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IDEA

July 6, 2026 07:34 PM GMT

Tech Bytes | Asia Pacific

Memory – Changing Tides

We address our most debated memory topics with investors: (1) When the biggest spender of AI reportedly has compute to sell, does the story begin to change? (2) Why are stocks not re-rating post LTAs? (3) Peak rate of change vs an extended memory cycle.

Peaking rate of change ... Memory is still a cyclical industry – although different this time – and is approaching peak rate of change in (1) pricing YoY, (2) inventory, (3) the earnings revision breadth. This can reach a point where the market begins to go sideways and is also a reason why memory can take a break here. We have had three cyclical corrections in the memory space since Generative AI (Nov 2022), and would view corrections in the context of a structural bull market for AI capex.

... but not the end of the cycle. The market moves on either less good or less bad news. Selling excess AI compute is the new debate, with "*chipflation*" potentially pushing hyperscalers out of the frontier AI race versus the our bullish view on monetizing the AI stack and AI demand/token penetration that is still in place.

Volatility in the most crowded area of the market. Some investors are unwinding positions as recent volatility in memory is making historically high exposure levels in the space harder to maintain. Our investor conversations over the past week reflect sensitivity to this dynamic and growing interest in broadening laggard opportunities. Memory momentum is likely to fade further with EPS revisions breadth for the group up against historical highs and the hyperscaler stocks under pressure.

What we are watching – corporate earnings. How the market reacts to earnings and what hyperscalers have to say matters more for share prices at this stage than comments from memory companies, which are likely to stay bullish at this point in the cycle. For the AI spenders, token maxing should help 2Q earnings, but less robust 3Q guidance relative to market expectations is another debate, given token minimization, competitive low cost open source LLM, and chipflation impacts on margins.

Bottom line. We remain bullish longer term based on earnings growing over 35-40% in 2027e and the ramp of Agentic AI (*Rise of the AI Agent – Global Implications*). But in the near term, we are increasingly expecting some share price weakness ahead of earnings reporting. Our stock preferences are where the money is being spent and bottlenecks emerging, favoring DRAM and legacy memory over NAND, while least preferred are memory module makers.

MORGAN STANLEY & CO. INTERNATIONAL PLC+

Shawn Kim
Equity Analyst
Shawn.Kim@morganstanley.com +44 20 7677-1018

Cindy Huang
Equity Analyst
Cindy.Huang@morganstanley.com +44 20 7425-2915

MORGAN STANLEY ASIA LIMITED+

Duan Liu
Equity Analyst
Duan.Liu@morganstanley.com +852 2239-7357

MORGAN STANLEY & CO. INTERNATIONAL PLC, SEOUL BRANCH+

Ryan Kim
Equity Analyst
Ryan.G.Kim@morganstanley.com +82 2 399-4939



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Catalyst Event Preview

Company / Catalyst	Date	Importance	Surprise
SK hynix 000660.KS			
2Q26 earnings	29 Jul 2026	Very High	| In-line

Takeaways:

- We expect Hynix to report 2Q26 operating profit near consensus at ~W65tn.
- Management commentary should be broadly in line with market expectations with 3Q26 commodity memory strength along with multiple LTA commitments and only a modest step up in forward capex.

Samsung Electronics 005930.KS			
2Q26 prelim earnings	07 Jul 2026	Very High	| In-line

Takeaways:

- We expect Samsung to report 2Q26 operating profit of around W85tn.

Source:Company data, Morgan Stanley Research

Three debates for memory now

When the biggest spender on AI reportedly has compute to sell, the story begins to change, but the potential motivation is not entirely clear, and our view remains constructive (*5 Takes On The Neocloud vs Hyperscaler Opportunities*). This – along with absence of re-rating post LTA announcements and peak rate of change in the memory cycle – were the most debated memory topics in our investor conversations over the past week.

Compute – excess or no excess?

Markets are doing what they typically do – discounting the future ahead of the headlines. That headline (not confirmed by the company) is a narrative change last week on compute capacity. The bear read is obvious – if a hyperscaler has compute to spare, maybe the whole AI buildout is oversupplied. The other read is that this is just companies being smart and monetizing infrastructure to improve their capex returns, which is not the same as excess compute. The real tell will be 2Q26 reporting and whether hyperscale companies keep or raise capex – this becomes a good entry point for memory stocks. If they cut, then the oversupply narrative continues.

Token maxing vs. minimizing. The other debate on compute is on AI Agents. Many companies were trying to encourage their employees to generate as many tokens as possible, but this resulted in excessive spend in IT budgets, and companies are now starting to cut and/or look for cheaper alternatives on token use.

- We now see companies figuring out how to address this (token maxing) problem with cheaper models – that could mean using more open source, and the best of those are LLMs coming out of China.
- We are now seeing enterprises increasingly adding an orchestration layer on top of frontier models, where the basic AI queries are sent to open source models and more complex queries are sent to frontier models.
- Amid token minimization, the investor focus is on how these dynamics show up when token providers report results and then guide.

Bottom line, the June quarter should be fine for the AI supply chain, but the market concern is moving to cheaper tokens and what that guidance might look like into 2H26. The implications for memory are significant, as the key beneficiary of where the AI money is being spent.

Why not re-rate on LTAs?

Memory stocks are not expensive because the market is acting rationally – it knows that earnings are very cyclical and markets are pricing them appropriately (and not being euphoric). Many investors believe in the AI re-rating thesis (as do we), but we think the lack of multiple re-rating on the back of LTAs reflects past experience with LTAs that were either renegotiated or ultimately required customers to take inventory they did not need. We saw similar dynamics with analog semiconductor companies during COVID, where LTAs were cyclical – but one can argue that the current memory LTAs are structural (as long as

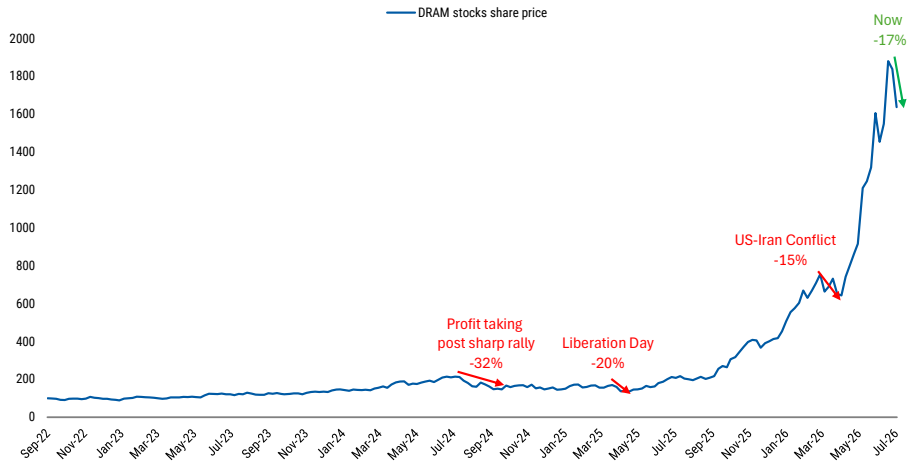
AI stays strong).

Can estimates continue to go up? Perhaps the biggest headwind for many investors we speak with is the very uncertain time line for when, how and to what extent memory prices can continue to surprise higher and move 2028 EPS. Within AI beneficiaries, memory-related stocks have had the best earnings revisions by far, but that is well understood by markets.

Peak cycle vs. extended cycle

This reset on price does not mean the cycle is over. Instead, it is more likely that this is a necessary reset for the cycle to eventually extend. Bear in mind that we have had three such resets since Generative AI was launched in the fall of 2022. Further de-risking in crowded areas and intermittent volatility would be consistent with an overbought sector continuing to carve out a low – not entering a new bear market. Price momentum is starting to fade, led by the recent underperformance of the hyperscalers (key spenders for the boom). In our view, this rotation away from the hyperscalers may be a leading indication that memory (the key spending beneficiary) could now see a period of underperformance relative to the market as EPS revisions breadth for the space comes up against historical extremes, along with a tougher stretch seasonally for markets more broadly.

Exhibit 1: DRAM Stocks: Major sell-offs through the rally



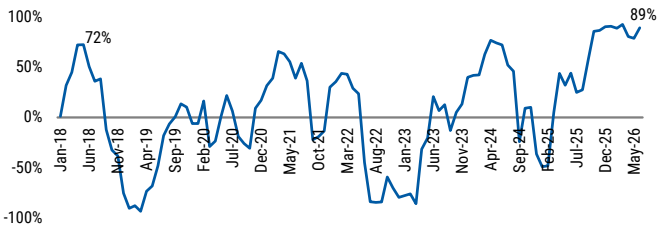
Source: Factset, Morgan Stanley Research

Stocks need a reset. The AI beneficiaries are driving the sell-off – not because they're expensive, but because positioning had become extremely crowded. These stocks have rallied significantly, with earnings revisions validating those gains. When positioning becomes this crowded, sharp corrections are both normal and healthy. Markets don't move in a straight line, and corrections of extremes like the ones we have witnessed are necessary for the bull market to continue. Our view on this front is grounded in the notion that the earnings backdrop remains quite strong. Nevertheless, accelerative moves in fundamentals (i.e. commodity prices) always reach an apex in terms of the rate of change, and stocks tend to react to that.

This doesn't mean the cycle is over, as we have discussed previously, though a lack of price momentum in the space for now is likely to give other areas of the market room to

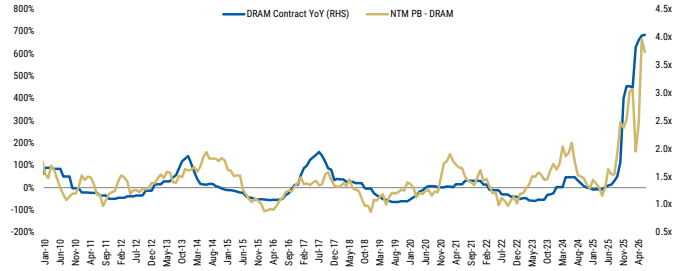
outperform with better relative tailwinds, such as an early cycle MLCC or lagging semicap. At a minimum, the volatility we have seen recently in memory (the most owned area of the market) is making it harder to run historically high net exposure levels in the space – a dynamic that has been increasingly evident even in a spot up / vol up backdrop, like we have seen recently. This sentiment was echoed by a number of investors in our conversations over the past week alongside an appetite to start considering broadening trades.

Exhibit 2: DRAM earnings revisions breadth is coming up against historical highs



Source: FactSet, Morgan Stanley Research

Exhibit 3: DRAM price YoY vs. stock PB



Source: FactSet, Morgan Stanley Research

Exhibit 4:

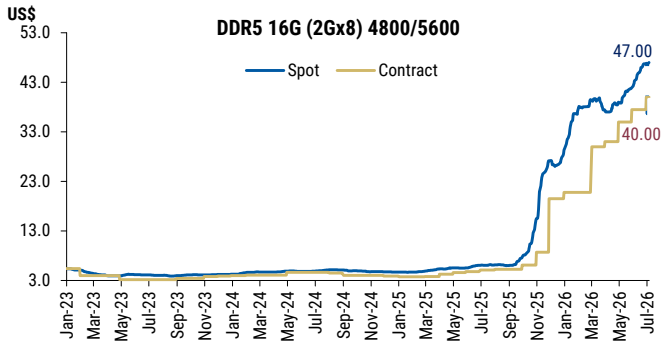
Latest pricing forecast for DRAM and NAND

	1Q26	2Q26	3Q26E - Old	3Q26E - New	4Q26E - Old	4Q26E - New
PC DRAM	DDR4: up 120-125% DDR5: up 110-115% Blended ASP: up 110-115%	DDR4: up 35-40% DDR5: up 45-50% Blended ASP: up 45-50%	up 3-8%	DDR4: up 15-20% DDR5: up 15-20% Blended ASP: up 15-20%	up 0-5%	up 3-8%
Server DRAM	DDR4: up 95-100% DDR5: up 93-98% Blended ASP: up 93-98%	DDR4: up 50-55% DDR5: up 53-58% Blended ASP: up 53-58%	up 10-15%	DDR4: up 13-18% DDR5: up 13-18% Blended ASP: up 13-18%	up 3-8%	up 3-8%
Mobile DRAM	LPDDR4X: up 58-63% LPDDR5(x): up 58-63%	LPDDR4X: up 73-78% LPDDR5(x): up 80-85%	up 3-8%	LPDDR4X: up 8-13% LPDDR5(x): up 8-13%	up 0-5%	up 0-5%
Graphics DRAM	GDDR6: up 95-100% GDDR7: up 95-100%	GDDR6: up 30-35% GDDR7: up 40-45%	GDDR6: up 3-8% GDDR7: up 10-15%	GDDR6: up 15-20% GDDR7: up 15-20%	GDDR6: up 0-5% GDDR7: up 3-8%	GDDR6: up 0-5% GDDR7: up 3-8%
Consumer DRAM	DDR3: up 75-80% DDR4: up 75-80%	DDR3: up 55-60% DDR4: up 55-60%	up 10-15%	DDR3: up 35-40% DDR4: up 28-33%	up 3-8%	up 3-8%
Total DRAM	Conventional DRAM: up 93-98% HBM Blended: up 83-88%	Conventional DRAM: up 58-63% HBM Blended: 53-58%	Conventional DRAM: up 8-13%	Conventional DRAM: up 13-18% HBM Blended: 8-13%	Conventional DRAM: up 3-8%	Conventional DRAM: up 3-8%

	1Q26	2Q26	3Q26E - Old	3Q26E - New	4Q26E - Old	4Q26E - New
eMMC UFS	up 95-100%	up 75-80%	up 5-10%	up 5-10%	mostly flat	mostly flat
Enterprise SSD	up 75-80%	up 48-53%	up 13-18%	up 18-23%	up 3-8%	up 3-8%
Client SSD	up 105-110%	up 70-75%	up 5-10%	up 13-18%	mostly flat	mostly flat
3D NAND Wafers (TLC & QLC)	up 75-80%	up 28-33%	up 5-10%	up 5-10%	mostly flat	mostly flat
Total NAND Flash	up 85-90%	up 55-60%	up 8-13%	up 10-15%	up 0- 5%	up 0- 5%

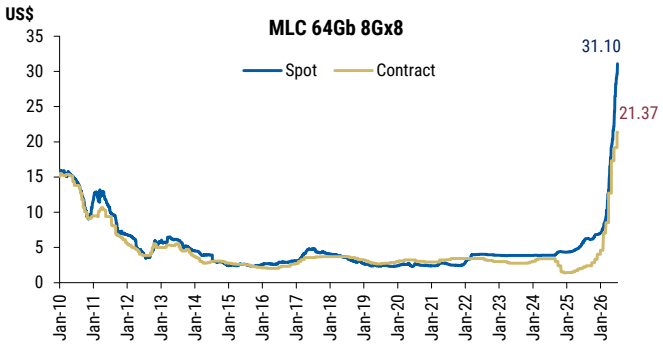
Source: Trendforce, Morgan Stanley Research estimates

Exhibit 5: DRAM spot & contract price



Source: Trendforce, Morgan Stanley Research estimates

Exhibit 6: NAND spot & contract price



Source: Trendforce, Morgan Stanley Research estimates

Share prices for stocks referenced: Samsung Electronics 318,000.00 KRW; SK hynix 2,343,000.00 KRW

Valuation Methodology and Risks

SK hynix (000660.KS)

Base case, residual income valuation model. We assume a cost of equity of 11.5% (5% risk-free rate, 6.5% risk premium, 1.0 beta) and a terminal growth rate of 3%.

Risks to Upside

- ASP growth re-acceleration
- Preemptive production cuts or disruption
- Sharp demand improvements
- Significant increase in capital returns

Risks to Downside

- End demand turning weaker than expected
- Rising competition for DDR5, causing overspending on the supply side.
- Inventories remaining elevated at cloud and Chinese smartphone customers.

Samsung Electronics (005930.KS)

Our base case price target is derived from our residual income valuation model. At our price target, the 2027e P/B multiple would be c.2x, in line with the stock's commodity cycle peak of 2.0x. We assume an 11.5% cost of equity, based on a beta of 1.0, and our terminal growth rate assumption is 3%.

Risks to Upside

- New technological developments, especially in memory and foldable displays
- Longer-lasting memory up-cycle from AI and hyperscale data center growth

Risks to Downside

- Product and memory cycle, including Apple and new Chinese smartphone competition
- Earnings growth concentration in semiconductors

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(as of June 30, 2026)

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	Coverage Universe		Investment Banking Clients (IBC)			Other Material Investment Services Clients (MISC)	
Stock Rating Category	Count	% of Total	Count	% of Total IBC	% of Rating Category	Count	% of Total Other MISC
Overweight/Buy	1544	42%	453	49%	29%	757	44%
Equal-weight/Hold	1577	43%	390	42%	25%	769	44%
Not-Rated/Hold	3	0%	1	0%	33%	1	0%
Underweight/Sell	544	15%	89	10%	16%	204	12%
Total	3,668		933			1731	

Data include common stock and ADRs currently assigned ratings. Investment Banking Clients are companies from whom Morgan Stanley received investment banking compensation in the last 12 months. Due to rounding off of decimals, the percentages provided in the "% of total" column may not add up to exactly 100 percent.

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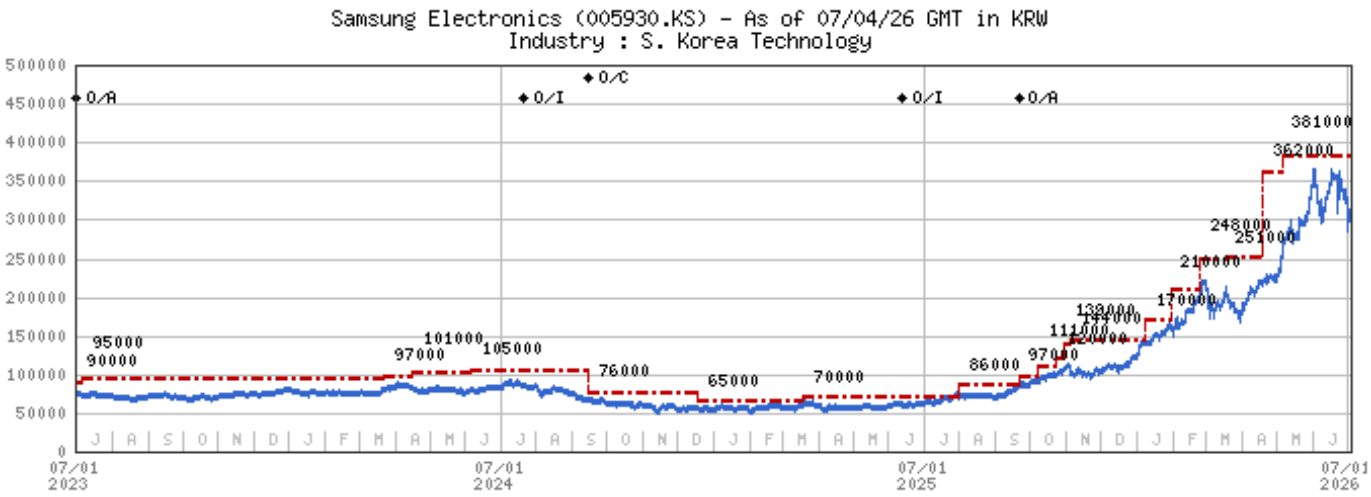
Attractive (A): The analyst expects the performance of his or her industry coverage universe over the next 12-18 months to be attractive vs. the relevant broad market benchmark, as indicated below.

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Stock Price, Price Target and Rating History (See Rating Definitions)



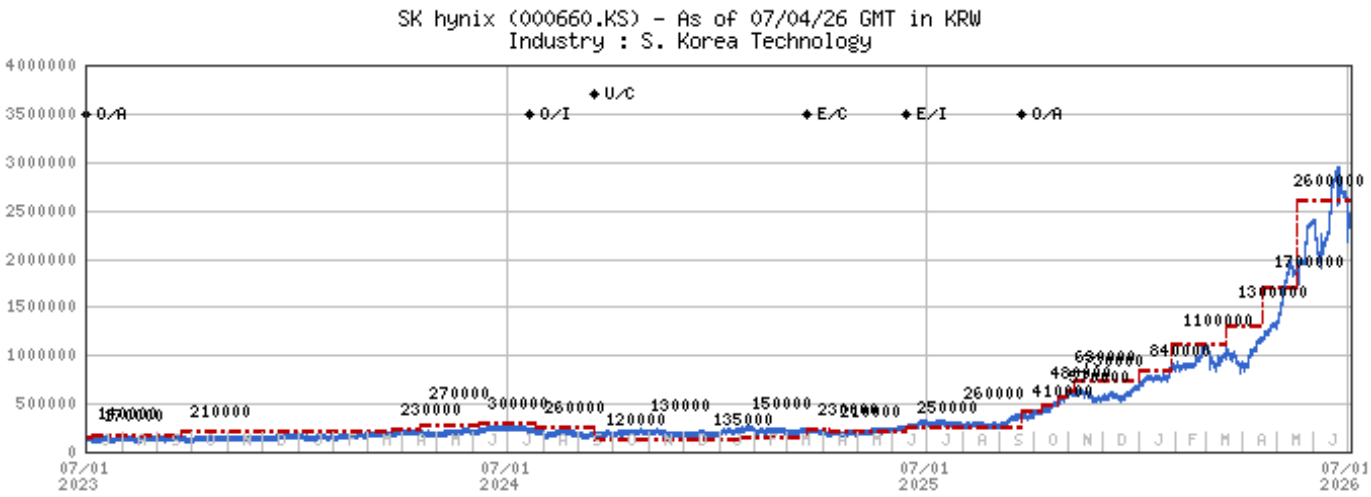
Stock Rating History: 7/1/21 : O/A; 7/19/21 : O/I; 8/12/21 : O/C; 10/4/22 : O/A; 7/21/24 : O/I; 9/15/24 : O/C; 6/13/25 : O/I; 9/21/25 : O/A

Price Target History: 6/8/21 : 98000; 8/12/21 : 89000; 9/15/21 : 95000; 12/3/21 : 97000; 3/18/22 : 95000; 4/28/22 : 85000; 6/10/22 : 80000; 7/5/22 : 75000; 7/22/22 : 70000; 9/17/22 : 68000; 3/21/23 : 70000; 5/30/23 : 90000; 7/7/23 : 95000; 3/22/24 : 97000; 4/16/24 : 101000; 6/6/24 : 105000; 9/15/24 : 76000; 12/18/24 : 65000; 3/19/25 : 70000; 8/1/25 : 86000; 9/21/25 : 97000; 10/8/25 : 111000; 10/23/25 : 120000; 10/30/25 : 139000; 11/5/25 : 144000; 1/8/26 : 170000; 1/30/26 : 210000; 2/24/26 : 248000; 3/18/26 : 251000; 4/19/26 : 362000; 5/6/26 : 381000

Source: Morgan Stanley Research Date Format : MM/DD/YY Price Target No Price Target Assigned (NA)
Stock Price (Not Covered by Current Analyst) Stock Price (Covered by Current Analyst)
Stock and Industry Ratings (abbreviations below) appear as ◆ Stock Rating/Industry View
Stock Ratings: Overweight (O) Equal-weight (E) Underweight (U) Not-Rated (NR) No Rating Available (NA)
Industry View: Attractive (A) In-line (I) Cautious (C) No Rating (NR)

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Effective January 13, 2014, the industry view benchmarks for Morgan Stanley Asia Pacific are as follows: relevant MSCI country index or MSCI sub-regional index or MSCI AC Asia Pacific ex Japan Index.



Stock Rating History: 7/1/21 : O/A; 7/19/21 : O/I; 8/12/21 : U/C; 12/3/21 : E/C; 2/11/22 : O/C; 7/22/22 : E/C; 10/4/22 : O/A; 7/21/24 : O/I; 9/15/24 : U/C; 3/19/25 : E/C; 6/13/25 : E/I; 9/21/25 : O/A

Price Target History: 6/8/21 : 156000; 8/12/21 : 80000; 9/15/21 : 88000; 12/3/21 : 110000; 12/23/21 : 125000; 1/24/22 : 130000; 1/28/22 : 136000; 2/11/22 : 155000; 3/18/22 : 150000; 4/27/22 : 130000; 6/10/22 : 120000; 7/5/22 : 110000; 7/22/22 : 105000; 10/4/22 : 130000; 12/7/22 : 120000; 3/21/23 : 110000; 5/30/23 : 140000; 7/7/23 : 170000; 9/21/23 : 210000; 3/22/24 : 230000; 4/16/24 : 270000; 6/6/24 : 300000; 7/25/24 : 260000; 9/15/24 : 120000; 10/24/24 : 130000; 12/18/24 : 135000; 1/20/25 : 150000; 3/19/25 : 230000; 4/7/25 : 210000; 6/13/25 : 250000; 7/24/25 : 260000; 9/21/25 : 410000; 10/8/25 : 480000; 10/23/25 : 570000; 10/29/25 : 630000; 11/5/25 : 730000; 1/2/26 : 840000; 1/30/26 : 1100000; 3/18/26 : 1300000; 4/19/26 : 1700000; 5/18/26 : 2600000

Source: Morgan Stanley Research Date Format : MM/DD/YY Price Target No Price Target Assigned (NA)
Stock Price (Not Covered by Current Analyst) Stock Price (Covered by Current Analyst)
Stock and Industry Ratings (abbreviations below) appear as ◆ Stock Rating/Industry View
Stock Ratings: Overweight (O) Equal-weight (E) Underweight (U) Not-Rated (NR) No Rating Available (NA)
Industry View: Attractive (A) In-line (I) Cautious (C) No Rating (NR)

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Effective January 13, 2014, the industry view benchmarks for Morgan Stanley Asia Pacific are as follows: relevant MSCI country index or MSCI sub-regional index or MSCI AC Asia Pacific ex Japan Index.

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COMPANY (TICKER)	RATING (AS OF)	PRICE* (07/06/2026)
Ryan Kim		
Ecopro BM (247540.KQ)	U (03/20/2023)	W121,700
Fadu Inc (440110.KQ)	O (09/21/2025)	W72,600
Hanmi Semiconductor Co. Ltd. (042700.KS)	O (08/16/2024)	W226,500
HD Hyundai Electric Co Ltd (267260.KS)	O (03/25/2025)	W929,000
Isu Petasys Co. Ltd. (007660.KS)	O (02/03/2025)	W101,300
L&F Co Ltd (066970.KS)	E (04/03/2025)	W103,400
Leeno Industrial Inc. (058470.KQ)	O (04/03/2025)	W74,900
Lotte Energy Materials Corp (020150.KS)	U (04/03/2025)	W37,600
LS Electric (010120.KS)	O (01/22/2026)	W218,500
POSCO FUTURE M (003670.KS)	U (04/03/2025)	W159,500
SK IE Technology (361610.KS)	U (04/03/2025)	W15,750
SK Square Co Ltd. (402340.KS)	O (05/06/2026)	W1,495,000
Wonik IPS Co Ltd (240810.KQ)	O (08/08/2025)	W124,500
Shawn Kim		
LG Display (034220.KS)	E (06/11/2025)	W10,880
LG Electronics (066570.KS)	E (04/07/2025)	W185,700
LG Innotek (011070.KS)	E (03/12/2025)	
Samsung Electro-Mechanics (009150.KS)	O (07/31/2025)	
Samsung Electronics (005935.KS)	O (11/18/2019)	
Samsung Electronics (005930.KS)	O (11/18/2019)	
SK hynix (000660.KS)	O (09/21/2025)	

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