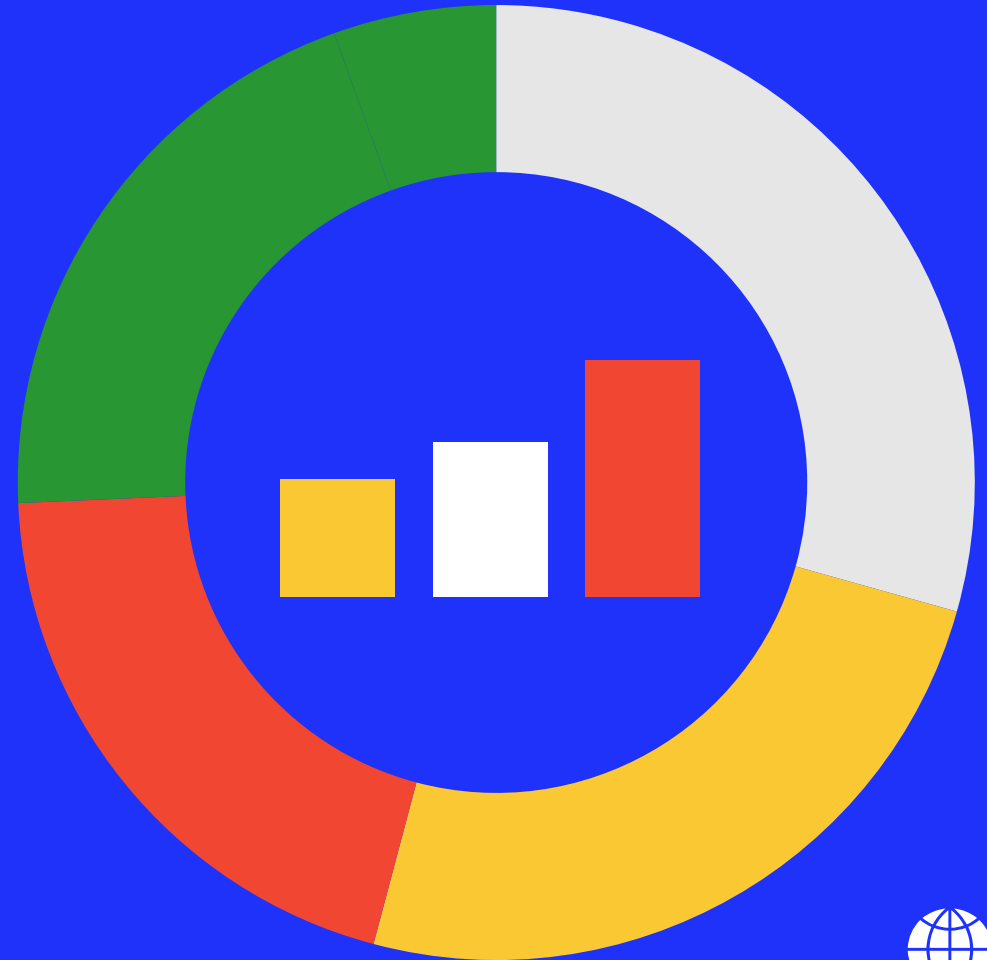


Airline / ATM Safety Forum

COVID-19 Airline Risks and Hazards

1 December 2020

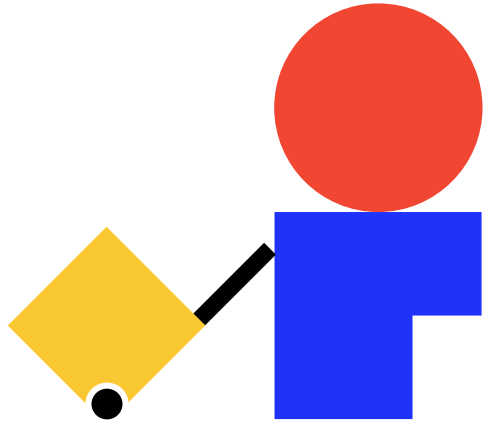
John Moore
Assistant Director
Safety & Flight Operations
Asia-Pacific



Economic position

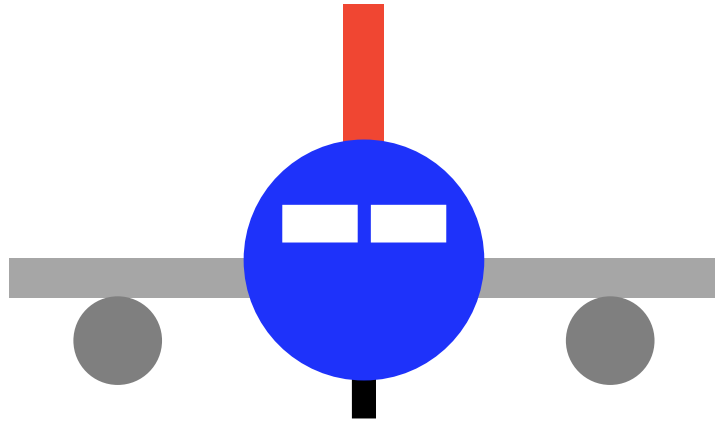
- COVID-19 decimated air connectivity and the economic benefits that generates. It is now recovering but still down one-third.
- Air cargo has supported global supply chains and should recover 2019 levels next year, but air travel will take several years.
- Vaccines and testing expected to support global travel at 50% of 2019 levels next year, with significant gains later in the year.
- Airlines have been cutting costs substantially, but cash burn is forecast to continue until the fourth quarter of next year.
- A number of airlines have substantial cash reserves to survive until revenues rise strongly late next year – but many do not.
- Airlines typically pay governments \$111 billion pa in tax revenue, but COVID-19 required life support from aid totaling \$173 billion.
- Airline financial performance is expected to recover first in Asia Pacific, followed by airlines in the developed market regions.

Every day in 2019...



12.4

million
passengers



106,600

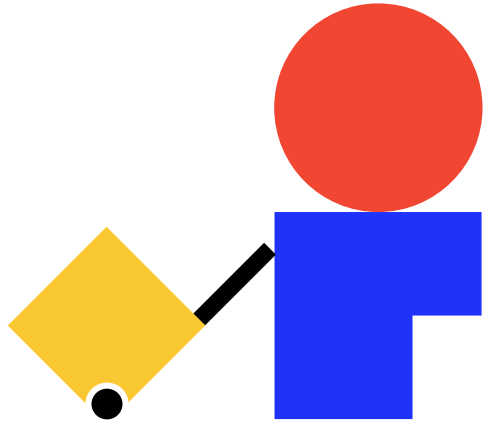
flights



\$17.8

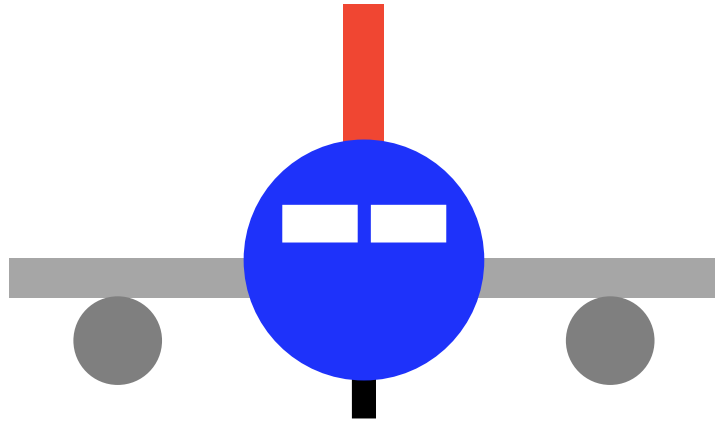
billion worth of
goods carried

Every day in 2020...



6.1

million
passengers



63,000

flights

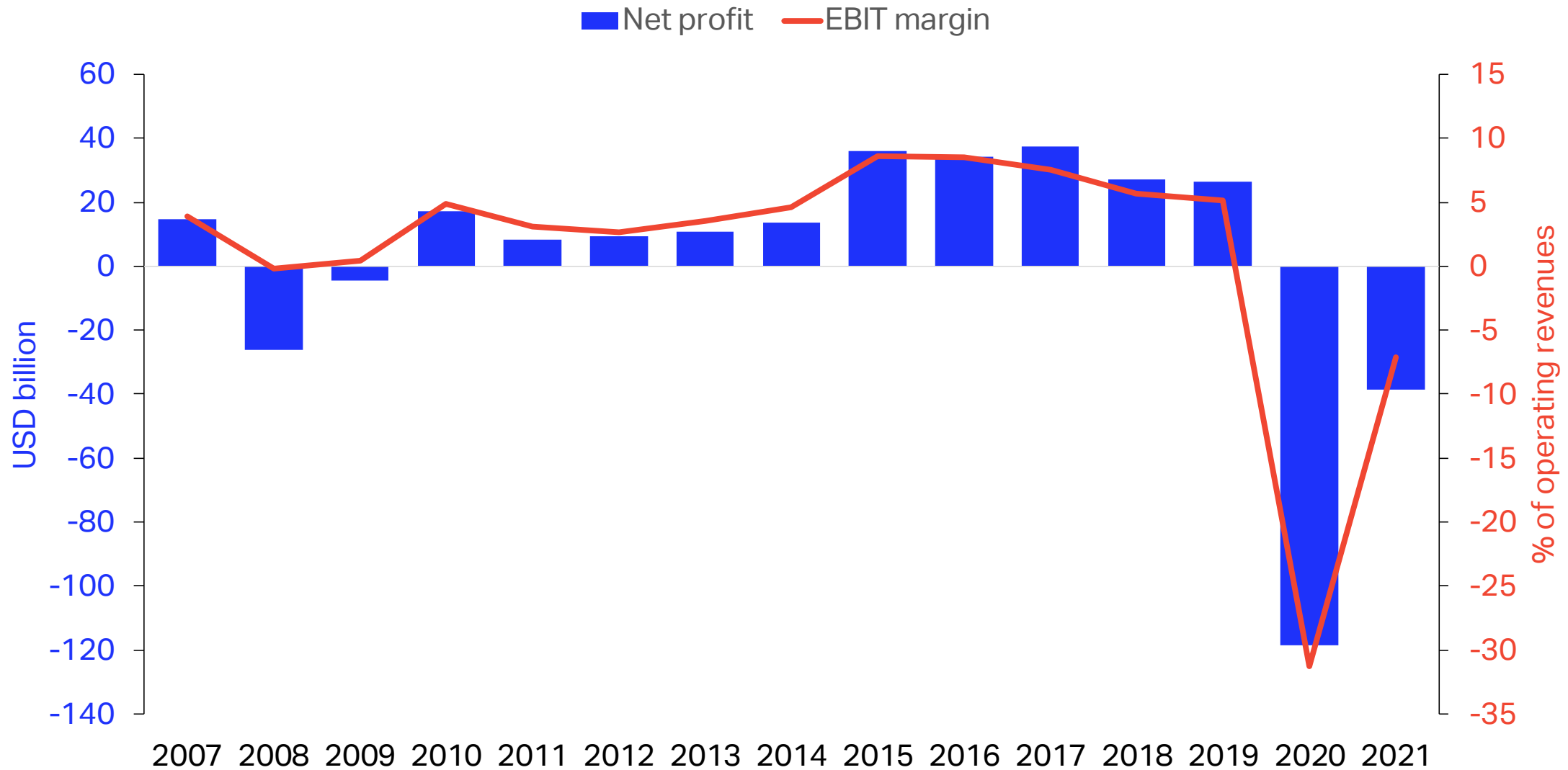


\$15.1

billion worth of
goods carried

Losses forecast to be reduced to USD38bn in 2021

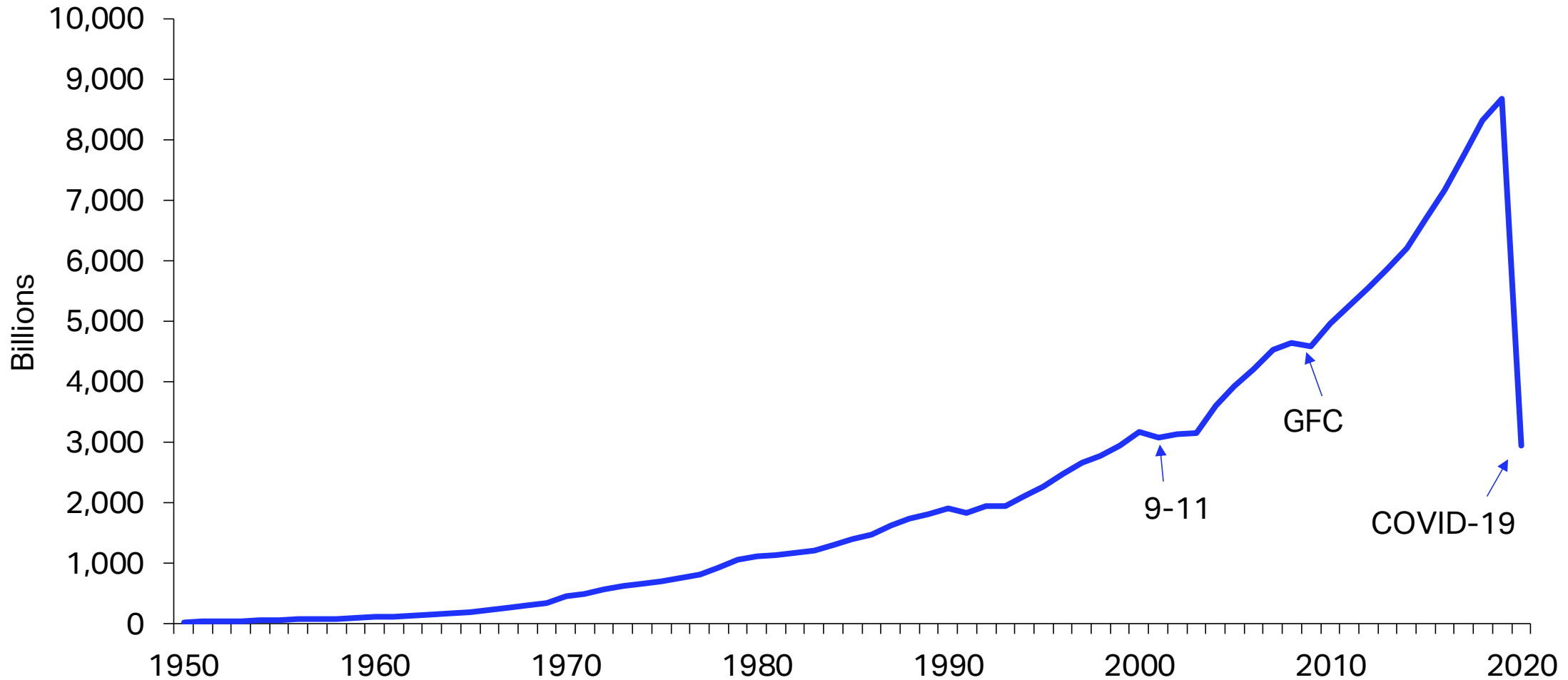
That's after an estimated USD118bn in 2020 but still exceeds GFC loss



COVID-19 is the biggest shock to hit aviation since WW2

Global RPKs estimated to have shrunk an average of 66% in 2020

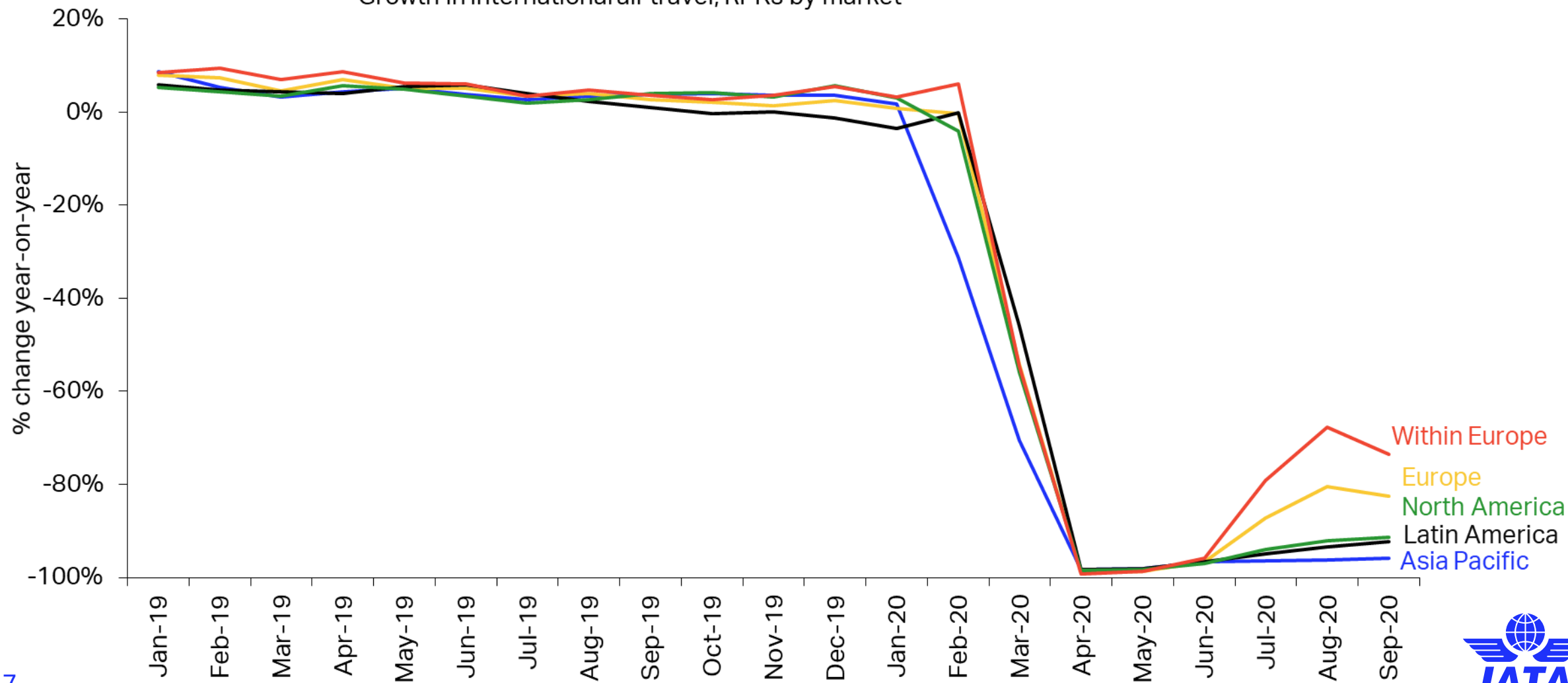
Worldwide passengers kilometers flown (RPKs) annually



International traffic in Asia Pacific worst performing

Resurgence of COVID-19 stopped further progress

Growth in international air travel, RPKs by market

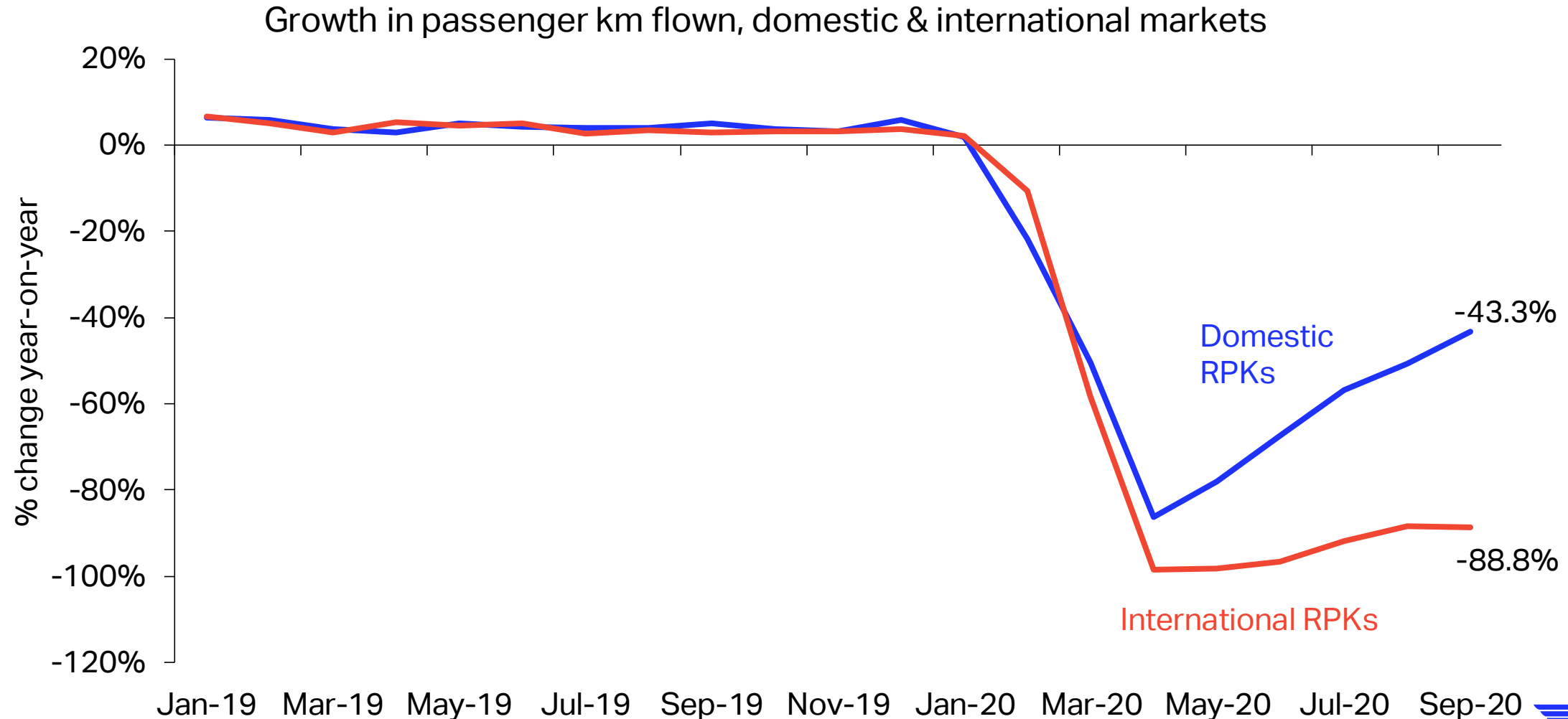


7 Source: IATA Monthly Statistics



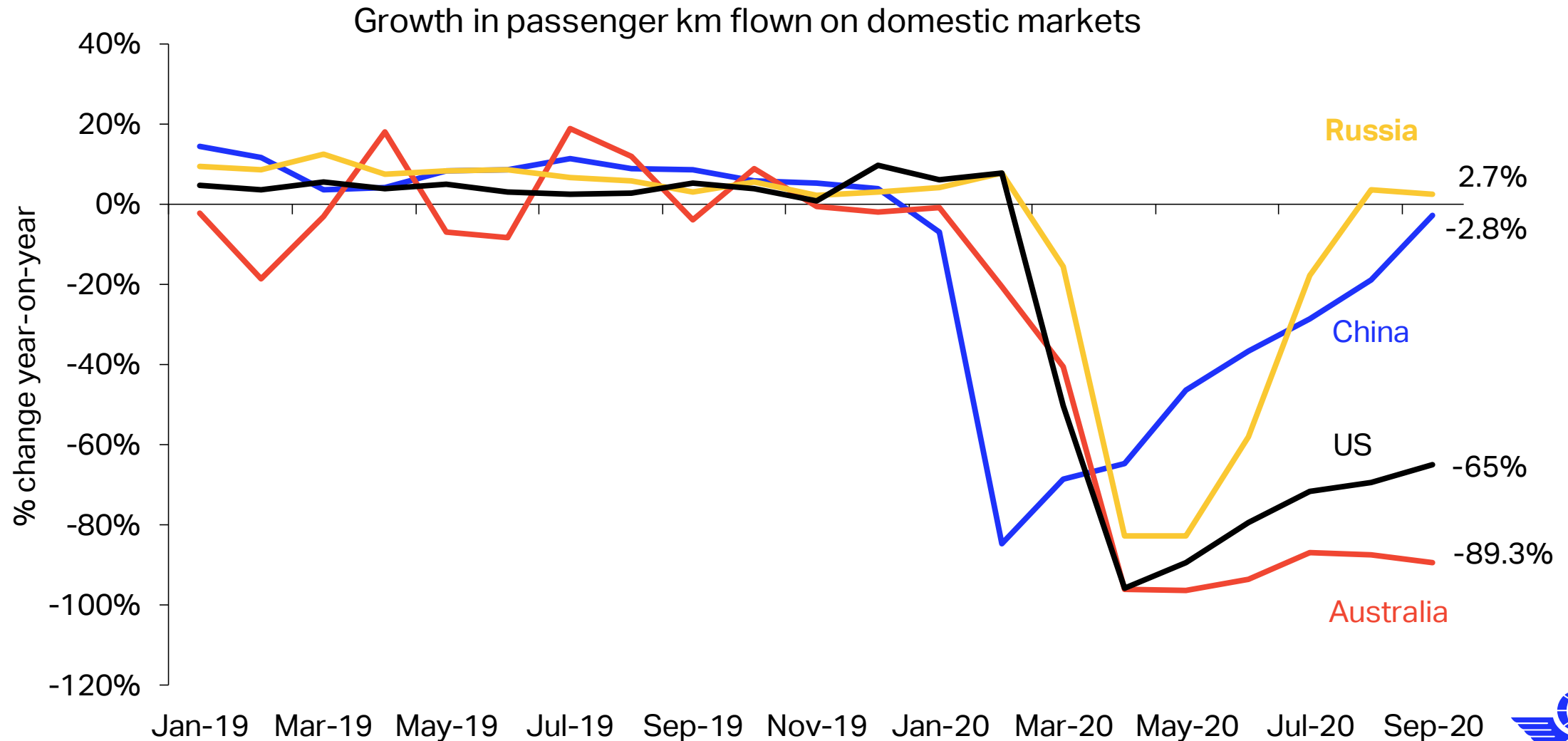
Domestic air travel improved but international slowed

2nd waves COVID damage international with renewed travel restrictions



Huge divergence between domestic markets remains

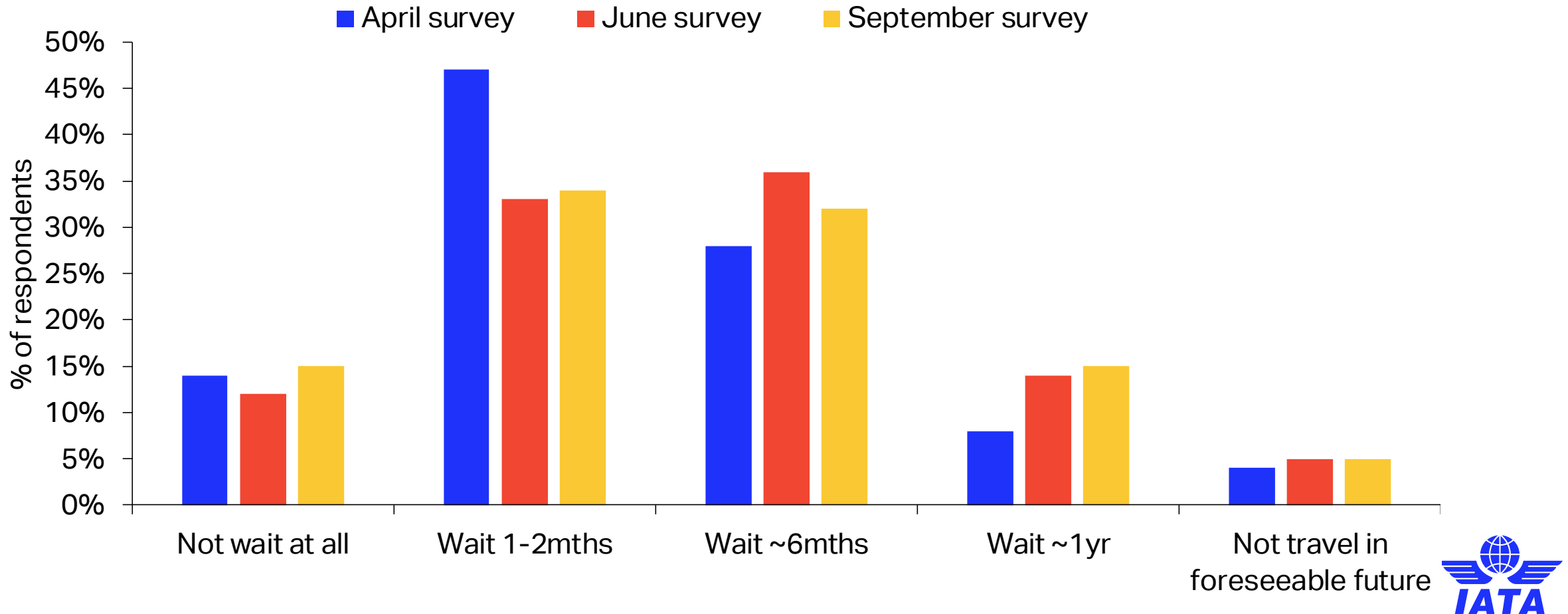
China fully recovered, but limited progress in Australia



There is a willingness to fly, but only 50% in 2020

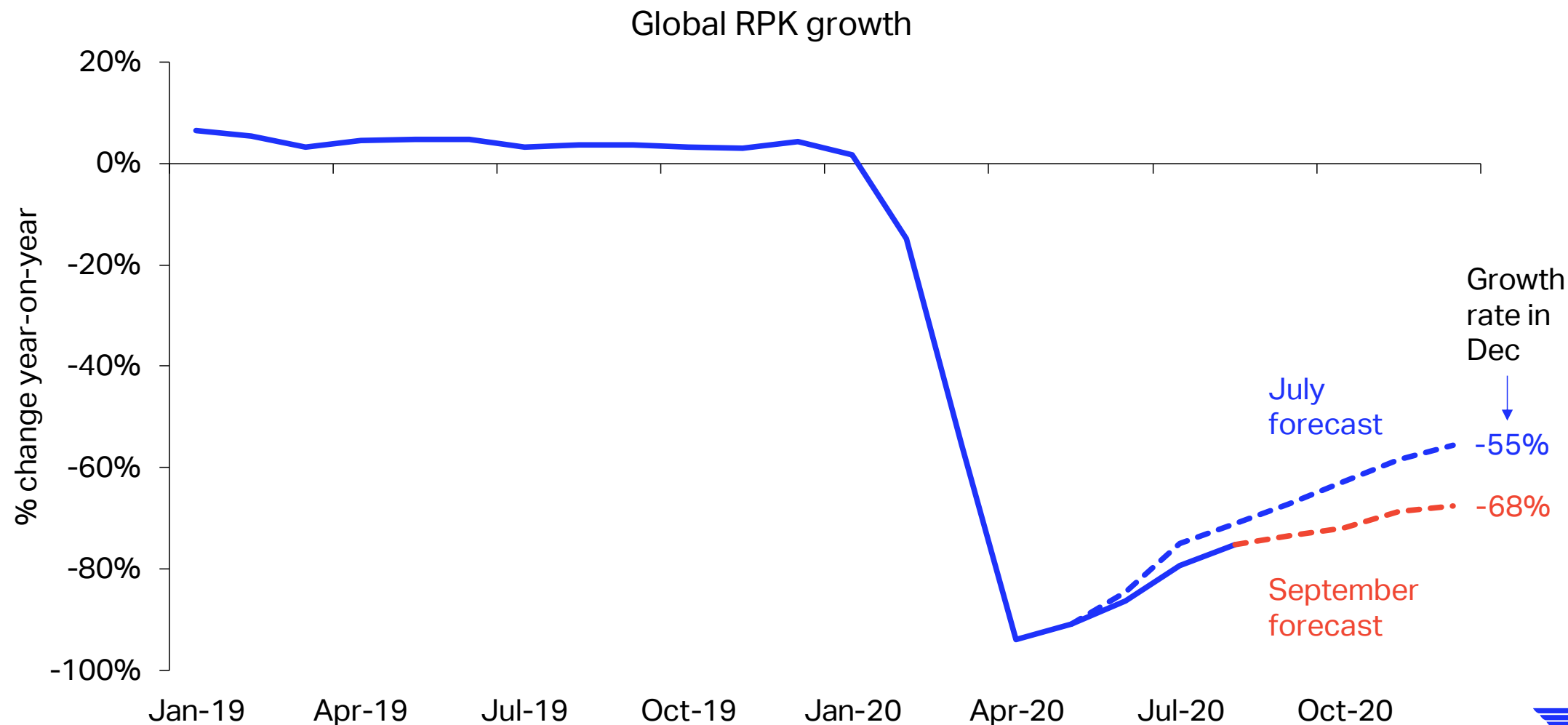
Consumer sentiment towards air travel did not improve in September

Survey question: When will you return to air travel?

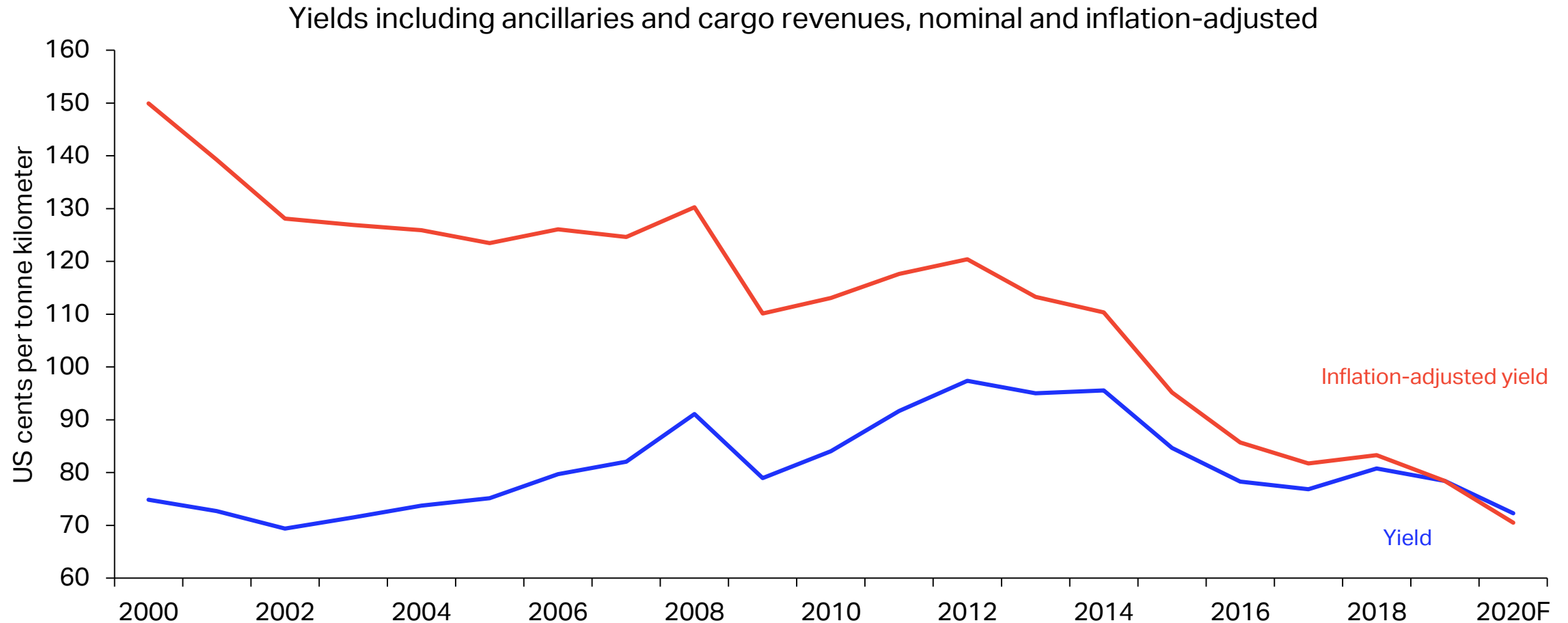


Passenger revenues not expected to recover quickly

By year-end RPKs only 1/3 of normal levels and yields down sharply



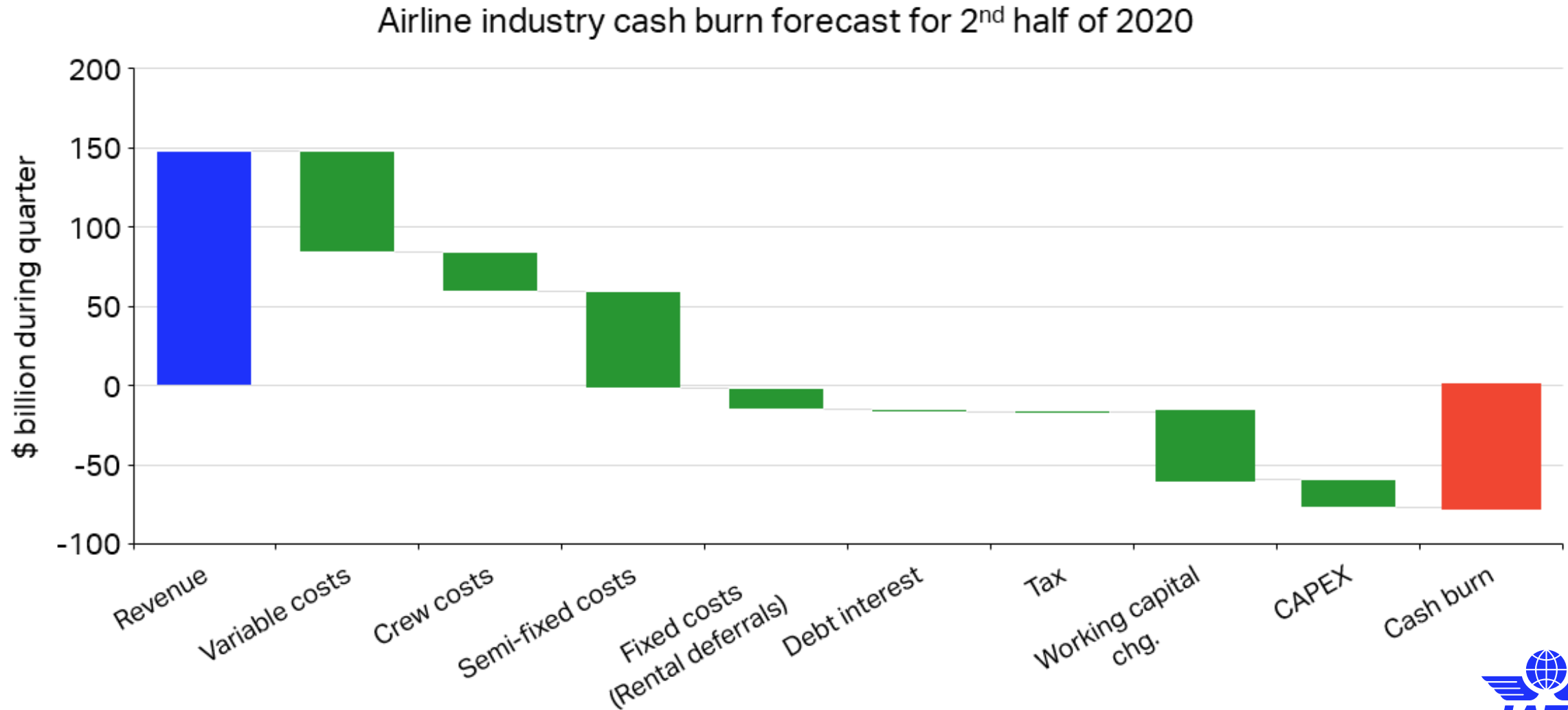
...while yields are under increased pressure



Source: IATA Economics using data from ICAO, PaxIS, CargoIS and our own forecasts

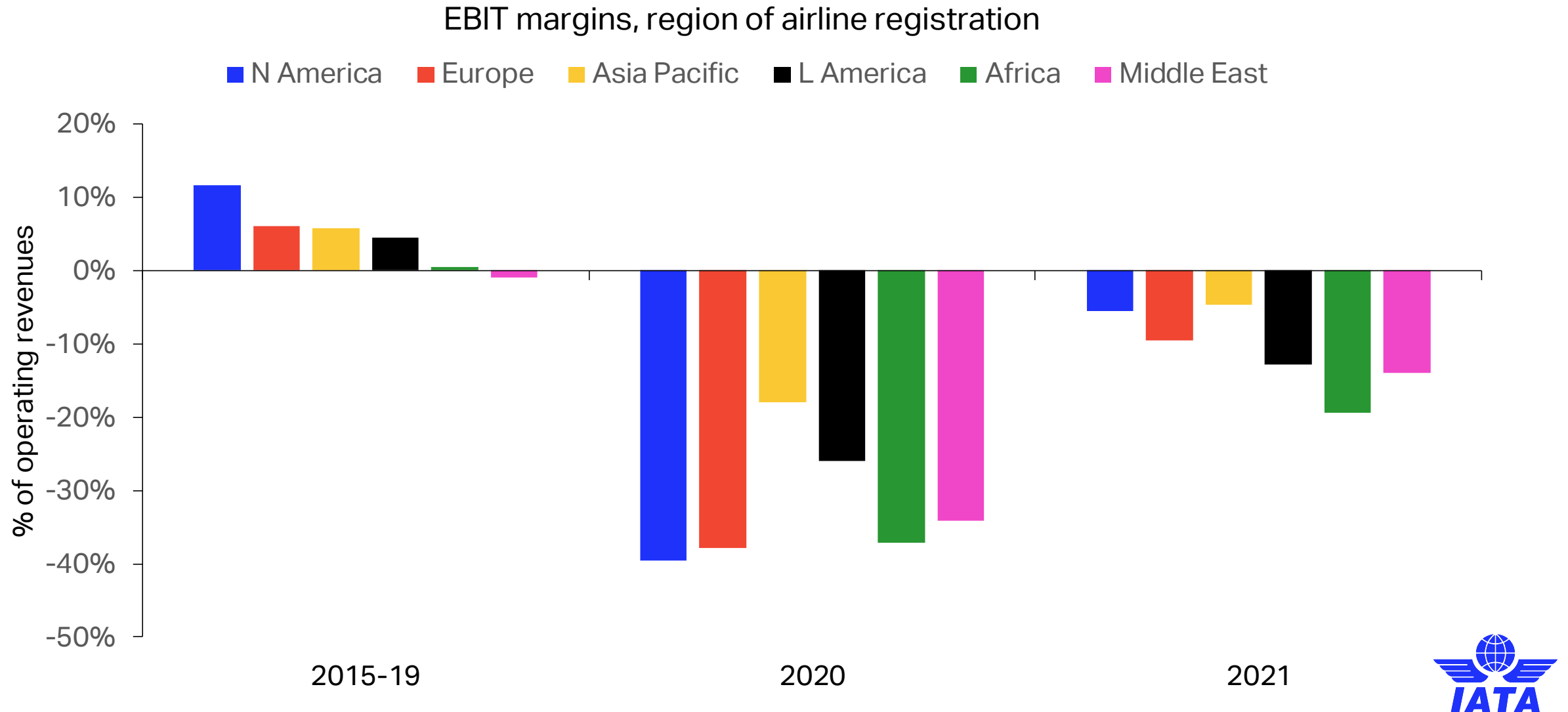
Cash burn continuing during 2020 H2 by \$77bn

Revenues weak, Government aid diminishing, restructuring beginning



Asia-Pacific turns around 1st then developed markets

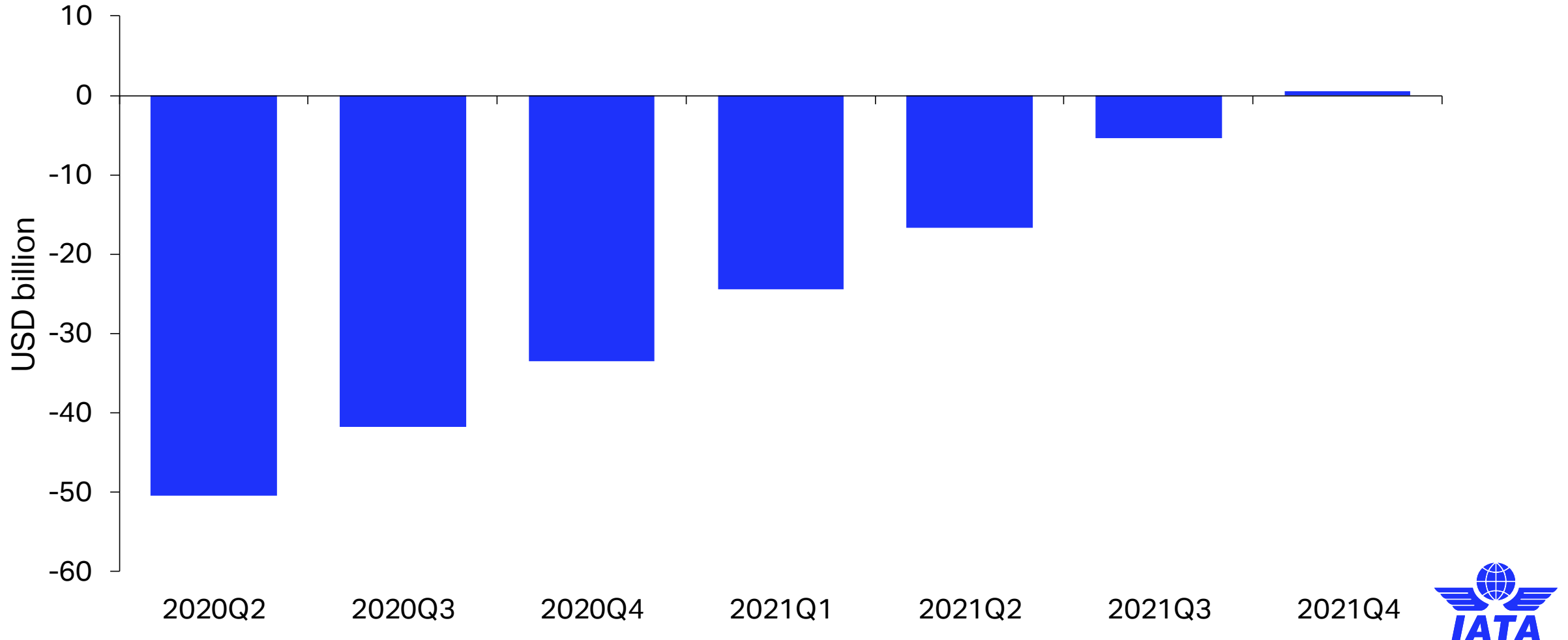
China's airlines turn cash +ve now, vaccine distribution uneven at first



Airline industry may turn cash positive in late 2021

Vaccine boost to revenues likely in H2 2021 but challenging first half

Airline industry quarterly cash burn forecast



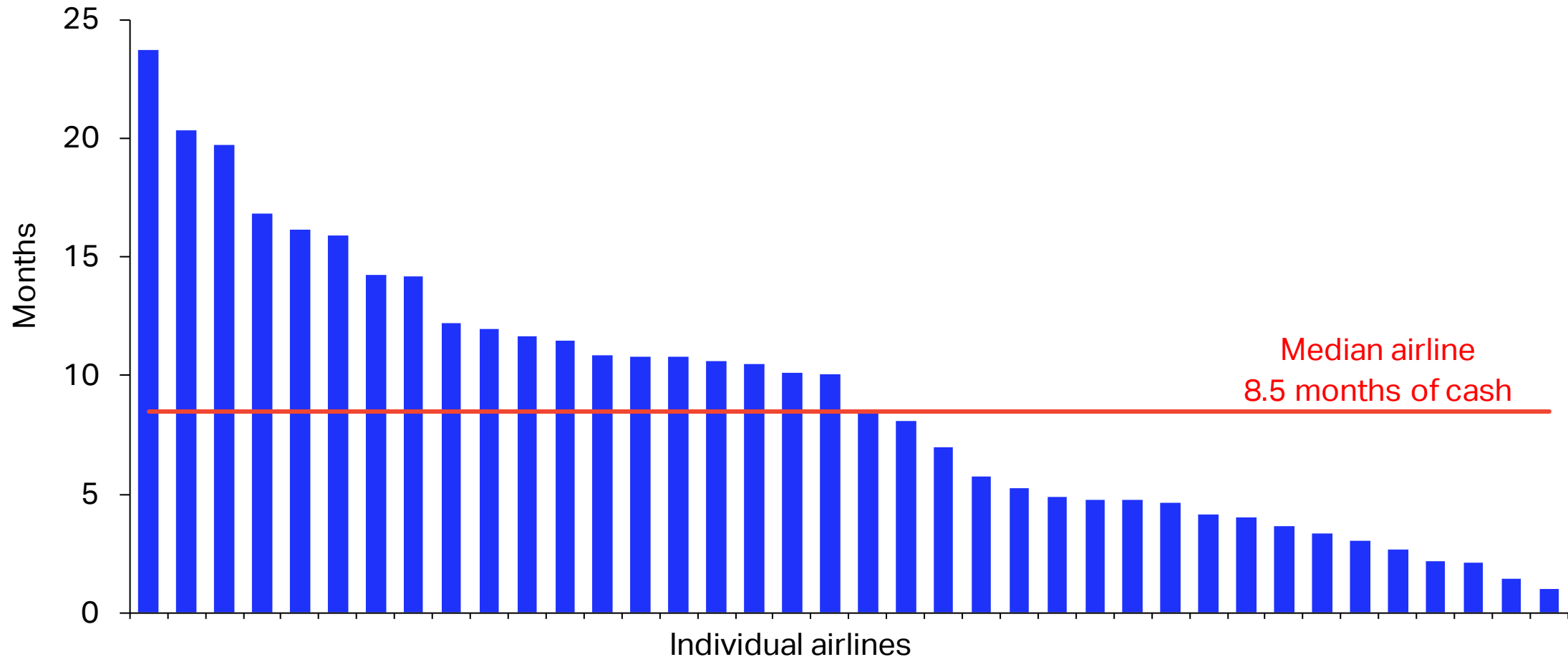
Source: IATA Economics



Some airlines may run out of cash before vaccine boost

Median airline's cash lasts 8.5 months (end Q1) at 2020H2 cash burn

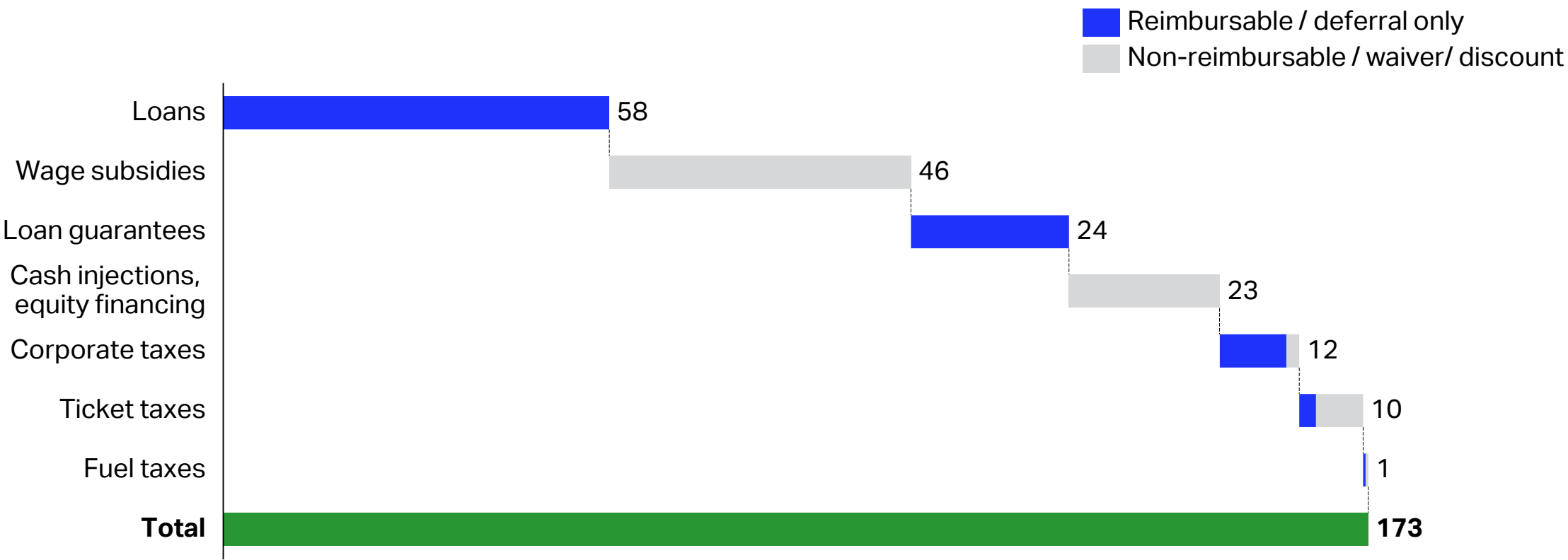
2020 end June cash+cash equivalents/2020 H2 monthly cash burn



Government aid has kept airlines on life support

USD173 Bn of aid from governments worldwide so far

Government aid made available to airlines due to COVID-19, by type (USD bn)



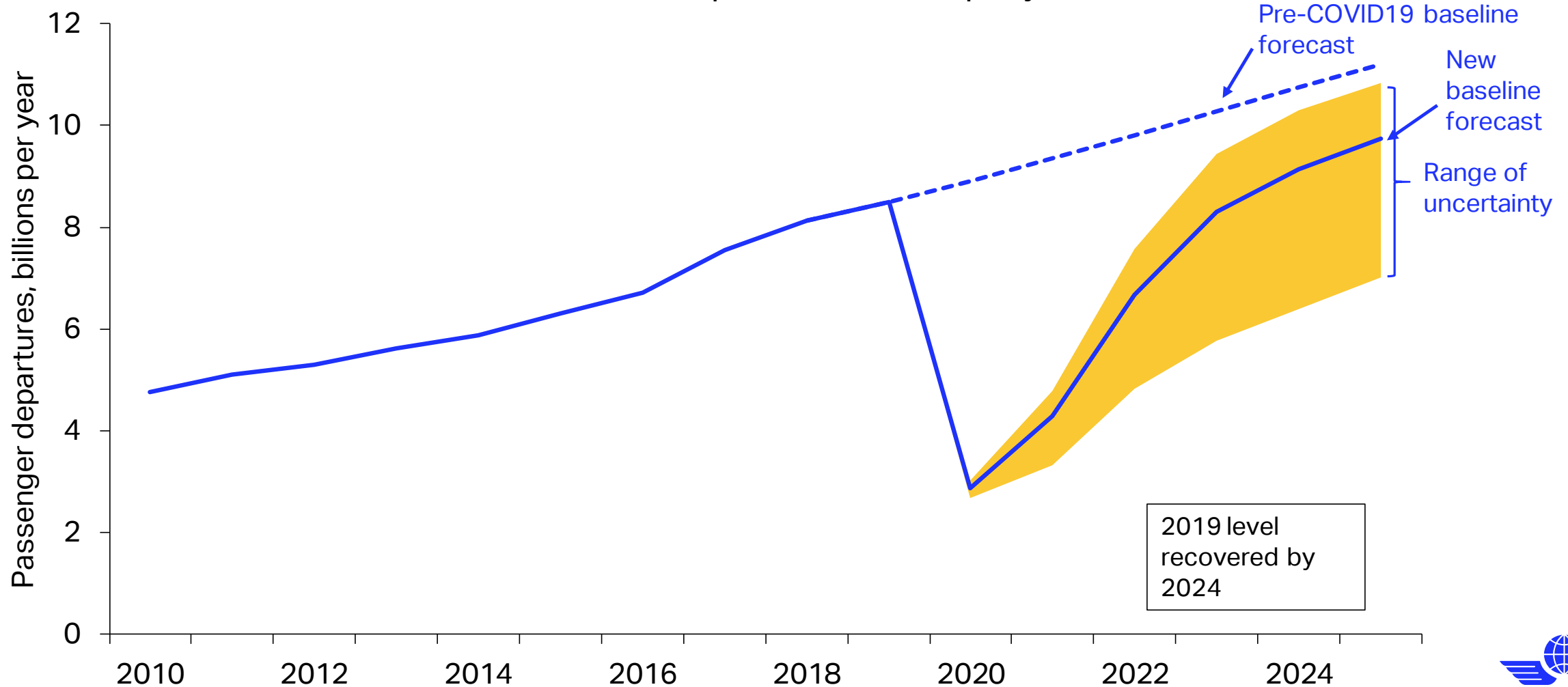
Source: IATA Economics analysis using public information and data from SRS Analyser, DDS, FlightRadar 24, TTBS, ACIC, Platts, Airline Analyst, annual reports. Includes relief measures up to 13 Nov 2020.



Vaccine news positive but recovery will still take time

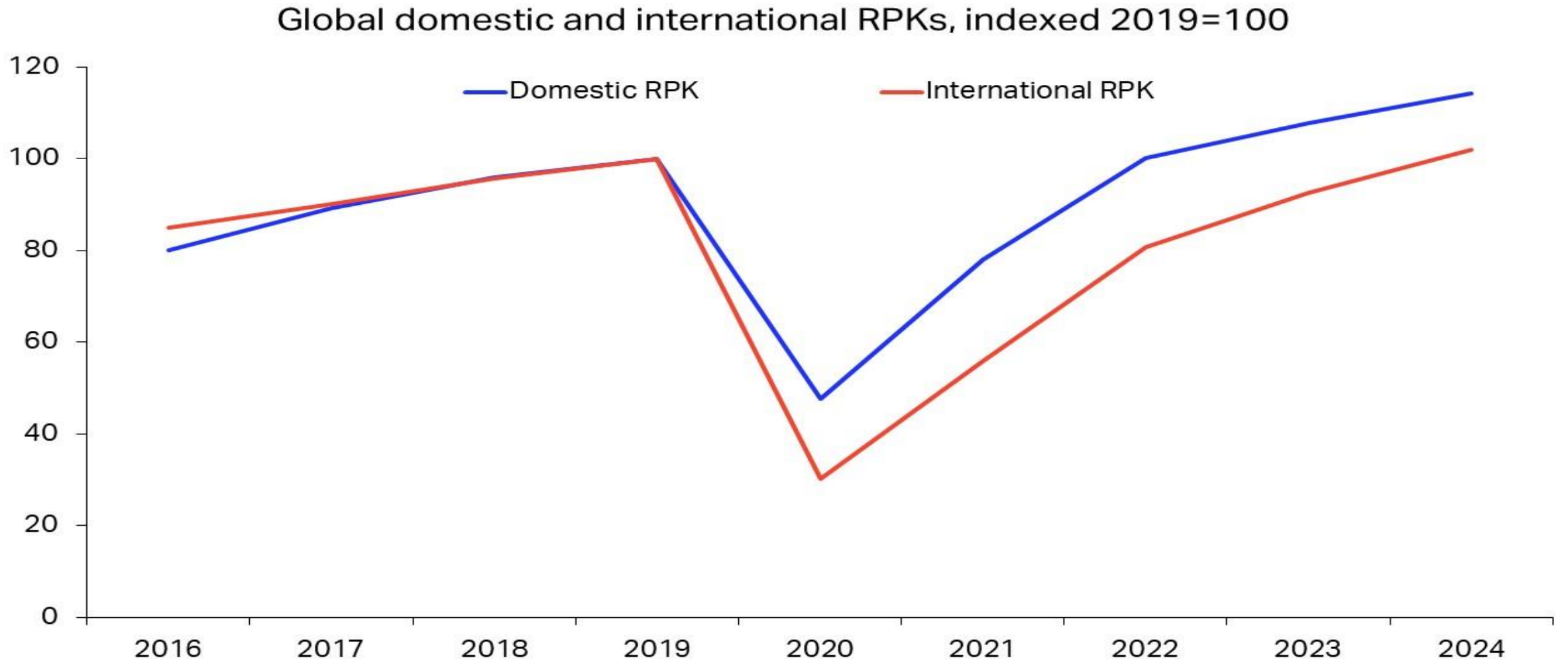
Issues with vaccine implementation and the impact of economic damage

Global RPKs departures, billions per year



International RPKs will lag domestic air travel markets

International air travel may not recover to 2019 levels until 2023-24



In Asia Pacific, air transport supports:

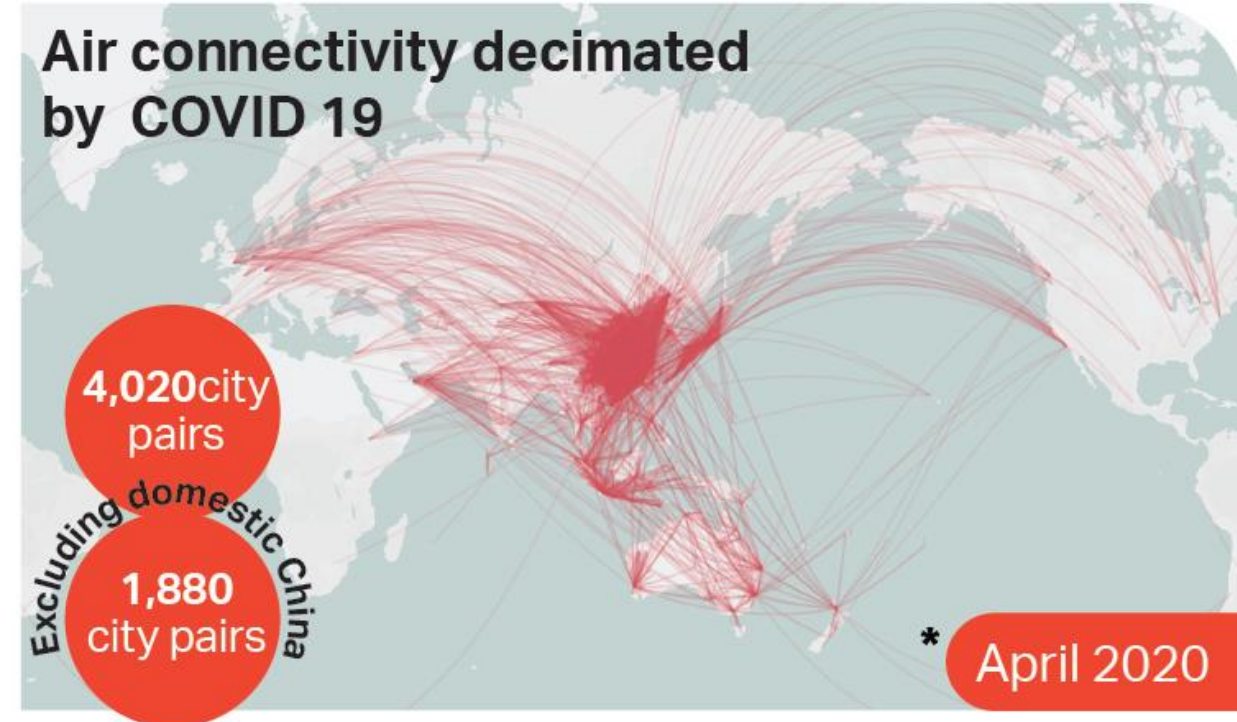
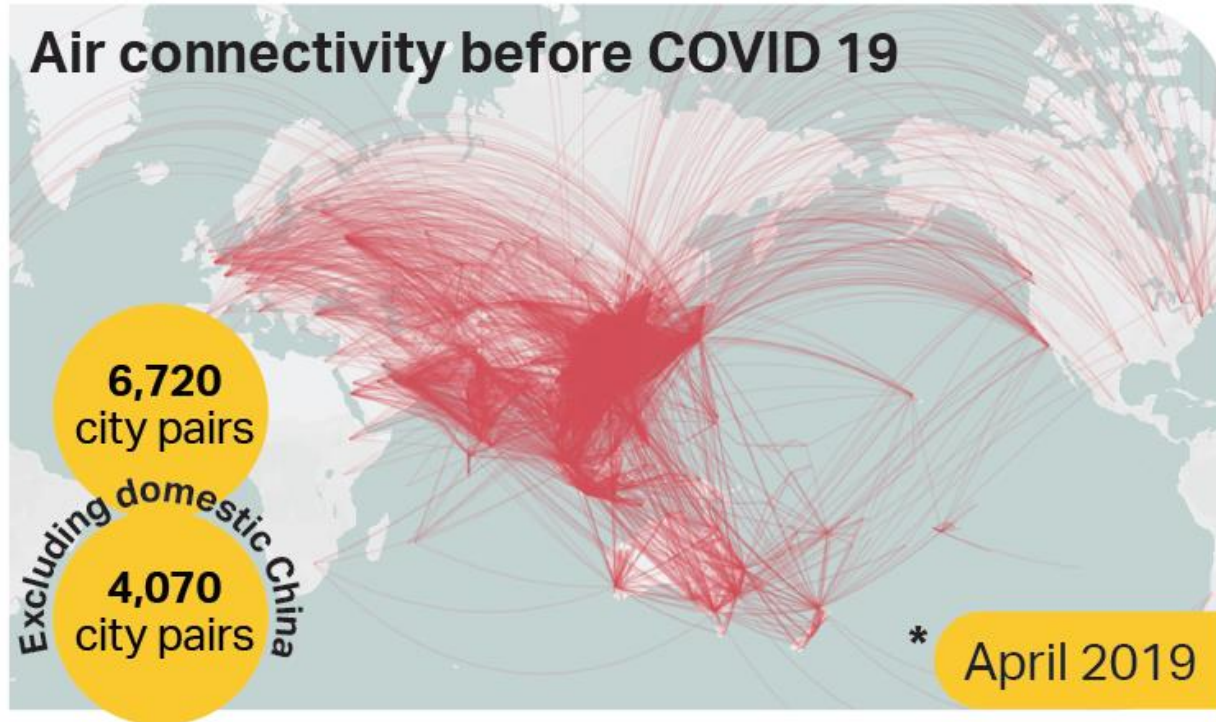


...46.7 million
jobs and
\$944 billion
of GDP

Impact of COVID-19 in Asia Pacific:

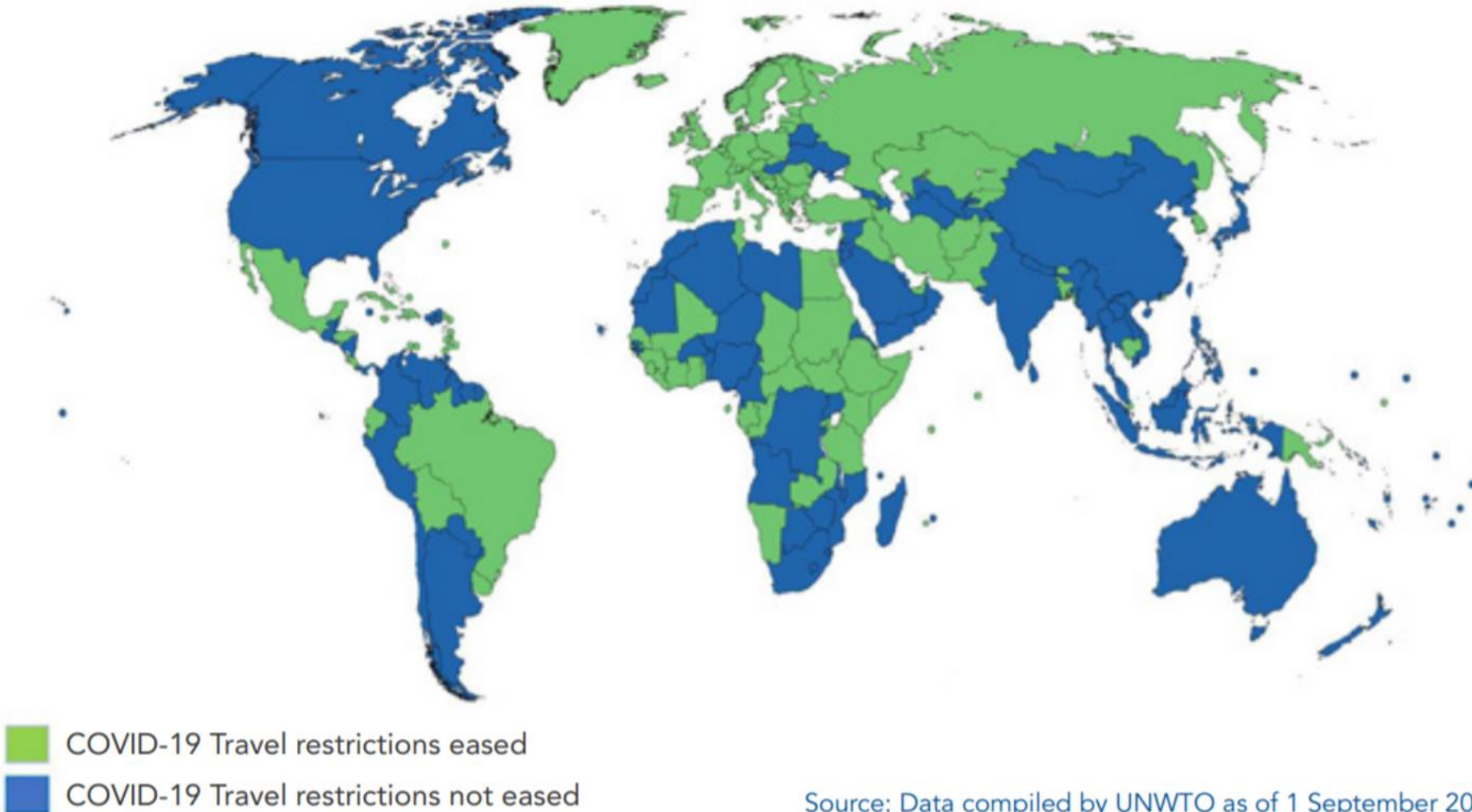
- Passenger numbers are currently forecast to fall by around **62%** this year. Airlines are expected to post a **net loss of \$31.7 billion**, compared to the net profit of \$4.9 billion in 2019. A net loss of \$7.5 billion is expected in 2021.
- International traffic has all but disappeared – September 2020 traffic sank **95.8%** compared to September 2019, virtually unchanged from a 96.2% drop in August, and is the steepest contraction among all regions. Capacity plummeted 89.6% and load factor shrank 46.8 percentage points to 31.7%, the lowest among regions.
- The disruptions to air travel could put at risk up to **22.9 million jobs** and **\$462 billion of contribution to GDP** supported by the air transport industry and tourists arriving by air.

Air connectivity in Asia Pacific has been seriously disrupted by COVID-19



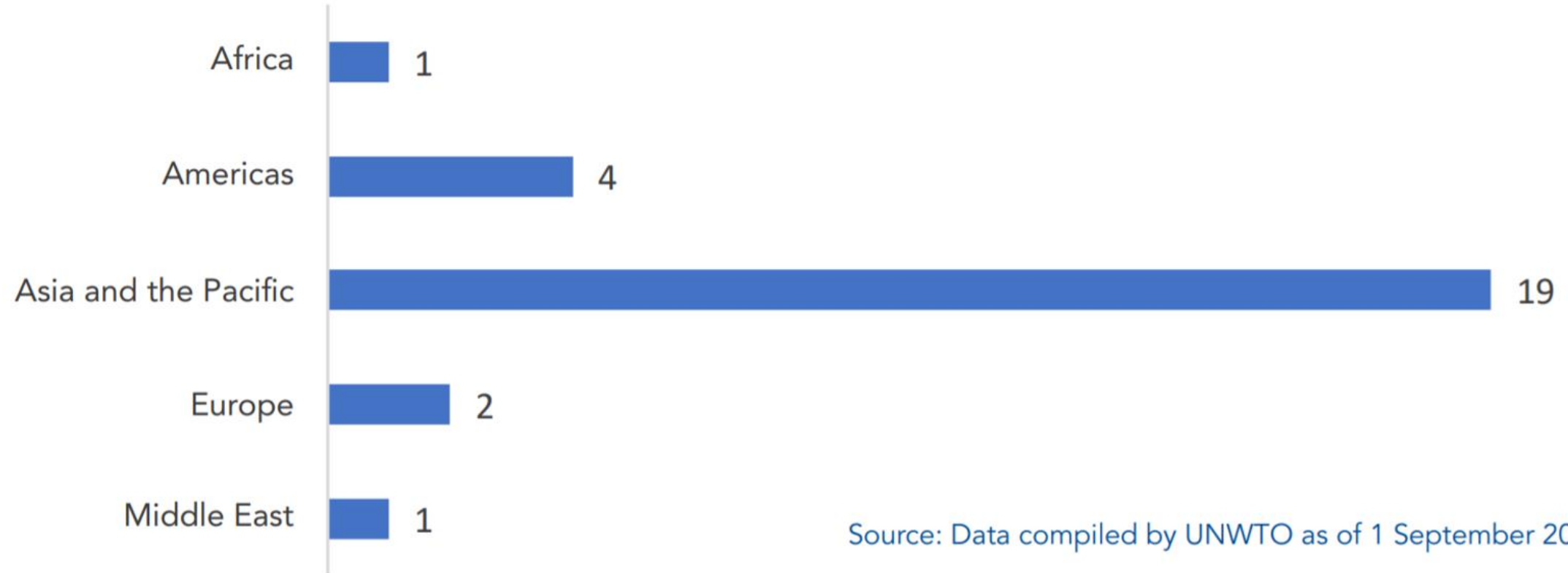
Travel in Asia Pacific remain restrictive...

Destinations that have eased COVID-19 related travel restrictions as of
1 September 2020



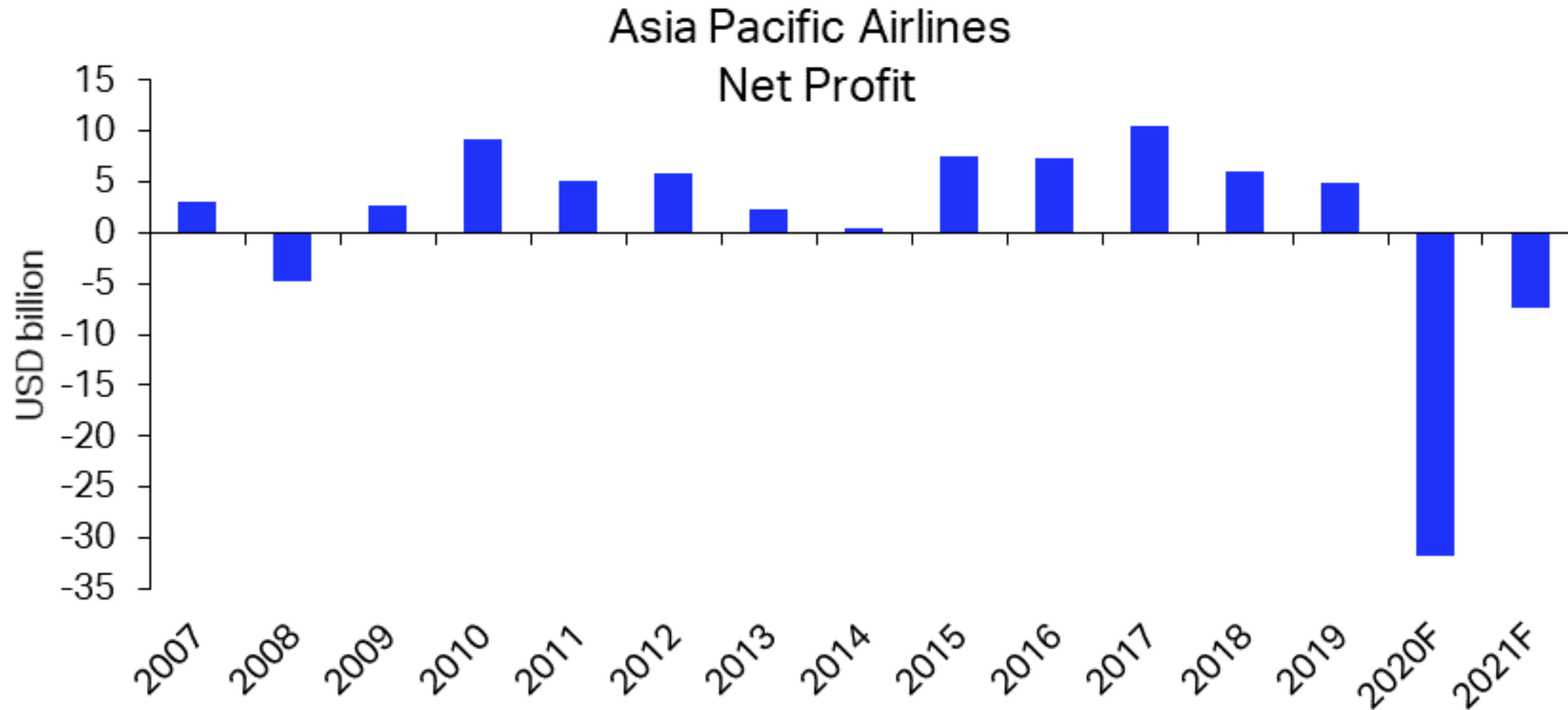
...with the highest number of complete border closures

Number of destinations with complete border closure for 30 weeks per region ¹

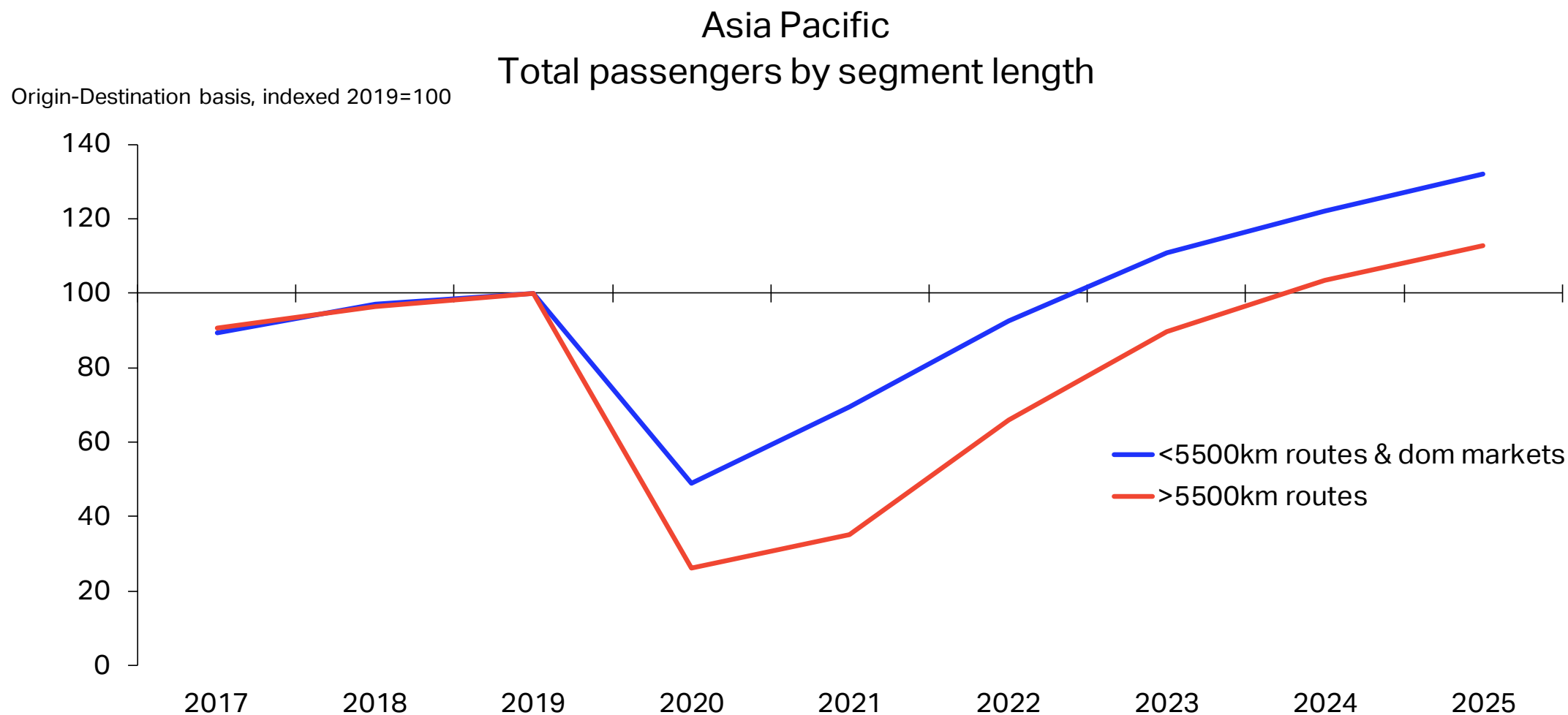


Source: Data compiled by UNWTO as of 1 September 2020. ²

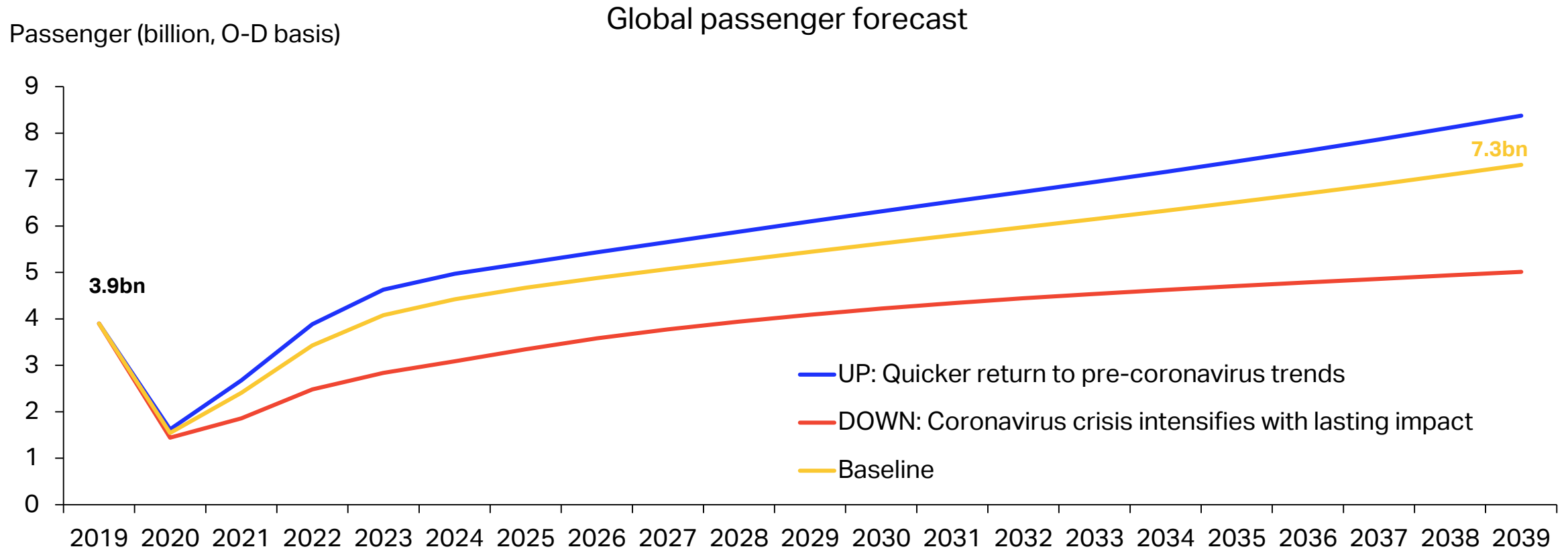
Airlines expected to post a \$31.7bn loss in 2020; \$7.5bn in 2021



Short- & medium-haul markets to rebound faster than long-haul

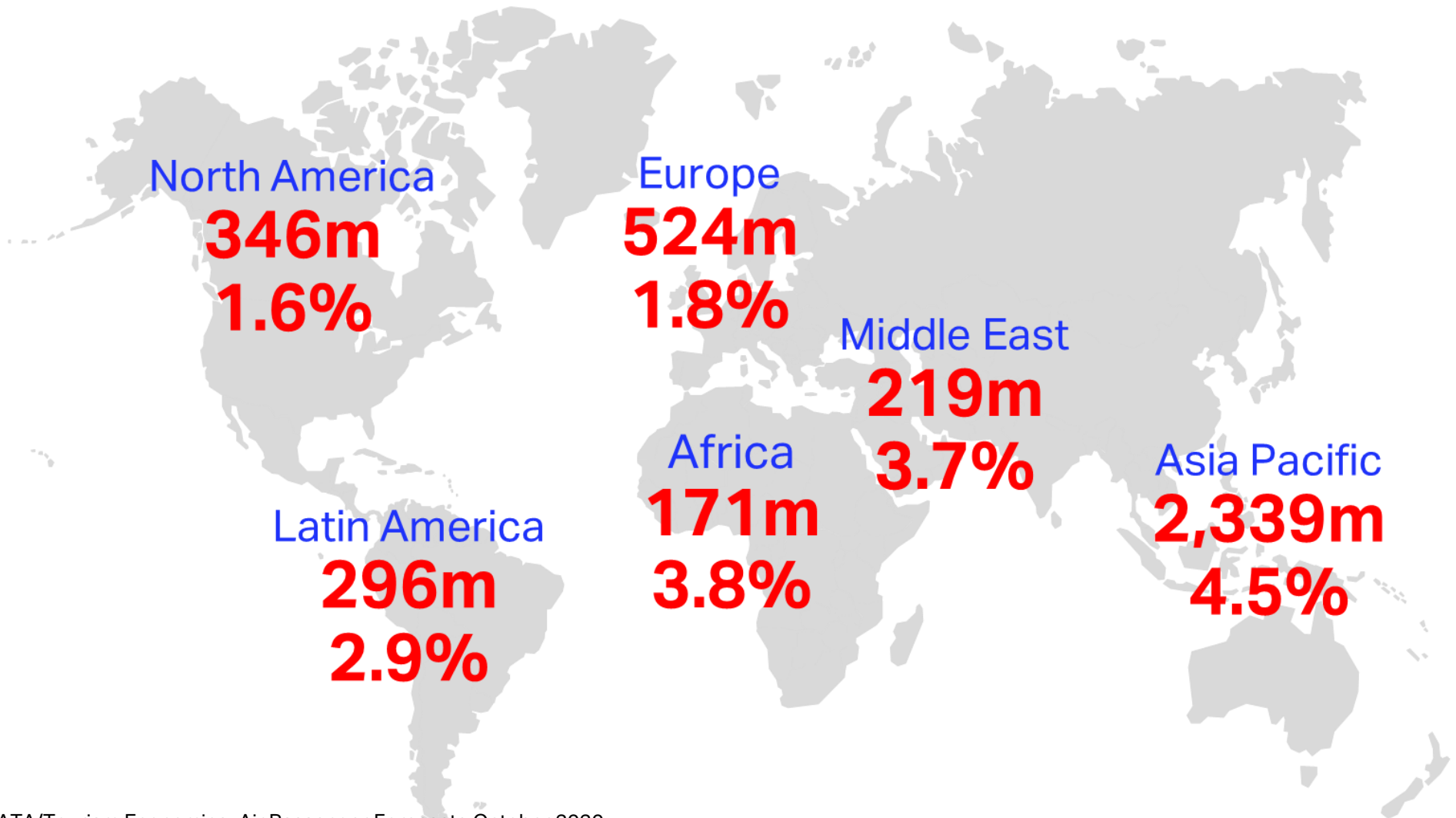


Demand for air travel to rise above 7bn over the next 20



Source: IATA/Tourism Economics, Air Passenger Forecasts October 2020

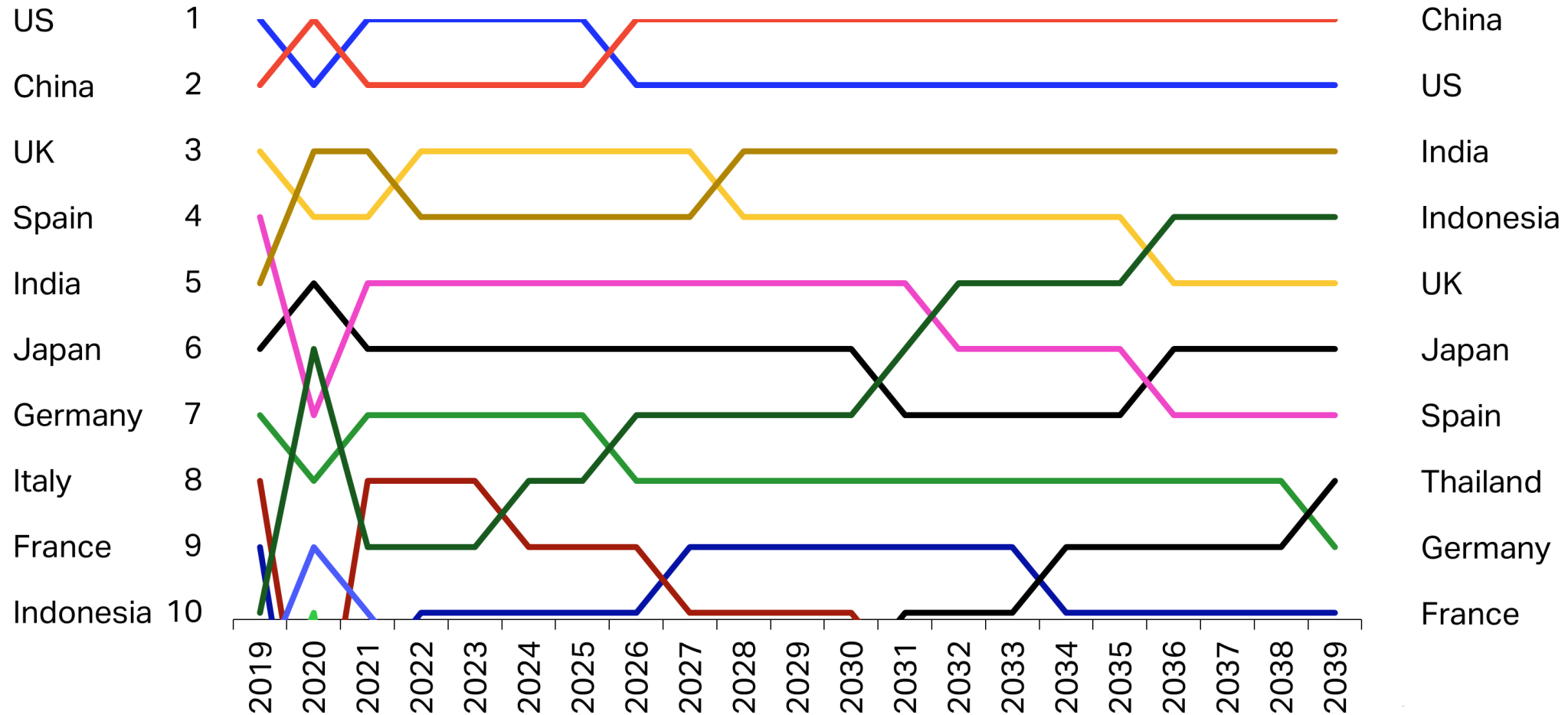
Where's the growth coming from?



Source: IATA/Tourism Economics, Air Passenger Forecasts October 2020

Top 10 air passenger markets 2019-39

Top 10 largest air passenger markets over time (ranked by passenger numbers, to/from and within each country)



A matter of urgency

Aviation:

- Drives economies
- Creates employment
- Enables trade (delivering 35% of goods by value)
- Facilitates healthcare and emergency aid
- Connects people, businesses and economies

**Aviation will be a vital driver
of the world's economic recovery**

Airline Industry Restart

System Restart

System Capability

- Airline personnel readiness
- Airline readiness
- Supply chain readiness
- Slots & schedule planning

Travel Experience (biosafety)

- Fitness to fly
- Airport experience
- On board experience
- Aircraft cleaning and sanitization

Demand Restart

Restore Confidence

- Managed restrictions
- Guidance & comms for customers
- Access to travel insurance
- Open destinations

Stimulate Demand

- Financial sustainability
- Travel incentives
- Destination marketing
- Visa Facilitation

Roadmap logic

A layered approach of **outcome-based** measures, supported by **scientific evidence**

**Risks that
need to be
mitigated**



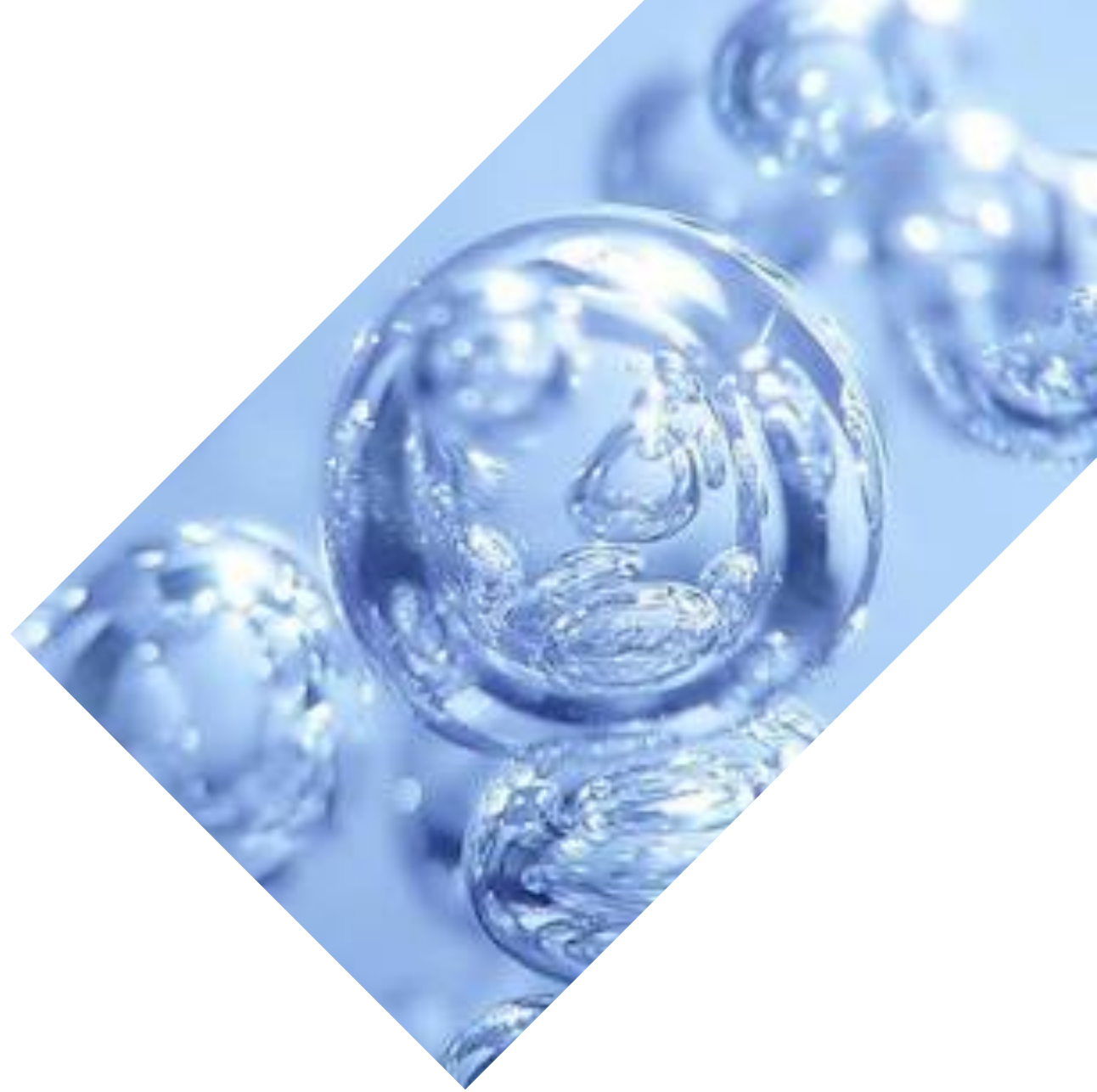
**Best
solutions
to do this**

There is no single,
prescriptive solution

Guiding principles

1. Measures should be introduced **as far upstream as possible** in the travel process
 - a. to minimize risk of contagion in the airport environment
 - b. ensure that passengers arrive at the airport ready to travel
2. Collaboration between **governments and industry** is vital — aligned with ICAO's Take Off guidelines, a single roadmap of measures should be implemented globally
3. Measures should only last for **as long as required** with a clear exit strategy
4. Existing **roles and responsibilities** of governments, airlines and airports should remain the same

Travel Bubbles, Risk Assessment Framework and Testing



IATA Guidance on COVID-19 risk and testing

IATA is engaging States to emphasize the following industry positions:

- States should publish operational guidance for the resumption of air transport, using ICAO's Take Off recommendations as a basis. **This will create a consistent regulatory framework for restart.**
- Measures contained within the ICAO 'Take-Off' guidance already provide multiple layers of protection to give governments confidence to reopen borders and passenger confidence to resume travel. **Hence the availability of a universally recognized COVID-19 test is not a necessary condition for reopening borders and/or resuming air service operations.**
- A COVID-19 test prior to travel has the potential to be a **useful risk equalization measure where the rate of new infections in the origin country is significantly higher than in the destination country**

COVID Testing: When to Test?

- **On arrival**
 - Risks unexpected quarantine for traveler and companions
 - Likely to be a deterrent to travel
- **On departure (at airport)**
 - Less disruptive for majority of travelers
 - Verification and fraud prevention potentially easier to manage
 - But risks last minute cancellation for traveler and companions if test positive
 - Implications for airport capacity
- **Prior to departure (pre-airport)**
 - Removes complications at the departure airport
 - Relies on:
 - Mutual recognition between origin and destination countries
 - Secure protocol for data transfer between governments

COVID Testing: Practical challenges

Current patchwork implementation of testing causing problems for airlines

- Lack of consistency:
 - Some States require testing before departure, others upon arrival.
 - Little clarity on which tests are acceptable
 - No standardization of test results / certificates
 - Validity of test results in case of delays?
 - Passengers who test positive on arrival being classed as INAD
- Airlines being required to perform functions that sit with States:
 - Validating test results / certificates
 - Sharing information with destination country government
 - Keep a record of the testing results – raises clear data privacy issues

A globally harmonized approach to COVID testing is required

Next steps

- COVID-19 testing **before departure** is likely to be the solution in the short-to-medium term
- To be fit for purpose as a large-scale screening test for international travel, **testing needs to be rapid, scalable, accurate and cost-effective**
- Antigen testing technology is evolving rapidly and is now close to a stage where it could be rolled out to help accelerate the restart of international travel. Antigen and other rapid tests should be promoted
- IATA recommends that governments and the industry work together to deliver workable solutions for practical implementation

And when there is
a vaccine,
air transport will
have a key role to
play.....



Preparation for COVID-19 Vaccine Transport

- Facilities - Availability of temperature-controlled facilities and equipment, trained staff, and robust monitoring capabilities to ensure the integrity of the vaccines is maintained
- Security - Arrangements to ensure that shipments remain secure from tampering and theft
- Border Processes - Health and customs authorities need to work with airlines on border process such as fast-track procedures for overflight and landing permits and exempting flight crew members from quarantine requirements
- Capacity - Governments need to support cargo operations of airlines and increase capacity for delivering vaccines using land transport

Governments need to begin careful planning with industry stakeholders to ensure full preparedness when vaccines for COVID-19 are approved and available for distribution

The trajectory back
to a new-normal?



Resumption

- There are likely to be multiple public health, regulatory, training, operational and crew and consumer confidence challenges
- The situation changes frequently, and regulations vary according to the routes being operated and the prevalence of the outbreak in each country.



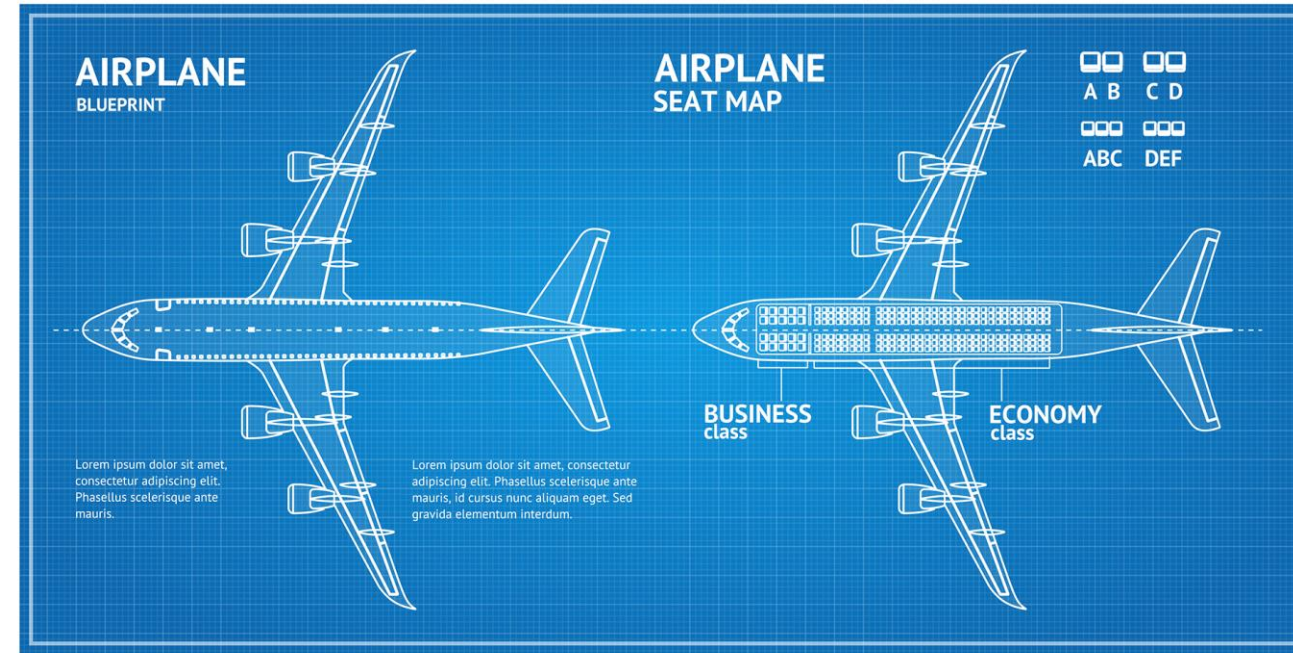
Considerations

- Bringing aircraft back into service
- Pilot and ATC recency
- Temporary or changed procedures or airspace and related AIS management
- Demand-Capacity Balancing
- Carriage and handling of vaccines (some require minus 70 degrees Celsius, ~8,000 flights)



Prior to Operations

- Airlines to conduct operational safety risk assessments in order to identify risks, hazards and mitigations related to flight operations during and post pandemic.
- This risk assessment should be reviewed frequently to ensure that it addresses any new and emerging risks identified through the operation.



Category of Parking

Active

- To be rotated for flight (at least 1 flight every 2 weeks)
- **No preservation required**
- **Maintenance 'clock' continues to run**

Parking

- Some preservation but will remain **in-flight-ready condition**
- Will be **out-of-operation** for a **short to medium period**
- Can be **returned to service** at **short notice (7-10 days)**
- Can be **regularly maintained** with periodic ground checks
- **Maintenance 'clock' stops**

Storage

- Will be **out-of-operation** for a **medium to long period**
- Will **return to service** only after **advance notice (takes ~ 21-28 days)**
- Shall be preserved for a **longer period**
- **Maintenance 'clock' stops**

Parking & Storage

Check and maintenance tasks are performed regularly during the parking/storage period. These include:

- Pitot probe and Static Port covers
- Engine inlet and exhaust covers (Boeing)
- Flight Control checks
- Tyre pressure checks
- Seal outflow valves
- Engine ground run
- Cabin functional checks and humidity checks
- Cabin Deep Cleaning (CDC)
- Fuel sampling (drain water)
- External window coverings and cleaning

Re-activation or Return To Service (RTS)

RTS of an aircraft is almost the opposite, and “un-doing” what was initially performed, with a little more effort. These include:

- External visual inspections
- Removal of protection covers/devices (from engines, APU, probes, windows, etc)
- Battery voltage checks
- Hydraulic reservoir quantity
- Fuel tank water drain, microbe tests, etc
- Landing Gears check shock struts for leaks, wheels tyre pressure, doors, etc
- Fire shutoff valves (Built In Test Equipment or BITE)
- Air data sensors inspect, clean and flush all probes
- Engine ground run (EGR) and associated anti ice tests
- APU Ops test
- Flight Control surfaces
- Potable water disinfection

The global air transport industry

87.7 million

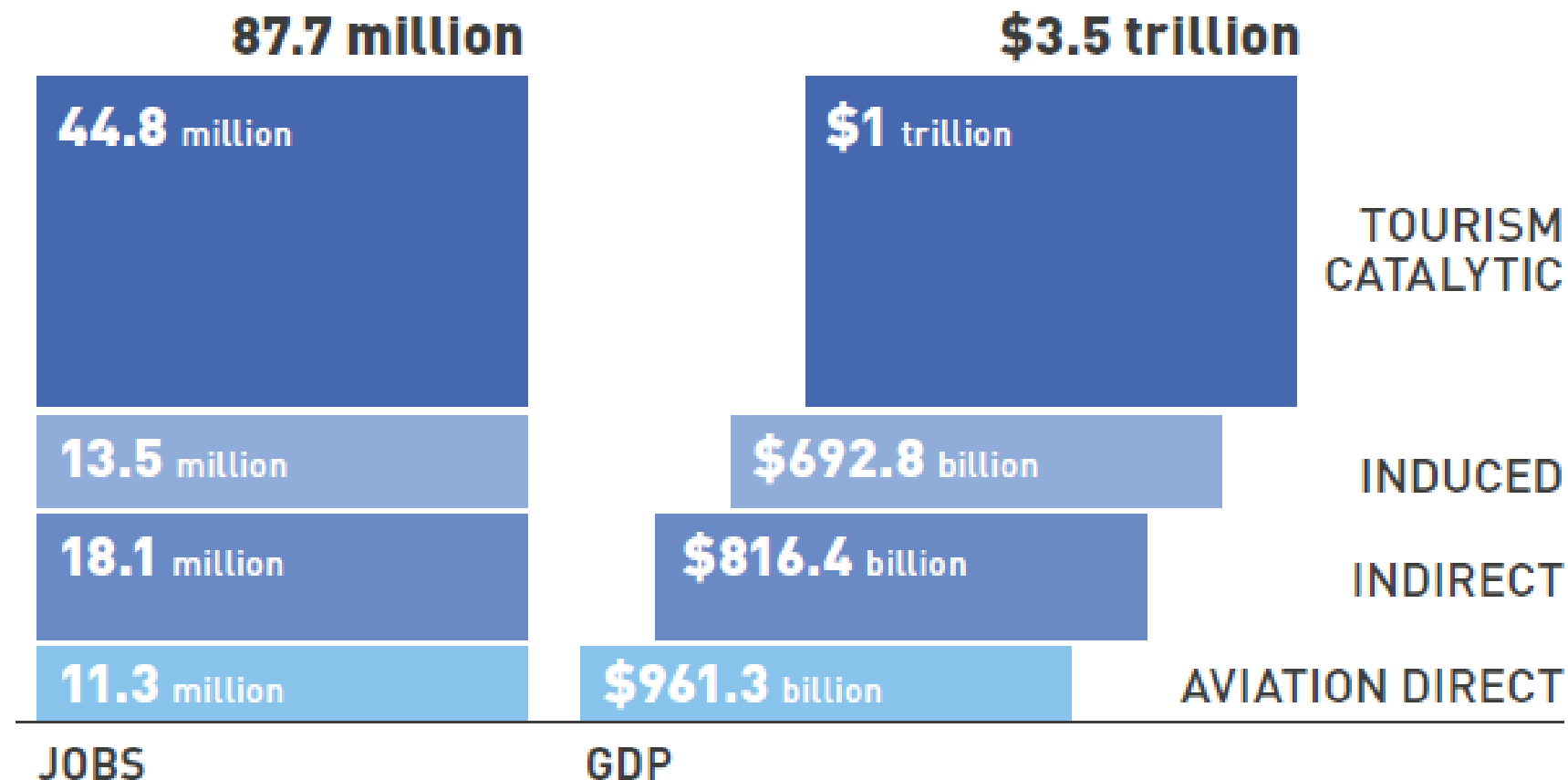
Jobs supported by aviation worldwide

\$3.5 trillion

Aviation's global economic impact (including direct, indirect, induced and tourism catalytic)

4.1%

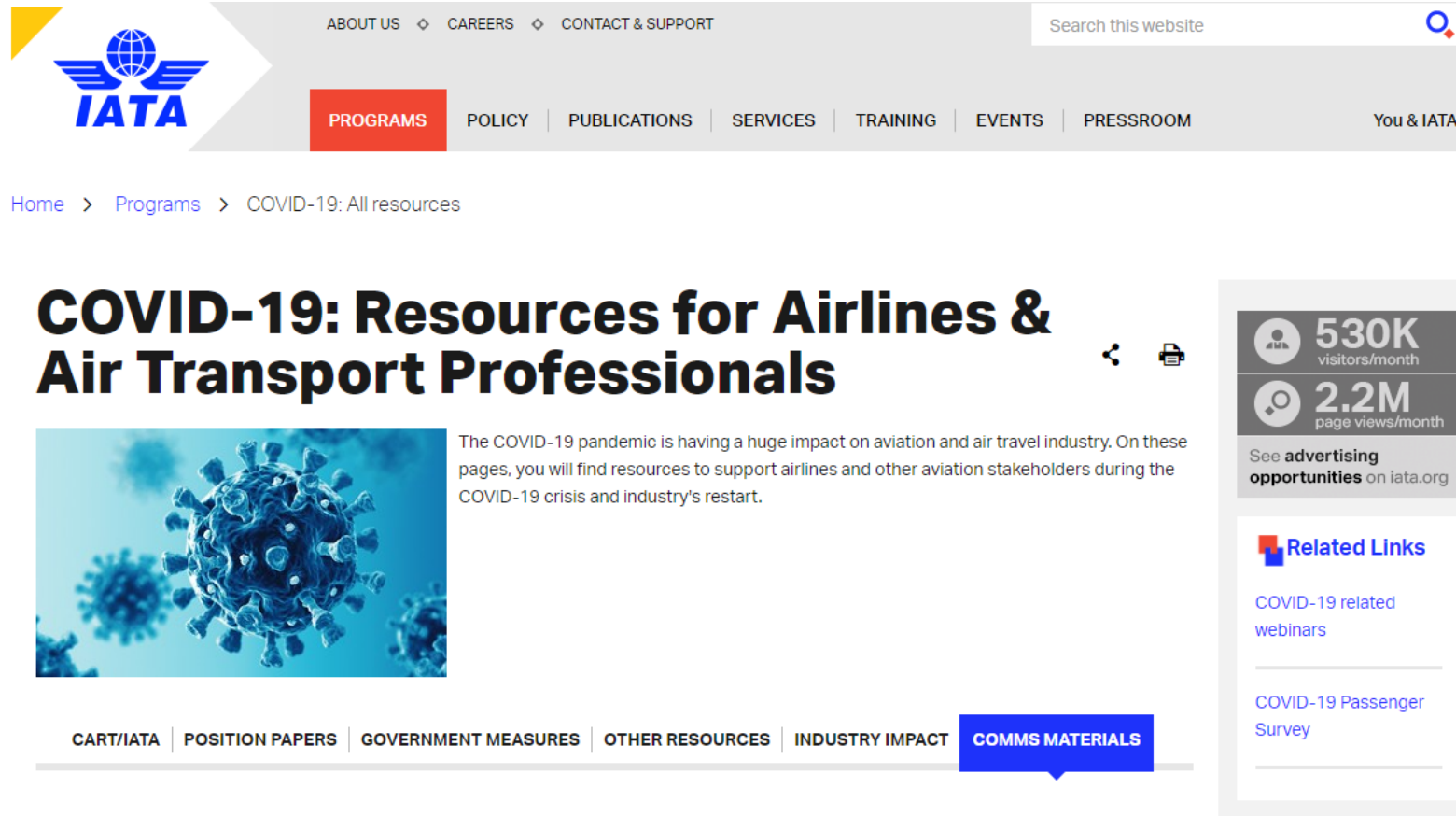
Global GDP supported by aviation



IATA continues to:

1. Work with governments on **Re-Opening Borders**
2. Advocate for **Relief Measures** for airlines
3. Provide **Global Leadership** on the safe re-start of aviation

IATA COVID Resources



The screenshot shows the IATA website's COVID-19 resources page. The header includes the IATA logo, navigation links (ABOUT US, CAREERS, CONTACT & SUPPORT), a search bar, and a secondary menu (PROGRAMS, POLICY, PUBLICATIONS, SERVICES, TRAINING, EVENTS, PRESSROOM). The breadcrumb trail reads: Home > Programs > COVID-19: All resources. The main heading is "COVID-19: Resources for Airlines & Air Transport Professionals". Below it is a blue-tinted image of a coronavirus particle. To the right of the image is a text block explaining the impact of the pandemic and the resources available. A sidebar on the right displays statistics (530K visitors/month, 2.2M page views/month) and a "Related Links" section with links to webinars and a passenger survey. At the bottom, a horizontal menu lists various resource categories, with "COMMS MATERIALS" highlighted in blue.

COVID-19: Resources for Airlines & Air Transport Professionals

The COVID-19 pandemic is having a huge impact on aviation and air travel industry. On these pages, you will find resources to support airlines and other aviation stakeholders during the COVID-19 crisis and industry's restart.

Related Links

- COVID-19 related webinars
- COVID-19 Passenger Survey

COMMS MATERIALS

<https://www.iata.org/en/programs/covid-19-resources-guidelines/>

Thank you

 moorej@iata.org

 www.iata.org

