# Turning tactically positive on global semis

## Information technology

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- Global semiconductor stocks have declined by double digits from their recent peak due to profit-taking and rising geopolitical tensions.
- However, we think the industry's fundamentals are set to rebound strongly and forecast more than 25% revenue growth and over 50% profit growth in 2024. With this outlook as well as an attractive valuation of 18.5x forward P/E, we see tactical opportunities emerging for global semiconductor stocks. A strong and rising contribution from AI and stabilizing PC and smartphone sales should act as additional catalysts.
- Hence, we are launching a short-term, tactical theme on global semiconductors (MSCI AC World Semiconductors & Semiconductor Equipment Index), as we expect the industry to outperform the broader growth benchmark index (MSCI AC World Growth) by mid-single digits over the next 3–6 months. Please refer to our selection lists for more semiconductor stock-specific views.

Source: Dreamstime

## Our view

With a market cap of more than USD 4 trillion and very well-integrated supply chains, the global semiconductor industry is one of the most important pillars of the tech sector. The industry is highly cyclical, with semiconductor stocks usually exhibiting above-average volatility. This means the industry often provides good tactical opportunities for growth-based investors. Indeed, we believe global semiconductor stocks (represented by the MSCI AC World Semiconductors & Semiconductor Equipment Index) are now poised to rebound and outperform broader growth benchmarks (MSCI AC World Growth Index) in the short term as their stronger near-term recovery becomes more apparent.

While we believe we are currently in the mid-cycle stage for global tech, which usually favors software and internet, the tactical opportunity in semis cannot be ignored given their share prices have fallen by double digits from the recent peak due to profit-taking and geopolitical escalations. We believe these concerns are overdone. The near-term impact from recent export controls should be manageable. Concerns about excess valuations should be largely behind us, as the global semiconductor industry is now attractively valued at 18.5x forward P/E. And more importantly, supported by strong AI demand and stabilizing PC and smartphone sales, we expect global semiconductor fundamentals to rebound strongly in 2024, with revenues growing by above 25% and profits jumping by more than 50%, based on our calculations.

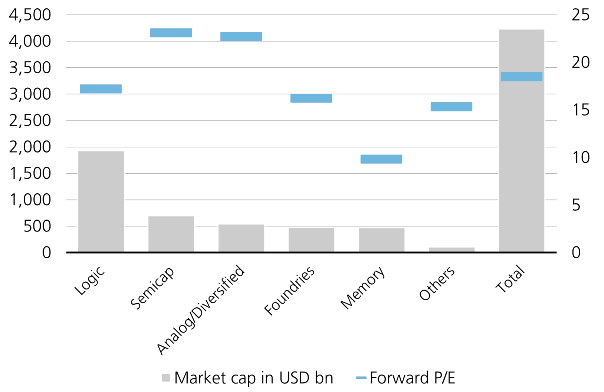
With tactical opportunities emerging, we are launching a short-term theme on global semis, as we expect the industry to outperform the broader growth benchmark index (MSCI AC World Growth) by mid-single digits over the next 3–6 months. However, our tactically positive view on semis doesn't change our relative preference for mid-cyclical industries like software and internet, both of which should exhibit more resilient performance over 6–12 months as they benefit from broadening AI demand. Meanwhile, we continue to stay cautious on the other two global tech industries—i.e., hardware and IT services companies—due to lack of strong pricing power and relatively limited exposure to AI.

## Introduction

The global semiconductor industry is a highly cyclical industry but thanks to its strong pricing power, it includes many highly valuable companies and has a combined market exceeding USD 4 trillion. As Fig. 1 shows, there are six major segments in the industry Based on the descending order of their market cap, they are: a) Logic semis with notable companies like Nvidia and Broadcom that design/manufacture chips that process digital data; b) semiconductor capital (semicap) equipment companies like ASML and Applied Materials that supply equipment to manufacture chips; c) analog/diversified companies like Texas Instruments, Infineon, and Realtek that manufacture analog (non-digital chips) and also peripheral chips; d) foundries like Taiwan Semiconductor Manufacturing (TSMC) and Global Foundries that provide contract chip manufacturing services; e) memory companies like Samsung Electronics and Micron that provide DRAM and NAND flash memory and storage chips; and f) others like back-end packaging testing and assembly or wafer suppliers. At the moment, commodity segments like memory are the cheapest based on forward P/E, whereas semicap equipment is the most expensive within semis. But the good news is that all the segments shown in Fig. 1 are still trading below the broader tech average forward P/E multiple of 23–24x.

Fig. 1: The six broad segments within global semis and their relative valuations

Market cap (USD bn, lhs) and forward P/E (rhs)




Source: Factset, Bloomberg, UBS, as of October 2023

## Investment case

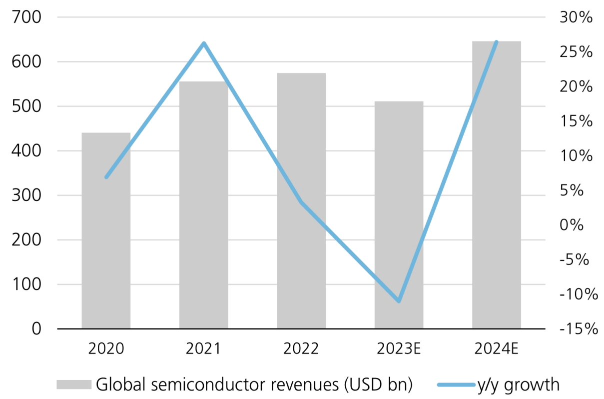
Our tactically positive view on global semiconductors is based on three key drivers:

**a) Strong revenue growth of more than 25% likely in 2024, supported by solid AI demand**

Due to aggressive destocking and muted end-demand, we expect global semiconductor companies' revenue growth to be only in the low teens in 2023. The good news, however, is that we see a strong recovery in 2024, as we expect revenues to grow by more than 25%, reaching an all-time high annual revenue of close to USD 645bn (Fig. 2).

Fig. 2: We expect strong cyclical recovery for global semiconductor revenues in 2024

Global semiconductor revenues (USD bn, lhs) and y/y growth (%, rhs)

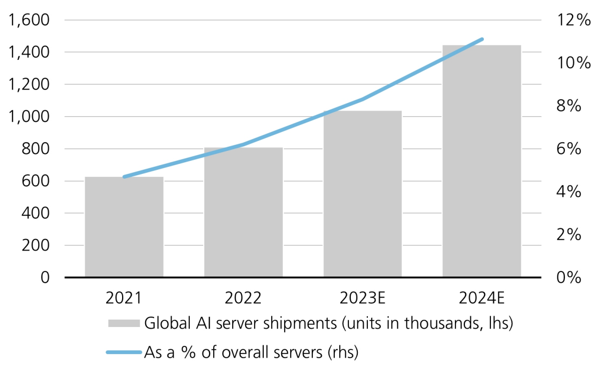



Source: Company reports, Bloomberg Intelligence, UBS, as of October 2023

Recent guidance from foundry industry leader TSMC gives us comfort following many positive comments about end-demand. First, we believe AI should continue to be a key growth driver for semis given solid investments to train and infer AI models that incur very high spending on chips. Fig. 3 shows our estimates for AI server shipments as a percentage of overall server shipments in 2024. We expect AI unit penetration to reach low teens and coupled with the fact that AI servers are much more expensive (almost 6–8x) compared to traditional servers, we see the semiconductor industry benefiting disproportionately. The strong AI demand for semis is driven not only by graphics processing units (GPUs) but also by other accelerators, memory, and edge computing chips. Second, we see stabilizing demand trends in PCs and smartphones as additional positives. Third, the memory industry, which contributes roughly 20% to overall semiconductor industry revenues, should be a key growth driver with industry revenues growing by almost 72% in 2024 after declining 38% in 2023 based on our estimates.

Fig. 3: AI servers that enjoy strong pricing vs. traditional servers likely key driver of strong semi demand in 2024

AI server shipments



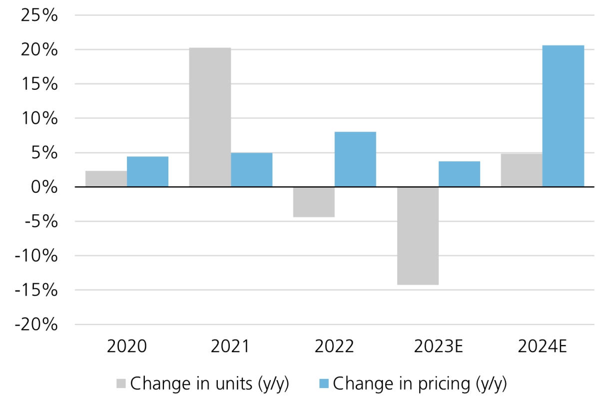

Source: Company reports, Bloomberg Intelligence, UBS estimates, as of October 2023

**b) Solid pricing improvement driving margin expansion and >50% profit growth**

Thanks to an improving mix, overall semiconductor pricing has steadily climbed by mid-single digits on average annually over the past few years. Even in 2023, a year when memory prices are down 40%, the overall industry pricing should grow thanks to a changing mix fueled by the AI boom. Looking ahead to 2024, we expect semiconductor destocking to come to an end, but unit shipments will likely rise by only 4.8% (see Fig. 4) given the mixed macroeconomic outlook. However, driven by rising content, pricing should continue its strong uptrend, with memory industry prices rebounding by over 50% from 2Q23 lows and the mix continuing to improve. Strong supply discipline and favorable demand are the key drivers behind the strong rebound in memory prices. As a result, overall semiconductor industry pricing should rise by more than 20%, with higher-priced GPUs used for AI an additional driver.

Fig. 4: Pricing improvements led by memory and other logic semis should be the key driver behind semi recovery

Change in units (%) and pricing (%)

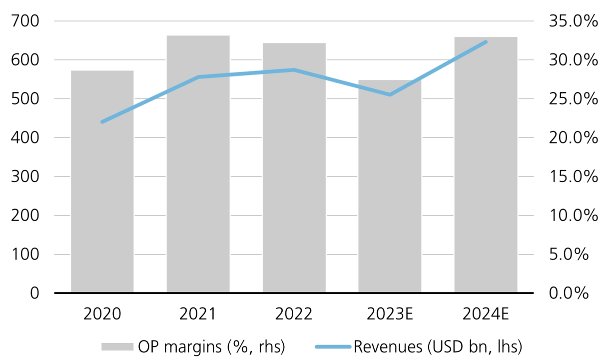



Source: Company reports, Bloomberg Intelligence, UBS, as of October 2023

Hence, supported by strong pricing and operating leverage, we expect global semiconductor operating margins to rebound from 27.5% in 2023 to close to 33%, touching the last peak seen in 2021 during a global chip shortage. Against this backdrop, we expect global semiconductor operating profits to rebound by over 50% in 2024 after an expected decline of 24% in 2023, making semiconductors the fastest-growing industry within global tech next year.

Fig. 5: We expect semiconductor profits to rebound strongly as margins approach previous peaks

Operating margins (%, rhs) and revenues (USD bn, lhs)




Source: Company reports, Bloomberg Intelligence, UBS, as of October 2023

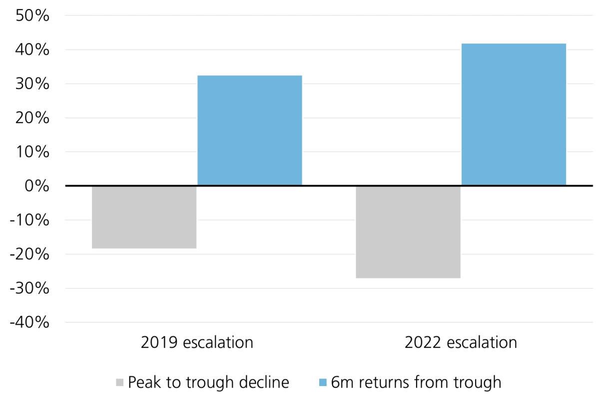
### c) Favorable valuations as recent correction is overdone

Global semiconductor share prices have fallen by double digits from their recent peak due to profit-taking and the recent escalation in geopolitical tensions. Recently, the US government introduced additional export controls targeting advanced computing or AI chips and semiconductor exports to China, which we see as a further escalation of geopolitical tensions between the two superpowers. Semiconductor stocks, including AI infrastructure companies led by Nvidia, were among the most affected. While the export controls introduced in October 2022 targeted Nvidia's advanced chips like A100 or H100, the latest restrictions apply to less advanced chips like A800, H800, and L40S. We also expect other companies like Intel, AMD, and some semiconductor equipment companies to be affected (albeit modestly), as the focus of the latest export controls is to close any loopholes and target the total processing power of the chips. The new rules also require companies to notify the US government before selling chips that fall below the controlled thresholds.

While semiconductor shares fell on the escalation news, it is imperative to separate noise from facts. First, regarding the actual fundamental implications of the latest export controls, we see a manageable near-term impact given supply is very tight and the overall semiconductor industry is benefiting from strong pricing tailwinds. We remain comfortable with our 2024 global semiconductor industry revenue growth forecast of above 25% and profit growth of more than 50%. In the medium term (i.e., in 2025 and a few years after that), assuming China is barred from purchasing any advanced AI chips and equipment, we see only a low- to mid-single digit revenue impact for the sector (under various scenarios), so investors should not be overly worried. However, considering semiconductor stocks are down more than 10% from the recent peak, we believe any excess correction due to geopolitical risks should be used as a tactical buying opportunity in good quality companies. Fig. 6 shows how markets significantly overreacted initially during the major escalations in 2019 (Huawei-related) and 2022 (when AI chips and equipment were targeted). Following those troughs, global semiconductor stocks rebounded strongly over the next six months.

Fig. 6: Geopolitical tensions often present a good entry point

Performance data for Philadelphia Semiconductor Index (SOX)

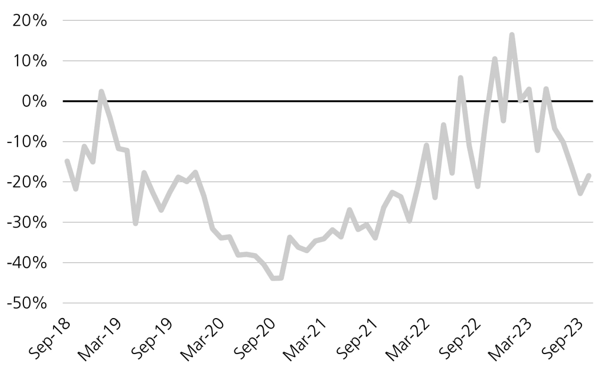



Source: Bloomberg, Factset, UBS, as of October 2023

Following the recent correction, we think the valuations of semiconductor share prices have become attractive once again. At the moment, global semiconductors are trading at a premium of about 10% versus their 5-year average, but in our view, this premium is justified given the significant evolution of semiconductors over the past five years with exposure to many mega-trends and strong pricing power. More importantly, semiconductors are trading at an 18.5x forward P/E, which is a big discount to global tech (23–24x P/E and expected earnings growth of 16% in 2024) considering our forecast for 50% profit growth. Hence, we believe the recent correction in global semiconductors is overdone, and we see tactical opportunities in the industry on a 3–6-month basis. Please refer to our selection lists for more semiconductor stock-specific views. Investors can also take advantage of elevated volatility in semiconductor stocks through structured strategies.

Fig. 7: Global semis are trading at 20% discount to their broader IT peers, in line with 5-year average

Semis vs global IT forward P/E (discount/premium)




Source: Bloomberg, Factset, UBS, as of October 2023

Key risks to our views include a further escalation in geopolitics related to semiconductors, a sharp decline in AI demand or further downward pressure on PC and smartphone demand, which could negatively affect our unit pricing and margin assumptions, and a broader risk-off investment climate affecting high cyclical industries like semis. However, the large discount of semiconductors versus broader tech should limit the downside if these risks materialize. Overall, in our base case, we think the risk-reward on a tactical basis is compelling.

# Appendix

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