Written by Taipei Times Editorial Tuesday, 12 May 2020 05:27

It is a risky bet for US President Donald Trump's administration to push for building advanced semiconductor factories in the US due to growing fears about the US' heavy reliance on Asia for chip supply and potential disruptions from uncontrollable factors such as the COVID-19 pandemic.

The US government is in discussions with chipmakers, including Taiwan Semiconductor Manufacturing Co (TSMC), to build new fabs in the US to create a self-sufficiency in chips, the latest in a slew of Trump's renewed "Make in the US" efforts, the Wall Street Journal reported on Sunday.

Even before the pandemic, the US had reportedly increased pressure on TSMC to make chips in the US to avoid China's potential interference in supply lines, pushing the Hsinchu-based chipmaker onto the front line of the US-China technology and trade dispute that began in 2018.

TSMC faces risks if it is seen to take a side, as the world's largest contract chipmaker not only makes the world's most advanced chips for processors used in Apple Inc's iPhones and military-grade chips for US F-35 jets, but also supplies 5G chips to China's Huawei Technologies Co.

Apple and Huawei are TSMC's top two clients, contributing 23 percent and 14 percent respectively of its revenue last year.

Asked by a JPMorgan Chase & Co analyst about overseas fab plans, TSMC chairman Mark Liu (111) last month said the firm was still scouting for sites, but to build plants producing mature technologies, rather than leading technologies.

While TSMC has not ruled out any possibilities, it "all depends on the investment and return. If it economically makes sense, then we will go ahead," Liu said.

## Unlikely TSMC will soon build in US

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Advanced chips for Apple, Advanced Micro Devices and Huawei made in TSMC's factories in Taiwan are its most cost-efficient, as it has built comprehensive and flexible supply chains here not only for its own engineers, but with its suppliers of raw materials, key components, manufacturing equipment and chip testing and packaging service providers.

These resilient supply chains mean a high level of cost efficiency and have played a crucial role in helping TSMC eclipse rivals such as Intel Corp and Samsung Electronics Co, which were once called "700-pound gorillas" by TSMC founder Morris Chang ([]]).

Not a single leading fab can compare to its Taiwanese fabs in terms of cost efficiency, the chipmaker has said.

For management teams at semiconductor companies, it would be unrealistic and uneconomic to operate an advanced foundry in the US, as the industry's competitiveness is built on highly sophisticated supply chains and the cost efficiency they produce.

While Trump hopes to bring manufacturing back to the US, skeptics question the viability of such investments.

For example, Foxconn Technology Group's investment in Wisconsin — announced to great fanfare in July 2017 — has reportedly been scaled down from the original US\$10 billion for a G10.5 display fab to a smaller G6 fab, or even something even less significant.

It has been reduced so much that Wisconsin state officials have said that it no longer qualifies for the subsidies promised as part of the original deal, while construction of the plant has yet to begin and the company's innovation centers are largely empty.

Consequently, it is doubtful whether TSMC or any other chipmaker will build a new semiconductor factory in the US any time soon.

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