

PNC'S METALS INDUSTRY UPDATE

Issue 43

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Welcome to Issue #43 of PNC's *Metals Industry Update*. 2023 began with storm clouds filling the skies. As we enter 2024, many of those storm clouds have not cleared and remain overhead. Our cover story begins with PNC Economics' outlook for several of the major metal-consuming end markets.

PNC Economics expects contractionary monetary policy to continue to weigh heavily on the U.S. and global economies. However, some small rays of sunshine are peeking through the clouds. PNC Economics feels that there is potential for some upside surprises resulting from global competition for EVs, infrastructure investment to support renewable energy technologies and a soft landing for the U.S. economy. The remainder of our *Update* focuses on our recurring sections.

Metals Pricing saw carbon sheet and scrap prices move quite a bit higher, with the remaining prices we follow generally flat to down. Public Bonds and Notes saw a small improvement in spreads, with declines in both the IG and HY Indexes. Finally, the syndicated bank loan market crept to the year-end finish line with the weakest quarter of the year for both number of deals and volume of issuance.

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

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

Thank you for being a reader of PNC's *Metals Industry Update*. Please let us know if you have any comments or questions. We are always looking for suggestions to make our *Update* more useful in your day-to-day activity.

GLOBAL ECONOMIC SLOWDOWN WILL DRIVE METALS DEMAND LOWER IN THE FIRST HALF OF 2024

Summary

- Elevated interest rates will continue to weigh on durable goods consumption, manufacturing and housing in 2024.
- PNC is forecasting a modest U.S. recession this year.
- Potential governmental support and investment stimulus are upside risks to the outlook.

Industrial metal prices remained volatile in the second half of 2023 after they tumbled in the first half of the year due to weaker industrial activity and easing global supply chain pressures. Prices for steel rebar and iron ore strengthened at the end of 2023 under higher demand for iron ore and steel from China's economic stimulus package. But manufacturing activities across China, Europe and the U.S. remained in contraction, with a pessimistic outlook persisting into late 2023 (**Chart 1**). Indeed, the National Bureau of Statistics of China (NBS) Manufacturing Purchasing Managers Index (PMI) shows that the contraction of Chinese factory activity in December was the worst in the second half of 2023. Additionally, China's property sector continued to pose challenges.

GLOBAL ECONOMIC SLOWDOWN WILL DRIVE METALS DEMAND LOWER IN THE FIRST HALF OF 2024 *(Continued)*

Even with easing monetary conditions and government support, inventories of commodities buildings piled up, and floor space sold and started dropped in 2023 (**Chart 2**). In the U.S., job growth and inflation have slowed over the course of 2023.

Since March 2022 when the Federal Reserve started to raise its short-term policy rate, housing starts, permits and completions have also dropped significantly (**Chart 3**). Tight monetary policies from the Fed, the European Central Bank (ECB) and the Bank of England (BoE) weighed heavily on manufacturing industries and the overall economies, reinforcing weaker metal prices in 2023.

As contractionary monetary policy continues to weigh on the U.S. and global economies, PNC expects a mild U.S. recession as the labor market continues to soften. The global economic slowdown in 2024 will further drag on employment, consumer demand for durable goods, and manufacturing industries in the U.S. and Europe. Specifically, PNC forecasts that U.S. consumer spending on durable goods, especially spending on big-ticket purchases including autos, will likely shrink due to the softening U.S. labor market and tight credit conditions entering 2024 (**Charts 4 and 5**).

Besides lower consumption of metal-intensive durable goods, the housing market in the U.S. will also likely experience further slowdown in early 2024. PNC's forecast is for a modest decline in investment in structures in the first half of the year (**Chart 6**).

The combination of elevated mortgage rates with tight monetary policy and the worst housing affordability in decades will continue to weigh on U.S. homebuilding, putting downward pressures on the need for the metals extensively utilized in residential construction such as steel, iron and aluminum. PNC also expects metals demand will get limited support from China in the first half of 2024 with its cooling housing market, indebted local governments and weak domestic consumption.

PNC Economics thinks risks to this outlook are to the upside. Rising international competition in electric vehicles could spur new domestic investments that support the metals industry in 2024. For example, the Biden administration's \$9.2 billion loan to Ford Motor Co. could support construction of new EV battery manufacturing plants that will boost metals demand. Future investment stimulus coming out of the U.S., China and Europe could support infrastructure spending and demand for metals in 2024. Carbon emissions reduction efforts in advanced economies, a shift toward greater energy efficiency, and the adoption of alternatives to carbon-intensive housing and equipment could require extensive infrastructure investment that would drive up metals demand beyond 2024. A potential soft landing in the U.S. economy, with weak growth but no recession, could also lead to stronger metals demand and higher prices than in the PNC baseline forecast.

GLOBAL ECONOMIC SLOWDOWN WILL DRIVE METALS DEMAND LOWER IN THE FIRST HALF OF 2024 *(Continued)*

CHART 1: CONTRACTION IN MANUFACTURING CONTINUES IN CHINA AND U.S., WITH EU BUSINESS CLIMATE AT 2-YEAR LOW

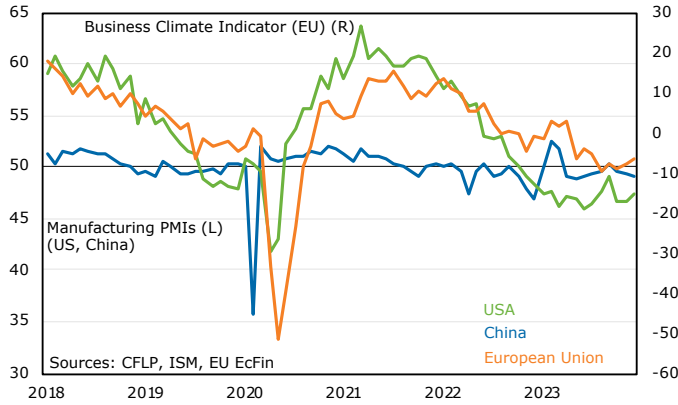


CHART 2: VACANCY OF COMMODITY BUILDINGS IN CHINA WENT UP IN 2023 WITH STARTS AND SALES DOWN

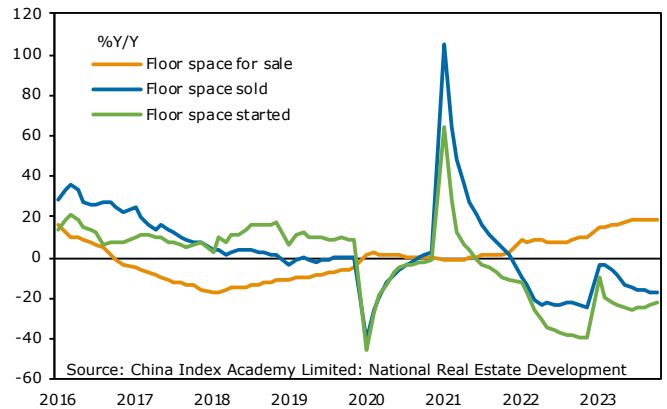


CHART 3: COOLING OFF IN HOUSING EXPECTED TO CONTINUE WITH COMPLETIONS TO SLOW

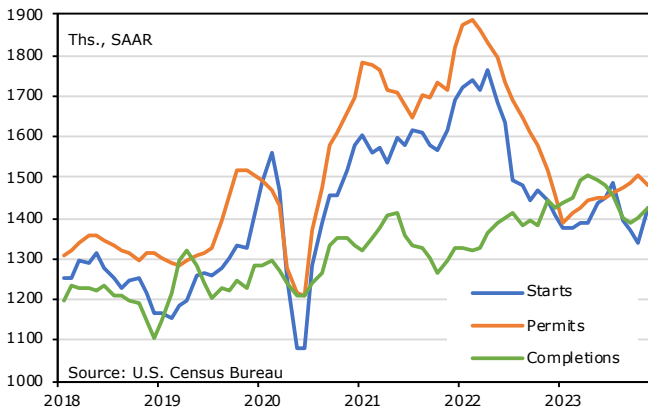


CHART 4: EXPENDITURES ON DURABLE GOODS EXPECTED TO FALL IN 2024

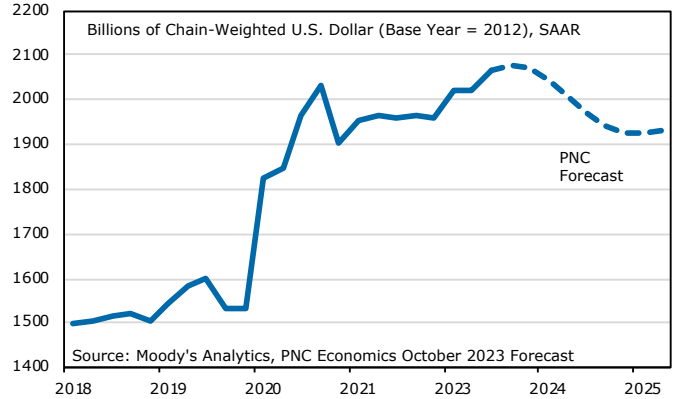


CHART 5: U.S. AUTO SALES EXPECTED TO DECLINE IN 2024

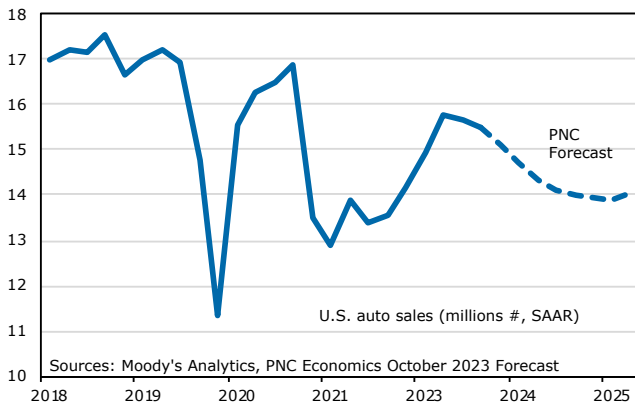
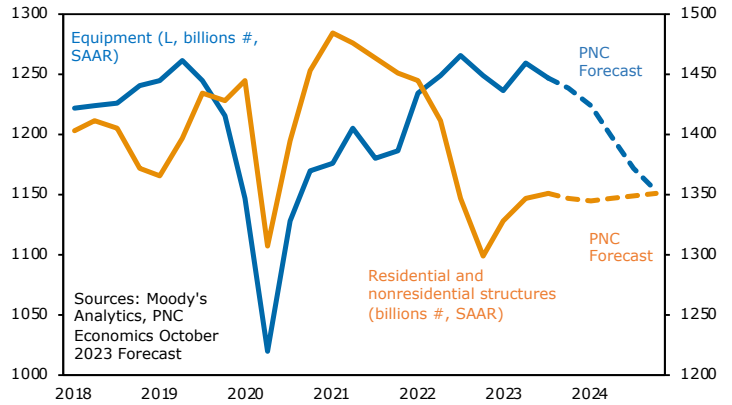


CHART 6: CONSTRUCTION INVESTMENT EXPECTED TO DECLINE IN THE NEAR TERM



The material presented is of a general nature and does not constitute the provision of investment or economic advice to any person, or a recommendation to buy or sell any security or adopt any investment 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. You should seek the advice of an investment professional to tailor a financial plan to your needs.

Forward-looking statements are necessarily subject to numerous assumptions, risks and uncertainties, which change over time. Future events or circumstances may change our outlook and may also affect the nature of the assumptions, risks and uncertainties to which our forward-looking statements are subject. Forward-looking statements speak only as of the date made. We do not assume any duty and do not undertake any obligation to update forward-looking statements. Actual results or future events could differ, possibly materially, from those anticipated in forward-looking statements, as well as from historical performance. As a result, we caution against placing undue reliance on any forward-looking statements.

Visit pnc.com/economicreports for more information from PNC Economics.

METALS PRICING

Following two quarters of generally declining metal prices, the last quarter of 2023 defied any general patterns. Of the 23 prices we track, 10 increased, 9 declined, and four remained flat. Carbon sheet rebounded dramatically from the declining trends of the previous six months, with HRC up 42% and CRC/GALV both up 34%. Carbon scrap also saw double-digit price increases, with HMS up 15% and Shredded up 21%. All other price changes during the quarter were within single-digit percentages except for LME Nickel, which declined 11%. Some observations from the quarter are below:

- Carbon sheet increases seem to have some staying power. On January 3, 2024, Cleveland Cliffs announced a new minimum price of \$1,150/ton for HRC. The CME HRC forward curve tells a different story.
- Price changes in HMS and Shredded signal expanded metal margins for carbon sheet, but declining metal margins for carbon long products.
- Aluminum prices remain depressed, keeping pressure on profitability for aluminum producers. Most market participants think we have found the bottom.
- LME Ni and 304 stainless continued to decline.

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

Carbon Flat-Rolled Steel \$/NT October–December 2023			
Product	October	November	December
Hot-Rolled	750	900	1,070
Cold-Rolled	940	1,100	1,260
Galvanized	1,020	1,180	1,340

Discrete Plate \$/NT October–December 2023			
Product	October	November	December
A36	1,360	1,320	1,320
A514	2,385	2,345	2,345
AR400	2,405	2,365	2,365

Wide Flange Beam \$/cwt. October–December 2023			
Size	October	November	December
24"x12¾"	65.50	65.50	65.50
18"x6"	62.25	62.25	62.25

MBQ \$/cwt. October–December 2023			
Shape	October	November	December
1" 1018 round	54.70	54.70	57.70

Rebar \$/cwt. – Grade 60 October–December 2023			
Size	October	November	December
16 mm - #5	41.00	41.00	43.50

SBQ \$/cwt. – 1" round October–December 2023			
Grade	October	November	December
HR 4140 Q&T	106.00	103.30	104.00

Pipe & Tube \$/NT October–December 2023			
Product	October	November	December
OCTG J55	1,400	1,350	1,350
Linepipe, ERW	1,250	1,200	1,200

Aluminum \$/lb October–December 2023			
Alloy	October	November	December
3003	2.08	2.06	2.03
LME	0.99	1.00	0.99
MWTP	1.19	1.17	1.19

Stainless \$/lb – Cold-Rolled Coil October–December 2023			
Grade	October	November	December
304	1.82	1.72	1.69

Copper \$/lb October–December 2023			
	October	November	December
Comex Avg.	3.60	3.70	3.80

Nickel \$/lb October–December 2023			
	October	November	December
LME Avg.	8.28	7.77	7.43

Ferrous Scrap \$/GT Midwest October–December 2023			
Grade	October	November	December
No. 1 HMS	330	350	380
Shredded	385	405	465

Iron Ore \$/LT U.S. October–December 2023			
Grade	October	November	December
Furnace Pellets	90	90	92

Met Coal \$/MT U.S. East Coast October–December 2023			
Grade	October	November	December
Low-vol	272	247	275

PRICING FOR PUBLIC NOTES AND BONDS

METALS BOND UPDATE: FED PIVOT DRIVES BOND YIELDS LOWER TO END 2023

The bond market got off to a turbulent start in the fourth quarter of 2023 as the 10-year U.S. Treasury yield reached its highest level (5.04%) in 16 years on October 19, driven by what seemed to be an imminent continuation of the Fed's "higher-for-longer" rate policy. As Treasury yields drifted higher in October, conflict in the Middle East sent credit spreads wider and dampened primary market activity throughout the month. However, investor sentiment completely reversed in November as cooling U.S. labor and inflation data pointed to a softening economic outlook, leading Fed officials to leave rates unchanged at the November 1 FOMC meeting. While the risk-on tone persisted throughout the remainder of the quarter, Chairman Powell's dovish commentary following the December 13 FOMC meeting was the pivotal moment, signaling a finality to the current rate hiking cycle. During the quarter, the average yield of the Investment Grade index decreased 99 bps (from 6.04% to 5.05%), while the average yield of the High Yield index decreased 119 bps (from 8.97% to 7.78%).

Investment Grade issuers combined to price \$212 billion in the fourth quarter, bringing the 2023 supply total to \$1.22 trillion, in line with the \$1.21 trillion that priced in 2022. The average Investment Grade new issue concession and order book subscription level finished 2023 at 7 bps and 3.5x, respectively. During the fourth quarter, A-rated and BBB-rated credit spreads tightened 10 bps and 26 bps, respectively. Looking specifically at the PNC IG Metals Bond Index, yields tightened 1.02% and spreads tightened 26 bps in 4Q23. There was no primary market activity from IG metals issuers in the fourth quarter.

High Yield volume of \$41.5 billion in 4Q23 was up 64% compared to the \$15.1 billion that priced in 4Q22. During the quarter, BB-rated yields decreased 126 bps, and B-rated yields decreased 135 bps on average. Compared to the previous quarter, average yields of companies in the PNC HY Metals Bond Index tightened by 0.98%, while spreads tightened 28 bps. There were no High Yield metals deals announced in 4Q23.

METALS BOND INDEX

As of Date	PNC IG Metals Bond Index			PNC HY Metals Bond Index		
	1/12/2024	10/12/2023	Change	1/12/2024	10/12/2023	Change
Effective Maturity (Years)	8.70	8.96	-0.26	5.47	5.60	-0.13
Composite Rating	BBB+	BBB+	-	BB-	BB-	-
Weighted Average Coupon	4.15%	4.15%	0.00%	5.66%	5.64%	0.02%
Yield to Worst	5.06%	6.08%	-1.02%	6.63%	7.61%	-0.98%
Option Adjusted Spread to Treasuries (bps)	93.9	119.5	-25.6	245.5	273.4	-27.9

Note: PNC IG Metals Bond Index 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 1/12/2024		Since 10/12/2023		
										Yield to Worst	Spread (OAS)	10/12 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	5.152%	114 bps	60 bps	55 bps	92.1%
11/29/2022	ArcelorMittal SA	\$1,200	Sr Unsecured	Baa3	BBB-	11/29/2027	6.550%	99.91	255 bps	5.056%	118 bps	126 bps	-9 bps	-6.8%
7/16/2019	ArcelorMittal SA	\$500	Sr Unsecured	Baa3	BBB-	7/16/2029	4.250%	99.00	225 bps	4.834%	101 bps	123 bps	-23 bps	-18.3%
11/29/2022	ArcelorMittal SA	\$1,000	Sr Unsecured	Baa3	BBB-	11/29/2032	6.800%	99.37	305 bps	5.706%	177 bps	239 bps	-62 bps	-25.9%
3/7/2011	ArcelorMittal SA	\$434	Sr Unsecured	Baa3	BBB-	3/1/2041	6.750%	99.18	230 bps	6.272%	215 bps	254 bps	-39 bps	-15.4%
9/18/2020	Big River Steel LLC	\$720	Secured	Baa2 **	BB- **	1/31/2029	6.625%	100.00	604 bps	5.288%	24 bps	191 bps	-167 bps	-87.3%
3/13/2020	Cleveland-Cliffs Inc	\$829	1st lien	B2	BB+	3/15/2026	6.750%	100.00	606 bps	5.757%	123 bps	189 bps	-67 bps	-35.2%
5/13/2019	Cleveland-Cliffs Inc	\$555	Sr Unsecured	Ba3	BB-	6/1/2027	5.875%	96.13	-	5.897%	121 bps	277 bps	-156 bps	-56.3%
2/17/2021	Cleveland-Cliffs Inc	\$368	Sr Unsecured	Ba3	N/A	3/1/2029	4.625%	100.00	368 bps	6.056%	222 bps	326 bps	-104 bps	-31.9%
4/14/2023	Cleveland-Cliffs Inc	\$750	Sr Unsecured	Ba3	N/A	4/15/2030	6.750%	100.00	325 bps	6.498%	228 bps	349 bps	-121 bps	-34.7%
2/17/2021	Cleveland-Cliffs Inc	\$325	Sr Unsecured	Ba3	N/A	3/1/2031	4.875%	100.00	374 bps	6.552%	271 bps	329 bps	-58 bps	-17.7%
1/28/2022	Commercial Metals Co	\$300	Sr Unsecured	Ba2	BB+	1/15/2030	4.125%	100.00	-	5.819%	189 bps	217 bps	-28 bps	-13.0%
2/2/2021	Commercial Metals Co	\$300	Sr Unsecured	Ba2	BB+	2/15/2031	3.875%	100.00	279 bps	5.804%	196 bps	233 bps	-37 bps	-15.8%
1/28/2022	Commercial Metals Co	\$300	Sr Unsecured	Ba2	BB+	3/15/2032	4.375%	100.00	-	5.972%	205 bps	256 bps	-50 bps	-19.6%
4/16/2014	GUSAP III LP	\$481	Sr Unsecured	Baa3	BBB-	4/16/2044	7.250%	100.00	368 bps	6.436%	221 bps	227 bps	-6 bps	-2.7%
5/23/2022	Nucor Corp	\$500	Sr Unsecured	Baa1 A-	A-	5/23/2025	3.950%	99.94	115 bps	4.956%	57 bps	66 bps	-9 bps	-14.0%
5/22/2020	Nucor Corp	\$500	Sr Unsecured	Baa1 A-	A-	6/1/2025	2.000%	99.85	170 bps	4.700%	34 bps	90 bps	-56 bps	-62.6%
5/23/2022	Nucor Corp	\$500	Sr Unsecured	Baa1 A-	A-	5/23/2027	4.300%	99.84	145 bps	4.448%	58 bps	81 bps	-23 bps	-28.6%
4/26/2018	Nucor Corp	\$500	Sr Unsecured	Baa1 A-	A-	5/1/2028	3.950%	99.85	100 bps	4.413%	57 bps	92 bps	-35 bps	-37.9%
5/22/2020	Nucor Corp	\$500	Sr Unsecured	Baa1 A-	A-	6/1/2030	2.700%	99.72	205 bps	4.430%	56 bps	97 bps	-41 bps	-41.9%
3/11/2022	Nucor Corp	\$550	Sr Unsecured	Baa1 A-	A-	4/1/2032	3.125%	99.67	130 bps	4.687%	75 bps	127 bps	-52 bps	-41.0%
3/11/2022	Nucor Corp	\$550	Sr Unsecured	Baa1 A-	A-	4/1/2052	3.850%	99.07	165 bps	5.041%	86 bps	130 bps	-44 bps	-34.1%
12/7/2020	Nucor Corp	\$329	Sr Unsecured	Baa1 A-	A-	12/15/2055	2.979%	99.29	130 bps	5.109%	82 bps	131 bps	-48 bps	-37.0%
12/11/2019	Steel Dynamics Inc	\$400	Sr Unsecured	Baa2	BBB	12/15/2024	2.800%	99.93	115 bps	4.518%	75 bps	97 bps	-21 bps	-22.0%
6/5/2020	Steel Dynamics Inc	\$400	Sr Unsecured	Baa2	BBB	6/15/2025	2.400%	99.62	210 bps	4.730%	86 bps	92 bps	-6 bps	-6.9%
12/6/2016	Steel Dynamics Inc	\$400	Sr Unsecured	Baa2	BBB	12/15/2026	5.000%	100.00	266 bps	4.040%	-19 bps	82 bps	-102 bps	-123.3%
10/9/2020	Steel Dynamics Inc	\$350	Sr Unsecured	Baa2	BBB	10/15/2027	1.650%	99.30	120 bps	4.798%	92 bps	130 bps	-38 bps	-29.2%
12/11/2019	Steel Dynamics Inc	\$600	Sr Unsecured	Baa2	BBB	4/15/2030	3.450%	99.74	165 bps	4.798%	105 bps	147 bps	-42 bps	-28.6%
6/5/2020	Steel Dynamics Inc	\$500	Sr Unsecured	Baa2	BBB	1/15/2031	3.250%	98.96	260 bps	4.798%	103 bps	137 bps	-34 bps	-24.6%
10/9/2020	Steel Dynamics Inc	\$400	Sr Unsecured	Baa2	BBB	10/15/2050	3.250%	96.33	185 bps	4.798%	142 bps	160 bps	-18 bps	-11.0%
2/11/2021	United States Steel Corp	\$475	Sr Unsecured	B1 **	BB- **	3/1/2029	6.875%	100.00	592 bps	5.821%	124 bps	234 bps	-111 bps	-47.2%
5/21/2007	United States Steel Corp	\$274	Sr Unsecured	B1 **	BB- **	6/1/2037	6.650%	99.41	180 bps	6.103%	215 bps	227 bps	-12 bps	-5.1%
Distribution														
8/3/2020	Reliance Steel & Aluminum Co	\$400	Sr Unsecured	Baa2	BBB	8/15/2025	1.300%	99.69	110 bps	5.194%	95 bps	94 bps	0 bps	0.5%
8/3/2020	Reliance Steel & Aluminum Co	\$500	Sr Unsecured	Baa2	BBB	8/15/2030	2.150%	99.72	160 bps	4.813%	96 bps	148 bps	-52 bps	-35.0%
11/20/2006	Reliance Steel & Aluminum Co	\$250	Sr Unsecured	Baa2	BBB	11/15/2036	6.850%	99.43	220 bps	5.614%	164 bps	190 bps	-25 bps	-13.4%
Specialty														
7/13/2020	Alcoa Nederland Holding BV	\$750	Sr Unsecured	Baa3	BB+	12/15/2027	5.500%	100.00	255 bps	5.902%	152 bps	162 bps	-10 bps	-6.2%
5/17/2018	Alcoa Nederland Holding BV	\$500	Sr Unsecured	Baa3	BB+	5/15/2028	6.125%	100.00	314 bps	5.905%	130 bps	190 bps	-61 bps	-31.8%
3/24/2021	Alcoa Nederland Holding BV	\$500	Sr Unsecured	Baa3	BB+	3/31/2029	4.125%	100.00	274 bps	5.797%	191 bps	198 bps	-7 bps	-3.7%
8/10/2023	Arsenal AIC Parent LLC	\$700	Secured	Ba3	B+	10/1/2030	8.000%	100.00	396 bps	6.790%	252 bps	327 bps	-75 bps	-23.0%
11/22/2019	ATI Inc	\$350	Sr Unsecured	B1	B+	12/1/2027	5.875%	100.00	414 bps	6.265%	174 bps	246 bps	-73 bps	-29.5%
9/14/2021	ATI Inc	\$325	Sr Unsecured	B1	B+	10/1/2029	4.875%	100.00	255 bps	6.380%	241 bps	278 bps	-37 bps	-13.4%
9/14/2021	ATI Inc	\$350	Sr Unsecured	B1	B+	10/1/2031	5.125%	100.00	255 bps	6.354%	234 bps	291 bps	-56 bps	-19.4%
8/11/2023	ATI Inc	\$425	Sr Unsecured	B1	B+	8/15/2030	7.250%	100.00	313 bps	5.848%	215 bps	262 bps	-47 bps	-18.0%
7/24/2020	Carpenter Technology Corp	\$400	Sr Unsecured	B1	BB	7/15/2028	6.375%	100.00	587 bps	5.848%	149 bps	250 bps	-101 bps	-40.3%
3/16/2022	Carpenter Technology Corp	\$300	Sr Unsecured	B1	BB	3/15/2030	7.625%	100.00	566 bps	5.848%	191 bps	221 bps	-30 bps	-13.5%
4/14/2021	Century Aluminum Co	\$250	Secured	Caa1	B	4/1/2028	7.500%	100.00	615 bps	8.237%	411 bps	427 bps	-16 bps	-3.8%
12/22/2020	GrafTech Finance Inc	\$500	Secured	B2	BB-	12/15/2028	4.625%	100.00	390 bps	15.651%	1185 bps	661 bps	524 bps	79.2%
6/26/2023	GrafTech Global Enterprises Inc	\$450	Secured	B2	BB-	12/15/2028	9.875%	97.46	654 bps	18.341%	1453 bps	702 bps	751 bps	106.9%
9/22/2014	Howmet Aerospace Inc	\$205	Sr Unsecured	Ba1	BBB-	10/1/2024	5.125%	100.00	255 bps	5.678%	105 bps	131 bps	-26 bps	-19.6%
4/24/2020	Howmet Aerospace Inc	\$600	Sr Unsecured	Ba1	BBB-	5/1/2025	6.875%	100.00	255 bps	5.358%	97 bps	167 bps	-70 bps	-41.8%
9/1/2021	Howmet Aerospace Inc	\$700	Sr Unsecured	Ba1	BBB-	1/15/2029	3.000%	100.00	255 bps	5.194%	138 bps	196 bps	-57 bps	-29.4%
1/25/2027	Howmet Aerospace Inc	\$625	Sr Unsecured	Ba1	BBB-	2/1/2037	5.950%	99.62	113 bps	5.585%	156 bps	228 bps	-72 bps	-31.5%
5/31/2018	JW Aluminum Continuous	\$300	1st lien	B3	B-	6/1/2026	10.250%	100.00	718 bps	6.669%	252 bps	498 bps	-247 bps	-49.5%
11/26/2019	Kaiser Aluminum Corp	\$500	Sr Unsecured	B2	BB-	3/1/2028	4.625%	100.00	289 bps	6.973%	311 bps	378 bps	-66 bps	-17.6%
5/20/2021	Kaiser Aluminum Corp	\$550	Sr Unsecured	B2	BB-	6/1/2031	4.500%	100.00	288 bps	7.083%	319 bps	403 bps	-84 bps	-20.8%
8/11/2021	Novelis Corp	\$750	Sr Unsecured	Ba3	BB	11/15/2026	3.250%	100.00	836 bps	5.335%	142 bps	242 bps	-100 bps	-41.5%
1/16/2020	Novelis Corp	\$1,600	Sr Unsecured	Ba3	BB	1/30/2030	4.750%	100.00	836 bps	6.058%	207 bps	292 bps	-85 bps	-29.2%
8/11/2021	Novelis Corp	\$750	Sr Unsecured	Ba3	BB	8/15/2031	3.875%	100.00	836 bps	5.829%	193 bps	282 bps	-88 bps	-31.4%
6/10/2015	Precision Castparts Corp	\$850	Sr Unsecured	Aa2	AA	6/15/2025	3.250%	99.80	110 bps	4.539%	16 bps	36 bps	-20 bps	-55.2%
6/10/2015	Precision Castparts Corp	\$275	Sr Unsecured	Aa2	AA	6/15/2035	4.200%	99.40	130 bps	4.932%	102 bps	128 bps	-26 bps	-20.0%
12/20/2012	Precision Castparts Corp	\$500	Sr Unsecured	Aa2	AA	1/15/2043	3.900%	99.38	100 bps	5.006%	75 bps	98 bps	-23 bps	-23.7%
6/10/2015	Precision Castparts Corp	\$325	Sr Unsecured	Aa2	AA	6/15/2045	4.375%	99.67	145 bps	5.113%	85 bps	109 bps	-23 bps	-21.5%

Denotes new issuance since 10/12/23 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 final quarter of 2023 produced nine deals totaling \$2.57 billion. The full year resulted in 31 deals for a total of \$18.2 billion. This is less volume than both 2022 and 2021, which had 46 deals for \$20.3 billion and 53 deals for \$21.4 billion, respectively. The largest deals of the quarter included \$650 million for Consolidated Mill Supply, \$420 million for Howmet Aerospace, \$380 million for Heico Cos LLC and \$550 million for Worthington Steel. The Howmet financing included two term loans, one denominated in USD and one in Japanese yen. Proceeds of the Howmet term loans provided for a partial refinancing of notes due in 2024. The Worthington Steel ABL Revolver represented the Company's first financing as a new stand-alone public company. Proceeds from the ABL Revolver will be used as a \$150,000,000 distribution to Worthington Enterprises and for ongoing working capital needs.

The following provides detail for some of the more notable transactions during the quarter.

(\$ in millions)	Consolidated Mill Supply, Inc.	Howmet Aerospace, Inc.	Worthington Steel, Inc.																																								
Date	September 2021 (Amended Nov. 2023)	November 2023	November 2023																																								
Deal Size (\$ in MM)	\$650.0	\$200.0 / ¥33,000.0	\$550.0																																								
Facility Type	ABL Revolver	DDTL / DDTL	ABL Revolver																																								
Tenor	5 years	3 years	5 years																																								
Purpose	Corporate Purpose	Corporate Purposes / Refinancing	Dividend / Distribution																																								
Ratings																																											
S&P	NR	BBB-	NR																																								
Moody's	NR	Ba1	NR																																								
Amortization	-	0.0% / 2.5% / 5.0%	-																																								
Pricing at close (bps)																																											
All-in Spread	160.0	185.0	160.0																																								
SOFR Margin	150.0	175.0	150.0																																								
Facility Fee	<i>Not disclosed</i>	-	-																																								
Commitment Fee	<i>Not disclosed</i>	-	37.5																																								
Sustainability Adjustment	<i>Not disclosed</i>	-	-																																								
Pricing Detail (bps)																																											
	<i>Not disclosed</i>	<table border="1"> <thead> <tr> <th>Credit Rating</th> <th>SOFR Spread</th> <th>Avg. Undrawn Availability</th> <th>SOFR Spread</th> </tr> </thead> <tbody> <tr> <td>≥ BBB+ / Baa1</td> <td>125.0</td> <td>≥ 66.6%</td> <td>125.0</td> </tr> <tr> <td>BBB / Baa2</td> <td>137.5</td> <td>≥ 33.3%</td> <td>150.0</td> </tr> <tr> <td>BBB- / Baa3</td> <td>150.0</td> <td>< 33.3%</td> <td>175.0</td> </tr> <tr> <td>BB+ / Ba1</td> <td>175.0</td> <td></td> <td></td> </tr> <tr> <td>BB / Ba2</td> <td>200.0</td> <td></td> <td></td> </tr> <tr> <td>≤ BB- / Ba3</td> <td>250.0</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <th>Avg. Undrawn Availability</th> <th>Comm. Fee</th> </tr> <tr> <td></td> <td></td> <td>< 50.0%</td> <td>25.0</td> </tr> <tr> <td></td> <td></td> <td>≥ 50.0%</td> <td>37.5</td> </tr> </tbody> </table>	Credit Rating	SOFR Spread	Avg. Undrawn Availability	SOFR Spread	≥ BBB+ / Baa1	125.0	≥ 66.6%	125.0	BBB / Baa2	137.5	≥ 33.3%	150.0	BBB- / Baa3	150.0	< 33.3%	175.0	BB+ / Ba1	175.0			BB / Ba2	200.0			≤ BB- / Ba3	250.0					Avg. Undrawn Availability	Comm. Fee			< 50.0%	25.0			≥ 50.0%	37.5	
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		≥ 50.0%	37.5																																								
SOFR Adjustment (bps) (1-mo / 3-mo / 6-mo)	<i>Not disclosed</i>	10.0 / 10.0 / 10.0	10.0 / 10.0 / 10.0																																								
Rate Floor	<i>Not disclosed</i>	0.00%	0.00%																																								
Financial Covenants																																											
Fixed Charge Coverage Ratio		-	1.00x ²																																								
Interest Coverage Ratio		-	-																																								
Net Leverage Ratio	<i>Not disclosed</i>	3.75x ¹	-																																								
Funded Debt Ratio		-	-																																								
Debt to Capital Ratio		-	-																																								
Secured	Yes	No	Yes																																								

¹ Net unrestricted cash and cash equivalents

² Springs when Undrawn Availability is less than the greater of (i) 10.0% of the Line Cap and (ii) \$41,250,000, at any time

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

SYNDICATED BANK LOAN MARKET *(Continued)*

<i>(\$ in millions)</i>	Texas Pipe & Supply Co. Ltd.	Heico Companies LLC
Date	December 2023	December 2023
Deal Size (\$ in MM)	\$275.0	\$380.0
Facility Type	CF Revolver	CF Revolver
Tenor	5 years	5 years
Purpose	Corporate Purposes	Corporate Purposes
Ratings		
S&P	NR	BBB-
Moody's	NR	NR
Amortization	-	-
Pricing at close (bps)		
All-in Spread		150.0
SOFR Margin	<i>Not disclosed</i>	<i>Not disclosed</i>
Facility Fee		<i>Not disclosed</i>
Commitment Fee		<i>Not disclosed</i>
Sustainability Adjustment	<i>Not disclosed</i>	-
Pricing Detail (bps)		
	<i>Not disclosed</i>	<i>Not disclosed</i>
SOFR Adjustment (bps) (1-mo / 3-mo / 6-mo)	<i>Not disclosed</i>	<i>Not disclosed</i>
Rate Floor	<i>Not disclosed</i>	<i>Not disclosed</i>
Financial Covenants		
Fixed Charge Coverage Ratio		
Interest Coverage Ratio		
Net Leverage Ratio	<i>Not disclosed</i>	<i>Not disclosed</i>
Funded Debt Ratio		
Debt to Capital Ratio		
Secured	No	No

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

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