

The background of the entire slide is a dark blue, semi-transparent image of an airplane. On the right side, a large jet engine is visible, showing its fan blades and casing. On the left side, the fuselage of the aircraft is visible, with several windows. The overall image is in a monochromatic blue-grey tone.

CFRA

Industry Surveys

Passenger Airlines

JUNE 2023

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NEW THEMES



What's Changed: CFRA expects China's aviation market to see a strong outbound recovery in Q2 2023 and gradual inbound recovery in Q3 2023. Check out page 13.



What's Changed: We expect U.S. airlines to continue to see healthy volume and revenue growth in 2023, but at lower net margins than in 2019. Read more on page 15.

EXECUTIVE SUMMARY

CFRA has a positive fundamental outlook on the Passenger Airlines industry for the next 12 months. We expect the commendable industry recovery momentum to sustain in the second half of 2023, driven by continuing demand from business and leisure travel post-pandemic. For U.S. airlines, we expect revenue trends to remain strong in 2023, but profit growth could be limited by higher costs. As for China, we expect cross-border passenger traffic to see decent improvements, given China's major reopening.

Global Capacity Growth and Air Traffic Demand Recovery

According to data from the International Air Transport Association (IATA), worldwide airlines' revenue passenger kilometers (RPK) and available seat kilometers (ASK) in April 2023 recovered to -9.5% and -7.5% of April 2019's level, respectively. It is difficult to say with any certainty when air traffic will return fully, but CFRA expects that with improving consumer confidence, air traffic demand and capacity will gradually bounce back in 2023 as the impact of the virus fades. We think fundamental traffic will remain subtle for cross-border travel due to challenging restoration in international capacity in the second half of 2023, while domestic traffic stays robust.

U.S. Airlines Generating Record Revenues Despite Severe Capacity Constraints

U.S. air travel has made a strong recovery as the pandemic tapered. U.S. passenger volume for the month of May 2023 was 99% of April 2019 level, with record domestic leisure volume partially offset by still recovering business and international volumes, by CFRA's estimates. We forecast record revenue across the industry in 2023, driven by strong post-pandemic air passenger volumes and high ticket prices as capacity remains limited by labor and equipment shortages. However, industry profits will likely remain below peak levels throughout 2023 due to sharp increases in fuel and debt costs vs. before the pandemic. Further, aggregate debt for U.S. airlines in the first quarter of 2023 was up an estimated \$48 billion (+54%) vs. year-end 2019, materially adding to their interest expenses.

More Airports and More Than Just Airports

IATA reported that there are more than 200 airports worldwide with inadequate capacity to meet demand at all hours of the day. In the long run, we think broader development should focus on better integration between airports and overland transportation, such as high-speed rail networks, to improve transit efficiency in and out of the airports. In our opinion, complacency in existing infrastructure is the key limitation in many developed markets.

Chinese Airlines Set to Top the Global Aviation Market

According to IATA's latest 20-year passenger forecast, passenger volume in the Asia-Pacific region is projected to register a compound annual growth rate of 4.5% from 2019 through 2040, outperforming global growth of 3.3%. The shift of anchor aviation market to China has accelerated through the Covid-19 pandemic, backed by the country's strong domestic market.

More Consolidated Market Will Benefit European Airlines

In contrast to North America, the European Passenger Airlines industry remains highly fragmented, which explains its relatively lower profitability. Breakeven load factors are high in Europe as stiff competition (especially in the short- and medium-haul segment) and high regulatory costs have resulted in lower passenger yields. As a result, many smaller airlines have been unprofitable and facing cash flow issues. The Covid-19 crisis has resulted in bankruptcies of smaller and uncompetitive airlines. We believe that a more consolidated market will benefit European airlines, though we think that consolidation will take a longer time due to national interests keeping certain airlines afloat via state aids.

PASSENGER AIRLINES

Outlook: Positive

MARKET CAP BREAKDOWN*

RANK NO.	COMPANY NAME	MARKET CAP (\$ billion)
1	Singapore Airlines	24.5
2	Delta Air Lines	23.3
3	Southwest Airlines	17.8
4	Air China	17.7
5	United Airlines	15.6
	Others†	209.8

Source: CFRA, S&P Global Market Intelligence.

*Data as of May 31, 2023.

†Refer to the "Comparative Company Analysis" section of this survey for the list of companies.

BY THE NUMBERS

70%
of the world's population are fully vaccinated against Covid-19 as of May 2023

81%
Global passenger load factor in April 2023

-9.5%
Y/Y April 2023 global air traffic vs. 2019 represented by RPK

-17.5%
decrease in jet fuel prices in the first 5 months of 2023

-6.6%
Y/Y global cargo tonne kilometers in May 2023

56 and 142
Q1 2023 YTD net orders for Boeing and Airbus, respectively

ETF FOCUS

JETS U.S. Global Jets	AUM (\$M) 1,686	Expense Ratio 0.60
IYT iShares Transportation Average	AUM (\$M) 801	Expense Ratio 0.39
XTN SPDR S&P Transportation	AUM (\$M) 212	Expense Ratio 0.35

HISTORICAL INDEX PERFORMANCE



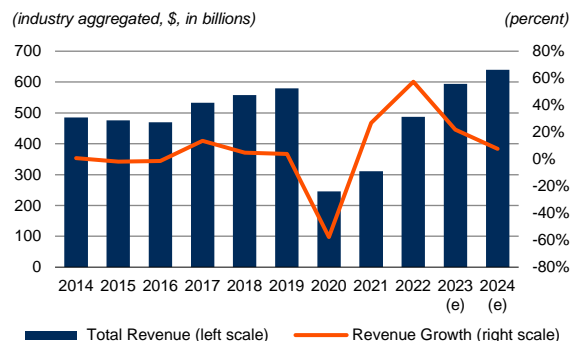
Data through May 31, 2023.

*Market-cap weighting of U.S., European, and Asia-Pacific passenger airlines listed in the "Comparative Company Analysis" section of the survey.

Source: S&P Global Market Intelligence.

FINANCIAL METRICS

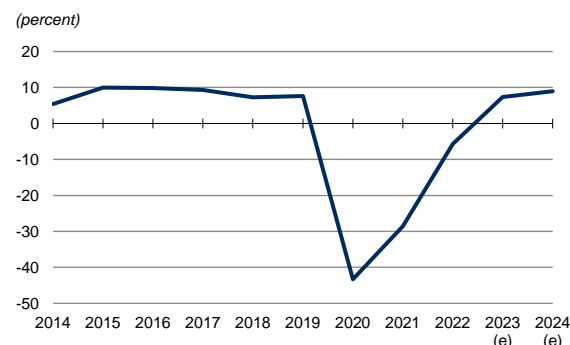
Revenue Growth



Source: S&P Global Market Intelligence, S&P Capital IQ Consensus Estimates.

- ◆ We see a meaningful revenue rebound in 2023-2024 as air travel demand continues to recover from the pandemic. One of the risks to recovery is a recession in North America and Europe.
- ◆ Air travel demand has rebounded significantly since the pandemic. IATA forecasts global air traffic to grow 56.7% in 2022 (and more than double 2020's level), followed by a 22.4% growth in 2023.

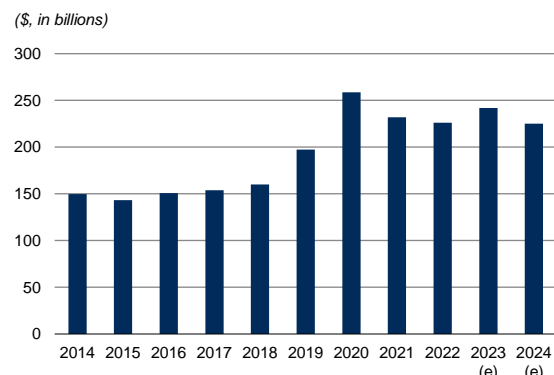
EBIT Margin



Source: S&P Global Market Intelligence, S&P Capital IQ Consensus Estimates.

- ◆ CFRA expects EBIT margin to turn positive in 2023 and 2024, largely driven by an improvement in passenger yields and increase in passenger counts.
- ◆ However, CFRA believes that margin growth may be hampered by higher labor and equipment costs as airlines struggle to increase capacity amid severe shortages in the U.S. and Europe, despite the recent decline in fuel prices.
- ◆ Consensus sees the industry's EBIT margin improving to 7.4% in 2023 and 9.0% in 2024.

Total Net Debt

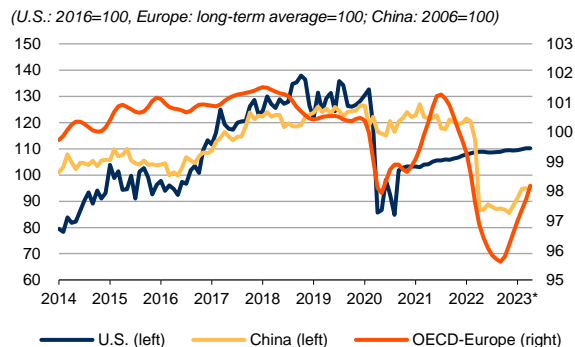


Source: S&P Global Market Intelligence, S&P Capital IQ Consensus Estimates.

- ◆ Airlines' net debt has risen significantly since the pandemic, lifted by their need to support fixed costs such as aircraft maintenance, depreciation, rental, and personnel costs.
- ◆ The total debt is expected to rise to \$242 billion in 2023 before falling to \$225 billion in 2024 as a result of airlines using short-term debt to boost long-haul capacity on the one hand and their cash reserves being quite low on the other.

KEY INDUSTRY DRIVERS

Consumer Confidence Index

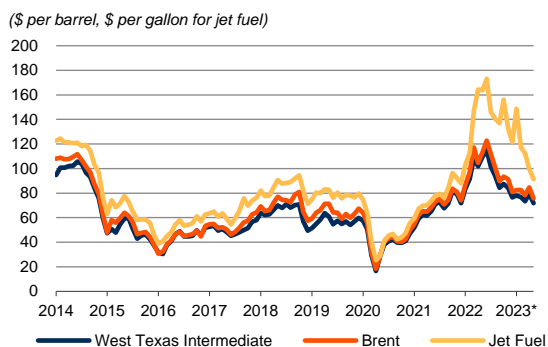


*Data through April, data for China through March.

Source: The Conference Board, OECD, National Bureau of Statistics of China.

- ◆ In April 2023, the Consumer Confidence Index (CCI) in the U.S. improved 1.3% Y/Y, while the CCI of OECD-Europe increased 1.4%, as the economy stayed surprisingly resilient since Russia's full-scale invasion of Ukraine.
- ◆ The CCI for China declined 16.2% Y/Y in March 2023 on the back of property downturn and slower economic growth.

Fuel Costs

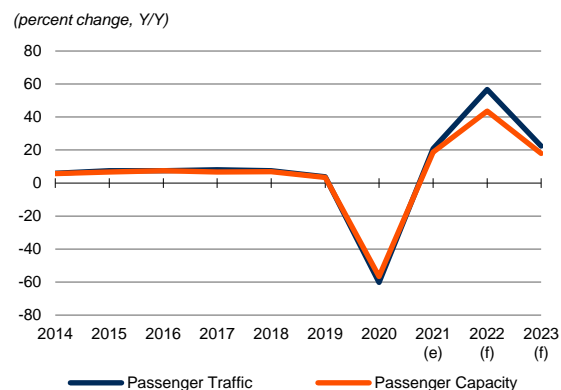


*Data through May.

Source: U.S. Energy Information Administration.

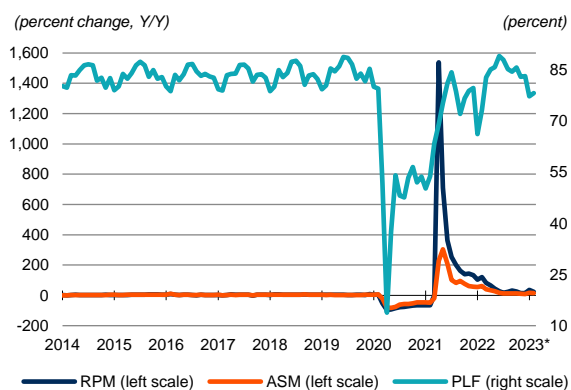
- ◆ In May 2023, the U.S. West Texas Intermediate (WTI) crude oil prices averaged \$71.74 per barrel (bbl), down 34.5% from the prior-year period on growing fear of a global recession. Likewise, the price of Brent crude oil decreased 33.3% to an average of \$75.65/bbl. Jet fuel also fell 44.2% Y/Y in May 2023 due to a drop in oil prices.
- ◆ WTI crude prices are expected to average \$73.62/bbl in 2023 and \$69.47/bbl in 2024, while Brent crude prices are forecast to average \$78.65/bbl in 2023 and \$74.47/bbl in 2024, according to the forecast released by the U.S. Energy Information Administration on May 4, 2023.
- ◆ The current benchmark crude oil price in the low \$70/barrel range is decent, in our view – not as robust as 2022's \$95/barrel, but on par with the \$68/barrel average price in 2021 (and certainly much better than the calamitous \$39/barrel in 2020). We see WTI crude oil prices remaining in the high-\$60 to low-\$70 range through 2024. The outlook reflects the recent supply discipline from both OPEC and non-OPEC actors, but is offset by ongoing concerns over the health of the global economy.

Global Airline Traffic Growth



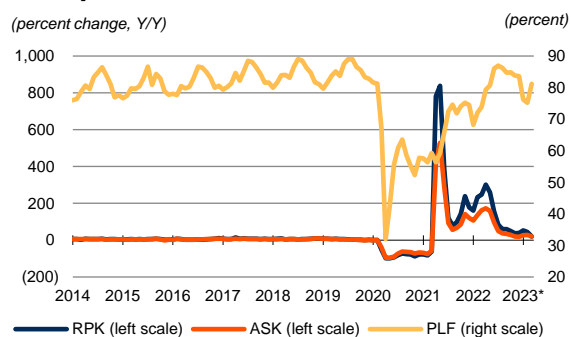
- ◆ Global commercial airline passenger traffic, represented by revenue passenger kilometers (RPK), is expected to increase by 56.7% in 2022 and 22.4% in 2023. According to IATA, North America is expected to turn to profitability, while the other regions are expected to operate under losses in 2022.
- ◆ Meanwhile, passenger capacity, represented by available seat kilometers (ASK), is expected to improve 43.6% in 2022 and 18.0% in 2023. After taking cargo into account as well, the overall weight load factor is forecast to rise to 67.5% in 2022 and 68.9% in 2023 – below the 68.3% to be break-even on profitability in 2022 and 68.6% in 2023, according to IATA.

U.S. Airline Traffic Statistics



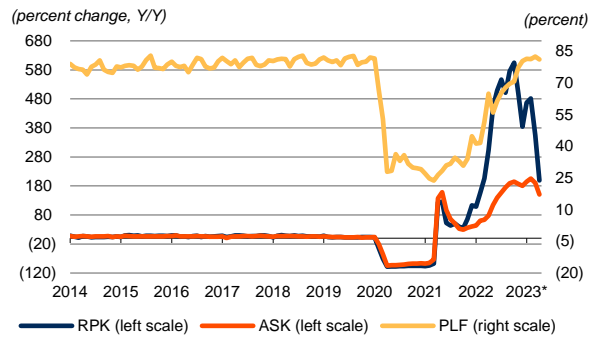
- ◆ IATA expects North America RPK to improve 51.9% in 2022 and 6.4% in 2023, compared to -65.1% in 2020 and 74.7% in 2021.
- ◆ U.S. passenger volumes improved from April 2020 lows as the country lifted domestic travel restrictions. Revenue passenger miles (RPM) saw a rebound to \$71.5 million in February 2023 from \$2.9 million in April 2020.
- ◆ In February 2023, U.S. available seat miles (ASM) rebounded to 91.4 million versus 21.0 million in April 2020. As a result, the passenger load factor (PLF) rose to 78.2% in February 2023 versus 13.8% in April 2020.

European Airline Traffic Statistics



- ◆ IATA expects European RPK to improve 109.6% in 2022 and 8.9% in 2023, compared to -69.5% in 2020 and 27.5% in 2021.
- ◆ European RPK rebounded 19.9% Y/Y in March 2023, from -98.1% in April 2020. Meanwhile, passenger capacity (ASK) also improved 19.8% in March, leading to a PLF of 81.2% during the same period.

Asia-Pacific Airline Traffic Statistics

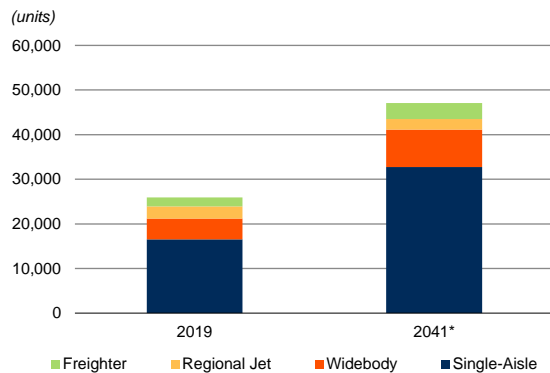


*Data through April.

Source: Association of Asia Pacific Airlines.

- ◆ IATA expects Asia-Pacific RPK to improve 33.6% in 2022 and 59.8% in 2023, compared to -62% in 2020 and -12.8% in 2021.
- ◆ Asia-Pacific airlines' RPK in April 2023 improved 198.9% Y/Y versus a 98.1% decline recorded in April 2020. Passenger capacity increased 150.2% in April from a 94.6% decline in April 2020, while PLF also improved to 81.2% during the same period.

World Aircraft Fleet Forecast

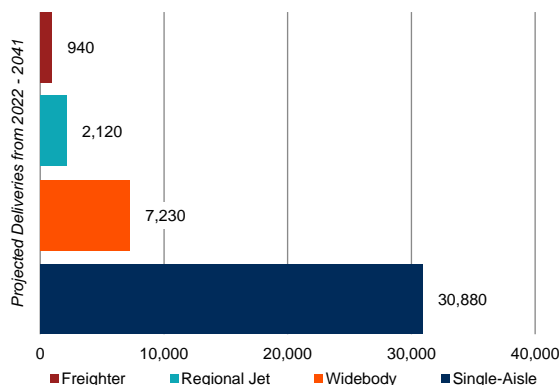


*Forecast.

Source: Boeing's "Commercial Market Outlook 2022-2041".

- ◆ The global aircraft fleet is projected to grow at a CAGR of 2.9% over the 22-year period ending 2041, from 25,900 in 2019 to 47,080 by 2041, according to Boeing's 2022-2041 Commercial Market Outlook.
- ◆ The Asia-Pacific region is expected to achieve the highest fleet growth at 4.2%, followed by the Middle East at 4.1%, by 2041. In terms of fleet size, the Asia-Pacific region is expected to expand the most, adding 11,140 aircraft by 2041.
- ◆ The share of single-aisle airplanes is expected to increase from 64% in 2019 to 70% by 2041 due to the fast growth of low-cost carriers (which favor single-aisle airplanes) and stronger demand from airlines operating in emerging markets.

Total New Airplane Deliveries



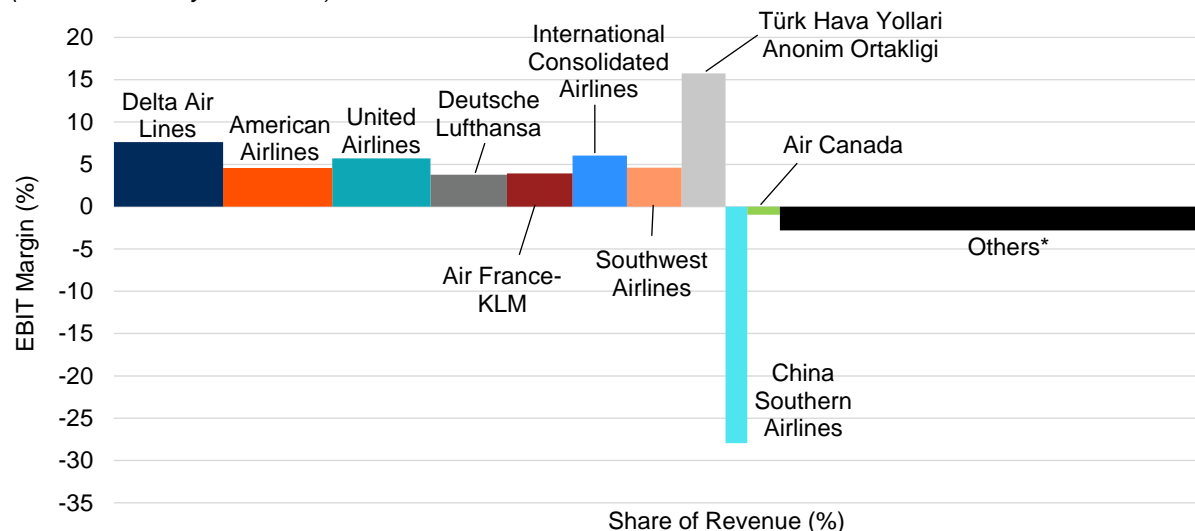
Source: Boeing's "Commercial Market Outlook 2022- 2041".

- ◆ An estimated 41,170 aircraft are expected to be delivered globally from 2022 to 2041. Boeing's 2022 forecast showed that 49% of overall deliveries would involve replacements over the next 20 years. Despite the disruption from Covid-19, Boeing expects replacements to account for 51% by the end of 2041.
- ◆ Asia-Pacific, Europe, and North America, which control nearly 87% of global low-cost carrier capacity, are expected to account for 86% of all single-aisle airplane deliveries from 2022 through 2041, according to Boeing.

INDUSTRY TRENDS

PROFIT-POOL MAP OF PASSENGER AIRLINES INDUSTRY*

(for the calendar year of 2022)

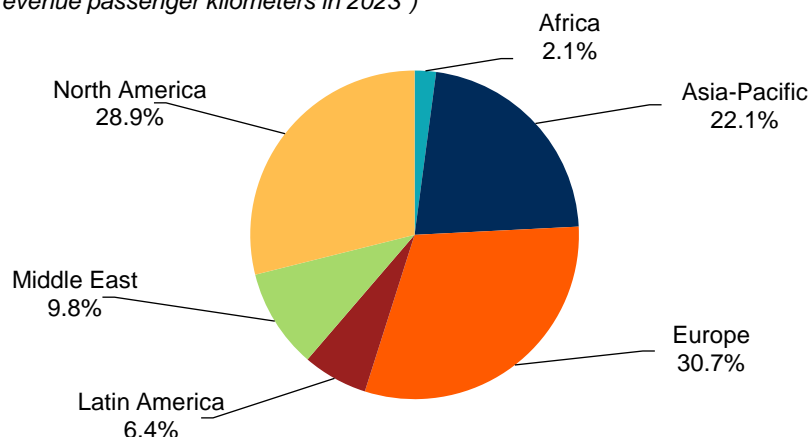


*Refer to the “Comparative Company Analysis” section of this survey for the companies in the industry.
Source: S&P Global Market Intelligence.

During the pre-pandemic period, a significant portion of the profit pool was captured by leading U.S.-based carriers, driven by the strong U.S. dollar and increased economies of scale. However, the Covid-19 crisis changed the profit picture. Out of the 52 airlines under our analysis, the four largest airlines in the U.S. (American Airlines, Delta Air Lines, United Airlines Holdings, and Southwest Airlines) collectively accounted for 34.5% of total revenues in 2022. In terms of earnings before interest and tax (EBIT) margins, our universe of global airlines registered negative EBIT margins in 2022.

REGIONAL MARKET SHARE

(based on industry's revenue passenger kilometers in 2023*)



*As of March 2023.
Source: International Air Transport Association.

As depicted above, the Asia-Pacific, European, and North American regions collectively accounted for 81.7% of the global airline market share. As such, this survey will focus on the landscape of the Passenger Airlines industry in these regions.

Competitive Environment

Below, we use the Porter's Five Forces framework as a tool to analyze the competitive environment of the global Passenger Airlines industry.

Porter's Five Forces Analysis	
Threat of New Entrants or New Entry (Low to Moderate)	<p>Barriers to entry are low to moderate due to the ease of leasing planes to start an airline, which significantly reduces initial investment. However, building up to scale and succeeding is extremely difficult as the industry is broadly capital-intensive and highly competitive. To establish itself as a viable competitor, a new entrant must secure airport slots and invest in marketing and promotion activities. Additional hurdles include absolute cost advantages, government policies and regulations, operational licensing, access to suppliers (such as Boeing and Airbus), product distinction, and brand loyalty. Over the past decade, new airlines have rarely survived. The number of airline bankruptcy cases in the U.S. and Europe (including Wow Airlines, Via Airlines, and California Pacific Airlines) reflects the tough operating environment in these regions. In addition, full-service carriers have attempted to break into low-cost segments but have not seen fruitful contributions due to the intense competition.</p>
Bargaining Power of Suppliers (Low to Moderate)	<p>The bargaining power of aircraft manufacturers is low to moderate. Boeing and Airbus have seen a spike in jetliner cancelations as airlines had revised their fleet plans in response to the Covid-19 travel slump. However, CFRA thinks the fleet revision is only temporary and this duopoly will have stronger bargaining power once travel demand recovers.</p> <p>The biggest growth market, China, is stepping up the deployment of planes made by Commercial Aircraft Corp. (Comac), the state-owned aircraft manufacturer. Comac's single-aisle C919 is designed to compete with the Boeing 737 and Airbus A320. As such, Boeing and Airbus must manage their offerings competitively to cater to airlines that operate in a highly price-sensitive passenger market. In addition, airlines that operate a single type of aircraft (such as AirAsia Group) will be able to enjoy economies of scale by arranging for lower procurement costs at the expense of aircraft manufacturers.</p> <p>Nevertheless, airlines have entrenched reasons to stay with their historic aircraft maker. First, changing planes requires retraining pilots and sourcing for different parts, which are costly. Second, Boeing and Airbus have multi-year backlogs of aircraft orders, meaning switching to a new supplier generally can't be done in the near term.</p> <p>For other suppliers, providing inflight meals, maintenance, and repair and overhaul (MRO), airlines have enjoyed low switching costs as these suppliers typically offer similar products or services.</p>

Bargaining Power of Customers (High)	<p>Buyers/customers also have relatively strong bargaining power. For budget travelers, switching airlines is a question of how much value they can extract from the ticket prices they pay for flying. Real-time price comparison enables customers to make quick decisions, while airlines have trouble managing the resulting fragmented demand. However, corporate travelers are often members of a specific airline's loyalty/points program and may be more likely to favor that airline as a result, especially if they can personally keep points accrued from business travel.</p>
Degree of Rivalry/Competition (High)	<p>The Passenger Airlines industry is highly competitive. The industry is segmented into full-service carriers and low-cost carriers, where major firms in both segments offer a wide variety of different value-added packages, loyalty programs, and destination networks. Price wars, where dominant carriers push down ticket prices to fill seats and expand market share, are common. The industry also suffers from thin margins, given the inherent volatility of the business (including jet fuel prices and seasonal demand).</p> <p>Companies can position themselves through product innovation and flexible pricing. In recent years, airlines have re-engineered flying classes (such as premium economy, basic economy, and flatbed) to enhance the use of cabin space and attract a new generation of more-informed consumers. Both low-cost carriers and major airlines have squeezed more seats into the cabin at the expense of seat dimensions and legroom, achieving lower cost per available seat mile. However, unlike low-cost carriers, full-service carriers are exposed to the risk of public scrutiny for excessive cost-cutting measures.</p>
Threat of Substitutes (Moderate)	<p>The threat of substitutes is moderate. Travelers must consider several factors when deciding their mode of transportation, such as the travel distance and availability of airports and/or train stations. Air transportation typically has the shortest traveling time, and the average price of air tickets has declined in recent years, driven by the proliferation of low-cost carriers that lower ticket prices to fill empty seats. Thus, it might be cheaper to fly than to take a bus or train. Air transportation remains the primary mode of transportation to travel within the Asia-Pacific region due to underdeveloped cross-border railway networks. Overland trips in the region are subject to additional limitations like time, vehicle eligibility, and safety.</p>

Operating Environment

Global Passenger Airlines Industry Remains Vulnerable in 2023-2024

The world's airlines and other aviation businesses are not likely to see a pre-pandemic demand any time soon, as the recovery so far has been mainly from short-distance domestic travels, while the demand for more lucrative medium and long-distance flights remains muted. The International Air Transport Association (IATA) projects North America, Europe, and Middle East to return to profitability in 2023, while Asia-Pacific, Latin America, and the Africa operate at losses. Worldwide passenger demand, in terms of revenue passenger kilometers (RPK), is expected to improve 22.4% in 2023 (down 29.4% versus 2019), supported by the ramp-up of vaccinations as well as easing lockdowns and Covid-19 shocks. The International Monetary Fund (IMF) projects the global economy to bottom at 2.8% in 2023 before rising to 3.0% in 2024, as supply-chain disruptions are unwinding, while the dislocations to energy and food markets caused by the Russia-Ukraine war are receding. On top of that, most central banks' large and simultaneous tightening of monetary policy should begin to bear fruit, with inflation returning to goal. Domestic air travel still leads the recovery in most regions, so countries with large domestic markets and faster vaccination ramp-up are expected to have faster recovery than other parts of the world.

In China, its domestic air traffic has recovered significantly since it ended its zero-Covid-19 policy and removed quarantine requirements for international arrivals in January 2023. The number of passengers on mainland domestic passenger routes increased 66.6% year-over-year in the first quarter of 2023, recovering to 88.6% of 2019 levels, according to the Civil Aviation Administration of China (CAAC). We expect China's aviation market to see a strong outbound recovery taking place in the second quarter of 2023 (mostly within APAC, due to a slow recovery of flight capacity) and gradual inbound recovery in the third quarter of 2023. For now, China's domestic market continues to serve as a crucial buffer with the strong momentum continuing until the third quarter of 2023. China's regulator guided that the country would focus on expanding domestic flights and restoring international air travel in 2023-2025.

The Landscape of U.S. Passenger Airlines Industry

The U.S. Passenger Airlines industry (the majors, nationals, and large regionals) generated total operating revenues of \$279.6 billion in 2022, up 12.7% compared to 2019, according to the U.S. Department of Transportation (DOT). Based on domestic revenue passenger miles, American Airlines is the largest U.S. airline with a market share of 17.6% from March 2022 to February 2023, followed by Delta Air Lines (17.3%), Southwest Airlines (16.8%), and United Airlines (15.7%).

KEROSENE-TYPE JET FUEL PRICES

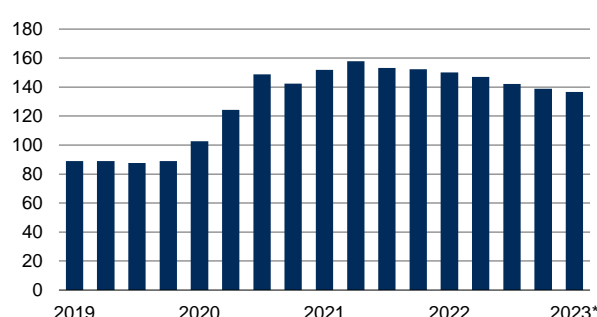
(\$ per gallon)



*Data through May.
Source: U.S. Energy Information Administration.

TOTAL DEBT OF PUBLICLY TRADED U.S. PASSENGER

(industry aggregated, \$, in billions)



*Data through Q1.
Source: U.S. Energy Information Administration.

U.S. PASSENGER AIRLINE MARKET SHARE LEADERS

*(based on domestic revenue passenger-miles;
12 months ended February 2023, in percent)*

RANK NO.	COMPANY NAME	MARKET SHARE (%)
1	American	17.6%
2	Delta	17.3%
3	Southwest	16.8%
4	United	15.7%
5	Alaska	6.2%
6	JetBlue	5.5%
7	Spirit	4.9%
8	Frontier	3.4%
9	SkyWest	2.7%
10	Hawaiian	1.9%
	Other	8.0%

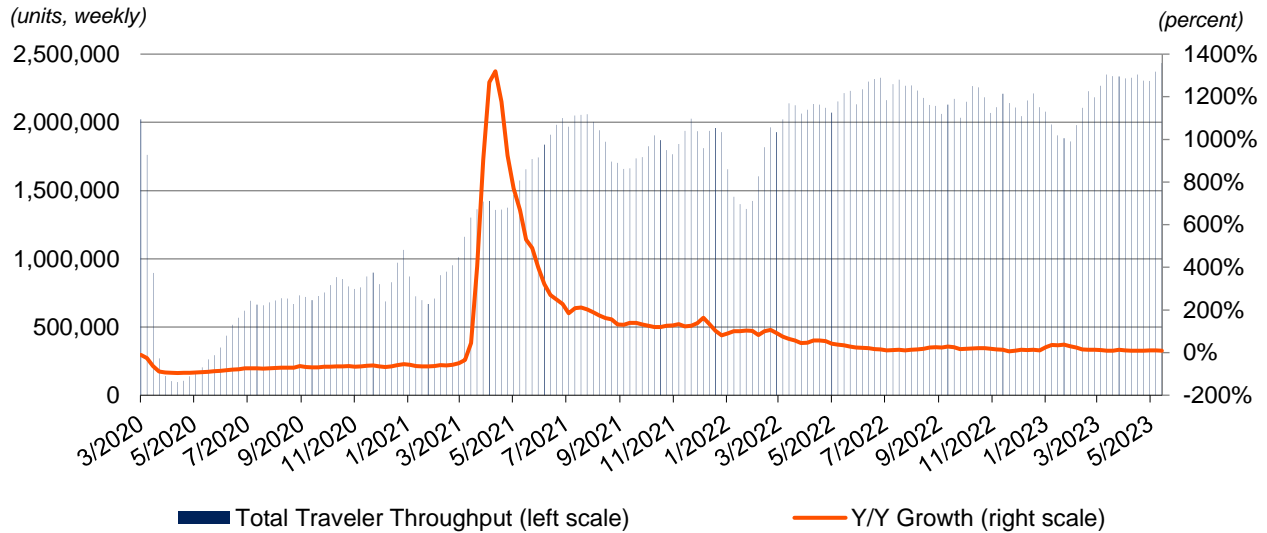
Source: U.S. Bureau of Transportation Statistics.

A pent-up demand boom for travel was unleashed in Spring 2022 after more than two years of travel restrictions. Overall, total U.S. air passenger volume steadily recovered from down around 30% vs. 2019 levels (Y/3Y) at the start of 2022, to about -1% Y/4Y for the month of May 2023. The record U.S. domestic leisure passenger counts were offset by still-recovering business and international travel volumes, in our view.

Despite below peak capacity, U.S. Airlines' aggregate revenues were up 15% Y/3Y in the fourth quarter of 2022. This discrepancy was due to the pricing power that airlines have gained on robust demand combined with capacity constraints. U.S. air fares were up an estimated 20%-25% Y/3Y in the fourth quarter of 2022. We expect pricing will remain at least 20% above 2019 levels through 2023 as consumers and businesses remain eager to travel but face fewer flight options given airlines' capacity challenges.

We expect record U.S. airline revenues in 2023 as passenger counts climb to new highs and pricing remains elevated on capacity constraints. However, we don't expect record profits this year or next due in large part to higher fuel prices. Before the pandemic, oil was under \$60 per barrel and U.S. airlines spent around 20% of revenue on fuel. But with oil currently priced at \$70+ per barrel, we expect airlines to spend a much greater 25% of revenue on fuel in 2023.

WEEKLY U.S. AIR PASSENGER VOLUME SINCE 2019



*Data through May 20, 2023.

Source: Transportation Security Administration.

We expect U.S. airlines to continue to see healthy volume and revenue growth in 2023 as business and international travels continue to recover, aided by a relatively new category of work-leisure trips offsetting much of the loss of traditional business travel. Work-leisure trips are a fast-growing category for U.S. airlines as more of the U.S. labor force works remotely post-pandemic. CFRA also expects U.S. Passenger Airlines industry capacity to steadily improve in 2023 as more pilots are trained up and as new plane deliveries from Boeing and Airbus are able to ramp up on an improving supply chain environment.

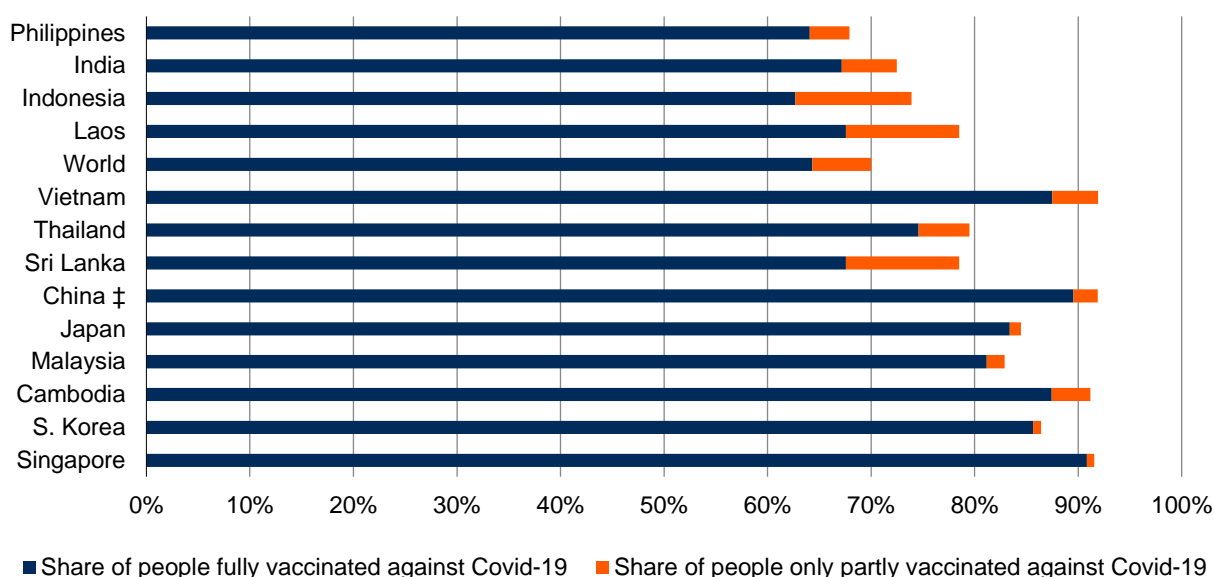
We forecast record revenue across the industry in 2023, driven by strong post-pandemic air passenger volumes and high ticket prices as capacity remains limited by labor and equipment shortages. However, industry profits will likely remain below peak levels throughout 2023 due to sharp increases in fuel and debt costs vs. before the pandemic. Further, aggregate debt for U.S. airlines in the first quarter of 2023 was up an estimated \$48 billion (+54%) vs. year-end 2019, materially adding to their interest expenses. We estimate bond yields for U.S. airlines to be up roughly 300 basis points vs. year-end 2019. Far more debt and at much higher rates versus 2019 means that airlines will need several more years of revenue growth past the 2019 peak just to achieve the same level of net income, as net margins will be materially lower, in our view.

Asia-Pacific Aviation: Any New Waves Could Snap Airlines

Year-to-date through April 2023, Asia-Pacific airlines' international passenger demand, measured in RPK, improved 198.9% compared to the prior-year period, according to the Association of Asia Pacific Airlines (AAPA). Passenger supply, measured in ASK, increased 150.2% during the same period and led to passenger load factor increasing to 81.2%. Asia-Pacific carriers transported 74 million international passengers in the first four months of 2023, an increase of 438.1% compared to the prior-year period.

We believe a key driver to Asia-Pacific airlines' recovery would be the vaccination rate. As of May 31, 2023, most of the major APAC markets have vaccination rates above 75%, compared to the world's average of 70.0%. We expect the recovery to continue in 2023, with most of Asian airlines to experience commendable recovery in the second half of 2023. We expect Asia's air travel demand to recover to about 70% of pre-pandemic level in 2024, follow by a full recovery/expansion in 2025.

SHARE OF PEOPLE VACCINATED AGAINST COVID-19



Note: Data as of May 31, 2023 (if no data available for May 31, it should show the closest available data point).

Source: Our World in Data.

ASIA-PACIFIC CARRIERS' INTERNATIONAL PASSENGER TRAFFIC					
YEAR	REVENUE		AVAILABLE		PASSENGER
	PASSENGER KILOMETERS		SEAT KILOMETERS		LOAD FACTOR
	(in billions)	(% change)	(in billions)	(% change)	(in percent)
2023*	280.5	334.4	345.4	181.8	81.2
2022	437.3	439.0	600.9	144.0	72.8
2021	81.1	(70.2)	246.3	(44.9)	32.9
2020	272.0	(80.6)	446.7	(74.2)	60.9
2019	1,402.2	5.4	1,732.2	5.0	80.9
2018	1,329.9	7.8	1,649.9	6.9	80.6
2017	1,234.1	12.8	1,543.0	11.0	80.0
2016	1,094.4	9.4	1,390.7	9.0	78.7
2015	1,000.7	8.2	1,275.8	6.3	78.4
2014	924.8	4.7	1,200.5	6.0	77.0
2013	883.3	14.3	1,132.9	14.2	78.0
2012	773.1	5.8	992.4	3.7	77.9

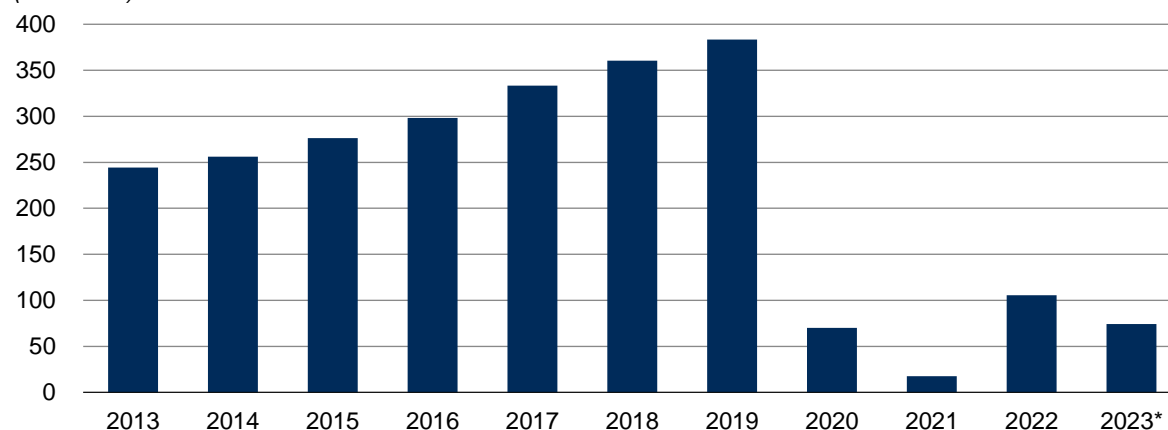
*Data through April.
Source: Association of Asia Pacific Airlines.

While air travel demand has seen great improvement, cargo demand is heading to the other direction. According to IATA, Asia-Pacific airlines have seen air cargo demand, measured in cargo tonne kilometers (CTK), drop 6.6% year-over-year in April 2023, primarily due to decreased air cargo traffic on the North America-Europe and North America-Asia trade lanes.

We think the Passenger Airlines industry trough will soon be over, with recovery expected in 2023-2024 and an industry expansion forecasted in 2025. We see improvements in international passenger traffic in 2023 compared to 2022, followed by a material resumption of leisure travel in 2024. The key factors supporting our view are Southeast Asia reopening and the loosening of Covid-19 arrival screening and quarantine around the globe, as global Covid-19 vaccination rates continue to improve while death rates fall.

However, we believe that the market may be going through a new dynamic right now. New waves (of any pandemic) would not likely impair airlines' operations presently, but the fundamental desire for travel would drop precipitously if it occurs. The difference is that, prior to this, airlines were operating at a minimal level due to a lack of business, but now that they are fully operational (or striving towards it), they will be under far greater pressure if demand were to unexpectedly decline.

ASIA PACIFIC CARRIERS' INTERNATIONAL PASSENGER VOLUME (in millions)



*Data through April.

Source: Association of Asia Pacific Airlines.

European Passenger Airlines Industry

After going through a high level of uncertainty in 2020 and 2021, we believe that European airlines will experience a smoother recovery in volumes and air fares. Our view should be supported by many countries' positive actions to ease travel restrictions as the number of Covid-19 cases continues to fall globally. Given that vaccination rates continue to improve globally and the numbers of severe cases and death rates remain low, the world is moving into an endemic stage and a full lockdown in Europe is unlikely at this point, in our view.

Eurocontrol data shows that the daily traffic volume in Europe has improved to above 90% of 2019 level as of May 2023. Monthly data from IATA also shows consistent improvement in air traffic demand in terms of RPK across all regions in March 2023. In March 2023, total international RPK in North America reached 97% of 2019 level (vs. 51% in January 2022). Similarly, Europe's international RPK improved to 86% of 2019 level (vs. 54% in January 2022). We view this as a positive read-across for European legacy airlines as Transatlantic routes are crucial for these airlines' profitability. Similarly, we expect the ongoing improvement in Intra-Europe air travel demand to benefit budget short-haul airlines. We expect the recovery of Transatlantic routes and strong travel demand in 2023 will be key drivers to support air fares.

We believe that the key developments of the industry include the impact of the war in Ukraine on oil price and air travel demand, the sustainability of air traffic recovery, and the strength of air fares. Many countries from the West have imposed punitive sanctions on Russia's economy due to its military invasion of Ukraine in February 2022. As Russia is a major crude oil producer, the disruption of global oil supply has caused spikes in jet fuel prices. Unlike other regional airlines, European airlines have fuel hedging programs that have hedged more than 70% of fuel consumptions for 2022 (some even hedged more than half of their expected consumption into 2023 and 2024), mitigating the fuel price volatility in the near term. Therefore, we think European airlines still have room to manage higher fuel prices in the near term without risking higher fares, which will stifle demand recovery.

Direct air traffic exposure to Ukraine and Russia is low and manageable. Based on IATA's data, Ukraine accounted for 3.3% of total air passenger traffic in Europe and 0.8% of total traffic globally in 2021. International air passengers between Russia and Europe accounted for 5.7% of total European traffic in 2021 and 1.3% of total global traffic. Similarly, we understand that European airlines under our coverage have less than 2%-3% of their total passenger capacity exposed to these regions. Therefore, we believe that the airlines can easily re-route the capacity to other countries where air travel demand is improving.

The European Passenger Airlines industry is an oversupplied market, with nearly 200 airlines competing for market share in the region. According to OAG's data, the top six European airlines' total market share in the Intra-Europe capacity was around 50% in 2019 (latest available). This contrasts with the Intra-North America market where the top six airlines' market share totaled 82%. This shows that the intra-European market is much more fragmented. Prior to the Covid-19 outbreak, European airlines were more focused on expanding their market share as opposed to improving profitability, which resulted in price wars and declining passenger yields across both full-service carriers and low-cost carriers. However, the Covid-19 crisis has resulted in bankruptcies of smaller and uncompetitive airlines. Most European airlines have been trying to keep weekly cash burn as low as possible to preserve liquidity. As the industry is now recovering from Covid-19, we believe that a more consolidated market will benefit the European airlines, though we think that consolidation will take a longer time due to national interests keeping certain airlines afloat via state aids. As airlines emerge from the Covid-19 crisis, we believe that European airlines will be more sensible in pricing competition to focus on profitability and to recoup huge losses during 2020-2021.

In addition, limited outputs of aerospace manufacturers due to supply chain constraints, as well as industry-wide personnel shortages, should further limit the capacity addition of the industry. This should translate into better pricings for airfare, hence, better profitability in the near to medium term, in CFRA's view. However, given that the European Union (EU) is expecting recession in 19 EU countries, we see a risk of curtailed travel demand and airfare pricings if Europe slides into a deeper-than-anticipated recession.

Airline Bankruptcies Pave Way for New Market Dynamics

Airlines around the globe are facing an unprecedented threat after the Covid-19 pandemic halted global travel, causing waves of bankruptcy of air carriers. We expect the bankruptcy wave to continue in 2023, but on a smaller scale, as many distressed airlines are still struggling to stay afloat. We believe that with the mounting debts of these airlines in a rising interest rate environment, full pay-offs would be difficult given their limited liquidity and cash, and debt rollovers would be expensive. Even if they eventually avoid bankruptcy, they will have to downsize significantly to pay off debtors. Consequently, we think there will be new market dynamics where the cash-rich airlines will emerge so strongly that they could monopolize larger selective markets in the next two to three years, while the weaker ones that made it through earlier will either remain as a non-threat or end up being acquired.

Regulatory Updates

China Ended Its Three-Year Strict Covid-19 Control

China has reopened its border, as its National Health Commission (NHC) removed quarantine requirements for international arrivals on January 8, 2023, which implies the end of China's strict zero-Covid-19 policy. Airline passenger traffic recovery in China remained modest in the first quarter 2023, in line with the Civil Aviation Administration of China's (CAAC) guidance. Total passenger traffic in China saw limited recovery in the first quarter of 2023 as fundamental demand for air transport was partly held back by an anticipated surge in Covid-19 cases. This was in addition to CAAC's newly rolled-out instructions under the "Execution Plan for a Safe and Orderly Recovery of the Air Transport Market" (initiated slightly ahead of the NHC's reopening announcement in late December 2022), which regulates permitted flight frequency via a restoration timeline.

CAAC'S LATEST RESTORATION PLAN TIMELINE

Schedule	Date	Maximum Permitted Total Daily Flight Frequency relative to the Average Daily Flight Frequency in 2019 / Pre-Pandemic (%)
Stage 1	Up until January 6, 2023	70% (57% for domestic flights)
Stage 2	January 7, 2023 - January 31, 2023	88% (75% for domestic flights)
Stage 3	February 1, 2023 - March 25, 2023	88% (at parity to Stage 2, noted as "stable recovery stage")

Source: Association of Asia Pacific Airlines.

According to the National Immigration Administration of China (NIA), acceptance and examination of Chinese citizens' application for ordinary passports and Hong Kong endorsements resumed together with the border reopening on January 8, 2023. The mass issuance of passports for Chinese citizens should stimulate outbound tourism in the second quarter of 2023, in our view. We think the NIA will substantially kick off the acceptance and examination of foreigner applications for the extension, renewal, and issuance of ordinary visas, stay permits, and residence permits (despite its plan to resume the process simultaneously with Chinese citizens' applications) in mid second-quarter 2023 at the earliest, which will drive a material recovery in the third quarter. We also expect China's aviation to see a strong outbound recovery taking place in the second quarter of 2023 (mostly within APAC, due to a slow recovery of flight capacity) and gradual inbound recovery in the third quarter of 2023.

HOW THE INDUSTRY OPERATES

Providing Transportation

The Passenger Airlines industry is highly cyclical, with growth closely tied to changes in gross domestic product (GDP). As economic activity improves, business travel tends to increase. Higher wages and stronger employment lead to more leisure travel. Freight traffic also increases as more goods are transported. Conversely, in periods of economic weakness, business travel falls. As unemployment grows, leisure travel also declines because consumers become less likely to take costly vacations that involve flying. Fewer goods are transported as economic activity slackens. Non-economic events, such as a pandemic, political changes, natural disasters, or shifts in safety concerns, can also have a major impact on the Passenger Airlines industry.

Airlines today derive most of their revenues from the fares charged to passengers, but they also generate revenues by carrying mail and cargo, selling alcoholic beverages, and offering in-flight entertainment and services to passengers. In addition, airlines sell frequent-flyer credits to hotels, auto rental agencies, credit card issuers, and other organizations, which offer these credits as premiums or to build goodwill. Many airlines sell food on the plane, replacing the long-time custom of supplying it free of charge. Many airlines charge to check baggage or for window and aisle seats or exit row seats with extra legroom.

Business Travelers: Corporations Growing More Cost-Conscious

The Passenger Airlines industry has promoted the globalization of commerce, turning the world into one big marketplace. Many businesspeople use air travel to conduct sales trips, visit remote factories, and attend industry conventions. Business trips are often scheduled within seven days of the flight, so business fares have historically been the highest, whether for the coach or first-class seats. Because their firms pick up the tab, business travelers tend to be relatively price insensitive.

As a result, business fares have risen significantly faster than leisure fares; however, in recent years, corporations have become more cost-conscious. As part of their cost-cutting efforts, some companies direct employees to travel by coach or to patronize low-fare carriers. To reduce travel costs further, many companies negotiate travel deals, under which they promise to do most of their travel with a certain airline in exchange for sharp fare discounts. The rising prominence of online ticket distribution has also made it far easier to obtain a lower fare for travel – even on short notice.

Airlines actively solicit business travelers. Many larger aircraft contain designated business sections, which offer roomier seats and premium food service. Some airlines have expanded their business-class sections. Airlines compete for business passengers by offering priority check-in, expedited baggage handling, luxurious airport lounges, and in-flight amenities such as telephones and power outlets for recharging laptop computers. To appeal to this class of travelers, airlines must provide frequent flights, reliable on-time performance, and strong safety records.

Leisure Travelers Look for Price Breaks

Compared with business travelers, leisure travelers are highly price sensitive. Cheaper fares resulting from deregulation have allowed people from all walks of life to travel by air to visit distant friends and relatives or to take vacations more frequently.

Leisure travelers can secure discount fares in two ways. First, low fares are available to individuals who book flights at least 14 days in advance. Second, deeply discounted tickets are available, mainly via the internet, a few days before departure. Many leisure travelers defer making trip arrangements until a fare sale is offered. The upshot of these patterns is that over short periods, leisure travel can be erratic. Over

the longer term, leisure travel is more cyclical than business travel; it waxes and wanes together with consumer sentiment and disposable income levels.

International Travel

International travel (defined here as flights that cross national borders) encompasses both business and leisure travel. International travel can be significantly affected by natural catastrophes, pandemics, political turmoil, international hostilities, or terrorist attacks. Since Asia-Pacific airlines rely greatly on international traffic, these issues are of special concern. Meanwhile, international travel for U.S. airlines generates a disproportionately high level of revenue passenger miles (RPMs) because the average stage (or flight) length is nearly four times longer for international than for domestic flights.

Freight and Other Revenues

All passenger aircraft can carry cargo, but most freight moves on wide-body jets on long stage lengths. Major airlines carry significantly more mail and cargo in the belly space under the passenger cabin than regional and commuter airlines. Passenger airlines view freight transport as a sideline to their main business. They garner freight business by offering discounted rates compared with those charged by specialized air freight carriers and do not rely on large sales forces to pursue this business. Airlines often accept freight from only a few air forwarders.

Airlines in the Asia-Pacific region rely more on revenue from cargo transportation than airlines in Europe or North America. Asia-Pacific carriers' market share of global cargo traffic in 2022 was estimated at 32.4%, compared to 21.8% in Europe and 28.1% in North America, according to the International Air Transport Association (IATA). In North America and Europe, rail and trucking companies are strong competitors in the freight segment, whereas in the Asia-Pacific region, rail and truck services are less feasible, given the region's geography and underdeveloped infrastructure.

Sales of inflight alcoholic beverages, various amenities and services, and logistics support also provide revenue streams for airlines. Other revenue streams may also include income from international code-sharing programs. Additionally, most airlines have added various fees to check bags, make ticket changes, make phone reservations, and for just about any other services involving air travel. On long-haul flights, most carriers provide telephone, ATM, and entertainment services for a fee. Some international flights even offer video gambling. Although such supplementary sales carry high margins, they account for a relatively small portion of industry revenues.

Various airlines have, at times, owned other businesses such as hotels, rental car companies, catering businesses, tour operators, and other ventures, as well as maintenance operations. However, the general trend among airlines globally has been away from this type of diversification, except for freight operations.

Airline Fares: Variable Pricing

Perishable Inventory

Airline seats are perishable inventory: once a plane is aloft, its empty seats can no longer be sold. To minimize such losses, the industry has developed sophisticated computer programs to help determine how much demand there will be for each route at different times of the day, days of the week, and seasons of the year.

Airlines attempt to calculate how much of a flight should be booked at a given point in time through a practice known as yield management. Yield management alerts the carrier to abnormal booking patterns, to which it can react by either cutting or raising fares well before a flight is scheduled to depart. By offering deeply discounted last-minute fares via the internet, airlines can now fill seats that otherwise would have gone empty. The downside is that the internet is making consumers even more price-conscious, which exerts downward pressure on yields.

Yield management also helps carriers estimate the number of passengers who will cancel their flights and how many seats can be overbooked without the risk of having to bump customers (deny them seating on an overcrowded flight). The industry tries to avoid bumping; by law, airlines must compensate the passengers who are denied boarding involuntarily. Carriers use computer programs to redeploy smaller aircraft to routes where sales are slower than anticipated and put their larger-capacity jets into more popular markets.

Airlines' bumping and overbooking policies came under fire after a controversial incident in April 2017, during which airport officials forcibly removed a passenger from an overbooked United Airlines flight, leading to public condemnation of the airline. Weeks after the incident, United said it would offer bumped passengers up to \$10,000 in compensation and vowed to stop forcing passengers to deplane, while Southwest Airlines ended its policy of overbooking flights in May 2017.

Igniting Fare Wars

Since deregulation, the industry has been prone to periodic bursts of destructive fare wars. Much of the blame lies in the aggressive pricing tactics of start-up and low-cost carriers, which operate with substantially lower costs than the major airlines and are eager to gain a foothold in the market. In general, the industry is susceptible to fare wars when capacity levels far exceed demand. Because airlines have high fixed costs (for equipment and maintenance facilities) relative to their marginal costs (the cost of flying one additional passenger), fare wars can reach extremes before the order is restored.

Regulation Under Deregulation

Federal regulation of U.S. airline fares and markets ended with the Airline Deregulation Act of 1978. However, the U.S. Department of Transportation (DOT) and its affiliated agency, the Federal Aviation Administration (FAA), continue to regulate the industry regarding safety, labor, operating procedures, aircraft fitness, and emission levels. The International Civil Aviation Organization (ICAO), an entity affiliated with the United Nations, proposes noise standards, although the standards are not legally binding in each country unless the country has formally agreed to them.

The FAA, established in 1958, primarily promotes safe air travel. It does this by monitoring the industry's maintenance and operating practices. The FAA certifies aircraft and airlines and establishes age and medical requirements for pilots. The FAA provides air traffic services to tens of thousands of aircraft every day through the National Airspace System.

The DOT levies civil penalties against airlines that engage in fraudulent marketing practices or violate code-sharing rules. It also oversees compliance with denied boarding (bumping) compensation rules and renders decisions on airline ownership and control issues. The DOT plays an important role in negotiating bilateral aviation treaties with foreign nations.

In Europe, the liberalization of air transport involved consolidating several distinct national markets, previously connected by a web of bilateral air services agreements, into a single market. The European Civil Aviation Conference (ECAC) initiated the liberalization process in 1987, with the development of two international agreements which authorized partial capacity and tariff liberalization. In 1993, the common licensing criteria for air carriers across the EU was introduced. In order to be granted an operating license by a member state, the air carrier must be majority-owned and controlled by EU member states, and/or nationals of EU member states, with its registered office and principal place of business located in that member state. Airlines with an operating license can exercise traffic rights on virtually any route within the EU, in accordance with the Market Access Regulation. The EU air transport market was completely liberalized in 1997.

Asia's Passenger Airlines industry has not moved toward liberalization as swiftly as its counterparts in the U.S. and Europe, both of which had the advantage of a centralized body coordinating the process. In the Asia-Pacific region, each country is moving at its own pace, according to its own needs. In the ASEAN grouping, the Single Aviation Market policy (or Open Skies Agreement) achieved full ratification by all 10 member states in May 2016.

The major markets are relatively open, with privately-owned upstarts beginning to compete. Australia and New Zealand progressed through the process swiftly; the former country has among the most liberal policies in the world. Japan's Passenger Airlines industry was deregulated in the 1990s, allowing low-cost carriers to enter and the eventual merger of two key players, Japan Airlines and Japan Air System. The Malaysian government liberalized its air transport segment in August 2006. It ended subsidies to national carrier Malaysia Airlines and opened the domestic market to low-cost carrier AirAsia, which gained the right to fly any domestic Malaysian route and to determine scheduling and price.

Privatization remains an ongoing concern in the region. New Zealand was forced to renationalize Air New Zealand in 2002, following the airline's financial difficulties. The Malaysian government nationalized Malaysia Airlines in August 2014, after the airline was hit by two disasters earlier in the year. Malaysia Airlines was already in a poor financial condition prior to the disasters; the airline last made a profit in 2010 and lost a total of MYR4.1 billion from 2011 to 2013. Several major Asia-Pacific carriers remain in state hands, including Singapore Airlines and Thai Airways International. The major Chinese airlines are also state-owned and state-operated.

When airlines operate in international markets, they are subject to economic regulation by individual foreign governments and collective organizations such as the European Commission. The degree of regulation varies for each country, and rules are laid out through formal bilateral aviation treaties. These accords govern reciprocal landing rights and typically limit the number of carriers that can operate in a country, the level of rates, the type of aircraft, and the frequency of flights.

The Nine 'Freedoms of the Air'

International air transport is governed by bilateral air service agreements between individual countries. The biggest exception is the 28-member European Union (EU), which attempts to negotiate air travel agreements for its entire membership. These agreements are negotiated to utilize nine "freedoms of the air." The ICAO notes that only the first five freedoms have been recognized in international treaties.

The first two freedoms, otherwise known as "transit rights," are essentially universally recognized. They grant airlines the right to fly in a foreign country's air space and to land for refueling or maintenance. The third through seventh freedoms involve loading and unloading passengers on international flights.

The eighth and ninth freedoms (the ninth being stand-alone cabotage, or the right to fly domestic routes in a foreign country) are granted in very rare cases. The EU carriers can fly domestic routes in other EU countries. In 1986, Australia and New Zealand created a single aviation market, which allows their airlines to operate domestic routes in both countries.

Although the Asia-Pacific airline market is huge and thriving, it is hampered by a lack of uniformity of air transport rules. In some countries, such as Thailand and Malaysia, regulators place few restrictions on the industry, allowing for the growth of budget carriers and increased competition on international routes. Other governments, including those of China, Indonesia, and India, limit the number of international routes that foreign carriers may fly and may set fare levels on certain routes. These rules inhibit network expansion and make it less likely that carriers will lower prices and improve services.

Open Skies Agreements

As the global Passenger Airlines industry increasingly moved toward deregulation, bilateral agreements typically became more liberalized. The trend was started by the U.S. in the early 1990s, when it began negotiating “open skies” agreements with several countries. These pacts are now being negotiated worldwide, both bilaterally and among groups of countries. Essentially, the agreements grant unlimited third and fourth freedoms concerning loading and unloading passengers in foreign countries – to all carriers from the countries involved.

The open skies agreements allow international carriers to create alliances and code-sharing arrangements, and to gain antitrust immunity. Airlines benefit by gaining greater access to international routes, which are more lucrative than domestic routes. The pacts permit airlines to set their own prices and offer discount rates, paving the way for low-cost airlines to provide international service. They also set no limit on the number of foreign carriers, or the number of flights permitted into the partner countries.

Open skies agreements can create major problems for countries attempting to protect a state-owned airline or a burgeoning (but still small) airlines industry. Because traffic would likely move to lower-cost and more efficient foreign airlines, countries with weaker and less efficient airline industries are far less likely to reach these types of accords.

These agreements also leave some problems unresolved. If a foreign owner acquires an airline, it remains unclear whether previous agreements still hold and allow the acquired airline to continue to provide service on all its international routes. This lack of clarity is one reason international mergers in the industry remain difficult. In addition, the agreements do not allow airlines to operate domestic routes in foreign countries.

The Kona Agreement, or Multilateral Agreement on the Liberalization of International Air Transportation (MALIAT), signed in 2002, may provide a blueprint for future multilateral open skies accords. Five countries – the U.S., Singapore, New Zealand, Brunei, and Chile – agreed to create open traffic rights, capacity, and pricing rules, as well as code-sharing allowances for all their carriers. In an attempt to promote foreign ownership, the agreement loosened but did not remove domestic ownership rules. Samoa, Tonga, Cook Islands, and Peru later signed this accord (though Peru and Samoa withdrew in 2005 and 2019, respectively). Viewed as a model for multilateral agreements, it could streamline the process of liberalizing the skies and creating stronger economic relations.

HOW TO ANALYZE A COMPANY IN THIS INDUSTRY

At CFRA, we recommend a top-down approach to valuation. An examination of the industry drivers outlined in pages 7 to 9 – Consumer Confidence Index, crude and jet fuel costs, passenger traffic growth, airline traffic statistics, and projections for aircraft fleet and total new deliveries – is a good starting point.

Industry Drivers

Trade associations provide a wide variety of data offering clues about the health and outlook of the Passenger Airlines industry. The following section discusses some of the most important indicators.

◆ **Consumer confidence.** Consumers from every geographic region are surveyed about their near-term spending plans and overall economic expectations. One component of consumer confidence that has direct relevance for airlines is consumers' plans for vacation travel, along with the percentage of consumers planning to travel by air.

◆ **Jet fuel prices.** Changes in jet fuel prices are often the swing factor in airline profits. It is important to remember, however, that because of purchase contracts and hedging strategies, airlines buy very little of their fuel at the spot market price.

◆ **Passenger traffic.** This statistic is usually reported in two forms: the total number of passengers transported and revenue passenger kilometers (RPKs) or revenue passenger miles (RPMs), the number of fare-paying passengers multiplied by the number of kilometers or miles flown. RPK or RPM figures are closely followed by the industry. Most major airlines report traffic statistics on a monthly basis. This data is not seasonally adjusted, so the year-over-year change, rather than the monthly changes, is the best gauge of an airline's health.

◆ **Flight capacity.** Capacity is reported in available seat kilometers (ASKs) or available seat miles (ASMs), which is the total number of seats multiplied by the kilometers or miles flown. Most airlines report ASKs or ASMs monthly. During times of economic weakness, when demand shrinks or grows slowly, airlines attempt to reduce capacity or to transfer capacity to regions where demand is stronger. Likewise, during times of economic growth, airlines attempt to increase capacity.

◆ **Load factor.** Load factor, the percentage of ASKs or ASMs that are being used by paying passengers, is a measure of capacity utilization. When RPKs or RPMs increase at a faster rate than ASKs or ASMs, capacity utilization rises. This figure is also reported by most airlines on a monthly basis. While load factor in isolation does not indicate that an airline is profitable, a higher percentage generally means greater profitability.

◆ **Overall yields.** Yields measure the average revenue generated from passenger and freight operations. Higher yields generate increased profitability if costs are stable. If prices are under pressure, yields will fall. Sometimes airlines break out passenger yields from freight yields. Passenger yields reflect fares, while freight (or cargo) yields represent freight prices. Overall yield is measured as airline operating revenue per RPK or RPM for both passenger and freight services.

Company Analysis

Factors to examine when analyzing an airline include its traffic and pricing, market share, costs, profitability and load factor, balance sheet stability, service and safety record, and equity valuation, as discussed below. Other important factors are managerial strength and employee morale. Although difficult to quantify, these characteristics are typically reflected in an airline's cost and asset performance measures.

Revenue-Related Factors

Traffic is the starting point in analyzing a passenger airline. It can be measured in terms of RPKs or enplanements (the total number of people carried). Both provide useful measures of a carrier's market share. Traffic levels and yield, a measure of pricing trends, are the two determinants of revenues.



Watch Out! Companies may make a business decision to modify ticketing policies, or have pricing agreements with other airlines, which may result in acceleration or delay in the recognition of deferred revenues on the balance sheet to passenger revenue on the income statement. A change in ticketing policy may enable management to pull forward revenues that had previously been deferred. The pulling forward of revenues in the current period often occurs at the expense of future period revenues. Airlines may also have pricing agreements with other airlines such as when a passenger requires travel on two different airlines to reach a destination but is charged a single price from one of the airlines. As a result of these agreements, estimated revenues are recorded at the time the service is provided and may be subsequently adjusted for after that time.

Traffic: RPKs or RPMs

For any given period, RPKs or RPMs equal the total number of passengers enplaned, multiplied by the average distance flown. This measure is superior to enplanements as an analytical tool because airline revenues closely correspond to RPK or RPM levels. Short-haul carriers sometimes rank high based on total enplanements but appear smaller when measured by RPKs or RPMs, or revenues. Changes in RPKs should be compared with industry averages to determine whether a carrier is gaining or losing market share.

Traffic performance must be viewed in conjunction with yield analysis to determine whether a carrier is “buying” market share at the cost of profits. Publicly listed carriers typically release their monthly traffic data via press releases, stock exchange announcements, or on their websites. Growth rates should not be confused with profitability. Seasonality is another factor. Leisure travel tends to increase during public holidays and school vacation periods, though these times vary from country to country in Asia.

Yield: A Look at Pricing Trends

The other component of revenues is pricing or fare levels. The passenger revenue generated per RPK or RPM is commonly referred to as the yield. It is useful to compare the trend in a carrier's yield with the trend in yield for other airlines; however, comparing the yield levels for different carriers is useful only if the carriers provide a similar mix of flights.

Although international flights have yields that tend to be lower than those on domestic routes, they may be more profitable. Thus, one should take into consideration the percentage of domestic versus international travel in a carrier's mix. In addition, airlines that have a larger mix of business or first-class seats will report yields that are higher than carriers flying the leisure trade on identical routes. While short-haul flights tend to have higher yields, their costs are also greater, and their load factors tend to be lower.

Market Share and Geographic Mix

The best method for determining a carrier's relative market performance is to look at the specific city pairs that it serves – its share of total enplanements at the airports where it operates. An analysis of city-pair traffic can pinpoint exactly where a carrier is facing the greatest degree of competitive pressure. Carriers that have low market share – or that serve cities where no single airline dominates – will face greater competitive pressure on fares.

An airline's geographic mix is also important. Economic growth and the level of discretionary spending – and, hence, air travel – vary from region to region and nation to nation. Airlines that serve a limited market can see their traffic diverge from overall industry trends. Likewise, carriers that derive a high percentage of their total RPKs or RPMs from international travel may see their traffic occasionally out of step with those that serve domestic markets exclusively.

Whatever markets an airline serves, however, it is not locked into them in the same way that a railroad is because airlines can reposition their assets depending on where the best growth opportunities lie. Airlines can shift resources out of weaker international routes and into stronger ones, or, on the domestic side, out of weak, underperforming, or money-losing markets into those with better growth potential. There are limits to this strategy, however, since not all aircraft types can be operated in every market. For example, jumbo jets need dense, long-haul routes for profitable operation and require airports with long runways. Additionally, in China, regulators may compel airlines to service an unprofitable domestic route.

Costs

When evaluating an airline, it is often more important to analyze its cost performance than its traffic. Among startup airlines, the aggressive, high-growth carrier is frequently the one to suffer defeat. In contrast, carriers that pursue a manageable level of growth while controlling costs tend to thrive.



Watch Out! Most companies in the Passenger Airlines industry offer frequent flyer programs to reward passengers for their loyalty in utilizing an airline or for purchasing the services or products of its partners. Airlines are required to provide an accrual for the obligation to transport a passenger utilizing miles or points. The accrual is typically based on estimates of (1) marginal costs such as fuel, food, and reservations associated with flying a passenger redeeming miles or points and (2) “breakage” or the probability that miles accrued will expire unused. CFRA notes a company could adjust these assumptions to help manipulate earnings by either (1) underestimating the marginal cost per passenger or (2) increasing breakage assumptions.

◆ **Labor.** Under normal circumstances, fuel costs are the largest cost category for many carriers. However, due to the Covid-19 outbreak, demand for air travel has reduced significantly. Fuel costs as a variable cost component have diminished as a result. Together with the recent decline in fuel prices, in CFRA's view, labor costs will surpass fuel costs as the largest cost component for the airlines given the conditions.

Airlines face pressure to limit their rate of cash burn, particularly after the Covid-19 outbreak. To preserve cash, many airlines laid off workers as air travel demand plunged. However, to a certain extent, airlines still need to retain a fair amount of labor to maintain productivity. How much an airline spends on labor depends on its efficiency and the labor intensity of its routes. For example, short routes on which meals are not served have lower personnel and cleaning costs than those that require meal service. They also have lower gate rental fees. Aircraft can be turned around quickly because they do not require catering entrances and other facilities needed by long-haul flights; also, they do not need to refuel as often. Thus, short-haul operators typically incur lower labor costs than do the major national airlines.

Outsourcing certain functions, such as maintenance or reservation services, reduces labor costs as a percentage of the total and can cut total costs as well. Similarly, a technology-intensive airline – one with

a high percentage of sales booked over the internet, for example, and/or electronic ticketing and self-service check-in kiosks – will enjoy high labor productivity.

While most airline employees are union members, wages and work rules differ from carrier to carrier. Aircraft type and design will determine the size of the flight crew: some aircraft require two co-pilots, while others need only one. Non-union airlines instruct flight attendants to perform tasks that are restricted to fleet service operators in union airlines. Some airlines offer sizeable profit-sharing programs or may have employee stock ownership programs (ESOPs) in addition to salaries and benefits. Although these programs may not be recognized as an expense category on the income statement, airlines that offer them will record a charge to earnings to cover distributions under the ESOP plan.



Watch Out! The various assumptions used to determine pension expense and pension liability enable companies to manage earnings. The use of both an expected rate of return assumption and a market-related value for plan assets can result in a considerable difference between the asset returns earned on the plan and the asset returns used in calculating pension expense. Additionally, the selection of an aggressive expected return assumption can significantly boost a company's earnings. Finally, the application of estimates for items such as discount rates, mortality assumptions, increases in employee compensation levels, and gain/loss amortization periods create additional room for management manipulation or errors.

◆ **Fuel.** Airlines are energy-intensive operations; fuel accounted for roughly 24% of an airline's operating costs in 2019 (pre-pandemic) and is estimated to increase to around 30% in 2022, and is forecast to be 28% in 2023, according to IATA. Along with the number of engines, the age of a carrier's aircraft greatly influences fuel consumption rates, as newer planes are more fuel-efficient than older models.

Carriers specializing in short hauls, which involve frequent departures, consume more fuel than do long-haul airlines, due to a disproportionate amount of fuel burned during take-off and landing. However, short-haul carriers operating turboprop aircraft consume less fuel than those employing jets.

Most airline managers now see the value of using futures and swaps to hedge a majority of their fuel price exposure. Thus, under normal conditions, the average price per gallon of jet fuel may vary 10%-15% from carrier to carrier, as airlines engage in fuel hedging to varying degrees. In some countries (such as China), the government determines fuel prices, so fuel hedging would not be available. In addition, with many carriers suffering significant hedging losses following the retreat in oil prices from the July 2008 highs and again at the end of 2014, airlines have been more cautious.



Watch Out! Since companies typically gain from fuel hedges against fuel expense, the decision to report these gains as non-operating items may lead to inconsistencies when comparing across airlines. From an accounting perspective, gains or losses recognized on hedging instruments are generally deferred in accumulated other comprehensive income until the cost of the jet fuel being hedged is recognized in earnings. However, any hedging ineffectiveness is recognized in earnings immediately. The impact of the hedging activity is usually reported net of fuel expenses in the operating section of the income statement. However, there is diversity in practice in presenting the impact of hedging activities due to lack of specific guidance prior to the issuance of ASU 2017-12. Therefore, certain operating metrics may not be comparable across airline companies.

◆ **Maintenance.** Aircraft age greatly influences the level of maintenance required. Just as important, however, is the spacing of fleet ages. Every five years or so, each aircraft must undergo an intensive maintenance program known as the D-check. Airlines that fail to space orders evenly, or that buy second-hand aircraft of the same age, will face a bunched-up maintenance program at some point. If this happens, it will distort the results of a comparative analysis.



Watch Out! Different accounting choices with respect to capitalization versus expensing of maintenance costs can have a significant impact on earnings. Maintenance expense for airlines that own or lease aircraft consists of regular recurring maintenance in addition to more periodic “heavy” maintenance where an aircraft may be taken out of service for an extended period of time. Companies may choose to expense all maintenance as incurred or elect to expense recurring maintenance as incurred and capitalize and amortize “heavy” maintenance expenditures between expected “heavy” maintenance visits.

Profitability and Load Factor

A key determinant of profitability is capacity utilization, as measured by load factor: a carrier’s RPKs or RPMs divided by its ASKs or ASMs. ASKs or ASMs are calculated as aircraft kilometers or miles flown, multiplied by the number of seats available for revenue passenger use. Given airlines’ high fixed costs, the more passengers that can be boarded before each departure, the more profitable the flight will be, provided variable costs are covered. It is important to realize, however, that rising load factors show only that capacity utilization is increasing, not necessarily that passenger volumes or profitability are improving.

RASM vs. CASM

Comparing passenger revenues per ASK or ASM (RASK or RASM) with costs per ASK or ASM (CASK or CASM) is a common way of measuring airline profitability. RASK or RASM is the indicator most closely watched by financial analysts, but both measures are crucial. In the past, United Airlines and American Airlines demonstrated that simply removing seats could increase RASM.

Since airlines often earn ancillary income from other sources, CFRA also likes to consider a total RASK or RASM measure that includes cargo operations, sales of frequent-flyer miles, in-flight liquor, entertainment or telephone services, and other amenities. These non-passenger revenue sources can make the difference between an operating loss and a profit.

Balance Sheet Stability and Cash Burn

Given the high debt levels carried by many airlines and the frequency of large operating losses, it is important to assess the strength of an airline’s balance sheet. Metrics such as debt-to-equity and debt-to-total-capitalization should be examined, as should cash on hand to cover interest payments, and other liquidity needs.

During times of industry losses, it is important to determine how quickly an airline may be using its available cash (its cash burn rate). In such cases, it is important to gauge how long an airline can withstand a downturn and remain solvent.



Watch Out! Supplier financing arrangements (also known as reverse factoring) can delay a company’s payments to its suppliers. There are several variations of these programs, but basically, a company arranges for a financial institution to pay its suppliers and the company repays the financial institution later. This effectively lengthens the supplier payment terms and improves working capital. However, operating cash flows can be overstated if the cash payments to the financial institution are presented as financing outflows rather than operating cash flows, which would be the case if the company pays the supplier directly. Furthermore, companies may not reclassify accounts payable under reverse factoring programs into financial liabilities, which may understate leverage ratios.

Service and Safety Record

One way to measure an airline's service performance is by the percentage of its flights that arrive on time. Carriers that route passengers through hubs into connecting flights are more likely to have a lower on-time performance than those offering direct point-to-point flights.

On-time performance is generally worse during the winter when the weather can wreak havoc with schedules. In addition, airlines serving congested metropolitan markets often suffer from poor on-time performance caused by air traffic control-related delays. The on-time numbers are not an infallible measure, though, because some airlines lengthen their estimated flight times to allow for delays.

Another way to assess service is to look at the bumping ratio – the percentage of passengers denied boarding. Airlines that overbook flights will have high bumping ratios. Bumped passengers are compensated for their inconvenience, often with cash, vouchers, or frequent-flyer credits. Consequently, airlines with high levels of overbooking may still have high levels of consumer satisfaction. A case could even be made that high bumping ratios coincide with wider profit margins, because it indicates that flights are fully loaded with passengers.

A carrier's safety performance can sometimes play an important role in determining consumers' choice of airline.

GLOSSARY

Alliance—Partnerships between multiple international airlines to expand networks and offer customers more convenient travel options.

Available seat kilometer (ASK)/ Available seat miles (ASMs)—A measure of airline capacity; calculated as aircraft kilometers/miles flown multiplied by the number of seats available for revenue passenger use.

Available tonne kilometer (ATK)—A measure of airline cargo capacity; calculated as aircraft kilometers flown multiplied by the space available for revenue cargo use.

Break-even load factor—The load factor at which operating revenue will equal costs.

Bumping—The practice of denying ticketed passengers the right to board an overbooked flight. Bumped passengers typically receive compensation.

Cabotage rights—The rights granted to a carrier to fly domestic routes within a foreign country.

City pair—The departure and arrival cities of a flight itinerary.

Code sharing—Agreement in which one carrier's flight schedule is listed under another airline's code on a computer reservation system, eliminating the need for multiple tickets.

Enplanements—The total number of passengers, both originating and connecting, who board an aircraft.

Freight tonne kilometer (FTK)—Calculated as the distance aircraft flown in kilometers multiplied by the number of tonne of freight transported.

Frequent-flyer program—Awards system designed to win loyalty by giving customers points based on the number of kilometers flown.

Full-service carriers (FSCs)—FSCs usually operate long-haul routes and between the major airports. Air fares are generally more expensive than low-cost carriers, but perks such as loyalty programs, lounge access, luggage allowance, food and beverages, and in-flight entertainment are included in the ticket prices. FSCs also offer better cabin environment (more legroom space and wider seat pitch) and passengers can choose between economy, basic economy, premium economy, business class, or first class seats.

Load factor—A measurement of total aircraft seating capacity that is sold; calculated as revenue passenger kilometers (RPK) divided by available seat kilometers (ASKs) and reported on a percentage basis.

Low-cost carriers (LCCs)—LCCs' air fares are usually cheaper than FSCs, but the standard luxuries offered by FSCs are excluded. Historically, LCCs offer only a single class cabin; however, in recent years, many LCCs have included premium seats, extra legroom, and priority boarding privileges for an additional fee. LCCs typically operate short-haul routes and between secondary airports, so as to avoid the pricey landing fees at major airports.

Open skies accord—An aviation agreement between two nations giving their respective air carriers greater access to each other's markets and freedom to set fares.

Revenue passenger kilometer (RPK)/ Revenue passenger miles (RPM)—A measure of passenger traffic, defined as number of passengers multiplied by the distance travelled.

Pitch—Passenger legroom; the distance between seats in an airline cabin. Recently, carriers eager to differentiate their services have touted expanded pitch as a selling strategy.

Revenue tonne kilometer (RTK)—Represents one tonne of cargo transported one kilometer in revenue service.

Slot—A rationed position in an airport's schedule for takeoff or landing. Only a handful of airports – those that are at designed capacity – use a slot system.

Yield—A measure of unit revenue, computed by dividing passenger revenues by RPK or RPM. Yields on freight routes are calculated by dividing freight revenue with RTKs.

INDUSTRY REFERENCES

PERIODICALS

Airport Technology

airport-technology.com

An online publication covering airport news and trends.

Aviation Week

aviationweek.com

Provides coverage on all aspects of global aviation and flight; includes Aviation Week & Space Technology and Aerospace Daily.

Central News Agency

cna.com.tw

Taiwan's semi-official wire service.

Flight Airline Business

flightglobal.com

Provides in-depth coverage of the global passenger airlines industry.

TRADE ASSOCIATIONS

Airlines for America

airlines.org

Represents larger passenger airlines and leading air cargo companies; produces the Air Transport Annual Report, a detailed annual summary of operating and financial statistics of leading carriers and the monthly Scheduled Passenger Traffic Statistics.

Airports Council International

aci.aero

An international organization representing 535 airports; provides airport traffic statistics and advocates policies to global bodies in support of its members.

Association of Asia Pacific Airlines

aapairlines.org

A trade association representing 15 airlines based in the Asia-Pacific region; provides monthly traffic statistics and offers advocacy services for its members on global policy issues.

International Air Transport Association

iata.org

An international trade association representing the global interests of member carriers; provides a variety of international flight statistics.

REGULATORY AGENCIES

Bureau of Transportation Statistics

bts.gov

Part of the U.S. Department of Transportation that compiles, analyzes, and releases information on the nation's transportation systems.

Civil Aviation Administration of China

caac.gov.cn/en/SY/

Aviation regulator of the People's Republic of China.

European Union Aviation Safety Agency

easa.europa.eu

A European Union authority responsible for civil aviation safety.

Federal Aviation Administration

faa.gov

Monitors commercial and general aviation safety, records and investigates complaints filed against airlines, certifies carriers, compiles statistics, promotes aviation education, and crafts regulations governing aviation safety.

U.S. Department of Transportation

transportation.gov

A federal agency responsible for the regulation of all transport modes; produces various performance, budget, and planning reports that summarize the agency's activities during the past fiscal year.

U.S. Energy Information Administration

eia.gov

A statistical agency that provides independent data, forecasts, and analysis regarding energy and its interaction with the economy and the environment.

OTHERS

Air Carrier Financial Statistics

bts.gov

Presents airline financial statistics obtained from airline company reports to the U.S. Department of Transportation.

Centre for Aviation

centreforaviation.com

An independent aviation market intelligence provider.

European Organisation for the Safety of Air Navigation (EUROCONTROL)

eurocontrol.int

A pan-European, civil-military organization dedicated to supporting European aviation.

International Civil Aviation Organization

icao.int

A United Nations agency for civil aviation.

OAG Aviation Worldwide Limited

oag.com

Provides flight schedule information and oversees schedule database; offers a variety of useful statistics monitoring flight trends throughout the world.

COMPARATIVE COMPANY ANALYSIS

		Operating Revenues															
Company	Yr. End	Million \$							CAGR(%)			Index Basis (2008=100)					
		2022	2021	2020	2019	2018	2017	2016	10-Yr.	5-Yr.	1-Yr.	2022	2021	2020	2019	2018	2017
GLOBAL PASSENGER AIRLINES																	
AIR CANADA	DEC	12,232.7	5,057.3	4,577.8	14,749.8	13,193.5	12,959.3	10,926.7	3.2	0.4	158.7	112	46	42	135	121	119
AIR CHINA LIMITED	DEC	7,669.4	11,732.5	10,646.0	19,558.0	19,886.6	18,652.0	16,227.9	(6.2)	(15.3)	(29.0)	47	72	66	121	123	115
AIR FRANCE-KLM SA	DEC	28,206.7	16,280.0	13,563.3	30,511.7	30,028.6	31,060.3	26,228.2	0.4	0.4	84.4	108	62	52	116	114	118
AIR NEW ZEALAND LIMITED	JUN	1,700.9	1,755.1	3,121.6	3,883.9	3,723.4	3,740.7	3,729.6	(4.8)	(11.8)	8.7	46	47	84	104	100	100
CAPITAL A BERHAD	DEC	1,503.2	459.6	853.0	2,972.0	2,703.3	2,460.1	1,580.5	2.9	(8.0)	243.8	95	29	54	188	171	156
ALASKA AIR GROUP, INC.	DEC	9,646.0	6,176.0	3,566.0	8,781.0	8,264.0	7,894.0	5,925.0	7.6	4.1	56.2	163	104	60	148	139	133
AMERICAN AIRLINES GROUP INC.	DEC	48,971.0	29,882.0	17,337.0	45,768.0	44,541.0	42,622.0	40,142.0	7.0	2.8	63.9	122	74	43	114	111	106
ANA HOLDINGS INC.	# MAR	12,844.6	8,402.3	6,588.5	18,347.4	18,575.1	18,566.0	15,831.9	(3.2)	(10.4)	40.0	81	53	42	116	117	117
ASIANA AIRLINES, INC.	DEC	4,935.3	3,643.3	3,563.6	5,965.3	6,452.6	6,172.8	4,787.4	0.5	(1.2)	43.0	103	76	74	125	135	129
AZUL S.A.	DEC	3,016.7	1,790.4	1,106.1	2,846.6	2,339.5	2,325.9	2,049.6	19.4	15.7	59.9	147	87	54	139	114	113
CATHAY PACIFIC AIRWAYS LIMITED	DEC	6,545.3	5,846.2	6,053.4	13,733.7	14,181.5	12,450.8	11,961.5	(6.4)	(12.1)	12.0	55	49	51	115	119	104
CEBU AIR, INC.	DEC	1,019.6	305.7	470.8	1,672.1	1,413.0	1,361.1	1,249.5	4.1	(3.6)	260.5	82	24	38	134	113	109
CHINA AIRLINES, LTD.	DEC	4,906.2	5,010.0	4,102.5	5,630.8	5,577.0	5,262.7	4,353.5	0.7	(0.7)	8.6	113	115	94	129	128	121
CHINA EASTERN AIRLINES CORPORATION LIMITED	DEC	6,685.5	10,566.9	8,981.9	17,357.7	16,710.5	15,633.3	14,194.8	(6.1)	(14.6)	(31.3)	47	74	63	122	118	110
CHINA SOUTHERN AIRLINES COMPANY LIMITED	DEC	12,622.4	16,000.4	14,177.8	22,163.5	20,882.4	19,593.5	16,534.1	(1.5)	(7.3)	(14.3)	76	97	86	134	126	119
COPA HOLDINGS, S.A.	DEC	2,965.0	1,509.9	801.0	2,707.4	2,677.6	2,521.8	2,219.2	2.8	3.3	96.4	134	68	36	122	121	114
DELTA AIR LINES, INC.	DEC	50,582.0	29,899.0	17,095.0	47,007.0	44,438.0	41,138.0	39,450.0	3.3	4.2	69.2	128	76	43	119	113	104
DEUTSCHE LUFTHANSA AG	DEC	35,058.2	19,155.0	16,664.2	40,959.5	40,780.9	42,808.6	33,474.1	0.8	(1.7)	94.8	105	57	50	122	122	128
EASYJET PLC	SEP	6,428.4	1,968.5	3,891.1	7,853.2	7,694.3	6,766.7	6,079.7	4.1	2.7	295.7	106	32	64	129	127	111
EVA AIRWAYS CORP.	DEC	4,494.3	3,748.1	3,169.8	6,059.7	5,877.4	5,513.4	4,464.6	1.4	(3.3)	32.9	101	84	71	136	132	123
FINNAIR OYJ	DEC	2,518.5	953.5	1,014.3	3,476.3	3,247.2	3,084.1	2,445.7	(0.4)	(1.7)	181.1	103	39	41	142	133	126
GOL LINHAS AÉREAS INTELIGENTES S.A.	DEC	2,875.0	1,334.1	1,227.0	3,449.3	2,947.7	3,118.1	2,987.0	6.5	8.0	104.5	96	45	41	115	99	104
HAINAN AIRLINES HOLDING CO., LTD.	DEC	3,315.0	5,352.5	4,503.4	10,396.4	9,852.7	9,206.5	5,858.5	(2.3)	(17.5)	(32.8)	57	91	77	177	168	157
HAWAIIAN HOLDINGS, INC.	DEC	2,641.3	1,596.6	844.8	2,832.2	2,837.4	2,675.1	2,432.4	3.0	(0.3)	65.4	109	66	35	116	117	110
INTERGLOBE AVIATION LIMITED	# MAR	6,630.0	3,416.9	2,001.2	4,748.5	4,113.0	3,537.6	2,867.6	16.6	6.9	77.1	231	119	70	166	143	123
INTERNATIONAL CONSOLIDATED AIRLINES GROUP S.A.	DEC	24,651.1	9,615.6	9,548.6	28,623.1	27,774.2	27,473.6	23,822.4	2.4	0.2	172.8	103	40	40	120	117	115
JAPAN AIRLINES CO., LTD.	# MAR	10,604.8	5,622.1	4,351.1	13,115.3	13,421.7	13,024.4	11,560.2	(5.5)	(11.9)	41.9	92	49	38	113	116	113
JEJU AIR CO., LTD.	DEC	558.6	229.3	346.5	1,198.8	1,131.3	932.7	621.0	NA	(6.8)	157.3	90	37	56	193	182	150
JET2 PLC	# MAR	NA	1,619.1	544.7	4,463.0	3,860.4	3,340.6	2,165.6	6.1	(6.6)	211.5	NA	75	25	206	178	154
JETBLUE AIRWAYS CORPORATION	DEC	9,158.0	6,037.0	2,957.0	8,094.0	7,658.0	7,012.0	6,584.0	6.3	5.5	51.7	139	92	45	123	116	107
JUNEYAO AIRLINES CO., LTD	DEC	1,190.4	1,852.3	1,547.3	1,547.3	2,088.8	1,907.5	1,429.9	6.3	(7.9)	(30.2)	83	130	108	108	146	133
KOREAN AIR LINES CO., LTD.	DEC	11,208.6	7,569.8	6,993.2	10,727.0	11,688.0	11,319.5	9,745.0	1.3	3.1	56.3	115	78	72	110	120	116
LATAM AIRLINES GROUP S.A.	DEC	9,362.5	4,884.0	3,923.7	10,070.1	9,895.5	9,613.9	8,988.3	(0.4)	(0.5)	91.7	104	54	44	112	110	107
NORWEGIAN AIR SHUTTLE ASA	DEC	1,833.9	575.2	1,061.2	4,950.9	4,646.0	3,780.8	3,015.7	3.5	(10.2)	256.5	61	19	35	164	154	125
PAL HOLDINGS, INC.	DEC	2,501.6	1,140.0	1,150.4	3,046.4	2,869.0	2,591.2	2,310.3	6.8	1.5	137.2	108	49	50	132	124	112
PEGASUS HAVA TASIMACILIGIANONIM SIRKETI	DEC	2,283.6	807.7	646.8	1,852.9	1,563.1	1,413.0	1,053.3	36.4	51.5	300.7	217	77	61	176	148	134
PT. GARUDA INDONESIA (PERSERO) TBK	DEC	2,100.1	1,336.7	1,492.3	4,572.6	4,330.4	4,177.3	3,863.9	(4.9)	(12.8)	57.1	54	35	39	118	112	108
PUBLIC JOINT STOCK COMPANY AEROFLOT - RUSSIAN AIRLINES	# JAN	NA	6,552.9	4,086.3	10,918.3	8,807.0	9,265.5	8,101.3	NA	NA	NA	NA	81	50	135	109	114

Operating Revenues																	
Company	Yr. End	Million \$							CAGR(%)			Index Basis (2008=100)					
		2022	2021	2020	2019	2018	2017	2016	10-Yr.	5-Yr.	1-Yr.	2022	2021	2020	2019	2018	2017
GLOBAL PASSENGER AIRLINES																	
QANTAS AIRWAYS LIMITED	JUN	6,275.3	4,448.9	9,843.3	12,597.1	12,668.6	12,322.2	12,068.4	(5.3)	(10.7)	53.5	52	37	82	104	105	102
SAS AB (PUBL)	OCT	2,883.7	1,624.9	2,308.0	4,780.0	4,887.6	5,089.0	4,374.9	(3.0)	(5.7)	128.0	66	37	53	109	112	116
SINGAPORE AIRLINES LIMITED	# MAR	13,367.0	5,624.3	2,837.4	11,235.9	12,049.9	12,063.0	10,644.5	(6.5)	(12.5)	99.6	126	53	27	106	113	113
SKYWEST, INC.	DEC	3,004.9	2,713.5	2,127.1	2,972.0	3,221.7	3,122.6	3,063.7	(1.6)	(0.8)	10.7	98	89	69	97	105	102
SOUTHWEST AIRLINES CO.	DEC	23,814.0	15,790.0	9,048.0	22,428.0	21,965.0	21,146.0	20,289.0	3.4	2.4	50.8	117	78	45	111	108	104
SPICEJET LIMITED	# MAR	NA	870.2	706.9	1,643.4	1,316.5	1,192.5	955.5	5.2	1.3	27.7	NA	91	74	172	138	125
SPIRIT AIRLINES, INC.	DEC	5,068.4	3,230.8	1,810.0	3,830.5	3,323.0	2,643.6	2,320.0	14.4	13.9	56.9	218	139	78	165	143	114
SPRING AIRLINES CO., LTD.	DEC	1,213.4	1,709.2	1,435.7	2,126.1	1,906.7	1,686.0	1,214.0	4.0	(5.3)	(22.9)	100	141	118	175	157	139
THAI AIRWAYS INTERNATIONAL PUBLIC COMPANY LIMITED	DEC	3,004.6	649.7	1,589.5	6,184.1	6,102.6	5,855.2	5,023.8	(6.8)	(11.5)	381.5	60	13	32	123	121	117
TÜRK HAVA YOLLARI ANONİM ORTAKLIĞI	DEC	16,628.8	7,375.4	6,254.4	12,624.0	11,870.3	10,509.1	8,371.6	35.6	50.9	219.5	199	88	75	151	142	126
UNITED AIRLINES HOLDINGS, INC.	DEC	44,955.0	24,634.0	15,355.0	43,259.0	41,303.0	37,784.0	36,558.0	1.9	3.5	82.5	123	67	42	118	113	103
VIETJET AVIATION JOINT STOCK COMPANY	DEC	1,699.8	563.0	784.6	2,179.8	2,179.8	2,309.3	1,863.6	NA	(1.0)	211.8	91	30	42	117	117	124
VIETNAM AIRLINES JSC	DEC	2,988.7	1,220.4	1,745.7	4,231.3	4,172.8	4,172.8	3,654.2	0.8	(3.2)	152.9	82	33	48	116	114	114
WIZZ AIR HOLDINGS PLC	# MAR	NA	1,847.8	867.4	3,034.4	2,602.8	2,388.8	1,680.1	8.1	1.1	125.1	NA	110	52	181	155	142
Note: Data as originally reported. CAGR-Compound annual growth rate. #Of the following calendar year.																	
Source: S&P Capital IQ																	

Note: Data as originally reported. CAGR-Compound annual growth rate. #Of the following calendar year.
Source: S&P Capital IQ.

		Net Income															
Company	Yr. End	Million \$						CAGR(%)			Index Basis (2008=100)						
		2022	2021	2020	2019	2018	2017	2016	10-Yr.	5-Yr.	1-Yr.	2022	2021	2020	2019	2018	2017
GLOBAL PASSENGER AIRLINES																	
AIR CANADA	DEC	(1,256.1)	(2,846.3)	(3,647.0)	1,138.0	27.1	1,617.9	652.2	28.4	NM	(52.8)	(193)	(436)	(559)	174	4	248
AIR CHINA LIMITED	DEC	(5,599.3)	(2,619.8)	(2,207.1)	920.4	1,066.7	1,112.7	981.4	NA	NM	132.1	(571)	(267)	(225)	94	109	113
AIR FRANCE-KLM SA	DEC	778.0	(3,743.9)	(8,685.0)	325.4	480.9	195.7	836.1	NA	34.9	NM	93	(448)	NM	39	58	23
AIR NEW ZEALAND LIMITED	JUN	(367.8)	(203.9)	(293.1)	185.3	264.3	279.7	330.1	NA	NM	102.4	(111)	(62)	(89)	56	80	85
CAPITAL A BERHAD	DEC	(599.6)	(717.9)	(1,271.9)	(77.1)	475.6	400.5	361.6	NA	NM	(12.2)	(166)	(199)	(352)	(21)	132	111
ALASKA AIR GROUP, INC.	DEC	58.0	478.0	(1,324.0)	769.0	437.0	960.0	797.0	(15.6)	(43.0)	(87.9)	7	60	(166)	96	55	120
AMERICAN AIRLINES GROUP INC.	DEC	127.0	(1,993.0)	(8,885.0)	1,686.0	1,412.0	1,282.0	2,584.0	NA	(37.0)	NM	5	(77)	(344)	65	55	50
ANA HOLDINGS INC.	# MAR	673.1	(1,182.8)	(3,658.5)	257.0	999.7	1,354.8	886.3	NA	NM	(64.5)	76	(133)	(413)	29	113	153
ASIANA AIRLINES, INC.	DEC	87.8	(304.3)	(367.4)	(680.2)	(177.8)	235.8	40.9	6.1	(15.2)	NM	215	(744)	(898)	NM	(434)	576
AZUL S.A.	DEC	(136.6)	(756.2)	(2,086.3)	(597.8)	(164.2)	128.1	(38.8)	15.5	NM	(82.9)	352	1,948	5,375	1,540	423	(330)
CATHAY PACIFIC AIRWAYS LIMITED	DEC	(839.8)	(708.8)	(2,792.1)	217.1	299.4	(161.1)	(74.2)	NA	39.1	18.5	1,132	956	3,765	(293)	(404)	217
CEBU AIR, INC.	DEC	(251.2)	(483.6)	(462.9)	179.9	74.8	158.2	196.9	NA	NM	(43.9)	(128)	(246)	(235)	91	38	80
CHINA AIRLINES, LTD.	DEC	93.1	338.5	5.0	(40.1)	58.5	74.4	17.6	NA	5.3	(69.5)	528	1,919	28	(227)	332	422
CHINA EASTERN AIRLINES CORPORATION LIMITED	DEC	(5,420.5)	(1,922.7)	(1,812.8)	458.9	393.9	976.2	649.2	NA	NM	206.1	(835)	(296)	(279)	71	61	150
CHINA SOUTHERN AIRLINES COMPANY LIMITED	DEC	(4,738.4)	(1,905.2)	(1,660.7)	380.7	433.7	908.9	728.2	NA	NM	170.0	(651)	(262)	(228)	52	60	125
COPA HOLDINGS, S.A.	DEC	348.1	43.8	(607.1)	247.0	88.2	362.6	323.4	0.6	(0.8)	693.8	108	14	(188)	76	27	112
DELTA AIR LINES, INC.	DEC	1,318.0	280.0	(12,385.0)	4,767.0	3,935.0	3,205.0	4,195.0	2.7	(16.3)	370.7	31	7	(295)	114	94	76
DEUTSCHE LUFTHANSA AG	DEC	845.4	(2,491.8)	(8,226.3)	1,361.2	2,476.5	2,809.8	1,874.8	(4.3)	(19.5)	NM	45	(133)	(439)	73	132	150
EASJET PLC	SEP	(188.3)	(1,158.4)	(1,395.3)	429.3	467.0	408.9	569.0	NA	NM	(80.3)	(33)	(204)	(245)	75	82	72
EVA AIRWAYS CORP.	DEC	230.8	238.5	(119.7)	133.1	214.1	193.9	107.3	26.9	4.3	7.3	215	222	(112)	124	200	181
FINNAIR OYJ	DEC	(508.9)	(528.0)	(640.0)	83.6	116.3	203.4	89.8	NA	NM	2.6	(567)	(588)	(712)	93	129	226
GOL LINHAS AÉREAS INTELIGENTES S.A.	DEC	(295.4)	(1,296.1)	(1,153.1)	(29.2)	(280.4)	5.7	260.0	0.3	NM	(78.4)	(114)	(499)	(444)	(11)	(108)	2
HAINAN AIRLINES HOLDING CO., LTD.	DEC	(2,935.5)	743.1	(9,803.5)	74.5	(522.2)	510.7	452.0	NA	NM	NM	(649)	164	NM	16	(116)	113
HAWAIIAN HOLDINGS, INC.	DEC	(240.1)	(144.8)	(510.9)	224.0	233.2	330.6	224.1	NA	NM	65.8	(107)	(65)	(228)	100	104	148
INTERGLOBE AVIATION LIMITED	# MAR	(37.2)	(811.9)	(793.7)	(31.0)	22.7	344.6	256.1	NA	NM	6.1	(15)	(317)	(310)	(12)	9	135
INTERNATIONAL CONSOLIDATED AIRLINES GROUP S.A.	DEC	460.6	(3,335.6)	(8,483.2)	1,924.6	3,303.2	2,388.3	2,038.4	NA	(26.4)	NM	23	(164)	(416)	94	162	117
JAPAN AIRLINES CO., LTD.	# MAR	258.9	(1,462.1)	(2,592.2)	496.3	1,361.0	1,274.9	1,472.4	NA	NM	(38.1)	18	(99)	(176)	34	92	87
JEJU AIR CO., LTD.	DEC	(138.2)	(228.6)	(281.6)	(28.7)	63.7	72.8	44.0	NA	NM	(36.1)	(314)	(519)	(640)	(65)	145	166
JET2 PLC	# MAR	NA	(414.6)	(373.6)	144.4	182.2	150.3	96.1	NA	NM	16.3	NA	(432)	(389)	150	190	157
JETBLUE AIRWAYS CORPORATION	DEC	(362.0)	(182.0)	(1,354.0)	569.0	189.0	1,140.0	727.0	NA	NM	98.9	(50)	(25)	(186)	78	26	157
JUNEYAO AIRLINES CO., LTD	DEC	(601.4)	(75.1)	(72.6)	(72.6)	179.3	203.7	179.9	NA	NM	769.1	(334)	(42)	(40)	(40)	100	113
KOREAN AIR LINES CO., LTD.	DEC	1,374.3	485.0	(194.4)	(544.9)	(151.3)	740.9	(469.2)	21.5	16.9	199.2	(293)	(103)	41	116	32	(158)
LATAM AIRLINES GROUP S.A.	DEC	1,339.2	(4,647.5)	(4,545.9)	190.4	309.8	155.3	69.2	NA	53.9	NM	1,935	NM	NM	275	448	224
NORWEGIAN AIR SHUTTLE ASA	DEC	102.1	212.3	(2,689.3)	(183.8)	(168.6)	(219.2)	131.9	8.2	NM	(46.2)	77	161	NM	(139)	(128)	(166)
PAL HOLDINGS, INC.	DEC	146.7	1,147.6	(1,494.8)	(203.3)	(82.6)	(146.7)	83.4	NA	NM	(86.2)	176	1,376	NM	(244)	(99)	(176)
PEGASUS HAVA TASIMACILIGI ANONIM SIRKETI	DEC	379.4	(149.4)	(264.6)	224.1	95.8	132.7	(38.0)	49.6	69.9	NM	(999)	393	696	(590)	(252)	(349)
PT. GARUDA INDONESIA (PERSERO) TBK	DEC	3,737.9	(4,159.3)	(2,443.0)	(38.9)	(231.2)	(216.6)	8.1	42.2	NM	NM	46,322	NM	NM	(483)	NM	NM
PUBLIC JOINT STOCK COMPANY AEROFLOT - RUSSIAN AIRLINES	# JAN	NA	(454.5)	(1,590.4)	171.5	(782.8)	397.6	611.7	NA	NA	NA	NA	(74)	(260)	28	(128)	65

Net Income																	
Company	Yr. End	Million \$							CAGR(%)			Index Basis (2008=100)					
		2022	2021	2020	2019	2018	2017	2016	10-Yr.	5-Yr.	1-Yr.	2022	2021	2020	2019	2018	2017
GLOBAL PASSENGER AIRLINES																	
QANTAS AIRWAYS LIMITED	JUN	(592.5)	(1,268.6)	(1,356.0)	589.0	704.9	653.8	766.6	13.4	NM	(49.2)	(77)	(165)	(177)	77	92	85
SAS AB (PUBL)	OCT	(638.6)	(759.4)	(1,038.7)	64.4	174.3	137.1	146.5	19.5	NM	8.0	(436)	(518)	(709)	44	119	94
SINGAPORE AIRLINES LIMITED	# MAR	1,622.0	(710.5)	(3,175.5)	(149.1)	504.0	993.4	258.0	NA	NM	(77.5)	629	(275)	NM	(58)	195	385
SKYWEST, INC.	DEC	73.0	111.9	(8.5)	340.1	280.4	428.9	(161.6)	3.6	(29.8)	(34.8)	(45)	(69)	5	(210)	(174)	(265)
SOUTHWEST AIRLINES CO.	DEC	539.0	977.0	(3,074.0)	2,300.0	2,465.0	3,357.0	2,183.0	2.5	(30.6)	(44.8)	25	45	NM	105	113	154
SPICEJET LIMITED	# MAR	NA	(229.8)	(140.8)	(124.4)	(43.6)	85.6	65.9	11.2	NM	69.3	NA	(349)	(214)	(189)	(66)	130
SPIRIT AIRLINES, INC.	DEC	(554.2)	(472.6)	(428.7)	335.3	155.7	415.5	263.5	NA	NM	17.3	(210)	(179)	(163)	127	59	158
SPRING AIRLINES CO., LTD.	DEC	(440.2)	6.2	(90.1)	264.4	218.5	193.9	136.9	NA	NM	NM	(322)	4	(66)	193	160	142
THAI AIRWAYS INTERNATIONAL PUBLIC COMPANY LIMITED	DEC	(7.9)	1,660.0	(4,702.7)	(404.6)	(359.6)	(64.7)	0.4	NA	(33.6)	NM	NM	392,423	NM	NM	NM	NM
TÜRK HAVA YOLLARI ANONIM ORTAKLIĞI	DEC	2,534.6	622.1	(752.4)	762.1	763.9	168.8	(13.4)	45.0	136.7	477.5	NM	NM	5,635	NM	NM	NM
UNITED AIRLINES HOLDINGS, INC.	DEC	737.0	(1,964.0)	(7,069.0)	3,009.0	2,122.0	2,143.0	2,234.0	NA	(19.2)	NM	33	(88)	(316)	135	95	96
VIETJET AVIATION JOINT STOCK COMPANY	DEC	(95.8)	3.3	3.0	164.0	164.0	230.0	223.5	NA	NM	NM	(43)	1	1	73	73	103
VIETNAM AIRLINES JSC	DEC	(442.6)	(564.4)	(470.6)	101.0	100.6	100.6	104.4	66.7	NM	(19.0)	(424)	(540)	(451)	97	96	96
WIZZ AIR HOLDINGS PLC	# MAR	NA	(701.8)	(671.5)	308.9	138.0	338.9	263.0	NA	NM	10.4	NA	(267)	(255)	117	52	129
Note: Data as originally reported. CAGR-Compound annual growth rate. #Of the following calendar year.																	
Source: S&P Capital IQ																	

Note: Data as originally reported. CAGR-Compound annual growth rate. #Of the following calendar year.
Source: S&P Capital IQ.

Company	Yr. End	Return on Revenues (%)						Return on Assets (%)						Return on Equity (%)					
		2022	2021	2020	2019	2018	2017	2022	2021	2020	2019	2018	2017	2022	2021	2020	2019	2018	2017
GLOBAL PASSENGER AIRLINES																			
AIR CANADA	DEC	NM	NM	NM	7.7	0.2	12.5	NM	NM	NM	5.3	0.2	11.4	NM	NM	NM	38.5	1.1	87.4
AIR CHINA LIMITED	DEC	NM	NM	NM	4.7	5.4	6.0	NM	NM	NM	2.2	3.0	3.1	NM	NM	NM	7.2	8.4	10.1
AIR FRANCE-KLM SA	DEC	2.8	NM	NM	1.1	1.6	0.6	2.3	NM	NM	0.9	1.4	0.5	NM	NM	NM	14.3	20.0	9.2
AIR NEW ZEALAND LIMITED	JUN	NM	NM	NM	4.8	7.1	7.5	NM	NM	NM	3.6	5.0	5.3	NM	NM	NM	13.2	18.7	18.7
CAPITAL A BERHAD	DEC	NM	NM	NM	NM	17.6	16.3	NM	NM	NM	NM	10.6	7.5	NM	NM	NM	NM	26.3	23.6
ALASKA AIR GROUP, INC.	DEC	0.6	7.7	NM	8.8	5.3	12.2	0.4	3.4	NM	5.9	4.0	8.9	1.5	14.1	NM	19.0	12.1	30.0
AMERICAN AIRLINES GROUP INC.	DEC	0.3	NM	NM	3.7	3.2	3.0	0.2	NM	NM	2.8	2.3	2.4	NM	NM	NM	NM	NM	85.3
ANA HOLDINGS INC.	# MAR	5.2	NM	NM	1.4	5.4	7.3	2.7	NM	NM	1.1	4.1	5.6	10.8	NM	NM	2.4	10.6	15.1
ASIANA AIRLINES, INC.	DEC	1.8	NM	NM	NM	NM	3.8	0.8	NM	NM	NM	NM	2.9	4.3	NM	NM	NM	NM	22.4
AZUL S.A.	DEC	NM	NM	NM	NM	NM	5.5	NM	NM	NM	NM	NM	3.1	NM	NM	NM	NM	NM	139.0
CATHAY PACIFIC AIRWAYS LIMITED	DEC	NM	NM	NM	1.6	2.1	NM	NM	NM	NM	0.8	1.2	NM	NM	NM	NM	2.7	4.4	NM
CEBU AIR, INC.	DEC	NM	NM	NM	10.8	5.3	11.6	NM	NM	NM	5.8	3.0	7.2	NM	NM	NM	21.5	9.8	21.6
CHINA AIRLINES, LTD.	DEC	1.9	6.8	0.1	NM	1.0	1.4	1.0	3.2	0.0	NM	0.8	1.0	3.0	13.0	NM	NM	3.8	4.3
CHINA EASTERN AIRLINES CORPORATION LIMITED	DEC	NM	NM	NM	2.6	2.4	6.2	NM	NM	NM	1.1	1.1	2.8	NM	NM	NM	5.4	5.1	12.8
CHINA SOUTHERN AIRLINES COMPANY LIMITED	DEC	NM	NM	NM	1.7	2.1	4.6	NM	NM	NM	0.9	1.2	2.7	NM	NM	NM	4.0	4.9	11.7
COPA HOLDINGS, S.A.	DEC	11.7	2.9	NM	9.1	3.3	14.4	7.4	1.0	NM	5.7	2.0	8.2	24.9	3.4	NM	13.2	4.8	19.6
DELTA AIR LINES, INC.	DEC	2.6	0.9	NM	10.1	8.9	7.8	1.8	0.4	NM	7.4	6.5	6.0	25.2	10.3	NM	32.8	30.0	25.8
DEUTSCHE LUFTHANSA AG	DEC	2.4	NM	NM	3.3	6.1	6.6	1.8	NM	NM	2.8	5.7	6.5	12.4	NM	NM	12.6	23.5	29.2
EASYJET PLC	SEP	NM	NM	NM	5.5	6.1	6.0	NM	NM	NM	4.3	5.1	5.1	NM	NM	NM	11.2	11.9	11.1
EVA AIRWAYS CORP.	DEC	5.1	6.4	NM	2.2	3.6	3.5	2.2	2.0	NM	1.1	2.7	2.5	8.3	7.9	NM	6.5	10.7	10.2
FINNAIR OYJ	DEC	NM	NM	NM	2.4	3.6	6.6	NM	NM	NM	1.9	2.6	5.9	NM	NM	NM	7.9	10.5	18.1
GOL LINHAS AÉREAS INTELIGENTES S.A.	DEC	NM	NM	NM	NM	NM	0.2	NM	NM	NM	NM	NM	0.2	NM	NM	NM	NM	NM	NM
HAINAN AIRLINES HOLDING CO., LTD.	DEC	NM	13.9	NM	0.7	NM	5.5	NM	3.3	NM	0.2	NM	1.7	NM	NM	NM	1.1	NM	5.5
HAWAIIAN HOLDINGS, INC.	DEC	NM	NM	NM	7.9	8.2	12.4	NM	NM	NM	5.4	7.3	11.5	NM	NM	NM	22.1	26.0	43.3
INTERGLOBE AVIATION LIMITED	# MAR	NM	NM	NM	NM	0.6	9.7	NM	NM	NM	NM	0.6	10.6	NM	NM	NM	NM	2.2	41.3
INTERNATIONAL CONSOLIDATED AIRLINES GROUP S.A.	DEC	1.9	NM	NM	6.7	11.9	8.7	1.1	NM	NM	4.8	10.3	7.3	30.1	NM	NM	25.3	42.4	31.9
JAPAN AIRLINES CO., LTD.	# MAR	2.4	NM	NM	3.8	10.1	9.8	1.4	NM	NM	2.9	7.4	7.3	4.0	NM	NM	4.9	13.5	13.4
JEJU AIR CO., LTD.	DEC	NM	NM	NM	NM	5.6	7.8	NM	NM	NM	NM	6.9	9.7	NM	NM	NM	NM	19.9	25.8
JET2 PLC	# MAR	NA	NM	NM	3.2	4.7	4.5	NA	NM	NM	3.4	4.4	4.4	0.0	NM	NM	18.4	25.0	22.7
JETBLUE AIRWAYS CORPORATION	DEC	NM	NM	NM	7.0	2.5	16.3	NM	NM	NM	4.8	1.7	11.7	NM	NM	NM	12.0	4.0	26.1
JUNEYAO AIRLINES CO., LTD	DEC	NM	NM	NM	5.9	8.6	10.7	NM	NM	NM	3.0	5.7	6.6	NM	NM	NM	9.0	13.5	16.4
KOREAN AIR LINES CO., LTD.	DEC	12.3	6.4	NM	NM	NM	6.5	6.0	2.2	NM	NM	NM	3.2	21.4	11.4	NM	NM	0.0	28.5
LATAM AIRLINES GROUP S.A.	DEC	14.3	NM	NM	1.9	3.1	1.6	10.1	NM	NM	0.9	1.5	0.8	NM	NM	NM	6.0	8.9	4.7
NORWEGIAN AIR SHUTTLE ASA	DEC	5.6	36.9	NM	NM	NM	NM	4.4	9.9	NM	NM	NM	NM	26.9	NM	NM	NM	NM	NM
PAL HOLDINGS, INC.	DEC	5.9	100.7	NM	NM	NM	NM	4.0	30.5	NM	NM	NM	NM	142.8	NM	NM	NM	NM	NM
PEGASUS HAVA TASIMACILIGI ANONIM SIRKETI	DEC	16.6	NM	NM	12.1	6.1	9.4	7.4	NM	NM	6.3	3.7	6.2	57.0	NM	NM	29.5	16.2	24.7
PT. GARUDA INDONESIA (PERSERO) TBK	DEC	178.0	NM	NM	NM	NM	NM	60.0	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
PUBLIC JOINT STOCK COMPANY AEROFLOT - RUSSIAN AIRLINES	# JAN	NA	0.0	NM	NM	1.6	NM	NA	NA	NM	NM	1.1	NM	0.0	0.0	NM	NM	NM	NM

Company	Yr. End	Return on Revenues (%)						Return on Assets (%)						Return on Equity (%)					
		2022	2021	2020	2019	2018	2017	2022	2021	2020	2019	2018	2017	2022	2021	2020	2019	2018	2017
GLOBAL PASSENGER AIRLINES																			
QANTAS AIRWAYS LIMITED	JUN	NM	NM	NM	4.7	5.6	5.3	NM	NM	NM	4.1	5.1	4.9	NM	NM	NM	24.1	25.4	25.1
SAS AB (PUBL)	OCT	NM	NM	NM	1.3	3.6	2.7	NM	NM	NM	1.8	4.7	3.5	NM	NM	NM	9.8	20.8	16.3
SINGAPORE AIRLINES LIMITED	# MAR	12.1	NM	NM	NM	4.2	8.2	4.4	NM	NM	NM	2.2	5.0	10.1	NM	NM	NM	5.4	10.1
SKYWEST, INC.	DEC	2.4	4.1	NM	11.4	8.7	13.7	1.0	1.6	NM	5.1	4.4	7.8	3.2	5.1	NM	16.4	15.1	27.6
SOUTHWEST AIRLINES CO.	DEC	2.3	6.2	NM	10.3	11.2	15.9	1.5	2.7	NM	8.9	9.4	13.4	5.1	10.1	NM	23.4	25.3	37.1
SPICEJET LIMITED	# MAR	NA	NM	NM	NM	NM	7.2	NA	NM	NM	NM	NM	13.9	0.0	NM	NM	NM	NM	NM
SPIRIT AIRLINES, INC.	DEC	NM	NM	NM	8.8	4.7	15.7	NM	NM	NM	4.8	3.0	10.0	NM	NM	NM	16.0	8.4	26.3
SPRING AIRLINES CO., LTD.	DEC	NM	0.4	NM	12.4	11.5	11.5	NM	0.1	NM	6.3	5.7	6.1	NM	0.3	NM	13.0	13.8	16.0
THAI AIRWAYS INTERNATIONAL PUBLIC COMPANY LIMITED	DEC	NM	255.5	NM	NM	NM	NM	NM	34.2	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
TÜRK HAVA YOLLARI ANONİM ORTAKLIĞI	DEC	15.2	8.4	NM	6.0	6.4	1.6	8.2	2.3	NM	3.1	3.7	0.9	34.9	12.6	NM	12.6	15.7	3.4
UNITED AIRLINES HOLDINGS, INC.	DEC	1.6	NM	NM	7.0	5.1	5.7	1.1	NM	NM	5.7	4.3	5.1	12.4	NM	NM	27.9	22.6	24.6
VIETJET AVIATION JOINT STOCK COMPANY	DEC	NM	0.6	0.4	7.5	10.0	12.0	NM	0.1	0.2	7.8	13.6	16.0	NM	0.5	0.5	26.3	43.3	66.2
VIETNAM AIRLINES JSC	DEC	NM	NM	NM	2.4	2.4	2.9	NM	NM	NM	3.1	2.8	2.7	NM	NM	NM	13.6	14.4	15.8
WIZZ AIR HOLDINGS PLC	# MAR	NA	NM	NM	10.2	5.3	14.2	NA	NM	NM	6.5	3.1	12.8	0.0	NM	NM	23.0	10.4	25.2

Note: Data as originally reported. CAGR-Compound annual growth rate. ‡
Source: S&P Capital IQ.

Company	Yr. End	Current Ratio						Debt/Capital Ratio (%)						Debt as a % of Net Working Capital					
		2022	2021	2020	2019	2018	2017	2022	2021	2020	2019	2018	2017	2022	2021	2020	2019	2018	2017
GLOBAL PASSENGER AIRLINES																			
AIR CANADA	DEC	1.0	1.5	1.2	1.0	1.1	1.1	114.1	99.9	82.6	54.1	64.9	61.4	4024.0	410.1	531.9	NM	969.1	1840.5
AIR CHINA LIMITED	DEC	0.2	0.3	0.2	0.3	0.3	0.3	101.3	74.7	54.4	31.8	31.5	36.6	NM	NM	NM	(71.1)	(75.5)	(84.0)
AIR FRANCE-KLM SA	DEC	0.8	0.9	0.8	0.7	0.6	0.8	161.8	183.6	189.6	59.5	61.5	54.0	NM	NM	NM	(82.1)	(63.0)	(94.8)
AIR NEW ZEALAND LIMITED	JUN	0.8	0.4	0.5	0.7	0.8	0.8	48.7	48.2	49.7	40.6	40.0	36.9	NM	(67.0)	NM	NM	NM	NM
CAPITAL A BERHAD	DEC	0.2	0.3	0.3	0.7	1.3	0.8	(38.0)	(36.0)	(14.1)	4.7	9.6	51.3	(31.8)	(26.5)	(7.7)	(7.8)	33.5	NM
ALASKA AIR GROUP, INC.	DEC	0.7	1.0	0.9	0.6	0.6	0.8	33.0	36.4	44.3	22.7	30.2	39.6	NM	NM	NM	NM	NM	NM
AMERICAN AIRLINES GROUP INC.	DEC	0.7	0.9	0.7	0.4	0.5	0.6	122.3	126.5	130.6	100.6	100.8	103.7	NM	NM	NM	NM	NM	NM
ANA HOLDINGS INC.	# MAR	1.8	1.9	2.4	1.1	1.0	1.2	65.6	69.6	63.3	40.3	37.4	40.6	222.5	265.2	217.6	1778.4	4631.5	662.9
ASIANA AIRLINES, INC.	DEC	0.5	0.5	0.3	0.3	0.4	0.3	359.6	360.2	204.7	100.4	55.0	63.8	(82.3)	NM	(84.8)	(45.7)	(61.3)	(61.7)
AZUL S.A.	DEC	0.3	0.5	0.5	0.6	0.7	0.8	(74.5)	(96.4)	(93.3)	(681.5)	190.7	122.1	(82.8)	NM	NM	NM	NM	NM
CATHAY PACIFIC AIRWAYS LIMITED	DEC	0.6	0.7	0.6	0.5	0.6	0.8	36.5	35.1	34.1	40.7	39.1	44.5	NM	NM	NM	NM	NM	NM
CEBU AIR, INC.	DEC	0.7	0.7	0.4	0.6	0.7	0.7	106.1	90.5	74.8	52.8	54.1	46.8	NM	NM	NM	NM	NM	NM
CHINA AIRLINES, LTD.	DEC	1.0	1.6	1.0	0.7	0.9	0.8	50.7	56.6	65.8	56.0	59.8	59.6	NM	300.9	NM	NM	NM	NM
CHINA EASTERN AIRLINES CORPORATION LIMITED	DEC	0.3	0.3	0.2	0.3	0.2	0.2	121.7	83.6	90.4	48.8	56.9	73.5	NM	NM	NM	(80.7)	(84.9)	(96.2)
CHINA SOUTHERN AIRLINES COMPANY LIMITED	DEC	0.2	0.3	0.4	0.2	0.3	0.3	112.4	71.9	60.5	53.4	43.1	49.9	(92.6)	NM	NM	(61.4)	(67.8)	(80.0)
COPA HOLDINGS, S.A.	DEC	1.0	1.2	1.5	1.2	0.9	1.0	46.6	48.6	44.7	32.7	35.2	32.1	3080.9	661.9	255.2	396.2	NM	2936.3
DELTA AIR LINES, INC.	DEC	0.5	0.8	1.1	0.4	0.3	0.4	78.8	89.9	98.5	37.5	41.7	39.1	NM	NM	1870.8	(73.5)	(73.8)	(66.0)
DEUTSCHE LUFTHANSA AG	DEC	0.9	0.9	0.7	0.7	0.7	0.9	57.1	74.6	88.0	37.1	32.3	38.9	NM	NM	NM	NM	(81.8)	NM
EASYJET PLC	SEP	1.3	1.6	0.7	0.8	1.0	1.0	52.1	59.2	75.0	30.8	21.4	23.9	220.6	228.5	NM	NM	NM	1371.9
EVA AIRWAYS CORP.	DEC	1.1	1.4	1.2	0.9	1.2	1.1	39.4	50.0	55.6	49.0	53.3	54.1	877.9	499.5	913.0	NM	531.7	879.9
FINNAIR OYJ	DEC	1.3	1.3	1.6	1.0	1.1	1.3	72.0	67.5	55.3	33.1	36.3	34.0	232.2	331.6	303.6	1787.3	555.8	160.8
GOL LINHAS AÉREAS INTELIGENTES S.A.	DEC	0.2	0.2	0.3	0.5	0.5	0.6	(104.1)	(116.5)	(136.9)	(527.3)	699.7	299.8	NM	NM	NM	NM	NM	NM
HAINAN AIRLINES HOLDING CO., LTD.	DEC	0.7	1.3	0.4	0.5	0.4	0.6	99.2	81.6	(165.7)	63.2	48.5	63.3	NM	707.8	(32.8)	(60.2)	(48.5)	NM
HAWAIIAN HOLDINGS, INC.	DEC	1.5	1.8	1.1	0.8	0.7	0.8	82.6	75.0	63.3	33.6	28.5	30.0	283.9	188.8	908.3	NM	NM	NM
INTERGLOBE AVIATION LIMITED	# MAR	1.1	0.9	1.1	1.4	2.3	2.4	(36.1)	(69.9)	508.8	5.6	7.8	6.7	98.0	NM	132.6	5.8	5.8	6.0
INTERNATIONAL CONSOLIDATED AIRLINES GROUP S.A.	DEC	0.8	0.8	0.7	0.9	0.9	1.0	82.1	92.1	82.1	30.9	17.5	19.1	NM	NM	NM	NM	NM	2690.2
JAPAN AIRLINES CO., LTD.	# MAR	1.4	1.6	1.2	1.5	1.7	1.7	48.7	48.5	29.0	13.4	9.3	8.7	321.2	282.6	440.4	104.4	40.2	35.9
JEJU AIR CO., LTD.	DEC	0.7	0.8	0.7	0.8	1.2	1.2	69.1	95.4	84.0	15.0	14.5	2.4	NM	NM	NM	NM	86.7	9.7
JET2 PLC	# MAR	NA	1.6	1.8	1.1	1.2	1.2	NA	48.9	49.9	44.0	41.8	35.9	NA	92.5	100.6	189.1	180.0	146.7
JETBLUE AIRWAYS CORPORATION	DEC	0.5	0.9	1.3	0.7	0.5	0.6	43.6	46.2	50.5	28.7	21.4	17.5	NM	NM	601.3	NM	NM	NM
JUNEYAO AIRLINES CO., LTD	DEC	0.2	0.2	0.4	0.5	0.6	0.7	111.4	87.7	72.5	51.9	56.9	54.3	NM	NM	NM	NM	NM	NM
KOREAN AIR LINES CO., LTD.	DEC	1.0	0.7	0.4	0.4	0.5	0.5	36.7	40.0	81.9	73.9	70.6	63.9	NM	NM	NM	NM	NM	NM
LATAM AIRLINES GROUP S.A.	DEC	0.7	0.2	0.4	0.6	0.6	0.6	99.0	(61.0)	199.7	64.1	62.5	60.6	NM	(28.2)	NM	NM	NM	NM
NORWEGIAN AIR SHUTTLE ASA	DEC	1.3	1.6	0.7	0.6	0.4	0.6	49.1	54.9	(6.6)	84.3	97.6	94.1	167.3	104.9	(2.8)	NM	NM	NM
PAL HOLDINGS, INC.	DEC	0.9	0.8	0.2	0.5	0.4	0.4	74.5	99.3	(34.7)	139.8	127.5	111.0	NM	NM	(12.5)	(87.5)	(82.9)	(80.8)
PEGASUS HAVA TASIMACILIGI ANONIM SIRKETI	DEC	1.0	1.0	0.8	1.3	1.2	1.7	35.0	70.5	38.0	14.2	21.5	21.8	NM	103455.1	NM	57.3	93.0	43.9
PT. GARUDA INDONESIA (PERSERO) TBK	DEC	0.5	0.1	0.1	0.3	0.4	0.5	(963.5)	(26.3)	(72.9)	169.0	163.2	95.4	NM	(26.0)	(31.9)	(49.5)	(67.4)	NM
PUBLIC JOINT STOCK COMPANY AEROFLOT - RUSSIAN AIRLINES #	JAN	NA	0.0	0.7	0.7	0.6	0.6	NA	NA	(417.4)	(143.8)	305.2	(6.0)	NA	NA	NM	(92.1)	(17.4)	(3.5)

Company	Yr. End	Current Ratio						Debt/Capital Ratio (%)						Debt as a % of Net Working Capital					
		2022	2021	2020	2019	2018	2017	2022	2021	2020	2019	2018	2017	2022	2021	2020	2019	2018	2017
GLOBAL PASSENGER AIRLINES																			
QANTAS AIRWAYS LIMITED	JUN	0.5	0.5	0.6	0.5	0.5	0.4	103.7	93.0	79.2	60.0	44.5	47.0	NM	NM	NM	(93.7)	(79.9)	(79.1)
SAS AB (PUBL)	OCT	0.6	0.5	0.7	0.8	0.9	0.8	127.6	73.2	59.5	70.8	42.4	42.0	NM	NM	NM	NM	NM	NM
SINGAPORE AIRLINES LIMITED	# MAR	1.4	2.2	1.7	0.4	0.7	0.8	30.0	33.3	39.9	42.6	32.0	19.0	154.1	116.2	273.5	NM	NM	NM
SKYWEST, INC.	DEC	1.2	0.9	1.0	0.8	1.1	1.2	55.6	54.5	56.7	54.7	58.9	57.5	1480.2	NM	6819.7	NM	2927.8	1363.9
SOUTHWEST AIRLINES CO.	DEC	1.4	2.0	2.0	0.7	0.6	0.7	42.5	48.7	52.1	11.7	16.4	25.7	178.3	111.6	126.0	(43.8)	(67.4)	NM
SPICEJET LIMITED	# MAR	NA	0.3	0.3	0.3	0.4	0.3	NA	(14.2)	(31.2)	(77.9)	471.6	169.5	NA	(8.9)	(13.9)	(20.2)	(43.3)	(46.8)
SPIRIT AIRLINES, INC.	DEC	1.2	1.4	1.8	1.2	1.6	1.9	67.1	58.5	57.7	46.4	51.2	44.0	805.2	524.9	302.3	716.6	396.3	224.6
SPRING AIRLINES CO., LTD.	DEC	0.9	0.9	0.9	1.1	1.3	1.2	66.3	60.1	57.6	40.6	42.9	51.8	NM	NM	NM	739.0	361.8	625.5
THAI AIRWAYS INTERNATIONAL PUBLIC COMPANY LIMITED	DEC	0.9	0.5	0.1	0.6	0.5	0.6	2211.7	(983.4)	(11.7)	91.3	81.7	76.8	NM	NM	(5.3)	NM	NM	NM
TÜRK HAVA YOLLARI ANONİM ORTAKLIĞI	DEC	0.9	0.7	0.6	0.8	0.9	0.8	20.1	35.3	52.4	34.7	32.6	15.5	NM	NM	NM	NM	NM	NM
UNITED AIRLINES HOLDINGS, INC.	DEC	1.0	1.2	1.2	0.5	0.5	0.6	80.4	85.8	80.6	53.3	54.9	57.3	42853.0	860.1	1196.9	NM	NM	NM
VIETJET AVIATION JOINT STOCK COMPANY	DEC	1.1	1.7	1.3	1.2	1.3	1.3	72.0	55.5	54.0	63.3	37.4	66.5	572.3	122.3	158.9	252.0	132.1	198.5
VIETNAM AIRLINES JSC	DEC	0.2	0.3	0.3	0.6	0.6	0.6	(271.6)	258.1	105.3	34.3	41.0	48.2	(34.6)	(57.5)	(58.9)	(74.5)	(94.6)	NM
WIZZ AIR HOLDINGS PLC	# MAR	NA	1.1	1.4	1.2	1.5	1.9	NA	79.7	37.3	2.1	2.2	2.1	NA	521.9	124.3	10.5	5.0	4.6

Note: Data as originally reported. CAGR-Compound annual growth rate. #Of the following calendar year.
Source: S&P Capital IQ.

Company	Yr. End	Price/Earnings Ratio (High-Low)										Dividend Payout Ratio (%)						Dividend Yield (High-Low, %)					
		2022	2021	2020	2019	2018	2017	2022	2021	2020	2019	2018	2017	2022	2021	2020	2019	2018	2017				
GLOBAL PASSENGER AIRLINES																							
AIR CANADA	DEC	NM - NM	NM - NM	NM - NM	NM - NM	9 - 5	213 - 152	4 - 2						0	0	0	0	0	0				
AIR CHINA LIMITED	DEC	NM - NM	NM - NM	NM - NM	NM - NM	22 - 13	24 - 11	18 - 9	NM	NM	NM	97	60	71									
AIR FRANCE-KLM SA	DEC	13 - 3	NM - NM	NM - NM	NM - NM	20 - 12	15 - 7	38 - 13	35	0	0	9	9	23	0.0 - 0.0	0.0 - 0.0	1.0 - 0.0	2.5 - 0.8	2.1 - 1.2				
AIR NEW ZEALAND LIMITED	JUN	NM - NM	NM - NM	NM - NM	NM - NM	14 - 9	10 - 8	10 - 5	0	0	NM	94	67	62	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	14.3 - 0.0	9.9 - 6.5				
CAPITAL A BERHAD	DEC	NM - NM	NM - NM	NM - NM	NM - NM	NM - NM	8 - 4	7 - 4	0	0	0	NM	20	49	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	5.9 - 0.0	14.5 - 3.6				
ALASKA AIR GROUP, INC.	DEC	132 - 84	19 - 12	NM - NM	NM - NM	12 - 9	21 - 16	13 - 8	0	0	NM	22	36	15	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	21.8 - 0.0	2.6 - 1.8				
AMERICAN AIRLINES GROUP INC.	DEC	104 - 61	NM - NM	NM - NM	NM - NM	10 - 6	19 - 10	21 - 15	0	0	NM	11	13	15	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	4.3 - 0.0	1.6 - 1.0				
ANA HOLDINGS INC.	# MAR	NM - NM	NM - NM	NM - NM	49 - 30	14 - 11	11 - 8	13 - 9	0	0	0	91	18	15	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	3.4 - 0.0	2.6 - 1.7				
ASIANA AIRLINES, INC.	DEC	46 - 21	NM - NM	NM - NM	NM - NM	NM - NM	NM - NM	5 - 3	90	NM	NM	NM	NM	1	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0				
AZUL S.A.	DEC	NM - NM	NM - NM	NM - NM	NM - NM	NM - NM	NM - NM	23 - 16	0	0	0	0	0	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0				
CATHAY PACIFIC AIRWAYS LIMITED	DEC	NM - NM	NM - NM	NM - NM	NM - NM	32 - 22	25 - 17	NM - NM	0	0	0	88	25	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	4.1 - 0.0	4.2 - 0.7				
CEBU AIR, INC.	DEC	NM - NM	NM - NM	NM - NM	NM - NM	6 - 4	16 - 9	9 - 7	0	0	0	13	44	8	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	8.1 - 0.0	12.1 - 4.9				
CHINA AIRLINES, LTD.	DEC	66 - 35	NM - NM	NM - NM	NM - NM	NM - NM	NM - NM	NM - NM	175	0	0	NM	67	0	4.6 - 2.2	5.0 - 3.5	2.1 - 1.6	3.8 - 2.1	2.4 - 1.9				
CHINA EASTERN AIRLINES CORPORATION LIMITED	DEC	NM - NM	NM - NM	NM - NM	NM - NM	39 - 22	46 - 24	19 - 15	NM	NM	NM	172	188	70	0.0 - 0.0	0.0 - 0.0	1.1 - 0.0	1.2 - 0.0	1.1 - 0.0				
CHINA SOUTHERN AIRLINES COMPANY LIMITED	DEC	NM - NM	NM - NM	NM - NM	NM - NM	45 - 30	46 - 21	21 - 12	NM	NM	NM	288	176	80	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0				
COPA HOLDINGS, S.A.	DEC	11 - 7	91 - 64	NM - NM	NM - NM	19 - 13	68 - 33	16 - 11	0	0	NM	45	167	29	3.8 - 0.0	0.0 - 0.0	0.0 - 0.0	11.6 - 0.0	4.8 - 2.3				
DELTA AIR LINES, INC.	DEC	22 - 14	117 - 76	NM - NM	NM - NM	9 - 6	11 - 8	13 - 10	0	0	NM	21	23	23	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	2.9 - 0.0	3.1 - 2.3				
DEUTSCHE LUFTHANSA AG	DEC	12 - 8	NM - NM	NM - NM	NM - NM	9 - 5	7 - 4	6 - 2	0	NM	0	31	16	10	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	9.7 - 0.0	6.2 - 3.4				
EASJET PLC	SEP	NM - NM	NM - NM	NM - NM	NM - NM	15 - 10	NA - NA	NA - NA	0	0	NM	67	45	70	0.0 - 0.0	0.0 - 0.0	9.3 - 0.0	9.2 - 2.8	6.9 - 2.7				
EVA AIRWAYS CORP.	DEC	28 - 17	23 - 9	NM - NM	NM - NM	19 - 16	11 - 9	12 - 10	45	0	NM	59	13	14	3.1 - 2.0	2.6 - 0.0	2.1 - 0.0	5.7 - 1.9	3.6 - 1.2				
FINNAIR OYJ	DEC	NM - NM	NM - NM	NM - NM	NM - NM	18 - 11	19 - 8	11 - 3	NM	NM	NM	68	53	17	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	8.2 - 4.2	4.7 - 3.2				
GOL LINHAS AÉREAS INTELIGENTES S.A.	DEC	NM - NM	NM - NM	NM - NM	NM - NM	NM - NM	NM - NM	288 - 83	0	0	0	0	0	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0				
HAINAN AIRLINES HOLDING CO., LTD.	DEC	NM - NM	1 - 1	NM - NM	NM - NM	68 - 39	NM - NM	3 - 3	NM	2	NM	1084	NM	178	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.9 - 0.0				
HAWAIIAN HOLDINGS, INC.	DEC	NM - NM	NM - NM	NM - NM	NM - NM	7 - 5	9 - 5	10 - 5	0	0	NM	10	10	2	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	5.6 - 0.0	2.1 - 1.2				
INTERGLOBE AVIATION LIMITED	# MAR	NM - NM	NM - NM	NM - NM	NM - NM	368 - 177	22 - 17	24 - 17	0	0	0	NM	147	55	0.0 - 0.0	0.0 - 0.0	0.6 - 0.0	0.5 - 0.3	3.2 - 0.5				
INTERNATIONAL CONSOLIDATED AIRLINES GROUP S.A.	DEC	21 - 11	NM - NM	NM - NM	NM - NM	8 - 5	5 - 4	7 - 5	0	0	0	36	20	26	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	14.6 - 0.0	7.3 - 3.8				
JAPAN AIRLINES CO., LTD.	# MAR	NM - NM	NM - NM	NM - NM	25 - 12	10 - 9	12 - 8	9 - 6	0	NM	NM	71	26	38	0.8 - 0.0	0.0 - 0.0	6.3 - 0.0	4.1 - 2.7	2.9 - 2.4				
JEJU AIR CO., LTD.	DEC	NM - NM	NM - NM	NM - NM	NM - NM	NM - NM	19 - 11	13 - 8	NM	NM	NM	NM	22	17	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	3.5 - 0.0	2.8 - 2.6				
JET2 PLC	# MAR	NM - NM	NM - NM	NM - NM	25 - 4	11 - 8	12 - 7	13 - 7	0	0	0	13	9	7	0.7 - 0.0	0.0 - 0.0	3.3 - 0.0	1.4 - 0.5	1.0 - 0.6				
JETBLUE AIRWAYS CORPORATION	DEC	NM - NM	NM - NM	NM - NM	NM - NM	10 - 8	38 - 25	7 - 5	0	0	0	0	0	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0				
JUNEYAO AIRLINES CO., LTD	DEC	NM - NM	NM - NM	NM - NM	NM - NM	31 - 22	26 - 16	24 - 18	NM	NM	NM	50	63	51	0.0 - 0.0	0.8 - 0.0	1.0 - 0.6	1.1 - 0.0	1.9 - 0.0				
KOREAN AIR LINES CO., LTD.	DEC	7 - 4	20 - 15	NM - NM	NM - NM	NM - NM	NM - NM	4 - 3	0	3	NM	NM	NM	4	3.4 - 3.2	0.0 - 0.0	0.0 - 0.0	1.4 - 0.0	1.1 - 0.9				
LATAM AIRLINES GROUP S.A.	DEC	29622 - 332	NM - NM	NM - NM	NM - NM	28641 - 17766	20487 - 11554	34951 - 21765	0	0	0	29	15	13	0.0 - 0.0	0.0 - 0.0	6.7 - 0.0	10.8 - 0.8	1.2 - 0.6				
NORWEGIAN AIR SHUTTLE ASA	DEC	13 - 7	27 - 3	NM - NM	NM - NM	NM - NM	NM - NM	NM - NM	1	20	0	0	0	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0				
PAL HOLDINGS, INC.	DEC	9 - 8	1 - 1	NM - NM	NM - NM	NM - NM	NM - NM	NM - NM	0	0	0	0	0	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0				
PEGASUS HAVA TASIMACILIGI ANONIM SIRKETI	DEC	7 - 1	NM - NM	NM - NM	NM - NM	7 - 2	8 - 4	7 - 3	0	0	0	0	0	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0				
PT. GARUDA INDONESIA (PERSERO) TBK	DEC	NA - NA	NM - NM	NM - NM	NM - NM	NM - NM	NM - NM	NM - NM	0	0	0	0	0	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0				
PUBLIC JOINT STOCK COMPANY AEROFLOT - RUSSIAN AIRLINES #	JAN		NM - NM	NM - NM	NM - NM	16 - 9	NM - NM	8 - 2	0	0	0	NM	31	NM	0.0 - 0.0	0.0 - 0.0	2.9 - 0.0	13.2 - 2.4	14.0 - 8.8				

Company	Yr. End	Price/Earnings Ratio (High-Low)										Dividend Payout Ratio (%)						Dividend Yield (High-Low, %)					
		2022	2021	2020	2019	2018	2017	2022	2021	2020	2019	2018	2017	2022	2021	2020	2019	2018	2017				
GLOBAL PASSENGER AIRLINES																							
QANTAS AIRWAYS LIMITED																							
SAS AB (PUBL)																							
SINGAPORE AIRLINES LIMITED	#	MAR	NM - NM	NM - NM	NM - NM	NM - NM	NM - NM	20 - 16	10 - 9	38 - 32	14	0	0	NM	66	19	3.8 - 0.0	0.0 - 0.0	0.0 - 0.0				
SKYWEST, INC.		DEC	29 - 11	27 - 17	NM - NM	NM - NM	NM - NM	10 - 6	12 - 8	7 - 4	0	0	0	NM	7	7	4	0.0 - 0.0	0.0 - 0.0				
SOUTHWEST AIRLINES CO.		DEC	53 - 34	39 - 24	NM - NM	NM - NM	NM - NM	14 - 11	15 - 10	12 - 9	0	0	0	NM	16	13	8	2.5 - 0.0	0.0 - 0.0				
SPICEJET LIMITED	#	MAR	NM - NM	NM - NM	NM - NM	NM - NM	NM - NM	NM - NM	17 - 10	14 - 8	0	0	0	0	0	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0				
SPIRIT AIRLINES, INC.		DEC	NM - NM	NM - NM	NM - NM	NM - NM	NM - NM	NM - NM	28 - 15	NM - NM	0	0	0	0	0	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0				
SPRING AIRLINES CO., LTD.		DEC	NM - NM	1715 - 1187	NM - NM	NM - NM	NM - NM	23 - 15	24 - 18	26 - 19	NM	1223	NM	31	30	34	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0				
THAI AIRWAYS INTERNATIONAL PUBLIC COMPANY LIMITED		DEC	NA - NA	0 - 0	NM - NM	NM - NM	NM - NM	NM - NM	NM - NM	NM - NM	NM	0	NM	NM	NM	NM	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0				
TÜRK HAVA YOLLARI ANONİM ORTAKLIĞI		DEC	4 - 1	4 - 2	NM - NM	NM - NM	NM - NM	5 - 3	7 - 4	NM - NM	0	0	0	0	0	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0				
UNITED AIRLINES HOLDINGS, INC.		DEC	23 - 14	NM - NM	NM - NM	NM - NM	NM - NM	8 - 7	13 - 8	12 - 8	0	0	0	0	0	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0				
VIETJET AVIATION JOINT STOCK COMPANY		DEC	NM - NM	987 - 761	1132 - 722	21 - 16	19 - 12	13 - 7			0	0	0	14	38	17	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0				
VIETNAM AIRLINES JSC		DEC	NM - NM	NM - NM	NM - NM	NM - NM	NM - NM	27 - 20	NA - NA	NA - NA	NM	NM	NM	73	56	43	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0				
WIZZ AIR HOLDINGS PLC	#	MAR	NM - NM	NM - NM	NM - NM	12 - 5	22 - 14	9 - 4	5 - 3		0	0	0	0	0	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0				

Note: Data as originally reported. CAGR-Compound annual growth rate. #Of the following calendar year.
Source: S&P Capital IQ.

Company	Yr. End	Earnings per Share (\$)						Tangible Book Value per Share (\$)						Share Price (High-Low, \$)					
		2022	2021	2020	2019	2018	2017	2022	2021	2020	2019	2018	2017	2022	2021	2020	2019	2018	2017
GLOBAL PASSENGER AIRLINES																			
AIR CANADA	DEC	(3.51)	(8.11)	(12.93)	4.18	0.10	5.83	(12.13)	(9.59)	(6.36)	0.37	6.94	8.16	19.20	-	11.50	24.50	-	15.26
AIR CHINA LIMITED	DEC	(0.41)	(0.19)	(0.16)	0.07	0.08	0.08	0.18	0.62	0.77	0.88	0.88	0.85	1.00	-	0.60	0.95	-	0.60
AIR FRANCE-KLM SA	DEC	0.33	(6.77)	(20.32)	0.69	1.05	0.44	(1.90)	(9.36)	(19.45)	2.00	1.00	3.01	4.83	-	1.15	6.78	-	4.11
AIR NEW ZEALAND LIMITED	JUN	(0.25)	(0.18)	(0.26)	0.16	0.23	0.25	0.28	0.58	0.65	1.08	1.21	1.20	1.06	-	0.34	1.30	-	0.96
CAPITAL A BERHAD	DEC	(0.15)	(0.19)	(0.38)	(0.02)	0.14	0.12	(0.36)	(0.26)	(0.14)	0.28	0.52	0.55	0.19	-	0.12	0.32	-	0.16
ALASKA AIR GROUP, INC.	DEC	0.45	3.77	(10.72)	6.19	3.52	7.75	13.94	13.95	7.55	18.42	13.65	11.25	61.55	-	38.19	74.25	-	46.26
AMERICAN AIRLINES GROUP INC.	DEC	0.19	(3.09)	(18.36)	3.79	3.03	2.61	(18.36)	(20.72)	(20.90)	(14.70)	(13.89)	(14.88)	21.42	-	11.65	26.09	-	14.71
ANA HOLDINGS INC.	#	MAR	1.28	(2.51)	(9.78)	0.77	2.99	12.39	12.32	17.24	25.99	25.46	23.45	22.92	-	16.30	25.83	-	18.77
ASIANA AIRLINES, INC.	DEC	0.40	(5.08)	(4.94)	(9.42)	(2.60)	3.45	6.77	4.89	11.74	6.85	9.47	12.04	18.69	-	7.95	24.64	-	11.80
AZUL S.A.	DEC	(0.39)	(2.19)	(6.10)	(1.75)	(0.49)	0.41	(11.12)	(10.22)	(8.58)	(3.36)	(1.65)	(1.22)	5.66	-	1.77	8.87	-	3.83
CATHAY PACIFIC AIRWAYS LIMITED	DEC	(0.14)	(0.12)	(0.55)	0.06	0.08	(0.04)	0.59	0.75	0.78	1.55	1.71	1.62	1.18	-	0.80	1.02	-	0.76
CEBU AIR, INC.	DEC	(0.43)	(0.82)	(0.77)	0.30	0.12	0.26	(0.14)	0.28	0.73	1.43	1.22	1.27	0.93	-	0.63	1.07	-	0.75
CHINA AIRLINES, LTD.	DEC	0.02	0.06	0.00	(0.01)	0.01	0.01	0.37	0.44	0.37	0.34	0.34	0.35	1.04	-	0.51	1.12	-	0.36
CHINA EASTERN AIRLINES CORPORATION LIMITED	DEC	(0.29)	(0.11)	(0.11)	0.03	0.03	0.07	0.11	0.33	0.40	0.49	0.45	0.45	0.90	-	0.64	0.93	-	0.67
CHINA SOUTHERN AIRLINES COMPANY LIMITED	DEC	(0.28)	(0.12)	(0.12)	0.03	0.04	0.09	0.28	0.57	0.63	0.70	0.73	0.70	1.18	-	0.80	1.15	-	0.80
COPA HOLDINGS, S.A.	DEC	7.88	1.03	(14.28)	5.81	2.08	8.55	35.74	28.93	27.94	43.00	39.92	41.71	97.63	-	55.25	94.91	-	64.66
DELTA AIR LINES, INC.	DEC	2.06	0.44	(19.49)	7.30	5.67	4.43	(14.36)	(18.63)	(22.38)	0.65	(1.36)	(3.00)	46.27	-	27.20	52.28	-	33.40
DEUTSCHE LUFTHANSA AG	DEC	0.71	(3.40)	(15.30)	2.86	5.24	5.98	6.33	2.79	(0.31)	19.67	18.57	18.52	8.82	-	5.61	14.74	-	5.96
EASYJET PLC	SEP	(0.25)	(2.15)	(3.43)	1.08	1.18	1.03	2.88	3.67	3.70	7.55	8.86	7.64	8.79	-	3.34	14.83	-	6.19
EVA AIRWAYS CORP.	DEC	0.04	0.05	(0.02)	0.03	0.04	0.04	0.53	0.59	0.51	0.48	0.44	0.42	1.22	-	0.74	1.10	-	0.43
FINNAR OYJ	DEC	(0.38)	(0.39)	(0.63)	0.54	0.80	1.48	0.31	0.38	0.77	8.33	8.07	9.40	0.73	-	0.36	0.92	-	0.64
GOL LINHAS AÉREAS INTELIGENTES S.A.	DEC	(0.72)	(3.44)	(3.24)	(0.08)	(0.80)	0.02	(10.52)	(10.40)	(8.79)	(6.67)	(5.00)	(4.56)	3.77	-	1.14	5.16	-	2.62
HANAN AIRLINES HOLDING CO., LTD.	DEC	(0.09)	0.04	(0.59)	0.00	(0.03)	0.03	(0.00)	0.03	(0.27)	0.43	0.49	0.52	0.30	-	0.18	0.28	-	0.14
HAWAIIAN HOLDINGS, INC.	DEC	(4.67)	(2.85)	(11.08)	4.71	4.62	6.19	6.21	10.84	12.19	20.85	17.04	14.13	21.71	-	9.64	31.38	-	16.84
INTERGLOBE AVIATION LIMITED	#	MAR	(0.10)	(2.11)	(2.06)	(0.08)	0.92	(1.98)	(2.06)	0.02	2.01	2.59	2.81	27.57	-	18.27	31.94	-	20.16
INTERNATIONAL CONSOLIDATED AIRLINES GROUP S.A.	DEC	0.07	(0.67)	(2.40)	0.95	1.57	1.11	(0.33)	(0.55)	(0.40)	1.91	2.03	2.12	2.17	-	1.09	3.01	-	1.65
JAPAN AIRLINES CO., LTD.	#	MAR	0.59	(3.35)	(6.92)	1.45	3.90	12.62	13.42	17.75	27.56	27.76	25.87	21.66	-	13.66	23.96	-	15.73
JEJU AIR CO., LTD.	DEC	(2.60)	(5.67)	(9.30)	(1.09)	2.42	2.77	2.91	2.53	4.66	9.76	12.23	11.17	19.80	-	6.95	24.89	-	12.97
JET2 PLC	#	MAR	NA	(1.93)	(2.08)	0.97	1.22	1.01	NA	5.33	6.02	5.08	5.00	17.28	-	7.68	21.30	-	12.41
JETBLUE AIRWAYS CORPORATION	DEC	(1.12)	(0.57)	(4.88)	1.91	0.60	3.45	9.98	11.09	11.68	16.16	15.00	14.45	16.39	-	6.18	21.96	-	12.86
JUNEYAO AIRLINES CO., LTD	DEC	(0.29)	(0.04)	(0.04)	0.08	0.10	0.11	0.58	0.75	0.78	0.93	0.75	0.73	2.78	-	1.54	2.94	-	1.51
KOREAN AIR LINES CO., LTD.	DEC	3.79	1.40	(1.54)	(5.76)	(1.58)	8.09	17.48	15.64	15.50	21.32	25.64	2781.54	25.88	-	16.22	29.72	-	21.37
LATAM AIRLINES GROUP S.A.	DEC	0.01	(7.66)	(7.50)	0.31	0.51	0.26	(0.00)	(13.32)	(5.74)	(0.87)	(0.62)	(0.19)	0.69	-	0.01	2.58	-	0.16
NORWEGIAN AIR SHUTTLE ASA	DEC	0.09	0.30	(119.25)	(143.67)	(396.79)	(613.08)	0.44	0.38	(20.03)	271.45	374.54	643.87	1.39	-	0.64	10.25	-	0.97
PAL HOLDINGS, INC.	DEC	0.01	0.09	(0.13)	(0.02)	(0.01)	(0.01)	0.00	(0.01)	(0.13)	(0.01)	0.01	0.01	0.13	-	0.09	0.14	-	0.10
PEGASUS HAVA TASIMACLIĞI ANONİM ŞİRKETİ	DEC	3.71	(1.46)	(2.59)	2.19	0.94	1.30	9.28	4.95	6.94	8.64	6.84	6.41	27.68	-	4.45	8.60	-	4.45
PT. GARUDA INDONESIA (PERSERO) TBK	DEC	0.14	(0.16)	(0.09)	(0.00)	(0.01)	(0.01)	(0.02)	(0.23)	(0.07)	0.02	0.02	0.03	0.00	-	0.00	0.03	-	0.02
PUBLIC JOINT STOCK COMPANY AEROFLOT - RUSSIAN AIRLINES	#	JAN	NA	0.00	(0.19)	(1.18)	0.16	(0.71)	NA	0.00	(0.79)	(0.62)	(0.17)	0.88	-	0.33	0.99	-	0.77

Company	Yr. End	Earnings per Share (\$)						Tangible Book Value per Share (\$)						Share Price (High-Low, \$)																		
		2022	2021	2020	2019	2018	2017	2022	2021	2020	2019	2018	2017	2022		2021		2020	2019		2018		2017									
GLOBAL PASSENGER AIRLINES																																
QANTAS AIRWAYS LIMITED		JUN	(0.31)	(0.67)	(0.89)	0.36	0.40	0.35	(0.36)	(0.12)	0.18	0.81	1.26	1.10	4.32	-	2.86	4.34	-	3.05	5.64	-	1.57	5.24	-	3.64	4.88	-	3.36	5.10	-	2.50
SAS AB (PUBL)		OCT	(0.09)	(0.11)	(2.41)	0.15	0.36	0.25	0.00	0.09	0.14	1.07	1.65	2.34	0.17	-	0.04	0.24	-	0.12	2.03	-	0.09	2.67	-	1.24	2.64	-	1.85	3.38	-	1.64
SINGAPORE AIRLINES LIMITED	#	MAR	0.26	(0.12)	(0.86)	(0.13)	0.42	0.84	2.85	2.54	2.73	5.29	8.04	8.07	4.18	-	3.62	4.29	-	3.00	6.90	-	2.42	7.61	-	6.43	8.69	-	6.71	8.18	-	7.18
SKYWEST, INC.		DEC	1.44	2.20	(0.17)	6.62	5.30	8.08	46.40	45.01	42.64	43.22	38.22	33.90	42.97	-	14.76	61.16	-	36.35	66.52	-	10.58	66.04	-	42.72	65.80	-	42.38	54.85	-	30.40
SPICEJET LIMITED	#	MAR	NA	(0.38)	(0.23)	(0.21)	(0.07)	0.14	NA	(0.95)	(0.60)	(0.35)	(0.09)	(0.02)	0.82	-	0.42	1.30	-	0.80	1.61	-	0.42	2.20	-	1.02	2.21	-	0.87	2.45	-	0.87
SPIRIT AIRLINES, INC.		DEC	(5.10)	(4.50)	(5.06)	4.89	2.28	5.99	14.43	19.50	23.03	33.03	28.25	25.85	28.30	-	15.92	40.77	-	19.52	47.50	-	7.01	64.76	-	32.97	65.35	-	34.36	60.28	-	30.32
SPRING AIRLINES CO., LTD.		DEC	(0.48)	0.01	(0.10)	0.29	0.24	0.24	2.00	2.23	2.24	2.35	2.10	1.61	9.81	-	5.82	10.84	-	7.16	8.61	-	4.42	6.85	-	4.34	5.92	-	4.29	6.43	-	4.61
THAI AIRWAYS INTERNATIONAL PUBLIC COMPANY LIMITED		DEC	(0.00)	0.76	(2.15)	(0.19)	(0.16)	(0.03)	(0.94)	(0.99)	(1.97)	0.18	0.28	0.44	0.00	-	0.00	0.14	-	0.05	0.26	-	0.09	0.47	-	0.22	0.55	-	0.37	0.74	-	0.51
UNITED AIRLINES HOLDINGS, INC.		DEC	2.23	(6.10)	(25.30)	11.58	7.67	7.06	(1.20)	(7.11)	(4.51)	15.92	8.74	2.34	53.12	-	30.54	63.70	-	38.88	90.57	-	17.80	96.03	-	77.02	97.85	-	60.44	83.04	-	56.51
VIETJET AVIATION JOINT STOCK COMPANY		DEC	(0.18)	0.01	0.01	0.31	0.42	0.42	1.16	1.36	1.23	1.23	1.12	0.86	6.31	-	4.07	6.06	-	4.63	6.41	-	4.01	6.34	-	4.62	8.24	-	4.97	5.41	-	2.83
VIETNAM AIRLINES JSC		DEC	(0.20)	(0.35)	(0.33)	0.07	0.08	0.08	(0.21)	0.03	0.19	0.54	0.55	0.60	1.16	-	0.34	1.50	-	0.87	1.49	-	0.75	1.95	-	1.38	0.00	-	0.00	0.00	-	0.00
WIZZ AIR HOLDINGS PLC	#	MAR	NA	(7.03)	(7.85)	2.44	1.10	2.69	NA	2.34	12.02	15.53	18.28	20.73	58.98	-	15.90	75.76	-	48.75	66.95	-	24.45	55.15	-	35.80	48.00	-	29.31	49.82	-	20.87

Note: Data as originally reported. CAGR-Compound annual growth rate.
Source: S&P Capital IQ.

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