BERNSTEIN
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U.S. IT Hardware

Global Memory & Storage: Debunking the bear thesis on ASP price growth deceleration


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Memory and HDD stocks are down significantly from their June peak and have underperformed over the past month. We address here the main bear thesis that a slowdown in DRAM and NAND price increases indicates we are close to peak and imminent downturn.

One of the key tenets of the bear thesis on Memory stocks has been ASP price growth deceleration. After unprecedented QoQ price moves in DRAM and NAND in 1H of CY26, there is inevitably a significant slowdown in price moves projected in Q3 and Q4 of CY26. This means that investors see less upside shock to earnings revisions going forward and based on an incorrect read of history predict this is the sign we are at or near the peak and a massive downturn will follow. **We disagree for three reasons:**

Firstly, a longer-term historical context of ASP QoQ increase shows DRAM and NAND market prices are still one of the strongest on record: a mid-teens% forecasted quarterly sequential increase in ASP remains an exceptional pricing environment by any historical standard (95th percentile), and demonstrates continued under-supply.

Secondly, the base effect: because the absolute per-GB price increase is applied to a dramatically higher base (>5x over the past year), each incremental cent per GB higher translates into lower % increase. The magnitude of 5 cents per GB price increase in NAND in CQ3 and CQ4'26 are highest in 15 year history (with the exception of 1HCY26) and at approx. 100% of COGS/GB this too is by far the highest level in history prior to 2026.

Finally, Long term agreements (LTAs) price ceilings are diluting headline ASP growth: Many of the Global Memory suppliers have a significant portion of volume on new LTAs which often have a price ceiling that in many cases has already been hit. Sandisk for example, has >50% of FY27 bits and roughly two thirds of FY28 bits are now under New Business Models (NBMs) with price floors and ceilings, which makes the company considerably less exposed to the swings of spot NAND pricing than in previous cycles. While diluting the upside swing, it should also reduce the downside in any future downturn.

While, Memory stocks are seeing the supposed deceleration of QoQ price increases, HDD stocks have no such issue whatsoever, in fact if anything **HDD prices may accelerate further from here**. Therefore, for anyone still unconvinced by our arguments above, then HDD is earlier in the upcycle vs. memory. Nearline HDD ASP per EB has only increased by 13.6% YoY (vs. NAND and DRAM prices up approximately 400% YoY) and has a lot more room to run higher for longer and potentially accelerating from the past 2 quarters.

In conclusion, we **remain constructive on Memory and HDD broadly** and believe the recent correction has priced in the concern on the price deceleration too (our recent report Asia Semis & Global Memory: 3Q26 Earnings Preview - Is AI Still a Long? & Global Memory: Cycle is still elevated, but beware of the long-term threat from China).

For US names, **STX remains our top pick, with WDC and SNDK also Outperform**. All three report shortly, and we remain ~12% above consensus for FY27 est. for all three.

See the Disclosure Appendix of this report for required disclosures, analyst certifications and other important information. Alternatively, visit our Global Research Disclosure Website.

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BERNSTEIN TICKER TABLE

			20 Oct 2026		TTM	Reported EPS				Reported P/E (x)	
Ticker	Rating	Cur	Closing Price	Price Target	Rel. Perf.	Cur	2025A	2026E	2027E	2025A	2026E	2027E
SNDK (SanDisk)	O	USD	1,365.38	3,000.00	800.1%	USD	70.08	238.36	272.09	19.5	5.7	5.0
STX (Seagate)	O	USD	675.13	1,350.00	200.1%	USD	15.53	40.61	64.40	43.5	16.6	10.5
WDC (Western Digital)	O	USD	364.32	770.00	185.6%	USD	10.19	23.39	36.58	35.7	15.6	10.0
005930.KS (SEC- Samsung)	O	KRW	211,500	440,000	116.9%	KRW	6,611.53	45,072	74,602	32.0	4.7	2.8
005935.KS (SEC-Pref - Samsung)	O	KRW	165,900	374,000	110.3%	KRW	6,611.53	45,072	74,602	25.1	3.7	2.2
SMSN.LI (Samsung)	O	USD	4,040.00	7,857.00	138.6%	USD	116.15	781.29	1,332.17	34.8	5.2	3.0
000660.KS (SK hynix)	O	KRW	1,223,000	2,700,000	154.9%	KRW	60,341	353,627	554,848	20.3	3.5	2.2
MU (Micron)	O	USD	896.07	1,300.00	328.5%	USD	8.29	73.78	173.33	108.1	12.1	5.2
285A.JP (KIOXIA)	U	JPY	13,510	49,000	464.3%	JPY	1,014.00	10,485	14,140	13.3	1.3	1.0
688825.CH (CXMT)	O	CNY	40.97	70.00	NA	CNY	0.03	4.04	6.82	N/M	10.1	6.0
SPX			7,712.57									
ASIAX			1,807.32									
EM			1,698.51									

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

SNDK, STX, WDC, MU estimate is Adjusted EPS; SNDK, STX, WDC, MU valuation is Adjusted P/E (x); SNDK, STX, WDC base year is 2026;

Source: Bloomberg, Bernstein estimates and analysis.

INVESTMENT IMPLICATIONS

We rate **SanDisk (SNDK)** Outperform and maintain price target at US$3,000.

We rate **Seagate (STX)** Outperform and maintain price target at $1,350.

We rate **Western Digital (WDC)** Outperform and maintain price target at $770.

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 2,700,000.

Micron: We rate Micron Outperform with price target of US$1,300.00.

CXMT: We rate CXMT Outperform with price target of CNY 70.00.

KIOXIA: We rate KIOXIA Underperform with price target of JPY 49,000.



DETAILS

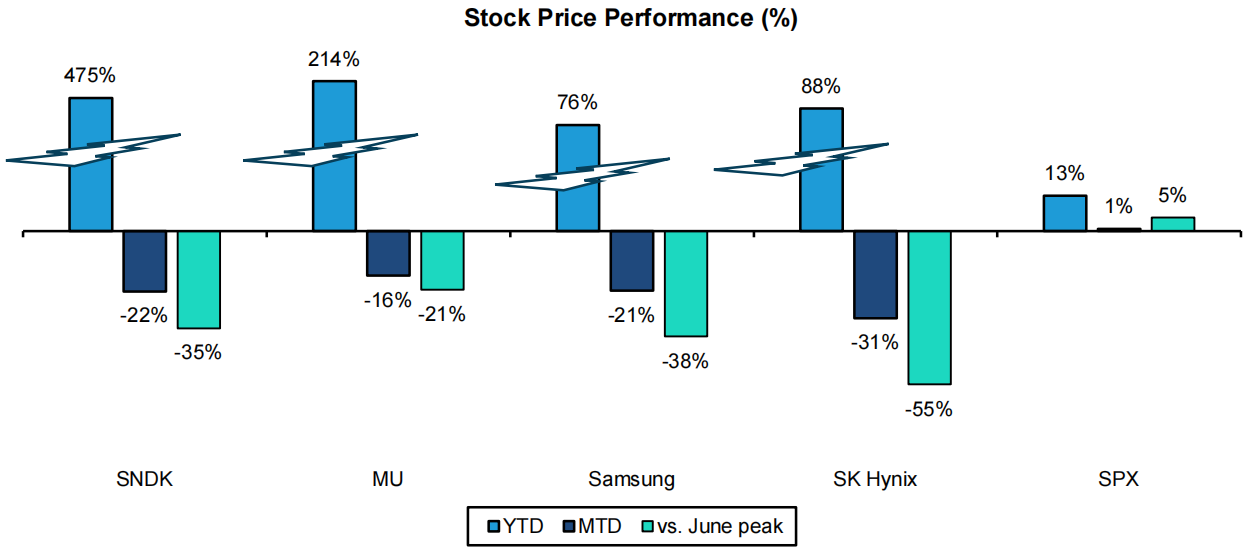
Memory and HDD stocks are down significantly from their June peak and have underperformed over the past month. We address here the main bear thesis that a slowdown in DRAM and NAND price increases indicates we are close to peak and imminent downturn.

One of the key tenets of the bear thesis on Memory stocks has been ASP price growth deceleration. After unprecedented QoQ price moves in DRAM and NAND in 1H of CY26, there is inevitably a significant slowdown in price moves projected in Q3 and Q4 of CY26. This means that investors see less upside shock to earnings revisions going forward and based on an incorrect read of history predict this is the sign we are at or near the peak and a massive downturn will follow.

We disagree for three reasons:

- **1) Double digit % ASP QoQ increase is still extremely strong:** a mid-teens % forecasted quarterly sequential increase in NAND ASP, and low-teens in DRAM, remains an exceptional pricing environment by any historical standard, and still presents a clear signal of continued under-supply;
- **2) The base effect:** because the absolute per-GB price increase is applied to a significantly higher base (NAND price has risen >5x over the past year), each incremental cent per GB translates into a lower % increase, but the absolute dollar contribution still sits at the 95th percentile over the past 15 years, and for Sandisk, the forecasted absolute ASP increase represents roughly two thirds of Sandisk's TTM unit cost (100% of COGS/GB if we use NAND industry price projections), which would be the highest on record prior to CY26; and
- **3) Long term agreements (LTAs) with price ceilings:** most global memory suppliers now have a significant portion of volume on LTAs where price ceilings have in some cases already been hit. This is diluting headline realized ASP growth across the industry without reflecting any underlying demand weakness, and for Sandisk specifically — with over 50% of FY27 bits and roughly two-thirds of FY28 under New Business Models (NBMs) — the downside protection is a cycle-changing feature we don't think the market is pricing in.

EXHIBIT 1: **Memory stocks have been under pressure since earlier this year due to concern over memory price growth trajectory**



June peak date: 6/26/2026; Market data as of 10/20/2026
Source: Bloomberg, Bernstein analysis

#1 - A MID-TEENS % SEQUENTIAL GROWTH IS STILL AN EXCEPTIONAL PRICE INCREASE FOR MEMORY, POINTING TO CONTINUED UNDER-SUPPLY

Against history, a 15–20% QoQ increase remains an exceptional pricing environment by any historical standard. NAND industry average ASP growth at this level sits at roughly the 90th-95th percentile over the past 15 years (Exhibit 4), and DRAM growth at the current forecasted 10–15% in fourth quarter 2026 sits at the 76th-89th percentile over the past 15 years (Exhibit 5). **In our view, an ASP growth that ranks higher than 90% of historical incidents continues to signal strength in demand rather than fatigue. The recent deceleration is following an unprecedented jump in 1Q and 2Q CY26 and the absolute level of pricing power remains very strong.**

- Price increases slowing down is partially driven by consumer customers' price tolerance reaching an affordability limit. We see smartphone brands collectively increasing retail prices to offset persistently high memory costs starting in 1H26, with some becoming more conservative in production planning. There is limited room for smartphone vendors to pass along further rising costs to consumers, and we believe pent-up demand could recover once memory prices reach a more normalized level. AI-enabled premium tier smartphones should also provide a solid demand floor at the high end of the market.

- On Sandisk specifically, the company's bit allocation to data center, the fastest growing end market, is rapidly expanding while consumer and edge segments now represent a smaller portion today, providing another mitigant to the one end market's slow-down (Sandisk data center bits grew from 12% of total shipments in Q4 FY2025 to 38% in Q4 FY2026).

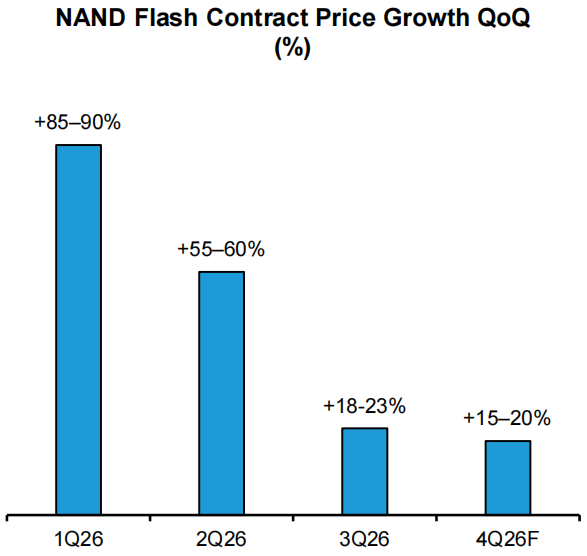
#2 - IN ABSOLUTE TERMS, THE ASP INCREASE STILL SITS AT HISTORICAL HIGHS

A projected 15–20% sequential ASP increase not only represents a strong pricing environment, the arithmetic of a higher base also shows that it is a highly profitable one for the memory industry as a whole.

- **The absolute step is barely slowing.** NAND contract prices have more than 5x-ed over the past year, and against that base, an +18–23% increase in C3Q26 adds ~5c/GB, and a further +15–20% increase in C4Q26 adds another ~5c/GB (Exhibit 6). On the per-c/GB basis, the industry absolute increase at this level in C4Q26 would still sit at the 95th percentile over the past 15 years, meaning even as the rate of increase has declined, the absolute price contribution per quarter remains at a historical peak.

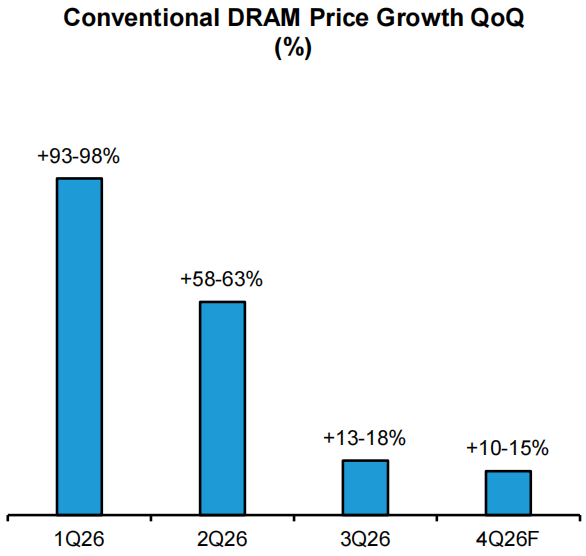
- **As a share of unit cost, the step increase sits at 95th–97th percentile and signals attractive profitability.** At the industry level, the forecasted absolute ASP increase in C3Q26 and C4Q26 is equivalent to roughly 97% and 104% of unit cost respectively — both above the 95th percentile of the last 15 years (Exhibit 7). Because unit cost does not move with price in the short term, nearly all the incremental ASP should drop through to gross profit. The industry's ability to monetize these pricing moves — in dollars per bit, not just percentage terms — remains at near-record levels. DRAM shows a similar dynamic. The absolute DRAM ASP step and the ratio against unit cost are both at historically elevated levels, reinforcing that the memory industry as a whole is currently generating industry-wide operating leverage not seen for over a decade.

EXHIBIT 2: **Trendforce estimated overall NAND Flash contract price to increase 10-15% in C3Q26 and projects 15–20% in C4Q26, QoQ**



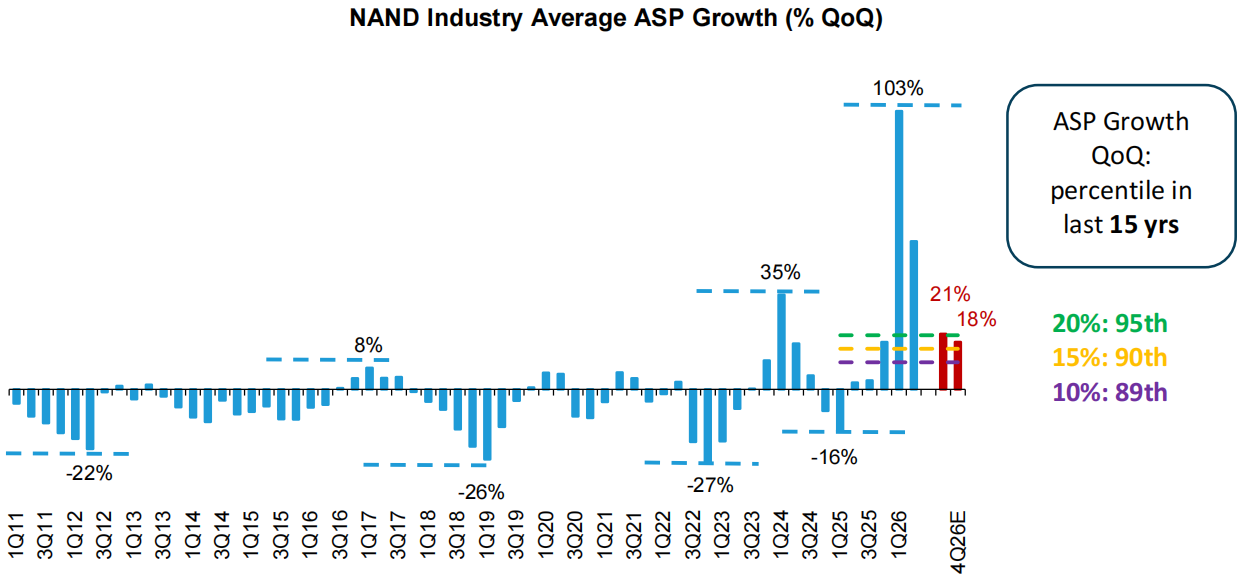
1Q26, 2Q26, 3Q26 are Trendforce estimates, 4Q26 is Trendforce forecast
Source: Trendforce, Bernstein analysis

EXHIBIT 3: **...and conventional DRAM contract price to increase 13-18% in C3Q26 and projects 10–15% in C4Q26, QoQ**



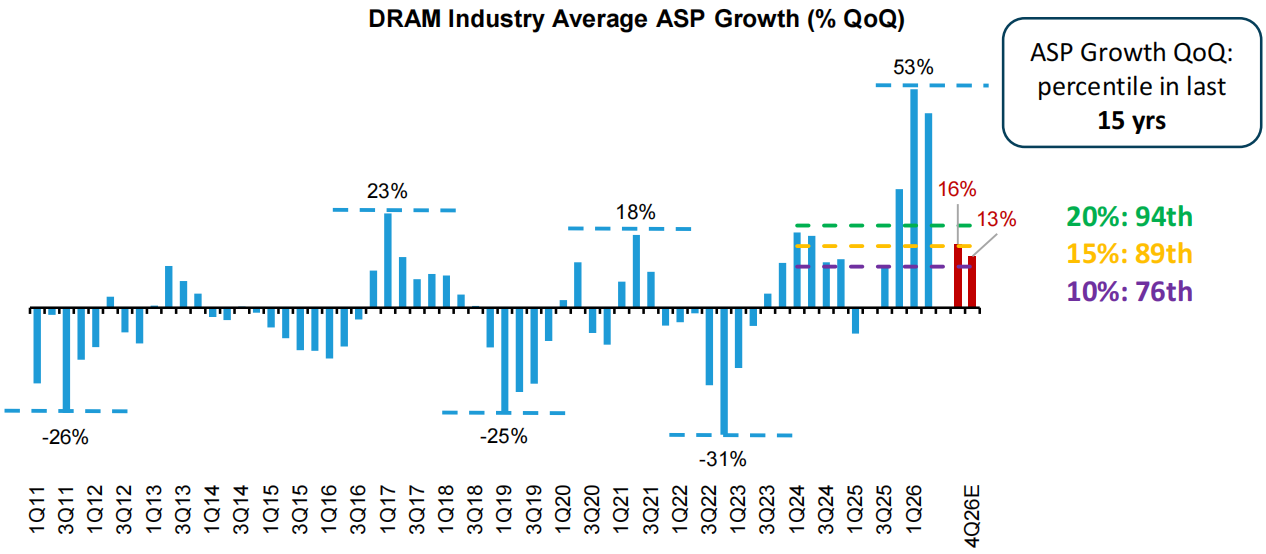
1Q26, 2Q26, 3Q26 are Trendforce estimates, 4Q26 is Trendforce forecast
Source: Trendforce, Bernstein analysis

EXHIBIT 4: **The forecasted NAND ASP growth in calendar 3Q26 and 4Q26 at 18-23% and 15-20% still overshoots historical trends (over the last 15 years), even though it represents a deceleration vs 1H CY26**



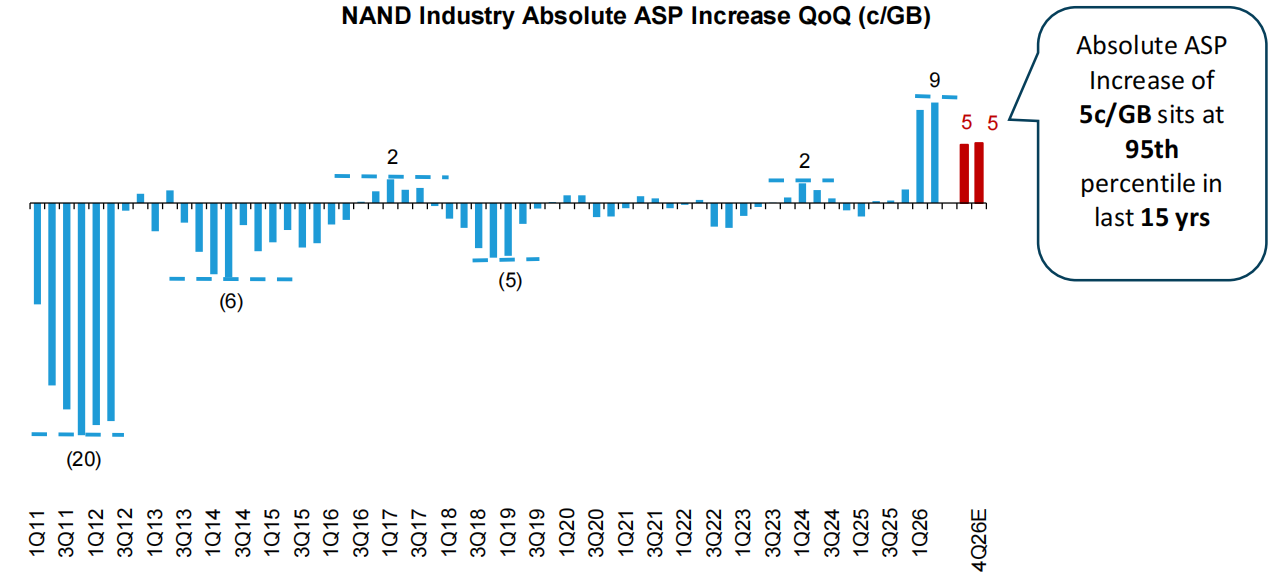
Source: Company reports, Trendforce, Bernstein estimates and analysis

EXHIBIT 5: **DRAM industry ASP shows a similar pace**



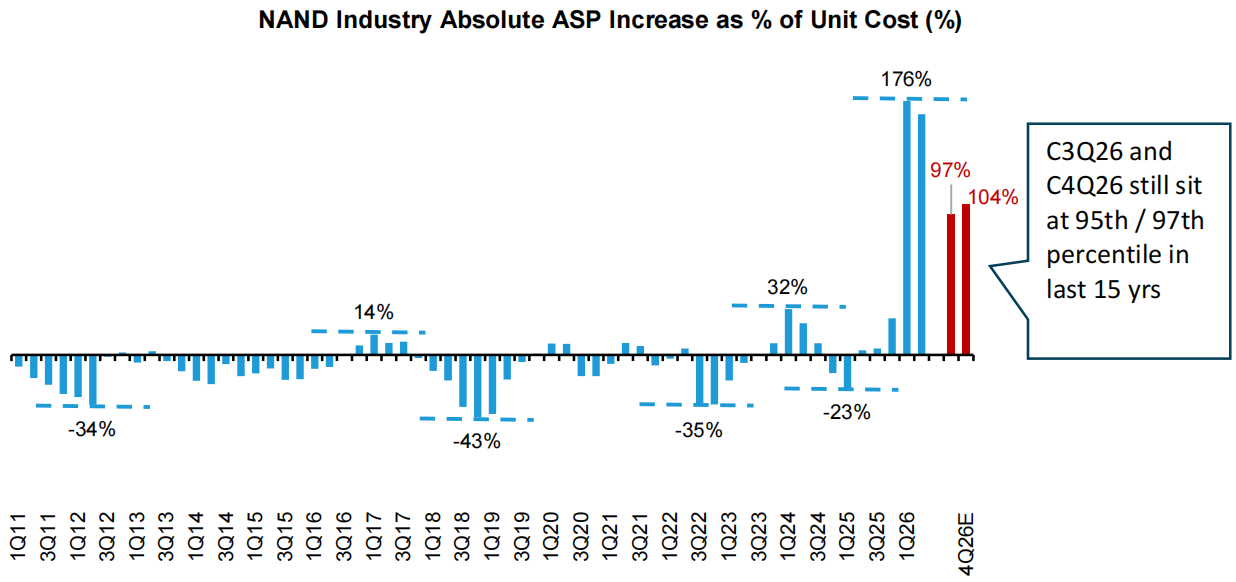
Source: Company reports, Trendforce, Bernstein estimates and analysis

EXHIBIT 6: **5 cents/GB forecasted step increase in NAND ASP sits at 95th percentile relative to the last 15 years and the highest prior to CQ1'26**



Source: Company reports, Trendforce, Bernstein estimates and analysis

EXHIBIT 7: **...and as % of unit cost, C3Q and C4Q absolute ASP increase are highest in the past 15 years (by far) prior to 2026**



Source: Company reports, Trendforce, Bernstein estimates and analysis

#3 - LTA PRICE CEILINGS ARE DILUTING HEADLINE INDUSTRY ASP GROWTH

The major global memory suppliers all have a significant portion of volume locked under LTAs through 2028 and Exhibit 8 shows three examples. More than half of Sandisk's FY27 bits, and around two-thirds of FY28 bits, are now sold under LTAs with price floors and ceilings with eight data center and edge customers; Micron has over a third of revenue through 2030 under SCAs; and Kioxia (covered by Bernstein) is targeting half of volume by 2028. On one hand we find deposits or financial guarantees remain small vs. contractual values & wonder the enforceability of these LTAs. On the other hand, we also acknowledge these LTAs are relatively more protective than before.

We think part of what the market reads as weakening demand is what these contracts are designed to be, i.e. converting spot price to long-term contracted price, instead of actual demand slowdown.

- As shown in Exhibit 9, realized blended ASP growth mechanically trails market contract price growth as LTA coverage rises, with the gap widening in proportion to penetration. Assuming market price already hit the ceiling prices in each contract, at 40% LTA penetration, a 30% market price increase translates into just 18% realized; at 60% penetration, it falls to 12%. As more bits move under agreement across the industry, headline price growth should slow mechanically even when underlying demand is unchanged.

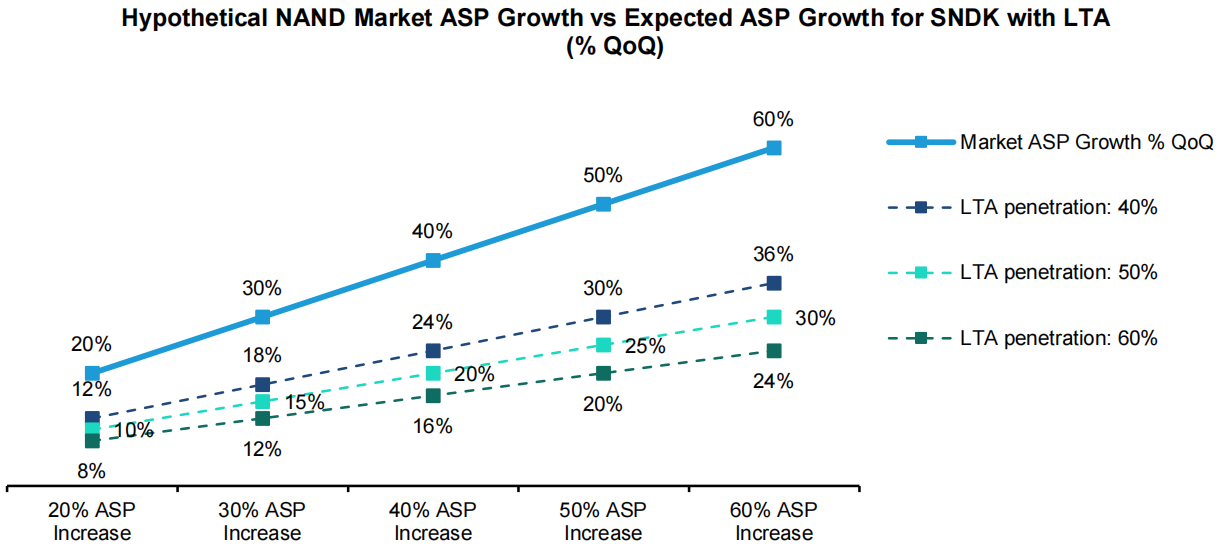
- Company commentaries also support this understanding: Micron disclosed in its 3QFY26 call that its largest agreements are capped at levels close to C2Q26 market prices. TrendForce has similarly noted that LTAs with US cloud customers are limiting server DRAM price increases. Both point to the same mechanism: as a growing share of industry transactions moves to ceiling-bound LTAs, the blended ASP index increasingly understates underlying market demand.

EXHIBIT 8: **Major memory players all have significant portion of volume locked under LTA until 2028**

	Sandisk	Micron	Kioxia
Bits under contract	Over half of FY27 bits; about two-thirds of FY28	Over a third of revenue through 2030	Targeting half of volume by 2028
How prices are set	Fixed and variable; variable part bounded by floor and ceiling	Mostly floor-and-ceiling bands; largest deals capped near 2Q26 prices	Volume commitments; prices negotiated quarterly
Customer guarantee	$16.5bn of deposits and guarantees	$32bn, mostly cash deposits	Not disclosed

Source: Company reports, Bernstein analysis

EXHIBIT 9: **As LTA coverage rises, SNDK's realized ASP growth will trail the industry market price growth assuming market price already hit ceiling price in each contract**



Source: Bernstein estimates and analysis

IMPLICATIONS FOR SANDISK

The three industry-level dynamics above apply particularly favorably to Sandisk, given its above-industry-average LTA coverage, its data center-heavy mix shift, and it being a pure NAND play among global memory suppliers.

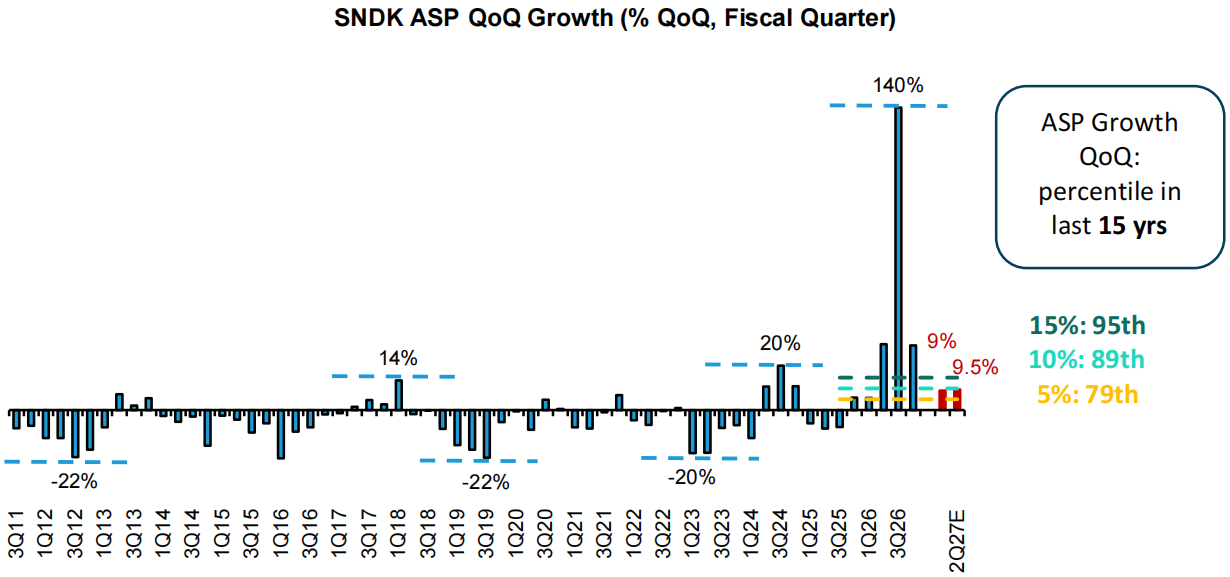
- Our forecasts for SNDK's realized ASP already incorporate the LTA drag. **We forecast 9% and 9.5% QoQ ASP growth in SNDK's fiscal 1Q27 and 2Q27 respectively (Exhibit 10), both of which sit close to 89th percentile of SNDK's own last 15 years**. The absolute ~3c/GB step increase sits above the 90th percentile for SNDK specifically (Exhibit 11). Even after incorporating LTA coverage drag, SNDK's realized ASP growth remains at historically elevated levels in absolute cents per GB.

- **Sandisk's operating leverage determines that any ASP increase translates directly into earnings.** The absolute increase as a share of SNDK unit cost sits at the 94th / 96th percentile over the past 15 years in F1Q27 and F2Q27 (Exhibit 12). We acknowledge EPS growth is moderating from more than 60% QoQ in the past quarter to below 20% as margin expansion approaches its ceiling, and this change in the growth profile explains some of the recent de-rating. However, the dollar contribution from pricing is still at historical highs, and we believe absolute ASP growth matters more than the headline % growth for the stock from here.

- **LTA serves as a protection to the downside, not a headwind to growth.** Although LTAs dilute short-term realized ASP growth, the floor can anchor the downside near current levels. As we have noted previously (see - New Memory LTAs part 1 and New Memory LTAs part 2), LTAs significantly reduce downside risk, and earnings in the outer years of SNDK's LTA (FY29 and FY30) are more protected than what the market is currently discounting. We estimate that on average 53% of SNDK's FY27–30 bits shipped will be under LTA, implying a floor ASP of $0.26/GB, only 19% downside relative to SNDK's most recent quarterly blended ASP. **Furthermore, customers' willingness to post capital is encouraging and signals strong buyer confidence.** Data center customers have committed $16.5bn in deposits and guarantees against a $93.9bn minimum LTA revenue at SNDK (17.6% coverage) and $32bn against $100bn at Micron (32% coverage; 35% of MU's revenue through 2030 is covered by SCAs, with management targeting ~50% later). Customers' willingness to lock in floors for 3–5 years at or just below today's levels, and to post high coverage-ratio cash against them, signals to us that they do not see a cliff price decline as early as 2027 or 2028 in the base case. Micron and other memory suppliers have also noted that newer deals are being negotiated at higher prices with terms extending into 2031.

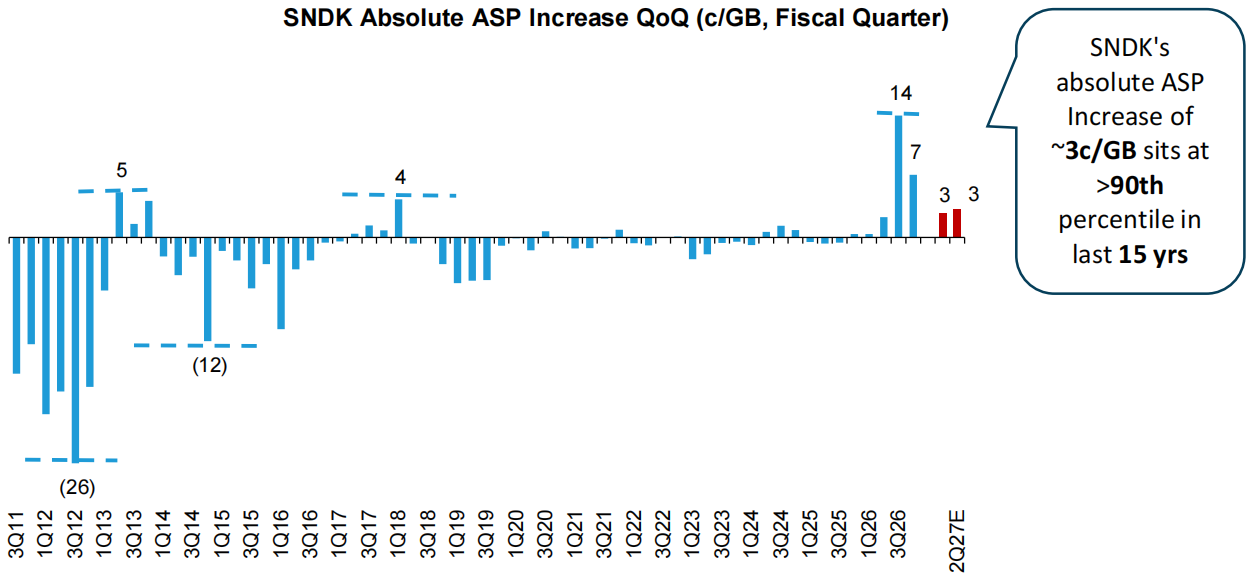
- **A note on multiple — We believe SNDK's multiple should reflect a structurally higher trough.** Memory stocks at cycle peaks have historically traded at LSDx to LDDx forward multiples (Exhibit 13) — reflecting the market's assumption that peak earnings do not persist. SNDK's current multiple at 5.2x P/E on FY28 earnings sits toward the bottom of this historical cycle-peak band, signaling the market's perception of a cycle turn in the near term. But we argue the LTA structure justifies a multiple above that band this time around, because floors near today's prices substantially reduce the trough earnings assumption and extend the durability of the peak cycle.

EXHIBIT 10: **We forecast 9% and 9.5% ASP growth for Sandisk in fiscal 1Q27 and 2Q27, respectively**



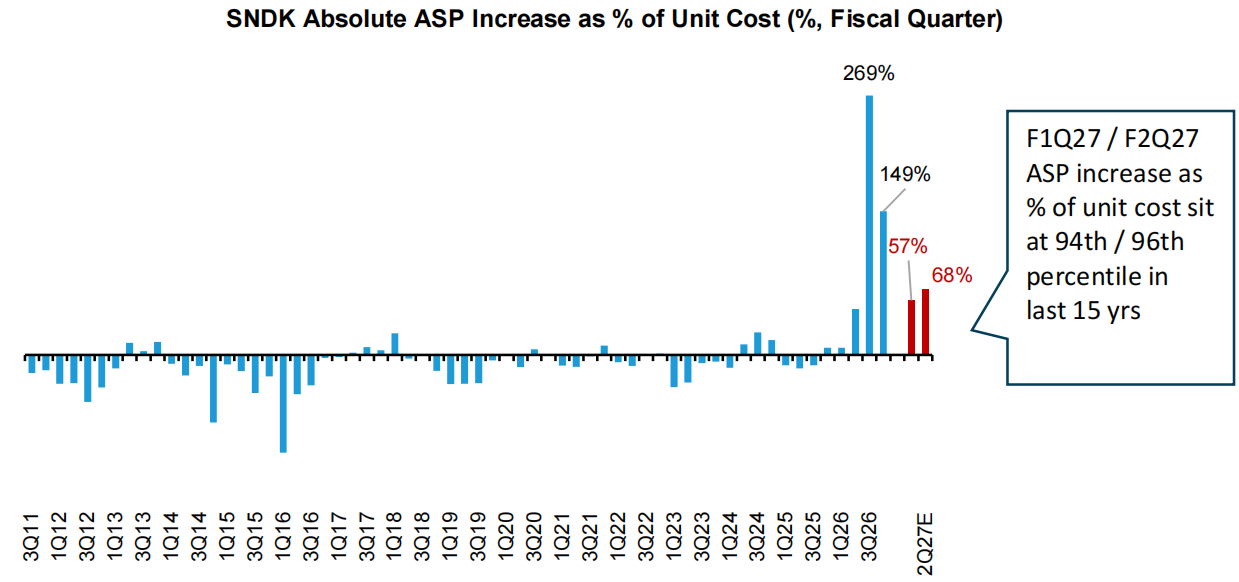
Source: Company reports, Bernstein estimates and analysis

EXHIBIT 11: **A 3c/GB forecasted step increase in Sandisk ASP sits at over 90th percentile relative to the last 15 years…**



Source: Company reports, Bernstein estimates and analysis

EXHIBIT 12: **4Q26 forecasted ASP steps as % of Sandisk TTM unit cost – still at historical high levels**



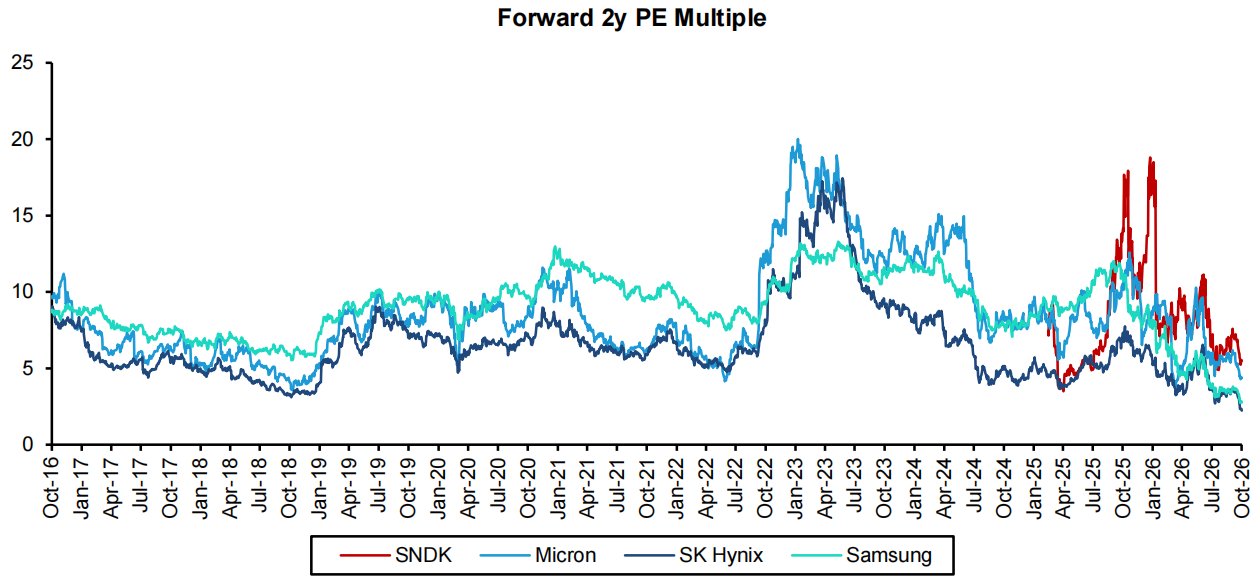
Source: Company reports, Bernstein estimates and analysis

CONCLUSION AND VALUATION

In conclusion, we **remain constructive on Memory and HDD broadly** and believe the recent correction has priced in the concern on the price deceleration too (our recent report Asia Semis & Global Memory: 3Q26 Earnings Preview - Is AI Still a Long? & Global Memory: Cycle is still elevated, but beware of the long-term threat from China).

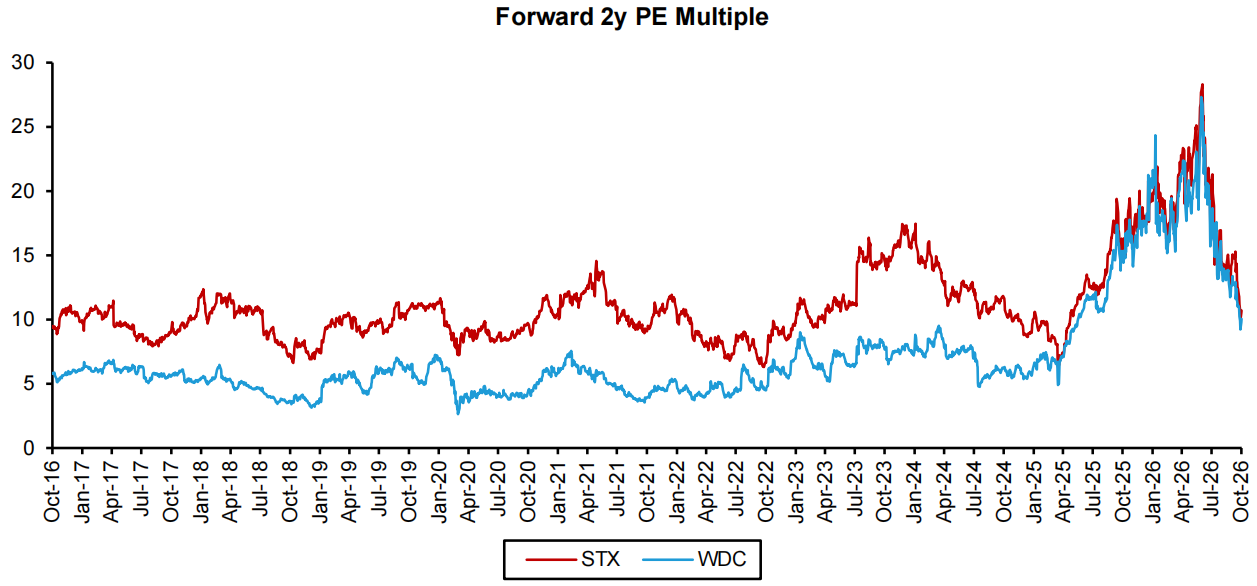
For US names, **STX remains our top pick, with WDC and SNDK also Outperform**. All three report shortly, and we remain ~12% above consensus for FY27 est. for all three.

EXHIBIT 13: **Memory names in the past have historically traded around LSDx to LDDx peak-cycle multiples**



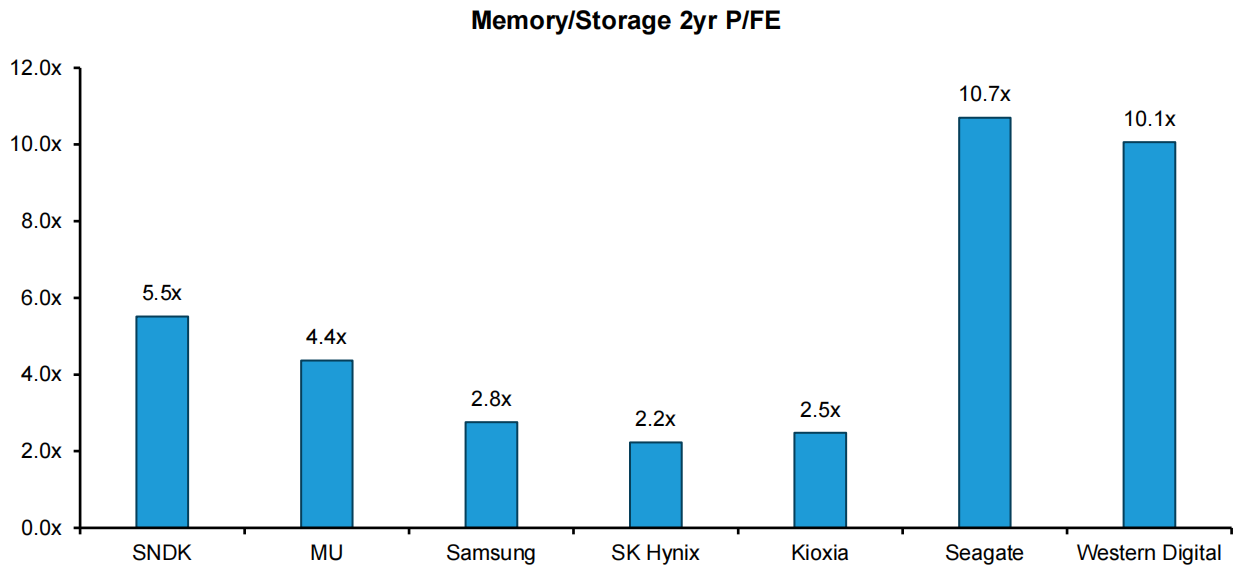
On 2yr blended forward earnings; Market data as of 10/20/2026
Source: Bloomberg, Bernstein analysis

EXHIBIT 14: **HDD 2y Forward PE Multiples**



On 2yr blended forward earnings; Market data as of 10/20/2026
Source: Bloomberg, Bernstein analysis

EXHIBIT 15: **Memory / HDD Stocks 2yr Forward P/E Multiples**



On 2yr blended forward earnings; Market data as of 10/20/2026
Source: Bloomberg, Bernstein analysis

BERNSTEIN VS CONSENSUS

EXHIBIT 16: **SNDK Bernstein vs Consensus**

	FQ1'27E			FQ2'27E			FY 2027E		
($USD Millions)	Bern.	Cons.	Delta	Bern.	Cons.	Delta	Bern.	Cons.	Delta
Revenue	**$10,554**	**$10,644**	***-0.9%***	**$12,770**	**$12,081**	***5.7%***	**$49,998**	**$49,043**	***1.9%***
Gross Profit	**$9,019**	**$8,938**	***0.9%***	**$11,141**	**$10,128**	***10.0%***	**$43,730**	**$41,191**	***6.2%***
Gross Margin %	85.5%	84.0%	*149bps*	87.2%	83.8%	*341bps*	87.5%	84.0%	*348bps*
Op. Profit	**$8,490**	**$8,462**	***0.3%***	**$10,592**	**$9,665**	***9.6%***	**$41,493**	**$39,026**	***6.3%***
OP Margin %	80.4%	79.5%	*94bps*	82.9%	80.0%	*295bps*	83.0%	79.6%	*342bps*
Net Income	**$7,293**	**$7,136**	***2.2%***	**$9,093**	**$8,158**	***11.5%***	**$35,627**	**$33,294**	***7.0%***
EPS ($ per share)	**$47.12**	**$46.06**	***2.3%***	**$59.94**	**$52.56**	***14.0%***	**$238.36**	**$212.98**	***11.9%***

Source: Company reports, Bernstein estimates and analysis

EXHIBIT 17: **STX Bernstein vs Consensus**

	FQ1'27E			FQ2'27E			FY 2027E		
($USD Millions)	Bern.	Cons.	Delta	Bern.	Cons.	Delta	Bern.	Cons.	Delta
Revenue	**$4,106**	**$4,109**	***(0.1)%***	**$4,616**	**$4,496**	***2.7%***	**$19,373**	**$19,007**	***1.9%***
Gross Profit	**$2,336**	**$2,362**	***(1.1)%***	**$2,796**	**$2,647**	***5.6%***	**$12,069**	**$11,387**	***6.0%***
Gross Margin %	*56.9%*	*57.5%*	*-57bps*	*60.6%*	*58.9%*	*170bps*	*62.3%*	*59.9%*	*239bps*
Op. Profit	**$2,040**	**$2,049**	***(0.4)%***	**$2,501**	**$2,330**	***7.3%***	**$10,889**	**$10,185**	***6.9%***
OP Margin %	*49.7%*	*49.9%*	*-18bps*	*54.2%*	*51.8%*	*234bps*	*56.2%*	*53.6%*	*262bps*
Net Income	**$1,731**	**$1,702**	***1.7%***	**$2,133**	**$1,955**	***9.1%***	**$9,304**	**$8,474**	***9.8%***
EPS ($ per share)	**$7.50**	**$7.37**	***1.7%***	**$9.27**	**$8.41**	***10.2%***	**$40.61**	**$36.34**	***11.7%***

Source: Company reports, Bernstein estimates and analysis

EXHIBIT 18: **WDC Bernstein vs Consensus**

	FQ1'27E			FQ2'27E			FY 2027E		
($USD Millions)	Bern.	Cons.	Delta	Bern.	Cons.	Delta	Bern.	Cons.	Delta
Revenue	**$4,117**	**$4,145**	*(0.7)%*	**$4,601**	**$4,578**	*0.5%*	**$19,744**	**$19,316**	*2.2%*
Gross Profit	**$2,339**	**$2,299**	*1.7%*	**$2,750**	**$2,577**	*6.7%*	**$12,133**	**$11,139**	*8.9%*
Gross Margin %	*56.8%*	*55.5%*	*135bps*	*59.8%*	*56.3%*	*349bps*	*61.4%*	*57.7%*	*378bps*
Op. Profit	**$1,950**	**$1,922**	*1.4%*	**$2,360**	**$2,224**	*6.1%*	**$10,578**	**$9,690**	*9.2%*
OP Margin %	*47.4%*	*46.4%*	*97bps*	*51.3%*	*48.6%*	*272bps*	*53.6%*	*50.2%*	*341bps*
Net Income	**$1,626**	**$1,587**	*2.5%*	**$1,970**	**$1,843**	*6.9%*	**$8,827**	**$8,120**	*8.7%*
EPS ($ per share)	**$4.23**	**$4.09**	*3.4%*	**$5.16**	**$4.81**	*7.2%*	**$23.39**	**$20.82**	*12.3%*

Source: Company reports, Bernstein estimates and analysis