



Cassel Salpeter & Co.  
INVESTMENT BANKING

**Aviation Investment Banking  
Q2 2023 Update**

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### Relevant Experience:

- Investment banking for over 26 years

### Representative Assignments:



Bankruptcy  
\$363 Sale  
Airlines



Bankruptcy  
\$363 Sale  
Airlines



M&A Sale  
MRO



**Scott E. Salpeter**  
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### Relevant Experience:

- Investment banking for over 26 years

### Representative Assignments:



Valuation  
MRO



Valuation  
MRO



Solvency Opinion  
Freight & Logistics



Valuation  
MRO



**Joseph "Joey" Smith**  
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### Relevant Experience:

- Investment banking for over 22 years

### Representative Assignments:



Capital Raise  
Aviation Services



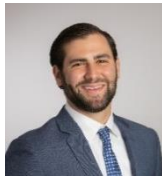
Capital Raise  
Distribution



Capital Raise  
Distribution



M&A Sale  
Part 121 Carrier



Philip Cassel  
Managing Director



Ira Leiderman  
Managing Director



Deborah Aghib  
Managing Director



Margery Fischbein  
Managing Director



Laura Salpeter  
Director



Marcus Wai  
Vice President



Chris Mansueto  
Vice President



Edward Kropf  
Associate



Tahz Rashid  
Associate



Charles Davis  
Associate



Francisco Belliard  
Analyst

Includes projects by our professionals at prior firms.

I

**PILOT SHORTAGES & TRAINING ECOSYSTEM**

II

M&A & PRIVATE PLACEMENTS REVIEW

III

PUBLIC MARKETS REVIEW

- In the post-COVID era, the airline and commercial pilot shortage remains a severe concern. Aircraft operators around the world are struggling to secure a pipeline of new pilots and recruits, and the root causes of the shortage vary by region:
  - In the United States, the pilot shortage is caused by factors including an aging workforce facing mandatory retirement, pilot migration from commercial to private for improved lifestyle balance, fewer pilots exiting the military as global conflicts and military demands evolve, and significant barriers to entry for aspiring pilots, including the high cost of training. In other regions, such as China, a burgeoning middle class is driving increased demand for air travel, and the regional pilot supply cannot expand rapidly enough to meet it.
- These long-term trends would not have such severe impacts if it weren't for the droves of pilots taking early retirements during the pandemic. Before COVID, airlines provided a direct path to the cockpit for new pilots, expanding cadet training programs and providing financial support for aspiring pilots. During the pandemic, however, many of these efforts came under pressure. Faced with mounting costs and a pilot surplus, cadet programs were trimmed excessively. Additionally, many banks reassessed the industry's financial risk profile and capital subsequently became scarcer.
- Nearly overnight, with the outbreak of COVID-19, the dialogue shifted from shortage to surplus. For carriers that were struggling with pilot supply, this provided a momentary reprieve, as thousands of aircraft were grounded and forced into storage or early retirement. This was short-lived, as pilot demand is primarily driven by aircraft utilization. This year, the global fleet reached 98% of its pre-pandemic level, and is on pace to surpass its former peak of approximately 28,000 aircraft.
- The global fleet is expected to grow to over 36,000 aircraft by 2033 (down from a pre-COVID projection of 39,000 by 2030). Still, despite a litany of crises over the past three years, from COVID and supply chain disruptions to labor shortages and the war in Ukraine, the global fleet's robust projected 2.9% compound annual growth rate for this decade is a testament to the industry's resilience and central role in our modern society.
- Exacerbating an already painful pilot shortage crisis are Airbus and Boeing's plans for massive production increases, well above the rate of retirement. The two companies have updated their production plans for their dominant narrowbody A320neo and 737 MAX platforms, reaching a combined production of over 125 aircraft per month, up from a combined pre-pandemic peak of 100 aircraft monthly. Approximately half of deliveries will be replacing older jets with new, more fuel-efficient models. This steep planned increase comes at a time when the industry is already plagued with pilot and crew shortages and other disruptions.

Sources of information: Oliver Wyman, Pilotinstitute.com.

- Today's pilot shortage could perhaps be described as yet another pandemic, as it occurs on a scale crossing international boundaries and is affecting people worldwide. Its severity may have prompted the 1960s American folk group Peter, Paul and Mary to change the lyrics to their popular hit song about flowers to "Where Have All the Pilots Gone."
- During past crises, including the September 11, 2001, terrorist attack and the global financial crisis of 2007-2008, new pilot certifications fell between 30-40% during the five-year period following the initial shock. In the decade following the global impact of the COVID-19 pandemic, as many as 25,000-35,000 current and future pilots are projected to choose alternate career paths. Furloughs, retirements, defections, migration from commercial to private for lifestyle balance, and a reduced pool of military pilots migrating to the commercial sector will create very real challenges across the industry and not even the biggest carriers will be spared.
- In the likeliest scenario, there will be a global deficit of 34,000 pilots by 2025. This deficit could reach levels as high as 50,000 in the most extreme cases. In North America, with an aging pilot population and a high number of early retirements, the shortage is worsening quickly and is projected to reach a deficit of 12,000 pilots in the near term, equal to approximately 13% of total domestic demand for pilots. The projected pilot shortage in the Asia-Pacific region is equally troubling, with an anticipated deficit of 23,000 pilots by 2029. Although aviation schools have bolstered their training efforts, it will be many years before the issue is resolved with sufficient pilots worldwide to meet global demand.
- The regional carrier end markets have felt and continue to bear the brunt of the pilot shortage crisis, especially for carriers not affiliated with prominent airlines. Testifying before the House Transportation and Infrastructure Committee in April 2023, Regional Airline Association (RAA) President and CEO Faye Malarkey Black warned of a "coming tsunami of pilot retirements." The shortage has resulted in more than 500 regional aircraft being grounded, Black reported, and a 25% reduction in flights at 308 airports. The regional carriers are losing pilots at almost unsustainable rates, which will inevitably lead to fewer flights, reducing travel options for people outside of major airline hubs.
  - This year, as a result of the ongoing pilot shortage, regional airlines had 26% of their 1,835 aircraft in storage, including Mesa which has 42% of its fleet mothballed. The Regional Airline Association reports that over 300 U.S. airports (72% of total) are offering less service than in 2019 and that 11 airports have lost scheduled service entirely.
  - American Airlines CEO Robert Isom recently suggested that the carrier is unable to fly about 150 of its regional aircraft because of the ongoing pilot shortage.

Sources of information: Dallas News, Forbes, Fortune Business Insights.

- Commercial airlines have made investments in flight training operations and pursued partnership opportunities, resulting in elevated enrollment in their programs and flight schools. Although there is no short-term fix, the current pilot crisis requires airlines to focus on rebuilding their pilot numbers in the years to come. They can do this by investing in training, allocating resources, and partnering with third parties to attract and hire high-quality, motivated cadets at competitive rates. Congress is likely to enact legislation raising the mandatory age of retirement for commercial pilots from 65 to 67-years-old.
- In the short term, airlines must utilize various methods to reduce churn and improve retention of pilots and crews. This means common sense compensation, benefits, and a more positive, symbiotic relationship between them, their pilots, and their entire workforce. Finally, the industry should strive to bring more women and minorities into the hiring pool.
- Pilot school is a lengthy program that can take up to two years. For a commercial pilot license, the process typically involves obtaining at least 250 hours of flight time and requires knowledge in areas such as aircraft performance, instrument training, navigation systems, aviation weather systems, and more. To receive an Airline Transport Pilot (ATP) certificate, which is required to fly passengers, even more schooling and flight experience is needed. An ATP certification requires 1,500 flight hours, including an advanced ground school course, and costs as much as \$100,000 in the United States.
- The global pilot shortage is a boon to flight schools, and enrollment is on the rise. Airlines have begun to invest in and partner with flight schools, improving the quality of education these schools offer. Carriers that have partnered with independent flight schools to develop proprietary flight training programs include:
  - United Airlines' Aviate Flight School has partnered with ATP Flight School. The program has received more than 12,000 applications since 2021 and has added 25 new Cirrus TRAC SR20 training aircraft and seven FRASCA flight simulators.
  - Delta Airlines' Propel Flight Academy has partnered with the training provider Skyborne Flight Academy. To date, nearly 100 participants have completed Propel's programs now fly for Delta; another 700 pilots are currently enrolled.
  - Lufthansa Airlines' Lufthansa Flight Training (LFT) division partnered with CAE's Flight Training Alliance and operates 70+ virtual and in-person training centers worldwide. More than 200 other airlines now take advantage of the expertise of LFT in areas such as simulator training, emergency and service training, and e-learning.
  - American Airlines Group and Coast Flight Training's Envoy Cadet Program offers conditional employment to accepted students before they begin training. Envoy is operated by ATP Flight School.

Sources of information: Capstone Research, Fortune Business Insights, IBISWorld.

- The global civil aviation simulation and training market is well-established and mature, with suppliers and service providers who have dominated the simulator industry for decades, by offering customized products and services for specific aircraft models. The market is evolving and highly capital intensive, needing to keep up with new lines of aircraft, including the burgeoning eVTOL (electric vertical take-off and landing) and UAV (unmanned aerial vehicle, including drone) sectors.

## All Roads Converge Upon CAE: The Dominant and Fully Integrated Behemoth!



- CAE, Inc. (TSX:CAE) is the global market leader and standard bearer for pilot and aviation training. For over 75 years, CAE has innovated and operated digital, highest-fidelity flight, mission, and training programs. Its global footprint is massive, with more than 13,000 employees across 250 sites, and training locations in over 40 countries. CAE operates the largest ab initio flight training network in the world, with over 20 cadet training programs globally. It is also the global market leader in the provision of flight crew and technical personnel to airlines, aircraft leasing companies, manufacturers, and MRO companies worldwide.
  - With over \$4 billion CAD in revenues and ~\$700 million CAD in EBITDA (LTM March 31, 2023), CAE has a market capitalization approaching \$10 billion CAD (July 2023). Its revenue is generated by its services division (60%) and its product division (40%), which manufactures simulators and related products. Sales are driven by civil aviation operators (47%) and defense operators (41%). The company continues to grow organically and has been highly acquisitive, cementing their market share by acquiring and partnering with other operators to enter new markets.
- The Full Flight Simulation (FFS) training market is global with high defensibility due to the cost of simulators and the need for contracts with established operators and a steady flow of business to ensure a strong return on capital. Notwithstanding CAE's dominance, there are several key players competing for a slice of market share. Companies compete by building and expanding their training center networks in top locations and by offering training for specific, desirable aircraft models.
  - Additional key players in the global civil and military flight training services sectors include Flight Safety International, Thales Group, Lockheed Martin Corporation, TRU Simulation + Training Inc. (a subsidiary of Textron), Pan Am Flight Academy, BAA Training (Lithuania), Indra Sistemas S.A. (Spain), and Avenger Flight Group.

Sources of information: CAE Inc., Fortune Business Insights, S&P Capital IQ.



- The flight school industry in the United States is highly regulated by the Federal Aviation Administration (FAA) in accordance with Title 14 of the Code of Federal Regulations. There are standards for both certifying a pilot (Part 61) and certifying a flight school (Part 141). The industry is highly fragmented, with few operators of significant scale. In the United States, the largest operator is ATP.

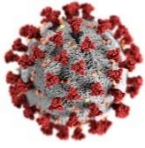
## All Landing Strips Descend Upon ATP's Elevated Position!



- ATP is by far the largest flight school operator in the United States. For over 35 years, ATP has been the leader in professional flight training, supplying pilots to regional and major airlines. Through efficient, highly focused training towards FAA pilot certification, ATP prepares men and women for professional pilot careers with airlines, corporate flight departments, air charter companies, flight schools, and military pilot assignments.
  - Its first customers were military pilots seeking to transition to civilian careers with airlines, and civilian pilots seeking enhanced multi-engine and flight instructor ratings to further their professional careers. ATP expanded its offerings to include its Airline Career Pilot Program, a training program for students to train from Private Pilot to Commercial Pilot with Flight Instructor Certificates. This program led ATP to become the top source of pilots to regional airlines, with the highest ratio of airline placements to students at any flight school.
  - ATP now operates the largest flight training fleet of 528 aircraft, including 96 multi-engine aircraft. It flies over 534,000 hours per year at 83 flight training centers nationwide. This vast footprint gives ATP a strong position as the flight school of choice for 38 airline partners including United, Delta, American, Frontier, and Spirit.
- ATP's Marketing Director, Michael Arnold, stated in a CNBC report, "ATP is expanding training capacity and working with airline partners to offer financial incentives and accelerated pathways [to certification]. In the last 12 months, [ATP] opened three brand-new airline pilot training centers and increased enrollments by almost 50%. This year alone, we're taking delivery of 40 new aircraft and 20 simulators so we can continue towards our goal of training 20,000 airline pilots by 2030."
  - Other notable operators in the highly fragmented independent flight school industry include: Simcom Training Center (50% owned by CAE), Thrust Flight, Wayman Aviation Academy, Blue Line Aviation, Florida Flyers Flight Academy, Sunrise Aviation, Aeroguard Flight Training, Paragon Flight, and Epic Flight Academy, with most based in our own state of Florida!

Sources of information: ATP Flight School, Daily Record, Pitchbook.





Following COVID, a severe global shortage of aviation pilots, with an insufficiently robust pipeline of aspiring pilots, has been a primary stress point for airlines around the world. Its root causes include an aging workforce facing retirement, fewer pilots exiting the military, migration from commercial to private for lifestyle balance, and high barriers to entry, including the cost of training. The pilot shortage was exacerbated by a large number of pilots cashing in and retiring during the pandemic.



Airlines are feeling the pinch as they struggle to find qualified pilots to fill vacancies. The problem will only worsen in coming years as demand for air travel increases. Airlines are taking aggressive steps to address the problem, but it will take time for the supply of pilots to catch up with demand. Commercial airlines have been investing into and partnering with operators such as CAE and ATP, in pursuit of long-term solutions to the crisis.



All roads lead to CAE: the publicly traded, dominant, fully integrated 800-pound gorilla in the space! CAE is the global leader and standard bearer for all facets of pilot and aviation training. CAE has amassed a global footprint with billions in revenues, thousands of employees, and approximately 250 sites and training locations in over 40 countries. It is the global market leader in the provision of flight crews and technical personnel to airlines. Although its footprint and capabilities can be scary to competitors, its ability to grow, scale, and provide solutions can be a positive force in the industry, helping to address the pilot shortage crisis over the coming years.



If you veer away from CAE, you'll likely descend and land on the category killer in the entry-level flight training space: ATP Flight School. For over 35 years, ATP has been the leader in professional flight training in the United States, supplying pilots to regional and major airlines, with 38 exclusive airline partnership programs. ATP operates 83 flight training centers, a training fleet of 528 aircraft, and certifies ~10,000 pilots per year. Although ATP operates in a highly fragmented sector, it remains a powerful force to be reckoned with.

- Our conclusion is that the cavalry is coming, but unfortunately, it's riding on horseback in this ballistic jet age. The saving grace for the industry will be the coordinated response of related government, regulatory, and aviation ecosystem participants working in tandem to address the current crisis. There will be no quick fix, and this will undoubtedly continue to be an ongoing global issue that we should monitor with heightened awareness. My final thought: when flying, thank the pilots and crew for their professional service and for safely bringing us to our destination and back home.

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I PILOT SHORTAGES & TRAINING ECOSYSTEM

**II M&A & PRIVATE PLACEMENTS REVIEW**

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III PUBLIC MARKETS REVIEW

### Selected Transactions Review

(\$ in millions)

Date		Transaction		Enterprise Value	Metrics			Valuation Benchmarks			
Closed	Anncd.	Target	Acquirer		Target Trailing Twelve Months (TTM)			Implied Enterprise Value (EV) /			
				Value	Revenue	EBITDA %	EBIT %	Revenue	EBITDA	EBIT	
<b>2023 2nd Quarter M&amp;A Transactions</b>											
1-Aug-23	30-May-23	JBT AeroTech Corporation	Oshkosh Corporation	\$ 800.0	\$ 575.0	9.5%	na	1.39x	14.70x	na	
20-Jul-23	20-Jul-22	VAS Aero Services, LLC	Satair USA Inc.	na	na	na	na	na	na	na	
na	28-Jun-23	Heads-up-display assets of Saab AB	Honeywell International Inc.	na	na	na	na	na	na	na	
na	21-Jun-23	Alén Space SL	GMV Innovating Solutions S.L.	na	na	na	na	na	na	na	
na	5-Jun-23	MB Aerospace Holdings Limited	Barnes Aerospace, Inc.	740.0	na	na	na	na	na	na	
na	2-Jun-23	Park Air Systems Ltd	Indra Sistemas, S.A.	na	na	na	na	na	na	na	
20-Jul-23	24-May-23	Tonner Drones	Delta Drone SA	5.6	na	na	na	na	na	na	
na	15-May-23	Wencor Group, LLC	HEICO Corporation	2,059.3	na	na	na	na	na	na	
30-Jun-23	4-May-23	Desser Holding Company LLC	VSE Aviation, Inc	124.0	na	na	na	na	na	na	
12-Jun-23	9-May-23	Intracom Defense S.A.	Israel Aerospace Industries Ltd.	71.0	na	na	na	na	na	na	
9-May-23	8-May-23	Duotech Services, Inc.	Bernhard Capital Partners Management, LP	na	na	na	na	na	na	na	
na	4-May-23	Seginus Aerospace LLC/AOG Aviation Spares/DAC Engineered Products	Loar Group, Inc.	30.0	na	na	na	na	na	na	
na	1-May-23	Federal and Defense Segment of VSE Corporation	Bernhard Capital Partners Management, LP	100.0	na	na	na	na	na	na	
8-May-23	14-Mar-23	Calspan Corporation	TransDigm Group Incorporated	725.0	na	na	na	na	na	na	
3-May-23	16-Dec-22	Maxar Technologies Inc.	Advent International Corporation; British Columbia Investment Management Corporation	6,554.0	1,747.0	17.4%	na	4.05x	21.54x	133.8x	
25-Apr-23	21-Mar-23	BLR Aerospace, LLC	Ducommun LaBarge Technologies, Inc.	115.0	na	na	na	na	na	na	
6-Apr-23	22-Dec-22	Visual Information Solutions Business of L3Harris Technologies, Inc.	NV5 Global, Inc.	70.0	na	na	na	na	na	na	
5-Apr-23	30-Jan-23	Epps Air Service, Inc.	SAR Trilogy Management, LLC	na	na	na	na	na	na	na	
				Mean	\$ 949.5	\$ 1,161.0	13.4%	na	2.72x	18.12x	133.8x
				Median	\$ 119.5	\$ 1,161.0	13.4%	na	2.72x	18.12x	133.8x

Sources of Information: S&P Capital IQ and Pitchbook.

### Selected Private Placements Review

(\$ in millions)

Anncd. Date	Target	Investors	Raise	Round Type	Round Number
<b>2023 2nd Quarter Private Placements</b>					
28-Jun-23	Ramon Space Inc.	UMC Capital; Ingrasys Technology Inc.; Grove Ventures Capital; Strategic Development Fund; Deep Insight	\$ 26.0	Venture	2
23-Jun-23	Agile Space Industries, Inc.	Greenline Ventures LLC; Lockheed Martin Ventures; Greater Colorado Venture Fund; Center on Rural Innovation, Inc., Endowment Arm; The CORI Innovation Fund; Caruso Ventures LLC	13.0	Seed	6
22-Jun-23	Benchmark Space Systems, Inc.	JH Capital Group; FreshTracks Capital; LaunchCapital	43.8	Series B	8
20-Jun-23	SIM S.A.S.	Eiffel Investment Group S.A.S.	30.0	Growth	2
15-Jun-23	CDB Aviation Lease Finance DAC	China Development Bank Financial Leasing Co., Ltd.	126.3	Growth	1
15-Jun-23	Apex Technology, Inc.	Andreessen Horowitz LLC; Shield Capital	16.0	Series A	2
8-Jun-23	CAE Inc.	Issuance of notes	299.3	Debt	6
24-May-23	Italia Trasporto Aereo S.P.A.	Deutsche Lufthansa AG	349.8	Venture	2
19-May-23	Venus Aerospace Corp.	Airbus Ventures	33.0	Series A	3
17-May-23	Varda Space Industries, Inc.	Side Door Ventures LLC	25.0	Series C	5
1-May-23	Lilium N.V.	Tencent Holdings	184.2	PIPE	7
25-Apr-23	Pixxel Space Technologies, Inc.	Alphabet Inc.; Sparta Group MA LLC; Blume Venture Advisors Pvt. Ltd.; Growx Ventures Management Pvt. Ltd.; Lightspeed India Partners Advisors LLP; Radical Ventures Investments Inc.	36.0	Series B	8
25-Apr-23	Expliseat SAS	BNP Paribas Développement SA, SCR; Bpifrance Investissement SAS; Go Capital SAS; NCI SAS; Fonds Sociétés de Projets Industriels, FPCI	18.7	Series B	1
21-Apr-23	Cranfield Aerospace Limited	Safran Corporate Ventures; Strategic Development Fund; HydrogenOne Capital Growth plc	12.4	Growth	2
17-Apr-23	Orbit Fab, Inc.	Stride Capital Group, LP; Lockheed Martin Ventures; Good Growth Capital; Tribe Capital Management, LLC; Lafayette Square LLC; Massive Capital Partners; 8090 Industries	28.5	Series A	6
13-Apr-23	Kepler Communications Inc.	Industrial Innovation Venture Fund; Canaan Management, Inc.; BDC Capital Inc.; IA Ventures; Costanoa Venture Capital Partners LLC; Tribe Capital Management, LLC	92.0	Series C	5
3-Apr-23	Astrocast SA	Thuraya Telecommunications Company	17.5	PIPE	8
			\$ 79.5		
			\$ 30.0		

Sources of information: S&P Capital IQ and Pitchbook.

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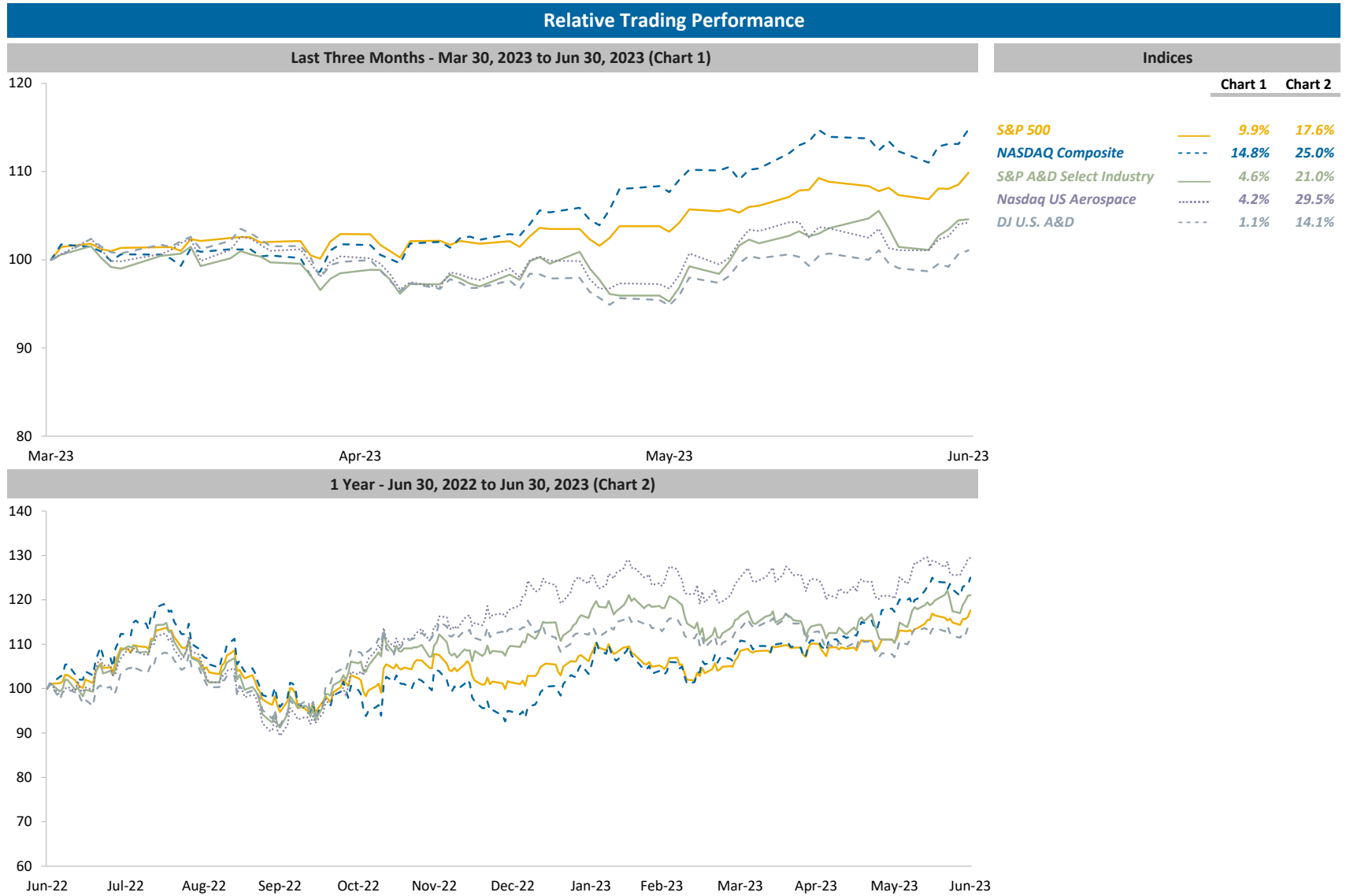
I PILOT SHORTAGES & TRAINING ECOSYSTEM

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II M&A & PRIVATE PLACEMENTS REVIEW

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**III PUBLIC MARKETS REVIEW**



Sources of information: S&P Capital IQ.

# SELECTED PUBLIC COMPANY TRADING DATA

## Selected Companies Review

(\$ in thousands, except per security)

Company	Ticker	Market Statistics			Metrics				Valuation Benchmarks				
		Closing Price	% of 52-week	Enterprise	Revenue	EBITDA	EBITDA	EBITDA	EV / Revenue		EV / EBITDA		
		31-Jul-23	High-Low	Value	LTM	LTM	LTM Margin	2024 E Growth	LTM	2023 E	LTM	2023 E	
<b>Airlines</b>													
Alaska Air Group, Inc.	ALK	\$ 48.63	85.0% - 130.7%	\$ 7,636.9	\$ 10,341.0	\$ 889.0	8.6%	8.1%	0.74x	0.72x	8.6x	4.2x	
Allegiant Travel Company	ALGT	\$ 123.70	94.5% - 196.5%	3,434.3	2,451.4	361.1	14.7%	16.0%	1.40x	1.36x	9.5x	6.1x	
American Airlines Group Inc.	AAL	\$ 16.75	87.8% - 143.8%	41,465.8	52,894.0	7,473.0	14.1%	-3.8%	0.78x	0.78x	5.5x	4.9x	
Copa Holdings, S.A.	CPA	\$ 118.02	97.4% - 181.5%	5,699.8	3,260.7	801.8	24.6%	6.1%	1.75x	1.66x	7.1x	5.3x	
Delta Air Lines, Inc.	DAL	\$ 46.26	92.9% - 170.1%	52,234.8	55,746.0	7,030.0	12.6%	7.1%	0.94x	0.91x	7.4x	5.6x	
Frontier Group Holdings, Inc.	ULCC	\$ 9.30	61.0% - 122.2%	4,362.3	3,569.0	(16.0)	-0.4%	25.1%	1.22x	1.13x	na	5.1x	
Hawaiian Holdings, Inc.	HA	\$ 11.59	66.6% - 157.9%	1,363.8	2,791.7	(31.8)	-1.1%	794.5%	0.49x	0.48x	na	36.9x	
JetBlue Airways Corporation	JBLU	\$ 7.77	82.2% - 125.7%	5,303.8	9,750.0	594.0	6.1%	23.1%	0.54x	0.53x	8.9x	4.4x	
LATAM Airlines Group S.A.	LTM	\$ 0.01	3.3% - 181.6%	10,768.7	10,217.2	974.2	9.5%	12.0%	1.05x	0.94x	11.1x	5.1x	
Mesa Air Group, Inc.	MESA	\$ 2.24	58.6% - 217.5%	662.3	529.0	57.2	10.8%	69.6%	1.25x	1.24x	11.6x	8.1x	
SkyWest, Inc.	SKYW	\$ 43.99	95.7% - 298.0%	4,278.5	2,888.2	450.5	15.6%	56.4%	1.48x	1.47x	9.5x	8.7x	
Southwest Airlines Co.	LUV	\$ 34.16	84.6% - 120.3%	17,495.8	25,135.0	1,803.0	7.2%	36.0%	0.70x	0.66x	9.7x	5.7x	
Spirit Airlines, Inc.	SAVE	\$ 18.30	73.2% - 127.0%	6,827.4	5,450.9	168.9	3.1%	33.2%	1.25x	1.16x	40.4x	8.1x	
Sun Country Airlines Holdings, Inc.	SNCY	\$ 21.56	90.6% - 162.7%	1,673.6	962.0	161.4	16.8%	18.5%	1.74x	1.57x	10.4x	6.5x	
United Airlines Holdings, Inc.	UAL	\$ 54.31	93.3% - 172.0%	34,515.6	50,884.0	7,719.0	15.2%	5.3%	0.68x	0.65x	4.5x	4.0x	
		<i>Mean</i>	<i>77.8% - 167.2%</i>	<i>\$ 13,181.6</i>	<i>\$ 15,791.3</i>	<i>\$ 1,895.7</i>	<i>10.5%</i>	<i>73.8%</i>	<i>1.07x</i>	<i>1.02x</i>	<i>11.1x</i>	<i>7.9x</i>	
		<i>Median</i>	<i>85.0% - 162.7%</i>	<i>\$ 5,699.8</i>	<i>\$ 5,450.9</i>	<i>\$ 594.0</i>	<i>10.8%</i>	<i>18.5%</i>	<i>1.05x</i>	<i>0.94x</i>	<i>9.5x</i>	<i>5.6x</i>	
<b>MRO, Parts &amp; Supply Chain</b>													
AAR Corp.	AIR	\$ 59.80	93.6% - 177.2%	\$ 2,341.9	\$ 1,990.5	\$ 169.7	8.5%	18.1%	na	na	na	na	
AerSale Corporation	ASLE	\$ 15.01	69.0% - 107.8%	697.9	364.0	42.7	11.7%	22.9%	na	na	na	na	
HEICO Corporation	HEI	\$ 175.98	96.6% - 126.8%	22,457.6	2,487.9	669.4	26.9%	11.9%	na	na	na	na	
MTU Aero Engines AG	XTRA:MTX	\$ 233.97	86.6% - 142.3%	13,175.4	6,500.0	884.3	13.6%	11.6%	na	na	na	na	
Singapore Technologies (ST Aerospace)	SGX:S63	\$ 2.81	90.8% - 119.6%	13,426.2	6,738.3	773.6	11.5%	9.2%	na	na	na	na	
TAT Technologies Ltd.	TATT	\$ 7.33	94.9% - 147.6%	85.2	89.8	5.1	5.7%	na	na	na	na	na	
VSE Corporation	VSEC	\$ 53.75	90.9% - 161.8%	1,214.8	1,013.5	97.3	9.6%	18.2%	na	na	na	na	
		<i>Mean</i>	<i>88.9% - 140.4%</i>	<i>\$ 7,628.4</i>	<i>\$ 2,740.6</i>	<i>\$ 377.4</i>	<i>12.5%</i>	<i>15.3%</i>	<i>na</i>	<i>na</i>	<i>na</i>	<i>na</i>	
		<i>Median</i>	<i>90.9% - 142.3%</i>	<i>\$ 2,341.9</i>	<i>\$ 1,990.5</i>	<i>\$ 169.7</i>	<i>11.5%</i>	<i>15.0%</i>	<i>na</i>	<i>na</i>	<i>na</i>	<i>na</i>	

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Sources of information: S&P Capital IQ.



# SELECTED PUBLIC COMPANY TRADING DATA

## Selected Companies Review

(\$ in thousands, except per security)

Company	Ticker	Market Statistics			Metrics					Valuation Benchmarks			
		Closing Price	% of 52-week	Enterprise	Revenue	EBITDA	EBITDA	EBITDA	EV / Revenue		EV / EBITDA		
		31-Jul-23	High-Low	Value	LTM	LTM	LTM Margin	2024 E Growth	LTM	2023 E	LTM	2023 E	
<b>Aerostructures &amp; Component Manufacturers</b>													
Air Industries Group	AIRI	\$ 3.33	45.6% - 106.7%	\$ 39.1	\$ 53.2	\$ 2.3	4.4%	na	0.73x	0.70x	16.8x	na	
ATI Inc.	ATI	\$ 47.68	99.7% - 194.2%	8,382.0	4,040.0	549.2	13.6%	20.8%	2.07x	1.95x	15.3x	14.3x	
Astronics Corporation	ATRO	\$ 20.98	93.5% - 281.2%	863.5	575.3	0.2	0.0%	94.6%	1.50x	1.28x	4497.6x	21.5x	
Butler National Corporation	BUKS	\$ 0.79	82.9% - 129.5%	79.2	75.2	14.6	19.4%	na	1.05x	na	5.4x	na	
CPI Aerostructures, Inc.	CVU	\$ 4.10	89.1% - 476.7%	76.1	85.2	7.0	8.2%	na	0.89x	na	10.8x	na	
Hexcel Corporation	HXL	\$ 70.55	89.2% - 141.1%	6,666.2	1,706.1	337.7	19.8%	18.5%	3.91x	3.67x	19.7x	17.8x	
Honeywell International Inc.	HON	\$ 194.13	87.9% - 116.5%	143,725.4	36,147.0	8,656.0	23.9%	7.5%	3.98x	3.89x	16.6x	15.1x	
Howmet Aerospace Inc.	HWM	\$ 51.10	99.5% - 167.0%	24,781.0	5,942.0	1,313.0	22.1%	13.4%	4.17x	3.89x	18.9x	17.2x	
Ducommun Incorporated	DCO	\$ 50.14	86.0% - 128.9%	998.7	730.2	79.5	10.9%	15.5%	1.37x	1.30x	12.6x	9.7x	
FACC AG	WBAG:FACC	\$ 6.68	78.9% - 109.6%	585.6	697.7	16.4	2.3%	48.6%	0.84x	0.84x	35.8x	12.3x	
Héroux-Devtek Inc.	TSX:HRX	\$ 11.80	93.4% - 138.6%	530.5	401.8	38.6	9.6%	20.2%	1.32x	1.20x	13.8x	9.6x	
Innovative Solutions and Support, Inc.	ISSC	\$ 7.89	82.2% - 136.7%	117.9	28.1	6.6	23.4%	na	4.20x	3.35x	18.0x	13.8x	
JAMCO Corporation	TSE:7408	\$ 11.64	89.2% - 147.8%	627.6	355.3	28.9	8.1%	na	1.77x	1.53x	21.7x	na	
Kaman Corporation	KAMN	\$ 22.89	64.8% - 121.2%	1,207.3	724.5	106.3	14.7%	8.1%	1.67x	1.60x	11.4x	11.3x	
Magellan Aerospace Corporation	TSX:MAL	\$ 6.12	80.5% - 122.0%	388.7	591.5	26.0	4.4%	24.8%	0.66x	0.58x	14.9x	6.6x	
Melrose Industries PLC	LSE:MRO	\$ 6.82	98.4% - 186.3%	11,204.1	9,081.3	772.3	8.5%	30.5%	1.23x	2.55x	14.5x	18.5x	
Moog Inc.	MOG.A	\$ 105.44	92.7% - 150.1%	4,407.6	3,215.1	367.5	11.4%	12.8%	1.37x	1.34x	12.0x	10.9x	
Park Aerospace Corp.	PKE	\$ 14.53	85.9% - 144.1%	214.6	56.8	10.9	19.2%	na	3.78x	na	19.7x	na	
Senior plc	LSE:SNR	\$ 2.14	90.5% - 150.1%	1,122.2	1,179.9	94.5	8.0%	15.7%	0.95x	0.91x	11.9x	9.1x	
SIFCO Industries, Inc.	SIF	\$ 2.42	59.8% - 124.1%	48.8	86.0	(6.1)	-7.2%	na	0.57x	na	na	na	
Spirit AeroSystems Holdings, Inc.	SPR	\$ 31.82	82.5% - 150.5%	6,747.0	5,286.3	(78.0)	-1.5%	101.4%	1.28x	1.09x	na	16.3x	
Triumph Group, Inc.	TGI	\$ 12.65	75.0% - 161.4%	2,452.8	1,379.1	194.3	14.1%	13.2%	1.78x	1.74x	12.6x	11.4x	
TransDigm Group Incorporated	TDG	\$ 899.72	100.0% - 180.1%	66,860.1	5,897.0	2,777.0	47.1%	11.3%	11.34x	9.98x	24.1x	19.9x	
Woodward, Inc.	WWD	\$ 120.38	98.8% - 151.9%	8,055.8	2,777.5	362.7	13.1%	12.7%	2.90x	2.74x	22.2x	18.3x	
			<i>Mean</i>	85.3% - 163.2%	\$ 12,090.9	\$ 3,379.7	\$ 653.2	12.4%	27.6%	2.31x	2.31x	220.3x	14.1x
			<i>Median</i>	88.5% - 146.0%	\$ 1,060.5	\$ 727.4	\$ 59.0	11.2%	15.7%	1.44x	1.56x	15.9x	14.1x

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# SELECTED PUBLIC COMPANY TRADING DATA

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(\$ in thousands, except per security)

Company	Ticker	Market Statistics			Metrics				Valuation Benchmarks			
		Closing Price	% of 52-week	Enterprise	Revenue	EBITDA	EBITDA	EBITDA	EV / Revenue		EV / EBITDA	
		31-Jul-23	High-Low	Value	LTM	LTM	LTM Margin	2024 E Growth	LTM	2023 E	LTM	2023 E
<b>Airframe &amp; Engine OEM</b>												
Airbus SE	ENXTPA:AIR	\$ 147.65	96.6% - 154.9%	\$ 111,841.4	\$ 67,266.4	\$ 7,731.4	11.5%	17.2%	1.66x	1.58x	14.5x	11.8x
The Boeing Company	BA	\$ 238.85	99.5% - 197.4%	182,702.0	73,608.0	1,075.0	1.5%	160.6%	2.48x	2.31x	170.0x	56.3x
Bombardier Inc.	TSX:BBD.B	\$ 50.17	88.7% - 312.1%	10,191.7	7,120.0	656.0	9.2%	17.6%	1.43x	1.31x	15.5x	8.8x
Dassault Aviation société anonyme	ENXTPA:AM	\$ 194.73	93.7% - 157.2%	5,336.2	6,831.3	718.0	10.5%	16.4%	0.78x	0.87x	7.4x	7.5x
Embraer S.A.	BOVESPA:EMBR3	\$ 3.90	87.0% - 162.5%	4,609.0	4,759.3	(25.0)	-0.5%	19.1%	0.97x	0.85x	na	8.1x
General Electric Company	GE	\$ 114.24	96.8% - 184.6%	127,201.6	80,940.0	8,432.0	10.4%	29.7%	1.57x	1.98x	15.1x	16.6x
Rolls-Royce Holdings plc	LSE:RR.	\$ 2.38	94.9% - 286.9%	24,477.1	16,290.1	1,548.3	9.5%	14.2%	1.50x	1.37x	15.8x	10.4x
Safran SA	ENXTPA:SAF	\$ 166.37	99.0% - 168.8%	70,329.8	24,157.2	4,494.5	18.6%	16.4%	2.91x	2.75x	15.6x	14.3x
Textron Inc.	TXT	\$ 77.77	99.7% - 134.0%	17,805.9	13,162.0	1,547.0	11.8%	8.0%	1.35x	1.28x	11.5x	10.9x
		<i>Mean</i>	<i>95.1% - 195.4%</i>	<i>\$ 61,610.5</i>	<i>\$ 32,681.6</i>	<i>\$ 2,908.6</i>	<i>9.2%</i>	<i>33.2%</i>	<i>1.63x</i>	<i>1.59x</i>	<i>33.2x</i>	<i>16.1x</i>
		<i>Median</i>	<i>96.6% - 168.8%</i>	<i>\$ 24,477.1</i>	<i>\$ 16,290.1</i>	<i>\$ 1,547.0</i>	<i>10.4%</i>	<i>17.2%</i>	<i>1.50x</i>	<i>1.37x</i>	<i>15.3x</i>	<i>10.9x</i>
<b>Defense Contractors</b>												
AeroVironment, Inc.	AVAV	\$ 95.26	84.8% - 127.2%	\$ 2,514.5	\$ 540.5	\$ 73.7	13.6%	25.3%	4.65x	3.93x	34.1x	20.3x
BAE Systems plc	LSE:BA.	\$ 11.98	89.8% - 132.6%	41,660.8	25,613.6	3,037.5	11.9%	6.7%	1.63x	1.34x	13.7x	10.0x
CACI International Inc	CACI	\$ 350.44	98.6% - 142.8%	9,965.2	6,641.7	680.0	10.2%	6.0%	1.50x	1.45x	14.7x	13.4x
Elbit Systems Ltd.	TASE:ESLT	\$ 212.97	96.7% - 141.7%	10,602.1	5,552.2	495.9	8.9%	7.2%	1.91x	1.86x	21.4x	18.6x
General Dynamics Corporation	GD	\$ 223.58	87.0% - 110.5%	71,535.5	40,859.0	5,081.0	12.4%	13.0%	1.75x	1.68x	14.1x	13.4x
Huntington Ingalls Industries, Inc.	HII	\$ 229.67	88.3% - 121.8%	11,965.7	10,774.0	1,115.0	10.3%	7.2%	1.11x	1.10x	10.7x	11.7x
Kratos Defense & Security Solutions, Inc.	KTOS	\$ 15.09	93.0% - 169.5%	2,244.0	933.9	38.3	4.1%	21.6%	2.40x	2.26x	58.6x	25.6x
L3Harris Technologies, Inc.	LHX	\$ 189.49	74.3% - 108.6%	45,202.9	17,988.0	2,730.0	15.2%	12.6%	2.51x	2.34x	16.6x	11.3x
Leonardo S.p.a.	BIT:LDO	\$ 13.57	99.5% - 178.2%	12,545.6	16,409.4	1,541.5	9.4%	6.6%	0.76x	0.74x	8.1x	6.1x
Lockheed Martin Corporation	LMT	\$ 446.37	87.9% - 117.0%	126,282.0	67,393.0	10,301.0	15.3%	3.4%	1.87x	1.90x	12.3x	12.8x
Mercury Systems, Inc.	MRCY	\$ 37.98	62.7% - 131.4%	2,728.5	1,010.4	133.4	13.2%	17.2%	2.70x	2.67x	20.5x	15.1x
Northrop Grumman Corporation	NOC	\$ 445.00	80.0% - 103.7%	81,054.4	37,881.0	7,243.0	19.1%	7.7%	2.14x	2.09x	11.2x	15.2x
Parsons Corporation	PSN	\$ 49.42	98.5% - 127.8%	5,975.8	4,419.7	319.9	7.2%	9.8%	1.35x	1.28x	18.7x	14.9x
RTX Corporation	RTX	\$ 87.93	80.8% - 109.5%	161,059.1	70,573.0	12,088.0	17.1%	9.6%	2.28x	2.19x	13.3x	12.5x
Thales S.A.	ENXTPA:HO	\$ 149.82	94.3% - 125.7%	32,334.6	19,681.6	2,508.7	12.7%	9.9%	1.64x	1.60x	12.9x	10.3x
V2X, Inc.	VVX	\$ 51.46	99.9% - 174.1%	2,879.1	3,377.8	207.3	6.1%	9.9%	0.85x	0.75x	13.9x	9.5x
		<i>Mean</i>	<i>88.5% - 132.6%</i>	<i>\$ 38,784.4</i>	<i>\$ 20,603.0</i>	<i>\$ 2,974.6</i>	<i>11.7%</i>	<i>10.9%</i>	<i>1.94x</i>	<i>1.82x</i>	<i>18.4x</i>	<i>13.8x</i>
		<i>Median</i>	<i>89.1% - 127.5%</i>	<i>\$ 12,255.7</i>	<i>\$ 13,591.7</i>	<i>\$ 1,328.2</i>	<i>12.1%</i>	<i>9.7%</i>	<i>1.81x</i>	<i>1.77x</i>	<i>14.0x</i>	<i>13.1x</i>

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		Closing Price	% of 52-week	Enterprise	Revenue	EBITDA	EBITDA	EBITDA	EV / Revenue		EV / EBITDA		
		31-Jul-23	High-Low	Value	LTM	LTM	LTM Margin	2024 E Growth	LTM	2023 E	LTM	2023 E	
<b>Aviation Services</b>													
AerCap Holdings N.V.	AER	\$ 63.81	91.8% - 160.6%	\$ 59,658.5	\$ 7,280.8	\$ 3,594.9	49.4%	2.2%	8.19x	7.81x	16.6x	9.3x	
Air T, Inc.	AIRT	\$ 22.75	78.6% - 156.5%	209.7	247.3	0.3	0.1%	na	0.85x	na	751.7x	na	
Air Lease Corporation	AL	\$ 42.34	91.6% - 140.8%	23,457.7	2,356.8	na	na	11.8%	9.95x	8.62x	na	9.5x	
Air Transport Services Group, Inc.	ATSG	\$ 20.16	59.3% - 140.1%	2,956.8	2,060.7	609.8	29.6%	11.2%	1.43x	1.36x	4.8x	4.9x	
Blade Air Mobility, Inc.	BLDE	\$ 4.17	60.8% - 166.1%	182.1	164.8	(43.7)	-26.5%	-29.7%	1.10x	0.87x	na	na	
CAE Inc.	TSX:CAE	\$ 22.91	86.7% - 144.2%	9,668.4	3,106.6	514.0	16.5%	14.4%	3.11x	2.83x	18.8x	12.3x	
Cargojet Inc.	CJT	\$ 73.69	62.1% - 105.6%	1,795.6	723.0	211.5	29.2%	11.0%	2.48x	2.48x	8.5x	7.5x	
Chorus Aviation Inc.	TSX:CHR	\$ 2.44	79.5% - 143.3%	2,012.3	1,233.3	310.6	25.2%	-5.9%	1.63x	1.61x	6.5x	6.0x	
FTAI Aviation Ltd.	FTAI	\$ 32.21	93.9% - 225.4%	5,365.2	1,071.7	494.0	46.1%	11.1%	5.01x	4.64x	10.9x	9.4x	
Gogo Inc.	GOGO	\$ 15.07	78.1% - 130.3%	2,544.9	409.9	150.9	36.8%	16.8%	6.21x	5.80x	16.9x	16.4x	
Wheels Up Experience Inc.	UP	\$ 2.37	8.2% - 241.8%	21.0	1,605.9	(298.1)	-18.6%	-71.1%	0.01x	0.01x	na	na	
		<i>Mean</i>	71.9% - 159.5%	\$ 9,806.6	\$ 1,841.9	\$ 554.4	18.8%	-2.8%	3.64x	3.60x	104.3x	9.4x	
		<i>Median</i>	78.6% - 144.2%	\$ 2,544.9	\$ 1,233.3	\$ 261.0	27.2%	11.1%	2.48x	2.65x	13.7x	9.4x	
<b>Next Gen &amp; Space Tech</b>													
Archer Aviation Inc.	ACHR	\$ 6.73	98.0% - 415.4%	\$ 1,241.8	na	\$ (376.4)	na	-8.9%	na	4776.19x	na	na	
AST SpaceMobile, Inc.	ASTS	\$ 4.29	30.1% - 120.8%	439.7	11.4	(152.5)	-1334.5%	-80.9%	38.46x	373.40x	na	na	
BlackSky Technology Inc.	BKSY	\$ 1.99	66.8% - 177.7%	286.7	69.9	(38.4)	-55.0%	-514.4%	4.11x	3.13x	na	na	
Globalstar, Inc.	GSAT	\$ 1.08	36.2% - 126.5%	2,151.5	174.4	56.9	32.7%	2.3%	12.34x	10.27x	37.8x	19.1x	
Iridium Communications Inc.	IRDM	\$ 52.55	76.9% - 122.6%	7,992.7	776.3	348.9	44.9%	7.4%	10.30x	9.96x	22.9x	17.3x	
Joby Aviation, Inc.	JOBY	\$ 8.95	74.7% - 284.1%	5,152.2	na	(371.7)	na	3.9%	na	na	na	na	
Lilium N.V.	LILM	\$ 1.37	42.2% - 370.2%	475.5	na	(295.6)	na	14.8%	na	na	na	na	
Planet Labs PBC	PL	\$ 3.72	49.5% - 124.0%	676.9	203.8	(133.1)	-65.3%	-75.2%	3.32x	2.93x	na	na	
Redwire Corporation	RDW	\$ 3.64	79.5% - 218.0%	393.5	185.3	(15.7)	-8.4%	131.4%	2.12x	1.67x	na	64.0x	
Rocket Lab USA, Inc.	RKLB	\$ 7.37	91.6% - 211.8%	3,317.7	225.2	(117.1)	-52.0%	-88.2%	14.73x	11.01x	na	na	
Spire Global, Inc.	SPIR	\$ 0.71	41.7% - 203.5%	164.5	86.4	(45.6)	-52.8%	-201.2%	1.90x	1.54x	na	na	
Terran Orbital Corporation	LLAP	\$ 1.50	32.1% - 135.1%	363.1	109.3	(143.1)	-130.9%	-165.0%	3.32x	1.43x	na	na	
Vertical Aerospace Ltd.	EVTL	\$ 1.88	16.2% - 133.3%	481.8	na	(115.7)	na	5.2%	na	na	na	na	
Virgin Galactic Holdings, Inc.	SPCE	\$ 4.28	50.0% - 143.6%	852.6	2.4	(562.6)	-23589.4%	-20.8%	357.48x	74.10x	na	na	
		<i>Mean</i>	56.1% - 199.1%	\$ 1,713.6	\$ 184.4	\$ (140.1)	-2521.1%	-70.7%	44.81x	478.69x	30.3x	33.5x	
		<i>Median</i>	49.8% - 160.7%	\$ 579.4	\$ 141.8	\$ (125.1)	-53.9%	-14.8%	7.20x	9.96x	30.3x	19.1x	

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Sources of information: S&P Capital IQ.

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