

The Semiconductor (Capital Equipment) Industry plays a vital role in both the manufacturing and marketing of machines used in the production of a range of electronic devices. Among the types of semiconductor equipment functions are silicon wafer fabrication and the assembly, packaging, and testing of integrated circuits. The industry tends to be cyclical, reflecting the volatility of its end market: the semiconductor, or chip, sector.

The U.S. economy grew at a solid pace of 3.1% in the first quarter as the Commerce Department reported its revised data in late May. This rate marks an improvement from 2.6% in the December period. We expect reasonably decent rates of growth for the next two quarters as the historically long period of expansion continues to roll along.

Meanwhile, market conditions and the outlook for the Semiconductor Industry, reviewed elsewhere in this Issue, are generally supportive for the next few years, although near-term prospects seem uncertain. Domestically, the auto and industrial markets for semiconductors offer well-defined, if modest, growth potential, which augurs well for these equipment makers.

After several weak quarters, signs of stabilization have started to appear. In the most recent earnings season, many of the companies in the group issued forward guidance that roughly matched consensus estimates. For nearly a year, companies had been providing guidance that was meaningfully short of analysts' expectations, as market conditions deteriorated. Too, share prices have been rising, suggesting that investors are discounting a recovery ahead. The industry's position in our universe has improved slightly in the last three months, though it still ranks in the bottom third.

We like this sector for the long haul, with record earnings probable for most, if not all, of the companies in the group out to 2022-2024.

The Economy

This industry tends to be cyclical, so the performance of the economy is important. We are now in the tenth year of a modest but durable expansion. Encouragingly, the pace of GDP growth has averaged 3.1% in the past three quarters. We think the economy can continue to grow, though at a more moderate pace in the year ahead.

The Industry

Several companies in this group reported March-quarter results that met or slightly exceeded management's guidance, including *Applied Materials*, *Lam Research*, *Entegris*, *Amkor Technology*, and *Kulicke & Soffa*. The setback in semiconductor production that started in the summer of last year appears to be bottoming out. Nearly all of these companies guided June-quarter results in line with expectations. And some have noted that improvements in utilization rates suggest likely meaningful sequential quarterly revenue gains through the second half of the year.

Industry Fortunes

Near term, the outlook appears challenging. Trade disputes, tariffs, and excess inventory seem to be weighing on capital investment plans. In May, the management of bellwether *Applied Materials* noted that NAND

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pricing is stabilizing and inventory levels are off their peak, although still elevated. Meanwhile, the DRAM market lags behind, with high inventory and falling prices. While sequential revenue growth is expected to return for many companies in the September period, these levels would still suggest year-over-year declines in revenue.

In the long term, broadening demand for integrated circuits beyond PCs and mobile phones ought to drive growth in the semiconductor industry. Cloud computing, big data, artificial intelligence, and automotive and industrial applications require more computing power, better data storage, and faster networks. Big data, in particular, with its collection, storage, and analysis of information, has the potential to affect many industries. Its wide-reaching implementation is likely to fuel a significant proportion of memory and logic chip demand.

Applications like machine learning and artificial intelligence are at the foundation of the next stage of technological innovation, and they are driving strong memory content growth for DRAM and NAND. Newer technologies, like 3-D NAND, which enable higher density, are also driving strong content growth for products such as high-end smartphones.

Historically, the risk to the semiconductor capital equipment industry has been oversupply. Chipmakers are eager to add capacity when demand is strong. As demand falls, producers, especially of memory chips, continue to run their fabs at full capacity because their fixed costs are high, generating an oversupply. Prices are cut to move inventory. As a result, capital equipment spending suffers, as makers delay capacity additions until the market stabilizes. For now, companies are suggesting that conditions are stabilizing and signs of recovery are appearing. But conservative investors may want to take a cautious view on whether the recovery is real or a false dawn.

Conclusion

While the near-term outlook remains cloudy for some companies in this group, we think the long-term prospects are generally solid. Most companies under review here hold the potential for considerable earnings improvement in that time. Investors should review the reports that follow before making commitments.

Christopher Joseph, CFA

