

December 2022

Global Outlook for Air Transport

Sustained Recovery Amidst
Strong Headwinds



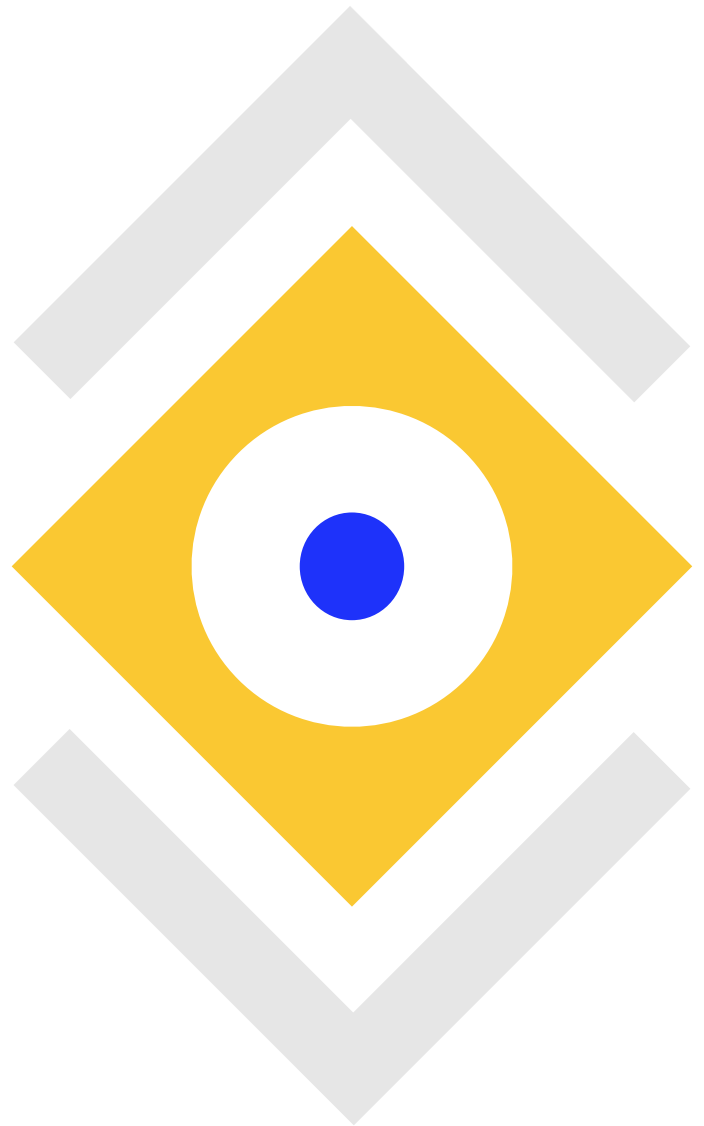
Global Outlook for Air Transport

Sustained Recovery Amidst Strong Headwinds

This semi-annual report takes a broad look at developments in the airline industry, the context in which it is operating, and the challenges it is facing.

Key Points

- Coming out of the worst of the COVID-19 pandemic, the war in Europe drove energy and food prices significantly higher, which prompted much policy tightening by central banks, in turn adding to the safe-haven status of the US dollar, all of which constitute important headwinds for the global economy and for aviation.
- Nevertheless, 2022 testifies to the resilience of the air transport industry. After the largest shock in aviation's history, recovery is well underway. Traffic is forecast to grow at a record rate in 2022, and to continue to grow at a slower pace in 2023 and beyond.
- Traffic continues to be driven mostly by pandemic-related travel restrictions which are still dampening the recovery, notably in China P.R. Even so, global passenger numbers are forecast to reach the 2019 level in 2024.
- Cargo continues to outperform domestic and international passenger markets. While CTKs have moderated, the related revenue will likely exceed 2019 results going forward, in spite of pressure on yields as belly capacity returns.
- The air transport industry will likely post a loss of nearly USD 7 billion in 2022 and deliver a profit of USD 4.7 billion in 2023. This is a remarkable performance given the USD 138 billion loss seen in 2020.
- All regions will see their finances improve this year and next. The North America region is in the lead and likely profitable already in 2022. In 2023, Europe and the Middle East are expected to deliver a profit as well, while Latin America, Africa, and Asia Pacific will have to look to 2024 or beyond to join their ranks.



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1. The Big Picture

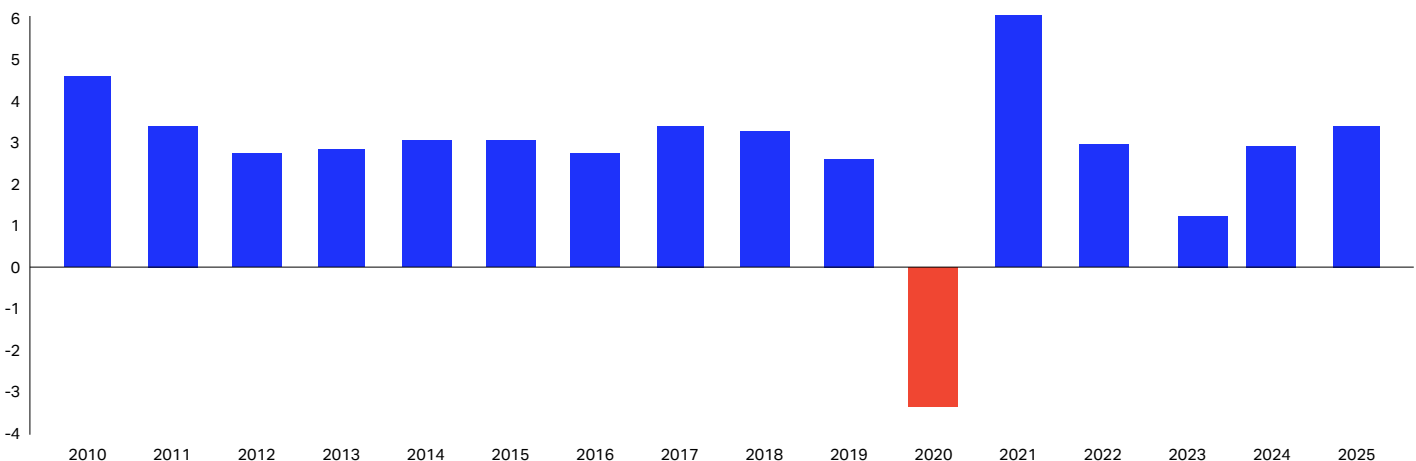
Significant headwinds

The sharp slow-down in the global economy, from 6% GDP growth year-on-year (YoY) to barely 3% in 2022 and somewhat lower still in 2023, feels to many like a recession. It is, nevertheless, broadly in line with long-term global GDP growth rates which tend to be estimated between 3% and 3.5%. Hence, luke warm is an appropriate term for the current temperature of world economic activity (Chart 1).

Luke warm at a global level clearly masks rising difficulties at many country levels. The US already had two consecutive quarters with negative GDP growth in 2022, and countries such as the UK, Germany, Italy, not to mention Russia and Ukraine, are likely to experience recessions ranging from mild to catastrophic. Around one third of global GDP is likely to be affected by some form of recession this year and next. However, a global recession is unlikely at the current junction.

India, the ASEAN countries, and the Middle East look set to post the highest GDP growth rates this year and next. The Middle East is a beneficiary of the high oil prices but the region's oil-exporting countries weigh less than 20% in global GDP, leaving the rest of the world negatively impacted.

Chart 1: Global GDP, year-on-year %

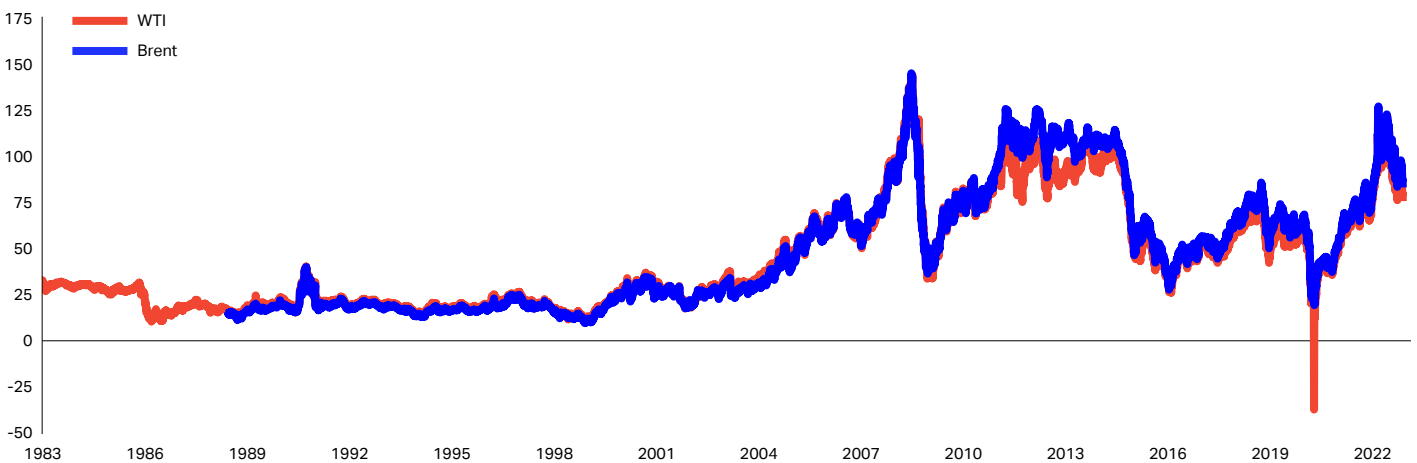


Oil

Supply and demand imbalances have wreaked havoc with oil prices since the COVID-19 pandemic. When lockdowns brought demand to a sudden halt, excess supply of notably the US crude oil WTI caused futures prices to drop into negative territory in 2020 (Chart 2). Since then, prices rose steadily to nearly USD 128 per barrel for Brent crude in March 2022, pushed to this local high by Russia's invasion of Ukraine on 24 February 2022. Arguably helped by the slowing global economy and by China's continued stringent COVID policy, the price has declined, and Brent traded just shy of USD 91 per barrel on 17 November 2022.

A particular challenge for the airline industry in this context is the high and persistent spread between the price of jet fuel and Brent (Chart 3). This phenomenon is related to a lack of refining capacity which creates a scarcity of jet fuel, leading to a higher price of the latter. Net global refining capacity declined in 2021 for the first time in 30 years, according to the International Energy Agency's (IEA) June 2022 Oil Market Report. The Agency does, however, project an increase in net global refining capacity in 2022 and in 2023. This should at least mean that the crack spread has likely peaked, though it might remain elevated also through 2023. For airlines this implies a lesser benefit from any crude oil-price decline compared to other industries, as the price of jet fuel will in all probability decline by less.

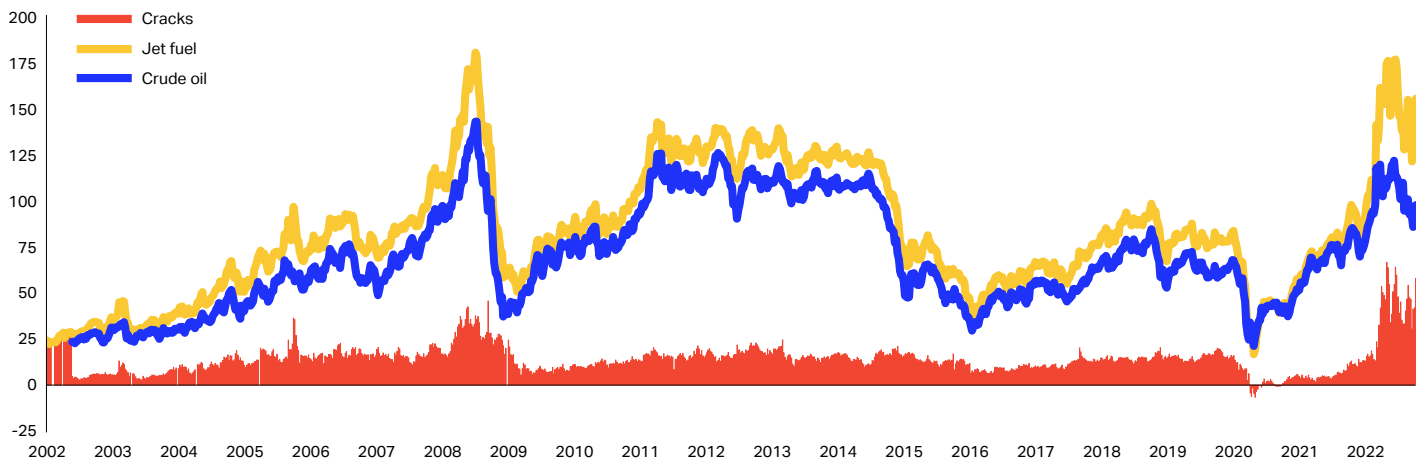
Chart 2: Brent and WTI futures prices, USD per barrel



Source: MacroBond

Note: Crude oil prices are represented by closing price of 1st position futures, among which, WTI is represented by trading price of NYMEX Light Sweet (WTI) Physical, and Brent is represented by ICE Brent Crude trading price.

Chart 3: Brent and jet fuel price, USD per barrel, and the crack spread¹



Source: IATA Economics using data from Platts

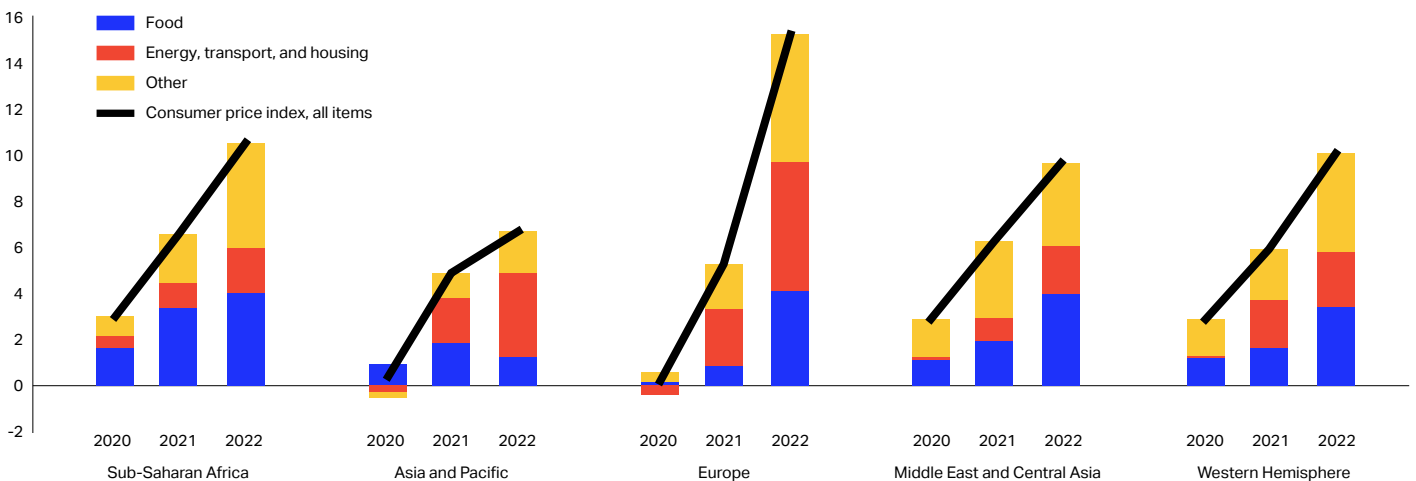
¹ The difference between the price of crude oil and the prices of refined products — gasoline and distillates (diesel and jet fuel), is referred to as a crack spread. It is referenced as a crack spread due to the refining process that “cracks” crude oil into its major refined products.

Inflation

The global surge in inflation has been driven mostly by energy and food prices (Chart 4). Food-price inflation is also in part caused by the war in Europe and all the major cereals have seen prices rise amid continued uncertainties related to the Black Sea Grain Initiative. Weather events have caused lower production prospects in the US and Europe for certain grains, and droughts and floods create additional uncertainty elsewhere. Excluding food and energy prices, other, or core, inflation has still risen above most central banks' targets, but generally represent less than half of headline inflation.

Inflation acts like a tax on savings but a subsidy on debt-holdings. As global debt levels of all categories: sovereigns, corporates, and households, are at record highs, a degree of inflation is a welcome means to deleverage. However, in a cluster of countries inflation has reached run-away proportions which can make it impossible to finance imports and external debt, potentially leading to balance-of-payments crises and debt defaults. These risks are rising and pose a growing threat to airlines which are already confronting blocked funds (local earnings impossible to repatriate in US dollars) in certain countries.

Chart 4: Inflation by source, %



Source: IATA Economics, IMF World Economic Outlook, October 2022

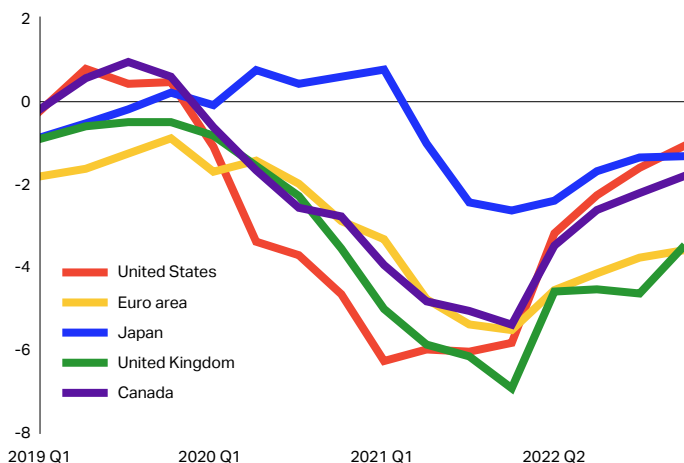
Central banks

Central banks have responded to the higher inflation rates by lifting their nominal policy rates, as would be expected (Chart 5). In spite of large and successive nominal tightening, real interest rates remain for the most part negative, with the notable exceptions of Brazil and Russia. Negative real interest rates of 2%, for example, implies that on a nominal debt of 100, only 98 is paid back in real terms. As such, it encourages debt finance in the economy and constitutes an accommodative monetary policy, until such time as it is reversed.

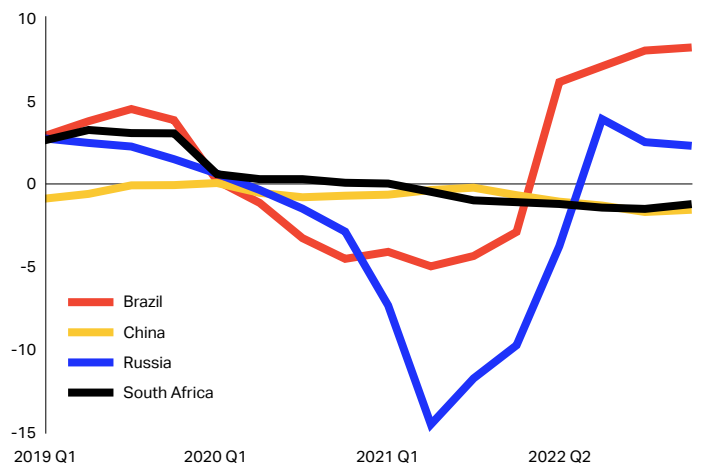
That reversal is likely to occur later in 2023 as inflation rates come down, which they will already from the base effect of the large increases in 2022. The question is still open, though, regarding how much central banks will need to lift their policy rates, and for how long. Two important factors will influence the outcome: to what extent the inflation we are experiencing is cyclical, and thus responsive to policy, and to what extent the policy is having an impact on the super-charged global labor markets. So far, the response to the policy tightening has been limited in both areas, and this could mean that interest rates might go higher and remain higher for longer than is commonly thought.

Chart 5: Rising real interest rates but still mostly negative, %

Advanced Economies



Emerging Market and Developed Economies



Source: IATA Economics, IMF World Economic Outlook, October 2022

The strength of the US dollar

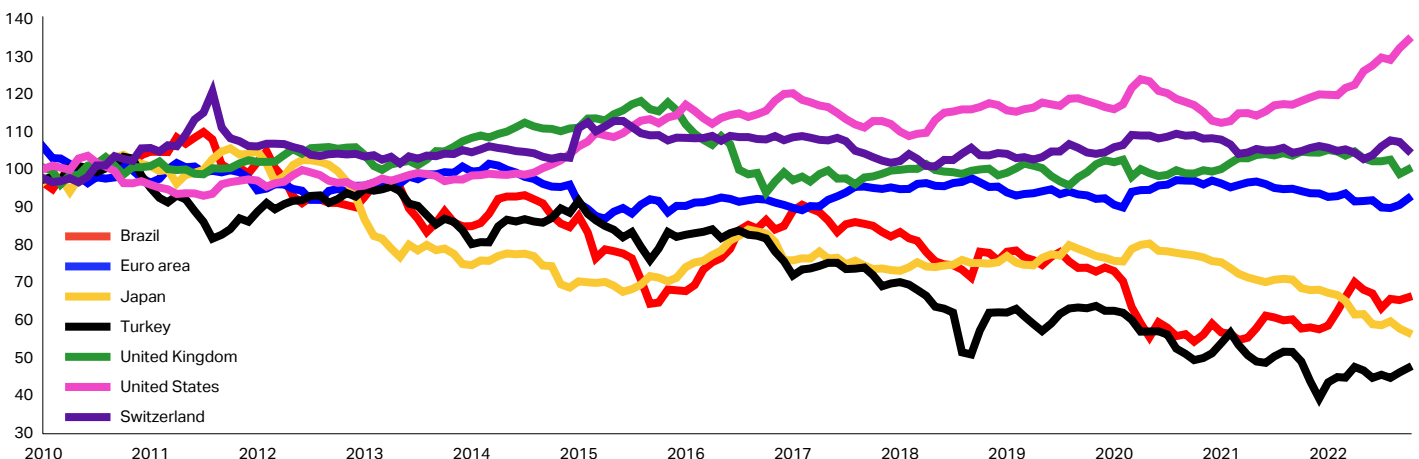
A particular feature of our current global economy is the strength of the US dollar. On the whole, a strong US dollar tends to dampen global GDP growth, except for Europe which usually benefits from a weaker euro against the dollar.

Bilaterally, most currencies have lost value against the US dollar this year, ranging from around 14% for the euro to some 80% regarding Sri Lanka's rupee. Bilateral exchange rates are obviously useful for analyzing trade and other aspects of financial flows between the two countries in question. A more complete view of the impact of exchange rate movements is obtained by analyzing real effective exchange rates, which are indices that encompass all the country's trading partners, and also adjust for inflation. A selection of these can be seen in Chart 6.

The US dollar started appreciating on this basis already in 2021 and gained 6.6% that year. This year the appreciation amounts to 12.1% as per October, a move that has accelerated in part because of the war in Ukraine. The US dollar is commonly seen as a safe-haven currency, i.e. one that investors turn to when uncertainty is on the rise around the world.

The IMF estimates the pass-through of a 10% dollar-appreciation into inflation at 1%². The appreciation therefore helps the US in its fight against inflation and should mean that the Federal Reserve will need to lift its policy interest rate by less. For most other countries, it will imply the exact opposite. Emerging markets are the most vulnerable in this context because of their high import dependency and greater share of imports invoiced in US dollars. Any debt denominated in US dollars also adds to the burden of servicing that debt. In the worst cases, a central bank can run out of foreign exchange reserves to pay for the imports and to service external debt. This can lead to debt defaults and balance-of-payments crises. For airlines, and for any foreign company, the risk is that earnings generated locally might be impossible to repatriate. Today, the industry is faced with USD 1.9 billion in blocked funds and this number looks set to rise. A quarter of the currently blocked funds are in Nigeria.

Chart 6: Selected real effective exchange rates, index



Source: IATA Economics, IMF World Economic Outlook, October 2022

² "How countries should respond to the strong dollar", IMF, October 2022.

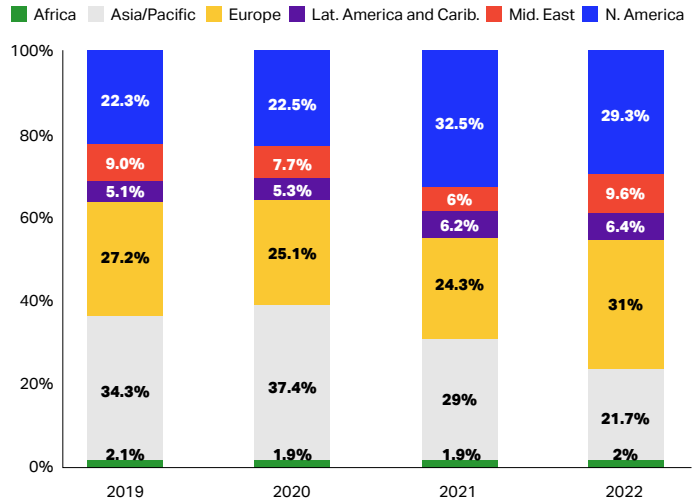
2. Recent Trends in Air Transport

The recovery in global air transport demand measured by Revenue Passenger Kilometers (RPK) has maintained its momentum since June, reaching 74.2% of the 2019 level year-to-date in October. This is mainly attributable to lifted travel restrictions and vaccine rollouts in an increasing number of countries. However, the regional composition of RPK is noticeably different in 2022 (January – October) compared with the pre-pandemic one (Chart 7). Due to the impact of China’s Zero-Covid policy on air travel in the region, the Asia-Pacific, which accounted for 34% of the global RPK in 2019, now has a share of only 22%. It is expected that the Asia-Pacific region will regain its dominant position in the world’s RPK shortly after China eases its travel restrictions possibly in the Spring of 2023. As a result of the Asia-Pacific region’s unrealized travel, as of the first three quarters of 2022, Europe and North America have increased their market shares in the global RPK.

Our industry has remained resilient to all the headwinds over the past few years. The public sector provided critical support to prevent bankruptcies in our industry during the pandemic. Meanwhile, airlines also showed great strategic courage and flexibility to maximize their revenue over this challenging time. The significantly increased share of cargo in airlines’ total revenue from 12% in 2019 to 40.3% in 2021 from our 137-airline sample is clear evidence of such efforts. In 2022, with the recovery of passenger air transport, we expect cargo to account for 27.7% of airlines’ total revenue.

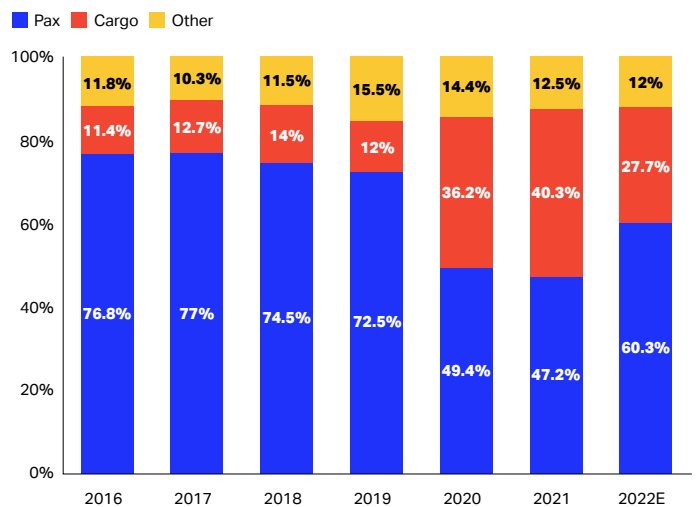
This larger share of cargo in airlines’ total revenue is of course partly a function of the depressed state of passenger travel during the pandemic. From June to September, air cargo remained in the rare "sweet spot" position where the price of air cargo has been relatively more competitive than the price of maritime cargo (Chart 9) since 2021. Although the relative price advantage of air cargo over maritime is narrowing, the current level of cargo yields will still make cargo a critical source of revenue to the air transport industry.

Chart 7: Regional shares of global RPKs, 2019-2022 (Jan-Oct), % of total



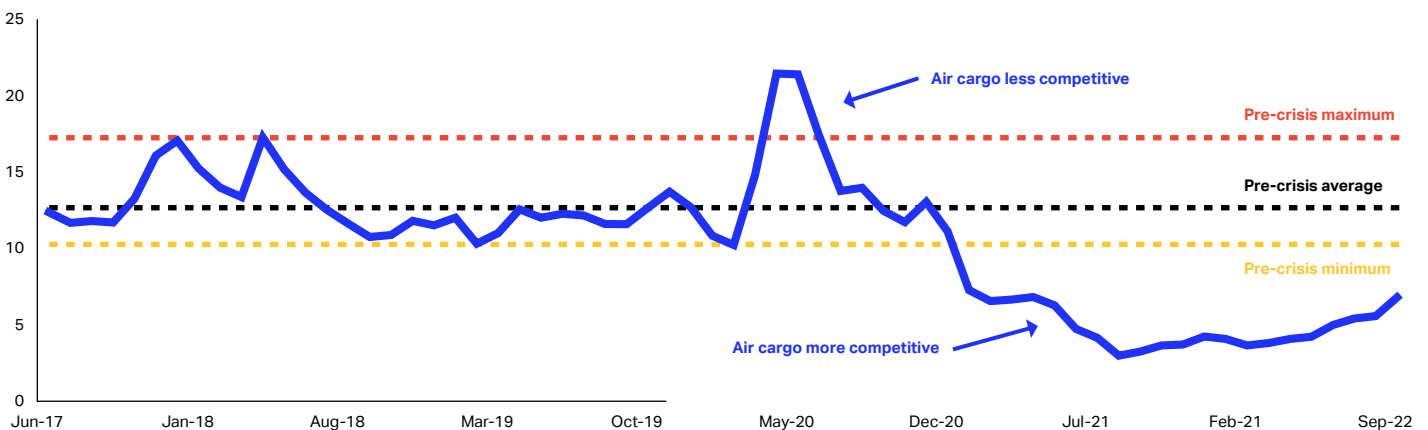
Source: IATA Economics, IATA Monthly Statistics

Chart 8: Airline revenue by source, 2016-2021, % of total



Source: IATA Economics

Chart 9: The relative price of air versus maritime cargo

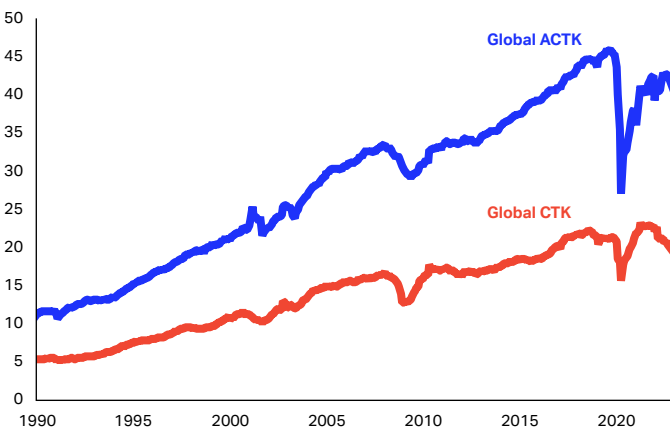


Source: Boeing, IATA CargoIS, Freightos Baltic Index

The global air cargo industry performed exceptionally well after the greatest shock in history caused by the COVID-19 pandemic (Chart 10). Air cargo demand, measured by cargo tonne kilometers (CTKs), were down 25.8% compared to 2019 levels in April 2020 but then rose steadily until the end of the year to reach full recovery. Throughout the entire year of 2021 and the first two months of 2022, industry CTKs experienced a 14-months long positive YoY growth and were above 2019 levels. Since the second quarter of 2022, air cargo demand went slightly below 2021's exceptional performance but remained to track near 2019 levels. Air cargo capacity, measured by available cargo tonne kilometers (ACTKs), also experienced a remarkable rebound after the pandemic shock but nevertheless remains below the pre-crisis level (Chart 10).

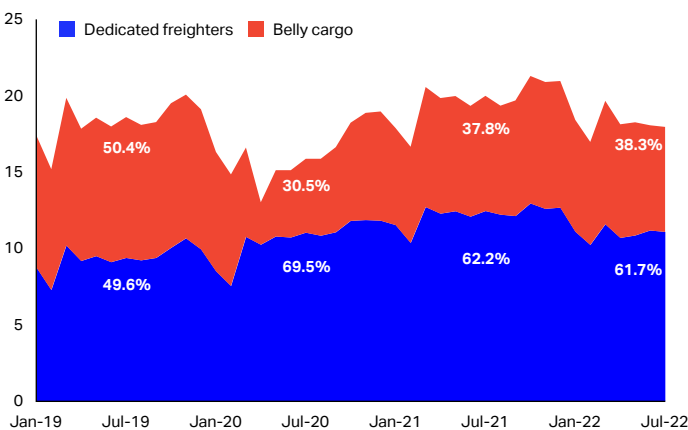
Prior to the pandemic, air cargo was evenly divided between being transported in passenger aircraft belly and by dedicated freighters. However, comparing July 2019 with July 2022, the share of international CTKs transported by dedicated freighters increased by 12 ppts from 49.6% to 61.7% (Chart 11). During the period of the COVID-19 pandemic, airlines were allowed by civil aviation authorities to use cabin space for cargo transport in passenger aircraft, known as preighter flights.

Chart 10: Seasonally adjusted global available cargo tonne kilometers (ACTKs) and global cargo tonne kilometers (CTKs), billions



Source: IATA Economics, IATA Monthly Statistics. This one can also be updated till last month 2022

Chart 11: International CTKs by types of air cargo, millions

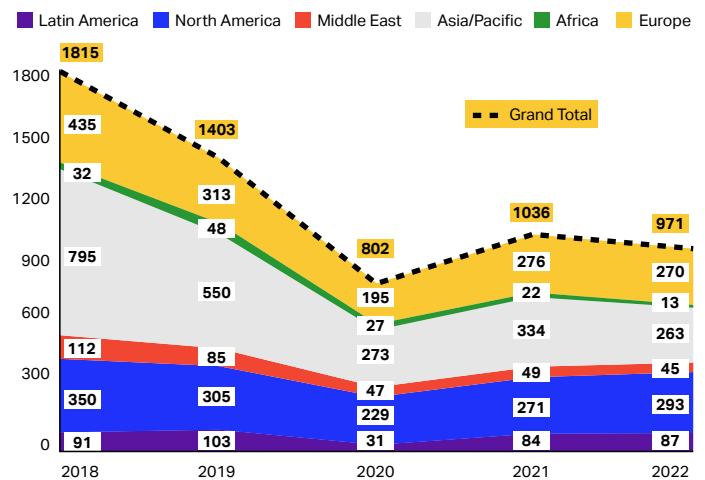


Source: IATA Economics

The share of international CTKs transported by preighters became quite significant, e.g. accounting for 29%, 18%, and 9% in the Asia Pacific, Europe, and North America regions, respectively, in May 2020. However, with the demand recovery of passenger air transport and the growing belly capacity, the preighter cargo operations are fading away, with an exception for Asia Pacific, which region still had 11% of cargo transported by preighters in August 2022.

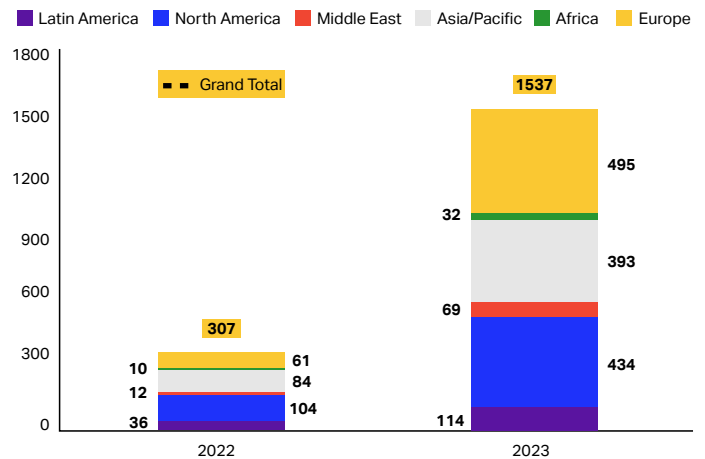
Aircraft deliveries to airlines fell sharply in 2020 and have failed to recover to pre-pandemic levels to date (Chart 12a, as of 24 November 2022). Across regions, the bulk of the deliveries are scheduled for North America – the region where the recovery – both in terms of traffic and financial performance – is the most advanced. Deliveries for Asia Pacific and Africa remain well below their pre-pandemic levels. However, looking at (overall) scheduled aircraft deliveries (Chart 12b, as of 24 November 2022), these can be expected to recover to 2019 levels in 2023. This is very much a reflection of how the industry is viewing the recovery and traffic over the coming years. Beyond that, the new aircraft are of course more fuel efficient and less costly to operate, delivering benefits to both airline balance sheets and the environment.

Chart 12a: Aircraft deliveries per region



Source: IATA Economics using data from Cirium Fleet Analyzer

Chart 12b: Scheduled aircraft deliveries per region

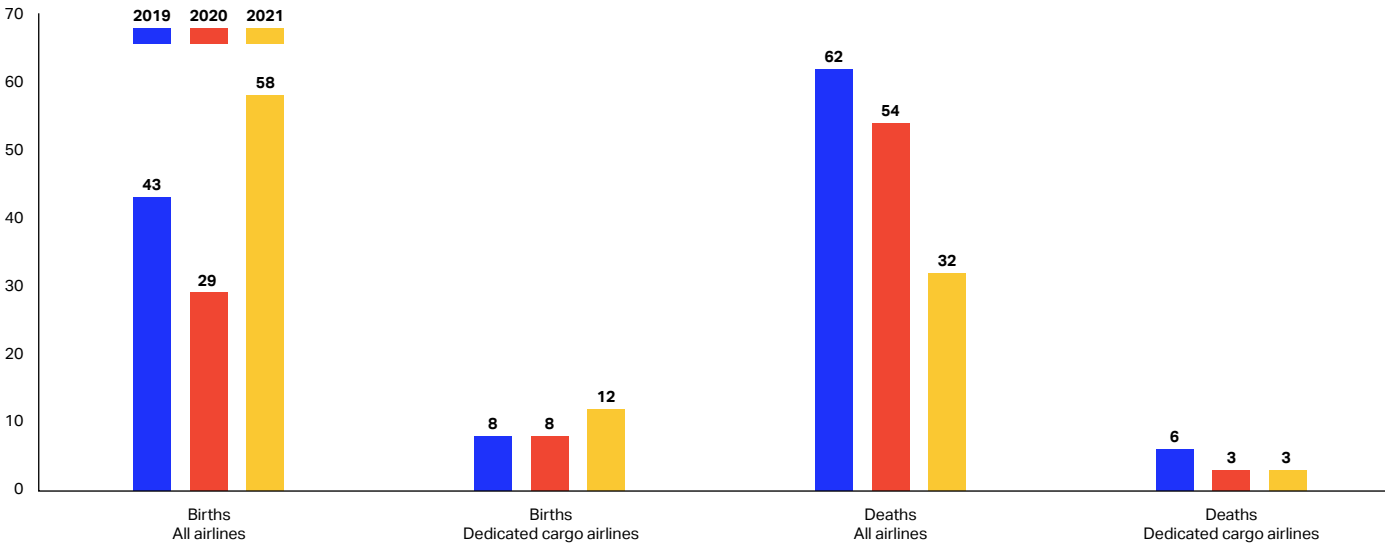


Source: IATA Economics using data from Cirium Fleet Analyzer

The habitually strong investor interest in aviation tends to revive in times of turbulence and therefore also contributes to the industry’s resilience. One explanation for the heightened appeal is the greater availability of aircraft on the market during difficult times, and this at discounted prices, allowing investors to benefit from the lower capital investment required. Indeed, we can see in Chart 13 that there were more new airlines born, and fewer airlines being closed in 2021 compared to 2019.

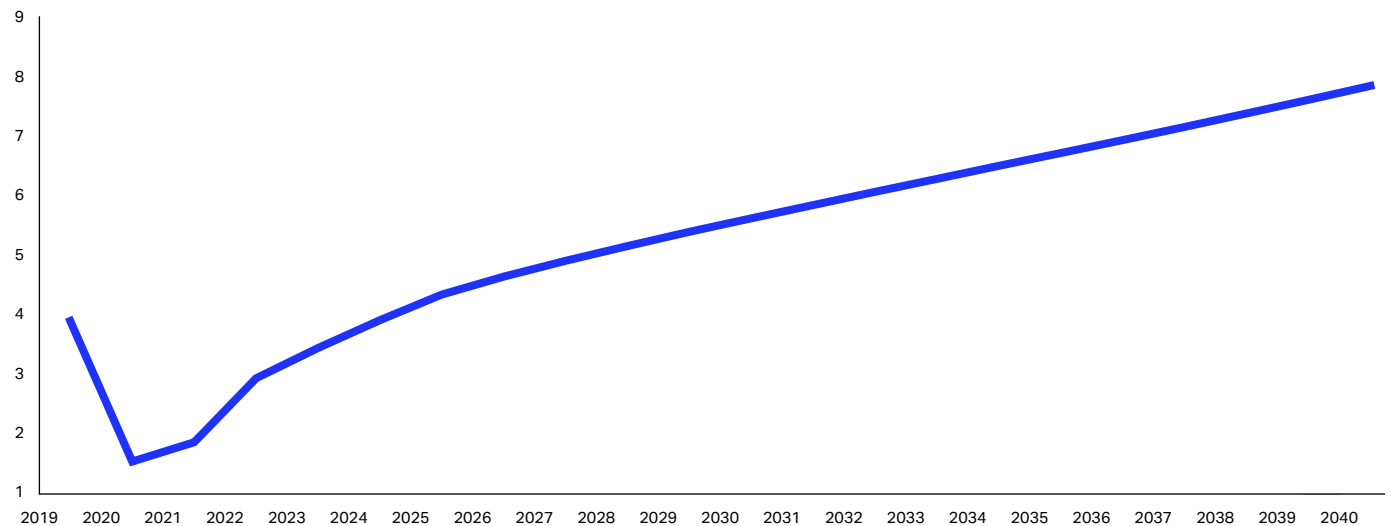
In our long-term forecast, we expect global passenger travel to return to the 2019 level of activity in 2024 (Chart 14) and to expand substantially over the next two decades. Between 2019 and 2040 we forecast that air passenger numbers will increase at an average annual rate of 3.3%, rising to almost 8 billion passenger journeys per year at the end of our forecast horizon. Notwithstanding the relatively slow pace of recovery to date, we anticipate Asia Pacific will be the fastest growing region over the next two decades (Chart 15). Buoyed by favorable income growth and demographic factors, Asia Pacific is expected to add around 2.5 billion additional passenger journeys compared with the 2019 level by 2040, at an average annual rate of 4.5%.

Chart 13: Number of airline births and, deaths



Source: IATA using data from FR24, Cirium, public sources

Chart 14: Global air passengers, past and forecast, billions

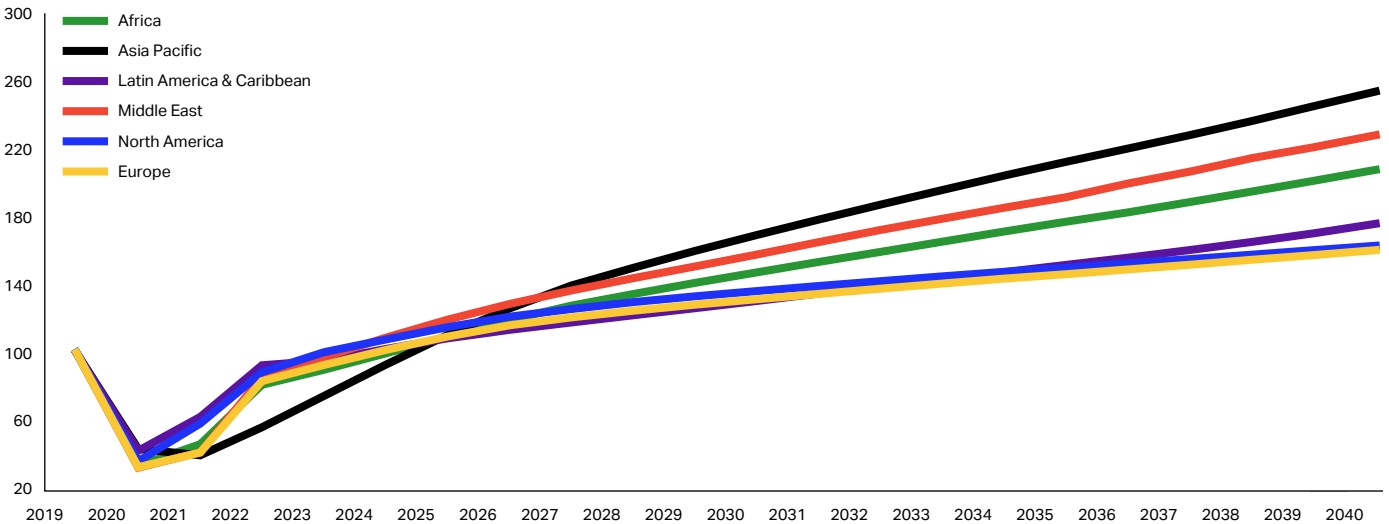


Source: IATA, Tourism Economics Air Passenger Forecasts

In the latest edition of our Air Passenger Forecast, our near-term outlook is adjusted to accommodate the macroeconomic and geopolitical changes that have recently impacted our global economy and industry. Nonetheless, we still expect the number of global passengers to reach those of 2019 in 2024 and to continue to expand over the following years. Our long-term outlook for air travel demand remains stable. The growth potential is uneven among the regions (Chart 15). Favorable income growth and demographics are expected to foster the growth in air travel demand in Asia Pacific, Africa and the Middle East in the long term, ahead of the historical and well-established markets of North America and Europe.

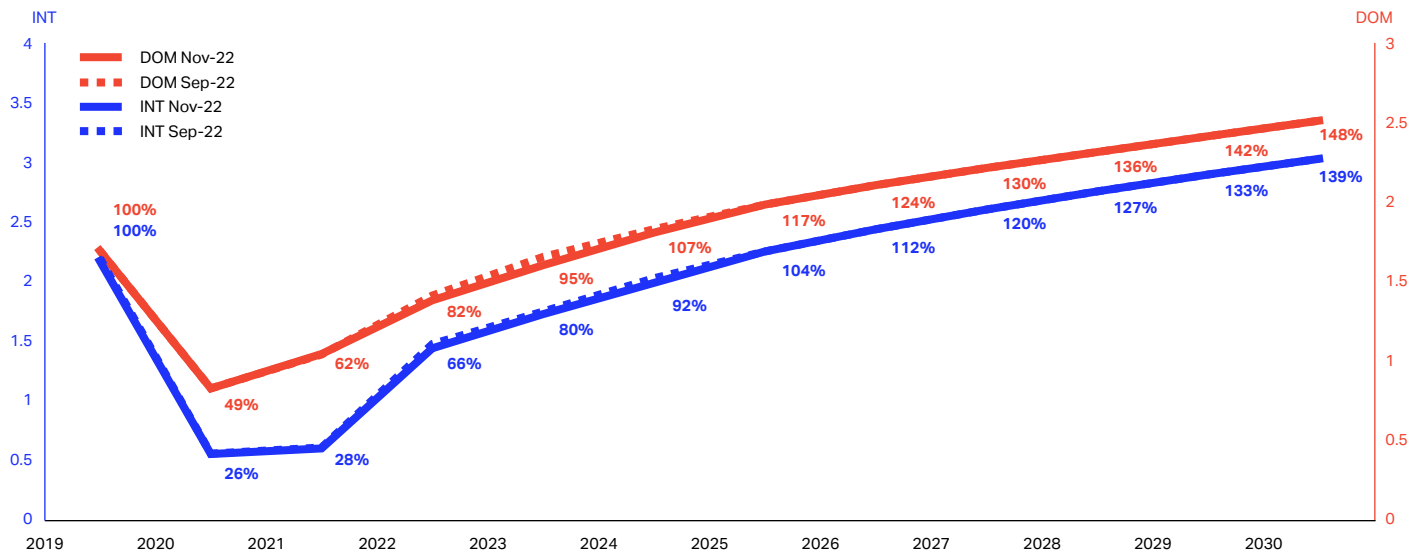
The slight downgrade in our domestic passengers forecast is mainly driven by the current situation in China, one of the largest domestic markets where the strict inbound and outbound travel policies have created uncertainty regarding how and when recovery of air traffic will unfold. Our international numbers revision mainly reflects the current year-to-date recovery. We continue to expect the number of domestic and international passengers to recover to 2019 levels in 2024 and 2025 respectively (Chart 16).

Chart 15: Regional passenger totals, index 2019=100



Source: IATA, Tourism Economics Air Passenger Forecasts

Chart 16: Domestic and international passengers, past and forecast, billions



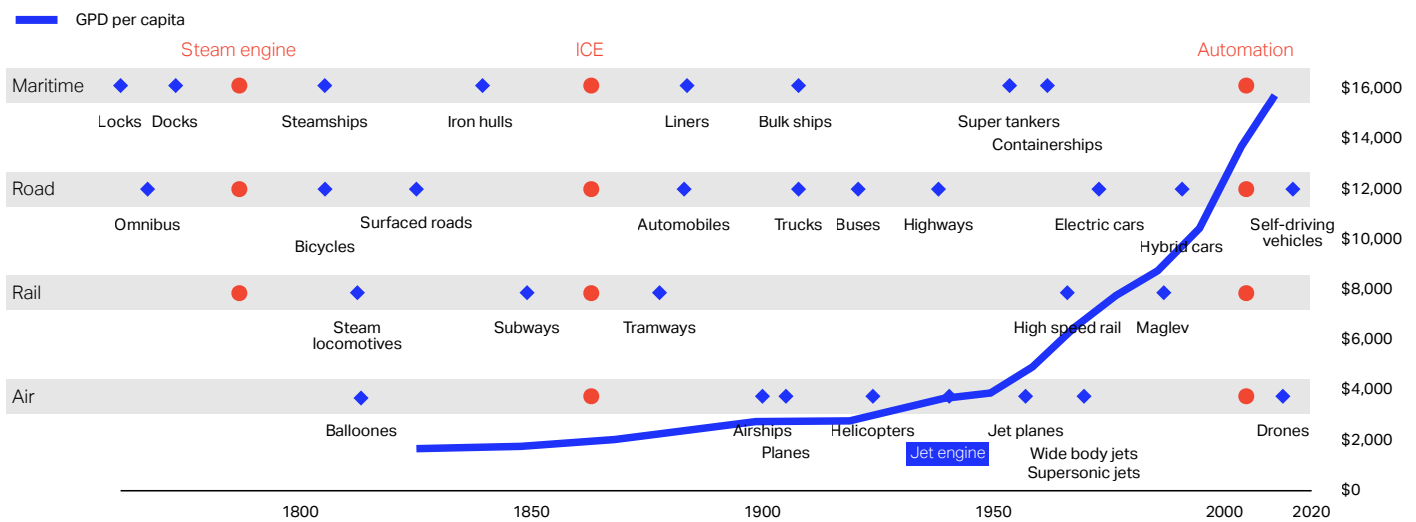
Source: Source: IATA, Tourism Economics Air Passenger Forecasts

3. The Outlook for Air Transport

Connectivity in all its forms has been a fundamental ingredient in economic development throughout human history. The unprecedented acceleration in per capita GDP growth in the 20th century was, of course, the result of many factors (Chart 17). The most important driver was the industrial revolution and, in terms of transportation, the railroad revolution. The major enabler was the growth in the use of fossil fuels. The amount of globally available commercial energy increased about 25 times between 1900 and 2000³. World per capita GDP rose five-fold over the same period⁴.

A key date in the development global aviation was 7 December 1944 when 52 States signed the Convention on International Civil Aviation (also known as Chicago Convention). It is intriguing to note that this is also around the time when per capita GDP growth takes on a more exponential rate of increase. World per capita GDP did not quite double between 1900 and 1950, but nearly tripled over the subsequent 50 years. Aviation is but one of many reasons for this extraordinary economic performance. However, that aviation has played an important role in economic development can hardly be disputed.

Chart 17: Transportation and world per capita GDP



Source: <https://transportgeography.org/contents/conclusion/future-transportation-systems/evolution-transport-technology>, Our World in Data for World per capita GDP.

³ Vaclav Smil, "Energy in the Twentieth Century: Resources, Conversions, Costs, Uses, and Consequences", Annual Review of Energy and the Environment Volume 25, 2000.

⁴ Jutta Bolt, Marcel Timmer, Jan Luiten van Zanden, "GDP per capita since 1820", from "How Was Life? Global Well-being since 1820", OECD 2014.

Aviation's Net Zero carbon commitment

The airline industry contributes around 2.5% of global carbon emissions.

At the 41st ICAO Assembly held in Montreal in October, the 193 ICAO Member States adopted a collective long-term global aspirational goal (LTAG) of delivering net-zero carbon emissions by 2050.

- This followed the similar commitment from the air transport industry – including airline and airport operators, aircraft and engine manufacturers, air navigation service providers (ANSPs) and other industry stakeholders – in 2021.

Partnership between governments and the industry will be critical to achieving this aspirational target and delivering a more environmentally sustainable aviation industry.

As its name suggests, 'Net zero' is the state in which the amount of greenhouse gases being emitted into the atmosphere are balanced by greenhouse gas emissions being removed from of the atmosphere.

There are multiple viable pathways to achieving the net zero commitment by 2050. Nevertheless, all pathways will incorporate and be supported by:

- Enhanced efficiency measures across the industry (eg. aircraft operations, flight routing);
- Accelerated energy transition (eg increased production, deployment and use of sustainable aviation fuels (SAF)); and
- Ongoing innovation across the aviation sector (eg. new & innovative aircraft and engine technology).

According to the [Intergovernmental Panel on Climate Change](#), in order to honour the Paris Agreement and limit global warming to well below 2 degrees – and pursue efforts to limit that increase to only 1.5 degrees – global carbon emissions should reach net zero by 2050 at the latest.

The world might now look to a more complicated century ahead, as the fossil-fuelled global economy has arguably reached its zenith in terms of the welfare it can produce, in the light of the environmental costs it simultaneously gives rise to. Civil aviation has taken this to heart and both IATA and ICAO (International Civil Aviation Organization) have committed to bringing the industry to net-zero CO₂ emissions in 2050 – the first industry-wide commitments of its kind globally. The industry is fully engaged in playing its part in order of priorities the world has set itself, i.e. the sustainable development goals formulated by the United Nations in 2015 (Chart 18).

ATAG (Air Transport Action Group) analyzes that air transportation contributes to 15 of the 17 sustainable development goals, with the exception of goals 14 and 16. Flying less then equates to a lesser contribution to these global priorities, and the conclusion must therefore be that being able to fly sustainably, in all the senses of the term, must be what the world ought to strive for.

Transportation accounts for around 15% of global CO₂ emissions, of which two thirds stem from road transport and one third from maritime and air transport in roughly equal parts, i.e. approximately 2.5% of global emissions each - close to the share of Germany it total emissions. While it is necessary to reduce all CO₂ emissions, it is also important to be aware of the relative size of their various origins, as this can help set the policy agenda and allow for the optimization of the pace and sequencing of reform.

Today, the technology is available for scaling up the production of sustainable aviation fuel (SAF), while its current production meets less than 1% of total jet-fuel consumption. Rapid expansion of such production will likely require both public and private investments. Lifting the production to 10% of jet fuels could require USD 250 billion in investments. If that sounds prohibitive, let us ponder the extent of fossil-fuel subsidies. The OECD and the International Energy Agency have analyzed 51 countries representing 85% of the world’s total energy supply and found that subsidies that kept fossil fuel prices artificially low more than tripled to USD 531 billion in 2021, compared with 2020. Subsidies for oil and gas production reached a record level of USD 64 billion in 2021. Hence, were those funds instead allocated to SAF production, one could reach almost 25% of current jet-fuel consumption. Or, with only the production subsidies given in a single year, SAF could be brought to 2.6% of jet-fuel consumption. Clearly, removing harmful fossil-fuel subsidies should be at the top of policymakers’ agenda.

Chart 18: The United Nations’ sustainable development goals



Source: <https://sdgs.un.org/goals>

It is sometimes suggested that short-haul flights ought to be curtailed, notably in favor of rail. From a welfare-maximization standpoint, this is an oddity as economic theory suggests that increased competition and the ensuing greater choice for consumers is what leads to better economic outcomes – not the limiting of choice. Nevertheless, if such a strategy were adopted, it would suppress no more than 5% of air transport emissions in Europe, as flights of up to 500 kilometers represented 5% of intra-European flights in 2019. Promoting all forms of transportation and making them cheaper, better, faster, and sustainable must be the guiding principle. Consumers can then substitute at will, rather than by decree, within an efficient transportation sector. A policy move that could bring swifter and greater cuts to CO₂ emissions is the Single European Sky. Eurocontrol reports that inefficiencies in the European air traffic management network result in an average additional fuel burn of 9%-11%. Optimizing flight routes to avoid diversions and could thus reduce CO₂ emissions from aviation in the EU by as much as 10% in one swoop.

Moreover, on the relative benefits of planes versus trains from a CO₂ emissions perspective, it is of course important to include the emissions from the necessary infrastructure in any comparisons. Indeed, high-speed rail is up to five times more costly as air transport when external and infrastructure costs are included, and 10 times more damaging to the environment (1 km of high-speed rail track requires 3 hectares of land). As regards noise pollution, defined as 55 decibels at some point during the day, road traffic is the greatest culprit with 100 million people in the EU being affected. Trains come second, with 20 million persons suffering railway noise of the same intensity, and noise from aircraft impacts 4 million persons in Europe.

A further important dimension of climate change that our transportation systems must be dynamic and adaptable. This remains true at all times, though particularly so given the expected climate migration. Some land is likely to become inhabitable and living conditions will deteriorate in many areas affected by food and water shortages. According to the United Nations High Commissioner for Refugees (UNHCR), climate migration already affects 21.5 million people per year on average. Forecasts for future climate migration range from the World Bank's estimate of 216 million people likely to move within their countries by 2050, to the German thinktank IEP's (Institut für Europäische Politik) prediction that 1.2 billion people could be displaced globally by that year. By then, the global population is also set to rise to 9.8 billion. The largest cities in the world will in all probability be the following:

1. [Mumbai, India](#)
2. [Delhi, India](#)
3. [Dhaka, Bangladesh](#)
4. [Kinshasa, Democratic Republic of the Congo](#)
5. [Kolkata, India](#)
6. [Lagos, Nigeria](#)
7. [Tokyo, Japan](#)
8. [Karachi, Pakistan](#)
9. [New York City, USA](#)
10. [Mexico City, Mexico](#)

The interests and impacts of transportation and mobility are vast with far-reaching impacts to our society, the economy and environment. All facets of transportation are changing, and rapidly. This implies a certain advantage for air transportation which with a runway of some 4 kilometers can implement route changes swiftly, while rail and road remain fixed. Still, in a growing world economy, there will be room for all forms of transportation and for innovations yet to come. If powered by sustainable energy sources, transportation will continue to make its vital contribution to economic development also in the future.



4. Industry Financial Performance

Notwithstanding the economic headwinds discussed previously in this report, the financial performance of the industry has been a little stronger this year than we had previously anticipated, bolstered by the release of pent-up demand for air travel as routes re-opened. This has led to a modest upwards revision to our 2022 financial forecast. Nevertheless, the industry is still expected to generate a third consecutive year of (net) losses, narrowing to around USD 7 billion. Despite what the IMF describes as the 'weakest growth profile' in around two decades (excluding the GFC and COVID-19 shocks), we estimate that the industry will generate a modest net profit of USD 4.7 billion in 2023.

There are numerous risks to the outlook, many of which are tilted to the downside, but if achieved, this net profit outcome would be a remarkable performance, following the disruption COVID-19 wrought on the airline industry and the associated massive financial loss of almost USD 140 billion in 2020.

Table 1: Key figures

Worldwide airline industry	2019	2020	2021e	2022f	2023f
Spend on air transport,\$bn	876	394	521	754	812
% change over year	3.6%	-55.0%	32.2%	44.8%	7.6%
% global GDP	1.0%	0.4%	0.5%	0.7%	0.8%
Real return fare, \$/pax (2018\$)	310	242	243	299	268
compared to 2008	-62%	-70%	-70%	-63%	-67%
Real freight rate, \$/tonne	1.79	2.66	3.16	3.14	2.31
compared to 2008	-65%	-48%	-38%	-39%	-55%
Passengers, million	4,543	1,807	2,185	3,424	4,189
% change over year	3.8%	-60.2%	20.9%	56.7%	22.4%
RPKs, billion	8688	2974	3623	6136	7430
% change over year	4.1%	-65.8%	21.8%	69.4%	21.1%
FTKs, billion	254	229	272	250	240
% change over year	-3.2%	-9.9%	18.8%	-8.0%	-4.1%
World GDP growth, %	2.5%	-3.5%	5.8%	2.9%	1.3%
World trade growth, %	0.3%	-5.1%	9.8%	3.5%	1.0%
Aircraft departures, million	38.9	16.9	20.1	27.9	32.4
% change over year	2.1%	-56.5%	18.5%	38.8%	16.5%
ASKs, % change over year	3.4%	-56.6%	18.7%	43.6%	18.0%
Passenger load factor, % ASK	82.6%	65.2%	66.9%	78.9%	81.0%
Freight load factor, % AFTK	46.8%	53.8%	56.1%	50.6%	47.8%
Weight load factor, % ATK	70.0%	59.5%	61.7%	67.5%	68.9%
Breakeven load factor, % ATK	66.4%	76.8%	67.2%	68.3%	68.6%

Source: IATA Economics

Underlying assumptions

Our forecasts are based on a number of fundamental assumptions. These include:

- Global GDP growth of 2.9% this year (downgraded from 3.4% in our previous forecast update) and easing to just 1.3% in 2023.
- Inflationary pressures are likely to moderate over the coming 12 months, in part reflecting the monetary policy tightening undertaken by Central banks around the world. Globally, inflation is expected to ease from around 8% this year, to around 5% in 2023.
- Nominal policy rates are likely to rise further, but real interest rates will remain low or negative.
- International merchandise trade is likely to slow considerably, from a downward revised 3.5% in 2022 to a modest 1.0% in 2023.
- Oil prices are also expected to retrace some of this year's strong surge, easing back to around USD 92/bbl next year, from around USD 103/bbl this year. The jet fuel crack spread is forecast to narrow somewhat, but remain above its long-term historical average.
- The US dollar is likely to appreciate further in 2023, rising by around 6% on average against a broad composite of currencies, building upon a sizeable 13% rise this year.

Consumers

The reopening of air transport markets over the course of 2022 was warmly and swiftly welcomed by consumers. The desire to travel by air remains strong and this pent-up demand has been evident whenever travel restrictions are lifted and routes re-opened.

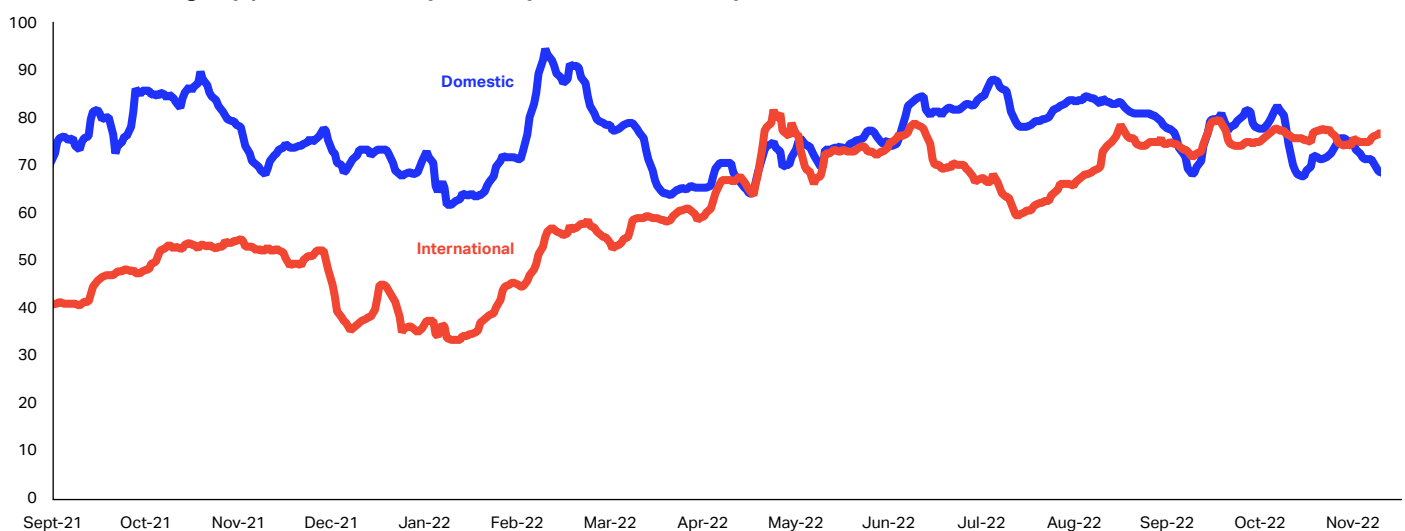
Low unemployment rates and additional savings accrued through the pandemic lockdowns have supported consumer spending over the course of this year. We expect that such pent-up demand for air travel will continue into 2023, albeit gradually dissipating over time. This helps to support traffic demand growth over our forecast horizon, notwithstanding the moderating impact of the global macroeconomic slowdown.

International RPKs have outpaced the recovery in domestic RPKs in 2022. Over the year to date, Domestic RPKs have risen by a hefty 12% to be around 20% below their pre-Covid levels. Over the same period, International RPKs have risen by around 175% and are now around 30% below their equivalent 2019 level. In 2023 this growth differential between international and domestic RPKs will be less pronounced.

Total global RPKs are expected to increase by around 70% this year and a further 20% in 2023. One of the key uncertainties regarding the outlook relates to the timing and speed of the recovery in China and Asia Pacific as travel restrictions are lifted and the pent-up demand for travel to and from the region is released. Although the timing – particularly in the case of China – remains highly uncertain, we expect to see the resumption of travel, at least in part, take place from around the middle of 2023.

As winter approaches in the Northern Hemisphere, the risk of renewed Covid outbreaks will rise, though we expect these to become less impactful over time, and so too the likely associated policy response.

Chart 19: Bookings by purchase date, year-on-year vs 2019, 7-day, %



The wider economy

Air transport makes an important contribution to global economic development. The wider economic benefits of the industry reflect a combination of the rise in connectivity between countries and cities – enabling the flow of goods, people, capital, technology, and ideas – as well as the long-term trend decline in real air transport costs which underpins these flows.

The impact of Covid-19 saw an abrupt and massive decline in connectivity in 2020, with the number of unique city pairs falling by 30% or more than 6,500 routes. The recovery since that time has been more subdued, as travel restrictions have gradually been removed and routes re-opened around the world.

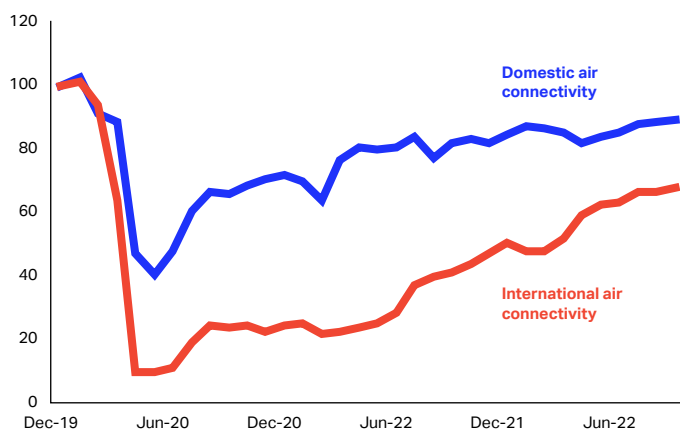
To date, domestic air connectivity has recovered to around 89% of its pre-COVID level and international connectivity is currently at around 68% of the level of 2019. The gap between the two is closing, reflecting the broader re-opening of international routes over the course of this year. Despite the observed recovery in the number of city pair routes, it is important to note that at least initially, the frequency on those routes is unlikely to be immediately restored to pre-pandemic levels. In other words, the return of capacity will lag the recovery in the absolute number of city-pair connections.

Over our forecast horizon, we expect that growth in connectivity will continue. Developments in China and the Asia Pacific will be integral to the pace of this recovery over 2023 and beyond.

Air transport also plays a vital role in global supply chains, particularly for international trade in manufactured goods. Over the course of this year, trade flows have been impacted by the softer global economy, in addition to the conflict in Ukraine and the various Covid-related restrictions in Asia Pacific – a major manufacturing hub for the world’s goods. The WTO forecasts world trade will slow sharply in 2023 to just 1% (from 3.4% previously), as a result of the various headwinds in the global economy.

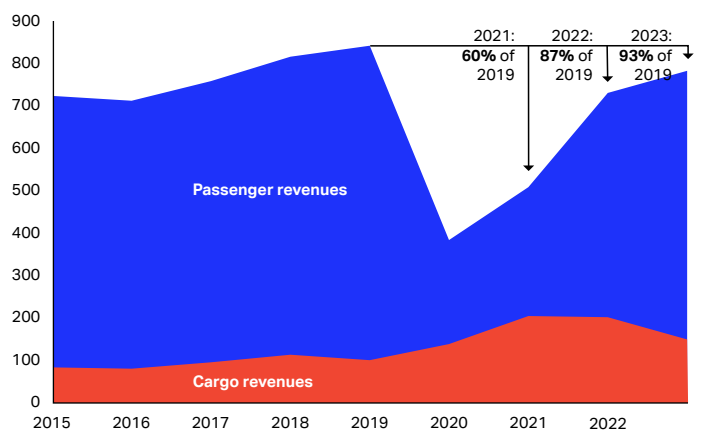
Industry wide, total airline revenue is expected to recover to around 93% of the pre-Covid level in 2023. This reflects additional recovery in air passenger revenue to around USD 522 billion (approx. 86% of the 2019 level) partly offset by an easing in air cargo revenue following an unusually strong couple of years, to around USD 150 billion (approx. 150% of the 2019 level).

Chart 20: Global air connectivity, index 2019=100



Source: IATA Economics

Chart 21: Global airlines revenue, USD billion



Source: IATA Economics

Capital providers

Historically the air transport industry has struggled to deliver the returns which equity investors expect for risking their capital. Put another way, the return on invested capital (ROIC) has typically been lower than the weighted average cost of capital (WACC).

Even prior to the pandemic, at the industry-wide level this was typically the case, although at the regional level this was not always the case. In the four years prior to the pandemic, we estimate that equity investors in Europe and North America did receive returns in excess of the cost of capital and the industry appeared to be moving towards a more sustainable financial future.

The pandemic changed all of that, plunging the industry into a record loss in 2020 and resulting in the various financial metrics including ROIC deteriorating significantly. Since that low point, we have seen a recovery in industry financial performance as well as traffic volumes.

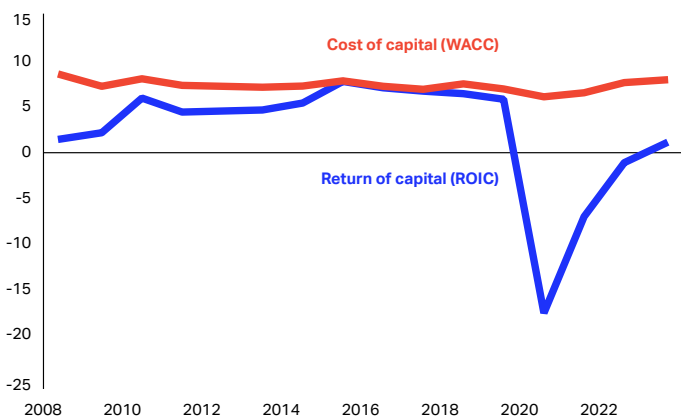
In our current forecasts we expect that the industry will again generate a negative ROIC in 2022 of -1.7%, a modest improvement on our forecast in June. In positive news, the industry recovery is expected to deliver a return to a positive ROIC in 2023, albeit only just at 0.6%. However, it is fair to say that this improvement is fragile, with both the operational and financial environments remaining extremely challenging for airlines.

Table 2: Capital providers

Worldwide airline industry	2019	2020	2021e	2022f	2023f
ROIC, % invested capital (IC)	5.8%	-19.3%	-8.0%	-1.7%	0.6%
North America	9.9%	-13.7%	-4.4%	2.5%	3.7%
Europe	7.0%	-15.2%	-6.7%	-1.6%	0.8%
Asia Pacific	3.5%	-13.8%	-6.0%	-4.3%	-2.9%
Latin America	3.9%	-37.9%	-17.1%	-7.8%	-2.1%
EBIT margin, % revenue (rev)	5.2%	-29.0%	-8.9%	-1.3%	0.4%
Net post-tax profits, \$bn	26.4	-137.7	-42.0	-6.9	4.7
% revenues	3.1%	-36.0%	-8.3%	-1.0%	0.6%
\$ per passenger	5.80	-76.22	-19.20	-2.02	1.11

Source: IATA Economics

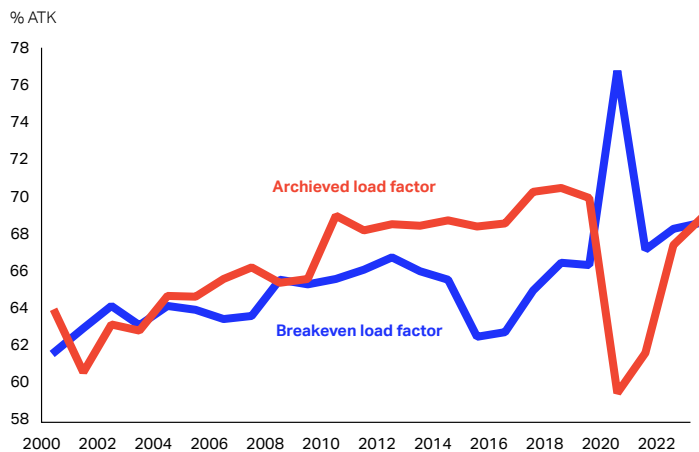
Chart 22: Return on capital invested in airlines



Source: IATA Economics

The recovery is also evidenced by the achieved load factor which we forecast to rise back above the level required for financial break even.

Chart 23: Breakeven and achieved cargo + passenger load factor



Source: IATA Economics

Labour

With the recovery expected to continue in 2023, employment is also likely to increase. In light of the heightened uncertainty surrounding the economic backdrop, we expect that businesses – not just airlines – will adopt a cautious approach to hiring new workers. For air transport, we expect that the labour and skill shortage constraints observed in 2022 will steadily dissipate over time. Having said that, there is the possibility that such shortages may be more enduring if hiring does not keep up with the needs dictated by the pace of the industry demand recovery.

Importantly, China and the Asia Pacific region have the opportunity to learn from the experience elsewhere in better managing the recovery and the surge in pent-up demand as travel restrictions are lifted. This should help that region avoid experiencing some of the same constraints which appeared elsewhere in 2022.

Fuel

Fuel is one of the main operational cost items for an airline, typically accounting for 20-25% of the total. As noted earlier in this paper the Russia-Ukraine conflict prompted a sharp rise in the world oil price which returned to above USD 100/bbl for the first time since 2014. The jet crack has also widened considerably this year. Looking forward, we expect oil prices to moderate somewhat over the forecast horizon, easing to around USD 92 in 2023, from around USD 102 this year.

Notwithstanding the anticipated moderate price decline, the ongoing recovery in traffic volumes will result in the industry's fuel bill increasing to around USD 229 billion in 2023. For airlines, the challenge of elevated fuel prices in 2023 will be the extent to which the costs can continue to be passed on to consumers or, if demand begins to wane, how to manage the still considerable cost burden given the outlook for a very modest profit margin.

Table 3: Labour

Worldwide airline industry	2019	2020	2021e	2022f	2023f
Labour costs, \$bn	189	160	160	171	179
% change over year	3.5%	-15.2%	-0.1%	6.5%	4.8%
Employment, million	2.93	2.56	2.59	2.69	2.78
% change over year	0.3%	-12.6%	1.1%	3.8%	3.3%
Productivity, ATK/employee	526k	335k	385k	459k	493k
% change over year	2.8%	-36.3%	15.0%	19.1%	7.6%
Unit labour costs, \$/ATK	0.123	0.187	0.160	0.138	0.130
% change over year	0.4%	52.2%	-14.1%	-13.9%	-5.7%

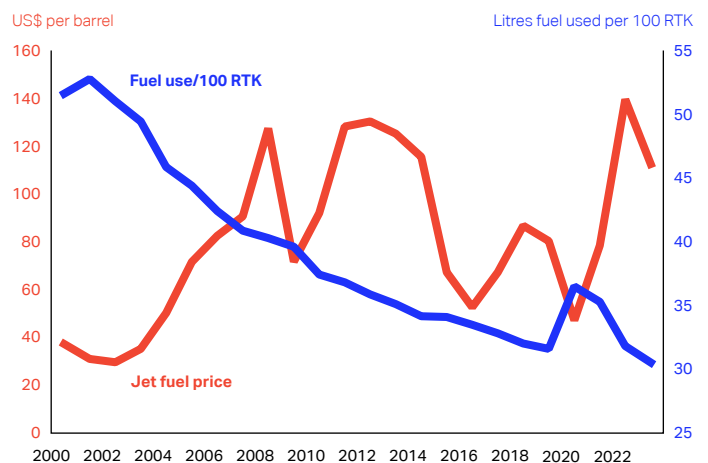
Source : IATA Economics

Table 4: Fuel

Worldwide airline industry	2019	2020	2021e	2022f	2023f
Fuel spend, \$bn	190	80	103	222	229
% change over year	6.8%	-58.0%	29.2%	115.1%	3.4%
% opex	23.9%	16.2%	18.7%	30.1%	29.6%
Fuel use, billion litres	359	196	229	279	304
% change over year	1.0%	-45.3%	16.5%	21.9%	8.9%
Fuel efficiency, fuel/100 ATK	22.0	21.7	21.7	21.4	21.0
% change over year	-2.0%	-1.7%	0.2%	-1.8%	-2.2%
Fuel price, \$/barrel	79.7	46.6	77.8	138.8	111.9
% change over year	-7.4%	-41.5%	67.0%	78.3%	-19.4%
% spread over oil price	22.6%	11.6%	10.1%	34.5%	21.2%

Source : IATA Economics

Chart 24: Fuel efficiency and the price of jet fuel



Source : IATA Economics

Regions

The financial performance of all regions continues to improve since the depth of the pandemic losses seen in 2020. North America is the only region to return to profitability in 2022, based on our estimates. Two regions will join ranks with North America in this respect in 2023; Europe and the Middle East. Next year Latin America, Africa, and Asia Pacific will remain in a net loss position and we will have to look to the following years for their potential return to profitability.

North America has benefitted from fewer and shorter-lasting travel restrictions than many other countries and regions. This has boosted domestic travel in a large home market, as well as international travel, notably across the Atlantic. Barring unexpected events, this positive trend is expected to continue into 2023. Net profits for the region are expected to rise from USD 9.9 billion in 2022 to USD 11.4 billion in 2023.

In **Europe**, some airlines' financial performance has been curtailed by the war in Ukraine. Nevertheless, we expect the region to return to profitability in 2023 when a net profit of USD 612 million is forecast, following the USD 3.1 billion loss likely in 2022.

Asia Pacific is critically held back by the ongoing lockdowns and other pandemic-related restrictions on mobility in China P.R. To be sure, the region will bounce back strongly as soon as policy in this regard is relaxed, just as we have seen in other regions. In our forecast we take a conservative view and assume that restrictions will be progressively alleviated over the second half of next year. On this basis, the region is likely to post a loss of USD 10 billion in 2022 and while expected to record a significant improvement in 2023, it would nevertheless equate to a loss of USD 6.6 billion in 2023. Naturally, this aggregate number is heavily skewed by the lagging Chinese market and outcomes vary greatly among airlines in the region.

Latin America has shown buoyancy over the year, very much thanks to a COVID policy that targeted air transportation to a lesser extent than in many other countries. Consequently, financial results in the region are improving but will in all probability remain loss-making this year and next. We forecast a loss of USD 2 billion in 2022, and of USD 795 million in 2023.

The **Middle East** has benefitted from a certain degree of re-routing as a result of the war in Ukraine, and more significantly so from the pent-up travel demand using the region's extensive global networks as international travel markets re-opened. This will most likely reduce the losses in the region to USD 1.1 billion in 2022, while the return to profits will occur in 2023 for which year we forecast a USD 268 million result.

Africa is particularly exposed to macro-economic headwinds which have increased the vulnerability of several economies and rendered connectivity more complex. The region is expected to see its airlines post a USD 638 million loss in 2022 and to improve to a loss of USD 213 million in 2023.

Table 5: Regions

Worldwide airline industry	2019	2020	2021	2022f	2023f
Africa					
Net post-tax profit, \$bn	-0.3	-1.8	-1.1	-0.6	-0.2
Per passenger, \$	-2.67	-39.73	-19.24	-7.28	-1.98
% revenues	-1.8%	-30.1%	-14.6%	-5.6%	-1.7%
RPK growth, %	4.7%	-68.2%	17.0%	82.2%	27.4%
ASK growth, %	4.5%	-62.1%	18.5%	53.3%	21.9%
Load factor, % ATK	56.2%	51.4%	53.3%	61.2%	63.9%
Breakeven load factor, % ATK	55.6%	60.1%	57.0%	63.8%	64.6%
Asia/Pacific					
Net post-tax profit, \$bn	4.9	-45.0	-14.8	-10.0	-6.6
Per passenger, \$	2.86	-50.89	-16.39	-9.61	-4.63
% revenues	1.9%	-40.0%	-11.6%	-6.8%	-3.8%
RPK growth, %	4.7%	-62.0%	-12.8%	33.6%	59.8%
ASK growth, %	4.4%	-53.8%	-6.0%	17.8%	47.8%
Load factor, % ATK	72.3%	63.8%	63.3%	65.8%	69.2%
Breakeven load factor, % ATK	68.9%	85.8%	71.0%	70.5%	71.8%
Middle East					
Net post-tax profit, \$bn	-1.5	-9.4	-4.7	-1.1	0.3
Per passenger, \$	-6.75	-87.43	-37.36	-5.61	1.20
% revenues	-2.7%	-34.5%	-14.4%	-2.1%	0.5%
RPK growth, %	2.3%	-72.1%	8.5%	152.5%	23.4%
ASK growth, %	0.1%	-63.0%	21.2%	74.1%	21.2%
Load factor, % ATK	64.3%	54.7%	54.9%	63.0%	63.1%
Breakeven load factor, % ATK	67.7%	68.0%	61.1%	63.7%	62.6%
Latin America					
Net post-tax profit, \$bn	-0.7	-11.9	-7.0	-2.0	-0.8
Per passenger, \$	-2.26	-90.02	-40.32	-7.56	-2.84
% revenues	-1.8%	-77.7%	-32.1%	-5.4%	-2.1%
RPK growth, %	4.2%	-62.5%	40.5%	65.8%	9.3%
ASK growth, %	3.0%	-59.0%	37.3%	57.3%	6.3%
Load factor, % ATK	67.3%	64.4%	66.7%	70.1%	71.3%
Breakeven load factor, % ATK	65.3%	82.7%	72.7%	71.8%	71.7%
North America					
Net post-tax profit, \$bn	17.4	-35.1	-2.3	9.9	11.4
Per passenger, \$	16.95	-61.05	-2.68	8.98	9.77
% revenues	6.6%	-25.3%	-1.1%	3.4%	3.7%
RPK growth, %	4.0%	-65.1%	74.7%	51.9%	6.4%
ASK growth, %	2.9%	-50.3%	41.1%	33.7%	5.5%
Load factor, % ATK	64.0%	52.1%	59.2%	64.6%	65.1%
Breakeven load factor, % ATK	57.8%	66.3%	62.7%	63.0%	63.0%
Europe					
Net post-tax profit, \$bn	6.5	-34.5	-12.1	-3.1	0.6
Per passenger, \$	5.42	-66.80	-18.48	-2.97	0.55
% revenues	3.1%	-41.9%	-11.1%	-1.7%	0.3%
RPK growth, %	4.2%	-69.5%	27.5%	109.6%	8.9%
ASK growth, %	3.5%	-62.3%	29.8%	71.7%	6.1%
Load factor, % ATK	74.9%	65.2%	66.2%	74.6%	75.8%
Breakeven load factor, % ATK	71.3%	82.8%	72.1%	75.5%	75.3%

Source: IATA Economics

Risks

As always, there are various risks to our forecast update. These risks are to both the upside and downside, although it is fair to say that the balance of those risks remains to the downside, as has been the case for the past two years. The key risks on this occasion include:

- Developments in the global macroeconomy, including the risks of deep and prolonged recession and sharp rises in unemployment rates in key markets.
- The world oil price outlook remains very uncertain in the current environment and the lack of available refining capacity presents ongoing risk for the jet crack spread.
- An escalation in geopolitical tensions on a global scale which adversely impacts or disrupts trade and economic growth.
- The magnitude and timing of the recovery of air transport demand in Asia Pacific, particularly the world's second largest air transport market, China.
- Further disruptions to global supply chains.
- Renewed outbreaks of Covid-19 cannot be ruled out, particularly with the onset of the Northern Hemisphere winter. Given the broad vaccine rollout – albeit to varying extents across countries – the impact of any policy response will hopefully be minimized.

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