

U.S. IT Hardware

Memory: What do New Memory LTAs mean for sustainability of earnings and multiples? Raising SNDK TP to \$3000



Mark C. Newman
+1 212 845 7822
mark.newman@bernsteinsg.com



April Li
+1 917 344 8339
april.li@bernsteinsg.com



Phoebe Sun
+1 917 344 8481
phoebe.sun@bernsteinsg.com

The paradigm of memory contracts has changed. New Memory LTAs (Long-term agreements) are different. This note analyzes what we know from SNDK, MU and others, why things are different, and what this means for sustainability of earnings and PE multiples.

Memory and Semiconductor investors are dubious on long-term agreements (LTAs) for good reason. The way old LTAs were written, particularly in memory, was extremely lopsided in favor of the customer, **but these New Memory LTAs have three key differences:** prices fixed or range bound; upfront financial commitments to lock-in customers and protect downside; and long contract terms (3-5 years).

Upfront financial commitments provide real downside protection and aren't the same as previous take or pay arrangements. One major misconception of these new financial commitments is to view it as a static portion of the contract. In reality, this ratio is dynamic. As time passes and revenue gets recognized, the remaining contract value declines. Therefore, the same amount of financial guarantee is applied to a progressively smaller remaining obligation, increasing its relative coverage of the LTA tail and effectively strengthening protection in the latter part of the contract (when it is more likely to be needed!). **We believe this is not understood by the Street.**

Significantly higher floor price for SNDK, but longer contract term for MU. Based on the data provided by companies we estimate SNDK's floor price in recently signed LTAs is \$0.29/GB, inline with our CQ2'26 ASP. This compares to a floor price for MU meaningfully below CQ2'26 levels. However, MU's LTAs appear to be mostly 5years vs SNDK's 3-5years.

While these LTA's do not completely remove risk of future downcycles, they do significantly alleviate downside risk. We analyze scenarios of mild downturn to a price collapse worst than 2010, and find that downside to earnings in the outer years of SNDK LTAs (FY29 and FY30) is significantly more muted than without LTAs with the latter years having significantly more downside protection. This is all assuming the worst case that customers walk away from contracts if they can save just \$1. With 60% of volumes on these LTAs, **SNDK FY30 EPS would still be \$214 with a 72% peak to trough ASP decline** to \$0.11 (or 60% below "floor prices"). **This compares to \$81 EPS without LTAs.**

We increase SNDK FY27 and FY28 EPS to \$243 and \$272 respectively in our base case, and \$350 and \$400 in our bull case. These higher numbers reflect the rising price environment to continue stronger for longer, plus more sustainability and thus less steep blended average prices in a downturn (currently assumed starting in CY28).

The Next Leg of the [New Memory Paradigm](#): Lower volatility and higher sustainability of earnings is worth a higher PE. Less downside to earnings due to LTAs is not being factored in to current multiples. We increase SNDK TP to \$3000 on 11x FY28 EPS, or 14x through cycle EPS (FY26-30 avg EPS). This also equates to 7.5x our bull case FY28 EPS and we see further upside beyond this as investors get comfortable with a higher level of earnings sustainability.

BERNSTEIN TICKER TABLE

Ticker	Rating	Cur	26 Jun 2026		TTM Rel. Perf.	Adjusted EPS			Adjusted P/E (x)				
			Closing Price	Price Target		Cur	2025A	2026E	2027E	2025A	2026E	2027E	
SNDK (SanDisk)	O	USD	2,090.71	3,000.00	4139.7%	USD	2.99	65.43	243.73		699.2	32.0	8.6
<i>OLD</i>				1,700.00				64.73	200.47				
SPX			7,354.02										

PRICE TARGET CHANGE / ESTIMATE CHANGE IN BOLD

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

Source: Bloomberg, Bernstein estimates and analysis.

INVESTMENT IMPLICATIONS

We value Sandisk at \$3000, which is 11x FY28 EPS of \$272 or 14x through cycle (FY26-30) average EPS of \$213; this also equals 7.5x our bull case FY28 EPS of \$400. Previously we valued SNDK at 8.5x our FY27 EPS and 11x our 4-year through cycle (FY26-29) EPS.

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DETAILS

PART I: WHAT ARE THESE NEW MEMORY LONG-TERM AGREEMENTS?

Memory and Semiconductor investors are dubious on long-term agreements (LTAs) for good reason. The way old LTAs were written, particularly in memory, was extremely lopsided in favor of the customer - essentially committing supply to the customer (if they needed it) but without any meaningful reciprocal benefit to the supplier.

But these New Memory LTAs have three key differences: prices fixed or range bound; upfront financial commitments are being made to protect downside (and effectively disincentivize customers to walk away in a down market); and contract terms are extremely long term in nature (often 5 years) which was completely unheard of in the past. Unlike previous take or pay agreements, which would require the supplier to take its customer to court to get the money (a difficult process which can drag out several years), these upfront financial commitments sit on a third party balance sheet (in the case of SNDK) or on the suppliers balance sheet (in the case of MU).

We see this round of LTAs of the memory industry as fundamental game changers to materially moderate the severity of memory industry cyclical downturn. Stating the obvious: memory has historically been viewed as a highly cyclical commodity business: when ASPs fall - revenue, margins, and earnings compress sharply, sometimes turning negative and in past downturns, even leading to company bankruptcies. We believe the downturn will be tempered by the growing adoption of effectively binding, two-way LTAs this time.

Based on our [recent conversation](#) with a former WDC EVP who previously ran SanDisk, as well as from what we learnt from Sandisk and Micron earnings, we believe the memory makers are shifting away from **historically one-sided buyer-friendly LTAs, toward truly bilateral binding LTAs.** In the past, LTAs had served primarily as a buyer's tool to secure volume, and sellers had limited leverage once the pricing rolled over. These new LTAs structure, however, will give the seller meaningful economic protection compared to prior cycles. We believe this creates a structural tailwind that dampens cyclical: more contracted revenue, better downside protection, and a less volatile margin/EPS profile, with more details below.

Before we get into the LTA discussion, quick recap on what we've known from Sandisk/Micron last earnings call and Sandisk 10Q in [Exhibit 1](#): and [Exhibit 2](#). The strategy of Micron and Sandisk is essentially identical: lock in multiyear memory supply with upfront financial commitment with price fixed to a certain extent, to dampen cyclical and lift visibility, yet also with several differences between the two:

- **Reducing price variability:** Both Sandisk and Micron have differing terms to reduce price volatility. **Micron** has different types of **SCAs** (Strategic Customer Agreements) but we understand the majority of volume use an explicit, bounded price band. The largest agreements set a ceiling price at the current calendar Q2 market price and a lower floor price that holds through the term, with the price renegotiated quarterly but never allowed above the ceiling or below the floor. Although

Micron did not quantify the floor price, based on other numbers provided it implies that the floor price is meaningfully below CQ2 prices (we estimate approximately 50% lower) but even at this floor price, company gross margin will remain significantly higher than the previous all-time high peak (of 61%). **Sandisk's NBMs** (New Business Models) pricing language are described far more loosely - simply a "combination of fixed and variable," with near-term volumes mostly fixed and later years carrying more variable components, so both sides share upside/downside. No ceiling/floor band is disclosed, however, due to several numbers being disclosed we can estimate the floor price around \$0.29/GB (see Exhibit 3), which happens to be around June 2026 prices in our base case estimates.

- **Contract term:** Micron's large SCAs are generally 5-year agreements running calendar 2026 through 2030 (with smaller automotive SCAs running just ~3 years), giving a long, relatively uniform commitment window. We think Sandisk's NBMs consist of 1-, 2-, 3- and 5-year deals so contracts don't all expire at once and it avoids renewal "cliffs," with visibility up to 5 years. We understand that the majority of volumes of Sandisk's contracts are 3-5 years and hence estimate an average term of 4 years. So while both reach out to ~5 years at the long end, a large portion of Micron's book is anchored on full 5-year terms, whereas Sandisk's average duration is slightly shorter at around 4 years and more staggered.
- **Financial commitment and composition:** Sandisk's >\$11B of guarantees is ~16% of \$69bn estimated RPO (prorated from its disclosed \$41.6B RPO for 3 deals to 5 deals), while Micron's \$22B is ~22% of its ~\$100B RPO. Composition is also different - Micron's coverage is overwhelmingly real cash sitting on the balance sheet (~\$18B of the \$22B), whereas Sandisk has only ~\$0.4B of actual prepaid cash, with the bulk of its >\$11B being contingent guarantees held in 3rd party accounts.

In conclusion: Significantly higher floor price for SNDK, but longer contract term for MU. Based on the data provided by companies we estimate that SNDK's floor price in their recently signed LTAs is \$0.29/GB, (see Exhibit 3), which is inline with our CQ2'26 ASP. This compares to a floor price for MU that appears to be approximately 50% below CQ2'26 levels (which would still imply trough gross margins significantly higher than the previous peak of 61%). For ceiling prices, SNDK has only disclosed that there is some variability in price outcomes particularly in the latter part of the contract - this implies that ceiling prices are higher than current prices, whereas MU has disclosed that ceiling prices in many of their contracts are set at CQ2'26 levels. However, the great majority of volumes and revenues for MU's LTAs appear to be 5 years vs SNDK's 3-5 years (we assume average 4 years).

EXHIBIT 1: SNDK LTA known facts

Metric	Value	Source
Agreements signed	5 total - 3 in FQ3, 2 more so far in FQ4	Earnings call
RPO (transaction price allocated to remaining performance obligations)	\$41.6B	10-Q Note 4; covers the 3 Q3 deals only
RPO not yet billed	\$41.2B	10-Q Note 4
RPO already recorded as contract liabilities	\$0.4B	10-Q Note 4
Total contract liabilities (customer prepayments)	\$511M, up from \$25M at FY25 year-end	10-Q Note 4
% of RPO recognized as revenue in next 12 months	~15%	10-Q Note 4
Financial guarantees (all 5 deals)	Exceed \$11B	Earnings call
Prepayments in Q3 balance sheet	~\$0.4B	Earnings call (ties to 10-Q)
Share of FY2027 bit supply under firm commitment	Over 1/3	Earnings call

RPO is Remaining Performance Obligations
Source: Company filings, Bernstein analysis

EXHIBIT 2: **MU LTA known facts**

Metric	Value	Notes
SCAs signed	16 agreements	4 very large + 3 medium-sized customers; rest smaller automotive
RPO at end of fiscal Q3	Over \$5B	Only the (smaller, automotive) agreements closed in Q3
Next-12-months revenue recognition on Q3 RPO	~\$1.8B	
Total RPO incl. agreements signed after Q3	~\$100B	Total RPO of 14 of 16 SCAs
Cash deposits + related financial commitments	\$18B (cash) + \$4B (letters of credit)	Across the 16 signed SCAs
Volume covered	~20% of DRAM bits; ~1/3 of NAND bits	Over the agreement period
Revenue covered	~25%	From current ~20% DRAM / ~30% NAND coverage
Pricing structure	Price band: ceiling + floor	Largest deals: ceiling = current CQ2 market price; floor holds through term
Pricing reset mechanism	Renegotiated quarterly to market	Never above ceiling, never below floor
Floor-price margins	Well above prior peak quarterly margins	
Revenue under fixed/ceiling pricing when fully executed	~40%	RPO-eligible portion
Total company revenue under SCAs (target)	>50%	When all planned SCAs complete

SCA stands for Strategic Customer Agreement, which are LTAs

Source: Company filings, Bernstein analysis

THE MISCONCEPTION OF UPFRONT FINANCIAL COMMITMENTS VS. TAKE-OR-PAY CONTRACTS

Before diving into detailed analysis, it is important to address a common misconception around the \$11bn (for SNDK) or \$22bn (for MU) financial guarantee, which is to view it as a static portion of the contract - i.e., dividing it by the total contract value to derive a fixed percentage, and then benchmarking that against the degree of market ASP decline to justify if it's economical to exit the contract. In reality, this ratio is dynamic. As time passes and revenue gets recognized, the remaining contract value declines. **Therefore, the same amount of financial guarantee is applied to a progressively smaller remaining obligation, increasing its relative coverage of the LTA tail and effectively strengthening protection later in the contract term.**

A helpful analogy of the financial commitment is the back-loaded rent concession familiar to New York renters (including the three of us!), where the final month is a "free-month", except in this case it's more like the last 2–3 months of a 12-month agreement are paid upfront. In the Sandisk NBM structure, customers provide an upfront financial guarantee and then continue to purchase NAND throughout most of the contract term, with that guarantee paid effectively tied to the tail-end volume. If NAND prices fall sharply late in the contract, a customer could theoretically exit the LTA and buy at lower market prices - but doing so would require forfeiting the remaining guarantee tied to the outstanding volume. Therefore, the later we are in the contract life, the more powerful this protection becomes. Micron's SCA's are similarly structured where the financial commitment will be returned to customers in the latter part of the contract period. **This effectively provides far more downside protection in the latter part of the contract, when it may actually be needed.**

PART II: OUR SANDISK LTA ANALYSIS SHOWS MEANINGFUL DOWNCYCLE PROTECTION

While these LTA's do not completely remove risk of future downcycles, they do significantly alleviate downside risk.

In our detailed analysis, we look at previous downcycles in DRAM and NAND and see that the magnitude of ASP downside in downturns is becoming less but still significant (in the 20-60% range). We thus look at scenarios of mild downturn to the most significant downturn in the past 16 years, and find that downside to earnings in the outer years is significantly more muted with LTAs than without LTAs with the latter years having significantly more downside protection due to the ramping nature of the financial commitments (as a % of remaining RPO). With 60% of volumes on these LTAs, SNDK FY30 EPS would still be \$214 with a 72% peak to trough ASP decline to \$0.11 (or 60% below "floor prices"). This compares to \$81 EPS assuming no LTAs.

THE THREE KEY VARIABLES

We built a downside sensitivity framework to quantify how SNDK's LTAs could protect realized ASP, gross margin, and EPS under severe NAND downside scenarios. The following analysis looks at three variables ([Exhibit 4](#)):

- **First, RPO Fulfillment Schedule and the Coverage Ratio**, which is linked to the time-lapse of the contract. As RPO gradually gets recognized into revenue, the financial guarantee posted becomes a larger percentage of the remaining obligations - which is represented by coverage ratio.
- **Second, the severity of market ASP decrease.** We test market ASPs that are 20%, 40%, 60%, and 80% below the assumed LTA floor ASP (of \$0.29/GB).
- **Third, LTA penetration.** We test 20%, 40%, 60%, and 80% of total SNDK bits covered by LTAs.

Variable 1: RPO Fulfillment Schedule and the Coverage Ratio.

The protection from LTAs can be best measured by the coverage ratio, which is calculated as the financial guarantee as a portion of remaining RPO from the five LTAs, implying initial coverage of roughly \$1.1bn/\$69.3bn = 16%. Over time, the protection becomes increasingly meaningful as SNDK ships against the contracts and remaining RPO declines. We use our best educated guess to assume an RPO fulfillment schedule, where the % RPO fulfilled rises from 20% by FY 27, 43% in FY28, 70% in FY29, and finally 100% by FY30. As a result, the remaining RPO declines and the guarantee coverage ratio rises from 20% in FY27 to 75% by FY30 and 100% by FY31. **SNDK becomes more protected by the financial guarantee in the outer years of the contract.**

Variable 2: Severity of market ASP decrease.

We've estimated an LTA floor ASP of \$0.29/GB ([Exhibit 3](#)). SanDisk LTAs typically span 3-5 years, and recent earnings commentary indicates the five LTAs signed so far covers > 1/3 of FY2027 bits. Therefore, we assume that 35% of total bit shipments over FY27-30 will be contracted under LTAs. Regarding total contract value, we prorated the disclosed \$4.1.6bn (minimum contract value of the three LTAs) to reflect the five LTAs signed to date, implying a total value of \$69.3bn for the five contracts. Dividing this contract value by 35% of cumulative bit shipments over FY27-30 (4 years in total, to reflect the 3-5 year LTA duration) as per the Bernstein Sandisk model, results in an implied LTA floor price of \$0.29/GB.

Then, we test market ASP levels of \$0.23, \$0.17, \$0.11, and \$0.06/GB. These levels are 20%, 40%, 60%, and 80% below the assumed LTA floor ASP of \$0.29 and 44%, 58%, 72% and 86% below our model ASP peak estimate of \$0.41 in 4Q27.

Variable 3: LTA Penetration.

The third variable is the most self-explanatory. We test different scenarios depending on what percentage of total SNDK bits are protected under the LTA. **Higher LTA penetration will offer greater protection.**

EXHIBIT 3: **SNDK LTA floor ASP calculation**

	FY27-30
Total bits shipment ((M GB, FY 27-30)	693,912
% of Bits under LTA	35%
Bits under LTA (M GB)	242,869
Total LTA (\$mn)	69,333
ASP for bits under LTA (\$/GB)	\$0.29

Source: Company filings, Bernstein estimates and analysis

EXHIBIT 4: **SNDK LTA Analysis Inputs**

Inputs	
LTA Floor for 3 Deals	\$ 41,600
LTA Floor for 5 Deals	\$ 69,333
Guarantee for 5 Deals	\$ 11,000
Guarantee / RPO	16%

Four Scenarios for % of volume secured by LTAs

Scenario 1	20%
Scenario 2	40%
Scenario 3	60%
Scenario 4	80%
LTA Floor ASP\$/GB	\$0.29

Source: Company reports, Bernstein estimates and analysis

The effective ASP decline that Sandisk needs to absorb for LTA-covered bits can then be framed as: “coverage ratio % SUBTRACT market ASP decline % relative to the LTA floor of \$0.29”. This is because even if customers walk away, they forfeit the financial guarantee they have already paid, while Sandisk can still redirect the associated bits into the market. As a result, if market ASP declines by 80% relative to the floor and the coverage ratio is 75%, Sandisk effectively absorbs only a 75% - 80% = 5% decline on the LTA-covered volume (Exhibit 5). For clarity, ***we are assuming the worst case scenario that if market prices fall more than the coverage ratio, customers will walk away from their LTA thus sacrificing their financial guarantee (but making up for that with lower market prices).***

EXHIBIT 5: **LTA-covered ASP Decline as % of LTA Floor ASP**

LTA-covered ASP Decline as % of LTA Floor ASP				Market ASP Decline vs LTA Floor ASP of \$0.29			
Year	% RPO fulfilled	RPO	Guarantee / RPO	-20%	-40%	-60%	-80%
FY27	20%	\$ 55,467	20%	0%	-20%	-40%	-60%
FY28	43%	\$ 39,520	28%	0%	-12%	-32%	-52%
FY29	70%	\$ 20,800	53%	0%	0%	-7%	-27%
FY30	100%	\$ -	100%	0%	0%	0%	0%

The effective ASP decline for SNDK's LTA covered bits if customers decide to pay penalty and walk away

Source: Company reports, Bernstein estimates and analysis

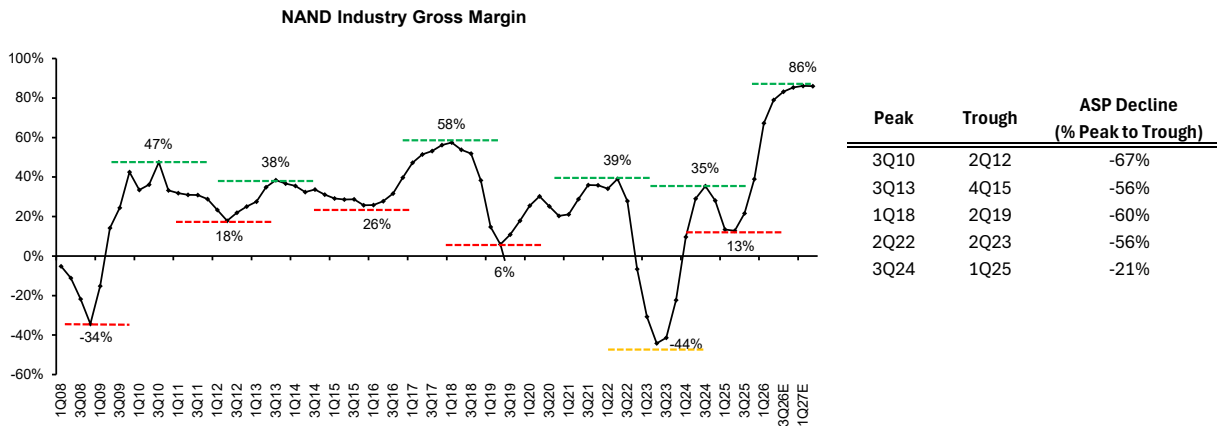
HISTORICAL CONTEXT: HOW BAD COULD THE NEXT DOWNTURN BE?

Historically, NAND ASP peak-to-trough ASP declines have been severe, but have not exceeded 70%. The most pronounced downturn occurred from 3Q10 to 2Q12, when ASPs fell by about 67%. More recent cycles were less severe, with declines of ~60% from 1Q18 to 2Q19 and ~56% from 2Q22 to 2Q23. DRAM shows a similar pattern, with the largest peak-to-trough decline at 66%.

This context is important because our most punitive ASP assumption of \$0.06/GB implies an 80% decline versus the implied LTA floor price and an 86% drop from the estimated peak ASP - materially worse than historical experience.

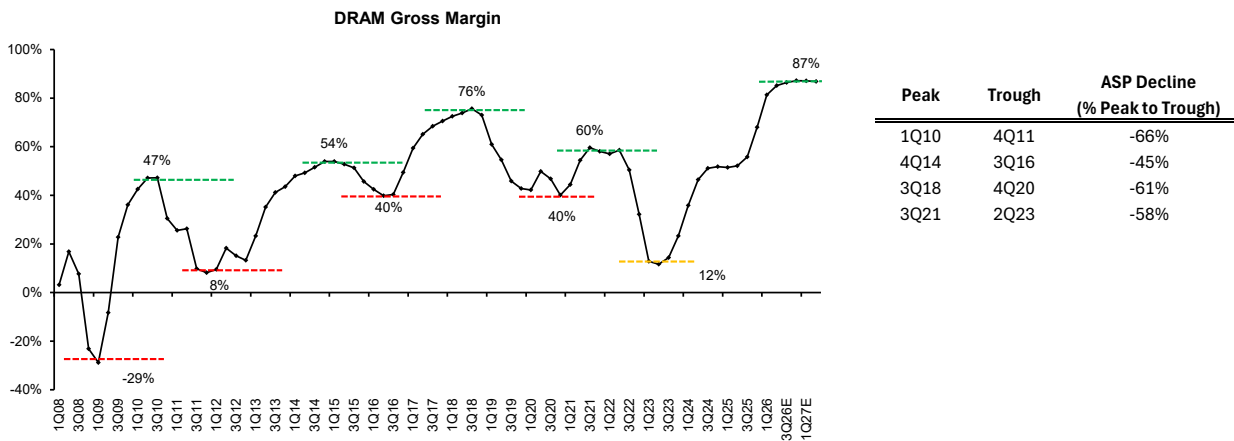
As such, scenarios assuming ASP declines of -72% and -86% from peak should be viewed as extreme stress cases rather than a base case. We include them to evaluate how SNDK's LTA structure performs under severe pricing pressure. The key takeaway is that even under a downside scenario that exceeds prior NAND cycles, higher LTA penetration preserves significantly more gross margin and EPS compared to a fully market-exposed NAND model.

EXHIBIT 6: NAND peak to trough ASP decline



Source: Trendforce, Bernstein estimates and analysis

EXHIBIT 7: DRAM peak to trough ASP decline



Source: DRAMeXchange, Bernstein estimates and analysis

THE IMPLIED WEIGHTED-AVERAGE ASP FOR SNDK

We assume the worst case that customers walk away from contracts (losing the financial commitment) when it makes economic sense for them to do so and then convert the LTA-covered effective ASP decline into overall company ASP by blending LTA and non-LTA pricing based on the LTA penetration. Volumes covered by LTAs will be priced at the financial-guarantee protected ASP, while non-LTA volumes will be subject to prevailing market ASP. To capture the range of outcomes, we model **four LTA penetration scenarios: 20%, 40%, 60%, and 80%** of total Sandisk bit shipments under LTAs.

For each LTA penetration scenario, we perform a sensitivity analysis for total portfolio ASP across varying levels of coverage ratio and market ASP. The four levels of market ASP each correspond to 20%, 40%, 60%, and 80% below the assumed LTA floor price of \$0.29. In the tables, we show the market ASP as well as their delta to our model's peak ASP in 4QFY27 of \$0.41.

This framework helps illustrate how both LTA mix and guarantee coverage jointly influence overall pricing resilience under different Market ASP conditions ([Exhibit 8-Exhibit 11](#)).

We note that scenarios with greater LTA penetration in outer years are the most relevant to investors:

- Management mentioned on the Q3 FY26 earnings call that **existing LTAs cover more than one-third of FY27 bits**, with the proportion to rise as additional agreements are signed. **Management also indicated that LTA coverage can definitely go beyond 50% over time**, with active discussions on supplies spanning next year through the next five years.
 - **The sensitivity analysis shows that LTA penetration is critical, unsurprisingly:** at 20% coverage of total bits, the business remains meaningfully exposed to market ASP, whereas at 60-80% coverage, realized ASP is significantly better protected.
 - **Against this backdrop, we view the 60% and 80% LTA penetration scenarios as the most relevant for investors**, as management’s commentary suggests the business can surpass 50% coverage and become significantly less exposed to market NAND pricing.
- In our SNDK model, we estimate peak ASP to occur in 4Q FY27. Therefore, **the LTA protection is more important for the outer years, such as FY29 and FY30. Fortunately, the LTA protection becomes more pronounced in later years**, when the guarantee coverage relative to remaining RPO is higher. **We focus on FY29 and FY30** to illustrate the downside protection LTAs can provide:
 - **FY29 represents a mid-stage scenario**, where LTA protection is already meaningful but the business still retains material exposure to market pricing ([Exhibit 12](#)). **When the market ASP decline is under 58%, the business ASP proves resilient, ranging \$0.19-0.27/GB.** And even in an extreme downside case where market ASP falls to \$0.06, implied business ASP remains \$0.15 at a 60% LTA mix and \$0.18 at an 80% LTA mix, equal to roughly 50-65% of the implied LTA floor price. In our view, this shows that LTAs provide meaningful protection, even if business ASP is not fully insulated from the most severe spot price declines.
 - **FY30 reflects a later-stage scenario, where remaining RPO is lower and the same financial guarantees cover a larger proportion of the remaining obligations, resulting in stronger protection for the worst downside cases** ([Exhibit 13](#)). In the severe downside case of market ASP at \$0.06, implied business ASP is \$0.19 under a 60% LTA mix and \$0.24 under an 80% LTA mix, or roughly 65-85% of the floor ASP. This suggests that as the contracts mature, LTAs become more effective at protecting pricing and provide a stronger floor to business economics through a deep down cycle.

EXHIBIT 8: Sandisk Wtd. Avg ASP (20% of Volume as LTA)

Sandisk Wtd. Avg ASP (20% of Volume as LTA)						
Year	Guarantee / RPO	\$0.23	\$0.17	\$0.11	\$0.06	Market ASP Vs. Bern Peak ASP of \$0.41
		-44%	-58%	-72%	-86%	
FY27	20%	\$ 0.24	\$ 0.18	\$ 0.13	\$ 0.07	
FY28	28%	\$ 0.24	\$ 0.19	\$ 0.13	\$ 0.07	
FY29	53%	\$ 0.24	\$ 0.19	\$ 0.14	\$ 0.09	
FY30	100%	\$ 0.24	\$ 0.19	\$ 0.15	\$ 0.10	

Source: Company reports, Bernstein estimates and analysis

EXHIBIT 9: Sandisk Wtd. Avg ASP (40% of Volume as LTA)

Sandisk Wtd. Avg ASP (40% of Volume as LTA)						
Year	Guarantee / RPO	\$0.23	\$0.17	\$0.11	\$0.06	Market ASP Vs. Bern Peak ASP of \$0.41
		-44%	-58%	-72%	-86%	
FY27	20%	\$ 0.25	\$ 0.19	\$ 0.14	\$ 0.08	
FY28	28%	\$ 0.25	\$ 0.20	\$ 0.15	\$ 0.09	
FY29	53%	\$ 0.25	\$ 0.22	\$ 0.17	\$ 0.12	
FY30	100%	\$ 0.25	\$ 0.22	\$ 0.18	\$ 0.15	

Source: Company reports, Bernstein estimates and analysis

EXHIBIT 10: **Sandisk Wtd. Avg ASP (60% of Volume as LTA)**

Sandisk Wtd. Avg ASP (60% of Volume as LTA)						
Year	Guarantee / RPO	\$0.23 -44%	\$0.17 -58%	\$0.11 -72%	\$0.06 -86%	→ Market ASP → Vs. Bern Peak ASP of \$0.41
FY27	20%	\$ 0.26	\$ 0.21	\$ 0.15	\$ 0.09	
FY28	28%	\$ 0.26	\$ 0.22	\$ 0.16	\$ 0.10	
FY29	53%	\$ 0.26	\$ 0.24	\$ 0.20	\$ 0.15	
FY30	100%	\$ 0.26	\$ 0.24	\$ 0.22	\$ 0.19	

Source: Company reports, Bernstein estimates and analysis

EXHIBIT 11: **Sandisk Wtd. Avg ASP (80% of Volume as LTA)**

Sandisk Wtd. Avg ASP (80% of Volume as LTA)						
Year	Guarantee / RPO	\$0.23 -44%	\$0.17 -58%	\$0.11 -72%	\$0.06 -86%	→ Market ASP → Vs. Bern Peak ASP of \$0.41
FY27	20%	\$ 0.27	\$ 0.22	\$ 0.16	\$ 0.10	
FY28	28%	\$ 0.27	\$ 0.23	\$ 0.18	\$ 0.12	
FY29	53%	\$ 0.27	\$ 0.26	\$ 0.23	\$ 0.18	
FY30	100%	\$ 0.27	\$ 0.26	\$ 0.25	\$ 0.24	

Source: Company reports, Bernstein estimates and analysis

EXHIBIT 12: **FY 29 Implied Business ASP**

FY 29 Implied Business ASP					
LTA Penetration	\$0.23 -44%	\$0.17 -58%	\$0.11 -72%	\$0.06 -86%	→ Market ASP → Vs. Bern Peak ASP of \$0.41
0%	\$ 0.23	\$ 0.17	\$ 0.11	\$ 0.06	
20%	\$ 0.24	\$ 0.19	\$ 0.14	\$ 0.09	
40%	\$ 0.25	\$ 0.22	\$ 0.17	\$ 0.12	
60%	\$ 0.26	\$ 0.24	\$ 0.20	\$ 0.15	
80%	\$ 0.27	\$ 0.26	\$ 0.23	\$ 0.18	

Source: Company reports, Bernstein estimates and analysis

EXHIBIT 13: **FY 30 Implied Business ASP**

FY 30 Implied Business ASP					
LTA Penetration	\$0.23 -44%	\$0.17 -58%	\$0.11 -72%	\$0.06 -86%	→ Market ASP → Vs. Bern Peak ASP of \$0.41
0%	\$ 0.23	\$ 0.17	\$ 0.11	\$ 0.06	
20%	\$ 0.24	\$ 0.19	\$ 0.15	\$ 0.10	
40%	\$ 0.25	\$ 0.22	\$ 0.18	\$ 0.15	
60%	\$ 0.26	\$ 0.24	\$ 0.22	\$ 0.19	
80%	\$ 0.27	\$ 0.26	\$ 0.25	\$ 0.24	

Source: Company reports, Bernstein estimates and analysis

IMPLIED GROSS MARGIN

We then translate the FY29 and FY30 blended ASPs into gross margin using our model's COGS/GB assumptions for each year. The analysis shows that margins are materially more resilient in the later-year, higher-LTA-penetration scenarios, which we believe are the cases most relevant to investors.

In FY29, the LTA structure already provides meaningful downside protection. **At 60%-80% LTA penetration, implied gross margin remains above 80% when market ASP is \$0.11/GB or higher.** Even in the severe \$0.06/GB market ASP scenario, implied gross margin declines only to 73%-77%, which remains materially better than the 54%-66% range implied at lower LTA penetration. **We believe this highlights the strategic importance of Sandisk's goal to move LTA mix above 50%, as downside protection improves meaningfully once penetration reaches that level.**

In FY30, the protection becomes even stronger and establishes a more robust margin floor of 80%. Even in the \$0.06/GB market ASP scenario, which is 86% below Bernstein peak ASP and 80% below the assumed floor ASP, implied gross margin stays **above 80%** at 60%-80% LTA penetration. In our view, this is the clearest evidence that the LTA structure can materially dampen downside margin cyclicity relative to a traditional market-exposed NAND model.

EXHIBIT 14: **FY29 - Implied Margin**

FY29 - Implied Margin					
LTA Penetration	\$0.23	\$0.17	\$0.11	\$0.06	
	-44%	-58%	-72%	-86%	→ Market ASP
					→ Vs. Bern Peak ASP of \$0.41
0%	82.47%	76.62%	64.94%	29.87%	
20%	83.30%	79.37%	72.27%	54.13%	
40%	84.06%	81.55%	77.07%	65.92%	
60%	84.76%	83.30%	80.45%	72.89%	
80%	85.39%	84.76%	82.96%	77.49%	

Source: Company reports, Bernstein estimates and analysis

EXHIBIT 15: **FY30 - Implied Margin**

FY30 - Implied Margin					
LTA Penetration	\$0.23	\$0.17	\$0.11	\$0.06	
	-44%	-58%	-72%	-86%	→ Market ASP
					→ Vs. Bern Peak ASP of \$0.41
0%	84.22%	78.96%	68.44%	36.89%	
20%	84.97%	81.44%	75.73%	64.94%	
40%	85.66%	83.39%	80.28%	75.73%	
60%	86.28%	84.97%	83.39%	81.44%	
80%	86.85%	86.28%	85.66%	84.97%	

Source: Company reports, Bernstein estimates and analysis

IMPLIED EPS

We further translate the realized ASP analysis into EPS. We compare FY29 and FY30 implied business ASPs with the Bernstein model ASPs to estimate the revenue delta under different conditions. The EPS sensitivity tables assume bit shipments, COGS/GB, OpEx, tax rate, and diluted shares are unchanged versus the model. This allows us to isolate realized ASP sensitivity and assess how much earnings power is preserved when LTAs support pricing. The EPS sensitivity points to the same conclusion: the structure is most effective in later years and in higher-LTA-penetration scenarios. **As LTA penetration and the coverage ratio increase, SNDK preserves more earnings power in severe ASP downside scenarios.**

FY29: Relative to our FY29 EPS estimate of \$233.5, EPS remains resilient especially in higher-penetration scenarios but comes under pressure in extreme pricing downside cases. When the market ASP decline is less than 58% vs peak, the EPS stays roughly **\$150-236**. At a market ASP of \$0.06/GB, EPS remains around **\$100** or higher at 60%-80% LTA penetration. This compared with only \$34.52-\$67.09 at 20%-40% LTA penetration highlights the earnings support provided by a higher LTA mix.

In FY30, the protection becomes more apparent as the contracts progress and LTA coverage increases. Under the same severe \$0.06/GB market ASP scenario, the EPS is \$184.44 at 60% LTA penetration and \$243.50 at 80% LTA penetration, **not far below our FY30 EPS estimate of \$249.7**, despite an 86% decline in market ASP from the peak. In less severe ASP downside scenarios, EPS is above our base estimate in several cases because the implied LTA floor price is above our FY30 model ASP.

Overall, this analysis underscores the earnings resilience created by high coverage ratios, greater LTA mix, and robust floor pricing.

EXHIBIT 16: **FY29 - Implied EPS**

FY29 - Implied EPS					
LTA Penetration	\$0.23	\$0.17	\$0.11	\$0.06	
	-44%	-58%	-72%	-86%	→ Market ASP → Vs. Bern Peak ASP of \$0.41
0%	\$ 186.70	\$ 125.12	\$ 63.54	\$ 1.95	
20%	\$ 199.02	\$ 149.75	\$ 96.10	\$ 34.52	
40%	\$ 211.33	\$ 174.39	\$ 128.67	\$ 67.09	
60%	\$ 223.65	\$ 199.02	\$ 161.24	\$ 99.66	
80%	\$ 235.97	\$ 223.65	\$ 193.81	\$ 132.22	

Source: Company reports, Bernstein estimates and analysis

EXHIBIT 17: **FY30 - Implied EPS**

FY30 - Implied EPS					
LTA Penetration	\$0.23	\$0.17	\$0.11	\$0.06	
	-44%	-58%	-72%	-86%	→ Market ASP → Vs. Bern Peak ASP of \$0.41
0%	\$ 228.73	\$ 154.91	\$ 81.08	\$ 7.25	
20%	\$ 243.50	\$ 184.44	\$ 125.38	\$ 66.31	
40%	\$ 258.26	\$ 213.97	\$ 169.67	\$ 125.38	
60%	\$ 273.03	\$ 243.50	\$ 213.97	\$ 184.44	
80%	\$ 287.79	\$ 273.03	\$ 258.26	\$ 243.50	

Source: Company reports, Bernstein estimates and analysis

PART III: WHY SNDK DESERVES A HIGHER MULTIPLE

New Memory LTAs support a credible case for structural multiple expansion. Historically, Memory stocks have traded at a discount to the market because investors viewed the business as highly cyclical, with limited earnings visibility, sharp margin compression in downturns, and the risk of negative earnings at the trough. We believe SNDK's LTA structure challenges that framework. As a larger share of bits moves under LTAs, and as guarantee coverage becomes more meaningful over time, earnings should become less volatile than in prior NAND cycles. **In our view, this creates a more durable economic floor and materially improves the quality and visibility of the earnings stream.**

When combined with structurally stronger data center storage demand and better revenue visibility, this could support a meaningful re-rating in how investors value the business. Rather than viewing SNDK purely as a cyclical commodity memory name, we think the company can increasingly be seen as a higher-quality storage franchise with more resilient through-cycle economics. In that context, **a path toward higher PE multiples becomes increasingly defensible, particularly as LTAs continue to smooth downside outcomes and reduce the severity of future cycle troughs.**

PART IV: MODEL UPDATE AND TP RAISE TO \$3000

We increase SNDK FY27 and FY28 EPS to \$243 and \$272 respectively in our base case, and \$350 and \$400 in our bull case. These higher numbers reflect the rising price environment to continue stronger for longer - peaking in June 2027, plus more sustainability and thus less steep blended average prices in a downturn (currently assumed starting in CY28). Our bull case has more aggressive price increases in the near term, but the same timing of peak and same relative price decline starting in FY28.

The Next Leg of the New Memory Paradigm: Lower volatility and higher sustainability of earnings is worth a higher PE. While we don't believe it is reasonable to assume that prices stay this high forever (though they will continue to increase in the short to medium term), less downside to earnings is not being factored in to current multiples. We value SNDK and increase TP to \$3000 on 11x FY28 EPS, or 14x through cycle EPS (FY26-30 avg EPS). This also equates to 7.5x our bull case FY28 EPS

and we see further upside beyond this as investors get comfortable with a higher level of earnings sustainability. See our recent updated thoughts on the New Memory Paradigm [here](#), and the original [2013 Blackbook](#) and [2014 Blackbook](#).

EXHIBIT 18: **SNDK Model Before vs After**

(\$USD Millions)	FY 2026E			FY 2027E			FY 2028E		
	New	Old	Delta	New	Old	Delta	New	Old	Delta
Revenue	\$19,351	\$19,213	0.7%	\$51,663	\$44,164	17.0%	\$57,061	\$45,595	25.1%
Gross Profit	\$13,504	\$13,379	0.9%	\$45,127	\$37,718	19.6%	\$50,149	\$38,864	29.0%
Gross Margin %	69.8%	69.6%	15bps	87.3%	85.4%	195bps	87.9%	85.2%	265bps
Op. Profit	\$11,789	\$11,664	1.1%	\$42,992	\$35,583	20.8%	\$47,615	\$36,330	31.1%
OP Margin %	60.9%	60.7%	21bps	83.2%	80.6%	265bps	83.4%	79.7%	376bps
Net Income	\$10,251	\$10,140	1.1%	\$37,695	\$31,206	20.8%	\$41,498	\$31,680	31.0%
EPS (\$ per share)	\$65.43	\$64.73	1.1%	\$243.73	\$200.47	21.6%	\$272.04	\$202.69	34.2%
Adj FCF	\$8,448	\$8,415	0.4%	\$34,462	\$29,133	18.3%	\$40,430	\$31,110	30.0%

Source: Company reports, Bernstein estimates and analysis

EXHIBIT 19: **Bernstein vs. Consensus**

SNDK	FY26E	FY27E	FY28E
Total Revenues (\$M)			
Consensus	\$19,783	\$45,596	\$49,541
Bernstein Est.	\$19,351	\$51,663	\$57,061
Bernstein vs. Cons.	-2.2%	13.3%	15.2%
Company GMs	69.7%	82.6%	81.4%
vs. Bernstein	69.7%	87.3%	87.9%
Opex (\$M)	\$1,795	\$2,231	\$2,451
vs. Bernstein	\$1,715	\$2,135	\$2,535
Non-GAAP EPS (\$)			
Consensus	\$65.65	\$191.25	\$204.51
Bernstein Est.	\$65.43	\$243.73	\$272.04
Bernstein vs. Cons.	-0.3%	27.4%	33.0%
FCF (\$)			
Consensus	\$8,422	\$27,857	\$31,393
Bernstein Est.	\$8,448	\$34,462	\$40,430
Bernstein vs. Cons.	0.3%	23.7%	28.8%

Source: Bloomberg, Bernstein estimates and analysis

EXHIBIT 20: **Consensus vs Bern Base Case vs Bern Bull Case**

		Sep Qtr		FY2026	FY2027	FY2028	FY2029	FY2030	26-30 Avg
		FQ4'26	F1'27						
Bloomberg cons	Non-GAAP EPS	\$34.27	\$43.51	\$65.66	\$191.42	\$205.15	\$163.43	\$116.49	\$148.43
	ASP (\$/GB)	\$0.29	\$0.35	\$0.17	\$0.39	\$0.36	\$0.27	\$0.24	
Bernstein Base Case	ASP change	20.0%	20.0%	130.5%	123.6%	-6.0%	-25.0%	-10.0%	
	Non-GAAP EPS	\$34.60	\$50.09	\$65.43	\$243.73	\$272.04	\$233.51	\$249.70	\$212.88
	ASP (\$/GB)	\$0.35	\$0.44	\$0.19	\$0.52	\$0.49	\$0.36	\$0.33	
Bernstein BULL Case	ASP change	45.0%	25.0%	150.6%	175.9%	-6.0%	-25.0%	-10.0%	
	Non-GAAP EPS	\$44.11	\$66.22	\$74.94	\$349.56	\$400.26	\$357.53	\$393.30	\$315.12

Source: Company reports, Bloomberg, Bernstein estimates and analysis

APPENDIX - FINANCIAL FORECASTS**EXHIBIT 21: SNDK Income Statement**

	1Q26	2Q26	3Q26	4Q26E	2025	2026E	2027E	2028E
Consolidated Income Statement								
Revenues	2,308	3,025	5,950	8,068	7,355	19,351	51,663	57,061
COGS	1,621	1,484	1,288	1,470	5,143	5,863	6,552	6,928
Gross Profit	687	1,541	4,662	6,598	2,212	13,488	45,111	50,133
SG&A	179	139	161	171	573	650	735	831
R&D	316	327	337	371	1,132	1,351	1,637	1,965
Restructuring/Impairment and other	16	10	53	-	1,884	79	-	-
Operating Profit	176	1,065	4,111	6,057	(1,377)	11,409	42,739	47,338
Non-operating Income	-	-	-	-	-	-	-	-
Interest income (expense), net	(24)	(13)	6	10	(41)	(21)	40	40
Other income (expense), net	(28)	(115)	(10)	-	(61)	(153)	-	-
Non-recurring gain (loss), net	-	-	-	-	-	-	-	-
Earnings Before Tax	124	937	4,107	6,067	(1,479)	11,235	42,779	47,378
Income Tax (Benefit)	12	134	492	727	162	1,365	5,561	6,159
Net Income	112	803	3,615	5,340	(1,641)	9,870	37,217	41,219
Non-GAAP net income (loss)	181	967	3,675	5,428	440	10,251	37,695	41,498
Non-GAAP EPS	1.22	6.20	23.41	34.60	2.99	65.43	243.73	272.04
%GM (Non-GAAP)	29.9%	51.1%	78.4%	81.8%	30.3%	69.8%	87.3%	87.9%
%OP(Non-GAAP)	11%	37%	71%	76%	9%	60%	83%	83%
Drivers								
Non-GAAP Opex	446	413	448	487	1,539	1,781	2,135	2,516
GAAP Opex	511	476	551	541	3,589	2,000	2,373	2,796
Stock-based compensation	65	63	103	54	2,050	219	237	280
SBC as % of total Opex	12.7%	13.2%	18.7%	10.0%	57.1%	11.0%	10.0%	10.0%
Total Non-GAAP adjustments	68	159	37	54	2,094	161	237	280
Non-GAAP adjustments as % of GAAP net income	60.9%	19.8%	1.0%	1.0%	-127.6%	1.6%	0.6%	0.7%

Source: Company reports, Bernstein estimates and analysis

EXHIBIT 22: **SNDK Balance Sheet**

Consolidated Balance Sheet	1Q26	2Q26	3Q26	4Q26E	2025	2026E	2027E	2028E
Cash and cash equivalents	1,442	1,539	3,735	8,028	1,481	8,028	47,896	65,039
Short-term marketable securities	-	-	-	-	-	-	-	-
Receivables	1,193	1,239	2,726	3,696	1,068	3,696	6,255	6,909
Inventories	1,907	1,970	2,238	2,554	2,079	2,554	2,747	2,905
Other Current Assets	442	402	469	469	458	469	469	469
Current Assets	4,984	5,150	9,168	14,747	5,086	14,747	57,368	75,323
	-	0	0	0	0	0	0	0
Long-term marketable securities	-	-	-	-	-	-	-	-
Notes receivable and investments in Flash Ventures	602	677	684	684	654	684	684	684
Property, plant & equipment	630	631	649	796	619	796	913	1,090
Intangible Assets	-	-	-	-	-	-	-	-
Goodwill	4,998	4,995	4,994	4,994	4,999	4,994	4,994	4,994
Other Non-current Assets	1,535	1,545	1,580	1,580	1,627	1,580	1,580	1,580
Non-Current Assets	7,765	7,848	7,907	8,054	7,899	8,054	8,171	8,348
Total Assets	12,749	12,998	17,075	22,801	12,985	22,801	65,539	83,671
	-	-	-	-	-	-	-	-
Accounts Payables	884	869	851	971	766	971	1,045	1,235
Long-term debt	1,331	583	-	-	1,829	-	-	-
Other Liabilities	1,153	1,333	2,447	2,447	1,174	2,447	2,447	2,447
Total Liabilities	3,368	2,785	3,298	3,418	3,769	3,418	3,492	3,682
	-	-	-	-	-	-	-	-
Common stock	11,287	11,337	11,290	11,142	11,249	11,142	6,210	(1,568)
Retained earnings	(1,672)	(869)	2,746	8,086	(1,784)	8,086	45,303	86,522
AOCI and other	(234)	(255)	(259)	(249)	(249)	(249)	(209)	(199)
Total shareholders' equity	9,381	10,213	13,777	18,979	9,216	18,979	51,305	84,755
Minority interest	-	-	-	-	-	-	-	-
Total Equity	9,381	10,213	13,777	18,979	9,216	18,979	51,305	84,755
Total Liabilities and Equity	12,749	12,998	17,075	22,398	12,985	22,398	54,796	88,436

Source: Company reports, Bernstein estimates and analysis

EXHIBIT 23: **SNDK Cash Flow Statement**

Consolidated Cash Flow Statement	1Q26	2Q26	3Q26	4Q26E	2025	2026E	2027E	2028E
Working capital	-	-	-	-	-	-	-	-
Working capital assets	5,077	5,156	7,013	8,300	5,232	8,300	11,052	11,863
Working capital liabilities	2,037	2,202	3,298	3,418	1,940	3,418	3,492	3,682
Net working capital	3,040	2,954	3,715	4,881	3,292	4,881	7,560	8,182
Cash flows from operating activities	-	-	-	-	-	-	-	-
Net income	112	803	3,615	5,340	(1,641)	9,870	37,217	41,219
Add: Depreciation	36	38	38	39	73	151	203	223
Add: Amortization	-	-	-	-	-	-	-	-
Less: Net gain/(loss) on investments/others	90	115	103	10	1,896	318	40	10
Changes in net working capital:	250	63	(718)	(1,166)	107	(1,571)	(2,678)	(622)
Net cash from operating activities	488	1,019	3,038	4,223	(11)	8,768	34,782	40,830
Cash flows from investing activities	-	-	-	-	-	-	-	-
Net acquisition of marketable securities	-	-	-	-	-	-	-	-
Fusion-IO net of cash	-	-	-	-	-	-	-	-
Non-JV PP&E	(50)	(39)	(45)	(186)	(156)	(320)	(320)	(400)
Net (contributions to) / distributions from JVs with Tos	-	-	-	-	-	-	-	-
Net (contributions to) / distributions from other JVs	-	-	-	-	-	-	-	-
Acquisition of intangible assets	-	-	-	-	-	-	-	-
Proceeds from dispositions of businesses	25	-	-	-	-	-	-	-
Notes receivable issuances to Falsh Ventures	(87)	(169)	(83)	-	-	-	-	-
Notes receivable proceeds from Flash Ventures	97	32	45	-	-	-	-	-
Net cash from investing activities	(15)	(165)	(83)	(186)	(156)	(320)	(320)	(400)
Cash flows from financing activities	-	-	-	-	-	-	-	-
Issuance of stock under employee stock plans	-	-	-	-	-	-	-	-
Repayment of debt	-	24	-	-	-	-	-	-
Payment of dividends	-	-	-	-	-	-	-	-
Net increase (decrease) in debt / Other	-	-	-	-	1,829	(1,829)	-	-
Net stock issuance and buybacks	-	-	-	256	11,249	(303)	(10,101)	(7,778)
Others	(15)	(32)	(102)	-	-	-	-	-
Net cash from financing activities	(515)	(758)	(752)	256	13,078	(2,132)	(10,101)	(7,778)
FX effect from foreign currency denominated cash	3	1	(7)	-	-	-	-	-
Net increase in cash and cash equivalents	(39)	97	2,196	4,293	12,911	6,316	24,360	32,651
Cash and cash equivalents at beginning of year	1,481	1,442	1,539	3,735	-	1,481	8,028	32,388
Cash and cash equivalents at end of the year	1,442	1,539	3,735	8,028	1,481	8,028	32,388	65,039
Check:	-	-	-	-	-	-	-	-
Free cash flow	438	980	2,993	4,037	(167)	8,448	34,462	40,430
Activity related to Flash Ventures, net	10	(137)	(38)	-	-	-	-	-
Adjusted free cash flow	448	843	2,955	4,037	(167)	8,448	34,462	40,430
FCF Conversion	391%	122%	83%	76%	10%	86%	93%	98%
Operating Profit Conversion	255%	79%	72%	67%	12%	74%	81%	85%

Source: Company reports, Bernstein estimates and analysis

DISCLOSURE APPENDIX

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.

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VALUATION METHODOLOGY**SanDisk Corp**

We value SNDK and increase TP to \$3000 on 11x FY28 EPS, or 14x through cycle EPS (FY26-30 avg EPS).

RISKS**SanDisk Corp**

The biggest risks to the downside on Sandisk and to our price target are that: 1) Near-term numbers look high and face cyclical downside from NAND; 2) SNDK's disclosures and broader investor communications have been confusing, potentially dissuading more quality-focused investors; and 3) NAND weakness could extend beyond the current cycle and be more structural, in which case Sandisk's DCF value could be structurally lower and the impaired value of its assets may be materially below replacement cost.

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 (EDME) 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 (ASIA) for stocks listed on the Asian (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 a 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

The Autonomous brand rates common stocks as indicated below. As our benchmarks we use the Bloomberg Europe 500 Banks And Financial Services Index (BEBANKS) and Bloomberg Europe Dev Mkt Financials Large and Mid Cap Price Ret Index EUR (EDMFI) index for developed European banks and Payments, the Bloomberg Europe 500 Insurance Index (BEINSUR) for European insurers, the S&P 500 and S&P Financials for US banks and Payments coverage, S5LIFE for US Insurance, the S&P Insurance Select Industry (SPSIINS) for US Non-Life Insurers coverage, and the Bloomberg Emerging Markets Financials Large, Mid and Small Cap Price Return Index (EMLSF) for emerging market banks and insurers and Payments. Ratings are stated relative to the sector (not the market).

The Autonomous brand has three categories of common stock ratings:

- Outperform (OP): Stock will outpace the relevant index by more than 10 pp
- Neutral (N): Stock will perform in line with the market index to within +/- 10 pp
- Underperform (UP): Stock will trail the performance of the relevant index by more than 10 pp

Coverage Suspended: Coverage of a company under the Autonomous 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.

Those denoted as 'Feature' (e.g., Feature Outperform FOP, Feature Under Outperform FUP) are our core ideas.

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

Autonomous brand common stock ratings are based on a 12-month time horizon.

Autonomous brand – preferred stocks

The Autonomous brand has three categories of preferred stock ratings:

- Outperform (OP): The total return of the preferred instrument is expected to outperform preferred securities of other issuers operating in similar sectors or rating categories over the next six months.
- Neutral (N): The total return of the preferred instrument is expected to perform in line with preferred securities of other issuers operating in similar sectors or rating categories over the next six months.
- Underperform (UP): The total return of the preferred instrument is expected to underperform preferred securities of other issuers operating in similar sectors or rating categories over the next six months.

Autonomous preferred stock ratings are based on a 6-month time horizon.

AUTONOMOUS CREDIT RESEARCH

Where this report contains investment recommendations for credit instruments, as defined in article 3(1)(35) of the Market Abuse Regulation, the information below is presented to comply with its disclosure requirements.

The report may also include reference(s) to published opinions by other Autonomous or Bernstein analysts covering the equity securities of the issuer(s) referenced herein. Please note an investment recommendation for credit instruments published by the author(s) of this report may differ from the published view of the analyst covering equity securities for the issuer(s) contained in this report and vice versa.

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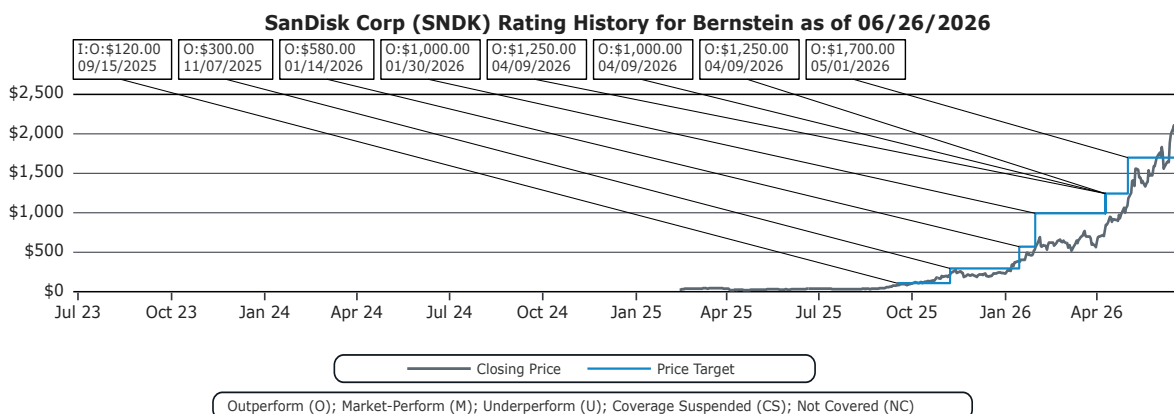
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