INVESTMENT RECOMMENDATION (HWM)

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Company Name	Howmet Aerospace Inc. (NYSE: HWM)	Market Cap	$ 39.4B
Sector	Industrials	Enterprise Value	$ 42.5B
Industry	Aerospace & Defense	NTM EV/ EBITDA	22.64x
Current Price	$ 96.7	NTM P/E Ratio	33.96x
Dividend Yield	0.36%	TTM RoIC %	12.39%

Business Background

- **Original Company:**
  - **Alcoa Inc (Pre-2016)**: A broad, vertically integrated company involved in metals (bauxite ore, alumina, and aluminum)
- **First Split (2016):**
  - **Alcoa Corp.**: Focused on mining and refining
  - **Arconic Inc.**: Focused on engineered products and aluminum
- **Second Split (April 2020):**
  - **Howmet Aerospace**: Retained high-value engineered products and fasteners
  - **Arconic Corp.**: Lower-value metal rolling operations (acquired by Apollo Global in August 2023)
- **Howmet Corp.** (Historical Background):
  - Originally Howe Sound Co., it underwent several mergers and acquisitions
  - Sold to Thiokol, then Carlyle Group, and later majority-owned by Cordant.
  - Cordant finally sold to Alcoa in 2000

HWM has 4 product segments divided further into 4 sub-segments (Resulting in a 4 x 4 revenue contribution matrix)

- Products: Engine Products, Fastening Systems, Engineered Structures, Forged Wheels
- Each of the above (Except for Forged Wheels) divided into: Aerospace Commercial, Aerospace Defense, Commercial Transportation, Industrial & Other. Further details on products here

	Engine Products	Fastening Systems	Engineered Structures	Forged Wheels	Total Segment
Year ended December 31, 2023					
Aerospace - Commercial	$ 1,798	$ 790	$ 641	$ —	$ 3,229
Aerospace - Defense	670	173	172	—	1,015
Commercial Transportation	—	255	—	1,147	1,402
Industrial and Other	798	131	65	—	994
Total end-market revenue	$ 3,266	$ 1,349	$ 878	$ 1,147	$ 6,640

Concluding Recommendation

Based on its dominant position as the leading supplier of engine and structural components in the aerospace market, Howmet Aerospace is well-positioned for continued growth. HWM's advanced high-temperature technology, particularly in airfoils—which now constitute 50% of its revenue—has enabled the company to nearly double its market share in Hot Section Airfoils from 50% in 2020 to nearly 100% today. This significant market dominance is further reinforced by HWM's integration with next-generation engines such as CFM's LEAP and Pratt & Whitney's Geared Turbofan, facilitating price increases and enhancing profitability. Additionally, the robust recovery in commercial aircraft production post-pandemic, coupled with rising content shares on commercial engines and inflation-driven pricing, creates a favorable environment for HWM's growth.

The shift towards new-gen engine components, which require more frequent replacements, is expected to accelerate demand and boost aftermarket revenues. Given HWM's strong competitive position, innovative product offerings, and the positive industry outlook, I do have a strong conviction for long term.

Investment Thesis

1. **Positive long-term demand trends for Commercial Aerospace remain intact –** The federal government and US forms lifted travel restrictions following the pandemic, with most countries following suit. This has allowed commercial aerospace to get back to its long-term growth trends, driven by global economic expansion and integration's heavy reliance on air travel. As of March 2024, **U.S. air passenger volume grew 10.4%** YoY and has recovered to (and now moved beyond) the pre-pandemic level. It is expected to surpass 2019 levels in 2024

   Furthermore, March 2024 **backlogs for Boeing and Airbus** (2 largest end-consumers of HWM's products) were roughly **6200 and 8600 planes** respectively (For reference, Boeing delivered 528 planes in 2023 & 559 by Airbus). This leaves the sub-industry with a strong long-term earnings and cash in-flow potential, and a long runway for growth for OEMs like HWM that supply critical sub-parts to the manufacturers – **3 of HWM's 4 business units stand to benefit from rising commercial aircraft deliveries**

2. **Strong and consistent growth in US and allied defense spending –** HWM has diversified its operations from a focus on commercial aero to areas like defense (15% of 2023 revenue). The Defense segment growth is likely to remain robust compared to the growth of commercial transportation and industrial sectors. US defense spending has been increasing (Up 5% in '22 vs '21, 8% in '23 vs '22) and is expected to grow at 5-6% CAGR till 2028:

   a. Increased US involvement in ongoing Russia's invasion of Ukraine
   b. Tailwinds from Israel-Gaza conflict
   c. European allies raising defense spending to bolster their own deterrence strategies – Helping US firms

   Therefore, HWM's defense segment revenue will increase as a percentage of total revenue. The company's expertise in aluminum machining transform plates, forgings and extrusions, fluid management systems and elaborate assemblies for radar and other defense structures will likely support growth. It has a strong control in F-135 (F-35's engine) which is the 2nd largest fleet in US aircraft inventory due to its expertise in high temp, pressure

3. **Fastening Systems' growth:** An important product line for HWM has been for more sophisticated fasteners used in composite structures (Using more than 1 material for creation) to protect against lighting strikes. Boeing and Airbus' widebodies (787, A350) are ramping up production due to increased demand. These are composite aircrafts and hence **require 2-3x the value for fasteners** than their predecessors (767, A330, 777). Future composite widebody models (777x, A321) should also provide benefits

4. **Weaker competitor positions in major revenue areas:** On earlier versions of engines, Precision Castparts (PCC) was a major player in Engine Products and roughly split the content with Howmet. According to Bernstein, the intense focus at PCC on cost reduction ended up leaving the company behind in competing on new generation engines with higher engine temperatures and pressures.

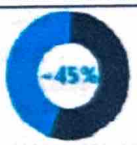
   Cost reduction efforts continued at PCC after the acquisition by Berkshire Hathaway in 2016. A private competitor, Consolidated Precision Castparts (CPP) has competed in this space but is small. In the even more difficult environment of the F-35, there us no competition for hot section airfoils, as this is completely controlled by HWM.

2024 Guidance

	Q3 2024 Guidance			FY 2024 Guidance			What we expect in 2024
	Low	Baseline	High	Low	Baseline	High	
Revenue	$1.845B	$1.855B	$1.865B	$7.400B	$7.440B	$7.480B	• FY 2024 Revenue up ~12% vs. FY 2023
				Baseline Change ▶	+$140M		
Adj EBITDA[1]	$460M	$465M	$470M	$1.855B	$1.865B	$1.875B	• FY 2024 Adj EBITDA[1] up ~24% vs. FY 2023
Adj EBITDA Margin[1]	*24.9%*	*25.1%*	*25.2%*	*25.1%*	*25.1%*	*25.1%*	
				Baseline Change ▶	+$115M *+110 bps*		• FY 2024 Adj EPS[1,2] up ~39% vs. FY 2023
Adj Earnings per Share[1,2]	$0.63	$0.64	$0.65	$2.53	$2.55	$2.57	• Capex of $310M - $330M
				Baseline Change ▶	+$0.20		
Free Cash Flow				$840M	$870M	$900M	• Free Cash Flow Conversion ~85%
				Baseline Change ▶	+$70M		

Market Leadership in Engine Products

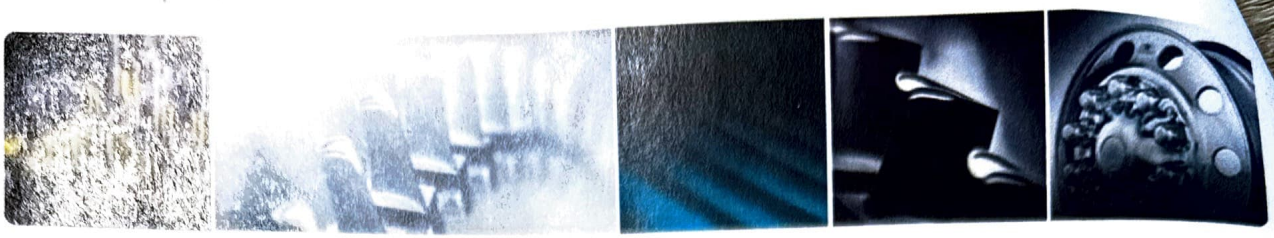
Engine Products: Maintaining Leading Positions Across All Product Lines

Market Segment	Products (in order of complexity)	Competitive Position	Highlights	Revenue % of FY21 Total
Aero Airfoils	• Single Crystal (SC) • Enhanced Equiax • Equiax • Directionally Solidified (DS)	 #1 Aerospace Airfoils	• World's largest single crystal airfoil producer • Vertically integrated alloy, cores, testing, machining, coatings, and key equipment builds • World class assets and recent capex investments	 ~45%
Structural	• Superalloy • Titanium • Aluminum	 #2 Aerospace Structural Castings	• Organic growth (Ni casting plant La Porte, IN) and acquisition (Tital, Ti structural leader in EU) • Structural Castings up to ~60 inches diameter • #1 in Aluminum castings for Aerospace	 ~15%
IGT Airfoils	• Single Crystal (SC) • High Gradient • Directionally Solidified (DS) • Equiax	 #1 IGT Airfoils	• Applying multiwall aeroengine core technology • Industry leader in large DS blades (Greater than 3 feet) • Uniquely positioned with major OEMs • Includes ~8% from Oil and Gas / Other	 ~25%
Seamless Rings	• Superalloy • Titanium • Steel • Aluminum	 #1 Seamless Rolled Rings	• Recent 10K ton press installation • Established machining in Mexico • Diameters 10" to 180"	 ~15%

HOWMET AEROSPACE

~90% of Revenue Under Long-Term Agreements (LTAs)

Product Description



- **The Engine Products segment** (49% of 2023 revenues and 56% of 2023 EBITDA) utilizes advanced designs and techniques to support next-generation engine programs and produces components primarily for aircraft engines and industrial gas turbines, including airfoils and seamless rolled rings.

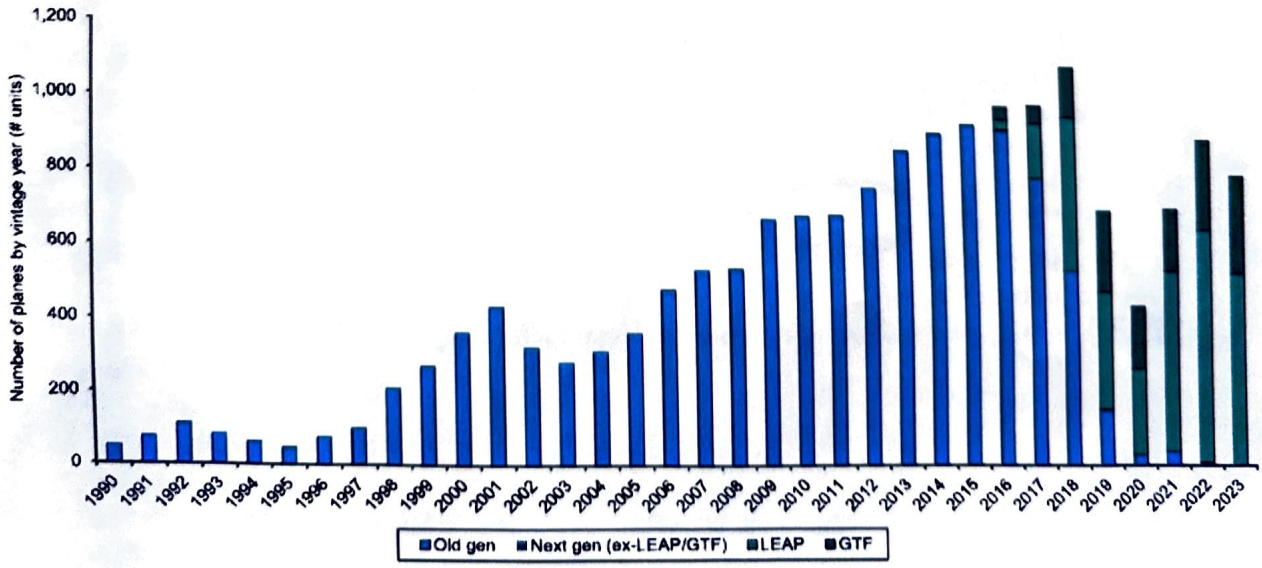
- **The Fastening Systems segment** (20%, 17.5%) is the North American leader in commercial transportation fasteners. Howmet holds the number one global position in aerospace fastening systems, and HWM's hightech, multi-material fastening systems are found nose to tail on aircraft and aerospace engines. These products are critical components of industrial gas turbines, automobiles, commercial transportation vehicles, and construction and industrial equipment.

- **The Forged Wheels segment** (17%, 19.5%) manufactures forged aluminum wheels for trucks, buses, and trailers and related products for the global commercial transportation market. The company's portfolio of wheels is sold under several product brand names, such as Alcoa Wheels and Ultra One Wheel. HWM believes that its Dura-Bright surface treatment is unmatched in appearance and corrosion protection.

- **The Engineered Structures segment** (13%, 7%): produces titanium ingots and mill products for aerospace and defense applications and is vertically integrated to produce titanium forgings, extrusions, forming and machining services for airframe, wing, aero-engine, and landing gear components. Engineered Structures also produces aluminum forgings, nickel forgings, and aluminum machined components and assemblies for aerospace and defense applications. The principal markets served by Engineered Structures are commercial aerospace, defense aerospace, and land and sea defense.

Narrowbody transition – Positive for HW (LEAP, GTF are the primary engines that carry HWM's parts)

EXHIBIT 16: **Narrowbody planes in fleet, by vintage and engine type (# planes)**



...ter's Five Forces Analysis

Industry Rivalry (Moderate to High)	**Competitive Landscape:** Howmet Aerospace faces competition from other established players in both the commercial aerospace and defense sectors. The competition is intensified by the continuous innovation and high R&D investment required in these industries. However, Howmet's significant market share, particularly in hot section airfoils, and its technological leadership help maintain its strong position. **Impact of Defense Budgets:** In the defense sector, rivalry can be influenced by fluctuations in defense budgets and spending, which affect the number and size of available contracts. Howmet's ability to secure key contracts is critical to sustaining its market position.
Bargaining Power of Customers (Moderate)	**Concentration of Buyers:** In the commercial aerospace sector, major companies like Boeing and Airbus, as well as engine manufacturers, are key customers with considerable bargaining power due to their size and order volume. In the defense sector, government entities and defense contractors are the primary buyers, also capable of exerting significant influence. **Specialized Products and Long-Term Contracts:** Howmet Aerospace's ability to deliver highly specialized, mission-critical products reduces buyer power. Additionally, long-term contracts, especially in the defense sector, stabilize buyer relationships, though they come with stringent performance requirements.
Bargaining Power of Suppliers (Moderate)	**Specialized Inputs:** Howmet Aerospace relies on specialized raw materials, such as superalloys and defense-grade materials, sourced from a limited number of suppliers. While the specialized nature of these inputs gives suppliers some leverage, Howmet's scale and importance in the supply chain help mitigate this power. **Government Oversight in Defense:** In the defense sector, supply chains are often closely monitored by government entities, which can influence the bargaining dynamics between suppliers and Howmet Aerospace.
Threat of Substitutes (Low)	**Limited Alternatives:** The highly specialized nature of Howmet's products, particularly in high-temperature engine components and defense applications, limits the availability of direct substitutes. The stringent certification and performance requirements in both sectors make switching costly and complex. **Defense-Specific Needs:** The defense sector's demand for reliable, durable, and compliant components further reduces the threat of substitutes, as there are few viable alternatives that meet the necessary standards.
Threat of New Entrants (Low)	**Barriers to Entry:** Howmet Aerospace operates in both the commercial aerospace and defense sectors, both of which have high barriers to entry. The industry requires significant capital investment, advanced technological capabilities, and strict regulatory compliance. In the defense sector, additional barriers include security clearances and the need for established trust with government entities. Howmet's expertise in high-temperature materials, complex engineered products, and its strong industry relationships further deter new entrants. Further, new entrants would likely not be price competitive, with entrenched OEMs like HWM substantially undercutting them due to lower costs derived from their already massive production scale **Reputation and Brand Loyalty:** Howmet Aerospace's long-standing reputation for high-quality, reliable products in both the aerospace and defense sectors makes it difficult for new entrants to gain market share.

Why can't OEMs like P&W/GE produce their own sub-parts through vertical integration?

- The dominant position of HWM does create an issue for its customers, particularly GE and P&W. Right now there are no competitive options in the areas of Airfoils/Engine Products, which means HWM has very strong pricing power.
- GE does have in-house capabilities; Rolls-Royce relies much more on vertical integration. Pratt had to shut down its high-pressure turbine blade facility several years ago and started to rely on suppliers like HWM. But, given HWM strong position, Pratt is working to build out a facility to make HPT blades in NC, USA. The goal is to produce 30% blades (Airfoils) there for its engines
- Bernstein believes that this will not be easy for P&W to do. The technology and manufacturing processes are sophisticated

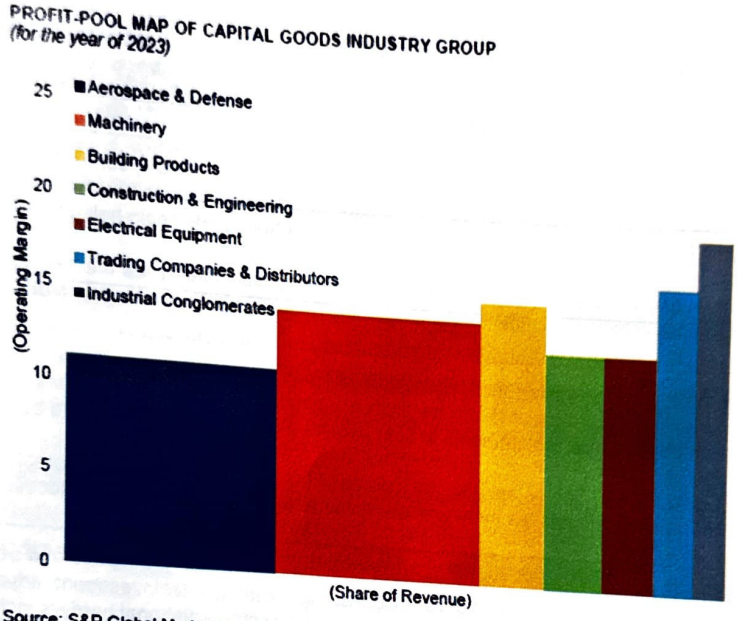
- HWM's advantages of scale and automation will be difficult for Pratt to compete against, particularly at a ti
  when Pratt is under pressure due to challenges with its GTF (Geared Turbofan) engine performance
- Bernstein expects no impact on HWM before 2028

Appendix

Industry Overview

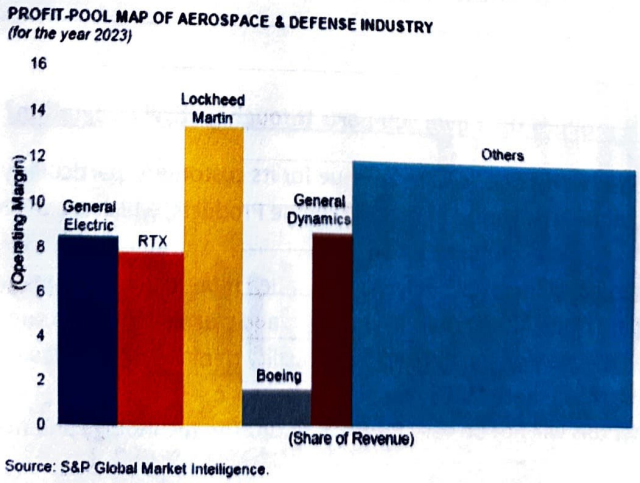
PROFIT POOL MAP

The Aerospace & Defense industry is within the Capital Goods industry group (part of the Industrials sector) and comprises 22 companies. Below are the profit maps showing the current state of the Capital Goods industry group and the Aerospace & Defense industry



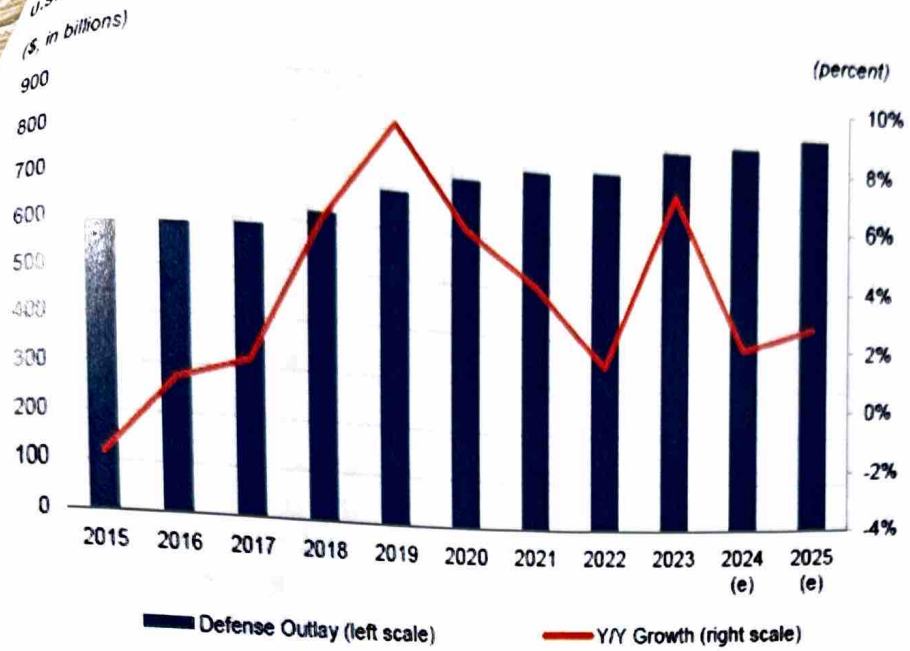
Source: S&P Global Market Intelligence.

As depicted above, Aerospace & Defense is the largest industry in the Capital Goods industry group in terms of revenue market share; however, the industry ranked seventh in terms of operating margins. Within the Aerospace & Defense industry, four companies **(General Electric, RTX, Lockheed Martin, and Boeing) dominate about 57% of the industry's market capitalization (as of June 2024) and 64% of the industry's total revenue in 2023 – These are all customers of different HWM products**



Source: S&P Global Market Intelligence.

U.S. ANUAL DEFENSE OUTLAYS



e-Estimates.
Source: Congressional Budget Office.

Expect elevated U.S. and allied defense spending growth to be sustained for several years following the Russian invasion of Ukraine, in turn driving healthy sales growth for defense businesses that make up roughly 65% of sub-industry revenue. The election poses a risk of the varied ideologies on defense budgeting, possibly leading to little or no growth in defense spending.

With no end in sight for the Israel-Gaza conflict, global arms sales are poised to rise. Israel ranks 7th as one of the U.S.'s biggest arms export partners between 2015 and 2019, with the U.S. having over 80% market share of all arms imported in Israel between 2000 and 2019, according to the Stockholm International Peace Research Institute. Israel has also been one of the largest receivers of U.S. foreign aid, with a total of $158 billion received in economic assistance ($34 billion) and military and defense ($124 billion) funding as of March 2023

The Commercial Aerospace Market: Strong Long-Term Demand, Choppy Near-Term Conditions

The primary end market of commercial aerospace is the airline industry, which has historically been highly cyclical and financially unstable during recessions. When the economy is healthy, air traffic tends to grow to support global economic growth and integration, driving high existing fleet utilization. This results in strong demand for maintenance, repair, and overhaul (MRO) for the Aerospace & Defense industry. Growing air travel demand also leads to influxes of new aircraft orders to expand airline fleets, which increases the backlogs of major OEMs like Boeing, Airbus, and their major suppliers.

On the flip side, air traffic tends to decline during recessions, leading to lower fleet utilization and aftermarket MRO revenue, as well as airline distress that leads to new aircraft orders being delayed or canceled. In a typical recession, most of the global airline fleet continues to fly, although with cheaper tickets and fewer full flights.

The problems with delivery cadence at the OEMs – Boeing and Airbus – have popped up intermittently in recent years. In 2019, two 737 MAX crashes led regulatory authorities around the world to ground the 737 MAX fleet. In 2020, the onset of the pandemic created supply chain chaos that prevented normal delivery schedules. In 2024, the blowout of a plug-

type door on Alaska Airlines flight 1282 (a brand-new Boeing 737 MAX) led to renewed FAA oversight and a recognition by Boeing that its quality control procedures were deficient.

All of these various headwinds have encouraged customers to stick with existing fleets longer than they would like to do, because uncertainty over delivery schedules remains high. Boeing, for instance, ended March 2024 with a commercial aircraft backlog of 6,259 planes, up 21% from two years earlier. Airbus, meanwhile, ended March 2024 with a backlog of 8,626 planes in its commercial aircraft business, up 23% since March 2022. If one considers how quickly both OEMs can get planes out the door, it becomes obvious just how daunting a challenge they face. Using 2023 deliveries as a proxy for future run-rate (which does NOT account for Boeing's latest woes), Boeing has 11.9 years' worth of deliveries to work through even if it does not get a single new order. For Airbus, it's facing a backlog of 11.7 years. In the long term, both OEMs have plenty of demand to address.

What does it mean for OEMs like HWM?

Lower Airbus and Boeing production hurts not only the earnings of these major OEMs, but their hundreds of suppliers too. Supplier firms range from large (engine and fuselage suppliers) to small (seats and small mechanical parts), but regardless of size, most are still being hurt as MRO revenue and new orders from the OEMs remain well below pre-pandemic levels. Operating costs have been hard to cut, too, as costs for key inputs like labor, metals, and semiconductors have risen sharply during the pandemic. Much of the supply chain's cost base is also tied up in fixed assets like plants and machinery that are difficult to reduce.

Some aerospace suppliers did enough business in the more stable defense segment to maintain positive earnings and healthy balance sheets through the pandemic. But many that are highly focused on commercial aerospace had to significantly increase debt to pay their bills while their operations burned cash. For many suppliers, the balance sheet deterioration that occurred in 2020-2021 will keep earnings below the 2019 peak long after the pandemic ends and demand has recovered, in our view, as much of their future operating profit will now be used for debt service that was not there before the pandemic.

Valuation Estimates

EXHIBIT 36: **BERN estimates vs consensus, FY2023-FY2027E ($m)**

	BERN						Consensus				
($m)	2022	2023E	2024E	2025E	2026E	2027E	2023E	2024E	2025E	2026E	2027E
Revenue	5,663	6,590	7,268	8,225	9,070	9,383	6,560	7,046	7,660	8,004	8,524
EBITDA	1,233	1,451	1,642	1,986	2,245	2,362	1,567	1,728	1,925	2,033	2,174
Margin (%)	21.8%	22.0%	22.6%	24.1%	24.8%	25.2%	23.9%	24.5%	25.1%	25.4%	25.5%
Adj. EPS	$ 1.41	$ 1.82	$ 2.19	$ 2.85	$ 3.39	$ 3.73	$ 1.78	$ 2.15	$ 2.57	$ 2.91	$ 3.18
Revenue											
Engine Products	2,698	3,261	3,744	4,195	4,608	5,000	3,228	3,573	3,885	3,937	4,007
Fastening Systems	1,117	1,313	1,478	1,736	1,945	2,036	1,330	1,449	1,572	1,719	1,962
Engineered Structures	790	891	1,000	1,141	1,248	1,332	865	976	1,112	1,201	1,331
Forged Wheels	1,058	1,125	1,046	1,153	1,268	1,014	1,136	1,048	1,091	1,147	1,225
Adj. EBITDA											
Engine Products	729	865	1,046	1,261	1,405	1,534	876	990	1,099	1,120	1,150
Fastening Systems	234	259	307	381	439	475	272	317	360	419	488
Engineered Structures	111	110	126	144	159	173	112	141	168	187	202
Forged Wheels	278	304	283	321	362	300	307	280	299	307	333
Adj. EBITDA Margins											
Engine Products	27%	27%	28%	30%	30%	31%	27%	28%	28%	28%	29%
Fastening Systems	21%	20%	21%	22%	23%	23%	20%	22%	23%	24%	25%
Engineered Structures	14%	12%	13%	13%	13%	13%	13%	14%	15%	16%	15%
Forged Wheels	26%	27%	27%	28%	29%	30%	27%	27%	27%	27%	27%

Source: Company reports, Bloomberg, Bernstein estimates and analysis