

Relatively Strong Semiconductor Growth for June Memory Strength Drives 2Q Gains, and 3Q Guidance Looks Pretty Darn Good

Recently released semiconductor industry statistics for June reflected relatively strong growth resulting in a very solid 2Q, as memory products continue to drive industry growth. 2Q strength is also evident in the current earnings season that is over half complete as of this writing. My memory-light Tokeneke Universe is so far reflecting sequential quarterly revenue growth near the high-end of aggregate company guidance; some 85% of companies reporting have met and/or exceeded expectations for 2Q revenue and earnings; and guidance for the seasonally strong 3Q is coming in quite healthy—especially considering the limited memory products in my Universe and managements' established track record in recent quarters of providing guidance they usually meet and/or exceed. While the noise surrounding potential of a trade war between the US and China is scary and there certainly have been casualties, business persists. There has also been an interesting divergence of share prices across the chip sector this year between my Tokeneke Universe, which has been declining on average, and the SOX index, which has been gaining and mostly outperforming broader equity market indices. This divergence has opened up several potential investment opportunities over the last few months, as reflected in my Semiconductor Investment Ideas.

China Syndrome Redux: Okay, I was wrong about QCOM and NXPI, and I agree that tariffs really suck—especially for semiconductors where even the smallest of chip companies have global supply chains that could easily result in suppliers paying tariffs on their own parts. Nevertheless, I continue to argue that business will persist.

Lattice won't be bought by the Chinese, but it is still in business and currently restructuring for growth and profitability. Qualcomm and NXP Semiconductors won't combine, but each have already shared subsequent strategic business insights with investors. ZTE has been granted a reprieve of sorts, and is at least able to purchase chips again. And the Micron Chinese patent lawsuit thing with UMC has fallen off the view screen after Micron's strongly-worded response of a defense. And the 'paying tariffs for your own parts thing' is so bad that I'm pretty confident it would be rescinded post haste. As I noted last month, the noise is scary—but I think the business will persist. And I will also repeat that I believe there is *NO WAY* the Chinese can become self-sufficient in semiconductors given technological and market challenges, despite committing some \$150 billion to the effort.

Memories Still Drive Growth: DRAM and NAND memories continue to drive semiconductor industry growth. In June the SIA/WSTS industry organization updated its semi-annual forecast, revising expected revenue growth this year to +12.4% from +7% with memories contributing +26.5%—and no other major product group exceeding the +12.4% average. In this case, memories include DRAM, SRAM, NOR Flash, NAND Flash and others.

Recall market researcher IC Insights expects 2018 revenue growth for the overall industry of +15% primarily driven by DRAM gains of +37% and NAND growth of +17%. The rest of the semiconductor industry *excluding* DRAMs (but including NAND) is expected to grow by +10%, according to IC Insights. Also recall solid double-digit annual growth has been reported from automotive, industrial, IoT and cloud-computing end-markets, while smartphone unit demand has stagnated.

Structural Differences: Recall that my US-equity-based Tokeneke Universe does NOT include some three-quarters of industry DRAM and NAND business from Samsung, Hynix and Toshiba. While my Universe does include Micron, it will more closely track growth of +10% this year rather than +15% or +12.4%. Other structural differences in my Universe include the lack of very large international players (Samsung, Hynix, Toshiba, MediaTek, Infineon), although it does include wafer foundries (TSMC, UMC, SMIC, TowerJazz) and IP companies (Rambus, Xperi/Tessera, Ceva, and InterDigital) that, technically anyway, don't count as semiconductor industry revenues, but rather costs associated with manufacturing. I also normalize fiscal quarters to the best fitting two out of three months. Unreported stub-periods from acquisitions can also be a difference.

The bigger problem is that most US-based investors in the chip sector experience the industry from the Tokeneke Universe perspective. The Philadelphia Semiconductor Index Option (SOX) is similarly under-represented in memories, although this is mitigated by the inclusion of equipment companies supplying to memory manufacturers. And even if domestic investors are adventuresome enough to travel overseas, it is still difficult to benefit from memory strength: less than half of Samsung's revenue comes from semiconductors (including foundry), and Toshiba's overly-dramatic restructuring thanks to its nuclear energy woes is going on its second year.

Relatively Strong June: Worldwide semiconductor industry revenues for June grew by a relatively strong +1.5% sequentially on a three-month rolling average basis, according to statistics released by the Semiconductor Industry

Association (SIA) late last week. This triple-the-average metric was likely due to memory strength and was the third month in a row of above-average gains. June has averaged a gain of +0.5% with a high of +5.3%, a low of -9.2%, and 12 declines in the last 28 years—including three in the last 10 years. China led once again with a gain of +3.2% followed by Japan, The Americas and Asia-Pacific posting growth of +1.3%, +1.2% and +0.5%, respectively. Europe continued to lag with a decline of -0.8%.

Next month’s release of July data begins the seasonally-strongest quarter for growth. July has averaged a gain of +1.4% with a high of +5.4%, a low of -6.3%, and only six declines in the last 28 years—including three in the last seven years. I expect to see another better-than-average gain next month due to memory product strength.

Very Strong 2Q: 2Q sequential growth was a very strong +6.0%, thanks to memories. China led with an extremely strong +13.3% and was the only region with growth above the average. Japan followed with +5.7%, The Americas at +3.1%, Europe at 1.8% and Asia-Pacific lagged at +1.1%. The 2Q has averaged growth of +3.8% with a high of +20.0%, a low of -19.9% and only five declines in the last 28 years, including two of the last 11 years.

The 2Q earnings season is two-thirds complete as of this writing, with 40 out of 60 companies in the Tokeneke Universe reporting. Revenue growth is much better than expected, although underperforming relative to industry statistics—thanks again to memories. The weighted average sequential sales growth across my memory-light Universe is +3.1%, which is near the high-end of company guidance centered at +2.0% ranging from +0.6% to +3.5% after 13 preannouncements (INTC, MCHP, MLNX, MU, PI and TSM raised their guidance; ACIA, INFN, IOTS, SIMO, TXN and UMC narrowed their ranges; and IDCC lowered). The average company gain has been even better at +4.5% and only six out of the 40 have missed expectations for 2Q revenue and/or EPS.

Healthy 3Q Outlook: Guidance for 3Q is looking pretty darn good at this point, with the weighted-average sequential revenue growth across my Universe at +5.6% ranging from +2.6% to +8.5% and the average company at +6.9%—and these metrics are light on memory! 3Q is seasonally the strongest sequential growth quarter of the year: it has averaged a gain of +6.5% with a high of +19.9%, a low of -11.7%, and has declined only twice in the last 28 years—including none of the last 16.

China Stunts M&A: Earlier this year MCHP closed its acquisition of MSCC and last month MRVL closed on CAVM which shrunk my Universe down to 60 companies. M&A setbacks this year include the US administration disallowing both the acquisition of Lattice by Chinese investors and the hostile bid by Broadcom of Qualcomm, while QCOM cancelled its proposed acquisition of NXPI last month, paying a \$2B break-up fee and blaming the lack of Chinese government approval after nearly two years. No deals are currently pending—which is unusual.

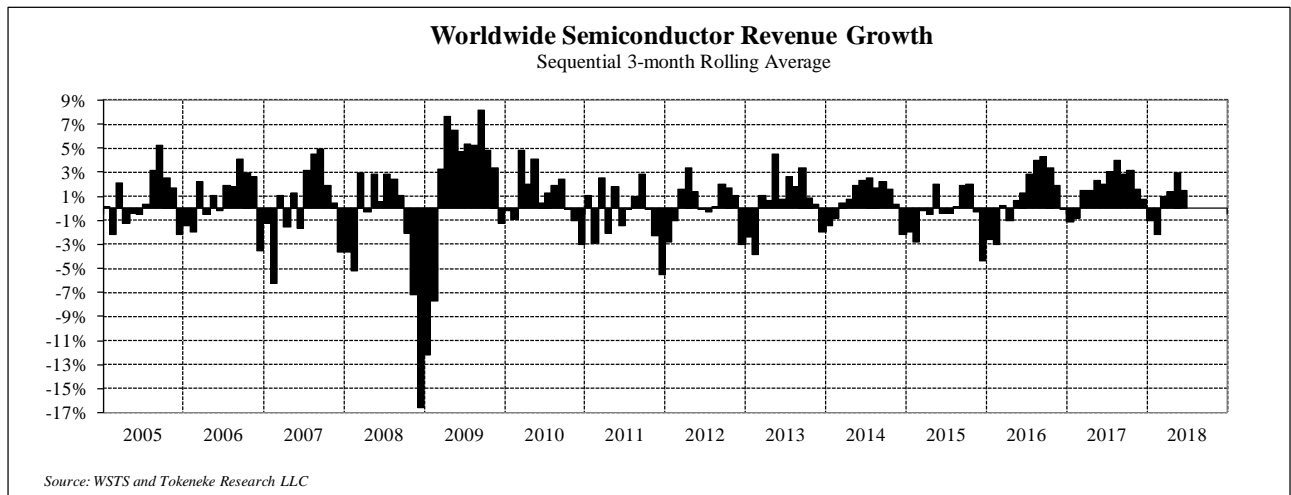
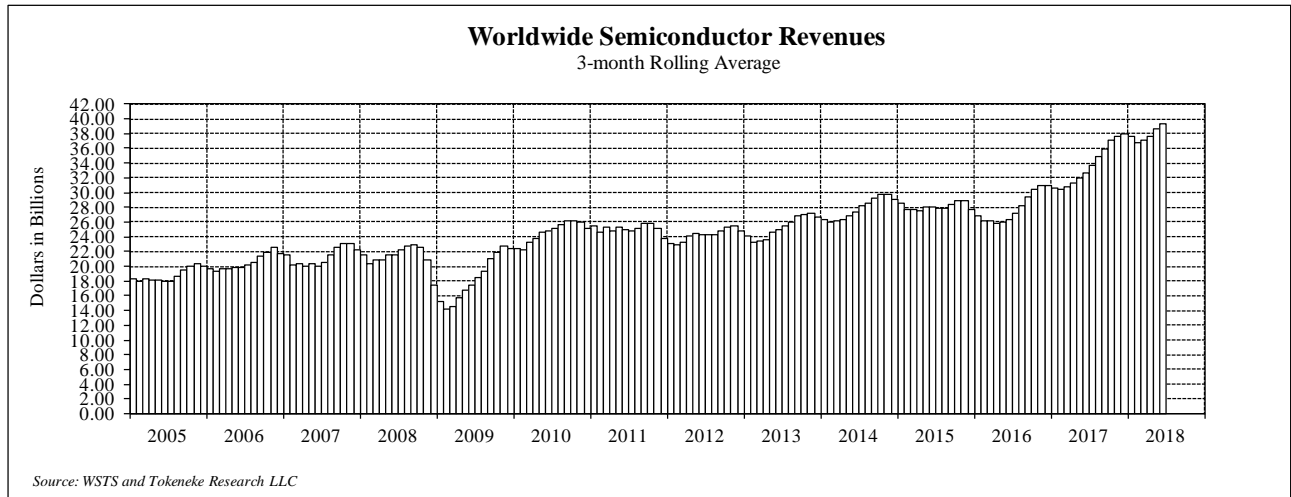
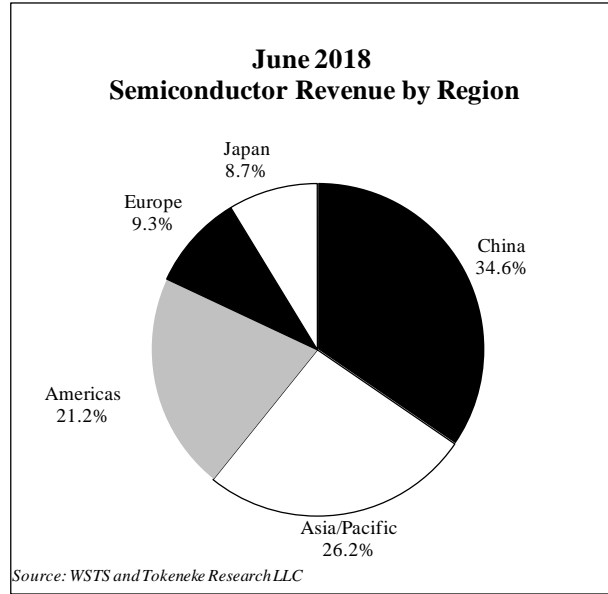
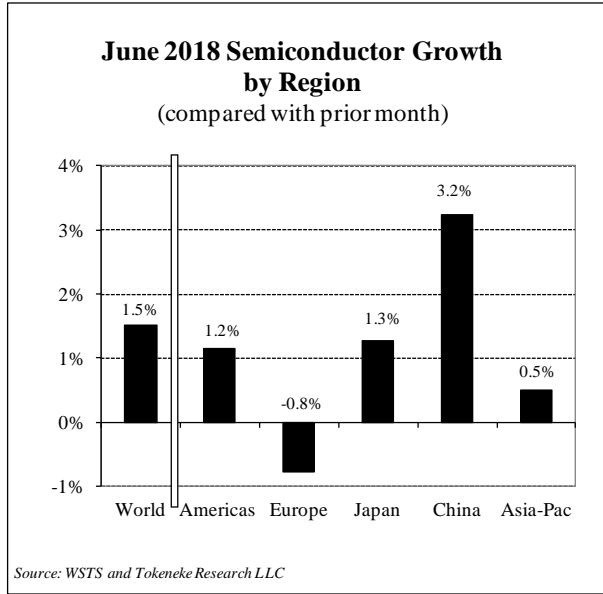
BIG Chip Sector Divergence in July: Chip sector share prices diverged significantly last month as the SOX gained but my Universe declined. During July, the Philadelphia Semiconductor Index Option (SOX) gained +4.1% and mostly outperformed relative to broader equity markets, while 31 out of 60 stocks in my Universe declined by an average of -1.1% compared to gains from the NASDAQ, S&P500 and DOW at +2.2%, +3.6%, and +4.7%, respectively. My Universe has significantly underperformed on a year-to-date basis as well, per the tables below.

July				YTD				Indices		
Winners (29/60)		Losers		Winners (31/60)		Losers		Jul	YTD	
AMD	22.3%	MOSY	-39.4%	AMD	78.3%	NLST	-54.5%	SOX	4.1%	9.1%
LSCC	17.2%	IOTS	-34.5%	SMTC	38.7%	PXLW	-48.5%	SMH	3.8%	8.8%
CY	14.3%	NLST	-20.6%	LSCC	33.0%	TSEM	-39.4%	NASDAQ	2.2%	11.1%
QCOM	14.2%	INFN	-16.2%	INFN	31.4%	QUIK	-38.5%	S&P500	3.6%	5.3%
MX	13.2%	SQNS	-15.7%	QTNA	30.6%	HIMX	-36.6%	DOW	4.7%	2.8%
average stock -1.1% SOX +4.1%				average stock -0.3% SOX +9.1%						

Sector Volatility: The SOX returned to a roller-coaster profile during July after two months of relatively subdued volatility. It saw-toothed up and down multiple times last month: +0.6%, -1.8%, +5.7%. -2.6%, +2.5%, -1.7%, +2.4%, -1.4%, +0.7% for a net change of +4.1% to a value of 1,367.5.

Opportunities Knock: While the longer-term outperformance of the SOX index (see the chart on Page 4) and the significant difference between winning and losing sectors continues to concern me from a top-down perspective, I am actually encouraged by the divergence between the SOX index and my Universe last month and on a year-to-date basis. See my latest Semiconductor Investment Ideas publication for specific potential opportunities.

—Dan K. Scovel
Semiconductor Analyst



Weekly Philadelphia Semiconductor Index Option (SOX) vs. S&P 500



The Company

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My Background

I have an electrical engineering background, nearly 12 years of semiconductor industry experience, and was on Wall Street for nearly eight years where I was selected as the Best On The Street semiconductor analyst for 2002 by The Wall Street Journal, and third-rated Best of the Best across all sectors.

I obtained my undergraduate BS degree in electrical engineering from the University of Washington, and my MBA from Santa Clara University. My industry experience consists of nearly 12 years in various technical sales and marketing roles at four different semiconductor firms located in Silicon Valley beginning with Advanced Micro Devices in 1984, followed by two small start-up companies, and ending at Cirrus Logic where I supported the firm's Japanese market development. I joined Fahnstock & Co. as a senior semiconductor analyst in 1996 and was recruited by Needham & Co. in April 2000.

My formal coverage list as a sell-side analyst included the following equities: AMD, ALSC, ALTR, ARTI, ATML, CUBE, CY, ESST, GNSS, INTC, ISSI, LSI, MOSY, MU, OIIM, OVTI, RMTR, SIII, SMSC, STEC, SVTG, TDFX, TSRA, TXN, and ZRAN.

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