

A Work Project, presented as part of the requirements for the Award of a Master's degree in Management from the Nova School of Business and Economics, titled:

## A forced disrupt: “the next normal” for the airline industry

A project carried out as part of the Master's in Management under supervision of: Professor José Miguel Pita.

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# Abstract

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This chapter “A forced disrupt: “the next normal” for the airline industry”, included Master’s Thesis Field Lab “A forced disrupt: “the next normal” for airlines and cruises” has the purpose of investigating how COVID-19 has impacted the airline industry so far and what could “the next normal” look like. Thus, the main research question investigated in this chapter is: *“How has COVID-19 impacted the airline industry so far and what will “the next normal” look like for airlines?”*.

COVID-19 pandemic hit the airline industry as it was never seen before. Airlines are burning over 3 times more cash than during 2008 financial crisis. The question that hovers in the air right now is what will the future look like. When is and will the industry recover? Will we fly in the same aircrafts and through the same routes? How expensive will become flying in next years? These are questions that everyone is asking, and this market research project has been conducted in order to give these answers.

For that, I have gathered, analyzed, and triangulated secondary data to portray how the industry was performing before the pandemic, to what extent it has been affected by the pandemic, and what to expect in “the next normal”.

This research comprehends some limitations. Data, forecasts presented may not be accurately in the future as pandemic is still evolving and having dynamic effects on the conclusions and outlooks made so far. Therefore, this research paper should be regarded as a portrait of the events as of January 2021.

*Keywords: airline industry, COVID-19, RPK, load factor, ticket prices, cash burning, revenues, demand*

# Chapter 2:

## The airline industry before, during and after COVID-19



### Key question

*“How has COVID-19 impacted the airline industry so far and what will “the next normal” look like for airlines?”*

### Structure

### Research questions

### Methodology

2.1.



**The airline industry before COVID-19**

#### How has the airline industry been performing before COVID-19?

- How is the industry structured?
- What are the drivers behind industry growth?
- What have been the profitability trends?
- What is the impact of ancillary revenue and its components?

- Market research
- Literature review
- Porter's Five Forces framework

2.2.



**COVID-19's impact on the airline industry**

#### How has COVID-19 impacted the airline industry up until this point?

- How COVID-19 impact compares with previous crisis?
- How has demand evolved in the last months?
- How have prices and revenues been impacted and its implications?
- Which measures are airlines taking to survive the pandemic?

- Secondary Data
- Literature review
- Specialized associations

2.3.



**The airline industry in “the next normal”**

#### How will the airline industry look like “the next normal”?

- When will demand bounce back and in which regions first?
- How will route maps look like and are the implications on fleet decisions?
- Which factors will impact price in the short and long-term?

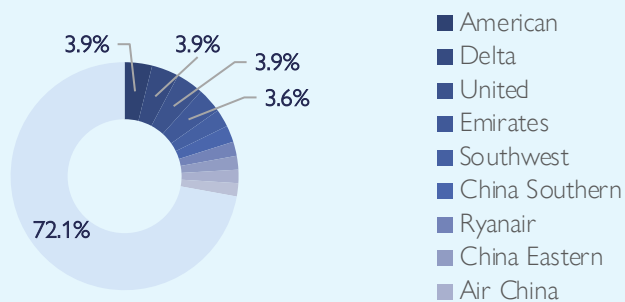
- Benchmark analysis
- Market research
- Data triangulation

# Airlines operate in a fragmented industry where the major player only accounts for 3.9% of the global market share

Low-cost carriers are gaining more and more market share over full-service carriers over the years, intensifying even more the competition in the industry.

## Airlines operate in a very fragmented industry

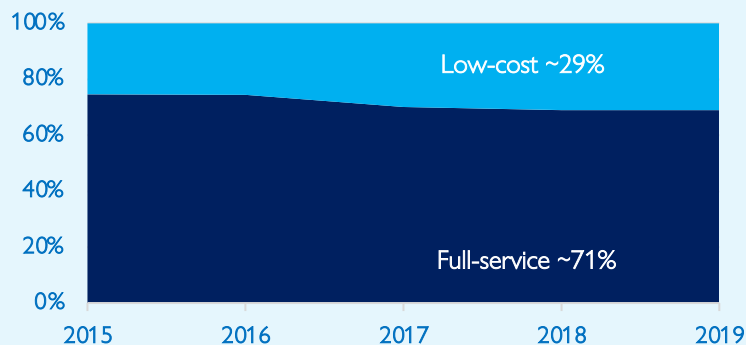
Airlines market share by RPK<sup>5</sup>



The industry is characterized by **intense competition** where the major player only accounts for 3.9% of the market and the **top 10 leading airlines** account for just 28% of the market.

## Low-cost Airlines are gaining importance

Commercial airlines market share<sup>6</sup>



Over the last 5 years, **low-cost carriers have been gaining market share** over full-service carriers, **with lower costs, allowing the practice of lower fares** to customers



### Power of Buyers

- Increased fare transparency
- Low switching costs
- Standardized product

### Power of Suppliers

- Oligopolistic aircraft suppliers
- Airports have monopolistic power

### Industry Rivalry

- Low-cost strong emergence
- Increasing number of airlines

### Threat of New Entrants

- Large capital investment required
- Necessary economies of scale
- Regulatory factors

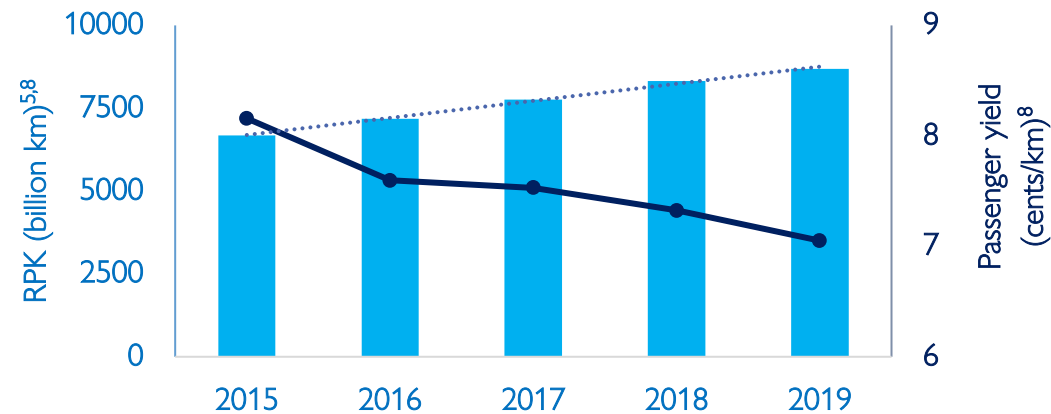
### Threat of Substitutes

- Many offers in short-haul & time-consuming safety procedures
- Emerging video-call may jeopardize business class

Sources: <sup>5</sup>IATA; <sup>6</sup>Statista; Porter Analysis

# Lower fares boosted demand and allowed the achievement of higher load factors in recent years...

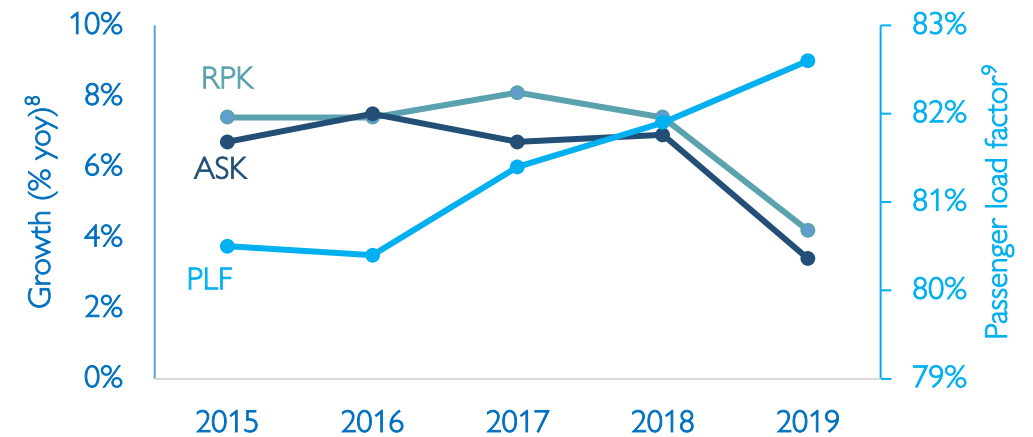
## Lower fares boosting demand... Demand (RPK) and passenger yield



- The **fierce competition** that the industry faces along with the strong emerge of low-cost carriers led **ticket price per km flown (yield) to go down**, making flying more attractive and affordable for people, **increasing** therefore the **demand for air-travel** (RPK).



## ...allowing the achievement of higher load factors Passenger load factor



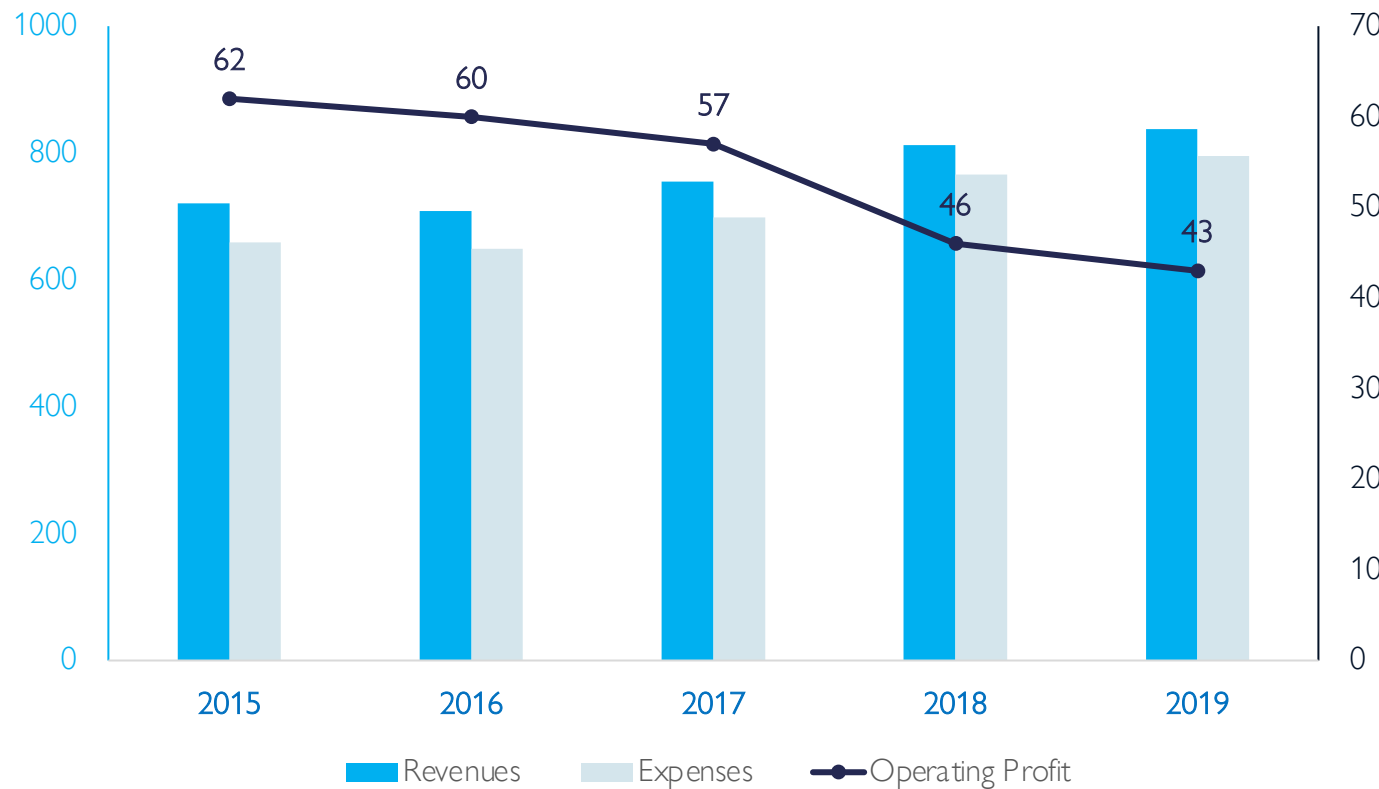
- The **growth in demand has not been fully followed by an increase in capacity**, measured in ASK. This translates into the **achievement of constant higher load factors** over the last 5 years.

Sources:  
<sup>5,8</sup>IATA; <sup>9</sup>Statista

# ...though, the growth of expenses outpaced revenue growth, shrinking operating profits

## Operating profits declined 30% over the last 5 years

Revenues, expenses & operating profit: value in USD (billions)<sup>8</sup>



## Why are operating profits decreasing?

- In the last 5 years, average **expenses growth outpaced revenue growth**.
- Despite strong demand growth, constant year-on-year decreasing yields are hurting revenue growth
- Outpaced expense growth can be explained by 3 factors:
  - **Jet fuel price increase** has enhanced operational losses **in the last 2 years**
  - **Infrastructure costs**, such as **airport fees**, have increased at a higher pace than passengers transported
  - **Employment upscaling** has been **rising labour costs**

Sources:  
<sup>8</sup>IATA; Forbes

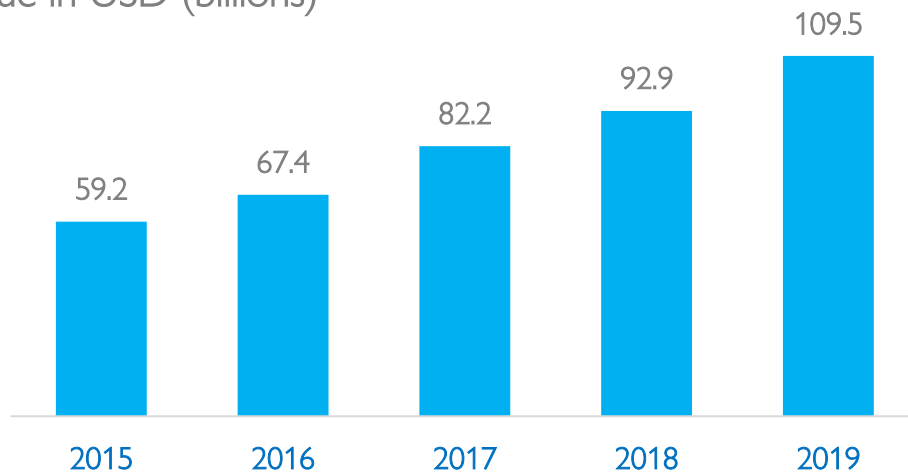


# Over the last five years, ancillary revenues have almost doubled, representing around 13% of airline revenues

Without ancillary revenues, the airline industry would not be profitable.

## Ancillary revenue has become increasingly important

Value in USD (billions)<sup>11</sup>



- Fierce competition lowering ticket fares encouraged airlines to find other ways of getting back revenue losses: through the exploration of ancillary products and services (ads-on and extras besides tickets).
- In the last 5 years, ancillary revenue has risen 84%, contributing now for 13% of airlines' revenues. With operating margins at only 5%, ancillary revenues are having an outsized impact on industry's profitability.



## Decomposing Ancillary Revenue



- 92%<sup>14</sup> of "a la carte" ancillary revenue is obtained through fees on booking flexibility (30%), seat upselling (27%), checked bags (25%), and excess bags fees (10%).
- Airlines benefit from "frequent flyer programs" in 2 ways: loyalty through consequent flight ticket sales that give free miles to travellers which will be redeemed on typical empty flights' seats; and selling miles to corporate partners that will be offered to customers when purchasing their products or services as a bonus to attract them.

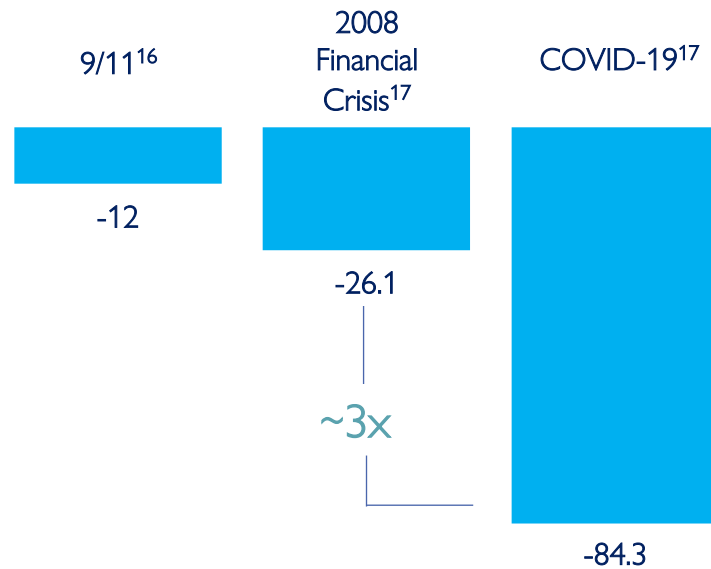
Sources:

<sup>11</sup>Statista; <sup>12</sup>Simple Flying; Forbes; <sup>14</sup>McKinsey

# 2020 set to be the worst year for the airline industry

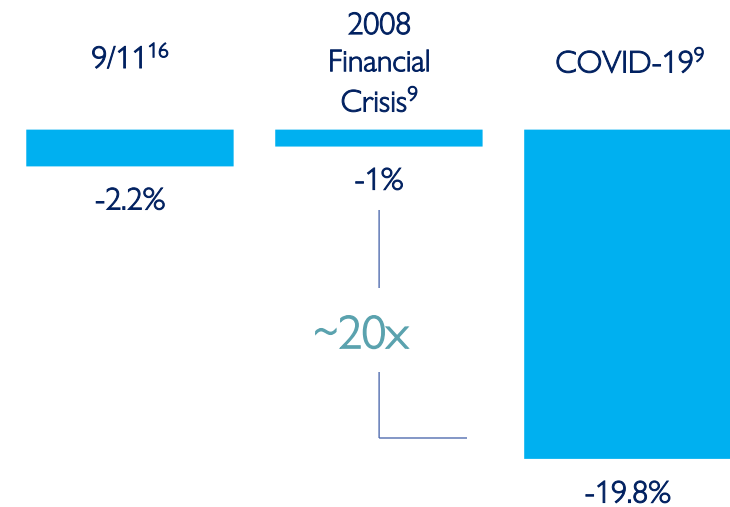
2020 has seen 3x higher net losses than ever before...

Net loss in USD (billions)



... and has had a 20x larger load factor decrease

Year-on-year impact on passenger load factor (in %-pt.)



- The Airline Industry is currently facing the **worst year in its history**.
- **The net losses of \$84.3 billion that have incurred in 2020** are more than three times of those faced during 2008-09 financial crisis, and seven times higher than those suffered due to the 9/11 terrorist attacks. **Airlines are losing over \$230 million each day in 2020.**
- **Passenger load factor** has also seen a significant decrease, **lowering ~20%-pt. in 2020** compared to 2019, almost 20 times more than in 2009 and roughly 10 times more than in 2001.

Sources:  
<sup>9,17</sup>Statista; <sup>16</sup>IATA; BBC

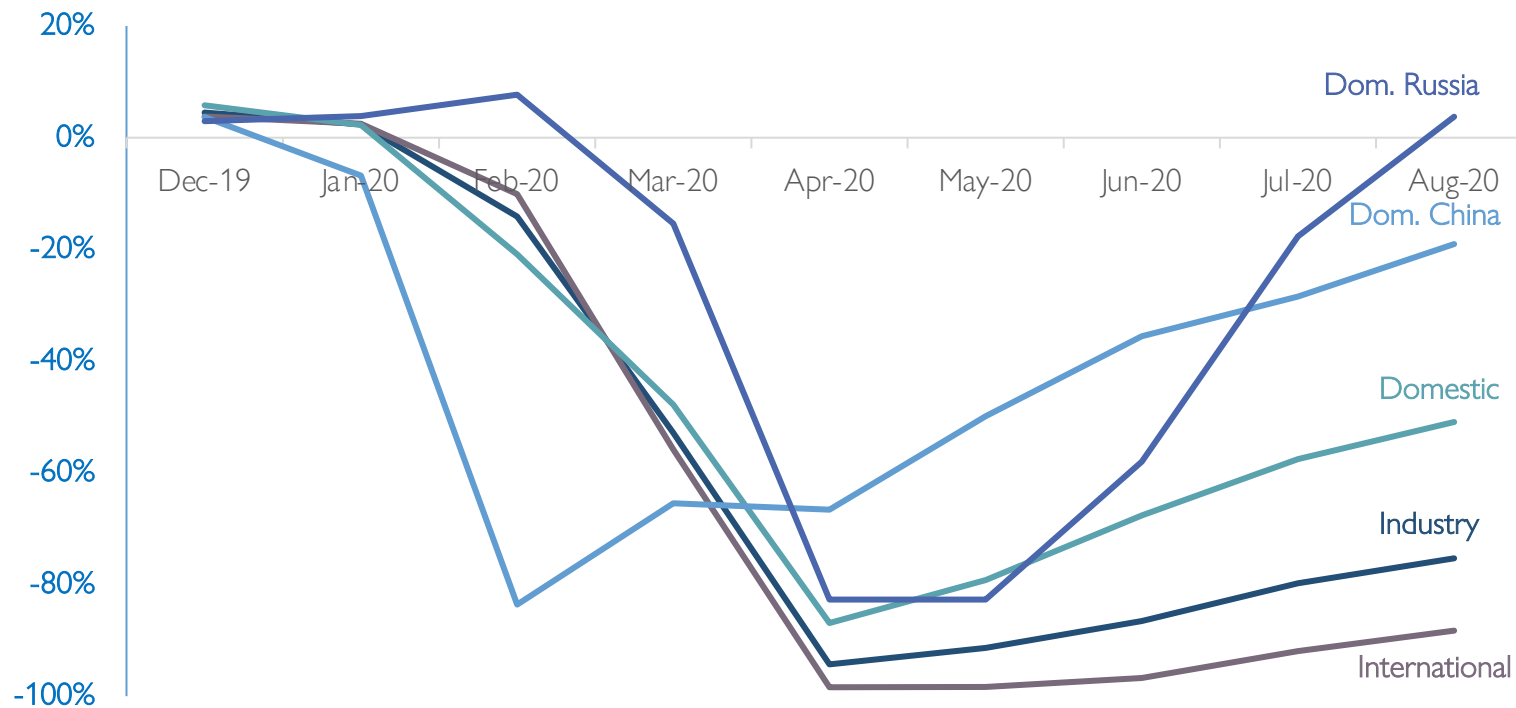


# After the trough in April, domestic demand is rebounding much quicker than international demand...

Domestic flying in Russia displayed the strongest and quickest demand recovery – the first market to achieve positive growth in August.

## High discrepancies between domestic and international recovery

RPK year-on-year % change, monthly evolution<sup>19</sup>



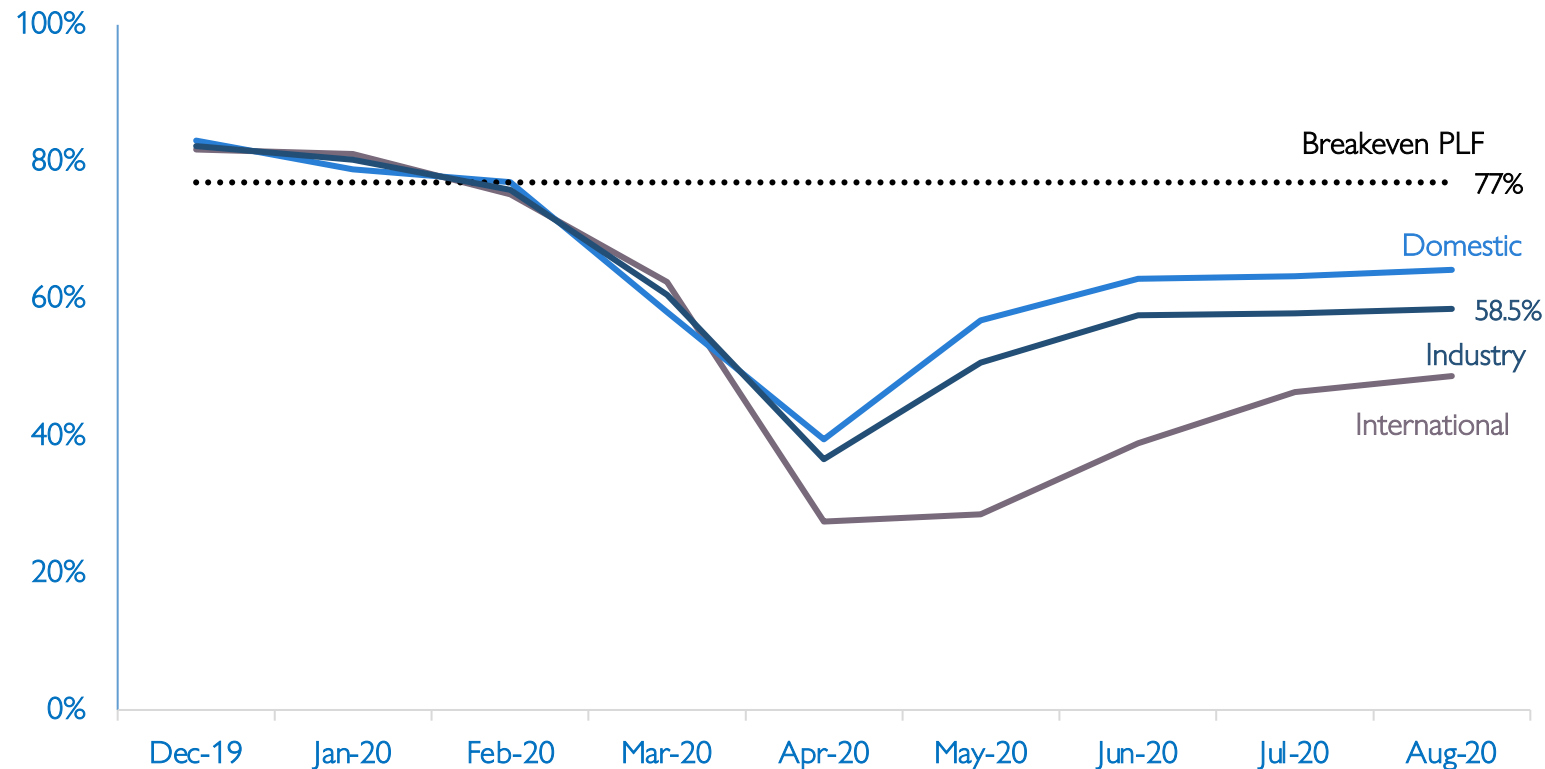
- With closed borders, lockdowns, and health concerns, COVID-19 hit the airline industry drastically, with demand decreasing by 95% yoy in trough month April.
- Due to remaining virus spread and social distance concerns, international demand in August was down 88% yoy, while domestic demand has shown a much quicker pace of recovery, being in August at only 50% of what it was last homologous period.
- Decreasing fares and internal tourism boost, allowed dom. Russia to become the first market to have a positive demand growth
- As of Russia, and due to successful containment of the virus spread, dom. Chinese market is showing the strong and quick recovery, being only 19% down relatively to its homologous period.

Sources:  
<sup>19</sup>IATA

## ...still, airlines load factors are still well below breakeven level

Despite improvements over the last months, international load factors remain the most impacted.

### Airline Passenger Load Factor Level Still Well Below Break Even % of ASKs, Monthly Evolution<sup>19</sup>



- COVID-19 hit the airline industry drastically, with load factors reaching all time record low levels. April's load factor fell 46%-pt to 36%, all time lowest.

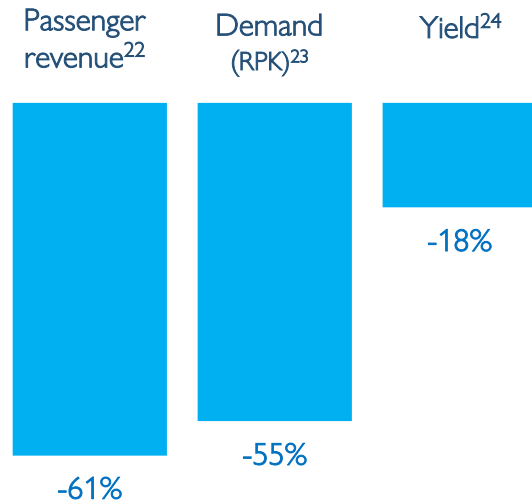
### Social distancing would challenge viability

- With governments encouraging social distance in air travel, average bookable seat capacity would decrease to 62% of normal capacity: well below IATA's 122 airlines sample's breakeven level of 77%.<sup>20</sup>
- To breakeven with few passengers, 62% seats limit, airlines would need to raise fares 43-54% an impossible move when demand is weak.<sup>21</sup>
- As leaving empty seats is not economic viable, airlines must seek other ways of ensuring health safety to attract customers.

# Revenues to fall by more than demand as airlines are expressively slashing ticket prices to stimulate travel

COVID-19 broke the price algorithm model, undermining airline's ability to extract the highest value out of passenger.

## Revenue, demand & yield 2020, % change year-on-year



### What is forcing airlines to discount ticket prices?

### How COVID-19 has broken the price algorithm model

- Airlines have been using a pricing software to extract the highest price for each seat sold. The algorithm is based mostly on historical data, allowing airlines to know exactly how much to charge for each flight.
- As COVID-19 hit the industry, this pricing model became obsolete because there is no historical data on demand, segments, and booking patterns for such pandemic.
- The system is so confused that it is not accurately discriminating fares between normal and peak periods.
- Airlines are starting pricing tickets manually for each flight and as if they were new routes without historical data.

Airlines will have to find alternative ways to keep extracting the maximum out of travellers

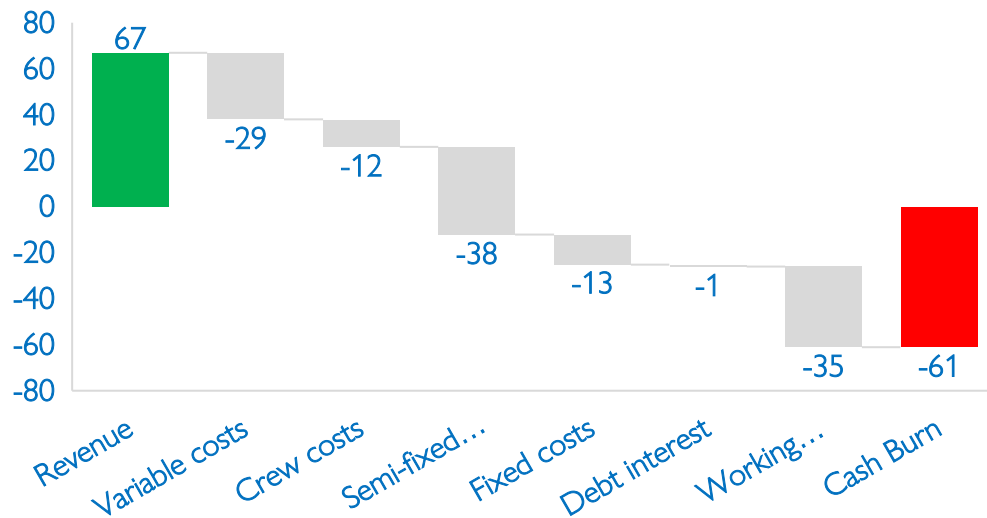
4th Nov **\$297** 8th Nov  
7th Jul 13th Jul  
BOS-MIA

- Fuel Prices** In 2020, barrel's price is expected to decrease 52% compared to 2019.<sup>26</sup>
- Excess Capacity** In May 2020, over half of global fleet was grounded (55%).<sup>21</sup>
- Weak Demand** In 2020, number of passengers is expected to be 49% of 2019.<sup>26</sup>

Sources: <sup>21,22,23,24</sup>Statista; <sup>26</sup>IATA; The Wall Street Journal

# Airlines are burning significant amounts of cash, as fixed costs represent 49% of total operating costs

## Airlines are burning significant amounts of cash \$ billion, Q2 2020<sup>27</sup>



- With significant drops in demand, airlines face a **strong challenge in controlling cash burn** to keep financially alive.
- 2020Q2 has been the worst period for the airline industry, with revenues down by around 80% and most of passenger fleet grounded.
- To reduce cash burning airlines started reducing costs wherever possible, **but only could reduce operating costs by 50% as semifixed-costs** such as labor and maintenance take a significant part in the airlines' cost structure.
- Working Capital of \$35 billion accounts for tickets refund.



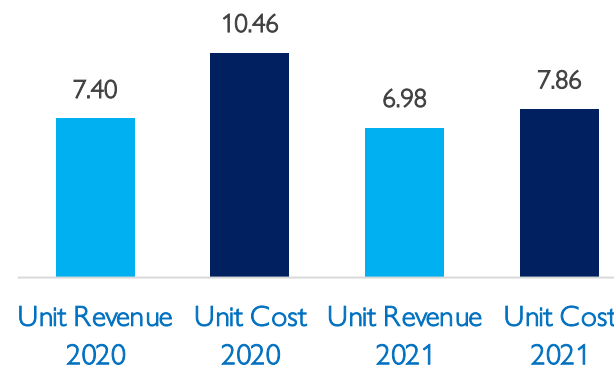
## Airlines Operate in a High Fixed Costs Industry Operating Cost Structure<sup>27</sup>



49% of airlines operating costs are comprehend fixed, semi-fixed or crew costs, which leaves only a 51% of operating costs to be completely reduced in the short-term, leaving airlines **burning significant amounts of cash**.

## Airlines will still not breakeven in 2021

### Revenue/Cost per ASK (\$ cents)<sup>28</sup>



Gradual demand recovery, low yields and limited business class travel will imply a reduction in unit revenue for 2021. Fuel costs are expected to rise but with a minimum impact on costs and labor costs to be cut to previous low, and other items' costs will be constant but due to higher capacity will result in lower unit costs but above revenue levels. **Despite strong efforts to reduce costs, airlines burning cash will not end in 2021.**

# To survive the crisis, airlines are taking measures in four fronts: retaining customers, innovating operations, financing and ensuring safety onboard

## Retaining Customers

In order to attract demand and retain loyalty airlines are:

- Offering more flexibility through **refunding tickets** or giving the possibility to **reschedule flights for free**;
- Lowering ticket fares.

## Innovating Operations

- Airlines are seeking new sources of revenue by **shifting aircrafts layout towards cargo-only service**, as demand for cargo has been increasing more than capacity.
- Airlines are **grounding aircrafts in arid deserts**, as it is cheaper than in an airport, and provides better climate conditions that slow the corrosion of metal parts.
- Airlines are also **retiring older and larger aircrafts and delaying the delivery of new aircrafts**. Airlines with younger fleet have been taking the opportunity to substitute the engines to more fuel-efficient ones.
- Some airlines (especially in Asia Pacific) are reinventing a new business model: **flying to nowhere. Taking off at point A and landing at the same point A**, airlines created a new service where customers pay just to feel again the experience of flying and to have the possibility of an “escape” during hard times.

## Implementing Health Protocols

To ensure safety when flying, airlines are:

- Requiring passengers to **use masks**;
- Implementing **hospital-grade filters** that remove 99.7% of airborne particles;
- Deep cleaning seats and other high-touch surfaces;
- Checking passengers' **temperature** and sometimes **requiring negative COVID-19 tests**;
- Some airlines are **blocking the middle seat** to provide somewhat of a social distance;
- **Limiting foods and drinks**, especially on domestic flights.

## Financial Aid

Governments have made support available to airlines:

- Subsidies, Loans, Equity, Cash Injection;
  - Wage subsidies non-reimbursable;
  - Corporate taxation deferral;
  - Industry taxation waiver;
  - Fuel Charges and Ticket taxes waiver and deferral.
- Airlines are **also hoarding through banks, capital markets and lessors**.

### Sources:

Reuters; ICF Analysis; IATA; Fortune; Market Watch;  
Forbes; TWSJ; BBC

### Chapter 2: Airlines, business side

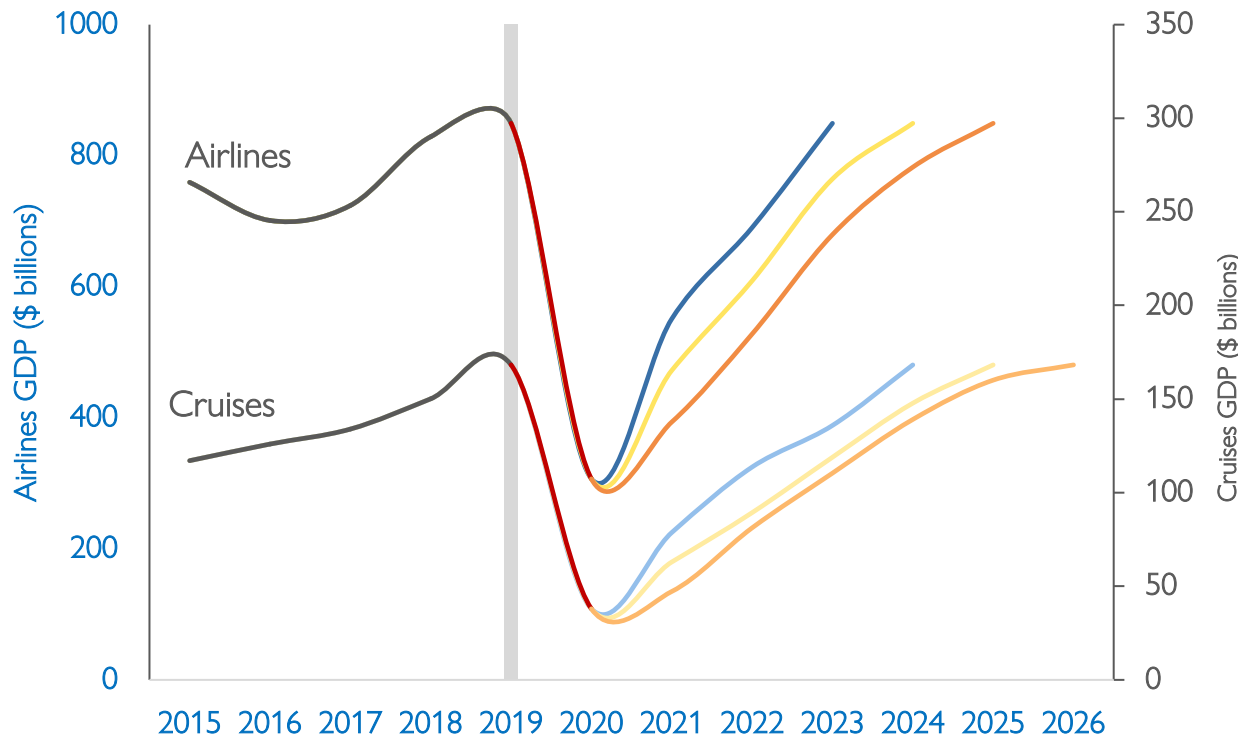
Before COVID-19 ----- During COVID-19 ----- The next normal

# The airline industry will most likely recover faster than the cruise industry, yet each with a two-year difference around scenario uncertainty

In order to forecast the contribution of cruises & airlines to World GDP, we based our projections for World GDP on regional virus recurrence, with slow long-term growth, and assuming World GDP returning to pre-crisis levels only in 2023.

## Three scenarios may play out in the future

Contribution of cruises and airlines to global GDP projection



Airlines	Cruises
<p><b>Early Vaccine Case</b></p> <ul style="list-style-type: none"> <li>Strong recovery in 2021 especially for domestic and international flights, with available vaccine at scale in 2021</li> </ul> <p>Expected recovery: 2023</p>	<p><b>Coronavirus Base Case</b></p> <ul style="list-style-type: none"> <li>No cruise activity in Q1 2021.</li> <li>Test sailings completed successfully in the beginning of the year.</li> <li>Modest return for 2021.</li> <li>Cruise revenues reach 2019 levels by 2024, in best case scenario.</li> </ul>
<p><b>Coronavirus Base Case</b></p> <ul style="list-style-type: none"> <li>Strong recovery in 2022, with vaccine not available at scale in 2021, but with a successful virus containment</li> </ul> <p>Expected recovery: 2024</p>	<p><b>Coronavirus Downside Case</b></p> <ul style="list-style-type: none"> <li>No cruise activity for the first half of 2021.</li> <li>First half of 2021 dedicated to conducting a series of test sailings in order to validate new health protocols.</li> <li>Recovery only in 2025.</li> </ul>
<p><b>Coronavirus Stress Case</b></p> <ul style="list-style-type: none"> <li>Latest recovery with unsuccessful virus containment and ineffective vaccine</li> </ul> <p>Expected recovery: 2025</p>	<p><b>Coronavirus Severe Downside Case</b></p> <ul style="list-style-type: none"> <li>No cruise activity for the first half of 2021.</li> <li>Assumes a slower recovery based on possible failure of test sailings and/or demand lower than expected.</li> <li>Recovery by 2025.</li> </ul>

Sources: McKinsey & Company; Fitch Ratings; International Monetary Fund; The World Bank Group

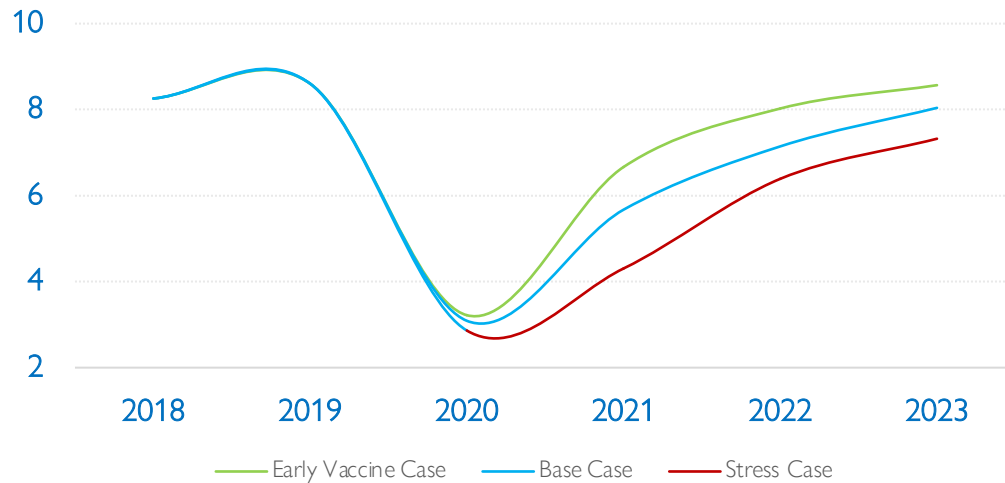


# Despite strong demand recovery in 2021-2022, a full recovery is not expected until 2024

Emerging markets to drive the most growth in the long-term.

## Flying demand will not fully recover before 2024

RPK, trillion km flown<sup>39</sup>

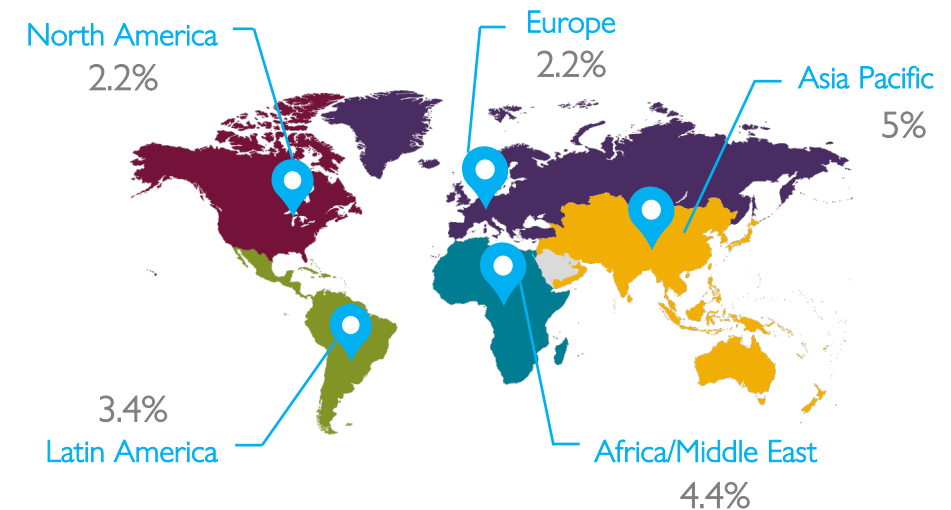


- **Base case:** virus containment improvement, but with a vaccine available at scale only in 2022.
- **Early vaccine case:** global distribution of a vaccine in 2021.
- **Stress case:** on a virus containment underperformance and a not effective vaccine, driving several airlines to bankruptcy.



## Asia Pacific will grow the most in the next 20 years

Average annual growth, global air travellers (from 2019-2038)<sup>41</sup>



- 3.7% is the average annual growth in passenger journeys over the next 20 years, leading to 2.1x number of passengers journeys as of today.
- In 2019, Asia Pacific was the largest market, representing ~35% of global RPKs, and it is expected to grow even more.

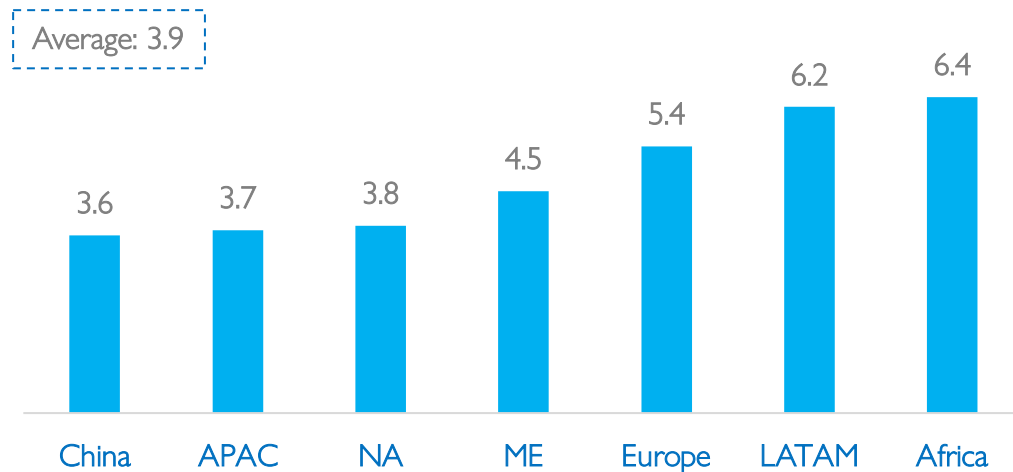
**Sources:**

<sup>39</sup>Fitch Ratings; Euro Control; <sup>41</sup>IATA

# Health concerns and uncertainty to drive domestic and intra-regional travel to bounce back faster than international and long-haul

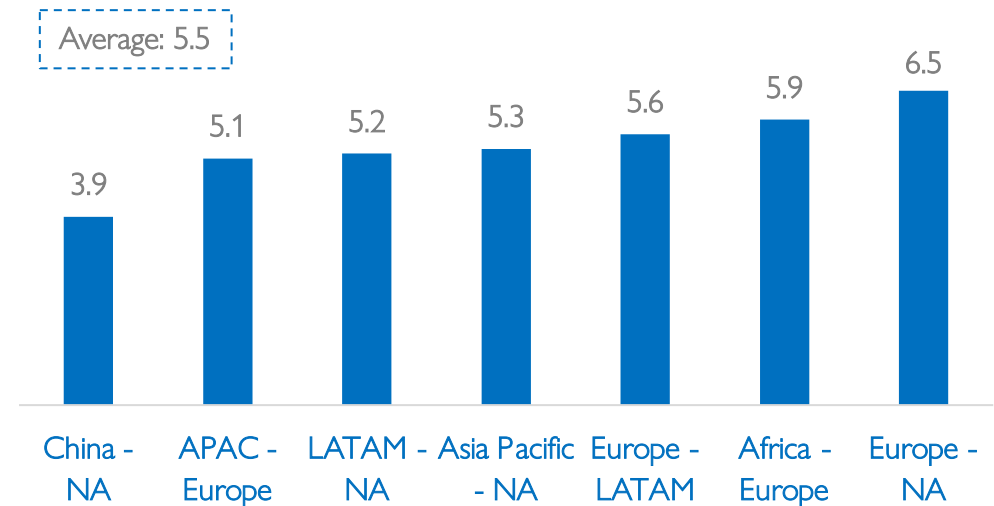
Short-haul markets are likely to recover faster...

Years to recovery for domestic markets<sup>42</sup>



... than long-haul markets

Years to recovery for international markets<sup>42</sup>



- Health concerns on contamination by the coronavirus along with uncertainty driven by quarantine requirements when arrived and possible borders closing, indicate that traffic will bounce back first domestically, followed by intra-regional (3.9 years), and finally intercontinental flights (5.5 years).
- China's successful containment of virus spreading points towards being the domestic market to recover quicker, while Africa intra-region to be the latest. European's second wave of rising cases is worsening flight booking, pointing to a later recovery of at least 5 years.
- International air travel is expected to be the latest to recover, especially for Europe-North America routes, two regions where COVID-19 cases are rapidly increasing.

Airlines should first adapt their routes and fleet planning towards a more short-haul offering for the next years.

Sources:  
<sup>42</sup>ICF Analysis; Fitch Ratings

# Customer preferences and technological innovations will force the prevalence of the point to point model and jeopardize the hub's role



## Hub & Spoke Model (H&S)



## Point to Point Model (P2P)

### Advantages & scope

- Multiple destinations with less routes
- Aggregating demand from unprofitable local based only routes
- Economies of scale through operations centralization
- Dependent typically on Long-haul & Intercontinental

- Non-stop & minimized travel time attracting customers
- No dependency on other flight's punctuality
- Profitable due to new-fuel efficient jets and cost optimization
- Mitigated missed connection risk and accommodation costs
- Dependent typically on Short-haul & Domestic or Intra-regional

## Implications for airlines' routing

Customers



Health concerns forcing preference for shortest time in an airplane; & border restrictions limiting long-haul travel

Technology



New smaller more efficient long-range aircraft allows to fly intercontinental, non-stop. 65% of new A321(X)LRs are P2P

Environment



P2P flights usually fly less km, meaning less fuel consumption and lower CO2 emissions



P2P



- Non-stop traffic fell 61% yoy<sup>44</sup>
- Price premium for non-stop to be slashed
- Dynamic demand destination preferences require the ability to change routes planned almost daily

H&S

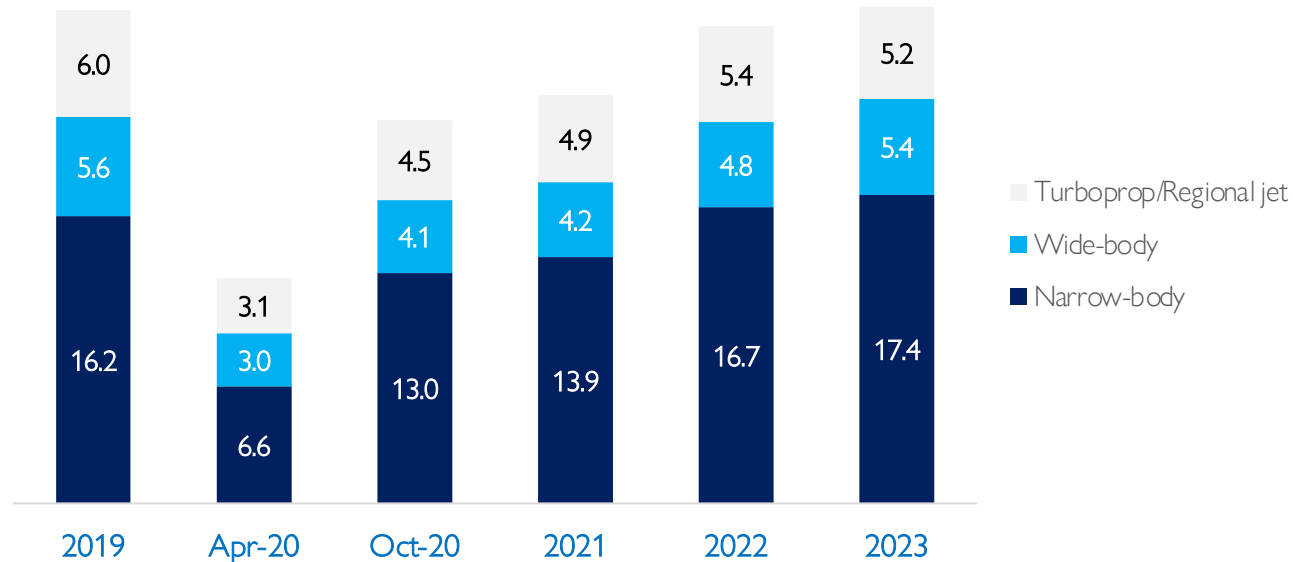


- Connecting traffic fell 81% yoy<sup>44</sup>
- Airlines will stick only to their most profitable hubs, 50% reducing in number
- Reducing 10-20% frequency, but retaining connectivity
- Some hubs will become focus cities

# New smaller and more efficient jets to substitute larger ones as demand slowly bounces back and a initial preference for short-haul flights


## Increasingly importance of smaller jets

Global number in-service aircraft outlook (in thousands)<sup>47</sup>



- Domestic and intra-regional services primarily operate with regional jets and narrow-body aircraft, whereas long haul markets use large wide-body aircraft. As a result, the single-aisle market is likely to be less affected.
- As demand remains low, airlines are retiring larger less efficient aircrafts and ordering more narrow-body smaller jets. Over the next 5 years, less 3600 aircrafts will be supplied compared to pre-COVID expectations.
- To successfully compete in the the next years, airlines are seeking smaller, long-haul range, more efficient jets that give flexibility to fit new routes.
- Regional Jets to decrease in number as very short—haul flights to be substituted by other means of transportation that provide passengers with a stronger feeling of health safety (i.e., car)

“AIRBUS A321(X)LR”  
A Game Changer For Dynamic Times

**Efficiency** 

30% reduction in fuel burn per seat with low demand and a preference for non-stop flights, this smaller jet turns typical previous wide-body only profitable routes into an economic viable service.

**Flexibility** 

Fly up to 10 hours, providing flexibility in terms of distance. Dynamic demand regarding bubbles and constant destinations' preferences changes will require this flexibility to fly short-haul today and in the long-haul tomorrow.

**Attractiveness** 







24 airlines have already ordered 450 planes.

Sources:  
<sup>47</sup>Oliver Wyman; ICF Analysis; McKinsey; Simple Flying; CN Traveler; Forbes

# Airlines to discount ticket fares to stimulate demand in the short-term, but as demand-supply balances and industry consolidates prices are expected to rise

Airlines must find alternative ways to predict demand as current algorithm is no longer useful.

## Factors influencing airlines ticket price trends


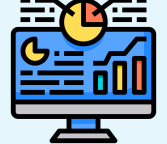
<p>Short-term</p>  <p>-35%<sup>52</sup></p> <p>In 2021</p>	<p><b>Excess Capacity</b></p>  <p>Excess capacity and still fierce competition to fill in those empty seats will force airlines to cut prices to remain competitive.</p> <p><b>Feared Consumers</b></p>  <p>Low demand due to remained health concerns while closed in an airplane, will impose airlines to slash airfares to make travellers even consider air travel and attract them to a consequent purchase.</p>
<p>Long-term</p>  <p>+27%<sup>52</sup></p> <p>In 2025</p>	<p><b>Industry Consolidation</b></p>  <p>As supply-demand balances with fewer routes and between M&amp;A and bankruptcies, the industry will become more consolidated, allowing to a prices hike.</p> <p><b>Focus on Profitability</b></p>  <p>The strict financial rigor on operational investment strategies and management enforced by COVID-19, is expected to last as airlines have figured there is still room to optimize and will seek to recover losses.</p>

<sup>52</sup>compared to 2019



## Optimizing Revenue Management Model

Airline's pricing system is mostly based on historical data that is proven now to be useless, leaving airlines with solely the option to innovate by finding alternative ways to maintain the ability to extract the maximum out of travellers' buying power.

 <p><b>Travel Shopping Data</b></p> <ul style="list-style-type: none"> <li>▪ Flight Search Data</li> <li>▪ Hotel Booking Searches</li> <li>▪ Global Distribution Systems</li> <li>▪ Digital Analytics from Competitors</li> </ul>	 <p><b>Macro Data</b></p> <ul style="list-style-type: none"> <li>▪ Travel Limitations</li> <li>▪ Internet Searches</li> <li>▪ Consumer Sentiment Data</li> <li>▪ Destinations Search Trends</li> </ul>
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## Airline industry prior to COVID-19

1. Airlines operate in an extremely fragmented industry as the major player only accounts for 3.9% of the market share, and the top 10 representing only 28%.
2. Low-cost carriers have been gaining more and more market share over full-service carriers, intensifying even more the competition in the industry.
3. Although lower fares boosted demand and allowed the achievement of higher load factors over the last years...
4. ...Operating profits have been decreasing due to increasing labor, infrastructure and fuel costs.
5. Recently, ancillary revenue has taken a big part in the industry's success, representing now around 13% of airlines revenues. Above 5% Operating Margin, airline's industry would not be profitable without ancillary revenue.



## Airline industry during COVID-19

1. Due to COVID-19, 2020 is set to be the worst year in history for airlines, with airlines losing \$84.3 billion in 2020, and demand decreasing by 95% yoy in trough month April.
2. Domestic travelling is rebounding much quicker than international demand...however, Airlines load factors are still well below breakeven level.
3. Revenues to fall by more than demand as airlines are expressively slashing ticket prices to stimulate travel, empowered by excess capacity and low fuel prices.
4. Low revenues are burning airlines' cash as 49% of costs are non-variable.
5. In order to survive the crisis, airlines are acting in four fronts: retaining customers, innovating operations, financing, and ensuring health protocols.



## Airline industry in "the next normal"

1. Despite strong demand recovery in 2021-2022, full recovery is not expected before 2024.
2. Low demand, consumer concerns, and technological developments will drive preference mostly for short-haul, domestic and intra-region travel...
3. ...in a smaller route map making Point-to-point the best suited network model.
4. New smaller and more efficient jets will substitute large old widebody aircrafts, reducing capacity offering.
5. In the short-term, prices are expected to go down to stimulate demand, but this is expected to turn around as supply matches demand and industry becomes more consolidated. A new pricing model will be required to predict unhistorical price-demand elasticity.



# Appendices

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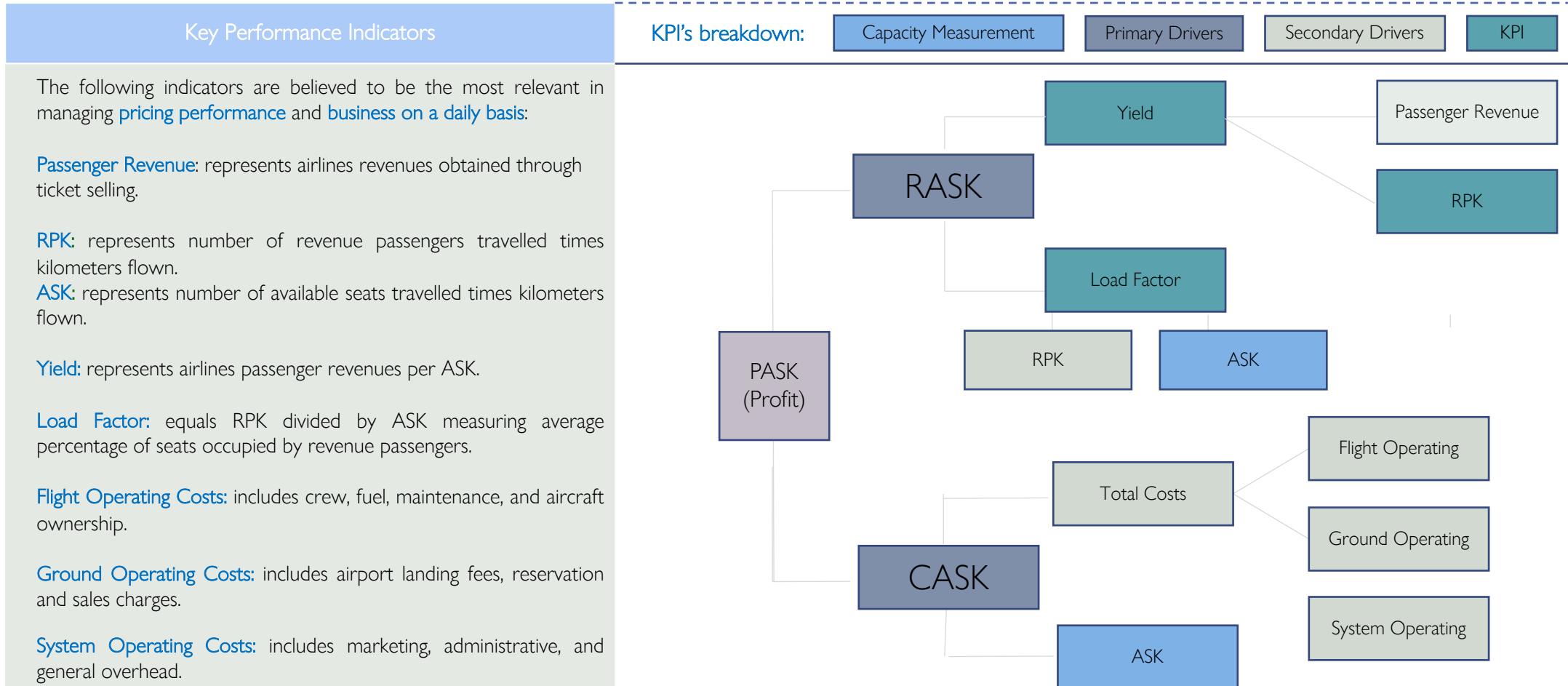
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# Key Performance Indicators in the airlines industry are determined by combining the most relevant metric of capacity measurement, ASK, and profitability drivers



## Key Performance Indicators Analysis: Airline Industry

<b>GLOBAL INDUSTRY</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Revenues, \$ billion	721	709	755	812	838
Expenses, \$ billion	659	649	698	766	795
Operating Profit, \$ billion	62	60	57	46	43
RPK, billion	6680	7175	7756	8330	8680
<i>RPK Growth, %yoy</i>	7.4%	7.4%	8.1%	7.4%	4.2%
ASK, billion	8299	8924	9528	10175	10508
<i>ASK Growth, %yoy</i>	6.7%	7.5%	6.7%	6.9%	3.4%
Passenger Load Factor	80.5%	80.4%	81.4%	81.9%	82.6%
Passenger Yield, cents	8.16	7.60	7.53	7.32	7.05

<b>trillion RPK</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
Early Vaccine Case	8.258	8.605	3.21974	6.66522	8.02554	8.56852
Base Case	8.258	8.605	3.08957	5.67257	7.14492	8.04112
Stress Case	8.258	8.605	2.86324	4.30543	6.39077	7.32345

# Key Performance Indicators Analysis: Airline Industry

Total Marke	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	
<b>RPK (% yoy)</b>	4.5%	2.4%	-14.1%	-52.9%	-94.3%	-91.3%	-86.5%	-79.8%	-75.3%	
<b>PLF (level)</b>	82.3%	80.3%	75.9%	60.6%	36.6%	50.7%	57.6%	57.9%	58.5%	
RPK Internat	3.8%	2.5%	-10.1%	-55.8%	-98.4%	-98.3%	-96.8%	-91.9%	-88.3%	
RPK Domes	5.8%	2.3%	-20.9%	-47.8%	-86.9%	-79.2%	-67.6%	-57.5%	-50.9%	
RPK Dom. C	3.7%	-6.8%	-83.6%	-65.5%	-66.6%	-49.9%	-35.5%	-28.4%	-19.1%	
RPK Dom. U	10.5%	7.5%	10.1%	-48.1%	-95.7%	-89.5%	-80.1%	-72.6%	-69.3%	
RPK Dom. R	3.0%	3.9%	7.7%	-15.4%	-82.7%	-82.7%	-58.0%	-17.7%	3.8%	
RPK Dom. A	0.8%	0.1%	-4.0%	-40.2%	-96.8%	-96.6%	-93.8%	-90.0%	-91.5%	
PLF Internati	81.8%	81.1%	75.3%	62.5%	27.5%	28.6%	38.9%	46.4%	48.7%	
PLF Domest	83.1%	78.9%	77.0%	58.1%	39.5%	56.9%	62.9%	63.3%	64.2%	
PLF Dom. C	81.8%	76.7%	48.5%	60.2%	66.4%	68.8%	69.5%	74.4%	75.3%	
<b>Breakeven P </b>	77%	77%	77%	77%	77%	77%	77%	77%	77%	