

FIRST QUARTER IN REVIEW

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SUMMARY

It was a banner first quarter for robotics, automation and AI stocks. The ROBO Global Robotics & Automation Index surged 18%, while the Artificial Intelligence Index increased 26%, largely outpacing global equities. While the sharp rebound in equities around the world was accompanied by a continued deterioration in the macro economic outlook, earnings estimates for members of the ROBO Index stabilized in Q1 and continue to point to 8% EPS growth in 2019. The Index is currently trading on a forward P/E of 23x, roughly in line with its five-year average of 22x.

Robotics, automation, and AI stocks rebound, kicking up the ROBO Index 18.3% in Q1

After a manic end to 2018, global equities came roaring back in the first quarter of 2019, led by China and US stocks. The MSCI AC World Index rose 12.2%, nearly recouping its 4Q18—the worst in ten years. This sharp rebound was driven by a dramatic monetary policy pivot at central banks led by the Federal Reserve, early signs of a turn in China credit growth after a three-year slowdown, and the de-escalation of geopolitical risks around US-China trade. The rebound was also fueled by the wave of institutional investors who stepped back into stocks after an overdone sell-off.

Best-in-class robotics, automation and AI stocks, which closed 2018 at valuations unseen since inception of the ROBO Index in 2013, benefitted greatly from the rebound. The ROBO Global Robotics & Automation Index jumped 18.3% in 1Q19. Consumer robotics (+41%), energy (+32%) and logistics & warehouse automation (+28%) led the gains, while security (-20%) and 3D printing (-2%) declined. By region, the US (+19%) and Japan (+20%) were the top contributors, while Germany (+12%) underperformed.

Importantly, manufacturing automation (+20%) and automation (+27%) delivered positive returns after weighing on the Index for more than 12 months. Indeed, these industrial sectors were the largest detractors in 2018, as trade disputes compounded the negatives of slowing manufacturing activity in Europe and Asia. With the general assumption that a US-China trade deal will be agreed upon, what had been a major detractor seems now to be largely discounted by equity markets. And while orders of factory automation equipment in China have not yet turned upward, they have stopped deteriorating, and early signs of credit and manufacturing activity improvements are increasingly clear.

While the 18% gain still leaves the ROBO index down 6.5% for the past year, it brings annualized returns of 17.5% and 8.9% for the past three and five years, respectively, compared to 10.7% and 6.5% for the MSCI AC World Index over the same periods. More details are available on the ROBO Global index factsheet.

The ROBO Global Artificial Intelligence Index also delivered outstanding results, soaring 26.3% in 1Q19 to new all-time highs, on the heels of a 13.5% gain in 2018. All 11 sectors saw gains, led by e-commerce (+38%), business process (+32%), and data analytics (+29%), with healthcare (+15%) and cloud providers (+15%) also delivering double-digit growth.

1Q PERFORMANCE

Total return by subsector (%)	Q1 2019	Past 12m
INDEX TOTAL	18%	-7%
3D Printing	-2%	-29%
Actuation	27%	-22%
Computing, Processing, & AI	20%	1%
Consumer Products	41%	83%
Energy	32%	-0%
Food & Agriculture	12%	-17%
Healthcare	18%	22%
Integration	13%	-10%
Logistics Automation	28%	4%
Manufacturing & Industrial Automation	20%	-21%
Security	-20%	-31%
Sensing	14%	-11%

MOVERS & SHAKERS

Top contributors in 1Q included Ocado (+77%) and iRobot (+41%).

Ocado (+77%) is a leader in automation technology solutions for online retailing, logistics, and distribution of grocery and consumer goods. Just nine months after announcing a deal to supply Kroger, America's biggest supermarket chain, with its automation solutions in up to 20 fulfillment centers across the US, Ocado has now secured an important deal with Marks & Spencer and will receive ~\$1B for a 50% stake in a JV that will essentially put the M&S brand on Ocado's existing online grocery business. The deal enables Ocado to source M&S products at cost and own exclusive rights on M&S online sales. In addition, Ocado delivered better-than-expected sales growth of 11% in Q1, despite the disruption caused by a fire at its Andover facility.

iRobot (+41%), makers of the Roomba robotic vacuum cleaner and other automated solutions for the connected home, had a very strong finish to 2018 with results largely exceeding expectations, even after raising guidance twice during the year. Sales grew 24%, boosted by strong demand for the recently launched Roomba i7 series of high-end robots, and margins held up despite the negative impact of tariffs on products assembled in China. iRobot also launched its long-awaited Terra robotic lawn mowers, a new category which could represent a market opportunity as large as the Roomba saw in the past decade. Financial targets for 2020 are impressive at 19% annualized growth over a 3-year period.

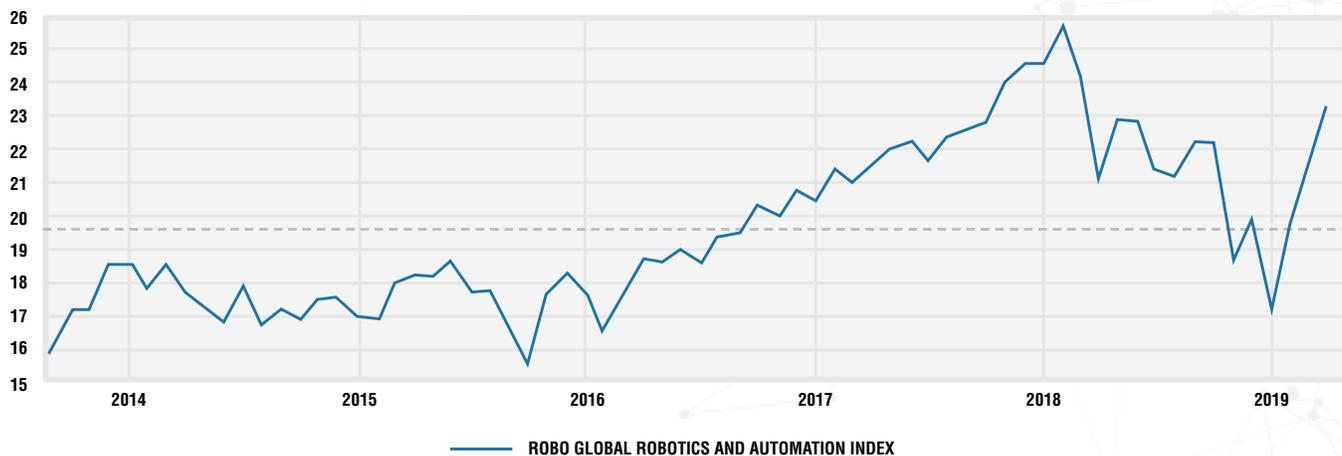
Top detractors were Maxar Technologies (-61%) and Materialise (-21%). Maxar Technologies (-61%) renounced its struggling GEO Comsat business, which was a disappointing outcome to a six-month long strategic review, and recognized a net \$883M in impairment and other charges. In addition, the company's WorldView-4 satellite experienced an irrecoverable failure and will not be able to collect imagery. Materialise (-21%), the Belgium-based additive manufacturing company, lowered its 2019 outlook and now expects 2019 sales growth of 8% at the mid-point, significantly below the 15% CAGR of the past three years. While sales of its software and medical-related applications remain on a clear upswing, slower automotive markets are weighing down its printing-on-demand business.

MOVING FORWARD

With a continued deterioration in the economic outlook, especially in Europe, earnings estimates across equity markets have come down for four consecutive quarters. However, for the ROBO Index, EPS growth estimates have stabilized in 1Q and now stand at around +8% for 2019 and +12% for 2020, at the median. This leaves the ROBO Index trading on a forward P/E of 23x, a 1x premium to the five-year average of 22x.

Median Forward Price/Earnings Ratio

Long Term Average = 19.6



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