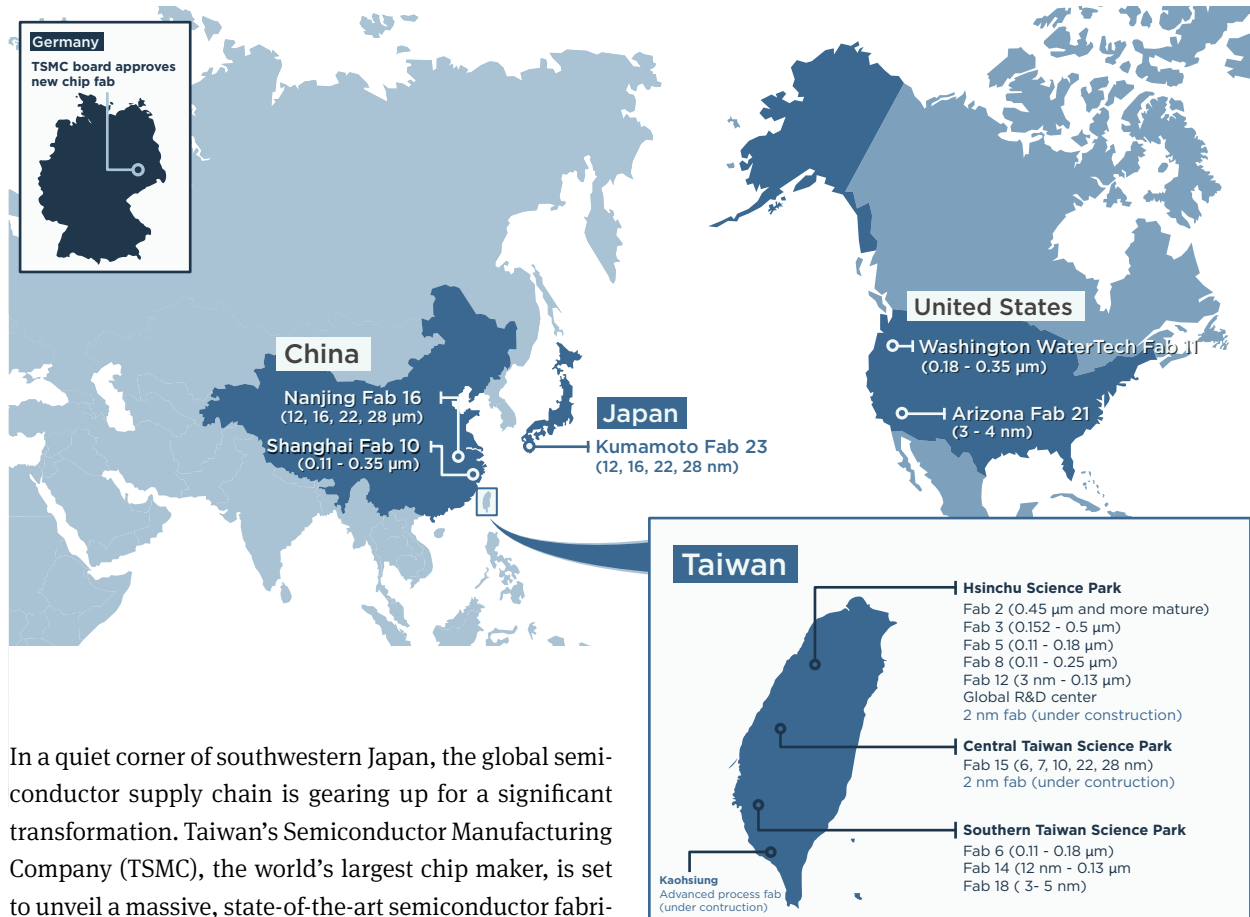


Figure 1
TSMC Global Expansion



In a quiet corner of southwestern Japan, the global semiconductor supply chain is gearing up for a significant transformation. Taiwan’s Semiconductor Manufacturing Company (TSMC), the world’s largest chip maker, is set to unveil a massive, state-of-the-art semiconductor fabrication plant in Kumamoto Prefecture on Kyushu Island, with an investment of over \$7.4 billion.¹

On February 6th, 2024, a consortium (JASM) consisting of TCMC, Sony, Denso, and Toyota announced that they will build another semiconductor factory, scheduled to be completed by 2027. This brings the total investment to over \$20 billion.²

This strategic move by TSMC, which is geographically significant, underscores the growing concerns over Taiwan’s stability in the face of the deteriorating US-China relations.

Warren Buffett’s Berkshire Hathaway in 2022 divested its entire stake in TSMC, driven partly by the poten-

Source: CNA graphic Aug. 8, 2023

“The China conflict has raised questions about the global semiconductor supply chain’s resilience and prompted a quest for alternatives.”

tial threat of China’s influence over Taiwan. The China conflict has raised questions about the global semiconductor supply chain’s resilience and prompted a quest for alternatives.

1 TSMC’s Second Japan Chip Plant in Kumamoto to Cost Over \$7.4 Billion - Bloomberg
2 JASM Set to Expand in Kumamoto Japan (tsmc.com)

Under the radar

For the same reason, US President Joe Biden has laid out plans to bring more chip production to the US. TSMC is now building a factory in Arizona, but progress is much slower than expected due to issues with local labour and a shortage of skilled workers. At the same time, construction on Kyushu is racing ahead somewhat under the radar.

As shown in Fig. 1 (on the previous page), TSMC, in addition to the factories in Japan and the USA, has also decided, together with Bosch, Infineon, and NXP, to build a chip factory in Germany.³

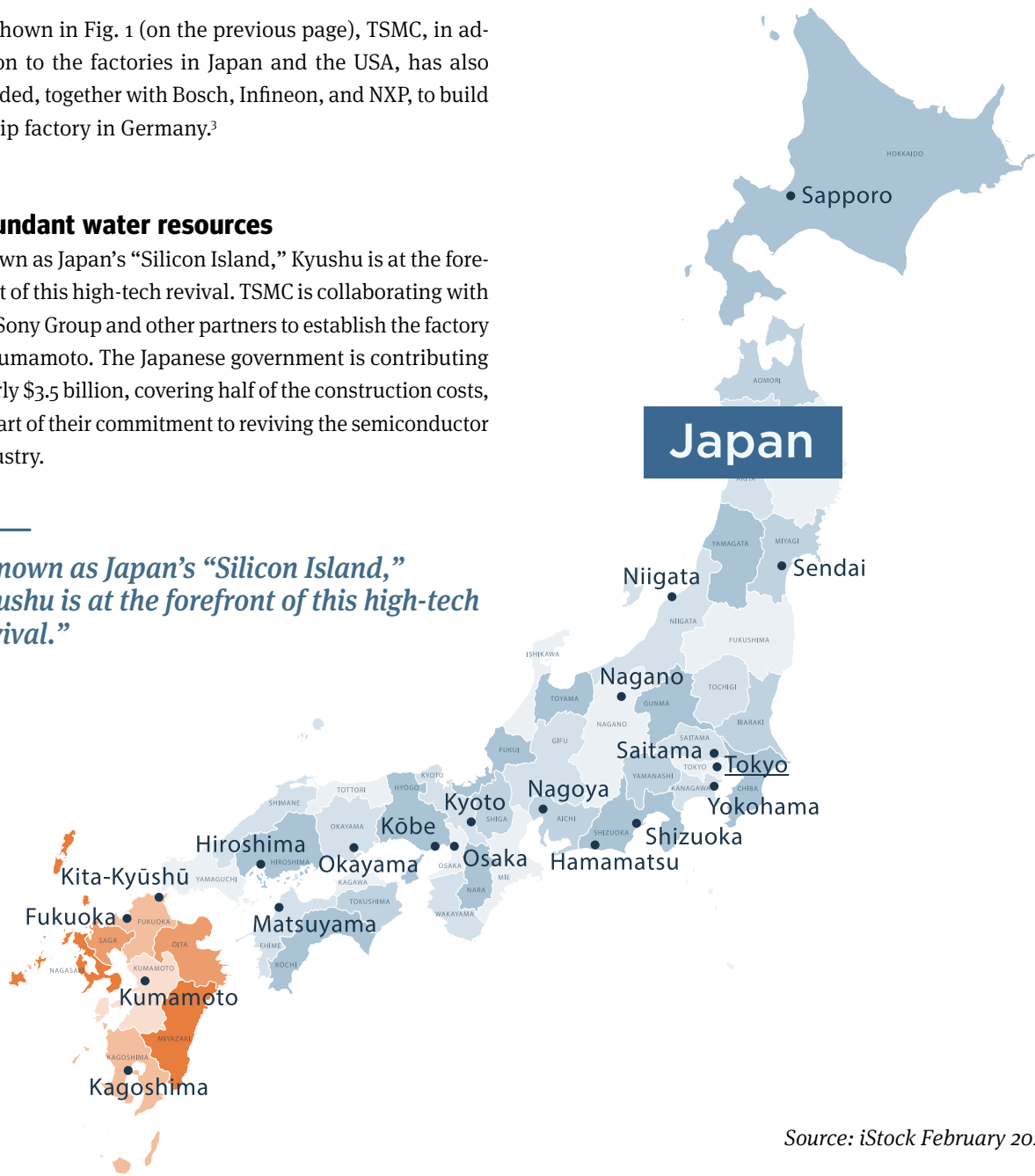
Abundant water resources

Known as Japan's "Silicon Island," Kyushu is at the forefront of this high-tech revival. TSMC is collaborating with the Sony Group and other partners to establish the factory in Kumamoto. The Japanese government is contributing nearly \$3.5 billion, covering half of the construction costs, as part of their commitment to reviving the semiconductor industry.

"Known as Japan's "Silicon Island," Kyushu is at the forefront of this high-tech revival."

And TSMC, Sony, Denso, and Toyota are not alone. Mitsubishi Electric has equally committed to a power semiconductor plant in Kumamoto, with production slated to begin in April 2026. The company also has expansion

Figure 2
Map of Japan



Source: iStock February 2024

3 TSMC, Bosch, Infineon, and NXP Establish Joint Venture to Bring Advanced Semiconductor Manufacturing to Europe

plans for another plant with a combined investment of approximately \$745 million.⁴ Also, IBM, Intel, and Samsung are considering investing more in Japan.

Kyushu's abundant water resources, crucial for semiconductor production, are drawing substantial investments not only in Kumamoto but also in the Fukuoka, Saga, and Nagasaki prefectures.

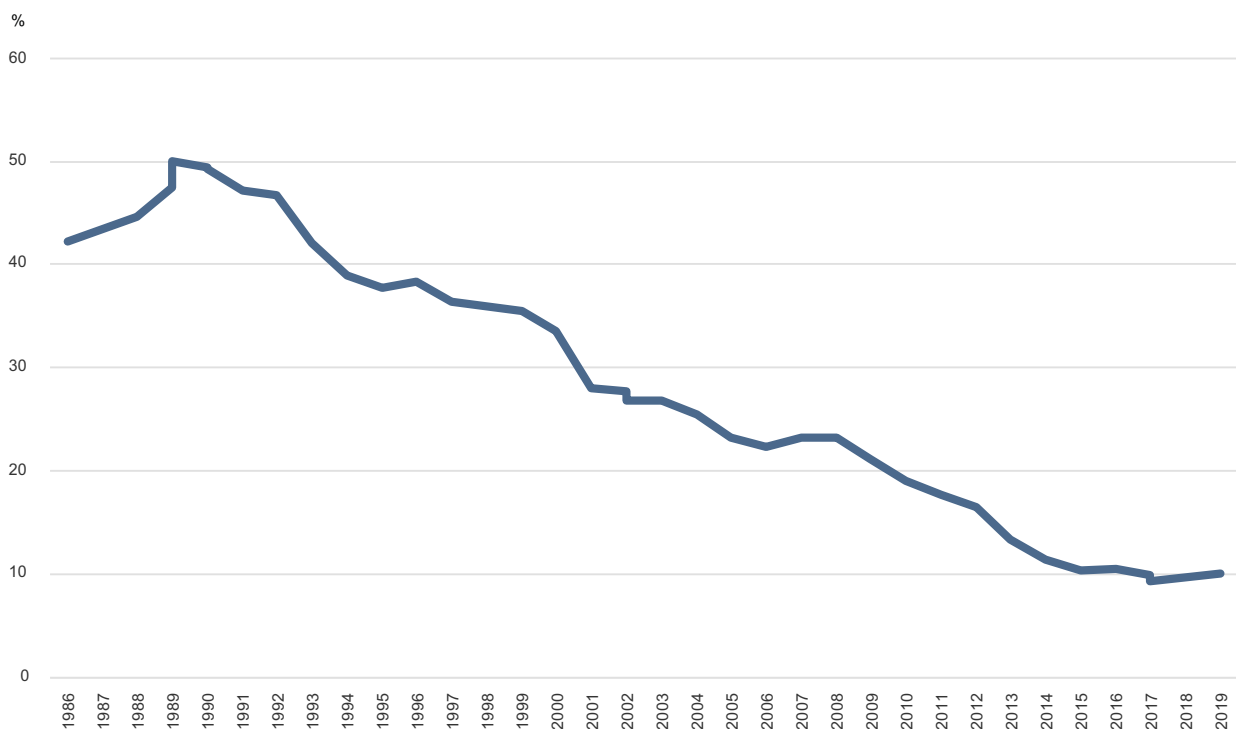
Japan is back on track

Japan once dominated the semiconductor industry, with about half of the world market share in the 1980s. However, it lost ground during the 1990s (Fig.3) to South Korea and Taiwan.

The semiconductors trade agreement of the 1980s between Japan and the United States marked a pivotal moment. Trade tensions had arisen due to exports, compelling Japan to import semiconductors produced abroad. During this era, manufacturers from Korea and Taiwan surged ahead, while Japan's semiconductor industry lost competitiveness, struggling to adapt to evolving business models. But now, Japan is coming back on track, driven by the global strategic need for alternative semiconductor supply chains and with major government support and subsidies.

“Japan is coming back on track driven by the global strategic need for alternative semiconductor supply chains”

Figure 3
Japan's Share of Global Chip Market



Source: Omdia June 12th, 2023

⁴ Mitsubishi Electric to build 100 bil. yen chip factory in Kumamoto | Nippon.com

Exciting prospects for investors

For regions like Kumamoto, which have long struggled with a lack of economic activity, the influx of new investment feels like a much-needed lifeline. Rising land prices and population growth in industrial areas near the TSMC construction site are a testament to the region's newfound economic vigour.

The global semiconductor supply chain is undergoing a transformation as the industry seeks to de-risk and diversify its operations, with Japan emerging as a promising hub for future growth. As the world's largest chip maker establishes a significant presence on Kyushu Island, the trajectory of the semiconductor industry is poised for change. Japan's ambitious plans to rejuvenate its semiconductor sector come at a pivotal moment, promising

economic benefits and enhanced economic security in an ever-changing geopolitical landscape.

To sum up, the transformation is good news for Japan, which aims to regain strength in the global chip market. For semiconductor companies like TSMC, their production base has become more diversified and flexible. And for us as investors, the transformation could mean a slightly more positive outlook on Japan, particularly for chip companies that strategically capitalise on the opportunities to secure their supply chains.

“For semiconductor companies like TSMC, their production base becomes more diversified and flexible.”



Disclaimers

EU: This is marketing material. This publication is prepared by C WorldWide Asset Management Fondsmæglerselskab A/S. It is provided for information purposes only and does not constitute, and shall not be considered as, an offer, solicitation or invitation to engage in investment operations, as investment advice or as investment research. The publication has thus not been prepared in accordance with legal requirements designed to promote the independence of investment research, and it is not subject to any prohibition on dealing ahead of the dissemination of investment research. Opinions expressed are current opinions only as of the date of the publication. The publication has been prepared from sources C WorldWide Asset Management Fondsmæglerselskab A/S believes to be reliable and all reasonable precautions have been taken to ensure the correctness and accuracy of the information. However, the correctness and accuracy is not guaranteed and C WorldWide Asset Management Fondsmæglerselskab A/S accepts no liability for any errors or omissions. The publication may not be reproduced or distributed, in whole or in part, without the prior written consent of C WorldWide Asset Management Fondsmæglerselskab A/S. Past performance does not indicate future performance.

US: This is marketing material. This publication has been prepared by C WorldWide Asset Management Fondsmæglerselskab A/S (CWW AM). CWW AM is a registered Danish investment firm located at Dampfaergevej 26, DK-2100 Copenhagen, Denmark. CWW AM's Danish company registration no is 78420510. CWW AM is registered with the SEC as an investment adviser with CRD no 173234. This publication is provided for information purposes only and does not constitute, and shall not be considered as, an offer, solicitation or invitation to engage in investment operations, as investment advice or as investment research. The publication has thus not been prepared in accordance with legal requirements designed to promote the independence of investment research, and it is not subject to any prohibition on dealing ahead of the dissemination of investment research. Opinions expressed are current opinions only as of the date of the publication. The publication has been prepared from sources CWW AM believes to be reliable and all reasonable precautions have been taken to ensure the correctness and accuracy of the information. However, the correctness and accuracy is not guaranteed and CWW AM accepts no liability for any errors or omissions. The publication may not be reproduced or distributed, in whole or in part, without the prior written consent of CWW AM. All figures are based on past performance. Past performance does not indicate future performance. The return may increase or decrease as a result of currency fluctuations.

UK: This document has been prepared by C WorldWide Asset Management Fondsmæglerselskab A/S (CWW AM). CWW AM is a focused asset manager registered as an investment firm with the Danish FSA. CWW AM is located at Dampfaergevej 26, DK-2100 Copenhagen, Denmark, CVR registration number 7842 0510. This document is directed at persons having professional experience of participating in unregulated schemes (investment professionals) and high net worth companies (as defined under art. 14 and 22 of the Financial Services and Markets Act 2000 (Promotion of Collective Investment Schemes) (Exemptions) Order 2001). The document and any investment or investment activity to which it relates is available only to such persons and will be engaged in only with such persons. Any other person should not rely or act on the statements made in this document. The content of this presentation is confidential, and redistribution or reproduction is prohibited. The presentation is provided for information purposes only and does not constitute, and shall not be considered as, an offer, solicitation or invitation to engage in investment operations as investment advice or as investment research. CWW AM is not responsible for the suitability of the information in the presentation. Opinions expressed are current opinions only as of the date of the presentation. The presentation has been prepared from resources CWW AM believes to be reliable and all reasonable precautions have been taken to ensure the correctness and accuracy of the information. However, the correctness and accuracy are not guaranteed and CWW AM accepts no liability for any errors or omissions. This presentation contains information on investments which does not constitute independent research. Accordingly, it is not subject to the protections afforded to independent research and CWW AM, and its employees may have dealt in the investments concerned. It is emphasized that past performance is no reliable indicator of future performance and that the return on investments may vary as a result of currency fluctuations.

C WORLDWIDE ASSET MANAGEMENT FONDSMAEGLERSELSKAB A/S

Dampfaergevej 26 · DK-2100 Copenhagen

Tel: +45 35 46 35 00 · Fax: +45 35 46 36 00 · VAT 78 42 05 10 · cworldwide.com

Q1 2024