessed of an absolute determination to transform the Kingdom's economy. Even if only half his projects are realised, Saudi Arabia's role in the world will be changed from just being the major supplier of carbon energy. The country will no longer just be dependent on the West for technological support; its major trading partners are now China and India.

The aviation/tourism sector is highly visible, and as the civil aviation authority, GACA, states, has "unlimited support ... from the Saudi leadership." Aviation will be symbolic of the success, or failure, of MBS's innovations.

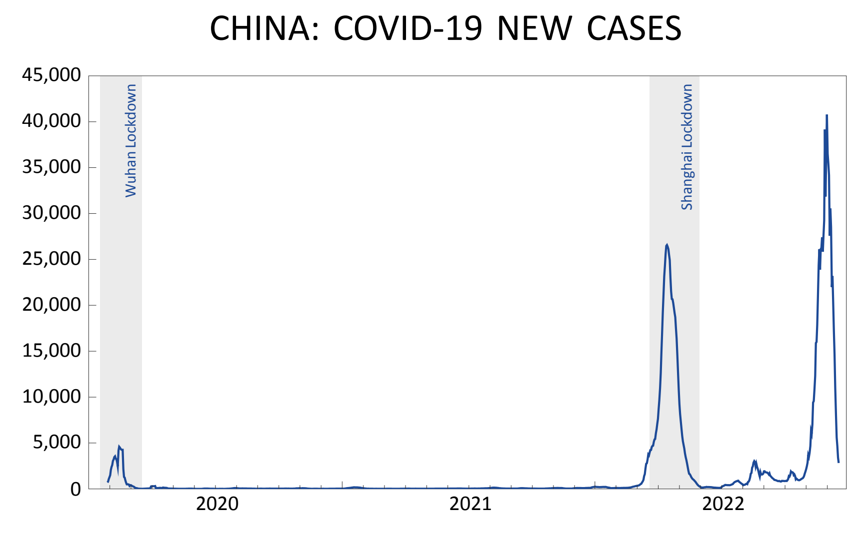
In the short term foreign airlines stand to benefit from the boost to air travel associated with the infrastructure projects and the tourist developments but in the longer term RIA (or whatever it is called) must pose a threat to the superconnectors. About 25% of Emirates' seat capacity is deployed in the Gulf region including Saudi Arabia, and RIA will be aiming to capture a substantial share of this traffic.

As for intercontinental connecting traffic Emirates and Qatar can continue to rely on their brands but RIA is going to erode some of this traffic. And there is the probability of a renewed level of over-capacity in the Middle East connecting market, putting pressure on unit revenues, negating the benefits of rationalising Etihad. Also, there should be a major concern about the extent to which RIA's operations will be subsidised by the Saudi government.

For Emirates and Qatar the emergence of Saudi Arabia as a new aviation force comes at the same time as radical changes now taking place in the Indian market, with Air India/Vistara, now under the ownership of the Tata group also about to place a mega order for 250 new aircraft. An outside possibility, however, is that Emirates might be invited to play some role in the development of RIA, perhaps through a management contract.

China Abandons Zero-Covid Policy

Since the first notified case of the novel coronivirus strain in Wuhan at the end of December 2019, the UN World Health Organisation (WHO) estimates that there have been 646m cases worldwide and 6.6m deaths attributable to the disease. However conservative these estimates, it is a far cry from the effects of the 1918 Spanish Flu pandemic which infected a third of the world's then population and is thought to have killed anything between 17m and 100m souls. But the "past is another country", and the Covid-19 pandemic has been devastating.



Source: Our World in Data. Seven-day moving average.

China quickly reacted to the outbreak with a three-month lockdown and effective blockade of the source city. The WHO at the time commended the move to lock down 11m people in Wuhan (and then a total 57m in Hubei province) as a commitment to contain the outbreak, even though it would not have recommended it, calling it "unprecedented in public health history". In March 2020 China closed its borders to foreign visitors.

This reaction from the Chinese state was entirely within the terms of its 1989 law on the prevention of transmission of infectious diseases (amended after the 2004 SARS outbreak), This provided the framework for draconian measures of enforced quarantine and blockade in the case of an outbreak of a Class A (bubonic plague, cholera) or Class B diseases (SARS, anthrax, AIDS, typhoid, and viral hepatitis — and Covid-19). Their categorisation of Class C diseases cheerfully includes influenza, leprosy, mumps, and bilharzia.

These types of draconian containment measures have been used throughout the country since then, and over the past three years the Peoples' Rebublic of China has maintained a strict zero-Covid policy.

In one sense the policy has worked. Over this time China has officially suffered a total only 1.49m confirmed cases and 5,500 deaths from Covid-19. Per head of population this works out as 1,042 cases per million (compared with eg 291,000 per million in the USA and 555,000 in France) and 3.7 deaths per million (compared with eg 3,200 in Brazil, the USA or the UK, 5,600 in Bulgaria and 6,300 in Peru).

Gradually through 2021 and increasingly through 2022, the rest of the world has been opening up from their respective (and somewhat less draconian) versions of disease prevention, and borders have once again been opening to travel. Not so for China.

In March, China encountered a significant spike in positive tests for the disease (as shown in the chart above) — although 90% of those testing positive were said to be asymptomatic. True to the zero-Covid policy the country put in place a stringent lockdown in Shanghai (with its population of a mere 25m) limiting movement, providing for forced testing and state controlled quarantine. This lasted three months.

Since then reported cases had averaged around 1,000 a day. Another wave of cases started in November. This time the spike topped 40,000 cases a day, and Chinese officials reiterated the commitment to the zero-Covid strategy.

However, at the end of November, civilian protests erupted in Ürümqi, the regional capital of the far west Xinjiang region, following a fire in a residential building in which ten people died. There were suggestions that the covid restrictions were a factor in the death toll (Ürümqi's 4m inhabitants had been in lockdown for the previous three months). The unrest spread to Shanghai, Wuhan and Beijing.

Four days later, the Chinese Government started relaxing the severest of curbs — eg allowing people who test positive to quarantine at home rather than marching them, their contacts and their contacts' contacts into state run quarantine camps; allowing lateral flow tests in most circumstances where a test result be needed (but keeping PCR tests for such as schools, hospitals and nursing homes).

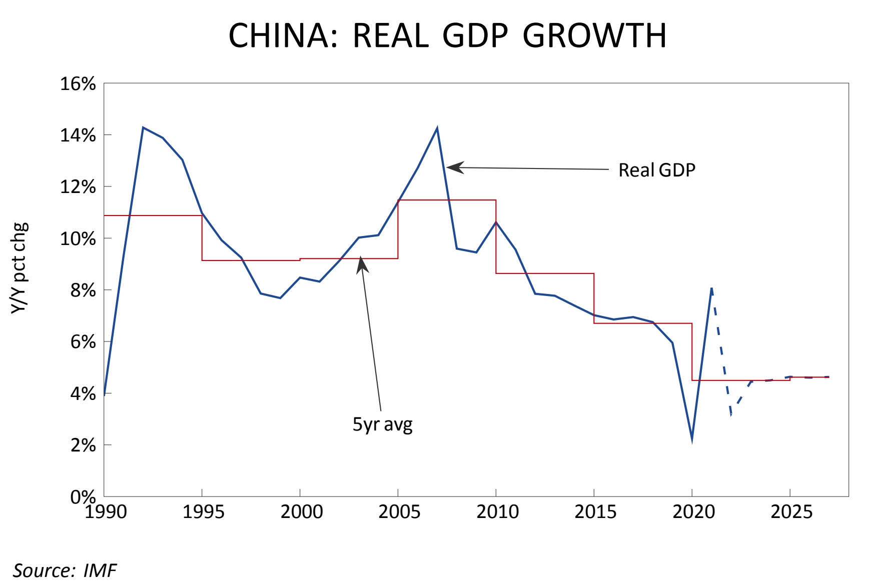
Testing stations have been dismantled. November's surge in the official data of positive tests has fallen.

In one sense the zero-covid policy may have been a success. But it leaves China exposed. The rate of full vaccination among the over-65s, and particularly the over-80s, is said to be low. It has used its home grown Sinovac and Sinopharm "inactivated" vaccines which some say may be less effective than the mRNA based western vaccines. It does not have as large a corpus of people who have both been vaccinated and have had the disease, perhaps making it more difficult to transit towards an endemic state from pandemic.

On top of that the country has been criticised for not preparing an exit strategy. Some observers cite a relatively low number of ICU beds in its hospitals, the lack of community health facilities and the low vaccination rates with concern, and suggest that the country's abandoning the zero-covid policy, will see a massive wave of serious infections (and deaths). Unofficial reports indicate that the country is currently going through a massive wave of infections, hospitalisations and deaths. Next year's Lunar New Year "Travel Rush" (the world's largest human annual migration) starts on January 17th. It could help push the wave to a huge peak. Some external models suggest that peak could result in 1-2m deaths. Official data is scant.

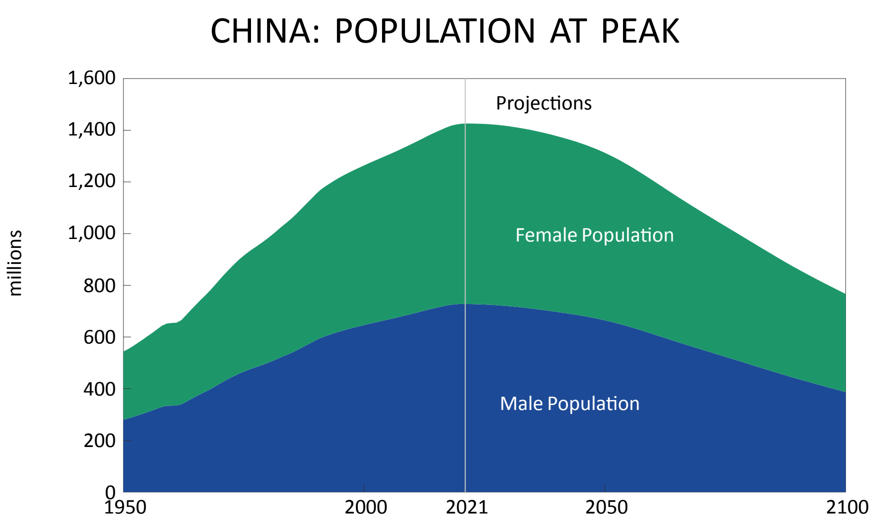
For the sake of the Economy

China has been the growth engine for the world for many years, but has been seeing its rate of growth gradually declining from the 10% seen in the 2000s as its economy matures. The *Financial Times* suggested that the main reasons for abandoning the zero-Covid policy were economic, rather than a reaction to popular protest. It highlighted that the new measures announced by the State Council were "foreshadowed by a meeting of the Chinese Communist party's politburo that emphasised the importance of stabilising the economy rather than the battle against Covid-19".



The impact from the pandemic in 2020 had pushed the PRC's annual economic growth rate to a mere 2% (see chart above) — the worst year-on-year increase in real GDP for forty years. There had been a rebound in 2021 helped by the world's stay-at-home consumer boom, and the country had initially set a target for growth in 2022 of over 5.5%. But the impact of the surge of reported cases in the Spring, combined with lockdowns of cities (and factories), let alone the impending recession in industrialised nations put paid to that. In the first nine months of 2022 the economy expanded by only 3%, well below target, and In November, the country reported its worst trade data for many months with a 9% year-on-year fall in exports and a 10% decline in imports. The IMF recently allocated a forecast for GDP growth of only 3.2% this year, rising to 4.4% in each of the next two — well down on the average of 6.5% annual growth achieved in the latter half of the 2010s.

But China's growth rate should continue to slow. Its population is aging — 20% are over the age of 60, a ratio expected to reach 30% over



Source: UN World Population Prospects 2022

the next decade, and the working age population is on track to contract at an average rate of nearly 1% a year in the coming decades. The fertility rate of 1.15 children per woman is well below the replacement rate of 2.1, despite the relaxation of the one-child policy imposed in 1980 (amended in 2016 to allow two, and then three in 2021); and the population is out of balance — 15% more boys are born than girls.

The total population is expected to start declining from 2023 (if it hasn't already started). And the UN expects that next year India will overtake China as the most populous nation on earth forecasting its population to exceed 1,426m (on 1 July 2023, according to the *Hindustani Times*).

President Xi's implicit targets for a 5% annual increase in GDP (to fulfill the goal of doubling the size of the economy by 2035) may be increasingly difficult to achieve, and the PRC needs its populace to have the freedom to go out and spend.

China's reopening is vital for air travel

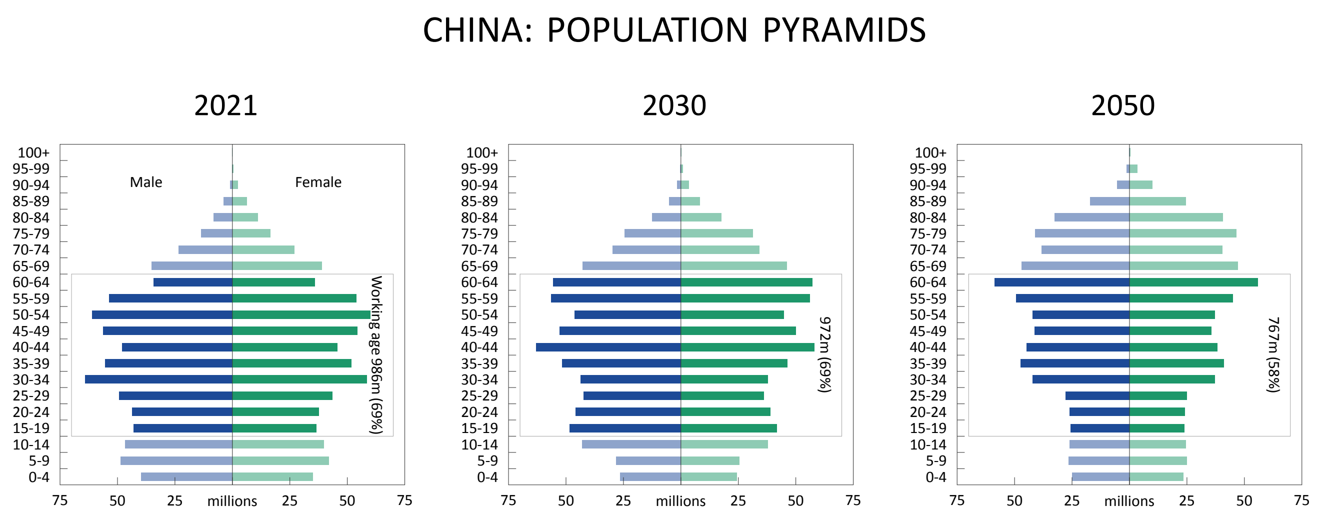
In hand with its economic development over recent decades China's impact on air transport has been substantial.

Between 2009 and 2019 the number of passengers carried by the country's airlines increased by nearly three fold — exhibiting a compound annual growth rate of 11.2%, adding 430m passengers and accounting for 20% of the of the total growth in world passenger numbers over the period.

The domestic market accounted for 78% of the total. Foreign airlines were able to access the growing international demand, and over the same decade international traffic flows to and from China in RPK terms grew by an average annual 11% — amd by 15% a year to SE Asia.

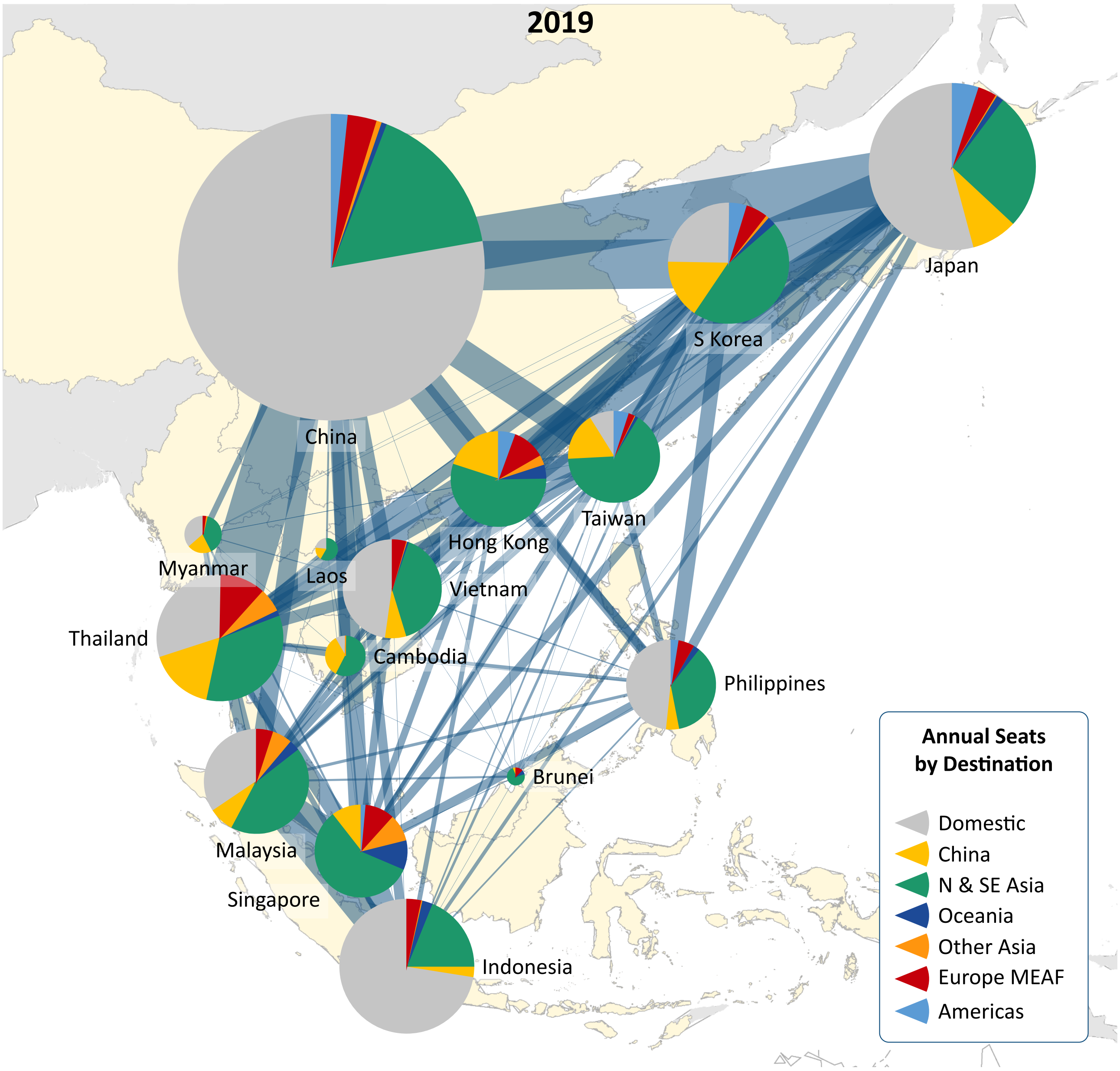
Some countries in the region over the period developed a dependence on the high spending Chinese visitors for their in-bound tourism industries.

Japan, for example, has been keen on developing incoming tourism in the face of a declining



Source: UN World Population Prospects 2022

ASIA CAPACITY FLOWS 2010–2022



Source: schedule data.
Note: this chart is an animated timeline series progressing from 2010 to 2022. The area of each pie is directly related to the total number of scheduled airline seats in each country. The thickness of the lines is related to the number of seats between countries.
Some pdf readers are unable to render animations. The same chart is available on our website.

population and stagnating economy. In 2010 there were 8.6m tourist arrivals into Japan. By 2019 this had increased to 31.9m, representing an average growth rate of 16% a year (nearly three times the rate of growth in the previous decade). Visitors from China in 2010 totalled 1.4m, 4% of the total. By 2019 this had grown to 9.6m (30% of the total). with a 24% compound annual growth rate.

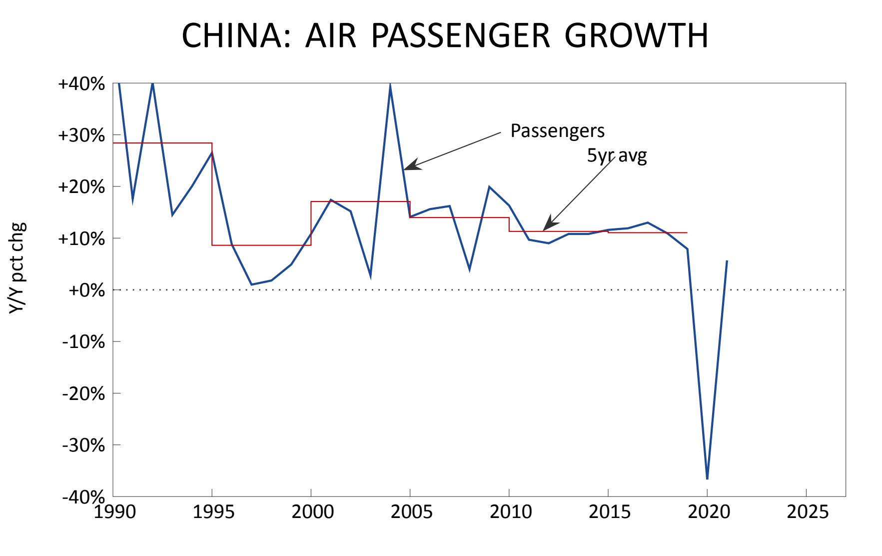
Thailand, with a slightly larger tourism market, had an estimated 12m of its 40m pre-pandemic incoming visitors from China.

Korea too benefits from tourists from its close neighbour. In 2019 Chinese visitors accounted for 34% of inbound tourists with 6m visitors. (In 2016 the numbers had been higher with 8m visitors — 47% of the total — but then China had punished South Korea in 2017 by boycotting its tourism industry in retaliation over Seoul's decision to install a US-made anti-missile system).

In the animated chart on the previous page we show the development of seat capacity in terms of destination by country and density of traffic flows within North and SE Asia over time between 2010 and 2022 exemplifying China's importance to the region.

International travel to and from China has been severely curtailed over the past two years, with passenger numbers only 2% of pre-pandemic levels. Early on the CAAC introduced a "five-one" policy allowing mainland carriers to fly just one flight a week on one route to any country and foreign airlines to operate just one flight a week to China. Sales of outbound group and inclusive tours have been banned.

The CAAC tweaked the policy with a "circuit breaker": flight suspensions or capacity caps for airlines if a certain number of passengers were found to have been infected with Covid-19, or adding flights if an airline were not to import any cases.



Source: World Bank

In September, however, the CAAC doubled the permitted number of international flights for this winter's season, and dismantled the circuit breaker. It also allowed inbound visitors (but only on escorted tours) to controlled "attractions" close to border entry points.

But travellers were still subject to pre-flight testing requirements, the "5+3" quarantine rules (five days' solitary confinement in a state mandated hotel — at the traveller's cost — followed by three days' self-quarantine at home or another hotel), while in-bound visas were severely limited and out-bound passports and visas curtailed.

These severe border restrictions have now also been scrapped. Stating that Covid-19 has now been downgraded to a categry "B" disease for containment measures China stated it would no longer publish case numbers. From the 8th January it will remove the limits on international flights, the requirement for quarantine on arrival (although negative PCR pre-flight tests will still be required) and will once again take applications for passports for outbound travel.

Within half an hour of the announcement that China's borders would reopen, data from travel site Trip.com showed searches for popular destinations (Hong Kong, Macau, Japan, South Korea) had increased ten-fold year-on-year.

This sudden reopening should come as a relief for airlines and tourist destinations, particularly in East Asia. But the recovery in traffic may be gradual. Concerned about the lack of transparent data from the Chinese authorities swathes of countries, from Japan to Italy and the USA, have stated plans for the resumption of testing passengers from China — with Japan, particularly worried that it could see a wave of imported cases, ironically suggesting it will impose quarantine on those who test positive.

But there is undoubted pent-up demand. The 155m Chinese who took trips abroad in 2019 have missed out on foreign holdays for three years.

China's Big Three Geared for Re-opening

THE THREE national flag carriers of China — Air China, China Southern and China Eastern — seem to have had as tough a time as any airline through the pandemic. In 2020 and 2021 the three airline groups reported total losses of RMB(40)bn (US$6bn) on revenues 40-50% down from 2019 levels giving negative net margins of 18%. And in the first nine months of 2022 they reported a further RMB(80)bn loss on even lower revenues — a negative margin of 54%.

But unlike their peers elsewhere in the world, the three have not felt the need to react to the crisis with extensive restructuring.

The numbers of employees at the end of 2021 were only 3% below the levels at the end of 2019 (down by 1-2% at Air China and China Eastern, but 6% at China Southern).

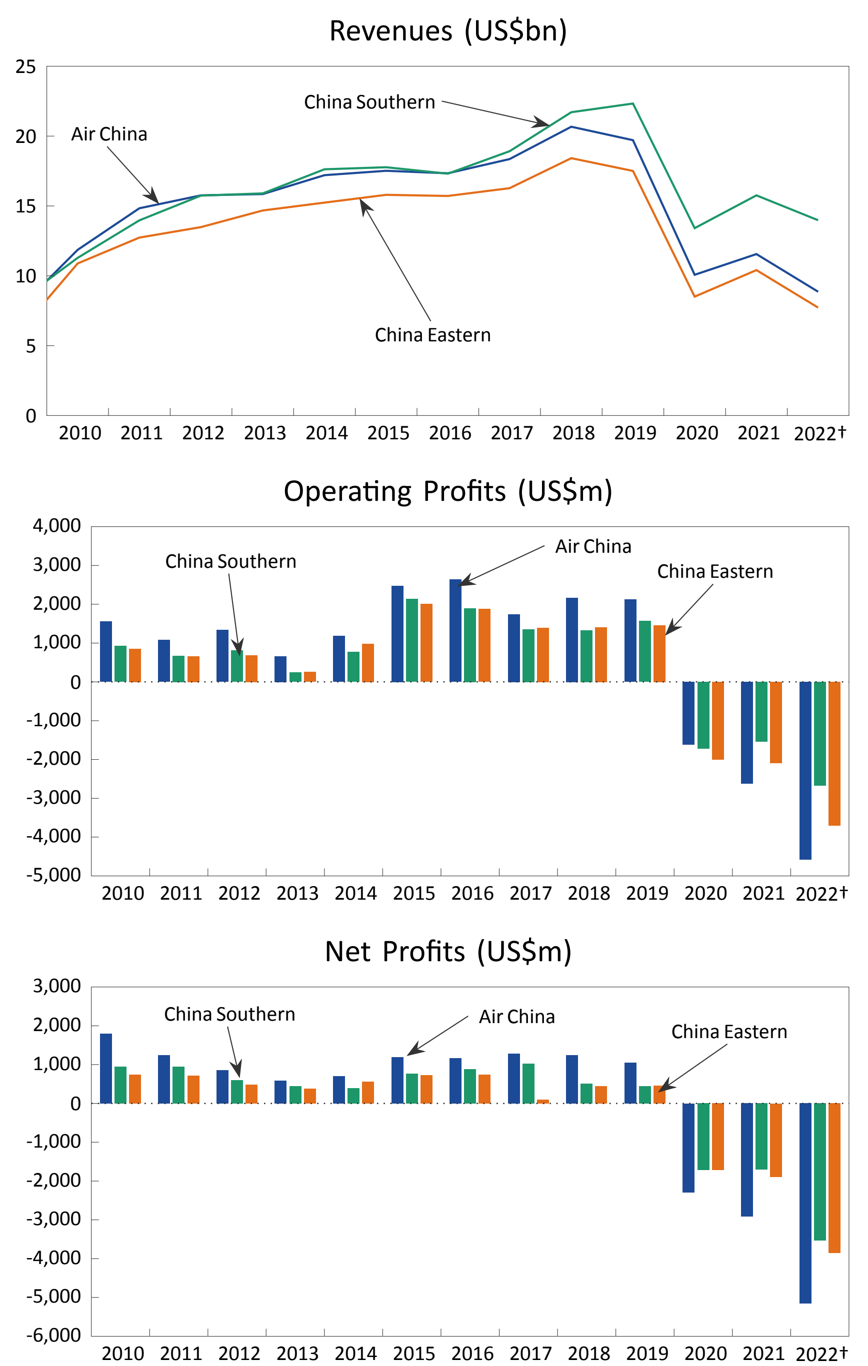
The three, while parking some aircraft, have continued to take deliveries and expand their fleets (although China Southern took the opportunity to dispose of its A380 and 747 four-engined widebodies). The current total operating fleet of 2,594 aircraft is 180 units higher than it had been pre-pandemic.

And while the 737MAXs remain grounded in China, the three airline groups in July 2022 announced orders for 300 A320neos for delivery from 2023 (and China Eastern has taken delivery of its first Comac C919).

Traffic

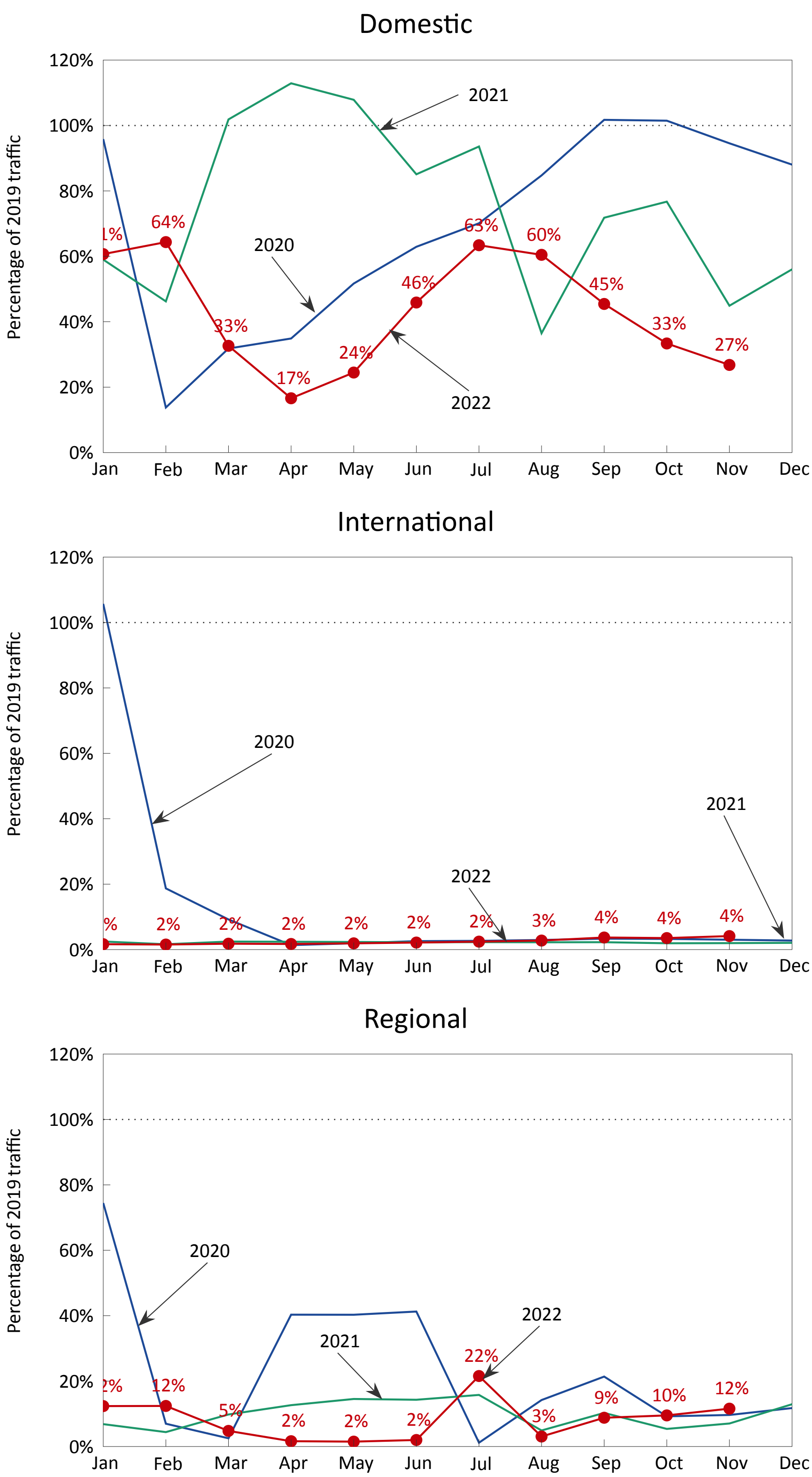
When the pandemic hit in early 2020, and following the Wihan lockdown, traffic demand evaporated.

CHINESE BIG THREE: FINANCIAL RESULTS



Source: Company reports. † 12 months to end Sep 2022

CHINESE BIG THREE: PASSENGER TRAFFIC v 2019



Source: Company Reports: passenger numbers.

But, lulled into the security of the zero-covid policies, domestic passenger traffic (which pre-pandemic accounted for 83% of total passenger numbers) started to recover and by September 2020 had returned to similar levels seen in the sane period of 2019 (see chart right).

The spread of the Covid "Delta" variant over that winter, along with associated local travel restrictions caused a blip with traffic slumping to around 50% of 2019 levels. The annual Spring Festival travel rush, known as chunyun — the world's largest annual human migration — which takes place of 40 days surrounding the Lunar New Year. was particularly hard hit with people encouraged only to travel if the trip were essential. The chunyun in a normal year would involve nearly 3bn passenger trips, but in 2021 is estimated to have been half the normal.

There was some modest recovery to 2019 levels in the Spring of 2021, but with the spread of the omicron variant and zealous application of covid containment measures, domestic passenger traffic has remained well subdued during 2022 fluctuating erratically between 15% and 60% of 2019 levels.

With the country's borders effectively closed by its zero-covid policy, and severe capacity restrictions imposed by the CAAC through its "five-one" policy (allowing mainland carriers to fly just one flight a week on one route to any country and foreign airlines to operate just one flight a week to China), international traffic — normally accounting for 15% of the big three's total passenger numbers — has been virtually non-existant. In November 2022 international passengers had recovered to a level only 4% of that seen in 2019.

The third traffic area that the three carriers are obliged to report cover "Regional" services — flights to Hong Kong, Macau and Chinese Tapei. In a normal year these would accounting for 5% of the big three's passenger numbers. For the past two years traffic on these routes had remained roughly 80-90% below 2019 levels, not only because of quarantine requirements but also because China had imposed capacity limitations.

All the restrictions are now being blown away — save for a requirement for preflight testing — and routes to Hong Kong and Macau could quickly return to "normal". (Cross-Straits travel to Taiwan may continue to be affected by geopolitical tensions.)

Finances

The three airlines had ended 2019 in reasonable financial health (see table right): strong net asset positions, and acceptable net debt ratios. But their cash position were suboptimal: Air China had RMB8.9bn in cash, equivalent to 6.6% of annual revenues, but China Southern and China Eastern had balances equivalent to only 1% of

BIG THREE BALANCE SHEET DATA: THEN AND NOW

	Air China		China Southern		China Eastern	
RMBm	**Sep 22**	**Dec 19**	**Sep 22**	**Dec 19**	**Sep 22**	**Dec 19**
Cash	14,578	8,935	21,456	1,849	23,575	1,350
Net Assets	35,336	101,330	66,088	77,329	25,084	72,646
Cash % revenues	24.6%	6.6%	23.0%	1.2%	45.7%	1.1%
Net debt/equity	4.33x	1.29x	2.10x	2.11x	6.61x	2.21x

CHINESE BIG THREE: CASH FLOWS 2020-2022

RMBm	**Air China**	**China Southern**	**China Eastern**
Net income	(67,051)	(40,978)	(53,984)
Operating cash flow	(1,782)	17,686	6,643
Capex	(26,105)	(28,081)	(9,857)
Other investing cf	134	1,541	1,544
Inc in Debt	37,983	5,479	17,808
Dividends	(5,768)	(6,173)	(4,946)
Equity	490	22,546	11,083
Total cash flow	**4,840**	**13,037**	**22,211**

Source: Company reports. Sum of cash flows Jan 2020 - Sept 2022.

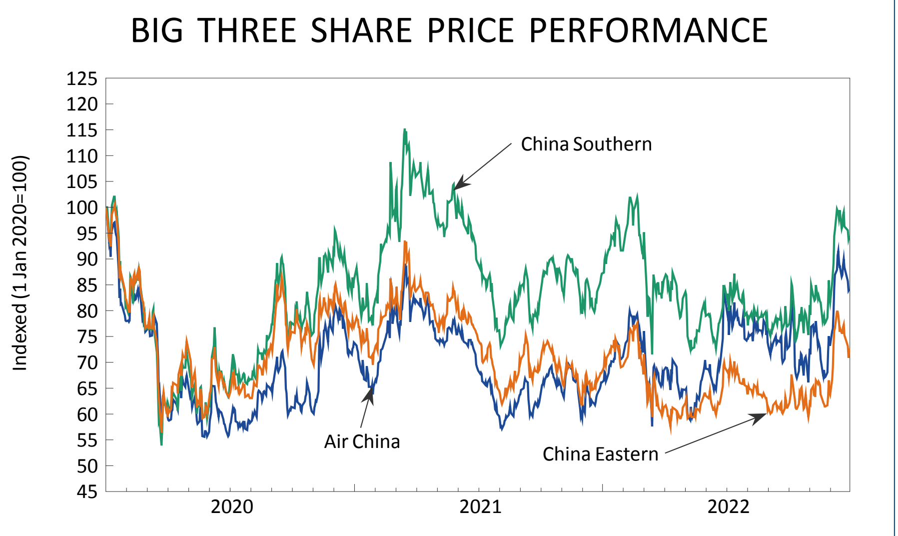
CHINESE BIG THREE FLEETS

	Air China			China Southern			China Eastern		
	In service (†)	**Δ v 2019**	**On order**	**In service**	**Δ v 2019**	**On order**	**In service**	**Δ v 2019**	**On order**
A320	346 *(19)*	+56	96	343 *(19)*	+26	96	377 *(20)*	+49	100
A330	59 *(10)*	-6		40 *(7)*	-7		56 *(4)*	–	
A350	23 *(7)*	+13	8	16 *(2)*	+10	6	15 *(7)*	+8	6
A380		–			-5			–	
737	396 *(50)*	-9		397 *(62)*	-4	34	286 *(26)*	-16	
747	13 *(6)*	+3			-2		2	–	
757	4 *(3)*	-1			–			–	
777	36 *(6)*	+8	5	30 *(2)*	+3		33 *(5)*	+13	
787	14 *(5)*	–		39 *(3)*	+2		10	–	
ARJ21	15 *(4)*	+15		20 *(3)*	+20		15 *(2)*	+15	
C919		–	5		–	5	1	+1	9
ERJ		–		6 *(2)*	-14		2	+2	
Total	**906 *(110)***	**+79**	**114**	**891 *(100)***	**+29**	**141**	**797 *(64)***	**+72**	**115**

Notes: Group figures including subsidiary airlines. † Figures in brackets show aircraft currently parked their annual revenues.

Naturally they were all supported by their shareholding government entities. (For the complexities of the ownership structure of aviation in China see *Aviation Strategy*, Jul/Aug 2019). Air China only received RMB490m in equity over the past three years, but China Eastern was given RMB11bn and China Southern RMB22.5bn.

Capital expenditure has remained strong. Air China cut its spending in 2021 and 2022 to half the levels of 2019 but still managed to fork out a net RMB26bn over the past three years, similar to the net capex of RMB28bn at China Southern. The smaller China Eastern only expensed a net RMB10bn, helped by inflows of nearly RMB12bn from asset sales and novation of purchase rights in 2021.



Debt levels have risen and shareholders' funds have shrunk. China Southern, thanks to its large equity injection, has seen its net assets fall by only 15% and its net debt/equity ratio little changed from 2019. Air China and China Eastern have seen their shareholders' funds fall by two-thirds, but are still in positive territory.

With China's abandoning its zero-covid policy the country's big three seem ready to resume their inexorable growth.

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