

November Strength Surprisingly Persistent Bullish for 4Q Results, but Seasonality is Turning Unfavorable

The good news is that both the semiconductor business and its share prices continue to expand. Frankly, I am surprised at November's relative business strength given company guidance for a flat sequential 4Q and the lack of significant upside preannouncements or anecdotal reports of unexpected end-market strength. The 4Q earnings season will begin shortly and I expect results to largely exceed expectations. Unfortunately, I think semiconductor sector share price valuations are stretched relative to broader equity markets and we are now entering a period of seasonal weakness in a no-growth environment. Guidance for 1Q is highly unlikely to inspire investors. While mergers and acquisitions will continue and specific opportunities exist, I continue to look for a share price trough for the sector in the March/April timeframe ahead of a seasonal 2Q recovery.

November Strength: Worldwide semiconductor industry revenue increased by a better-than-seasonal +2.0% sequentially on a three-month rolling average basis during November, according to statistics released by the Semiconductor Industry Association (SIA) earlier this week. This is the sixth consecutive above-average month. November's performance compares to its average gain of +1.5% with a high of +6.3%, a low of -7.2%, and only five declines in the last 26 years—although four of those occurred during the last eight years. The Americas led the pack again with a gain of +3.3% followed by China at +2.7% and Europe at +2.5%. Asia-Pacific and Japan trailed with gains of +0.7% and +0.4%, respectively. I am surprised at November's strength given company guidance for a flat sequential 4Q and the lack of significant upside preannouncements or anecdotal reports of end-market strength.

Next month's release of December data almost always reflects a sequential decline. It has averaged a loss of -2.7% with a high of +3.3%, a low of -16.6%, and 24 declines in the last 26 years—including all of the last 16 years. I would be surprised to *NOT* see a worse-than-average decline next month despite persistent strength over the last few months, given company guidance for a flat-ish sequential 4Q.

Possible 4Q Upside: The 4Q earnings season will begin over the next two weeks and I expect 4Q results to largely exceed expectations, although it will be difficult to sugar-coat the seasonal 1Q decline in terms of guidance. It pretty much always declines into a seasonal trough.

November strength is positioning the 4Q for a potential better-than-expected sequential gain. Mathematically, December will have to decline by -5.1% to achieve a flat sequential 4Q. But -5.1% is much weaker than the average decline of -2.7% and business has been persistently growing above average for several months. My guess is that managements have finally figured out that it is much easier to exceed expectations by low-balling their guidance, and that 4Q may well eke out a nominal sequential gain.

The 4Q revenue outlook based on management guidance across the Tokeneke Universe is currently reflecting a flat quarter, with the original weighted average guidance for a sequential revenue decline centered at -0.3% ranging from -3.2% to +2.5%. 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, according to industry statistics. I have seen only five preannouncements as of this writing: two raising guidance (IDCC, OIIM), two lowering guidance (DIOD, NPTN), and one narrowing its range (MCHP). These have edged up expectations for a weighted decline now centered at -0.1% ranging from -2.8% to +2.6%.

Chip Stock Rally Persists: Semiconductor sector stocks continued to rally and outperform broader equity markets for the second straight month during December—and for the quarter—after over 20% gains during the third quarter. Last month the Philadelphia Semiconductor Index Option (SOX) advanced by +3.1% while the average stock in the Tokeneke Universe also gained +3.1% with 33 out of 67 issues advancing, compared to gains from the NASDAQ, S&P500 and DOW of +1.1%, +1.8% and +3.3%, respectively. The chip sector significantly outperformed broader equity markets last year with the SOX up by +36.6% and 52 out of 67 Tokeneke stocks up by an average of +33.8% compared to those same three indices with gains of +7.5%, +9.5%, and +13.4%, respectively.

December			4Q			2016			Indices			
Winners (33/67)	Losers		Winners (43/67)	Losers		Winners (52/67)	Losers		Dec	4Q	2016	
INVN 67.4%	MOSY	-29.1%	QUIK 82.9%	MOSY	-69.3%	AMD 295.1%	MOSY	-78.9%	SOX	3.1%	8.5%	36.6%
QUIK 58.0%	SIGM	-20.0%	INVN 72.4%	NPTN	-33.8%	NVDA 223.8%	IOTS	-76.0%	SMH	0.8%	3.1%	34.5%
PI 29.4%	HIMX	-18.0%	AMD 64.1%	HIMX	-29.7%	PI 152.4%	INFN	-53.1%	NASDAQ	1.1%	1.3%	7.5%
AMD 27.3%	NPTN	-16.3%	NVDA 55.8%	AMBA	-26.5%	AOSL 131.4%	HIMX	-26.3%	S&P500	1.8%	3.3%	9.5%
NVDA 15.8%	AMBA	-12.0%	STM 39.3%	MX	-25.7%	CRUS 91.5%	GIG	-17.1%	DOW	3.3%	7.9%	13.4%
average stock +3.1%	SOX +3.1%		average stock +6.2%	SOX +8.5%		average stock +33.8%	SOX +36.6%					

Seasonal 1Q Weakness: Seasonality is now adverse across the chip sector with the 1Q seasonal trough, but will turn favorable in the spring with a 2Q recovery. The semiconductor industry has averaged a 1Q sequential revenue decline of -2.2% with a high of +8.8% and a low of -19.4%, and has declined 17 times in the last 25 years—including 10 of the last 12, according to industry statistics. I think management guidance for 1Q reflecting this reality will temper any potential investor enthusiasm during pending 4Q earnings announcements. Not exactly a recipe to drive share prices from a fundamental business perspective, in my opinion. Bottom line remains: wait for a share-price trough in the March/April timeframe.

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.

More Flat-ish Years: The chip industry is looking at another flat year in 2017—gone are the years of double-digit growth. The Semiconductor Industry Association (SIA) recently endorsed the WSTS Autumn update calling for a slight industry annual revenue decline of -0.1% to \$335B for 2016, followed by growth of +3.3% in 2017 and +2.3% in 2018. This means that seasonality continues to govern business conditions more so than any possible cyclicity at a macro level across the industry.

From an end-market perspective, data centers, automotive, industrial and internet-of-things (IoT) are showing nice growth while networking and smartphones are hanging in there. Unfortunately such strengths are pretty much being offset by declining PCs and tablets amid lumpy telecom and stagnant overall cell phones. The problem is that PCs and cell phone markets are huge, while automotive is just starting to emerge as meaningful and the grab bag of emerging IoT is fairly tiny. I am as excited as anyone about drones, wearables, smart homes, VR and AR, but these market opportunities are going to take years to reach enough critical mass to move the needle across the entire semiconductor industry. Thank goodness for automotive between now and then.

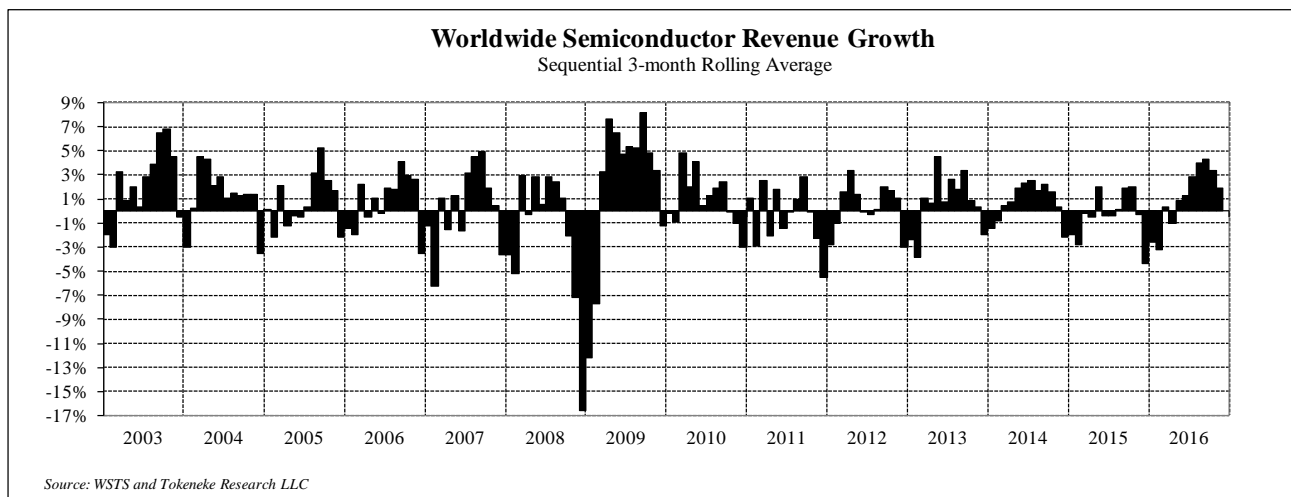
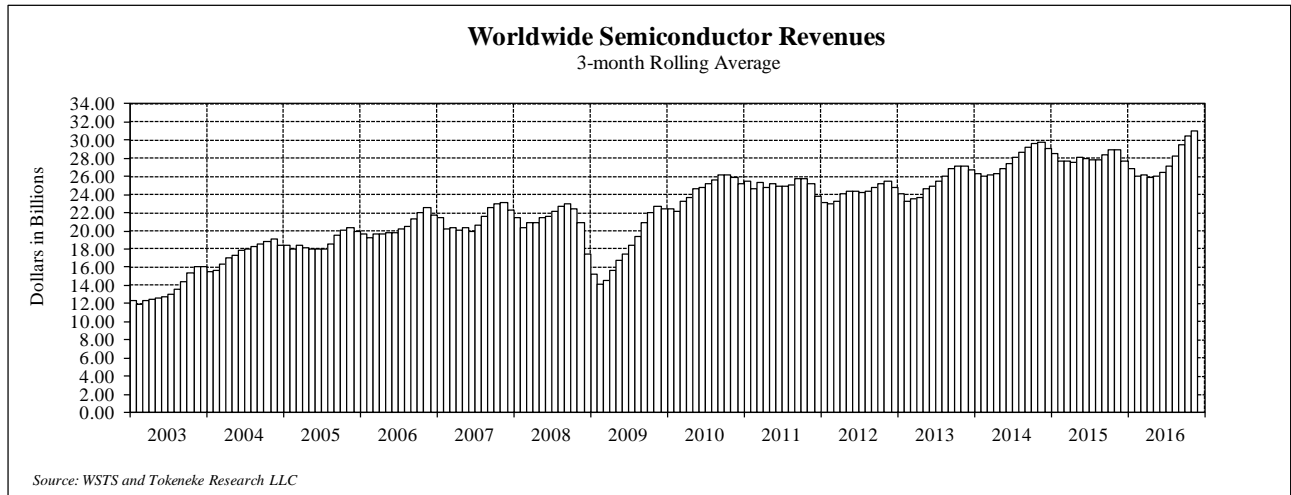
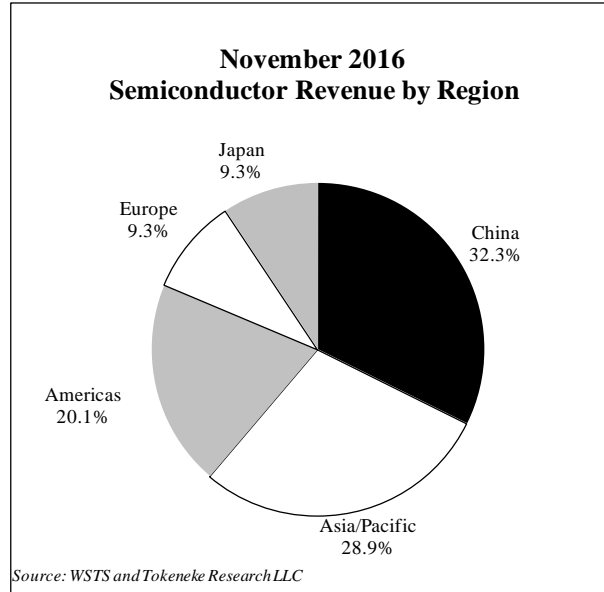
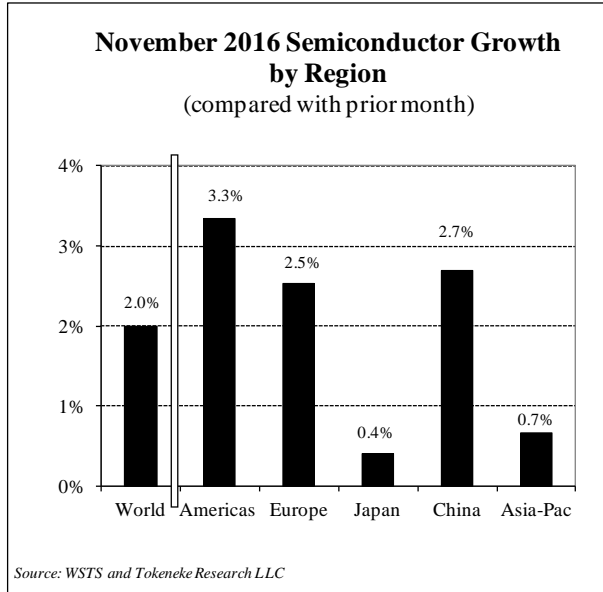
M&A Crap Shoot Continues: Mergers and acquisitions have been running at a fever pitch driven primarily by the lack of overall sector and macroeconomic growth, in my opinion. And I think it will continue until growth resumes. ACTS recently went private and fell out of my Universe, while INVN has been added as a target. Pending takeovers in my Universe include: AMCC going to MTSI, 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 67 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 accuracy or precision.

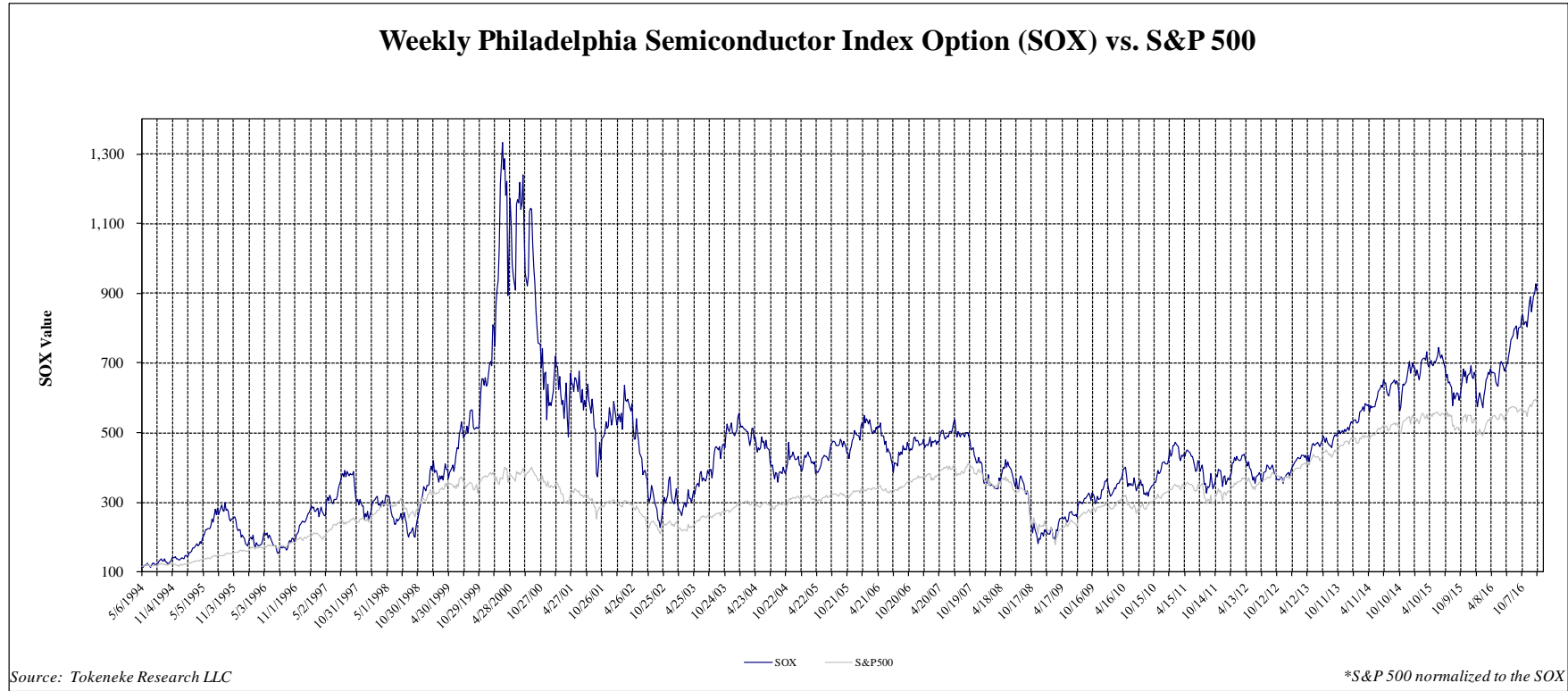
Relative Sector Correction: Another problem is the relative outperformance of the chip sector compared to broader equity markets, as noted above in the year-to-date performance of equity indices and the graph on Page 4. The spread between the SOX and S&P500 continues to get stretched—and I don't see any favorable near-term sector fundamentals strong enough to drive that spread farther.

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 approach a 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.

—Dan K. Scovel
Semiconductor Analyst





The Company

Tokeneke Research is an independent research firm specializing in semiconductor industry business issues, providing fundamental research focused on US equities across all market capitalizations within the sector to investors. The company was founded in 2005 and is based in Connecticut.

The Offering

- *Monthly Newsletter:* A summarized review of noteworthy industry business developments, sales statistics, and sector equity market performance, as well as a near-term and annual outlook for sector business fundamentals and share prices. This report typically includes two pages of text and a handful of recurring charts and tables. It is intended for relatively broad-based distribution.
- *Industry Reports:* Publications offering insight and perspective to industry-wide, multi-year forecast updates; periodic sub-sector product type and end-market reviews; fundamental and valuation perspectives on sector equity relationships; and industry introductory overview. These are more detailed reports with varying shelf-lives, and are intended for narrow distribution to interested clients.
- *Company Reports:* Fundamental equity research including earnings estimates and customized valuation analysis.
- *Consulting:* Special projects of limited or extended duration, as well as periodic access of varying frequency.

Publications are distributed via email in .pdf format, unless otherwise requested. Client confidentiality and customized research exclusivity accommodated. Rates vary with the nature, duration, and terms of offerings.

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.

—**Dan K. Scovel**
Semiconductor Analyst

Tokeneke Research LLC

Rowayton, CT 06853

dscovel@tokenekeresearch.com

www.tokenekeresearch.com

203-554-4621

Copyright © 2017 Tokeneke Research LLC. All rights reserved. This report is for information purposes only and does not constitute a solicitation or an offer to buy or sell any security or to participate in any investment or trading strategy. Opinions expressed in this report reflect the judgment of Tokeneke Research LLC on the topics addressed as of the date of the report, and are subject to change without notice. Tokeneke Research LLC makes every effort to use reliable and comprehensive information but makes no representation that the information in this report is accurate or complete, nor does it undertake to update or revise this report at any time or for any reason. This report contains forward-looking statements that involve risks and uncertainties, both known and unknown, as well as assumptions that, if they do not fully materialize or prove incorrect, could cause actual results to differ materially from those expressed or implied by such forward-looking statements. Actual results and trends may differ materially from historical results or those projected in any such forward-looking statements depending on a variety of factors. This report does not provide individually tailored investment advice and has been prepared without regard to the specific individual financial situation, objectives and needs of those who receive it. Securities discussed in this report may not be suitable for the reader. Tokeneke Research LLC and/or Dan Scovel may have a long or short position in the securities of a company or companies mentioned in this report and, at any time, may change that position. Tokeneke Research LLC accepts no liability whatsoever for any loss or damage of any kind arising out of the use of any part, or all, of this report. All company and product names mentioned in this report may be trademarks or registered trademarks of their respective holders and are used for identification purposes only. Reproduction or distribution of this report, even for internal distribution, is strictly prohibited unless specifically authorized by Tokeneke Research LLC.