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Semiconductors | North America

Memory markets continue strong despite tariff concerns, raising numbers for MU

Memory pricing has inflected materially over the last few months, and even more so over recent weeks. Sustainability is a concern, but numbers are going higher. More positive MU as core DRAM improvements add to an AI story hitting escape velocity.

Key Takeaways

- We see Micron's direct AI revenue (LDDR5 for racks, and HBM) growing 2-2.5x over the next 3 quarters, and should be a significant boost to pricing and margin
- Raising estimates for Micron, now 25% above consensus for Aug and 15% for Nov EPS, but take down FY26 slightly on account of potential macro headwinds.
- Reiterate OW SNDK, see modest upside to guidance for June and valuation keeps us positive even as we reduce PT to $70 from $84
- Lower Micron PT to $98 from $112

Our checks in DRAM have turned remarkably positive in recent months; we think our memory coverage can rerate from here even with macro concerns. The idea that we'll see a near term acceleration in memory isn't controversial; a week and a half ago SK Hynix (covered by Shawn Kim) just guided to low teens volume in DRAM and over 20% in NAND. The stock reaction to those numbers is confirmation that the perception today is that's entirely driven by pull-in demand, but we think DC drivers are underappreciated for MU, with AI strength giving narrative backing to higher numbers that Hynix didn't have. And if a tight environment for DRAM persists beyond a quarter or two, Micron quickly starts to look cheap even assuming conditions worsen later in the year.

We agree tariff pull forwards are a factor, but they are not the only thing driving pricing strength. For the last few quarters Micron has described an environment where PC/Smartphone inventories would be at a healthy level by spring. Following several quarters of weak volumes we expected a pick-up anyway; tariffs are obviously adding to that but datacenter is the core driver now, where AI demand remains incredibly robust, and at the same time general compute spend is improving.

In NAND volumes, we have already been weak outside of AI markets for the better part of the last year, with negative y/y bit growth for SNDK in Q2, Q3, and Q4 of last year. With fabs already running underutilized at several players in the industry there's unlikely to be inventory build on the BS sheets of the producers despite the

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SEMICONDUCTORS

North America	
Industry View	**Attractive**

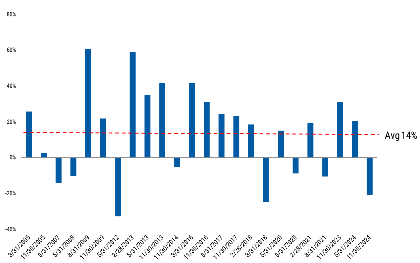
WHAT'S CHANGED

	From	To
SanDisk Corporation. (SNDK.O) Price Target	$84.00	**$70.00**
Micron Technology Inc. (MU.O) Price Target	$112.00	**$98.00**

weaker demand, increasing price leverage for suppliers even without PC/ smartphone OEMs deciding to hold more inventory.

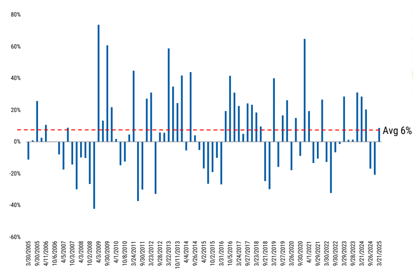
Pricing is the key driver for memory stocks in a normal environment, a dynamic we wouldn't overthink even in unusual times. We are of the view that you don't want to preemptively avoid memory stocks ahead of better numbers, after the stocks have already underperformed, just because those numbers may be short lived. If the narrative shifts towards more positive drivers like AI, there could be significant upside. Over the last 20 years Micron's price return ahead of a quarter where both DOI is down and GMs expand has been 14%, vs 6% for all quarters - with positive returns 2/3rd of the time. We model that combination in 2 of the next 3 quarters.

Exhibit 1: Micron T+1 to T+1 price return when DOI is down and GM (%) is up...



Source: Factset, Morgan Stanley

Exhibit 2: ...compared to all Micron quarters over that period



Source: Factset, Morgan Stanley

We see MU's direct AI revenue (HBM, LPDDR for racks) growing 2-2.5x over the next 3 quarters to >25% of current consensus revenue estimates. We continue to be believe this AI infrastructure cycle is not anywhere near finished playing out (Supply limits yes, but digestion no; raising CY26 ests as inference surges), and Micron's latecomer position to the key market in HBM gives them one the best rate of change in DRAM and among our coverage when it comes to growing AI exposure. We think TTM HBM revenue for Micron was about $2.2bn, vs close to $20bn for Hynix and Samsung. That puts Micron at about 10% TTM share exiting Q1, and they expect to get to double that at some point this year in a market growing more than 2x y/y. That points to a significant ramp ahead for that business, and we would not be surprised to see MU exit 25 at something like 2.5bn a quarter of HBM (vs our est of 1.1bn in the Feb quarter).

LPDDR for racks is also just beginning to inflect, assuming 20k NVL72 racks for the year adds another $1bn+ in AI revenue in 2025. Consensus revenue for November is $10.7bn, with racks approaching $500mn and HBM north of $2bn that's already more than 20% of revenues. That's not including other sources of AI (eSSD, high cap DIMMs,), of which the former was already close to $5bn run rate in Q4 (although coming down in 1H 25), and the latter could also be in the billion dollar range in 2025. There are also revenue opportunities in GB300 LPDDR (although that will be multisourced as we move to a modular form factor). That means AI should easily be >1/3rd of total revenue by Q4, with direct sources growing over 200% y/y which is by far the fastest growth in our large cap universe. That's a significant boost to blended pricing; we estimate in the range of a 4 point boost to q/q DRAM ASP in the Aug and Nov quarter.

To be clear, AI enthusiasm is essential - we think Micron is unlikely to work if NVDA does not work, but could offer significant upside as enthusiasm returns to AI. We continue to see some risks in an AI correction; HBM is going to ship ahead of processor demand, and with Micron already talking about a $35bn market in 2025 vs our greater China semis analyst Charlie Chan's CoWoS derived tam of $29bn, and our bottom up build based on our current coverage estimates of $22.5bn, we think there's already upside for Nvidia baked into Micron's base case. And given the tie both multiples have to AI, we find it unlikely investors will continue to buy Micron at 2x book unless Nvidia can trade at higher than 20x earnings.

Higher content in edge devices remains an offset even with slower growth in units. There have been reports that Apple may move to 12GB of DRAM across the iPhone 17 lineup (link), vs just the pro and pro max skews. That would add 7 points to y/y growth in iPhone demand (from 15% to 22%) above Micron's stated mid-to high teens growth estimate for the overall DRAM TAM in CY25, assuming flat units with is our current greater china hardware teams base case view (Higher 2Q25 iPhone/iPad Builds amid Tariff Uncertainties).

In NAND AI content impacts could be larger; iPhones are something like 5% of total DRAM, but by our estimates closer to 2x as large a percentage of the NAND market and a bigger driver in mobile specifically (>20% of the incremental growth in volume in 5 of the last 6 years). As of today, Apple Intelligence requires 7GB on device storage capacity to support AI features, up from 4GB initially (link), effectively a 5.5% reduction in storage capacity for 128GB skews, which has been the low end of the mainstream lineups since the iPhone 13 came out in 2021. Seeing a more normalized mid teens level of 15% y/y growth last year would have added a point to total NAND bit growth in CY24.

But what about the risks? As of now, the impacts of Samsung's (covered by Shawn Kim), on one side their HBM struggles are obviously a benefit to Micron's position; on the other hand, a trade ratio unwind does create more risk to core DRAM. That risk is elevated following a ~50% q/q decline Samsung's HBM revenue in Q1 around MI308 and H20 export restrictions and delayed customer purchases ahead of upgraded products (Growth Resumes, Trough Margin, Limited Visibility). In addition to reports that TPU will switch to MU (link).

The trade ratio unwinds if wafers that had expected to be used for those products become traditional DDR5, and coming off a year where DRAM WFE was 50% we likely need HBM to stay resilient to avoid oversupply, with third party estimates for wafer starts at up 16% y/y in 25. It's something we are watching but for now we think tightness in HBM for ⅔ biggest suppliers along with increased demand on core DRAM keep that risk further out in time.

Recent rally brings risk reward into balance but recent lows are close to trough levels: Micron was able to hold book value through the last downturn despite book value declining ~15% over 4 quarters, and $6.8bn of GAAP losses in CY23. Book was ~$43 at the end of February, at $81 a share we're almost 100% above those levels now, but 1.9x book is the lowest that the multiple has been since late 2023 outside of the period immediately following the liberation day selloff and is in-line with both the trailing 10 year (1.84x) and 5 year (1.94x) averages. That puts the stock at roughly midcycle valuation levels on that basis, and while there's no guarantee the multiple won't go lower it probably takes some fundamental weakness to see that happen.

And on the upside earnings seem likely to surpass prior 2022 cycle highs of $2.60 a quarter, and with an improved AI story we think the valuation can as well. The 2022 peak share price of $97 was 9.3x peak run rate EPS and 2.67x book. 50% gross margin on the current 10bn or so a quarter of revenue would be enough to get EPS to about $3 a quarter on its own, 9.3x that figure would be ~$112 or 38% upside from here. And the stock was at $140 less than 12 months ago, when FY26 earnings estimates were $12-13, and we could see estimates return to that level if quarterly EPS exceeds $2.50 ($10 run rate) by November. However, we remain below consensus on FY26, and think it may be difficult to see sustained multiple expansion without better visibility on demand.

Reiterate OW SNDK as valuation already at trough levels assuming we avoid recession type scenarios. With considerable upside if we don't. We initiated on SNDK when the stock was $47 (link) with a skeptical view on near-term pricing guidance for flat to up q/q in Q2; we don't have that skepticism now. And see upside to estimates calling should pricing up just 2% q/q in June, as volume trends could support smaller underutilization headwinds than anticipated.

Despite that, the stock has traded down to $34, on a few hundred bps improvement in margins SNDK should be close to break even in Q2 vs consensus for a small loss. That feels like a good outcome for a stock now trading at 3x trailing peak earnings (FY22), and 5x run rate earnings from less than a year ago when gross margins were still sub 40%. It shouldn't take heroic assumptions to get the stock back above an understated tangible book value of ~5bn (cumulative tool investment in the JV is > $20bn, their share of JV capex over just the last 3 FYs of suppressed capex was $3.5bn). But if we are back in a position where we're burning cash for too long there may be some constraints around capex, with JV combined debt of ~7.2bn (4.6bn net) vs ~$11.6bn in combined market cap.

Preview to earnings

Focus KPI	Focus KPI Surprise	Likely impact to consensus EPS*
SanDisk Corporation. SNDK.O		
June Q gross margin	↑ Likely upside surprise	↑ Modest revision higher

- Think near term conditions in NAND have improved since Sandisk guided.
- Expect upside to "flat to up MSD" q/q ASP in June, with further margin expansion possible depending on utilization
- Should be a good outcome for the stock given degree of underperformance and valuation

*Likely impact to consensus EPS is for the next 12 months
Source: Company data, Morgan Stanley Research

Details on Micron's AI exposure

Strength in AI set to be a material contributor to results, we see a scenario where the narrative isn't all about tariff impacts. We think Micron has reported about $2.2bn of HBM revenue over the trailing 12 months, over the next twelve months we model $7.2bn with quarterly revenue more than doubling over that period. Micron also has the benefit of seeing the revenue impact of the Blackwell ramp earlier given the need to ship ahead of processor demand, that's likely to become an issue when the market corrects. But it isn't one now, and we don't expect it to be this year given the strength in underlying demand, and MU being sold out for CY25 HBM capacity.

LPDDR5 for Nvidia's rackscale products is also just now beginning to show up, and with Micron's sole source position in those products we assume Micron ships DRAM for 2K racks in the February quarter, and 7.4 racks in Nov (20.6k for the year). With 17.2TB per rack MU and assuming no price premium to the current blended industry price of ~$3.50 per GB implies another $1.2bn of direct AI revenue with an exit rate approaching $2bn for that product. Micron will lose the sole socket with the transition to LPCAAM modules with GB300, but the later timeline for the product is likely somewhat of a positive for the business (offset by the lack of higher HBM content).

That means HBM and datacenter LPDDR could be >25% of consensus revenue in the November quarter. If enthusiasm returns for the AI theme Micron seems likely to rerate on the back of those kinds of numbers. With new product group segmentation making it easier for investors to see, and appreciate Microns position.

In eSSD Micron also expects multiple billions of revenue in CY25, that should be easily achievable given third party data for Q4 already puts that business at 3/4th of total NAND revenue and close to a $5bn run rate. That business is had been undergoing a digestion phase in Q1, but we expect growth to resume in calendar Q2 and beyond as hyperscale capex remains robust and MU's position remains strong in that market.

How much of a supply headwind are H20/MI308 restrictions? We think the now written off China products were something like 120-161mn GBs of demand, or 20-30% of the writedown value in dollar terms. 140mn GBs of HBM at 3x the trade ratio is 420mn GBs of DDR5, 1.4% of DRAM production in CY24. The impact is higher than that assuming the write down represents product that was supposed to be sold in the first half, but either way an impact in the low single digit kind of range isn't enough to materially upset industry S/D on its own.

Exhibit 3: Micron's two most exciting AI opportunities today are still in early innings

	Feb-25	May-25	Aug-25	Nov-25
MSe HBM Revenue ($m)	**$1,100**	**$1,300**	**$2,000**	**$2,500**
% of total revs	13.66%	14.72%	19.39%	22.86%
% of DRAM revs	18%	19%	24%	28%
Total DRAM GBs	1,893	2,083	2,353	2,542
HBM % of Bits	**4.6%**	**5.0%**	**6.8%**	**7.9%**
q/q including HBM	4.0%	3.0%	7.0%	-2.0%
q/q ex HBM	-2.3%	2.4%	2.2%	-6.5%
HBM Uplift to Blended DRAM ASP	***16.2%***	***16.9%***	***22.4%***	***28.2%***
LPDDR 5 for Racks				
NVL72 Units	2.0	5.1	6.1	7.4
Content Per Unit (GB)	17,280	17,280	17,280	17,280
ASP GB ($)	$3.50	$3.50	$3.50	$3.50
MU Share	100%	100%	100%	100%
LPDDR Revenue ($m)	123	310	367	447
Direct AI Revenue ($m)	**1,223**	**1,610**	**2,367**	**2,947**
q/q		32%	47%	25%
% of total revenue	15%	18%	23%	27%

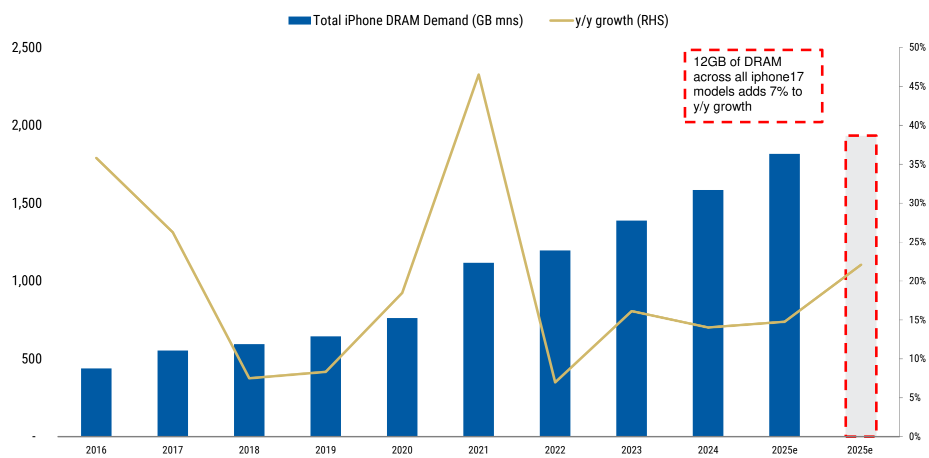
Source: Company Data, Morgan Stanley Estimates

Thinking about the impact of higher smartphone Memory Content

DRAM has been primary a content growth driven market for several years with PC's/ Mobile units growing only in the low single digits most years. But with the increased anxiety on overall unit demand from tariffs we think its worth considering some of the bigger moving pieces this year.

There have been several reports that Apple may increase DRAM content across the iPhone 17 lineup, and would be a a significant offset to possible unit headwinds. Assuming flat builds at Apple in 2025, and 12GB of DRAM in the upcoming pro/pro max skews (but not the entire iPhone 17 lineup) implies 15% y/y growth in DRAM demand. That level would be in line with 2023 and 2024, but higher content in all models would raise growth estimates to 22%, the highest since 2017. While we don't know if we'll see that kind of boost in content, it seems more than plausible after we didn't see an uptick in the high-end of the lineup during the last iPhone cycle, as well increased demands from on device AI. In the context of overall y/y mobile content growth that's been in the low double digit percent range since 2022, the potential that we see above that level within one of the largest customers in the market is a positive proof point for DRAM even if overall unit growth turns out to be lower than we expect.

Exhibit 4: iPhone DRAM demand could accelerate in 2025 even with units flat



Source: IDC, Morgan Stanley Research

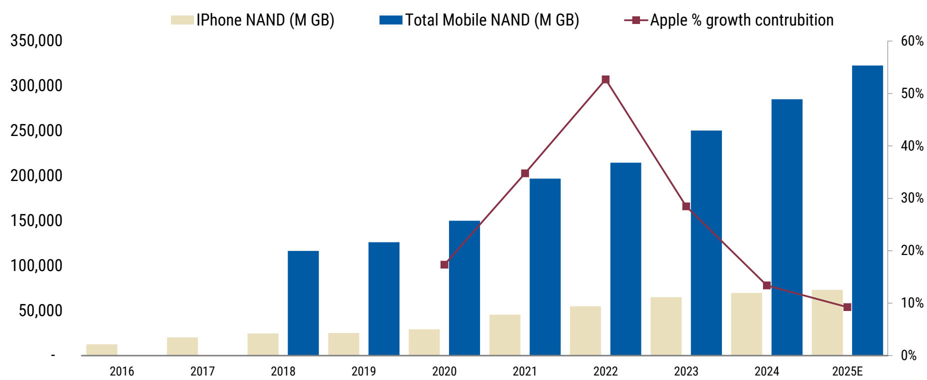
iPhone storage content is also something to watch in 2025. We are coming off a year where NAND content growth at Apple last year (covered by Erik Woodring) was its lowest since 2020, a year when Apple delayed the launch of a new flagship phone. Given Apple's role as the biggest driver of mobile NAND consumption (we estimate in the range of 25%) any upgrades to NAND content will have a significant impact on overall market supply and demand.

Currently, Apple Intelligence now requires 7GB on device storage capacity to support AI features, up from 4GB initially (link). After 2024 featured 7% avg content growth in iPhones vs the trailing 5yr average of 19%, a return to historical growth could be a catalyst for the industry. The view from our Apple analyst Erik Woodring is that Apple's average

NAND content per phone will be flat in 2025 at 7% y/y growth - with units down slightly overall iPhone NAND demand is only expected to grow 5%.

Should we expect more storage content as a result of Apple Intelligence? 7GB of storage would be effectively a 5.5% reduction in storage capacity for 128GB skews, which has been the low end of the mainstream lineups since the iPhone 13 came out in 2021. That could drive demand towards higher NAND content models (the next step up is 256GB), or inspire Apple to phase out the 128GB skew entirely as they add features. A conservative 15% y/y growth (as opposed to the 7% we saw last year) in iPhone content would have added over a point to NAND market growth last year, and made iPhone a low teens % of overall bit growth.

Exhibit 5: iPhone NAND growth expected to remain below the levels of recent history



Source: IDC, TrendForce, Morgan Stanley

That said a 5.5% reduction for the low end skew is interesting, but it's hardly game changing. We'll likely need to see that number move much higher before it has enough of an impact to change consumer behavior. And that impact may not matter for NAND, it could just drive more adoption to services like iCloud which heavily favor HDD. There's also no guarantee that 7GB number moves higher at all, with complex queries sent to the cloud and ongoing innovations in model compression. It's also worth pointing out that supplying to Apple tends to have the lowest GM profile in the NAND industry, given Apple's bargaining power and use of in-house controllers.

In our view that makes the edge AI driven opportunity worth watching, but not one that is likely to dramatically change the growth profile of the industry unless it inspires higher growth in overall units.

And a quick word on PCs: According to Micron, AI PC's will require 16GB of DRAM content vs average content levels of 12GB last year. AI PC uptake has been slow so far, ann area we would continue to be conservative around. For PC's overall there are also reasons to be cautions as the impact of windows EOL has been much smaller than expected, and PCs refreshes continue to rank among the least defensible areas of spend in our CIO surveys. But PC's are not the needle mover they used to be, given they were sub 10% of total DRAM demand last year. We are watching mobile much more closely.

Details on Changes to Micron Estimates, price targets

For the May quarter we leave our estimates mostly unchanged, with DRAM revenue up 13.3% q/q to $6.937bn compared to $6.943 previously as well as NAND revenue unchanged at $1.794bn down 3.3% q/q. Our gross margin estimate of 37% is also unchanged from prior.

We are raising numbers for August and November quarters, but staying conservative thereafter. For DRAM we now estimate revenue of $8.3bn for August (up 20.9% q/q and 57% y/y) vs $7.5bn previously. Based on raising our volume and ASP forecasts to up 13% q/q and up 7% q/q respectively vs up 12% and down 3% prior. For November we lower our volume assumptions somewhat, now forecasting 8% q/q growth vs 16%, but raising our ASP estimate from -5% q/q to -2% q/q. We leave our NAND assumptions unchanged. That brings our August/November quarter non-gaap GM (%) estimates to 43.9/46.0 up from 39.2/43.6 with our resulting EPS now $2.47/$2.77 vs consensus $1.94/$2.41.

We think that's a conservative view of the near term, as growth in HBM becomes a more material part of the revenue/earnings outlook. 7% q/q ASP growth in DRAM in August only implies a 2% increase after backing out the impact of HBM and for November our estimate for -2% implies core DRAM pricing down 6%, both of which seem pessimistic to us. This translates to lower gross margins than we would otherwise expect, though some of this conservatism is likely warranted given the recent move in the NTD as Micron produces most of their bits in Taiwan.

Beyond November our EPS estimates move lower and our FY26 EPS estimate comes down slightly. This is mostly a function of lower volumes, where we now assume CY26 12.5% y/y DRAM bit shipment growth of vs 17.4% previously to help capture demand uncertainties from tariffs.

Exhibit 6: Changes to Micron Estimates

	New		Old		Change (%)		Consensus	
	FY2025E	FY2026E	FY2025E	FY2026E	FY2025E	FY2026E	FY2025E	FY2026E
Revenue	$35,909	$42,106	$35,070	$41,915	2%	0%	$35,396	$44,773
Adj Gross Margin	39.8%	43.1%	38.4%	43.8%	4%	-2%	38.1%	44.2%
Adj EPS	$7.42	$9.67	$6.81	$9.80	9%	-1%	$6.91	10.88

Source: Factset, Morgan Stanley

Price target changes

Micron: We are reducing our target multiple from 16x through cycle EPS of $7 to 14x, roughly the median level that the stock has traded at historically (from a premium before given 25% or so of future revenues from AI).

Sandisk: In terms of our price target we are reducing our target multiple from 12x through cycle EPS of $7 to 10x, the low end of the historical range given the higher risk levels (the stock trading at less than $4 bn of market cap is an opportunity given $20 bn of replacement costs but also somewhat of a risk should they need to raise capital in an extended downturn). That brings our price target to $70 from $84.

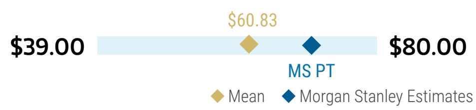
Risk Reward – SanDisk Corporation. (SNDK.O)

NAND improving, but sustainability the primary concern. Favorable risk/reward

PRICE TARGET $70.00

Our base case of $70 represents 10x through cycle EPS of $7, a modest premium to our estimate of the trailing 8yr average ($6.25) as improving industry dynamics lead to higher levels of profitability than we have seen over the last cycle.

Consensus Price Target Distribution

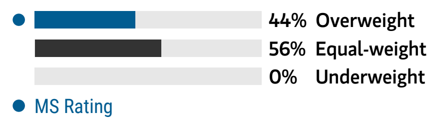


Source: Refinitiv, Morgan Stanley Research

OVERWEIGHT THESIS

Following two years of minimal NAND capex and an absence of prior cycle headwinds (aggressive new entrants INTC/YMTC) industry returns should improve over the coming years. With the stock trading at 2x historical peak earnings power (FY18), 1/3rd of replacement cost, and below comps, we see the valuation as attractive and a positive risk reward skew.

Consensus Rating Distribution



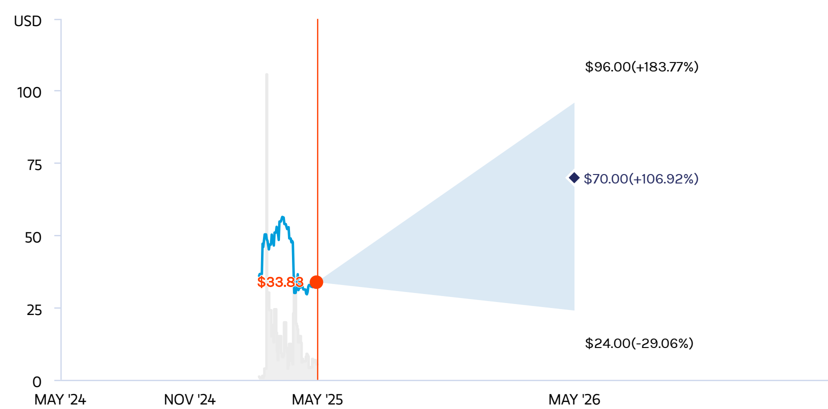
Source: Refinitiv, Morgan Stanley Research

Risk Reward Themes

Secular Growth: *Positive*

View descriptions of Risk Rewards Themes here

RISK REWARD CHART



Key: Historical Stock Performance ● Current Stock Price ◆ Price Target

Source: Refinitiv, Morgan Stanley Research

BULL CASE $96.00

12x a higher through cycle of EPS of $8

Our bull case of $96 per share represents 12x a higher through cycle of EPS of $8. Earnings sustain closer to prior peak cycles ($20+ per share) with more mild downturns, with higher levels of profitability supporting a higher multiple. $96 per share is just below our estimate of replacement cost ($114-$142).

BASE CASE $70.00

10x through cycle EPS of $7

Our base case of $70 represents 10x through cycle EPS of $7, a modest premium to our estimate of the trailing 8yr average ($6.25). As improving industry dynamics lead to higher levels of profitability than we have seen over the last cycle, 10x is a slight discount to our through cycle multiple target for MU (14x) as the lack of AI is offset by historically higher FCF conversion

BEAR CASE $24.00

6x a lower through cycle of EPS of $4

Our bear case of $28 per share represents 7x a lower through cycle of EPS of $4. That assumes Sandisk can avoid much of the pain of the last downturn ($13 per share loss), but with a similar upcycle ($11 per share profit), with the multiple at the low end of the semis group where more capital intensive cyclical companies tend to trade.

Risk Reward – SanDisk Corporation. (SNDK.O)

KEY EARNINGS INPUTS

Drivers	2024	2025e	2026e	2027e
GAAP Revenue ($, mm)	6,663	6,965	8,131	8,633
Non-GAAP Gross Margin (%)	16.4	28.8	34.7	40.2
Non-GAAP EPS ($)	(3.49)	1.79	5.73	8.75
Inventory ($, mm)	1,955	1,871	1,626	1,372
DOI	125.9	135.2	109.8	95.3

INVESTMENT DRIVERS

- Improved pricing and demand strength drive earnings growth

GLOBAL REVENUE EXPOSURE

- 0-10% Europe ex UK
- 0-10% Japan
- 0-10% Mainland China
- 0-10% UK
- 30-40% APAC, ex Japan, Mainland China and India
- 40-50% North America

Source: Morgan Stanley Research Estimate
View explanation of regional hierarchies here

MS ALPHA MODELS

5/5 BEST	24 Month Horizon	4/5 MOST	3 Month Horizon

Source: Refinitiv, FactSet, Morgan Stanley Research; 1 is the highest favored Quintile and 5 is the least favored Quintile

RISKS TO PT/RATING

RISKS TO UPSIDE

- Higher NAND content growth from edge AI applications
- Quicker eSSD penetration in the datacenter
- Sandisk's investments in advanced memory technologies such as HBF (high Bandwidth Flash) pay dividends

RISKS TO DOWNSIDE

- NAND industry growth disappoints
- Capex growth returns as industry participants invest to gain share
- Sandisk loses market share as they fail to gain traction in datacenter
- China continues to gain share

OWNERSHIP POSITIONING

HF Sector Long/Short Ratio	1.8%
HF Sector Net Exposure	20.8x

Source: Morgan Stanley Prime Brokerage. Includes certain hedge fund exposures held with MSPB. Information may be inconsistent with or may not reflect broader market trends. Long/Short Ratio = Long Exposure / Short exposure. Sector % of Total Net Exposure = (For a particular sector: Long Exposure - Short Exposure) / (Across all sectors: Long Exposure – Short Exposure).

MS ESTIMATES VS. CONSENSUS

FY Jun 2026e

	Low	Morgan Stanley Estimates	Mean	High
EPS ($)	1.92	5.73	5.41	13.69
Sales / Revenue ($, mm)	7,142	8,131	8,281	9,507
EBIT ($, mm)	471	974	1,119	2,589

Mean ◆ Morgan Stanley Estimates

Source: Refinitiv, Morgan Stanley Research

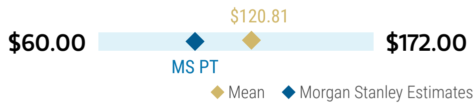
Risk Reward – Micron Technology Inc. (MU.O)

Memory improving near term, and AI driving a higher multiple. EW on valuation

PRICE TARGET $98.00

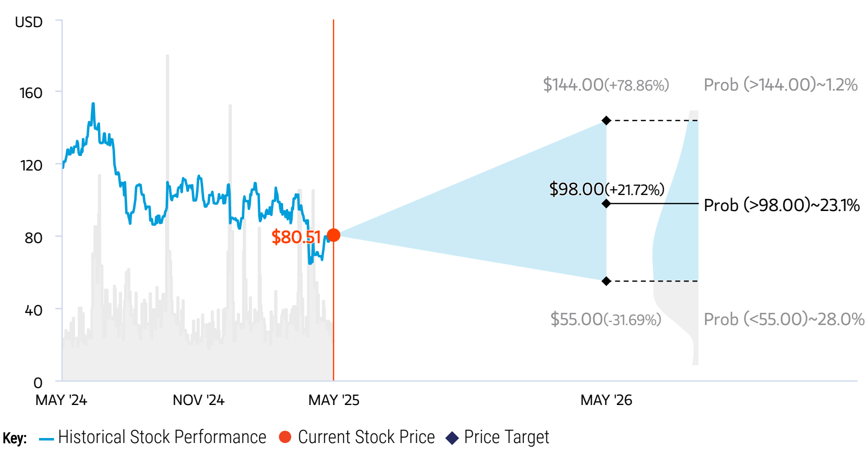
~14x through-cycle earnings of US $7.00, to reflect current macroeconomic expectations including inflationary pressures, consumer spending, and risk appetite, as well as the company's guidance for sustained higher capital spending with a wide divergence between operating margin and FCF margin.

Consensus Price Target Distribution



Source: Refinitiv, Morgan Stanley Research

RISK REWARD CHART AND OPTIONS IMPLIED PROBABILITIES (12M)

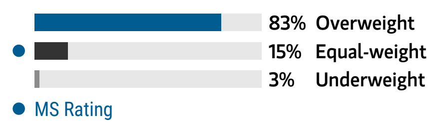


Source: Refinitiv, Morgan Stanley Research, Morgan Stanley Institutional Equities Division. The probabilities of our Bull, Base, and Bear case scenarios playing out were estimated with implied volatility data from the options market as of 6 May 2025. All figures are approximate risk-neutral probabilities of the stock reaching beyond the scenario price in either three-months' or one-years' time. View explanation of Options Probabilities methodology here

EQUAL-WEIGHT THESIS

- DRAM fundamentals beginning to improve as inventories in PC/mobile markets normalize, tariff concerns inspire pull-ins, and datacenter/AI continue their upward trajectory
- We see the stock as already discounting peak cash flows that were below US$5 per share in 2021; we are now looking at roughly 5 years of zero free cash flow in the trailing period.
- Execution on AI continues to impress, and we expect Micron's share in those products to catch up to the competition over time. Supporting margins and driving a higher multiple than prior cycles

Consensus Rating Distribution



Source: Refinitiv, Morgan Stanley Research

Risk Reward Themes

New Data Era: *Positive*
Secular Growth: *Positive*

View descriptions of Risk Rewards Themes here

BULL CASE $144.00

16x through-cycle earnings of US$9.00

Gross margin improvement continues, driven by scale, mix, and cost improvements in new products. Pricing pressure alleviates as demand moves above supply. Changes by management convince investors that sustainable profits are to be found in the stock; fab utilization remains low and capacity shrinks further.

BASE CASE $98.00

~14x through-cycle earnings of US$7.00

Our through-cycle earnings estimate of US$7.00 is a premium to average earnings over the last 7 years due mostly to HBM. Our 16x multiple reflects the market's enthusiasm for the HBM opportunity, but a discount to the broader semi group.

BEAR CASE $55.00

10x through-cycle earnings of US$5.50

Memory downturn sees a false bottoming. The high levels of inventory throughout the industry with potentially lackluster end demand recovery keep us on a declining trajectory, where a lack of cash flow severely pressures the earnings multiple.

Risk Reward – Micron Technology Inc. (MU.O)

KEY EARNINGS INPUTS

Drivers	2024	2025e	2026e	2027e
GAAP Revenue ($, mm)	25,111	35,909	42,106	43,218
Non Gaap Gross Margin (%)	23.7	39.8	43.1	38.8
Non-GAAP EPS ($)	1.31	7.42	9.67	8.26
Inventory ($, mm)	8,875	8,581	8,528	8,500
DOI	163.9	140.5	126.3	114.0

INVESTMENT DRIVERS

- Improved pricing and demand strength drive earnings growth

GLOBAL REVENUE EXPOSURE

- 0-10% Europe ex UK
- 0-10% Japan
- 0-10% Mainland China
- 0-10% UK
- 30-40% APAC, ex Japan, Mainland China and India
- 40-50% North America

Source: Morgan Stanley Research Estimate
View explanation of regional hierarchies here

MS ALPHA MODELS

5/5 **BEST** 24 Month Horizon	5/5 **MOST** 3 Month Horizon

Source: Refinitiv, FactSet, Morgan Stanley Research; 1 is the highest favored Quintile and 5 is the least favored Quintile

RISKS TO PT/RATING

RISKS TO UPSIDE

- Customers continue to demonstrate an appetite to take on inventory around macroeconomic uncertainty
- Additional wafer intensity of HBM further improves overall supply and demand
- MIcron's HBM share surpasses expectations

RISKS TO DOWNSIDE

- Pricing can turn quickly; a falter in end demand with inventories elevated could lead to a swift price reduction
- HBM demand falters and competition intensifies, pressuring pricing

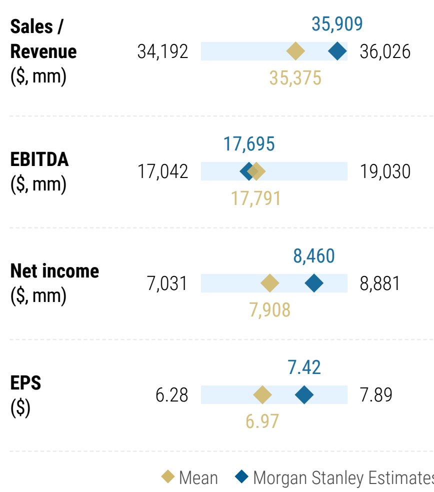
OWNERSHIP POSITIONING

Inst. Owners, % Active	53.2%
HF Sector Long/Short Ratio	1.8x
HF Sector Net Exposure	20.8%

Refinitiv; MSPB Content. Includes certain hedge fund exposures held with MSPB. Information may be inconsistent with or may not reflect broader market trends. Long/Short Ratio = Long Exposure / Short exposure. Sector % of Total Net Exposure = (For a particular sector: Long Exposure - Short Exposure) / (Across all sectors: Long Exposure – Short Exposure).

MS ESTIMATES VS. CONSENSUS

FY Oct 2025e



Source: Refinitiv, Morgan Stanley Research

Risk Reward Reference links

1. View explanation of Options Probabilities methodology - Options_Probabilities_Exhibit_Link.pdf

2. View descriptions of Risk Rewards Themes - RR_Themes_Exhibit_Link.pdf

3. View explanation of regional hierarchies - GEG_Exhibit_Link.pdf

4. View explanation of Theme/Exposure methodology - ESG_Sustainable_Solutions_External_Link.pdf

5. View explanation of HERS methodology - ESG_HERS_External_Link.pdf

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(as of April 30, 2025)

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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	1501	40%	377	46%	25%	691	40%
Equal-weight/Hold	1667	44%	375	45%	22%	796	46%
Not-Rated/Hold	3	0%	0	0%	0%	1	0%
Underweight/Sell	603	16%	76	9%	13%	229	13%
Total	3,774		828			1717	

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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Overweight (O). The stock's total return is expected to exceed the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Equal-weight (E). The stock's total return is expected to be in line with the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Not-Rated (NR). Currently the analyst does not have adequate conviction about the stock's total return relative to the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

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Unless otherwise specified, the time frame for price targets included in Morgan Stanley Research is 12 to 18 months.

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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.

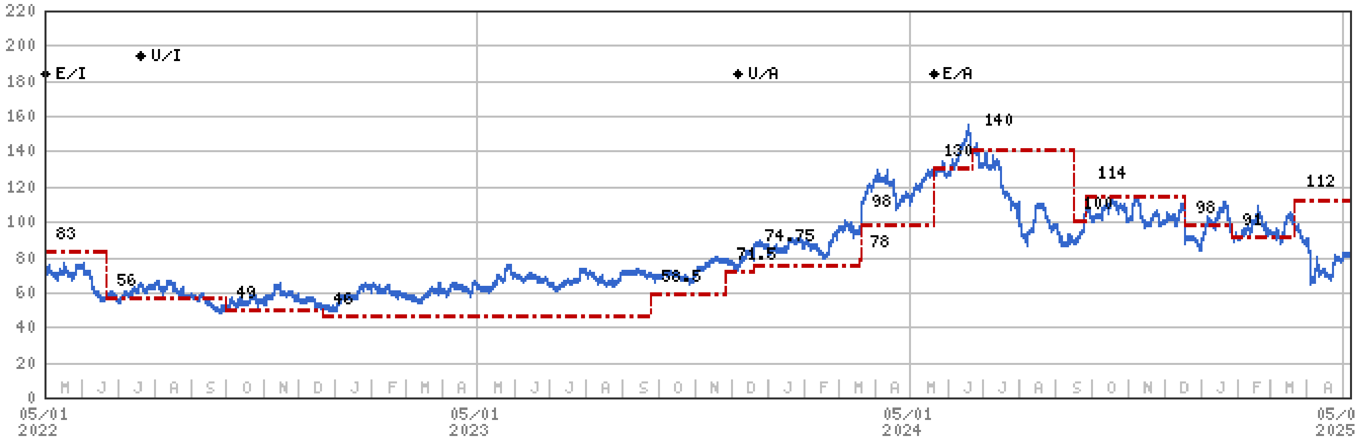
In-Line (I): The analyst expects the performance of his or her industry coverage universe over the next 12-18 months to be in line with the relevant broad market benchmark, as indicated below.

Cautious (C): The analyst views the performance of his or her industry coverage universe over the next 12-18 months with caution vs. the relevant broad market benchmark, as indicated below.

Benchmarks for each region are as follows: North America - S&P 500; Latin America - relevant MSCI country index or MSCI Latin America Index; Europe - MSCI Europe; Japan - TOPIX; Asia - relevant MSCI country index or MSCI sub-regional index or MSCI AC Asia Pacific ex Japan Index.

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

Micron Technology Inc. (MU.O) - As of 05/07/25 GMT in USD
Industry : Semiconductors



Stock Rating History: 5/1/20 : O/I; 8/12/21 : E/I; 7/21/22 : U/I; 12/7/23 : U/A; 5/20/24 : E/A

Price Target History: 3/18/20 : 52.5; 6/16/20 : 63; 12/2/20 : 68; 12/14/20 : 80; 1/4/21 : 88; 3/1/21 : 105; 8/12/21 : 75; 12/20/21 : 77; 3/29/22 : 83; 6/21/22 : 56; 9/30/22 : 49; 12/21/22 : 46; 9/24/23 : 58.5; 11/27/23 : 71.5; 12/20/23 : 74.75; 3/18/24 : 78; 3/21/24 : 98; 5/20/24 : 130; 6/23/24 : 140; 9/15/24 : 100; 9/26/24 : 114; 12/19/24 : 98; 1/27/25 : 91; 3/21/25 : 112

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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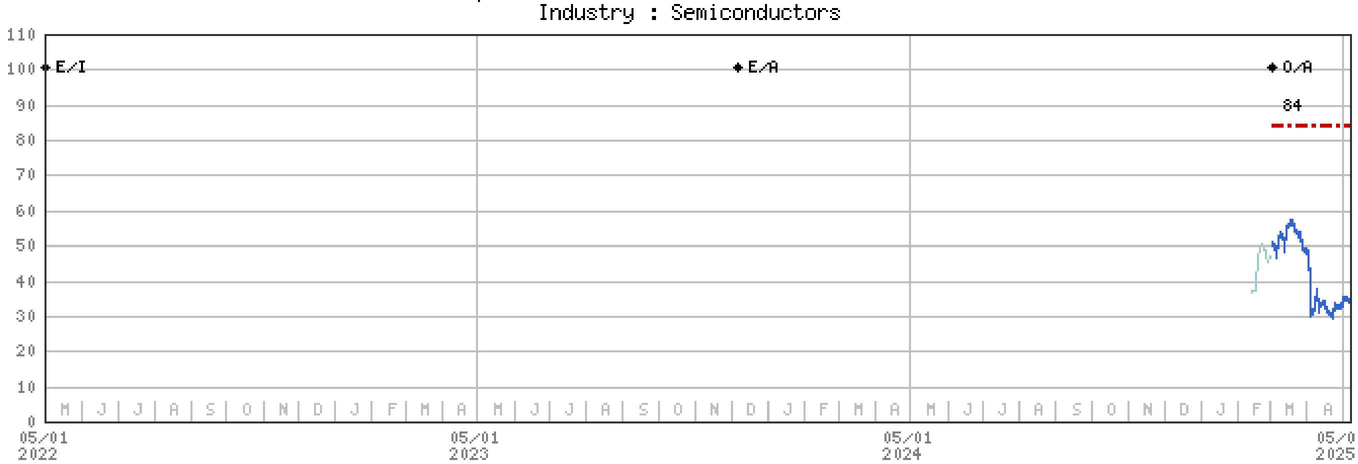
SanDisk Corporation. (SNDK.O) - As of 05/07/25 GMT in USD
Industry : Semiconductors



Stock Rating History: 5/1/20 : E/I; 12/7/23 : E/A; 3/3/25 : O/A

Price Target History: 3/3/25 : 84

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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INDUSTRY COVERAGE: Semiconductors

COMPANY (TICKER)	RATING (AS OF)	PRICE* (05/06/2025)
Joseph Moore		
Advanced Micro Devices (AMD.O)	E (06/09/2024)	$98.62
Aeva Technologies Inc (AEVA.O)	E (07/19/2021)	$9.21
Allegro Microsystems Inc (ALGM.O)		$18.96
Ambarella Inc (AMBA.O)	O (03/29/2016)	$49.81

Amkor Technology Inc (AMKR.O)	E (11/08/2023)	$17.48
Analog Devices Inc. (ADI.O)	O (11/16/2023)	$195.60
Astera Labs Inc (ALAB.O)	E (01/20/2025)	$71.36
Broadcom Inc. (AVGO.O)	O (06/09/2024)	$200.09
GlobalFoundries Inc (GFS.O)	E (10/28/2024)	$34.91
Intel Corporation (INTC.O)	E (02/22/2023)	$19.94
IonQ Inc (IONQ.N)	E (04/25/2023)	$29.42
Marvell Technology Group Ltd (MRVL.O)	E (09/14/2015)	$61.22
Microchip Technology Inc. (MCHP.O)	E (07/10/2024)	$47.24
Micron Technology Inc. (MU.O)	E (05/20/2024)	$80.51
Navitas Semiconductor Corp (NVTS.O)	U (04/06/2025)	$1.91
NVIDIA Corp. (NVDA.O)	O (03/16/2023)	$113.54
NXP Semiconductor NV (NXPI.O)	O (02/11/2025)	$182.41
ON Semiconductor Corp. (ON.O)		$38.51
Qorvo Inc (QRVO.O)	O (01/20/2025)	$70.31
Qualcomm Inc. (QCOM.O)	E (12/07/2023)	$139.90
SanDisk Corporation. (SNDK.O)	O (03/03/2025)	$33.83
Semtech Corp. (SMTC.O)	E (04/06/2025)	$33.90
Silicon Laboratories Inc. (SLAB.O)	E (01/19/2021)	$106.71
Skyworks Solutions Inc (SWKS.O)	E (11/28/2018)	$66.01
Texas Instruments (TXN.O)	U (04/13/2020)	$161.09
Wolfspeed, INC (WOLF.N)	NR (04/06/2025)	$4.02
Lee Simpson		
Arm Holdings plc (ARM.O)	O (07/19/2024)	$122.44
Cadence Design Systems Inc (CDNS.O)	O (02/14/2024)	$305.78
Synopsys Inc. (SNPS.O)	O (11/10/2023)	$473.55

Stock Ratings are subject to change. Please see latest research for each company.
* Historical prices are not split adjusted.