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Fuel to Fire

Global pandemics. Cold wars. Culture wars. Energy crises. Supply chain breakdowns. Rampant inflation. Fuel price spikes. The Great Resignation. Remember environmental pollution, climate change, mental health? As the Northern Summer approaches, temperatures are rising, and fire season is upon us. For people in traditionally arid areas like the U.S. West, the Mediterranean Basin, and Eastern Australia, fire season is something that is expected, respected, and planned for. In recent years, other regions where business and general aviation thrives – think Alaska – have felt the scorching heat and smothering smokescreens of summer fires.

In the B&GA world, horrors in the Ukraine, targeted sanctions, and other policy directives aimed at Russia and its leaders are creating havoc in some corners of the industry. “Untouchable” aircraft, “Can I work with them?” KYC questions, cancelled and re-sold aircraft delivery positions....the list goes on. While unprecedented demand for new and pre-owned aircraft from other corners of the market has basically absorbed Russia-bound inventory, irrational transaction behaviors spew like fuel to the fire driving transaction prices skyward. For those mindful of their flight deck indicators, warning signs are everywhere.

While we can take solace in strong order backlogs and book-to-bill performance at the aircraft manufacturers, isn't it ironic that supply chain woes - largely self-induced by decisions in early 2020 to shut down aircraft factories and furlough people – have come full-circle to limit our collective abilities to push forward

the throttles and accelerate today's production rates? Like a built-in safety valve, the long-cycle nature of our business is something that (I would argue thankfully) protects us, sometimes from ourselves. For us, we think “Rate 800” is about right for this industry's factories, at least for the next handful of years. A built-in safety valve.

Fuel to Fire, Danish chanteuse Agnes Obel's haunting 2013 melody of life and relationships caught in a maelstrom of external events, comes to mind as I think about today's B&GA market. While competitiveness has accelerated in our Alpha-male dominated industry – where “I don't want to sit by and see you/them getting ahead of me/us” – we believe that marketplace conditions favor prudence over push-the-throttles-to-the-firewall cockiness.

To borrow an idea from American boxer (and occasional philosopher) Mike Tyson, until we get hit in the mouth – and you-know-what hits the turbofan – everybody has a plan.

***“Until we get hit in the mouth
– and you-know-what hits the
turbofan – everybody has a plan”***

Remember business planning (strategic, financial, operational, ESG, DEI), employee engagement, and customer delight? These evergreen principles are the foundations of successful and enduring enterprises, like seeds that – despite our never-ending distractions – sprout again and again from fire-ravaged forest floors.



Outlook

As we discussed in our April 2022 JETNET iQ PULSE, our view is that appropriately cautious management practices are called for across the B&GA industry today, whether you are running an aerospace design / engineering / manufacturing company, a single FBO / MRO site or network of sites, an aircraft brokerage, an equipment financing operation, or other related business that invests significant working and investment capital. The times they are a changin', as Mr. Dylan reminded us years ago.

Today we hear: "Find me some more / build me some more airplanes because I can sell them / finance them / service them." With the prices of today's new and pre-owned aircraft continuing to climb, why wouldn't we pursue this path?

Much like the "Build it and they will come" philosophy that was the underlying theme of the 1983 baseball film *Field of Dreams*, it is easy to get swayed by the emotional appeal and sentimentality of an investment-brings-prosperity argument. While wealth creation and concentration has accelerated despite (and maybe because of) COVID-19, sadly relatively few people can afford to own their own business aircraft (or even a share of one).

Described to me once as "eye wateringly expensive" to own and operate by an UHNWI, business aircraft are today more expensive to

own and operate than ever before. This is not a good development. With strong inflationary pressures on wages, fuel prices, and interest rates – before a vicious Eastern European war which shows no signs of abating anytime soon – the good ol' days of the recent past already seem distant. If past is truly prologue, and if we learned anything from the 2008 downturn that is need-to-know now, we should not overreact to the super-demand pressures in today's marketplace. Buyers who waive inspection requirements? Sellers who re-price their aircraft in the middle of the deal? Fools. These too will pass, as my mother – one of the world's foremost and completely unsung students of human behavior – would have said.

"Rate 800" – the idea that the business jet industry can collectively produce and deliver about 800 new business jets over the next few years – seems about right to me. Some will say that is too few. Few will say that is too many. I would say that, while more can be built, now is not the time to be heroic, unless of course that means heading to Ukraine to defend the innocent. In today's marketplace, uncertainty is the rule, not the exception, and downside risks are real. For leaders pondering rate increases in the hope of seeking outsized market share, today's combusive market environment should be carefully factored into the calculus.



Business Conditions

GDP



The Economist's **GDP growth forecasts** for 2022 are: U.S. +3.0%, Euro Area +3.2%, U.K. +3.9%, Mexico +1.9%, Brazil +0.8%, Canada +3.8%, China +5.0%, Australia +3.2%, and **Russia -10.0%**



Business jet cycles (take-offs and landings) in March 2022 were up by 6% YOY for U.S. Part 91, up by 13% YOY for U.S. Part 91K, up by 15% YOY for U.S. Part 135, and up by 35% for European EASA 145 operations



Dow Jones Index (U.S.) was down 5%,
FTSE 100 (U.K.) was down 4%,
CAC 40 (France) was down 4%, and
DAX 30 (Germany) was down 13%
YOY on May 6, 2022



U.S. Index of **Consumer Sentiment** was 65.2 in Apr. 2022 vs. 59.4 in Mar. 2022 and 88.3 in Apr. 2021 YOY;
Euro Area **Economic Sentiment Indicator** was 105.0 in Apr. 2022 vs. 106.7 (revised) in Mar. 2022 and 109.4 in Apr. 2021 YOY



U.S. unemployment rate (seasonally adjusted) was 3.6% in Apr. 2022 representing 5.9 million unemployed people, essentially unchanged from Mar. 2022 (3.9%)



U.S. Purchasing Manager Index (Manufacturing PMI) was 55.4 in Apr. 2022 vs. 57.1 in Mar. 2022 and 60.7 in Apr. 2021 YOY; Euro Area **Business Climate Indicator** was 2.0 in Apr. 2022 vs. 1.7 in Mar. 2022 and 1.0 in Apr. 2021 YOY



Transactions of pre-owned business aircraft in Jan.-Feb. 2022 were 412 jets and 182 turboprops, up 24% and down 21% YOY (JETNET as of May 9, 2022; whole retail transactions only)



Business aircraft deliveries in 2021 were 705 jets (including Cirrus and Boeing / Airbus single-aisle) and 388 turboprops (Source: GAMA)

Pre-Owned Business Aircraft Inventory

For buyers entering the business aircraft marketplace seeking fire sale prices, look elsewhere. Pre-owned business aircraft inventory at the end of Q1 was the lowest yet measured by JETNET in many years of tracking these data. Strong deal flow has been sustained for some time by so-called “off-market” aircraft that are never on the market long enough to be recorded as being for sale before they change hands to a welcome buyer.

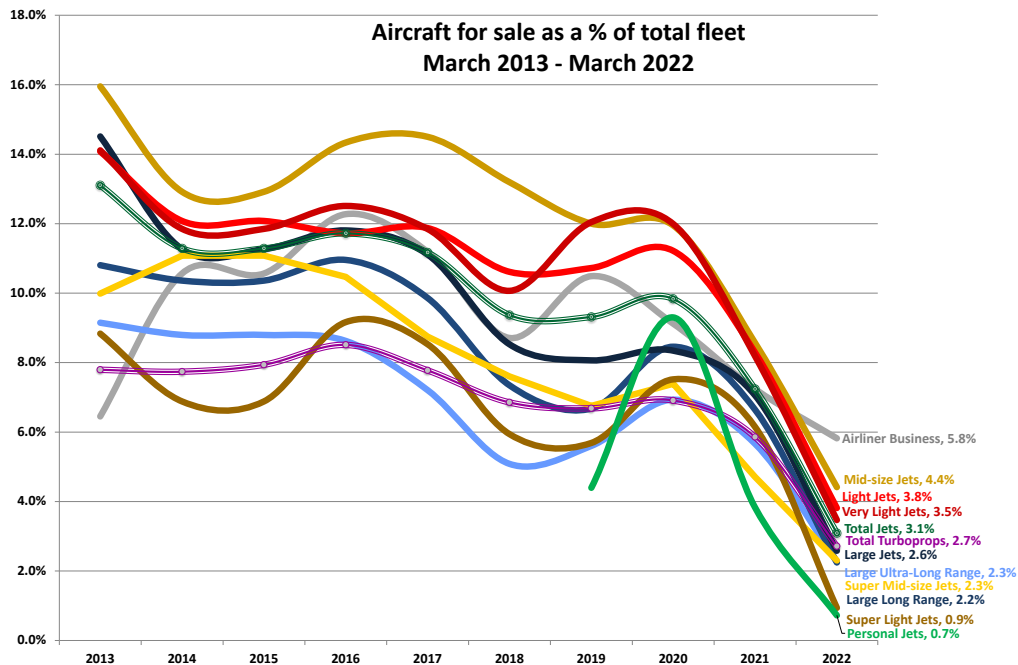
As of May 8, 2022, there were 744 business jets listed for sale on JETNET, and of that total just 8% were delivered new since the beginning of 2017. Buyers with very specific requirements – model, age, registration, specification, paint and interior – continue to have exceptionally few choices available to them. For example, not one

Embraer Phenom 300, Pilatus PC-24, Citation Latitude, Gulfstream G280, nor Dassault Falcon 8X that delivered new since the beginning of 2017 was listed as for sale in JETNET in early May 2022.

JETNET databases include 425 for-sale turboprops as of May 8, 2022. Just 33 of these aircraft were delivered new since the beginning of 2017, just under 8% of the available worldwide fleet. In quite a few cases, and regardless of vintage, asking prices relative to original delivered prices are above 100%, defying the laws of normal depreciation. These inflated prices are fueling the pipeline of inventory that just keeps flowing and flowing, at least until the spigot is turned off, just like Russian natural gas to Poland and Bulgaria.

Business Aircraft Inventory For Sale Trends

As of March 31 - From 2013 to 2022



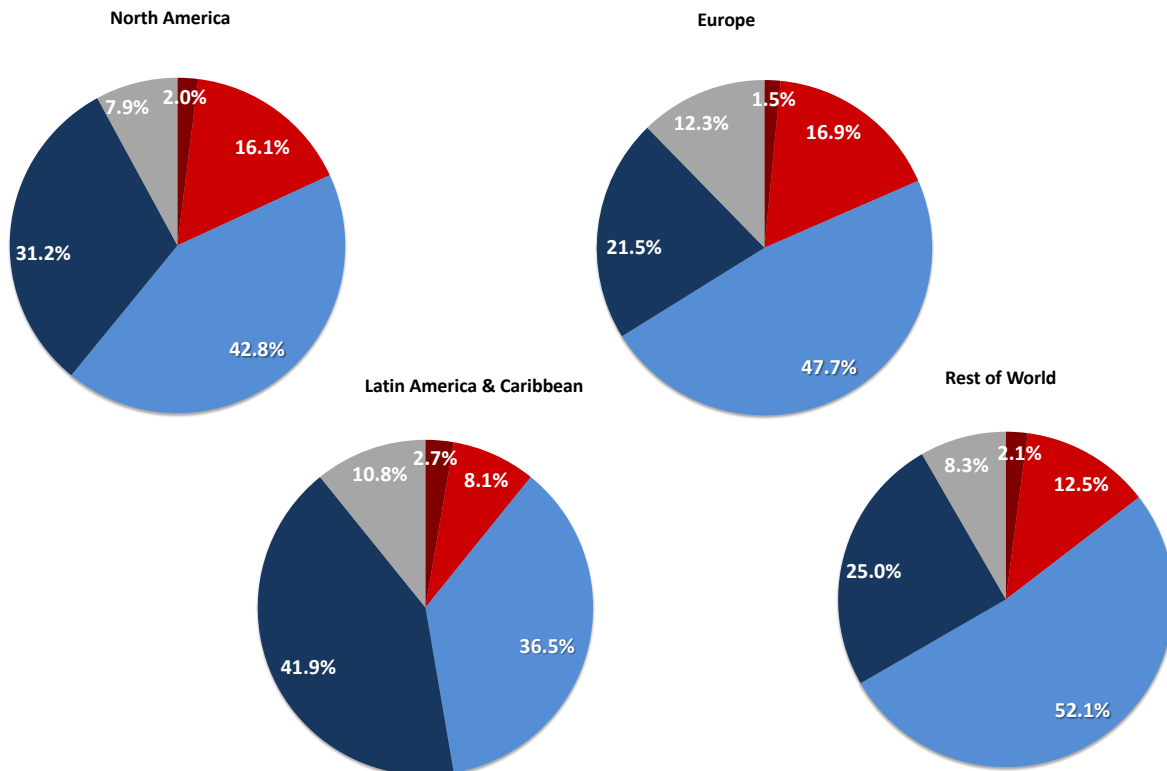
Source: JETNET / JETNET iQ analysis

Aircraft Prices and Valuations

With super demand for business aircraft and exceptionally low availability of pre-owned inventory and new aircraft delivery slots, most aircraft owners and operators that we polled in Q1 2022 believe that aircraft prices and valuations will remain strong for at least the next 12 months. In North America and Europe, the

ratio of respondents who strongly agree that price and valuation increases will continue outnumber those who strongly disagree by a remarkable ~15-to-1. Indications point towards a continuation of today's lopsided "seller's market" for the time being.

Expectations for Increases in Aircraft Prices and Valuations Q1 2022 JETNET iQ Survey



Source: Q1 2022 JETNET iQ Survey

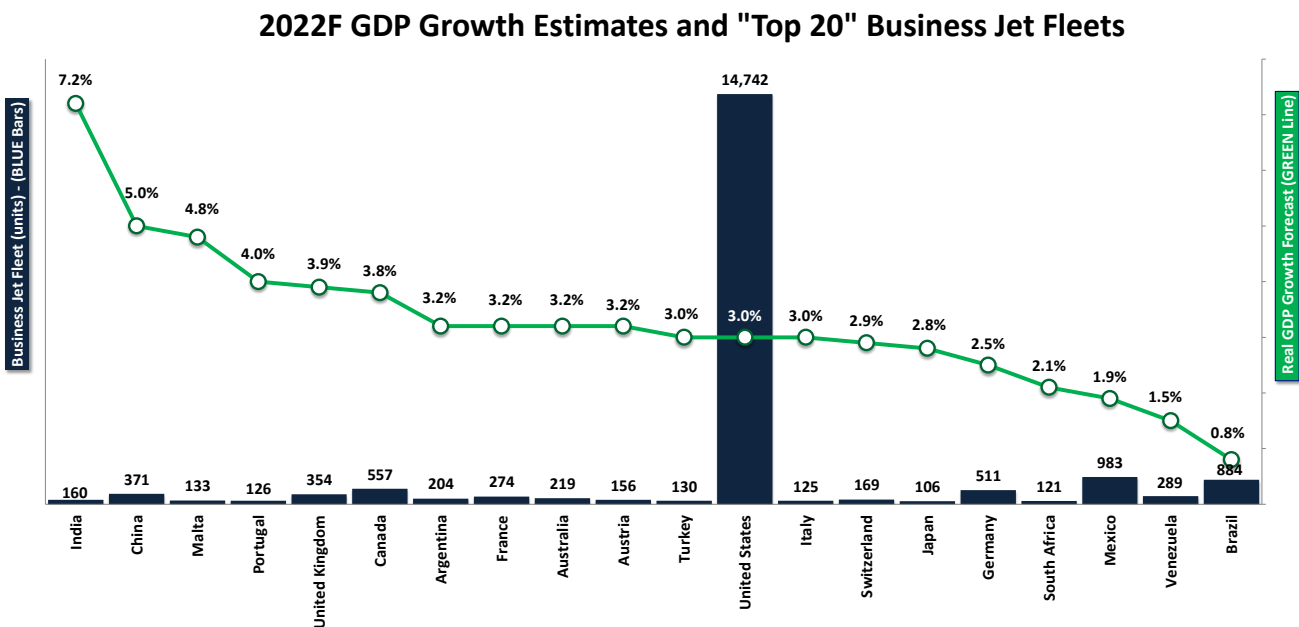
2022 GDP Forecasts and Business Jet Fleets

The world's business jet fleet is highly concentrated in the United States, home to ~64% of the fleet. Just 7 countries – U.S., Mexico, Brazil, Canada, Germany, China and the United Kingdom – account for 80% of today's fleet.

Many variables are involved when trying to understand the worldwide distribution of business jets. Economic factors, including outputs such as gross domestic product (GDP) and year-over-year GDP growth rates, are considered to be amongst the most important.

In 2020, only two of the "Top 20" country markets – China and Turkey – were able to escape recession. All of these "Top 20" markets subsequently grew at 3% or faster in 2021 on an inflation-adjusted basis, a performance that, while buoyed by the relatively easy comparable of 2020, was nevertheless a welcome recovery from COVID-19 shocks. Although weakness in key Latin American markets this year is apparent in the latest GDP growth forecasts (see chart below), national economies where most business jets are based are expected to grow at a 2.5% or better clip, a solid performance after strong 2021 results.

2022 Real GDP Growth Forecasts and Business Jet Fleets by Country "Top 20" Country Markets Where Business Jets Are Based



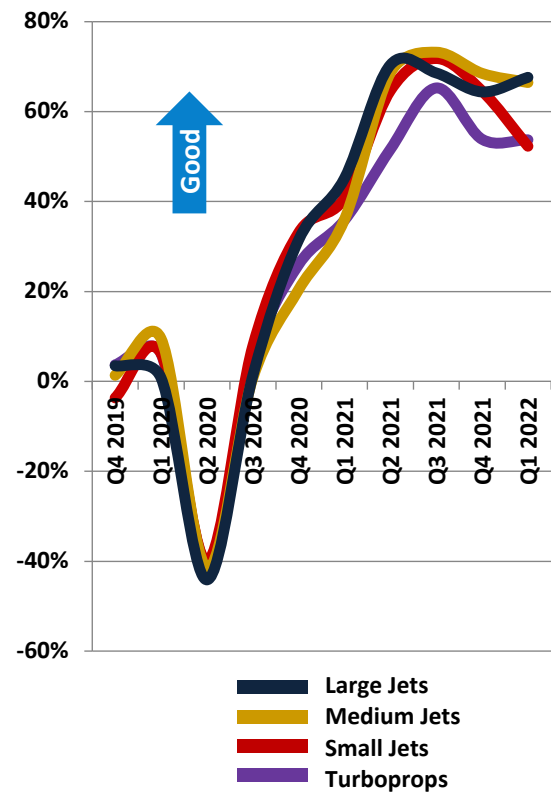
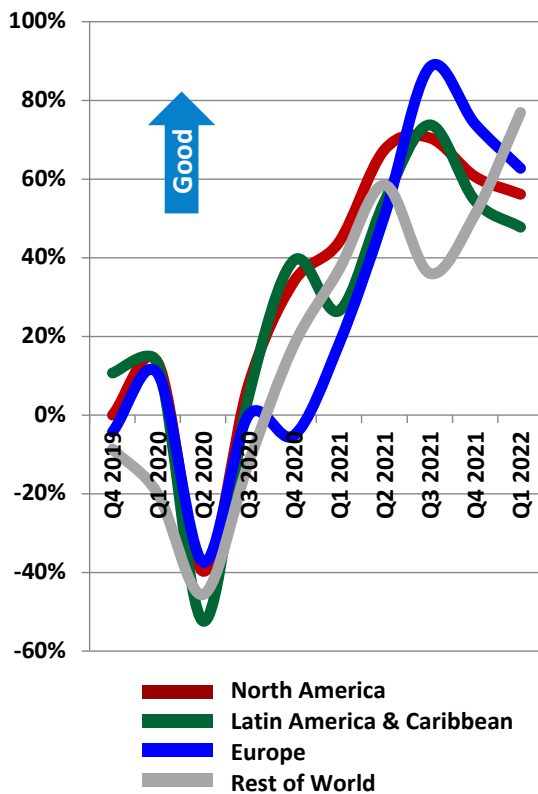
Sources: The Economist – April 30, 2022; JETNET; JETNET iQ analysis

JETNET iQ Market Sentiment

Optimism in the business aircraft owner / operator community remains strong but has slipped back from its recent peak in Q3 2021 based on our on-going market sentiment tracker. "Net Optimism" – the difference between the percentage of respondents who believe the industry is on an upswing versus those who believe we are not yet at the low point of the current business cycle – dropped to 59%

in Q1 2022. While still at relatively high levels, this result is down more than 10 percentage points since Q3 2021. Not surprisingly led by a downturn in war-ravaged Europe, early indications of unease are emerging amongst customers who own and operate turboprop and small jet aircraft in particular.

JETNET iQ Market Sentiment by Region and Aircraft Size Category Net Optimism Trends Since Q4 2019 (Pre-COVID to Today)



Source: JETNET iQ Global Business Aviation Surveys

Confronting the Future with Practical Optimism

In *Fuel to Fire*, Danish singer and songwriter Agnes Obel offers us choices between past and present, fantasy and reality, action and inaction. It's a haunting song and it seems especially relevant to the present moment. The Russian invasion of Ukraine has upended our visions of lasting peace. The economic and political landscapes of Europe have again been transformed by war.

As we prepare to gather at EBACE 2022 in Geneva, the business aviation community in Europe is clearly feeling the war's impact. Access to parts and maintenance services has tightened. Aircraft based in or connected to Russia may become unflyable short of cannibalization of other aircraft for essential spare parts. There will also be a host of operational issues to consider if the war continues and civilian aircraft continue to be restricted from flying over large areas of Eurasia.

Given these circumstances, it seems likely that demand for ultra-long-range business jets will come under pressure, particularly in Europe. We suspect that at least some customers will find what they need (if not what they want) in the super midsize and rejuvenating large cabin segments, which could benefit from this shift.

Banks and other lenders are no doubt keeping close watch on their aviation assets and recalculating their risk assessments. While prices and values today are robust, the unsettling combination of war, inflation, supply chain shocks and a lingering Covid-19 has created a fog of uncertainty around medium- and longer-term aircraft valuations.

On a brighter note, and quite ironically, market trends favor a more widespread adoption of sustainable aviation fuels – or at least schemes like “book and claim” that broaden the reach of SAF even if it may not have been pumped into a wing tank. Crude oil prices remain elevated above \$U.S. 100, making the relative cost of SAF feedstocks like fats, oils, and grease more attractive. Conventional Jet A prices reportedly reached \$13 / USG in some parts of the U.S. Northeast recently, grabbing people's attention. Research suggests that consumers are willing to pay a modest premium for flying in aircraft powered by sustainable fuels, suggesting a potentially deep reservoir of both goodwill and untapped demand. As one fuel company executive told us recently, he hasn't heard anyone saying, “Oh, we'd rather have high-carbon fuel than low-carbon fuel.”

The latent demand for SAF will likely prove critical as fuel providers struggle to overcome distribution challenges. SAF is still in the early stages of acceptance and its success, at least at this point in the demand curve, depends on early adopters. That creates a “chicken and egg” situation in which suppliers are waiting for demand and buyers are waiting for supply.

Economic tools such as incentives and mandates can be employed to accelerate consumer demand and provide an acceptable level of certainty for suppliers. Incentives are generally preferred in the U.S., while mandates are often the more common mechanism in Europe. Both tools have worked in the past, and there's no reason to believe they can't work again.

Essentially, the market is looking for a spark – something that will ignite the fuel and turn it into fire. No matter which side of the Atlantic you're on, we urge you to encourage your lawmakers and elected officials to enact the economic programs necessary to promote wider adoption of SAF. Sustainable aviation isn't some pie-in-the-sky fantasy. It's real and the fuel is ready to use today. That should be enough to give us hope for tomorrow.

The official music video for *Fuel to Fire* evokes the tension of the decades between World War I and World War II. The song reminds me that we have a choice – that the future is ours to create. The return of war in Europe is a terrible shock to our system. Let's find a way for it to be a spark that helps us discover our better selves.



About JETNET iQ

JETNET iQ is a business aviation market research, analysis and forecasting service consisting of three main elements:

- **JETNET iQ Reports** are the definitive analytical reference for business aviation, incorporating quarterly state-of-the-industry analyses, owner / operator surveys, and detailed delivery and fleet forecasts;
- **JETNET iQ Summits** are annual industry thought-leadership conferences providing unique data, insights and networking opportunities; and
- **JETNET iQ Advisory** provides customized research and analysis for clients on a project-by-project basis.

JETNET iQ Reports are available in various formats on a subscription basis, and are published regularly by JETNET LLC, 101 First Street, Utica, NY 13501 - **currently offered at 11 different levels**. JETNET iQ is a partnership between JETNET LLC of Utica, New York and Rolland Vincent Associates, LLC, of Plano, Texas.

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Since late 2010, JETNET has conducted quarterly surveys of the worldwide community of business aircraft owners and operators in order to gauge customer sentiment, brand perceptions, aircraft purchase, selling, and utilization expectations, and other factors. JETNET iQ Global Business Aviation Surveys are password-protected and by invitation-only. Potential respondents are drawn randomly from the JETNET worldwide database of business jet and business turboprop owners and operators; they are initially contacted by telephone and/or e-mail by JETNET's team of multilingual researchers. Target respondents include chief pilots, directors of aviation, and senior management. Each survey includes at least 500 respondents in 50 or more countries each quarter, and respondents closely reflect the worldwide distribution of the business jet and turboprop community.

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Appendix

Data sources:

Real GDP growth forecasts (2022): The Economist – May 7, 2022 (unless otherwise indicated)

<https://www.economist.com/economic-and-financial-indicators/2022/05/07/economic-data-commodities-and-markets>

Stock Markets:

Dow Jones Industrial Average: <https://www.spglobal.com/spdji/en/indices/equity/dow-jones-industrial-average/#overview>

London Stock Exchange (FTSE 100): <https://www.londonstockexchange.com/indices/ftse-100>

Euronext Paris (CAC 40): <https://live.euronext.com/en/product/indices/FR0003500008-XPAR>

Frankfurt Stock Exchange (DAX 30): <https://www.boerse-frankfurt.de/indices/dax?mic=XETR>

Initial Unemployment Claims: Bureau of Labor Statistics (U.S.); <https://www.dol.gov/ui/data.pdf>; “SA” = seasonally adjusted

Unemployment: Bureau of Labor Statistics (U.S.); <https://www.bls.gov/news.release/pdf/empisit.pdf>

Consumer Confidence: University of Michigan Survey of Consumers (U.S.); <http://www.sca.isr.umich.edu>

European Commission (Euro Area) – Economic Sentiment Indicator; https://ec.europa.eu/info/sites/default/files/bcs_2022_04_en.pdf

Business Confidence: U.S. ISM Manufacturing PMI (U.S.)

<https://www.ismworld.org/supply-management-news-and-reports/reports/ism-report-on-business/pmi/april/>

Eurostat (Euro Area); <https://ec.europa.eu/eurostat/databrowser/view/teibs010/default/table?lang=en>

https://ec.europa.eu/eurostat/databrowser/view/ei_bsci_m_r2/default/table?lang=en

Business aircraft fleet, deliveries, transactions, days-on-market (DOM), utilization: JETNET; GAMA

Survey results: JETNET iQ Global Business Aviation Surveys (Quarterly)

Photo / Image credits: Rolland Vincent Associates, LLC / JETNET iQ

Definitions and Abbreviations:

For the purposes of these Reports, business aircraft may be classified into 4 primary categories, reflecting propulsion, price, performance, and weight class differences. These categories are: Turboprops (Single-Engine Turboprops - SETP and Multi-Engine Turboprops - METP), Small Jets (Personal Jets, Very Light Jets, Light Jets), Medium Jets (Super-Light Jet, Mid-Size Jet, Super Mid-Size Jet), and Large Jets (Large Jet, Large Long-Range Jet, Large Ultra Long-Range Jet, Airline Business Jet). The “Personal Jet” category includes single-engine turboprop-powered models, today represented by the Cirrus Vision Jet.

B&GA: Business & General Aviation

EIS: Entry in Service

FBO: Fixed Base Operator (private air terminal)

FTSE: Financial Times Stock Exchange (London)

GAMA: General Aviation Manufacturers Association

GDP: Gross Domestic Product

HNWI: High Net Worth Individual

MTOW: Maximum Takeoff Weight

NGO: Non-Governmental Organization

OEM: Original Equipment Manufacturer

QOQ: Quarter over Quarter

QTD: Quarter to Date

S&P: Standard & Poor’s

SME: Small and Medium-Sized Enterprise

TTM: Trailing Twelve Months

WHO: World Health Organization

YOY: Year over Year

YTD: Year to Date

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The JETNET iQ Summit is going to be charged with a new energy as business leaders from around the world meet at the New York Marriott Marquis, September 15-16th. Join us in Times Square and experience the excitement of business aviation's bright new direction: **Bluer Skies. Greener Future.**

The possibilities of sustainability are as momentous and significant as this gathering of our industry's top leaders. Trust us, you'll want to be in the middle of it all.

Take advantage of our Early Bird discount and book your tickets today. Don't miss the chance to meet with the "Who's Who" of business aviation - speakers, panelists, and experts.

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