

Aerospace and Defense

Business Jet Monthly - February 2012

This report contains our industry delivery projections plus data on market share and the used market. The industry is an important driver for many companies we cover, including Bombardier, Embraer, General Dynamics, Honeywell, Rockwell Collins, Spirit AeroSystems, and Textron.

- Are we approaching the turn?** We sense an eagerness for a pickup in the long depressed bizjet market, particularly at the lower end, but we continue to observe mixed signals. We don't expect a near term recovery, while further downside is likely limited given 3+ years of weak demand. COL indicated that each major OEM plans to raise rates this year, from mid single to high double digits, though several OEMs had to dial back rate expectations last year. We are looking for an 8% increase in deliveries this year (ex VLJs), which appears toward the low end of what OEMs are planning, but with the G650 entering service and higher Global 5000/6000 rates, the bar for single digit growth does not look especially high and probably requires only a modest pickup for smaller jets, where softness has been most persistent.
- Recent signals are mixed.** There were pockets of strength in Q4 but we did not see a decisive turn. Gulfstream's 1.0x book-to-bill was solid, particularly in light of 12 G650 green deliveries, but large jets and international customers drove orders again, suggesting demand is not expanding to other areas. Bombardier's bizjet book-to-bill for Nov and Dec was 0.9x, also solid but not stellar. We estimate that book-to-bill at Cessna was 0.7x, and management guided to double digit sales growth in 2012. This was better than expected, but Cessna remains far from sold out this year and orders still trail deliveries. Embraer, Hawker, and Dassault will report Q4 later. Other indicators were also mixed. We view the US as an important driver of the next major leg of a recovery, and FAA flights ops fell another 2.9% y/y in Dec. Used inventories did not improve overall in Jan and remain high in historical terms, while used pricing weakened. Anecdotally, we have been hearing that large Fortune 500 companies have been quietly returning to the market, but again the demand is largely focused on the higher end.
- Used inventory flat in Jan.** Used inventory of in-production models remained at 10.8% after a 30 bp decline in Dec and increases in each of the preceding four months. Heavy and Light jets each fell 10 bps, while Medium jets were up 10 bps. Bombardier, Embraer, and HB saw inventory fall of 20-30 bps, while Dassault and Cessna were up 10-20 bps. Gulfstream was flat.
- Avg asking price declined 2.1% in Jan.** Prices reached the lowest level since 1998 and were down 7.2% y/y. All categories—Heavy (-1.9%), Medium (-3.1%), and Light (-1.8%)—saw prices falling. Prices for 18 of 25 tracked models fell last month, with Gulfstream G200 experiencing the most significant drop (18%).
- 2011 ended with Dec flight ops down 2.9% y/y.** Growth for 2011 came in at 3% vs 11% in 2010. Flight ops decelerated through the year, remaining flat in 2H and declining in Q4. 1H growth was 6% y/y.

See page 36 for analyst certification and important disclosures, including non-US analyst disclosures.

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Aerospace & Defense

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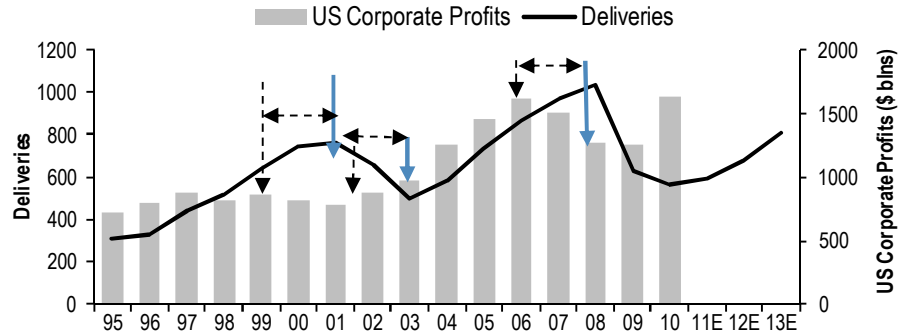
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Macro Drivers & Market Cycle

Demand for business jets is largely a function of corporate profits. During the last cycle, deliveries peaked in 2001 after US corporate profits reached a high in 1999, while deliveries bottomed out in 2003 after profits fell to cyclical lows in 2001. The downturn itself lasted for two years before positive growth returned in 2004 (see Figure 1). At the same time, global profits peaked in 2000, as the downturn in US profits did not fully affect global profits for a year. Global profits saw substantial growth again in 2003 as deliveries hit their low point (Figure 2).

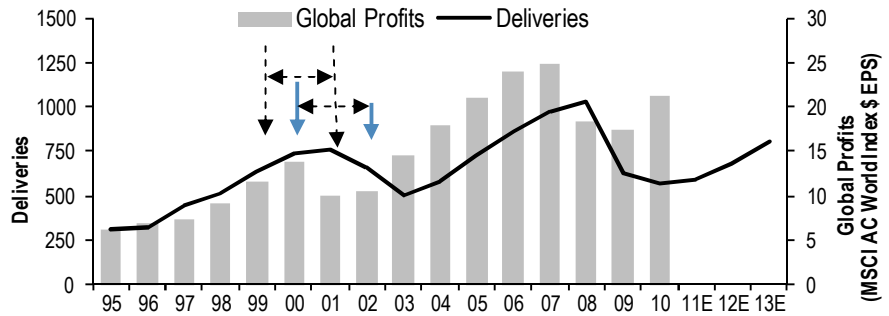
Business jet deliveries have lagged US corporate profits by two years on peak-and-trough basis.

Figure 1: US Corporate Profits vs. Business Jet Deliveries (# of aircraft), 1995-2013E



Source: GAMA, BEA, J.P. Morgan estimates. Excludes Very Light Jets as delineated in Table 1.

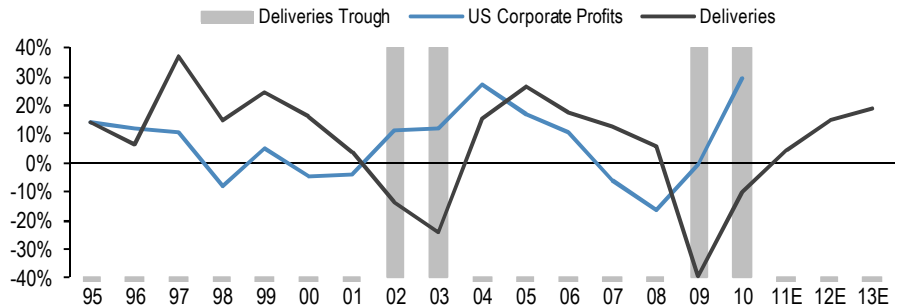
Figure 2: Global Corporate Profits vs. Business Jet Deliveries (# of aircraft), 1995-2013E



Source: GAMA, MSCI, J.P. Morgan estimates, excludes Very Light Jets as delineated in Table 1.

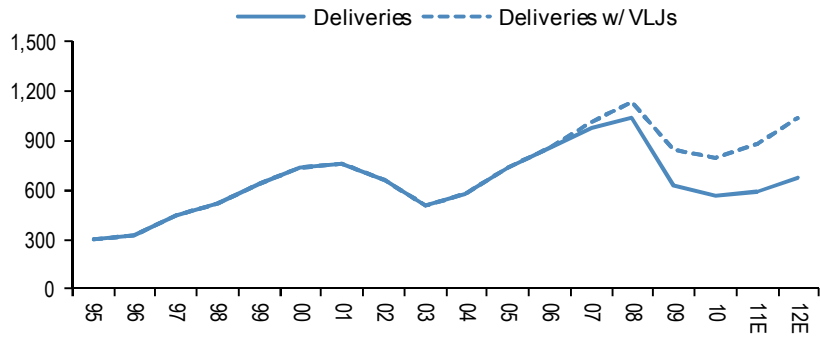
US corporate profits peaked in 2006, and business jet deliveries (excluding VLJs) peaked two years later once again, in 2008. Business jet deliveries declined 39% in 2009, steeper than last cycle's 14% initial drop-off, with OEMs cutting production rates across all categories of jets. 2010 was down another 10%, and we believe deliveries were about flat last year. We expect a bounce in 2012, though we believe the recovery will start slowly and we forecast delivery growth of 8%.

Figure 3: US Corporate Profits vs. Business Jet Deliveries (% chg. y/y), 1995-2013E



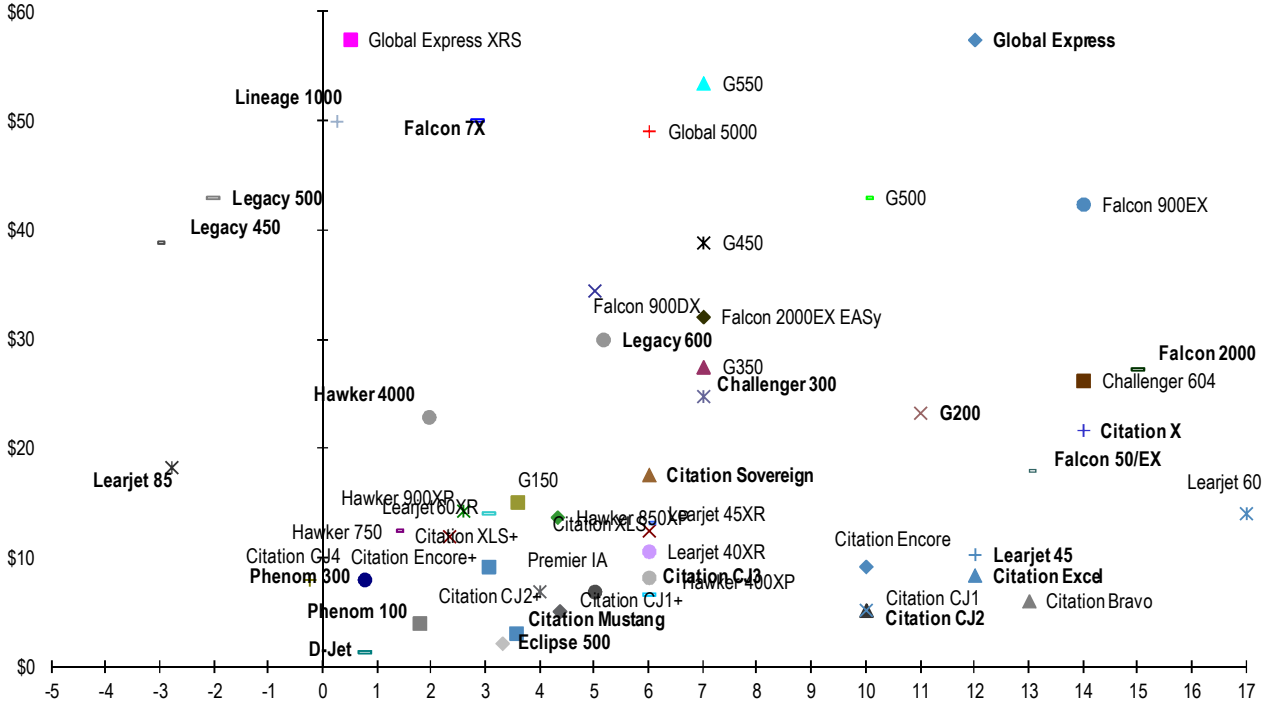
Source: GAMA, BEA, J.P. Morgan estimates.

Figure 4: Impact of VLJs on Total Deliveries, 1995-2012E



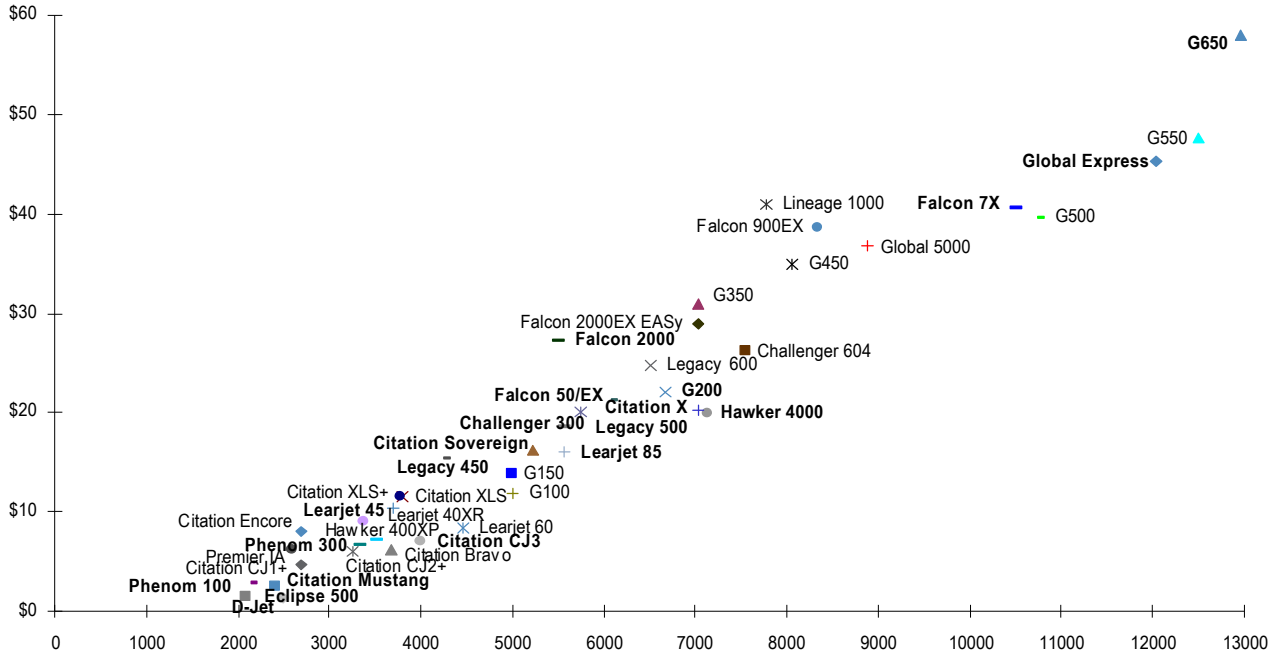
Source: GAMA, Company reports and J.P. Morgan estimates. Very Light Jets, as delineated in Table 1, include Cessna Mustang, Diamond D-Jet, Embraer Phenom 100, and HondaJet.

Figure 5: Price (\$MM) vs. Age (years)



Source: JetNet, J.P. Morgan estimates. Note: **Bold** indicates clean sheet design, non-bold indicates derivative models.

Figure 6: Price (\$MM) vs. Range (km)



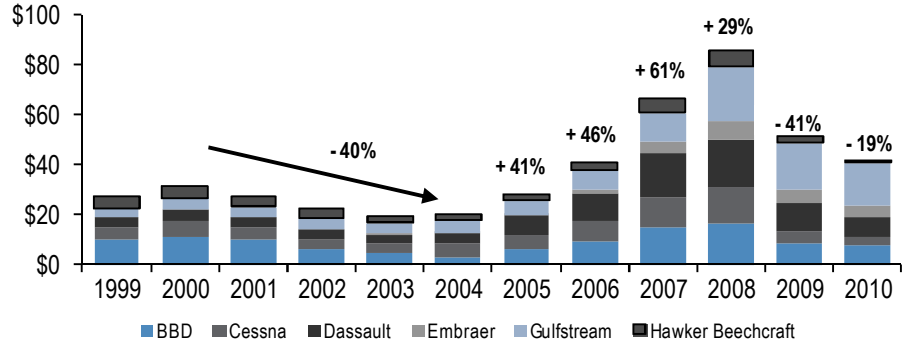
Source: JetNet, J.P. Morgan estimates. Note: **Bold** indicates clean sheet design, non-bold indicates derivative models.

Industry Financial Data

In this section, we provide comparative industry data for backlog deliveries, estimated book-to-bill, and profitability.

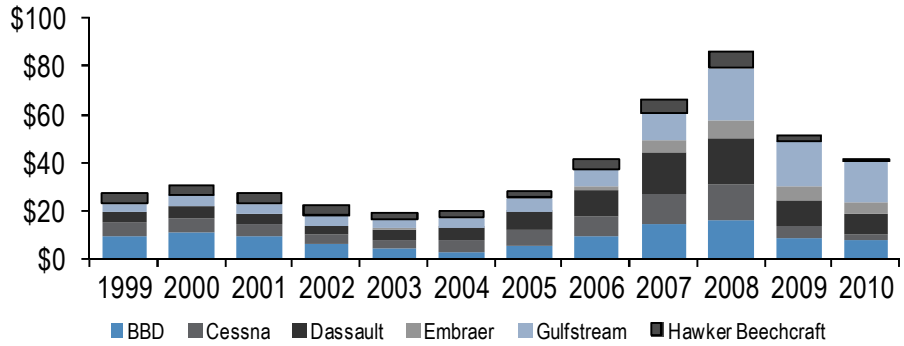
Figure 7: Industry Backlog by Company, 1999-2010

\$ in billions



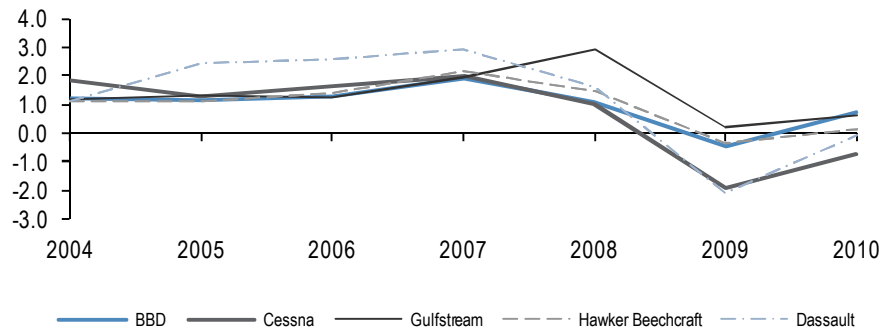
Source: Company data, J.P. Morgan estimates.

Figure 8: Industry Deliveries by Company, 1999-2010



Source: Company data, GAMA. Note: Excludes VLJs.

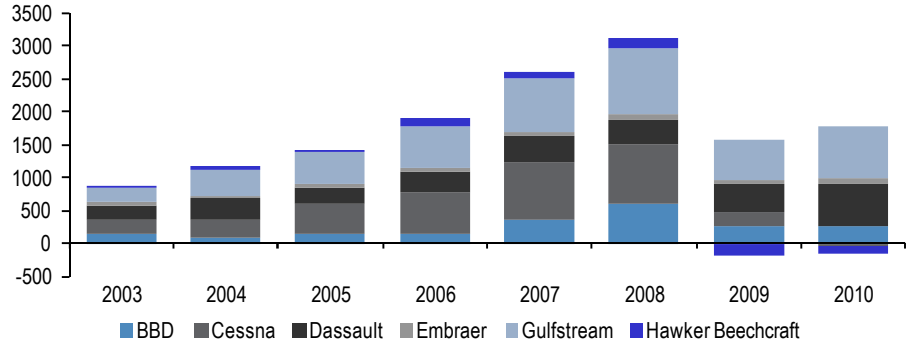
Figure 9: Book to Bill Ratio by Company, 2004 – 2010



Source: Company data, J.P. Morgan estimates. Data as available.

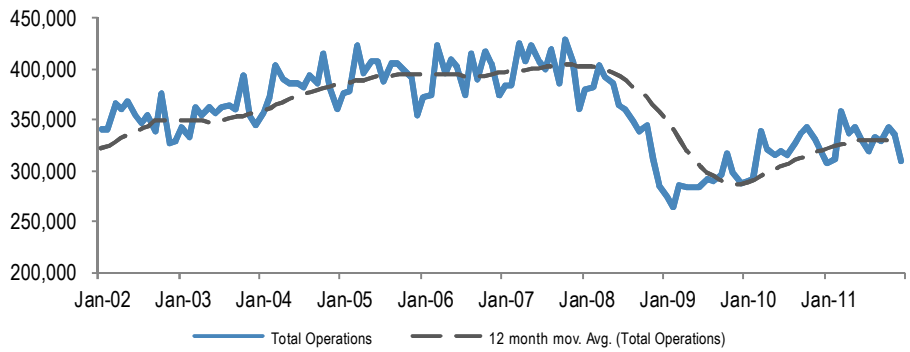
Figure 10: Industry EBIT by Company, 2003-2010

\$ in millions



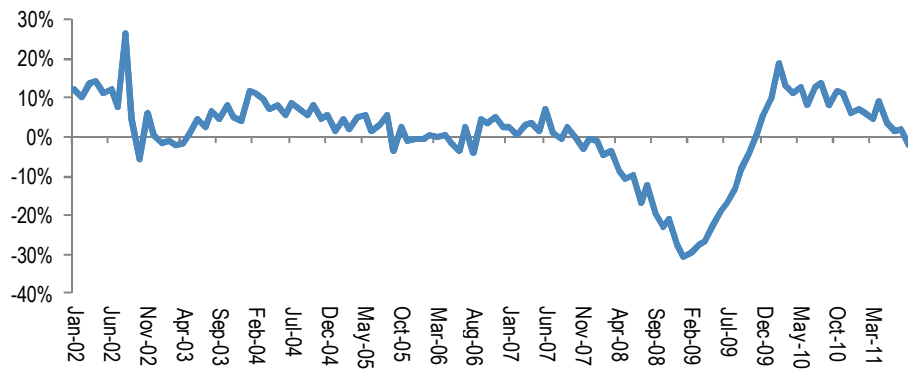
Source: Company data, J.P. Morgan estimates.

Figure 11: Total U.S. Monthly Flight Operations – Business Jets, Jan-00-Dec-11



Source: FAA.

Figure 12: Change in Total US Monthly Flight Operations (% y/y) – Business Jets, Jan-02-Dec-11



Source: FAA.

Table 2: Historical Fleet Size

	Total	Heavy Jets	Medium Jets	Light Jets
1988	5,331	497	1,414	3,420
1989	5,591	588	1,480	3,523
1990	5,851	649	1,550	3,652
1991	6,095	706	1,599	3,790
1992	6,347	761	1,666	3,920
1993	6,606	815	1,738	4,053
1994	6,856	868	1,809	4,179
1995	7,176	960	1,887	4,329
1996	7,475	1,043	1,962	4,470
1997	7,901	1,151	2,074	4,676
1998	8,397	1,284	2,190	4,923
1999	9,029	1,482	2,335	5,212
2000	9,780	1,722	2,496	5,562
2001	10,572	1,956	2,663	5,953
2002	11,289	2,154	2,799	6,336
2003	11,840	2,337	2,913	6,590
2004	12,440	2,511	3,055	6,874
2005	13,143	2,714	3,259	7,170
2006	13,997	2,957	3,488	7,552
2007	15,072	3,212	3,803	8,057
2008	16,342	3,476	4,260	8,606
2009	17,199	3,773	4,426	9,000
2010	17,962	4,078	4,560	9,324
2011	18,507	4,220	4,646	9,641

Source: JetNet.

Table 3: Business Aviation Market Share (Global)

Manufacturer	Aircraft	% Share
CITATION	6,167	33%
LEARJET	2,356	13%
GULFSTREAM	2,032	11%
FALCON	1,969	11%
HAWKER	1,805	10%
CHALLENGER	1,258	7%
EMBRAER	511	3%
GLOBAL	420	2%
BEECHJET	402	2%
PREMIER	282	2%
SABRELINER	263	1%
ECLIPSE	259	1%
WESTWIND	241	1%
BOEING	144	1%
ASTRA	126	1%
AIRBUS	92	0%
DIAMOND	69	0%
DORNIER	52	0%
JETSTAR	39	0%
JET Commander	16	0%
EMIVEST	4	0%
Total	18,507	100%

Source: JetNet (as of 2011).

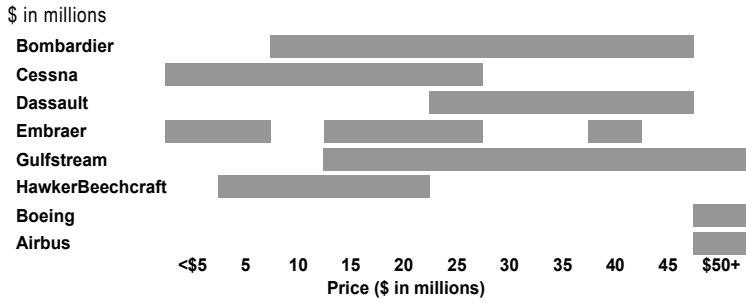
Quick Reference Specification Table

Table 4: Business Jets Quick Reference Guide

Model	Make	Engine	Avionics	Range (km)	Seating	Price (\$M)
D-Jet	Diamond	Williams	Garmin	2,500	2-4	1.4
Mustang	Cessna (Textron)	P&W Canada	Garmin	2,130	5	3.1
Honda Jet*	Honda Corp.	GE-Honda	Garmin	2,593	6	3.7
Phenom 100	Embraer	P&W Canada	Garmin	2,148	4	3.7
Citation M2*	Cessna (Textron)	Williams	Garmin	2,408	6	4.2
Citation CJ1+	Cessna (Textron)	Williams / Rolls-Royce	Rockwell Collins	2,408	5	5.1
Beechjet 400XP	HawkerBeechcraft	P&W Canada	Rockwell Collins	2,898	7	6.7
Citation CJ2+	Cessna (Textron)	Williams / Rolls-Royce	Rockwell Collins	2,987	5	6.9
Premier IA	HawkerBeechcraft	Williams	Rockwell Collins	2,519	6	6.9
Phenom 300	Embraer	P&W Canada	Garmin	3,334	7	8.0
Citation CJ3	Cessna (Textron)	Williams / Rolls-Royce	Rockwell Collins	3,473	6	8.2
Hawker 200*	HawkerBeechcraft	Williams	Rockwell Collins	2,863	4	8.3
Citation CJ4	Cessna (Textron)	Williams	Rockwell Collins	3,380	6	9.0
Citation Encore+	Cessna (Textron)	P&W Canada	Rockwell Collins	3,313	8	9.2
Learjet 40XR	Bombardier	Honeywell	Honeywell	3,348	6	10.6
Hawker 750	HawkerBeechcraft	Honeywell	Rockwell Collins	4,074	8	11.9
Citation XLS+	Cessna (Textron)	P&W Canada	Rockwell Collins	3,441	8	12.5
Learjet 45XR	Bombardier	Honeywell (Garrett)	Honeywell	3,795	9	13.2
Hawker 850XP	HawkerBeechcraft	Honeywell	Rockwell Collins	4,893	8	13.7
Learjet 60XR	Bombardier	P&W Canada	Rockwell Collins	4,380	9	14.1
Hawker 900XP	HawkerBeechcraft	Honeywell	Rockwell Collins	5,463	8	14.5
Citation Latitude*	Cessna (Textron)	P&W Canada	Garmin	3,704	8	14.9
G150	Gulfstream (GD)	Honeywell	Rockwell Collins	5,471	8	15.1
Legacy 450*	Embraer	Honeywell	Rockwell Collins	4,260	8	15.3
Learjet 85*	Bombardier	P&W Canada	Rockwell Collins	5,556	9	17.1
Citation Sovereign	Cessna (Textron)	P&W Canada	Honeywell	4,934	8	17.6
Falcon 50/EX	Dassault	Honeywell	Rockwell Collins	5,695	10	18.0
Legacy 500*	Embraer	Honeywell	Rockwell Collins	5,556	10	18.4
G200	Gulfstream (GD)	P&W Canada	Rockwell Collins	6,297	10	20.5
Citation X	Cessna (Textron)	Rolls-Royce (Allison)	Honeywell	5,686	12	21.7
Hawker 4000	HawkerBeechcraft	Pratt & Whitney	Honeywell	5,941	10	22.9
G280	Gulfstream (GD)	Honeywell	Rockwell Collins	6,297	12	24.0
Challenger 300	Bombardier	Honeywell	Rockwell Collins	5,741	13	24.8
Falcon 2000DX	Dassault	P&W Canada	Honeywell	6,019	19	25.0
Falcon 2000S*	Dassault	P&W Canada	Honeywell	6,204	6	25.0
Legacy 600	Embraer	Rolls-Royce	Honeywell	6,019	13	25.0
Citation Columbus	Cessna	P&W Canada	Rockwell Collins	7,408	10	27.0
Challenger 605	Bombardier	GE	Rockwell Collins	7,491	12	28.1
Legacy 650	Embraer	Rolls Royce	Honeywell	7,223	13	29.5
Challenger 850	Bombardier	GE	Rockwell Collins	5,130	15	31.2
Falcon 2000LX	Dassault	Honeywell	Honeywell	7,408	19	33.0
Falcon 900DX/EX	Dassault	Honeywell	Honeywell	7,399	19	36.0
G450	Gulfstream (GD)	Rolls-Royce	Honeywell	8,056	16	38.9
Falcon 900LX	Dassault	Honeywell	Honeywell	8,890	19	39.0
ACJ/A318 Elite	Airbus	CFM	Thales	7,408	8-18	47.0
Global 5000	Bombardier	Rolls-Royce	Rockwell Collins	9,630	8-17	49.1
Lineage 1000*	Embraer	GE	Honeywell	7,778	19	50.0
Falcon 7X	Dassault	P&W Canada	Honeywell	11,019	12	50.1
A319 ACJ	Airbus	IAE	Thales	12,038	39	51.0
G550	Gulfstream (GD)	Rolls-Royce	Rockwell Collins	12,501	8	53.5
Global 6000	Bombardier	Rolls-Royce	Rockwell Collins	11,112	10-19	57.5
G650	Gulfstream (GD)	Rolls-Royce	Honeywell/Rockwell Collins	12,964	8	58.5
BBJ1	Boeing	CFM	Rockwell Collins/Honeywell	7,223	19-189	65.0
Global 7000*	Bombardier	General Electric	Rockwell Collins	13,520	10-19	65.0
Global 8000*	Bombardier	General Electric	Rockwell Collins	14,631	8-19	65.0
A320 Prestige ACJ	Airbus	IAE	Thales	5,700	39	75.0
BBJ2	Boeing	CFM	Rockwell Collins/Honeywell	5,667	8-63	75.0
BBJ3	Boeing	CFM	Rockwell Collins/Honeywell	5,926	8-63	90.0

Source: Company reports, Business & Commercial Aviation. Aircraft compare. Note: * represents in development aircraft.

Figure 13: Product Pricing Span by Company



Source: Company data, Business & Commercial Aviation, J.P. Morgan estimates.

Overall Market Trends

Market Share

Deliveries up 22% y/y in Q3

The six major business jet OEMs plus Boeing and Airbus delivered 166 business jets in Q3, up 22% y/y. 3Q10 deliveries were low, contributing only 18% for the year, compared to 23% on average, and this set a low bar. Bombardier and Cessna deliveries each increased by 21, resulting in share gains of 210 bps and 190 bps, respectively. Embraer and Dassault each fell 6 units, losing 160 bps and 130 bps of share, respectively. Hawker Beechcraft delivered 1 fewer bizjet and lost 60 bps of share, while Gulfstream lost 30 bps despite a 2 unit increase in deliveries. Airbus (2 deliveries) and Boeing (3 deliveries) lost 20 bps and 10 bps of share, respectively.

Market size by value increased 18% y/y

Revenues from shipments increased 18% in 3Q11 from the year-ago level and 40% vs. 2Q11. On a TTM basis, Bombardier and Cessna gained 300 bps and 80 bps of market share, respectively, at the expense of all other OEMs—Dassault, Embraer, Airbus, Gulfstream, Hawker Beechcraft, and Boeing—which lost 210 bps, 80 bps, 40 bps, 30 bps, 10 bps, and 10 bps, respectively.

Market Size - by Volume

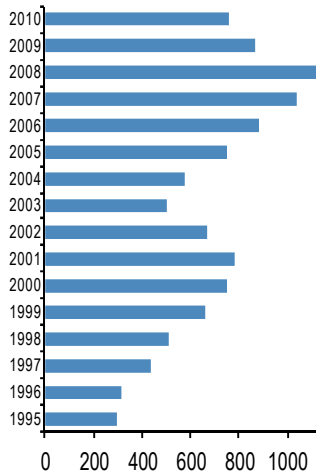
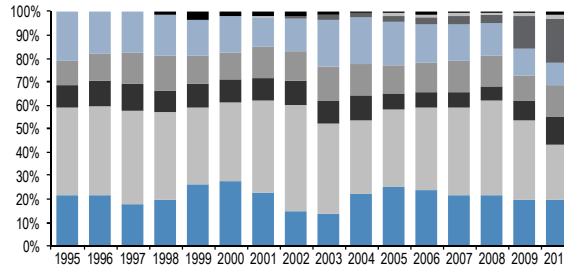


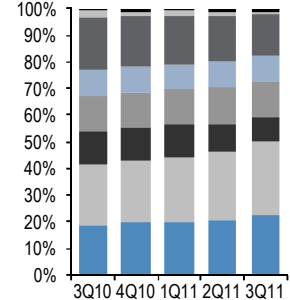
Figure 14: Market Share by Volume, 1995-2010



Bottom to Top : Bombardier, Cessna, Dassault, Gulfstream, Hawker Beechcraft, Embraer, Airbus, Boeing

Source: Teal Group, J.P. Morgan estimates.

Figure 15: LTM



Source: Teal Group, J.P. Morgan est.

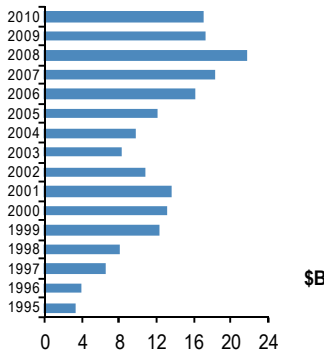
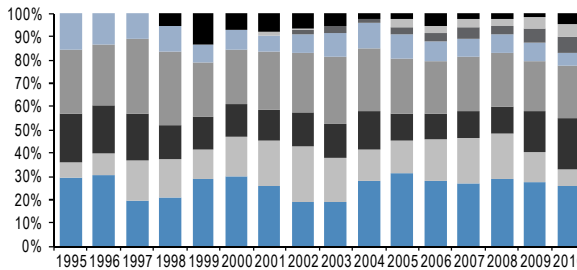


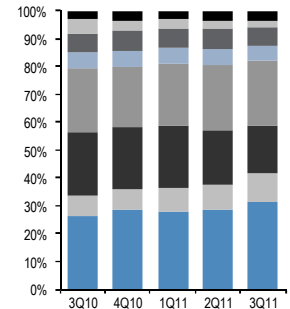
Figure 16: Market Share by Value, 1995-2010



Bottom to Top : Bombardier, Cessna, Dassault, Gulfstream, Hawker Beechcraft, Embraer, Airbus, Boeing

Source: Teal Group, J.P. Morgan estimates.

Figure 17: LTM



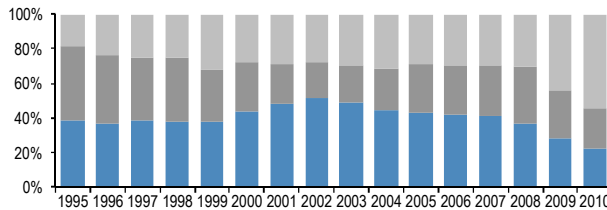
Source: Teal Group, J.P. Morgan est.

Source: Teal Group, J.P. Morgan estimates.

2010 deliveries down 12% y/y and 34% from 2008 peak of 1,154. Cessna contributed most to this decline, as it delivered only 178 jets in 2010 compared to 289 in 2009. As a result, Cessna lost 1,000 bps of market share by volume and 600 bps by value. All Cessna models witnessed significant decreases in deliveries except Encore+. Cessna also delivered 19 CJ4s in 2010, its first year in service. Embraer gained 500 bps of market share by volume but only 50 bps by value, as it delivered 145 jets in 2010, 126 of which were lower price Phenoms. Dassault gained 360 bps of market share by volume and 470 bps by value as deliveries increased from 77 in 2009 to 95 this past year. Hawker Beechcraft delivered 25 fewer jets compared to 98 last year and lost 170 bps of market share by volume and 200 bps by value. Bombardier (-23) delivered 150 jets and lost 30 bps of market share by volume and 170 bps by value. Gulfstream (+5) delivered 99 jets and gained 220 bps of market share by volume and 100 bps by value. Boeing delivered 13 jets this year and gained 80 bps by volume and 260 bps by value, while Airbus delivered 13 jets this year and gained 40 bps of market share by volume and 90 bps by value.

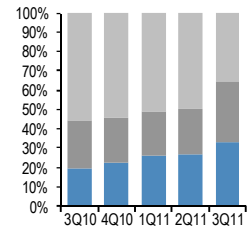
By category, for full year 2010, Heavy jets gained a substantial 990 bps of market share by volume, resulting in 54% total market share, while Light (22%) and Medium (24%) jets lost 640 bps and 350 bps of share by volume, respectively. Similarly, by value, Heavy jets gained 820 bps at the expense of Medium (-390 bps) and Light (-430 bps). Heavy jets now have more than three quarters of the market by value (79%), while Medium jets have 15% and Light jets have only 6%.

Figure 18: Category by Volume, 1995-2010



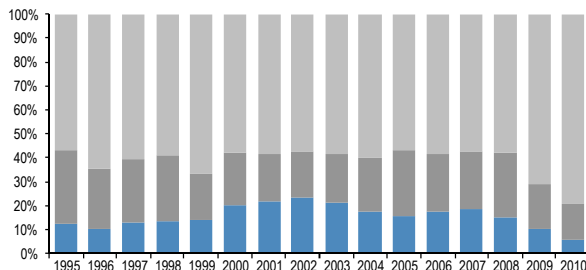
Bottom to Top : Light, Medium, Heavy
 Source: Teal Group, J.P. Morgan estimates.

Figure 19: LTM



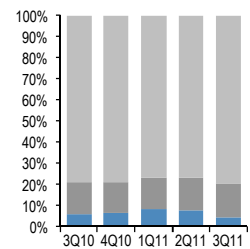
Source: Teal Group., J.P. Morgan est.

Figure 20: Category by Value, 1995-2010



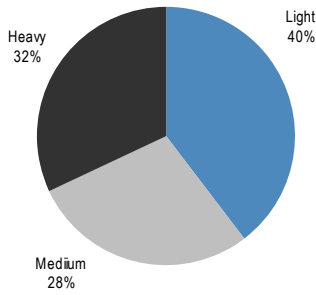
Bottom to Top : Light, Medium, Heavy
 Source: Teal Group, J.P. Morgan estimates.

Figure 21: LTM



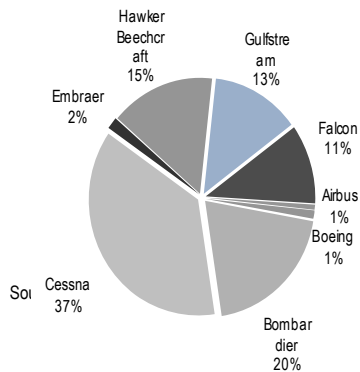
Source: Teal Group, J.P. Morgan est.

Active Fleet in Operation - Breakdown by Class



Source: JetNet.

Active Fleet in Operation - Breakdown by Manufacturer



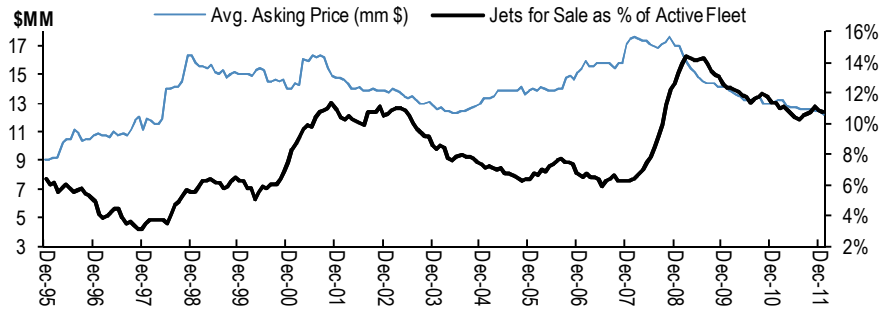
Note: We only consider active platforms in this section (major OEMs) – either clean sheet designs or platforms currently out of production but that have in-production derivatives.

Used Market

Used jet inventories remained flat, asking prices down 2.1%

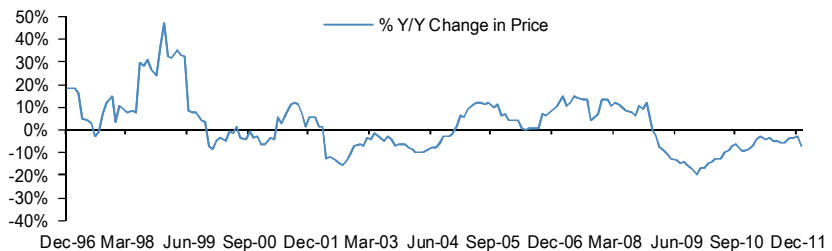
- Used jet inventory, measured by ‘aircraft for sale as % of active fleet,’ remained flat at 10.8% in January after falling 30 bps in the prior month. Inventories decreased 100 bps through July last year and then gave back half of this to finish 2011 down 50 bps. Inventories are now 350 bps off this cycle’s peak of 14.3%. Inventories fell for Heavy (-10 bps) and Light (-10 bps) jets to 9.6% and 11.4%, respectively, and Medium jet inventories increased 10 bps to 11.3%. 12 of 25 models witnessed increases in inventories, 8 saw increases, and 5 were flat.
- Avg asking price fell 2.1% in January to \$12.2 mn, the lowest level of since 1998. Prices were down 7.2% y/y. Prices decreased for all three categories in Jan, with Medium jets leading the way (-3.1%), followed by Heavy (-1.9%) and then Light (-1.8%). 18 of 25 tracked models saw decreases in avg asking prices, while 4 saw increases and 3 were flat.
- Used market indicators weakened somewhat in Jan. While there was little change in used inventory levels for each jet category, we saw another decline in pricing. We would typically expect improving used pricing to be a precursor to improving new jet demand, but pricing remains weak, despite showing temporary signs of stabilization last year. It is possible that the “new normal” used pricing level consistent with an up cycle will be weaker this time around than it was in the 2004-2007 period.

Figure 22: Average Asking Price and % of Active Fleet for Sale



Source: JetNet, J.P. Morgan estimates.

Figure 23: % Change in Average Asking Price



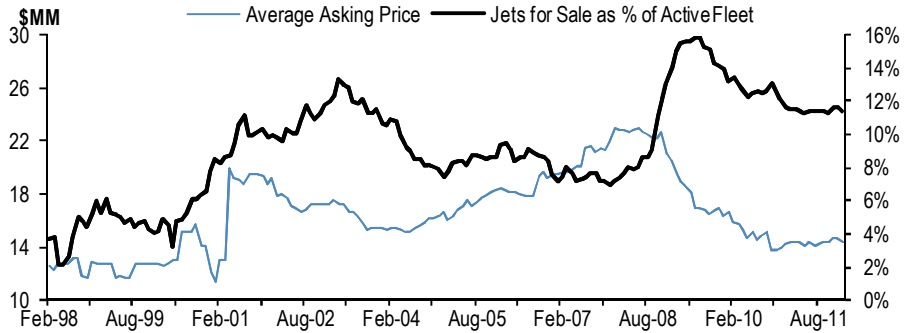
Source: JetNet, J.P. Morgan estimates.

Used Market by Company

All OEMs had lower prices except Embraer

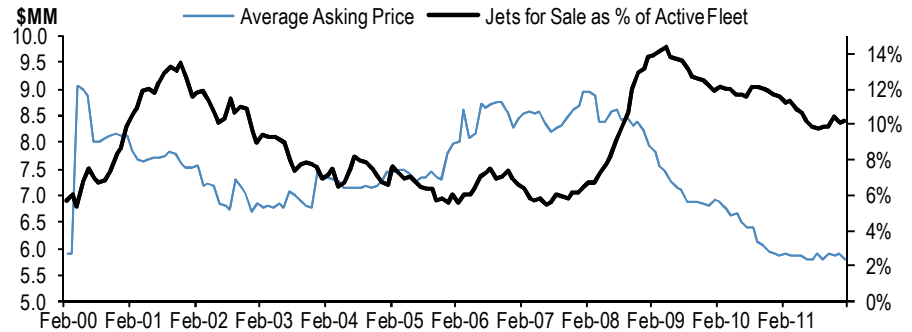
- Bombardier, Embraer, and Hawker Beechcraft saw inventories decline 20, 30, and 30 bps, respectively, while Cessna and Dassault inventories increased by 10 and 20 bps, respectively. Gulfstream inventories were flat at 8.2%, which was the lowest inventory level, while Embraer remains in the top spot at 14.7%. Hawker Beechcraft (13.0%) sustained its second position despite a 30 bps improvement, while Bombardier (11.4%), Cessna (10.2%), and Dassault (10.1%) followed.
- Avg asking price decreased 2.1% in January, following a 3.2% decline for 2011, and the y/y price decline was 7.2% last month. Among OEMs, Embraer saw a 3.0% increase in January, while Gulfstream saw the steepest decline at 7.4%, primarily driven by a decline of 18% in prices for Gulfstream G200 aircraft. Bombardier, Cessna, Dassault, and Hawker Beechcraft prices were down 1.7%, 1.4%, 0.5%, and 0.1%, respectively. (While there were 21 G200s for sale in Jan, similar to the average through 2011, there were only 3 prices available. This is lower than usual and the three prices may not be a representative sample.)

Figure 24: Bombardier



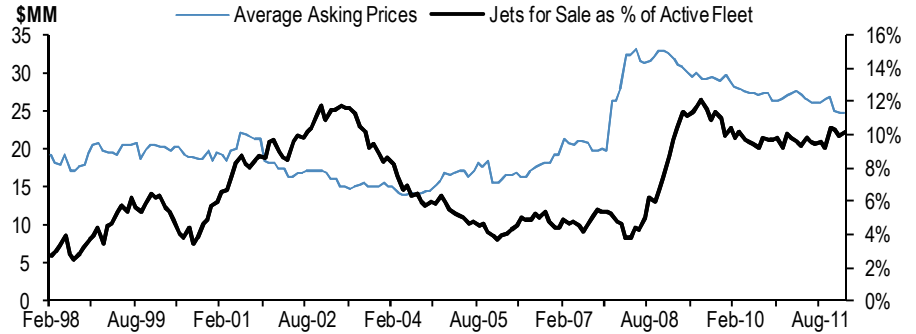
Source: JetNet and J.P. Morgan estimates.

Figure 25: Cessna



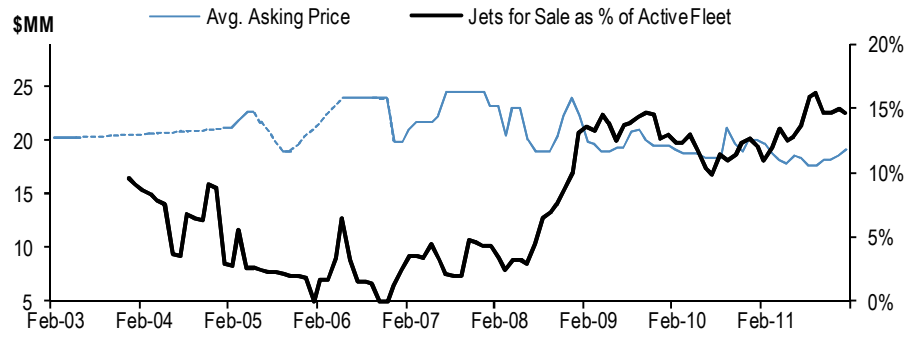
Source: Jetnet and J.P. Morgan estimates.

Figure 26: Dassault



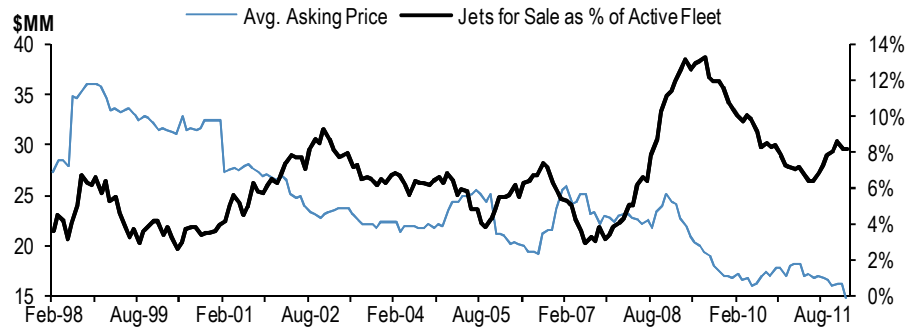
Source: Jetnet and J.P. Morgan estimates.

Figure 27: Embraer



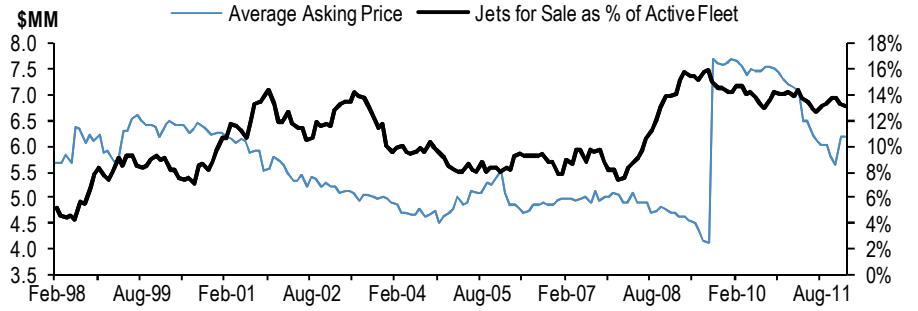
Source: Jetnet and J.P. Morgan estimates.

Figure 28: Gulfstream



Source: Jetnet and J.P. Morgan estimates.

Figure 29: Hawker Beechcraft



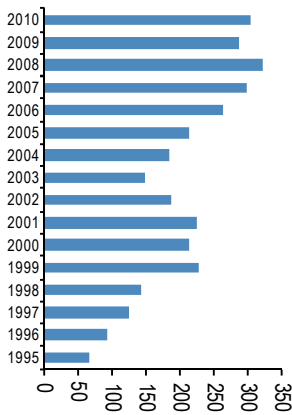
Source: Jetnet and J.P. Morgan estimates. Note: The sudden increase in prices from Sep-09 is due to inclusion of Hawker 4000.

Heavy Jets

Market Share Trends

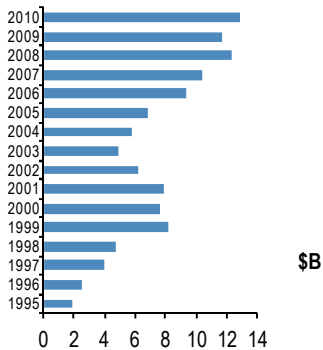
- **Deliveries up 14% y/y.** 3Q11 Heavy jet deliveries increased 14% to 71 aircraft compared to 62 in 3Q10, and were 19 more than in the prior quarter. Bombardier and Gulfstream saw an increase of 14 and 3 deliveries, respectively, while Dassault deliveries were down by 6 units. Embraer delivered 1 Legacy 600 in Q3 compared to 2 Linage 1000 over the same period last year, while Airbus deliveries were down by 1 and Boeing deliveries remained flat.
- By volume, on a TTM basis, Bombardier and Gulfstream gained market share of 420 bps and 10 bps, respectively, at the expense of Dassault, Embraer, Airbus, and Boeing, which lost 310 bps, 60 bps, 50 bps, and 10 bps of market share, respectively. Bombardier now accounts for 34% market share, while Gulfstream, Dassault, and Embraer account for 29%, 24%, and 7% of the market share, respectively. Airbus and Boeing market share remained at 3% each. Cessna and Hawker Beechcraft do not participate in the Heavy jet market.
- Similarly, by value, Bombardier (+380 bps) and Gulfstream (+20 bps) gained, while Dassault (-260 bps), Embraer (-80 bps), Hawker Beechcraft (-50 bps), and Boeing (-10 bps) lost market share.

Market Size – by Volume



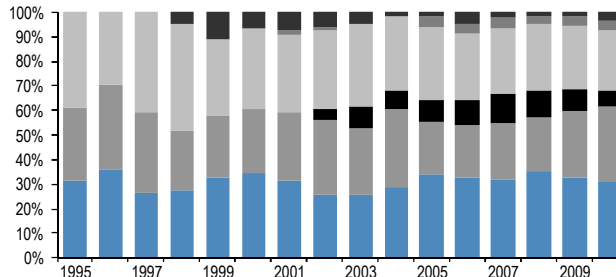
Source: Teal Group, J.P. Morgan estimates.

Market Size - by Value



Source: Teal Group, J.P. Morgan estimates.

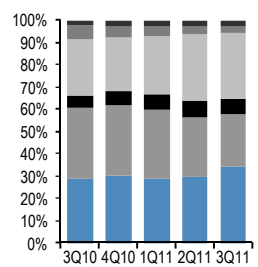
Figure 30: Market Share by Volume, 1995-2010



Bottom to Top : Bombardier, Dassault, Embraer, Gulfstream, Airbus, Boeing

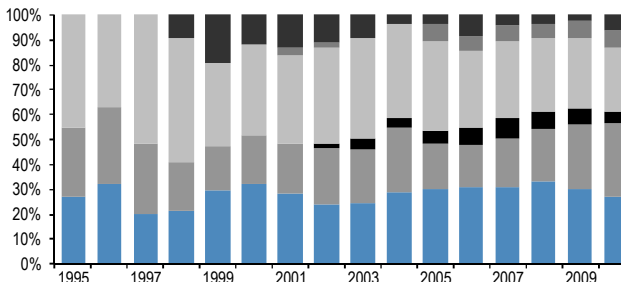
Source: Teal Group, J.P. Morgan estimates.

Figure 31: LTM



Source: Teal grp., J.P. Morgan est.

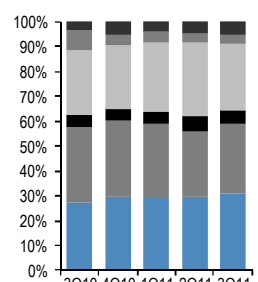
Figure 32: Market Share by Value, 1995-2010



Bottom to Top : Bombardier, Dassault, Embraer, Gulfstream, Airbus, Boeing

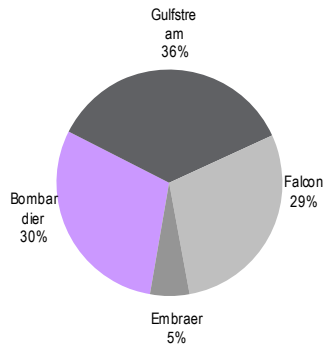
Source: Teal Group, J.P. Morgan estimates.

Figure 33: LTM



Source: Teal grp., J.P. Morgan est.

Active Fleet in Operation - Breakdown by Manufacturer



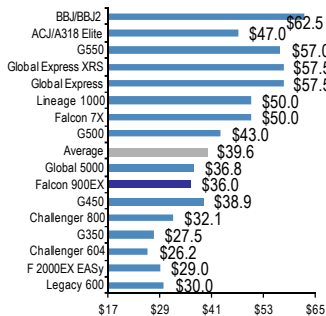
Source: JetNet

Used Market Trends

Used jet inventories decreased 0.1%, with asking prices down 1.9%

- Used jet inventory, measured by ‘aircraft for sale as % of active fleet,’ decreased 10 bps to 9.6% in Jan, following a 10 bp decline in Dec. Heavy inventories rose 80 bps in 2011, the worst performance of any category, though they are now 310 bps off the peak and demand for new heavy jets remains relatively robust. Challenger 600 series (-100 bps), Global 5000/Express (-70 bps), and Embraer Legacy 600/650/Shuttle (-30 bps) inventories saw decreases, while Hawker 4000 (+340 bps), Falcon 7X (+220 bps), Challenger 800 (+140 bps), Gulfstream G500/550/V (+20 bps), and G300/350/400 (+10 bps) inventories increased. Falcon 900 and Falcon 2000 inventories were flat.
- Avg asking price decreased 1.9% to \$21.4 mn in Jan, while on a y/y basis, prices fell 8.0%. With the exception of Embraer’s Legacy 600/650/Shuttle (+3.0%), all Heavy jet models—Falcon 900 (-8.9%), Gulfstream G500/550/V (-8.3%), Global 5000/Express (-3.6%), Falcon 2000/EX (-1.9%), Challenger 600 series (-1.6%), G300/350/400 (-0.9%), and Challenger 800 (-0.1%) saw declining avg asking prices last month. Hawker 4000 and Falcon 900 prices remained flat.
- Favorable: Embraer Legacy 600.
- Mixed: Challenger 600 Series and Global 5000/Express had lower inventories and lower prices, while Hawker 4000 and Falcon 7X had higher inventories at flat prices. Falcon 900 and Falcon 2000 had flat inventories at declining prices.
- Unfavorable: Gulfstream G500/550/V, G300/350/400, and Challenger 800.

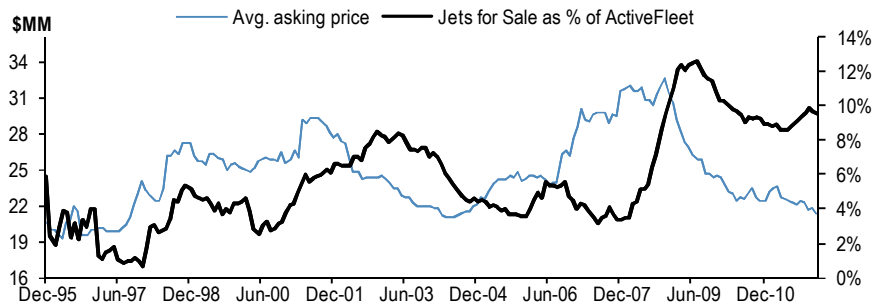
Product Price Points



Source: Company reports, Teal Group, Textron Fact book, Business & Commercial Aviation

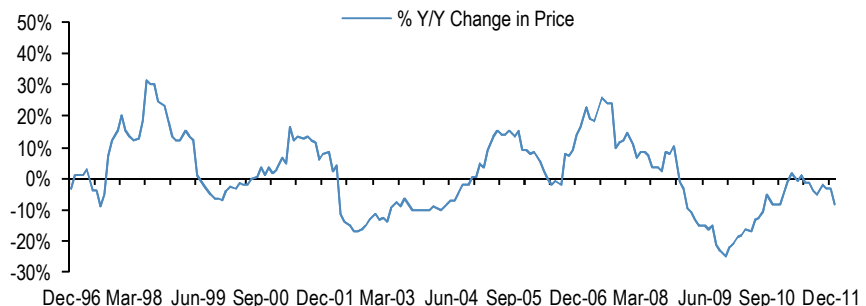
Note: We only consider active platforms in this section (major OEMs) – either clean sheet designs, or platforms currently out of production but that have in-production derivatives.

Figure 34: Average Asking Price and % of Active Fleet for Sale



Source: JetNet, J.P. Morgan estimates.

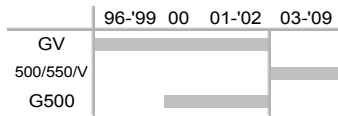
Figure 35: % Change in Average Asking Price



Source: JetNet, J.P. Morgan estimates.

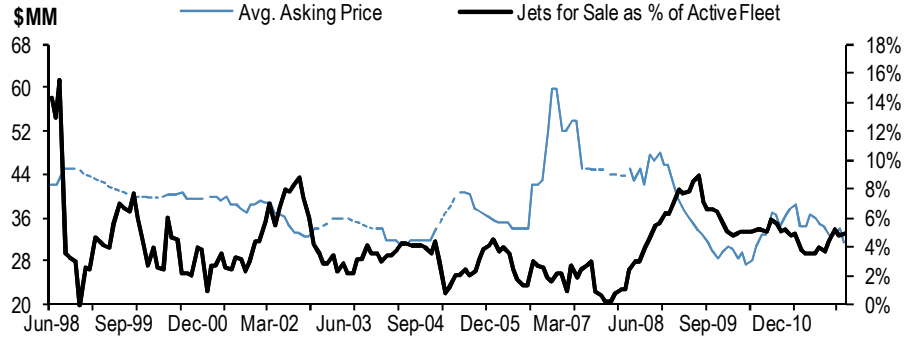
Model Specs & Product History

Model G500/ G550
 Manufacturer Gulfstream (GD)
 Engine Rolls-Royce
 Avionics Honeywell
 Range 10740/ 12501 km
 Passengers 14-19
 List price \$43 M/ \$53.5 M



G500/G550/V

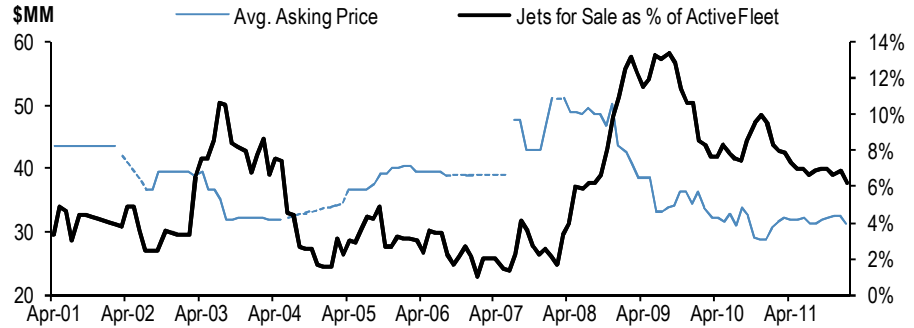
Figure 36



Source: JetNet, J.P. Morgan estimates.

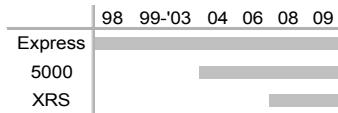
Global 5000/Express/Express XRS

Figure 37



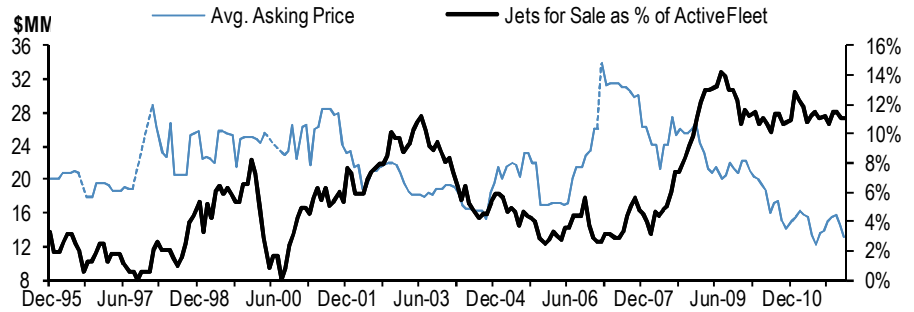
Source: JetNet, J.P. Morgan estimates.

Model Global 5000/ 6000 (Expr)
 Manufacturer Bombardier
 Engine Rolls-Royce
 Avionics Honeywell
 Range 9630/ 11390 km
 Passengers 8-16/ 10-19
 List price \$49.1 M/ \$57.5 M



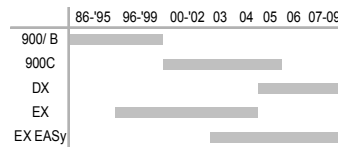
Falcon 900/900B/900C/900DX/900EX

Figure 38



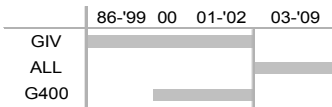
Source: JetNet, J.P. Morgan estimates.

Model Falcon 900DX/EX
 Manufacturer Dassault
 Engine Honeywell
 Avionics Honeywell
 Range 7399 km
 Passengers 8-19
 List price \$42.4 M



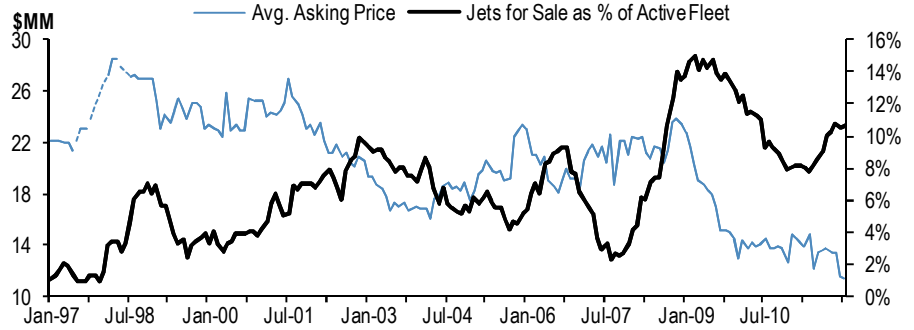
Model Specs & Product History

Model G350/ G450
 Manufacturer Gulfstream (GD)
 Engine Rolls-Royce
 Avionics Honeywell
 Range 7038/ 8055 km
 Passengers 12-16
 List price \$27.5 M/ \$38.9 M



G300/G350/G400/G450/IV/IVSP

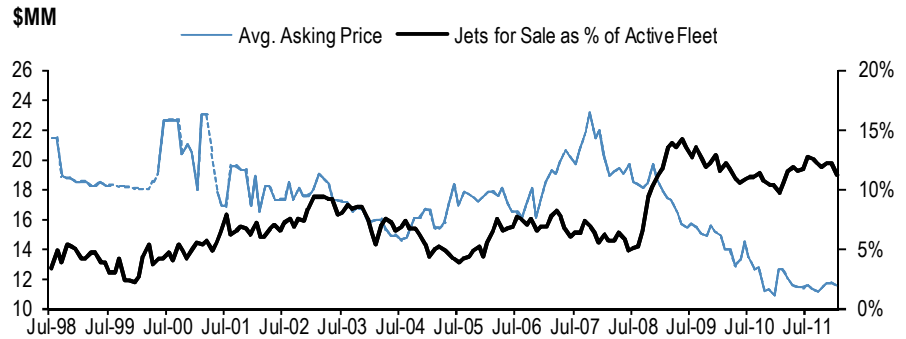
Figure 39



Source: JetNet, J.P. Morgan estimates.

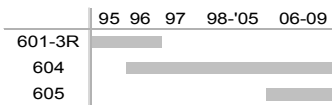
Challenger 601-3R/604/605

Figure 40



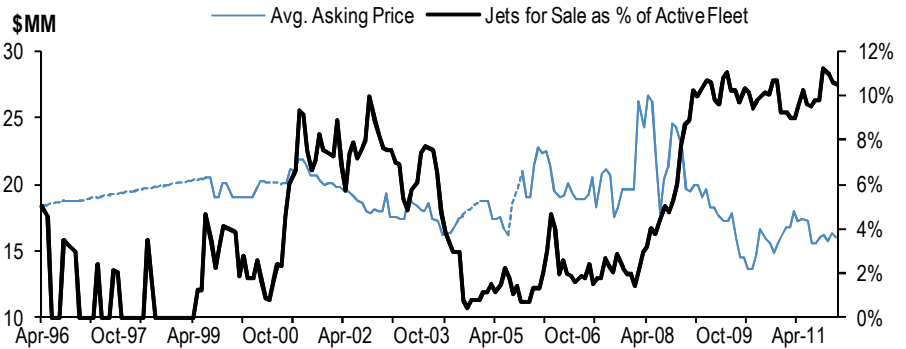
Source: JetNet, J.P. Morgan estimates.

Model Challenger 605
 Manufacturer Bombardier
 Engine GE
 Avionics Rockwell Collins
 Range 7491 km
 Passengers 9-18
 List price \$30.8 M



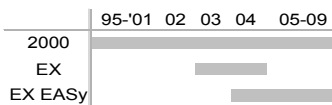
Falcon 2000/2000EX/2000DX/2000LX

Figure 41



Source: JetNet, J.P. Morgan estimates.

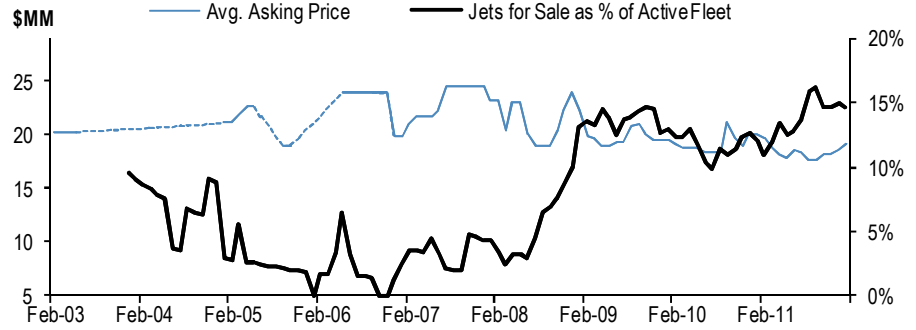
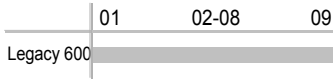
Model Falcon 2000DX/EX
 Manufacturer Dassault
 Engine P&W Canada
 Avionics Honeywell
 Range 7037 km
 Passengers 8-19
 List price \$32.1 M



Legacy 600/650/Shuffle

Figure 42

Model Legacy 600
 Manufacturer Embraer
 Engine Rolls-Royce
 Avionics Honeywell
 Range 6504 km
 Passengers 13
 List price \$30 M



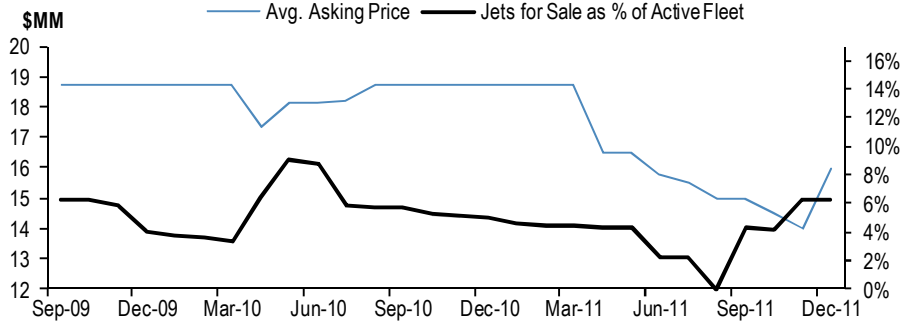
Source: JetNet, J.P. Morgan estimates.

Model Hawker 4000
 Manufacturer HawkerBeechcraft
 Engine Pratt & Whitney
 Avionics Honeywell
 Range 5941 km
 Passengers 8-10
 List price \$22.9 M



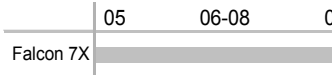
Hawker 4000

Figure 43



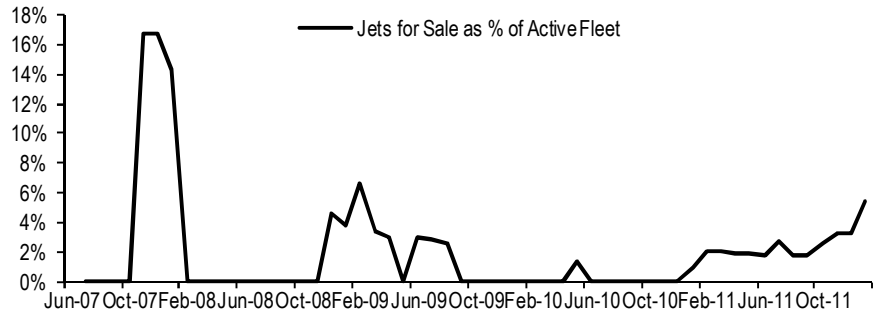
Source: Jetnet, J.P.Morgan estimates.

Model Falcon 7X
 Manufacturer Dassault
 Engine P&W Canada
 Avionics Honeywell
 Range 11019 km
 Passengers 12-19
 List price \$50.1 M



Falcon 7X

Figure 44:



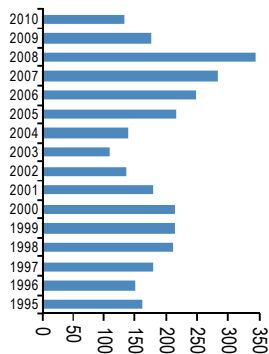
Source: Jetnet, J.P.Morgan estimates.

Medium Jets

Market Share Trends

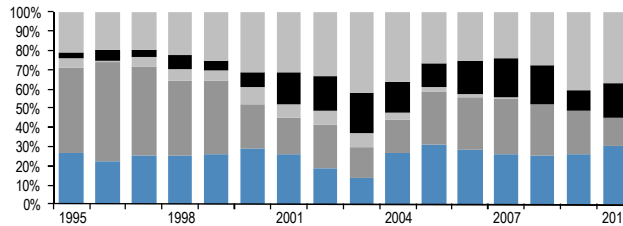
- Deliveries up 46% y/y.** Medium jet deliveries increased 46% to 35 in 3Q11 compared to the year-ago level and were 50% higher than in the prior quarter. Deliveries increased at Bombardier (+6), Cessna (+4), and Hawker Beechcraft (+2), and decreased at Gulfstream (-1). Most of the models, including Citation Sovereign (+5), Challenger 300 (+4), Learjet 60XR (+2), Hawker 4000 (+2), and Gulfstream G100/150 (+2), saw increases in deliveries, while Gulfstream 200 (-3) and Citation X (-1) saw decreases.
- On a trailing four quarter basis, by volume, Bombardier (+180 bps) and Cessna (+150 bps) gained share at the expense of Gulfstream (-180 bps) and Hawker (-150 bps).
- By value, Bombardier and Cessna gained 210 bps and 120 bps of market share, while Gulfstream and Hawker lost 260 bps and 70 bps, respectively.

Market Size - by Volume



Source: Teal Group, J.P. Morgan estimates.

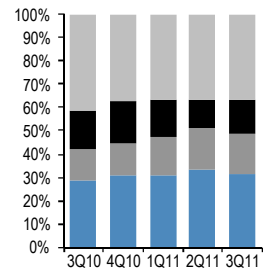
Figure 45: Market share by Volume, 1995-2010



Bottom to Top : Bombardier, Cessna, Dassault, Gulfstream, Hawker Beechcraft

Source: Teal Group, J.P. Morgan estimates.

Figure 46: LTM



Source: Teal Group, J.P. Morgan est.

Market Size - by Value

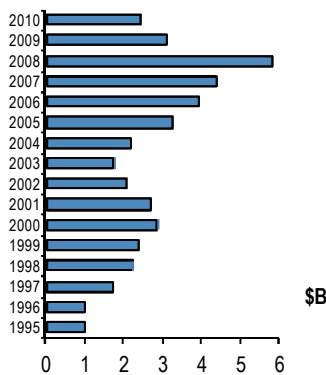
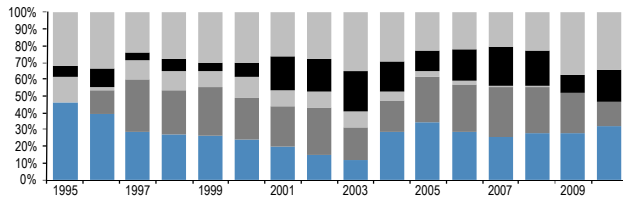


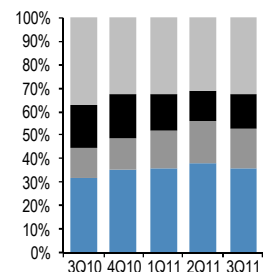
Figure 47: Market share by Value, 1995-2010



Bottom to Top : Bombardier, Cessna, Dassault, Gulfstream, Hawker Beechcraft

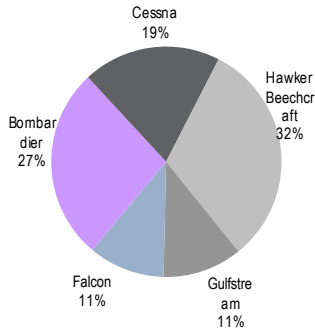
Source: Teal Group, J.P. Morgan estimates.

Figure 48: LTM



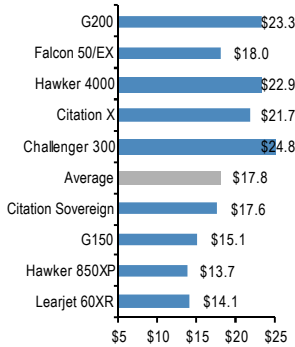
Source: Teal Group, J.P. Morgan est.

Active Fleet in Operation - Breakdown by Manufacturer



Source: JetNet

Product Price Points



Source: Teal Group, Textron Fact book, Business & Commercial Aviation

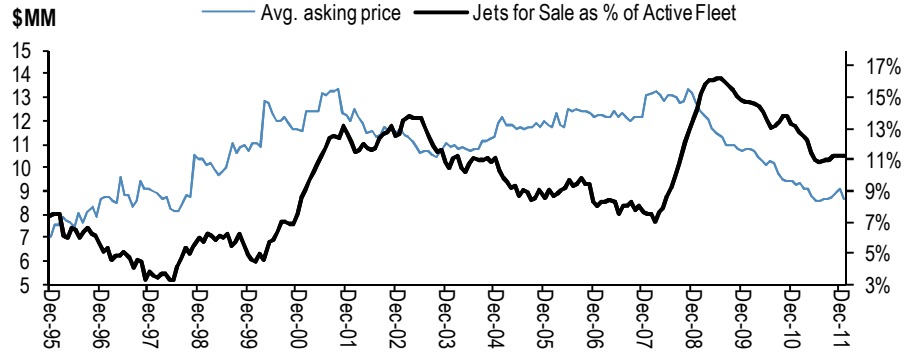
Note: We only consider active platforms in this section (major OEMs) – either clean sheet designs, or platforms currently out of production but that have in-production derivatives.

Used Market Trends

Inventories increased 10 bps, average asking price decreased 3.1%

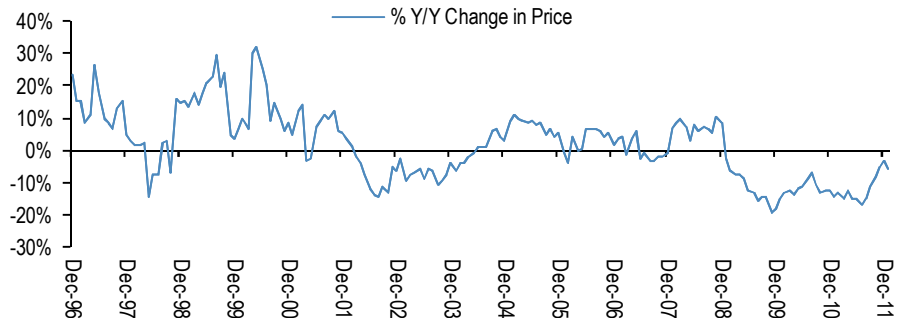
- Used jet inventory, measured by ‘aircraft for sale as % of active fleet,’ increased 10 bps to 11.3% in Jan. Inventories are now 490 bps off the Jul-09 peak of 16.2%, and they improved 210 bps in 2011. Inventories increased for Challenger 300 (+50 bps), Hawker 800 series (+20 bps), Cit. Sovereign (+20 bps), and Learjet 55/60 (+20 bps), while Gulfstream G100/150 (-110 bps) had fewer inventories. Gulfstream G200 and Citation X inventories were flat.
- Avg asking price for Medium jets decreased 3.1% to \$8.7 mn in January, driven in part by an 18% drop in Gulfstream G200 prices. Y/Y, prices were down 5.9%, and they are now 35% off the Nov 2008 peak. Decreases in price for Gulfstream G200 (-18.0%), G100/150 (-2.8%), Cit. Sovereign (-2.5%), Learjet 55/60 (-1.0%), and Hawker 800 series (-0.7%) were partially offset by an increase for Challenger 300 (+1.3%). Citation X prices remained flat.
- Favorable: None.
- Mixed: Gulfstream G100/150 had lower prices and lower inventories, while Challenger 300 had higher prices and higher inventories. Gulfstream G200 inventories remained flat at declining prices, and Cit. X had flat inventories and prices.
- Unfavorable: Learjet 55/60, Cit. Sovereign, and Hawker 800 series.

Figure 49: Average Asking Price and % of Active Fleet for Sale



Source: JetNet, J.P. Morgan estimates.

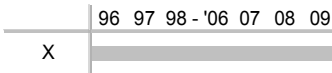
Figure 50: % Change in Average Asking Price



Source: JetNet, J.P. Morgan estimates.

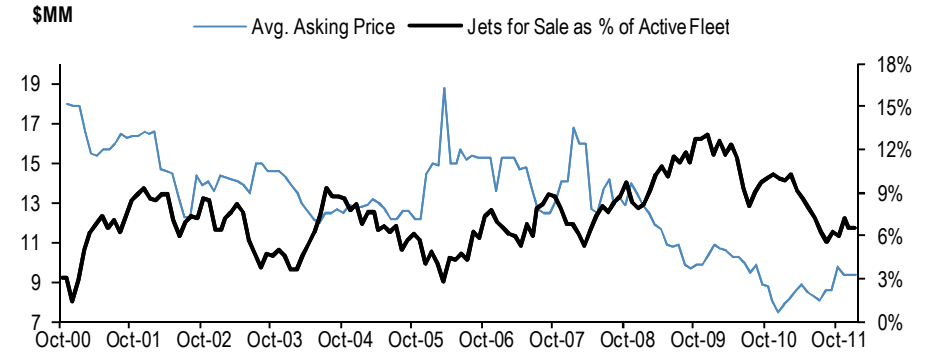
Model Specs & Product History

Model	Citation X
Manufacturer	Cessna (Textron)
Engine	Rolls-Royce (Allison)
Avionics	Honeywell
Range	5686 km
Passengers	8-12
List price	\$21.7 M



Citation X

Figure 51

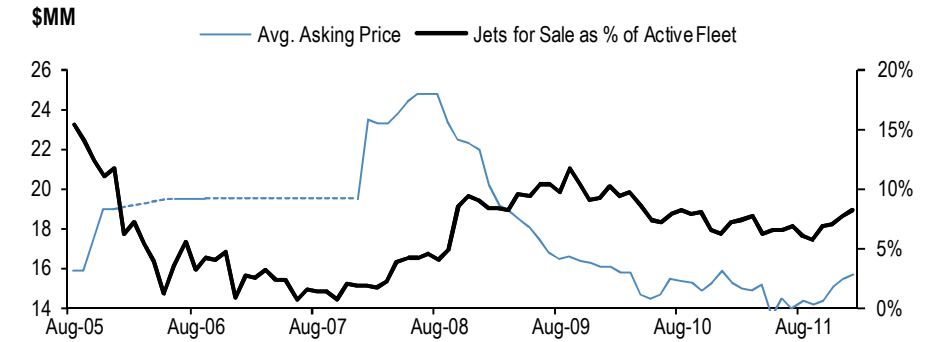


Source: JetNet, J.P. Morgan estimates.

Challenger 300

Figure 52

Model	Challenger 300
Manufacturer	Bombardier
Engine	Honeywell
Avionics	Rockwell Collins
Range	5741 km
Passengers	8-10
List price	\$24.8 M

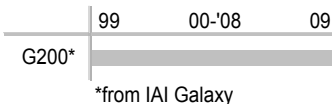


Source: JetNet, J.P. Morgan estimates.

G200/280

Figure 53

Model	G200/G280
Manufacturer	Gulfstream (GD)
Engine	P&W Canada
Avionics	Rockwell Collins
Range	6297 km
Passengers	8-12
List price	\$23.3 M/ \$24 M



*from IAI Galaxy



Source: JetNet, J.P. Morgan estimates.

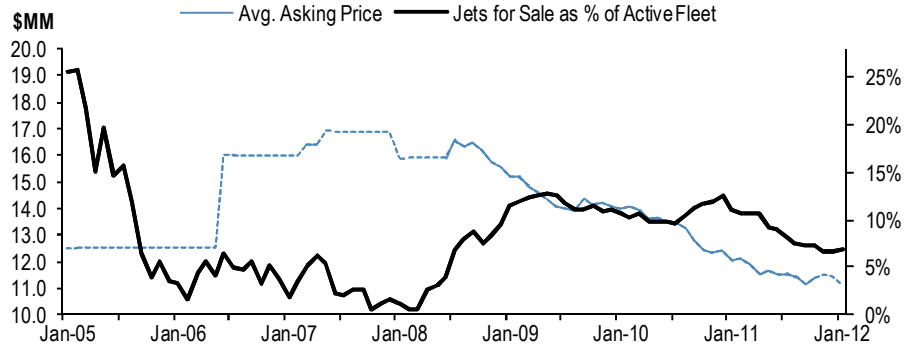
Model Specs & Product History

Model	Citation Sovereign
Manufacturer	Cessna (Textron)
Engine	P&W Canada
Avionics	Honeywell
Range	4934 km
Passengers	6-8
List price	\$17.6 M



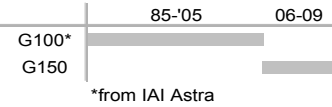
Citation Sovereign

Figure 54



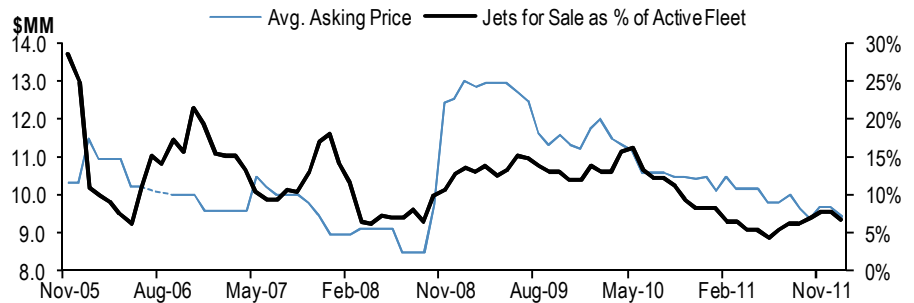
Source: JetNet, J.P. Morgan estimates. Note: Due to the inconsistent availability of data, dotted line represents last known asking price.

Model	G100/ G150
Manufacturer	Gulfstream (GD)
Engine	Honeywell
Avionics	Rockwell Collins
Range	5000 km
Passengers	6-7/ 6-8
List price	\$11.9 M/ \$15.1 M



G100/150

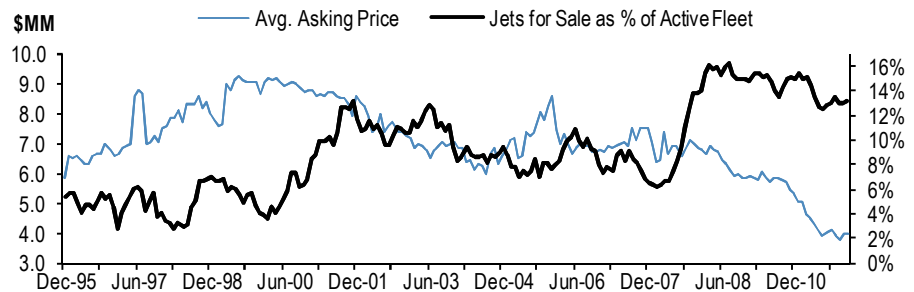
Figure 55



Source: JetNet, J.P. Morgan estimates.

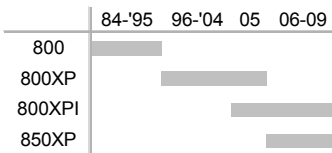
Hawker 800A/800B (215-800)/800XP/800XPI/850XP

Figure 56



Source: JetNet, J.P. Morgan estimates.

Model	Hawker 800XP
Manufacturer	HawkerBeechcraft
Engine	Honeywell
Avionics	Rockwell Collins
Range	4893 km
Passengers	6-8
List price	\$13.7 M

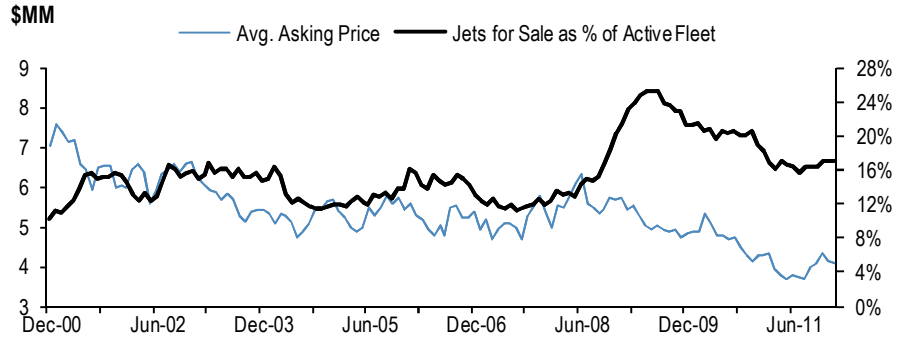


Learjet 55/55B/55C/60/60XR

Figure 57

Model Learjet 60XR
 Manufacturer Bombardier
 Engine P&W Canada
 Avionics Rockwell Collins
 Range 4380 km
 Passengers 6-9
 List price \$14.1 M

	81-'91	92	93-'05	06-09
55	█			
60			█	█



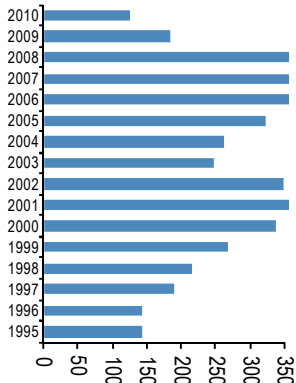
Source: JetNet, J.P. Morgan estimates.

Light Jets

Market Share Trends

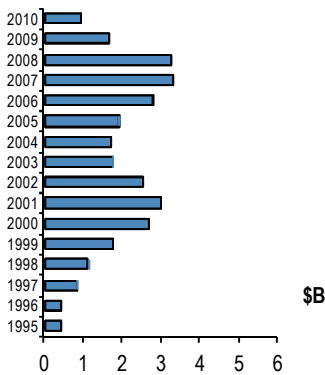
- Deliveries up 62% y/y.** Light jet deliveries increased 62% from 21 in 3Q10 to 34 in 3Q11, 6 higher than in the prior quarter, while Q3 deliveries were ~50% of the 69 on average for the 5 Q3s between 2006 and 2010. Cessna delivered 31 Light jets, including 1 CJ1+, 4 CJ2+, 6 CJ3, 4 Encore+, 5 XLS, and 11 CJ4, 15 units more than last year. Bombardier delivered two Learjet 40s and one Learjet 45 in Q3 compared to one Learjet 40 and one Learjet 45 in 3Q10. Hawker had no light jet deliveries in 3Q11 compared to two Premier I/IA and one Hawker 400XP last year. Cessna started delivering CJ4s in 2Q10 and has delivered total 46 jets since then. 3Q CJ4 deliveries of 11 units were up by 7 units from last year and by 3 units from the previous quarter.
- On a TTM basis by volume, Cessna gained 400 bps at the expense of Hawker Beechcraft and Bombardier, which lost 340 bps and 60 bps of market share, respectively. Similarly, by value, Bombardier and Cessna lost 160 bps and 90 bps of market share to the benefit of Hawker Beechcraft, which gained 250 bps of market share due to an exceptionally strong 4Q10.

Market Size - by Volume



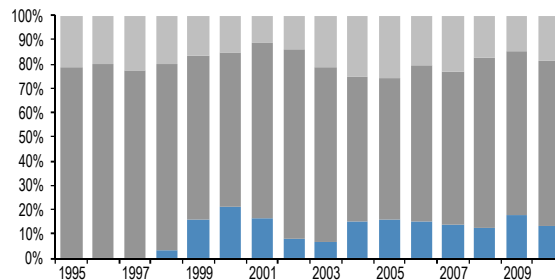
Source: Teal Group, J.P. Morgan estimates, Business & Commercial Aviation.

Market Size - by Value



Source: Teal Group, J.P. Morgan estimates.

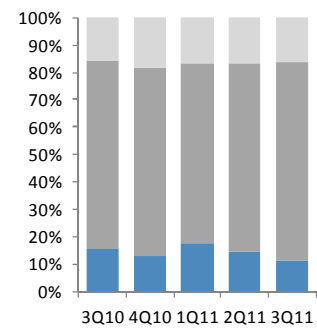
Figure 58: Market share by Volume, 1995-2010



Bottom to Top : Bombardier, Cessna, HawkerBeechcraft

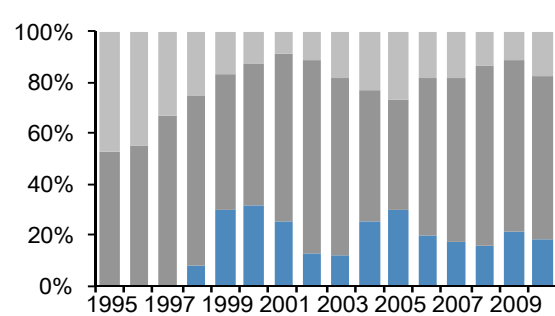
Source: Teal Group, J.P. Morgan estimates.

Figure 59: LTM



Source: Teal Group, J.P. Morgan est.

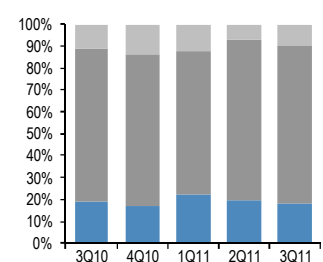
Figure 60: Market share by Value, 1995-2010



Bottom to Top : Bombardier, Cessna, HawkerBeechcraft

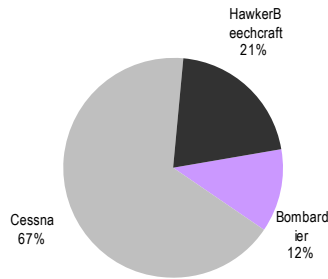
Source: Teal Group, J.P. Morgan estimates.

Figure 61: LTM



Source: Teal Group, J.P. Morgan est.

Active Fleet in Operation - Breakdown by Manufacturer



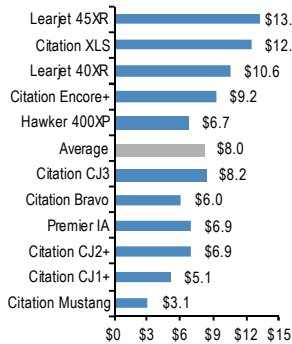
Source: JetNet

Used Market Trends

Inventories decreased 0.1%, avg. asking price decreased 1.8%

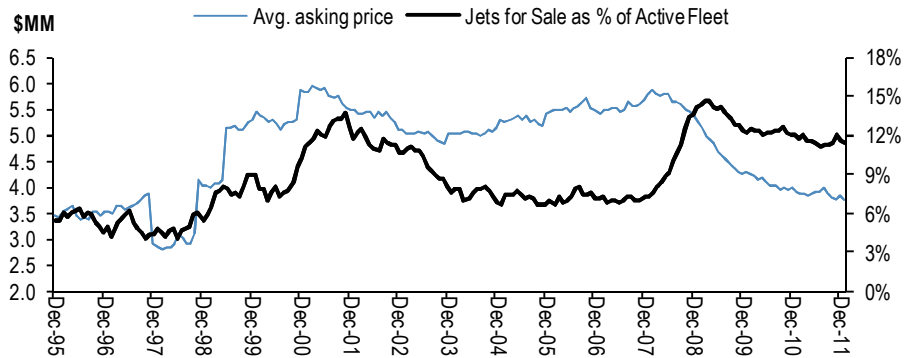
- Used jet inventory, measured by ‘aircraft for sale as % of active fleet,’ decreased 10 bps in January to 11.4%, after a decrease of 50 bps in December. Inventories are now 330 bps off the Apr-09 peak of 14.7% and improved 50 bps in 2011. Declines in inventories for Beechjet 400/Hawker 400 (-120 bps), Premier I/IA (-50 bps), Cit. CJ1/CJ1+ (-50 bps), and Cit. CJ3 (-10 bps) were partially offset by higher inventories at Cit. CJ2/CJ2+ (+70 bps), Cit. V/Ultra/Encore/Encore+ (+50 bps), and Learjet 40/45 (+20 bps). Cit. Excel/XLS inventories remained flat.
- Light jet average asking price decreased 1.8% to \$3.8 mn in January, and prices were down 4% y/y. Prices have declined y/y for 36 of the past 48 months and they are now 36% off the Feb-08 peak of \$5.9 mn. With the exception of Beechjet 400/Hawker 400 (+2.6%) and Cit. CJ2/CJ2+ (+1.5%), prices decreased for all light jet models: Learjet 40/45 (-4.9%), Cit. V/Ultra/Encore/Encore+ (-4.0%), Cit. CJ1/CJ1+ (-2.4%), Cit. Excel/XLS (-1.8%), Cit. CJ3 (-1.7%), and Premier I/IA (-1.4%).
- Favorable: Beechjet 400/Hawker 400.
- Mixed: Inventories decreased at falling prices for Premier I/IA, Cit. CJ3, and Cit. CJ1/CJ1+, while prices and inventories both increased at Cit. CJ2/CJ2+. Cit. Excel/XLS had inventories flat at decreasing prices.
- Unfavorable: Cit. V/Ultra/Encore/Encore+ and Learjet 40/45.

Product Price Points



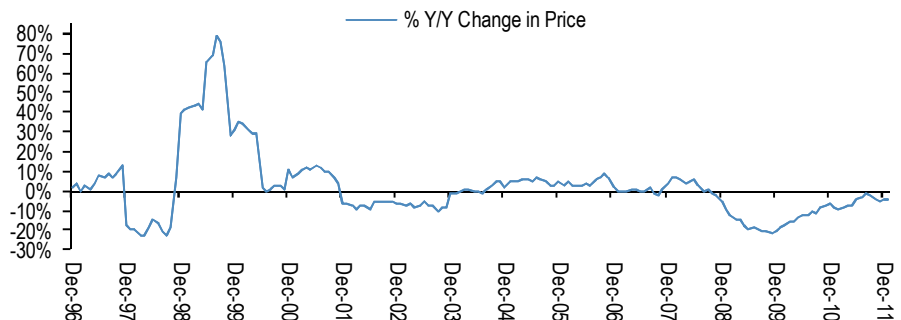
Source: Teal Group, Textron Fact book

Figure 62: Average Asking Price and % of Active Fleet for Sale



Source: JetNet, J.P. Morgan estimates.

Figure 63: % Change in Average Asking Price



Source: JetNet, J.P. Morgan estimates.

Note: We only consider active platforms in this section (major OEMs) – either clean sheet designs, or platforms currently out of production but that have in-production derivatives.

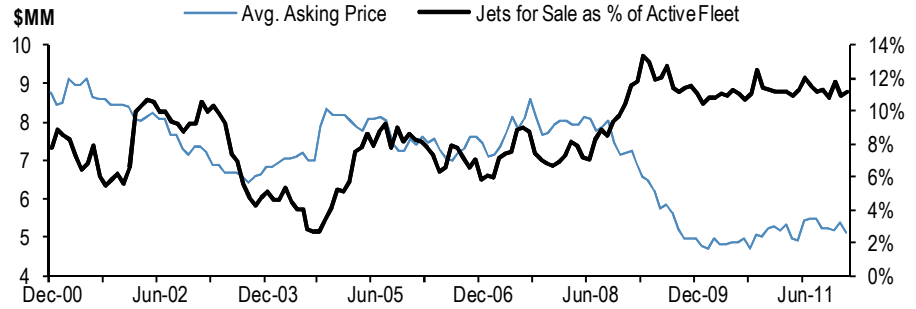
Model Specs & Product History

Model Learjet 40XR/45XR
 Manufacturer Bombardier
 Engine Honeywell (Garrett)
 Avionics Honeywell
 Range 3348-3795 km
 Passengers 6-9
 List price \$10.6 M/ \$13.2 M

	98	99-03	04	05	06-09
45	█				
40	█				
40XR	█				
45XR	█				

Learjet 40/40XR/45/45XR

Figure 64



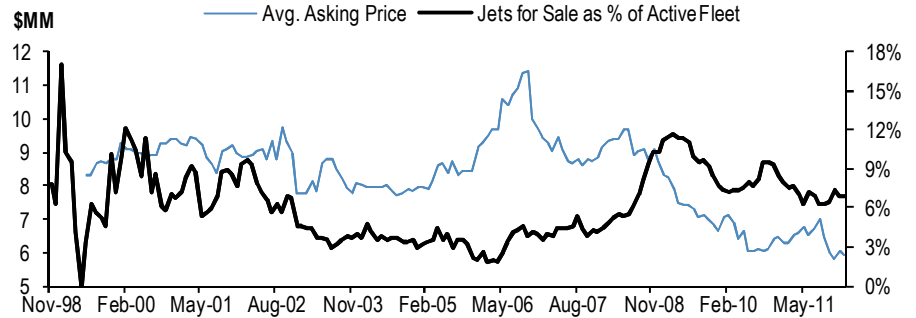
Source: JetNet, J.P. Morgan estimates.

Model Citation XLS+
 Manufacturer Cessna (Textron)
 Engine P&W Canada
 Avionics Honeywell
 Range 3441 km
 Passengers 8
 List price \$12.5 M

	98	99	00-03	04-08	09
Excel	█				
XLS	█				

Citation Excel/XLS/XLS+

Figure 65



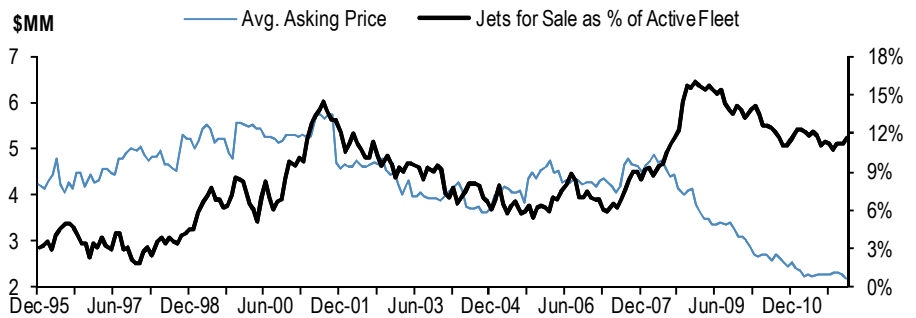
Source: JetNet, J.P. Morgan estimates.

Model Citation Encore+
 Manufacturer Cessna (Textron)
 Engine P&W Canada
 Avionics Honeywell
 Range 3313 km
 Passengers 8
 List price \$9.2 M

	89-95	96-99	00-05	06	07-09
V	█				
Ultra	█				
Encore	█				
Encore+	█				

Citation V/Ultra/Encore/Encore+

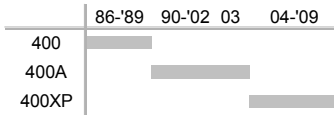
Figure 66



Source: JetNet, J.P. Morgan estimates.

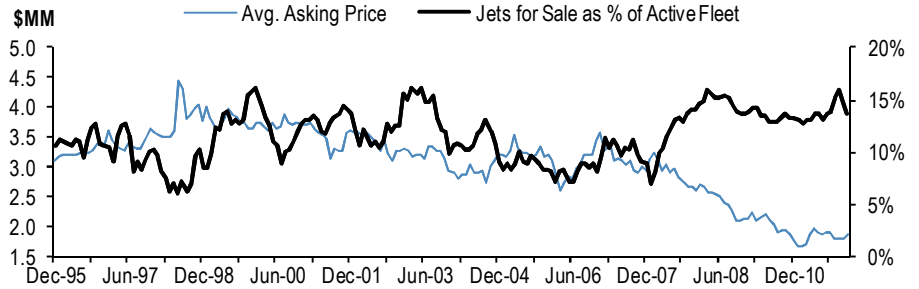
Model Specs & Product History

Model Beechjet 400XP
 Manufacturer HawkerBeechcraft
 Engine P&W Canada
 Avionics Rockwell Collins
 Range 2898 km
 Passengers 7
 List price + 'Specs Table' H13



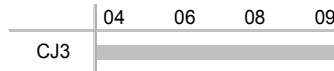
Beechjet 400/400A/Hawker 400XP

Figure 67



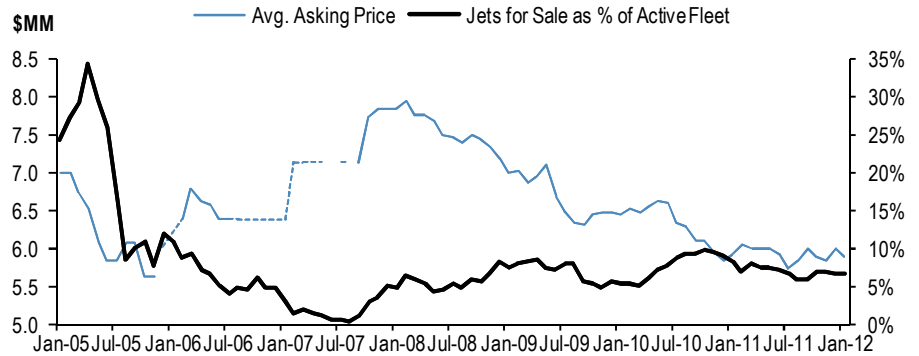
Source: JetNet, J.P. Morgan estimates.

Model Citation CJ3
 Manufacturer Cessna (Textron)
 Engine Williams / Rolls-Royce
 Avionics Rockwell Collins
 Range 3473 km
 Passengers 6
 List price \$8.2 M



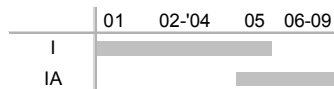
Citation Jet CJ3

Figure 68



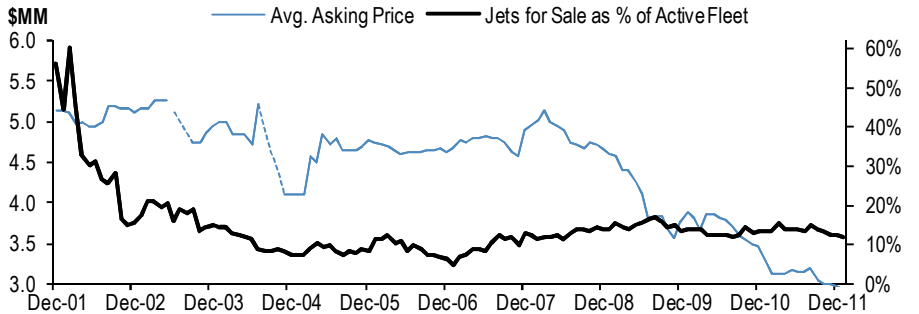
Source: JetNet, J.P. Morgan estimates.

Model Premier I/IA
 Manufacturer HawkerBeechcraft
 Engine Williams
 Avionics Rockwell Collins
 Range 2519 km
 Passengers 6-7
 List price \$6.9 M



Premier I/IA

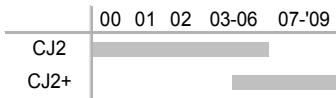
Figure 69



Source: JetNet, J.P. Morgan estimates.

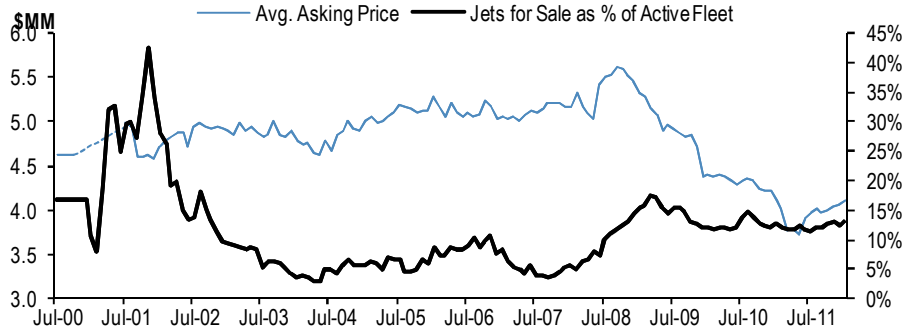
Model Specs & Product History

Model Citation CJ2+
 Manufacturer Cessna (Textron)
 Engine Williams / Rolls-Royce
 Avionics Rockwell Collins
 Range 2987 km
 Passengers 5
 List price \$6.9 M



Citation Jet CJ2/CJ2+

Figure 70

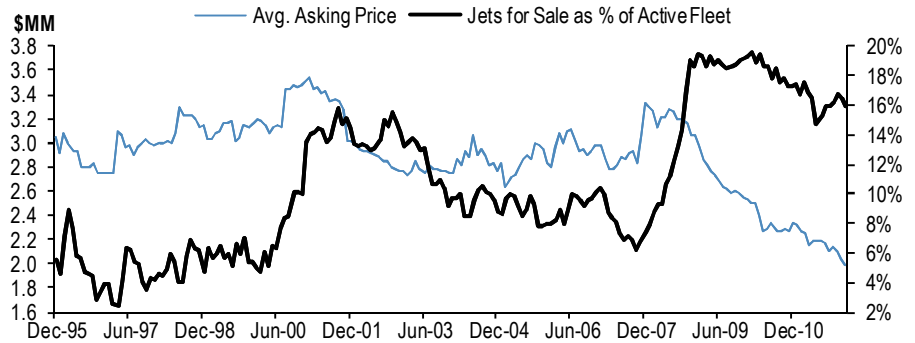
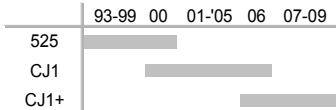


Source: JetNet, J.P. Morgan estimates.

Citation Jet (Model 525)/CJ1/CJ1+

Figure 71

Model Citation CJ1+
 Manufacturer Cessna (Textron)
 Engine Williams / Rolls-Royce
 Avionics Rockwell Collins
 Range 2408 km
 Passengers 5
 List price \$5.1 M



Source: JetNet, J.P. Morgan estimates.

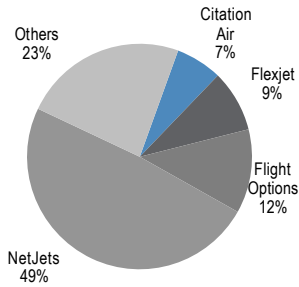
Fractional Jets

Fractional Fleet Trends

Fractional fleet count up by 1 jet in Dec, down 12% in 2011

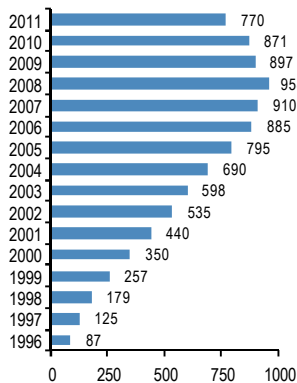
- The total fractional fleet count was 770 in December, increasing by just one jet from the previous month. The fleet declined by 101 jets or ~12% in 2011, with each month contributing to the decline except December. The fleet has declined in 30 of the 36 months since Jan-09 when it peaked at 960, 25% above the present level.
- The three-month rolling average of gross fleet additions increased by 1.7 units to 2.0 in December, and the average of new jet additions increased by 1 unit to 1.3 during the same period. Hence, the difference between the 3-month rolling average of new jet additions and used jet additions increased from 0.3 to 0.7. The historical average of the difference is 4.8, though the average has been about zero in the past two years.

Fractional Fleet Base - Breakdown by Provider



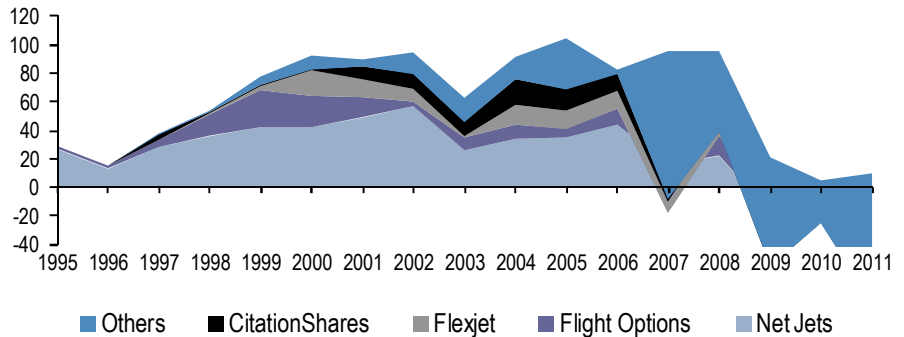
Source: JetNet

Fractional Fleet base



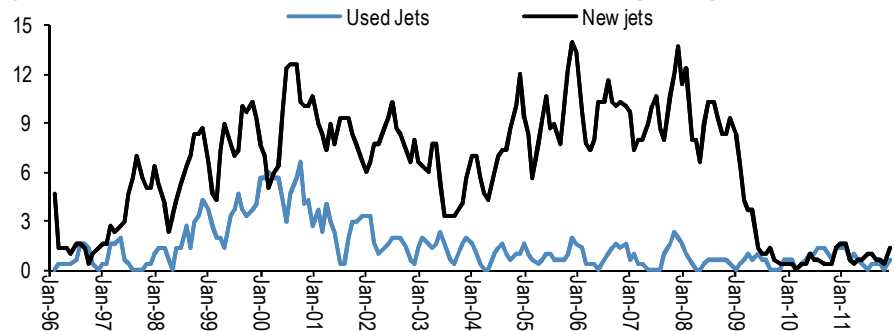
Source: JetNet

Figure 72: Fractional Fleet Additions, by Provider, 1995-2011



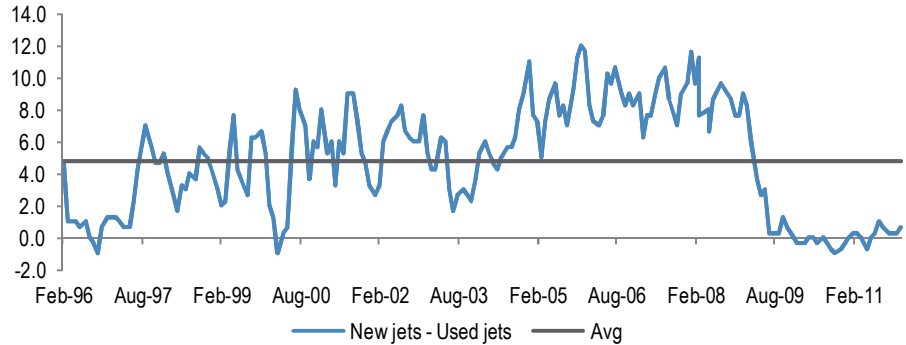
Source: JetNet, J.P. Morgan estimates.

Figure 73: Fractional Fleet Additions, Used and New—3 Month Rolling Average, Jan-96 - Dec-11



Source: JetNet, J.P. Morgan estimates.

Figure 74: Difference b/w 3m rolling average of new and used jet additions, Feb-96 - Dec-11



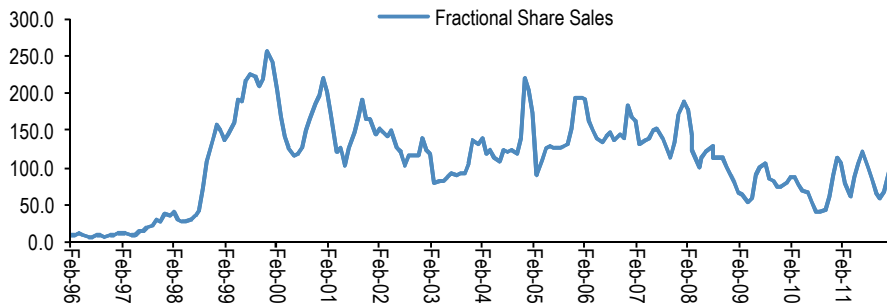
Source: Jetnet, J.P. Morgan estimates

Share Sales Trend

Share sales increased on a rolling three month basis in December

- On an absolute basis, December share sales increased 30% year over year and 112% from the previous month. Total shares sales were up ~20% in 2011.
- On a rolling three-month average basis, share sales increased by 49% to 98 in Dec, following an increase of 11% in Nov. Sales had declined in 4 of the last 6 months, and now sales are ~19% below the June level of 121, which had been the highest level since Aug-08. Sales remained 13% below the Dec-10 level.

Figure 75: Fractional Share Sales, by Providers (# of shares) – 3m rolling avg., Feb-96 – Dec-11



Source: JetNet, J.P. Morgan estimates.

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