ROBOGLOBAL®
INVESTING IN INNOVATION

ROBOTICS, AI AND HEALTHCARE TECHNOLOGY EARNINGS TRENDS

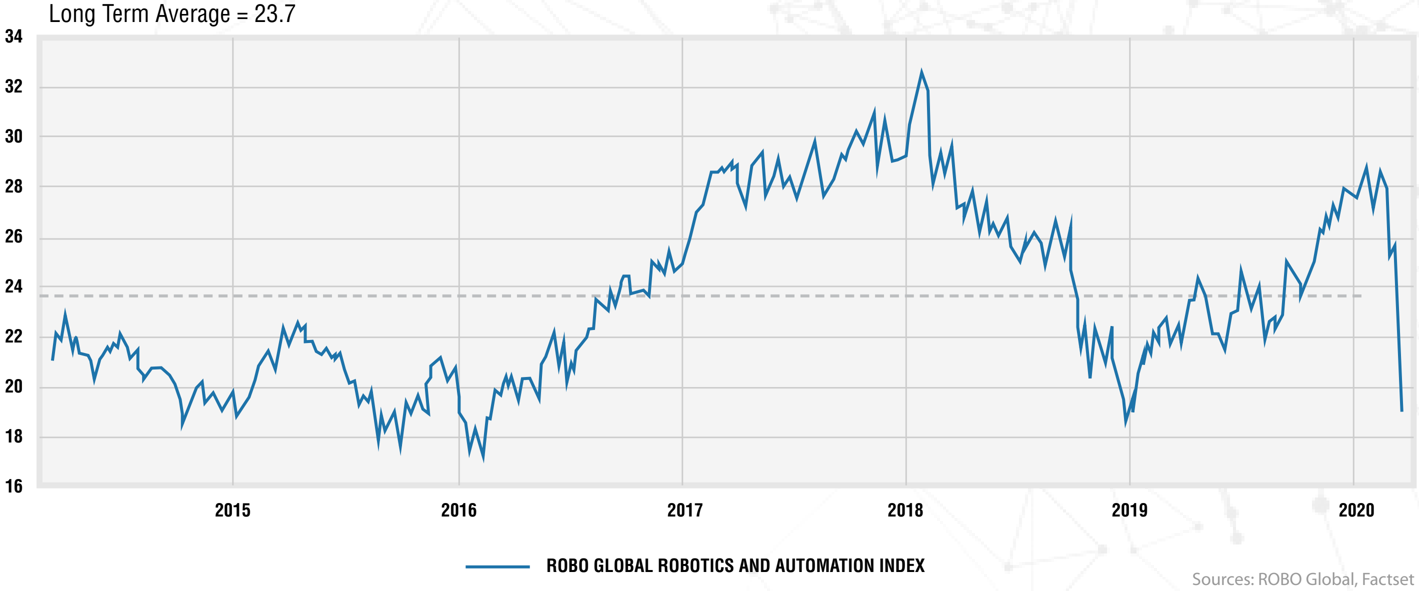
ROBO, HTEC, and THNQ

ROBO: ROBOTICS & AUTOMATION INDEX

With 92% of the ROBO Global Robotics & Automation Index having reported 4Q19 results, we review fundamentals as well as areas of strength (Artificial Intelligence) and weakness (Asian factory automation). While the new coronavirus outbreak is likely to lead to significant downward revisions in the near term, the ROBO Index is already trading on a trailing PE of 19x, near the bottom of its historical range of 17-32x.

Weighted Average Trailing Price/Earnings Ratio

Long Term Average = 23.7



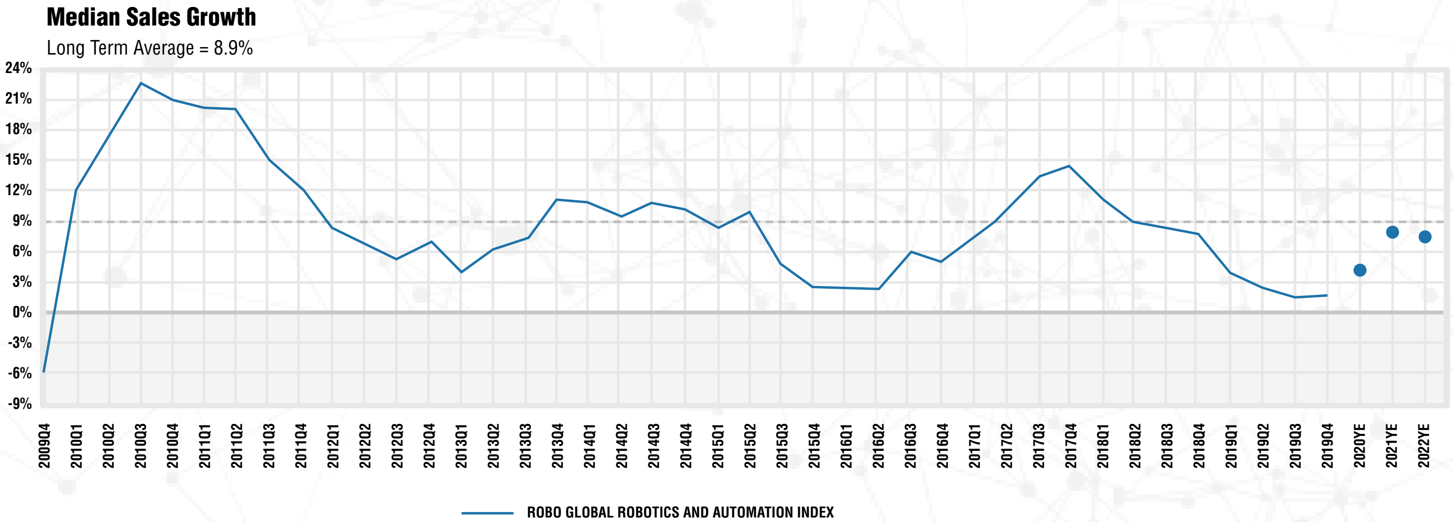
Sources: ROBO Global, Factset

Sales growth accelerated in 4Q19 for the first time in two years

Median sales growth for the 92 members of the ROBO Global Robotics & Automation Index accelerated to +2% YoY in 4Q19, compared to +1% in the prior quarter and the long-term average of +9%. Meanwhile, median EPS growth was -7% YoY in 4Q19, compared to +2% a year ago and the 10-year average of 11%. While this was a deterioration from the -4% YoY decline in 3Q19, estimates point to a return to positive earnings growth in 1Q20. This confirms our view that 2Q19 marked the bottom after the longest downcycle since the inception of the index in 2013 – see the chart below.

On aggregate, EPS came in 3% above expectations with 59% of companies exceeding consensus EPS estimates and 65% topping revenue estimates. Positive surprises stemmed primarily from Computing, Processing and AI, as well as China-exposed companies. Negative surprises were concentrated in Japanese factory automation companies.

However, the outlook has significantly deteriorated since the outbreak of the coronavirus, with the multiplication of supply chain disruptions and a significant negative impact on consumer and business sentiment in several key regions. While earnings estimates currently point to median EPS growth of 5% in 2020 and 17% in 2021, we anticipate a double-digit reduction in earnings for the first half of 2020, some of which may be recovered in the second half of the year.



Sources: ROBO Global, Factset

What's hot, what's not?

Adoption of AI-powered technologies remains the strongest driver of revenue growth, as reflected by the three fastest-growing index members in 4Q19. UK-based Blue Prism, which offers robotic process automation (RPA) solutions to automate repetitive, high-volume manual processes with software bots, saw revenue expand 88% YoY in the second half of its fiscal year ending October 2019, nearly 10% above consensus estimates.

Nvidia, the leading provider of graphics processing units, which have become a de-facto standard for high-performance computing and the training of AI, posted revenue growth of 41% in the final quarter, driven by a 43% surge in data-center revenue to a record $968m, while its gaming-related sales returned to growth for the first time since 2018.

iFlyTek, the Chinese AI technology company which focuses on natural language processing for consumer, healthcare, education and government applications, reported full-year revenue of CNY10bn, up 27% YoY and implying a 4Q19 sales increase of over 30% YoY.

At the other end of the spectrum, the more cyclical Asian factory automation companies continued to suffer large sales declines on the back of weak capital spending by automotive and electronics customers. While underlying demand appears to have improved notably in 4Q19, the impact of the coronavirus outbreak in China is likely to postpone a strong recovery to 2Q20, in our view. Harmonic Drive Systems, the leading provider of small-size speed reducers for robots, saw 3Q19 revenue drop 55% YoY to levels comparable to the prior cycle low of 2016, and the first operating loss in 10 years. However, new orders, which we view as the most important indicator, rebounded strongly and expanded YoY for the first time since 1Q18.

Hiwin Technologies, the Taiwan-based provider of motion control technology for machines and automated systems, suffered a 35% decline in revenue in 4Q19, as machine-tool customers continued to drive inventories lower. While this appeared to be the low point for this cycle as monthly revenue gradually improved in December, severe disruption related to the coronavirus outbreak drove a 38% YoY drop in revenue in January 2020.

Fanuc, the world's leading provider of industrial robots and machine-tool controllers, saw revenue decline -17% YoY in 4Q19, as automotive and electronics customers continued to reduce spending. However, orders for factory automation equipment rose 15% QoQ and the company raised its full-year outlook. Here again, we anticipate that a meaningful recovery is pushed out to 2Q20.

Valuations and balance-sheet strength

The ROBO Index was down 28% year-to-date as of 16 March 2020 and trades on a trailing PE of 19.0x, compared to the 5-year average of 23.7x and a range of 17-32 – see chart above.

As uncertainty around near-term earnings and credit dramatically increases, the focus is shifting to balance sheet strength. We note that the weighted average Net Debt to EBITDA ration for the ROBO Index was just 0.2x at the end of 2019, and that 56% of its members hold a net cash position (net debt <0), compared with approximately 15% of S&P500 index members and 22% of MSCI ACWI index members.

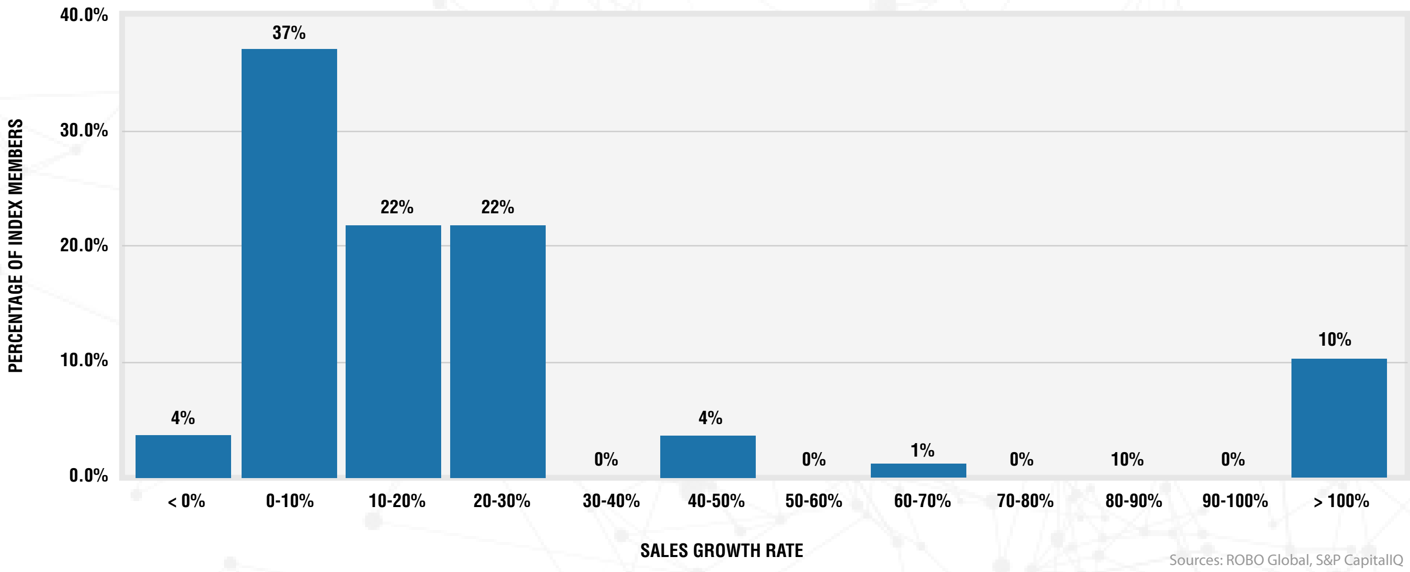
HTEC: HEALTHCARE TECHNOLOGY AND INNOVATION INDEX

HTEC Q4 Summary

During 4Q19, the Healthcare Technology and Innovation Index (HTEC) median sales growth of 14.1% accelerated 120 bps sequentially and 70 bps y/y. HTEC's median EPS grew 8.6%, vs. 9.4% in the same quarter of the previous year. HTEC's 3-year revenue and EPS median growth rates were 33.4% and 43.6%, respectively.

In terms of valuation, HTEC's current EV/sales ratio for the next 12 months is 4.96x, and its forward P/E multiple is 27.67x. The index has a median market cap of $7.4bn.

The histogram below shows a breakdown of HTEC members, segmented by their sales growth rate in Q4. Of the 80+ companies in the index, 59% generated double digit growth. Outliers that grew over 100% include Alnylum, Exact Sciences, and Editas Medicine, which, as precision medicine companies, tend to have lumpy sales patterns.



Sources: ROBO Global, S&P CapitalIQ

Technological breakthroughs happening at HTEC companies

During 4Q19, Siemens Healthineers completed its $1bn acquisition of Corindus Vascular Robotics. The company made headlines in December when a surgeon in India completed his 500th robotic percutaneous coronary intervention (rPCI) on Corindus's CorPath, marking the highest number of robotic PCI procedures conducted by any one cardiologist in the world. Among these were the five first tele-robotic PCIs ever conducted in humans, from 20 miles away.

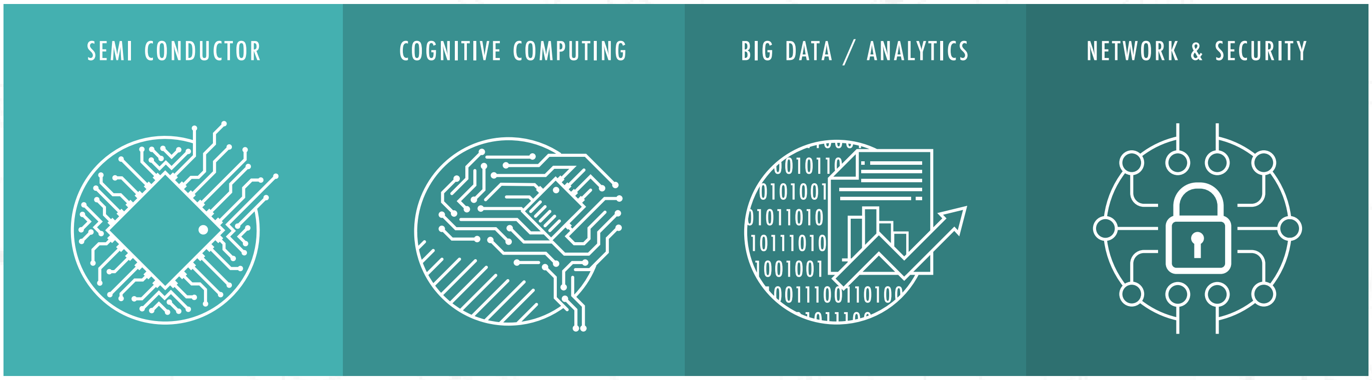
Editas is launching a new frontier of gene editing in human beings. In March 2020, scientists at Casey Eye Institute at Oregon Health & Science University used a CRISPR gene-editing tool developed by Editas and Allergan (not in HTEC) for the first time in vivo (inside the body) in efforts to restore vision for a rare inherited blindness disease. If it appears safe after a few treatments, they plan to expand the study to 18 people.

Regeneron's CEO recently announced the company's goalto have a COVID-19 treatment available for use in humans as soon as August of this year. The speed of discovery from Regeneron is unprecedented, as it usually takes 2 to 5 years to develop a vaccine. However, Regeneron is using its proprietary technology to genetically engineer antibodies, alongside science it used in 2012 on MERS, a similar coronavirus to COVID-19, which is providing a springboard for quicker and speedier development.

THNQ: ROBO GLOBAL ARTIFICIAL INTELLIGENCE INDEX

THNQ Subsector Performance

The ROBO Global Artificial Intelligence Index (THNQ) posted stellar results in 4Q19 with every sub-sector in positive territory. The Semiconductor subsector once again outperformed (+18%), with Cloud Providers (17%) and Cognitive Computing (16%) delivering very strong returns for the quarter. For the year, the THNQ Index returned a total 37.1% compared to 26.6% for the MSCI World Index. More details are available on the ROBO Global Artificial Intelligence Index Factsheet.



The **Semiconductor** subsector delivered strong earnings results, but the impact of coronavirus weighed on the group's forecast for 1Q. Underlying trends during 4Q were healthy as evidenced by positive results and commentary from companies such as Microchip, Nvidia, Infineon, and ADI, highlighting channel-inventory reductions. Despite the coronavirus impact, most semiconductor companies in our index saw strength driven by initial 5G ramp and data-center builds. Overall demand for GPU, memory and semiconductor equipment appears robust, driven by technology trends such as data center/ AI, IoT, 5G and 7/5 nm ramps. For Nvidia, new Microsoft and Sony game consoles planned for later this year plus well as their latest graphic cards are giving the company confidence on GPU visibility. In terms of 1Q outlook, the virus impact has reset growth expectations for semiconductor companies due to supply chain disruptions, especially in the high-end smartphone market and at a very difficult time with the launch of new 5G phones.

Big Data/Analytics are providing some notable trends in 1Q20. Big data analytic providers such as Alteryx are showing their importance in the digital transformation ecosystem through record billings and new customer additions, indicating momentum. Alteryx has once again delivered impressive growth with revenues up 75% YoY and Enterprises is focused on adopting an end-to-end modern analytic platform in today's AI-driven business environment. While some companies did not see much visibility on the impact of COVID-19, many were very careful about traveling to customer events, possibly translating into lower revenues but also lower OpEx this upcoming quarter. In the hybrid and cloud database management environment, momentum around public cloud remains robust with companies such as MongoDB and Cloudera posting strong results in December. We are still in the early stages of a once in a generation shift in database technology and these index members are best positioned to capture a meaningful share of the $64bn global database software market. MongoDB grew subscription revenue 56% YoY as customers chose their mission critical platform for powering their cloud applications.

The **Cognitive Computing** subsector gained strongly, with Tesla demonstrating its operating leverage with blow-out quarterly results. Tesla shares are up 75% YTD as the company showed strong profitability and improving cash flow. Tesla's best-in-class autonomous capabilities using neural networks and its incredible amount of training data are very valuable in terms of the shift toward having fully autonomous cars and robotaxis in the future. Meanwhile, another neural network provider, Nuance Communications, showed momentum in healthcare revenue, growing 9% YoY organically and achieving 38% of segment profit. While Nuance remains a turnaround story, its sharp focus on healthcare as a key area of growth is starting to bear fruit.

The **Network & Security** subsector reversed last quarter's trend and was the lowest contributor in 1Q20. Companies such as Palo Alto Networks and Nutanix are experiencing company-specific issues around sales force restructuring and initiatives. In terms of demand, there are multiple large deals still in the pipeline as Enterprises continues to move its employee and customer workflow to the cloud. In addition, increasing need for vulnerability and threat intelligence remains a high priority for IT and compliance departments as breaches continue to occur quickly. Further, Rapid 7 and Varonis, which focus on AI-driven security management, and ServiceNow, with its automated workflow solutions, are continuing to demonstrate impressive results during 1Q20.