bluebird bio, Inc.(BLUE)

$59.67 (As of 08/14/20)

Price Target (6-12 Months): **$64.00**

Long Term: 6-12 Months	**Zacks Recommendation:** (Since: 02/18/19) Prior Recommendation: Underperform	**Neutral**
Short Term: 1-3 Months	**Zacks Rank:** (1-5)	**3-Hold**
	Zacks Style Scores:	VGM:C
	Value: F | Growth: B | Momentum: A	

Summary

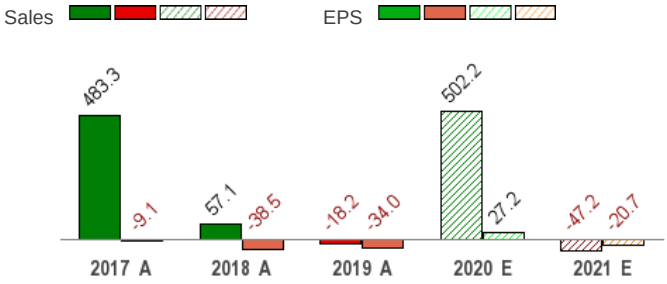
bluebird reported narrower than expected loss and sales beat estimates in the second quarter of 2020. bluebird has an impressive pipeline of gene therapies for genetic diseases and cancers. The conditional approval of Zynteglo for patients aged 12 years or above with transfusion-dependent ?-thalassemia in Europe is a significant step for the companyThe European launch of Zynteglo continues to progress, well. Additionally, the multiple myeloma program-idecabtagene vicleucel, partnered with Bristol Myers, continues to advance with the submission of the BLA to the FDA and BMS' validated MAA submission in Europe. The successful development of the candidates will benefit it in the long run. However, competition is stiffening in this space. Shares of the company have underperformed the industry in the past year.

Price, Consensus & Surprise

Data Overview

52 Week High-Low	**$124.16 - $38.95**
20 Day Average Volume (sh)	**740,434**
Market Cap	**$4.0 B**
YTD Price Change	**-32.0%**
Beta	**2.32**
Dividend / Div Yld	**$0.00 / 0.0%**
Industry	**Medical - Biomedical and Genetics**
Zacks Industry Rank	**Bottom 32% (172 out of 252)**
Last EPS Surprise	**81.2%**
Last Sales Surprise	**95.5%**
EPS F1 Est- 4 week change	**14.0%**
Expected Report Date	**NA**
Earnings ESP	**0.0%**
P/E TTM	**NA**
P/E F1	**NA**
PEG F1	**NA**
P/S TTM	**16.5**

Sales and EPS Growth Rates (Y/Y %)



Sales Estimates (millions of $)

	Q1	Q2	Q3	Q4	Annual*
2021	12 E	23 E	30 E	47 E	143 E
2020	22 A	199 A	26 E	14 E	271 E
2019	12 A	13 A	9 A	10 A	45 A

EPS Estimates

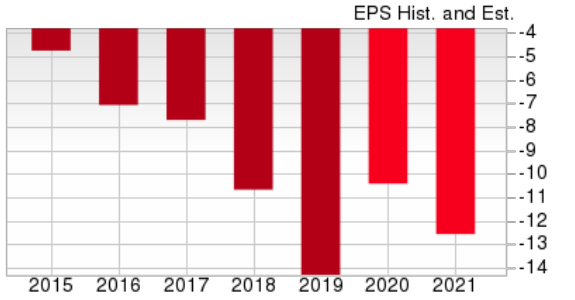
	Q1	Q2	Q3	Q4	Annual*
2021	-$3.30 E	-$3.26 E	-$3.18 E	-$2.41 E	-$12.58 E
2020	-$3.64 A	-$0.36 A	-$3.07 E	-$3.35 E	-$10.42 E
2019	-$2.99 A	-$3.55 A	-$3.73 A	-$4.04 A	-$14.31 A

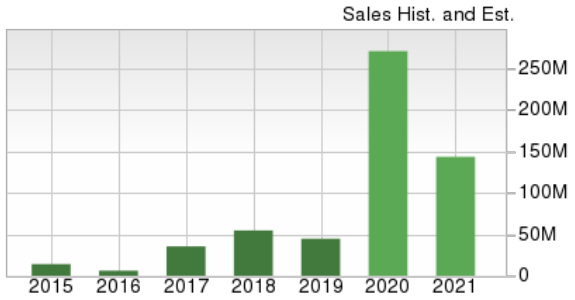
*Quarterly figures may not add up to annual.

The data in the charts and tables, including the Zacks Consensus EPS and Sales estimates, is as of 08/14/2020. The reports text is as of 08/17/2020.

Overview

Cambridge, MA based bluebird bio, Inc. is a clinical-stage biotechnology, which is focused on developing gene therapies for severe genetic diseases and cancer. The company has developed a deep pipeline using its lentiviral-based gene therapies, T cell immunotherapy expertise and gene editing capabilities to treat severe genetic diseases and cancer as well.





The pipeline for severe genetic diseases, include Zynteglo product candidate for the treatment of transfusion-dependent ?-thalassemia (TDT) and severe sickle cell disease (SCD), and Lenti-D product candidate for the treatment of cerebral adrenoleukodystrophy (CALD). Zynteglo (formerly LentiGlobin) was recently approved in Europe for TDT, making it the first gene therapy approved for this indication. The gene therapy has gained a lot of attention of late. The objective of the therapy is to correct the underlying genetic defect, which is the cause of the disease, rather than offering treatments that only address the symptoms. The gene therapy has a huge advantage over other therapies, especially for diseases like SCD and cancer, which have no cure.

The oncology programs are focused on developing novel T cell-based immunotherapies, including chimeric antigen receptor (CAR) and T cell receptor (TCR) T cell therapies. The oncology pipeline includes CAR T cell product candidates — bb2121 and bb21217 — for the treatment of multiple myeloma. The company is co-developing and co-promoting bb2121 in the United States with Celgene which is now acquired by Bristol Myers. Bristol Myers also owns the development and commercialization rights for bb2121 product candidate in the United States, while bluebird has an option to elect to co-develop and co-promote bb21217 within the United States.

With no approved products in its kitty, the company does not generate any revenues from the sale of products. However, the company derived revenues from collaboration arrangements, out-licensing arrangements including royalties on net sales of products to licensees or sublicensees, research fees, and grant revenues.

Revenues in 2019 came in at $44.7 million, down 18.2% year over year.

Reasons To Buy:

▲ **Potential of Gene Therapy**: The gene therapy has gained a lot of attention of late. The objective of the therapy is to correct the underlying genetic defect, which is the cause of the disease, rather than offering treatments that only address the symptoms. The gene therapy has a huge advantage over other therapies, especially for diseases like SCD and cancer, which have no cure.

▲ **Zynteglo Products Hold Promise**: In June 2019, the European Commission (EC) granted conditional marketing authorization to Zynteglo (autologous CD34+ cells encoding ?A-T87Q-globin gene) in patients aged 12 years or older with transfusion-dependent ?-thalassemia (TDT), who do not have a ?0/?0 genotype and for whom hematopoietic stem cell (HSC) transplantation is appropriate but a human leukocyte antigen (HLA)-matched related HSC donor is not available. The candidate is expected to treat the first commercial patient in second half of 2020. In January 2020, the company launched Zynteglo in Germany.

> bluebird's efforts to develop its pipeline is impressive. The collaboration with Bristol-Myers is a big positive for the company.

bluebird's efforts to develop its pipeline is impressive. The company is developing its Zynteglo product candidate for different genotypes of TDT, and SCD. The company is currently conducting five clinical studies for its Zynteglo product candidate: first, a phase I/II study (Northstar Study (HGB-204)) in the United States, Australia, and Thailand for the treatment of subjects with TDT; second, a multi-site, international, phase III study (Northstar-2 Study (HGB-207)) for the treatment of patients with TDT and non-?0/?0 genotypes; third, a multi-site, international, phase III study (Northstar 3 Study (HGB-212)) for the treatment of subjects with TDT and a ?0/?0 genotype; fourth, a single-center phase I/II study in France for the treatment of subjects with TDT or severe SCD (HGB-205); and finally, a multi-site phase I study in the United States for the treatment of subjects with severe SCD (HGB-206). The company presented positive new data from Northstar (HGB-204) and Northstar-2 (HGB-207) studies.
bluebird initiated its rolling Biologics License Application (BLA) submission of LentiGlobin for ?-thalassemia for approval in the United States. The company is currently planning to complete the BLA submission in second-half 2020.

The company is also developing its elivaldogeneautotemcel (eli-cel, Lenti-D gene therapy) product candidate for cerebral adrenoleukodystrophy (CALD), a rare, hereditary neurological disorder, which can be often fatal. A multi-site, international phase II/III study, Starbeam Study (ALD-102), is ongoing for the same, with updated date expected by 2020-end. An observational study of subjects with CALD, treated by allogeneic hematopoietic stem-cell transplant referred to as the ALD-103 study, is also being conducted. The company expects to submit a Biologics License Application (BLA) to the FDA for Lenti-D in patients with cerebral adrenoleukodystrophy by the end of 2020.In July 2020, the Committee for Medicinal Products for Human Use (CHMP) of the European Medicines Agency (EMA) granted an accelerated assessment to elivaldogeneautotemcel for the treatment of CALD. The company plans to submit a marketing authorization application (MAA) to the EMA for eli-cel in 2020.

The company continues to plan to submit the BLA for SCD to the FDA in the second half of 2021.

The FDA granted Breakthrough Therapy designation to Lenti-D for the treatment of patients with CALD which should expedite the development and review of the therapy. Lenti-D also enjoys orphan drug status in the Unites States and Europe. It was also granted Rare Pediatric Disease designation by the FDA for the treatment of adrenoleukodystrophy (ALD).

▲ **Collaboration With Bristol-Myers Squibb a Big Positive**: bluebird's collaboration agreement with Bristol Myers is a big positive for the company, given the latter's expertise in the biotech space. Most importantly, the agreement provides bluebird with funds as upfront payments. In 2013, both the companies entered into a collaboration agreement, whereby Bristol Myers will discover, develop and commercialize potentially disease-altering gene therapies in oncology. The collaboration is primarily focused on applying gene therapy technology to genetically modify a patient's own T cells, known as chimeric antigen receptor or CAR T cells, to target and destroy cancer cells. Both the companies also entered into a licensing deal, whereby bluebird obtained a sublicense to certain intellectual property from Bristol Myers, originating under Bristol Myers' license from Baylor College of Medicine, for use in the collaboration. Per the terms, bluebird obtained an upfront payment of $75.0 million.

The collaboration agreement was amended in June 2015. Per the amended terms, both the companies have narrowed the focus of the collaboration exclusively to anti- B-cell maturation antigen (BCMA) product candidates for a new three-year term ending in June 2018. bluebird received an upfront, one-time, non-refundable, non-creditable payment of $25.0 million upon the amendment.

Bristol Myers is responsible for development and related funding of idecabtagenevicleucel (ide-cel; bb2121), after the substantial completion of the on-going trial. Thereafter, in March 2018, bluebird elected to co-develop and co-promote bb2121 within the United States. bluebird will have an equal share in all profits and losses, relating to developing, commercializing and manufacturing bb2121 within the country. The company may receive up to $70.0 million in development milestone payments for the first approved indication along with tiered royalty payments.

bluebird amended its existing co-promotion/co-development agreement with Bristol-Myers Squibb to enable the companies to focus their efforts on efficient commercialization of ide cel in the United States. The companies will continue to share profits and losses equally in the United States. Under the terms of the amended agreement, Bristol-Myers will buy out its obligations to pay bluebird future ex-U.S. milestone and royalty payments for ide-cel and bb21217, the companies' second BCMA-directed CAR T immunotherapy, for a one-time upfront payment of $200 million.

▲ **Anti - BCMA Candidates Hold Potential**: The two anti-BCMA candidates, idecabtagenevicleucel (ide-cel; bb2121), and bb21217, hold promise. bb2121 is the lead candidate in this program. The company is conducting a multi-site phase I study in the United States on bb2121, for the treatment of subjects with relapsed/refractory multiple myeloma (CRB-401). The FDA has granted Breakthrough Therapy designation and the EMA has granted PRIME eligibility to bb2121 for relapsed/refractory multiple myeloma.

On July 29, 2020, bluebird bio and BMS submitted the biologics license application (BLA) to the FDA for idecabtagene vicleucel (ide-cel; bb2121), the companies' investigational B-cell maturation antigen (BCMA)-directed chimeric antigen receptor (CAR) T cell immunotherapy.

The submission is based on results from the pivotal phase II KarMMa study evaluating the efficacy and safety of ide-cel in relapsed and refractory multiple myeloma patients exposed to an immunomodulatory (IMiD) agent, a proteasome inhibitor (PI) and an anti-CD38 antibody.

Collaborations With Other Big Pharma Companies Bode Well: Apart from Bristol-Myers,bluebird has collaborations with other big companies as well, which provide it with funds as upfront payments. Regeneron made a $100 million investment in the company's common stock at a price of $238.10 per share. Both companies have collaborated on applying their respective technology platforms to the discovery, development and commercialization of novel immune cell therapies for cancer. Regeneron will leverage its VelociSuite platform technologies for the discovery and characterization of fully human antibodies as well as T cell receptors (TCRs) directed against tumor-specific proteins and peptides while bluebird bio will contribute its field-leading expertise in gene transfer and cell therapy. Regeneron and bluebird have jointly selected six initial targets and will equally share the costs of research and development up to the point of submitting an Investigational New Drug (IND) application. Both companies might select additional targets over the five-year research collaboration term. When an IND is submitted for a potential cell therapy product, Regeneron will have the right to opt-in to a co-development/co-commercialization arrangement for certain collaboration targets, with 50/50 cost and profit sharing. If Regeneron decides not to opt-in, it will be entitled to receive payments and royalties from bluebird bio on any potential resulting products.

In November 2019, bluebird bio and Forty Seven entered into a research collaboration to pursue clinical proof-of-concept for Forty Seven's novel antibody-based conditioning regimen, FSI-174 (anti-cKIT antibody) plus magrolimab (anti-CD47 antibody), with bluebird's ex vivo lentiviral vector hematopoietic stem cell (LVV HSC) gene therapy platform. Per the agreement, bluebird bio will provide its ex vivo LVV HSC gene therapy platform and Forty Seven will contribute its innovative antibody-based conditioning regimen for the collaboration.

In October 2019, bluebird bio and Novo Nordisk announced a research collaboration to jointly develop next-generation vivo genome editing treatments for genetic diseases, including hemophilia. During the three-year research collaboration, bluebird and Novo Nordisk will focus on identifying a development gene therapy candidate with the ambition of offering people with hemophilia A a lifetime free of factor replacement therapy.

Reasons To Sell:

- **Share Price Performance**: bluebird's shares have underperformed the industry in the past year.

- **Intense Competition**: The company faces potential competition from many larger and better-funded pharmaceutical and biotechnology companies. Chronic blood transfusions are the current standard of care in the ?-thalassemia market but iron chelation therapy is often required by these patients. Novartis and ApoPharma Inc. provide the leading iron chelation therapy and are striving to further innovate the existing therapies. Moreover, Acceleron Pharma, Inc., in collaboration with Bristol Myers, has developed Reblozyl (luspatercept–aamt) which received approval by the FDA in November 2019, for the treatment of anemia (lack of red blood cells) in adult patients with beta thalassemia who require regular red blood cell (RBC) transfusions. For sickle cell disease, Emmaus Life Sciences, Inc. recently received FDA approval for Endari (L-glutamine) and has launched the same. In November 2019, Novartis received approval for Adakveo (crizanlizumab) to reduce the frequency of vaso-occlusive crises (VOCs), or pain crises, in adult and pediatric patients aged 16 years and older with SCD. In the relapsed/refractory multiple myeloma space, an anti-BCMA CAR T cell therapy is currently in a single-center phase I study by the University of Pennsylvania, in collaboration with Novartis. Gilead Sciences and Bristol Myers also have such candidates in their pipeline.

> bluebird is highly dependent on its partners for funding requirements. R&D spend is expected to increase significantly.

- **Dependence on Partners and Funding Requirement**: The company is highly dependent on Bristol Myers for the development of its candidates. Termination of the agreement with Bristol Myers will have a negative impact on the company's growth prospects. Moreover, R&D spend is expected to increase significantly as it advances its pipeline candidates to late-stage studies.

- **Pipeline Candidates Still Far from Commercialization**: Although the company is progressing well with its pipeline, there is still a lot of time for most of the candidates to get regulatory approval. Unfavorable outcome from any of the development programs could adversely affect the company's prospects as well as the stock.

Last Earnings Report

bluebird Q2 Earnings and Revenues Beat

Quarter Ending	06/2020
Report Date	**Aug 05, 2020**
Sales Surprise	**95.50%**
EPS Surprise	**81.15%**
Quarterly EPS	**-0.36**
Annual EPS (TTM)	**-11.77**

bluebird reported a loss of 36 cents per share in second-quarter 2020, narrower than the Zacks Consensus Estimate of a loss of $1.91and the year-ago quarter's loss of $3.55.

Revenues of $198.9 million easily beat the Zacks Consensus Estimate of $102 million. The figure was up from $13.3 million in the year-ago quarter.

Quarter in Detail

R&D expenses increased to $156.3 million from $146.5 million a year ago due to costs incurred by the company to advance and expand the pipeline.

Selling, general and administrative (SG&A) expenses of $68.6 million were almost flat from the year-ago quarter to support its operations, overall growth of the pipeline, and commercial-readiness activities.

Pipeline Development

On July 29, 2020, bluebird bio and Bristol Myers Squibbannounced the submission of their biologics license application (BLA) to FDA for idecabtagene vicleucel (ide-cel; bb2121), the companies' investigational B-cell maturation antigen (BCMA)-directed chimeric antigen receptor (CAR) T cell immunotherapy. This submission provides further details on the Chemistry, Manufacturing and Controls (CMC) module to address the outstanding regulatory requests from the FDA in May 2020 following the original BLA submission.

On May 22, 2020, Bristol Myersannounced that the European Medicines Agency (EMA) validated its marketing authorization applications (MAA) for ide-cel. Validation of the application confirms the submission is complete and begins the EMA's centralized review process.

Recent News

Reports New Data on Betibeglogene Autotemcel for TDT-June 12

bluebird announced new data from ongoing phase III studies on its investigational betibeglogene autotemcel (formerly LentiGlobin for ?-thalassemia gene therapy). The data showed that pediatric, adolescent and adult patients with a range of genotypes of transfusion-dependent ?-thalassemia (TDT) achieved and maintained transfusion independence with hemoglobin (Hb) levels that are nearnormal.

TDT is a severe genetic disease caused by mutations in the ?-globin gene that results in significantly reduced or absent adult hemoglobin (HbA).

A total of 60 pediatric, adolescent and adult patients across genotypes of TDT were treated with betibeglogenein the phase I/IINorthstar (HGB-204) and HGB-205 studies, and the phase III Northstar-2 (HGB-207) and Northstar-3 (HGB-212) studies as of Mar 3, 2020.

The results showed that 89% of the evaluable patients (17/19) with transfusion-dependent ?-thalassemia did not have a ?0/?0 genotype achieved transfusion independence with 11.9 g/dL median weighted average total hemoglobin (Hb) level in HGB-207

Data from exploratory analyses of HGB-207 showed improved markers of blood cell production and bone marrow function in patients who achieved transfusion independence.

Reports New Data on lentiGlobin for Sickle Cell Disease-June 12

bluebird announced new data from its ongoing phase I/II HGB-206 study of lentiGlobin gene therapy for adult and adolescent patients with sickle cell disease (SCD). The study showed a near-complete reduction of serious vaso-occlusive crises (VOCs) and acute chest syndrome (ACS).

In Group C of HGB-206, 25 patients were treated with LentiGlobin for SCD and had up to 24.8 months of follow-up.

The data showed 99.5% reduction in annualized rate of VOC and ACS in Group C patients with a history of VOCs and ACS (n=14) who had at least six months follow-up. At up to 24 months, there were no reports of serious VOC or ACS in Group C patients (n=18) with at least six months follow-up.

Group C patients with at least six months follow-up continued to produce consistent levels of gene therapy-derived anti-sickling hemoglobin (HbAT87Q) at up to 24 months, reducing levels of abnormal sickle hemoglobin (HbS)

Key markers of hemolysis approached near-normal levels in Group C patients, supporting the potential of LentiGlobin for SCD to modify the underlying pathophysiology of the disease.

Valuation

bluebird's shares are down 32.0% in the year-to-date period and down 51.1% over the trailing 12-month period. Stocks in the Zacks sub-industry are up 2.6% and stocks in the Zacks Medical sector are up 0.4% in the year-to-date period. Over the past year, the Zacks sub-industry is up 13.6% and the sector is up 7.6%.

The S&P 500 index is up 4.5% in the year-to-date period and up 15.4% in the past year.

The stock is currently trading at 1.97X trailing 12-month book per share, which compares to 2.99X for the Zacks sub-industry, 3.76X for the Zacks sector and 4.52X for the S&P 500 index.

Over the past five years, the stock has traded as high as 8.06X and as low as 1.66X, with a 5-year median of 3.62X. Our Neutral recommendation indicates that the stock will perform in-line with the market. Our $64.00 price target reflects 2.08X trailing 12-month book per share.

Industry Analysis **Zacks Industry Rank:** Bottom 32% (172 out of 252)

Top Peers

Company (Ticker)	Rec	Rank
Amgen Inc. **(AMGN)**	Neutral	3
Bellicum Pharmaceuticals, Inc. **(BLCM)**	Neutral	3
Bristol Myers Squibb Company **(BMY)**	Neutral	3
CRISPR Therapeutics AG **(CRSP)**	Neutral	4
Gilead Sciences, Inc. **(GILD)**	Neutral	3
Novartis AG **(NVS)**	Neutral	3
Sangamo Therapeutics, Inc. **(SGMO)**	Neutral	4
Acceleron Pharma Inc. **(XLRN)**	Neutral	3

Industry Comparison Industry: Medical - Biomedical And Genetics

Industry Peers

	BLUE	X Industry	S&P 500	AMGN	NVS	SGMO
Zacks Recommendation (Long Term)	Neutral	-	-	Neutral	Neutral	Neutral
Zacks Rank (Short Term)	3	-	-	3	3	4
VGM Score	C	-	-	B	A	C
Market Cap	3.95 B	276.36 M	23.68 B	140.40 B	193.74 B	1.61 B
# of Analysts	11	3	14	12	5	6
Dividend Yield	0.00%	0.00%	1.68%	2.67%	2.37%	0.00%
Value Score	F	-	-	B	B	F
Cash/Price	0.37	0.22	0.07	0.08	0.03	0.38
EV/EBITDA	-3.33	-4.04	13.36	12.91	13.68	-10.83
PEG Ratio	NA	1.93	2.99	2.04	1.81	NA
Price/Book (P/B)	2.35	4.25	3.22	13.17	3.60	3.14
Price/Cash Flow (P/CF)	NA	17.29	12.82	12.68	10.72	NA
P/E (F1)	NA	27.56	22.06	15.32	14.79	NA
Price/Sales (P/S)	16.49	15.72	2.51	5.78	4.02	14.41
Earnings Yield	-17.46%	-13.11%	4.30%	6.52%	6.76%	-10.10%
Debt/Equity	0.10	0.01	0.77	3.20	0.48	0.08
Cash Flow ($/share)	-13.96	-1.07	6.94	18.91	7.90	-0.78
Growth Score	B	-	-	B	B	A
Hist. EPS Growth (3-5 yrs)	NA%	17.80%	10.41%	9.69%	2.64%	NA
Proj. EPS Growth (F1/F0)	27.17%	16.33%	-6.32%	5.55%	9.24%	-35.68%
Curr. Cash Flow Growth	43.40%	14.65%	5.20%	-2.47%	4.27%	25.74%
Hist. Cash Flow Growth (3-5 yrs)	NA%	7.73%	8.55%	5.06%	7.11%	NA
Current Ratio	8.18	5.77	1.33	2.18	0.81	7.23
Debt/Capital	9.40%	3.30%	44.59%	76.20%	32.25%	7.13%
Net Margin	-272.66%	-199.98%	10.13%	30.04%	14.96%	-91.17%
Return on Equity	-47.02%	-60.52%	14.51%	91.98%	24.14%	-23.12%
Sales/Assets	0.13	0.19	0.51	0.40	0.40	0.16
Proj. Sales Growth (F1/F0)	505.91%	2.26%	-1.43%	8.78%	5.28%	-7.06%
Momentum Score	A	-	-	C	B	B
Daily Price Chg	-2.02%	-0.52%	0.12%	-0.31%	-0.84%	-1.98%
1 Week Price Chg	4.58%	3.55%	2.30%	-1.63%	0.94%	13.85%
4 Week Price Chg	-10.45%	-2.86%	4.41%	-6.07%	-3.14%	1.52%
12 Week Price Chg	-9.86%	2.43%	13.66%	6.64%	-0.40%	2.43%
52 Week Price Chg	-49.00%	12.37%	5.80%	20.27%	-4.44%	3.08%
20 Day Average Volume	740,434	352,563	1,984,154	2,015,444	1,865,325	1,784,505
(F1) EPS Est 1 week change	4.26%	0.00%	0.00%	0.00%	0.00%	-64.76%
(F1) EPS Est 4 week change	14.01%	0.00%	2.08%	0.64%	0.53%	-195.73%
(F1) EPS Est 12 week change	19.31%	1.44%	2.66%	0.55%	0.67%	-841.50%
(Q1) EPS Est Mthly Chg	12.15%	0.00%	0.94%	-4.28%	-0.72%	5.88%

Zacks Stock Rating System

We offer two rating systems that take into account investors' holding horizons: Zacks Rank and Zacks Recommendation. Each provides valuable insights into the future profitability of the stock and can be used separately or in combination with each other depending on your investment style.

Zacks Recommendation

The Zacks Recommendation aims to predict performance over the next 6 to 12 months. The foundation for the quantitatively determined Zacks Recommendation is trends in the company's estimate revisions and earnings outlook. The Zacks Recommendation is broken down into 3 Levels; Outperform, Neutral and Underperform. Unlike many Wall Street firms, we have an excellent balance between the number of Outperform and Neutral recommendations. Our team of 70 analysts are fully versed in the benefits of earnings estimate revisions and how that is harnessed through the Zacks quantitative rating system. But we have given our analysts the ability to override the Zacks Recommendation for the 1200 stocks that they follow. The reason for the analyst over-rides is that there are often factors such as valuation, industry conditions and management effectiveness that a trained investment professional can spot better than a quantitative model.

Zacks Rank

The Zacks Rank is our short-term rating system that is most effective over the one- to three-month holding horizon. The underlying driver for the quantitatively-determined Zacks Rank is the same as the Zacks Recommendation, and reflects trends in earnings estimate revisions.

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	A
VGM Score	C

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.