

TAIWAN CCL

High-end players' profitability uptrend restart, with better pricing and product mix outlook; Buy EMC and TUC with new TP of NT\$9,500/2,860

After our update on the 1st round of the high-end CCL pricing hike in April ([here](#)), we now expect key AI/high-end CCL players to enjoy a solid GM expansion from 2Q26 (2-4ppt+ QoQ in 2Q26-4Q26), which could further expand in the 2H26, as we believe the product mix improvement ([Exhibit 8](#); we believe more high-end AI projects volume shipment will start from 2H26) and the 2nd round of high-CCL pricing hike will start in 2H26 (we expect M7+ grade CCL pricing will further go up by 10-15% QoQ), without any push-back from customers, as the AI PCB customers generally can pass through the additional cost to end customers.

Based on our most recent industry check and our AI CCL industry S/D calculation, we believe the key high-end CCL players could raise pricing by 10-15% in end of 3Q26 or early 4Q26, as we expect not only the high-end/high-quality CCL will continue to be the bottleneck of the AI PCB supply chain ([Exhibit 5](#); high-end CCL demand to go up by 96% 2025-28E CAGR vs. high-end CCL supply to only go up by 22% 2025-28E CAGR), alongside the potential higher cost on HVLP4 copper foil and Low DK 2 glass fiber (see [here](#) / [here](#)), with potentially more pricing upside in coming years, as we continue to see AI customers' even stronger demand and eagerness on getting more high-quality CCL supply.

For 2Q26 preview, we expect EMC 2Q26 GM could grow by +4.7ppt QoQ (to 34.1%) while TUC could grow by +4.8ppt QoQ (to 29.9%), with (1) a much better product mix (we estimate both EMC and TUC raised the M6 and below grade CCL pricing by 40%+ QoQ in 2Q26 to accelerate the product mix improvement process, while TUC also guided that it would stop supplying some low end CCL products started from 2Q26), and (2) the better high-end product pricing (both EMC and TUC raised the M7+ grade CCL pricing by 10-15% from April). **We estimate EMC/TUC's 2Q26 OPM to be +2.4ppt/+2.0ppt higher than the street estimate, suggesting a 21%/13% higher than BBG consensus' EPS in 2Q26.**

Going into 3Q26, we expect EMC/TUC's GM to grow by +2.4/+2.4ppt QoQ (to 36.5%/32.3%), thanks to the solid growth from new high-end AI projects (we expect AWS Trainium 3 CCL shipment will grow by 50%+ QoQ, NVDA Vera Rubin CCL mass volume production will start from August, and GOOGL TPU CCL will start the shipment from September), which **would lead to GM +3.1/+3.3ppt higher than BBG consensus and EPS 34/21% higher in 3Q26.**

Chao Wang
+886(2)2730-4195 | kuan-
chao.wang@gs.com
Goldman Sachs (Asia) L.L.C., Taipei
Branch

Allen Chang
+852-2978-2930 |
allen.k.chang@gs.com
Goldman Sachs (Asia) L.L.C.

Al Wang
+886(2)2730-4081 | al.wang@gs.com
Goldman Sachs (Asia) L.L.C., Taipei
Branch

Goldman Sachs does and seeks to do business with companies covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision. For Reg AC certification and other important disclosures, see the Disclosure Appendix, or go to www.gs.com/research/hedge.html. Analysts employed by non-US affiliates are not registered/qualified as research analysts with FINRA in the U.S.

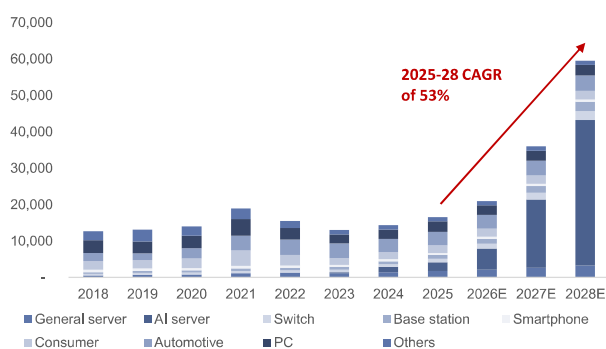
Overall, we raise our TPs for EMC & TUC to NT\$9,500/2,860 from NT\$6,000/1,888 with 9-13%/12-27% upward earnings revisions in 2027/28. Maintain Buy on EMC & TUC.

High-end CCL demand at 96% 2025-28E CAGR, outpacing overall CCL market

High-end CCL market demand remains strong over 2026-28E, while supply constraints likely to persist

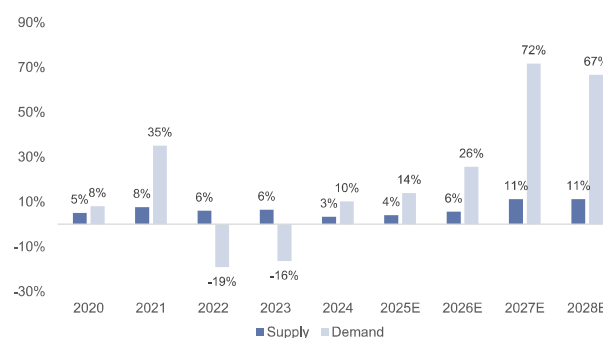
We update our CCL industry model and introduce our 2028E CCL TAM estimates at US\$57.0bn, implying 53% 2025-28E CAGR ([Exhibit 1](#); we now expect 2026/27 CCL TAM to reach US\$20.0/34.1bn). Within overall CCL TAM, we expect high-end CCL TAM tracking faster at 96% 2025-28E CAGR, outpacing mid-to-low-end CCL TAM at 1% 2025-28E CAGR. The strong high-end CCL demand is mainly driven by (1) AI servers and switches (with 155%/36% 2025-28E CAGR), and (2) general servers (with 23% 2025-28E CAGR). We continue to expect high-end CCL suppliers to operate at full utilization, while high-end capacity expansion going forward is unlikely to ramp up quickly enough (at 16% 2025-28E CAGR) to keep pace with the strong demand. As a result, we expect the high-end CCL market to remain undersupplied throughout 2026-28E ([Exhibit 2](#)), supporting better pricing and continued margin expansion for high-end CCL suppliers.

Exhibit 1: We expect the overall CCL market to grow by an 53% 2025-28E CAGR
US\$ mn



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 2: We expect the overall CCL market to remain in undersupply in 2026-28E



Source: Company data, Goldman Sachs Global Investment Research

Demand update: increasing CCL dollar content per system from CCL spec upgrade is the key driver for AI CCL demand

We continue to see strong high-end CCL demand from AI servers, followed by switches and general servers, and we expect the high-end CCL demand to reach 96% 2025-28E CAGR ([Exhibit 3](#)), outpacing the 1% 2025-28E CAGR from mid-to-low-end CCL demand. ASP for high-end CCL is generally 2x-8x higher than the mid-to-low-end products, and we estimate this will further accelerate high-end CCL TAM expansion to account for 52%/71%/82% of the global CCL market in 2026/27/28E ([Exhibit 4](#); vs. <40% before and during 2025).

Within the high-end CCL market, we expect AI server CCL demand to grow at a 155%

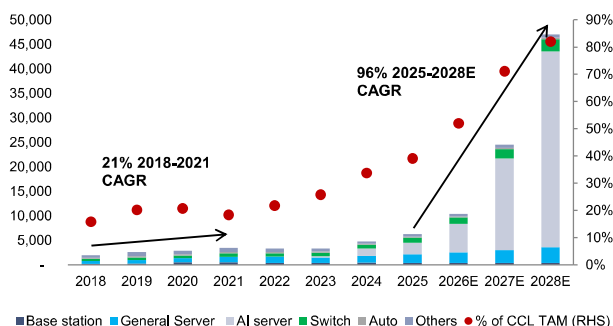
2025–28E CAGR, outpacing the rest of the sector and accounting for 70% of total CCL demand by 2028, up from 15% in 2025. Nvidia's CCL demand is the strongest within the AI server segment with 192% 2025–28E CAGR. On top of its stable GPU shipment growth of 14% 2025–28E CAGR, we expect a sharp increase in CCL dollar content per system (we expect VR200 to see 3.5x+ more CCL dollar content vs. GB300), with the sharp increase driven by (1) the migration from M7+ to M8+ grade CCL, with ASP expansion of 50%+, and (2) additional CCL content per system (additional midplane board in VR200).

We expect ASIC CCL demand to grow at 96% 2025–28E CAGR, driven by strong shipment growth (40%+ CAGR over 2025–28E) and CCL spec upgrade that is slightly lagging Nvidia's roadmap. Moreover, we expect switches CCL demand to grow at a 36% 2025–28E CAGR, as strong AI server demand should also boost demand for switches to support higher-speed connectivity.

We expect general server CCL demand to increase at 22% CAGR over 2025–28E, supported by the solid general server shipment (8% 2025–28E CAGR) driven by growing adoption of agentic AI, for which we believe demand could last for another 3–5 years. We also expect CCL dollar content to per system to increase as next gen CPUs (including AMD's Venice and Intel's Oak Stream) will migrate from M6 to M7 grade CCL (80%+ increase in ASP) and the CCL usage per system will see a slight increase (~10% increase due to PCB with higher layer count).

Exhibit 3: We expect the high-end CCL market to continue to outgrow the overall market in the coming years, and reach 50%+ of the total market size in 2026–28E

US\$ mn



2024–28E based on GSe

Source: Company data, Goldman Sachs Global Investment Research

Exhibit 4: We expect high-end CCL to account for an increasing share of the total CCL TAM over 2025–28E



Source: Company data, Goldman Sachs Global Investment Research

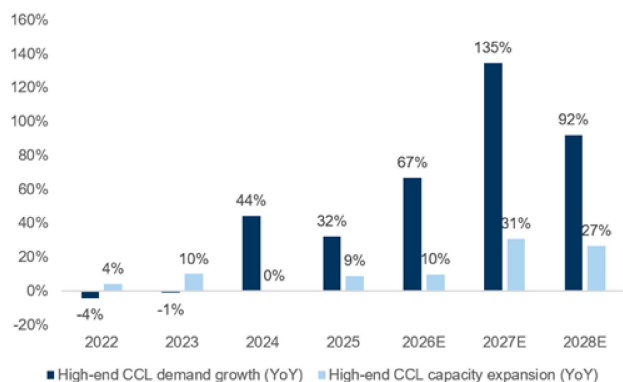
Supply update: high-end CCL supply expansion remains insufficient to meet strong AI demand

We expect overall CCL supply to grow at a 9% 2025–2028E CAGR, with the expansion primarily focused on the high-end CCL side, which we expected to grow at 22% CAGR over the period (Exhibit 5). High-end suppliers are more proactive with capacity expansion, supported by already full utilization rates and strong AI demand outlook. Meanwhile, we expect low-end CCL capacity to remain largely the same in 2025–28E (Exhibit 6), as utilization rates for low-end CCL are not full yet as it is currently constrained by E-glass shortage and the demand outlook remains weak

(consumer-related application accounts for 50%+ of total low-end CCL demand).

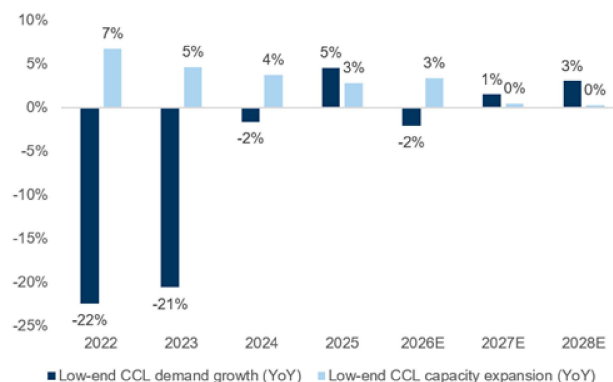
Despite the solid high-end CCL capacity expansion pace, we believe supply growth will still fall short of the strong demand driven by AI (with 96% 2025–28E CAGR). As a result, we expect the high-end CCL market to remain in undersupply throughout 2026–28E, which would further support better pricing for high-end CCL suppliers in coming quarters/years.

Exhibit 5: We expect high-end CCL industry will face supply shortage throughout 2026–28E



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 6: We continue to see weak demand in low-end CCL market



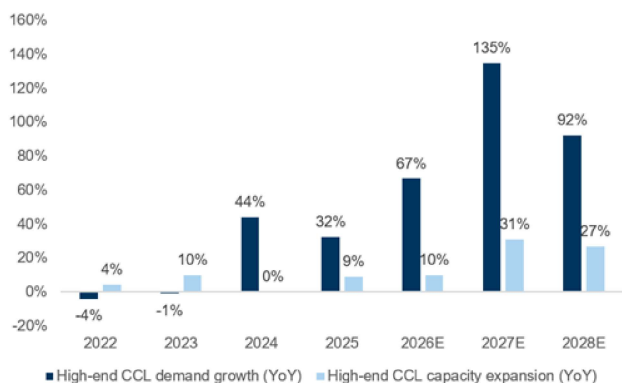
Source: Company data, Goldman Sachs Global Investment Research

High-end CCL pricing is supported by AI demand, more sustainable than cost-driven pricing for low-end CCL

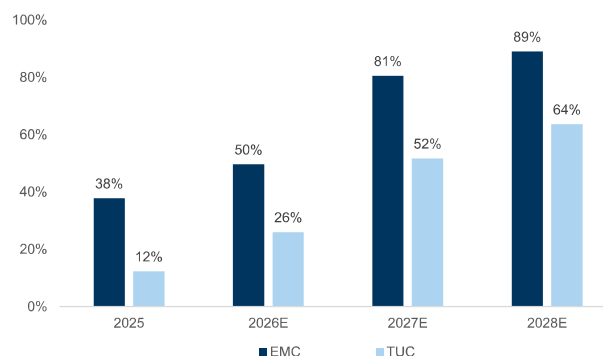
High-end CCL pricing to be supported by strong AI demand, driving revenue and margin expansion for EMC and TUC

As discussed above, we expect the high-end CCL market to be driven by AI demand, and we expect the seasonality to be limited going forward. We believe the pricing dynamics for high-end CCL will differ fundamentally from those of mid-to-low-end CCL. Unlike mid-to-low-end CCL, where price increases are largely driven by rising material costs (including E-glass and RTF copper foil), high-end CCL price increases are likely to be more than raw material cost pass-through, with pricing primarily driven by strong demand amid a supply-constrained environment ([Exhibit 7](#)).

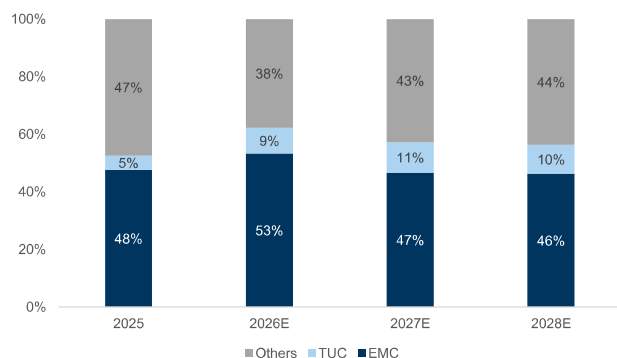
While the AI CCL market continues to expand, we expect AI exposure for both EMC and TUC to continue trending higher through 2026–28 ([Exhibit 8](#)). Moreover, we believe M7+ exposure will outpace AI exposure, further supported by rising high-end CCL demand from switches ([Exhibit 10](#)). Overall, we expect the two companies to maintain a combined market share of 50%+ in the AI CCL market throughout 2026–28E ([Exhibit 9](#)). Strong AI demand should continue to improve the product mix of both companies, coupled with further pricing upside in coming years, and we expect to see a profitability uptrend for EMC & TUC.

Exhibit 7: We expect demand to continue to outpace supply in 2025-28E

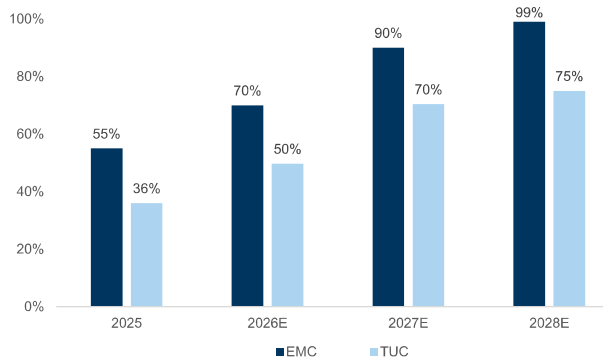
Source: Company data, Goldman Sachs Global Investment Research

Exhibit 8: AI exposure to continue to increase for both EMC and TUC in coming years

Source: Company data, Goldman Sachs Global Investment Research

Exhibit 9: AI server CCL market share - EMC and TUC to account for 50%+ market share in coming years

Source: Company data, Goldman Sachs Global Investment Research

Exhibit 10: M7+ CCL exposure to continue to increase for both EMC and TUC to meet with strong AI demand

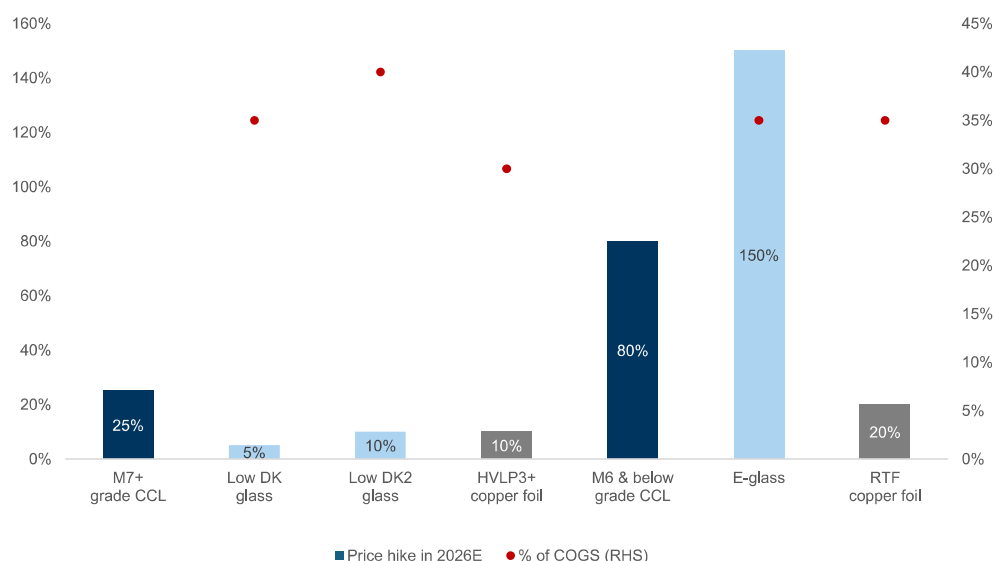
Source: Company data, Goldman Sachs Global Investment Research

Low-end CCL pricing hike likely to decelerate amid weak demand outlook

We saw low-end CCL pricing increase at a faster pace than high-end CCL in 1H26, supported by rising raw material costs and tightening low-end CCL supply ([Exhibit 11](#)). Specifically, E-glass prices have surged 80%+ in 1H26 due to supply tightness as suppliers reallocate capacity toward higher-value Low Dk glass, creating a significant shortage of E-glass. Meanwhile, some CCL suppliers continue to shift production capacity from low-end to high-end products, further tightening low-end CCL supply and supporting price increases.

We expect low-end CCL pricing to continue to increase in 3Q26, driven by ongoing shortages of E-glass and the ongoing tight low-end CCL supply. However, we expect the pace of price increase to decelerate in 4Q26 as the E-glass shortage gradually eases, supported by suppliers shifting capacity back to E-glass production. In addition, demand is likely to soften as consumer electronics demand typically exhibits weak seasonality going into 4Q and 1Q. The demand outlook for low-end CCL is expected to remain weak going forward, as consumer-related applications account for 50%+ of total low-end CCL demand: we expect smartphone to see -10%/3%/1% YoY growth (see [here](#)) and PC to see -14%/-5%/0% YoY growth (see [here](#)) throughout 2026-28E.

Exhibit 11: High-end CCL price increases are supported by strong AI demand, while low-end CCL prices increases are driven by sharp cost inflation



Source: Company data, Goldman Sachs Global Investment Research

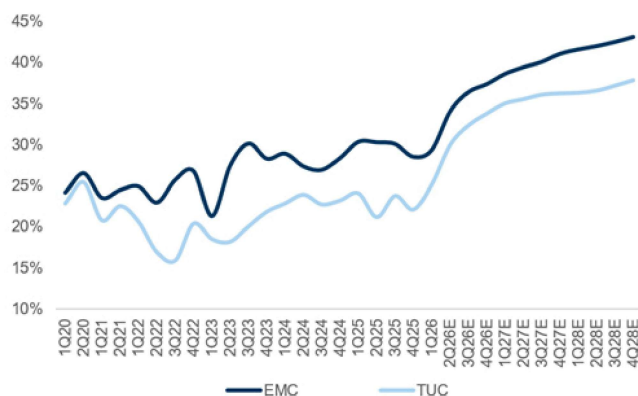
2Q26 preview & 3Q26 outlook: EMC & TUC start seeing the new round of GM/OPM uptrend

We started to see EMC/TUC's GM expand from ~26%/21% before the AI era (2020-2023 average) to ~29%/23% in 2024 & 2025 average, but the GM expansion started to slowdown from 2H25-1Q26 due mainly to the acceleration in material costs due to shortage issues ([here](#)). However, we started to see EMC and TUC raise both high-end and low-end product pricing by 10-15%/40-60% from April, which makes us believe a new round of margin expansion will start from 2Q26 (we expect EMC/TUC's GM will expand from 29.4%/25.1% in 1Q26 to 37.4%/33.8% in 4Q26 ([Exhibit 12](#)), which could further expand in 2027/28), as the pricing hike this time is driven by CCL players' increasing importance in the AI supply chain (key bottleneck components', including glass fiber and copper foil etc., allocations are mostly controlled by high-end CCL players today) as well as customers' eagerness on getting more high-quality CCL products without much pushback on pricing hikes from PCB customers (our check suggests most PCB customers are able to pass through the additional cost to end customers, and are willing to accept pricing hikes if they can get sufficient high-quality CCL supply).

For 2Q26, we expect both EMC and TUC will deliver a good profitability growth (EMC 2Q26 GM could grow by +4.7ppt QoQ while TUC could grow by +4.8ppt QoQ), with (1) a much better product mix (we estimate both EMC and TUC raise the M6 and below grade CCL pricing by 40%+ QoQ in 2Q26 to accelerate the product mix improvement process, while TUC also guided that it would stop supplying some low end CCL products started from 2Q26), and (2) the better high-end product pricing (both EMC and TUC raised the M7+ grade CCL pricing by 10-15% from April). We estimate EMC/TUC's 2Q26 OPM to be +2.4ppt/+2.0ppt higher than the street estimate, suggesting a 21%/13% higher than BBG consensus' EPS in 2Q26.

Going into 3Q26, we expect EMC/TUC's GM to grow by +2.4/+2.4ppt QoQ, thanks to the solid growth from new high-end AI projects (we expect AWS Trainium 3 CCL shipment will grow by 50%+ QoQ, NVDA Vera Rubin CCL mass volume production will start from August, and GOOGL TPU CCL will start the shipment from September), which would lead GM to be +3.1/+3.3ppt higher than BBG consensus GM and EPS 34/21% higher in 3Q26.

Exhibit 12: We believe EMC & TUC will continue to see GM uptrend through 2025-28E



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 13: EMC & TUC 3Q26 vs. 2Q26 earnings estimates, we continue to expect margin expansion

NT\$ mn; GSe	EMC			TUC		
	2Q26	3Q26	QoQ	2Q26	3Q26	QoQ
Sales	47,275	56,692	20%	14,300	17,230	20%
Gross Profit	16,110	20,665	28%	4,277	5,569	30%
EBIT	12,990	17,150	32%	3,419	4,569	34%
Net Income	10,132	13,206	30%	2,651	3,473	31%
EPS (NT\$)	28.27	36.85	30%	9.18	12.03	31%
GM (%)	34.1%	36.5%	2.4ppt	29.9%	32.3%	2.4ppt
OPM (%)	27.5%	30.3%	2.8ppt	23.9%	26.5%	2.6ppt

Source: Company data, Goldman Sachs Global Investment Research

Exhibit 14: 2Q26 & 3Q26 GSe vs. BBG consensus comp table

NT\$ mn	2Q26E		3Q26E	
GSe	EMC	TUC	EMC	TUC
Sales	47,275	14,300	56,692	17,230
Gross Profit	16,110	4,277	20,665	5,569
EBIT	12,990	3,419	17,150	4,569
Net Income	10,132	2,651	13,206	3,473
EPS (NT\$)	28.27	9.18	36.85	12.03
GM (%)	34.1%	29.9%	36.5%	32.3%
OPM (%)	27.5%	23.9%	30.3%	26.5%
BBG consensus	EMC	TUC	EMC	TUC
Sales	42,314	14,174	47,797	16,451
Gross Profit	13,714	3,950	15,964	4,782
EBIT	10,619	3,111	14,208	3,752
Net Income	8,284	2,397	9,851	2,892
EPS (NT\$)	23.30	8.13	27.49	9.98
GM (%)	32.4%	27.9%	33.4%	29.1%
OPM (%)	25.1%	21.9%	29.7%	22.8%
Differences (GSe vs. BBG)	EMC	TUC	EMC	TUC
Sales	12%	1%	19%	5%
Gross Profit	17%	8%	29%	16%
EBIT	22%	10%	21%	22%
Net Income	22%	11%	34%	20%
EPS (NT\$)	21%	13%	34%	21%
GM (%)	1.7ppt	2.0ppt	3.1ppt	3.3ppt
OPM (%)	2.4ppt	2.0ppt	0.5ppt	3.7ppt

Source: Company data, Goldman Sachs Global Investment Research

Earnings estimate changes

Earnings revisions

EMC

We revise up our 2026/27/28E EPS estimates by 27/13/27% to factor in the higher-than-expected price hike across low-end to high-end CCL. The price hike reflects more than cost pass-through and is driven by strong demand, which could not only drive the overall revenue and profitability but also accelerate the product mix improvement. Overall, we revise up 2026/27/28E revenue estimates by 18/10/22% and revise up our GM estimates by 0.7/0.1/0.2ppt to factor in the better than our original expectation pricing conditions in coming years.

Exhibit 15: EMC earnings revision table

EMC P&L (NT\$ mn)	2026 New	2026 Old	Diff.	2027 New	2027 Old	Diff.	2028 New	2028 Old	Diff.
Sales	193,449	163,369	18%	335,881	305,044	10%	557,322	456,851	22%
Gross Profit	67,613	55,905	21%	134,357	121,646	10%	236,370	192,792	23%
EBIT	54,710	43,246	27%	116,201	102,879	13%	212,947	167,784	27%
Net Income	42,282	33,387	27%	89,474	79,217	13%	163,969	129,194	27%
EPS (NT\$)	117.98	93.16	27%	249.67	221.04	13%	457.53	360.50	27%
Ratio analysis									
Gross margin	35.0%	34.2%	0.7pp	40.0%	39.9%	0.1pp	42.4%	42.2%	0.2pp
EBIT margin	28.3%	26.5%	1.8pp	34.6%	33.7%	0.9pp	38.2%	36.7%	1.5pp
Net margin	21.9%	20.4%	1.4pp	26.6%	26.0%	0.7pp	29.4%	28.3%	1.1pp

Source: Company data, Goldman Sachs Global Investment Research

TUC

We revise down 2026 revenue estimates by 2% to reflect weaker-than-expected shipments due to capacity constraints but revise up our 2027/28E revenue estimates by 3/5% to factor in the higher-than-expected price hike across all grades of CCL and improving product mix, and revise up our 2026/27/28 GM estimate by 0.5/0.9/0.9ppt to factor in the better margin improvement driven by higher pricing. For earnings, we revise up 2026/27/28E net income estimates by 4%/9%/12%.

Exhibit 16: TUC earnings revision table

TUC P&L (NT\$ mn)	2026E New	2026E Old	Diff.	2027E New	2027E Old	Diff.	2028E New	2028E Old	Diff.
Sales	61,207	62,252	-2%	118,814	115,123	3%	195,722	187,066	5%
Gross Profit	18,998	19,001	0%	42,526	40,195	6%	72,475	67,527	7%
EBIT	15,340	14,814	4%	36,915	33,960	9%	65,017	58,064	12%
Net Income	11,187	10,787	4%	26,996	24,780	9%	48,710	43,495	12%
EPS (NT\$)	38.75	37.36	4%	93.50	85.82	9%	168.70	150.64	12%
Ratio analysis									
Gross margin	31.0%	30.5%	0.5pp	35.8%	34.9%	0.9pp	37.0%	36.1%	0.9pp
EBIT margin	25.1%	23.8%	1.3pp	31.1%	29.5%	1.6pp	33.2%	31.0%	2.2pp
Net margin	18.3%	17.3%	1.0pp	22.7%	21.5%	1.2pp	24.9%	23.3%	1.6pp

Source: Company data, Goldman Sachs Global Investment Research

Valuation

EMC

Maintain Buy on EMC, with a new TP of NT\$9,500 from NT\$6,000, based on the same 27x P/E (in line with the peak P/E multiple for AI component suppliers in past 3 years) but we rollover our valuation period from 2027 to 2H27-1H28, and factoring in our earnings revisions.

Exhibit 17: EMC P&L table

NT\$m	1Q25	2Q25	3Q25	4Q25	1Q26	2Q26E	3Q26E	4Q26E	1Q27E	2Q27E	3Q27E	4Q27E	2024	2025	2026E	2027E	2028E
Revenue	21,680	22,508	25,146	24,927	33,067	47,275	56,692	56,414	63,454	78,151	90,726	103,550	64,377	94,261	193,449	335,881	557,322
Gross profit	6,590	6,829	7,576	7,124	9,729	16,110	20,665	21,108	24,534	30,853	36,404	42,566	17,970	28,120	67,613	134,357	236,370
Operating expense	(2,051)	(2,186)	(2,586)	(2,190)	(2,601)	(3,120)	(3,515)	(3,667)	(4,156)	(4,416)	(4,718)	(4,867)	(5,818)	(9,012)	(12,903)	(18,156)	(23,423)
Operating income	4,540	4,644	4,990	4,935	7,128	12,990	17,150	17,442	20,378	26,437	31,686	37,699	12,152	19,108	54,710	116,201	212,947
Pretax income	4,667	4,467	5,122	4,620	7,194	12,990	17,150	17,442	20,378	26,437	31,686	37,699	12,133	18,876	54,776	116,201	212,947
Taxes expense	(1,200)	(989)	(1,157)	(884)	(1,855)	(2,858)	(3,945)	(3,837)	(4,687)	(6,081)	(7,288)	(8,671)	(2,564)	(4,231)	(12,495)	(26,726)	(48,978)
Net income	3,469	3,478	3,965	3,737	5,340	10,132	13,206	13,604	15,691	20,357	24,398	29,029	9,578	14,649	42,282	89,474	163,969
EPS, NT\$	10.01	10.02	11.19	10.45	14.90	28.27	36.85	37.96	43.78	56.80	68.08	81.00	27.81	41.67	117.98	249.67	457.53
Ratio analysis and assumption																	
As % of sales																	
Gross margin	30.4%	30.3%	30.1%	28.6%	29.4%	34.1%	36.5%	37.4%	38.7%	39.5%	40.1%	41.1%	27.9%	29.8%	35.0%	40.0%	42.4%
Operating expense ratio	9.5%	9.7%	10.3%	8.8%	7.9%	6.6%	6.2%	6.5%	6.6%	5.7%	5.2%	4.7%	9.0%	9.6%	6.7%	5.4%	4.2%
Operating margin	20.9%	20.6%	19.8%	19.8%	21.6%	27.5%	30.3%	30.9%	32.1%	33.8%	34.9%	36.4%	18.9%	20.3%	28.3%	34.6%	38.2%
Net margin	16.0%	15.5%	15.8%	15.0%	16.1%	21.4%	23.3%	24.1%	24.7%	26.0%	26.9%	28.0%	14.9%	15.5%	21.9%	26.6%	29.4%
QoQ growth (%)																	
Revenue	16.8%	3.8%	11.7%	-0.9%	32.7%	43.0%	19.9%	-0.5%	12.5%	23.2%	16.1%	14.1%	-	-	-	-	-
Gross profit	24.8%	3.6%	10.9%	-6.0%	36.6%	65.6%	28.3%	2.1%	16.2%	25.8%	18.0%	16.9%	-	-	-	-	-
Operating income	28.8%	2.3%	7.5%	-1.1%	44.5%	82.2%	32.0%	1.7%	16.8%	29.7%	19.9%	19.0%	-	-	-	-	-
Net income	31.0%	0.3%	14.0%	-5.8%	42.9%	89.7%	30.3%	3.0%	15.3%	29.7%	19.9%	19.0%	-	-	-	-	-
YoY growth (%)																	
Revenue	68.0%	45.7%	44.0%	34.3%	52.5%	110.0%	125.5%	126.3%	91.9%	65.3%	60.0%	83.6%	56%	46%	105%	74%	66%
Gross profit	76.3%	61.3%	60.7%	34.9%	47.6%	135.9%	172.8%	196.3%	152.2%	91.5%	76.2%	101.7%	59%	56%	140%	99%	76%
Operating income	79.0%	58.8%	57.6%	40.0%	57.0%	179.7%	243.7%	253.5%	185.9%	103.5%	84.8%	116.1%	65%	57%	186%	112%	83%
Net income	75.3%	42.8%	57.6%	41.1%	53.9%	191.3%	233.0%	264.1%	193.8%	100.9%	84.8%	113.4%	75%	53%	189%	112%	83%

Source: Company data, Goldman Sachs Global Investment Research

TUC

We maintain Buy on TUC, with new TP of NT\$2,860 from NT\$1,888, which is based on an unchanged 22x on 2H27-1H28E P/E (rolled over from 2027E), which is +2x STDV higher than the past 3-year industry average P/E multiple, and factoring in our earnings

revisions.

Exhibit 18: TUC P&L table

NT\$m	1Q25	2Q25	3Q25	4Q25	1Q26	2Q26E	3Q26E	4Q26E	1Q27E	2Q27E	3Q27E	4Q27E	2024	2025	2026E	2027E	2028E
Revenue	6,372	6,780	8,063	9,125	10,054	14,300	17,230	19,623	21,530	25,320	33,139	38,825	23,070	30,340	61,207	118,814	195,722
Gross profit	1,533	1,435	1,915	2,015	2,529	4,277	5,569	6,624	7,533	8,990	11,943	14,060	5,342	6,898	18,998	42,526	72,475
Operating expense	(597)	(583)	(649)	(725)	(701)	(858)	(999)	(1,099)	(1,173)	(1,355)	(1,491)	(1,592)	(2,010)	(2,554)	(3,657)	(5,611)	(7,458)
Operating income	936	853	1,266	1,290	1,828	3,419	4,569	5,525	6,360	7,635	10,452	12,468	3,332	4,344	15,340	36,915	65,017
Pretax income	935	840	1,318	1,426	1,874	3,399	4,569	5,005	5,840	7,235	10,452	12,468	3,378	4,519	14,847	35,995	64,946
Taxes expense	(263)	(188)	(315)	(344)	(614)	(748)	(1,097)	(1,201)	(1,460)	(1,809)	(2,613)	(3,117)	(773)	(1,109)	(3,659)	(8,999)	(16,237)
Net income	672	652	1,003	1,082	1,260	2,651	3,473	3,804	4,380	5,426	7,839	9,351	2,604	3,409	11,187	26,996	48,710
EPS, NT\$	2.43	2.36	3.58	3.76	4.36	9.18	12.03	13.17	15.17	18.79	27.15	32.39	9.56	12.13	38.75	93.50	168.70
Ratio analysis and assumption																	
As % of sales																	
Gross margin	24.1%	21.2%	23.7%	22.1%	25.1%	29.9%	32.3%	33.8%	35.0%	35.5%	36.0%	36.2%	23.2%	22.7%	31.0%	35.8%	37.0%
Operating expense ratio	9.4%	8.6%	8.1%	7.9%	7.0%	6.0%	5.8%	5.6%	5.5%	5.4%	4.5%	4.1%	8.7%	8.4%	6.0%	4.7%	3.8%
Operating margin	14.7%	12.6%	15.7%	14.1%	18.2%	23.9%	26.5%	28.2%	29.5%	30.2%	31.5%	32.1%	14.4%	14.3%	25.1%	31.1%	33.2%
Net margin	10.6%	9.6%	12.4%	11.9%	12.5%	18.5%	20.2%	19.4%	20.3%	21.4%	23.7%	24.1%	11.3%	11.2%	18.3%	22.7%	24.9%
QoQ growth (%)																	
Revenue	1.0%	6.4%	18.9%	13.2%	10.2%	42.2%	20.5%	13.9%	9.7%	17.6%	30.9%	17.2%	-	-	-	-	-
Gross profit	4.7%	-6.4%	33.4%	5.2%	25.5%	69.2%	30.2%	18.9%	13.7%	19.3%	32.9%	17.7%	-	-	-	-	-
Operating income	0.4%	-8.9%	48.4%	1.9%	41.7%	87.1%	33.6%	20.9%	15.1%	20.0%	36.9%	19.3%	-	-	-	-	-
Net income	-4.6%	-3.1%	53.8%	8.0%	16.4%	110.4%	31.0%	9.5%	15.2%	23.9%	44.5%	19.3%	-	-	-	-	-
YoY growth (%)																	
Revenue	43.7%	18.9%	21.8%	44.6%	57.8%	110.9%	113.7%	115.1%	114.1%	77.1%	92.3%	97.9%	44%	32%	102%	94%	65%
Gross profit	51.5%	5.3%	27.4%	37.7%	64.9%	198.0%	190.8%	228.8%	197.9%	110.2%	114.5%	112.3%	69%	29%	175%	124%	70%
Operating income	65.8%	-1.6%	30.6%	38.4%	95.3%	301.0%	261.1%	328.4%	248.0%	123.3%	128.7%	125.7%	134%	30%	253%	141%	76%
Net income	48.8%	-6.0%	33.0%	53.6%	87.4%	306.8%	246.4%	251.4%	247.6%	104.7%	125.7%	145.8%	216%	31%	228%	141%	80%

Source: Company data, Goldman Sachs Global Investment Research

Investment Thesis & PT methodology and risks

EMC, a key supplier of high-end HDI material (70%+ market share) and SLP material (90%+ market share), has been focusing on the high-speed switch/server CCL market for 3-5+ years. We are positive on its market share trajectory in the server industry and expect EMC to increase its share from <10% in the Purley generation to 15-20%/20%+ in the Whitley/Eagle Stream platforms. EMC is also proactively expanding its share in the switch market (40%/30%+ in 2024/23 vs. <5% before 2019), with an expanding AI customer base (only one 400G customer in 3Q20, to being one of the largest suppliers in 2023), which should continue to benefit the company's top/bottom line growth over time. We believe EMC's leading position in the AI server CCL market should drive strong revenue growth and GM/OPM expansion in the long term, given that it is the major supplier for all Nvidia/Google/AWS AI server projects, and we expect it to maintain its leadership position. Considering its leading position in the high-end CCL industry, solid production skills and earnings growth outlook, we are Buy rated on the stock. With the shares trading at a 2026E P/E below AI server component suppliers and supported by a solid growth outlook, we view valuation as attractive.

Key downside risks include: (1) RCC to replace all high-end smartphone HDI design; (2) rising trade tensions, which could lead to weaker smartphone and server shipments; and (3) rising competition from mainland China peers.

Valuation methodology: Our 12m TP of NT\$9,500 is based on 27x 2H27-1H28E P/E (in line with the peak P/E multiple for AI component suppliers in the past 3 years).

Key downside risks: (1) RCC to replace all high-end smartphone HDI design; (2) rising trade tensions, which could lead to weaker smartphone and server shipments; and (3)

rising competition from mainland China peers.

TUC is a key high-end global CCL supplier that focuses on M7+ grade high-speed CCL (key applications include high-end switches (100G+) and AI server materials), with 20%+ market share in the past two years. The company continues to expect its unit market share in the server industry to increase from 15% in Whitley and Purley processors to higher in the Eagle Stream generation, and plans to launch two types of products for low-end and high-end customers (T2A and T2C) to gain market share. Also, strong growth in 400G/800G switch shipments and new 800G switch shipments, scheduled for launch in 2025-27, should continue to be a key demand driver for TUC, in our view. Additionally, the company is working on high-end AI projects with CSP and enterprise players, which we believe should drive revenue momentum in the long term. We view the stock as undervalued vs. Taiwan CCL peers on a P/E basis and rate it Buy.

Key downside risks include: (1) slower-than-expected share gains in the low-loss CCL segment; (2) rising trade tensions, which could lead to weaker server and switch shipments globally; and (3) rising competition from mainland China peers.

Valuation methodology: Our 12m TP of NT\$2,860 is based on a 22x 2027E P/E (+2x STDV higher than the past 3-year industry average P/E multiple).

Key downside risks: (1) slower-than-expected share gains in the low-loss CCL segment; (2) rising trade tensions, which could lead to weaker server and switch shipments globally; and (3) rising competition from mainland China peers.

Disclosure Appendix

Reg AC

We, Chao Wang, Allen Chang and Al Wang, hereby certify that all of the views expressed in this report accurately reflect our personal views about the subject company or companies and its or their securities. We also certify that no part of our compensation was, is or will be, directly or indirectly, related to the specific recommendations or views expressed in this report.

Unless otherwise stated, the individuals listed on the cover page of this report are analysts in Goldman Sachs' Global Investment Research division.

Contributing Authors: Chao Wang Goldman Sachs (Asia) L.L.C., Taipei Branch, Allen Chang Goldman Sachs (Asia) L.L.C., Al Wang Goldman Sachs (Asia) L.L.C., Taipei Branch.

Unless otherwise stated, the individuals listed in the Contributing Authors disclosure of this report are analysts in Goldman Sachs' Global Investment Research division.

GS Factor Profile

The Goldman Sachs Factor Profile provides investment context for a stock by comparing key attributes to the market (i.e. our universe of rated stocks) and its sector peers. The four key attributes depicted are: Growth, Financial Returns, Multiple (e.g. valuation) and Integrated (a composite of Growth, Financial Returns and Multiple). Growth, Financial Returns and Multiple are calculated by using normalized ranks for specific metrics for each stock. The normalized ranks for the metrics are then averaged and converted into percentiles for the relevant attribute. The precise calculation of each metric may vary depending on the fiscal year, industry and region, but the standard approach is as follows:

Growth is based on a stock's forward-looking sales growth, EBITDA growth and EPS growth (for financial stocks, only EPS and sales growth), with a higher percentile indicating a higher growth company. **Financial Returns** is based on a stock's forward-looking ROE, ROCE and CROCI (for financial stocks, only ROE), with a higher percentile indicating a company with higher financial returns. **Multiple** is based on a stock's forward-looking P/E, P/B, price/dividend (P/D), EV/EBITDA, EV/FCF and EV/Debt Adjusted Cash Flow (DACF) (for financial stocks, only P/E, P/B and P/D), with a higher percentile indicating a stock trading at a higher multiple. The **Integrated** percentile is calculated as the average of the Growth percentile, Financial Returns percentile and (100% - Multiple percentile).

Financial Returns and Multiple use the Goldman Sachs analyst forecasts at the fiscal year-end at least three quarters in the future. Growth uses inputs for the fiscal year at least seven quarters in the future compared with the year at least three quarters in the future (on a per-share basis for all metrics).

For a more detailed description of how we calculate the GS Factor Profile, please contact your GS representative.

M&A Rank

Across our global coverage, we examine stocks using an M&A framework, considering both qualitative factors and quantitative factors (which may vary across sectors and regions) to incorporate the potential that certain companies could be acquired. We then assign a M&A rank as a means of scoring companies under our rated coverage from 1 to 3, with 1 representing high (30%-50%) probability of the company becoming an acquisition target, 2 representing medium (15%-30%) probability and 3 representing low (0%-15%) probability. For companies ranked 1 or 2, in line with our standard departmental guidelines we incorporate an M&A component into our target price. M&A rank of 3 is considered immaterial and therefore does not factor into our price target, and may or may not be discussed in research.

Quantum

Quantum is Goldman Sachs' proprietary database providing access to detailed financial statement histories, forecasts and ratios. It can be used for in-depth analysis of a single company, or to make comparisons between companies in different sectors and markets.

Disclosures

The rating(s) for Elite Material and Taiwan Union Technology Corp. is/are relative to the other companies in its/their coverage universe: AWSC, Airtac International Group, Co-Tech Development Corp., Delta Electronics, Elite Material, GCE, Hiwin Corp., ITEQ Corp, Kinsus, Lotes, NYPCB, Taiwan Union Technology Corp., Unimicron Technology, Win Semiconductors Corp., Yageo Corp., Zhen Ding Technology Holding

Company-specific regulatory disclosures

The following disclosures relate to relationships between The Goldman Sachs Group, Inc. (with its affiliates, "Goldman Sachs") and companies covered by Goldman Sachs Global Investment Research and referred to in this research.

Goldman Sachs beneficially owned 1% or more of common equity (excluding positions managed by affiliates and business units not required to be aggregated under US securities law) as of the month end preceding this report: Elite Material (NT\$4,495.00) and Taiwan Union Technology Corp. (NT\$1,170.00)

Goldman Sachs expects to receive or intends to seek compensation for investment banking services in the next 3 months: Elite Material (NT\$4,495.00)

Goldman Sachs had an investment banking services client relationship during the past 12 months with: Elite Material (NT\$4,495.00)

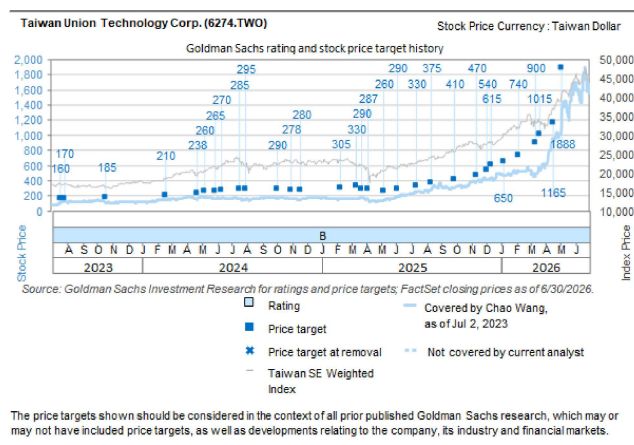
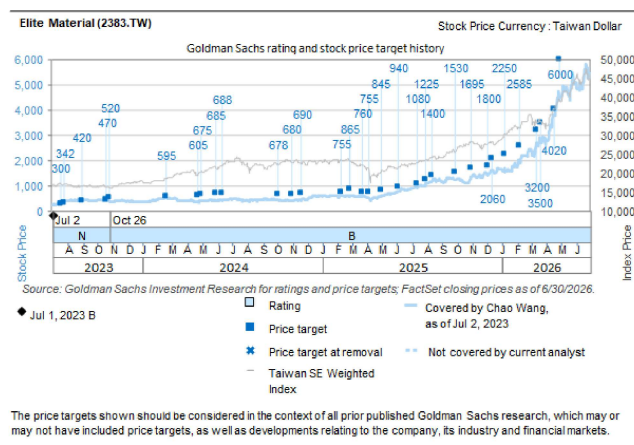
Distribution of ratings/investment banking relationships

Goldman Sachs Investment Research global Equity coverage universe

	Rating Distribution				Investment Banking Relationships		
	Buy	Hold	Sell		Buy	Hold	Sell
Global	50%	34%	16%		65%	59%	43%

As of July 1, 2026, Goldman Sachs Global Investment Research had investment ratings on 3,104 equity securities. Goldman Sachs assigns stocks as Buys and Sells on various regional Investment Lists; stocks not so assigned are deemed Neutral. Such assignments equate to Buy, Hold and Sell for the purposes of the above disclosure required by the FINRA Rules. See 'Ratings, Coverage universe and related definitions' below. The Investment Banking Relationships chart reflects the percentage of subject companies within each rating category for whom Goldman Sachs has provided investment banking services within the previous twelve months.

Price target and rating history chart(s)



Target price history table(s)

Taiwan Union Technology Corp. (6274.TWO)

Date of report	Target price (NT\$)	Closing price (NT\$)
06-May-26	1,888.00	1,315.00
17-Apr-26	1,165.00	946.00
20-Mar-26	1,015.00	554.00
12-Mar-26	900.00	452.50
05-Feb-26	740.00	520.00
06-Jan-26	650.00	476.00
12-Dec-25	615.00	443.00
04-Dec-25	540.00	411.00
12-Nov-25	470.00	407.00
29-Sep-25	410.00	298.00
13-Aug-25	375.00	282.50
15-Jul-25	330.00	264.00
05-Jun-25	290.00	188.50
07-May-25	260.00	142.50
06-Apr-25	287.00	159.00
24-Mar-25	290.00	176.50
12-Mar-25	330.00	160.50
09-Feb-25	305.00	163.50
20-Nov-24	280.00	155.00
30-Oct-24	278.00	162.00
03-Oct-24	290.00	175.00
31-Jul-24	295.00	160.00
17-Jul-24	285.00	168.00
11-Jun-24	270.00	164.50
29-May-24	265.00	167.00
08-May-24	260.00	185.50
23-Apr-24	238.00	164.50
18-Feb-24	210.00	156.50
20-Oct-23	185.00	111.00
27-Jul-23	170.00	133.50
19-Jul-23	160.00	108.00

Elite Material (2383.TW)

Date of report	Target price (NT\$)	Closing price (NT\$)
29-Apr-26	6,000.00	4,440.00
17-Apr-26	4,020.00	3,800.00
20-Mar-26	3,500.00	2,810.00
12-Mar-26	3,200.00	2,600.00
05-Feb-26	2,585.00	1,950.00
06-Jan-26	2,250.00	1,695.00
12-Dec-25	2,060.00	1,605.00
04-Dec-25	1,800.00	1,425.00
30-Oct-25	1,695.00	1,275.00
29-Sep-25	1,530.00	1,225.00
13-Aug-25	1,400.00	1,200.00
30-Jul-25	1,225.00	1,005.00
15-Jul-25	1,080.00	970.00
05-Jun-25	940.00	789.00
30-Apr-25	845.00	556.00
06-Apr-25	755.00	527.00
24-Mar-25	760.00	604.00
25-Feb-25	865.00	576.00
09-Feb-25	755.00	615.00
20-Nov-24	690.00	447.50
30-Oct-24	680.00	419.50
03-Oct-24	678.00	442.00
11-Jun-24	688.00	422.50
29-May-24	685.00	427.00
30-Apr-24	675.00	412.00
23-Apr-24	605.00	376.00
18-Feb-24	595.00	534.00
26-Oct-23	520.00	388.50
20-Oct-23	470.00	403.00
30-Aug-23	420.00	415.50
26-Jul-23	342.00	354.00
19-Jul-23	300.00	318.00

Price targets shown in table(s) are unadjusted for corporate actions.

Regulatory disclosures

Disclosures required by United States laws and regulations

See company-specific regulatory disclosures above for any of the following disclosures required as to companies referred to in this report: manager or co-manager in a pending transaction; 1% or other ownership; compensation for certain services; types of client relationships; managed/co-managed public offerings in prior periods; directorships; for equity securities, market making and/or specialist role. Goldman Sachs trades or may trade as a

principal in debt securities (or in related derivatives) of issuers discussed in this report.

The following are additional required disclosures: **Ownership and material conflicts of interest:** Goldman Sachs policy prohibits its analysts, professionals reporting to analysts and members of their households from owning securities of any company in the analyst's area of coverage. **Analyst compensation:** Analysts are paid in part based on the profitability of Goldman Sachs, which includes investment banking revenues. **Analyst as officer or director:** Goldman Sachs policy generally prohibits its analysts, persons reporting to analysts or members of their households from serving as an officer, director or advisor of any company in the analyst's area of coverage. **Non-U.S. Analysts:** Non-U.S. analysts may not be associated persons of Goldman Sachs & Co. LLC and therefore may not be subject to FINRA Rule 2241 or FINRA Rule 2242 restrictions on communications with a subject company, public appearances and trading in securities covered by the analysts.

Additional disclosures required under the laws and regulations of jurisdictions other than the United States

The following disclosures are those required by the jurisdiction indicated, except to the extent already made above pursuant to United States laws and regulations. **Australia:** Goldman Sachs Australia Pty Ltd and its affiliates are not authorised deposit-taking institutions (as that term is defined in the Banking Act 1959 (Cth)) in Australia and do not provide banking services, nor carry on a banking business, in Australia. This research, and any access to it, is intended only for "wholesale clients" within the meaning of the Australian Corporations Act, unless otherwise agreed by Goldman Sachs. In producing research reports, members of Global Investment Research of Goldman Sachs Australia may attend site visits and other meetings hosted by the companies and other entities which are the subject of its research reports. In some instances the costs of such site visits or meetings may be met in part or in whole by the issuers concerned if Goldman Sachs Australia considers it is appropriate and reasonable in the specific circumstances relating to the site visit or meeting. To the extent that the contents of this document contains any financial product advice, it is general advice only and has been prepared by Goldman Sachs without taking into account a client's objectives, financial situation or needs. A client should, before acting on any such advice, consider the appropriateness of the advice having regard to the client's own objectives, financial situation and needs. A copy of certain Goldman Sachs Australia and New Zealand disclosure of interests and a copy of Goldman Sachs' Australian Sell-Side Research Independence Policy Statement are available at: <https://www.goldmansachs.com/disclosures/australia-new-zealand/index.html>. **Brazil:** Disclosure information in relation to CVM Resolution n. 20 is available at <https://www.gs.com/worldwide/brazil/area/gir/index.html>. Where applicable, the Brazil-registered analyst primarily responsible for the content of this research report, as defined in Article 20 of CVM Resolution n. 20, is the first author named at the beginning of this report, unless indicated otherwise at the end of the text. **Canada:** This information is being provided to you for information purposes only and is not, and under no circumstances should be construed as, an advertisement, offering or solicitation by Goldman Sachs & Co. LLC for purchasers of securities in Canada to trade in any Canadian security. Goldman Sachs & Co. LLC is not registered as a dealer in any jurisdiction in Canada under applicable Canadian securities laws and generally is not permitted to trade in Canadian securities and may be prohibited from selling certain securities and products in certain jurisdictions in Canada. If you wish to trade in any Canadian securities or other products in Canada please contact Goldman Sachs Canada Inc., an affiliate of The Goldman Sachs Group Inc., or another registered Canadian dealer. **Hong Kong:** Further information on the securities of covered companies referred to in this research may be obtained on request from Goldman Sachs (Asia) L.L.C. **India:** Further information on the subject company or companies referred to in this research may be obtained from Goldman Sachs (India) Securities Private Limited, Research Analyst - SEBI Registration Number INH000001493, 10th Floor, Ascent-Worli, Sudam Kalu Ahire Marg, Worli, Mumbai-400 025, India, Corporate Identity Number U74140MH2006FTC160634, Phone +91 22 6616 9000, Fax +91 22 6616 9001. Goldman Sachs may beneficially own 1% or more of the securities (as such term is defined in clause 2 (h) the Indian Securities Contracts (Regulation) Act, 1956) of the subject company or companies referred to in this research report. Registration granted by SEBI and certification from NISM in no way guarantee performance of the intermediary or provide any assurance of returns to investors. Goldman Sachs (India) Securities Private Limited compliance officer and investor grievance contact details, a copy of the annual compliance audit report and other relevant information and disclosures can be found at this link: <https://www.goldmansachs.com/worldwide/india/research-analyst>. **Japan:** See below. **Korea:** This research, and any access to it, is intended only for "professional investors" within the meaning of the Financial Services and Capital Markets Act, unless otherwise agreed by Goldman Sachs. Further information on the subject company or companies referred to in this research may be obtained from Goldman Sachs (Asia) L.L.C., Seoul Branch. **New Zealand:** Goldman Sachs New Zealand Limited and its affiliates are neither "registered banks" nor "deposit takers" (as defined in the Reserve Bank of New Zealand Act 1989) in New Zealand. This research, and any access to it, is intended for "wholesale clients" (as defined in the Financial Advisers Act 2008) unless otherwise agreed by Goldman Sachs. A copy of certain Goldman Sachs Australia and New Zealand disclosure of interests is available at: <https://www.goldmansachs.com/disclosures/australia-new-zealand/index.html>. **Russia:** Research reports distributed in the Russian Federation are not advertising as defined in the Russian legislation, but are information and analysis not having product promotion as their main purpose and do not provide appraisal within the meaning of the Russian legislation on appraisal activity. Research reports do not constitute a personalized investment recommendation as defined in Russian laws and regulations, are not addressed to a specific client, and are prepared without analyzing the financial circumstances, investment profiles or risk profiles of clients. Goldman Sachs assumes no responsibility for any investment decisions that may be taken by a client or any other person based on this research report. **Singapore:** Goldman Sachs (Singapore) Pte. (Company Number: 198602165W), which is regulated by the Monetary Authority of Singapore, accepts legal responsibility for this research, and should be contacted with respect to any matters arising from, or in connection with, this research. **Taiwan:** This material is for reference only and must not be reprinted without permission. Investors should carefully consider their own investment risk. Investment results are the responsibility of the individual investor. **United Kingdom:** Persons who would be categorized as retail clients in the United Kingdom, as such term is defined in the rules of the Financial Conduct Authority, should read this research in conjunction with prior Goldman Sachs research on the covered companies referred to herein and should refer to the risk warnings that have been sent to them by Goldman Sachs International. A copy of these risks warnings, and a glossary of certain financial terms used in this report, are available from Goldman Sachs International on request.

European Union and United Kingdom: Disclosure information in relation to Article 6 (2) of the European Commission Delegated Regulation (EU) (2016/958) supplementing Regulation (EU) No 596/2014 of the European Parliament and of the Council (including as that Delegated Regulation is implemented into United Kingdom domestic law and regulation following the United Kingdom's departure from the European Union and the European Economic Area) with regard to regulatory technical standards for the technical arrangements for objective presentation of investment recommendations or other information recommending or suggesting an investment strategy and for disclosure of particular interests or indications of conflicts of interest is available at <https://www.gs.com/disclosures/europeanpolicy.html> which states the European Policy for Managing Conflicts of Interest in Connection with Investment Research.

Japan: Goldman Sachs Japan Co., Ltd. is a Financial Instrument Dealer registered with the Kanto Financial Bureau under registration number Kinsho 69, and a member of Japan Securities Dealers Association, Financial Futures Association of Japan Type II Financial Instruments Firms Association, and Investment Management Association of Japan. Sales and purchase of equities are subject to commission pre-determined with clients plus consumption tax. See company-specific disclosures as to any applicable disclosures required by Japanese stock exchanges, the Japanese Securities Dealers Association or the Japanese Securities Finance Company.

Ratings, coverage universe and related definitions

Buy (B), Neutral (N), Sell (S) Analysts recommend stocks as Buys or Sells for inclusion on various regional Investment Lists. Being assigned a Buy or Sell on an Investment List is determined by a stock's total return potential relative to its coverage universe. Any stock not assigned as a Buy or a Sell on an Investment List with an active rating (i.e., a stock that is not Rating Suspended, Not Rated, Early-Stage Biotech, Coverage Suspended or Not Covered), is deemed Neutral. Each region manages Regional Conviction Lists, which are selected from Buy rated stocks on the respective region's Investment Lists and represent investment recommendations focused on the size of the total return potential and/or the likelihood of the realization of the return across their respective areas of coverage. The addition or removal of stocks from such Conviction Lists are managed by the Investment Review Committee or

other designated committee in each respective region and do not represent a change in the analysts' investment rating for such stocks.

Total return potential represents the upside or downside differential between the current share price and the price target, including all paid or anticipated dividends, expected during the time horizon associated with the price target. Price targets are required for all covered stocks. The total return potential, price target and associated time horizon are stated in each report adding or reiterating an Investment List membership.

Coverage Universe: A list of all stocks in each coverage universe is available by primary analyst, stock and coverage universe at <https://www.gs.com/research/hedge.html>.

Not Rated (NR). The investment rating, target price and earnings estimates (where relevant) are removed pursuant to Goldman Sachs policy when Goldman Sachs is acting in an advisory capacity in a merger or in a strategic transaction involving this company, when there are legal, regulatory or policy constraints due to Goldman Sachs' involvement in a transaction, and in certain other circumstances. **Early-Stage Biotech (ES).** An investment rating and a target price are not assigned pursuant to Goldman Sachs policy when this company has neither a drug, treatment or medical device that has passed a Phase II clinical trial nor a license to distribute a post-Phase II drug, treatment or medical device. **Rating Suspended (RS).** Goldman Sachs Research has suspended the investment rating and price target for this stock, because there is not a sufficient fundamental basis for determining an investment rating or target price. The previous investment rating and target price, if any, are no longer in effect for this stock and should not be relied upon. **Coverage Suspended (CS).** Goldman Sachs has suspended coverage of this company. **Not Covered (NC).** Goldman Sachs does not cover this company.

Global product; distributing entities

Goldman Sachs Global Investment Research produces and distributes research products for clients of Goldman Sachs on a global basis. Analysts based in Goldman Sachs offices around the world produce research on industries and companies, and research on macroeconomics, currencies, commodities and portfolio strategy. This research is disseminated in Australia by Goldman Sachs Australia Pty Ltd (ABN 21 006 797 897); in Brazil by Goldman Sachs do Brasil Corretora de Títulos e Valores Mobiliários S.A.; Public Communication Channel Goldman Sachs Brazil: 0800 727 5764 and / or contatogoldmanbrasil@gs.com. Available Weekdays (except holidays), from 9am to 6pm. Canal de Comunicação com o Público Goldman Sachs Brasil: 0800 727 5764 e/ou contatogoldmanbrasil@gs.com. Horário de funcionamento: segunda-feira à sexta-feira (exceto feriados), das 9h às 18h; in Canada by Goldman Sachs & Co. LLC; in Hong Kong by Goldman Sachs (Asia) L.L.C.; in India by Goldman Sachs (India) Securities Private Ltd.; in Japan by Goldman Sachs Japan Co., Ltd.; in the Republic of Korea by Goldman Sachs (Asia) L.L.C., Seoul Branch; in New Zealand by Goldman Sachs New Zealand Limited; in Russia by OOO Goldman Sachs; in Singapore by Goldman Sachs (Singapore) Pte. (Company Number: 198602165W); and in the United States of America by Goldman Sachs & Co. LLC. Goldman Sachs International has approved this research in connection with its distribution in the United Kingdom.

Goldman Sachs International ("GSI"), authorised by the Prudential Regulation Authority ("PRA") and regulated by the Financial Conduct Authority ("FCA") and the PRA, has approved this research in connection with its distribution in the United Kingdom.

European Economic Area: Goldman Sachs Bank Europe SE ("GSBE") is a credit institution incorporated in Germany and, within the Single Supervisory Mechanism, subject to direct prudential supervision by the European Central Bank and in other respects supervised by German Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, BaFin) and Deutsche Bundesbank and disseminates research within the European Economic Area.

General disclosures

This research is for our clients only. Other than disclosures relating to Goldman Sachs, this research is based on current public information that we consider reliable, but we do not represent it is accurate or complete, and it should not be relied on as such. The information, opinions, estimates and forecasts contained herein are as of the date hereof and are subject to change without prior notification. We seek to update our research as appropriate, but various regulations may prevent us from doing so. Other than certain industry reports published on a periodic basis, the large majority of reports are published at irregular intervals as appropriate in the analyst's judgment.

Goldman Sachs conducts a global full-service, integrated investment banking, investment management, and brokerage business. We have investment banking and other business relationships with a substantial percentage of the companies covered by Global Investment Research. Goldman Sachs & Co. LLC, the United States broker dealer, is a member of SIPC (<https://www.sipc.org>).

Our salespeople, traders, and other professionals may provide oral or written market commentary or trading strategies to our clients and principal trading desks that reflect opinions that are contrary to the opinions expressed in this research. Our asset management area, principal trading desks and investing businesses may make investment decisions that are inconsistent with the recommendations or views expressed in this research.

The analysts named in this report may have from time to time discussed with our clients, including Goldman Sachs salespersons and traders, or may discuss in this report, trading strategies that reference catalysts or events that may have a near-term impact on the market price of the equity securities discussed in this report, which impact may be directionally counter to the analyst's published price target expectations for such stocks. Any such trading strategies are distinct from and do not affect the analyst's fundamental equity rating for such stocks, which rating reflects a stock's return potential relative to its coverage universe as described herein.

We and our affiliates, officers, directors, and employees will from time to time have long or short positions in, act as principal in, and buy or sell, the securities or derivatives, if any, referred to in this research, unless otherwise prohibited by regulation or Goldman Sachs policy.

The views attributed to third party presenters at Goldman Sachs arranged conferences, including individuals from other parts of Goldman Sachs, do not necessarily reflect those of Global Investment Research and are not an official view of Goldman Sachs.

Any third party referenced herein, including any salespeople, traders and other professionals or members of their household, may have positions in the products mentioned that are inconsistent with the views expressed by analysts named in this report.

This research is not an offer to sell or the solicitation of an offer to buy any security in any jurisdiction where such an offer or solicitation would be illegal. It does not constitute a personal recommendation or take into account the particular investment objectives, financial situations, or needs of individual clients. Clients should consider whether any advice or recommendation in this research is suitable for their particular circumstances and, if appropriate, seek professional advice, including tax advice. The price and value of investments referred to in this research and the income from them may fluctuate. Past performance is not a guide to future performance, future returns are not guaranteed, and a loss of original capital may occur. Fluctuations in exchange rates could have adverse effects on the value or price of, or income derived from, certain investments.

Certain transactions, including those involving futures, options, and other derivatives, give rise to substantial risk and are not suitable for all investors. Investors should review current options and futures disclosure documents which are available from Goldman Sachs sales representatives or at <https://www.theocc.com/about/publications/character-risks.jsp> and https://www.goldmansachs.com/disclosures/cftc_fcm_disclosures. Transaction costs may be significant in option strategies calling for multiple purchase and sales of options such as spreads. Supporting documentation will be supplied upon request.

Differing Levels of Service provided by Global Investment Research: The level and types of services provided to you by Goldman Sachs Global

Investment Research may vary as compared to that provided to internal and other external clients of GS, depending on various factors including your individual preferences as to the frequency and manner of receiving communication, your risk profile and investment focus and perspective (e.g., marketwide, sector specific, long term, short term), the size and scope of your overall client relationship with GS, and legal and regulatory constraints. As an example, certain clients may request to receive notifications when research on specific securities is published, and certain clients may request that specific data underlying analysts' fundamental analysis available on our internal client websites be delivered to them electronically through data feeds or otherwise. No change to an analyst's fundamental research views (e.g., ratings, price targets, or material changes to earnings estimates for equity securities), will be communicated to any client prior to inclusion of such information in a research report broadly disseminated through electronic publication to our internal client websites or through other means, as necessary, to all clients who are entitled to receive such reports.

All research reports are disseminated and available to all clients simultaneously through electronic publication to our internal client websites. Not all research content is redistributed to our clients or available to third-party aggregators, nor is Goldman Sachs responsible for the redistribution of our research by third party aggregators. For research, models or other data related to one or more securities, markets or asset classes (including related services) that may be available to you, please contact your GS representative or go to <https://research.gs.com>.

Disclosure information is also available at <https://www.gs.com/research/hedge.html> or from Research Compliance, 200 West Street, New York, NY 10282.

© 2026 Goldman Sachs.

You are permitted to store, display, analyze, modify, reformat, and print the information made available to you via this service only for your own use. You may not resell or reverse engineer this information to calculate or develop any index for disclosure and/or marketing or create any other derivative works or commercial product(s), data or offering(s) without the express written consent of Goldman Sachs. You are not permitted to publish, transmit, or otherwise reproduce this information, in whole or in part, in any format to any third party without the express written consent of Goldman Sachs. This foregoing restriction includes, without limitation, using, extracting, downloading or retrieving this information, in whole or in part, to train or finetune a machine learning or artificial intelligence system, or to provide or reproduce this information, in whole or in part, as a prompt or input to any such system.