

Monitor

Chemicals & Plastics

Inventory & Equipment



A FOCUS ON BIOPLASTICS

BOLD GOALS FOR THE FUTURE OF PLASTICS

The White House has set aggressive goals for the advancement of biotechnology and biomanufacturing

OIL AND NATURAL GAS PRICES RETREAT

After spiking in early 2022, market prices for crude oil and natural gas fell in the second half of the year

SHIFTING PLASTIC EQUIPMENT DEMAND

Demand for used plastic processing equipment has weakened somewhat due to economic uncertainty

In This Issue

MONITOR CHEMICALS & PLASTICS

[BRILEYFIN.COM](https://brileyfin.com)

APRIL 2023

800-454-7328

VOLUME
373

03	Trend Tracker - Inventory	09	Plastic Processing Equipment
04	Trend Tracker - M&E	10	Monitor Information
05	Overview	11	Experience
06	Feedstocks	12	Meet Our Team
07	Chemicals	13	About B. Riley Advisory Services
08	Plastic Resins	14	Capitalize On The B. Riley Difference



Deals are a moving target with a constantly shifting mix of people, numbers and timing. We are here to simplify this process for you. Our associates are experts at analyzing situations and quantifying values you need on the most complex deals, so you can leverage our extensive industry knowledge to close the deal.

Trend Tracker - Inventory

	Chemicals	Plastics
NOLVs	Increasing ▲	Increasing ▲
Sales Trends	Increasing ▲	Increasing ▲
Gross Margin	Increasing ▲	Increasing ▲
Inventory	Mixed ◆	Increasing ▲
Selling Prices	Mixed ◆	Increasing ▲
PP and PE Market Prices	-	Increasing ▲

NOLVs

- **Chemicals:** NOLVs increased up to eight percentage points due primarily to higher gross margins. Increased sales volumes for some companies also helped to lower weeks of supply and improve NOLVs.
- **Plastics:** NOLVs increased up to five percentage points due to improvement in gross margins and higher inventory levels that leveraged fixed expenses. The increase was partially mitigated by higher weeks of supply.

SALES TRENDS

- **Chemicals:** Sales increased on both a volume and dollar basis, though growth in dollars outpaced growth in volume. Many companies increased selling prices to offset higher acquisition costs.
- **Plastics:** Sales volumes increased moderately year-over-year, while sales dollars increased more significantly due to increased selling prices. Sales volumes varied by industry, with some markets outperforming others.

GROSS MARGINS

- **Chemicals:** Gross margins increased by five to 10 percentage points as industry participants actively passed higher labor, freight, and material costs on to customers.

- **Plastics:** Gross margins increased by up to three percentage points as most companies were able to pass along higher market prices while also gaining some additional margin.

INVENTORY

- **Chemicals:** Inventory levels varied by company. In some instances, improved supply chains resulted in an influx in inventory over a short period of time. Inventory levels varied on a dollar basis depending on trends in market prices for a particular company's inventory mix. Robust sales in certain industries resulted in some companies selling through and lowering their inventory levels.
- **Plastics:** Inventory levels increased due to higher acquisition costs, slight improvements in demand, and some companies choosing to stock up against supply chain disruptions.

SELLING AND MARKET PRICES

- **Chemicals and plastics:** Selling prices increased for many products as industry participants passed higher acquisition costs along to customers. Market prices for both polypropylene and polyethylene exhibited some upward momentum in the first quarter of 2023.

Trend Tracker - Machinery and Equipment

Plastics	
Used Pricing	Consistent –
Used Trade Movement	Decreasing ▼
OEM Pricing	Increasing ▲
Technology Advancement	Increasing ▲
Auction Activity	Increasing ▲

USED PRICING

Used equipment pricing has started to level off as economic uncertainty has caused buyers some hesitation in purchasing equipment. Used pricing is also falling as the lead time to source new equipment has started to decline.

USED TRADE MOVEMENT

Sales of used plastics equipment has decreased recently due to economic uncertainty causing buyers to hesitate in making a purchase. Used equipment dealers have seen a reduced ratio of quotes to purchases.

OEM PRICING

OEM pricing has increased due to higher costs, which were driven by inflation, elevated freight costs (particularly from international suppliers), a lack of skilled labor that has driven up wages, and supply chain shortages. The higher pricing has been supported by increased orders of new equipment.

TECHNOLOGY ADVANCEMENT

A lack of skilled workers and a tight workforce have made automation increasingly desirable in many industries. Without a sufficient, stable workforce, many manufacturers have struggled to fill orders in a timely manner. As a result, many manufacturers are turning to technological advancements. For example, electric drive injection molding machines continue to make headway in the marketplace due to their efficiency and reduced maintenance needs.

AUCTION ACTIVITY

B. Riley has observed increased auction activity in the plastics sector in recent months. The limited workforce and inflationary impacts have caused many manufacturers to either reduce output or shut down. Should these trends persist, auction activity may continue to increase.

Overview

Following a turbulent few years for the chemicals and plastics sectors, the second half of 2022 was characterized by falling commodity prices and weakening demand from certain sectors. The falloff in demand was driven by uncertain economic conditions in the U.S., persistent inflation, and higher interest rates.

Some of the plastic industry's largest customers - namely, the automotive and housing markets - struggled last year. Sales of new vehicles totaled roughly 13.7 million units in 2022, which is the weakest annual sales figure since 2011. Auto manufacturers continued to face a semiconductor chip shortage, amongst other supply issues, which constrained production levels, while consumers balked at high price tags for new vehicles and elevated borrowing rates.

According to data from the U.S. Census Bureau, new privately owned housing starts totaled 1.55 million units in 2022, down from 1.60 million units the prior year. Although this is the first year-to-year decline since 2009, the news is not entirely bleak, as the 2022 results are still the second-highest figure on record since 2006.

The second half of last year was also characterized by a decline in market pricing for many commodities. In the early months of 2022, market prices for both crude oil and natural gas climbed to highs that had not been seen in more than a decade. The high prices were spurred by a perfect storm of events, including the reopening of the global economy following the early stages of the COVID-19 pandemic, lower-than-normal reserves of oil and gas, growing demand, and Russia's invasion of Ukraine.

Many of these conditions began to lessen in the second half of the year. The aforementioned

elevated interest rates, coupled with lasting inflation, served to cool off the domestic economy, reducing demand for many goods and services and helping to depress upstream market prices. The lower oil and gas prices gradually trickled down into the chemicals and plastics production streams. The lower feedstock costs, coupled with growing supplies of many materials, then drove down prices for many chemicals and plastic resins.

Looking forward, one trend that will likely gather steam in 2023 is a push toward bio-alternatives to chemicals and plastics that have traditionally been manufactured from petroleum-based feedstocks. In September 2022, President Biden signed an executive order with a goal of advancing innovation in biotechnology and biomanufacturing. In March 2023, further announcements clarified some of the goals of the executive order.

One of the climate-focused goals of the order is to develop and deploy bio-based polymers to replace 90% of the petroleum-based plastics being used today. A separate goal focused on filling at least 30% of U.S. chemical demand via biomanufacturing. The executive order admits that these are bold goals with an objective of driving R&D and innovation in U.S. manufacturing while also benefitting the environment. Currently, bioplastics represent only a sliver of global plastics production.

Feedstocks

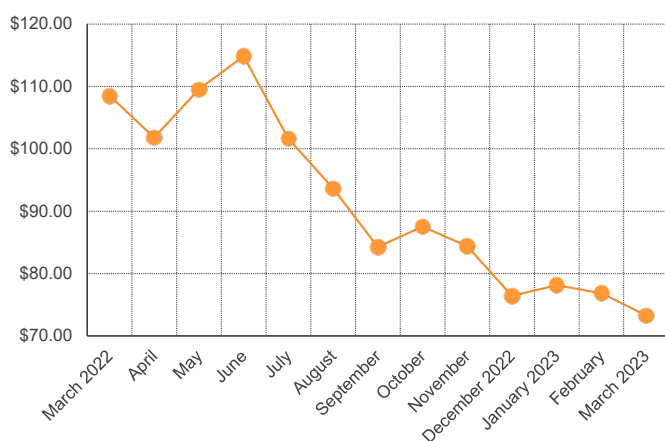
FEEDSTOCKS OVERVIEW

A majority of chemicals and plastics are derived from petroleum or natural gas. Any fluctuations in the prices of these commodities impact the downstream chemicals and plastics sectors.

PETROLEUM

According to data from the Energy Information Administration (“EIA”), market prices for West Texas Intermediate (“WTI”) crude oil climbed to an average of \$114.84 per barrel in June 2022, which was the highest monthly average since 2008. The high prices were driven by returning demand following the early stages of the pandemic, low supplies, and the invasion of Ukraine by Russia, which rattled global markets and supplies. Since that point, oil prices have dropped significantly, falling to an average of \$73.28 per barrel in March 2023. The lower prices appear to be driven by fears over the economy, inflation, and recent banking system failures.

1 Crude Oil Cushing, Oklahoma WTI Spot Price March 2022 through March 2023 (\$ per barrel)



According to the EIA, U.S. commercial crude oil inventory for the week ended March 31, 2023 totaled 470.0 million barrels, a decrease of 3.7 million barrels from the previous week. The EIA notes that inventory levels are about 4% above the five-year average for this time of year.

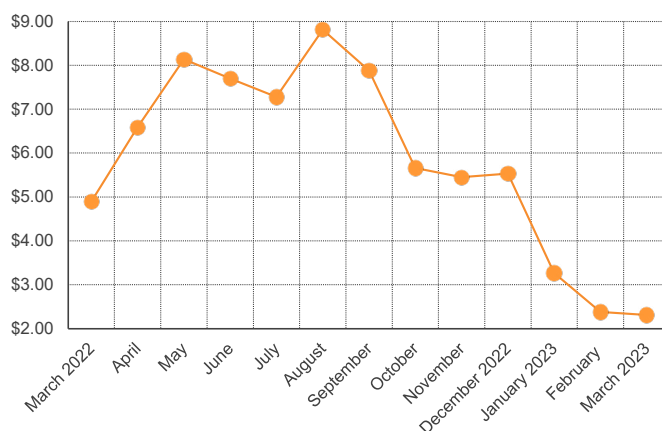
NATURAL GAS

According to estimates from the EIA, working gas in underground storage totaled 1,830 billion cubic feet (“Bcf”) for the week ended March 31, 2023, which represents a 31.9% increase from the previous year. The following table illustrates working gas in underground storage in the lower 48 states (units in Bcf):

Region	3/31/23	3/31/22	% Change
East	335	245	36.7%
Midwest	421	299	40.8%
Mountain	80	91	(12.1%)
Pacific	73	164	(55.5%)
South Central	921	588	56.6%
Total	1,830	1,387	31.9%

Henry Hub natural gas prices averaged \$8.80 per MBTU in August 2022, which was the highest monthly average in 14 years. The high prices were driven by relatively low supplies of natural gas and a long-lasting heat wave in the U.S. that spurred elevated electricity usage. Since that point, however, prices have fallen significantly. According to the EIA, natural gas prices at the Henry Hub averaged \$2.31 per MBTU in March 2023.

2 Henry Hub Gulf Coast Natural Gas Spot Price March 2022 through March 2023 (\$ per MBTU)



Chemicals

PROPYLENE

Propylene in the U.S. is derived from the processing of naphtha in ethylene steam crackers, as well as the refinement of petroleum into gasoline. Demand for propylene has also resulted in some purposeful propylene manufacturing operations, as opposed to sourcing the material as a byproduct.

Following a spike early in 2022, market prices for polymer-grade propylene decreased for much of the year. Declines were driven by ample supplies of downstream polypropylene on the market and a general retreat from inflationary conditions due to widespread economic uncertainty.

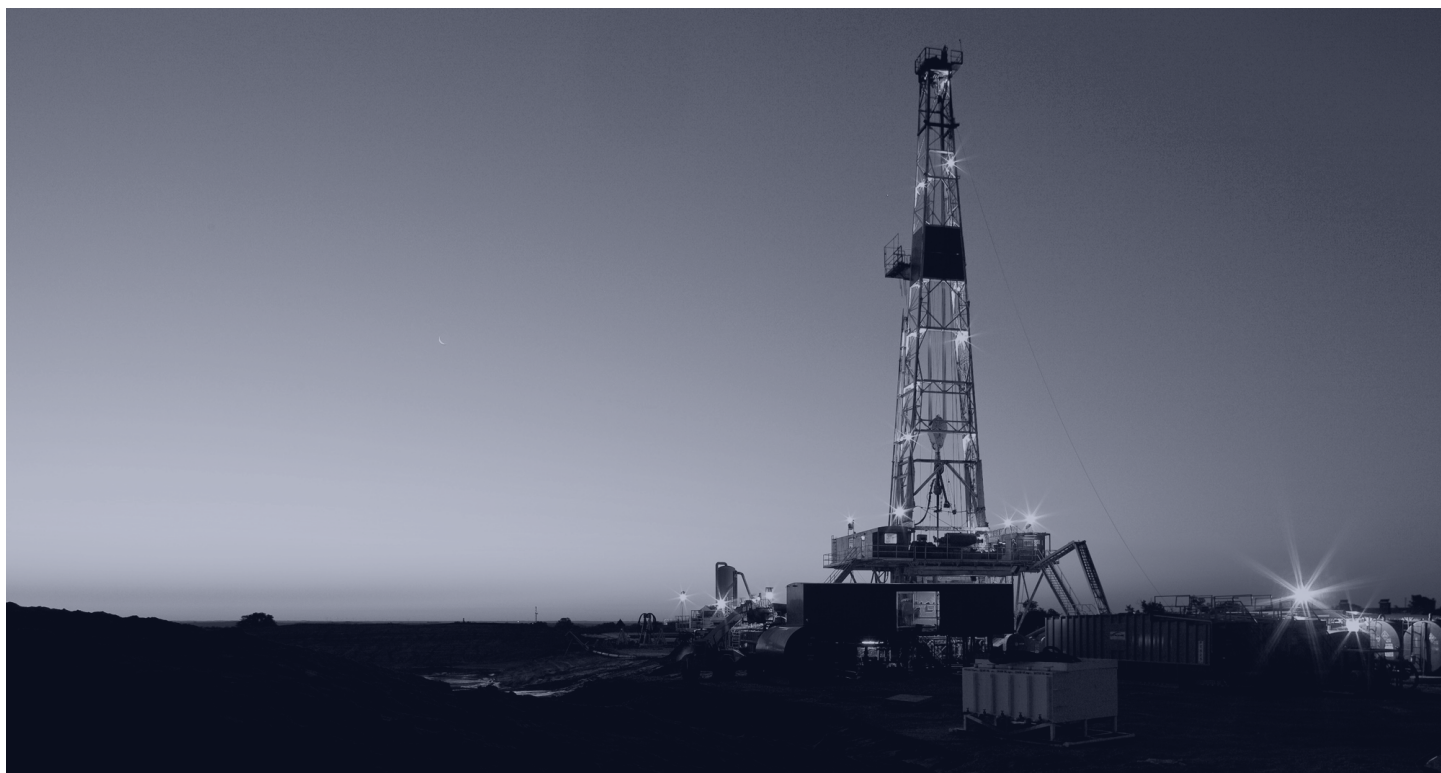
However, conditions appear to have reversed in early 2023, with prices for polymer-grade propylene increasing sharply in both January and February due to tight supplies in the market.

ETHYLENE

Ethylene is produced in the steam cracking of ethane, as well as the cracking of naphtha. One of the largest downstream uses is the production of polyethylene resin, which is one of the most commonly used plastics across the globe.

In the second half of 2022, ethylene prices in the U.S. declined due to weak polyethylene demand, shaky economic conditions, and falling input costs. Prices had been elevated earlier in the year due to market disruption caused by the war in Ukraine and European sanctions against Russia, which contributed to higher gas prices in both Europe and the U.S.

More recently, ethylene prices have exhibited some upward momentum. Domestic demand for polyethylene has been improving, while export demand has been very strong. On top of this, supplies of ethylene were constricted by unexpected production outages.



Plastic Resins

POLYPROPYLENE

	Polypropylene Price Trend
12-month	Decreasing ▼
Three-month	Increasing ▲

Polypropylene, a polymer which is derived from propylene, is one of the world’s most commonly-used plastics.

Market prices for polypropylene resin climbed steadily at the start of 2022 due to Russia’s invasion of Ukraine, which shook up global markets and caused a sharp spike in market prices for feedstock crude oil. Over the balance of the year, conditions reversed, with market prices slowly declining through December. The downturn in pricing was caused by ample supplies of polypropylene in the market, soft demand, falling feedstock costs, economic uncertainty, and a general pushback against inflated pricing.

In recent months, conditions have once again turned. A spike in prices for feedstock polymer-grade propylene caused market prices for polypropylene to increase fairly significantly in both January and February. Despite these increases, market prices are still well below the highs that occurred early in 2022.

POLYETHYLENE

	Polyethylene Price Trend
12-month	Consistent –
Three-month	Increasing ▲

Polyethylene, a plastic derived from ethylene feedstock, is another of the world’s most widely used plastic materials.

Market prices for polyethylene increased in the early months of 2022 due primarily to the war in Ukraine and its impact on global markets. After peaking around midyear, market prices then retreated due to weakening demand and deteriorating economic conditions in the U.S., falling input prices, and plentiful supplies on the market. The declines in the second half of the year offset the earlier increases.

In the early months of 2023, polyethylene prices have been flat to slightly higher. While demand in the U.S. has not been particularly strong, exports have continued to increase, allowing manufacturers to maintain or increase pricing. Although the margins achieved from exports are typically lower than margins achieved through domestic sales, soft domestic demand has made exports increasingly necessary.



Plastic Processing Equipment

Plastics processors rely on demand from a variety of downstream markets, ranging from construction supplies to food packaging to automotive manufacturers. As the economy continues to shift and change, causing highs and lows in various sectors, the performance of upstream manufacturers tends to swing accordingly.

Economic uncertainty and a lack of skilled workers are generally seen as the two primary concerns for plastics manufacturers. The fluctuations and general increases in resin prices since 2020 affect profitability and product pricing for many processors. The war in the Ukraine continues to affect gas and oil prices, as the primary input in plastics operations, resin prices have a significant effect on plastics processors' profitability and capital expenditures. New shipments of primary plastic equipment in 2022 remained fairly flat when adjusted for inflation.

Values for many used plastic processing machines had increased prior to 2023 due to short supply of late-model machines, as well as increased costs and lead times for new equipment. The secondary market for plastics equipment has been slower over the last few months after years of growth. A recent survey of plastics machinery suppliers indicated an increase in the participants expecting market conditions to remain unchanged or improve. Equipment vintages of five years or less are the most desirable and trade the best for injection molding equipment (10 years or less for extrusion equipment). Demand for plastics equipment from the late 1990s to mid-2000s has sharply declined due both to its age and the surplus of older equipment in the secondary marketplace. B. Riley expects this trend to continue.

The residential housing, remodeling, and construction markets, which had previously leveled off, appear to be improving. This will impact the production of PVC trim, pipe, conduit, composite

decking, roof tiles, and appliance components, which, in turn, will impact demand for mid-range injection molding machines and extrusion machines. Injection molding machines manufactured in China continue to impact the resale market. With China emerging from COVID-19 restrictions, injection molding equipment has begun to flow more easily into the U.S. market. The lower cost of this machinery as compared to counterparts built in the U.S., Europe, or Japan have made this equipment a viable option. New machines produced in China are available at a price point comparable to a four- to six-year-old tier-one brand (i.e., Milacron, Krauss Maffei, Engel, or Nissei). The machines produced in China come equipped with energy-saving servo pump technology, name brand controls, and better warranties. However, manufacturers in China are contending with tariffs and high shipping costs.

Recycling continues to gain a heightened presence in legislature, the media, and in large corporations. Bio-resins and chemical recycling are prevalent in the news cycle. States like Illinois have failed to advance chemical recycling legislation, while other states have had similar issues with this relatively new technology. Many companies are making and increasing recycled content targets for their products, which bolsters the need for related equipment and recycling in general. In federal and local governments, recycling has become a topic of legislation and concern, with California often leading the way.

Looking forward, U.S. manufacturers need to monitor interest rates and inflation and their effect on the housing and construction industries. Additional areas to monitor will be supply-chain disruptions, labor shortages, repatriation of critical supply chain elements, plastic and chemical legislation, bans on specific plastics products, chemical recycling, inflation, and the adoption of bio-resins.

Monitor Information

The *Chemicals and Plastics Monitor* relates information covering many chemicals and plastics, including industry trends, market pricing, and their relation to our valuation process. Due to the commodity nature of certain chemicals and plastic resins, timely reporting is necessary to understand an ever-changing marketplace. In addition, pricing trends are impacted by a number of macroeconomic indicators that should be monitored, and B. Riley Advisory Services strives to contextualize these indicators in order to provide a more in-depth perspective of the market as a whole. Please feel free to utilize our contact information shown in this and all *Chemicals & Plastics Monitor* issues.

The information contained herein is based on a composite of B. Riley Advisory Services' industry expertise, contact with industry personnel, liquidation and appraisal experience, and data compiled from a variety of well-respected sources believed to be reliable. We do not guarantee the completeness of such information or make any representation as to its accuracy. B. Riley Advisory Services does not make any representation or warranty, expressed or implied, as to the accuracy or completeness of the information contained in this issue. Neither B. Riley Advisory Services nor any of its representatives shall be liable for use of any of the information in this issue or any errors therein or omissions therefrom.



Experience

B. Riley Advisory Services has worked with and appraised numerous companies within the chemicals and plastics industries. While our clients remain confidential, they include well-known and significant global, national, and regional producers and distributors of commodity and specialty chemicals, chemical intermediates, plastics, and resins for uses throughout the construction, automotive, oil and gas, food and beverage, manufacturing, and agricultural industries.

B. Riley Advisory Services has appraised companies such as the following:

- A global manufacturer of chemicals and plastics, a refiner of crude oil, and a significant manufacturer of fuel products, with annual sales of nearly \$20 billion;
- One of the largest global manufacturers and distributors of high-performance polymer resins and resin-based products, with locations throughout the world and sales exceeding \$3.5 billion annually;
- A manufacturer and distributor of plastic packaging such as containers, closures, tubes, and bottles, with revenue of \$3.5 billion annually;
- Two of the world's largest producers of integrated fibers and polymers, with annual sales of \$1.4 billion and \$3 billion, respectively;
- One of the nation's leading specialty chemical producers, with annual revenue of over \$1.5 billion;
- A distributor of crop input products to customers in the mid-southern regions of the U.S., including herbicides, various agricultural chemicals, insecticides, defoliant, surfactant, fertilizer, seed, and similar goods;
- One of Europe's leading specialty chemical producers; and
- A producer of specialty chemicals derived from renewable resources serving the pharmaceutical, rubber production, and agricultural markets, among other industries.

B. Riley Advisory Services also maintains extensive appraisal experience with a variety of plastic bottle and plastic container manufacturers, as well as foam and foam product manufacturers.

B. Riley Advisory Services has also appraised a variety of small and middle market commodity and specialty chemical manufacturers and distributors.

B. Riley Advisory Services has been involved in the asset disposition and valuation of many plastics processing facilities involving injection molding, blow molding, extrusion, thermoforming, and more. Recent transactions include: Cincinnati Milacron, Collins & Aikman, Essel Propack America, Fortis Plastics, Home Products International, Hunjan Group, ILPEA Industries, Interbath, Jodee Plastics, Kamco Plastics, MedPlast, Mullinux Packages, Packaging Plus, Rantoul Products, Royal Dynamics, Thomas Plastics, and United Plastics Group.

Given our experience in both the valuation and disposition of chemicals and plastics processing equipment, B. Riley Advisory Services is uniquely qualified to not only render value opinions, but to also serve your liquidity needs through the sales of surplus and/or idle chemicals and plastics processing assets. In addition to our vast liquidation and appraisal experience, B. Riley Advisory Services maintains contacts within the chemicals/plastics industry that we utilize for insight and perspective on recovery values.

Meet Our Team

APPRAISAL & VALUATION TEAM

BUSINESS DEVELOPMENT



Bill Soncini
National Marketing Manager
Managing Director
Midwest Region
(773) 495-4534
bsoncini@brileyfin.com



Jennie Kim
Managing Director
Western Region
(818) 746-9370
jkim@brileyfin.com



Ryan Mulcunry
Managing Director
Northeast / New York Metro Regions
(617) 951-6996
rmulcunry@brileyfin.com



David Seiden
Managing Director
Mid-Atlantic / Southeast Regions
(404) 242-0683
dseiden@brileyfin.com



Nick Disimile
Director, Business Development
Southwest Region
(516) 707-7040
ndisimile@brileyfin.com



Akilah Moore
Director, Business Development
Midwest Region
(312) 777-7956
anmoore@brileyfin.com

OPERATIONS

Chad P. Yutka, ASA
Executive Managing Director
Corporate Advisory Valuation Services
(312) 909-6078
cyutka@brileyfin.com

Kristi Faherty
Managing Director
(781) 429-4060
kfaherty@brileyfin.com

Tom Mitchell
Project Manager
(818) 746-9356
tmitchell@brileyfin.com

Neil DeShetler
Senior Associate
(818) 746-9328
ndeshetler@brileyfin.com

Joel Goldsmith
Director of Appraisal Operations, M&E
(646) 381-9242
jgoldsmith@brileyfin.com

David Pietig
Senior Appraiser
(847) 778-7775
dpietig@brileyfin.com

Patrick Lennon
Managing Writer
(781) 429-4055
plennon@brileyfin.com

ASSET DISPOSITION TEAM

Scott Carpenter
CEO
B. Riley Retail Solutions
(818) 746-9365
scarpenter@brileyfin.com

Paul Brown
Senior Vice President
Wholesale & Industrial Solutions
(203) 313-8935
pbrown@brileyfin.com

About B. Riley Advisory Services

B. Riley Advisory Services works with lenders, law firms, private equity sponsors and companies of all types. Our Advisory Services are a unique mix of Valuation and Appraisal Services including asset-based lending (ABL) Valuations; Restructuring and Turnaround Management; Forensic Accounting and Litigation Support; Operations Management; Compliance, Risk & Resilience Services; and Transaction Support Services including Due Diligence and Quality of Earnings Reviews. B. Riley Advisory Services is the trade name for GlassRatner Advisory & Capital Group, LLC, Great American Group Advisory & Valuation Services, LLC, Great American Group Machinery & Equipment, LLC, and Great American Group Intellectual Property, LLC.



MONITOR CHEMICALS & PLASTICS
[BRILEYFIN.COM](https://brileyfin.com)
APRIL 2023
800-454-7328

VOLUME
373

LOS ANGELES (HQ)

30870 Russell Ranch Road
Suite 250
Westlake Village, CA 91362
T 818.884.3737

ATLANTA

3445 Peachtree Road
Suite 1225
Atlanta, GA 30326
T 470.346.6800

BOSTON

300 First Avenue
Suite 201
Needham, MA 02494
T 781.444.1400

CHICAGO

200 West Madison Street
Suite 2950
Chicago, IL 60606
T 312.894.7700
F 312.368.8883

DALLAS

3500 Maple Avenue
Suite 420
Dallas, TX 75219
T 214.532.5434

HOUSTON

4400 Post Oak Parkway
Suite 1400
Houston, TX 77027
T 713.403.2111

NEW YORK

299 Park Avenue
21st Floor
New York, NY 10171
T 212.457.3300

WEST PALM BEACH

1400 Centrepark Boulevard
Suite 860
West Palm Beach, FL 33401
T 561.657.4896

AUSTRALIA

Level 29, Chifley Tower
2 Chifley Square
Sydney, NSW 2000
Australia

GERMANY

Prinzregentenstr 18
5th Floor
80538 Munchen,
Germany

Capitalize On The B. Riley Difference

B. Riley Financial (“B. Riley”) provides collaborative solutions tailored to fit the capital raising and business advisory needs of its clients and partners. B. Riley operates through several subsidiaries that offer a diverse range of complementary end-to-end capabilities.

ADVISORY SERVICES

Provides specialty financial advisory services to address complex business problems and board level agenda items.

- Appraisal & Valuation Services
- Compliance, Risk & Resilience Services
- Forensic Accounting & Litigation Support
- Operations Management Services
- Restructuring & Turnaround Management
- Transaction Support

ASSET MANAGEMENT

SEC-registered investment adviser that provides alternative investment management services.

INVESTMENT BANKING

Provides a full suite of investment banking, corporate finance, advisory, research, and sales and trading services for middle-market public and private companies.

- Capital Markets
- Mergers & Acquisitions
- Restructuring & Recapitalization
- Equity Research
- Sales & Trading
- Fixed Income Investment Solutions

PRINCIPAL INVESTMENTS

Develops investment opportunities through the acquisition and/or restructuring of companies and corporate assets that present attractive cash-flow driven returns.

REAL ESTATE SOLUTIONS

Dedicated practice group that provides real estate advisory and valuation services in the U.S. and abroad.

- Sales & Dispositions
- Lease Restructuring
- Real Estate Advisory Services
- Capital Solutions & Acquisitions

RETAIL SOLUTIONS

Provides asset disposition and large-scale retail liquidations, helping clients liquidate and realize immediate returns from excess inventories and underperforming assets.

- Dispositions
- Inventory Clearance
- Appraisal & Valuation Services
- Real Estate Solutions

SPONSORS COVERAGE

Provides dedicated resources that drive value with the firm’s alternative asset manager clients by developing and maintaining relationships with middle market financial sponsors.

VENTURE CAPITAL

Invests in late-stage private growth companies with a path towards public markets.

WEALTH MANAGEMENT

Strategic investment and wealth solutions to address the various needs of individuals, families, business owners, foundations and endowments.

- Individual Client Services
- Business Client Services

WHOLESALE & INDUSTRIAL SOLUTIONS

Provides equipment management and capital recovery solutions through a suite of services in various industries.

- Auctions, Private Treaty & Liquidation
- Valuations
- Asset Planning & Recovery Strategies