

>> December 3, 2020 Issue #18

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Rollie Vincent JETNET iQ Creator/Director



Like A Bridge Over Troubled Water

The development of vaccines to combat the deadly COVID-19 pandemic is advancing at a rapid pace, on multiple fronts across the globe. Like Simon and Garfunkel's 1970 instant classic hit Like a Bridge Over Troubled Water, hope and help are clearly on the way to brighten up even our darkest days. As of November 30, 2020, the Johns Hopkins Coronavirus Resource Center (www. coronavirus.jhu.edu) reported almost 1.5 million global deaths due to COVID-19, a tragic statistic that has been in a steep climb since April 2020. In another datapoint that should focus our minds on the need for speed, 18.3% of COVID-19 deaths thus far have been in the U.S., more than 4x the country's share of the world population. Based on November 2020 trends, U.S. deaths will almost certainly surpass 300,000 before year-end, and ~400,000 on an annualized basis, the country's 3rd most deadly killer behind heart disease and cancer.

While a bridge over these troubled waters cannot be built quickly enough, news of vaccine breakthroughs, requests for emergency use authorizations, and the imminent distribution of first doses has lifted spirits - and stock prices of Pfizer, Moderna, BioNTech, AstraZeneca and other pharmaceutical and biotech companies. With a wide variety of air transportation requirements, healthcare organizations like these and Quest Diagnostics, LabCorp and others have been deploying fleets of business and general aviation aircraft to accomplish their missions. Joining the ranks of earliertrailblazer FedEx, these modern-day logistics experts transport diagnostic test samples, and operate pandemic and disaster relief flights, a real-life endorsement of the many tangible and intangible benefits of business and general aviation aircraft.

"...vaccine breakthroughs, requests for emergency use authorizations, and the imminent distribution of first doses has lifted spirits - and stock prices..."

Bob Zuskin, one of the industry's leading aircraft appraisers, has both a keen sense for value and a deep appreciation for the complexities of valuations. Sporting a witty sense of humor and a refreshingly global perspective on the markets, Bob joins us in this issue of JETNET iQ PULSE to share some thoughts on the art and science of aircraft appraisals. A topic of enduring interest to aviation stakeholders, aircraft values are of special relevance today with the diverging fortunes of the commercial and business aircraft sectors.



This issue of JETNET IQ PULSE is sponsored by: **TEXTRON**



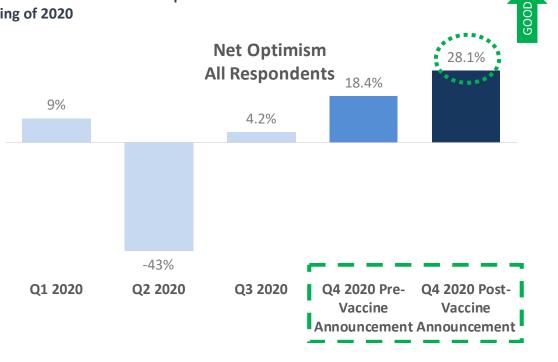
Outlook

While many factors impact the sentiment of the worldwide business aircraft owner / operator community, concerns surrounding the state of the economy and the COVID-19 pandemic rank highest based on our JETNET iQ Global Business Aviation Surveys. The November 9, 2020 public announcement by Pfizer and BioNTech of a >90% effective vaccine candidate was the sort of public safety announcement that corporate communications, investor relations, and company leadership teams dream about delivering – and first thing on a Monday morning, no less. A week later, the U.S. National Institute of Health (NIH) and

Moderna announced similar progress, with a vaccine efficacy rate of 94.5% and less onerous storage and logistics requirements. While it is difficult to ascertain for certain that the mood of the market is directly attributable to the vaccine progress announcements, our "Net Optimism" indicator jumped by almost 10% points beginning on November 9 in our Q4 2020 JETNET iQ Survey. This is good news indeed for both the health of our communities and of business aviation markets as progress continues towards required regulatory approvals and widespread inoculation.



JETNET iQ Market Sentiment Index – Net Optimism Since the Beginning of 2020



Source: JETNET iQ Q4 2020 Survey in progress (330 responses from 53 countries to date)

BUSINESS AVIATION MARKET INTELLIGENCE



Valuing the Intangibles



Bob Zuskin Founder and CEO Jet Perspectives

JET <u>PERSPECTIVES</u>

Like many of the other recognized appraisal disciplines, the appraisal of aircraft encompasses a broad range of sub-specialties. The appraisal of military, commercial and general aviation aircraft each have their own vernacular, maintenance practices and a host of other considerations that should be familiar to the appraiser. An appraisal of a commercial aircraft for instance is a very different proposition from that of a military aircraft, flight trainer or corporate aircraft. Having specialized in the latter, I think it is important to recognize those issues that are generally unique to the appraisal of corporate aircraft, many of which are not at all relevant to the other aviation segments.

Regardless of which arena we are in, as aircraft appraisers we are taught to consider the basics: make, model, year of manufacture, airframe and engine times, cosmetics, avionics, modifications, etc. Generally, each of these important elements can be quantified allowing the appraiser to appropriately assess the value of the subject aircraft to that of other comparables. As appraisers we are also taught the various methodologies we can use to value an asset. In the world of commercial aircraft for instance, the income approach to appraisal is often appropriate. Similarly, in the broad world of general aviation aircraft and corporate aircraft in particular, values are usually driven by the basic rules of supply and demand and consequently a market approach is usually employed.

The appraisal of corporate aircraft carries with it a consideration that is unique to this segment, namely "pedigree". In addition to the basic elements, the appraiser must consider items such as an aircraft's overall history, the caliber of owners, location, maintenance practices, completeness and level of documentation, and whether or not the aircraft has suffered any damage, major or minor. Collectively, these items create an aircraft's pedigree that can have a material impact on its value and marketability.

As an example, consider the life of a commercial aircraft. It will typically fly thousands of hours per year and upon every landing will be swarmed by an array of service vehicles and dozens of personnel whose objective is to get the plane back in the air. Given its role, it is not at all unusual for a commercial aircraft to have minor dings, dents and paint scratches, none of which will materially affect its value. Conversely, corporate aircraft are the golden chariots of the world's most successful businesses and individuals and are held to a higher standard...a much higher standard. With their utilization only a fraction of commercial aircraft, the most desirable aircraft have gone through life with kid glove service. Full-time dedicated maintenance personnel are intimate with every technical aspect and the logbooks often reflect that pride of ownership.

But the same dents and dings that are an accepted part of the commercial aircraft world are an anathema to the corporate owner. As "damage" can range from a minor scratch to a significant runway excursion, damage history of an aircraft, excluding total loss, can reduce its value from 0% to 50% below what would otherwise be its Fair Market Value. The amount of value adjustment depends on the extent of damage, the type of incident, the time since the damage was repaired, the expertise of the repair facility, the thoroughness of engineering documents and, perhaps most importantly, the nature of the aircraft market at the time the aircraft is offered for sale. These issues should be weighed by a prospective purchaser, and appraiser, and applied judgmentally on a case-by-case basis. In attempting to determine the impact of damage upon an aircraft's value, it is also important to distinguish between damage which is inflicted because of an operational incident (i.e., gear up landing, striking a fixed object, overrunning a runway) and passive incidents in which the aircraft is damaged while parked.

Most importantly, the effect upon value must also be weighed against the prevailing market that exists at the time. In a very bullish market with strong demand and few available aircraft, minor damage history may not affect the value of a corporate aircraft. But, should the market be soft, with too many available planes chasing too few customers, even the most insignificant damage history will often be used to negotiate (sometimes substantial) price concessions. Consequently, in such a soft market, it is generally only those aircraft that are well equipped with good pedigree, up-to-date maintenance (mid-time or better) and excellent cosmetics that will sell for "retail." Aircraft that lack any of these elements, unless appropriately priced to reflect pedigree issues, will languish in the marketplace.

JETNET IQ PULSE

Valuing the Intangibles (cont.)

Another important aspect of pedigree relates to the mere location of an aircraft. Many customers will sometime avoid aircraft that have been either operated in humid climates or have been registered in certain parts of the world. Whether "PC" or not, the market views with suspicion many aircraft that have been in service in parts of Latin America, Africa, Asia or Eastern Europe.

In the case of these aircraft, many appraisers must hope that the logbook entries are in English and that heavy maintenance was done at a factory authorized service center. Fortunately, most logbooks, regardless of ownership or geographic location, have entries written in English. Many years ago, I reviewed the logbooks of a Challenger 600 that had been imported from China into the United States. As the aircraft had spent most of its life in China, logbooks entries had been written in Chinese, requiring the new U.S. owner to have the logbooks undergo a certified translation for the purpose of obtaining its U.S. Certificate of Airworthiness. Unlike offering the depth of detail that is often found in the logbooks of most corporate aircraft, entries for this aircraft were extremely vague, citing for instance that the aircraft had just undergone its "big inspection." The significance to value with this type of history is also affected by whether or not such an entry was made last week or ten years ago.

Among the high-end corporate aircraft with multi-million-dollar interiors, the appraiser must have an appreciation of market expectations and how that relates to value. Most "pure" corporate aircraft, for instance, are certified for up to 18 passengers. The reality is that most are configured to accommodate 14 to 16 passengers with some aircraft that may be configured for as few as 10 passengers. From an appraiser's perspective, it is necessary to understand market expectations relative to cabin configuration. The difficult job of estimating the cost of interior modification must also consider the necessary downtime and include depreciation and opportunity costs.

One of the significant drivers in todays' market is the presence of aircraft that have served as fractionally owned aircraft. Clearly the availability of aircraft that often have double the hours of more "typical" corporate aircraft has done much to undermine the values of other pre-owned aircraft. Whereas the most desired aircraft are often low time, highly optioned and beautifully appointed that have been operated by a Fortune 500 company since new, the availability of "ex-fracs" has lowered the value bar for many corporate aircraft models.

Many appraisers are quite capable of employing any number of methodologies for adjusting value for hours. Unfortunately, the histories of these aircraft do not lend themselves to such an over-simplified calculation.

With maintenance documentation often based upon flight manifests, the logbooks of these aircraft are usually too voluminous and the paperwork too de-centralized for the average appraiser to easily audit. When the aircraft ultimately is sold the new owner will usually convert the records into a more typical record-keeping system, but of course the time and effort for that work must be considered. Consequently, in attempting to value an aircraft with such a history, more than flight hours alone must be considered. And the reality of many markets is that the availability of the ex-fracs has tended to "pull down" the values of those aircraft that have served in typical corporate operations.

Market expectations can be further delineated based upon market segment. The expectations of those willing to pay \$75 million for a widebody internationally capable aircraft are very different from someone paying \$1 million for a light jet to serve as a charter aircraft.

In the case of the former, pedigree becomes an important issue as an adjustment of only a percent or two can amount to significant dollars. Conversely, to the buyer of the charter aircraft, the same percentage adjustment results in value differences that can easily be offset by other value elements and therefore measured in real dollars, does not carry the same weight.

As noted earlier, the values of corporate aircraft are driven by the basic laws of supply and demand. Each aircraft model has its own set of questions that need to be answered and it is only with appropriate experience and competency that the right questions are asked. The appraiser must have a basic understanding of these various issues and appropriately apply the answers based upon market expectations; these issues, in my opinion, do not lend themselves to algorithmic equations.

A finicky and demanding marketplace will require the appraiser of corporate aircraft to consider many of these issues relating to pedigree. Unfortunately, there are no resources available to the appraiser other than those that relate to the traditional elements of establishing value. Every corporate aircraft has a story to tell and issues like a very high or low time airframe, damage history, ownership history or record keeping are very relevant considerations for appraisers of corporate aircraft, who ultimately must rely upon their own experience and universe of contacts.

MAKE THE MOST OF EVERY MINUTE

There's been a shift. It's no longer about where we've been, but where we're going. It's not about the obstacles we face, but what we're able to achieve—together. The CESSNA CITATION LONGITUDE aircraft is designed and engineered to help you rise to every opportunity.



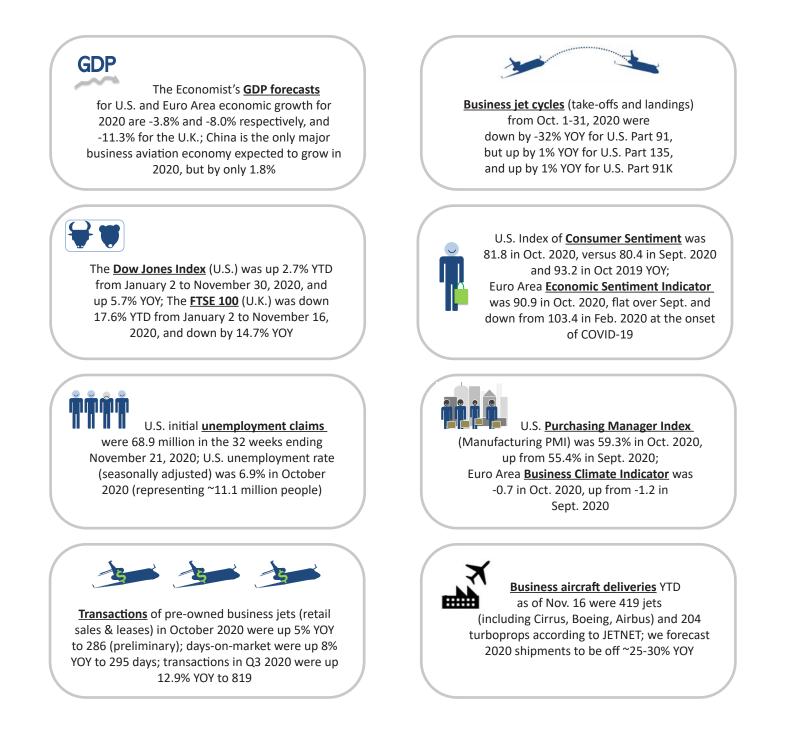
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Business Conditions

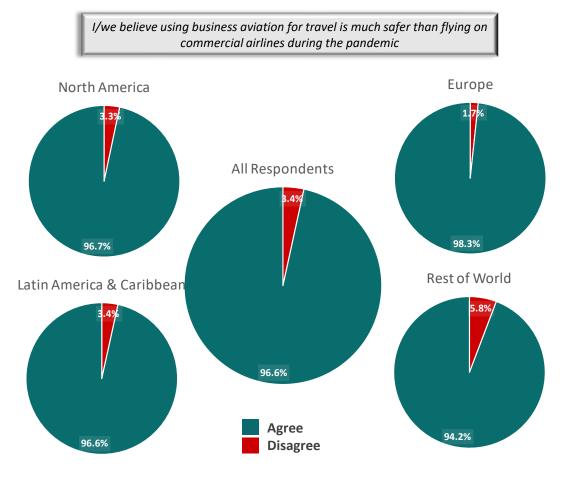




Business Aviation: A Safety Bet

Q4 2020 JETNET iQ Survey (In Progress)

Listening to, analyzing, and amplifying the voices of business aviation's customers is at the core of JETNET iQ. Since late 2010, JETNET iQ Surveys of the opinions, preferences, behaviors, and intentions of business aircraft owners and operators have revealed deep and actionable insights that we have been sharing with customers and stakeholders throughout the industry. While polling has several limitations, some of which were revealed in the most recent U.S. Presidential elections, we have always believed that, when respectfully approached, a representative cross-section of people who enjoy what they do are willing to share their opinions. For many and regardless of where they sit in the aircraft cabin, or whether their role is to keep the aircraft in the air, business aviation is an exciting industry that offers tangible benefits. Advances in technology and procedures – including air navigation, maintenance / repair / overhaul, aircraft handling / scheduling / dispatch, people recruitment, and training – have enabled business aviation to establish very high standards for operational excellence and safety. While safety is a core principle of all flight operations, our Q4 2020 JETNET iQ Survey (in progress) reflects an industry that is both professional and confident in its ability to deliver on its safety promise.



Source: JETNET iQ Q4 2020 Survey in progress (330 responses from 53 countries to date)



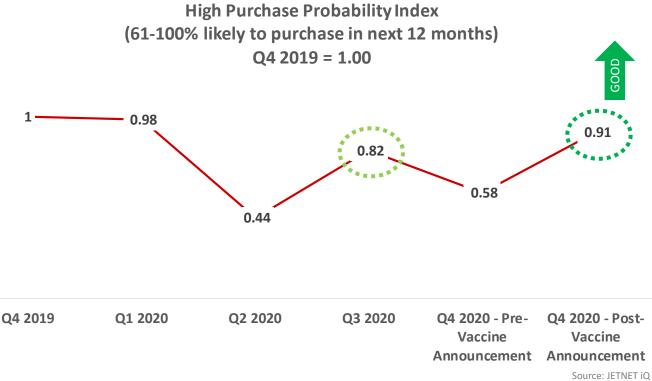
Where the Rubber Hits the Runway

JETNET iQ High Purchase Probability Index

Percentage of Survey Respondents >60% Likely to Purchase a New Aircraft in Next 12 Months

Since Q1 2011, JETNET iQ's quarterly surveys have been monitoring and measuring the likelihood of future aircraft transactions for both new and pre-owned aircraft. We are particularly interested in understanding intentions amongst those respondents who indicate that they are more than 60% likely to transact, a delineator that we use to indicate the more serious and engaged customers. While overall intentions to purchase slipped sharply in Q2 2020 – dropping by ~55% from where the were at the beginning of this year (see chart below) – a partial recovery occurred in Q3 2020 and appears to be sustained in Q4 2020 after the November 9 announcement of progress with a COVID-19 vaccine.





Q4 2020 Survey in progress (330 responses from 53 countries to date)

BUSINESS AVIATION MARKET INTELLIGENCE



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One Size Never Fits All

Opportunity Knocks, But Not Everyone May Be Listening

Frederick W. Smith, the retired U.S. Marine and Memphis, TN-based founder, chairman, and CEO of FedEx, is someone who personifies aviation entrepreneurialism. The company was founded in 1971 around ideas he outlined in a 1965 Yale University undergraduate paper, one that was famously graded poorly. Smith's Federal Express was the originator of overnight package delivery. The well-capitalized company began flight operations in April 1973, but lost money for 26 months. It has since evolved to be a major force in logistics, and unexpectedly as a bellwether for the health of the global economy. Smith's adoption of the hub-and-spoke system would become the predominant feature of most airline networks in the the less commercially-regulated years to come. Different and sustainable, FedEx's business model and success have certainly encouraged others to follow, including UPS, DHL, TNT, and more recently Prime Air / Amazon Air. Perhaps surprisingly, FedEx has even become instrumental in the design and development of several new and modified aircraft, including the Falcon 20, Canadair Challenger, Cessna Caravan, ATR-42/72 Freighter, B727/B757 PTF conversions, MD-10, and most recently the Cessna SkyCourier.

According to Smith, "....the short definition of leadership is getting discretionary effort out of people." Smith indicates that he prefers to surround himself with people who can challenge him and tell the truth, noting the imperative of staying in the know as organizations grow. With \$71B in annual revenue and more than 500,000 team members, FedEx Express had 678 aircraft in its fleet at the end of August 2020, and a service network in 220 countries and territories. While large-scale would seem to be an appropriate moniker for all things FedEx, the company owns 235 Cessna 208B Caravan turboprop aircraft, and has an initial batch of 50 Cessna 408 SkyCourier feeders on order. While amongst the world's largest owners and operators of professionally-piloted aircraft, FedEx is nevertheless experimenting with UAVs, artificial intelligence, robotics, and drones. The company aims to lead the innovation towards a future with integrated manned / unmanned logistics systems to serve a more globally interconnected and competitive world in which size - every size - matters. For Textron Aviation and other like-minded innovators, the Cessna SkyCourier is a tangible example of what can be created by thinking outside the box.





Source: Frederick J. Smith (2002) ""How I Delivered the Goods." Fortune Small Business, October 2002

BUSINESS AVIATION MARKET INTELLIGENCE

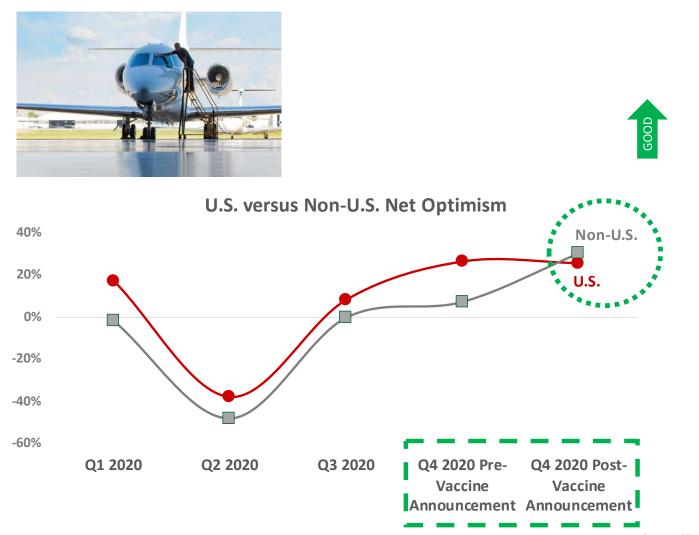


>> December 3, 2020 Issue #18

Stepping Up to Recovery

JETNET iQ Market Sentiment Index – Net Optimism Comparing U.S. and Non-U.S. Responses Since the Beginning of 2020

Home base for 58% of the world's fixed-wing turbine fleet of business aircraft, the United States is far and away the single most important market for business aviation transactions, flight activity, employment, and economic impact. While the optimism of U.S.-based owners and operators has been generally tracking above the rest of the world so far through much of 2020, we note a step change in the mood of respondents from outside the U.S. in the most recent weeks after the November 9 Pfizer-BioNTech vaccine announcement. While Q2 2020 may seem like yesterday for many stakeholders in the business aviation community, the recovery trajectory since that time is an encouraging signal for an industry that has proven to be both resilient and innovative in the face of change.



Source: JETNET iQ Q4 2020 Survey in progress (330 responses from 53 countries to date)



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 conferences providing unique data, insights and networking opportunities; and
- JETNET iQ Consulting 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 8 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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<u>To subscribe to JETNET iQ Reports or inquire into sponsorship of JETNET iQ PULSE, please contact:</u> Paul Cardarelli, JETNET Vice President of Sales Tel: 315-797-4420, ext. 254 e-mail: paul@jetnet.com



Appendix

Data sources:

Real GDP growth forecasts, Unemployment Rates, Exchange Rates (2020): The Economist – November 28, 2020 https://www.economist.com/economic-and-financial-indicators/2020/11/28/economic-data-commodities-and-markets Stock Markets:

Dow Jones Industrial Average: http://ca.spindices.com/indices/equity/dow-jones-industrial-average London Stock Exchange (FTSE 100) : https://www.londonstockexchange.com/indices/ftse-100 **Unemployment**: Bureau of Labor Statistics (U.S.); https://www.dol.gov/ui/data.pdf; "SA" = seasonally adjusted **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/info/files/full_bcs_2020_09_en.pdf **Business Confidence:** U.S. ISM Manufacturing PMI (U.S.)

https://www.instituteforsupplymanagement.org/about/MediaRoom/newsreleasedetail.cfm?ItemNumber=31182

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; DOM refers to aircraft that were sold / leased Survey results: JETNET iQ Global Business Aviation Surveys (Quarterly)

Photo credits: Page 1: Steve Hockstein – www.harvardstudio.com; Page 2: Pfizer Inc. (press release image); Page 3: Jet Perspectives; Page 8: Textron Aviation; Page 9 (LHS): Stefan Sonnenberg - www.airliners.net; Page 9 (RHS): Textron Aviation; Page 10: Textron Aviation; All other photos: 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 turbofan-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) GAMA: General Aviation Manufacturers Association GDP: Gross Domestic Product FTSE: Financial Times Stock Exchange (London) 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 TTM: Trailing Twelve Months YOY: Year over Year YTD: Year to Date

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