## Business Aviation Quarterly Report

"Back To The Future, Not Unusual Business"

October 2022



#### AMSTAT Premier+



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## About the presenters



Bloomberg Intelligence

George Ferguson is the Senior Aerospace, Defense and Airline analyst for Bloomberg Intelligence, the research group at Bloomberg L.P. George has over 25 years of experience in research and financial analysis. He joined Bloomberg Intelligence at its inception 11 years ago. Previously he worked in asset management for BlackRock and Merrill Lynch Investment Managers. Prior to that he was a banker for Dresdner Kleinwort Wasserstein and Mitsubishi Bank. George is a CFA charterholder and earned an MBA in Finance from the Graduate School of Management at Rutgers.





**Don Spieth** is the VP of Sales and Analytics at General Aviation Services. As a certified Black Belt in Six sigma, he attributes data analysis and the use of analytics to his success in commercial roles over his 25-year career. Don has had the privilege of contributing to leadership teams at premier companies including Alstom Grid, Van Buren Advisors, and General Electric. In his ten plus years at the General Electric Company, Don held senior leadership positions in Energy Services, Power Generation, and Corporate Communications. Prior to joining GE, Don was VP of Sales and Marketing for Programma Electric in North America. He graduated with a B.S. in Marine Engineering at the United States Merchant Marine Academy, Kings Point, NY.



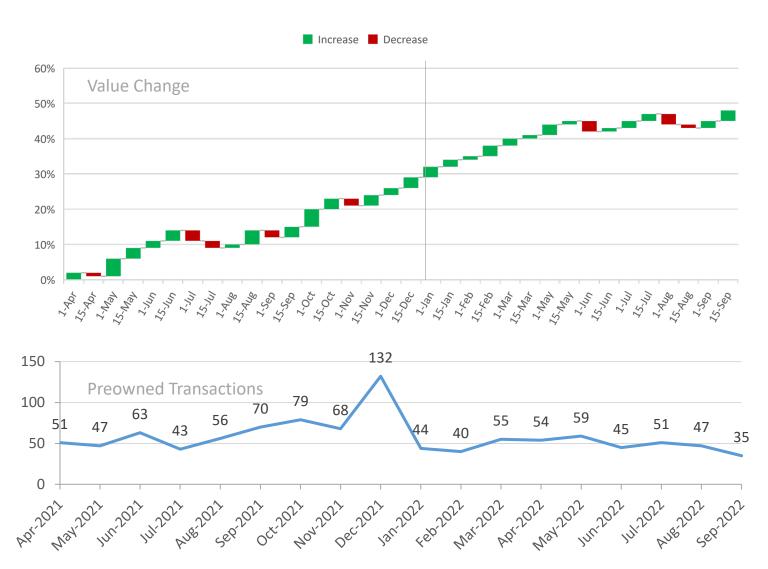


Andrew Young joined AMSTAT in 1994 and since 2013 has served as the General Manager for the AMSTAT market research business, which includes Aircraft Shopper Online (aso.com). He previously held positions as the AMSTAT Sales Manager and the AMSTAT & ASO Director of Sales and Customer Service. In these roles, Andrew has been involved with or led teams in the creation of the market leading AMSTAT Premier, AMSTAT for Salesforce, AMSTAT Aircraft Valuation Tool and Data Licensing services. Andrew is an active member of the business aviation community having served on the board of directors for the National Aircraft Finance Association (NAFA), as Education Chair for the National Aircraft Resale Association (NARA, now IADA), as a HAI Finance and Leasing Committee member and most recently as the IADA Products and Services Member Advisory Council 1st Vice Chairman.

#### Heavy Jet – Short Term Median Value Changes Level Some

- Value increase slows. Over the last 12 months the median value of Heavy Jets has risen 33%. This metric is up 19% YTD with some leveling off since May.
- Transaction activity still strong. The
  overall positive direction of values
  continues to driven by demand with
  resale retail transactions between
  January and September just 4% below
  2021 levels and is already 26% ahead of
  the same period in 2019.
- Inventory increasing but still limited.
  Despite a 40% increase in Heavy Jet
  resale inventory YTD, inventory levels are
  10% below a year ago and only 4% of the
  fleet is for sale compared to a 10-year
  average of 8.6%.

Note - The lower chart indicates monthly volume of aircraft resale transaction (September data is incomplete)



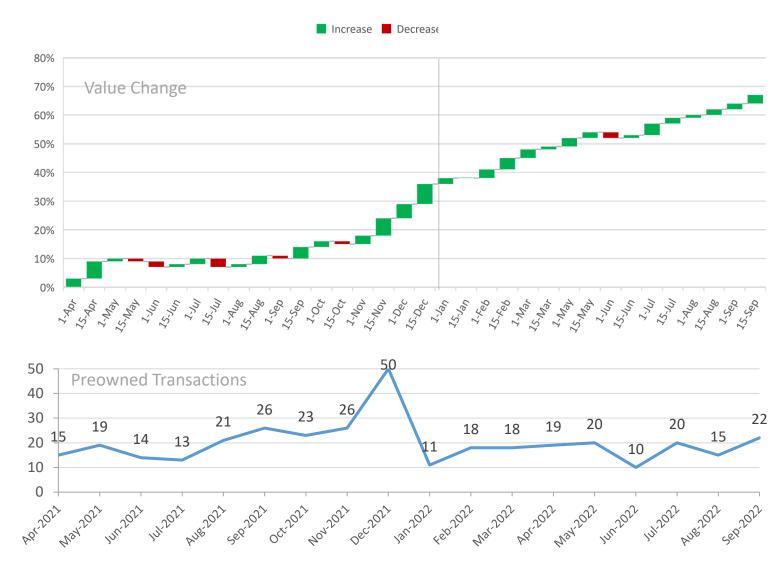




#### Super-Mid Jet - Short Term Median Values Continue In A Positive Direction

- Values continue to increase. Over the last 12 months, the median value of Super-Mid Jets has risen 53% and is up 31% YTD.
- Transaction activity still strong. The positive direction of values is in large part due to continued momentum in resale transactions, with January – September activity up 9% YoY.
- Inventory increasing but still limited. Resale inventory is 6% lower than a year ago, but up 63% YTD. However, with 3.4% of the active fleet for sale, levels remain well below the 10-year average of 8.3%.

<u>Note</u> - The lower chart indicates monthly volume of aircraft resale transactions (<u>September data is incomplete</u>)





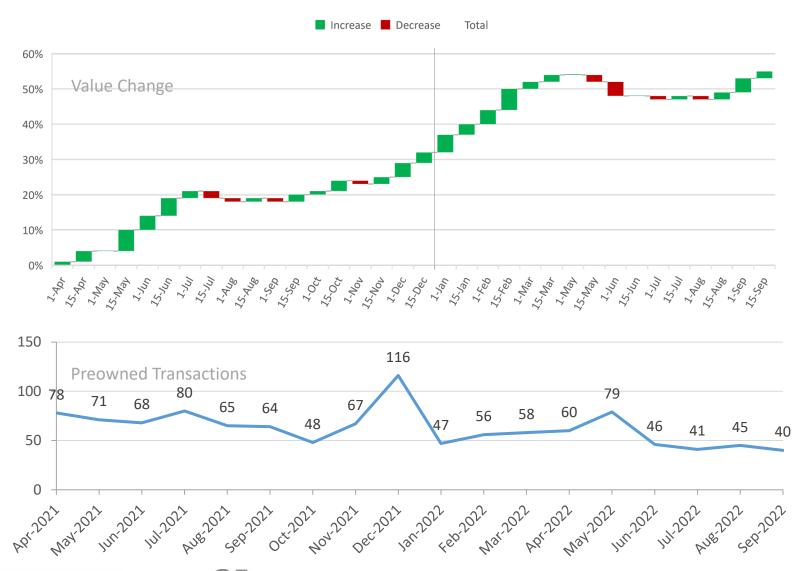




#### Medium Jet - Short Term Median Values Continue Level

- Values up after mid year decline.
  plateau. Over the last 12 months, the
  median value of Medium Jets has risen
  35%. This metric is up 23% YTD.
- Transaction activity slows but still ahead of historic levels. The leveling of values YTD is in-part due to a slowing of transaction activity. Compared to the first 9-months of 2021, resale retail transaction activity is off by 18% this year. However, this transaction count is 30% over the first 9 months of 2019 by comparison.
- Inventory increasing but still low. The inventory of preowned Medium Jets is even with a year ago and up 23% YTD.
   4.1% of the fleet is currently for sale, way below the 10% 10-year average for this market segment.

Note - The lower chart indicates monthly volume of aircraft resale transactions (September data is incomplete)



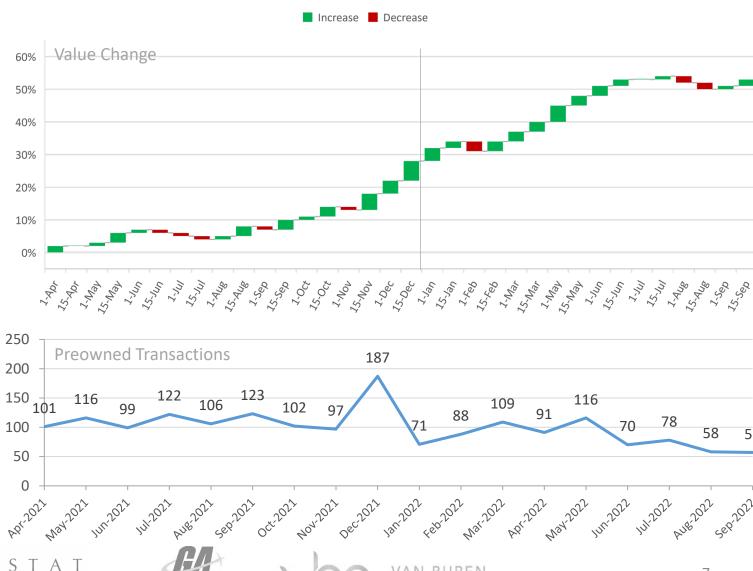




#### Light Jet - Short Term Median Value Continues Upward Trend

- Values unchanged since July. Over the last 12 months, the median value of Light Jets has risen 46%. This metric is up 25% YTD but is largely unchanged since July.
- Transaction activity slows but still ahead of historic levels. The recent leveling of values is in part due to a slowing of transaction activity with the count of resale transactions YTD 18% below the same period in 2022. However, the current count is still 33% ahead of the same period in 2019.
- Inventory increasing but still low.
  Inventory levels are 5% below this time last year and up 21% YTD. 5% of the fleet is for sale which is way below the 10.7% 10-year average.

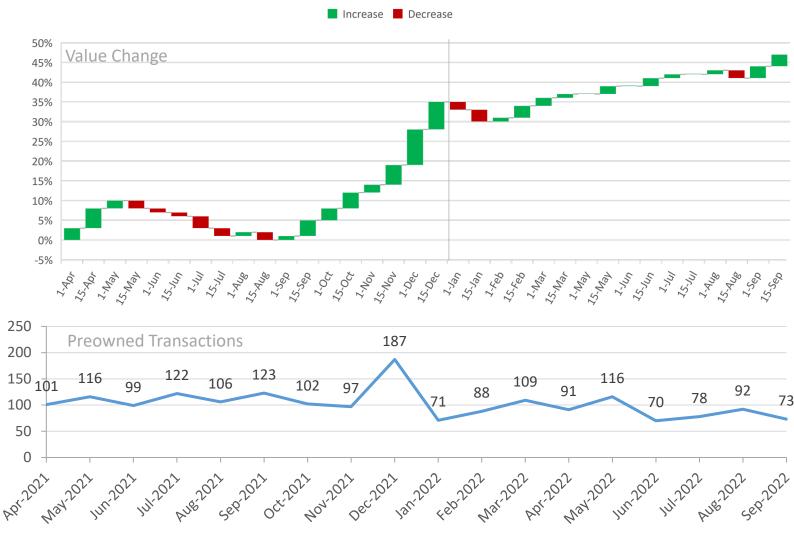
Note - The lower chart indicates monthly volume of aircraft resale transactions (September data is incomplete)



#### Turboprops - Short Term Median Values Rise But At a Slower Pace

- Continued incremental increases in values. Over the last 12 months, the median value of Turboprops has risen 46%. This metric is up 12% since the start of the year, with a noticeably shallower rate of increase since the start of the year.
- Transaction activity has slowed. YTD resale transactions are 13% lower than last year and 4% below 2019 levels.
- Inventory increasing but still low.
   Preowned turboprop levels continued to drop through July and are up 12% since then. 3.3% of the fleet is for sale, still well below a 7.2% 10-year average.

Note - The lower chart indicates monthly volume of aircraft resale transactions (September data is incomplete)

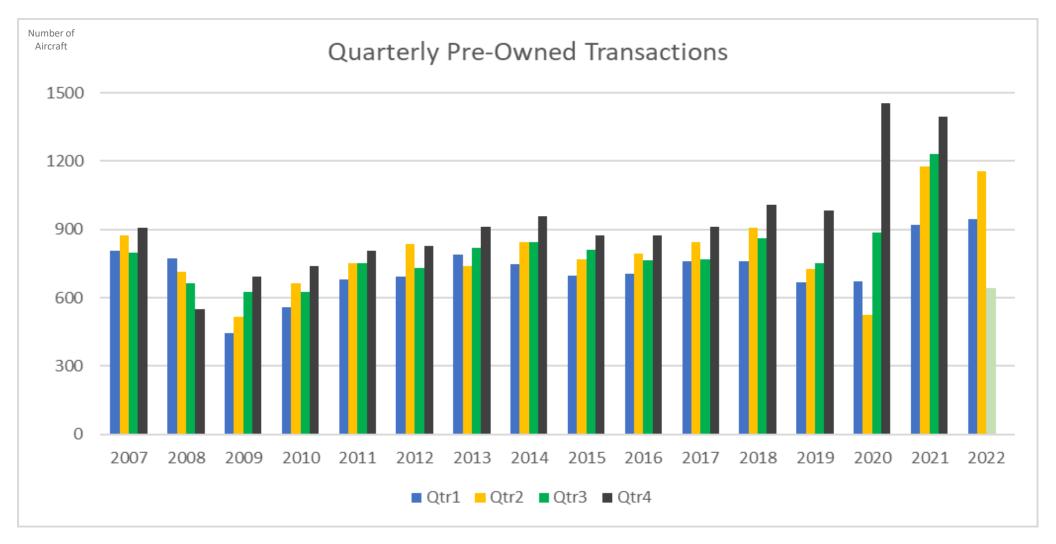








#### Pipeline Settles as Heavy & Medium Jets Keep Pace with 2021

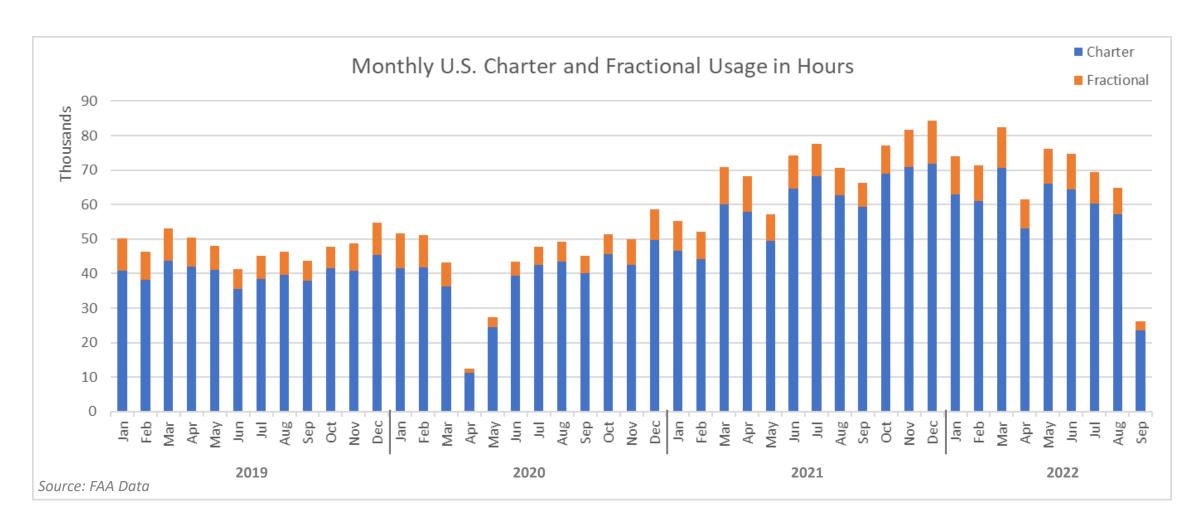








#### Charter and Fractional Stabilize and Settle

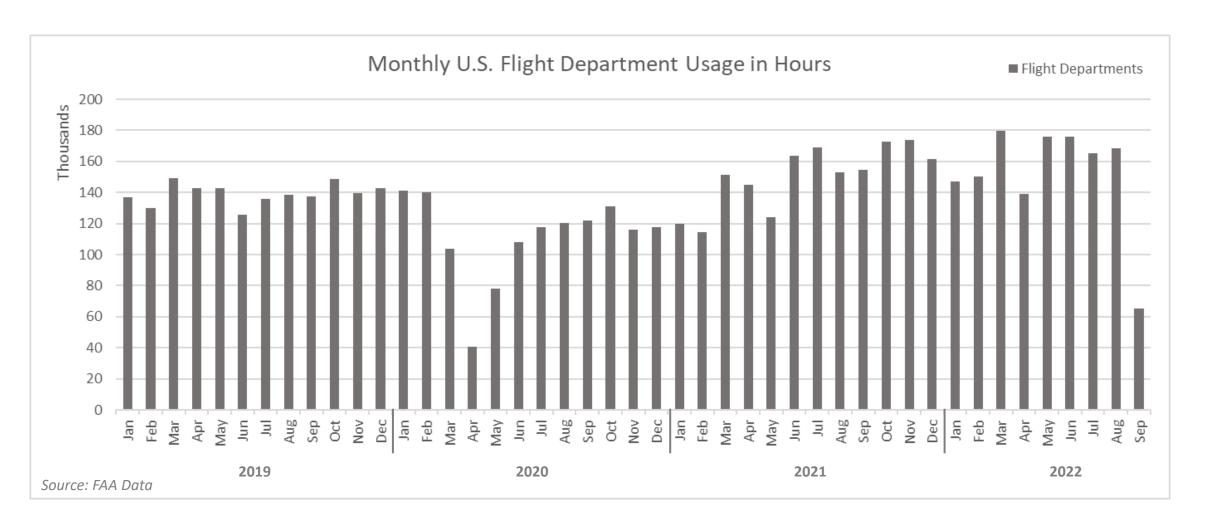








### Flight Departments Maintain Capacity









#### AEA Avionics Report Measures 8 Quarters of Growth in a Row

**Accord Technology** 

Alto Aviation

Anodyne Electronics Manufacturing Corp.

**Aspen Avionics** 

BendixKing

**Cool City Avionics** 

FreeFlight Systems

Garmin

**Genesys Aerosystems** 

**Gogo Business Aviation** 

Honeywell Business & General Aviation

**ICG** 

**Jupiter Avionics** 

Latitude Technologies

L-3 Aviation Products

Mid-Continent Instruments and Avionics

**PS** Engineering

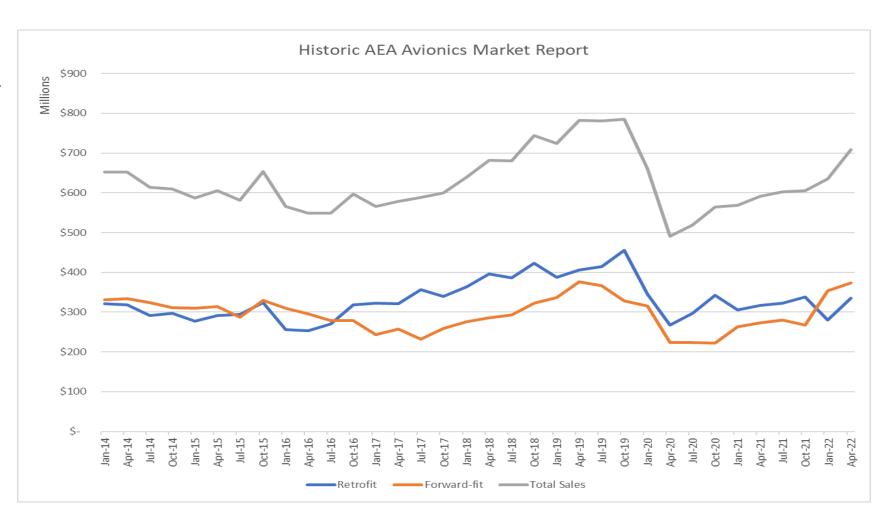
**Rockwell Collins** 

Sandia Aerospace

**Shadin Avionics** 

**Trig Avionics** 

Universal Avionics Systems Corp.







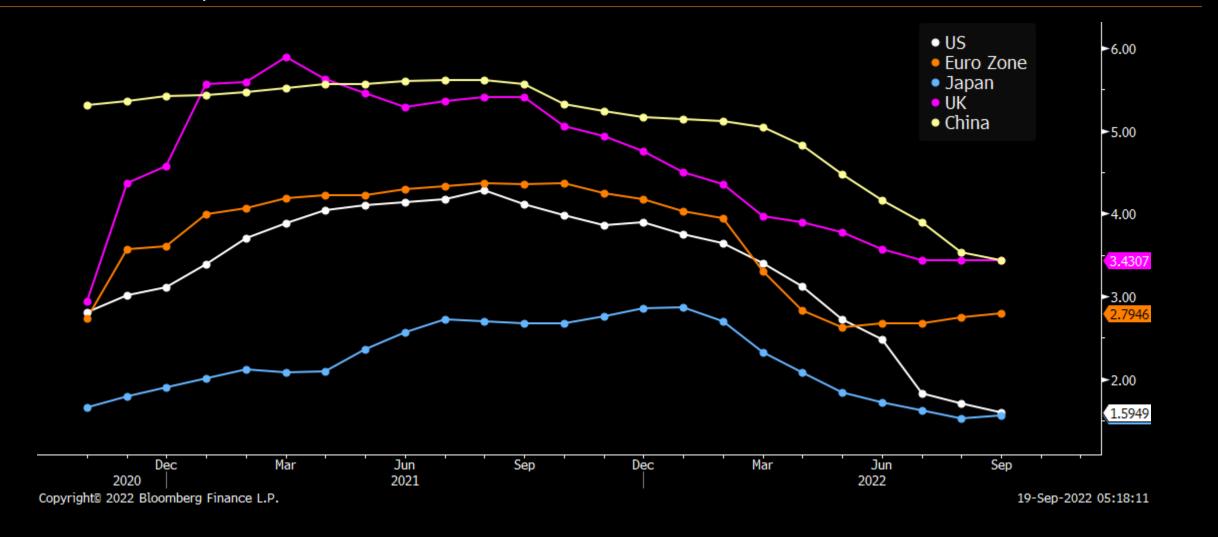


## **Business Jet Market Update**

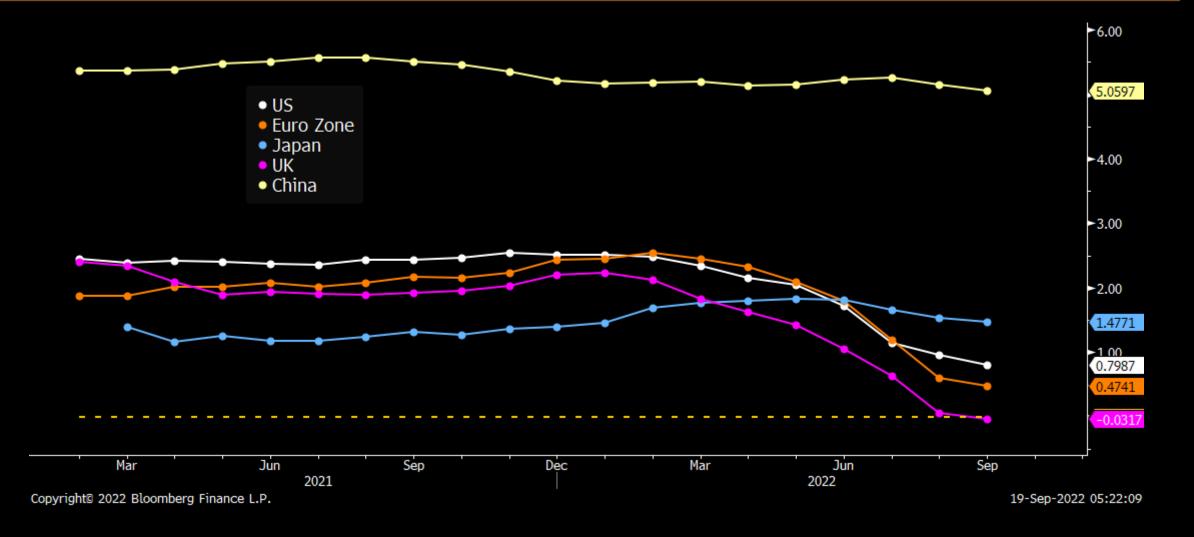
October 2022

George Ferguson

# 2022 Growth Expectations Falling on Interest Rate Increases; Russia/Inflation Pushes Lower



# 2023 Growth Expectations Settling in Close to Zero for Most Major Economies



### **Quarterly GDP Expectations**



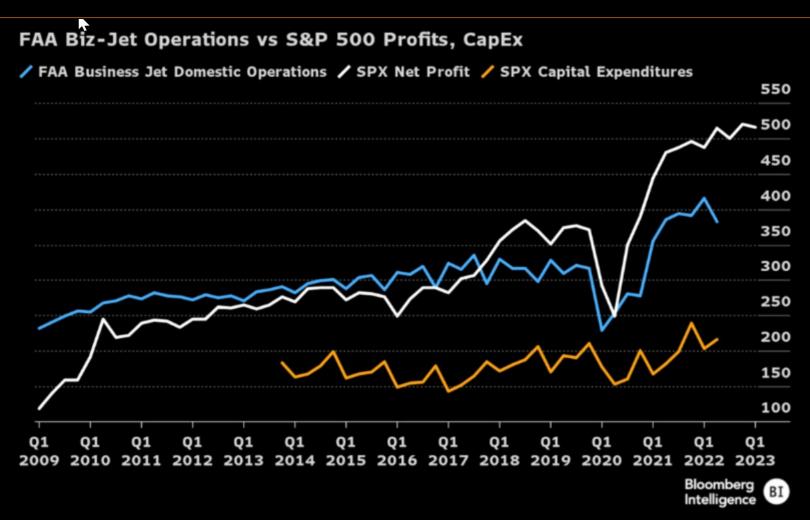
Source: Market Consensus, Bloomberg

### **CPI and PPI**



Source: Bloomberg Data

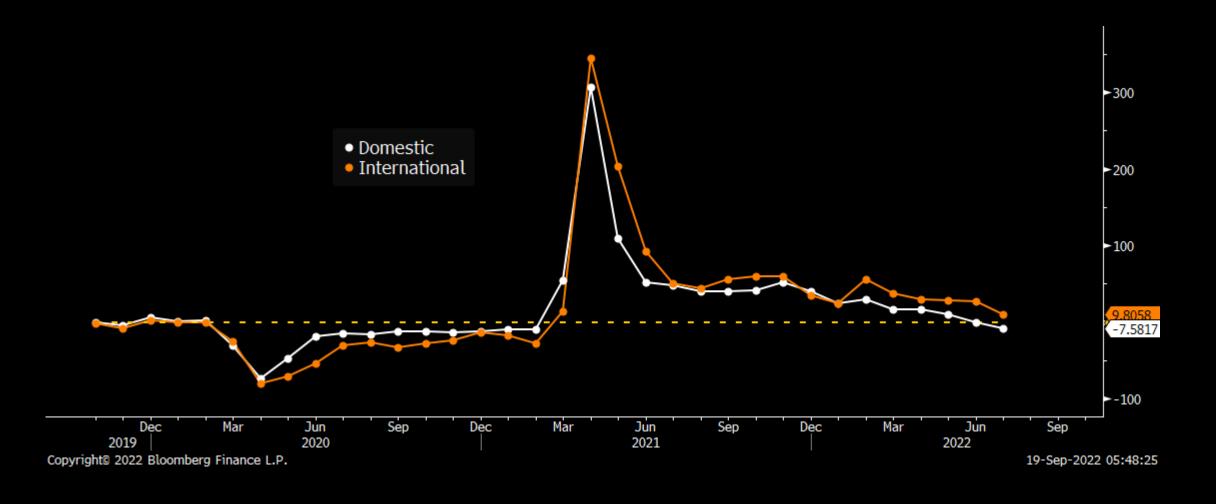
## FAA Biz-Jet Operations vs S&P 500 Profits, Capex



Source: FAA, company reports, consensus data



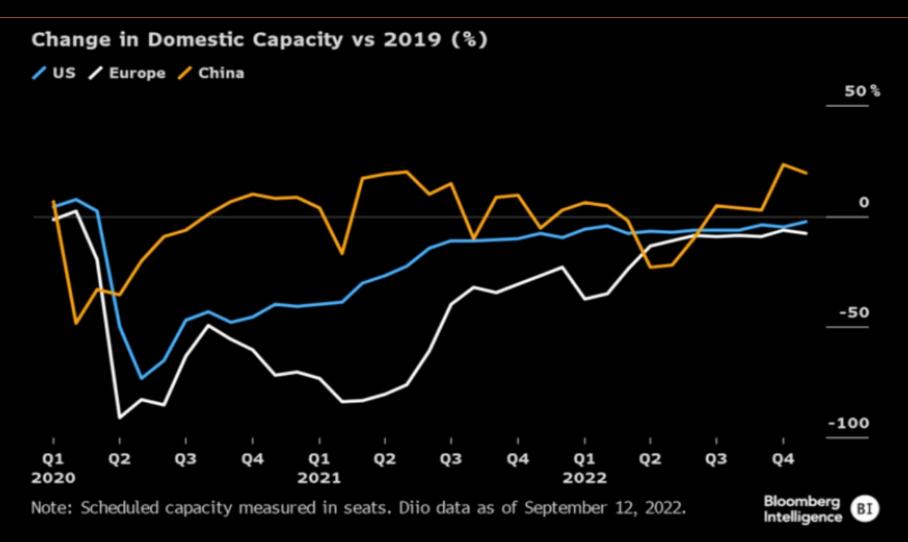
# FAA Bizjet Activity Showing YoY Trends Dipped Negative in July

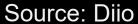


Source: FAA Bizjet report



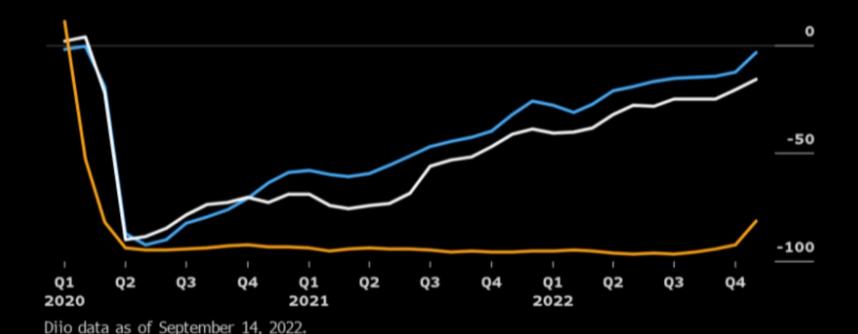
## Recovery Trends Slow, China Cancels Large





### China Restrictions Still Drag International Recovery

✓ US International Seats ✓ Europe International Seats ✓ China Mainland International Seats Change vs. 2019 (%) 50



Scheduled capacity is measured in seats. Europe includes countries part of ECAA and

similar. Only international flights to/from each market are considered.

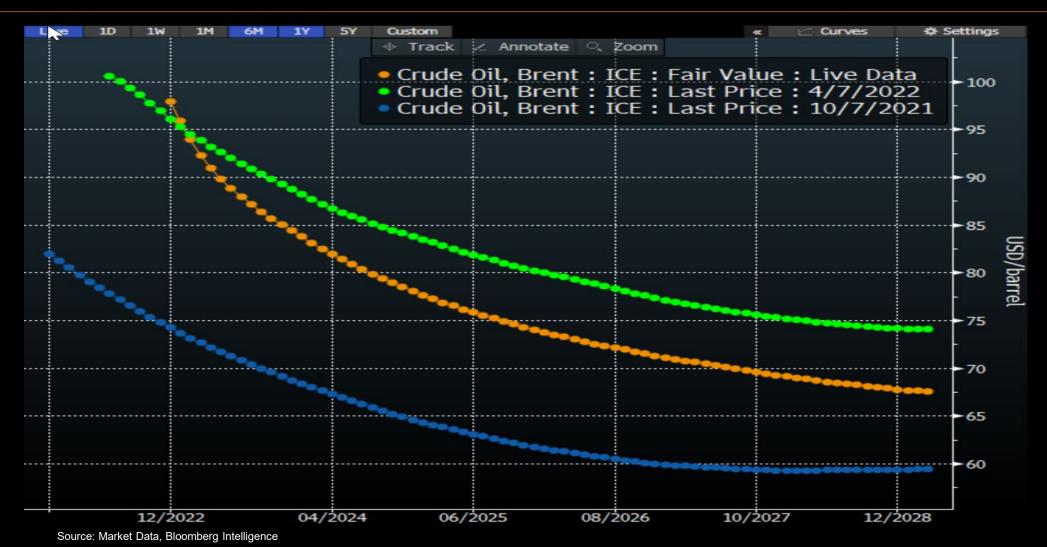
Source: Diio

Bloomberg

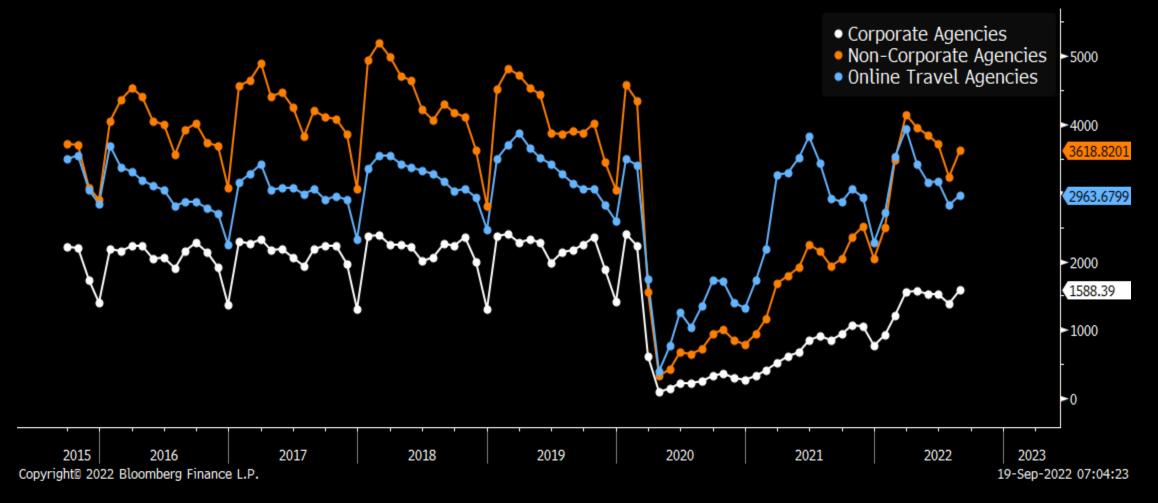
#### **Brent/Jet Close to Pre-Russia Invasion Prices**



# **Current Futures (Orange) Settles Below Prices at Ukraine Invasion**



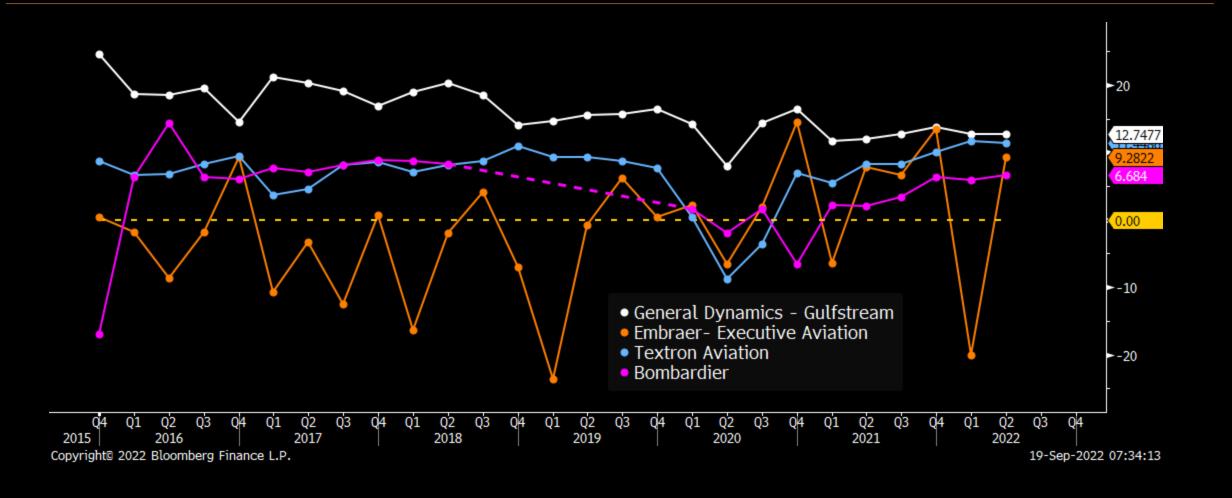
## Corporate Back to 75%, May Lag this Winter



Source: Airline Reporting Corporation, Bloomberg Intelligence



# Business Jet Margins Recovered From Initial Pandemic Effects



Source: Company Reports, Bloomberg Intelligence

## **Backlog Rising**

Company	Curr- ency	Q2 2022 Backlog	2021 Backlog	2020 Backlog	1H 2022 Backlog Change	2022 Guida nce	Guidance /Revenue Change	2021 Revenues	2020 Revenues	Revenue Change	Notes
Dassault	EUR		3,129	<b>+</b> 2,147		NA		1,952	2,226	-1/42	2 backlog at Q2 from 55 at 2/31/21
Embraer	USD	3,800	2,900	1,200	31.0%	NA		1,130	1,072	5.4% 9	3 deliveries going to 100-110
<b>Textron Aviation</b>	USD	5,830	4,100	1,600	42.2%	NA		4,566	3,974	14.9%	
Bombardier	USD	14,700	12,200	10,700	20.5%	6,500	8.3%	6,000	5,607	/ 11/2	xpected 2022 Revenues of greater nan 6500
Gulfstream	USD	18,237	15,878	11,308	14.9%	8,600	5.7%	8,135	8,075	0.7% bi 2: 2: m 2:	xpect 2023 of \$10.4 billion and \$12 illion in 2024 as op margins expand 00bps and 100bps, respectively. 023 - 25 more at \$2 billion or \$80 illion a piece 024 - 22 more at \$1.6 billion or 80 million a piece

Source: Company Reports, Bloomberg Intelligence as of 19 Sept. 2022

## Light Bouncing Back After Strong Cuts at Textron

Manufacturer/Model		2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
Total Light Jets		298	282	250	195	264	240	228	219	220	206	193
Embraer	Total Phenom 100 Phenom 300	66 6 60	6	6	6	11				12	19	30
Pilatus	PC-24	55	50	45	33	40	18					
Honda	Hondajet	55	45	37	25	36	37	43	23	2		
Textron	Total Citation Mustang	122	121	106	81	126	121	113 7	124 10			
	Citation M2	35	34	34	24	34	34	39	39	45	41	12
	CitationJet CJ3	35	35	26	21	37	37	26	25	26	12	15
	CitationJet CJ4	30	30	27	23	33	29	23	29	35	27	31
	Citation XLS+	22	22	19	13	22	21	18	21	22	26	26
Source: Bloomberg Intelligence, Company Reports												



## **Mids Take Their Time**

M	anufacturer/Model	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Total Mid-Size Business Jets		227	221	178	178	256	236	247	265	273	254
Gulfstream G100/150/200/280/350		20	20	16	22	33	28	28	27	34	33
Cessna	Cessna Total		90	61	50	80	67	66	58	41	37
	Sovereign+	7	5	3	6	8	6	9	11	18	28
	Latitude	60	55	34	26	58	57	53	43	17	0
	Longitude	30	30	24	18	13					
	Citation X+	0	0	0	0	1	4	4	4	6	9
Bombardier		54	55	54	55	88	95	93	112	125	123
	Learjet 70/75	0	3	10	11	12	12	14	24	32	33
	<b>Challenger 3500/350/300</b>	54	52	44	44	76	60	56	62	68	54
	Challenger 650/605	0	0	0	0	0	23	23	26	25	36
Embraer	Total	36	36	31	30	47	27	36	42	35	21
	Praetor 500/ Legacy 450	14	14	14	10	18	14	14	12	3	0
	Praetor 600/Legacy 500	22	22	17	19	24	9	15	21	20	3
	Legacy 600/650	0	0	0	1	5	4	7	9	12	18
Dassault	Total	20	20	16	21	8	19	24	26	38	40
	Falcon 2000			13	13	4	12	12	22	31	31
	Falcon 900			3	8	4	7	12	4	7	9
Source: Bloomberg Intelligence, Company Reports											

## Super Break Out

Manufacturer/Model		2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Total Large Jets		219	190	179	181	182	155	165	167	206	230
Gulfstream Total		130	105	99	105	114	92	90	93	118	119
aution calli	G450/G500	30		29		19			16		
	G550/G600	37									46
	G650/G700/G800	63				63		67	57		50
Dassault	Total	20	18	14	17	14	19	29	21	12	28
	Falcon 7x	5	5	4	5	4	4	7	17	12	28
	Falcon 8x	15	13	10	12	10	15	22	4		
	Falcon 6x	?									
Bombardier	Total	69	67	66	59	54	42	45	51	73	80
	Global 7500/8000	40		39							
	Global Express/6000/6500			27				45	51	73	80
Embraer	Lineage 1000	0	0	0	0	0	2	1	2	3	3
Source: Bloomberg Intelligence, Company Reports											

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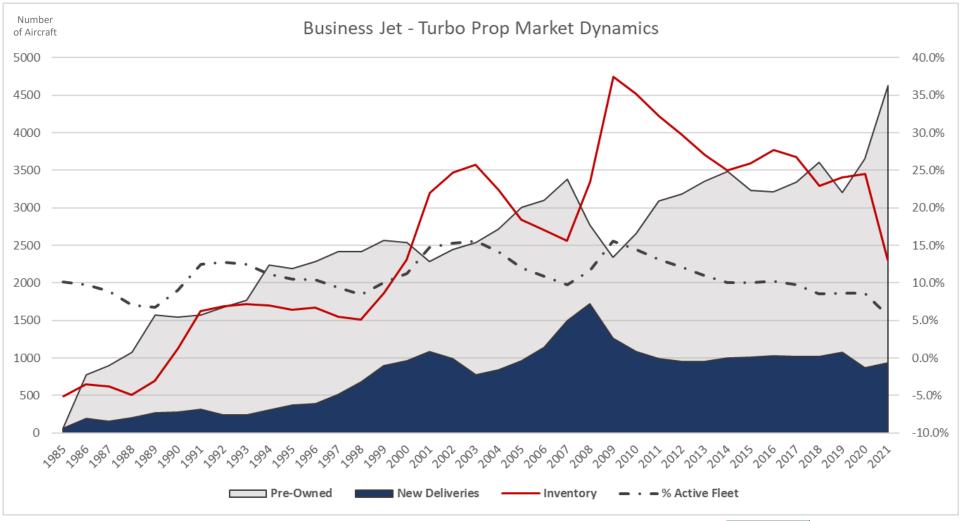
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### Historic Inventory To Active Fleet Ratio

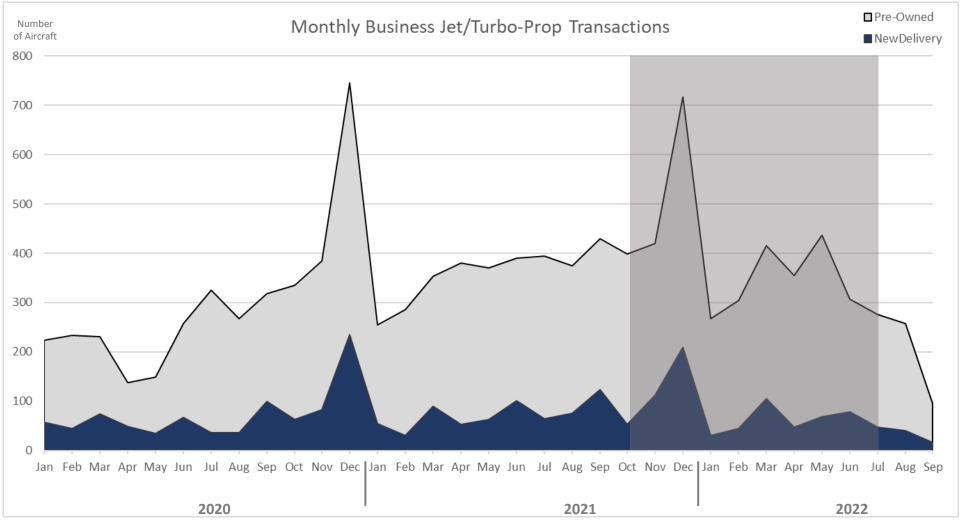








## **Monthly Comparison**

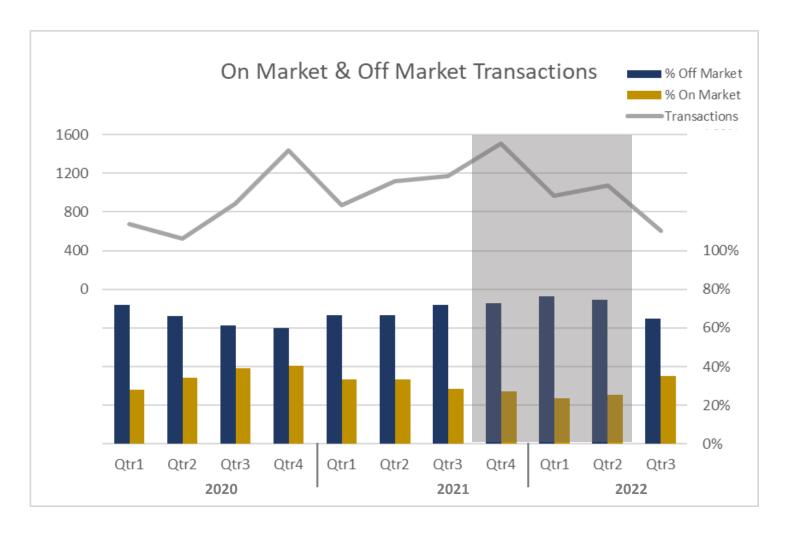








## Aircraft Begin To Go Back On Market

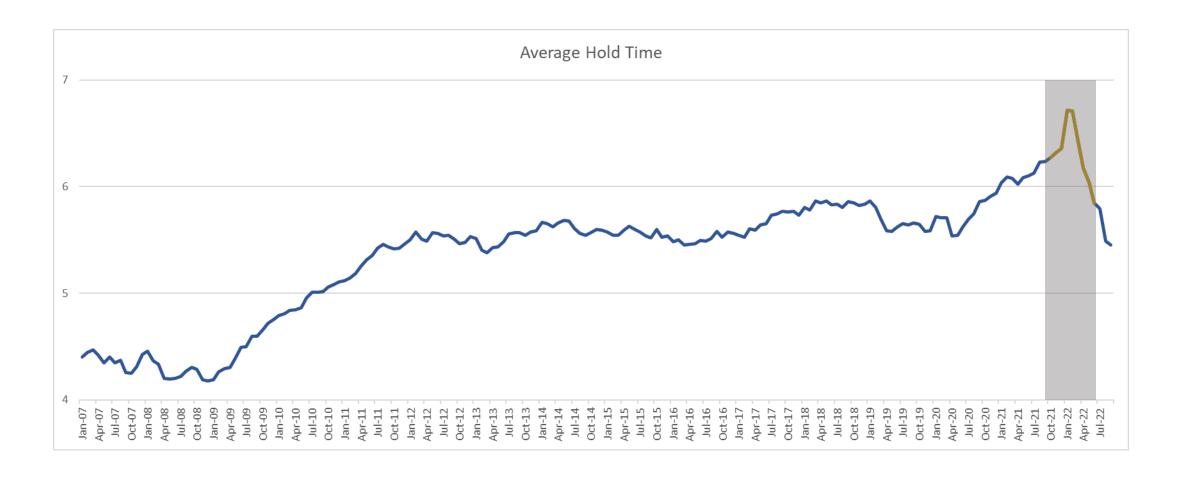








#### Hold Times Revert to Mean

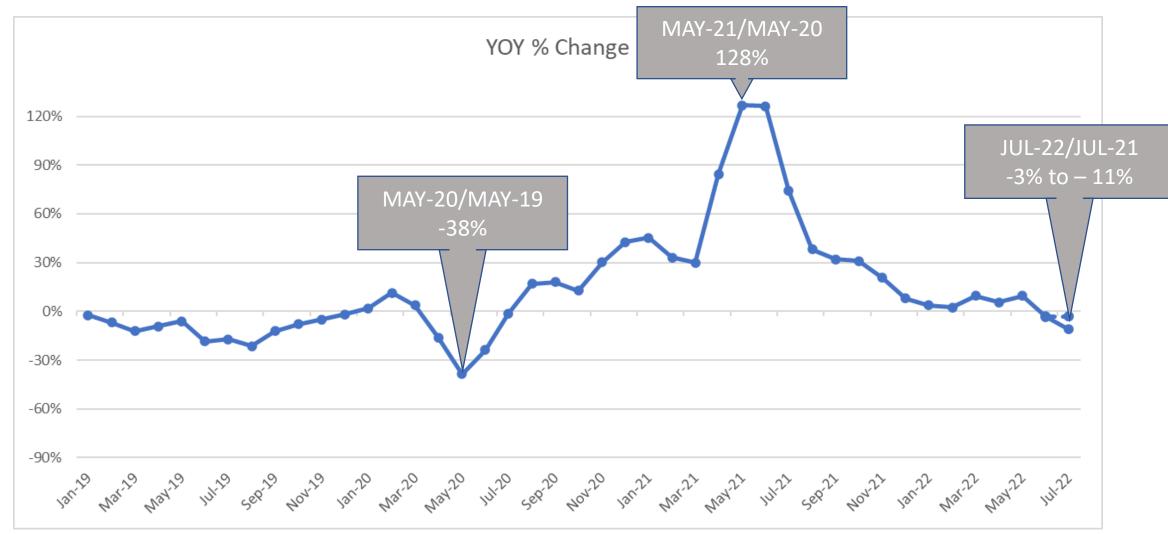








### Transactions Begin to Normalize









### Business Jet Report Takeaways

#### What the Data tells Us:

- Buyer side demand narrows focus to preferred inventory, while non-preferred inventory transaction times lengthen.
- Manufacturers continue to have strong 2022 growth, with a stable outlook in 2023 and beyond.
- Supply chain and labor constraints continue to keep manufacturers in check for the foreseeable future.

#### **What Our Clients Are Asking:**

- Will Bonus Depreciation inspire a repeat of Q4 2021 market frenzy?
- Will the business travel rebound be a source of growth for the Industry?
- When will higher MRO cost and cost of ownership impact demand, and does this affect push new buyers back to the sidelines?









#### Thank You







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