BERNSTEIN
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Global Memory

Korea Memory Export Tracker (Jul): Samsung continued ramping HBM4, but SK hynix delayed by Rubin?

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We track the Korea export data as it is a good early indicator for Samsung's & SK hynix's HBM revenue in the same quarter, and update this tracker with the Jul data. Details of our methodology can be found in our prior note. The dataset can be downloaded at this link.

Overall HBM export remained robust, up 13% QoQ vs. Apr. It retreated by 32% MoM on seasonality but still went up 13% QoQ. YoY increase was also solid at 64%.

Data suggested Samsung 3Q26 HBM revenue could beat our estimates. Export from S. Chungcheong (where Samsung packages HBM) was up 122% QoQ vs Apr. And it suggests Samsung's 3Q26 HBM revenue to rise 80% QoQ, & 30% ahead of our forecast.

Export for SK hynix was surprisingly weak. Export from N. Chungcheong & Icheon was down ~27% MoM & QoQ, and regression predicts SK hynix 2Q26 HBM revenue to fall 20% QoQ, significantly below our estimates. We attribute it to the delayed HBM4 shipment for Rubin, but believe its HBM4 shipment should catch up in later months.

Samsung still led in HBM4 shipment, & perhaps with price notably above HBM3/3E's. As HBM has much higher dollar value per weight, we track "value per weigh" as it may be directionally suggestive of HBM price change. Jul "value per weight" rose another 21% MoM for Samsung but only mildly for SK hynix, signaling earlier HBM4 shipment by Samsung. Samsung's "value per weigh" has also doubled from the prior level, suggesting price perhaps improving notably from HBM3/3E to 4.

Data showed HBM price has been insulated from the volatility of conventional memory price. Conventional memory price surged, but SK hynix's HBM price, as suggested by value per weight, largely stayed in the same range as before.

Export to Malaysia exhibited continued strength. It rose further to US$1.3B in Jul, with Samsung staying high but increase mainly from SK hynix. Generally export to Malaysia has been growing meaningfully over the past few quarters. We assume it's for Intel's EMIB but are puzzled why HBM import rose so early.

Overall Jul data came in strong for Samsung but surprisingly weak for SK hynix. Jul data suggests Samsung HBM revenue can substantially outgrow SK hynix in 3Q26, and likely claim market share lead too. This is in line with our view of improving HBM4 position by Samsung. That said we think SK hynix HBM4 ramp should eventually happen this year and help gain some share back. Additionally, HBM contract price increase next year should trigger an upward revision for 2027 for both.

Conventional memory price rise should continue in 3Q26 and HBM price increase should bring earnings revisions. We see continued price increase in 3Q27 & also HBM price hike in 2027. We remain structurally constructive on Samsung, SK hynix & Micron but cautious on KIOXIA on China competition (see our sector update). Our detailed SOTP valuation also finds KIOXIA over-valued.

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BERNSTEIN TICKER TABLE

Ticker	Rating	Cur	20 Aug 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
005930.KS (SEC- Samsung)	O	KRW	273,000	440,000	255.5%	KRW	6,611.53	48,393	77,273	41.3	5.6	3.5
005935.KS (SEC-Pref - Samsung)	O	KRW	191,200	374,000	197.9%	KRW	6,611.53	48,393	77,273	28.9	4.0	2.5
SMSN.LI (Samsung)	O	USD	4,822.00	7,350.00	251.3%	USD	116.15	812.39	1,290.80	41.5	5.9	3.7
000660.KS (SK hynix)	O	KRW	1,710,000	3,300,000	566.7%	KRW	60,341	395,677	568,862	28.3	4.3	3.0
MU (Micron)	O	USD	974.33	1,300.00	711.8%	USD	8.29	67.39	158.99	117.6	14.5	6.1
285A.JP (KIOXIA)	U	JPY	52,950	40,000	2166.0%	JPY	1,014.00	10,013	9,656.84	52.2	5.3	5.5
ASIAX			1,954.75									
EM			1,814.53									
SPX			7,641.16									

O - Outperform, M - Market-Perform, U - Underperform, NR - Not Rated, CS - Coverage Suspended

MU estimate is Adjusted EPS; MU valuation is Adjusted P/E (x);

Source: Bloomberg, Bernstein estimates and analysis.

INVESTMENT IMPLICATIONS

Samsung Electronics: We rate Samsung Electronics Outperform with price target of KRW 440,000.

SK hynix : We rate SK hynix Outperform with price target of KRW 3,300,000.

DETAILS

Korea Customs Service has released export data for Jul. As ***our previous note*** *found, the export data for certain memory products bears close correlation with HBM revenues of Samsung and SK hynix. We hence track the monthly data to provide investors a preview on HBM revenues from the two companies in the same quarter. Details of our methodology can be found in* ***the previous note****. You may also download the export data at this* ***link****.*

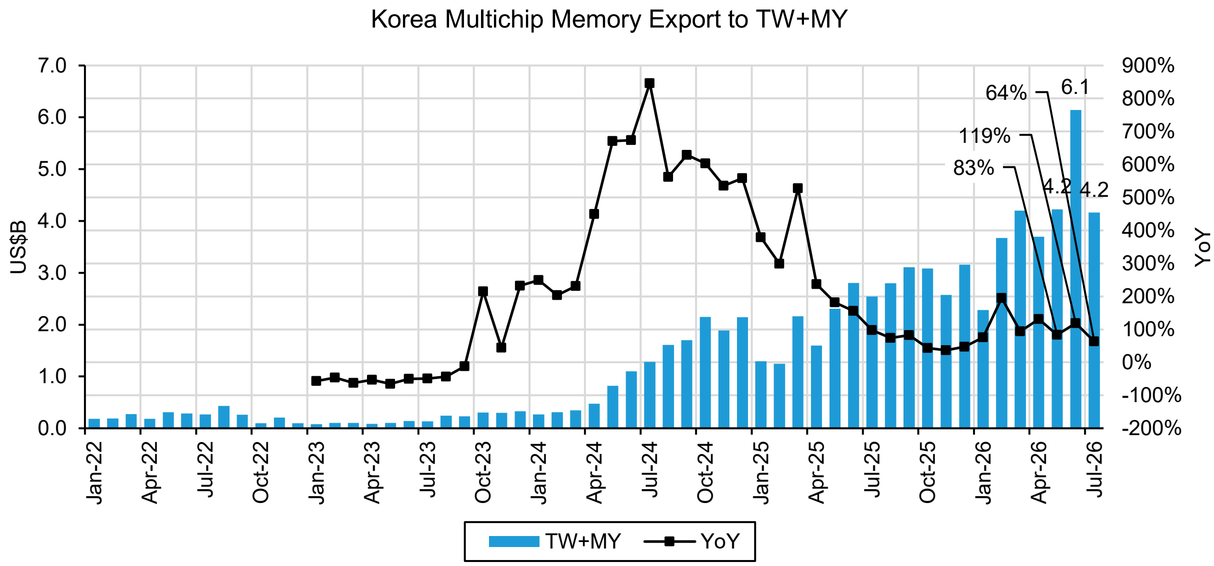
Jul export data suggested faster than expected growth of Samsung HBM revenue into 3Q26. On the other hand, SK hynix's 3Q26 HBM revenue may fall below our projection and also below Samsung's in 3Q26.

- Jul Korea total multichip memory export to Taiwan and Malaysia was down by 32% MoM, from Jun's historical high. The dip was most likely due to seasonality and QoQ growth (vs Apr) actually continued at 13% and YoY growth also remained strong at 64% YoY (Exhibit 1). As we analyzed before, multichip memory export to Taiwan and Malaysia tracked closely with HBM revenues of Samsung and SK hynix and therefore the Jul data indicated continued strong and accelerating momentum into 3Q26.

- If we focus on the export from S. Chungcheong Province, where Samsung's back-end fabs are and likely where its HBM is packaged, Jul export remained very robust at US$2.2B. It was down 35% MoM from the seasonally high in Jun but up 122% QoQ from Apr. And we also note that Jul single month export by Samsung remained higher than SK hynix, for the second consecutive month since Jun (Exhibit 2). The QoQ increase in Jul export was strong (Exhibit 3), and according to the regression using historical data, the Jul data suggested ~US$12B in HBM revenue for Samsung in 3Q26, notably ahead of our estimate of US$9.3B by ~30%, and represented ~80% QoQ growth (Exhibit 4). If we run the regression using only data points from 1Q25, the predicted 3Q26 HBM revenue would be even a bit higher at $12.6B (Exhibit 5). Samsung's HBM export monthly seasonality has consistently been very backend loaded since 1Q25, with first month of quarter averaging less than 20% of quarterly total, and should 3Q26 follow the same pattern, we should see meaningful increases in Aug and Sep exports (Exhibit 6). Overall Samsung's HBM export has been stronger than our expectation in recent months, and does align with Samsung's guidance of the rapid ramp of HBM4 sales in 2H26. We hence remain positive on Samsung's HBM share gain this year (see Samsung 2Q26 earnings **takeaway**).

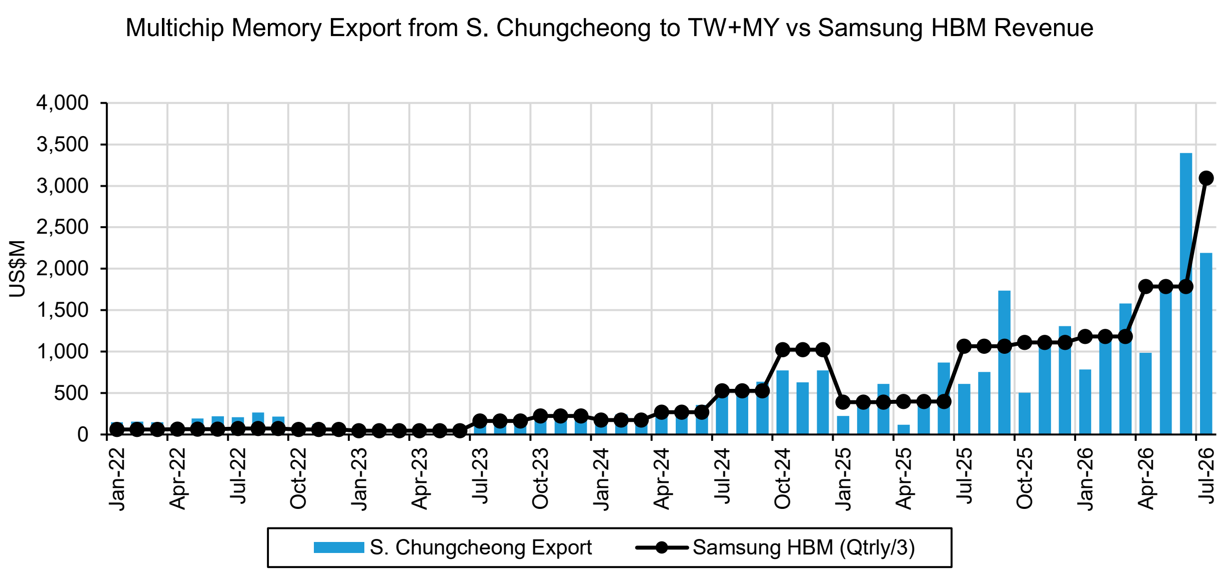
- For SK hynix, we have identified that its HBM export should come nearly all from N. Chungchoeng Province and Icheon City, where its wafer fabs are. In contrast to Samsung, hynix's Jul export data was much weaker, dropping by 28% MoM and also 27% QoQ (vs Apr) (Exhibit 7). The QoQ drop also contrasts sharply with our expectation of QoQ increase in HBM revenue in 3Q26 (Exhibit 8). Regression finds that the export value suggests only US$5.6B HBM revenue by SK hynix in 3Q26, ~20% below 2Q26 and 55% below our forecast, which would also put it behind Samsung (Exhibit 9). SK hynix's monthly seasonality was much more balanced than Samsung's, meaning it is less likely to significant rebound in Aug and Sep exports (Exhibit 10). We think the light Jul data is likely related to the delayed HBM4 shipment which SK hynix also alluded to in its earnings (see takeaway), and this delay is likely due to the delay of NVIDIA Rubin. So we think it is still possible to see more meaningful recovery later this quarter. We also note if we apply the most backend loaded seasonality (2Q24) since 2024, SK hynix's 3Q26 HBM revenue may reach US$12B, similar to our estimate. All things considered, data still suggested that SK hynix HBM growth momentum will likely fall below our expectation and its market share perhaps will drop below Samsung's.

EXHIBIT 1: **Being a close proxy for HBM shipment, Korea multichip memory export to Taiwan and Malaysia remained robust in Jul, rising 13% QoQ.**



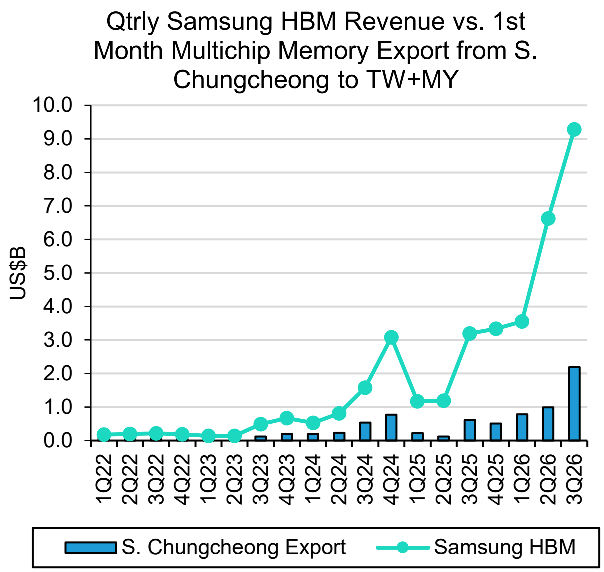
Source: Korea Custom Service, KITA, company reports and Bernstein analysis

EXHIBIT 2: **Export from S. Chungcheong was down 35% MoM but up 122% QoQ vs. Apr.**



Samsung HBM revenue in 3Q26 is Bernstein estimate
Source: Korea Custom Service, KITA, company reports, Bernstein estimates and analysis

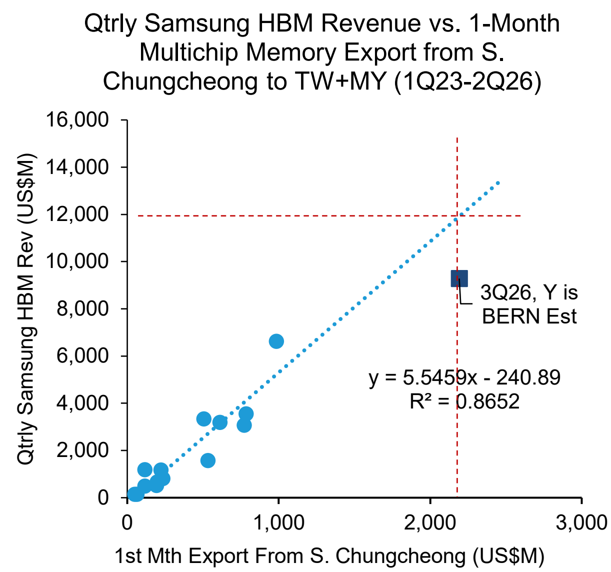
EXHIBIT 3: **The data was notably higher than Apr's, possibly indicating Samsung 3Q26 HBM revenue to be ahead of our projection.**



Samsung HBM revenue in 3Q26 is Bernstein estimates

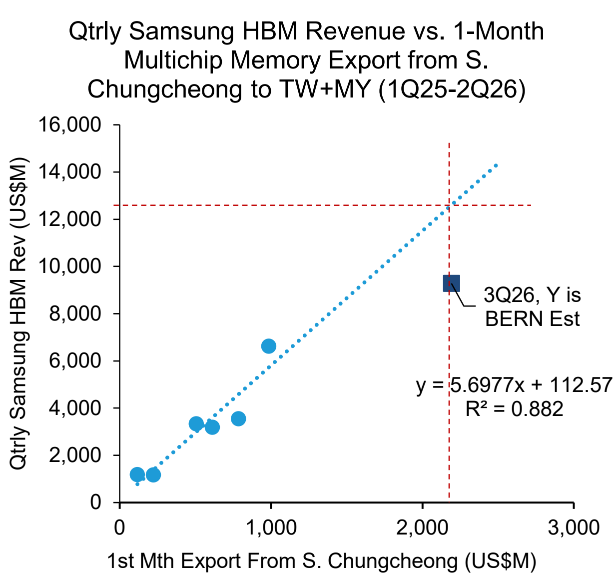
Source: Korea Custom Service, KITA, company reports, Bernstein estimates and analysis

EXHIBIT 4: **Per regression based on historical data, Jul data suggested $12B HBM revenue by Samsung in 3Q26, up 80% QoQ.**



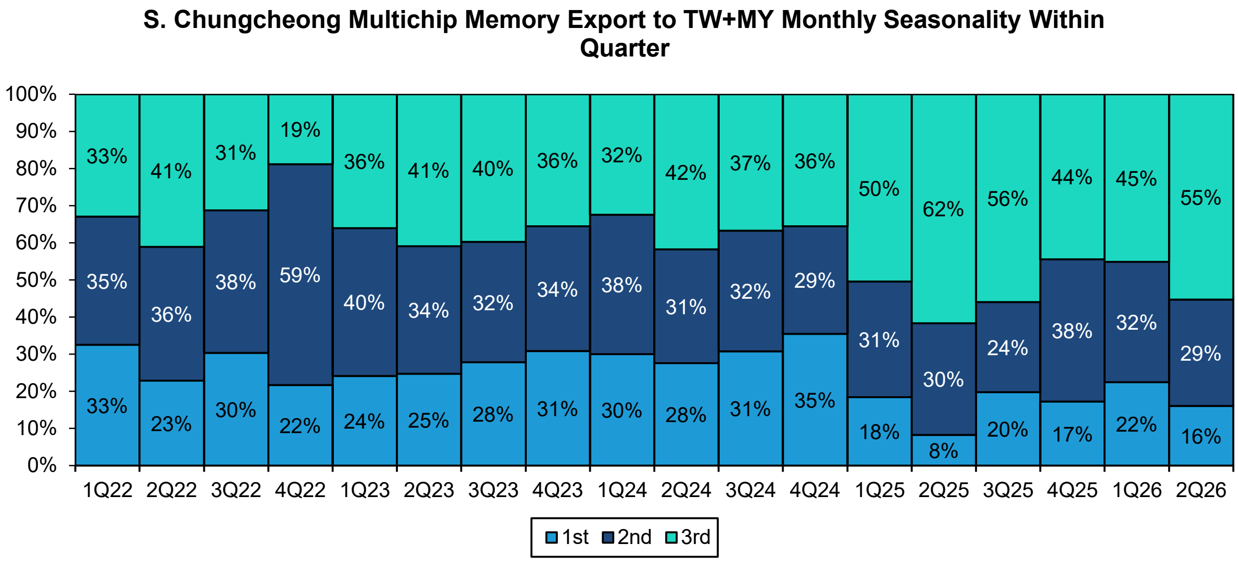
Source: Korea Custom Service, KITA, company reports and Bernstein estimates and analysis

EXHIBIT 5: **If we use only the data from recent quarters, Jul data would suggest US$12.6B in 3Q HBM sales for Samsung, up 90% QoQ.**



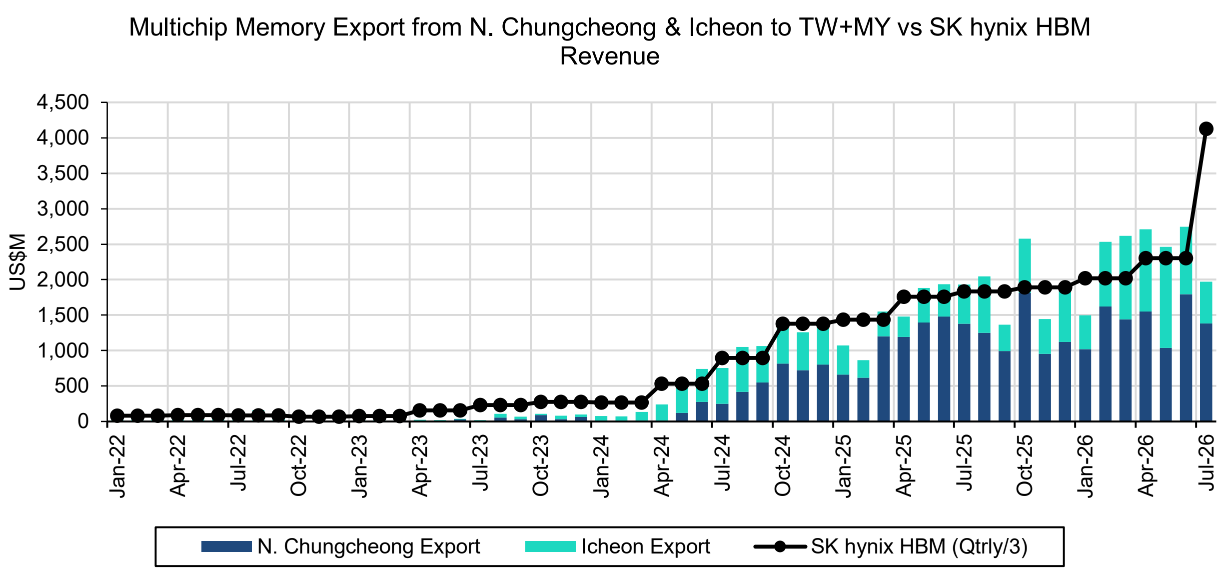
Source: Korea Custom Service, KITA, company reports and Bernstein estimates and analysis

EXHIBIT 6: **Monthly seasonality of export from S. Chungcheong has been more back-end loaded.**



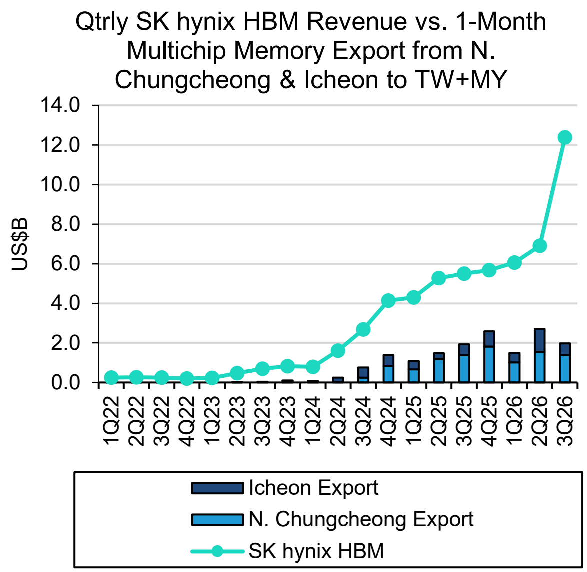
Source: Korea Custom Service, KITA and Bernstein analysis

EXHIBIT 7: **Export from N. Chungcheong and Icheon down by 27% both MoM and QoQ in Jul.**



SK hynix HBM revenue in 3Q26 is Bernstein estimate
Source: Korea Custom Service, KITA, company reports, Bernstein estimates and analysis

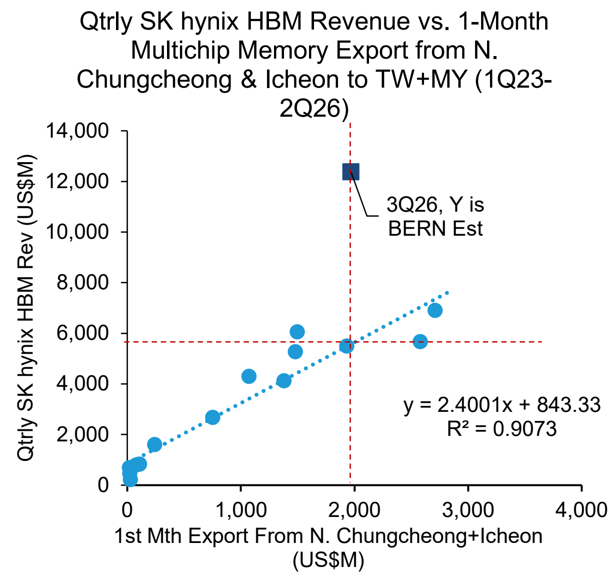
EXHIBIT 8: **The QoQ drop in Jul export from SK hynix contrasted with our expectation of rising HBM revenue in 3Q26.**



SK hynix 3Q26 HBM revenue is Bernstein estimate

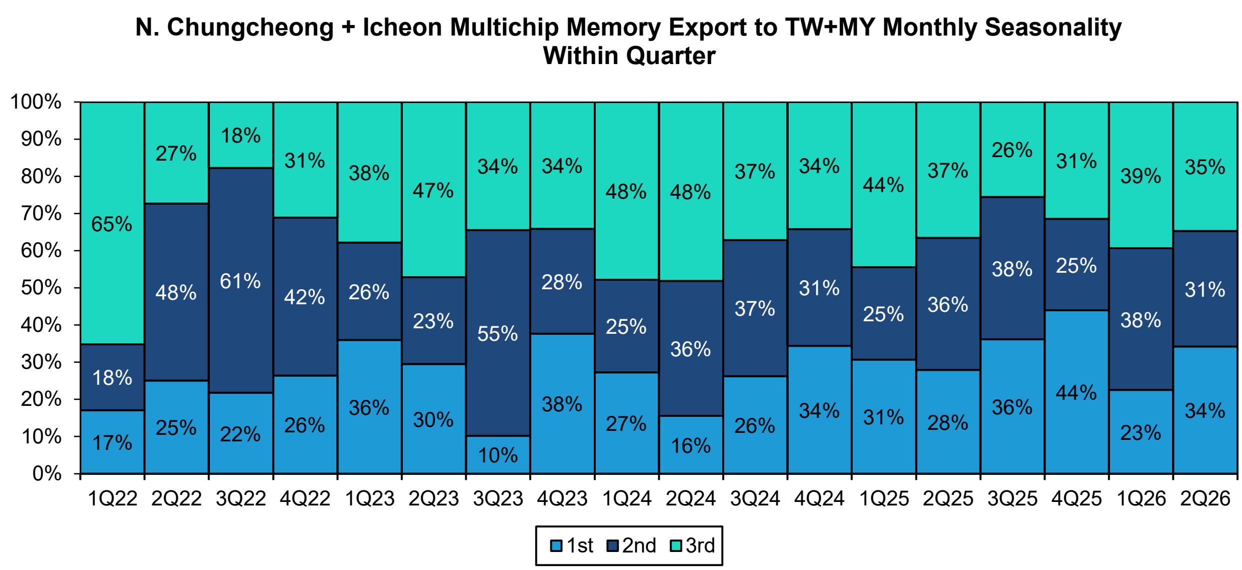
Source: Korea Custom Service, KITA, company reports, Bernstein estimates and analysis

EXHIBIT 9: **Regression indicates only US$5.6B HBM revenue for SK hynix in 3Q26, significantly behind our forecast.**



Source: Korea Custom Service, KITA, company reports and Bernstein analysis and estimates

EXHIBIT 10: **Monthly seasonality for N. Chungcheong + Ichoen has been generally balanced, and does not point to notable recovery in exports in Aug and Sep.**



Source: Korea Custom Service, KITA and Bernstein analysis

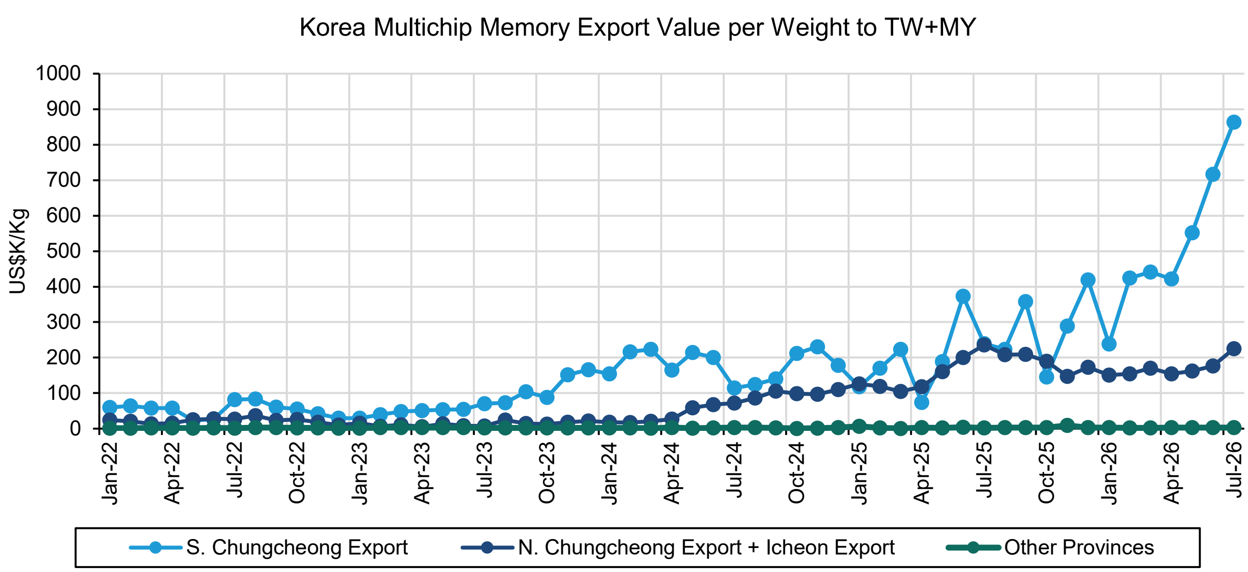
Samsung's export value per weight continued to surge in Jul, suggesting HBM4 price perhaps notabl HBM3/3E.

- Export value per weight for Korea multichip memory loosely correlates with HBM ASP, though it likely is only indicative and not significant enough to make precise estimates. For Jul, export value per weight went up slig N. Chungcheong+Ichoen (proxy for SK hynix). On the other hand, data for S. Chungcheong (proxy for Samsun surging very strongly by another 21% MoM and was already more than double vs. Apr & nearly 4x vs. SK hynix's Jul data (Exhibit 11). We believe this was most likely driven by rising shipment of HBM4, which should command notably higher value per weight than HBM3/3E. Samsung guided its HBM4 sales to >3x QoQ in 3Q26 and to account for well over 60% of its total HBM sales in 2H26, and the export data has been well supporting the guidance.

- For SK hynix, export value per weight rose MoM but only modestly and the overall trend remained flattish. We hence conclude no sign of meaningful HBM4 shipment in the mix. And it was likely due to the slight delay of NVIDIA Rubin, though SK hynix guided that HBM4 has already begun mass production in 2Q26 and will enter full ramp in 2H26. And hence we should see value per weight rising more notably in coming months.

- Another important observation is while the price of conventional memory has increased ~5x since 3Q25, the data suggested that of HBM has been much steadier. Export value per weight from S.Chungcheong has been better thanks to Samsung's earlier HBM4 shipment & hence mix improvement, rather than a like-for-like HBM price hike. And the improvement vs. the prior level thus far has been only 2x, still significantly below the size of the conventional DRAM price hike. The blended average might have even declined YoY when we consider SK hynix's larger scale in HBM and the falling value per weight trend for the company. That said, we believe that suppliers and customers are negotiating the HBM contracts and prices for 2027 now. We expect this to trigger an upward revision for 2027 earnings, and this will also support memory stock prices in the near term.

EXHIBIT 11: **Value per weight continued to surge substantially at Samsung but remained more or less flattish at SK hynix, suggesting an earlier and faster ramp up of HBM4 at Samsung.**



Source: Korea Custom Service, KITA and Bernstein analysis

Export to Malaysia stayed high in Jul despite seasonality headwinds. It is likely for Intel EMIB, but we wonder why the increase happened so early. Besides that we found no sign of new HBM packaging sites in Korea or new export destination countries.

- Korea total multichip memory export to all countries was US$10.1B in Jul, down 20% MoM on seasonality but up 24% QoQ, thanks to both growth in HBM and also surging prices of conventional memory. Taiwan and Malaysia accounted for 41% of the total export, down QoQ from 45% in Apr, as price increase made conventional memory export value to other destinations rise more (Exhibit 12). Looking at export value per weight chart, Taiwan and Malaysia continued to lead other destinations by a wide margin, and hence we continued to only include Taiwan and Malaysia as the primary destination of HBM export from Korea (Exhibit 13). Export value per weight to Hong Kong and China Mainland was broadly still rising too. Similarly, while we observe some increase in value per weight in regions other than Taiwan and Malaysia, we still assume it was due to rising conventional memory prices, and not due to HBM shipment, as Samsung and SK hynix likely exported considerable amounts of mobile memory packages to these regions & memory packages are categorized as mutichip memory too (Exhibit 14). And it also supports conventional memory enjoys rapidly rising prices and commands better revenue and profit per wafer than HBM now.

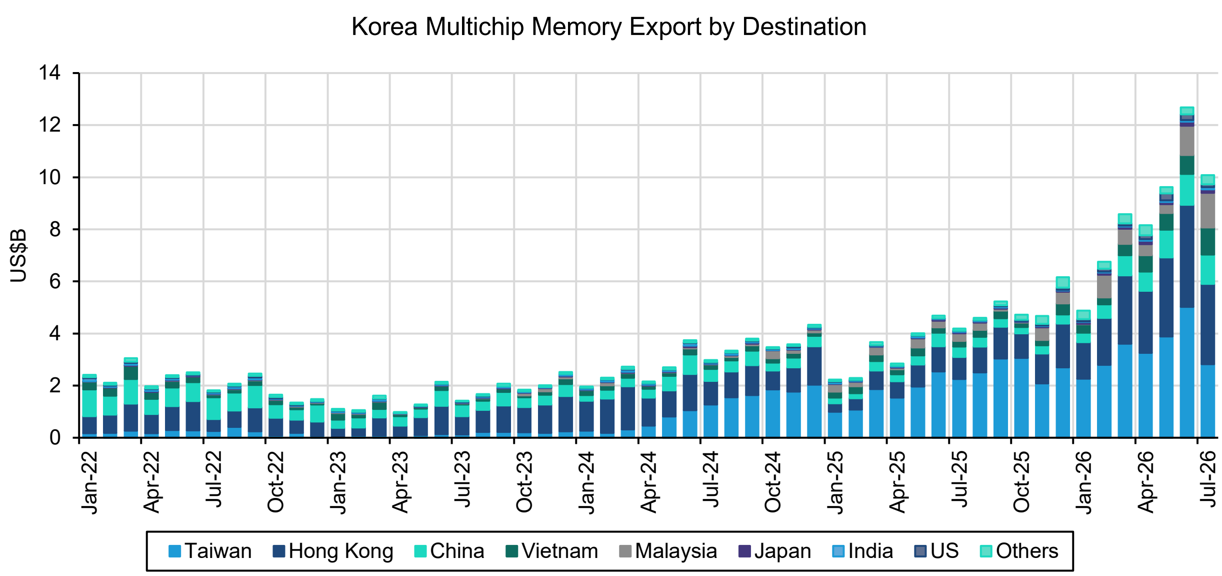
- Export to Malaysia rose by another 20% MoM from the strong Jun to ~US$1.3B in Jul, despite typical seasonality headwind. Average run rate in the last 6 month was to US$0.78B, compared to US$3.6B for exports to Taiwan. We understand that Malaysia is home to Intel's high-end packaging facilities, where some high-end server CPUs equipped with HBM are packaged with EMIB. Separately we picked up a growing customer interest in EMIB, and we note Intel is set to bring online a new advanced packaging fab into production this year as well (link). However, even if customers decide to adopt, we believe any volume production should be 1-2 years from now, and wonder why HBM export to Malaysia took place so early. All in all the export to Malaysia is worth continued monitoring.

- Samsung continued to account for the bulk of exports to Malaysia, and MoM the export value was unchanged. Malaysia also rose to a very significant part of overall exports from Samsung, reaching 42% in Jul or 30% of in the past 3 months (Exhibit 15). Exports from hynix noticeably increased MoM in Jul, though overall staying considerably smaller vs export from Samsung and also vs its own export to Taiwan (Exhibit 16). Broadly the export to Malaysia has been growing quickly and has benefited Samsung more and has been one of the reasons behind Samsung's HBM revenue growth. It also supports Samsung's broadening customer recognition in HBM.

- For the origin of export, Jul data showed that S. Chungcheong, N. Chungcheong and Ichoen continued to account for almost all of multichip memory export to Taiwan & Malaysia (Exhibit 17). So it does not appear either Samsung or SK hynix has started packaging HBM in other locations within Korea.

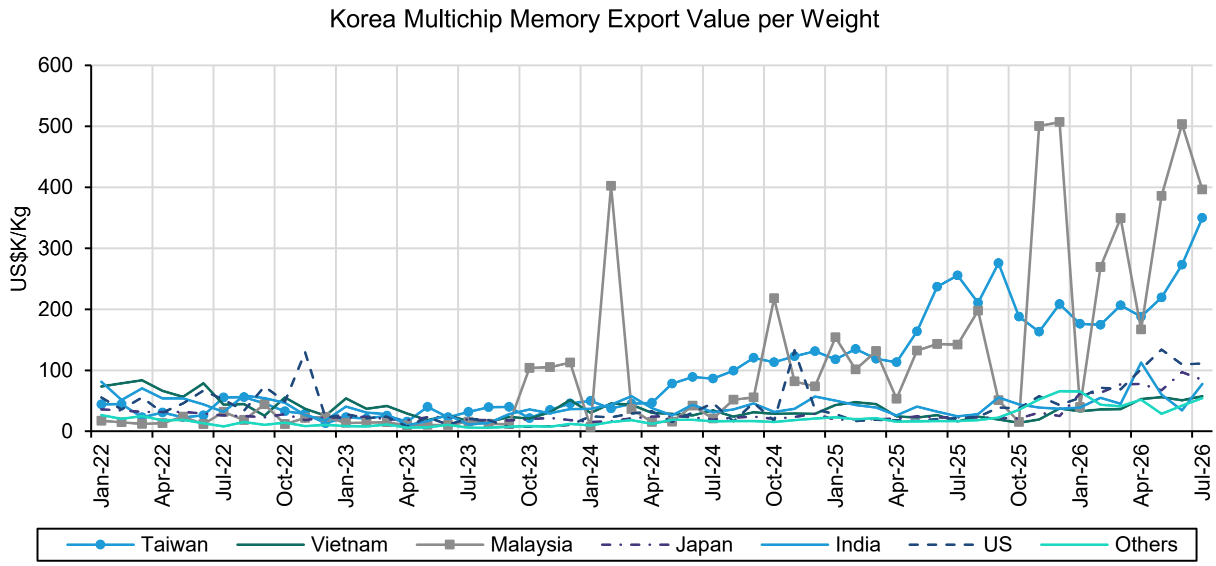
- Overall, all the data above suggested that HBM export continued to concentrate in mostly Taiwan and to a lesser degree Malaysia. However, we'd like to point out the limitations to our methodology. One is if either of them moves any HBM packaging outside of Korea, it will not be picked up by this export data. We however don't think this is happening soon. Secondly, if any of their HBM shipment is consumed (i.e. packaged into another product) within Korea, it will also not be reflected in our analysis either. We think this second limitation may become more relevant as Amkor (AMKR US, not covered) has small volume of CoWoS-like production in Korea already and may increasingly do more in the future.

EXHIBIT 12: **Multichip memory includes mobile DRAM & NAND packages too, and most of the export went to Hong Kong/China & Vietnam prior to 2024 as most of smartphone production is in those regions. Since 2024 the export to Taiwan has been rising very quickly due to a surge in HBM export to Taiwan for CoWoS packaging there. And in recent months we also saw an increase in the export to Malaysia.**



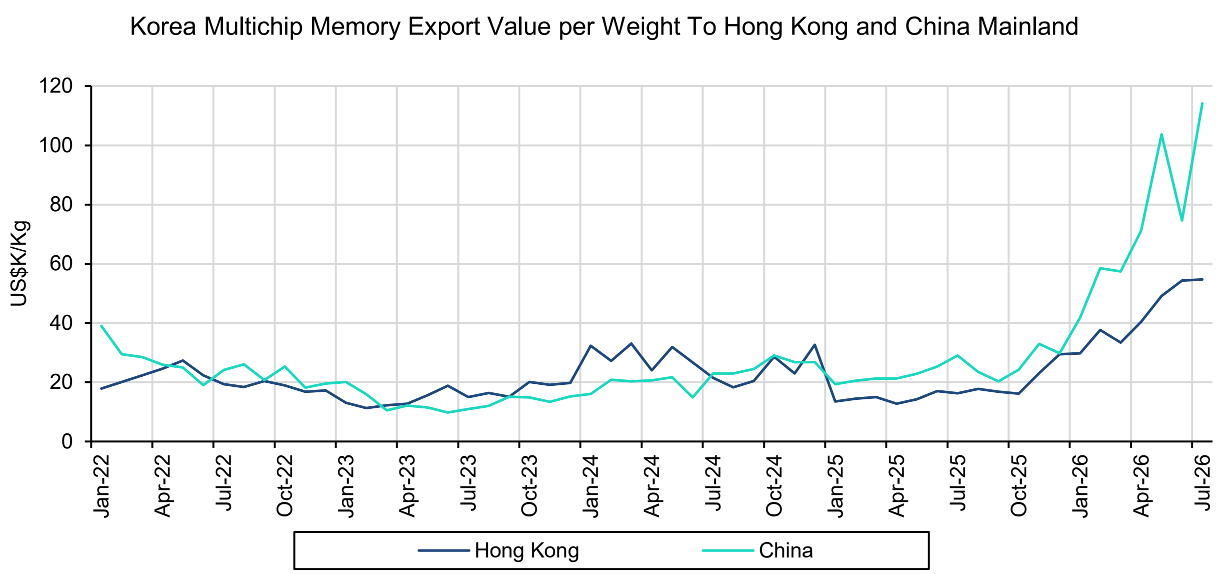
Source: Korea Custom Service, KITA and Bernstein analysis

EXHIBIT 13: **Value per weight continued to indicate that HBM was likely primarily exported to Taiwan and Malaysia in Jul.**



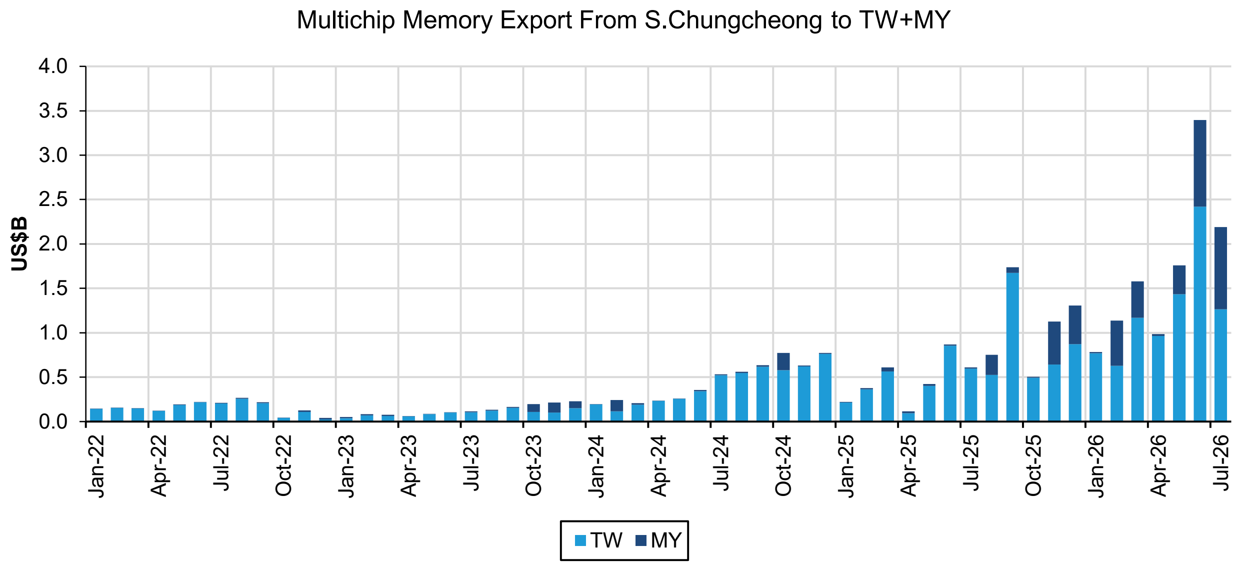
Source: Korea Custom Service, KITA and Bernstein analysis

EXHIBIT 14: **Value per weight generally has been growing for Hong Kong and China. We assume the changes were due to conventional memory increase instead of HBM shipment.**



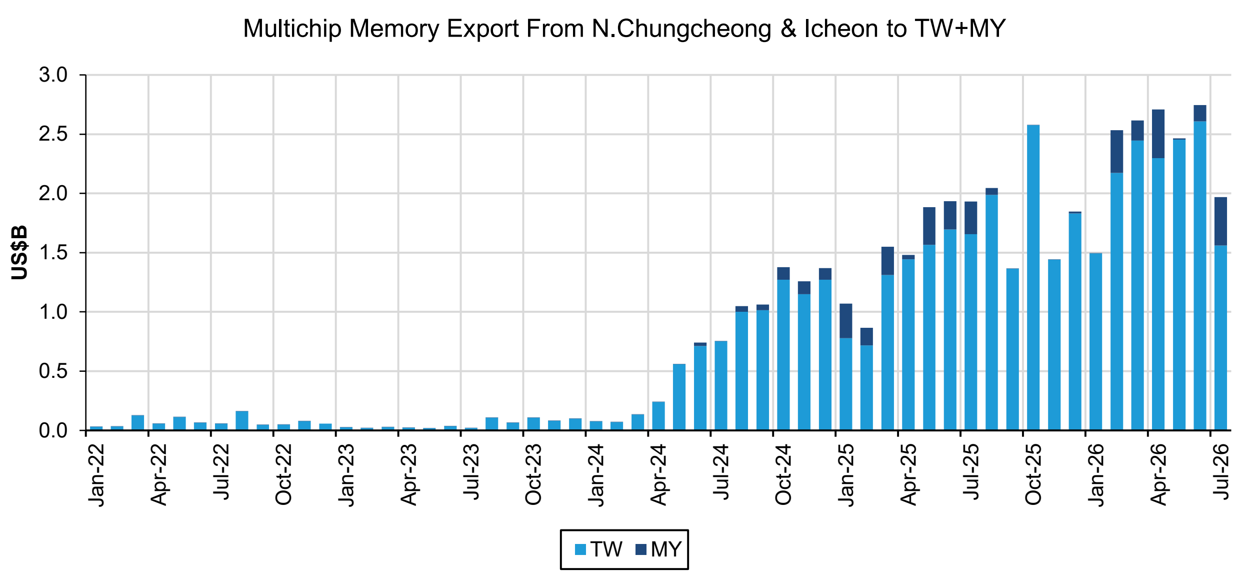
Source: Korea Custom Service, KITA and Bernstein analysis

EXHIBIT 15: **Samsung HBM export to Malaysia stayed high following the notable increase in Jun.**



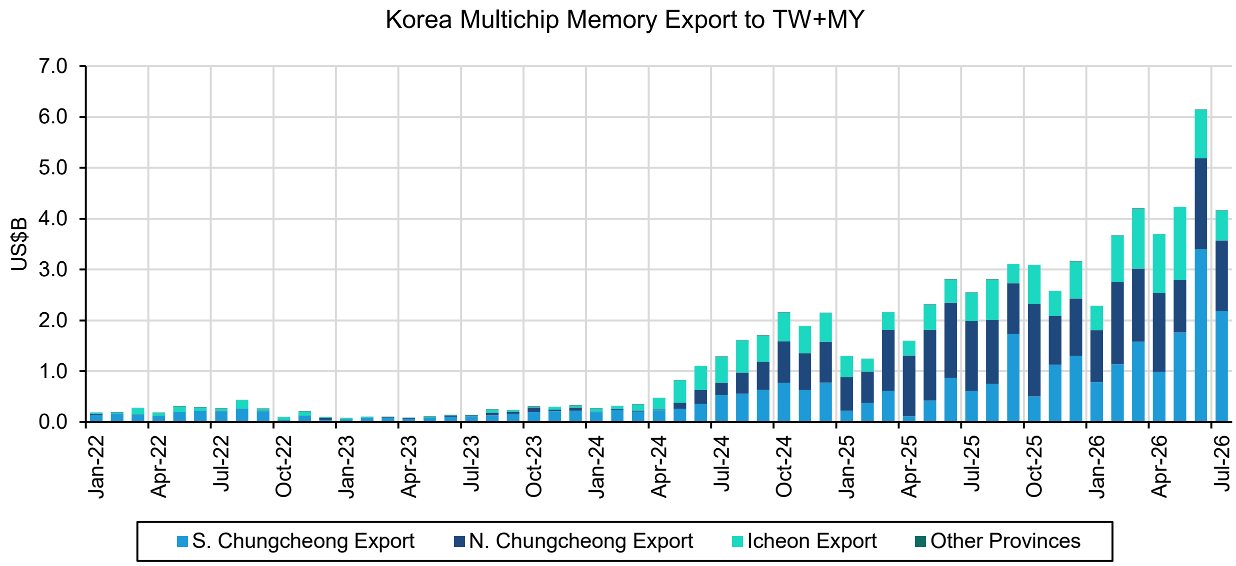
Source: Korea Custom Service, KITA and Bernstein analysis

EXHIBIT 16: **SK hynix HBM export to Malaysia also increased in Jul though remaining much smaller vs Samsung and also vs its own export to Taiwan.**



Source: Korea Custom Service, KITA and Bernstein analysis

EXHIBIT 17: **S. Chungcheong, N. Chungcheong and Ichoen continued to account for almost all of multichip memory export to Taiwan & Malaysia.**



Source: Korea Custom Service, KITA and Bernstein analysis

Overall Jul data came in strong for Samsung but quite weak for SK hynix, suggesting Samsung may become a market share leader in 3Q26, helped by its HBM4 ramp up.

- In summary, Jul data came in stronger than expectation for Samsung but much weaker for SK hynix. Regression suggests ~80% QoQ growth in HBM revenue at Samsung in 3Q26, and likely notable ASP increase too driven by HBM4 ramp. For SK hynix, export data suggests 20% QoQ drop in HBM revenue in 3Q26, making its revenue size to fall behind Samsung's, unless a strong ramp of HBM4 can make exports in later months significantly surpass historical seasonality. Export to Malaysia grew even higher despite seasonality headwinds and Samsung remained the main contributor to exports to Malaysia.

- For the stocks, price increases in conventional memory & earnings revision on HBM prices reflecting shortage will likely provide a near-term support to share prices. We also expect announcements on shareholder return plans to lure back investors looking for value. Mid- to-long term, we will be monitoring progress at CXMT & also IPO of YMTC to better assess their structural threat, especially in NAND as China can advance technologies and capacity of NAND without EUV. We caution investors of cyclical risks but remain structurally constructive on DRAM and on Samsung, SK hynix and Micron (see Global Memory: Memory becoming a burden of AI too?). For KIOXIA, despite the substantial correction and more aggressive shareholder returns, we remain cautious due to structural concerns on competitive dynamics in NAND. And we find current stock price still somewhat expensive, based on our detailed SOTP valuation (KIOXIA: All parties come to an end - Underperform).

I. REQUIRED DISCLOSURES

References to "Bernstein" or the “Firm” in these disclosures relate to the following entities: Bernstein Institutional Services LLC (April 1, 2024 onwards), Sanford C. Bernstein & Co., LLC (pre April 1, 2024), Bernstein Autonomous LLP, BSG France S.A. (April 1, 2024 onwards), Sanford C. Bernstein (Hong Kong) Limited 盛博香港有限公司, Sanford C. Bernstein (Canada) Limited, Sanford C. Bernstein (India) Private Limited (SEBI registration no. INH000006378), Sanford C. Bernstein (Singapore) Private Limited, Sanford C. Bernstein Japan KK（サンフォード・C・バーンスタイン株式会社）and analysts employed by Société Générale Africa Technologies & Services to produce Bernstein research under a Global Services Agreement in place between Bernstein and Société Générale.

Bernstein is part of a joint venture between Société Générale (SG) and AllianceBernstein, L.P. (AB). Unless specifically noted otherwise, for purposes of these disclosures, references to Bernstein’s “affiliates” relate to both SG and AB and their respective affiliates.

VALUATION METHODOLOGY

Samsung Electronics Co Ltd

We value Samsung Electronics with 6.2x of forward 5Q-8Q EPS of KRW71,172 and arrive at price target of KRW 440,000 for its common shares, KRW374,000 for preferred shares, and US$7,350 for GDR.

SK Hynix Inc

We value SK hynix with 6.2x of forward 5Q-8Q EPS of KRW536,158 and arrive at price target of KRW3,300,000.

Micron Technology Inc

We value Micron with 7.7x of forward 5Q-8Q EPS of US$169.8 and arrive at price target of US$1,300.

KIOXIA Holdings Corp

We value KIOXIA with 4.1x of 1-year forward EPS of ¥9,810 and arrive at price target of ¥40,000.

RISKS

Samsung Electronics Co Ltd

The biggest downside risk to our target price is an earlier end of favorable pricing environment, which can be a result of weaker demand or higher supply. Investor sentiment and hence the valuation rewarded by investors is also a risk. China's progress in memory, especially in NAND, is a downside risk too.

SK Hynix Inc

The biggest downside risk to our target price is an earlier end of favorable pricing environment, which can be a result of weaker demand or higher supply. Investor sentiment and hence the valuation rewarded by investors is also a risk. China's progress in memory, especially in NAND, is a downside risk too.

Micron Technology Inc

The biggest downside risk to our target price is an earlier end of favorable pricing environment, which can be a result of weaker demand or higher supply. Investor sentiment and hence the valuation rewarded by investors is also a risk. China's progress in memory, especially in NAND, is a downside risk too.

KIOXIA Holdings Corp

Upside risk to our target price include 1) stronger than expected NAND demand growth, which likely would lead to better NAND pricing and hence company earnings, 2) favorable policy support from Japanese government such as capex subsidies, and 3) better than expected cost reduction

RATINGS DEFINITIONS, BENCHMARKS AND DISTRIBUTION

EQUITY RATINGS DEFINITIONS

Bernstein brand

The Bernstein brand rates stocks based on forecasts of relative performance for the next 12 months versus the S&P 500 for stocks listed on the U.S. and Canadian exchanges, versus the Bloomberg Europe Developed Markets Large and Mid Cap Price Return Index EUR (EDMF) for stocks listed on the European exchanges and emerging markets exchanges outside of the Asia Pacific region, versus the Bloomberg Japan Large and Mid Cap Price Return Index USD (JPL) for stocks listed on the Japanese exchanges, and versus the Bloomberg Asia ex-Japan Large and Mid Cap Price Return Index (ASIAX) for stocks listed on the Asia (ex-Japan) exchanges -unless otherwise specified.

The Bernstein brand has three categories of ratings:

- Outperform: Stock will outpace the market index by more than 15 pp
- Market-Perform: Stock will perform in line with the market index to within +/-15 pp
- Underperform: Stock will trail the performance of the market index by more than 15 pp

Coverage Suspended: Coverage of the company under the Bernstein research brand has been suspended. Ratings and price targets are suspended temporarily, are no longer current, and should therefore not be relied upon.

Not Rated: A rating assigned when the stock cannot be accurately valued, or the performance of the company accurately predicted, at the present time. The covering analyst may continue to publish research reports on the company to update investors on events and developments.

Not Covered (NC) denotes companies that are not under coverage.

Bernstein brand stock ratings are based on a 12-month time horizon

Autonomous brand – common stocks

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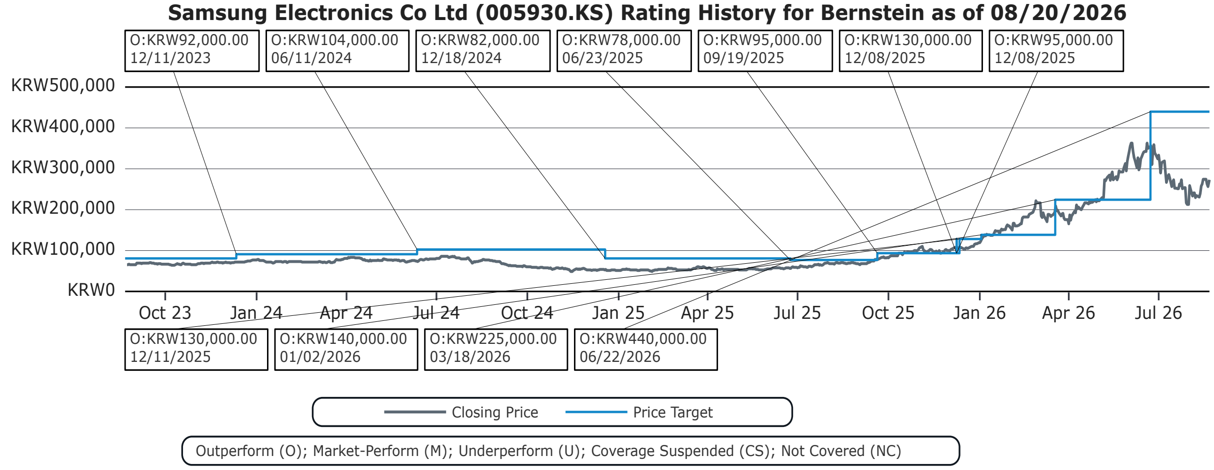

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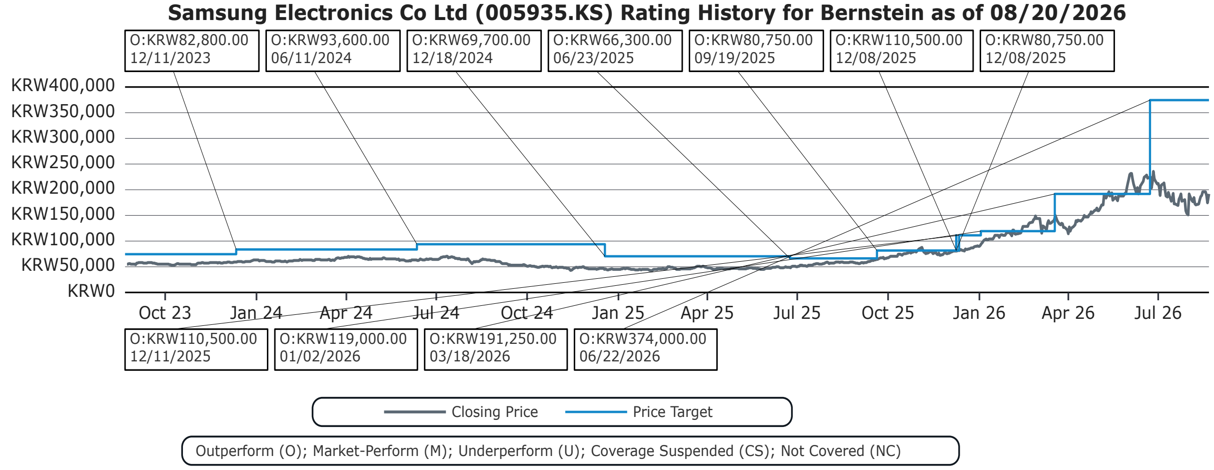

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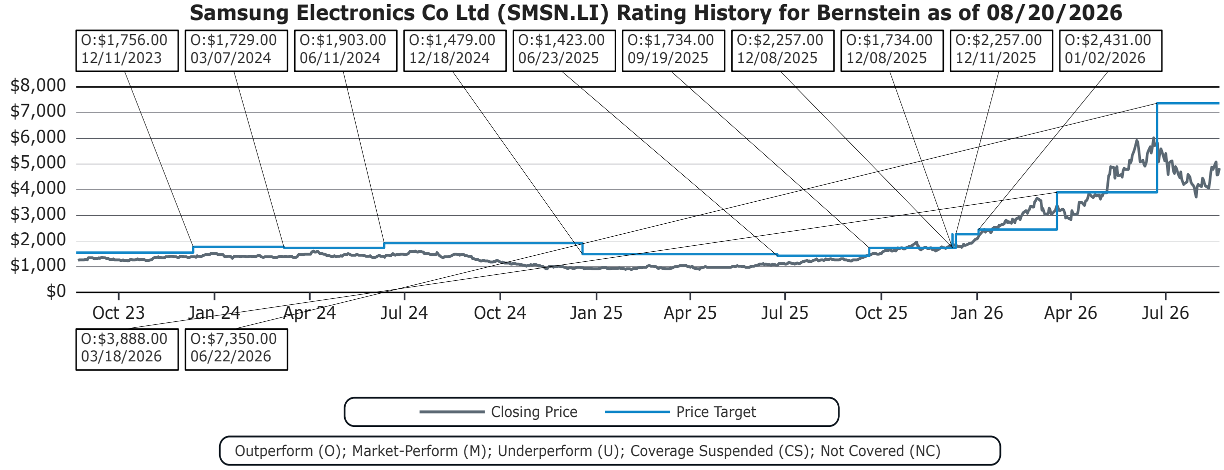

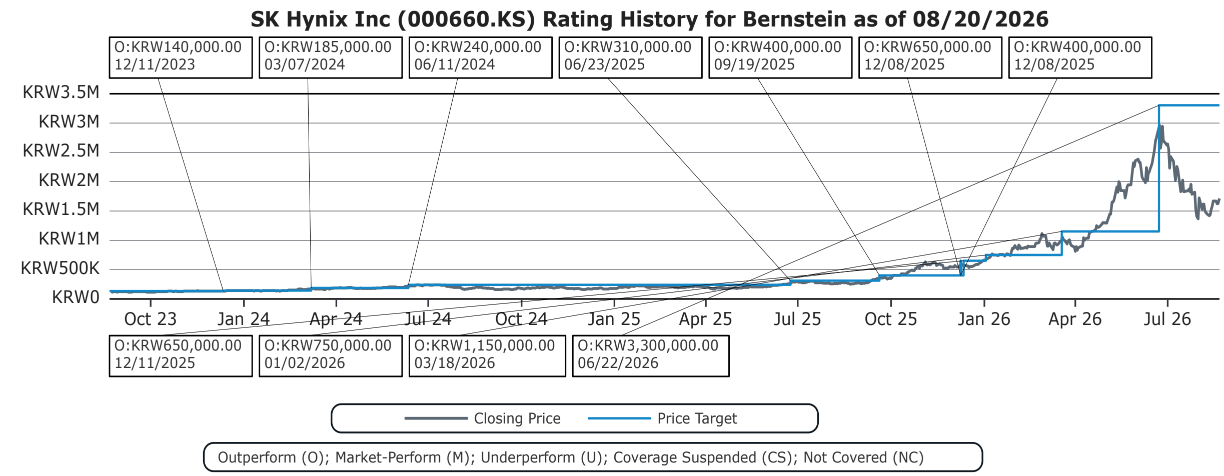

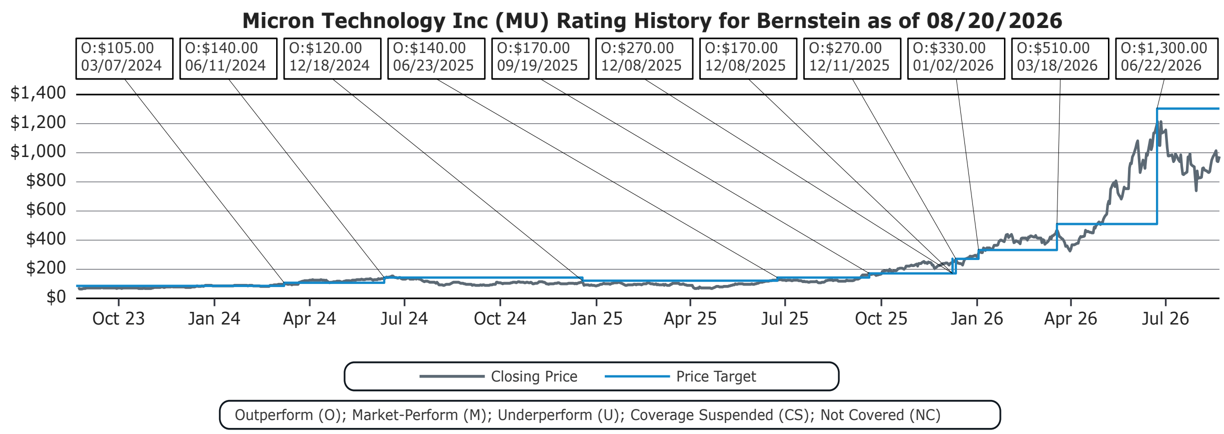

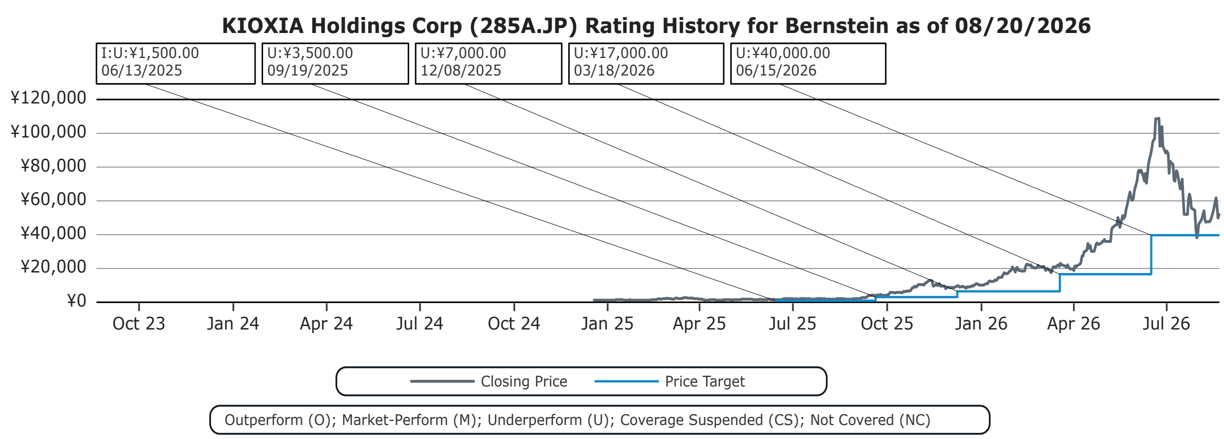

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