

## **Apple Weakness Offsets Memory Strength Broader Market Strengths Quantitatively Neutralized by iPhone Weakness**

The bad news is that semiconductor industry statistics and sector share prices have been weak. But the good news is that the weakness is primarily due to Apple iPhone sluggishness while a number of sectors are experiencing solid double-digit growth rates on an annual basis: DRAM and NAND memory products, as well as automotive, industrial, Internet-of-Things (IoT), and cloud-computing end-markets. I've also noticed volatility and divergence across the chip sector as the SOX index continues to experience a weekly roller-coaster ride of ups and downs while the many stocks across my Tokeneke Universe are not necessarily following suit. Opportunities in the Wild West!

**Apple Weakness Offsetting Memory Strength:** While memory continues to drive overall semiconductor industry growth this year, weakness from customer Apple appears to be largely offsetting such strength during the first half. To pick on an extreme anecdote: 79% of Cirrus Logic's \$300M in revenue last quarter came from Apple; sequential sales fell by -37%; and guidance for this quarter calls for another drop somewhere between -31% and -18%. Less pronounced weakness has also been reported by Maxim, TSMC and Broadcom. According to Gartner, Apple's \$38.8B purchase of semiconductors last year made it the second-largest consumer accounting for 9.2% of the overall chip industry, just behind Samsung's 10.3%. Solid double-digit annual growth is being reported from automotive, industrial, IoT and cloud-computing end-markets, while smartphone unit demand appears to be plateau-ing. Guess the unit market demand for thousand-dollar iPhones isn't as big as was expected.

**Memories Still Drive Growth:** DRAM and NAND memories continue to drive semiconductor industry growth. 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%—both primarily due to market price increases. The rest of the semiconductor industry *excluding* DRAMs (but including NAND) is expected to grow by +10%. Last year overall semiconductor industry revenue growth totaled +21.6% which was led by DRAM and NAND that together grew by an astonishing +61.5% primarily due to market price gains, while the rest of the industry advanced by a much less impressive +10% according to the Semiconductor Industry Association.

**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%. 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.

**Very Weak March Gain:** Worldwide semiconductor industry revenues for March grew by a very anemic +0.7% sequentially on a three-month rolling average basis, according to statistics released by the Semiconductor Industry Association (SIA) earlier this week. This metric is way below average and less than I expected memory strength would have offset. March has averaged a gain of +2.2% with a high of +7.0%, a low of -6.9%, and only four declines in the last 28 years—including only one in the last 16 years. Europe led yet again with a solid gain of +3.9% followed by China at +2.2%. Japan and Asia-Pacific both underperformed with gains of +0.5% and +0.2%, respectively, while The Americas brought up the rear (also yet again) with a decline of -2.0%.

Next month's release of April data typically reflects weaker gains than March. April has averaged a gain of +1.2% with a high of +7.6%, a low of -4.7%, and 10 declines in the last 28 years—including seven of the last 16 years. I expect to see another slightly less than average gain next month as memory product strength again fails to offset Apple customer weakness.

**Below-Average 1Q Seasonal Weakness:** Once again the difference between official industry statistics (with memories) and my Universe (without) is significant, with the SIA reporting a 1Q sequential industry revenue drop of -2.5% compared to my Universe at -4.5% so far this earnings season.

Industry statistics for 1Q came in with a weaker-than-normal sequential quarterly revenue drop of -2.5% compared to an average decline of -2.2%, a high of +8.8%, a low of -19.4%, and declines 18 times in the last 27 years—including 11 of the last 13. Europe posted the only gain of +5.8%, while The Americas lagged at -9.6%.

My Tokeneke Universe is significantly underperforming with weighted average sales reflecting a sequential quarterly decline of -4.5% after 37 of 62 companies reporting through the end of Week 2 so far this earnings season. This is much better than company guidance of -6.4% ranging from -8.7% to -4.1% after only seven preannouncements (AVGO, MCHP, SIMO and UMC narrowed their ranges; MLNX and MU raised, and TSM lowered). When I exclude Micron's memory strength the guidance fell to -7.8%. Nevertheless, a majority of companies are exceeding and/or meeting expectations at 60%, while 30% are reporting 'mixed' results that simultaneously miss, meet, and/or exceed expectations for 1Q results and 2Q guidance. Just over 10% have missed.

**Non-Existent 2Q Seasonal Recovery:** The 2Q revenue outlook based on management guidance across my Universe during the 1Q earnings season so far reflects a non-existent seasonal recovery. The specific weighted average guidance for revenue is a very flattish -0.1% ranging from -3.0% to +2.9%. However, the average company is expecting a gain of +2.6% ranging from -0.3% to +5.5%. The chip industry has averaged a 2Q sequential revenue increase of +3.8% with a high of +20.0% and a low of -19.9%, and has declined only five times in the last 28 years—including two of the last 11, according to industry statistics. While Apple is largely responsible for neutralizing typical seasonal strength in the aggregate across the semiconductor industry, many individual companies are growing nicely nonetheless. See my 1Q18 Semiconductor Earnings Summary—Week 2 for details.

**Political Setbacks:** Mergers and acquisitions activity has experienced setbacks of late with the US administration disallowing the acquisition of Lattice by Chinese investors and the hostile bid by Broadcom of Qualcomm. Pending deals include NXPI going to QCOM (with lots of drama), CAVM going to MRVL, and MSCC going to MCHP while MOSY continues to pursue 'strategic alternatives.' While the mandated curtailment of shipments to Chinese smartphone maker ZTE due to sanction violations associated with North Korea and Iran appears to be having a marginal impact at some chip suppliers, I expect ZTE competitors to quickly sweep up their market share losses.

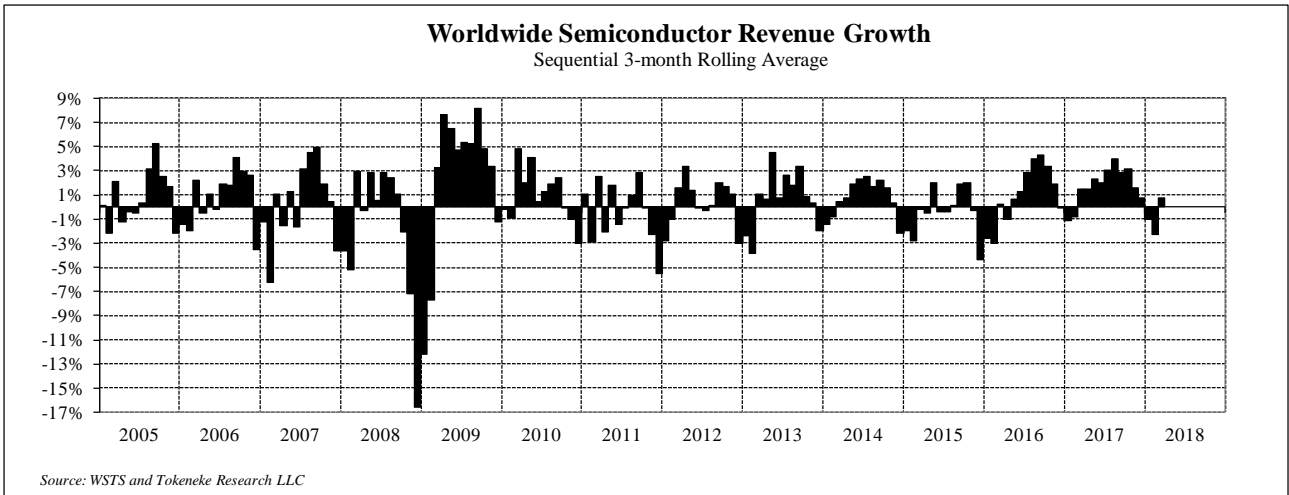
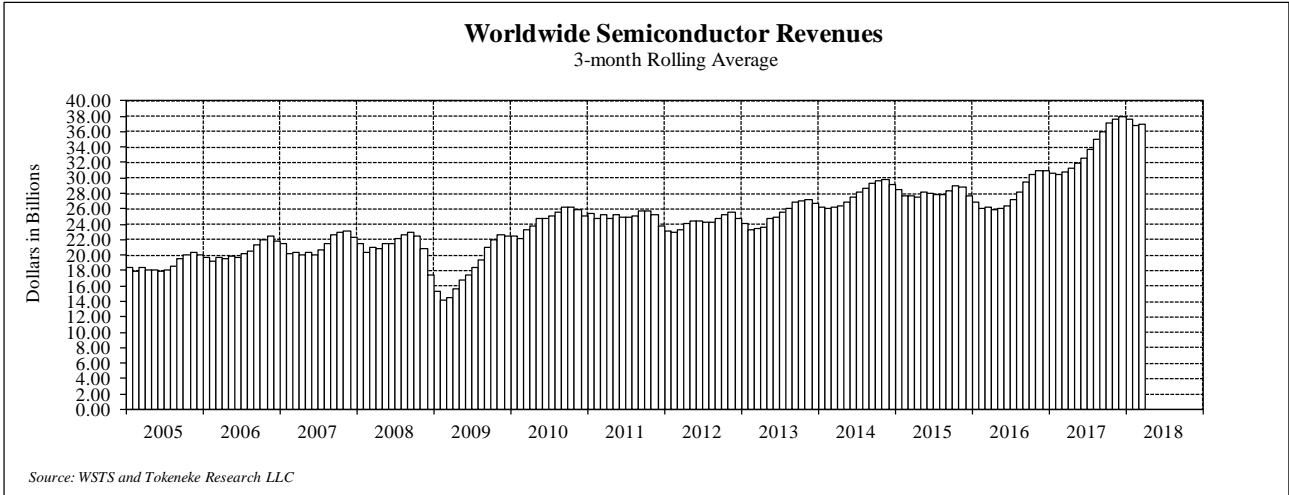
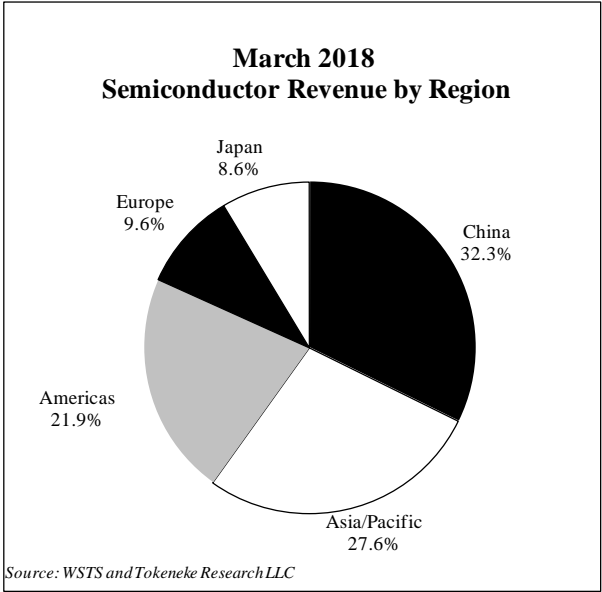
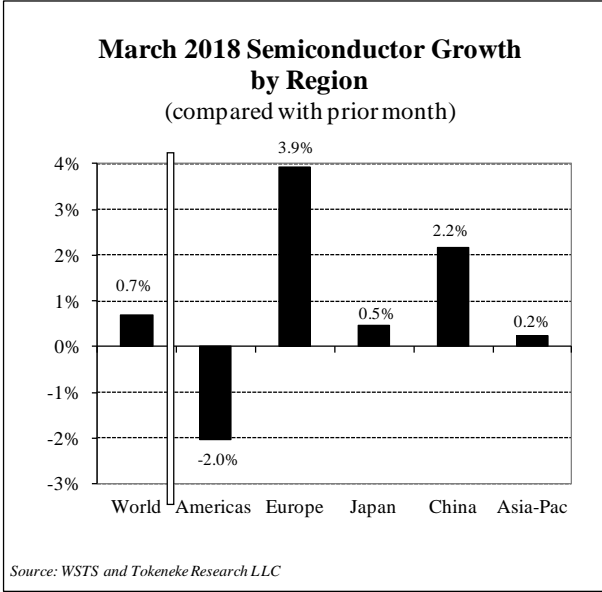
**Chip Sector Whacked in April:** Chip sector share prices took a dive last month, although the average of my Universe took less of a hit than the SOX. During April, the Philadelphia Semiconductor Index Option (SOX) declined and significantly underperformed broader equity markets at -6.4% with 46 out of 62 stocks in my Universe dropping by an average of -4.3% compared to flatness from the NASDAQ, S&P500 and DOW at 0.0%, +0.3%, and +0.2%, respectively. My Universe is now significantly underperforming compared to broader equity markets on a year-to-date basis, although the SOX decline is somewhat consistent with those indices as noted in the tables below.

April				YTD				Indices		
Winners (16/62)		Losers		Winners (18/62)		Losers			Apr	YTD
IOTS	21.6%	NLST	-32.5%	INFN	85.2%	NLST	-49.3%	SOX	-6.4%	-0.7%
HIMX	10.7%	ACIA	-26.8%	IOTS	39.5%	MTSI	-48.9%	SMH	-6.8%	-0.7%
PXLW	10.6%	NPTN	-25.0%	MSCC	25.2%	PI	-45.5%	NASDAQ	0.0%	2.4%
MOSY	10.1%	AQ	-24.8%	MLNX	21.5%	HIMX	-34.5%	S&P500	0.3%	-1.0%
AMD	8.3%	CY	-14.0%	MOSY	18.0%	PXLW	-32.4%	DOW	0.2%	-2.2%
average stock -4.3%		SOX -6.4%		average stock -6.1%		SOX -0.7%				

**Sector Volatility and Divergence:** The outperformance of the chip sector continues to worry me as noted by the spread between the SOX and S&P500 in the graph on Page 4—although I am encouraged by the recent correction of the SOX and the divergence between the SOX index and my Universe. The SOX was on another roller-coaster ride last month with an early series of quick moves (down -3.9%, up +3.3%, down -4.1%) followed by a longer rally of +7.3% and an extended decline of -8.5% before a quick close of +2.1% and -1.9% for a net monthly change of -6.4%. However, my Universe is diverging with the SOX: outperforming it last month with -4.3% vs. -6.4%, but underperforming year-to-date at -6.1% vs. -0.7%.

**Opportunities Knock:** While the longer-term outperformance of the SOX index and the significant difference between winning and losing sectors continues to concern me from a top-down perspective, I am actually encouraged by broader share price divergences across my Universe amid a variety of sub-sectors experiencing significant growth. 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



Source: Tokeneke Research LLC

— SOX — S&P500

\*S&P 500 normalized to the SOX

## **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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