TSMC pledges $100bn in US investment as governments push for semiconductor influence

The Trump administration's announcement that TSMC will invest US$100bn in US semiconductor manufacturing without subsidies is a policy win. We expect governments across the globe to work to attract semiconductor manufacturing capabilities to reduce geopolitical risks. The implementation of trade tariffs would weaken our outlook for the industry

TSMC's CEO C. C. Wei speaks alongside US President Donald Trump following the announcement of its $100 billion investment. TSMC is the world's leading manufacturer of high-end semiconductor chips

TSMC's announcement of US investment is a policy win

We're expecting solid growth for the semiconductor industry in 2025 as governments across the world work to shift semiconductor manufacturing capacity closer to home. Taiwan Semiconductor Manufacturing Company's announcement to expand its US-based manufacturing capacity could be seen as a successful attempt by the Trump administration to achieve this. Nevertheless, the inefficiencies created by potential barriers to trade, such as tariffs, will likely increase the cost for local manufacturers in the US who buy semiconductors as a semi-finished good, since the US has no specialised manufacturing capacity for all products. Moreover, ASML estimates that

geopolitically-driven inefficiencies will add 5-8% extra demand on top of its normal equipment demand.

A trade war could disrupt our outlook and reduce the scope for revenue growth across the industry. Both NXP and Infineon discussed this risk with their recent earnings releases. These companies are particularly exposed to global trade given their sales to the automotive industry. Also, China already announced curbs on the export of materials used for semiconductor manufacturing, although the restrictions have been mild, so far. Nevertheless, the threat of an American import tariff for semiconductors could provide a strong incentive for local US production, while restrictions on the sales of semiconductor manufacturing equipment to China will restrain its ability to produce advanced semiconductors.

Policymakers help shape the industry in 2025

We still deem the outlook for the semiconductor sector to be relatively solid. However, trade tariffs could weaken this outlook.

Trump administration works to remove Chips Act subsidies

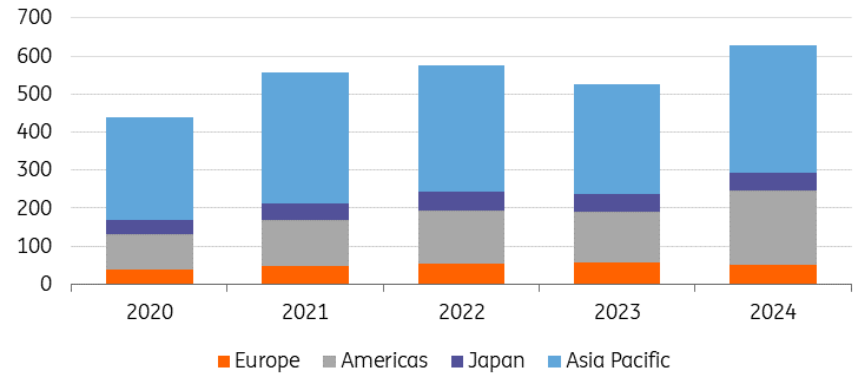
On Tuesday, US President Donald Trump announced his disapproval of the Chips Act and his intent to remove it. We agree that the global semiconductor manufacturing sector probably works optimally without subsidies – but also without tariffs. Nevertheless, we think the risk of import tariffs has contributed to TSMC's recent decision to invest US$100bn in chip fabrication plants in Arizona. This announcement, which follows a $65bn commitment by TSMC under the Biden administration, is a success for Trump and comes at a time when the Americas are already growing their share of semiconductor manufacturing, as can be seen in the graph below.

Our view is that semiconductor manufacturing in the Asia-Pacific region benefits from comparative advantages, such as scale, more favourable labour costs and an ecosystem that includes most stages of the supply chain. Subsidies are a way to help close a technological gap and contribute to the local production of important semi-finished goods, such as semiconductors. Geopolitical risks could therefore validate subsidies that aim to bring semiconductor manufacturing capabilities closer to customers.

The challenge with tariffs is that higher import costs for semiconductors will likely increase the cost of products and ultimately have an upward effect on consumer prices. This risk is reduced when there is sufficient local production capacity. The threat of tariffs could therefore be used as an instrument to incentivise foundries to start local production.

One-off subsidies could also have been an effective way to improve the US ecosystem and competitiveness. Many announced investments in American foundry capacity were dependent on Chips Act subsidies, and it's now uncertain whether all plans will be executed as the government looks to modify the terms of the subsidies. Moreover, we think the way policy measures are implemented in the US contributes to economic uncertainty, while tariffs aren't likely to be in the best interest of consumers.

More semiconductors being manufactured in the Americas (US$bn)



Source: WSTS

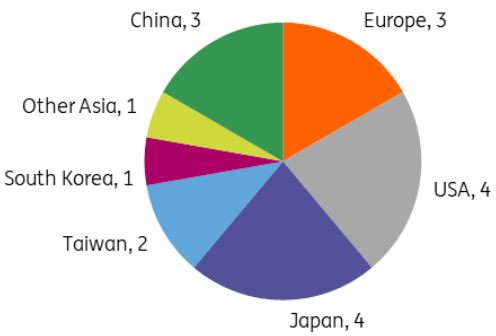
Competition regulators will have their say

Given the political landscape and a tough regulatory environment, the scope for consolidation is challenging. This was illustrated by previous efforts from Intel to acquire Tower Company, which China did not want to happen. The acquisition of ARM by Nvidia was also blocked on competition grounds – a relevant topic in light of discussions about Intel. Now that its foundry business has been set apart, we're seeing media reports frequently speculating about a potential carve-out. Nevertheless, for Intel, the key driver remains the successful implementation of advanced production technologies.

Subsidies remain an important driver outside the US

Meanwhile, TSMC makes substantial investments in 2nm technology and expects that this better technology will drive demand for new products. Because China cannot produce this technology due to sanctions and capabilities, it wants to grow in the mature technology market segments, driven by the objective of strategic autonomy. Across the globe, many expansion plans have made use of available subsidies. With subsidies in place under the Biden administration, expansion plans have been announced in the US, but also in Europe. Another example is Malaysia, where efforts are being undertaken to promote the local production of semiconductors through cooperation with ARM. According to SEMI, new capacity was added in most regions, with 18 new fabrication plants under construction in 2025.

Construction of many new semiconductor fabs has been announced for 2025



Source: SEMI World Fab Forecast 4Q24 update

Why the importance of China as a semiconductor manufacturer is growing

In 2024, ASML sold a lot of semiconductor manufacturing equipment to China in an effort to ramp up its domestic semiconductor manufacturing capabilities. This was part of a longer-term plan to be less dependent on semiconductor imports, for which the government also took the initiative to set up a fund to foster semiconductor innovation and production. As the Chinese market is an important global market for smartphones but also for electric vehicles, Western companies ideally maintain solid market shares there as well. This is why some Western semiconductor companies are looking to increase their Chinese production facilities. Nvidia also wants to continue operating in China to remain relevant in that market, according to the WSJ.

Current production in China is centred around mature technologies used in local production. However, many analysts were surprised by the quality of the Huawei Mate 60s series smartphone, launched in 2024, because it incorporated advanced semiconductor manufacturing technology as it was based on 7nm technology. In 2025, it will likely launch its new Mate 70s series smartphone, and we'll see what further progress Chinese companies have made on the production front.

Recently, the Financial Times reported that Huawei has reached a 40% production yield for its advanced Ascend 910C server processor based on 7nm technology. This implies that SMIC is improving its production yields, although companies like TSMC reach 80% or even 90% yields. A low yield implies that costs are high because there is a lot of waste. Besides the remaining yield challenge, it will also be nearly impossible to build more advanced semiconductors without EUV lithography machines. There are export control regulations in place for these machines.

Europe faces tough competition

Given the dominance of the nations leading in semiconductor manufacturing, Europe's ambition to secure 20% of global production capacity faces significant challenges. We think it'll be a challenge for Europe to increase its share beyond the current 8% by 2030. However, without the EU Chips Act, this share could decrease significantly. Therefore, to maintain Europe's competitiveness by securing steady access to advanced microchips for industries like automotive and telecommunications, Europe needs to continue its work to become a more attractive production

location for semiconductors. While full independence from other regions is unattainable due to the semiconductor market's reliance on efficient global supply chains, we still argue that Europe must strive to attract cutting-edge manufacturing capabilities. Yet, without support from TSMC or the now-delayed assistance from Intel, achieving this goal will be nearly impossible.

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