

Guest Column

Inside the Semiconductor Race: China's Ambition vs. Taiwan's Strategy

By Jassie Hsi Cheng

China's push for semiconductor self-reliance and Taiwan's quest to retain its chipmaking edge are opening new doors for Southeast Asia. To sustain momentum, the region must strengthen collaboration and ensure that geopolitical tensions do not spill over and disrupt growth.

Two recent policy developments in East Asia have captured the attention of semiconductor industry observers. In May 2024, China committed **CNY 344 billion** (USD 47.5 billion) to the third phase of its Big Fund, a state-backed semiconductor investment initiative designed to boost chip industry growth and counter US export controls. Around the same time, across the Taiwan Strait, Taiwan's Ministry of Economic Affairs was actively accepting applications for tax incentives from companies. These incentives are grounded in amendments to Article 10-2 of the *Statute for Industrial Innovation*, also known as the *Taiwan Chips Act*, which was passed by the island's Legislative Yuan on 7 January 2023. The act encourages eligible industry participants to invest in advanced manufacturing processes within Taiwan.

These developments highlight the distinct strategies of Taiwan and China in the high-stakes semiconductor sector. China's



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substantial investments reflect a clear ambition to bolster its technological capabilities and reduce reliance on external sources. Meanwhile, Taiwan's focus on fostering advanced chip manufacturing signals its desire to maintain its leadership role in semiconductor innovation. For Southeast Asian countries seeking to strengthen their roles in the global supply chain, understanding how these initiatives fit into the broader strategies of China and Taiwan in the global chip race is crucial.

China's ambition in the semiconductor industry stems from its deep concern over its reliance on foreign firms for critical stages of chip production. In 2014, China launched the "National Integrated Circuit Industry Investment Fund," also known as the Big Fund, to lay the foundation for a self-sufficient semiconductor sector. A year later, the government unveiled the "Made in China 2025" initiative, a bold ten-year plan aimed at transforming China into a global leader in

advanced manufacturing, with semiconductors at its core. The goal is to achieve a **70 percent self-sufficiency** rate in chips by 2025.

The three phases of the Big Fund highlight China's shifting priorities in the sector. The first phase, established in 2014, focused on foundational investments in manufacturing and infrastructure. With **CNY 138.7 billion** in capital, investments were directed towards building the country's manufacturing capacities by funding foundries, design firms, packaging and testing companies, and supporting Chinese chip makers such as Semiconductor Manufacturing International Corporation (SMIC). The second phase, launched in 2019 with **CNY 204 billion**, targeted more specialised segments of the supply chain, such as etching machines and testing equipment.

Now, in 2024, China is stepping into the third phase with a 148 percent increase in investment over the first phase and 68.6 percent more than the second. With nineteen founders on board, including the Ministry of Finance and China Development Bank Capital, this ambitious plan aims to tackle the entire integrated circuit industry chain. It addresses critical **bottlenecks** such as the development of large semiconductor manufacturing plants and high-bandwidth memory (HBM), while prioritising advanced chip technologies for artificial intelligence—an area in which China has struggled to break its import reliance.

The Big Fund has undeniably given a

monumental boost to China's key players in the tech sector, with companies like SMIC reaping the benefits through expanded operations, innovative R&D, and talent acquisition. Yet, this seemingly unstoppable rise is not without its hurdles. The fund's lofty ambitions have rung alarm bells in the Western world, triggering tighter export controls from the US on technology, talent, and capital. Internally, the story is equally complex. Since 2021, a series of **corruption probes** involving fund executives have cast a long shadow over the Big Fund's grand investments. These scandals highlight an urgent need for tighter management and more judicious investment strategies.

Despite the support from the Big Fund and several other initiatives, China's ambition to achieve 70 percent self-sufficiency in semiconductors by next year remains uncertain. While there have been advances in designing logic chips for mobile devices and AI, and some improvements in **mature-node production capacity** (process nodes larger than 28 nm), progress has been uneven. The country still lags in semiconductor manufacturing equipment and is about **five years behind** global leaders in producing the most advanced chips. It remains to be seen whether the massive new investments in advanced chip technology will ultimately yield results.

On the other side of the Taiwan Strait, Taiwan's unique geopolitical position between the US and China, along with its vital role in semiconductor production—especially in advanced chips—makes its semiconductor

policies essential to monitor closely. As home to industry giants like Taiwan Semiconductor Manufacturing Company (TSMC) and United Microelectronics Corporation (UMC), Taiwan produced **63.8 percent** of the world's semiconductors in 2022 and controlled over 70 percent of the market for chips smaller than 7 nm. Its 2 nm process technology is the most advanced available globally. The government is now focused on securing Taiwan's leadership and ensuring that high-end manufacturing remains rooted on the island.

However, challenges loom. Post-COVID, many nations have realised the risks of over-reliance on Taiwan and are now fortifying their own economic security. The US, EU, South Korea, and Japan have all rolled out chip legislation or strategies aimed at building domestic capabilities, a shift that's already being felt in Taiwan. With TSMC receiving invitations to establish overseas facilities, there's a growing concern that Taiwan's once-unquestioned irreplaceability may be eroding. Talent competition is another pressing issue, with countries offering lucrative packages to attract engineers and intensifying the global race for skilled professionals. Following the US's chip restrictions on China, there has been a notable uptick in efforts to infiltrate Taiwan's tech sector. For instance, reports surfaced in September of Chinese companies covertly setting up operations in Taiwan to poach tech talent with generous offers and "**steal trade secrets.**" Lastly, Taiwan's unique political relationship with China adds a layer of uncertainty. This geopolitical complexity is making foreign investors cautious about the

long-term stability of Taiwan's semiconductor industry and its strategic outlook.

To address these challenges and achieve its policy goals, Taiwan's Legislative Yuan passed the *Taiwan Chips Act* last year. The Act introduces appealing tax incentives, including a **25 percent** deduction on R&D expenses and a 5 percent deduction on the costs for acquiring new advanced machinery. Its two main objectives are to encourage investment in advanced manufacturing processes within Taiwan, and to boost investor confidence amid rising geopolitical tensions and concerns about potential conflicts in the Taiwan Strait. In response to fierce global competition for talent, authorities have intensified efforts to curb what they consider underhanded and illegal activities by Chinese firms. Companies are also ramping up international recruitment efforts. For instance, TSMC is expanding its operations in the US, Japan, and Germany, a move that not only diversifies its supply chain but also broadens its access to a wider talent pool.

With both China and Taiwan shifting gears to manage risks from the ongoing US-China tensions, Southeast Asia is becoming a hotspot for investments. Malaysia and Singapore, in particular, are reaping the rewards. For instance, Taiwan's ASE launched its **fourth plant** in Penang earlier this year. Meanwhile, UMC has **poured resources** into Singapore, and Vanguard International Semiconductor (VIS) has plans to follow suit. These moves highlight Southeast Asia's growing role in the semiconductor scene,

particularly in assembly, testing, and packaging (ATP).

To keep the momentum going, Southeast Asia needs to focus on strengthening collaboration and building an integrated semiconductor supply chain. This strategy will bolster its competitive edge and resilience. As the US-China rivalry continues to spur innovation and capital flows into the region, Southeast Asia must navigate the thin line between opportunity and risk. Ensuring that geopolitical tensions do not spill over and disrupt growth will be key to maintaining a steady upward trajectory.

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