

SEMICONDUCTORS ARE OFF TO A HOT START IN 2023...AFTER A COLD 2022

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As we begin 2023 looking at technology-oriented investments, a “consumer slowdown” and related [macroeconomic](#) factors are front and center in investor considerations:

- Worldwide shipments in personal computers (PCs) totaled 286.2 million units in 2022, a 16% decline from 2021.¹
- Global Information Technology spending contracted 0.2% in 2022, dropping to a total figure of \$4.38 trillion. It is rare to see this figure, which represents spending in many different categories of things, contract. PCs, smartphones and other devices are seeing the biggest cuts. Devices spending dropped more than 10% in 2022.²
- Taiwan [Semiconductor](#) Manufacturing Co. (TSMC) has indicated that its revenue may drop as much as roughly 5% in the current quarter, and it expects lower capital expenditures when measured against the 2022 figures. TSMC is the world’s largest contract chip maker, and it has set its [capital expenditure](#) budget at \$32 billion to \$36 billion, which compares to \$36.3 billion in 2022.³

However, the fact that semiconductor companies behave in a [cyclical](#) fashion, sensitive to the ups and downs of supply and demand, is not new. There was a deluge of negative news and a downplaying of forward-looking expectations in the second half of 2022. During earnings calls, the CEOs of semiconductor companies put on a masterclass in seeking to lower forward-looking expectations.

Therefore, we could be in a position where, at the start of 2023, any news that does not represent the most [bearish](#) of possible outcomes is viewed positively.

Semiconductor Companies Have Rallied Strongly to Start 2023

When many investors think about “[growth](#)” or “tech,” they first think of the [Nasdaq 100 Index](#). This Index functions as a baseline, where the top holdings are some of the world’s largest companies driving what we think of as “information technology” forward.

In figure 1a, we created a ratio chart where, as the line moves from the left to the right of the page:⁴

- An upward or positive slope represents the outperformance of semiconductor companies relative to the Nasdaq 100 Index.
- A downward or negative slope represents the underperformance of semiconductor companies relative to the Nasdaq 100 Index.

When we see the overall trend going back to 2015, we know that semiconductor companies have generally performed strongly—since the line is higher at the right of the chart than the left, we know that Semiconductors outperformed the Nasdaq 100 Index. However, the line is not stable or smooth, and it is characterized by sweeping upward and downward trends. We show those figures specifically in figure 1b.

- This full period was strong from “tech stocks.” The Nasdaq 100 Index was up 15.0% annualized, whereas Semiconductors was up 18.8% annualized.
- Our “recent memory” is coloring our perception, so what we likely closely remember is how it felt to watch Semiconductors drop -34.6%, but at the same time, the Nasdaq 100 Index dropped -32.6%. 2022, as we all well know, was a rough year for the returns of technology-oriented stocks.
- We would say that the 2022 experience was largely a result of what had come directly before—a massive expansion in near-term demand as many people shifted their working practices and purchased different types of

hardware to allow them to work from anywhere. From June 17, 2019, to December 31, 2021, Semiconductors returned 55.0%, annualized, while the broader Nasdaq 100 Index returned 36.4%.

- We find it interesting that even with all the same headwinds, like higher interest rates, a higher [cost of capital](#) and a lowered expectation of global economic growth, semiconductor stocks have risen 20.8% in early 2023, through 1 February 2023, compared to the Nasdaq 100 Index rising 13.0%. Roughly 1-month is not a significant length of time, but it's notable that this period immediately precedes most of the companies reporting their earnings results from the period ending December 31, 2022. Maybe there is an implicit assumption in these returns that the results could be "less bad" than what the CEOs of the semiconductor companies had guided toward in prior quarters. So far, it has been resilient to Intel's rather challenging results.

Figure 1a: Ratio of Cumulative Performance—Semiconductors vs. Nasdaq 100 Index (January 2, 2015, to February 1, 2023)



Figure 1b: Table of Returns over Selected Periods within Figure 1a.

Annualized Returns	Full Period	1/2/15 to 11/7/17	11/7/17 to 6/17/19	6/17/19 to 12/31/21	2022 (Full Year)	Early 2023*
MSCI ACWI Semiconductors & Semiconductor equipment net TR	18.8%	22.7%	-4.3%	55.0%	-34.6%	20.8%
Nasdaq 100 net TR	15.0%	16.1%	12.3%	36.4%	-32.6%	13.0%
Outperformance	3.8%	6.6%	-16.6%	18.6%	-2.0%	7.8%

* Not Annualized

Source: Bloomberg. Past performance is not indicative of future results. You cannot invest directly in an index.

Conclusion: The Two Forces of 2023 That Determine the Semiconductor Return Experience

No one knows how the performance of semiconductor companies will evolve over 2023, but we are watching two critical areas of the space.

1. Even if 2022 was poor from a direct share price performance perspective, there was an enormous array of announcements of planned new plants to be built in different states in the U.S. There was also the passage of the "Chips Act." Even if it will take years before these plants will be making physical chips that can be sold, the signal that these companies are adjusting their supply chains to be less geographically reliant on Taiwan is an important one.
2. As we stated, the general CEO of a semiconductor company was focused on lowering guidance for the upcoming quarterly earnings results. When this happens, the future reports become less about the number on the page and more about whether the number on the page is "less bad" than the guidance. If there is a perception that things are "less bad," it's possible that share prices can rally even if the results in isolation do not look great.

As we write these words, we recognize that the earnings season is ongoing and new results are coming out all the time. If

one story has dominated so far, it has been Intel's rather negative picture. CEO Pat Gelsinger has noted that he, along with other managers, will be taking pay cuts to help in containing costs⁵. Even if the slowdown in PC sales has been well-documented, as has the slowdown in smartphone demand, we did find one bit of news interesting—the fact that AMD is picking up market share in data centers relative to Intel⁶. This is still early, in that Intel's lead is rather large, but it is one trend we are intently watching.

If Semiconductors can continue to outperform the Nasdaq 100 Index through the upcoming earnings season, this would lend strength to the concept that they may be able to hold onto this for the year, as opposed to us remembering that quick three-week period of strong performance before the market gave it all back.

At WisdomTree, we write a lot about semiconductors, largely because the global economy, as we have come to know it, cannot function without them. Investors seeking specific exposure to semiconductors designed to power artificial intelligence applications may see these companies within the broader [WisdomTree Artificial Intelligence and Innovation Fund \(WTAI\)](#). Where sometimes artificial intelligence is viewed as software, we felt it important to recognize that semiconductors provide a crucial foundation for these applications and calculations.

¹ Source: Denny Jacob, "PC Shipments Drop Sharply in a Slump Expected to Last Until 2024," *Wall Street Journal*, 1/11/23.

² Source: Angus Loten, "Global IT Spending Decreased in 2022," *Wall Street Journal*, 1/18/23.

³ Source: Yang Jie, "TSMC Warns of Possible Revenue Drop, Spending Cut," *Wall Street Journal*, 1/12/23.

⁴ When referencing figures 1a and 1b, "Semiconductors" is defined as the universe of companies within the MSCI ACWI Semiconductor and Semiconductor Equipment Index. A positive slope therefore indicates a trend of outperformance of the MSCI ACWI Semiconductor and Semiconductor Index against the Nasdaq 100 Index, and a negative slope represents the opposite.

⁵ Source: Wall, Robert. "Intel CEO Takes Pay Cut as Chip Maker Targets Cost Reductions." *Wall Street Journal*. 2/1/23.

⁶ Source: Clark, Adam. "AMD Stock is Climbing. Its Success is Buoyed by Intel's Weakness." *Barron's*. 2/1/23.

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DEFINITIONS

Macro : Focused on issues impacting the overall economic landscape as opposed to those only impacting individual companies.

Semiconductor : A semiconductor is a material product usually comprised of silicon, which conducts electricity more than an insulator, such as glass, but less than a pure conductor, such as copper or aluminum. Their conductivity and other properties can be altered with the introduction of impurities, called doping, to meet the specific needs of the electronic component in which it resides.

Capital expenditures : Spending by a company typically made to enhance longer-term productive capacity.

Cyclical sectors : Consumer Discretionary, Energy, Industrials, Materials, Financials and Information Technology sectors.

Bear market : A sustained downturn in market prices, increasing the chances of negative portfolio returns.

Growth : Characterized by higher price levels relative to fundamentals, such as dividends or earnings. Price levels are higher because investors are willing to pay more due to their expectations of future improvements in these fundamentals.

Nasdaq 100 Index : Includes 100 of the largest domestic and international non-financial companies listed on The Nasdaq Stock Market based on market capitalization. The Index reflects companies across major industry groups including computer hardware and software, telecommunications, retail/wholesale trade and biotechnology. It does not contain securities of financial companies, including investment companies.

Weighted average cost of capital (WACC) : The average rate that a business pays to finance its assets. It is calculated by averaging the rate of all of the company's sources of capital (both debt and equity), weighted by the proportion of each component.