

PNC'S METALS INDUSTRY UPDATE

Issue 42

IN THIS ISSUE

Aerospace Metals: A Strong Recovery with Room to Grow	1
Metals Pricing	8
Pricing for Public Notes and Bonds	9
Syndicated Bank Loan Market	11

Welcome to Issue #42 of PNC's *Metals Industry Update*.

Our cover story looks at aerospace metals. PNC observed that this sector was hard-hit by the COVID-19 pandemic. The lack of air travel brought the airlines and the major aircraft OEMs to a standstill. This had a direct and immediate impact on the aerospace metals supply chain. Fast forward to today. While most metals industry participants are struggling with falling prices and concerns over demand, aerospace metals producers are struggling to keep up with orders. It is a good story and one of the very bright spots in metals. The remainder of the Issue will include our recurring sections on metal prices, public notes and bonds, and the syndicated bank loan market.

As always, we appreciate your interest in our *Metals Industry Update*. We look forward to getting your feedback on ways to make future issues even more impactful.

FOR MORE INFORMATION

Contact PNC's Metals Group:

David B. Gookin
Executive Vice President
Metals Group–Diversified Ind.
The PNC Financial Services Group
One North Franklin Street
Suite 2500
Chicago, Illinois 60606
Office: 312-384-4610
Cell: 412-418-1970
Email: david.gookin@pnc.com

Joe McElhinny
Senior Vice President
Metals Group–Diversified Ind.
The PNC Financial Services Group
The Tower at PNC Plaza
300 Fifth Avenue
Pittsburgh, Pennsylvania 15222
Office: 412-762-2480
Email: joseph.mcelhinny@pnc.com

AEROSPACE METALS: A STRONG RECOVERY WITH ROOM TO GROW

Hidden behind the headlines of rampant inflation, higher for longer interest rates and a looming recession is the robust recovery being experienced in aerospace metals. Aerospace metals sell for substantially higher prices than materials such as carbon steel or aluminum. As seen in the Metals Pricing section on page 8, consider that the average selling price for the aerospace metal sold by Haynes was \$32.60/lb for the June 2023 quarter, while carbon HRC currently sells for approximately 37.5 cents/lb and aluminum P1020 sells for approximately \$1.23/lb.

This story focuses on the improved financial performance of five publicly traded aerospace metals businesses as a proxy for the strength of the recovery and the sector. We recognize that this approach fails to include the sector's largest player, Precision Castparts, which is a Berkshire Hathaway–owned company.

These five businesses are enjoying a very strong recovery from the depths of the COVID-19–induced slowdown. Each company has realized increasing sales, profitability, cash flows and backlogs. The recovery is reflected in the market caps of these companies, which collectively have performed 3.4 times better than the S&P 500 during the period 10/3/2022 to 9/30/2023 (according to **Chart 1** on page 2). PNC thinks that the foundation of this recovery has been the increased demand for commercial aircraft. Backlogs at Boeing and Airbus have grown significantly (**Charts 2 and 3** on page 2).

AEROSPACE METALS: A STRONG RECOVERY WITH ROOM TO GROW

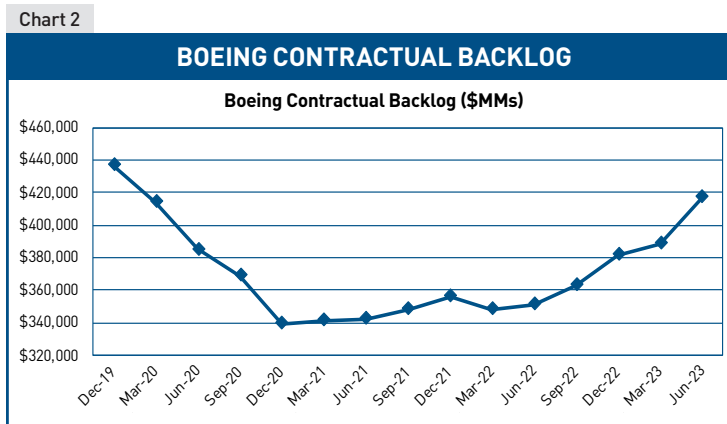
(Continued)

According to Boeing and Airbus, aircraft build rates, which are beginning to return to 2019 levels, are projected to increase even more over the next 2–5 years (Charts 2 and 3 below).

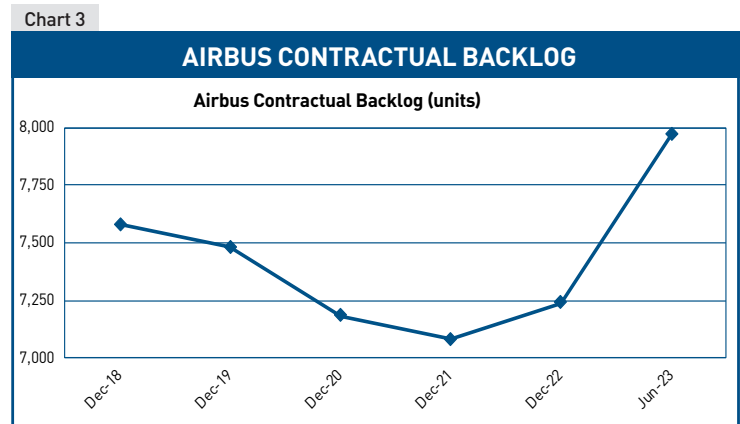
We expect the financial performance for this group to continue to improve. The big question is how much of this improvement is already built into the share price.



Source: Google Finance



Source: SEC Filings



Source: Investor Filings

Projected Aircraft Build Rate

- Boeing's 737 build rate is 31/month and currently transitioning to 38/month with a plan to increase to ~50/month in 2025/2026.
- Boeing's 767 build rate is 3/month with no current plans for increases.
- Boeing's 777 & 777X build rate is 3/month with a plan to increase to 4/month in 2025–2026.
- Boeing's 787 build rate is 4/month with a plan to increase to 5/month in late 2023 and to 10/month in 2025–2026.
- Airbus' A320 build rate is 65/month with plans to increase to 75/month in 2026.
- Airbus' A350 build rate is 6/month with plans to increase to 9/month by late 2025.

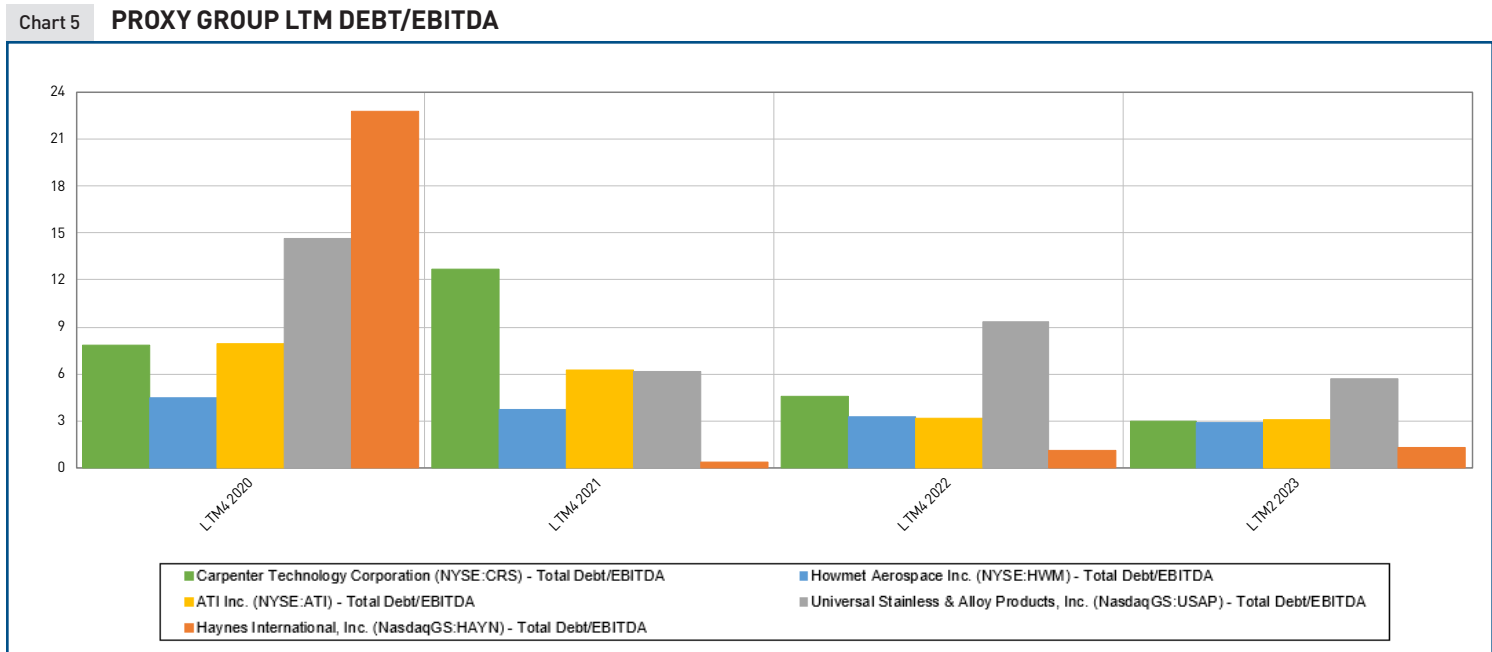
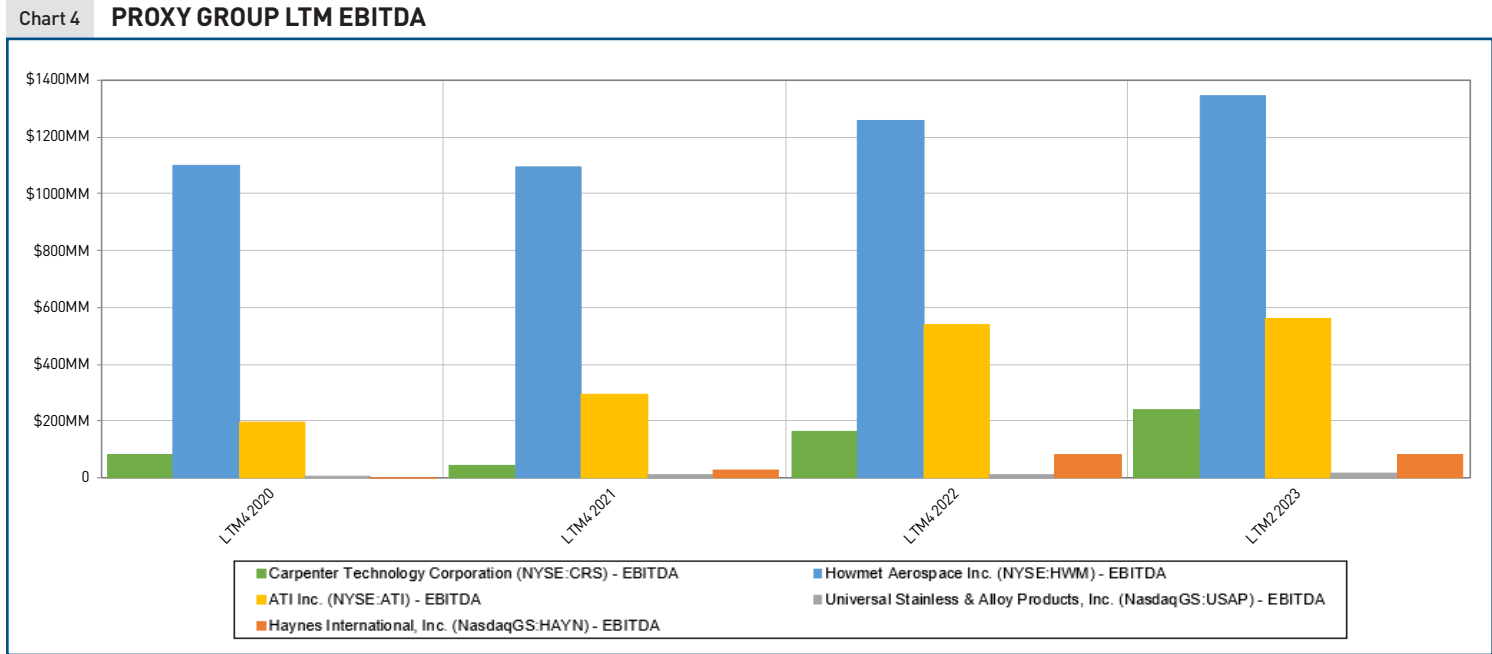
Sources

Airbus <https://www.airbus.com/en/products-services/commercial-aircraft/market/orders-and-deliveries>
 Boeing <https://www.sec.gov/edgar/browse/?CIK=12927&owner=exclude>

AEROSPACE METALS: A STRONG RECOVERY WITH ROOM TO GROW *(Continued)*

PNC believes the recovery over this period has been significant, resulting in improved cash flows and reduced leverage. As shown in **Charts 4 through 8**, during the period, our proxy group was able to sustain capital spending, strong balance sheets and, in some cases, improved returns to shareholders. Perhaps most important has been the dramatic increase in order backlogs, which we believe is a positive indicator of future performance.

The following charts highlight the improvement in these areas over the past 3½ years.



Source: Investor Filings

AEROSPACE METALS: A STRONG RECOVERY WITH ROOM TO GROW *(Continued)*

Chart 6 PROXY GROUP CAPITAL SPEND

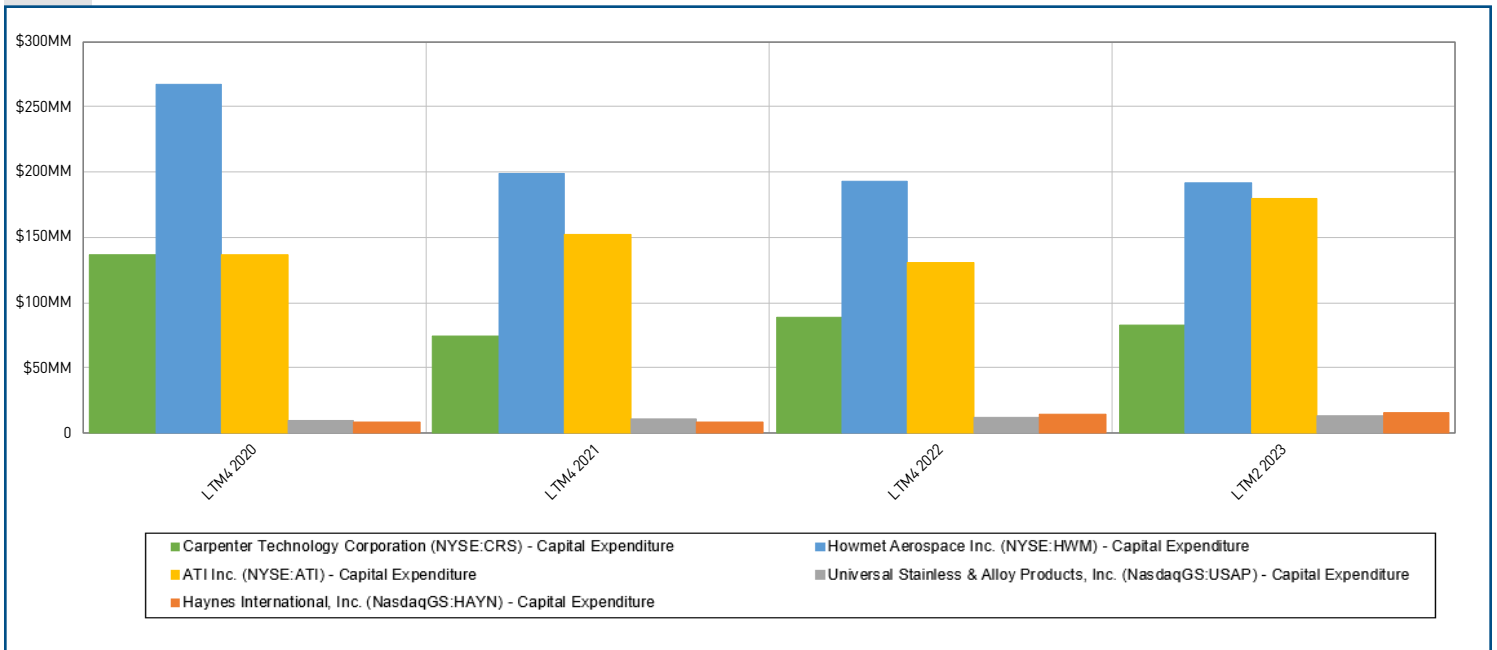
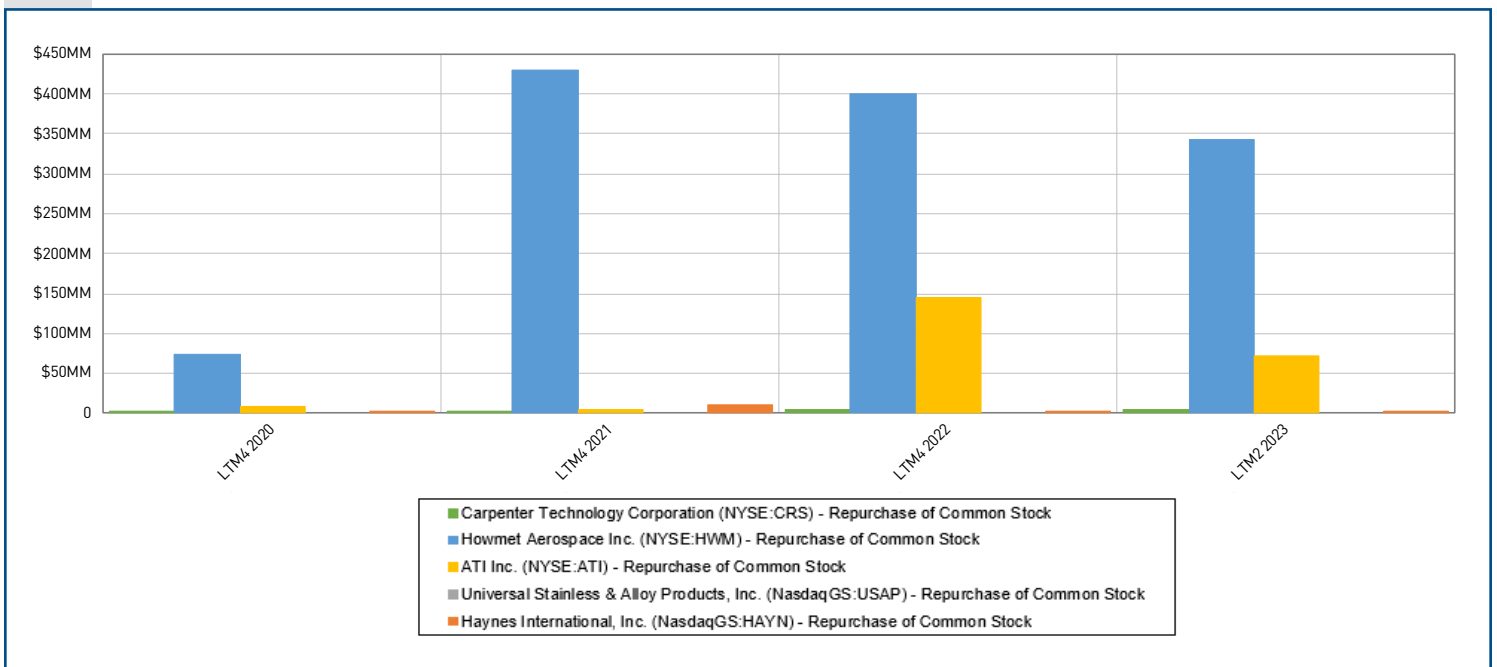


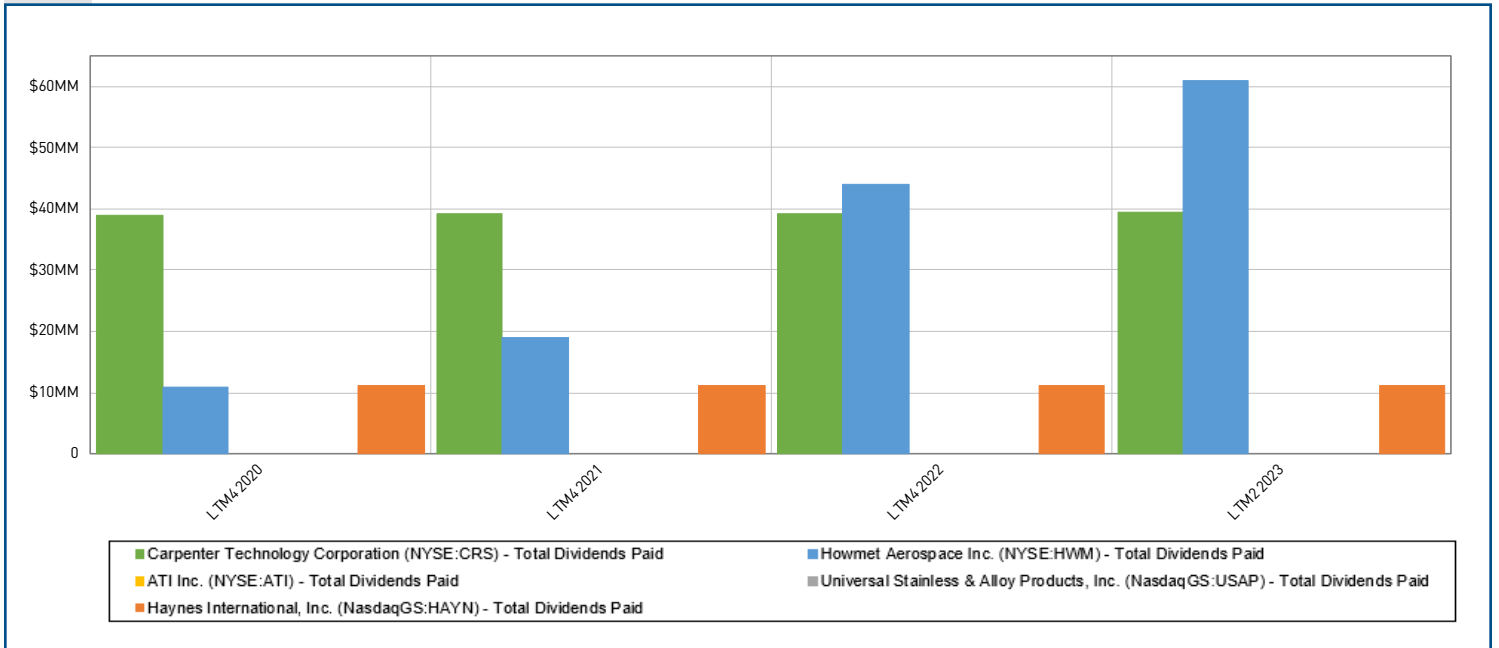
Chart 7 PROXY GROUP SHARE REPURCHASES



Source: Investor Filings

AEROSPACE METALS: A STRONG RECOVERY WITH ROOM TO GROW *(Continued)*

Chart 8 PROXY GROUP DIVIDENDS



Source: Investor Filings

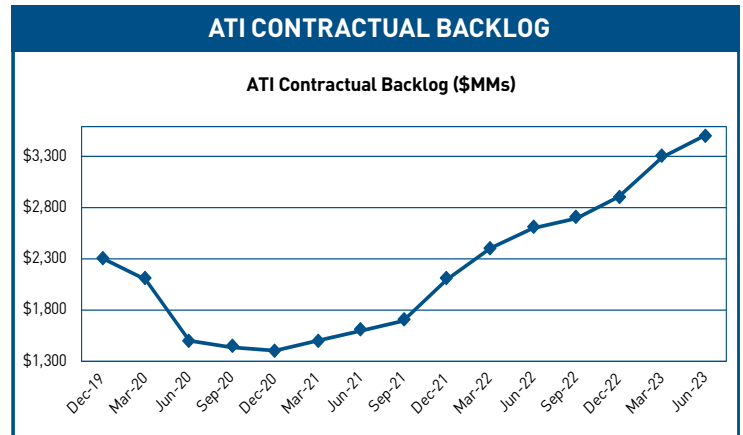
AEROSPACE METALS: A STRONG RECOVERY WITH ROOM TO GROW *(Continued)*

To better understand the group's performance, let's take a brief look at each of these five businesses.

Allegheny Technologies (ATI)

Allegheny Technologies produces a wide range of high-performance materials, including titanium, nickel, niobium, hafnium and zirconium. Based upon the June 2023 quarter, 58%, or \$607 million of sales, were to aerospace and defense. The jet engine sub-market provided 56% of all aerospace and defense. ATI has a near-term goal of increasing this share to 65%, helping to drive future growth in profitability.

In 2021, ATI exited the commodity stainless steel sheet (\$445 million in sales), which helped focus the business on these higher-margin activities. LTM EBITDA is \$558.7 million, up 88% over FY 2021. Backlog has also grown to \$3.5 billion, a 20% increase year over year. ATI has benefited significantly from the loss of VSMPO as a critical supplier of titanium to the U.S. market. ATI is meeting this gap in titanium supply by restarting titanium melt capacity in Oregon and building a "new brownfield" facility in Richland, Washington. This will help ATI capture growing titanium demand, particularly for wide body aircraft.

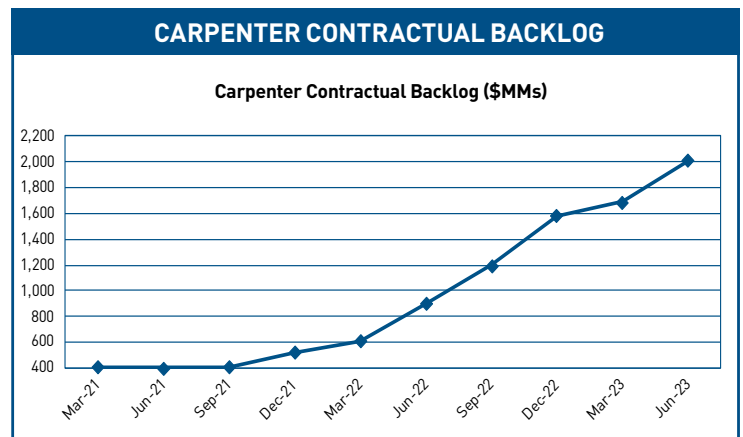


Source: SEC Filings

Carpenter Technology (CRS)

Carpenter produces high-performance specialty alloy-based materials for mission-critical applications. Aerospace and defense based upon \$294 million in Q2 2023 sales excluding surcharges were 53% of total sales excluding surcharges. LTM EBITDA is \$237.8 million, which is a 512% improvement over calendar year 2021. This rate of improvement outpaces Carpenter's competition. Carpenter demonstrated its confidence in its performance by sustaining its \$40 million dividend throughout the downturn.

Backlog reached over \$2 billion at the end of the March 2023 quarter, up 70% from the same time in 2022. Carpenter has offered very strong operating income guidance through FY 2027, with an outlook of \$460-\$500 million in operating income. This is 40% CAGR from FY 2023 results of \$133 million. According to Carpenter, the capability and capacity are in place to meet these targets.



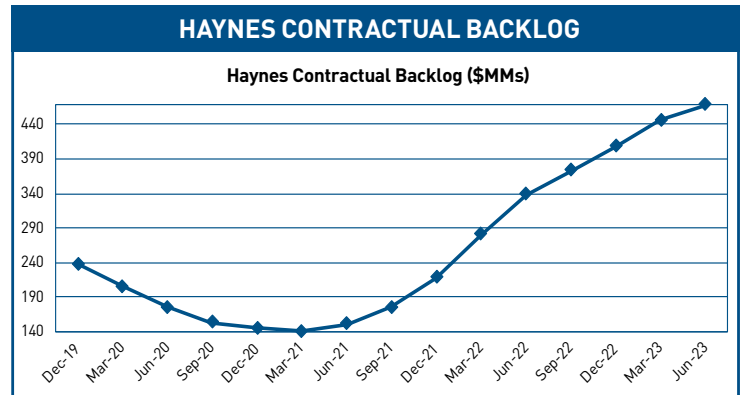
Source: Carpenter Technology Investor Presentation — September 2023

AEROSPACE METALS: A STRONG RECOVERY WITH ROOM TO GROW *(Continued)*

Haynes International (HAYN)

Haynes is a producer of nickel- and cobalt-based alloys for use in high-temperature and corrosion applications. Haynes is differentiated from some of its competitors by selling most of its products through its own distribution network. Aerospace contributed \$77.5 million, or 54%, of the \$143.9 million in sales during the June 2023 quarter.

LTM EBITDA at June 30, 2023, was \$81.4 million, up 298% from calendar year 2021. Backlog is at record levels of \$468 million, with aerospace's share of the backlog totaling 61%. Haynes is known for its proprietary alloys, with 20% of sales and 33% of margins coming from alloys no one else produces.

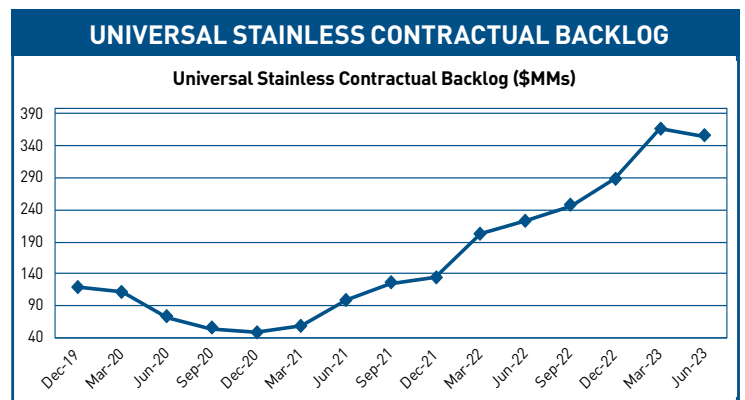


Source: SEC Filings

Universal Stainless & Alloy Products (USAP)

Universal is the newest participant in this group in the aerospace and defense market. USAP entered the market in 2011 when it acquired Patriot Specialty Metals in North Jackson, Ohio. This acquisition included VIM and VAR furnaces and a 6.5-ton radial forge.

Since then, aerospace and defense has grown to 74% of sales based upon the June 2023 quarter, with \$51.2 million in sales out of a total for that quarter of \$69 million. LTM EBITDA of \$16.6 million is a 48% improvement over FY 2021. Backlog at the end of June 2023 is a total of \$355 million. USAP is investing in two new VARs at North Jackson to increase production capacity for its most important end market. Unlike its peers who sell a significant amount directly or indirectly to OEMs, USAP sells 75% of its product to the service center market.



Source: SEC Filings

Howmet Aerospace (HWM)

Howmet is the largest of these five businesses. It provides a wide array of metals, including aluminum, nickel-based alloys and titanium. With the exception of titanium (which Howmet melts in Niles, Ohio), Howmet buys its substrate from third parties and passes the cost of metal along to its customers. This leads to more stable margins than the others in our group. Howmet demonstrated its relative strength with over \$800 million in share buybacks in the last two years. Based on the June 2023 quarter, 63% of sales were to commercial aerospace and defense. Howmet leads the group with LTM EBITDA of \$1.34 billion, up 22% from FY 2021.

During the 2023 Jefferies Industrials Conference, CEO John Plant made several points that suggest a bright future for Howmet:

- While Howmet does not report backlogs, Plant was clear during the conference that backlogs are up.
- The current recovery has been driven by improved narrow body production rates and has not yet had the benefit of wide body build rate expansion, which he believes over the coming years will be 10 per month for the Boeing 787 and nine per month for the Airbus A350.
- Improved growth rates for titanium-intensive wide body aircraft will enrich product mix and favorably impact incremental margins.
- The GE Leap engine production rate is going from 1,000 to 1,700 per year during 2023 and higher in 2024.
- The new engine production rates will create increased demand for spares, which will meaningfully increase spares demand in 2024 and 2025.
- The untold story of Howmet is that its growth rate is above the rate of aircraft production growth.

Source: www.howmet.com/investors/

METALS PRICING

Metal prices continued their downward trend for the second consecutive quarter. Of the 23 prices we track, 14 of the prices declined, six remained flat, and three went up. HRC led the way for the decliners with prices down 28%. HRC prices finished the quarter \$620 per ton, or close to 50% of the levels experience in April. CRC and GALV declined (17% and 16%, respectively) at a lesser rate. Cliffs' efforts to raise prices can't overcome the UAW strike. Carbon long products were also down across the board but at much lower rates of decline. Nonferrous prices remained under pressure, but declines were at lower rates than carbon products.

Third Quarter Observations:

- Despite falling sheet prices, spreads for CRS and GALV increased \$70 and \$60, respectively.
- Plate continues to price independently from sheet with pricing generally flat.
- HMS, shred, met coal and iron pellets were slightly up or flat, putting pressure on metal margins for the mills.
- Aluminum price declines moderated during the quarter but remained at low levels.
- Despite all the long-term concerns over copper supply, current prices keep declining.

Below is the price detail for all the products we follow.

Carbon Flat-Rolled Steel \$/NT July–September 2023			
Product	July	August	September
Hot-Rolled	870	750	620
Cold-Rolled	1,050	960	870
Galvanized	1,140	1,050	950

Discrete Plate \$/NT July–September 2023			
Product	July	August	September
A36	1,570	1,570	1,530
A514	2,385	2,385	2,385
AR400	2,405	2,405	2,405

Wide Flange Beam \$/cwt. July–September 2023			
Size	July	August	September
24"x12¾"	68.00	67.50	66.00
18"x6"	66.00	65.50	62.75

MBQ \$/cwt. July–September 2023			
Shape	July	August	September
1" 1018 round	57.00	56.50	55.20

Rebar \$/cwt. – Grade 60 July–September 2023			
Size	July	August	September
16 mm - #5	46.50	43.00	42.00

SBQ \$/cwt. – 1" round July–September 2023			
Grade	July	August	September
HR 4140 Q&T	110.50	108.00	106.00

Pipe & Tube \$/NT July–September 2023			
Product	July	August	September
OCTG J55	1,650	1,450	1,400
Linepipe, ERW	1,350	1,250	1,250

Aluminum \$/lb July–September 2023			
Alloy	July	August	September
3003	2.07	2.06	2.04
LME	0.98	0.97	0.99
MWTP	1.20	1.18	1.19

Stainless \$/lb – Cold-Rolled Coil July–September 2023			
Grade	July	August	September
304	1.97	1.89	1.90

Copper \$/lb July–September 2023			
	July	August	September
Comex Avg.	3.84	3.76	3.72

Nickel \$/lb July–September 2023			
	July	August	September
LME Avg.	9.48	9.29	8.90

Ferrous Scrap \$/GT Midwest July–September 2023			
GRADE	July	August	September
No. 1 HMS	310	330	330
Shredded	405	405	405

Iron Pellets \$/LT U.S. July–September 2023			
GRADE	July	August	September
Furnace Pellets	90	90	90

Met Coal \$/MT U.S. East Coast July–September 2023			
GRADE	July	August	September
Low-vol	222	215	250

PRICING FOR PUBLIC NOTES AND BONDS

METALS BOND UPDATE: TREASURY RATE VOLATILITY SURGES IN 3Q23 AS “HIGHER FOR LONGER” REALITY SETS IN

Treasury rate volatility was the dominant theme in 3Q23 as concerns over fiscal deficits, government stalemates, stubborn inflation and tight labor markets drove the 10-yr US Treasury yield to a 16-year high (4.80%). Credit spreads compressed to historically low levels, which helped to offset climbing benchmark rates, keeping yields largely range-bound for most of the quarter. Only in late September did spreads begin to widen materially, increasing to levels closer to their 10-year averages. Despite elevated benchmark rates, strong investor demand supported favorable primary market execution throughout the summer, which led to a particularly busy post-Labor Day issuance window. Refinancing remained the dominant use of proceeds in 3Q23, although M&A activity showed signs of further recovery after a quiet start to the year.

Investment Grade volume in 3Q23 totaled \$289 billion, largely in line with the \$285 billion that priced in 3Q22. Surprisingly, YTD IG supply is down only 1% year over year, an impressive measure given the risks faced by issuers (e.g., bank failures, debt ceiling concerns, rate hikes). Investor demand was strong during the quarter, with new issue concessions and order book over subscription levels averaging 5 basis points and 3.5x, respectively. A-rated and BBB-rated yields rose 54 basis points and 50 basis points, respectively, while credit spreads tightened 3 basis points and 8 basis points, respectively. No IG metals issuers priced transactions in 3Q23. Looking specifically at the PNC IG Metals Bond Index, spreads tightened 7 basis points while yields widened 62 basis points compared to the previous quarter.

High-yield volume of \$42 billion was down 21% quarter over quarter in 3Q23 but increased drastically compared to the \$19 billion that priced in 3Q22 (up 121% y/o/y). September's \$24 billion of volume was the highest monthly tally since January 2022, despite average yields (currently 9.19% basis points) widening 47 basis points throughout the month. Spreads tightened for most of the quarter to a low of +377 basis points on September 20, the lowest since April 2022, before gapping out to +425 basis points today. BB-rated yields and spreads widened 52 basis points and 11 basis points, respectively, throughout 3Q23, while B-rated yields widened 26 basis points and spreads tightened 9 basis points. To reduce borrowing costs and maximize prepayment flexibility, issuers elected to price shorter-dated offerings during the quarter (53% of deals <7 years) and add security (59% of deals were secured). Average yields and spreads of companies in the PNC HY Metals Bond Index widened 110 basis points and 72 basis points, respectively. In late July, Arsenal AIC Parent LLC (Arconic) priced a \$700 million 7NC3 8.000% Secured Notes offering. ATI Inc. followed in early August, pricing a \$425 million 7NC3 7.250% Unsecured Notes offering.

METALS BOND INDEX

As of Date	PNC IG Metals Bond Index			PNC HY Metals Bond Index		
	10/12/2023	7/14/2023	Change	10/12/2023	7/14/2023	Change
Effective Maturity (Years)	8.96	9.21	-0.25	5.59	5.50	0.09
Composite Rating	BBB+	BBB+	-	BB-	BB-	-
Weighted Average Coupon	4.15%	4.15%	0.00%	5.64%	5.55%	0.09%
Yield to Worst	6.07%	5.46%	0.61%	7.66%	6.51%	1.15%
Option Adjusted Spread to Treasuries (bps)	120.3	126.0	-5.7	281.1	201.8	79.3

Note: Excludes bonds of size < \$250 million.

Source: Bloomberg

METALS BOND UPDATE

Issuance Date	Issuer	Amount Outstanding (\$MM)	Structure	Moody's Rating	S&P Rating	Maturity	Coupon Rate	Price at Issuance	Issuance Spread over Treasury	As of 10/12/2023		Since 7/14/2023		
										Yield to Worst	Spread (OAS)	7/14 Spread	Change in Spread (bps)	% Change in Spread
Steel Mills														
3/11/2019	ArcelorMittal SA	\$401	Sr Unsecured	Baa3	BBB-	3/11/2026	4.550%	99.72	200 bps	5.484%	60 bps	92 bps	-32 bps	-35.0%
11/29/2022	ArcelorMittal SA	\$1,200	Sr Unsecured	Baa3	BBB-	11/29/2027	6.550%	99.91	255 bps	6.052%	137 bps	147 bps	-10 bps	-6.9%
7/16/2019	ArcelorMittal SA	\$500	Sr Unsecured	Baa3	BBB-	7/16/2029	4.250%	99.00	225 bps	5.820%	113 bps	119 bps	-7 bps	-5.8%
11/29/2022	ArcelorMittal SA	\$1,000	Sr Unsecured	Baa3	BBB-	11/29/2032	6.800%	99.37	305 bps	6.989%	235 bps	253 bps	-17 bps	-6.8%
3/7/2011	ArcelorMittal SA	\$434	Sr Unsecured	Baa3	BBB-	3/1/2041	6.750%	99.18	230 bps	7.347%	252 bps	261 bps	-9 bps	-3.5%
9/18/2020	Big River Steel LLC	\$720	Secured	Ba2	BB- *	1/31/2029	6.625%	100.00	604 bps	7.096%	173 bps	140 bps	33 bps	23.9%
3/13/2020	Cleveland-Cliffs Inc	\$829	1st lien	B2	BB+ *	3/15/2026	6.750%	100.00	606 bps	7.234%	195 bps	99 bps	96 bps	96.9%
5/13/2019	Cleveland-Cliffs Inc	\$555	Sr Unsecured	Ba3	BB- *	6/1/2027	5.875%	96.13	-	7.544%	272 bps	124 bps	148 bps	119.5%
2/17/2021	Cleveland-Cliffs Inc	\$368	Sr Unsecured	Ba3	N/A	3/1/2029	4.625%	100.00	368 bps	7.846%	331 bps	215 bps	116 bps	54.1%
4/14/2023	Cleveland-Cliffs Inc	\$750	Sr Unsecured	Ba3	N/A	4/15/2030	6.750%	100.00	325 bps	8.238%	348 bps	299 bps	49 bps	16.4%
2/17/2021	Cleveland-Cliffs Inc	\$325	Sr Unsecured	Ba3	N/A	3/1/2031	4.875%	100.00	374 bps	7.896%	340 bps	279 bps	61 bps	21.7%
1/28/2022	Commercial Metals Co	\$300	Sr Unsecured	Ba2	BB+	1/15/2030	4.125%	100.00	-	6.893%	232 bps	194 bps	39 bps	19.9%
2/2/2021	Commercial Metals Co	\$300	Sr Unsecured	Ba2	BB+	2/15/2031	3.875%	100.00	279 bps	6.944%	238 bps	215 bps	23 bps	10.8%
1/28/2022	Commercial Metals Co	\$300	Sr Unsecured	Ba2	BB+	3/15/2032	4.375%	100.00	-	7.204%	263 bps	239 bps	23 bps	9.8%
4/16/2014	GTL Trade Finance Inc	\$481	Sr Unsecured	Baa3	BBB-	4/16/2044	7.250%	100.00	368 bps	7.224%	231 bps	258 bps	-27 bps	-10.5%
5/23/2022	Nucor Corp	\$500	Sr Unsecured	Baa1	A-	5/23/2025	3.950%	99.94	115 bps	5.835%	68 bps	69 bps	-1 bps	-1.0%
5/22/2020	Nucor Corp	\$500	Sr Unsecured	Baa1	A-	6/1/2025	2.000%	99.85	170 bps	5.962%	85 bps	77 bps	8 bps	11.0%
5/23/2022	Nucor Corp	\$500	Sr Unsecured	Baa1	A-	5/23/2027	4.300%	99.84	145 bps	5.558%	82 bps	79 bps	2 bps	3.1%
4/26/2018	Nucor Corp	\$500	Sr Unsecured	Baa1	A-	5/1/2028	3.950%	99.85	100 bps	5.549%	90 bps	98 bps	-8 bps	-8.4%
5/22/2020	Nucor Corp	\$500	Sr Unsecured	Baa1	A-	6/1/2030	2.700%	99.72	205 bps	5.692%	110 bps	102 bps	8 bps	8.0%
3/11/2022	Nucor Corp	\$550	Sr Unsecured	Baa1	A-	4/1/2032	3.125%	99.67	130 bps	5.806%	121 bps	114 bps	7 bps	5.9%
3/11/2022	Nucor Corp	\$550	Sr Unsecured	Baa1	A-	4/1/2052	3.850%	99.07	165 bps	6.063%	130 bps	138 bps	-9 bps	-6.3%
12/7/2020	Nucor Corp	\$329	Sr Unsecured	Baa1	A-	12/15/2055	2.979%	99.29	130 bps	6.094%	129 bps	145 bps	-16 bps	-11.2%
12/11/2019	Steel Dynamics Inc	\$400	Sr Unsecured	Baa2	BBB	12/15/2024	2.800%	99.93	115 bps	4.518%	96 bps	87 bps	9 bps	10.2%
6/5/2020	Steel Dynamics Inc	\$400	Sr Unsecured	Baa2	BBB	6/15/2025	2.400%	99.62	210 bps	4.730%	104 bps	118 bps	-14 bps	-11.9%
12/6/2016	Steel Dynamics Inc	\$400	Sr Unsecured	Baa2	BBB	12/15/2026	5.000%	100.00	266 bps	4.040%	94 bps	33 bps	61 bps	188.0%
10/9/2020	Steel Dynamics Inc	\$350	Sr Unsecured	Baa2	BBB	10/15/2027	1.650%	99.30	120 bps	4.798%	130 bps	133 bps	-3 bps	-2.5%
12/11/2019	Steel Dynamics Inc	\$600	Sr Unsecured	Baa2	BBB	4/15/2030	3.450%	99.74	165 bps	4.798%	146 bps	140 bps	6 bps	4.4%
6/5/2020	Steel Dynamics Inc	\$500	Sr Unsecured	Baa2	BBB	1/15/2031	3.250%	98.96	260 bps	4.798%	135 bps	147 bps	-13 bps	-8.6%
10/9/2020	Steel Dynamics Inc	\$400	Sr Unsecured	Baa2	BBB	10/15/2050	3.250%	96.33	185 bps	4.798%	158 bps	169 bps	-11 bps	-6.7%
2/11/2021	United States Steel Corp	\$475	Sr Unsecured	B1	BB- *	3/1/2029	6.875%	100.00	592 bps	7.359%	234 bps	245 bps	-10 bps	-4.1%
5/21/2007	United States Steel Corp	\$274	Sr Unsecured	B1	BB- *	6/1/2037	6.650%	99.41	180 bps	7.055%	237 bps	305 bps	-68 bps	-22.3%
Distribution														
8/3/2020	Reliance Steel & Aluminum Co	\$400	Sr Unsecured	Baa2	BBB	8/15/2025	1.300%	99.69	110 bps	5.996%	95 bps	81 bps	15 bps	18.1%
8/3/2020	Reliance Steel & Aluminum Co	\$500	Sr Unsecured	Baa2	BBB	8/15/2030	2.150%	99.72	160 bps	6.083%	146 bps	135 bps	12 bps	8.7%
11/20/2006	Reliance Steel & Aluminum Co	\$250	Sr Unsecured	Baa2	BBB	11/15/2036	6.850%	99.43	220 bps	6.505%	185 bps	201 bps	-16 bps	-7.9%
Specialty														
7/13/2020	Alcoa Nederland Holding BV	\$750	Sr Unsecured	Baa3	BB+	12/15/2027	5.500%	100.00	255 bps	6.759%	171 bps	120 bps	51 bps	42.8%
5/17/2018	Alcoa Nederland Holding BV	\$500	Sr Unsecured	Baa3	BB+	5/15/2028	6.125%	100.00	314 bps	6.853%	183 bps	162 bps	21 bps	13.0%
3/24/2021	Alcoa Nederland Holding BV	\$500	Sr Unsecured	Baa3	BB+	3/31/2029	4.125%	100.00	274 bps	6.725%	209 bps	220 bps	-11 bps	-5.2%
8/10/2023	Arsenal AIC Parent LLC	\$700	Secured	Ba3	B+	10/1/2030	8.000%	100.00	396 bps	8.178%	314 bps	-	-	-
11/22/2019	ATI Inc	\$350	Sr Unsecured	B2	B+	12/1/2027	5.875%	100.00	414 bps	7.413%	243 bps	161 bps	82 bps	50.9%
9/14/2021	ATI Inc	\$325	Sr Unsecured	B2	B+	10/1/2029	4.875%	100.00	255 bps	7.443%	277 bps	258 bps	19 bps	7.4%
9/14/2021	ATI Inc	\$350	Sr Unsecured	B2	B+	10/1/2031	5.125%	100.00	255 bps	7.583%	293 bps	271 bps	22 bps	8.0%
8/11/2023	ATI Inc	\$425	Sr Unsecured	B2	B+	8/15/2030	7.250%	100.00	313 bps	5.848%	268 bps	-	-	-
7/24/2020	Carpenter Technology Corp	\$400	Sr Unsecured	B2	BB	7/15/2028	6.375%	100.00	587 bps	5.848%	235 bps	202 bps	32 bps	15.9%
3/16/2022	Carpenter Technology Corp	\$300	Sr Unsecured	B2	BB	3/15/2030	7.625%	100.00	566 bps	5.848%	222 bps	222 bps	0 bps	-0.1%
4/14/2021	Century Aluminum Co	\$250	Secured	Caa1	B	4/1/2028	7.500%	100.00	615 bps	9.031%	428 bps	443 bps	-15 bps	-3.3%
12/22/2020	GrafTech Finance Inc	\$500	Secured	B1	BB	12/15/2028	4.625%	100.00	390 bps	11.339%	675 bps	490 bps	185 bps	37.7%
6/26/2023	GrafTech Global Enterprises In	\$450	Secured	B1	BB	12/15/2028	9.875%	97.46	654 bps	12.154%	749 bps	535 bps	214 bps	40.1%
9/22/2014	How met Aerospace Inc	\$705	Sr Unsecured	Ba1	BB+	10/1/2024	5.125%	100.00	255 bps	6.592%	136 bps	75 bps	61 bps	80.6%
4/24/2020	How met Aerospace Inc	\$600	Sr Unsecured	Ba1	BB+	5/1/2025	6.875%	100.00	255 bps	6.869%	173 bps	78 bps	95 bps	122.9%
9/1/2021	How met Aerospace Inc	\$700	Sr Unsecured	Ba1	BB+	1/15/2029	3.000%	100.00	255 bps	6.652%	203 bps	154 bps	50 bps	32.4%
1/25/2007	How met Aerospace Inc	\$625	Sr Unsecured	Ba1	BB+	2/1/2037	5.950%	99.62	113 bps	6.971%	226 bps	186 bps	40 bps	21.6%
5/31/2018	JW Aluminum Continuous	\$300	1st lien	B3	B-	6/1/2026	10.250%	100.00	718 bps	10.472%	493 bps	453 bps	41 bps	9.0%
11/26/2019	Kaiser Aluminum Corp	\$500	Sr Unsecured	B2	BB-	3/1/2028	4.625%	100.00	289 bps	8.255%	362 bps	327 bps	35 bps	10.7%
5/20/2021	Kaiser Aluminum Corp	\$550	Sr Unsecured	B2	BB-	6/1/2031	4.500%	100.00	288 bps	8.491%	386 bps	373 bps	13 bps	3.5%
8/11/2021	Novelis Corp	\$750	Sr Unsecured	Ba3	BB	11/15/2026	3.250%	100.00	836 bps	7.106%	232 bps	187 bps	45 bps	24.3%
1/16/2020	Novelis Corp	\$1,600	Sr Unsecured	Ba3	BB	1/30/2030	4.750%	100.00	836 bps	7.558%	292 bps	264 bps	28 bps	10.6%
8/11/2021	Novelis Corp	\$750	Sr Unsecured	Ba3	BB	8/15/2031	3.875%	100.00	836 bps	7.442%	282 bps	257 bps	24 bps	9.5%
6/10/2015	Precision Castparts Corp	\$850	Sr Unsecured	Aa2	AA	6/15/2025	3.250%	99.80	110 bps	5.404%	29 bps	38 bps	-9 bps	-23.7%
6/10/2015	Precision Castparts Corp	\$275	Sr Unsecured	Aa2	AA	6/15/2035	4.200%	99.40	130 bps	5.871%	124 bps	127 bps	-3 bps	-2.3%
12/20/2012	Precision Castparts Corp	\$500	Sr Unsecured	Aa2	AA	1/15/2043	3.900%	99.38	100 bps	5.896%	97 bps	104 bps	-7 bps	-6.7%
6/10/2015	Precision Castparts Corp	\$325	Sr Unsecured	Aa2	AA	6/15/2045	4.375%	99.67	145 bps	5.989%	107 bps	114 bps	-7 bps	-5.8%

Denotes new issuance since 7/14/23 Metals Bond Update

Denotes bond that matures in the next two years

*+/- Indicates ratings currently on review for upgrade/downgrade

Source: Bloomberg

SYNDICATED BANK LOAN MARKET

The syndicated bank loan market for metals was very active during the quarter with 12 deals for a total volume of \$8.3 billion. The largest deal of the quarter provided \$3.5 billion in financing to support Apollo's \$5.2 billion acquisition of Arconic Corporation. The deal included a \$900 million bridge loan supporting a high-yield issue, a \$1.425 billion TL B and a \$1.2 billion ABL Revolver. Howmet (\$1 billion) and Steel Dynamics (\$1.2 billion) both extended maturities on their corporate revolvers. Other notable deals include term loans issued by Novelis (\$750 million) and TCI Texarkana (\$318 million). In addition, Majestic completed a new \$287.5 million ABL Revolver. Despite concerns over the general condition of the bank loan market, deals continue to get done on terms generally favorable to issuers. However, third quarter earnings from the major banks are beginning to show increases in loan charge-offs. Increased credit costs at banks could be what finally initiates increased credit spreads for bank financings. This is something we will watch closely.

Below are the expanded details for some of the deals that were completed in the quarter.

(\$ in millions)	TCI Texarkana, Inc.	Majestic Steel USA Inc.	Steel Dynamics, Inc.
Date	July 2023	July 2023	July 2023
Deal Size (\$ in MM)	\$318.0 ¹	\$287.5	\$1,200.0
Facility Type	Term Loan	ABL Revolver	CF Revolver
Tenor	5 years	3 years	5 years
Purpose	Corporate Purposes / Refinance	Corporate Purposes / Refinance	Corporate Purposes
Ratings			
S&P	NR	NR	BBB
Moody's	NR	NR	Baa2
Amortization	<i>Not disclosed</i>	-	-
Pricing at close (bps)			
All-In Spread	175.0		135.0
SOFR Margin	175.0	<i>Not disclosed</i>	125.0
Facility Fee	-		-
Commitment Fee	-		17.5
Sustainability Adjustment	<i>Not disclosed</i>	<i>Not disclosed</i>	-
Pricing Detail (bps)			
			Total Net Leverage Ratio^{1,2}
			Credit Rating
			SOFR Spread
			Comm. Fee
			< 0.50x
			≥ A- / A3
			100.0
			11.0
			< 1.00x
			BBB+ / Baa1
			112.5
			15.0
			< 1.75x
			BBB / Baa2
			125.0
			17.5
			< 2.50x
			BBB- / Baa3
			137.5
			20.0
			< 3.25x
			BB+ / Ba1
			150.0
			25.0
			≥ 3.25x
			≤ BB / Ba2
			175.0
			27.5
SOFR Adjustment (bps) (1-mo / 3-mo / 6-mo)	<i>Not disclosed</i>	<i>Not disclosed</i>	10.0 / 10.0 / 10.0
Rate Floor	<i>Not disclosed</i>	<i>Not disclosed</i>	0.00%
Financial Covenants			
Interest Coverage Ratio			2.50x
Net Leverage Ratio	<i>Not disclosed</i>	<i>Not disclosed</i>	-
Debt to Capital Ratio			60%
Secured	No	Yes	No

¹ Consists of Tranche A (\$85.0MM) and Tranche B (\$233.0MM)

¹ Nets Unrestricted Cash up to \$750.0MM
² If the Total Net Leverage Ratio is two or more Pricing Levels above the Pricing Level determined by Debt Rating, the Pricing Level that is one level above the level determined by the Debt Ratings will apply.

Sources: S&P Capital IQ, Moody's, Refinitiv Loan Connector

SYNDICATED BANK LOAN MARKET *(Continued)*

<i>(\$ in millions)</i>	Wind Turbine and Energy Cables Corp	Howmet Aerospace, Inc.	Novelis Inc.
Date	July 2023	July 2023	September 2023
Deal Size (\$ in MM)	\$250.0	\$1,000.0	\$750.0
Facility Type	ABL Revolver	CF Revolver	Term Loan
Tenor	2 years	5 years	3 years
Purpose	Corporate Purposes	Corporate Purposes	Refinance
Ratings			
S&P	NR	BB+	BB
Moody's	NR	Ba1	Ba2
Amortization	-	-	1.0% per annum
Pricing at close (bps)			
All-In Spread		160.0	180.0
SOFR Margin	<i>Not disclosed</i>	150.0	165.0
Facility Fee		17.5	-
Commitment Fee		-	-
Sustainability Adjustment	<i>Not disclosed</i>	-	-
Pricing Detail (bps)			
		Credit Rating	All-In Spread
			Comm. Fee
		≥ BBB+ / Baa1	100.0 11.0
		BBB / Baa2	112.5 12.5
	<i>Not disclosed</i>	BBB- / Baa3	125.0 15.0
		BB+ / Ba1	150.0 17.5
		BB / Ba2	175.0 25.0
		≤ BB- / Ba3	225.0 30.0
SOFR Adjustment (bps) (1-mo / 3-mo / 6-mo)	<i>Not disclosed</i>	10.0 / 10.0 / 10.0	15.0 bps all tenors
Rate Floor	<i>Not disclosed</i>	0.00%	0.00%
Financial Covenants			
Interest Coverage Ratio		-	-
Net Leverage Ratio	<i>Not disclosed</i>	3.75x ¹	3.50x ¹
Debt to Capital Ratio		-	-
Secured	Yes	No	Yes

¹ Nets Unrestricted Cash and Cash Equivalents

¹ Defined as (Consolidated Senior Debt – Unrestricted Cash) to Consolidated EBITDA

Sources: S&P Capital IQ, Moody's, Refinitiv Loan Connector

PNC and PNC Bank are registered marks of The PNC Financial Services Group, Inc. ("PNC").

This newsletter was prepared for general information purposes only and is not intended as legal, tax or accounting advice or as recommendations to engage in any specific transaction, including with respect to any securities of PNC, and does not purport to be comprehensive. Under no circumstances should any information contained in this newsletter be used or considered as an offer or commitment, or a solicitation of an offer or commitment, to participate in any particular transaction or strategy. Opinions and forecasts expressed herein are subject to change without notice. Relevant information was obtained from sources deemed reliable. Such information is not guaranteed as to its accuracy. Any reliance upon any such information is solely and exclusively at your own risk. Please consult your own counsel, accountant or other investment professional to discuss, or tailor a financial plan to, your specific situation. Neither PNC Bank nor any other subsidiary of The PNC Financial Services Group, Inc., will be responsible for any consequences of reliance upon any opinion or statement contained here, or any omission.

©2023 The PNC Financial Services Group, Inc. All rights reserved.

CIB SV PDF 1023-047-2349001