Robotics, Artificial Intelligence, and the Fourth Industrial Revolution

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Summary of Q1 2019 ETF Flows and Trends[1]

- Total US-listed ETF assets reached $3.81 trillion at the end of Q1 2019, a 10.3% year-over-year increase. Estimated net asset flows in Q1 2019 totaled $54 billion, a 31% drop from the prior four quarter average.
- Taxable Bond ETFs received the strongest estimated net inflows in Q1 2019, totaling $34 billion, bringing the category's year-over-year increase in total assets to over 20%. Municipal Bond ETFs received $1.1 billion in estimated net inflows in Q1 2019, increasing year-over-year assets by 26%.
- US Equity ETFs received the second highest estimated net inflows with $17 billion, bringing the category's year-over-year increase in total assets to 16%. The narrower Sector Equity ETFs category saw estimated net outflows of $5 billion, and was the only category with estimated net outflows in both Q4 2018 and Q1 2019.
- International Equity ETFs received $8 billion in estimated net inflows, although year-over-year assets in the category declined 3%, in light of negative performance.
- Commodities and Allocation ETFs had estimated net outflows of $0.7 billion and $1.0 billion, respectively, in Q1 2019.

Table 1

	Total US-Listed ETF Assets		Estimated Net Asset Flows	
US Category Group	As of 3/31/2019	Year-over-year % change	Q1 2019	Prior Quarter (Q4 2018)
US Equity	$1,795,452,458,739	16.1%	$16,846,572,924	$54,053,382,767
International Equity	$740,615,465,691	-2.6%	$7,536,667,039	$36,386,878,803
Taxable Bond	$666,989,537,088	20.5%	$33,812,884,977	$24,181,904,957
Sector Equity	$436,142,542,247	1.9%	($4,925,327,156)	($22,796,860,851)
Commodities	$66,207,893,602	-6.1%	($719,455,919)	$2,315,491,423
Alternative	$49,756,780,606	1.4%	$1,176,675,670	$1,517,158,799
Municipal Bond	$37,889,420,922	25.9%	$1,085,159,997	$3,264,466,869
Allocation	$12,547,874,329	1.1%	($994,012,696)	$575,299,557
Total	**$3,805,601,973,224**	**10.3%**	**$53,819,164,836**	**$99,497,722,324**

Source: Morningstar, as of 3/31/19. Includes all US-listed exchange-traded funds, exchange-traded notes and other exchange-traded products. All net inflow and outflow numbers are estimates based on information provided by Morningstar.

In our view, there are very few innovations that offer the potential to transform the global economy like artificial intelligence (AI) and robotics. While adoption of the cutting-edge technology spans many industries, the disruptive impact of robotic automation in manufacturing has led some to call it the "fourth industrial revolution." Worldwide shipments of industrial robots increased 30% in 2017 according to the International Federation of Robotics, and are expected to remain strong.[2] We believe several long-term macro trends will drive more widespread utilization of these technologies, making it a particularly compelling opportunity for investors.

Labor Market Challenges

One important factor impacting spending on automation is today's relatively tight labor market. The US unemployment rate stands at 3.8%, which is historically very low, while weekly jobless claims have declined to a level not reached since the late 1960's. In April, the Bureau of Labor Statistics (BLS) reported the ratio of unemployed persons per job opening was 0.9 in February, meaning there are more job openings than unemployed people. This indicator has remained below 1.0 since March 2018, which was the first time this ratio dipped below 1.0 since the BLS began measuring it in December 2000. In our view, this data suggests that companies looking to boost production may face difficulties in doing so by simply hiring more workers.[3]

Moreover, long-term labor costs, when compared to automation costs, show a clear trend. Research by McKinsey & Co. estimates that labor costs have approximately doubled since 1990, while automation costs are roughly half.[4] We expect the divergence between labor and automation costs to continue as technological innovation and competitive forces drive down the cost of robotic technology, further incentivizing companies to utilize more automation.

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Past performance is not a guarantee of future results and there is no assurance that the events or improvements mentioned herein will continue.

Tax Incentives

Tax reforms enacted through the Tax Cuts and Jobs Act of 2017 may be another important component of business investment in the industry. Among other changes, the law reduced the statutory corporate income tax rate to 21% from 35%. These cuts helped push after-tax corporate profits to all-time highs, according to the latest data from the U.S. Bureau of Economic Analysis. Changes to the tax code also allow for full expensing of equipment spending through 2023, according to PwC. Strong corporate profits plus tax incentives for capital spending equal a compelling case for further growth in AI/robotics, in our opinion.

Robust Spending Projections

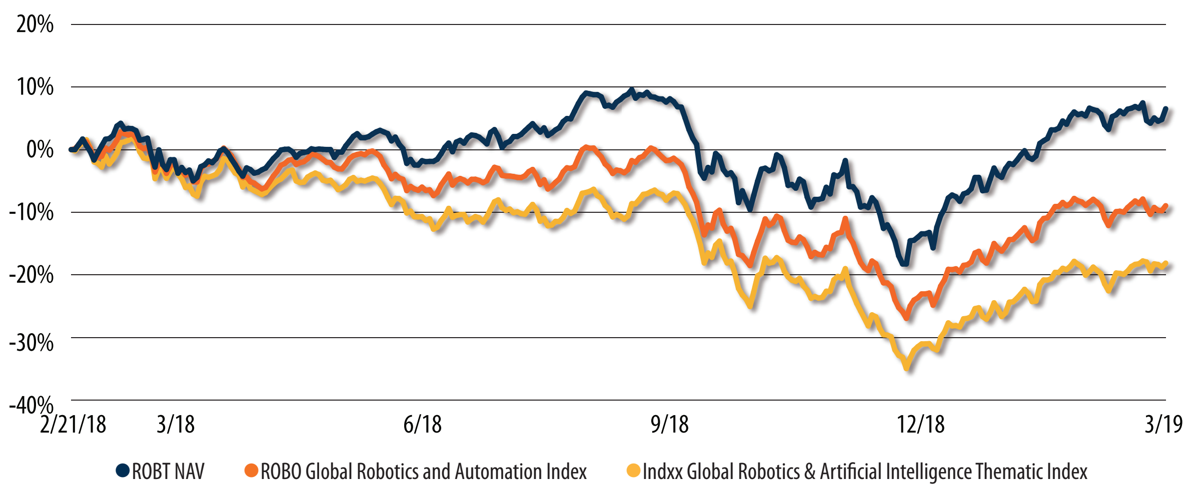
According to IDC, worldwide spending on robotics and related services is expected to grow 18% in 2019 and continue at a 20% annual rate through 2022.[5] While the overall level is expected to be lower, IDC also estimates that spending on artificial intelligence will grow at an even faster 38% annual rate through 2022.[6]

Investing in AI/Robotics

Investors seeking exposure to this innovative space should consider the First Trust Nasdaq Artificial Intelligence and Robotics ETF (ROBT), which tracks the Nasdaq CTA Artificial Intelligence and Robotics Index. The index has a unique methodology which categorizes companies involved in AI/robotics into three tiers: engagers, enablers, and enhancers. The top 30 companies in each tier are selected based on their CTA AI/Robotics Intensity Rating, which measures their exposure to the industry. Companies in the highest tier—those with the most direct exposure—are more heavily weighted. The methodology captures a diverse group of 90 companies, from direct manufacturers and software developers to large technology conglomerates that provide their own value-added services in the industry.

The resulting portfolio is distinct from other industry benchmarks, such as the ROBO Global Robotics and Automation Index and the Indxx Global Robotics & Artificial Intelligence Thematic Index. In comparison to these two indices, ROBT's portfolio tilts more toward US companies and the information technology sector. As of 3/29/19, more than half of ROBT's holdings were not included in either of the other two indices. These differences have led to a surprisingly large performance dispersion in the relatively short time since ROBT's inception on 2/21/18. Since then (through 3/29/19), ROBT has outpaced the ROBO Global Robotics and Automation Index by 15.5% and the Indxx Global Robotics & Artificial Intelligence Thematic Index by 24.6%.

Chart 1: Cumulative Total Return: ROBT vs. Industry Benchmarks (2/21/18 - 3/29/19)



Source: Bloomberg. All of the indices are unmanaged, statistical composites that cannot be purchased directly by investors.

Performance data quoted represents past performance. Past performance is not a guarantee of future results and current performance may be higher or lower than performance quoted. Investment returns and principal value will fluctuate and shares when sold or redeemed, may be worth more or less than their original cost. You can obtain performance information which is current through the most recent month-end by visiting www.ftportfolios.com.

The potential for higher productivity, combined with a tight labor market, declining automation costs relative to labor costs, and tax incentives make investment in robotic automation an attractive value proposition for many businesses in our view. For investors, we believe the rapid innovation and strong growth potential of artificial intelligence and robotics makes a compelling case for this theme.

You should consider a fund's investment objectives, risks, and charges and expenses carefully before investing. Contact First Trust Portfolios L.P. at 1-800-621-1675 or visit www.ftportfolios.com to obtain a prospectus or summary prospectus which contains this and other information about a fund. The prospectus or summary prospectus should be read carefully before investing.

[1]Based on Morningstar data, as of 3/29/19. Includes all US-listed exchange-traded funds, exchange-traded notes, and other exchange-traded products.

[2]Source: International Federation of Robotics. *Executive Summary World Robotics 2018 Industrial Robots*.

[3]Source: Bureau of Labor Statistics. *Job Openings and Labor Turnover Survey Highlights, February 2019*.

[4]Source: McKinsey & Company. *Automation, robotics, and the factory of the future, September 2017*.

[5]Source: International Data Corporation (IDC). *Worldwide Semiannual Robotics and Drones Spending Guide.*

[6]Source: International Data Corporation (IDC). *Worldwide Semiannual Artificial Intelligence Systems Spending Guide*.

Performance Summary (%)

As of 3/29/19	Inception Date	Expense Ratio	YTD	1 Year	Since Fund Inception
ROBT Performance*	2/21/18	0.65%			
ROBT Net Asset Value (NAV)			23.08	8.29	5.90
ROBT Market Price			23.28	8.52	6.20
Nasdaq CTA Artificial Intelligence and Robotics Index℠**			23.48	9.56	6.60
ROBO Global Robotics and Automation Index**			18.30	-6.97	-8.18
Indxx Global Robotics & Artificial Intelligence Thematic Index**			18.69	-15.90	-16.63
S&P 500 Index**			13.65	9.50	6.56

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*__NAV__ returns are based on the fund's net asset value which represents a fund's net assets (assets less liabilities) divided by a fund's outstanding shares. **Market Price** returns are based on the midpoint of the bid/ask spread on the stock exchange on which shares of a fund are listed for trading as of the time that a fund's NAV is calculated. Returns are average annualized total returns, except those for periods of less than one year, which are cumulative.

__Performance information for the Nasdaq CTA Artificial Intelligence and Robotics Index℠ is for illustrative purposes only and does not represent actual fund performance.__ Indexes do not charge management fees or brokerage expenses, and no such fees or expenses were deducted from the performance shown. Indexes are unmanaged and an investor cannot invest directly in an index. The **Nasdaq CTA Artificial Intelligence and Robotics Index℠ is designed to track the performance of companies engaged in Artificial intelligence (AI),robotics and automation. The **S&P 500 Index** is an unmanaged index of 500 stocks used to measure large-cap U.S. stock market performance. The **ROBO Global Robotics and Automation Index** represents the global value chain of robotics, automation, and enabling technologies. The **Indxx Global Robotics & Artificial Intelligence Thematic Index** is designed to track the performance of companies that are expected to benefit from the increased adoption and utilization of robotics and artificial intelligence ("AI").

ETF Characteristics

The fund lists and principally trades its shares on The Nasdaq Stock Market LLC.

The fund's return may not match the return of the Nasdaq CTA Artificial Intelligence and Robotics Index℠. Securities held by the fund will generally not be bought or sold in response to market fluctuations.

Investors buying or selling fund shares on the secondary market may incur customary brokerage commissions. Market prices may differ to some degree from the net asset value of the shares. Investors who sell fund shares may receive less than the share's net asset value. Shares may be sold throughout the day on the exchange through any brokerage account. However, unlike mutual funds, shares may only be redeemed directly from the fund by authorized participants, in very large creation/redemption units. If the fund's authorized participants are unable to proceed with creation/redemption orders and no other authorized participant is able to step forward to create or redeem, fund shares may trade at a discount to the fund's net asset value and possibly face delisting.

Risk Considerations

The fund's shares will change in value, and you could lose money by investing in the fund. One of the principal risks of investing in the fund is market risk. Market risk is the risk that a particular security owned by the fund, fund shares or securities in general may fall in value. There can be no assurance that the fund's investment objective will be achieved.

The fund may invest in securities issued by companies concentrated in a particular industry, sector or country which involves additional risks including limited diversification. The fund may invest in small capitalization and mid capitalization companies. Such companies may experience greater price volatility than larger, more established companies.

If the fund has lower average daily trading volumes, it may rely on a small number of third-party market makers to provide a market for the purchase and sale of shares.

An investment in a fund containing securities of non-U.S. issuers is subject to additional risks, including currency fluctuations, political risks, withholding, the lack of adequate financial information, and exchange control restrictions impacting non-U.S. issuers. These risks may be heightened for securities of companies located in, or with significant operations in, emerging market countries. The fund may invest in depositary receipts which may be less liquid than the underlying shares in their primary trading market. Changes in currency exchange rates and the relative value of non-U.S. currencies will affect the value of the fund's investment and the value of fund shares.

The fund currently has fewer assets than larger funds, and like other relatively new funds, large inflows and outflows may impact the fund's market exposure for limited periods of time.

The fund invests in robotics and artificial intelligence companies, which may have limited product lines, markets, financial resources or personnel and are subject to the risks of changes in business cycles, world economic growth, technological progress, and government regulation. These companies are also heavily dependent on intellectual property rights, and challenges to or misappropriation of such rights could have a material adverse effect on such companies. Securities of robotics and artificial intelligence companies tend to be more volatile than securities of companies that rely less heavily on technology. Robotics and artificial intelligence companies typically engage in significant amounts of spending on research and development, and rapid changes to the field could have a material adverse effect on a company's operating results.

As the use of Internet technology has become more prevalent in the course of business, the fund has become more susceptible to potential operational risks through breaches in cyber security.

The fund is classified as "non-diversified" and may invest a relatively high percentage of its assets in a limited number of issuers. As a result, the fund may be more susceptible to a single adverse economic or regulatory occurrence affecting one or more of these issuers, experience increased volatility and be highly concentrated in certain issuers.

First Trust Advisors L.P. is the adviser to the fund. First Trust Advisors L.P. is an affiliate of First Trust Portfolios L.P., the fund's distributor.

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