

Aerospace & Defence Update

Supply & demand model: Production rates broadly supported by demand outlook

Industry Overview

Production rates broadly supported by demand outlook

We update our supply demand models as we head into the Paris Air Show. Retirements remain at very low levels vs history, which we believe is a result of supply constraints at OEMs, but have already started to accelerate YTD vs 2022. We expect this to normalise over the next 2-3 years as production increases. Based on BofA production forecasts for Airbus and Boeing, we see NB seat capacity growing at c.7.4% CAGR 23-26E, and WB capacity growing at c.1.8% CAGR 23-26E. As a result, we see global in-service seats growing at c.5.7% CAGR. This to us indicates that the current production forecasts are broadly supported by the demand outlook mid-term if we return to a c.4% growth environment for global passenger traffic. In our view, retirements clearly remain the big variable in the supply demand environment.

Production rates broadly supported by demand outlook

We model total aircraft production (AIR+BA) to grow +13% CAGR over FY22-26E (from 1137 aircrafts to 1837) with AIR market share normalising at around 60% level mid-term. We see A320 family production growing +12% CAGR FY22-26E to 790 p.a (c.65 p.m), & surpassing FY19 levels (642) in FY24 (650). At the same time, Senior US Aerospace analyst Ron Epstein estimates volumes on 737 to grow 12% CAGR to 600 in FY26, driven by the progressive ramp of the 737 MAX. We see increasing production rates mid-term supported by air traffic recovery & positive revisions on Airlines CapEx ([see our Booking Trends report](#)).

Retirements have already started to accelerate YTD

Retirements fell significantly through 2020-21 & troughed in FY22, but we see them accelerating progressively as we go into 2024 driven by supply chain normalization & OEM increasing production rates mid-term. Exhibit 5 shows that YTD retirements have already started to accelerate vs 2022. On the WB side we see the pace of retirements lagging NB through 2023 given the strength of the international recovery but expect this to increase mid-term given the higher average age of the fleet (see our report, [Retirements at trough, but don't expect material acceleration](#)). With flight hours progressively coming back to pre-Covid levels, we expect retirements to accelerate from 2023 & normalise at around 500 (300 NB & 200 WB) aircrafts p.a. from 2025 onwards (were 459 in FY19).

In-service fleet: narrowbody to complete recovery in FY23

We derive our estimates of in-service fleet based on our assumptions on production & retirements, and assuming no material changes in stored fleet going forward. Overall, we model +5.7% CAGR FY23-26E for in-service fleet. We expect NBs to climb back to FY19 levels already in FY23 (+3% vs FY19), while we see WBs remaining below FY19 levels mid-term, reaching c.-12% vs FY19 in FY26.

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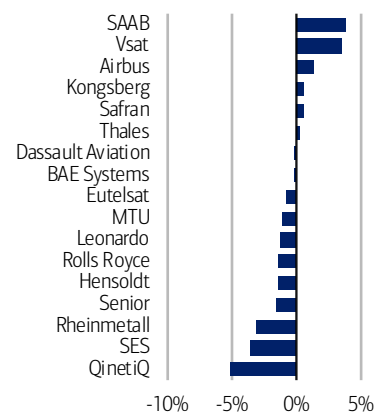
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Exhibit 1: Sector weekly performance rel FTEU 300

Weekly stock performance



Source: Eikon (prices as of 01st Jun, 2023)

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c.: circa

NB: narrowbody

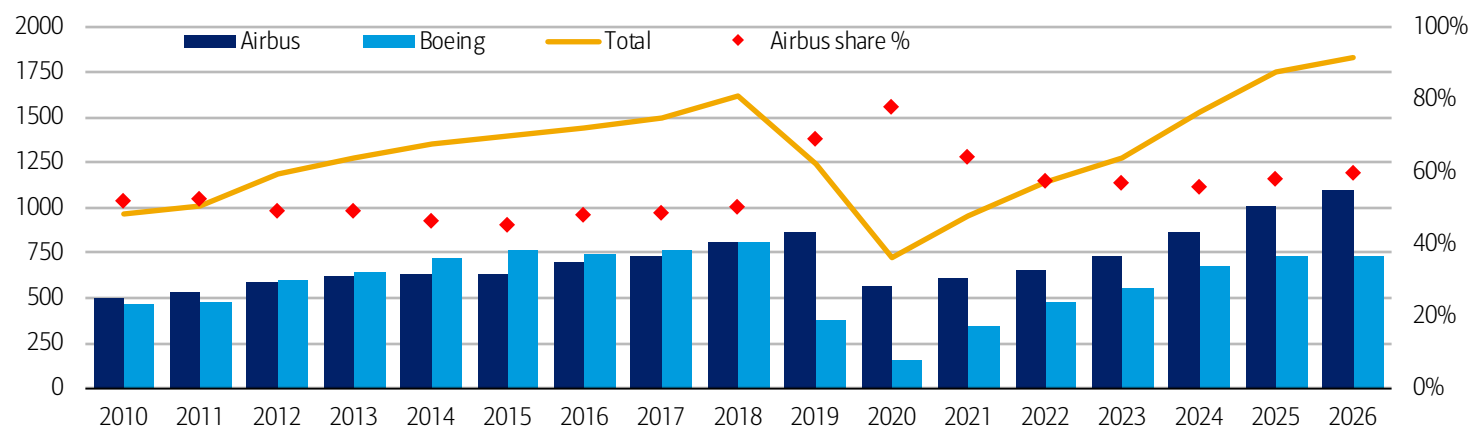
OEM: original equipment manufacturer

WB: widebody

Supply & demand in 7 key charts

Exhibit 2: Aircraft production estimates for AIR & BA FY10-26E (LHS: # of aircraft, RHS: AIR % share)

We see production rates to ramp mid term driven by the recovery of air traffic, supply chain normalization & demand for higher fuel efficiency

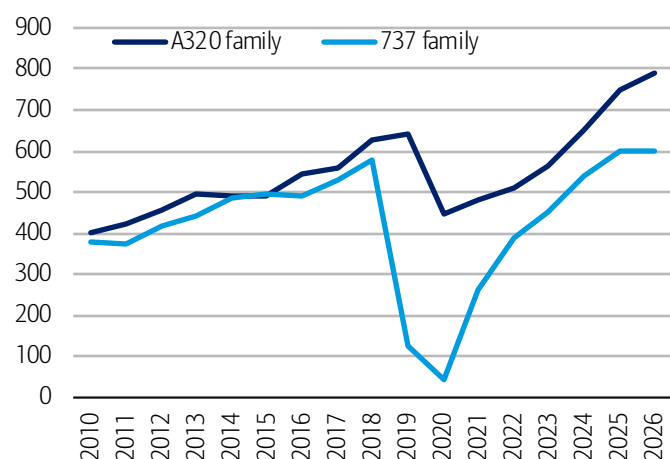


Source: BofA Global Research estimates, Cirium

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Exhibit 3: A320 & 737 families production estimates (# aircraft)

We expect main n/body families to drive the volume ramp medium term

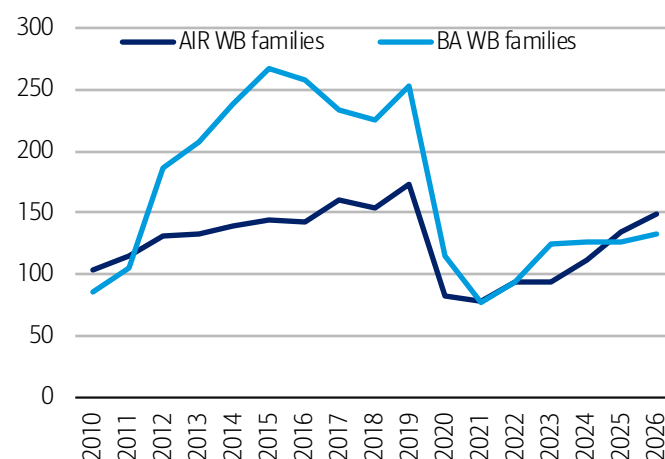


Source: BofA Global Research estimates

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Exhibit 4: AIR & BA WB families production estimates (# aircraft)

We see Airbus almost recovering FY19 WB production rates by FY26

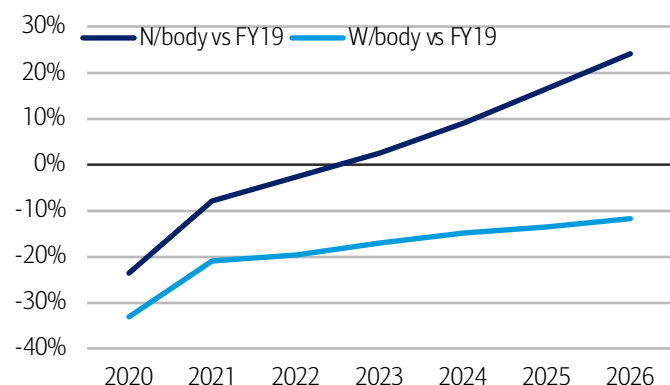


Source: BofA Global Research estimates

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Exhibit 5: Narrowbody vs Widebody in service fleet

We see NB reaching 2019 levels in 2023 but widebody lagging at c.-12% by 2026

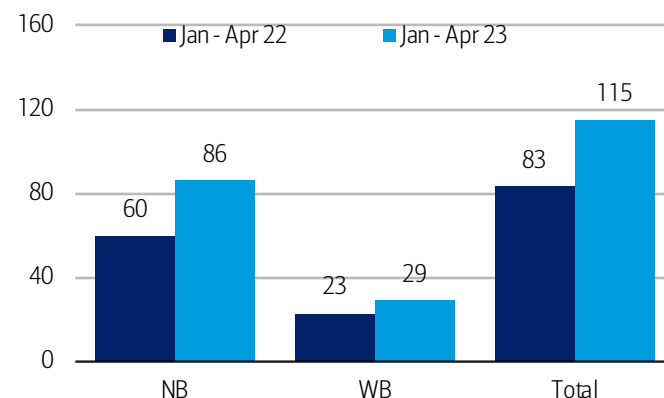


Source: BofA Global Research estimates

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Exhibit 6: Jan 22-Apr 22 vs Jan 23-Apr 23 WB & NB retirements

Retirements have started to accelerate YTD after a trough in 2022

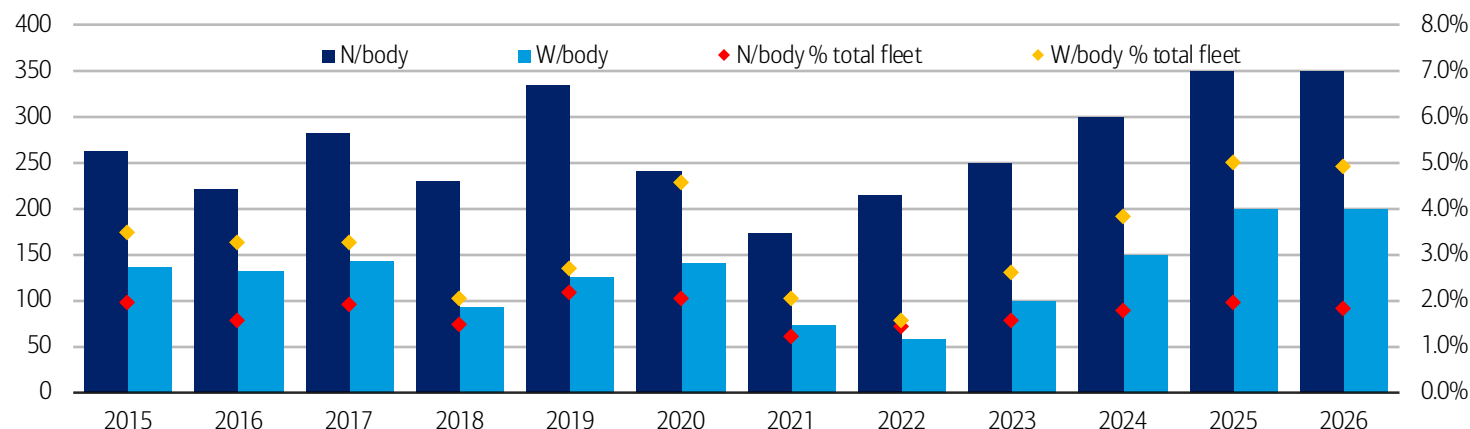


Source: BofA Global Research estimates, Cirium

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Exhibit 7: Total annual retirements FY15-26 (LHS: # aircraft, RHS: NBs and WBs as % of total fleet)

Retirements troughed in FY22 and we see them getting back to a more normalized pre-Covid level from FY24 onwards

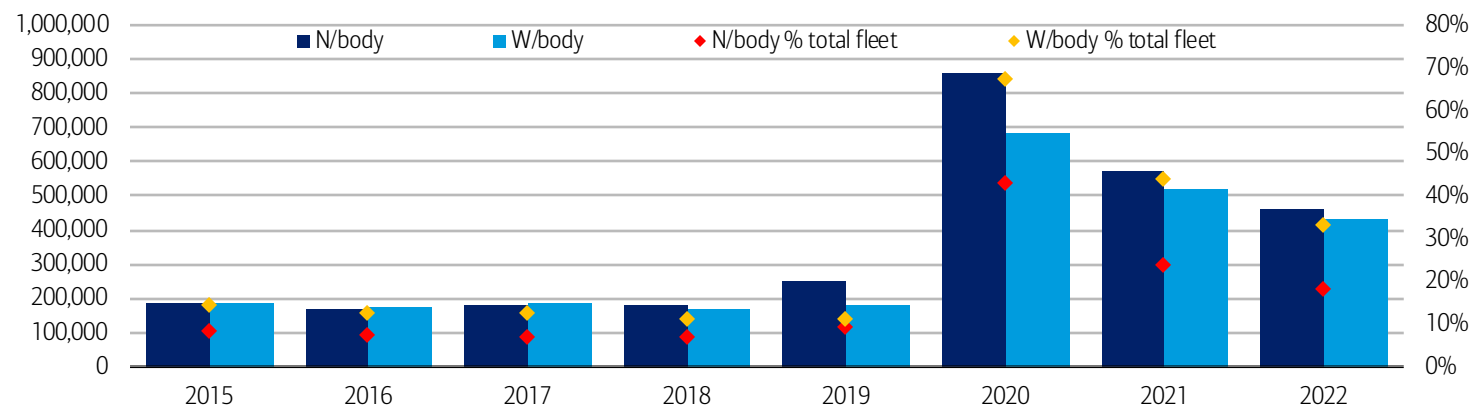


Source: BofA Global Research estimates, Cirium

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Exhibit 8: LHS Total in-storage fleet (FY15-22, # seats), RHS % NB vs WB of the in-storage fleet

In-storage fleet peaked during Covid in FY20 as a large portion of aircrafts was parked on plummeting global air traffic



Source: BofA Global Research estimates, Cirium

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Weekly news round up

Exhibit 9: Global Aerospace and Defence Weekly Newsflow

Major news from the last week in the Global Aerospace & Defence Industry

Weekly newsflow

	Source
<p>Boeing looks to sell at least 150 737 Max jets to Riyadh Air - Bloomberg News: Boeing Co is working on a deal to sell at least 150 737 Max jetliners to Saudi Arabian startup Riyadh Air, Bloomberg News reported on Sunday. The new carrier, wholly owned by Saudi Arabia's Public Investment Fund (PIF), is looking for about 300 to 400 single-aisle jets in total, the report said, citing people familiar with the matter. Airbus SE could also claim a part of the order, the report added. Boeing declined to comment, while Riyadh Air and PIF did not immediately respond to Reuters requests for comment. Boeing previously won another order by state-owned airline Saudia and Riyadh Air for a combined 78 Boeing 787 Dreamliners, the fifth-largest commercial order by value in the plane maker's history.</p>	Reuters
<p>Embraer exec sees no sales hit from Pratt & Whitney engine woes: The head of Brazilian Embraer's planemaking division dismissed concerns that problems at engine supplier Pratt & Whitney would discourage airlines from placing orders and hinted at some order announcements at the upcoming Paris Airshow. Pratt & Whitney has been facing problems with the durability of its latest engines flying on Embraer E2 jets, the Airbus A220 and some A320neo-family jets, but Embraer says it has only a quarter of the problems seen elsewhere with 12 of its planes currently grounded. "It is definitely a topic in discussions with customers," said Arjan Meijer, chief executive of Embraer Commercial Aviation. "We believe the issues that we have today are manageable, but we also believe that for new campaigns, the engines that those customers will get will have...improved technology," he said, referring to the long lead time for aircraft deliveries. "We don't have customers not wanting airplanes because of this topic," he added.</p>	Reuters
<p>Denmark plans defence investment of \$21 bln over next decade: Denmark's government proposed on Tuesday to invest 143 billion Danish crowns (\$21.14 billion) in defence over the next 10 years, in line with a pledge to meet NATO's spending target. A founding member of the North Atlantic Treaty Organization, Denmark scaled down its military capabilities to wage a land war in Europe after the end of the Cold War. But in response to the Ukraine crisis, it pledged last year to permanently increase spending on defence and security to 2% of gross domestic product by the end of 2030, a key goal for NATO member states. "We must, to a greater extent, be able to live up to the demands and expectations that NATO and its allies have for Denmark," Troels Lund Poulsen, the acting defence minister, told a press conference. "This requires large investments in our armed forces to lift our share of the responsibility." Spending will be scaled up to 19.2 billion crowns (\$2.84 billion) in 2033, from 6.9 billion (\$1 billion) next year. The majority government said its proposal would set the overall frame for defence spending, during which decisions on actual military procurements would be agreed upon continuously.</p>	Reuters
<p>Cathay Pacific nears Boeing 777-8F freighter order - sources: Cathay Pacific Airways Ltd is close to placing an order worth around \$2 billion for Boeing 777-8F freighters as the Hong Kong carrier embarks on the partial renewal of a fleet of dedicated 747 cargo jets, industry sources said on Monday. The selection follows a hard-fought battle for the business of one of the world's top-five freight airlines, which had been comparing the all-freight version of the future Boeing 777X jet family with an upcoming cargo model of the existing Airbus A350. Industry sources have said the competition involved an initial purchase of around half a dozen aircraft, worth some \$2 billion at list prices before traditional airline discounts. Cathay Pacific said it had no immediate announcement to make. "We continue to invest in and grow our fleet with the addition of new, state-of-the-art and fuel-efficient aircraft," a Cathay spokesperson said by email. "We have no specific updates or announcements to make at this time regarding the fleet." Boeing and Airbus declined comment on commercial discussions.</p>	Reuters
<p>Boeing looks to sell at least 150 737 Max jets to Riyadh Air - Bloomberg News: Boeing Co is working on a deal to sell at least 150 737 Max jetliners to Saudi Arabian startup Riyadh Air, Bloomberg News reported on Sunday. The new carrier, wholly owned by Saudi Arabia's Public Investment Fund (PIF), is looking for about 300 to 400 single-aisle jets in total, the report said, citing people familiar with the matter. Airbus SE could also claim a part of the order, the report added. Boeing declined to comment, while Riyadh Air and PIF did not immediately respond to Reuters requests for comment.</p>	Reuters
<p>Boeing boosts 787 Dreamliner production rate to four a month: Boeing Co has increased production of its widebody 787 Dreamliner from three to four planes per month as it gets ready to ramp to five a month by the end of the year, a company official said on Tuesday. The U.S. planemaker also plans to add a second production line to the company's facilities in Charleston, South Carolina, as it completes work this year on inventory 787s that are being modified at the site to meet U.S. Federal Aviation Administration standards, said Lane Ballard, Boeing's vice president and general manager for the 787 program. The modification involves fixing miniscule gaps in the forward pressure bulkhead that exceed specifications. Boeing's plant in Everett, Washington, where 787s also are being modified to meet FAA standards, will continue doing that work, Ballard added. Ballard announced the rate increase as reporters toured the company's Charleston production facility two months after Boeing announced a large order for almost 200 Dreamliners.</p>	Reuters
<p>Boeing says certification of 737 MAX 7 is taking 'considerable amount of time': The certification of the Boeing Co 737 MAX 7 is taking a "considerable amount of time" due to new documentation requirements, but the planemaker still believes it can be certified by the end of the year, a company executive said on Wednesday. Both the MAX 7 and MAX 10 are seen as critical for Boeing to compete against Airbus SE for orders at the larger and smaller ends of the narrowbody market. Southwest Airlines Co was expecting to accept the first MAX 7 this year, although the airline's CEO has noted plans to put the aircraft into service could be delayed until 2024. Boeing is readying the final "handful of documents" required by the Federal Aviation Administration (FAA) as it proceeds through the regulatory process necessary to approve the 737 MAX 7 to enter service, Mike Fleming, Boeing's senior vice president for commercial development programs, told a press briefing. The planemaker is also "close" to receiving FAA approval to begin certification flights of its new longer 737 MAX 10, Fleming told reporters. Certification of that aircraft is still projected to occur in 2024, but will depend on when Boeing is approved to begin those flights, he said. "The amount of documentation that we're producing on these airplanes relative to what we had to produce in the past is considerably much larger than it has been," Fleming said. Asked about Boeing's comments, the FAA said "safety will dictate the timeline. We do not comment on ongoing certifications."</p>	Reuters
<p>GE eyes India boost as foreign travel spurs demand for bigger planes: General Electric's aviation arm, already expecting to benefit from a boom in Indian domestic air travel, sees an even bigger boost from a surge in international travel that will drive demand for larger jets, its country head said. Engines built by GE Aerospace and partner Safran power about 60% of India's 700-plus commercial planes, according to data from aviation analytics company Cirium. But most of them are narrowbody jets, which largely cater to domestic travel. Airlines in India, a country of 1.4 billion people, still have just 50 widebody planes deployed for long-haul travel, something GE sees changing as more Indians splurge on travel. "There's clearly a need for more widebody aircraft," Vikram Rai, GE Aerospace's country head for India and Indonesia told Reuters, adding it would be "the next path of growth". GE estimates by 2030 India's international passenger traffic will hit 125 million from 70 million in 2019. Over the same period, India's middle-class population is seen rising to 700 million from around 450 million, spurring demand. "That is more than the population of the U.S., which has 5,500-6,000 commercial aircraft in service, as against 700 for India. So, there is room for significant growth," Rai said. GE's bullish outlook for India comes after a recent record deal to supply 800 fuel-efficient LEAP engines for 400 Air India narrowbody jets, part of a mega plane order. GE will also supply engines for 30 of the 70 widebody planes on order.</p>	Reuters
<p>Exclusive: US set to allow GE to make engines in India for New Delhi's military jets: The Biden administration is poised to sign off on a deal that would allow General Electric Co to produce jet engines powering Indian military aircraft in that country, according to three people briefed on the decision. A deal finalizing the joint production of the engines is expected to be inked and announced by the time President Joe Biden hosts Indian Prime Minister Narendra Modi for an official state visit on June 22, the people said on condition of anonymity because the decision has not been made public. The White House, which said in January that it had received the application to jointly produce the engines in India, declined to comment. GE did not immediately respond to a request for comment. Washington is working to deepen ties with the world's largest democracy and sees deeper military-to-military and technology ties with the South Asian country as a key counterweight to China's dominance in the region.</p>	Reuters
<p>Airbus seen delivering at least 60 jets in May: Airbus deliveries for May appear on course to reach at least 60 aircraft, subject to the final tally of a busy close to the month and a routine audit, industry sources said. That represents an increase of some 30% from the same month last year and would bring deliveries so far this year to more than 220 aircraft. Airbus, which is targeting 720 deliveries for the full year, implying a sharp acceleration in deliveries after the summer, declined comment ahead of a monthly data release on June 7.</p>	Reuters

Exhibit 9: Global Aerospace and Defence Weekly Newsflow

Major news from the last week in the Global Aerospace & Defence Industry

Weekly newsflow**Source**

Boeing CEO 'not overly anxious' about Chinese narrowbody jet: Boeing Co CEO Dave Calhoun downplayed speculation that China's maiden commercial flight of its domestically produced C919 narrowbody jet could foreshadow the end of the duopoly currently held by the U.S. planemaker and its European rival Airbus SE. On Sunday, China Eastern Airlines flew a C919 filled with passengers from Shanghai to Beijing - a milestone for manufacturer Commercial Aviation Corp of China. Calhoun said the C919 is a "good airplane," but it will take a "long while" for COMAC to build the production capacity needed to meet Chinese airlines' demand. "Three providers in a growing global market of this size and scale should not be the most intimidating thought in the world," Calhoun told reporters this week. "For us to get overly anxious about that, I think it's a silly prospect." Boeing should focus on existing competition and position itself to "win that technology race," Calhoun said. He added that China remains "our friend, our customer," but business could proceed with "fits and starts" due to geopolitical tensions. Reuters

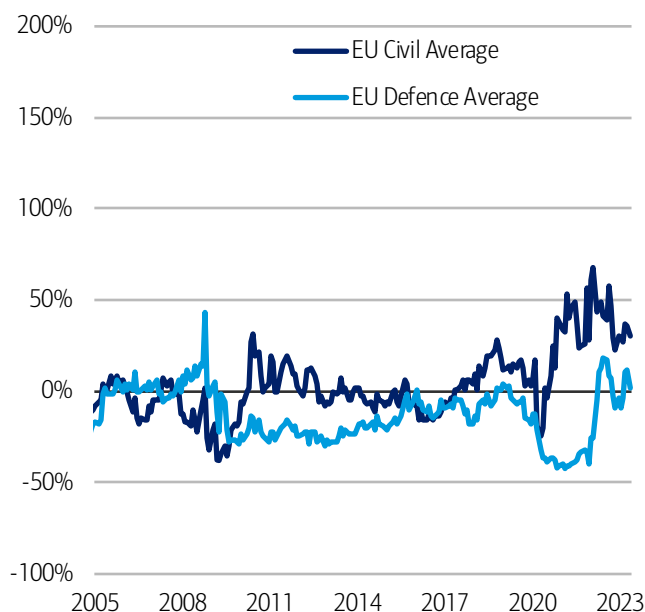
AerCap CEO says airlines to face supply squeeze for many years: Airlines could face shortages of planes, engines and parts for several years as they try to meet a strong rebound in travel demand, the head of aircraft leasing giant AerCap told Reuters. Aerospace firms have predicted supply chain problems for at least 18 months as airlines clamour for jet deliveries to meet the new demand. But AerCap Chief Executive Angus Kelly predicted pressure well into the second half of the decade. "The most important point in the longer term is the supply constraint that will last for many years," Kelly said in an interview, adding this would spread beyond production lines and into already congested repair or "MRO" facilities. Boeing CEO Dave Calhoun last week predicted supply problems for a "very long time". When asked at the Qatar Economic Forum to define such a period, he drew attention to the company's order backlog stretching over the next five to six years. "We feel very much the same, be it airframe issues, engine issues, MRO capability, both on the airframe and the engines," Kelly said, referring to Calhoun's mention of five years. Calhoun also said it would take until end-2024 before jetmakers were able to sharply boost aircraft output. Delivery delays have been blamed for part of the capacity squeeze. Kelly said the shortage of supplies had also been compounded by the more frequent repair visits required by the latest engines. Reuters

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Global A&D Valuations

Exhibit 10: EU Civil & Defence 12mth fwd. PE rel SXNP (industrials).

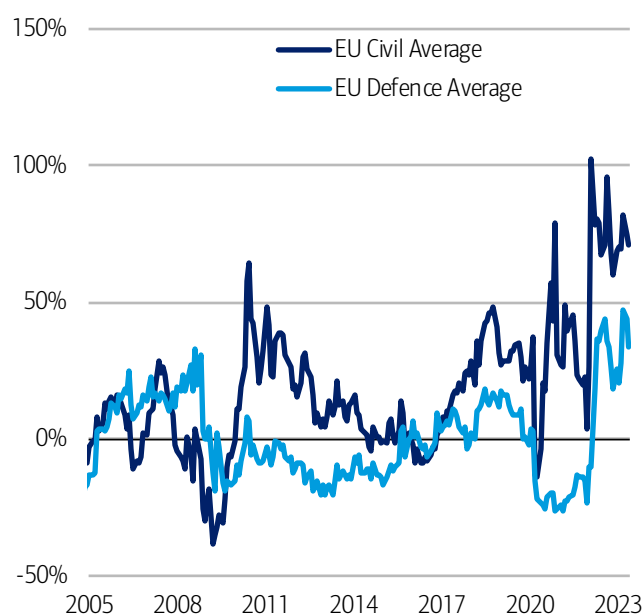
EU Civil is currently trading at 30.3% premium to SXNP, and defence is trading at 2% premium to index (01/06/2023)



Source: BofA Global Research estimates. EU Defence = Thales and Finmeccanica, BAE, QQ, Rheinmetall, SAAB, Hensoldt, Kongsberg EU civil: Airbus, MTU, Safran, Senior
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Exhibit 11: EU Civil & Defence 12mth fwd. PE rel SXXP (market).

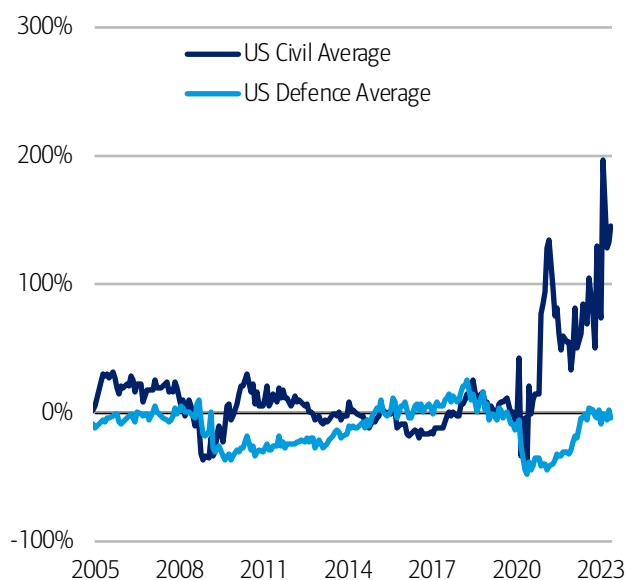
EU Civil is currently trading at a 71% premium to SXXP, and defence is trading at 33.8% premium to SXXP (01/06/2023)



Source: BofA Global Research estimates. EU Defence = Thales and Finmeccanica, BAE, QQ, Rheinmetall, SAAB, Hensoldt, Kongsberg EU civil: Airbus, MTU, Safran, Senior
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Exhibit 12: US Civil & Defence 12mth fwd. PE rel S&P500 Industrials.

US Civil is currently trading at a 145% premium to index, and defence is trading at a 4.4% discount (01/06/2023)

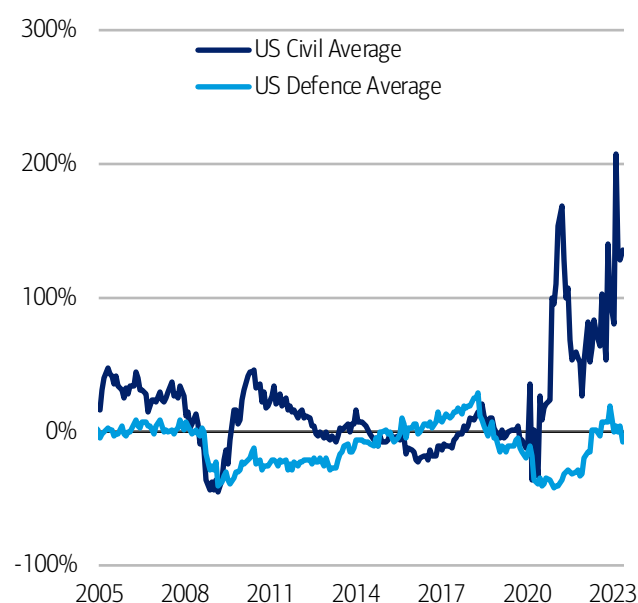


Source: BofA Global Research estimates
US Civil: Boeing, CAE, Crane Co, Hexcel, Triumph Textron. US Defence: General Dynamics, L3, Lockheed Martin, Moog, Northrop Grumman

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Exhibit 13: US Civil & Defence 12mth fwd. PE rel S&P500.

US Civil is currently trading at a 135.7% premium to index, and defence is trading at a 7.2% discount (01/06/2023)



Source: BofA Global Research estimates
US Civil: Boeing, CAE, Crane Co, Hexcel, Triumph Textron. US Defence: General Dynamics, L3, Lockheed Martin, Moog, Northrop Grumman

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Where numbers are moving

Sector FY23 EPS over the last month saw 0.8% increase with Civil OE names seeing 0.5% increase, civil aftermarket names seeing 1.8% increase and defence names seeing 0.4% increase. The major estimate increase was Kongsberg (+7.7%) and decrease was Hensoldt (-4.7%) during last month.

We will continue to monitor the consensus EPS data on a weekly basis.

Exhibit 14: EPS Revision to- 01st Jun, 2023

EPS revisions have been strongly negative in last 12m due to COVID

	1M	3M	6M	1Y
Airbus	0.5%	-0.8%	-14.5%	-19.0%
BAE Systems	0.1%	1.5%	2.2%	9.8%
Dassault	3.4%	18.7%	16.9%	11.4%
Hensoldt	-4.7%	-7.2%	-11.3%	-16.0%
Kongsberg	7.7%	7.4%	8.7%	11.3%
Leonardo	-0.6%	-3.6%	-5.8%	-9.9%
MTU	2.8%	4.7%	8.2%	10.2%
QinetiQ	0.6%	2.2%	4.2%	7.7%
Rheinmetall	-2.0%	3.1%	4.7%	-3.1%
Rolls-Royce	1.3%	47.3%	35.3%	2.7%
SAAB	1.9%	5.0%	5.1%	3.5%
Safran	0.7%	1.5%	-0.3%	0.3%
Senior	-0.1%	4.7%	-3.7%	-9.2%
Thales	0.3%	0.5%	2.0%	3.5%
EU Civil OE	0.5%	-0.8%	-14.5%	-19.0%
EU Civil Aftermarket	1.8%	3.1%	4.0%	5.3%
EU Defence Average	0.4%	1.1%	1.2%	0.9%
EU Sector Average	0.8%	2.9%	1.3%	0.1%

Source: DataStream *QinetiQ EPS revisions are 2021 given march year end

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Exhibit 15: 12mth FWD PE to- 01st Jun, 2023

Civil Aerospace has started to re-rate on hopes for travel reopening

	1M	3M	6M	1Y
Airbus	-3.7%	4.4%	14.7%	11.0%
BAE Systems	-8.8%	4.9%	19.6%	5.3%
Dassault	-13.5%	-16.7%	-9.4%	-20.0%
Hensoldt	-16.9%	9.4%	37.6%	21.8%
Kongsberg	-8.4%	-1.3%	2.9%	-0.4%
Leonardo	-10.5%	2.1%	37.1%	0.6%
MTU	-13.6%	-7.8%	4.2%	-9.2%
QinetiQ	-2.3%	0.2%	-6.1%	-17.1%
Rheinmetall	-13.0%	-8.9%	10.0%	-0.8%
Rolls-Royce	-10.4%	-15.0%	-7.4%	8.6%
SAAB	-6.4%	5.6%	43.7%	15.3%
Safran	-5.5%	-2.0%	8.8%	7.9%
Senior	4.8%	-2.5%	17.3%	-19.0%
Thales	-7.1%	1.1%	6.7%	0.1%
EU Civil OE	-3.7%	4.4%	14.7%	11.0%
EU Civil Aftermarket	-9.8%	-8.2%	1.8%	2.4%
EU Defence Average	-10.3%	3.2%	20.8%	5.5%
Sector Average	-8.1%	-0.9%	14.4%	-0.3%

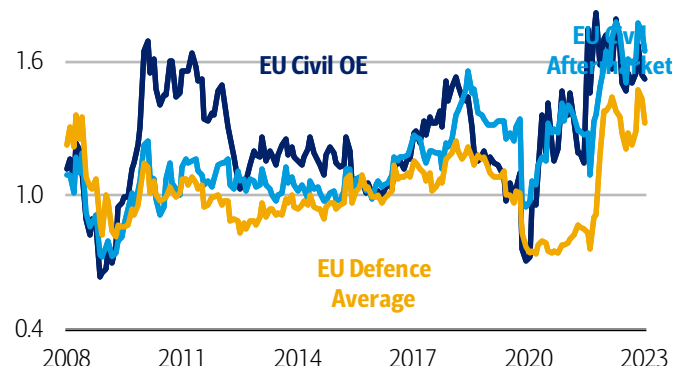
Source: DataStream

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Global PE Trends

Exhibit 16: EU A&D Sector Valuations -relative 12mnth FWD PE

Civil Aerospace has re-rated at end of 2020, Defence at trough valuation

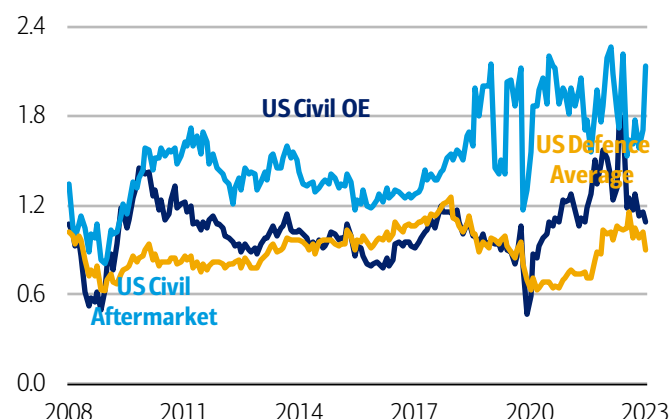


Source: DataStream

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Exhibit 17: US A&D Sector Valuations -relative 12mnth FWD PE

US Defence valuations appear to have found trough vs Europe

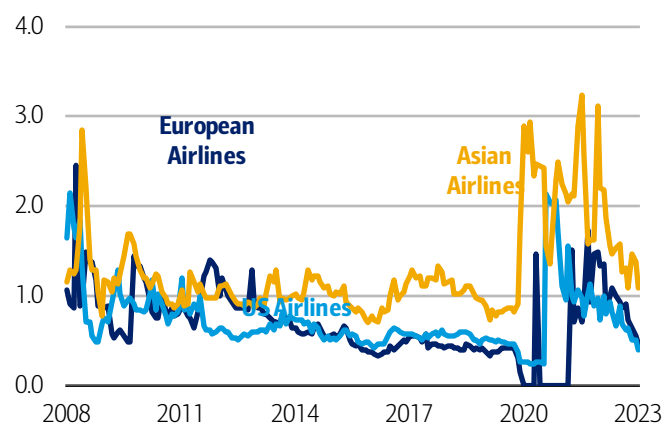


Source: DataStream

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Exhibit 18: Global Airlines Valuations -relative 12mnth FWD PE

Airlines have started to re-rate on hopes of travel reopening

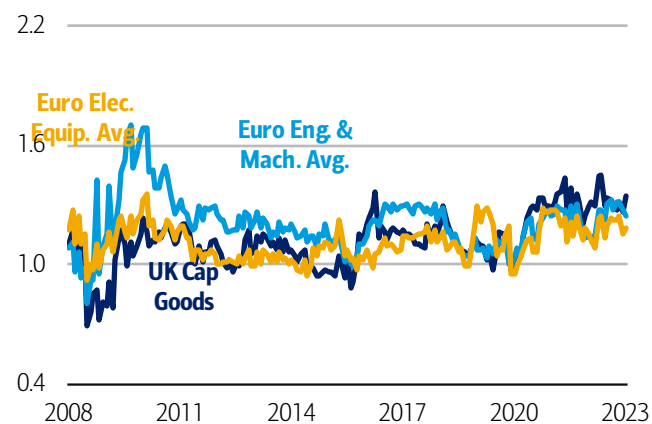


Source: DataStream

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Exhibit 19: EU Industrials Sector Valuations -relative 12mnth FWD PE

European and UK Capital Goods started to re-rate in H220

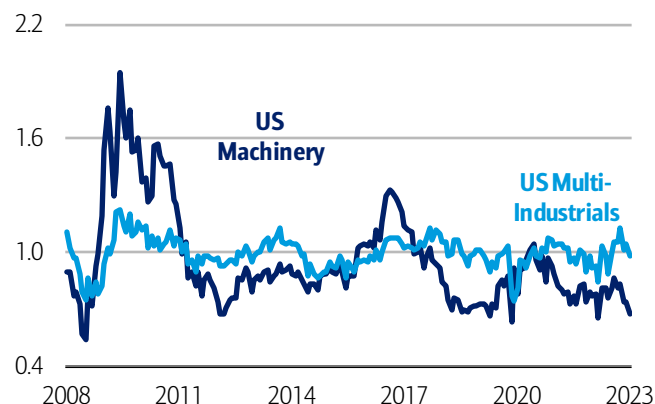


Source: DataStream

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Exhibit 20: US Industrials Sector Valuations -relative 12mnth FWD PE

US Industrials started to re-rate in H220



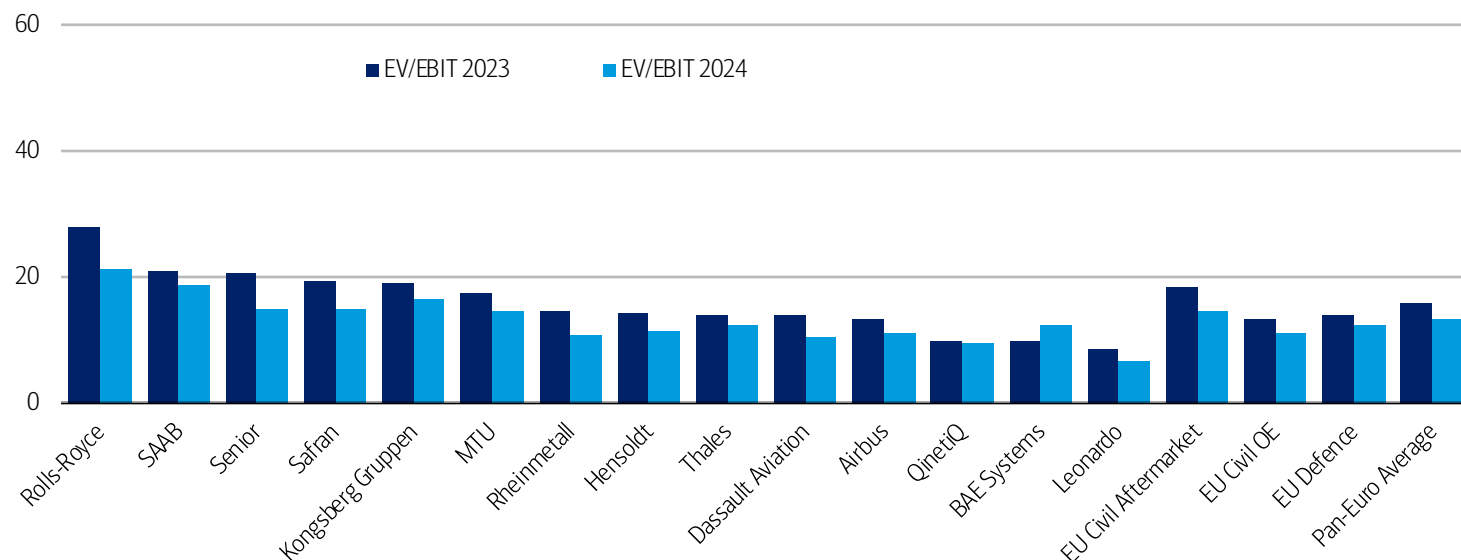
Source: DataStream

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Valuations and PE ranges

Exhibit 21: EV/EBIT for 2023 and 2024

2023 (Pan-Euro avg=15.98) and 2024 (Pan Euro avg=13.23) ordered in terms of 2023, most expensive to least

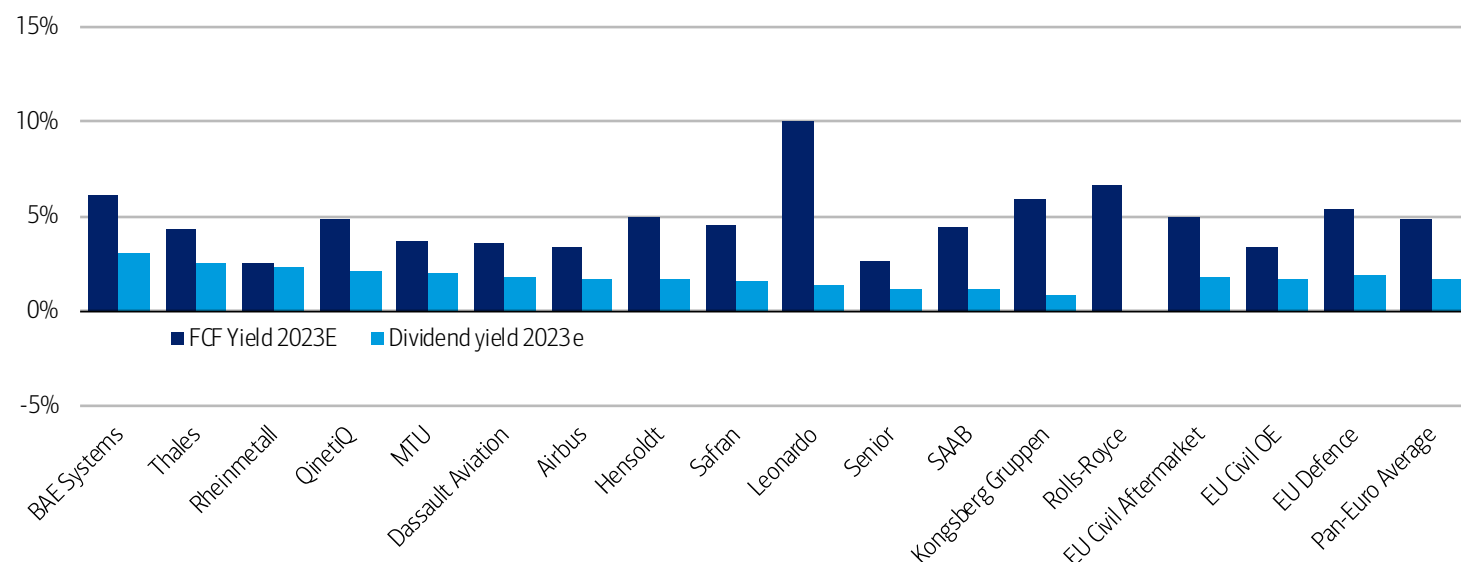


Source: BofA Global Research estimates

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Exhibit 22: Free Cash Flow Yield % and Dividend Yield %

Free cash flow Pan Euro avg= 4.83% and dividend yield avg=1.67%

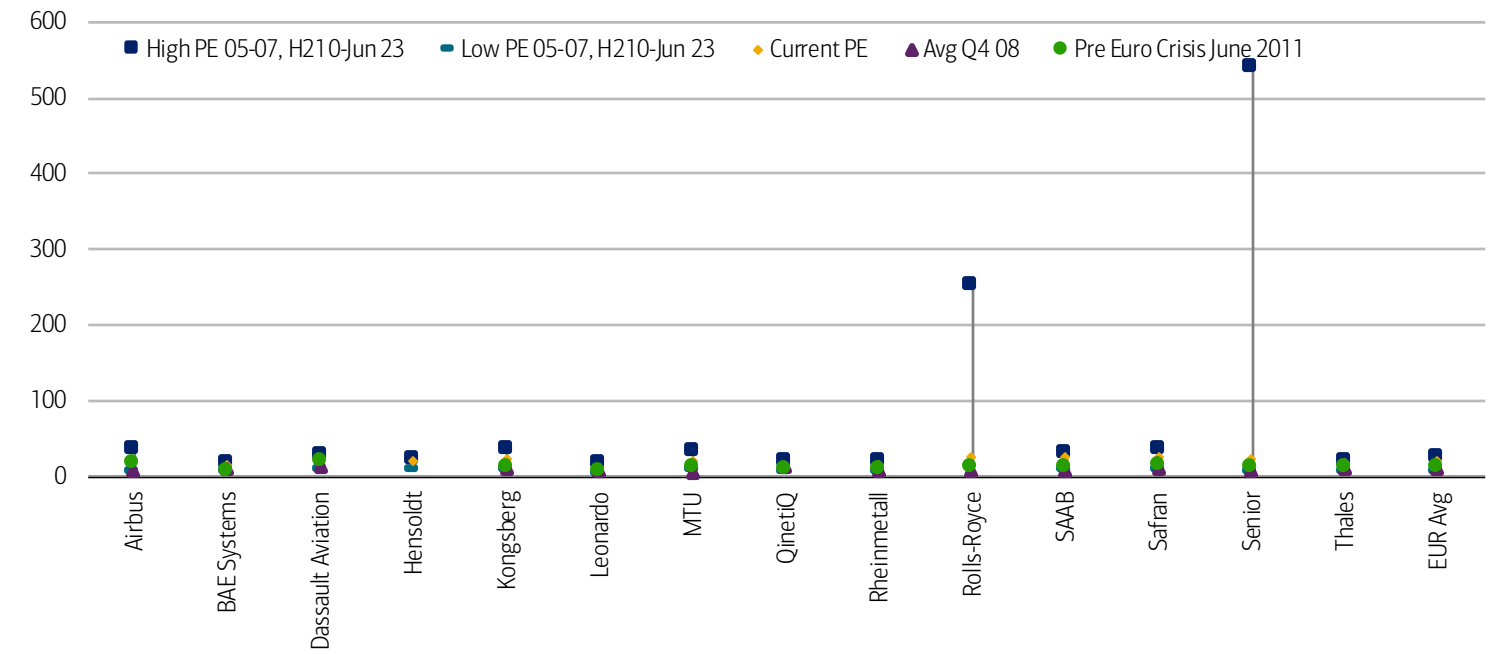


Source: BofA Global Research estimates

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Exhibit 23: European A&D Stock-PE Candle light Exhibit

Civil Aerospace companies trade at the top of their historical PE ranges on post COVID-19 reopening hopes. Defence trades at bottom of ranges due to low sector average multiples (ESG pressures, budget uncertainty)



Source: BofA Global Research estimates

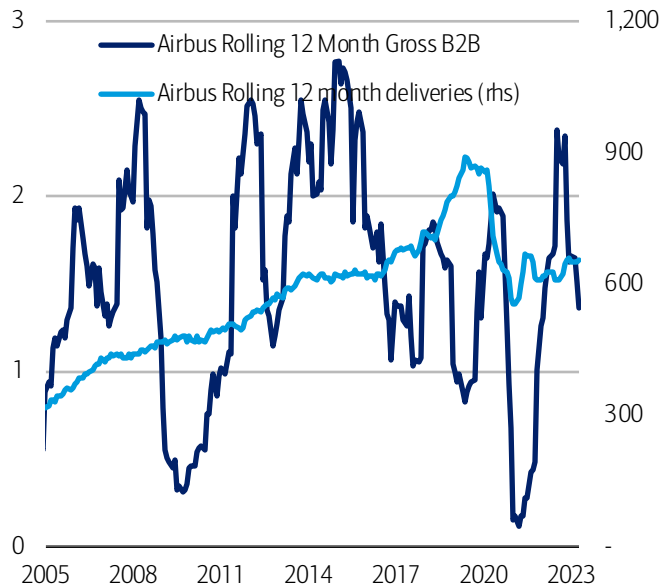
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Global book to bill trends

Exhibit 24: Airbus 12mnth Rolling B2B and deliveries

Airbus delivered 566 aircraft in 2020 driving a step down in 12m rolling deliveries - new orders had also collapsed driving weak B2B

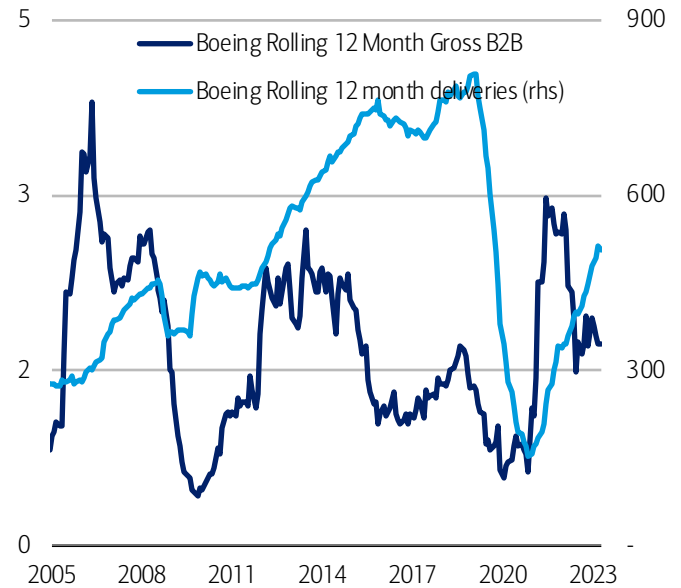


Source: BofA Global Research estimates

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Exhibit 25: Boeing 12mnth Rolling B2B and deliveries

Boeing's Gross B2B and deliveries have fallen significantly after the 737MAX grounding in 2019

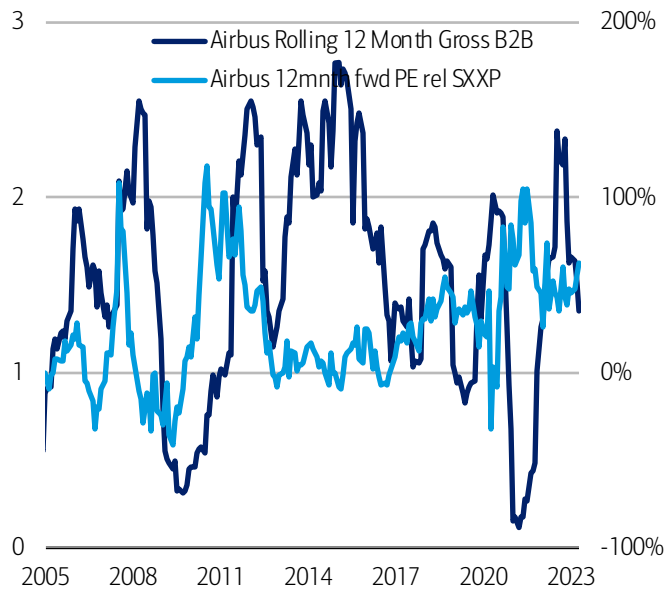


Source: BofA Global Research estimates

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Exhibit 26: Airbus 12mnth Rolling B2B vs. Air 12mnth fwd PE rel SXXP

Airbus has started to re-rate on reopening optimism

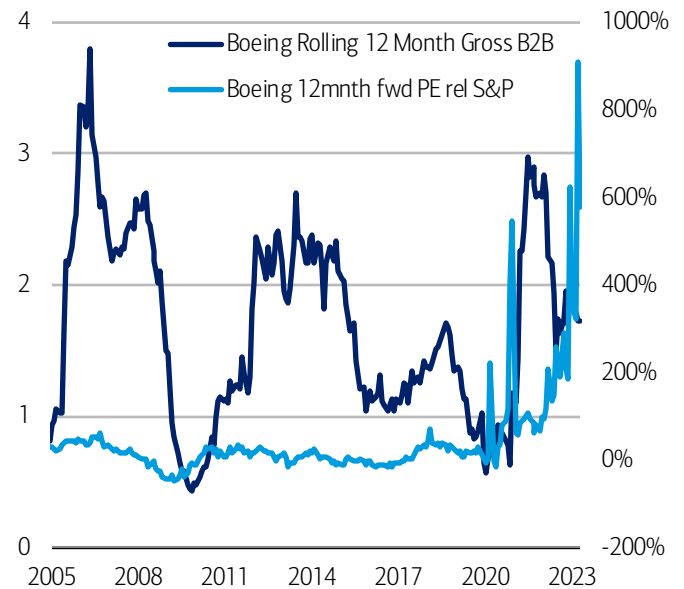


Source: BofA Global Research estimates

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Exhibit 27: Boeing 12mnth Rolling B2B vs. BA 12mnth fwd PE rel S&P

Boeing's PE multiple has become disligated due to MAX impact



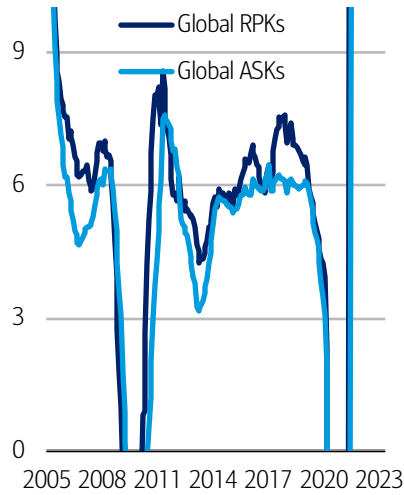
Source: BofA Global Research estimates

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Air traffic & Capacity

Exhibit 28: Global RPKs and ASKs (%)

COVID-19 drove global traffic growth to all time low levels in 2020

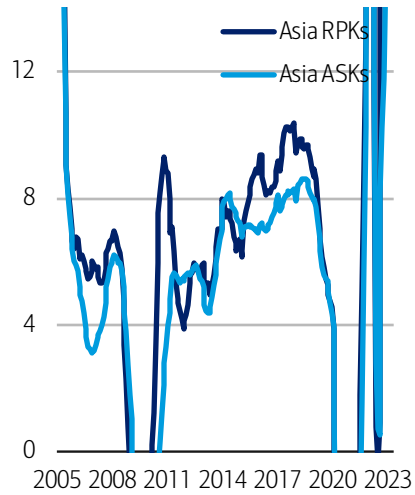


Source: IATA

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Exhibit 29: Asia RPKs and ASKs (%)

Asia-Pacific has benefitted from more resilient Chinese domestic traffic

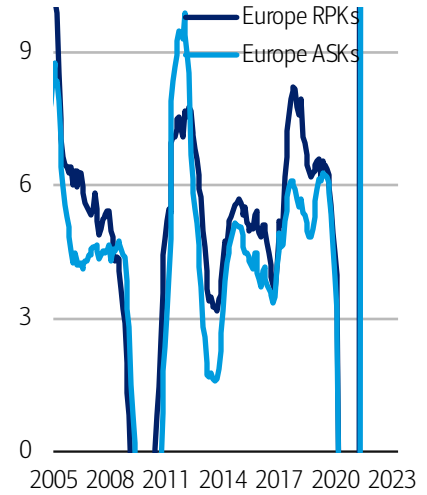


Source: IATA

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Exhibit 30: Europe RPKs and ASKs (%)

Europe has been the weakest region due to cross-border travel restrictions

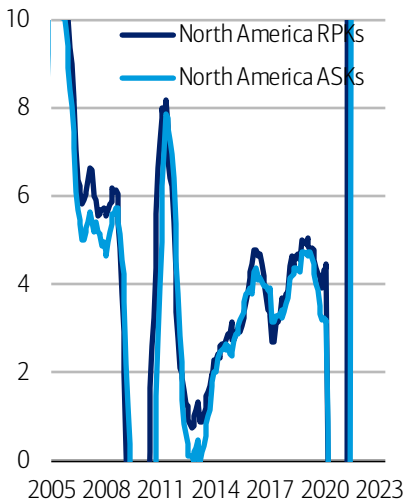


Source: IATA

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Exhibit 31: North America RPKs and ASKs (%)

NA has higher domestic mix than Europe

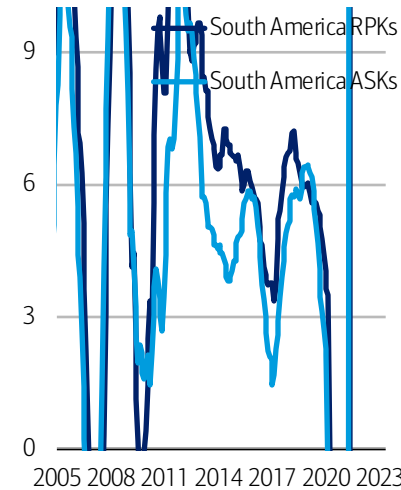


Source: IATA

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Exhibit 32: South America RPKs and ASKs (%)

South America relies heavily on intracontinental travel

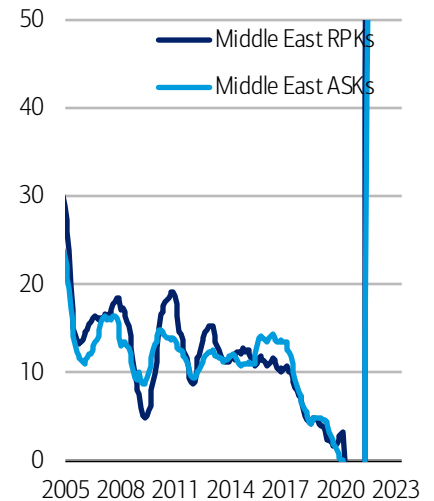


Source: IATA

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Exhibit 33: Middle East RPKs and ASKs (%)

Middle East relies heavily on international long-haul traffic through major airport hubs



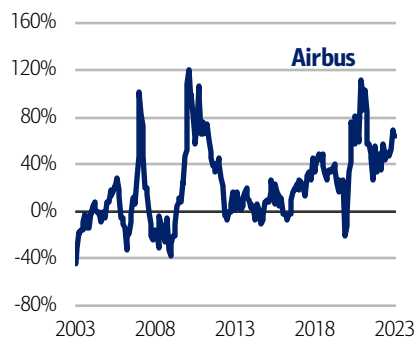
Source: IATA

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Relative stock valuations

Exhibit 34: Airbus 12 mnth fwd PE rel SXXP

Airbus has re-rated strongly on re-opening optimism

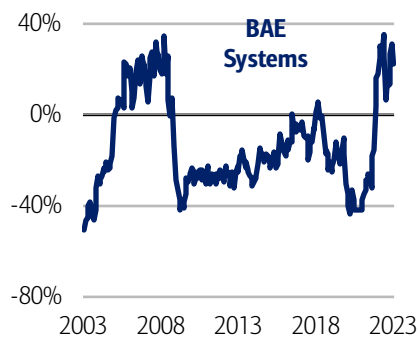


Source: DataStream

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Exhibit 35: BAE 12 mnth fwd PE rel SXXP

BAE has de-rated in line with broader Defence sector and slowing US budget

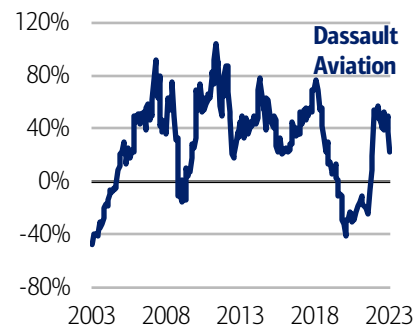


Source: DataStream

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Exhibit 36: Dassault 12 mnth fwd PE rel SXXP

Dassault has de-rated heavily on business jet order weakness and defence de-rating



Source: DataStream

BofA GLOBAL RESEARCH

Exhibit 37: Kongsberg 12 mnth fwd PE rel SXXP

Kongsberg has started to re-rate on improving Maritime market, Defence growth



Source: DataStream

BofA GLOBAL RESEARCH

Exhibit 38: Leonardo 12 mnth fwd PE rel SXXP

Leonardo has de-rated strongly due to strong COVID impact, defence de-rating, ESG

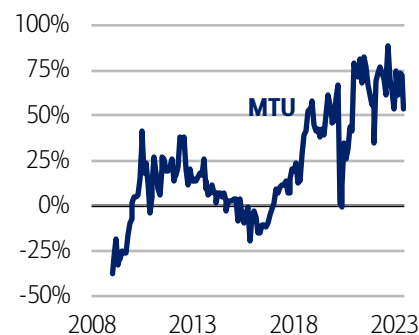


Source: DataStream

BofA GLOBAL RESEARCH

Exhibit 39: MTU 12 mnth fwd PE rel SXXP

MTU has re-rated strongly on re-opening optimism and balance sheet confidence

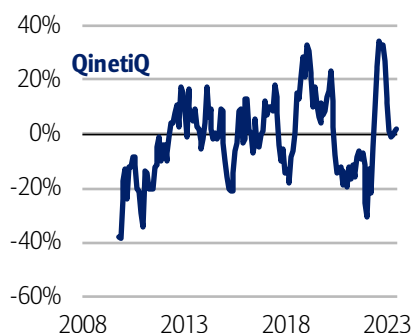


Source: DataStream

BofA GLOBAL RESEARCH

Exhibit 40: QinetiQ 12 mnth fwd PE rel SXXP

QinetiQ has de-rated in line with Defence peer group and lower earnings growth

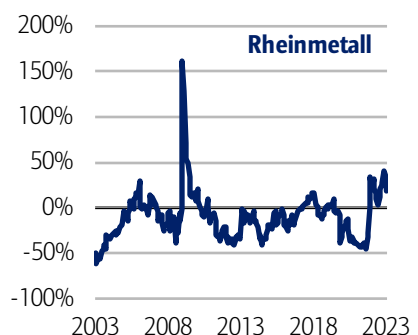


Source: DataStream

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Exhibit 41: Rheinmetall 12 mnth fwd PE rel SXXP

Rheinmetall has de-rated in line with defence peers and due to weaker Automotive outlook

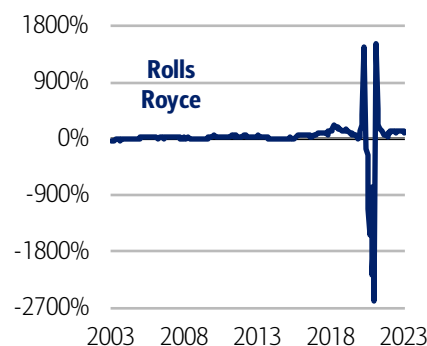


Source: DataStream

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Exhibit 42: Rolls Royce 12 mnth fwd PE rel SXXP

RR's valuation has broken from normal levels due to rights issue, negative earnings

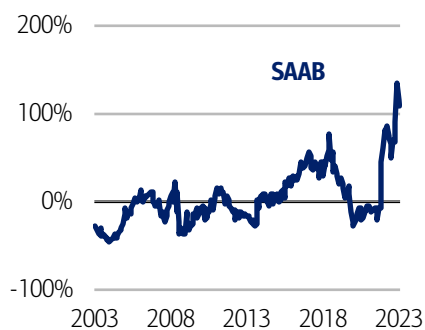


Source: DataStream

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Exhibit 43: SAAB 12 mnth fwd PE rel SXXP

SAAB has de-rated in line with broader sector de-rating and uncertainty over execution

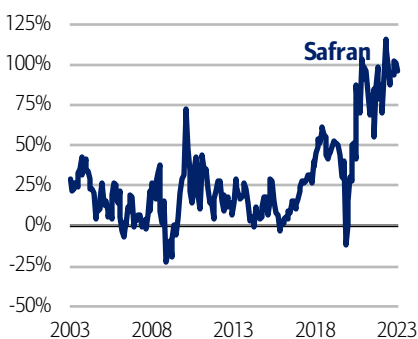


Source: DataStream

BofA GLOBAL RESEARCH

Exhibit 44: Safran 12 mnth fwd PE rel SXXP

Safran has re-rated strongly on re-opening optimism

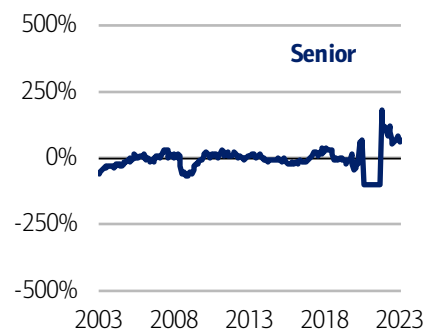


Source: DataStream

BofA GLOBAL RESEARCH

Exhibit 45: Senior 12 mnth fwd PE rel SXXP

Senior's valuation has broken from normal levels due to COVID-19 impact on earnings

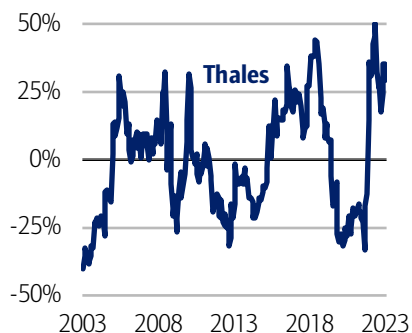


Source: DataStream

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Exhibit 46: Thales 12 mnth fwd PE rel SXXP

Thales has de-rated in line with broader Defence sector de-rating



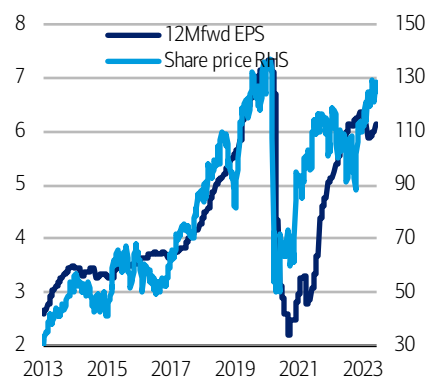
Source: DataStream

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A&D EPS Trends

Exhibit 47: Airbus EPS vs Share price

Airbus faced strongly negative earnings revisions due to lower deliveries, COVID cost

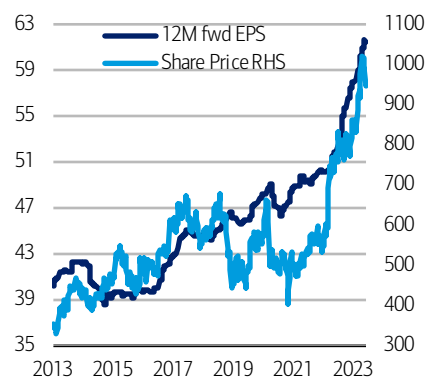


Source: DataStream

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Exhibit 48: BAE EPS vs Share price

BAE EPS expectations have grown reflecting M&A, growth but share price has weakened

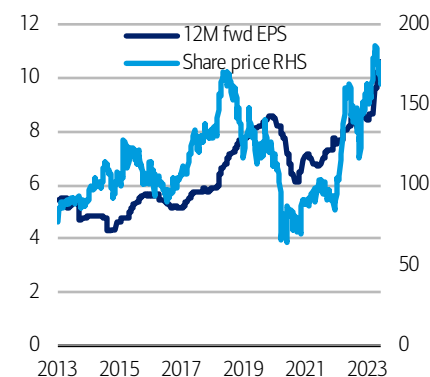


Source: DataStream

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Exhibit 49: Dassault EPS vs Share price

Dassault EPS and share price have fallen due to weak business jet outlook

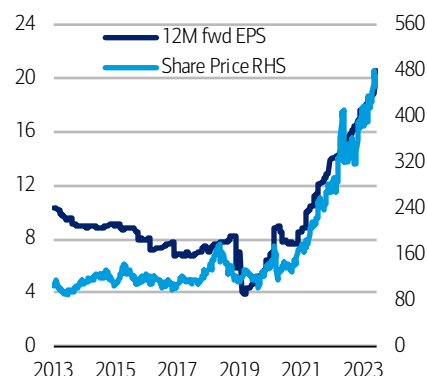


Source: DataStream

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Exhibit 50: Kongsberg EPS vs Share price

Kongsberg EPS/share price has been positively correlated since 2019

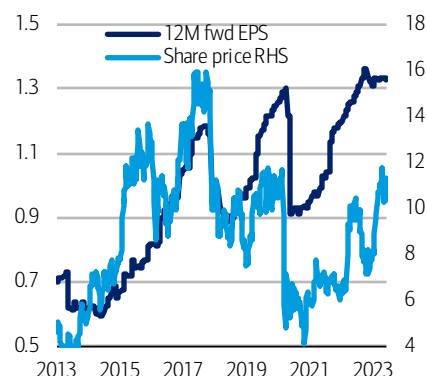


Source: DataStream

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Exhibit 51: Leonardo EPS vs Share price

Leonardo EPS expectations have followed share price reaction due to COVID impacts

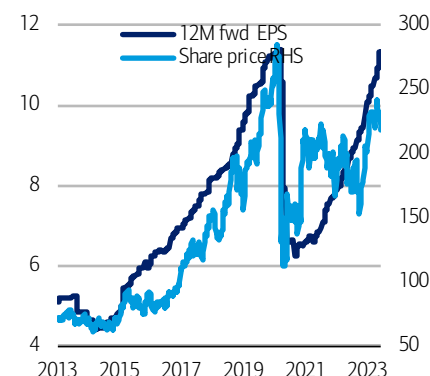


Source: DataStream

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Exhibit 52: MTU EPS vs Share price

MTU faced strongly negative earnings revisions due to weaker OE and Aftermarket

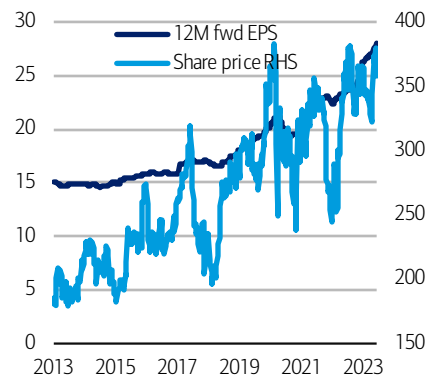


Source: DataStream

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Exhibit 53: QinetiQ EPS vs Share price

QinetiQ EPS expectations have been growing steadily with limited impact from COVID-19

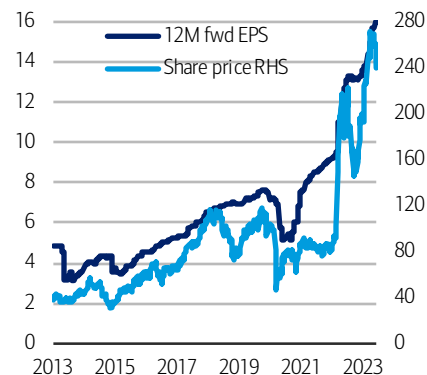


Source: DataStream

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Exhibit 54: Rheinmetall EPS vs Share price

Rheinmetall EPS expectations deteriorated in 2020 on weaker Automotive outlook

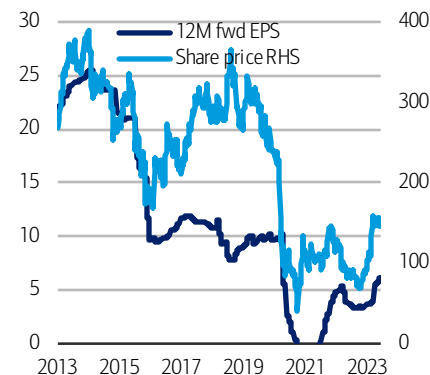


Source: DataStream

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Exhibit 55: Rolls Royce EPS vs Share price

Rolls Royce's share price was impacted by rights issue and COVID-19 pressure on FCF



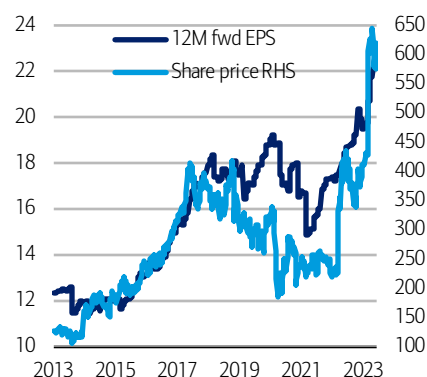
Source: DataStream

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Exhibit 56: SAAB EPS vs Share price

SAAB has seen EPS downgrades in 2020 due to COVID costs on Aeronautics, IPS

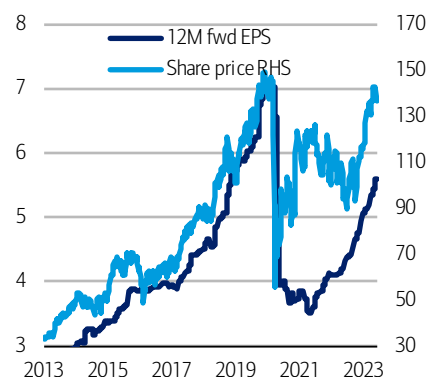


Source: DataStream

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Exhibit 57: Safran EPS vs Share price

Safran faced strongly negative earnings revisions due to weaker OE and Aftermarket

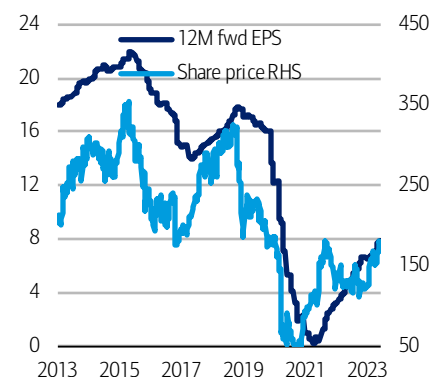


Source: DataStream

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Exhibit 58: Senior EPS vs Share price

Senior's earnings have been impacted by 737MAX grounding and lower production

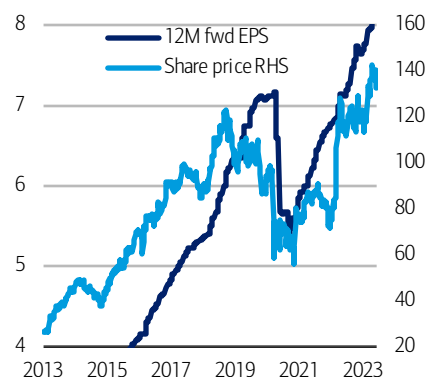


Source: DataStream

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Exhibit 59: Thales EPS vs Share price

EPS expectations fell due to COVID impact on Civil Aerospace, Transportation



Source: DataStream

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A&D Compsheet

Exhibit 60: A&D Compsheet

Below we highlight our valuation peer comparison table

Europe	Rating	Currency	Price	Mcap (USD)	EV/EBITDA			EV/EBIT			PE (x)			DY			FCF yield		
					2023	2024	2025	2023	2024	2025	2023	2024	2025	2023	2024	2025	2023	2024	2025
Airbus	1 - Buy	EUR	126	106,141	10.1	8.7	6.9	13.4	11.1	8.3	21.1	16.9	12.0	1.7%	2.1%	2.9%	3.3%	5.9%	7.8%
BAE Systems	1 - Buy	GBP	945	36,100	8.1	9.5	8.9	9.9	12.2	11.3	15.5	13.4	11.5	3.0%	3.2%	3.4%	6.1%	6.8%	7.8%
Dassault Aviation	2 - Neutral	EUR	163	14,577	11.3	8.8	6.0	13.8	10.4	6.9	17.0	14.1	10.7	1.8%	2.1%	2.8%	3.6%	2.2%	0.3%
Hensoldt	2 - Neutral	EUR	30	3,401	10.7	8.8	7.1	14.2	11.5	8.9	18.2	15.0	12.4	1.6%	2.3%	3.2%	5.0%	6.4%	6.9%
Kongsberg Gruppen	2 - Neutral	NOK	453	7,234	14.6	12.6	11.4	19.0	16.4	14.9	22.8	19.3	17.7	0.9%	1.0%	1.1%	5.9%	7.0%	5.9%
Leonardo	1 - Buy	EUR	10	6,378	5.1	4.2	3.4	8.5	6.6	5.3	10.5	8.2	6.8	1.4%	1.8%	2.2%	10.0%	12.5%	15.5%
MTU	2 - Neutral	EUR	218	11,931	11.8	10.2	9.0	17.6	14.5	12.4	19.0	15.5	12.9	2.0%	2.5%	3.0%	3.7%	5.3%	6.4%
QinetiQ	3 - Underperform	GBP	358	2,563	7.6	7.3	6.6	9.9	9.6	8.7	18.1	13.3	12.5	2.2%	2.3%	2.4%	4.9%	5.1%	5.3%
Rheinmetall	2 - Neutral	EUR	239	10,977	10.0	7.6	6.2	14.5	10.6	8.4	17.3	12.7	9.8	2.3%	3.2%	4.1%	2.5%	2.7%	5.3%
Rolls-Royce	1 - Buy	GBP	146	15,338	9.5	8.1	6.5	27.9	21.2	14.7	22.8	18.4	14.0	0.0%	0.7%	0.8%	6.7%	10.8%	11.8%
SAAB	1 - Buy	SEK	597	7,332	11.9	11.0	9.6	21.0	18.7	15.6	28.0	23.7	20.1	1.2%	1.4%	1.6%	4.4%	3.2%	3.2%
Safran	1 - Buy	EUR	138	63,043	13.8	11.1	9.4	19.3	15.0	12.3	25.7	19.4	15.4	1.6%	2.1%	2.6%	4.5%	5.2%	6.6%
Senior	3 - Underperform	GBP	169	885	8.9	7.4	6.3	20.7	14.9	11.8	27.3	18.4	14.3	1.2%	1.7%	2.2%	2.6%	4.1%	6.1%
Thales	1 - Buy	EUR	133	29,704	8.5	8.0	7.2	14.0	12.3	10.7	15.5	13.8	11.9	2.6%	2.9%	3.4%	4.4%	4.6%	5.3%
EU Civil Aftermarket					12.8	10.7	9.2	18.4	14.7	12.4	22.4	17.5	14.2	1.8%	2.3%	2.8%	5.0%	7.1%	8.3%
EU Civil OE					10.1	8.7	6.9	13.4	11.1	8.3	21.1	16.9	12.0	1.7%	2.1%	2.9%	3.3%	5.9%	7.8%
EU Defence					9.6	8.6	7.6	13.9	12.3	10.5	18.2	14.9	12.8	1.9%	2.3%	2.7%	5.4%	6.1%	6.9%
Pan-Euro Average					10.1	8.8	7.5	16.0	13.2	10.7	19.9	15.9	13.0	1.7%	2.1%	2.5%	4.8%	5.9%	6.7%

Non Europe	Rating	Currency	Price	Mcap (USD)	EV/EBITDA			EV/EBIT			PE (x)			DY			FCF yield		
					2023	2024	2025	2023	2024	2025	2023	2024	2025	2023	2024	2025	2023	2024	2025
Boeing	2 - Neutral	USD	208	125,107	38.1	18.9	15.6	66.4	24.1	19.0	-297.1	42.9	28.1	0.0%	0.0%	0.0%	2.9%	7.5%	11.0%
Embraer	1 - Buy	USD	16	2,847	7.6	5.6	4.2	10.5	7.2	5.2	8.4	6.9	5.3	0.0%	0.0%	0.0%	10.8%	13.3%	16.3%
General Dynamics	1 - Buy	USD	205	56,329	12.9	11.1	10.0	15.6	13.2	11.7	16.1	13.6	11.9	2.6%	2.9%	3.1%	6.2%	8.4%	8.7%
HEICO	2 - Neutral	USD	155	18,665	30.4	26.6	24.2	36.0	31.7	28.5	52.5	44.9	39.7	0.1%	0.1%	0.2%	2.3%	2.7%	3.0%
Hexcel Corp	2 - Neutral	USD	71	5,951	17.6	14.8	13.6	26.7	20.9	18.8	37.1	27.7	23.9	0.8%	0.8%	0.8%	2.3%	3.5%	4.1%
Huntington Ing Industries	3 - Underperform	USD	201	8,026	12.0	10.1	9.3	16.2	13.0	11.9	13.5	11.3	10.2	2.5%	2.7%	3.0%	5.7%	8.5%	9.0%
L3Harris	2 - Neutral	USD	177	33,516	12.4	11.6	10.8	15.4	14.5	13.4	14.4	13.7	13.0	3.0%	3.3%	3.5%	6.2%	7.4%	7.9%
Lockheed Martin	2 - Neutral	USD	450	113,880	13.6	13.5	13.3	14.9	14.8	14.6	16.7	16.0	15.6	2.7%	3.0%	3.3%	5.6%	6.0%	6.3%
Mercury Systems	6 - No Rating	USD	40	2,338	58.2	51.2	45.6	79.1	66.8	56.4	20.1	17.9	16.1	0.0%	0.0%	0.0%	0.1%	6.4%	6.3%
Northrop Grumman	1 - Buy	USD	439	66,592	14.4	13.4	12.0	19.4	17.9	15.8	19.5	18.2	15.8	1.7%	1.8%	2.0%	3.1%	3.9%	5.0%
Raytheon	1 - Buy	USD	94	137,479	11.8	11.7	16.9	17.2	17.1	16.9	18.6	17.9	16.4	2.5%	2.6%	2.7%	3.4%	4.4%	5.2%
Spirit Aerosystems	3 - Underperform	USD	28	2,916	13.4	7.0	5.7	44.9	10.9	8.0	-56.6	13.2	8.0	0.0%	0.0%	0.0%	-5.2%	3.1%	10.1%
Textron	2 - Neutral	USD	62	12,567	9.2	8.3	7.6	12.5	11.0	9.9	12.1	11.5	10.1	0.1%	0.1%	0.1%	8.5%	8.8%	9.5%
TransDigm Ltd	1 - Buy	USD	778	42,742	18.9	16.2	14.3	20.7	17.6	15.4	32.5	23.7	20.2	0.0%	0.0%	0.0%	3.1%	4.3%	4.9%
Triumph Group	1 - Buy	USD	11	742	14.7	11.6	10.3	13.0	14.6	12.6	14.7	56.7	20.6	0.0%	0.0%	0.0%	-9.0%	3.9%	4.1%
US Civil Aftermarket					18.9	16.2	14.3	20.7	17.6	15.4	32.5	23.7	20.2	0.0%	0.0%	0.0%	3.1%	4.3%	4.9%
US Civil OE					19.6	12.2	10.6	37.6	16.7	13.9	-76.1	23.8	17.5	0.2%	0.2%	0.2%	2.2%	5.7%	8.7%
US Defence					12.9	12.1	12.9	16.9	15.7	14.8	17.1	15.8	14.5	2.3%	2.5%	2.8%	4.5%	5.7%	6.4%
US Average					19.0	15.4	14.2	27.2	19.7	17.2	-5.2	22.4	17.0	1.1%	1.2%	1.2%	3.1%	6.1%	7.4%

Source: BofA Global Research estimates

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A&D Calendar

Exhibit 61: A&D Calendar

Calendar of events for A&D companies

Date	Subject	Event
18 Jan 23	QinetiQ	9M23 trading update
08 Feb 23	Vestas	FY22 Annual report
10 Feb 23	Kongsberg	FY22 results
10 Feb 23	SAAB	FY22 results
16 Feb 23	Airbus	FY22 results
16 Feb 23	MTU	FY22 results
17 Feb 23	Eutelsat	1H23 results
17 Feb 23	Safran	FY22 results
23 Feb 23	BAE Systems	FY22 preliminary results
23 Feb 23	Rolls-Royce	FY22 results
08 Mar 23	Thales	FY22 results
09 Mar 23	Dassault Aviation	FY22 results
16 Mar 23	Rheinmetall	FY22 results
28 Mar 23	Nordex	FY22 Annual report
30 Mar 23	Kongsberg	FY22 Annual report
05 Apr 23	SAAB	AGM
12 Apr 23	Vestas	AGM
26 Apr 23	SAAB	1Q23 results
26 Apr 23	MTU	1Q23 results
26 Apr 23	Safran	1Q23 results
27 Apr 23	Kongsberg	1Q23 results
04 May 23	BAE Systems	AGM
04 May 23	Rheinmetall	1Q23 results
05 May 23	Thales	1Q23 results
09 May 23	Rheinmetall	AGM
10 May 23	Thales	AGM
10 May 23	Vestas	1Q23 results
11 May 23	Kongsberg	AGM
11 May 23	MTU	AGM
11 May 23	Nordex	1Q23 results
11 May 23	Rolls-Royce	AGM and Trading Update
16 May 23	Dassault Aviation	AGM
25 May 23	Safran	AGM
06 Jun 23	Nordex	AGM

Source: Company report

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Investment rating	Total return expectation (within 12-month period of date of initial rating)	Ratings dispersion guidelines for coverage cluster ^{R1}
Buy	≥ 10%	≤ 70%
Neutral	≥ 0%	≤ 30%
Underperform	N/A	≥ 20%

^{R1} Ratings dispersions may vary from time to time where BofA Global Research believes it better reflects the investment prospects of stocks in a Coverage Cluster.

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