Japan Chemicals: Specialty: TSMC read-across: AI megatrend backed by advanced node capacity boosts, positive for advanced material firms

Atsushi Ikeda
+81(3)4587-9940 |
atsushi.ikeda@gs.com
Goldman Sachs Japan Co., Ltd.

Yuri Izumikawa
+81(3)4587-3643 |
yuri.x.izumikawa@gs.com
Goldman Sachs Japan Co., Ltd.

TSMC (covered by our Asia technology sector analyst Evelyn Yu), the world's largest semiconductor foundry, held its 3Q12/26 earnings call on the afternoon of October 15, 2026 (local time). Against a backdrop of robust demand for advanced semiconductors driven by the accelerating spread of agentic AI, sales and profit margins beat the top end of guidance. The company revised up its full-year FY12/26 sales growth forecast (USD-basis) from just over +40% previously to c.+44%, and noted that the long-term AI sales CAGR (2024-2029) is likely to exceed the mid-to-high 50s% range presented previously. In addition, TSMC announced that its capital expenditure levels for 2026-2028 will be substantially higher than in the past three years, and revealed plans to build an additional 3nm fab in Tainan for 2027, double its N2 production capacity, and partner with GlobalFoundries for silicon interposers. We think the disclosures have strong positive implications for earnings at front-end materials companies such as Shin-Etsu Chemical, Tokyo Ohka Kogyo, SUMCO, JX Advanced Metals, Tri Chemical Laboratories, and Fujimi, as well as for back-end process manufacturers.

3Q12/26 results overview

3Q12/26 sales came to US$46.72 bn (+16.2% qoq, +41.2% yoy), beating the top end of guidance (US$44.6-45.8 bn). The gross profit margin was 66.4% (guidance of 65.0-67.0%), and the operating profit margin was 58.7% (guidance of 56.0-58.0%), maintaining high levels. By platform, HPC products accounted for 68% of sales, driven by AI accelerators and CPUs for agentic AI. The wafer sales mix by process node was 8% for the most advanced 2nm (N2), 33% for 3nm (N3), and 28% for 5nm, highlighting a clear concentration of demand on the most advanced processes.

FY12/26 sales and capital expenditure

- **FY12/26 sales:** TSMC's full-year sales growth forecast on a USD basis is c.+44% yoy. The 4Q12/26 guidance also calls for sales of US$52.3-54.3 bn (+14% qoq at the midpoint), pointing to robust growth that defies seasonality.
- **FY12/26 capital expenditure:** Full-year guidance of US$60-64 bn was left unchanged. Furthermore, management stated that capex for 2026-2028 will be at a substantially higher level than over the past three years, expressing strong confidence that the medium-term production capacity expansion cycle will continue.

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Long-term outlook for AI demand

- **Upside to growth outlook:** Regarding the AI sales CAGR target for 2024-2029, the company said it is highly likely to exceed the mid-to-high 50s% range presented previously. It noted that there are no signs of a demand slowdown, and that demand continues to far exceed supply capacity.
- **Driven by agentic AI:** With the transition from chatbots to autonomous AI agents, the silicon area required not only for AI accelerators but also for server CPUs and high-speed networking chips is expanding rapidly.

Expansion of advanced processes (N2/N3/A14) and packaging

- **N3:** To respond to robust demand, TSMC announced the construction of an additional 3nm fab (scheduled for volume production in 1H28) on top of the new Tainan fab (volume production in 1H27). Additionally, commercial production at Arizona Fab 2 (3nm) in the US will be brought forward to 3Q27, and the Kumamoto Fab 2 is also scheduled to begin 3nm volume production in 2028.
- **N2:** Volume production is expanding rapidly with high yields, and the company plans to more than double annual production capacity of the N2 family in 2027 compared with 2026.
- **A14 (1.4nm):** Commercial production is scheduled to begin in 2028. Customer engagement exceeds that of N2 in its initial stages, and the company indicated it expects this to be a larger node than N2.
- **Advanced packaging:** To respond to tight supply for CoWoS demand, TSMC concluded a manufacturing partnership with GlobalFoundries for the supply of silicon interposers.

Implications for Japanese semiconductor material makers

We think TSMC's upward revision to its full-year growth rate outlook, the accelerated ramp-up of N2, and the construction of additional 3nm fabs strongly support earnings expansion at materials companies supplying TSMC. In addition to a substantial capacity expansion for N2, we think this has generally strong positive implications overall for products such as cutting-edge 300mm epitaxial wafers (Shin-Etsu Chemical, SUMCO) driven by the shift to a large-scale node for next-generation A14; EUV resists, blanks, and multilayer materials (Tokyo Ohka Kogyo, Shin-Etsu Chemical) that are poised to see an increase in the number of exposure layers; sputtering targets (JX Advanced Metals); CMP slurries (Fujimi, Resonac); metal materials (Tri Chemical Laboratories); and advanced packaging materials (e.g., Asahi Kasei, Tokyo Ohka Kogyo) driven by the expansion of CoWoS.

