

## US is poised to support semiconductor supply chain in big ways

If you work in the electronics sector, or in telecom network infrastructure, then you already understand the strategic importance of semiconductors. They are the building blocks of networks, and crucial for providing differentiation and improvements in price/performance over time. Over the last several months, an apparent shortage of semiconductors has put the sector more on the radar screen of the general public.

### Taiwan's role in the value chain

Amid this change, one issue that has come to the forefront is just how dependent on Taiwan, and specifically TSMC, the global semiconductor industry has become. That is also not new, but TSMC has grown its power in recent years. For [chip production](#), i.e. the foundry business (excluding Intel), TSMC has well over half the global market, and significantly more than half when it comes to advanced processes (e.g. 7nm nodes). Korea-based Samsung is the only large rival to TSMC, but much smaller (around one-third the size of TSMC). Another Taiwanese company, UMC, is an important player, as is US-based GlobalFoundries, a spinoff of AMD. Both are quite a bit smaller than Samsung. All of these companies do their production in either the US or countries friendly to the US.

Meanwhile, China has been [investing heavily](#) in its own chip sector, aiming to turn SMIC into a rival to TSMC<sup>1</sup>, among other goals. In network infrastructure, SMIC is years behind the curve, but the company can already target effectively many markets such as [automobiles](#). Clearly the semiconductor sector is an important element of the growing technology rivalry between the US and China. The strategic value of TSMC's skillset is so high that its location raises significantly the value of a Chinese takeover of Taiwan. The near certainty that most of the world would refuse to continue working with a PRC-controlled TSMC offsets this value, fortunately. Moreover, a war in the South China Sea between the US and China would have catastrophic effects; we are not yet at the point where this is likely in the near term, i.e. between now and the next US election in November 2022. There are many plausible scenarios that could trigger such a conflict, though, and it needs to be considered if you do business in Asia. You can also bet that the PRC government will accelerate its efforts in 2021-22 to sponsor or indirectly support hacking, subterfuge, and sabotage efforts aimed at the Taiwan chip sector.

### Intel's challenges raise the stakes

As chips have become recognized as more of a strategic asset, the stock prices of several key chip players have also shot up, as shown in Figure 3 below. The largest independent fab (chip manufacturer) TSMC, as well as two key US-based chip designers NVIDIA and AMD, have most outperformed the market.

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<sup>1</sup> In the latest example, in December 2020 SMIC [hired](#) TSMC's former co-chief operating officer, Chiang Shang-Yi, to serve as SMIC's new executive director and vice chairman. Over the years, SMIC has hired quite a lot of talent away from TSMC. SMIC also has lifted some technology: TSMC won a [lawsuit](#) against SMIC in 2010 involving theft of trade secrets.