

- 1 Editorial
- 2 Outlook
- 3 The Invisible Elephant in the Room
- 5 Business Conditions
- 6 Pre-Owned Business Jets Transactions By Age Category
- 7 Pre-Owned Business Jets Transactions By Size Category
- 8 Pre-Owned Business Jets Transactions By Model
- 10 JETNET iQ Market Sentiment
- 11 About JETNET iQ
- 12 Appendix

Make the Best of the Situation

When in doubt, there is always historical context to consider when we think about where things may be headed in the future. Most fact-based analytics are premised on the fundamental assumption that past is prologue – essentially discovering what we may have already known in our gut but hadn't necessarily put down on paper or into a pro forma spreadsheet. While it is true that we have never faced the scale of economic fallout from a virus that we live with each day today, we can still find indicators that are reasonable predictors of business aviation's future.

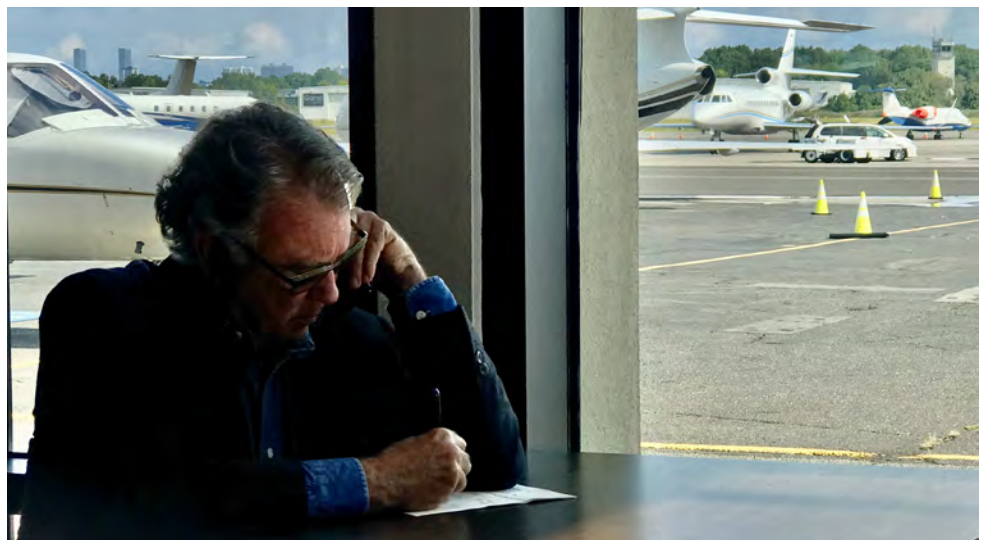
In the early 1970s, guitarist and songwriter Eric Clapton topped the billboard charts with the now iconic "Layla", an instant classic in which he sang about unrequited love. A decision to purchase a business aircraft is never entered into lightly, and the process by which an individual evaluates their options and ultimately closes on a purchase contract is a unique journey filled with both rational and emotional waypoints. While a 50-year old rock-and-roll classic may seem like an odd place to look for market direction today, the cruel, cruel summer of 2020 may not have been so cruel for some in our industry after all. Led by sales of light jets, pre-owned business jet retail sales and lease transactions in July 2020 were up a remarkable 38% to 244 units YOY, according

to the latest JETNET database. While one month of data does not allow us to proclaim the industry's victory over the coronavirus, the numbers reflect a broad-based recognition of the value that customers place in owning a business aircraft. Clearly, those who have been working on the front lines of business jet transactions are answering the calls of duty, somehow making the best of the situation. Bringing buyers and sellers to today's virtual table and getting transactions done is what they do best. As in the past, market-making is being accomplished with a mix of dogged persistence, rational number-crunching, and a fair share of exuberant emotion on all sides of the table, despite the face masks, kid gloves, and sanitized pens of our day.

"...market-making is being accomplished...despite the face masks, kid gloves, and sanitized pens of our day"

In this, our 12th issue of JETNET iQ PULSE, we are pleased to be joined by Ford von Weise, Head of Global Aircraft Finance at Citi Private Bank. Ford addresses a subject of growing interest to business aviation, that of the potential for OEM consolidation. Always a topic of fascination and speculation, today's market gyrations and high-roller investment opportunities add fuel to the engines of industry change that tend to accelerate at times like these.

Rollie Vincent
JETNET iQ Creator/Director



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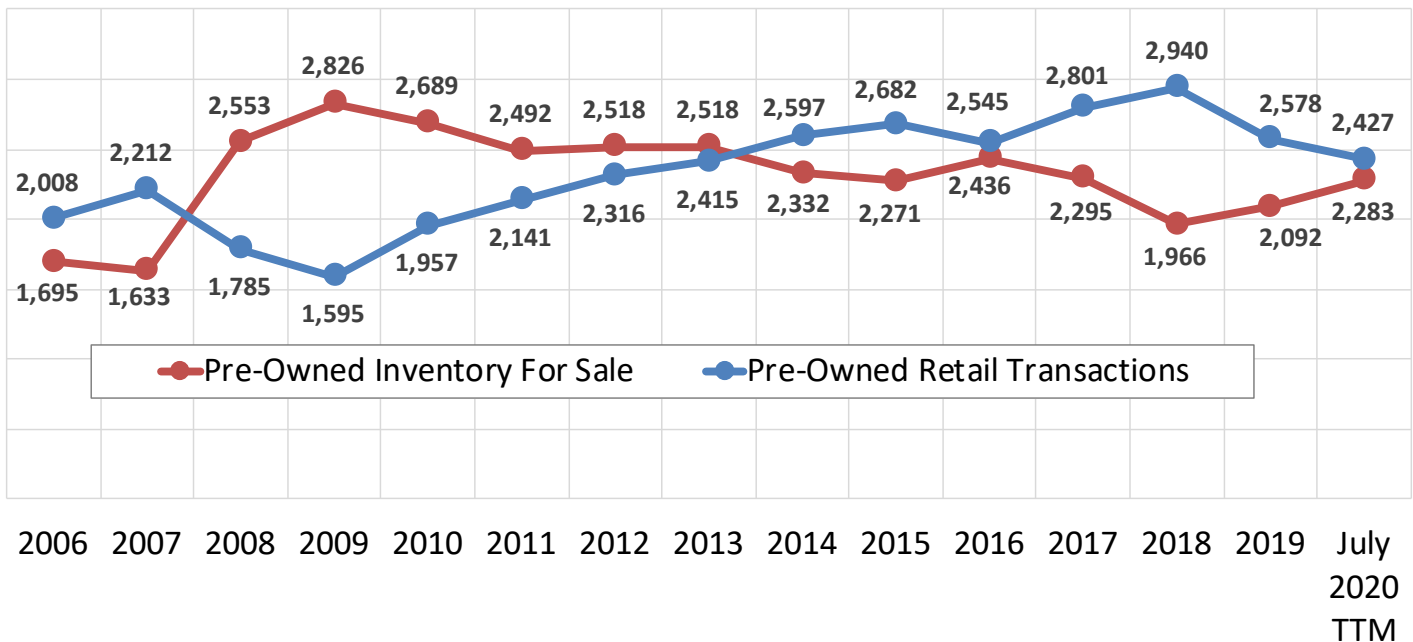


Outlook

After a robust month of July, pre-owned business jet transactions as measured by worldwide sales and leases of whole aircraft to retail customers were down just 151 units or 11% YOY to 1,200 aircraft on a year-to-date basis. In what is surely an even more relevant data point in our COVID-19 centric world, global business jet transaction volumes in the March-July 2020 period were off 17% YOY. While this type of performance would have been enough to wrestle sleep away from even the highest performing employees in years past, it is today a badge of resilience and a testament to hard work despite vastly different working conditions. Is it too much to hope that business and general aviation aircraft are (finally) being recognized for providing essential air services? While the criteria and cost subsidies established by the U.S. Department of Transportation’s Essential Air Services program of 1978 take a whole different view of the definition of the term, it is illuminating to think about how business and general aviation aircraft connect people effectively and efficiently with harder-to-reach destinations within the 48 contiguous States and Alaska. If anything good eventually comes about as a consequence of the coronavirus – and we believe that change will be painful but ultimately beneficial for the business aviation industry – there is little doubt that a core group of savvy buyers are already making the best of the evolving situation by investing in affordable pre-owned aircraft and chartering available lift in the market.

Given the unprecedented situation facing industry transaction specialists and their prospective customers to simply get together, pre-owned sales results year-to-date reflect impressive performance, particularly when measured against other industries and markets for high-end goods and services. Identifying and serving those who “get” business aviation - and need some of it or even a lot of it right now - to stitch together their business and personal lives is hard work, and arguably more so now than at any other time in our business careers. While forecasts of pre-owned aircraft sales are rarely generated or published, transactions in July 2020 were higher than any other July result at least over the last 15 years, an unexpected result to say the least. With for-sale inventory remaining steady at just above 10% of the in-service fleet, we are not seeing evidence of a buildup in owners / operators putting their aircraft to market, unlike prior downturns. If pre-owned sales performance remained strong through the long, hot Northern Summer (we won’t know for sure until all the transaction paperwork is filed with the authorities, released, and included in the JETNET database), this bodes well for the balance of 2020 and into 2021.

**Pre-Owned Business Jet Inventory
and Pre-Owned Whole Retail Transactions - Worldwide**



Source: JETNET iQ

The Invisible Elephant in the Room



By Ford von Weise
Director & Head,
Global Aircraft Finance
& Aircraft Advisory Services
Citi Private Bank

There is one topic we have not openly discussed in the industry – accepting the fact that our industry has not fully recovered from the financial crisis. New aircraft production and sales levels are well below the highs prior to the crisis. Fewer people are buying aircraft. Residual values continue to plummet faster than previously experienced.

Why so, especially in light of the recent equity bull markets? Economics 101 are the reason - sustained decreases in customer demand, combined with aircraft over-production has prevented a recovery. While there were some bright spots and increases in flight activity, the market remains depressed. Other reasons include:

- New and used aircraft supplies still exceed demand — there are simply too many manufacturers making too many aircraft for too few buyers,
- OEM's waited far too long to reduce production faced with increasingly lower demand, especially Bombardier,
- Unsold new aircraft inventories placed significant financial burdens on cash strapped manufacturers, forcing them to sell aircraft at huge discounts,
- Dramatically lower prices for new aircraft had ripple effects on values of used aircraft, pushing used values much lower,
- With no end in sight for plunging values, potential buyers simply stayed away from the market.

We at the Citi Private Bank - along with Jon Raviv from Citi Research - are now calling this *The Lost Decade*. The new fear is that it may be more than a decade - possibly two - before lasting sales are achieved.

Many OEM's made investment assumptions more than ten years ago based on overly optimistic sales figures and clung to those forecasts - and margin assumptions - that were not only wrong, but outright fiction. Other than Gulfstream – with their success in defining a new market segment with the hugely successful G650 and Embraer with the Phenom 300 – no other OEM achieved any sort of meaningful success during this period with a clean sheet designed aircraft and sales of existing aircraft remained very soft. Although the Bombardier C Series aircraft and the Global 7500 are excellent examples of first-class engineering and are fantastic aircraft, these two very much delayed over-budget projects forced Bombardier to seek a financial rescue at a great cost to the company. More recently – to

make matters worse - the failed marriage of Brazil's Embraer commercial aircraft and Boeing has now put pressure on Embraer, forcing them to seek new investment; the strength of the U.S. dollar, combined with economic challenges in Brazil, have further impacted the Brazilian plane maker's ability to seek badly needed capital. Capital starved and fighting cross currency headwinds, Embraer is currently in a very tough spot - especially their Executive Jets Division - which will now play second fiddle to the commercial business in the competition for scarce capital. As for Cessna, it is really too early to tell if their investment in the clean sheet designed Latitude and Longitude will eventually take off; they had no choice given the aging designs of the Citation and Beechcraft lines. This new investment requires them to achieve sales in a very crowded super midsize segment – a tough task given the lack of new demand. The risks to Textron have only increased. As for Dassault, they are French and – although concerned about declining sales - are not terribly worried since they are not required to report quarterly results and the military side of their business will supply cash flow. The quality of their aircraft and specialized use cases will always mean there will be customers – in good time.

What does all of this mean? Stated simply, there is too much production capacity. The industry is ripe for a merger of two major OEM's and/or restructuring. Which OEM's might be vulnerable? Textron desperately needs to introduce new more clean sheet designs in their aging light jet line up to compete with the Embraer Phenom 300; the cheapest and most efficient way is to buy it as opposed to build it. Such a merger makes sense in the small cabin segment, however, significant product overlap with Embraer in the super midsize segment poses challenges.

Alternatively, an Embraer/Bombardier merger begins to make real sense from a product alignment perspective but does not from a political and national self-interest perspective. Would their combination have the required political support in both countries? It is difficult to predict. It would, however, provide a solid product line-up with little overlap - the CL300 series is older technology and the Praetors are logical replacements that do not require large capital investments. A merger would easily allow a recapitalization of the new company at attractive valuations due new logical investment narratives that incorporate cost savings, clean sheet products, talented engineering and proven production capabilities. Another scenario is taking Bombardier private. This would allow Bombardier to make tough and unpopular decisions to right size the company without public company complications, oversight or complex “stakeholder” considerations. However, given the capital investment in Bombardier by quasi-governmental investors, certain unwritten political rules would clearly complicate this strategy. The effort, narrative creation and “spin”, along with political capital to accomplish this, would have to be substantial. Between Embraer, Textron and Bombardier there exists a rational combination/privatization strategy that makes sense to right size the industry and address the structural changes resulting from the “Lost Decade”. A reduction in the number of aircraft manufacturers is, in our opinion, the only lasting and durable solution to the industry's problems, which has only been made worse by the COVID crisis.

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Business Conditions

GDP



The Economist's **GDP forecasts** for the U.S. and Euro Area economies for 2020 are -5.3% and -8.7% respectively in 2020; U.K.'s 2020 growth rate is -9.5%; China is the only major business aviation economy expected to grow in 2020 - by 1.7%



Business jet cycles (take-offs and landings) in August 2020 (through Aug 31) were down by -36% YOY for U.S. Part 91, by -2% YOY for U.S. Part 135, and by -4% YOY for U.S. Part 91K



The **Dow Jones Index** (U.S.) was down 4.7% YTD from January 2 to September 8, 2020, and up 2.5% YOY; The **FTSE 100** (U.K.) was down 22.0% YTD from January 2 to September 8, 2020, and down by 18.0% YOY



U.S. Index of **Consumer Sentiment** was 74.1 in August 2020, up from 72.5 in July but down from 89.8 in August 2019 YOY; Euro Area **Economic Sentiment Indicator** was 87.7 in August 2020, up from 82.4 in July but down from 103.4 in February 2020 at the onset of COVID-19



U.S. initial **unemployment claims** were 59.3 million in the 24 weeks ending August 29, 2020; U.S. unemployment rate (SA) was 9.1% in the week ending August 22, 2020 (representing ~13.2 million people)



U.S. **Purchasing Manager Index** (PMI) was 56.0% in August 2020, up from 50.9% at the beginning of the year; Euro Area **Business Climate Indicator** was -1.33 in August 2020, up from -1.80 in July



Transactions of pre-owned business jets (retail sales and leases) in July 2020 were up 38% YOY to 244 while days-on-market were down 20% to 248 days YOY based on JETNET data



Business jet deliveries YTD as of Sep. 8 were 280 units (including Cirrus, Boeing, Airbus) and turboprop deliveries were 137 according to JETNET; Q2 2020 shipments are expected to be the low point of the current COVID-19 down cycle

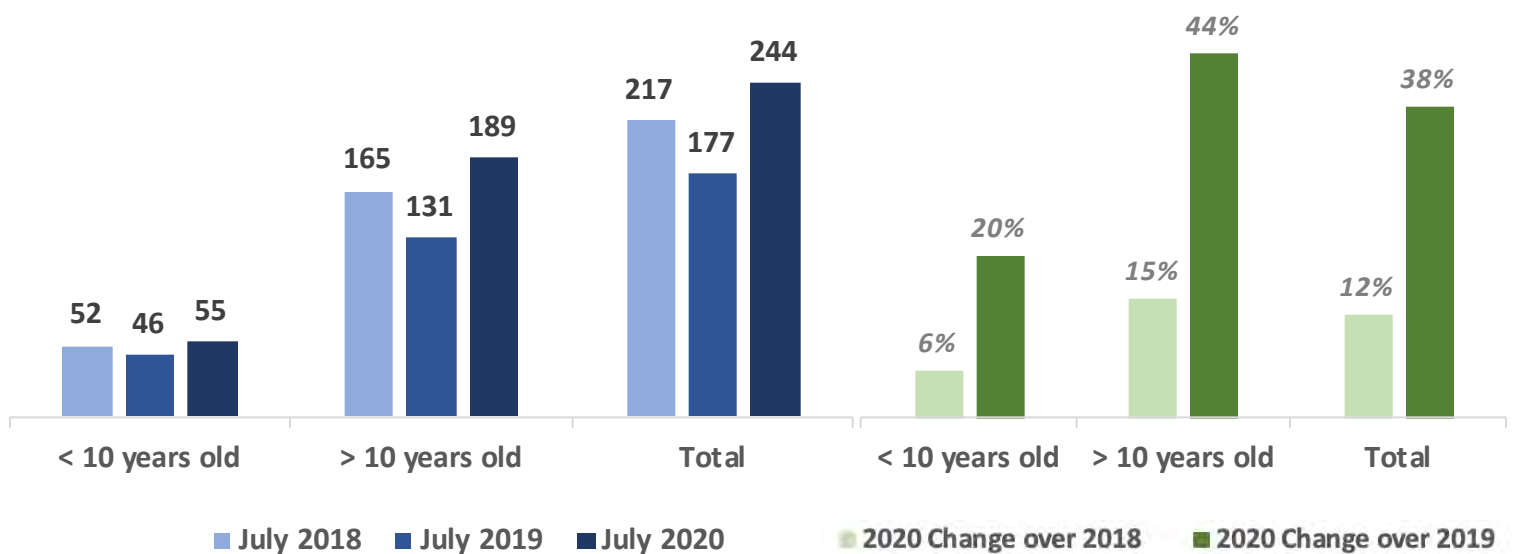
Pre-Owned Business Jets

Transactions By Age Category

Retail sales and leases of pre-owned business jets had an exceptionally strong month in July 2020, based on the latest updates to the JETNET database. July 2020's 244 transactions were up an impressive 38% YOY overall, led by sales of aircraft initially delivered more than 10 years ago. Many buyers seeking value in a pre-owned business jet must have liked what they and their

transaction specialist partners could find amongst the available inventory of almost 2,300 for-sale aircraft. July 2020's fifty-five transactions of younger jet inventory (delivered new less than 10 years ago) were up 20% YOY, a welcome bright spot in what has been an already tumultuous year.

July Transactions - Pre-owned Retail Sales and Leases of Business Jets



Source: JETNET IQ

Pre-Owned Business Jets

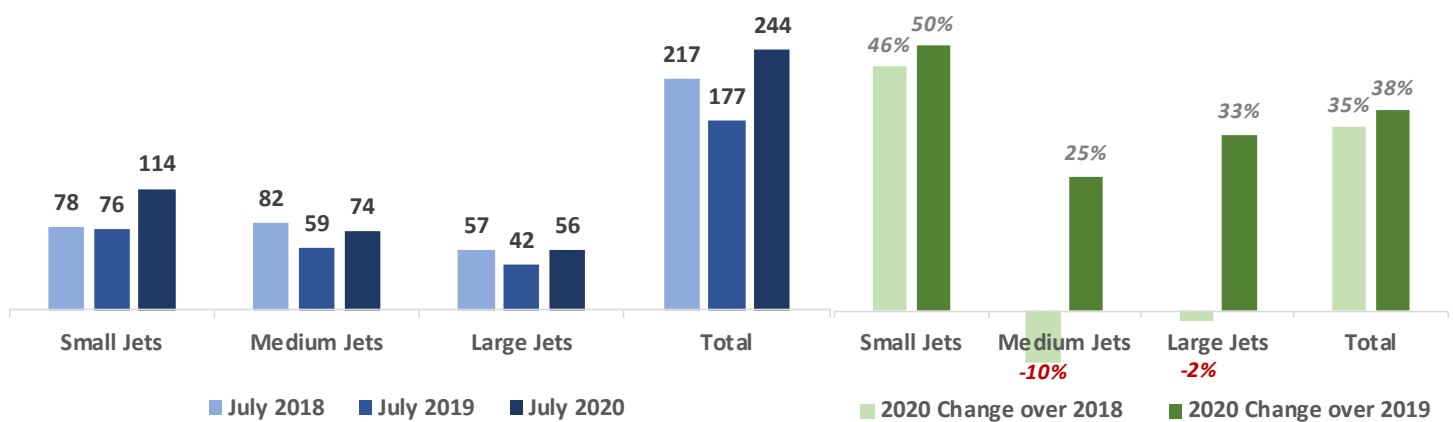
Transactions By Size Category

An analysis of worldwide pre-owned transactions in July 2020 highlights the role that small jets are performing in this COVID-19 world. For the purposes of JETNET iQ analyses, we define small jets as single-engine Personal Jets (e.g. Cirrus Vision), Very Light Jets (e.g. Citation M2, Phenom 100, HondaJet), and Light Jets (e.g. Citation CJ3 / CJ4, Phenom 300, Pilatus PC-24). Transactions

include these and earlier out-of-production models that are very popular on the pre-owned market, including the Citation II, CJ1, CJ2, and Learjet 20/30 Series models, amongst others. Small Jet transactions in July 2020 accounted for 47% of pre-owned market sales worldwide, up ~50% over both July 2018 and July 2019.



July Transactions - Pre-owned Retail Sales and Leases of Business Jets



Source: JETNET iQ

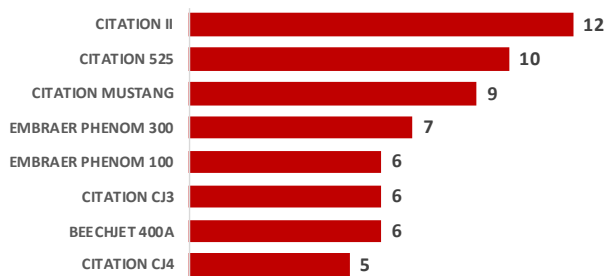
Pre-Owned Business Jets

Transactions By Model

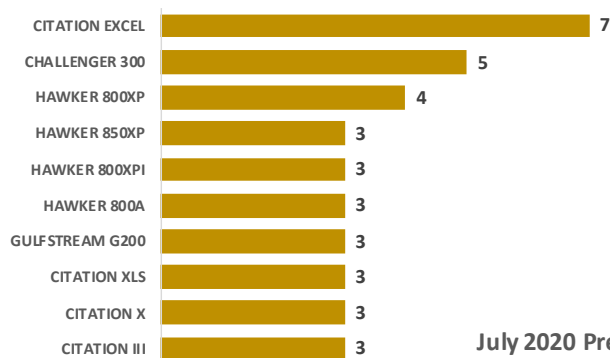
Pre-owned jet models accounting for about half the July 2020 market in each size category are highlighted in the charts below. Led by the Citation II, the ever-popular Citation 500-series models accounted for the largest number of sales in the Small Jet category, with the Phenom 100 / 300 and Beechjet 400A also popular. The Medium Jet category sales (including Super Light, Mid-Size, and

Super Mid-Size models) were led by the popular Hawker 800 Series, Citation Excel / XLS, and Challenger 300. In the Large Cabin category, Bombardier's Challenger 604 / 605, Gulfstream's G-IVSP / G450 and G550 were amongst the pre-owned market volume leaders in the month of July 2020.

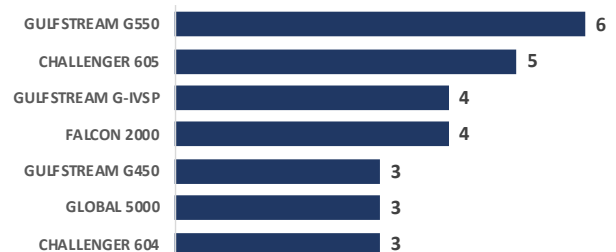
**July 2020 Pre-owned Retail Sales and Leases
Small Business Jets (top 54% of transactions)**



**July 2020 Pre-owned Retail Sales and Leases
Medium Business Jets (top 50% of transactions)**



**July 2020 Pre-owned Retail Sales and Leases
Large Business Jets (top 50% of transactions)**



Sources: JETNET iQ

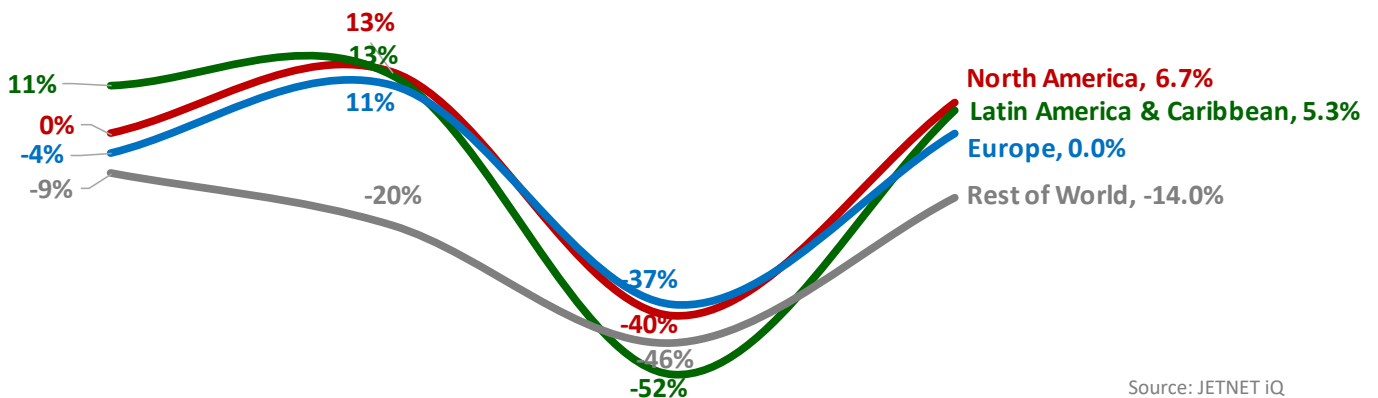
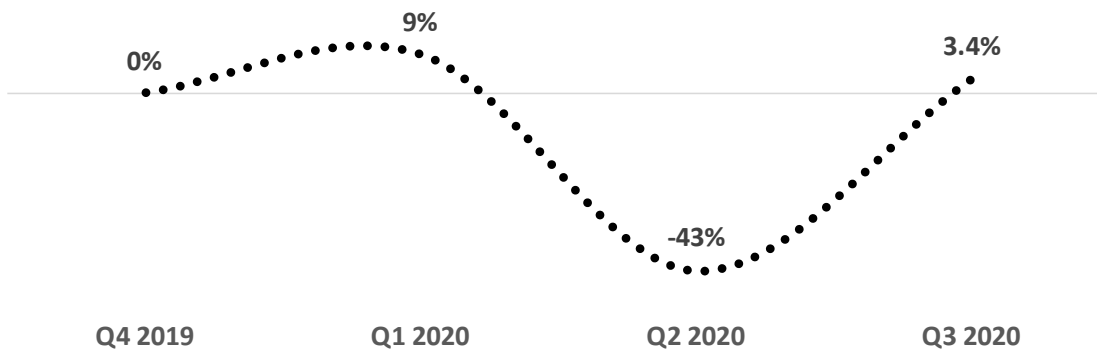
JETNET iQ Market Sentiment

Worldwide and By Region

As we indicated in Issue #11 of JETNET iQ PULSE, the sentiment of business aircraft owners / operators has begun to sharply rebound from a low point that we measured in Q2 2020, the lowest in almost 10 years of JETNET iQ Surveys. With nearly 500 operators having responded to date to the Q3 2020 JETNET iQ Survey, customers are clearly beginning to feel more confident about business conditions. Net Optimism, the difference between those respondents who believe we are past the low point in the current business cycle

(Optimists), and those who believe that we have not yet reached the low point (Pessimists), plummeted in Q2 2020 to -43%. In Q3 2020, Net Optimism rose back to ~3%, a strong and unprecedented recovery in a very short time. Led by sentiment in North America (U.S. and Canada) and Latin America & Caribbean, the pace of recovery is encouraging, although there is still a long way to go before returning to the sentiment in the market as recently as mid-2018, which hovered above 50%.

All Respondents



Source: JETNET iQ

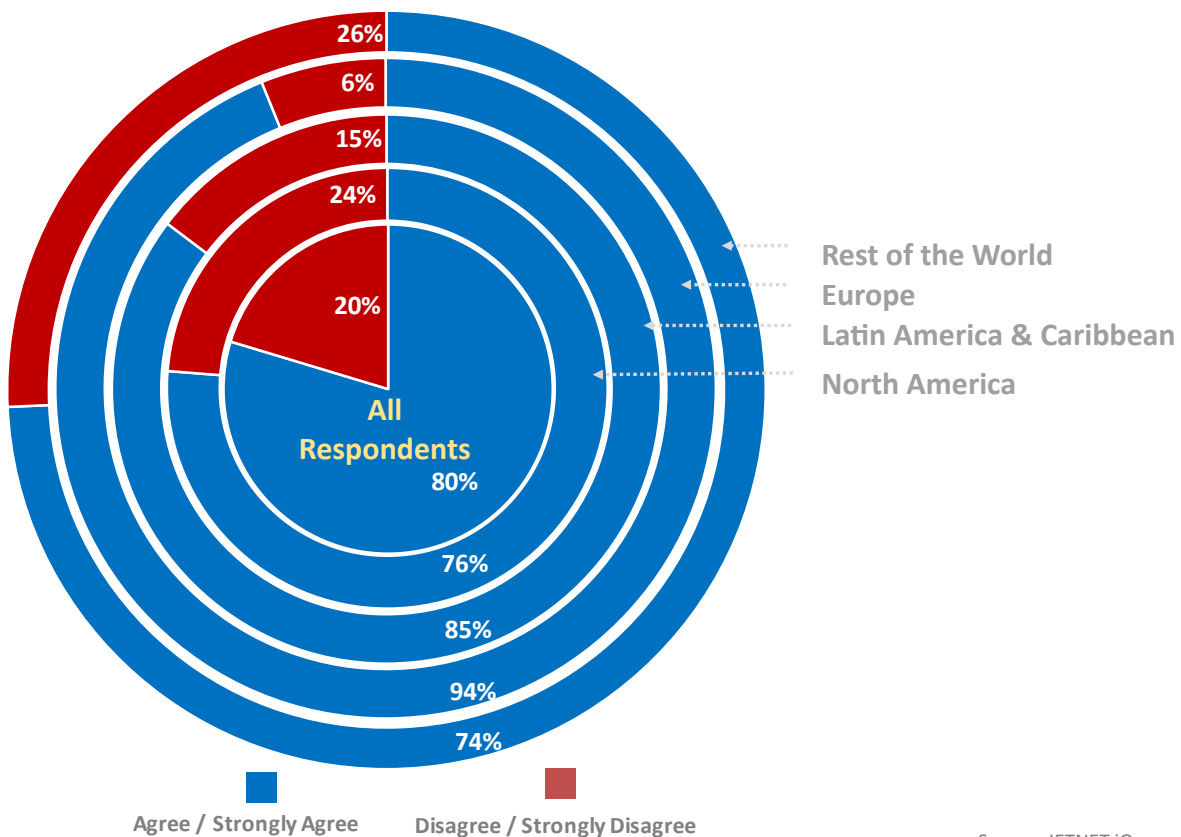
Zooming Into the Future

Q3 2020 JETNET iQ Survey: Zoom-like Virtual Meetings

As of September 8, 2020, almost 500 business aircraft owners / operators from more than 60 countries have responded to our in-field Q3 2020 JETNET iQ Survey. With almost uncountable numbers of Zoom meetings suddenly flooding the Internet this year, we were curious to know how business aircraft customers perceived virtual meeting technologies in terms of its effectiveness relative to face-to-face meetings. Across all geographies, a clear majority of respondents agree or strongly agree that Zoom-like virtual meetings are a very effective replacement for face-to-face

meetings (see chart below). With a respondent mix composed of 40% senior management and 60% aviation professionals, this topic is clearly one that should be on high-watch as a strategic issue for many leaders, including those in travel, hotel, conventions, event management, and related industries. European respondents appear to be particularly impressed with the virtual meeting technologies, at least based on the business aircraft owners / operators who responded to our latest survey.

We are finding that zoom-like virtual meetings are a very effective replacement for face-to-face meetings



Source: JETNET iQ

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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Appendix

Data sources:

GDP growth forecasts, Unemployment Rate, \$U.S. Exchange Rate (2020): The Economist – September 3, 2020

<https://www.economist.com/economic-and-financial-indicators/2020/09/03/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.); <https://data.sca.isr.umich.edu/fetchdoc.php?docid=65386>;

European Commission (Euro Area) – Economic Sentiment Indicator; https://ec.europa.eu/info/sites/info/files/full_bcs_2020_06_en.pdf

Business Confidence: US 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>

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 3: Citi Private Bank; 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 turboprop-powered models, today represented by the Cirrus Vision Jet.

B&GA: Business and general aviation

EIS: Entry in Service

FTSE: Financial Times Stock Exchange (London)

GAMA: General Aviation Manufacturers Association

GDP: Gross Domestic Product

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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