Canaccord Genuity Capital Markets

Aerospace and Defense

US Equity Research
12 September 2019

Company	Rating	Price	Target
Aerospace and Defense			
AJRD-NYSE	Buy	US$49.41	US$50.00
BA-NYSE	Hold	US$382.94	US$380.00
CVU-NYSE American	Buy	US$7.93	US$12.00
HEI-NYSE	Buy	US$123.77	US$160.00
KTOS-NASDAQ	Buy	US$19.56	US$28.00
MRCY-NASDAQ	Buy	US$79.42	US$80.00
TDG-NYSE	Buy	US$501.10	US$575.00

Priced as of close of business Sep 11 2019

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Industry Update

H2/19 Aerospace & Defense supplier survey

We have completed our H2/19 Aerospace & Defense supplier survey. As part of this survey, we collected input from over 40 suppliers representing all segments of the market and geographic regions. Considering the importance of the 737 MAX grounding, we have devoted a greater share than usual to this program in this survey. We believe the broader A&D outlook remains positive, but growth rates across all segments appear set to moderate, and pricing is not expected to be as much of a tailwind moving forward. Suppliers continue to see risk with the MAX timing, and defense sales are not expected to peak until at least 2021 for over 60% of suppliers. We remain bullish on the defense markets and the commercial aftermarket.

The supply chain appears ready to support the anticipated schedule increases for the 737 MAX but remain skeptical on when rates will eventually hit 57/month. Specifically, close to 60% of suppliers have basically maintained their MAX business capabilities, while ~15% have proactively lowered inventory levels and ~10% have taken other steps to lower costs associated with the program. However, very few suppliers have adjusted their workforce, which should be a positive when the MAX returns to service considering the tight labor market.

Sentiment is improving on the commercial OE sector as Boeing inches towards a Q4/19 RTS for the 737 MAX. However, it looks increasingly likely that the RTS will be phased, with regulators in Europe and across Asia moving likely after the FAA. While a Q4/19 RTS at least in the U.S. likely eliminates the risk around further rate reductions, ~50% of suppliers still expect Boeing to go down to a rate below the current 42/month on the program. However, just 20% continue to see a temporary shutdown in the MAX line as a realistic risk. Approximately 60% of suppliers do not expect to hit rate 57/month on the 737 until at least 2021, with ~23% not expecting not to ever hit 57/month.

Suppliers continue to view geopolitical risk as the primary headwind to the commercial cycle, but we believe rate reductions on key programs have brought greater balance to supply and demand. We still see risk to select wide-body programs (A330neo, 787 and 777X) but we do not see a material over-supply even with 4-5% traffic growth. Substantial orders from China appear necessary to support rates on the 787 and 777, but the broader outlook for 2020-2025 wide-body orders is encouraging. There is very little activity now among suppliers regarding the NMA, which is not surprising considering the MAX focus.

The next six-month outlook for defense sales is up ~3%, which is a sequential step-down. However, over 60% of suppliers in the survey do not expect their defense sales to peak until at least 2021. The political noise regarding the FY20 defense appropriations bill has increased, which is raising the chances of a CR, but we continue to believe the near- to mid-term fundamentals remain strong, led by sustainment and modernization spending.

Supplier lead times are improving, but OEM price cuts and changing payment terms continue to be the primary factors impacting suppliers. We remain very bullish on the defense outlook, and would specifically highlight AJRD, KTOS, MRCY and CVU. While investor sentiment on the commercial AM is softening due to challenging comps and expectations for a slowdown once the MAX returns to service, we continue to prefer the AM to the OE cycle for commercial aerospace exposure.

For important information, please see the Important Disclosures beginning on page 17 of this document.

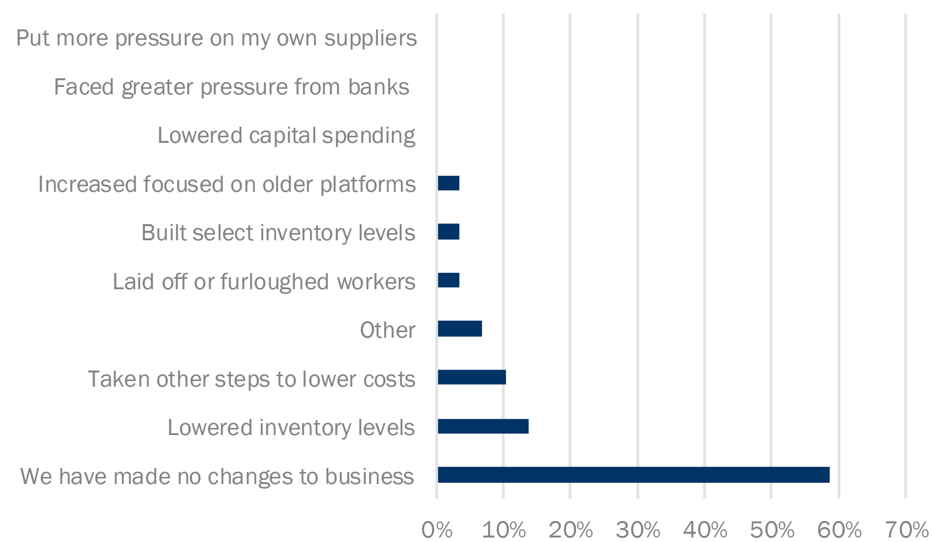
737 MAX grounding remains most topical issue facing industry

The eventual return to service (RTS) for the Boeing 737 MAX is the primary focus right now for the industry. While we do not believe suppliers necessarily have unique insight into the timing of the RTS, we do believe the supply chain will be critical for Boeing (BA) as it looks to accelerate production once the grounding is lifted. On this note, we believe the findings of this survey are generally positive.

It now appears that a phased un-grounding looks like the most likely scenario. Recent concerns from EASA appear to be a longer pole than the next steps expected with the FAA. It is unclear how a potential phased approach to the RTS will impact the financial assumptions Boeing has outlined, but at this point even a phased un-grounding will be positive for the program and Boeing.

Over the past several months we have heard concerns expressed about the supply chain and its ability to support the MAX RTS and to eventually get back to 52/month and higher rates. Note many suppliers today are running at rates between 42/month (the rate BA is producing at) and 52/month (the rate key tier one suppliers, such as Spirit AeroSystems and CFM are producing at).

Figure 1: Supplier actions taken as a result of MAX grounding



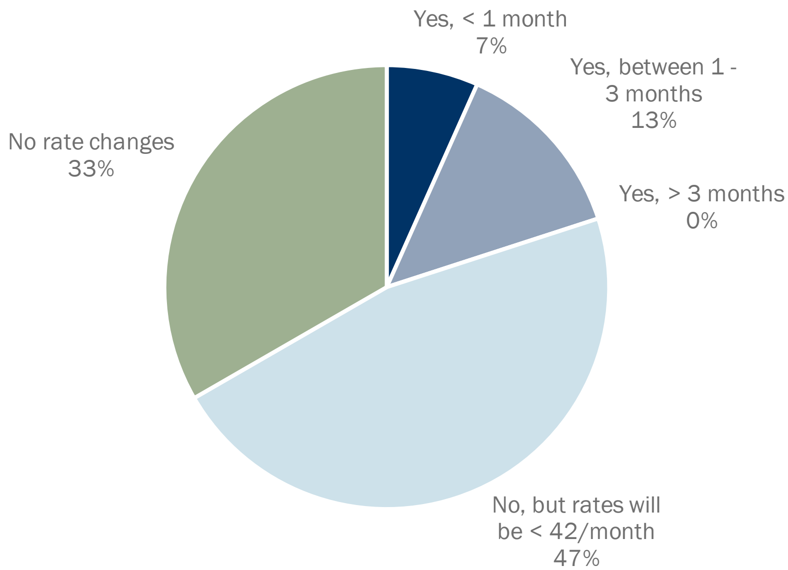
Source: Canaccord Genuity A&D supplier survey

Encouragingly, almost 60% of suppliers have not made any changes to their MAX business. We would have been surprised if we saw significant change here, as most companies do not want to be the source of any delays as rates do eventually start to increase.

Some suppliers, however, such as Spirit AeroSystems, have been lowering their fixed cost base as they had staffed up to support rate 57/month in early 2019. It now looks like SPR will get back to rate 57/month at the earliest by 2021. We have also heard about additional stress at smaller suppliers that may not have fully staffed up for the higher rates, which can be a challenge in the current labor market. The bottom line is that while Boeing's ability to accelerate MAX production once the RTS is in place does not seem to be at risk due to supply chain limitations.

On the flip side, the risk around further production cuts on the MAX is real. We agree that if Boeing receives final certification on the MAX from the FAA in Q4/19, it will go a long way to ensuring that current production schedules represent the trough. However, after its Q2/19 earnings call when Boeing first mentioned the possibility of a pause in the 737 MAX production, this has been a topic of discussion. While more recent comments from BA appear to be walking back this risk, it is fair to say suppliers remain very cautious on the near-term production levels on the MAX.

Figure 2: Do you believe Boeing will take a pause on its MAX production?



Source: Canaccord Genuity A&D supplier survey

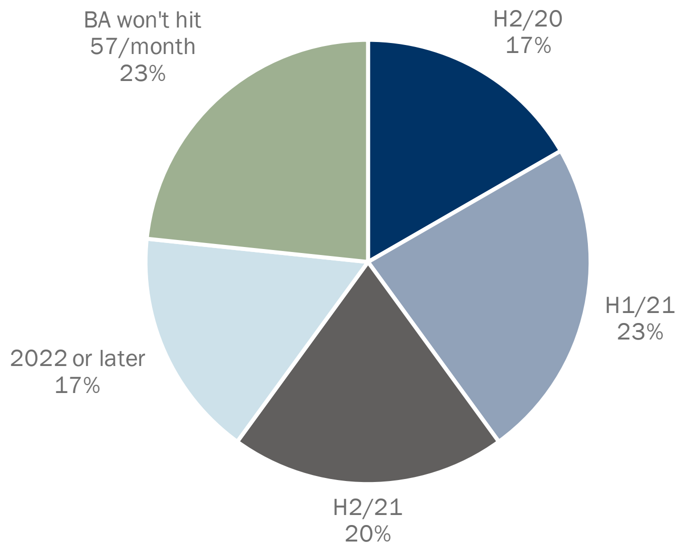
Just 20% of suppliers see a pause on the 737 MAX production. Note that much of this data was collected in late-August and early-September. And while 33% do not see any further downward revisions to the MAX production rate, 47% of suppliers believe Boeing will eventually go below 42/month, which implies skeptism around the timing of the RTS by suppliers.

Once we see a RTS on the MAX, it has been reported that Boeing will move aggressively to take production rates up on the program. We believe that as soon as the MAX sees a RTS, BA will step up its production to 47/month, and then will look to 52/month by early 2020, assuming a RTS in early Q4/19. Boeing is then likely to try to hit rate 57/month by mid-2020.

We believe the most important limiting factor for Boeing will be the timing of airlines to take delivery of the aircraft, which will impact the pace at which Boeing can work down its 737 MAX inventory. The timing will be determined not only by the airlines ability to integrate the MAX into schedules, but also by the yet to be determined pilot training requirements, especially in Europe and Asia.

We believe 737 MAX deliveries will peak at 70-75/month, which implies that at rate 57/month, BA is working down just ~15 aircraft a month from its inventory. The timing of the inventory reduction will be the key factor for when Boeing pulls suppliers up from current production rates to ideally eventually match the rates at Boeing.

Figure 3: Supplier expectations for rate 57/month on the MAX



Source: Canaccord Genuity A&D supplier survey

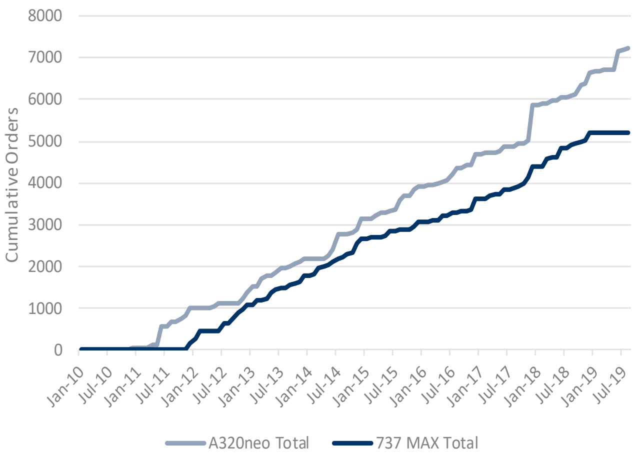
Approximately 40% of suppliers believe they will hit rate 57/month in 2020, but 23% of suppliers take a more cautious view, and do not believe they will ever hit rate 57/month.

In addition to the tactical risks, we see a number of longer-term strategic questions around the MAX that we do not believe are currently reflected in the Boeing stock valuation. These include the following:

- Implications for the Future Single Aisle (FSA) timing due to MAX market share
- Future MAX order levels and implications for valuations, FCF, and lease rates
- Timing of airline concessions as MAX enters service, and risk of incremental concessions or fees
- Focus and resource commitment to the New Midsize Airplane (NMA)
- Governance and product development and certification implications
- Product portfolio implications which could drive higher R&D spending

We believe the best-case scenario now for the MAX is a RTS in North America in Q4/19 (the U.S. and Canada) with a RTS in Europe in Q1/20, and then in China and other markets at some point after that. The MAX remains a strong point of leverage for China in trade negotiations, and we see little incentive now for China to rush the MAX back to service.

Figure 4: Boeing 737 MAX and Airbus A320neo family cumulative orders



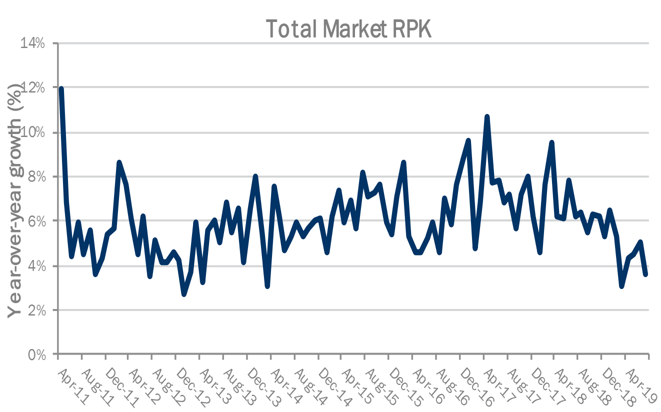
Manufacturer	Type	Cumulative Orders (Aug. 31, 2019)
Airbus	A319neo	44
Airbus	A320neo	4,362
Airbus	A321neo	2,841
Airbus	737 MAX 7	67
Airbus	737 MAX 8	3,432
Boeing	737 MAX 9	284
Boeing	737 MAX 10	265
Boeing	737 MAX Variant Unnanounced	1,174
A320neo Total		**7,247**
737 MAX Total		**5,222**

Source: Cirium, Company Reports, Canaccord Genuity estimates

Outlook for commercial cycle now more of a debate topic

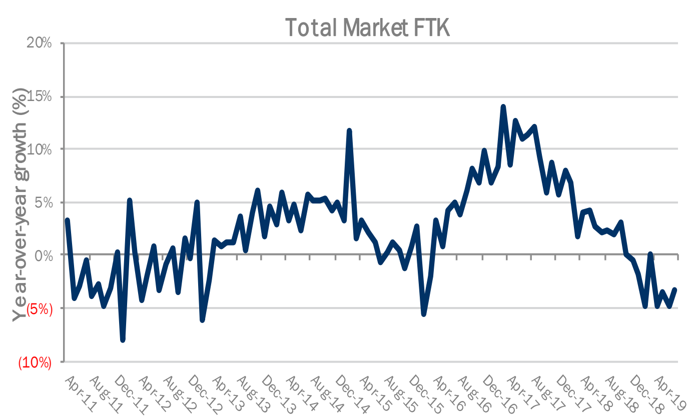
While passenger traffic growth has settled back into the 4-5% range, we believe the fundamentals of the commercial transport sector remain generally healthy. While the macro backdrop risks weakening further, we believe much of the 2019 headwinds have been a result of trade and tariff issues, and the major issues with airlines remain generally isolated instances (such as Jet Airways, Norwegian, etc.).

Figure 5: IATA passenger traffic (RPKs)



Source: IATA, Canaccord Genuity estimates

Figure 6: IATA freight traffic (FTKs)



Source: IATA, Canaccord Genuity estimates

We are not overly concerned about the lower traffic results in 2019 and view the return to a more normal outlook as healthy. More importantly, we believe the industry has adjusted its capacity growth outlook such that we do not believe there is a significant supply-demand imbalance on the horizon.

We believe that even with a potentially large MAX delivery catch-up in 2020-2021, the industry is adding ~5% in terms of annual seat capacity from 2020-2025. While this could be higher than the ~4.5% long-term traffic growth, we do not believe the industry risks over-supply. Note that our analysis assumes the MAX eventually hits 57/month, but this analysis does not assume that Boeing hits a higher rate on the MAX.

Moreover, we assume in this model that Boeing sees a return to service (RTS) on the MAX by early 2020 at the latest globally, which will allow a catch up virtually all of the

MAX deliveries by 2021. There could be incremental risk to the Boeing MAX backlog if the grounding stretches into March, at which time it may be easier to cancel orders after a year of grounding.

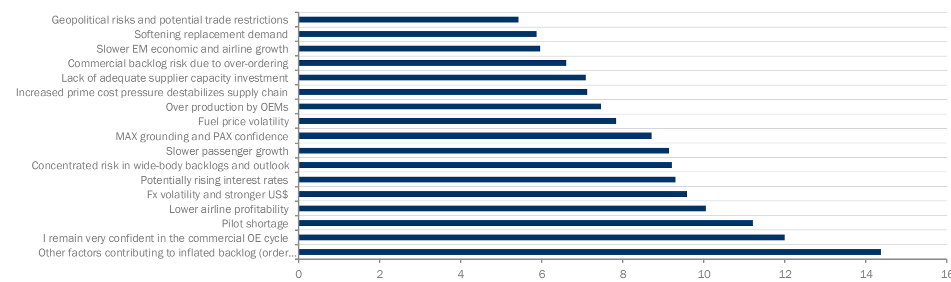
Figure 7: Canaccord Genuity passenger aircraft capacity analysis

Summary (Total Industry)	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Beginning fleet	nmf	22,202	23,200	24,388	25,186	26,537	27,843	28,972	30,090	31,211
Less retirements	390	482	398	470	615	673	699	685	673	662
Plus new deliveries	nmf	1,480	1,586	1,268	1,967	1,978	1,829	1,803	1,794	1,759
Ending fleet	22,202	23,200	24,388	25,186	26,537	27,843	28,972	30,090	31,211	32,308
Fleet Y-o-Y change		4.5%	5.1%	3.3%	5.4%	4.9%	4.1%	3.9%	3.7%	3.5%
Seat capacity (000)	4,587	4,836	5,124	5,342	5,666	5,989	6,287	6,587	6,896	7,208
Seats Y-o-Y change		5.4%	5.9%	4.3%	6.1%	5.7%	5.0%	4.8%	4.7%	4.5%
Retirements % of fleet	nmf	2.2%	1.7%	1.9%	2.4%	2.5%	2.5%	2.4%	2.2%	2.1%
Seat capacity upguaging		0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%

Source: Company Reports, Cirium, Canaccord Genuity estimates

We believe the planned capacity growth outlook is incrementally positive. Granted, there is a risk to the ~5% traffic outlook, but we believe if that is the case, we are not heading into that scenario with exceedingly over-optimistic fleet growth plans. We believe the industry has seen a lowered in the capacity growth specifically in wide-bodies relative to expectations of just a year or two ago.

Figure 8: Risks to the commercial OE cycle (1 = highest risk)



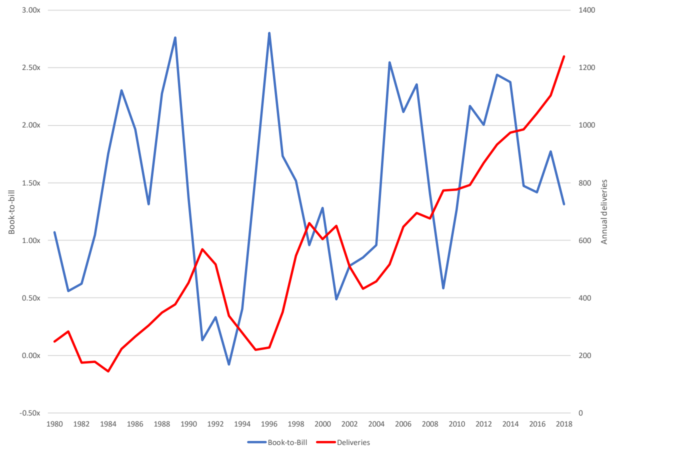
Source: Canaccord Genuity A&D supplier survey

The story of 2018 was the delays in the 737 and A320 deliveries due to supplier issues and delivery execution. Until recently the demand environment was not really considered a risk. It is interesting to note that in this survey, the four top risks for the commercial original equipment (OE) cycle are all generally associated with demand. While tariffs and geopolitical risk are not unique to the aerospace industry, the fact that suppliers now view the demand outlook with more caution reflects the changing global dynamics and could be a warning sign.

WB and NB outlooks continue to diverge

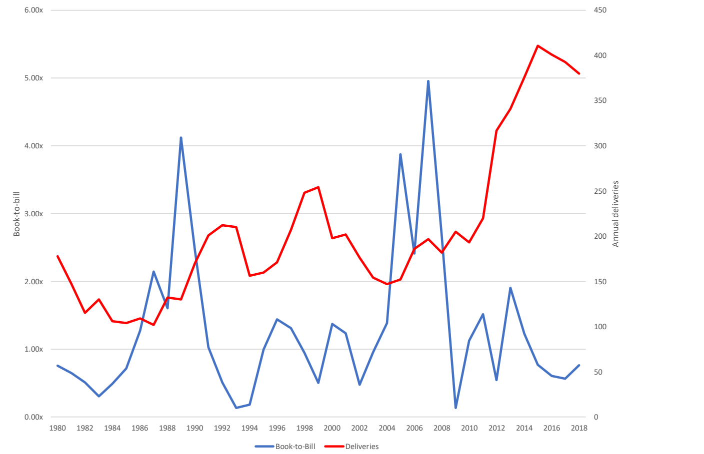
We do not believe it is appropriate to discuss the commercial cycle and look at all programs. The wide-body market has gone through a substantial cyclical downturn as the A380, 747, 777 and A330 rates have all come down substantially. The market for narrow-body aircraft has remained much more robust. The WB market, in our view, reflects business travel and is driven more by replacement demand, while the NB market is driven more by capacity growth as a result of much greater intra-region travel and the emerging middle class in emerging markets.

Figure 9: Narrow-body deliveries and book-to-bill



Source: Cirium, Company Reports, Canaccord Genuity estimates

Figure 10: Wide-body deliveries and book-to-bill



Source: Cirium, Company Reports, Canaccord Genuity estimates

One of the most important question for investors is how long Boeing can maintain rate 14/month on the 787. We believe the WB skyline at Boeing reflects some substantial 787 and 777X orders expected out of China as part of any trade deal.

Considering the importance of the 787 to Boeing's free cash flow (FCF), we expect Boeing will do all possible to sustain its elevated 787 production levels for as long as possible. Note that we believe Boeing needs to essentially hit a book-to-bill of 1x over the next several years to ensure that it does not drop below 3.5 years of backlog. We believe Boeing would like to keep the 787 backlog at 4 years of production at a minimum, but we believe the company is prepared to lower this for now due to the 787 cash contribution.

Figure 11: Wide-body and A350, B787 analysis

Analysis of key WB programs

Boeing 787	2016	2017	2018	2019	2020	2021	2022	2023	2024	20-'24 total
Orders	58	94	109	80	215	160	168	168	168	879
Deliveries	137	136	145	156	168	168	168	168	168	840
Backlog	700	658	622	546	593	585	585	585	585	
Orders implied to maintain 3.5 years of backlog				**3.5x**	**3.5x**	**3.5x**	**3.5x**	**3.5x**	**3.5x**	

Airbus A350	2016	2017	2018	2019	2020	2021	2022	2023	2024	20-'24 total
Orders	41	36	40	50	50	50	50	114	114	378
Deliveries	49	77	93	114	114	114	114	114	114	570
Backlog	754	712	659	595	531	467	403	403	403	
Orders implied to maintain 3.5 years of backlog				**5.2x**	**4.7x**	**4.1x**	**3.5x**	**3.5x**	**3.5x**	

Implied orders at 7.5% of active WB fleet	**2,534**
Total 1996-2005 WB deliveries	**1,317**

Order outlook by program	
A330neo	200
A350	378
B777X	250
B787	879
NMA (?)	
Subtotal	**1,707**

Source: Cirium, Company Reports, Canaccord Genuity estimates

Our analysis, however, supports the view that it is possible for Boeing and Airbus to maintain their respective rates on the 787 and the A350. Note that there were over 1,300 wide-body aircraft delivered between 1996-2005, which are at or nearing retirement. Second, since 2000 WB orders have average ~7.5% of the active fleet. If this trend were to continue, it would imply ~2,500 WB orders over the next five years. Even a conservative view of ~2,000 WB orders over the next five years implies enough opportunity for BA to maintain its 14/month rate. However, this does imply a significant step up in order active relative to recent levels, and we understand Boeing has gaps in its 787 skyline as early as 2021 that it is working to fill. A large China order will be a new positive, but we believe filling the 787 2022-2025 skyline is a top priority for Boeing which we are watching closely.

Figure 12: Major commercial aircraft trends, 2018-present

Aircraft	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	YTD 2019
737 MAX																					
Total In Service	78	86	110	120	139	162	174	196	218	239	272	317	333	359	0	0	0	0	0	1	1
Total On Order	4232	4235	4369	4389	4389	4492	4495	4562	4564	4542	4545	4675	4661	4636	4503	4499	4428	4425	4425	4425	4425
Net Orders (Firm Only)	1	9	158	30	19	126	15	90	24	0	41	181	6	1	-122	-4	-71	-3	0	0	-193
Total Deliveries	6	6	24	10	19	23	12	23	22	22	38	51	20	26	11	0	0	0	0	0	57
787																					
Total In Service	627	635	646	638	637	664	676	683	694	696	718	737	744	760	775	781	791	810	830	848	848
Total On Order	650	639	648	687	686	669	671	666	656	649	639	622	632	621	614	602	590	572	581	569	569
Net Orders (Firm Only)	0	0	24	47	12	0	10	3	8	5	0	0	18	0	10	0	-1	1	21	0	49
Total Deliveries	8	11	15	8	13	17	8	8	18	12	10	17	8	11	17	12	11	19	12	12	102
777/777X																					
Total In Service	1382	1371	1381	1382	1396	1413	1420	1418	1416	1418	1425	1429	1432	1430	1432	1395	1419	1432	1444	1450	1450
Total On Order	425	427	421	420	418	427	429	424	418	418	419	431	429	428	441	440	435	431	439	436	436
Net Orders (Firm Only)	0	3	2	0	4	15	2	1	0	1	6	17	0	0	20	0	0	2	10	0	32
Total Deliveries	3	1	8	1	6	6	0	6	6	1	5	5	2	1	7	1	5	6	2	3	27
A220																					
Total In Service	32	32	36	38	41	41	43	46	49	50	52	60	60	63	68	71	75	81	83	84	84
Total On Order	347	347	343	341	368	365	363	360	357	355	353	480	475	476	471	468	464	473	431	428	428
Net Orders (Firm Only)	0	0	0	0	30	0	0	0	0	0	0	135	-5	4	0	0	0	15	-40	0	-26
Total Deliveries	1	0	4	2	3	3	2	3	3	2	2	8	0	3	5	3	4	6	2	3	26
A320 Family																					
Total In Service	7204	7216	7294	7357	7431	7530	7602	7642	7678	7674	7686	7754	7774	7780	7817	7852	7946	8032	8103	8133	8133
Total On Order	6135	6126	6083	6109	6077	6058	5995	5959	5945	5944	5910	6057	6024	5963	5909	5852	5796	5872	5823	5812	5812
Net Orders (Firm Only)	18	24	14	66	9	50	27	20	56	199	42	267	14	-25	22	8	10	432	20	64	545
Total Deliveries	21	29	45	36	41	67	63	42	51	67	71	93	33	36	57	57	57	54	52	28	374
A330																					
Total In Service	1262	1260	1267	1276	1275	1286	1294	1302	1294	1296	1294	1300	1299	1297	1289	1290	1301	1316	1326	1330	1330
Total On Order	315	308	303	300	298	307	302	298	294	309	309	295	294	293	290	285	280	275	276	270	270
Net Orders (Firm Only)	0	-6	0	1	1	12	0	0	0	18	3	-2	0	0	0	-3	0	0	8	0	5
Total Deliveries	2	1	5	4	3	3	5	4	4	3	3	12	1	1	3	2	5	5	7	6	30
A350																					
Total in Service	147	156	161	169	176	183	189	195	204	214	225	234	241	250	258	265	276	285	291	296	296
Total On Order	708	700	695	665	673	700	702	697	687	678	667	659	654	603	633	628	615	605	618	613	613
Net Orders (Firm Only)	0	0	0	-22	15	35	8	0	0	0	0	4	0	-42	38	3	0	0	20	0	19
Total Deliveries	4	8	5	8	7	8	6	5	10	9	11	12	5	9	8	8	13	10	7	5	65

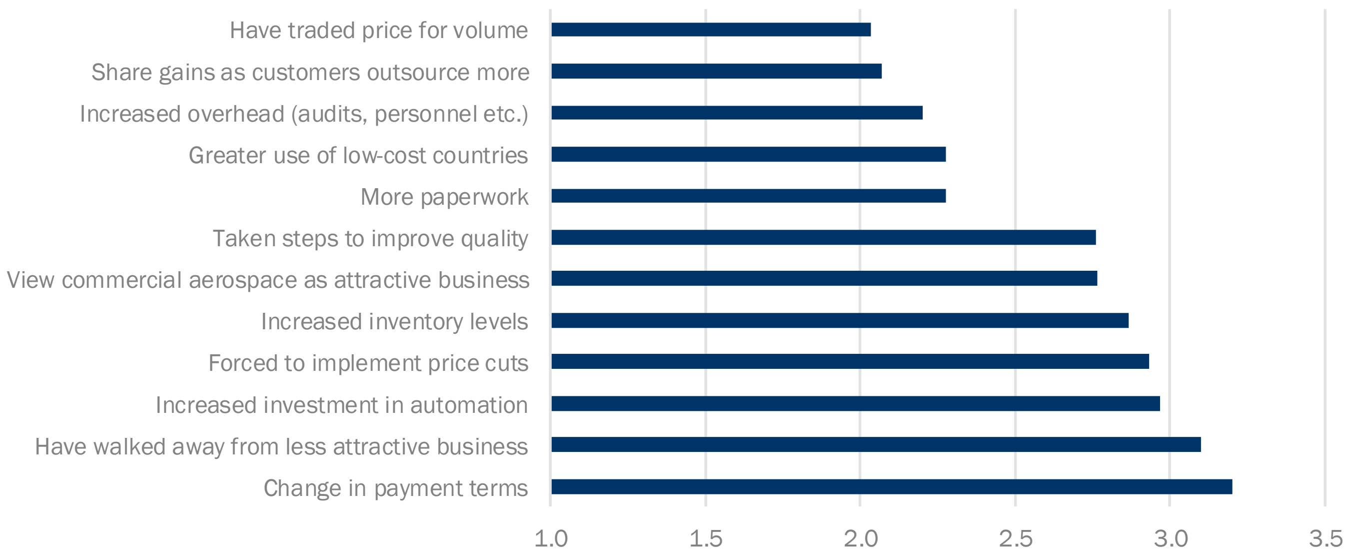
Source: Cirium, Company Reports, Canaccord Genuity estimates

Current risk to the supply chain

As part of our research for this survey we did not hear about incremental risks with the supply chain, which was surprising. In some ways, the 737 MAX grounding has been a blessing for some suppliers that have been able to now catch-up with rate.

As part of its ongoing supplier push, most OEMs have adopted some sort of delayed payables program. As a result, changing payment terms has been a primary issue for suppliers in response to this pressure. We also believe suppliers are increasing investments in automation and working capital. We believe labor markets remain tight, and future hiring can be a challenge, which helps explain other investments that can help offset labor requirements.

Figure 13: Impact of OEM push to lower costs (1 = no impact, 5 = major impact)



Source: Canaccord Genuity A&D supplier survey

Not surprising, the forced changes in payment terms and price cuts have been a consistent high score in the impact on suppliers. However, as we look at this question over the past four surveys, it is interesting to note that the option to walk away from less attractive business has been increasing as a response. We believe this could also be due to the fact that we continue to see such broad-based strength in the supply chain (commercial military and even some strength in business jets) that suppliers are sometime able to be more selective now with the business they pursue.

Figure 14: H1/18 - H2/19 ranking of impact of OEM cost push responses

Ranking of responses	H2/19	H1/19	H2/18	H1/18
Change in payment terms	12	11	12	12
Forced to implement price cuts	9	12	11	11
Greater use of low-cost countries	4	5	2	1
Have traded price for volume	1	3	7	6
Have walked away from less attractive business	11	7	9	3
Increased inventory levels	8	10	10	9
Increased investment in automation	10	8	4	7
Increased overhead	3	6	3	4
More paperwork	5	4	6	8
Share gains as customers outsource more	2	1	1	2
Taken steps to improve quality	6	2	5	5
View commercial as attractive business	7	9	8	10

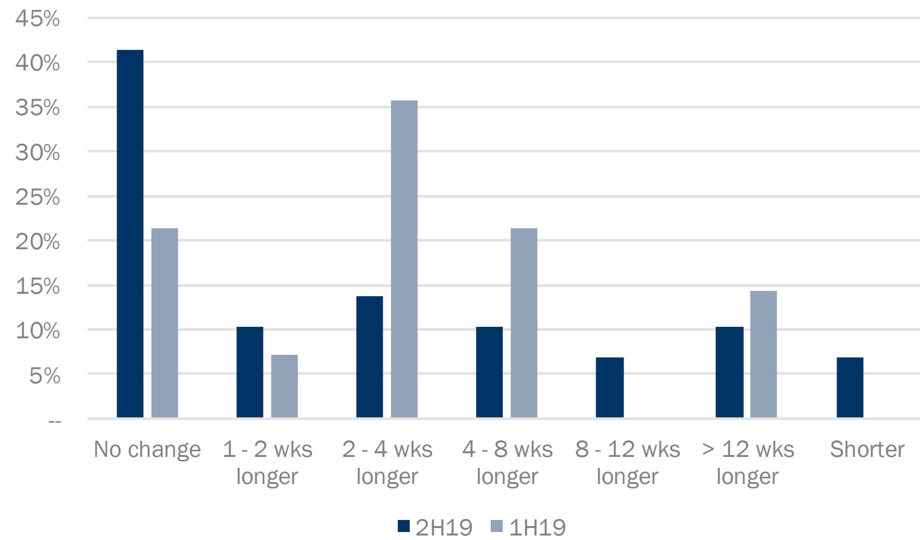
Note: higher score reflects identified as more important factor

Source: Canaccord Genuity A&D supplier survey

It is also interesting to note that the trading price for volume is a less impactful response in this survey (in fact it received the lowest score). We attribute this to the fact that with the MAX grounded, there is really little going up in rate now except the A320neo, and with the general maturity of many programs, there is less supplier switching going on.

Supplier lead times are declining. Relative to our H1/19 survey, over 40% of suppliers now see no change in lead times, where this number was just ~20% in our H1/19 survey. Moreover, ~50% of suppliers now are seeing some lengthening in lead times, compared to ~75% of suppliers in our H1/19 survey. There are also a handful of suppliers that are in fact now seeing lead-time shorten.

Figure 15: Year-over-year change in supplier lead times (%)

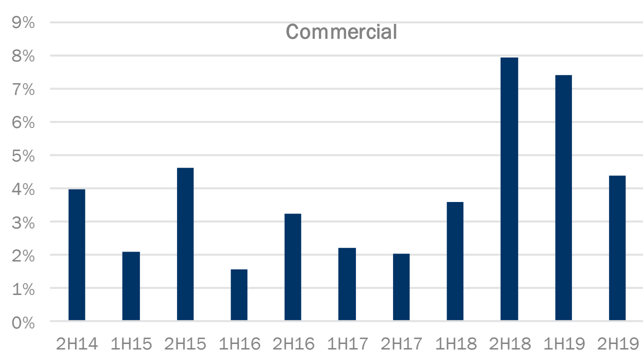


Source: Canaccord Genuity A&D supplier survey

Commercial volume remains elevated

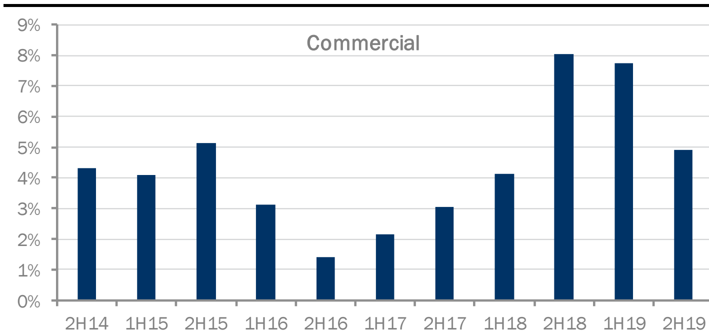
As we look ahead to H2/19 results, we believe commercial sales can be a source of upside. Concern about additional volume reductions on the MAX are less pronounced now, and volume growth over the next six months of ~5% will be a positive considering the recent strength.

Figure 16: Over the past six months, your volume shipments for commercial markets have been?



Source: Canaccord Genuity A&D supplier survey

Figure 17: Over the next months, your volume shipments for commercial markets are expected to be?



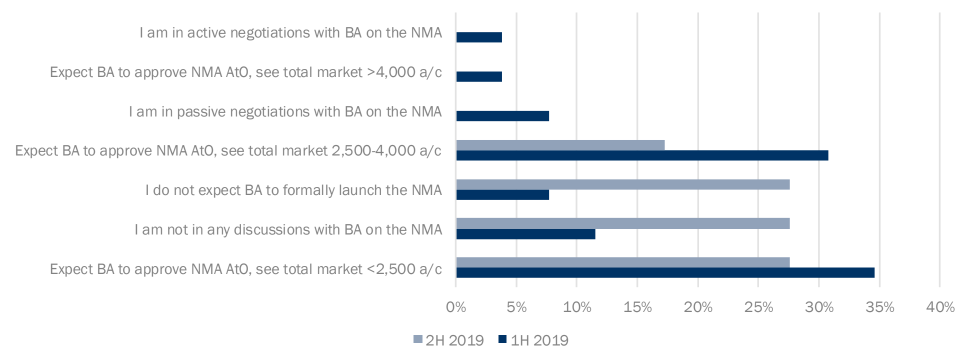
Source: Canaccord Genuity A&D supplier survey

NMA business case still unsettled

Not surprising, the MAX grounding has been the top priority for Boeing, and the time and resources committed to the NMA have been impacted. Boeing has been clear that the NMA is still under consideration and the business case is not settled. It increasingly looks like a ~2025 entry into service (EIS) is unrealistic.

Not surprisingly, suppliers are not in discussions with Boeing on the program now, and the percentage of suppliers that now believe BA will not move forward with the NMA is close to 30%, up from under 10% from our H1/19 supplier survey.

Figure 18: Do you expect BA will proceed with the NMA AtO?



Source: Canaccord Genuity A&D supplier survey

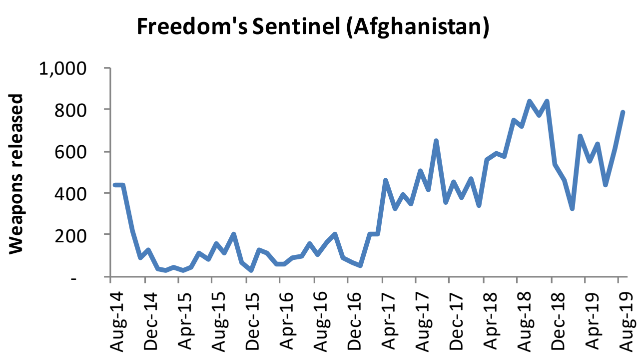
We continue to believe that BA will eventually pursue the NMA, or something targeted at this market. However, this could now be a variant of the 787, which would lower development costs and the EIS time. Boeing could also look at partially merging its NMA and FSA requirements into a new family of mid-range aircraft.

For purposes of this survey, it confirms what we believed, that the NMA is pushed to the right and supplier activity on the program now is very limited. Part of this can be explained by the fact that we believe however the NMA evolves, it will see a much greater share of work in-sourced by Boeing, with more build-to-print for suppliers. We expect the discussion on the NMA to accelerate once the MAX returns to service. Future changes at Boeing on its product development process and strategy, or any senior management changes, will also have an impact on the future NMA.

Defense outlook remains strong despite greater budget political risk

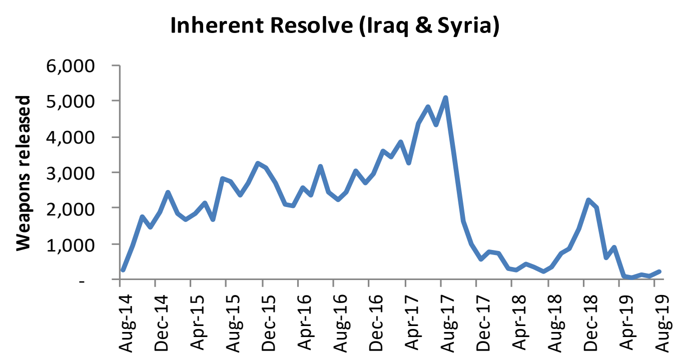
Defense spending remains at elevated levels. Activity levels in Afghanistan are surging again, and we believe monthly outlays continue to run up double digits. We believe many smaller firms are finally seeing the benefit of the higher FY18 and FY19 budgets as contracts are flowing down the supply chain. The FY20 budget timing is a risk, but we remain very bullish on the near-term outlook for defense spending. The 2020 election poses a risk to valuation in the sector, but we believe the fundamentals will remain strong for at least several quarters.

Figure 19: Operation Freedom's Sentinel activity



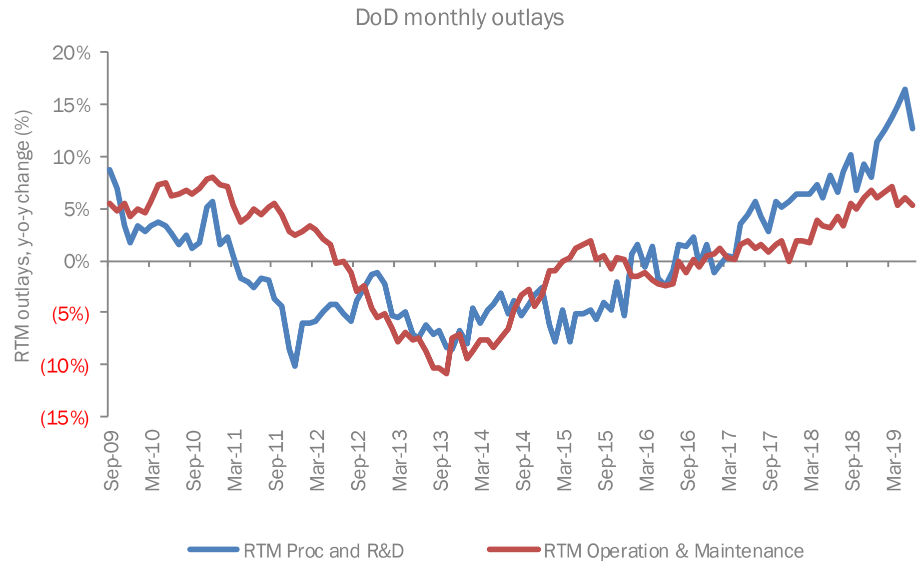
Source: Company Reports, Canaccord Genuity estimates

Figure 20: Operation Inherent Resolve activity



Source: Company Reports, Canaccord Genuity estimates

Figure 21: Department of Defense monthly outlays

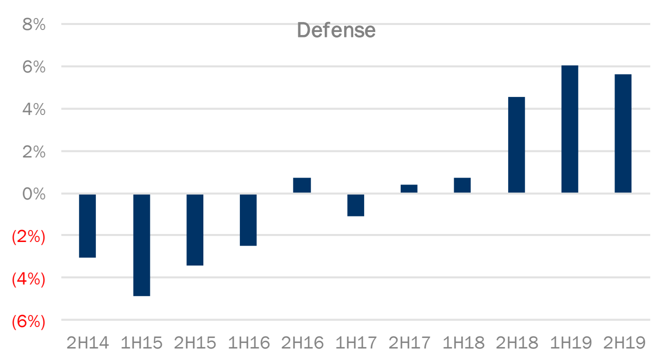


Source: US Department of the Treasury, Canaccord Genuity estimates

Suppliers see continued mid-single digit growth in defense volume shipments over the past six months. While the outlook for the next six months has stepped down to ~3%, this is against a more difficult comparison. We do not view this as a overly bearish signal considering the budget strength.

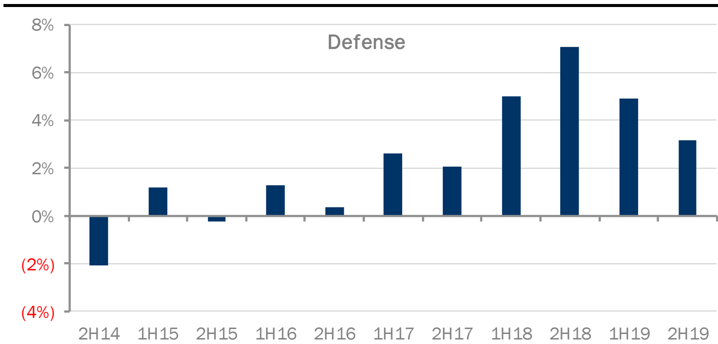
Last month, Congress and the White House reached an agreement on a government-wide 2-year spending bill, which would set Defense spending levels at $738 and $740.5 billion for FY20 and FY21, respectively. This improved visibility and certainty was viewed as being incrementally positive for the larger defense sector, with concerns over the budget caps of sequestration and the threat of a stopgap continuing resolution (CR) now subsiding.

Figure 22: Over the past six months, your volume shipments for defense markets have been?



Source: Canaccord Genuity A&D supplier survey

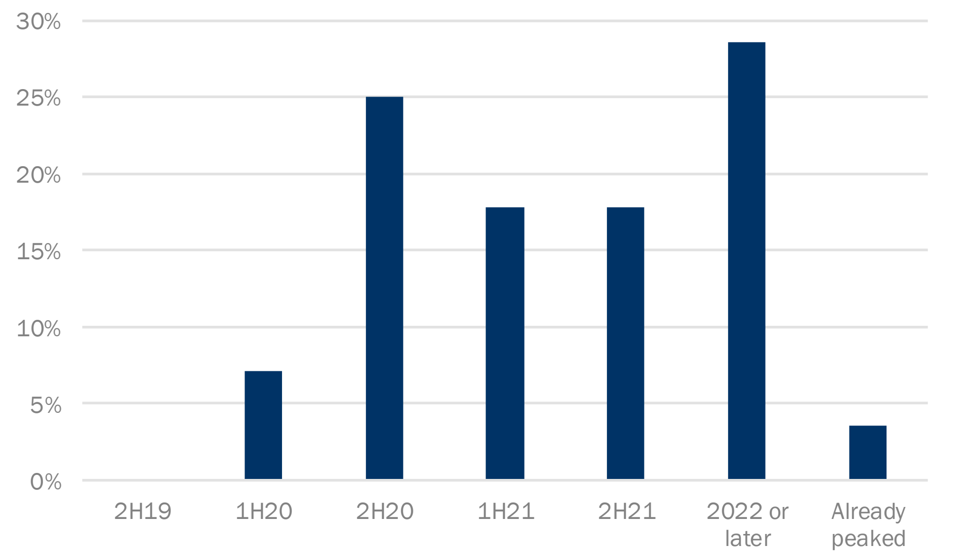
Figure 23: Over the next months, your volume shipments for defense markets are expected to be?



Source: Canaccord Genuity A&D supplier survey

Meanwhile, the House of Representatives have passed their individual Defense Appropriations and Authorization bills, with the Senate Appropriation Subcommittee for Defense (SAC-D), advancing their committee draft as of Wednesday September 11. The full Appropriations Committee is expected to take up the legislation on Thursday (Sept. 12), though sparks are expected to fly over the Pentagon's contentious reprogramming of Defense program funds for construction of the US-Mexico border wall. A protracted spending fight and/or a hail of amendments from Democrats to stymie the Pentagon's reprogramming of funds could prevent the legislation from being passed on time, which would result in the need for a CR despite the passage of the 2-year Bipartisan Budget Act.

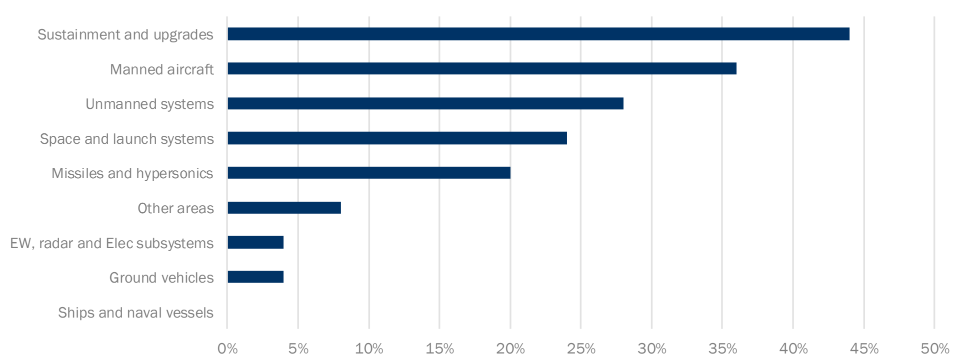
Figure 24: When do you expect your defense sales growth to peak? (% of respondents)



Source: Canaccord Genuity A&D supplier survey

Over 95% of suppliers still see the peak in their defense sales as ahead of them, with over 25% calling for this in 2022 or later. We believe visibility for many suppliers is stronger for the defense market than it is for commercial OE and AM sales. In terms of market segment, suppliers continue to see the best prospects in sustainment and upgrades, followed by manned aircraft, such as the F-35 Joint Strike Fighter. The F-35 is one of the winning programs in the FY20 budget.

Figure 25: Which defense markets are seeing the fastest growth?

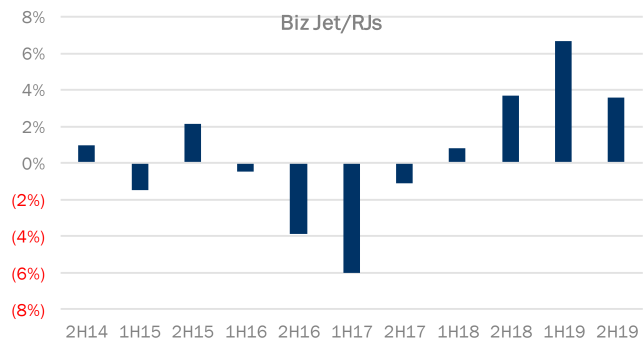


Source: Canaccord Genuity A&D supplier survey

Business jet outlook remains positive

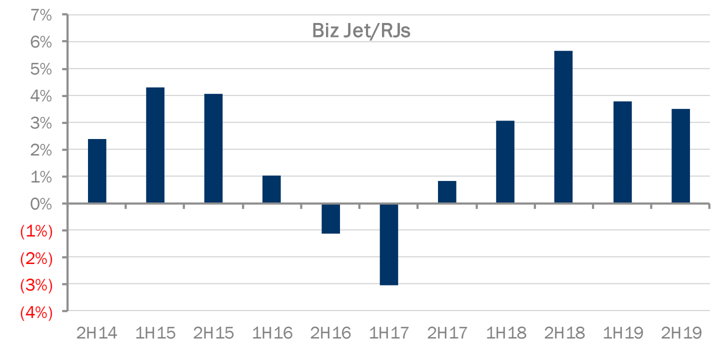
Business jet volume on the OE side is driven by new programs. Moreover, recent mandates around ADS-B have driven upside in the business jet aftermarket. More recent business jet data points have been soft, so we see little upside opportunity in this market, especially when compared to the defense or commercial markets.

Figure 26: Over the past six months, your volume shipments for BizJet markets have been?



Source: Canaccord Genuity A&D supplier survey

Figure 27: Over the next-months, your volume shipments for BizJet markets are expected to be?



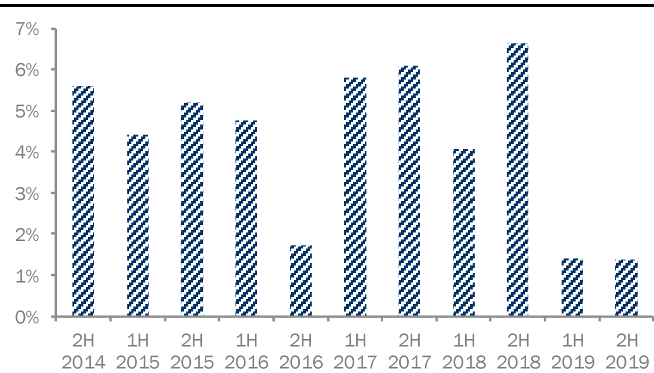
Source: Canaccord Genuity A&D supplier survey

Suppliers are looking for ~3% growth both for the prior six-months as well as for the next six-months volume. We believe full compliance with ADS-B in 2020 will be a headwind for the sector, which is the most leveraged to broader economic growth relative to other segments within A&D.

Pricing still a tailwind?

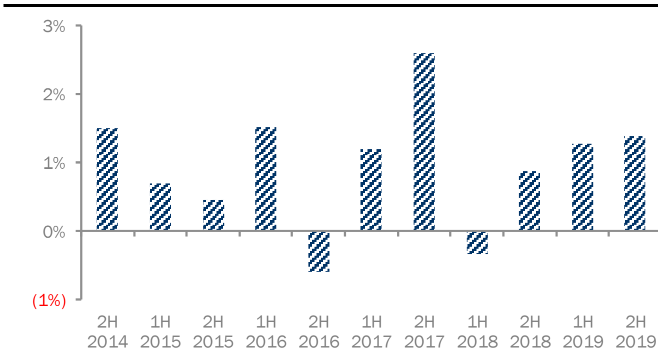
Supplier pricing power has been one of the less talked about stories. However, we believe recent increases in price have been less robust than 2017-2018. We believe part of this reflects the mix shift to newer commercial aircraft, such as the A320neo and the 737 MAX. Moreover, we believe pricing pressure on high value defense programs, such as the F-35, have also stepped up recently.

Figure 28: Supplier price increases over the past six-months



Source: Canaccord Genuity A&D supplier survey

Figure 29: Supplier price increases over the next six-months



Source: Canaccord Genuity A&D supplier survey

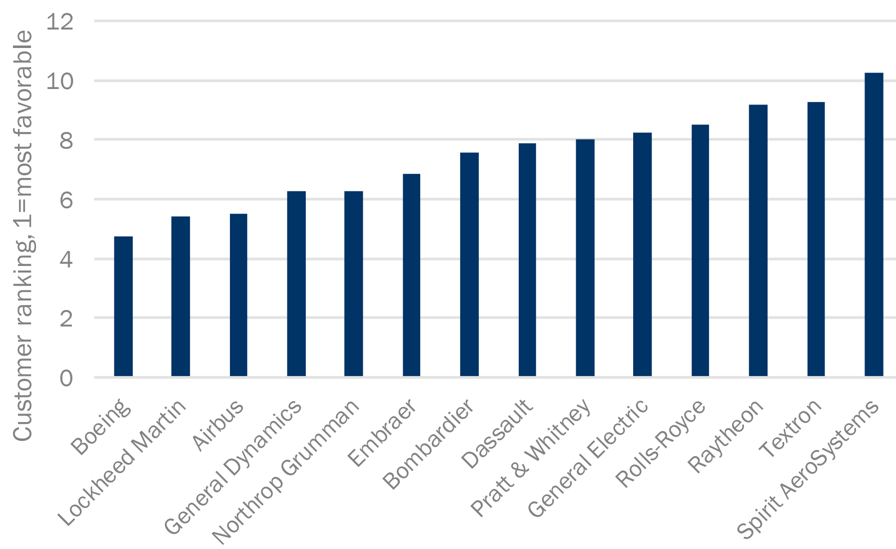
The outlook for pricing remains positive, with suppliers looking for just over 1% over the next six-months. We believe higher costs (labor, tariff impact, working capital) adding to the desire for higher prices from suppliers. This could be a source of upside, but OEM pressure on pricing is also increasing.

Program and company risk

We again asked suppliers to rank their customers, the OEMs. We believe Boeing's approach to its supply chain on the 737 MAX (keeping the supply chain largely whole) has been viewed positively by suppliers. And similar to the program discussion following, we believe the relatively high ranking for many defense primes reflects the strength in the market now as much as company specific efforts.

Note that Raytheon, which is having some well publicized execution issues with some franchise missile programs, ranks at the low end of defense primes. We believe the importance of the MAX to Spirit AeroSystems (SPR) and its strong focus now on costs is not making any friends with suppliers but should help offset some of its expected margin pressure as a result of the MAX grounding.

Figure 30: A&D supplier OEM ranking (1=most favorable)

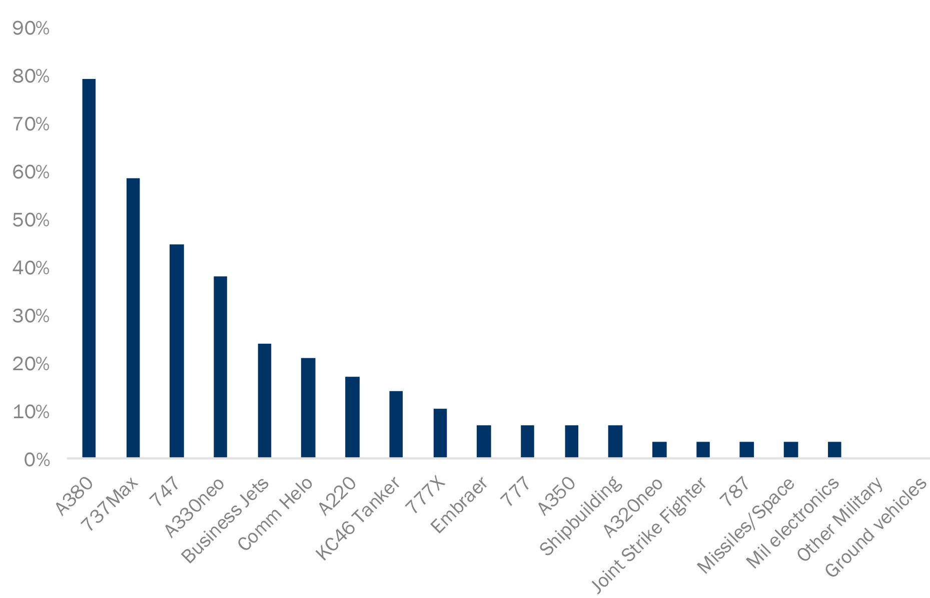


Source: Canaccord Genuity A&D supplier survey

Not surprising, the A380 and the Boeing 737 MAX are viewed as the two programs with the most risk. We believe Airbus is focused on the A330neo sales but continues to see incremental pressure here from Boeing and its 787.

On the flip side, most military programs, with the exception of the KC-46 tanker, are not viewed by suppliers as very risky now or in any danger.

Figure 31: Supplier view on programs with the most risk (times cited)



Source: Canaccord Genuity A&D supplier survey

Canaccord Genuity A&D investment thesis

We believe sentiment on the commercial sector will be driven by the MAX while sentiment on the defense side will be driven by the budget discussions and then the election in 2020. We see greater organic growth in the defense market. We believe sentiment on the commercial aftermarket stocks, such as HEI and TDG, has been under some pressure due to the softening air travel, but also after significant recent outperformance in these stocks.

Figure 32: Aerospace & Defense universe 2018 and 2019 YTD stock performance

SMID Cap A&D		2018 full year	2019 YTD
AAR Corp	AIR	(5.0%)	22.2%
Aerojet Rocketdyne	AJRD	12.9%	40.2%
AeroVironment	AVAV	21.0%	(11.4%)
Astronics	ATRO	(26.6%)	(3.0%)
Barnes	B	(15.3%)	(2.2%)
BWX Technologies	BWXT	(36.8%)	57.0%
CPI Aero	CVU	(28.8%)	24.5%
Crane Co	CR	(19.1%)	14.0%
Cubic	CUB	(8.8%)	28.2%
Curtis-Wright	CW	(16.2%)	28.9%
Ducommun	DCO	27.7%	22.5%
DLH Corporation	DLHC	(24.5%)	(6.0%)
HEICO	HEI	28.3%	59.7%
Hexcel	HXL	(7.3%)	42.1%
Huntington Ingalls	HII	(19.3%)	15.8%
Kratos Def & Security	KTOS	33.1%	38.8%
Mercury Systems	MRCY	(7.9%)	67.9%
Moog	MOG.A	(10.8%)	15.2%
Park Aerospace	PKE	(8.0%)	(2.2%)
Spirit AeroSystems	SPR	(17.4%)	19.6%
Teledyne Technologies	TDY	14.3%	48.7%
Triumph Group	TGI	(57.7%)	113.2%
Wesco Aircraft	WAIR	6.8%	38.6%
Woodward	WWD	(2.9%)	45.9%
Average		(7.0%)	29.9%

Large Cap A&D		2018 full year	2019 YTD
Boeing	BA	9.4%	18.7%
General Dynamics	GD	(22.7%)	20.0%
Honeywell	HON	(13.8%)	29.6%
L3 Harris Technologies	LHX	(4.9%)	54.3%
Lockheed Martin	LMT	(18.4%)	45.7%
Northrop Grumman	NOC	(20.2%)	46.5%
Raytheon	RTN	(18.4%)	25.9%
TransDigm Group	TDG	23.8%	47.4%
United Technologies	UTX	(16.5%)	27.7%
Average		(9.1%)	35.1%
S&P 500 index	SP50	(6.2%)	19.7%
A&D sector index	ITA-USA	(8.1%)	30.6%
Comm Aero sector average		(4.4%)	33.0%
Defense sector average		(10.3%)	32.0%

Note: based on closing prices of September 11, 2019

Source: Company Reports, FactSet, Canaccord Genuity estimates

We believe there is the potential that the MAX will have longer term ramifications around R&D spend, airline concessions, and other costs that will negatively impact 2022-2023 FCF. We do take a more cautious view here considering the potential for backlog risk and timing of the MAX recovery, which eventually could limit upside on the 737 beyond the planned rate 57/month.

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Speculative Buy	132	15.00%	75.76%
	880*	100.0%	

*Total includes stocks that are Under Review

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