June and 2Q Semiconductor Growth is Pretty Darn Good

3Q Outlook is Also Good, But Industry Growth is Concentrated in AI

Semiconductor industry revenue statistics for June and 2Q were released earlier this week and the sequential growth rates were very strong at +1.7% and +6.5%, respectively—both well above average and expectations thanks to AI processors and memory products. And 3Q guidance across my Universe is also above average so far—even though memory is under-represented and NVDA won't announce for another three weeks. The numbers are all good.

I was initially surprised (never mind humbled, confused and defensive) that last month's May stats, this month's June numbers, and overall 2Q growth came in as strong as they did given soft 2Q guidance across my Universe last quarter. Recall that last month I complained about prior month restatements boosting the metrics. The explanation became clear after I reviewed my own work: respectable chip industry growth this year of +16% is being driven by AI markets boosting memory products by +77% which are under-represented in my Universe. Which explains why overall industry statistics are better than I expected—even though they need to be fairly robust to support this year's expected growth. So. Apparently my intelligence actually is artificial . . .

The big news last month occurred on August 1 with Intel's fall from grace when it missed 2Q earnings, lowered guidance, discontinued its dividend and announced a 15% or 15,000-headcount layoff. Other bad news included a union strike at Samsung in South Korea and the Wall Street Journal reporting US unionizing efforts at Analog Devices, Intel and Micron after those companies received CHIPs government program benefits. I enjoyed the Journal article exposing the smuggling activities of banned Nvidia chips into China, although my personal favorite was Japanese equipment supplier TEL introducing a semiconductor industry generative AI tool (apparently for aficionados like myself) at SEMICON West called SemiKong.

Recall that AI is single-handedly accounting for semiconductor industry growth this year as well as the Philadelphia Semiconductor Index Option (SOX) significantly outperforming broader equity markets thanks to NVDA, while the rest of the 'Magnificent Seven' throw tens of billions of dollars at AI infrastructure—to NVDA.

The problem is that underneath AI there isn't a whole lot going on in the rest of the semiconductor end-markets. And most companies are *not* enjoying AI enthusiasm with at least half in my Universe having missed at least part of 1Q and 2Q earnings expectations and experiencing share price declines so far this year.

I continue to hope that AI cap ex euphoria ahead of revenue streams and profits lasts long enough for PCs, smartphones, automotive and the rest of the end-markets to return to growth. In the meantime, the SOX index remains over-extended versus the S&P500 and most fundamental valuations across the sector are not attractive. I would still be very careful and extremely selective approaching potential chip sector opportunities at this time.

Geopolitical Gymnastics Review: Last month DigiTimes reported the US funding a feasibility study with a technology company in Kenya for establishing a wafer fab there as part of supply-chain diversification activities amid Kenya's abundant mineral resources. With all due respect to Kenya, this could well indicate a peak in government chip industry incentives.

As I noted last month, the new normal chaos is every semiconductor company preserving its supply chain and sales in a variety of ad hoc fashions by skipping around ever-evolving US, Chinese and European technology sanctions, embargoes and tariffs. 'De-Sinicization' describes Chinese and Taiwanese companies expanding operations to more politically neutral countries like Singapore, while 'Geopolitically Dependable Capacity' describes TI's automotive customer supply requirements. 'Indigenization' includes government grants and loans incentivizing domestic semiconductor operations that includes multiple billions of dollars from the US, China, Japan, India, South Korea and Malaysia. The Chinese grow-your-own category is referred to as 'Huawei-ization' due to that company's political isolation from the US.

Memories Matter: Recall that my US-equity-based Tokeneke Universe does *not* include some three-quarters of industry memory business from Samsung, SK Hynix and Kioxia. While my Universe does include Micron and Western Digital, it will probably under-perform expected industry growth in 2024 due to under-representation of more robust expected memory growth at +77% thanks to AI. My Tokeneke Universe also does *not* include very large international players (aforementioned memory guys plus MediaTek, Infineon, Renesas, Rohm, Winbond, Macronix, Nanya, Novatek, Realtek) although it does include wafer foundries (TSMC, UMC, GlobalFoundries, Skywater Tech, Tower Semi) and IP companies (Rambus, Xperi, Ceva, InterDigital, Arm, Adeia) that count as costs associated with manufacturing rather than industry sales. I also normalize fiscal quarters to the best fitting two out of three months. Unreported acquisition stub periods and mergers exiting the sector can also make a difference.

While these differences are significant, most US-based investors experience the sector from the Tokeneke Universe perspective. The Philadelphia Semiconductor Index Option (SOX) is similarly under-represented in memories, although this is sometimes mitigated by the inclusion of equipment firms supplying to memory firms.

Solid June Growth: Worldwide chip industry revenues for June grew by a solid +1.7% sequentially on a three-month rolling average basis, according to statistics released by the Semiconductor Industry Association (SIA) earlier this week. While better than I expected, it is consistent with overall industry trends as noted above. June has averaged growth of +0.7% with a high of +5.3%, a low of -9.2%, and 16 declines in the last 38 years, including four of the last 12. The Americas led once again with growth of +6.3% followed by Japan at +1.8% and China at +0.8%. Europe lagged again with a decline of -1.0% although was 'worsted' by Asia-Pacific at -1.4%. See the Charts on Page 3 of this report.

Next month's release of July statistics should be above-average given both my 3Q Universe outlook as well as the AI/memory turbocharge. July has averaged growth of +1.3% with a high of +5.4%, a low of -6.3%, and eight declines in the last 38 years, including two of the last 12.

Very Strong 2Q: Semiconductor industry sequential quarter growth for 2Q came in very strong at +6.5% with the release of June numbers. This metric is consistent with AI/memory-boosted industry expectations for the year but also highlights the structural underperformance of my Tokeneke Universe. My Universe guidance for 2Q revenue at the conclusion of 1Q earnings season called for a weighted-average sequential growth of +3.4% ranging from +0.6% to +6.1% that has so far delivered +4.8%, although superstar NVDA hasn't announced yet. Actual statistics were led by the Americas with growth of +15.6% followed by China at +6.5%, Japan at +6.0% and Asia-Pacific at +0.5%, while Europe lagged with a decline of -3.4%. The 2Q is seasonally a recovery quarter with an average sequential revenue increase of +4.2%, a high of +20.0%, a low of -19.9%, and eight declines in the last 38 years—including only two of the last 12, according to industry statistics.

Above-Average 3Q Outlook: The 3Q outlook so far is above-average even without the AI/memory turbocharge. The specific weighted average guidance for 3Q revenue across my Tokeneke Universe as of this writing from the mostly complete 2Q earnings season calls for a sequential gain of +6.6% ranging from +3.4% to +9.8%, although recall NVDA boosted the numbers late in the season last quarter. The 3Q is seasonally the strongest quarter with an average sequential revenue increase of +5.9%, a high of +19.9%, a low of -11.7%, and only four declines in the last 38 years—including only one in the last 22, according to industry statistics.

Banking Deals: Last month AMD spent $665M for Silo AI in Europe to enhance its software offerings, Semtech refinanced a private exchange of its 4.0% converts due 2028, and Everspin is losing its CFO. Pending deals include Nokia's three-pronged offer for Infinera, Western Digital's plan to split its hard-drive and flash operations into separate companies 2H24, and Silicon Motion suing MaxLinear for backing out of its takeover.

Semiconductor Equities Decline and Underperform: Semiconductor sector share prices declined and underperformed lackluster broader equity markets last month, although continued to outperform on a year-to-date basis—except for my Universe that continues to underperform. During July the Philadelphia Semiconductor Index Option (SOX) fell by -4.4% while 28 out of 55 stocks in my Universe declined by an average of -2.3%. Year-to-date the SOX is significantly *out*performing broader equity markets with a gain of +25.3%, although only 28 out of 55 stocks in my Universe have advanced by an underperforming average of +4.9%. Broader equity markets have gained with the NASDAQ, S&P500 and DOW up by +17.2%, +15.8%, and +8.4%, respectively.

July

Winners *(27/55)*		Losers	
ON	14.2%	MXL	-29.8%
SITM	14.1%	ALAB	-27.5%
AOSL	10.8%	MBLY	-25.2%
VSH	9.0%	WOLF	-17.2%
DIOD	8.7%	MU	-16.5%
average stock -2.3%		*SOX -4.4%*	

YTD

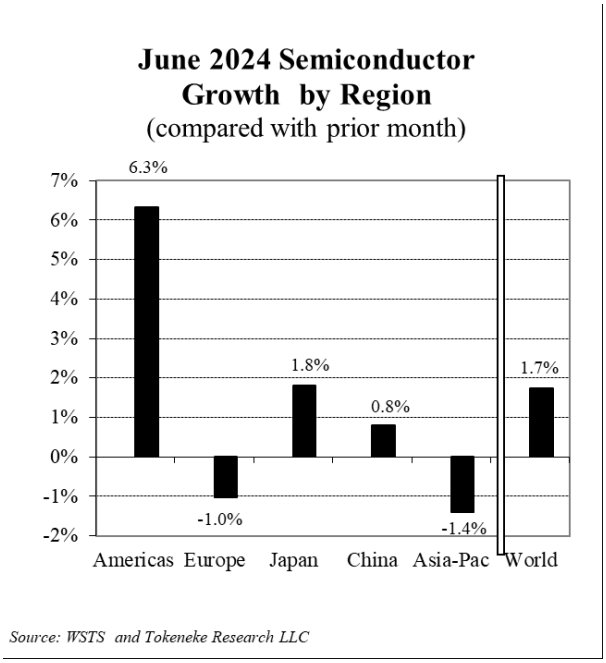
Winners *(28/55)*		Losers	
NVDA	136.3%	SQNS	-81.5%
ARM	91.9%	WOLF	-56.7%
PI	76.9%	MBLY	-51.5%
TSM	59.4%	MXL	-40.5%
AOSL	58.9%	INTC	-38.8%
average stock +4.9%		*SOX +25.3%*	

Indices

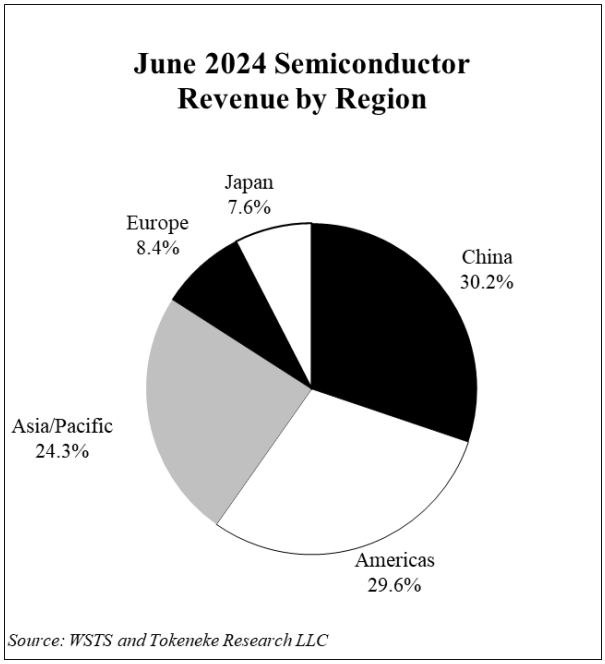
	Jul	*YTD*
SOX	-4.4%	25.3%
SMH	-5.3%	41.2%
NASDAQ	-0.8%	17.2%
S&P500	1.1%	15.8%
DOW	4.4%	8.4%

Chip Stocks Still Scary: While AI is a huge growth opportunity, the rest of the semiconductor industry's markets are experiencing malaise and/or transitions. In the meantime, the SOX index remains way over-extended versus the S&P500 (note the relative premium in the chart on Page 4), and most fundamental valuations across the sector are not attractive. I would remain extremely selective approaching potential chip sector opportunities at this time.

—Dan K. Scovel
Semiconductor Analyst



Source: WSTS and Tokeneke Research LLC



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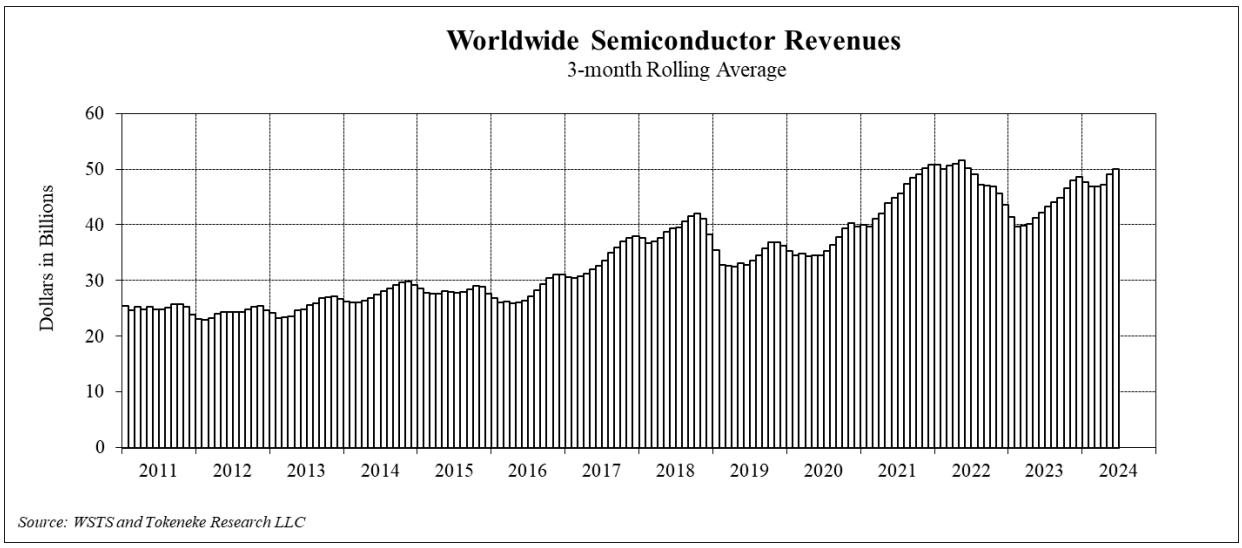

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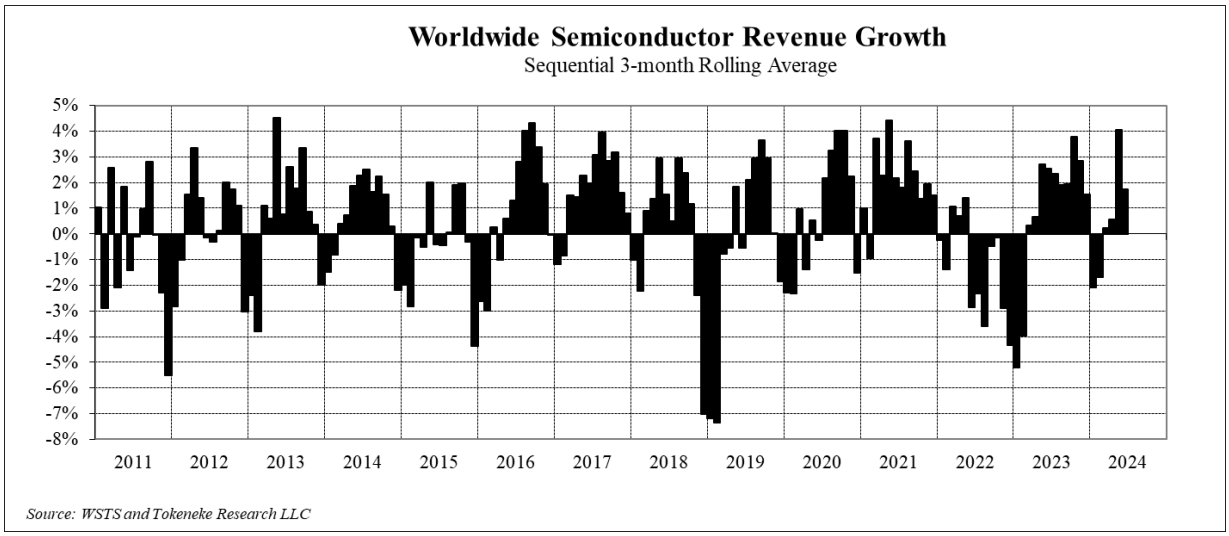
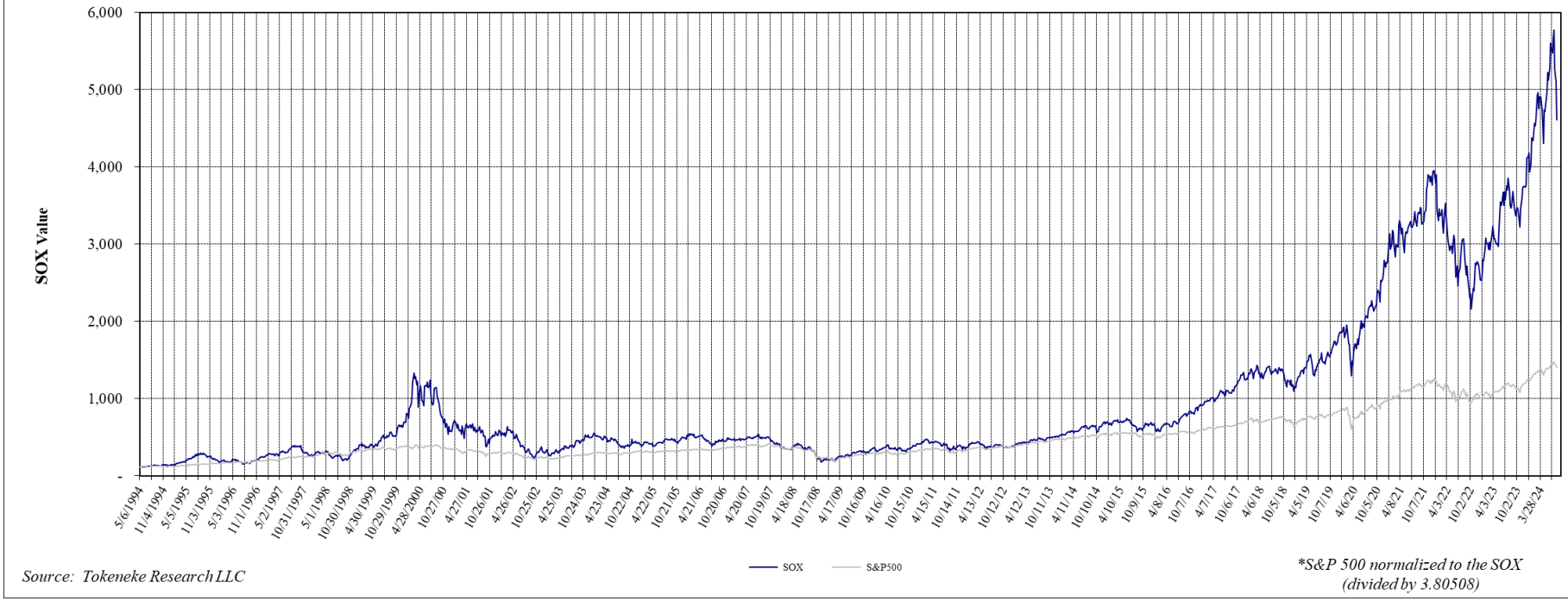


Source: WSTS and Tokeneke Research LLC

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



Source: Tokeneke Research LLC

**S&P 500 normalized to the SOX (divided by 3.80508)*

Tokeneke Research LLC

Semiconductor Industry Analysis and Insight

Company Overview

The Tokeneke Universe:

55 companies/tickers as of 6/12/24

Company	Ticker	Company	Ticker	Company	Ticker
Adeia	ADEA	Microchip Technology	MCHP	Rambus	RMBS
Analog Devices	ADI	Monolithic Power Systems (MPS)	MPWR	Silicon Motion	SIMO
Astera Labs	ALAB	Everspin Technologies	MRAM	SiTime	SITM
Ambarella	AMBA	Marvell	MRVL	SkyWater Technology	SKYT
Advanced Micro Devices (AMD)	AMD	M/A-COM Technology	MTSI	Silicon Laboratories	SLAB
Alpha Omega Semiconductor	AOSL	Micron Technology	MU	Semtech	SMTC
Arm Holdings	ARM	MagnaChip	MX	Sequans Communications	SQNS
Broadcom	AVGO	MaxLinear	MXL	STMicroelectronics	STM
CEVA	CEVA	Netlist	NLST	Skyworks Solutions	SWKS
Cirrus Logic	CRUS	NVIDIA	NVDA	Synaptics	SYNA
Diodes	DIOD	NXP Semiconductors	NXPI	Tower Semiconductor (TowerJazz)	TSEM
GlobalFoundries	GFS	ON Semiconductor	ON	Taiwan Semiconductor Mfg. Corp. (TSMC)	TSM
GSI Technology	GSIT	Impinj	PI	Texas Instruments (TI)	TXN
Himax Technologies	HIMX	Power Integrations	POWI	United Microelectronics Corp. (UMC)	UMC
InterDigital	IDCC	Pixelworks	PXLW	Vishay Intertechnology	VSH
Infinera	INFN	QUALCOMM	QCOM	Western Digital	WDC
Intel	INTC	Qorvo	QRVO	Wolfspeed	WOLF
Lattice Semiconductor	LSCC	QuickLogic	QUIK	Xperi	XPER
Mobileye Global	MBLY				

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.

My Background

I have an electrical engineering degree, nearly 12 years of semiconductor industry experience, and was on Wall Street for nearly eight years where I was selected as Best On The Street semiconductor analyst by The Wall Street Journal in 2002.

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 Fahnestock & Co. as a senior semiconductor analyst in 1996 and was recruited by Needham & Co. in April 2000.

My formal coverage as a sell-side analyst included the following: 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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