

December Flatness Surprisingly Resilient ***Very Healthy 4Q, but Unfavorable 1Q Seasonality Appears Pronounced***

A flat December was pretty good for what is almost always a down month in the semiconductor industry, and it resulted in a much better-than-expected 4Q and caused 2016 to eke out an annual gain amid expectations for a slight decline. In addition, chip sector share prices continued their rally last month as 4Q earnings announcements largely exceeded expectations. Unfortunately, we have now entered the year's seasonal trough and 1Q guidance across my Tokeneke Universe is reflecting a pronounced sequential decline of -5%, which is more than twice the statistical average contraction. And this is occurring as chip sector share price valuations are becoming increasingly stretched relative to broader equity markets in a fairly slow-growth environment. I remain cautious and continue to look for a share price trough for the sector in the March/April timeframe ahead of a seasonal 2Q recovery.

Flat December Impressive: Worldwide semiconductor industry revenue for December was a much better-than-seasonal flat +0.0% sequentially on a three-month rolling average basis according to statistics released by the Semiconductor Industry Association (SIA) late last week. This is the seventh consecutive above-average month and the third best December in 26 years. December's performance compares to its average loss of -2.7% with a high of +3.3%, a low of -16.6%, and 24 declines in the last 26 years—including each of the last 16 years. China traded place with The Americas for the lead with a gain of +1.3% and +1.2%, respectively, followed by declines from Asia-Pacific at -0.9%, Japan at -2.0%, and Europe at -2.8%. I am surprised by December's relative strength given company guidance for a flat sequential 4Q (which would have mathematically mandated a -5% retreat after October and November strength) and the lack of significant upside preannouncements or anecdotal reports of strength.

Next month's release of January data typically reflects a sequential decline, although not quite as bad or frequent as December. January has averaged a loss of -2.4% with a high of +1.0%, a low of -12.2%, and 23 declines in the last 26 years—including 14 of the last 16 years. I'm not sure what to expect next month for January: Above average would be consistent with the last seven months; but below average would be more consistent with management guidance this 4Q earnings season for an unusually soft 1Q. Guess I will chicken-out with 'average.'

Surprising 4Q Growth: The 4Q came in with an unexpectedly strong sequential gain of +5.4% which was much better than both its typical nominal +1% gain as well as expectations for a more flat-ish period. The Americas led with a very strong +11.3% followed by China with +7.4%, then both Europe and Asia-Pacific at +1.7%, and Japan trailing at +1.2%. The semiconductor industry has averaged a 4Q sequential revenue gain of +1.3% with a high of +16.0% and a low of -24.2%, but has declined 12 times in the last 26 years—including eight of the last nine years.

The reported +5.4% is the second highest 4Q growth over the last 12 years and the eighth fastest in the last 26 years. It compares even more favorably to original company guidance across my Tokeneke Universe that called for -0.3% and then nudged upward to -0.1% (ranging from -2.8% to +2.6%) after 14 preannouncements that mostly narrowed their ranges. As of this writing, slightly more than half of my 69 companies have reported 4Q results and the Tokeneke Universe is reflecting a weighted revenue gain of +1.8%.

Part of the spread between my Universe and industry stats is structural. My US-equities exclude a number of very large international players (Samsung, Hynix, Toshiba, MediaTek, Infineon), but I also include wafer foundries (TSMC, UMC, SMIC, TowerJazz) and IP companies (Rambus, Tessera, Ceva, InterDigital and a big chunk of Qualcomm) 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 (Marvell and Nvidia have January-ending fiscal years, while Micron has an August-ending year). Nevertheless, the current spread is large. I expect to see my number come up as the remaining companies report, and industry statistics are regularly revised in subsequent months for accuracy, and may well soften. The 4Q was certainly much better than expected, but my gut is somewhat skeptical that it was as good as +5.4%.

The December resiliency also resulted in a better than feared year for 2016. At \$339B the industry eked out an annual gain of +1.1%. Not much to write home about, but better than recent forecasts calling for -0.1%.

Chip Stocks Keep Climbing: Semiconductor sector stocks continued to rally and outperform broader equity markets for the third straight month during January as 4Q earnings reports largely exceed expectations. Last month the Philadelphia Semiconductor Index Option (SOX) advanced by +4.2% while the average stock in the Tokeneke Universe also gained +5.7% with 49 out of 69 issues advancing, compared to gains from the NASDAQ, S&P500 and DOW of +4.3%, +1.8% and +0.5%, respectively. See the table below.

January				Indices	
Winners (49/69)		Losers		Jan	
IOTS	91.9%	QCOM	-18.1%	SOX	4.2%
MX	38.7%	DSPG	-16.9%	SMH	3.9%
SQNS	38.5%	HIMX	-14.4%	NASDAQ	4.3%
OIIM	30.6%	SMI	-9.7%	S&P500	1.8%
MOSY	26.8%	AMD	-8.6%	DOW	0.5%
average stock +5.7%		SOX +4.2%			

But Pronounced 1Q Weakness: Seasonality is now unfavorable across the chip sector amid the 1Q seasonal trough, and management guidance indicates weakness will be pronounced this year. The semiconductor industry has averaged a 1Q sequential revenue decline of -2.3% with a high of +8.8% and a low of -19.4%, and has declined 18 times in the last 26 years—including 10 of the last 12, according to industry statistics. Management guidance during the 4Q earnings season for 1Q across the Tokeneke Universe is calling for an unusually weak quarter this year, with the weighted average industry revenue decline as of this writing centered at -5.1%, ranging from -8.0% to -2.2%.

Several years ago semiconductor industry seasonality largely tracked PC market supply characteristics, with a weaker first half of the year including a trough during 2Q, followed by a stronger second half with a 4Q peak. But the world changed after the financial crises in 2008: anemic worldwide macroeconomic conditions have accentuated the relative impact of seasonal business fluctuations; and the rise of the cell phone—and triumph over the PC in terms of total chip sales—has shifted industry seasonality to be more consistent with the traditional consumer market pattern of a 1Q trough, 2Q recovery, 3Q peak and then 4Q decline. This pattern has largely played out across the semiconductor industry over the last few years, and I don't see much of a change anytime soon.

2017 Memory Upgrades: Recent semiconductor industry sales forecast updates for 2017 have raised annual growth expectations to the mid-single digits from low-single digits primarily due to memory market price strength. IC Insights at +5% and Gartner at +7% are the two most recent revisions—and the highest at this point—compared to the SIA/WSTS at +3.3% and IBS at +4.6%. Expected outperforming sectors include The Americas region; DRAM, NAND flash, analog, microcontroller and sensor products; and automotive and Internet of Things (IoT) end-markets. These modest, single-digit growth rate levels mean that seasonality continues to govern business conditions more so than any kind of broader cyclicity at a macro level across the industry, as I see it.

M&A Crap Shoot Continues: Mergers and acquisitions have been running at a fever pitch driven primarily by the lack of overall sector and macroeconomic growth, in my opinion. And I think it will continue until growth resumes. AMCC was recently sold to MTSI and fell out of my Universe, while pending takeovers include: INVN going to TDK in Japan, ISIL going to Renesas (also in Japan), LLTC going to ADI, LSCC going private (Chinese money), and NXPI going to QCOM. While the argument for a tempering of M&A activity due to the loss of targets is not a bad one (my Tokeneke Universe of US equities has shrunk to 69 from over 130 ten years ago), we have already seen a pre-empting of IPOs due to the acquisition of small private companies, as well as a vertical moves in the supply chain (SanDisk to Western Digital, and Brocade to Broadcom/AVGO)—both of which remain target-rich environments. I think we will continue to see consolidation amongst the fittest for at least the next several months—although the specifics in terms of buyers, targets, timing and price will be difficult to forecast with any precision.

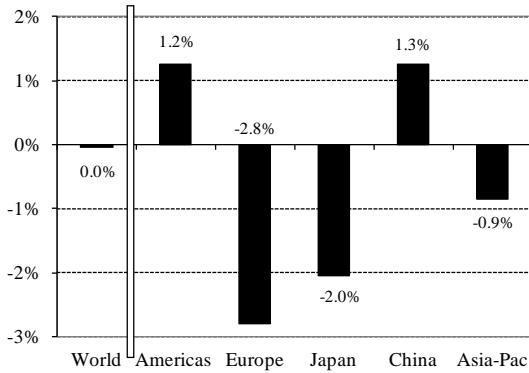
Relative Sector Correction: Another problem is the relative outperformance of the chip sector compared to broader equity markets, as noted above in the year-to-date performance of equity indices and the graph on Page 5. The spread between the SOX and S&P500 continues to get stretched and is cause for increasing concern, in my opinion.

Macro Optimism: The good news is that equity market action since the election seems to indicate investors are more excited about the potential for economic growth associated with regulatory and tax cuts than fears of a slowdown associated with potential international trade wars. While I share such macroeconomic optimism, details are sorely lacking. I think 2017 will prove to be a year of staging and real growth is unlikely to occur before 2018.

Springtime for Semiconductors: Opportunities are still out there, but my take on the semiconductor sector is one of caution as we enter the seasonal trough amid sector share-price outperformance. We'll see what the new administration brings, but until growth emerges I think waiting for seasonality to turn favorable is the best bet. See my most recent Semiconductor Investment Ideas update for specific potential opportunities.

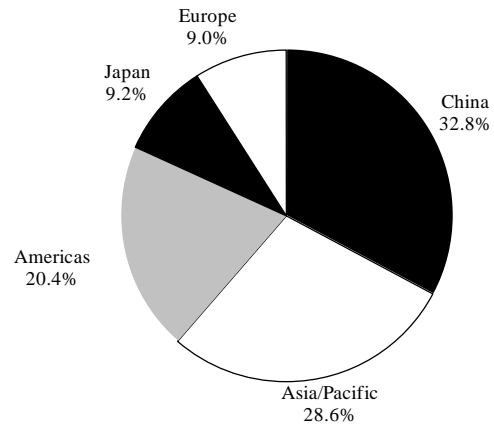
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Semiconductor Analyst

December 2016 Semiconductor Growth by Region
(compared with prior month)



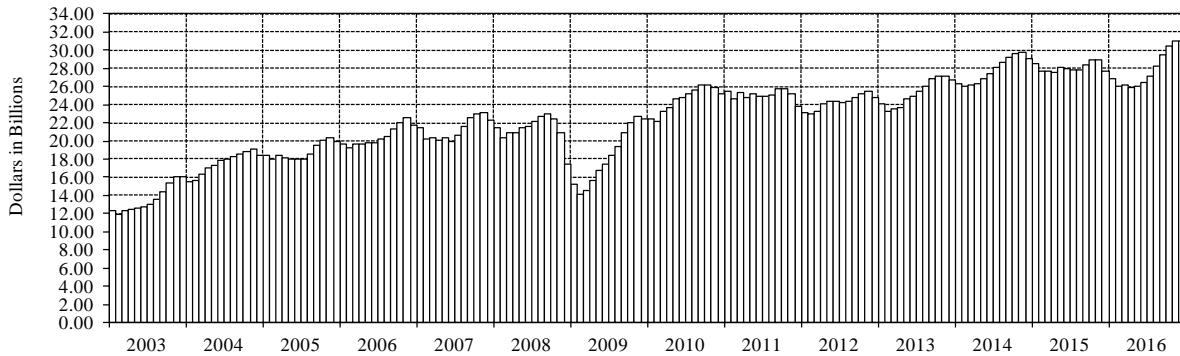
Source: WSTS and Tokeneke Research LLC

December 2016 Semiconductor Revenue by Region



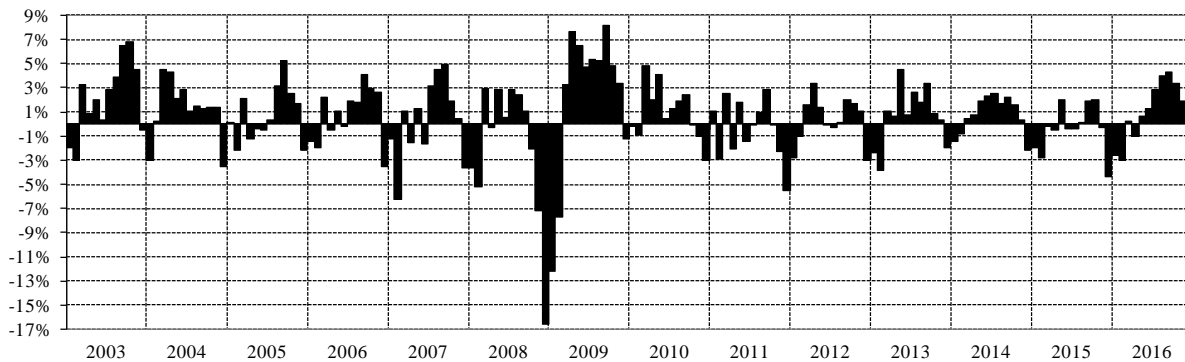
Source: WSTS and Tokeneke Research LLC

Worldwide Semiconductor Revenues
3-month Rolling Average

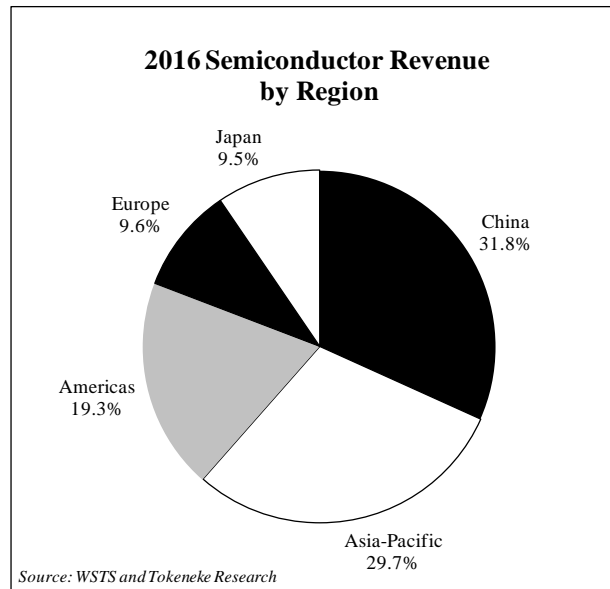
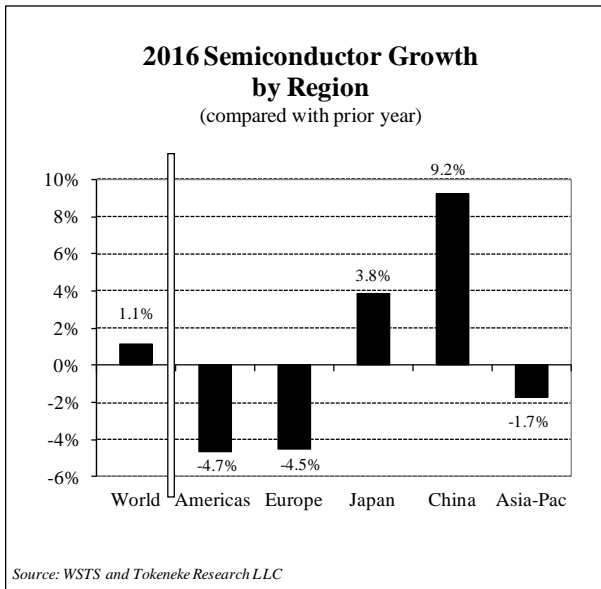


Source: WSTS and Tokeneke Research LLC

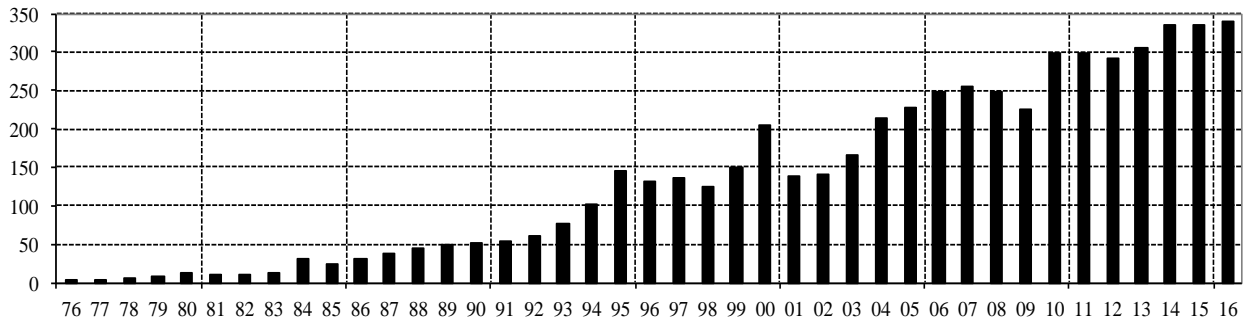
Worldwide Semiconductor Revenue Growth
Sequential 3-month Rolling Average



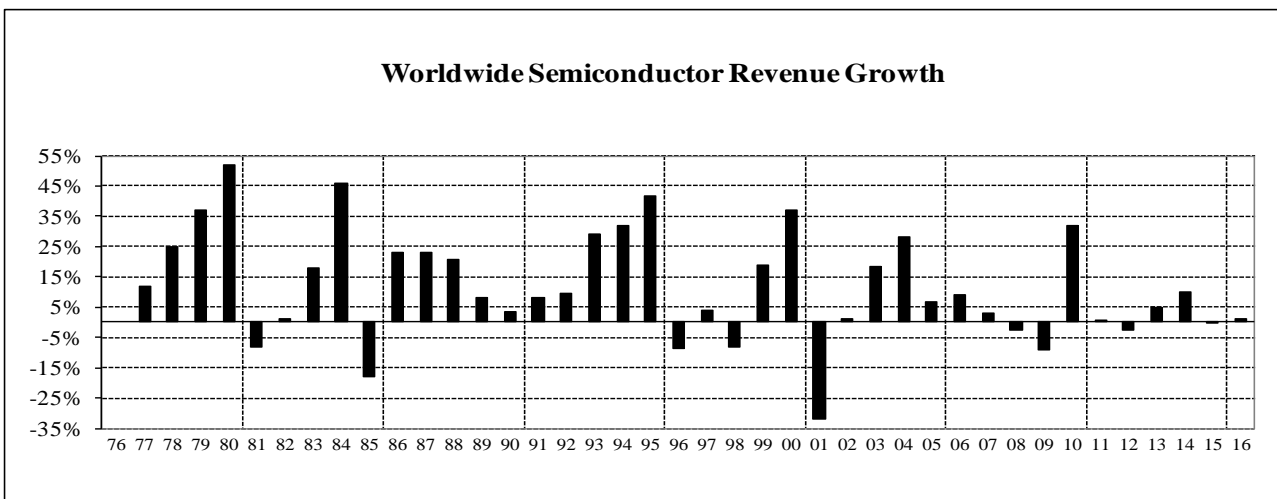
Source: WSTS and Tokeneke Research LLC

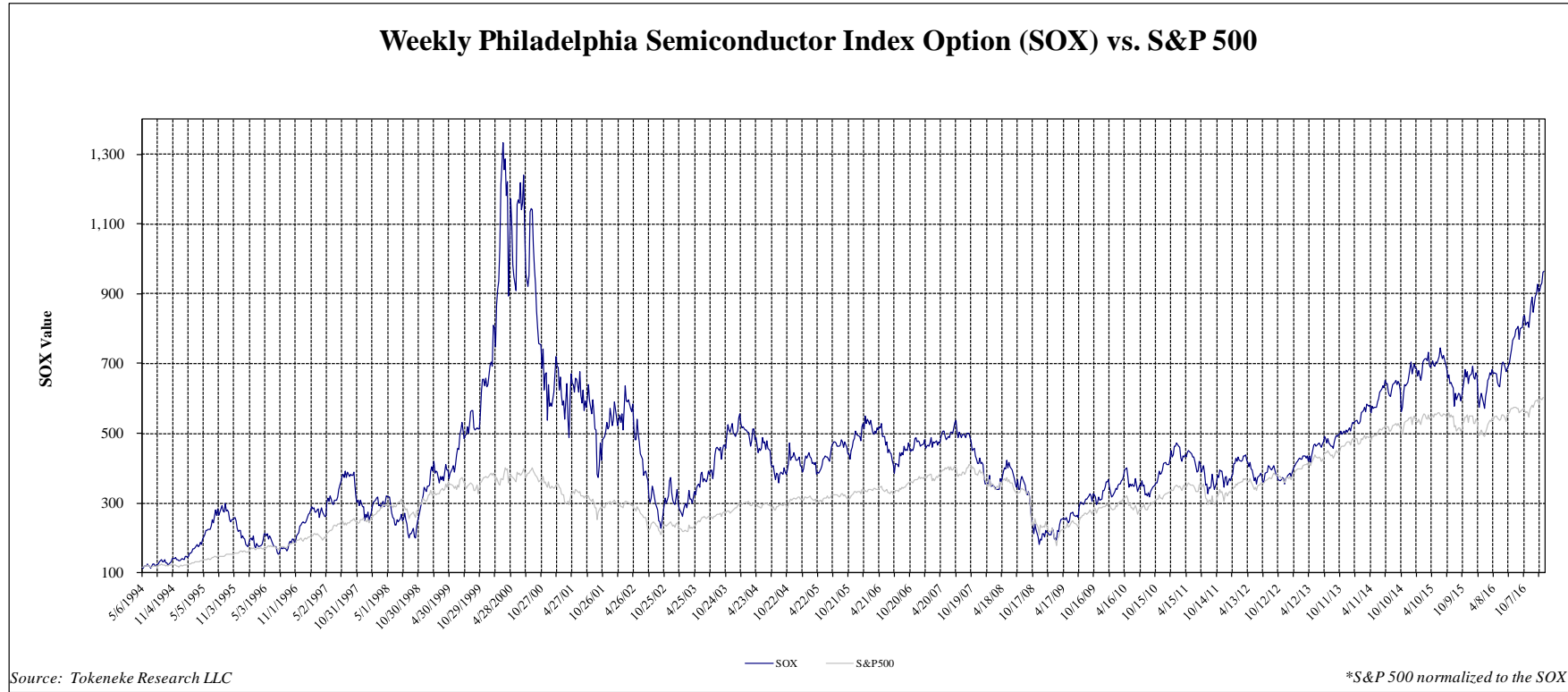


Worldwide Semiconductor Revenue (\$ billions)



Worldwide Semiconductor Revenue Growth





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 Farnestock & 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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