

## Micron Technology (MU)

**\$58.27** (As of 01/07/20)

Price Target (6-12 Months): **\$61.00**

Long Term: 6-12 Months

**Zacks Recommendation:**
**Neutral**

(Since: 10/28/19)

Prior Recommendation: Outperform

Short Term: 1-3 Months

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

**3-Hold**

Zacks Style Scores:

VGM:D

Value: B

Growth: D

Momentum: F

### Summary

Micron's first-quarter fiscal 2020 results gained from recovery in demand in the memory market. The company is well-poised to benefit from the resurgence in DRAM demand, backed by a progress in customer inventory adjustments in the cloud, graphics and the PC markets. Increasing mix of high-value solutions, enhancement in customer engagement and improvement in cost structure are positives. Growing demand from cloud-computing providers and acceleration in 5G adoption are an upside. Deceleration in DRAM price declines and improvements in NAND pricing are a tailwind. However, higher mix of NAND, which has lower gross margin, falling memory prices and a slow decline in manufacturing cost, is likely to keep margins under pressure. Uncertainty hovering over trade is a concern as well.

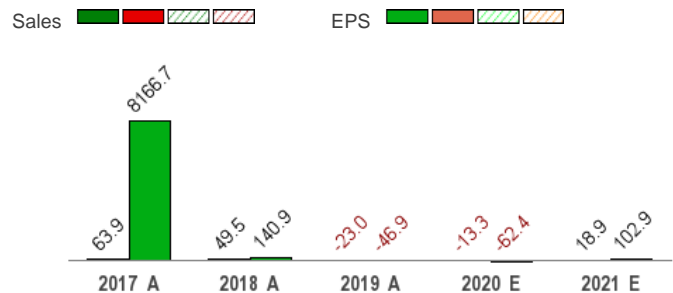
### Price, Consensus & Surprise



### Data Overview

52 Week High-Low	\$58.40 - \$32.14
20 Day Average Volume (sh)	24,696,064
Market Cap	\$64.6 B
YTD Price Change	8.4%
Beta	1.98
Dividend / Div Yld	\$0.00 / 0.0%
Industry	<a href="#">Semiconductor Memory</a>
Zacks Industry Rank	Top 43% (109 out of 254)

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



Last EPS Surprise	0.0%
Last Sales Surprise	2.3%
EPS F1 Est- 4 week change	-3.3%
Expected Report Date	03/18/2020
Earnings ESP	0.0%
P/E TTM	15.3
P/E F1	24.4
PEG F1	NA
P/S TTM	3.1

### Sales Estimates (millions of \$)

	Q1	Q2	Q3	Q4	Annual*
2021	6,033 E	5,830 E	6,120 E	6,527 E	24,124 E
2020	5,144 A	4,665 E	4,966 E	5,551 E	20,297 E
2019	7,913 A	5,835 A	4,788 A	4,870 A	23,406 A

### EPS Estimates

	Q1	Q2	Q3	Q4	Annual*
2021	\$1.08 E	\$1.08 E	\$1.23 E	\$1.45 E	\$4.85 E
2020	\$0.48 A	\$0.37 E	\$0.56 E	\$0.92 E	\$2.39 E
2019	\$2.97 A	\$1.71 A	\$1.05 A	\$0.56 A	\$6.35 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 01/07/2020. The reports text is as of 01/08/2020.

## Overview

Idaho-based Micron Technology has established itself as one of the leading worldwide providers of semiconductor memory solutions.

Through global brands, namely Micron, Crucial and Ballistix, Micron manufactures and markets high-performance memory and storage technologies including Dynamic Random Access Memory (DRAM), NAND flash memory, NOR Flash, 3D XPoint memory and other technologies. Its solutions are used in leading-edge computing, consumer, networking and mobile products.

A major portion of the revenues is derived from DRAM sales. The company's mission is to be the most efficient and innovative global provider of semiconductor memory solutions.

Micron reported revenues of \$23.4 billion in fiscal 2019. The company has four reportable segments:

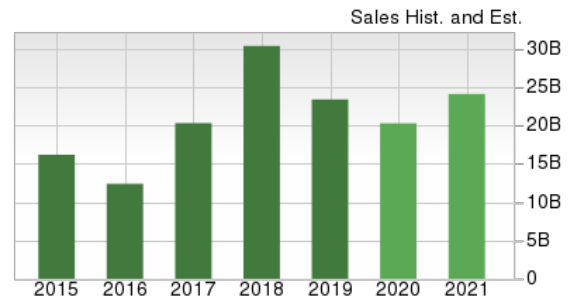
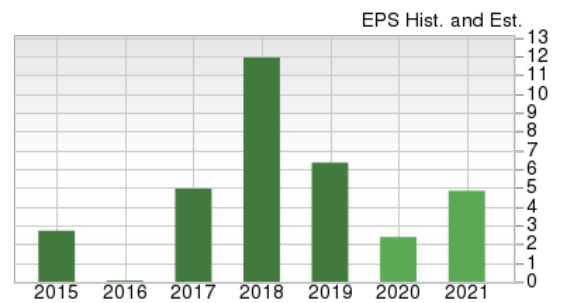
**Compute and Networking Business Unit (CNBU):** The unit comprises of DRAM and NOR Flash products that are sold to the computer, networking, graphics, and cloud server markets, and NAND Flash products which are sold into the networking market. CNBU delivered revenues of \$10 billion (43% of total revenues) in fiscal 2019.

**Mobile Business Unit (MBU):** The unit comprises Micron's discrete DRAM, discrete NAND and managed NAND (including eMMC and universal flash storage (UFS) solutions) products that are sold to smartphone and other mobile-device markets. MBU generated revenues of \$6.4 billion (28%) in fiscal 2019.

**Storage Business Unit (SBU):** The unit accounts for solid state drives (SSDs) and component-level solutions sold into enterprise and cloud, client and consumer storage markets as well as other discrete storage products sold in component and wafer forms to the removable storage markets. SBU's revenues grossed \$3.8 billion (16%) in fiscal 2019.

**Embedded Business Unit (EBU):** The unit includes Micron's discrete DRAM, discrete NAND, managed NAND and NOR products, which are sold to the automotive, industrial and consumer markets. EBU's revenues logged \$3.1 billion (13%) in fiscal 2019.

The company struggles with intense competition from Intel, Samsung Electronics, SK Hynix, Toshiba Memory and Western Digital Corporation.



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## Reasons To Buy:

- ▲ Micron offers both DRAM and NAND products. While DRAM chips are key components of PCs and servers, NAND flash chips are crucial to smartphones and solid-state hard drives. Micron believes rapid 5G adoption, advent of foldable phones and upcoming innovations in AR/VR will shore up sustained content growth and augment smartphone unit sales beginning 2020. Further, 5G adoption beyond mobile is likely to foster demand for memory and storage, particularly in IoT devices, wireless infrastructure and data centers. Moreover, steep demand from PC, server and smartphone makers and any supply shortage will push prices up, thereby bolstering Micron's top- and bottom-line results.
- ▲ Micron is expanding its foothold in the SSD storage market. The emergence of thinner laptops and tablets over the past few years has created ideal market conditions for SSDs, which are now entering the higher end of the market. Furthermore, secular growth of digital data, modest growth in TAM and higher demand for storage will drive growth in general, and especially for SSDs. Per a ResearchAndMarkets.com report, the SSD market is expected to witness a CAGR of 15.1% between 2018 and 2023 and to reach \$60.7 billion by 2023. The SSD segment's growth potential is a major positive for Micron as this could offset the losses incurred from the secular decline in the PC market, which does not necessarily use SSDs.
- ▲ Micron's focus on improving its cost structure and increasing the mix of high-value solutions in its portfolio is likely to boost margins. A strong execution of this strategy has improved the company's annualized profitability by more than \$6 billion from fiscal 2016 to fiscal 2018. Further, it has bettered Micron's EBITDA margin by more than 15 basis points (bps) relative to the company's peers over the same period, per management.
- ▲ Over the years, Micron has made several significant acquisitions to enhance its capabilities. Over the last two decades the company has acquired 13 businesses. A few notable among them were Elpida, Inotera, Numonyx, and Lexar Media. These buyouts have helped Micron in expanding its wafer manufacturing capacity, DRAM offerings and wafer testing and probe services.
- ▲ Micron has a strong cash-flow generating ability, which enables it to make strategic acquisitions and invest in new products. The company exited the fiscal first quarter with cash and short-term investments of \$7.588 billion. It generated operating cash flow of \$2.01 billion and free cash flow of \$80 million in the period. In fiscal 2019, the company repurchased shares worth \$2.7 billion (representing 65% of free cash flow) under the authorized buyback program and remains committed to allocating at least 50% of free cash flow toward repurchases. Although the company has a significant amount of debt on its balance sheet, the robust cash flow has enabled it to service its debt efficiently.

Micron banks on revival in DRAM demand and increasing mix of high-value solutions in its portfolio.

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## Reasons To Sell:

- ▼ Micron is hurt by a perpetual reduction in DRAM and NAND flash pricing due to oversupply and lower-than-expected growth in end-market demand. Higher level of customer inventory in the cloud, graphics and enterprise market is a key threat. Moreover, soft server demand from several enterprise OEM customers is a concern. Additionally, Intel's CPU shortages coupled with macroeconomic uncertainties are likely to pose key challenges to the company.
- ▼ The United States and China's tit-for-tat trade war is a major threat to the company. This is because the United States is the largest semiconductor manufacturing country with China being its biggest importer. Micron's heavy dependence on China is anticipated to keep the company under pressure, at least in the near term. Further, last May, the company suspended chip shipments to Huawei, in response to the export ban imposed by the U.S. government. The company fears a worsening decline in sales to Huawei over the coming quarters in case it fails to secure the license to ship additional products to Huawei or if the trade ban is not removed.
- ▼ Micron faces competition from Samsung Electronics Co., Ltd., SK Hynix Inc., Spansion Inc. and Toshiba Corporation in the semiconductor memory market. Notably, wafer capacity increases from its competitors could disrupt DRAM and NAND supply dynamics affecting prices and the company's results. Moreover, heightening trade tension might compel many Chinese companies to buy chips from Samsung and other non-American chipmakers, consequently dumping Micron.
- ▼ Ramped-up production of domestic memory chips in China can also seriously jeopardize Micron's prospects going forward. Changxin Memory Technologies has recently unveiled China's first domestically designed DRAM chip. Moreover, Yangtze Memory Technologies is likely to start manufacturing NAND flash memory to challenge Samsung, Toshiba, Western Digital and Micron, per Nikkei.
- ▼ The merger between Western Digital and SanDisk has made it more challenging for Micron to capture share in the newer storage technology space – SSD. The companies will also be able to offer competitive solutions in cloud-based computing, which has overtaken digital storage solution space over the past couple of years. Therefore, it will be difficult for Micron to remain competitive in the storage business.
- ▼ Micron continues to acquire a large number of companies. While this improves revenue opportunities, business mix and profitability, it also adds to integration risks. Moreover, frequent acquisitions are a distraction for management, which could impact organic growth, going forward. Additionally, higher mix of NAND, which has lower gross margin, coupled with falling memory prices and minimal decline in manufacturing cost is likely to keep margins under pressure.

Product mix, falling memory prices and minimal decline in manufacturing cost are key headwinds.

## Last Earnings Report

### Micron Reports Q1 Results

Micron reported first-quarter fiscal 2020 non-GAAP earnings per share of 48 cents, in line with the Zacks Consensus Estimate but lower than the year-ago quarter's \$2.97.

Meanwhile, Micron's revenues of \$5.144 billion in the quarter under review exceeded the Zacks Consensus Estimate of \$5.028 billion but dropped around 35% on a year-over-year basis.

Although the company suffered a drastic year-over-year fall in revenues and earnings, management's positive commentary on the company's performance beyond the current quarter is making investors hopeful.

Management expects the seasonally weak fiscal second quarter to hit rock bottom in its financial downturn. The company's performance is expected to start improving in fiscal third quarter with continued recovery in the second half of 2020.

Increasing mix of high-value solutions, enhancement in customer engagement and improvement in cost structure are positives. Growing demand from cloud-computing providers and acceleration in 5G adoption make authorities hopeful. Deceleration in DRAM price declines and improvements in NAND pricing are a tailwind.

Talking about its business with Huawei, Micron informed that it has obtained licenses for supporting various Huawei products that are not subject to Export Administration Regulations and Entity List restrictions. Moreover, it has also been qualified for new products to back Huawei's mobile and server businesses.

However, the company alerted that "it will take some time before the qualifications are completed and contribute to revenues."

### Revenue Details

DRAM revenues of \$3.5 billion, accounting for 67% of total revenues in the quarter under discussion, plunged 41% year over year. However, it inched up 2% sequentially. With less customer inventories, bit shipments rose nearly 10% sequentially and in the mid-20 percent range year over year. On a sequential basis, ASP declined in the upper-single-digit percent range. DRAM revenues included \$435 million of revenues from MCPs and SSDs.

NAND revenues of \$1.4 billion, representing 28% of the total top line, were down 14% on a year-over-year basis but up 18% quarter over quarter. While NAND ASP increased in the low single-digit's percentage band, shipment quantities improved in mid-teens percent range sequentially. Shipments grew in the mid-30% range year over year.

Business unit wise, revenues of the computing and networking business (CNBU) unit deteriorated 45% from the year-ago quarter and 4% sequentially to \$2 billion. Higher volumes and moderating decline in ASP drove sequential growth.

Revenues from the Mobile Business Unit (MBU) of \$1.5 billion softened 34% on a year-over-year basis. The metric increased 4% sequentially though. Strong growth in MCP revenues, backed by nearly 50% sequential growth in DRAM and NAND bits, was a tailwind.

The Embedded Business Unit revenues logged \$734 million, down 21% from the year-ago quarter but up 4% from the previous quarter. Content growth in the automotive market drove sequential revenues.

Revenues from the Storage Business Unit (SBU) comprising SSD NAND components and 3D XPoint totaled \$968 million, down 15% year over year but up 14% sequentially. SSD volume expansion and ASP increases drove sequential growth.

### Margins

Micron's non-GAAP gross profit of \$1.405 billion slumped 69.9% from the prior-year period. Non-GAAP gross margin fell from 59% in the year-ago quarter to 27.3%. Underutilization charges at the Lehi Lab had a negative impact of nearly 240 basis points.

Micron's non-GAAP operating income of \$594 million declined from \$3.887 billion in the year-ago quarter. Non-GAAP operating margin contracted from 49% to 12%. Higher R&D expenses incurred by the company to expand its product portfolio were a downside.

### Balance Sheet and Cash Flow

The company exited the quarter with cash and short-term investments of \$7.588 billion compared with \$7.955 billion at the end of the preceding quarter.

Micron's long-term debt increased to \$6.371 billion from \$4.541 billion in the prior quarter.

The company generated operating cash flow of \$2.01 billion compared with \$2.2 billion in the previous quarter. Adjusted free cash flow during the reported quarter was \$80 million, down from \$260 million in the sequential quarter.

The company repurchased 1.1 million shares worth \$50 million in the fiscal first quarter.

### Guidance for Q2

For the second quarter of fiscal 2020, the company anticipated revenues of \$4.5-\$4.8 billion.

For the fiscal second quarter, Micron expects non-GAAP gross margin of 27% (+/- 150 bps). Higher underutilization charges due to contracted

Quarter Ending **11/2019**

Report Date	Dec 18, 2019
Sales Surprise	2.31%
EPS Surprise	0.00%
Quarterly EPS	0.48
Annual EPS (TTM)	3.80

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production volumes are likely to be a dampener.

Operating expenses on a non-GAAP basis are likely to be \$825 million (+/- \$25 million).

Earnings per share are anticipated to be 35 cents (+/- 6 cents).

#### **DRAM and NAND Outlook**

For calendar 2019, DRAM bit demand will likely climb around 20%, up from mid-teens' percentage growth predicted earlier.

However, for calendar 2020, Micron expects the industry to see bit demand growth in the mid-teens percentage range, down from the prior outlook of high-teens to 20% range. Normalization of inventory builds by Chinese customers will impact DRAM bit demand growth in 2020.

Rising DRAM demand from cloud, enterprise, smartphone, graphics card and automotive clients is an upside. However, Intel's CPU shortages persist as a headwind in the PC DRAM market.

For 2019, industry's NAND bit demand is assumed to grow in the mid-40% range from the past forecast of low-to-mid 40s growth. For 2020, the company expects the industry's NAND bit demand to grow in the high 20s to low 30 % band with supply growth falling below demand due to industry capex cuts. Rising attach rates and average capacities for solid-state drive (SSD) are a boon. Improving pricing trends for SSDs are a positive too.

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## Recent News

On Jan 7, 2020, Micron Technology announced that in collaboration with ultra-high-speed in-vehicle connectivity provider, Valens, the company is introducing the automotive industry's first 1TB remote, centralized storage solution at CES 2020.

On Oct 25, 2019, Micron introduced the world's fastest SSD, the Micron X100 SSD, targeting storage- and memory-intensive applications for the data center. The company unveiled Micron 7300 NVMe series and Micron 5300 SATA series of SSDs designed to enable enterprises to modernize, economize and maximize return on their data center investments.

On the same day, Micron launched Authentia Key Management Service (KMS) platform, a silicon-based security-as-a-service platform, for IoT edge devices.

On Oct 17, 2019, Micron Technology announced that Paul Marosvari is appointed as Micron's vice president and chief accounting officer.

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## Valuation

Micron shares are up 40.9% in the past six months and 72.7% over the trailing 12-month period. Stocks in the Zacks sub-industry and the Zacks Computer & Technology sector are up 40.9% and 13.3% in the past six months, respectively. Over the past year, while the Zacks sub-industry decreased 72.7%, the sector gained 31.8%.

The S&P 500 Index is up 9.3% in the past six months and 24.7% in the past year.

The stock is currently trading at 2.98X forward 12-month sales, which compares to 2.98X for the Zacks sub-industry, 3.59X for the Zacks sector and 3.47X for the S&P 500 index.

Over the past five years, the stock has traded as high as 2.98X and as low as 0.69X with a 5-year median of 1.61X. Our Neutral recommendation indicates that the stock will perform in-line with the market. Our \$61 price target reflects 3.13X forward 12-month sales.

The table below shows summary valuation data for MU

Valuation Multiples - MU					
		Stock	Sub-Industry	Sector	S&P 500
P/S F12M	Current	2.98	2.98	3.59	3.47
	5-Year High	2.98	2.98	3.59	3.47
	5-Year Low	0.69	0.76	2.3	2.54
	5-Year Median	1.61	1.62	3.01	3
EV/Sales TTM	Current	3.04	3.04	4.22	3.24
	5-Year High	3.04	3.04	4.22	3.3
	5-Year Low	0.88	0.88	2.56	2.16
	5-Year Median	1.84	1.84	3.44	2.8
EV/EBITDA TTM	Current	5.84	5.84	12.12	11.99
	5-Year High	8.55	8.55	12.6	12.86
	5-Year Low	1.55	1.55	7.67	8.48
	5-Year Median	3.8	3.8	10.52	10.67

As of 01/07/2020

## Industry Analysis Zacks Industry Rank: Top 43% (109 out of 254)



## Top Peers

Advanced Micro Devices, Inc. (AMD)	Neutral
Intel Corporation (INTC)	Neutral
Microchip Technology Incorporated (MCHP)	Neutral
NVIDIA Corporation (NVDA)	Neutral
Samsung Electronics Co. (SSNLF)	Neutral
Seagate Technology PLC (STX)	Neutral
Taiwan Semiconductor Manufacturing Company Ltd. (TSM)	Neutral
Western Digital Corporation (WDC)	Neutral

Industry Comparison Industry: Semiconductor Memory				Industry Peers		
	MU Neutral	X Industry	S&P 500	INTC Neutral	SSNLF Neutral	WDC Neutral
<b>VGM Score</b>	<b>D</b>	-	-	<b>A</b>	<b>D</b>	<b>D</b>
Market Cap	64.57 B	64.57 B	23.72 B	256.35 B	13,193.22 B	20.12 B
# of Analysts	7	9	13	14	1	8
Dividend Yield	0.00%	0.00%	1.79%	2.14%	0.00%	2.96%
<b>Value Score</b>	<b>B</b>	-	-	<b>B</b>	<b>F</b>	<b>D</b>
Cash/Price	0.13	0.13	0.04	0.05	NA	0.17
EV/EBITDA	4.96	4.96	13.90	8.27	NA	13.21
PEG Ratio	NA	NA	2.00	1.66	NA	13.21
Price/Book (P/B)	1.77	1.77	3.34	3.45	NA	2.09
Price/Cash Flow (P/CF)	5.13	5.13	13.67	8.66	NA	6.67
P/E (F1)	24.38	24.41	18.72	12.48	559.49	26.42
Price/Sales (P/S)	3.13	3.13	2.66	3.64	NA	1.29
Earnings Yield	4.10%	4.10%	5.31%	8.01%	0.18%	3.78%
Debt/Equity	0.16	0.16	0.72	0.32	NA	1.04
Cash Flow (\$/share)	11.36	11.36	6.94	6.81	NA	10.15
<b>Growth Score</b>	<b>D</b>	-	-	<b>B</b>	<b>C</b>	<b>D</b>
Hist. EPS Growth (3-5 yrs)	68.56%	68.56%	10.56%	19.47%	NA	-5.11%
Proj. EPS Growth (F1/F0)	-62.41%	-65.70%	7.42%	2.42%	43.12%	-47.08%
Curr. Cash Flow Growth	-35.35%	-35.35%	14.83%	23.02%	NA	-53.72%
Hist. Cash Flow Growth (3-5 yrs)	15.84%	15.84%	9.00%	11.64%	NA	-1.49%
Current Ratio	2.56	2.56	1.23	1.20	NA	1.98
Debt/Capital	13.70%	13.70%	42.92%	24.20%	NA	51.01%
Net Margin	17.01%	17.01%	11.08%	27.46%	NA	-9.89%
Return on Equity	11.36%	11.36%	17.16%	28.28%	NA	3.28%
Sales/Assets	0.43	0.43	0.55	0.54	NA	0.58
Proj. Sales Growth (F1/F0)	-13.28%	-13.28%	4.15%	1.56%	12.48%	0.29%
<b>Momentum Score</b>	<b>F</b>	-	-	<b>A</b>	<b>A</b>	<b>C</b>
Daily Price Chg	8.78%	4.39%	0.10%	-1.67%	0.00%	6.77%
1 Week Price Chg	0.93%	0.93%	-0.30%	0.03%	0.00%	3.99%
4 Week Price Chg	22.78%	-35.49%	2.33%	4.14%	4,900.00%	37.41%
12 Week Price Chg	25.43%	25.43%	7.02%	11.93%	4,900.00%	11.25%
52 Week Price Chg	72.70%	36.35%	24.61%	23.44%	0.00%	77.54%
20 Day Average Volume	24,696,064	12,350,755	1,589,897	18,201,998	536	4,892,603
(F1) EPS Est 1 week change	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(F1) EPS Est 4 week change	-3.26%	-3.26%	0.00%	-0.02%	6.76%	0.00%
(F1) EPS Est 12 week change	-9.78%	-9.78%	-0.56%	6.34%	12.22%	-9.56%
(Q1) EPS Est Mthly Chg	-18.93%	-18.93%	0.00%	0.00%	NA	0.00%



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## 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.

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### 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	<b>B</b>
Growth Score	<b>D</b>
Momentum Score	<b>F</b>
VGM Score	<b>D</b>

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.

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