

## Bruker Corporation (BRKR)

**\$36.28** (As of 04/07/20)

Price Target (6-12 Months): **\$31.00**

Long Term: 6-12 Months

**Zacks Recommendation:** Underperform

(Since: 04/08/20)

Prior Recommendation: Neutral

Short Term: 1-3 Months

**Zacks Rank:** (1-5)

**5-Strong Sell**

Zacks Style Scores:

VGM:F

Value: F

Growth: B

Momentum: F

### Summary

Bruker ended the fourth quarter on a mixed note, with earnings lagging the consensus mark. The contraction in the operating margin on escalating expenses is concerning. The company's exposure to foreign exchange fluctuations is concerning as it conducts majority of its business in international markets. A competitive landscape poses a persistent challenge to Bruker. Macroeconomic woes, stemming from the coronavirus pandemic is another headwind trailing the company. Bruker has underperformed the industry it belongs to over the past six months. On a favorable note, its revenues surpassed estimates and improved on a year-over-year basis across most geographies. Its segmental performance and acquisition activities raise optimism. Further, we are upbeat about its current focus on product development through higher R&D investments.

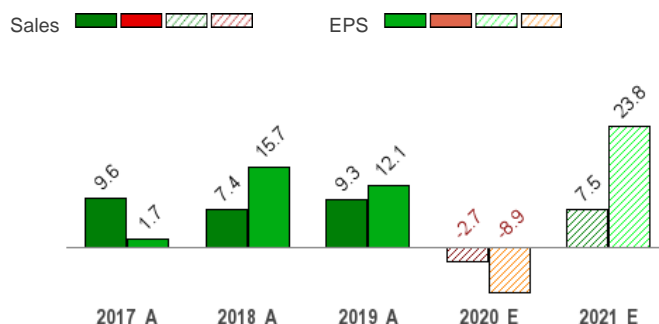
### Price, Consensus & Surprise



### Data Overview

52 Week High-Low	\$54.49 - \$30.78
20 Day Average Volume (sh)	1,184,701
Market Cap	\$5.6 B
YTD Price Change	-28.8%
Beta	1.48
Dividend / Div Yld	\$0.16 / 0.4%
Industry	<a href="#">Instruments - Scientific</a>
Zacks Industry Rank	Bottom 7% (236 out of 253)

### Sales and EPS Growth Rates (Y/Y %)



Last EPS Surprise	-8.6%
Last Sales Surprise	2.4%
EPS F1 Est- 4 week change	-20.7%
Expected Report Date	05/07/2020
Earnings ESP	-6.9%

### Sales Estimates (millions of \$)

	Q1	Q2	Q3	Q4	Annual*
2021					2,169 E
2020	435 E	413 E	526 E	642 E	2,017 E
2019	461 A	490 A	521 A	600 A	2,073 A

### EPS Estimates

	Q1	Q2	Q3	Q4	Annual*
2021					\$1.77 E
2020	\$0.31 E	\$0.19 E	\$0.43 E	\$0.62 E	\$1.43 E
2019	\$0.28 A	\$0.33 A	\$0.43 A	\$0.53 A	\$1.57 A

\*Quarterly figures may not add up to annual.

P/E TTM	23.1
P/E F1	25.4
PEG F1	2.1
P/S TTM	2.7

The data in the charts and tables, including the Zacks Consensus EPS and Sales estimates, is as of 04/07/2020. The reports text is as of 04/08/2020.

## Overview

Billerica, MA-headquartered Bruker Corporation designs and manufactures proprietary life science and materials research systems and associated products that serve multiple customers in life science research, pharmaceuticals, applied markets, nanotechnology, cell biology, clinical research, microbiology and in-vitro diagnostics. Currently, Bruker employs 6,000 individuals who work at 90 locations across the globe. It has direct sales forces employed through North America, Europe, Japan, Asia Pacific and Australia.

### Business Segments:

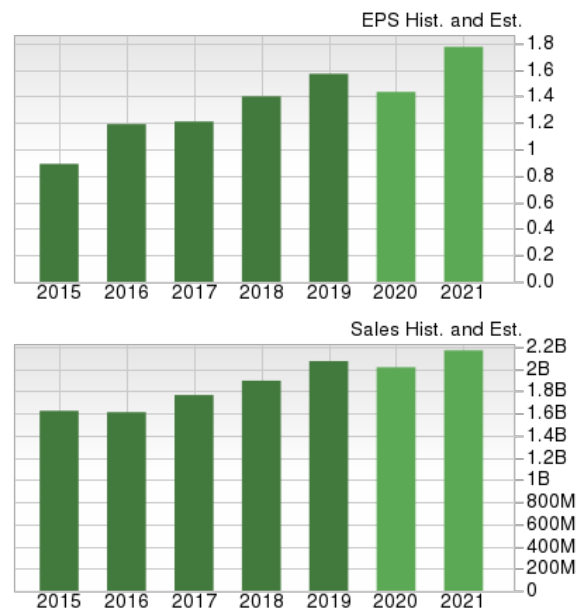
**Bruker Scientific Instruments (BSI) Life Science:** Within the segment, Bruker reports under two groups: Bruker BioSpin Group (comprising 29.9% of revenues in 2019, up 5.1% from 2018) and Bruker CALID Group (30.1%, up 13.8%).

The **Bruker BioSpin** comprises the Bruker Magnetic Resonance and Preclinical Imaging divisions, which designs, manufactures and distributes enabling life science tools based on the magnetic resonance technology.

The **Bruker CALID** comprises the Bruker Daltonics and primarily designs, manufactures and distributes life-science mass spectrometry instruments that can be integrated with other sample preparation or chromatography instruments.

**BSI Nano** (30.5%, up 11.4%): The Bruker Nano combines the Bruker AXS, Bruker Nano Surfaces, Bruker Nano Analytics and Bruker Elemental divisions, and designs, manufactures and distributes advanced X-ray instruments to determine the characteristics of matter and the three-dimensional structure of molecules.

**Bruker Energy & Supercon Technologies (BEST)** (10.1%, up 7.8%): This segment designs, manufactures and distributes superconducting materials, primarily metallic low temperature superconductors, for use in magnetic resonance imaging, nuclear magnetic resonance, fusion energy research and other applications.



---

## Reasons To Sell:

- ▼ **Share Price Movement:** Over the past six months, Bruker has underperformed the industry it belongs to. The stock has lost 15.5% compared with the industry's 7.2% decline. The contraction in the operating margin, resulting from cost escalation, is concerning. The company's exposure to the foreign exchange fluctuations is a cause of concern as it conducts majority of its business in international markets. Further, a competitive landscape and macroeconomic woes, stemming from the coronavirus pandemic, pose persistent challenges to the company.
- ▼ **Exposed to Currency Movement:** Bruker conducts 80% of its business in international markets. As a result, currency fluctuations continue to result in foreign currency transaction losses at the company. In the fourth quarter of 2019, changes in foreign currency had 1.1% negative impact on the company's revenues. In addition, currency fluctuations could cause the price of Bruker's products to be less competitive than its principal competitors' offerings.
- ▼ **Coronavirus Dampeners:** The coronavirus pandemic has been wreaking havoc on the economy and Bruker has also been affected. The company has refrained from providing any guidance for 2020 amid the mayhem. It is anticipating lower revenues and earnings for the first quarter of 2020 from the year-ago reported figure. Additionally, the second-quarter 2020 results will likely be significantly impacted due to the coronavirus-led business disruptions.
- ▼ **Macroeconomic Factors:** Many of the countries in which Bruker operates, including the U.S., Russia, and certain European nations, have experienced and continue to face uncertain economic conditions. Any company conducting business in these nations tend to be impacted by unfavorable changes in economic or political conditions herein, including adverse changes in interest rates or tax rates, volatile financial and commodity markets, contraction in the availability of credit in the marketplace, and changes in capital spending patterns. Moreover, continued volatility and disruption of global financial markets might limit Bruker's customers' ability to obtain adequate financing to maintain operations and proceed with planned or new capital spending initiatives. This could lead to a drop in sales volume that could materially and adversely affect the company's operational results and cashflow. Management further anticipates that the persistence of an economic downturn may entail increased pricing pressure for Bruker's products and services, thus weighing on its operating margins and profitability.
- ▼ **Competitive Landscape:** Bruker faces substantial competition in a consolidating industry and expects competition in all of its markets to increase further. Bruker BioSpin competes with companies that offer magnetic resonance spectrometers, mainly JEOL and Oxford Instruments. In the field of preclinical imaging, Bruker BioSpin faces competitive threat from Perkin Elmer, Mediso, Trifol, MR Solutions, RS2D, Visualsonics (Fuji Film) and others. Bruker CALID's competitors in the life science markets and chemical and applied markets include Danaher, Agilent, GE-Healthcare, Waters, Thermo Fisher Scientific, Shimadzu, Hitachi and JEOL. BEST competes with Oxford Instruments and Luvata in low temperature superconducting materials. Unfortunately, a number of Bruker's peers have expanded their market share in recent years through business combinations. Other companies may also choose to enter Bruker's fields of operation in the near future.

Currency fluctuations remain a drag on Bruker's top as well as bottom-line. Moreover, headwinds such as unfavorable economic conditions and competitive threats continue to pose concern.

---

## Risks

- **BSI Nano Group Continue to Deliver Strong Performance:** In the fourth quarter of 2019, the BSI Nano group — which includes Bruker's atomic force microscopy products — rose 2.6% despite being dented by a steep year-over-year decline in the company's semiconductor metrology business and weaker results in some of the NANO industrial research businesses. The reported quarter registered significant growth in the BSI Nano group, backed by solid academic markets and strong industrial research demand for advanced X-ray and Nano Materials Analysis products. Notably, NANO analysis tools business registered robust organic growth in 2019.

Apart from these, the company's acquisitions of Anasys (in April 2018), JPK (in July) and Alicona progressed well during the quarter. In April 2019, NANO closed the acquisition of RAVE, a semiconductor mass repair business. The buyout continued to contribute significantly to the company's top line in the fourth quarter. NANO's advanced x-ray business grew on consistent demand from academic and government customers. NANO surface tools revenues increased, courtesy of these acquisitions.

The company has been working on a new Bruker NANO engineering final assembly and system test sensor in Penang, Malaysia, which is now operational. The company now has several Bruker NANO products that are being assembled and tested in Penang already, and by 2022, management expects more than \$50 million of revenues to be generated from Penang.

Overall, the Nano Group is witnessing a strong finish to the quarter with higher demand from industrial markets, strong semiconductor sales and improved academic markets.

- **High Potential of MALDI Biotyper:** Bacteria analysis and the identification of microorganisms to the species level and beyond is a key task in microbiology. Although current sequencing technologies provide more precise insights in biochemical analysis, they are still far too slow and expensive. Keeping this in mind, Bruker developed the MALDI Biotyper — a revolutionary approach for the analysis of microorganisms. The company expanded its MALDI Biotyper workflow's menu to include selected high-value resistance testing for clinical microbiology research.

We are also encouraged to note that demand for the MALDI Biotyper is increasing in applied markets, specifically for food, feed and beverage. Based on the recent developments witnessed in this product portfolio, management believes Bruker is poised to double its microbiology business over the next four to five years. Given an increase in the aging population, a higher number of individuals are likely to fall prey to illnesses, especially those caused by microorganisms. We believe MALDI Biotyper is thus positioned well to contribute significantly to the company's top line, over time.

- **Bruker's Prospects in NMR Industry:** Nuclear Magnetic Resonance (NMR) spectroscopy is an analytical technique used in quality control and research to identify the content and purity of a sample as well as its molecular structure. Bruker BioSpin's products, which have specific application in structural proteomics, drug discovery, research and food and materials science fields, provide customers with the ability to ascertain the structure, dynamics, and function of specific molecules, such as proteins, as well as characterize and determine the composition of mixtures. A vast majority of Bruker BioSpin's customers include academic and government customers as well as pharmaceutical and biotechnology companies.

In the fourth quarter, Bruker's BioSpin Group revenues rose 10.6% from the year-ago quarter, fuelled by the acceptance of a 1.1-gigahertz NMR system. Organic revenue growth and the same at CER for the BSI segment (including BSI Life Science and BSI Nano segments) were 5.8% and 10.3% year over year, respectively.

- **Growth in Preclinical Imaging Market:** Preclinical imaging (PCI) can dramatically increase the efficiency and pace of drug discovery and development. Bruker offers advanced PCI solutions for a broad spectrum of application fields, such as cancer research, functional and anatomical neuroimaging, orthopedics, cardiac imaging and stroke models. Moreover, this division is experiencing increasing customer demand for higher-strength pre-clinical magnetic resonance imaging (MRI) system. In this regard, the company's recent collaboration with Champalimaud Foundation to develop the world's first 18 Tesla 11 cm bore, preclinical ultra-high field MRI system seems strategic.

The MRI system market, which is expected to grow at a single-digit CAGR of 5% to reach \$6,802.7 million by 2020 from \$5,093.0 million in 2014 (as per research firm Markets and Markets), drives encouragement. We believe this translates into a golden opportunity for Bruker to expand its foothold in the PCI market and earn higher profits from this division, going ahead. Currently, the company is investing vigorously in the PCI division to capture a larger share in this fast-growing market space. In July, the company made an acquisition in support of its Project Accelerate- PMOD Technologies, a provider of research-use software for preclinical and molecular imaging applications, viz. PET/MR and PET/CT scanning.

---

## Last Earnings Report

### Bruker's Q4 Earnings Miss Estimates, Revenues Beat

Bruker delivered adjusted earnings per share of 53 cents in the fourth quarter of 2019, down 1.9% year over year. Moreover, the figure lagged the Zacks Consensus Estimate by 8.6%.

GAAP earnings per share for the quarter was 44 cents a share, marking a 12% decline from the year-earlier figure.

Full-year adjusted earnings per share were \$1.57, reflecting a 12.1% increase from the year-earlier figure of \$1.40. The metric lagged the Zacks Consensus Estimate by 3.7%.

Notably, Bruker released preliminary top-line results for fourth-quarter and 2019 on Feb 18, 2020. The company's final earnings announcement was pending due to an income tax-related internal investigation.

Quarter Ending **12/2019**

Report Date	Mar 27, 2020
Sales Surprise	2.40%
EPS Surprise	-8.62%
Quarterly EPS	0.53
Annual EPS (TTM)	1.57

### Revenues in Detail

Bruker registered revenues of \$599.9 million in the fourth quarter, up 8.4% year over year. Further, the top line surpassed the Zacks Consensus Estimate by 2.4%.

Excluding a positive impact of 4.3% from acquisitions and a 1.1% negative impact from changes in foreign currency rates, the company recorded organic revenue growth of 5.2% and growth of 9.5% at constant exchange rate (CER) year over year.

Geographically, the United States witnessed 5.9% growth in the reported quarter. Also, revenues in the Asia Pacific grew 22.4%, whereas the Other category's revenues rose 1.2%. Meanwhile, Europe revenues declined 0.4% year over year.

Full-year revenues were \$2.07 billion, reflecting a 9.3% increase from the year-ago period. Revenues beat the Zacks Consensus Estimate by 0.7%.

### Segments in Details

Bruker reports results under three segments — BSI Life Science (comprising BioSpin and CALID), BSI NANO and BEST.

In the fourth quarter, its BioSpin Group revenues grew 10.6% from the year-ago quarter, fuelled by the acceptance of a 1.1-gigahertz NMR system. CALID revenues were up 14.7% year over year, fuelled by strong growth in all major CALID areas, including life science mass spec solutions, microbiology and FTIR/NIR molecular spectroscopy tools. Total **BSI Life Science** revenues were \$375.6 million, up 12.5% year over year.

Revenues in the **NANO** group rose 2.6%, dented by a steep year-over-year decline in the company's semiconductor metrology business and weaker results in some of the NANO industrial research businesses.

Organic revenue growth and revenue growth at CER of the BSI segment (including BSI Life Science and BSI Nano Segments) were 5.8% and 10.3% year over year, respectively.

In the fourth quarter, the company's **BEST** segment's revenues were \$57.7 million, indicating an improvement of 3.8% year over year. However, organically, the BEST segment declined 0.5% year over year, net of intercompany eliminations. At CER, the segment rose 2.8%.

### Margin Trend

In the quarter under review, Bruker's gross profit rose 8.6% to \$296.3 million. Gross margin expanded 11 basis points (bps) to 49.4%.

Meanwhile, selling, general & administrative expenses grew 11.1% to \$130.3 million. Research and development expenses went up 4.2% year over year to \$46.7 million. The adjusted operating expenses escalated to \$177 million, up 9.2% year over year.

Adjusted operating profit totaled \$119 million, reflecting a 7.8% increase from the prior-year quarter. However, adjusted operating margin in the fourth quarter dipped 11 bps to 19.9%.

### Financial Position

Bruker exited the year with cash and cash equivalents, and short-term investments of \$684.9 million compared with \$322.4 million at the end of 2018. Long-term debt at the end of 2019 was \$812.8 million compared with \$322.6 at the end of 2018.

At the end of 2019, cash flow from operating activities was \$213.4 million compared with \$239.7 million at the end of 2018.

### 2020 Guidance Update

Bruker refrained from providing any guidance for 2020 due to the challenging business conditions created by the coronavirus pandemic. The company expects to provide a business update on its first-quarter 2020 earnings conference call in early May 2020.

Bruker anticipates that revenues and earnings will be lower in the first quarter of 2020 than in the prior-year quarter. Its second-quarter 2020 results are expected to be significantly affected by COVID-19-related disruptions to its operations, customer operations, and global supply chains and logistics.

## Recent News

On **Mar 25, 2020**, Bruker inked a distribution deal with Primer Design Ltd (UK), a subsidiary of Novacyt SA, through its division Bruker-Hain Diagnostics, with the aim of distributing the CE-IVD-marked *genesig* real-time PCR coronavirus (COVID-2019) assay.

On **Mar 9, 2020**, Bruker announced the delivery of the world's first Avance NEO1.2 GHzNMR system to the CERM at the University of Florence, Italy.

## Valuation

Bruker shares are down 28.8% in the year-to date period and down 6.1% in the trailing 12-month periods. Stocks in the Zacks sub-industry are down 19.9% while the Zacks Medical sector fell 11.9% in the year-to-date period. Over the past year, the Zacks sub-industry is down 19.6% and sector is down 2%.

The S&P 500 index is down 17.3% in the year-to-date period and fell 7.7% in the past year.

The stock is currently trading at 19.5X Forward 12-months earnings, which compares to 21.7X for the Zacks sub-industry, 19.7X for the Zacks sector and 16.9X for the S&P 500 index.

Over the past five years, the stock has traded as high as 31.6X and as low as 17X, with a 5-year median 23.8X. Our Underperform recommendation indicates that the stock will perform below the market. Our \$31 price target reflects 16.9X forward 12-months earnings.

The table below shows summary valuation data for BRKR

Valuation Multiples - BRKR					
		Stock	Sub-Industry	Sector	S&P 500
P/E F12M	Current	19.54	21.68	19.69	16.99
	5-Year High	31.63	26.74	21.91	19.34
	5-Year Low	17.00	18.41	16.71	15.19
	5-Year Median	23.81	22.15	19.21	17.44
P/S F12M	Current	2.55	4.66	3.11	2.94
	5-Year High	3.86	5.92	3.58	3.44
	5-Year Low	1.66	3.63	2.32	2.54
	5-Year Median	2.55	4.81	3.09	3.00
P/B TTM	Current	6.10	9.33	4.17	3.54
	5-Year High	9.32	12.24	5.37	4.55
	5-Year Low	3.57	5.27	3.15	2.84
	5-Year Median	6.03	7.55	4.27	3.63

As of 04/07/2020

## Industry Analysis Zacks Industry Rank: Bottom 7% (236 out of 253)



## Top Peers

AMETEK, Inc. (AME)	Neutral
Bio-Rad Laboratories, Inc. (BIO)	Neutral
Danaher Corporation (DHR)	Neutral
General Electric Company (GE)	Neutral
HITACHI CHEMICAL (HCHMY)	Neutral
PerkinElmer, Inc. (PKI)	Neutral
Smiths Group PLC (SMGZY)	Neutral
Thermo Fisher Scientific Inc. (TMO)	Neutral

Industry Comparison Industry: Instruments - Scientific				Industry Peers		
	BRKR Underperform	X Industry	S&P 500	DHR Neutral	PKI Neutral	TMO Neutral
<b>VGM Score</b>	<b>F</b>	-	-	<b>F</b>	<b>C</b>	<b>D</b>
Market Cap	5.59 B	169.26 M	18.38 B	96.38 B	8.40 B	118.28 B
# of Analysts	6	6	13	7	7	9
Dividend Yield	0.44%	0.00%	2.31%	0.52%	0.37%	0.30%
<b>Value Score</b>	<b>F</b>	-	-	<b>F</b>	<b>D</b>	<b>C</b>
Cash/Price	0.13	0.09	0.06	0.21	0.02	0.02
EV/EBITDA	16.21	15.77	11.23	21.63	17.32	18.93
PEG Ratio	2.07	2.61	1.91	2.82	2.58	1.68
Price/Book (P/B)	6.09	1.83	2.45	3.46	2.98	4.01
Price/Cash Flow (P/CF)	17.39	17.06	9.63	22.26	12.03	16.40
P/E (F1)	25.32	20.25	15.92	28.02	18.98	23.50
Price/Sales (P/S)	2.70	2.60	1.94	4.83	2.91	4.63
Earnings Yield	3.94%	4.96%	6.15%	3.57%	5.28%	4.26%
Debt/Equity	0.94	0.31	0.70	0.75	0.79	0.58
Cash Flow (\$/share)	2.09	1.81	7.01	6.21	6.27	18.08
<b>Growth Score</b>	<b>B</b>	-	-	<b>C</b>	<b>B</b>	<b>B</b>
Hist. EPS Growth (3-5 yrs)	15.94%	10.32%	10.92%	2.72%	10.71%	13.63%
Proj. EPS Growth (F1/F0)	-8.71%	-0.36%	-0.12%	11.67%	-3.03%	2.21%
Curr. Cash Flow Growth	12.63%	-4.57%	5.93%	1.84%	15.05%	6.99%
Hist. Cash Flow Growth (3-5 yrs)	11.39%	6.01%	8.55%	5.87%	12.03%	10.08%
Current Ratio	2.78	2.09	1.24	5.19	1.80	1.92
Debt/Capital	48.99%	42.15%	42.36%	41.54%	43.99%	36.53%
Net Margin	9.51%	4.23%	11.64%	15.09%	7.89%	14.47%
Return on Equity	27.62%	5.94%	16.74%	11.50%	16.80%	17.24%
Sales/Assets	0.85	0.85	0.54	0.35	0.45	0.45
Proj. Sales Growth (F1/F0)	-2.70%	0.00%	0.85%	3.13%	2.88%	2.37%
<b>Momentum Score</b>	<b>F</b>	-	-	<b>F</b>	<b>C</b>	<b>F</b>
Daily Price Chg	0.33%	0.19%	0.69%	-2.56%	0.05%	-2.44%
1 Week Price Chg	-8.65%	-4.55%	-4.40%	-2.48%	-4.81%	2.87%
4 Week Price Chg	-14.31%	-9.74%	-10.67%	-4.16%	-4.41%	-3.61%
12 Week Price Chg	-32.12%	-21.95%	-23.70%	-14.31%	-25.80%	-10.88%
52 Week Price Chg	-6.13%	-23.70%	-15.92%	4.91%	-25.39%	6.76%
20 Day Average Volume	1,184,701	159,838	4,068,329	5,214,300	1,119,072	3,079,894
(F1) EPS Est 1 week change	-5.91%	-1.44%	0.00%	-3.17%	-4.27%	-2.36%
(F1) EPS Est 4 week change	-20.66%	-6.00%	-5.24%	-9.39%	-12.62%	-7.28%
(F1) EPS Est 12 week change	-21.75%	-8.44%	-6.86%	-10.83%	-13.85%	-7.10%
(Q1) EPS Est Mthly Chg	-51.88%	-26.10%	-8.25%	-12.04%	-26.10%	-13.49%

## Zacks Style Scores

The Zacks Style Score is as a complementary indicator to the Zacks rating system, giving investors a way to focus on the highest rated stocks that best fit their own stock picking preferences.

Academic research has proven that stocks with the best Value, Growth and Momentum characteristics outperform the market. The Zacks Style Scores rate stocks on each of these individual styles and assigns a rating of A, B, C, D and F. We also produce the VGM Score (V for Value, G for Growth and M for Momentum), which combines the weighted average of the individual Style Scores into one score. This is perfectly suited for those who want their stocks to have the best scores across the board.

Value Score	F
Growth Score	B
Momentum Score	F
VGM Score	F

As an investor, you want to buy stocks with the highest probability of success. That means buying stocks with a Zacks Recommendation of Outperform, which also has a Style Score of an A or a B.

## Disclosures

**This report contains independent commentary to be used for informational purposes only. The analysts contributing to this report do not hold any shares of this stock. The analysts contributing to this report do not serve on the board of the company that issued this stock. The EPS and revenue forecasts are the Zacks Consensus estimates, unless indicated otherwise on the reports first page.** Additionally, the analysts contributing to this report certify that the views expressed herein accurately reflect the analysts personal views as to the subject securities and issuers. ZIR certifies that no part of the analysts compensation was, is, or will be, directly or indirectly, related to the specific recommendation or views expressed by the analyst in the report.

Additional information on the securities mentioned in this report is available upon request. This report is based on data obtained from sources we believe to be reliable, but is not guaranteed as to accuracy and does not purport to be complete. Any opinions expressed herein are subject to change.

ZIR is not an investment advisor and the report should not be construed as advice designed to meet the particular investment needs of any investor. Prior to making any investment decision, you are advised to consult with your broker, investment advisor, or other appropriate tax or financial professional to determine the suitability of any investment. This report and others like it are published regularly and not in response to episodic market activity or events affecting the securities industry.

This report is not to be construed as an offer or the solicitation of an offer to buy or sell the securities herein mentioned. ZIR or its officers, employees or customers may have a position long or short in the securities mentioned and buy or sell the securities from time to time. ZIR is not a broker-dealer. ZIR may enter into arms-length agreements with broker-dealers to provide this research to their clients. Zacks and its staff are not involved in investment banking activities for the stock issuer covered in this report.

ZIR uses the following rating system for the securities it covers. **Outperform-** ZIR expects that the subject company will outperform the broader U.S. equities markets over the next six to twelve months. **Neutral-** ZIR expects that the company will perform in line with the broader U.S. equities markets over the next six to twelve months. **Underperform-** ZIR expects the company will underperform the broader U.S. equities markets over the next six to twelve months.

No part of this report can be reprinted, republished or transmitted electronically without the prior written authorization of ZIR.