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China Semiconductors

China Semicap: The surging memory capacity expansion


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We update our China WFE model in this call, (updated model here). From our channel check in the past quarter, Chinese memory IDMs have significantly sped up their capacity expansion plan for the next few years due to robust memory demand and ample available capital, we revised up memory capex in 2027/28 to reflect that change. Local equipment stocks might correct a little bit after a strong rally, but we believe the order growth is still much stronger than expected, creating more upsides for the next few months. **Reiterate Outperform for AMEC, Piotech and NAURA.**

China WFE is entering another phase of secular growth driven by AI & memory super cycle along with increasing localization. We now project China WFE spending to be USD 58/67/77bn in 2026-28, significantly revised up from previous 55/59/61bn, mainly due to stronger memory capex. This upward revision on demand mainly benefits local and non-US vendors, as both CXMT and YMTC are forced to switch away from US supply chain. We now expect both CXMT and YMTC to ramp up one new fab each in 2026 and another two new fabs each in 2027, with more to come in 2028 (although much less visibility on exact scale at this point). Given most Chinese vendors recognize revenue about 1 year after they receive the order, most of the memory capex upside will reflect in 2027/28 WFE demand. We believe the accelerated memory capacity expansion is driven by both stronger demand and increased available capital. The memory supercycle is creating a significant shortage in DRAM/NAND supply, making local customers a lot more willing to adopt local memory chips, especially for DRAM where the technology has been behind and adoption is lagging. On the other hand, the improved profitability allow CXMT and YMTC to generate tens of bn USD cash in 2026, together with the cash that will be raised through IPO they now both have ample capital to deploy for the capacity expansion. Note that Chinese memory players can ramp up new clear room just within one year compared to global players that need 2-3 years, allowing them to accelerate the capex spending much faster than global peers for the next two years.

AI could bring upside to our advanced logic projection. We didn't revise up our projection on logic capex for the next two years, but as the AI demand continues to grow and Nvidia continues to be banned by both Chinese and US government from shipping to China, we believe the advanced logic capacity expansion could further accelerate as well. At the same time, the demand for AI related peripheral chip also will boost the local foundries to continue to expand mature logic capacity. With limited visibility at this point, we project logic capex to be flattish throughout 2026-28, which we believe there is upside risk to our projection. The AI chip localization also indicates that China will need its own HBM and eSSD to power the local AI datacenters, which could further boosted China's demand on DRAM and NAND capacity and also brings upside to our memory projection.

Local vendors continue to take share from global peers, especially in DRAM in 2026. Before 2025, the increased in localization ratio was mainly driven by advanced logic and NAND due to higher urgency, but in 2026 Matured logic localization is picking up as the performance of local tools improves, and in 2027 we expect DRAM to have a step change as they switch away from US vendors, continue to boost the localization ratio.

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BERNSTEIN TICKER TABLE

Ticker	Rating	Cur	21 May 2026 Closing Price	Price Target	TTM Rel. Perf.	Cur	Reported EPS 2025A	Reported EPS 2026E	Reported EPS 2027E	Reported P/E (x) 2025A	Reported P/E (x) 2026E	Reported P/E (x) 2027E
688012.CH (AMEC)	O	CNY	475.80	500.00	134.2%	CNY	3.40	4.95	7.18	139.9	96.2	66.2
002371.CH (NAURA)	O	CNY	662.99	680.00	74.9%	CNY	5.66	10.22	16.41	117.1	64.9	40.4
688072.CH (Piotech)	O	CNY	606.20	580.00	271.3%	CNY	3.32	8.12	12.40	182.6	74.6	48.9
AMAT (Applied Materials)	O	USD	427.36	525.00	138.3%	USD	9.42	12.17	15.56	45.4	35.1	27.5
LRCX (Lam Research)	O	USD	302.24	340.00	239.9%	USD	4.14	5.68	7.98	73.1	53.2	37.9
8035.JP (Tokyo Electron)	O	JPY	48,800	59,200	75.5%	JPY	1,250.88	1,504.14	1,848.77	39.0	32.4	26.4
7735.JP (Screen)	M	JPY	10,730	12,600	65.2%	JPY	486.61	572.60	662.24	22.1	18.7	16.2
6525.JP (Kokusai)	O	JPY	7,005.00	8,240.00	94.0%	JPY	128.63	200.23	274.61	54.5	35.0	25.5
6920.JP (Lasertec)	O	JPY	38,060	50,000	128.5%	JPY	937.82	893.18	976.61	40.6	42.6	39.0
ASML (ASML)	O	USD	1,592.00	1,971.00	90.8%	USD	27.95	36.96	53.13	49.0	37.1	25.8
ASML.NA (ASML)	O	EUR	1,345.20	1,700.00	90.4%	EUR	24.72	32.69	46.98	54.4	41.1	28.6
ASIAX			1,891.82									
SPX			7,432.97									
JPL			2,461.85									
EDME			1,536.51									

O - Outperform, M - Market-Perform, U - Underperform, NR - Not Rated, CS - Coverage Suspended
AMAT, LRCX estimate is Adjusted EPS; AMAT, LRCX valuation is Adjusted P/E (x);
Source: Bloomberg, Bernstein estimates and analysis.

INVESTMENT IMPLICATIONS

NAURA (Outperform, CNY **680.00**): As the domestic WFE leader, NAURA has the broadest product portfolio covering Deposition (PVD, CVD), Dry Etch (ICP), Thermo Processes, and Cleaning, as well as a more diverse client base covering leading logic, DRAM, NAND players, benefiting from the WFE domestic substitution in China with acceleration share gain.

AMEC (Outperform, CNY **500.00**): Primarily focused on Dry Etch (CCP, ICP) with rapid expansion in Deposition (ALD, LPCVD, EPI), commonly perceived as the domestic WFE company with the best technology and widest global recognition, continue to benefit from the WFE domestic substitution in China with acceleration share gain.

Piotech (Outperform, CNY **580.00**): Rising domestic WFE vendor primarily focused on Deposition (PECVD, HDPCVD, SACVD, ALD) with expansion in W2W and C2W hybrid bonding equipment for advanced packaging. Piotech has a strong track record of product innovation, which should allow it to benefit from the WFE domestic substitution in China with acceleration share gain.

Tokyo Electron (Outperform, **¥59,200**): TEL is the #4 SPE supplier globally and the biggest Japanese SPE supplier with major presence in 6 product segments. It is expected to gain share and expand margins with competitive pricing after yen depreciation.

Kokusai (Outperform, **¥8,240.00**): Batch ALD should see more adoption in advanced nodes especially GAA (gate-all-around). The biggest use of batch ALD is in NAND, and NAND capex recovery is accelerating.

Screen (Market-Perform, **¥12,600**): Cleaning intensity is not increasing, and the market is competitive with both global rivals (TEL, Lam) and Chinese (ACMR, Naura). Potential upside from panel level packaging is worth watching.

AMAT (Outperform, $**525.00**): We maintain a positive view on secular WFE growth and see a number of drivers for AMAT including SAM growth, an increasing services narrative, and capital return.

LRCX (Outperform, $**340.00**): CY25 commentary seems supportive, and a NAND upgrade cycle may be starting.

ASML (Outperform, EUR **1,700.00**): We adopt a conservative stance on ASML's growth profile relative to consensus and guidance. While ASML's technological leadership and the critical role of EUV lithography are clear, our revenue forecast for 2030 aligns with the lower end of ASML's guidance and is 20% below consensus, with lower assumptions for EUV and China.

DETAILS

REVISING UP CHINA WFE DEMAND

2025 closed as another strong year, ending up with nearly $50bn, with $39.2bn import (YoY+3%) & $11bn domestic revenue (YoY +49%). We model slightly higher import in 2026 to $43bn (slightly more positive than global incumbents have guided in their latest earnings call), meanwhile, we maintain the assumptions that domestic vendors will grow 36% in 2026 to $15bn, driving the overall China WFE market growing 16% YoY to $58bn.

Imports in 2026 still expected to be slightly higher than 2025 to around $43bn in 2026. During the recent earnings season, we observed several global incumbents guiding down the proportion of revenue derived from China; however, this largely reflects strong momentum in overseas Advanced Logic and DRAM segments. In absolute dollar terms, China-related revenue is likely to be broadly flat, (which may sound less exciting but remember the prior year represented a record high). We note that management commentary primarily referred to the "China WFE market," rather than their reported China revenue. Given their limited visibility into domestic Chinese players, we believe it is reasonable to assume that imports will remain flat at an elevated level, rather than inferring a slowdown in the overall market, which also incorporates domestic growth. Although YTD import -13% YoY, we are still positive on the outlook for 2H26.

Domestic players expected to grow 36% to $15bn in 2026. We hold high confidence that Chinese domestic players will further grow, as their 2026 revenue should be largely in line with their 2025 order, and now we are looking at $15bn domestic revenue for 2026. Import data may still be inflated & twisted given the potential stock up, but the rapid progress of local vendors at least reflect the compound effect of (1) fast capacity expansion & (2) fast domestic substitution.

Early visibility on 2027/2028 is significantly more positive than our previous projection. We significantly revised up our 2027 and 2028 China WFE market assumptions by $7.3 billion and $16.4 billion respectively. We also assume another flat import year in 2027/2028, but early order guidance of domestic players have shown that we may experience another 50%/50% YoY growth in 2027, reaching $22/33bn, respectively. Together with $44bn import, total China WFE market in 2027E/2028E could reach $67bn/$77bn. Per our channel checks, we still saw significant potential upside in all sectors even to these numbers, where advanced logic & DRAM could be even better than we expected.

Domestic vendors are still taking share from global players, and we expect this trend to be inevitable & irreversible. **We rate NAURA, AMEC, and Piotech Outperform.**

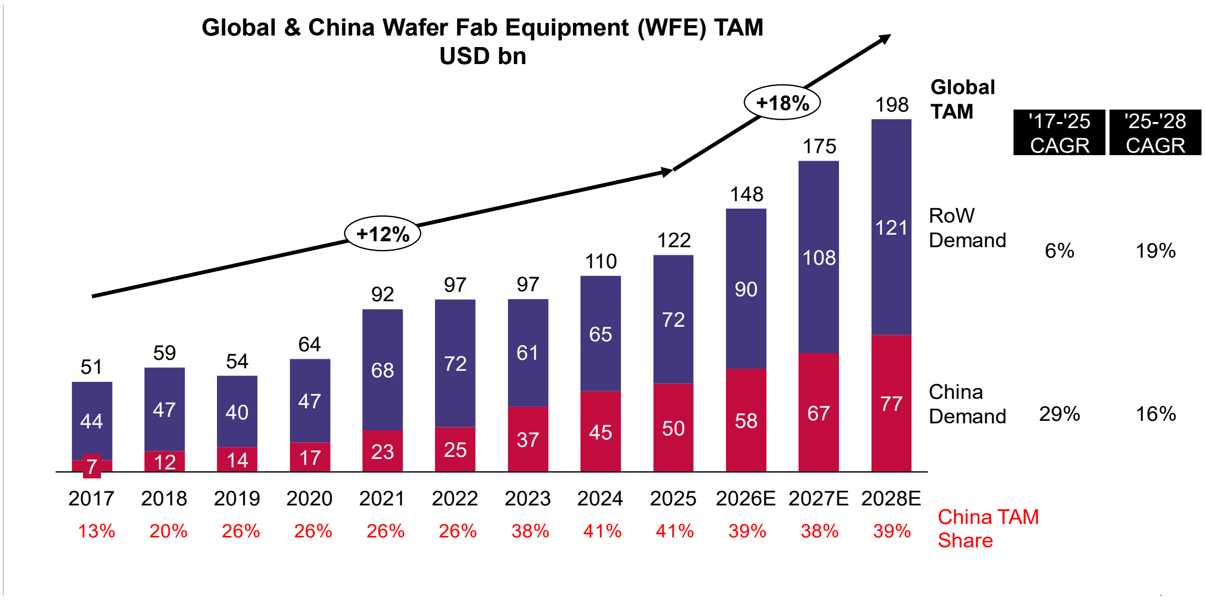
We revise up our China WFE market forecast in this call:

- **China has gradually stepped out of the spotlight, as global wafer fabrication equipment (WFE) demand from 2026 onward is increasingly driven by overseas markets**. We forecast RoW WFE to grow by 25%/20%/12% in 2026E/2027E/2028E, respectively. In contrast, China's WFE demand is projected to grow by 15%/15%/16% in 2026E/2027E/2028E, reflecting a high base effect. As a result, China's share of global WFE demand is expected to decline to 38%~39% in 2026E to 2028E, down from a peak of 42% in 2025

- **That said, localization in China is expected to continue progressing**. We assume that the revenue share of global suppliers remains broadly flat, stabilizing at approximately USD 43~44 billion. Notably, this USD 44 billion includes both on-the-ground capacity expansion demand and potential inventory stockpiling (i.e., global equipment pre-purchase before local equipment move in as the lead time for global tools are uncertain). Revenue growth for domestic vendors reflects the combined impact of: (1) ongoing capacity expansion with stronger demand across all sectors, and (2) further increases in the localization ratio, which remains the primary driver of China's WFE growth. Consequently, we expect China's semiconductor equipment self-sufficiency ratio to rise to 26% in 2026E and 34% in 2027E and 43% in 2028E.

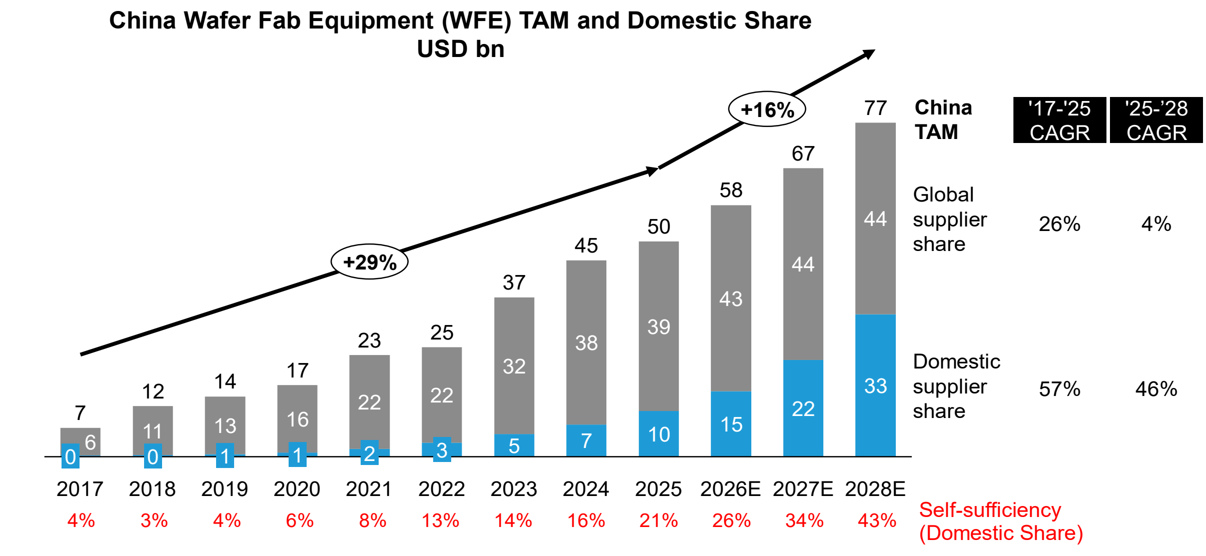
Exhibit 1 and Exhibit 2 summarize our China WFE demand/supply analysis.

EXHIBIT 1: **Global WFE: China demand expected to be continue strong while non-China will grow stronger going forward**



Source: Gartner, SEMI, Bernstein estimates and analysis

EXHIBIT 2: **China WFE: Acceleration in domestic substitution continues, expect the self-sufficiency to reach 43% by 2028**



Source: Gartner, SEMI, Company reports, Bernstein estimates and analysis

A few highlights to the industry model update (Exhibit 3):

<u>From a supply side perspective:</u>

- For 2025 China WFE market, our forecast is the same with previous forecast, only edged up a bit based on actual full year import data of $39.2bn & kept our domestic revenue projection unchanged.
- For 2026 China WFE market, we now forecast China WFE market to grow 15% to $58bn. Now we are modeling slightly higher import, given most global players like Lam Research, KLA & Tokyo Electron (Exhibit 5) commenting China WFE to be

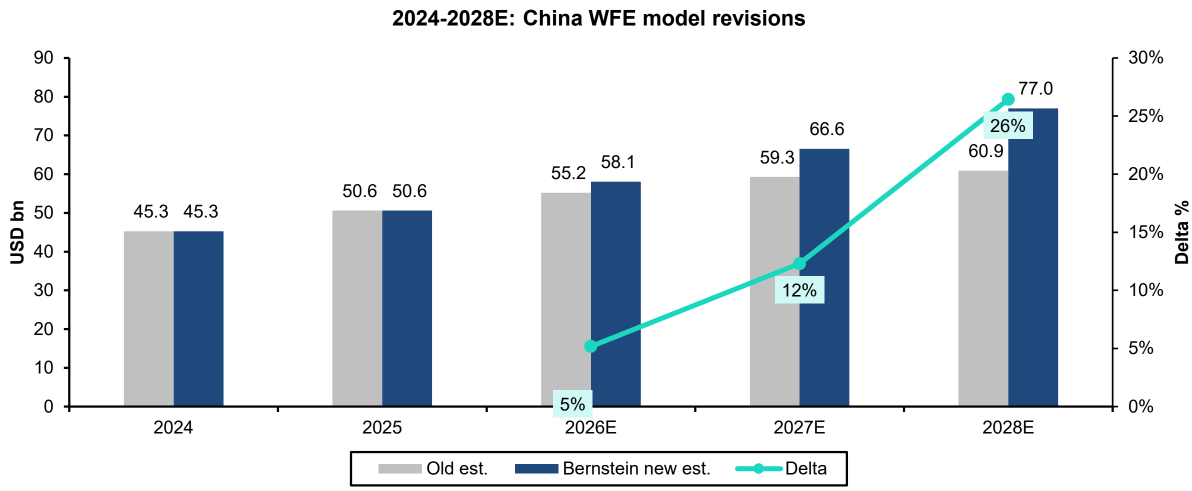
flattish YoY, but could end up stronger than they guided as usual, while ASML is guiding down their China revenue. Although it may sound less exciting, remember 2025 marked a record high import year at $39.2bn, even flattish guidance makes China WFE to be another elevated year. We think global incumbents lack of visibility about the local vendors, hence it is fair to infer their guidance to import data. However, for domestic players, given their 2026 revenue has baked into 2025 new order guidance (mostly due to revenue recognition difference between domestic vendors vs. overseas vendors, where the former need almost 1 year from order to revenue while the latter just need 1~2 quarters as long as the equipment leave the shore), the visibility for domestic vendors are pretty high. After recent channel check we now have more confidence to model aggregated domestic vendors' revenue to grow 36%, reaching $15bn. All in all, we view China WFE market in 2026 will be another growth year, mainly driven by the growth of domestic vendors.

- Early signals on 2027E/2028E is a lot more positive. We admit that we also have very limited visibility about how 2027E/2028E import will look like, but right now we are basically modeling flattish vs. 2026E, given Tokyo Electron's mgmt alluded that China might be flat in the following several years. On the flip side, domestic 2026 order guidance looks rather positive and may even accelerate, hence we now model 2027 domestic revenue YoY+47% to $22bn and 2028E +50% to $33bn. We view the next several years as an overwhelming upcycle for China WFE vendors.

<u>From a demand side perspective</u>:

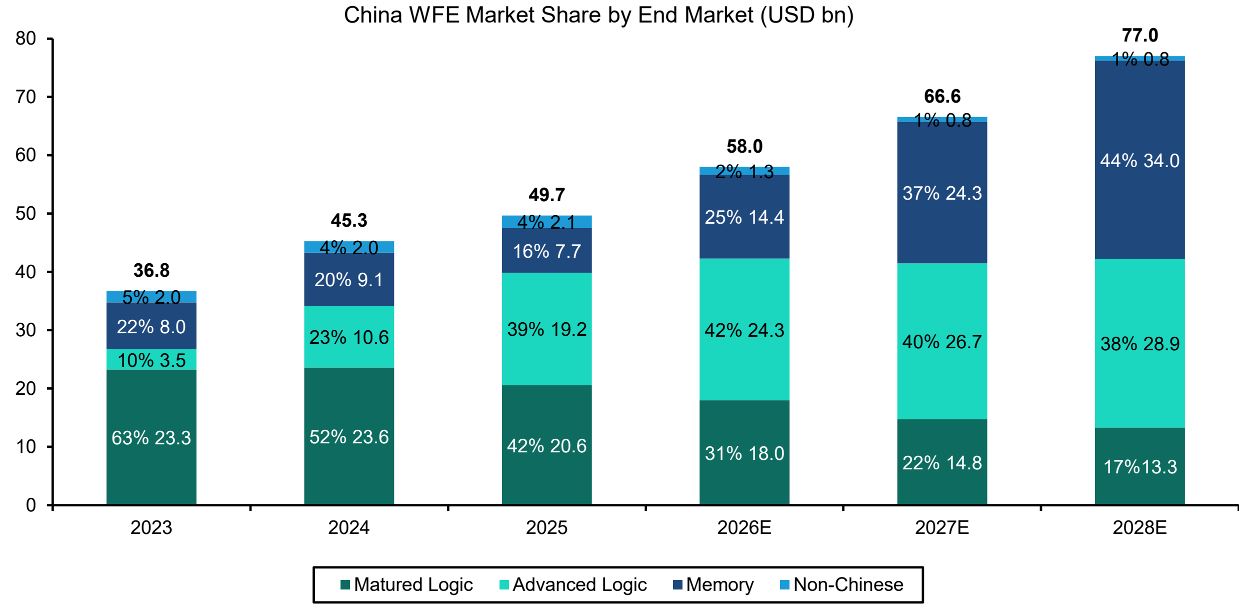
- We revise up our assumptions on memory capex due to better than expected capacity expansion based on our channel check. We think next two years there will be massive expansion in domestic Advanced Logic & Memory to meet the surging demand of local AI. For our view on domestic Advanced logic & AI, please see our report here.

EXHIBIT 3: **We revised up 2026E/2027E/2028E by $2.9/$7.3/$16.4 bn**



Source: SEMI, company reports, Bernstein analysis and estimates

EXHIBIT 4: **We revised up our numbers mostly due to stronger CapEx in memory**



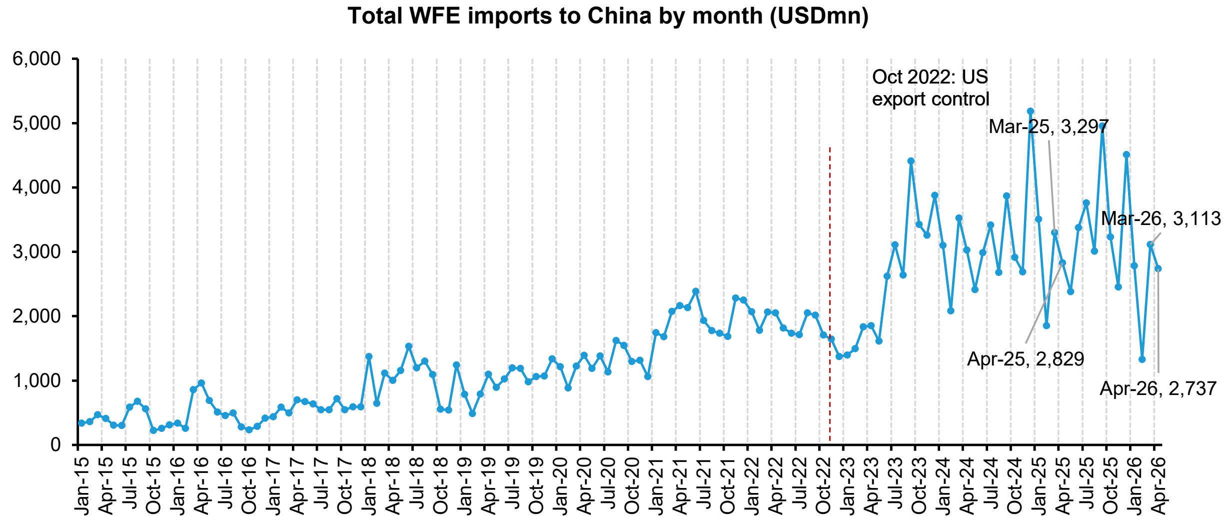
Source: Company reports, Bernstein analysis and estimates

EXHIBIT 5: **All five companies expect China WFE to be roughly flat YoY but China as a percentage of revenue to normalize lower in 2026 vs. the elevated 2024–2025 levels**

Company	Ticker	Lastest Comments on China WFE (CY2Q26 & CY2026)
ASML	ASML.NV	ASML guided China to represent approximately 20% of total net sales in 2026, consistent with its current system backlog — a significant decline from 33% in 2025 and 41% in 2024. Management views the elevated 2024–2025 China sales levels as unsustainable, reflecting a normalization after fulfilling a substantial backlog.
Applied Materials	AMAT	In Q2 FY2026, China accounted for 24% of semiconductor systems plus AGS revenue, down from 30% of overall sales in Q1 FY2026, where revenue declined 7% year-over-year. For the full calendar year, Applied Materials expects its China business, along with its ICAPS business worldwide, to be flat to slightly higher — an improvement from the prior guidance of down year-over-year.Management expects China to be flat to slightly up for the calendar year, with ICAPS globally also guided to be flattish.
Lam Research	LRCX	China accounted for 34% of total revenue in Q3 FY2026, a slight decrease from 35% in Q2 FY2026, though it grew approximately $115 million quarter-over-quarter in absolute terms. Lam anticipates China revenue will decline in the June 2026 quarter from current levels.The company expects China's percentage of total revenue to decrease over time as growth from global multinational customers outside China increases.
KLA	KLAC	China represented 24% of total revenue in Q3 FY2026, down from approximately 30% in Q2 FY2026, with minimal impact expected from additional US export bans.KLA's view is that China WFE will grow at a slower rate than overall WFE, with spending levels in China remaining relatively flat over the last few years. Growth in China is expected to be more greenfield-focused rather than technology-upgrade driven. For CY2026, KLA models China's contribution to revenue in the mid-to-high 20% range
Tokyo Electron	8035.JP	For FY2026 (ended March 2026), China represented 34.1% of total sales, declining to 26.8% in Q4 FY2026 — a 5 percentage point sequential drop — as leading-edge node spending grew faster than mature nodes.Management guided China's share of revenue to be in the mid-30s for 2026, a normalization from the high-30s seen in the prior year.

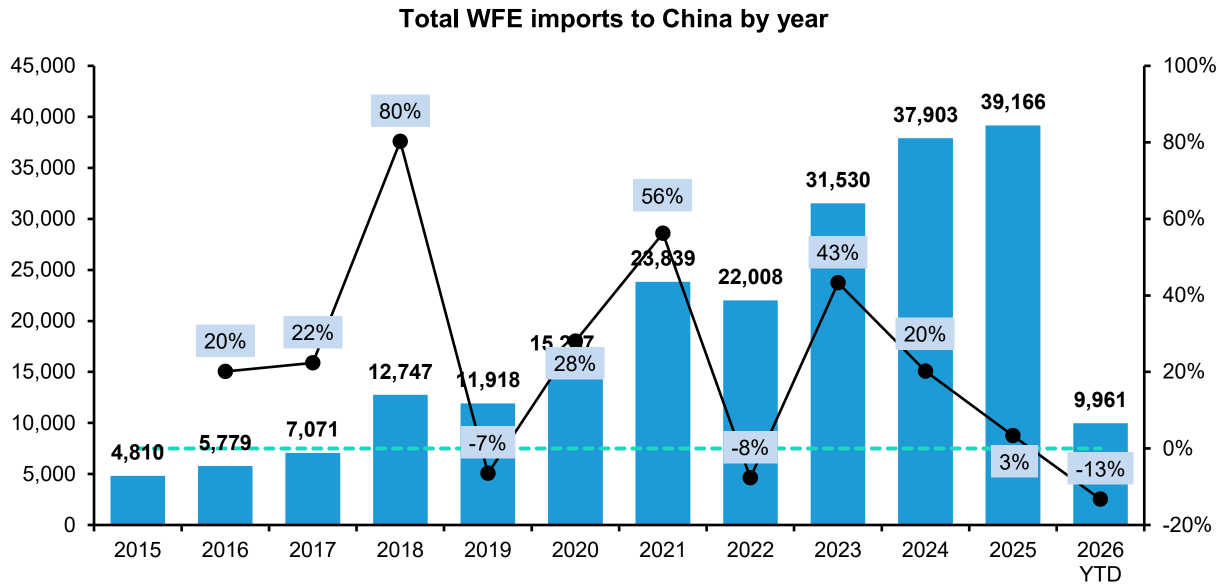
Source: Company reports, Bernstein analysis

EXHIBIT 6: **Apr 2026 WFE import was USD 2,737 mn, YoY -12% & MoM -3%**



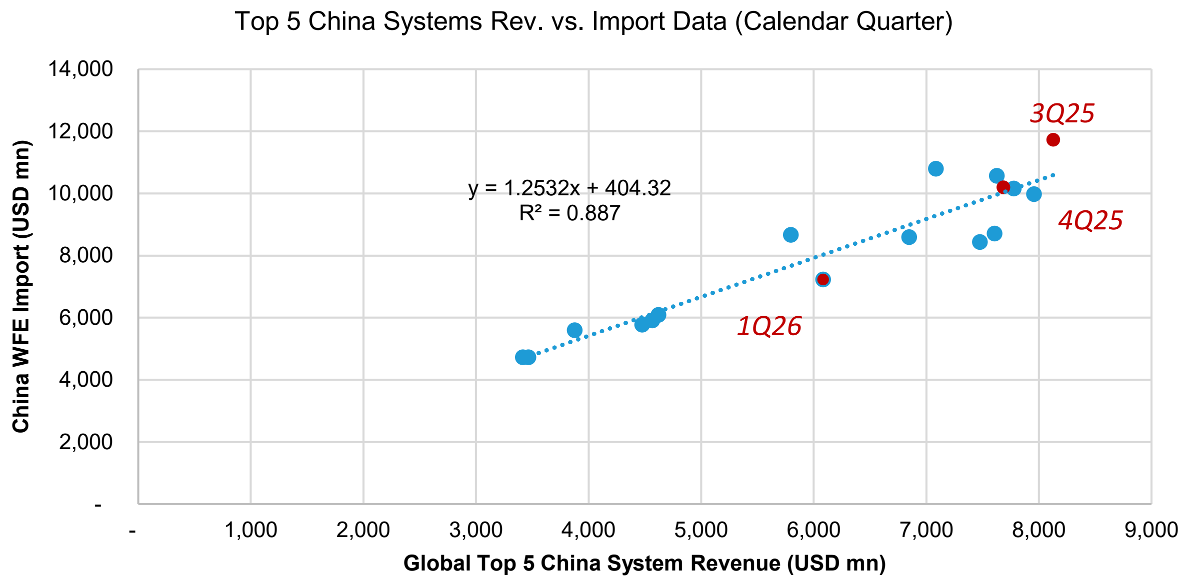
Source: General Administration of Customs of the People's Republic of China, Bernstein analysis

EXHIBIT 7: **Apr 2026 YTD import YoY -13%, mainly due to weak Lithography & Process Control import**



Source: General Administration of Customs of the People's Republic of China, Bernstein analysis

EXHIBIT 8: **1Q26 import data was below historical trendline. We suspect this is mostly due to the time windows difference between shipment & reveneu.**



Source: Company reports, China Custom, Bernstein analysis and estimates

DOMESTIC SUBSTITUTION CONTINUES TO ACCELERATE

We expect domestic WFE suppliers to benefit from domestic substitution and exhibit significantly higher growth than global players. Based on the trend of WFE orders we saw from major domestic vendors and recent technology breakthroughs in advanced logic/memory equipment, we now expect the self-sufficiency ratio to reach 26% by 2026, and continue to grow in 2027/2028.

Exhibit 2 shows our analysis of the domestic supply share in China's WFE market based on our bottom-up calculation of the top 5 global suppliers and top 11 Chinese listed WFE vendors' historical revenue and their high-level guidance:

- In 2026, we project local vendors' revenue to grow at 43% YoY based on the order they received in 2025, we expect the localization ratio will reach 26%. The additional increase in localization ratio in 2025 is mainly supported by NAND, and in 2026 we expect the localization ratio in mature logic and DRAM to start to catch up given the strong order they received in these two segments in 2025. We previously expect the localization ratio to remain low for mature logic for some time due to limited competition, but the feedback from local vendors confirm that they are gaining share from global vendors as some new equipment they developed has reached a similar performance compared to global vendors, while they are able to lower the price by ~20% with lower costs. We expect the trend to continue with an additional 5-10% share gain in mature logic for the next few years as more and more equipment types reach performance parity. Note that we do see local equipment still showing some performance gap vs global leaders (in yield, uptime etc.), but for certain equipment the gap is closing very fast.

We believe there are three key drivers behind the WFE domestic substitution:

1. <u>Local leading logic/memory fabs are forced to co-develop with local WFE vendors after the sanctions, and significantly increased the level of support they provided to local vendors.</u> The U.S. sanctions on advanced-node WFE imports to China in Oct 2022 were the key tipping point. Before the sanctions, the fabs were only using domestic vendors as 'backups'. It was not 'economical' to support local vendors in developing advanced-node WFE, as the best strategy was to buy from global vendors so the fabs could quickly ramp up their process know-how. After the sanctions, supporting local vendors became the most 'economical' strategy, because if the fabs don't invest in the local vendors, they won't be able to get any equipment in the future for advanced-node capacity expansion. The transition was critical, as supporting local vendors changed from 'doing a favor to the local vendors' to 'driven by the fab's own interest'. As a result, local leading fabs opened a lot of processes that were previously not accessible to local vendors and significantly increased their R&D budget to support the verification and improvement of WFE from local vendors.

2. <u>Co-development accelerated the improvement of local WFE vendors' tech capabilities and quickly increased their competitiveness.</u> The co-development dynamics between the local fabs and domestic suppliers create a virtuous circle that accelerates the WFE domestic substitution. According to our channel checks, many types of domestic matured node WFE are already commercialized but still have small performance gaps compared to global leaders (yield, stability, etc.); running in more and more local fabs is quickly helping them to eliminate the gap. In addition, for those types of equipment that local WFE vendor only had prototypes, leading fabs allowed these WFE to be tested in production lines even at their early product development stages and provided customized feedback to help them improve the design and parameters. These allowed domestic vendors to be engaged in fast test-and-optimize cycles to quickly improve their competitiveness, which then attracted more and more small local fabs to become their customers.

3. <u>Government subsidies incentivize fabs to adopt an increasingly higher localization ratio, and state-backed funds continue to support the WFE R&D investment.</u> For example, Nexchip (688249.CH, not covered) explained that the government will provide certain subsidies if >50% of local equipment is used in 120nm or older nodes, or 25% in 40 & 28nm nodes (link). It seems that the threshold was set slightly higher than their current market share to boost domestic WFE adoption. In addition, the Big Fund continues to provide funding support for WFE R&D. The Big Fund Phase III was established in May 2024 and raised RMB 34.4bn, and we believe part of that will be used to support the rest of the bottleneck equipment that has smaller volumes and higher barriers, thus less 'commercial' if evaluated from a single equipment level. The government support mentioned would also help increase the rate of domestic substitution.

GLOSSARY

EXHIBIT 9: **Glossary of some semiconductor manufacturing techniques**

Abbreviation	Full name	Process	Detailed explanation
Semicap	Semiconductor Capital Equipment		Semicap refers to the broader category of equipment used in the semiconductor industry, including WFE, assembly and packaging equipment, and testing equipment
WFE	Wafer Fabrication Equipment		WFE is a subset of Semicap that specifically refers to the machines and tools used in the manufacturing process of semiconductor wafers, i.e., Front End of chip manufacturing (including part of advanced packaging where the equipment is also used to process wafers)
ICP-RIE	Inductively Coupled Plasma - Reactive Ion Etching	Dry etch	ICP-RIE uses a high-frequency electromagnetic field to generate a dense and highly reactive plasma remove material from a substrate
CCP-RIE	Capacitively Coupled Plasma - Reactive Ion Etching	Dry etch	CCP-RIE uses a radio frequency electric field to generate a plasma and remove material from a substrate
PVD	Physical Vapor Deposition	Deposition	PVD is a thin film deposition technique that involves the transfer of material from a source to a substrate in a vacuum environment
PECVD	Plasma-Enhanced Chemical Vapor Deposition	Deposition	PECVD is a thin film deposition technique that uses a plasma to enhance the chemical reactions between gases and a substrate to deposit a thin film on a substrate
LPCVD	Low Pressure Chemical Vapor Deposition	Deposition	LPCVD involves the reaction of gases at low pressure and high temperature to deposit a thin film on a substrate
SACVD	Sub-Atmospheric Pressure Chemical Vapor Deposition	Deposition	SACVD involves the reaction of gases at sub-atmospheric pressure and high temperature to deposit a thin film on a substrate
ALD	Atomic Layer Deposition	Deposition	ALD involves the sequential exposure of a substrate to alternating gas-phase precursors, resulting in a highly controlled and conformal deposition of thin films with atomic-scale precision
ACHM	Amorphous Carbon Hard Mask	Deposition	One of the advanced dielectric films deposited, which can provide good etch selectivity
UV Cure	Ultraviolet Cure	Deposition	UV cure is a process of curing or hardening a material using ultraviolet light, which triggers a chemical reaction that causes the material to harden or cure in a matter of seconds
HDP-CVD	High-Density Plasma Chemical Vapor Deposition	Deposition	HDP-CVD deposits a thin film on a substrate at relatively low temperature, which helps to minimize thermal stress on the substrate and reduce the risk of defects
CMP	Chemical Mechanical Planarization		CMP is a polishing process used in chip manufacturing to remove imperfections and create a smooth, flat surface on the semiconductor wafer after it has been processed with various layers of materials

Source: Encyclopedia of Integrated Circuit Industry, Bernstein analysis

METHODOLOGY FOR SUPPLIER BOTTOM UP ANALYSIS

We have analyzed China's top 10 semiconductor equipment companies by adjusting their China and semicap revenue mix. We have calculated their combined China semicap revenue through a bottom-up approach. The top 10 Chinese semicap companies we have selected are AMEC, NAURA, Piotech, ACMR Shanghai, Kingsemi, PNC, Hwatsing Tech, Leadmicro Nano, Skyverse, and Wuhan Jingce (AMEC, NAURA, and Piotech are covered, rest not covered). We calculated the top 10 Chinese semicap companies' revenue in 2023 using their officially reported annual results. To estimate the revenue for 2024-26, we have used Wind or Bloomberg revenue consensus for listed and uncovered companies and adjusted it with our China semicap mix estimation. We have used our estimates for the revenue of private and covered companies. We have followed a similar methodology for the top 5 global semicap companies. The top 5 Global semicap companies are: ASML, Lam Research, Applied Materials, Tokyo Electron, KLA.

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