

## Global Memory Tech

## Weekly theme: toned-down HBM/LTA, L-T shortages, substrate/MLCC upturn

Industry Overview

## Chipmakers less enthusiastic on HBM and LTAs

Our new analysis suggests memory chipmakers have recently become less enthusiastic about expanding HBM capacity after 1Q results. Three reasons: (1) conventional DRAM (mostly LPDDR5) much more profitable vs HBM; (2) slightly muted HBM4 order growth, and (3) rapidly rising KV cache memory-based AI inferencing using NAND. Thus, some unused capex budget (initially earmarked for HBM) seem to be used for conventional DRAM and even NAND. Separately, some chipmakers alluded to reduced interest in LTA (long-term agreement)-based chip sales, given the growing number of customers paying higher DRAM and NAND contract prices each quarter. Chipmakers' concerns (about LTA) are limited price/profit upside. If memory chip supply shortages persist into 2027-28 or the risk of broken long-term contracts if a downturn emerges. Overall, we expect 2H earnings growth (vs 2Q) to be more dependent on conventional memory (instead of HBM4), while new LTA-based long-term contracts may grow less (the majority 2H26-1H27 conventional memory sales still quarterly price negotiation basis, in our view).

## Lower expectations for 2028 wafer capacity expansion

Investors may be concerned about sizable DRAM wafer capacity to be added from newly constructed shell fabs in Korea/the US, particularly in 2028. However, most chipmakers appear to expect only 50-60k wpm capacity addition at max for each fab in 2028. True, clean room space (of the new fab) can offer even 100k pa, but high execution risks (1d node, etc) to run a new fab with large scale is likely to make chipmakers to add front-end wafer fabrication equipment on a more disciplined basis. This suggests only single-digit% wafer capacity growth for entire global DRAM industry. We believe chipmakers' long-term bullish view (shortage) is also based on this type of new wafer capacity expansion constraints. Nonetheless, TCB equipment will be strongly demanded in 2028, which is mainly for 16-/20-HBM4e (to be used Rubin Ultra and more advanced AI ASICs).

## Memory spot price correction accelerated, led by DDR4

DDR4 (legacy DRAM) is now less demanded in the spot market (due to 50%+ price premium vs DDR5). Thus, its spot price has declined more notably this week (down 5-8%). That said, DDR5 (much cheaper vs DDR4 despite higher spec) remained stable. We believe this trend may continue into June (DDR5's outperformance vs DDR4). Korea's upbeat semis exports (up 182% YoY for the first 20 days of April) are mostly based on DDR5, HBM and NAND (DDR4 portion to be sub-1% of total memory shipments).

## Rising optimism on Korea's substrate/MLCC

We are more bullish on Korea's substrate/MLCC, which should be further in demand by US Big Tech. Like DRAM, if conventional MLCC/substrate capacity (for IT) is used for AI server, its production volume sharply declines due to larger size, longer manufacturing and spec upgrade. SEMCO (009150 KS) and LG Innotek (011070 KS) will likely be the major beneficiaries of Korea's new substrate/MLCC boom ([see our report](#)).

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**Exhibit 1: DDR4 declined sharply this week vs DDR5 and NAND remained flat**  
Spot prices – DRAM and NAND

US\$	Current	WoW	QoQ	YoY
<b>DRAM spot</b>				
16Gb DDR5	38.5	0%	5%	597%
16Gb DDR4	63.9	-8%	-19%	1726%
8Gb DDR4	32.5	-2%	6%	1790%
4Gb DDR4	7.2	0%	20%	457%
<b>NAND spot</b>				
1Tb wafer	25.6	-1%	39%	394%
512Gb wafer	21.0	0%	36%	659%
256Gb wafer	10.5	0%	38%	601%

Source: DRAMeXchange

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AI: Artificial intelligence

ASIC: Application-specific integrated circuit

ASP: Average selling price

DDR4/5: 4<sup>th</sup>/5<sup>th</sup> gen double-data rate DRAM

DRAM: Dynamic random-access memory

HBM4: High bandwidth memory 6<sup>th</sup> gen

IT: mainly referring to PC and smartphone

KV: Key value

LPDDR5: Low-power DDR5

LTA: Long-term agreement

MLCC: Multi-layer ceramic capacitor

NAND: Not-AND memory

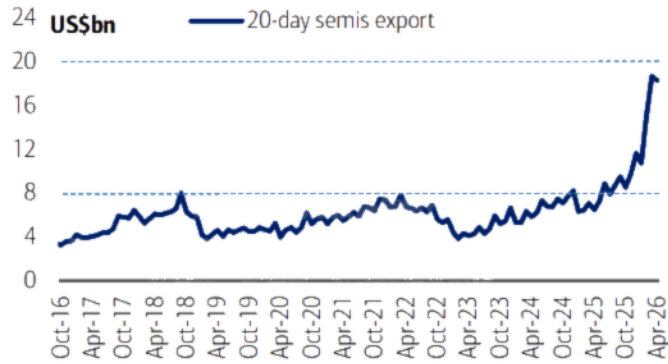
TCB: Thermal compression bonding

wpm: wafers per month

## Korea semis exports & China chip imports

**Exhibit 2: Slightly dropped MoM but still near record-high level in Apr (US\$18.3bn; -2% MoM)**

Korea semis exports – first 20 days of month (US\$bn)



Source: MoTIR

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**Exhibit 3: YoY rebound acceleration continued in Apr (+182%); already 30 consecutive months of positive growth**

Korea semis exports – YoY in first 20 days of month

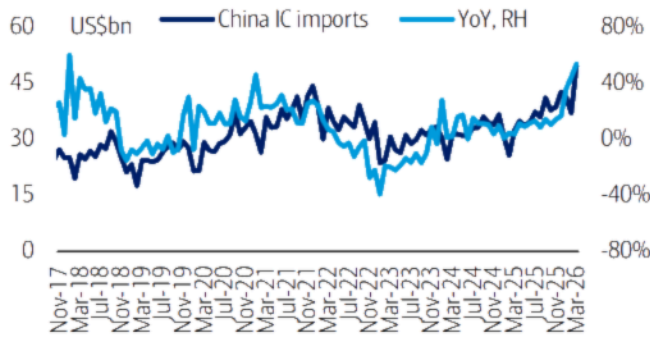


Source: MoTIR

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**Exhibit 4: IC imports hit record high at US\$49.8bn in Mar, +54% YoY**

China monthly integrated circuit (IC) imports and YoY



Source: China General Customs

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**Exhibit 5: China IC imports reached 54.7bn units in Mar, +14% YoY**

China monthly integrated circuit (IC) imports volume and YoY

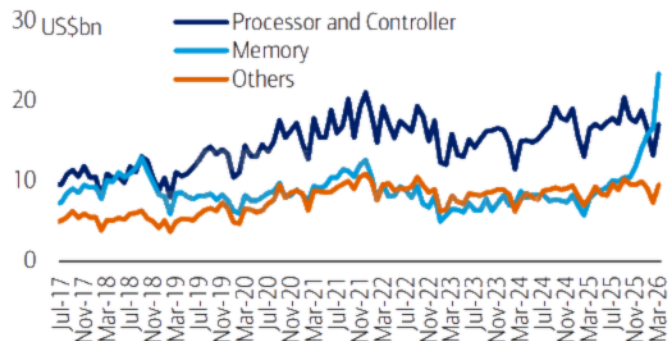


Source: China General Customs

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**Exhibit 6: Memory imports reached record high at US\$23bn, accounting for 47% of total imports**

China IC imports by chip type

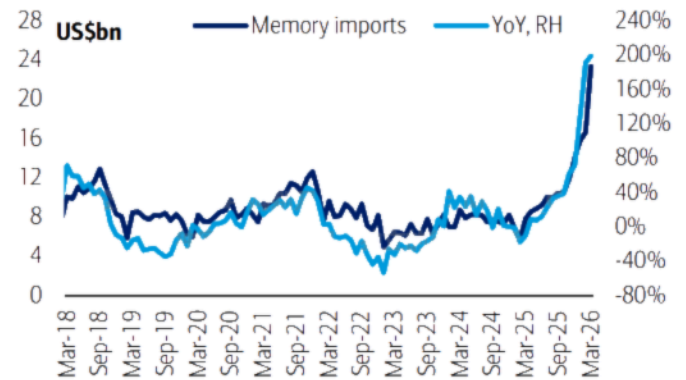


Source: China General Customs

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**Exhibit 7: Memory monthly imports grew 130-200% YoY growth during Jan-Mar**

Monthly memory chip imports to China and YoY



Source: China General Customs

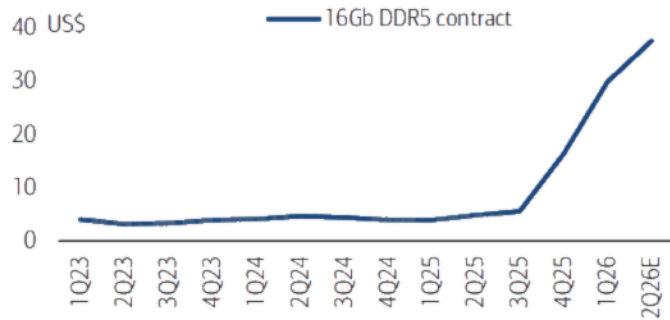
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## Quarterly average contract price

### Exhibit 8: DRAM contract price hit new-record high of US\$35-40 in April

DRAM contract price - quarterly average trend



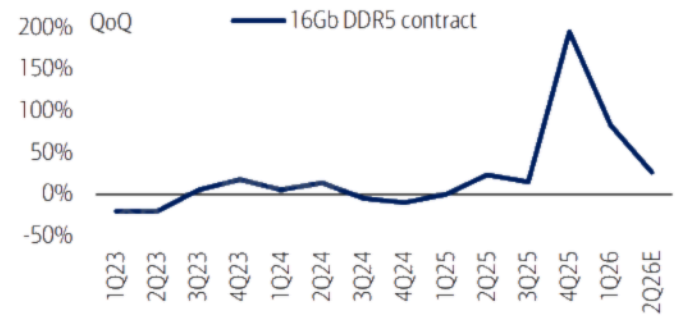
2Q26 is an estimate by TrendForce released as of 16<sup>th</sup> April

Source: DRAMeXchange, TrendForce

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### Exhibit 9: April contract price likely up more than 20% even after +200% in 4Q25 and +80% in 1Q26

16Gb DDR5 contract price - QoQ change trend



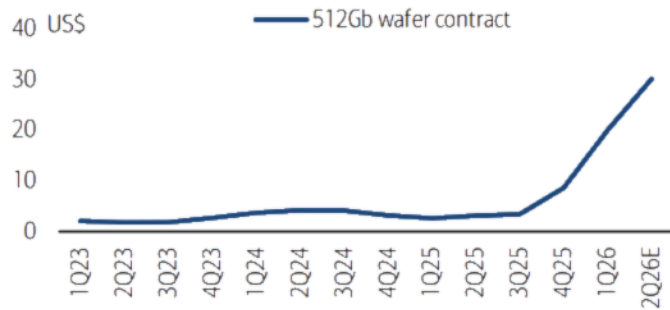
2Q26 is an estimate by TrendForce released as of 16<sup>th</sup> April

Source: TrendForce

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### Exhibit 10: NAND contract also hit all time high level; price expected to hit \$30 level in 2Q26

NAND wafer contract price - quarterly average trend



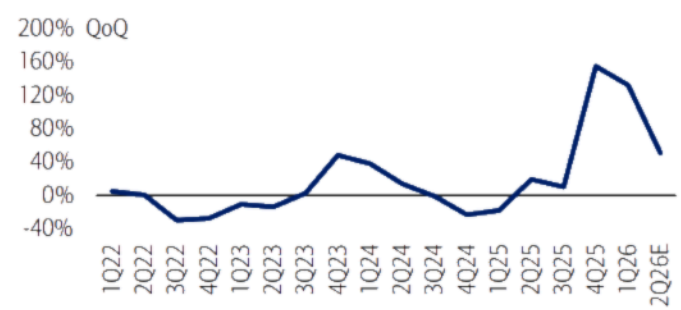
2Q26 is an estimate by TrendForce released as of 16<sup>th</sup> April

Source: DRAMeXchange, TrendForce

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### Exhibit 11: April contract price up strongly (+50%) even after +120-150% each in 4Q25/1Q26

NAND wafer contract price - QoQ change trend



2Q26 is an estimate by TrendForce released as of 16<sup>th</sup> April

Source: TrendForce

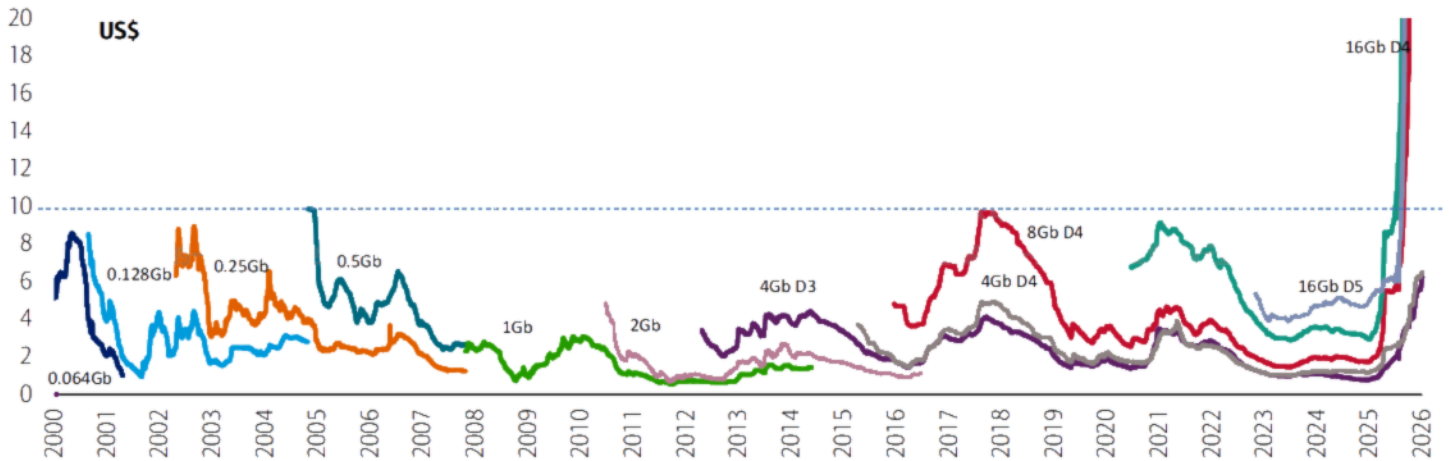
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## Memory spot/contract price trend

**Exhibit 12: DRAM spot price softened in March/April after an exceptionally strong rally from Sept-25 to Jan-2026. DRAM price hit the highest levels in the past 25 years as the current mainstream DRAM 16Gb DDR5 stood at US\$38 and 16Gb DDR4 at \$65 as chipmakers reallocated production to HBM and server-grade DRAM. Previous high level was hit in Oct-17, but it was only \$10 range.**

DRAM spot price – long-term trend (2000-2025)

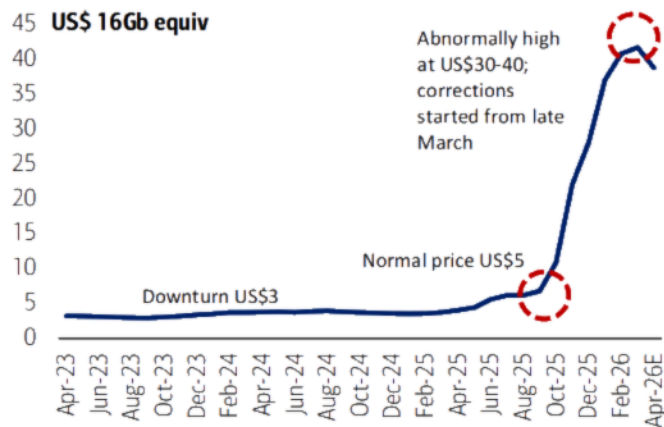


Source: DRAMeXchange

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**Exhibit 13: Abnormally high at US\$30-40/GB vs previous peaks of US\$10 range; thus 50%+ downside seen toward end-2026; corrections already started in late March**

DRAM spot price outlook - US\$/16Gb equiv

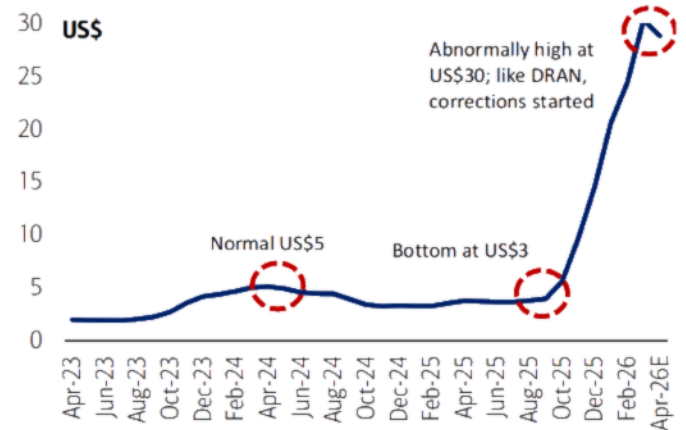


Source: DRAMeXchange, BofA Global Research estimates

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**Exhibit 14: Like DRAM, currently abnormally high, thus spot price can easily fall back in 2H26; corrections started in early April**

NAND spot price outlook - US\$/512Gb equiv

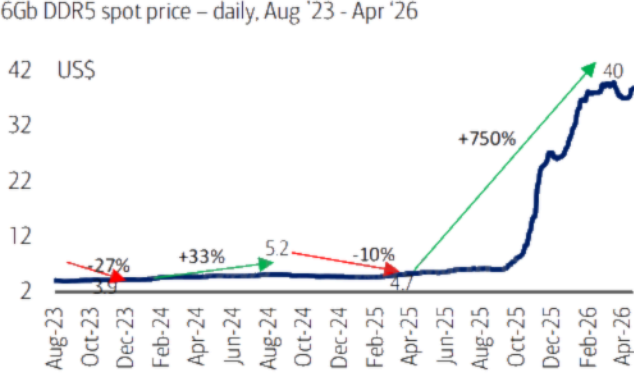


Source: DRAMeXchange, BofA Global Research estimates

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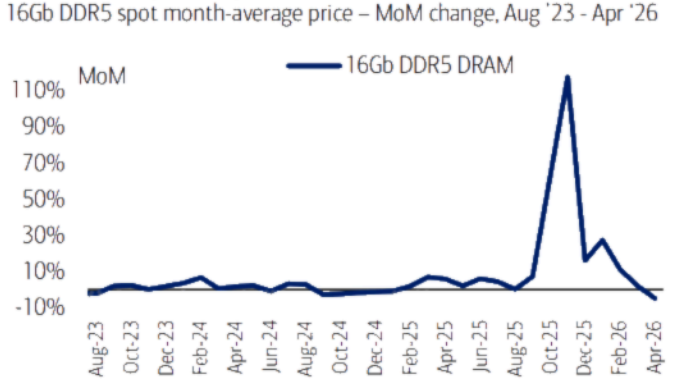
**Exhibit 15: Prices slightly up for two consecutive weeks in 2H-Apr vs correction in 1H-Apr - inching back to highest peak level of \$40; robust rally observed in Oct (+70%) and Nov (+60%) and Jan (+25%) and remained broadly muted in Feb/Mar**  
 16Gb DDR5 spot price – daily, Aug '23 - Apr '26



Source: DRAMeXchange

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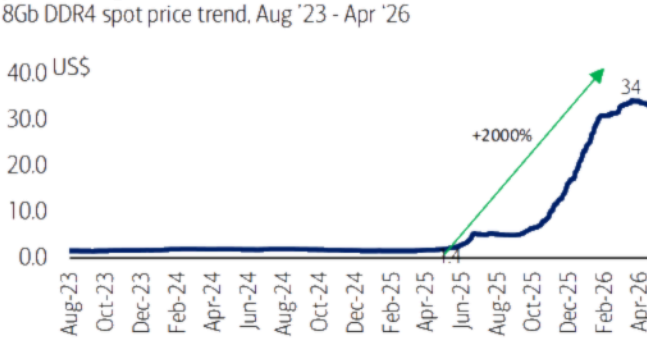
**Exhibit 16: MoM growth decelerated to +10% in Feb to broadly stable in Mar and slightly down in Apr, following Jan rally (25%) vs +60-120% range during Oct-Nov**  
 16Gb DDR5 spot month-average price – MoM change, Aug '23 - Apr '26



Source: DRAMeXchange

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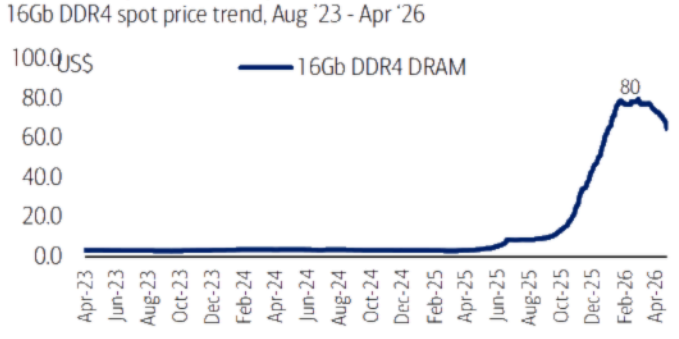
**Exhibit 17: 8Gb DDR4 stable in Mar/Apr but YoY rally significant due to big-3 chipmakers' production cut; price hit \$30 exceeding previous high levels of \$10 hit in Oct-17**  
 8Gb DDR4 spot price trend, Aug '23 - Apr '26



Source: DRAMeXchange

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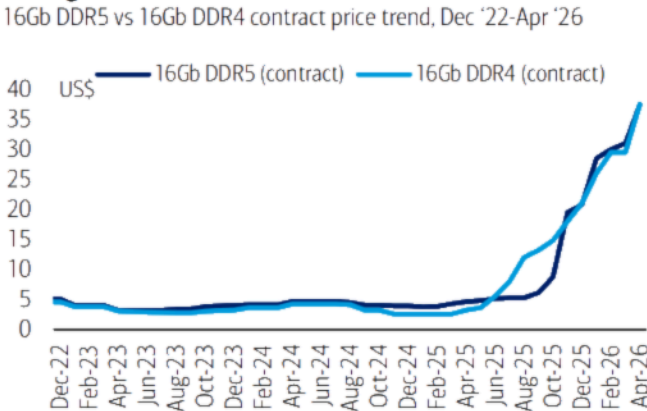
**Exhibit 18: Price sharply down in Apr after hitting peak level of \$80 in early Mar, price rallied +30-70% each in Sep to Dec, as well as in Jan (+20%); price overall up 2000%+ YoY vs Oct-25 low of \$3**  
 16Gb DDR4 spot price trend, Aug '23 - Apr '26



Source: DRAMeXchange

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**Exhibit 19: DDR4 and DDR5 contract prices are similar at US\$38 (16Gb) – DDR5 price premium no longer exists due to DDR4 shortage**  
 16Gb DDR5 vs 16Gb DDR4 contract price trend, Dec '22-Apr '26

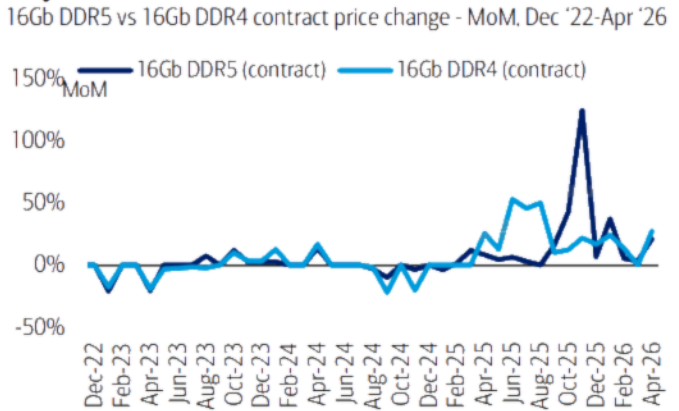


Apr-26 contract price is a forecast by TrendForce released on 16<sup>th</sup> Apr

Source: TrendForce

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**Exhibit 20: DDR5 and DDR4 contract prices likely up 20-25% MoM in Apr-26 vs broadly stable in Mar; price strong through 2H25 and early 2026**  
 16Gb DDR5 vs 16Gb DDR4 contract price change - MoM, Dec '22-Apr '26



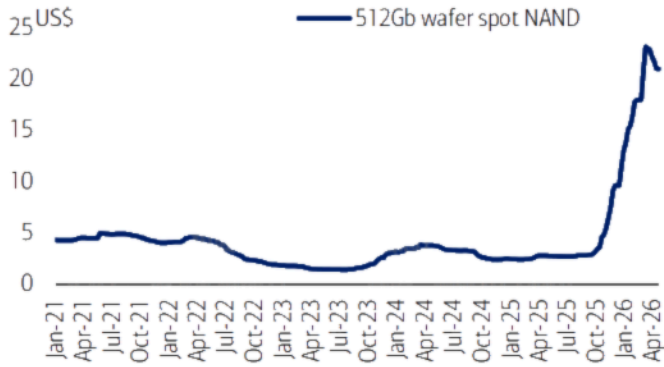
Apr-26 contract price is a forecast by TrendForce released on 16<sup>th</sup> Apr

Source: TrendForce

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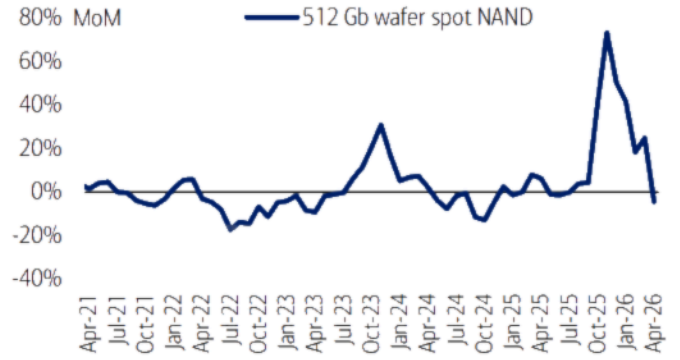
**Exhibit 21: NAND spot price slightly down in 2H-Mar and through-Apr but strong YTD rally observed – 4-5x higher than 2025 bottom**  
512Gb NAND wafer spot price – weekly, Jan '21 - Apr '26



Source: DRAMeXchange

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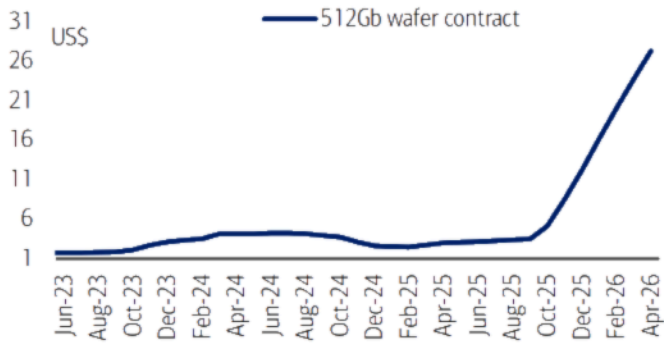
**Exhibit 22: Slightly corrected in Apr vs up +15-20% in Feb/ Mar-26 and up +40-70% MoM in Oct/Nov/Dec/Jan**  
512Gb NAND wafer spot month-average – MoM change, Apr'21 - Apr'26



Source: DRAMeXchange

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**Exhibit 23: Current contract price at ~\$25, around 10x vs Feb-25 bottom of \$2.5; prices significantly up in 4Q25 and through 1Q26**  
NAND wafer contract price trend, Jun '23-Apr '26

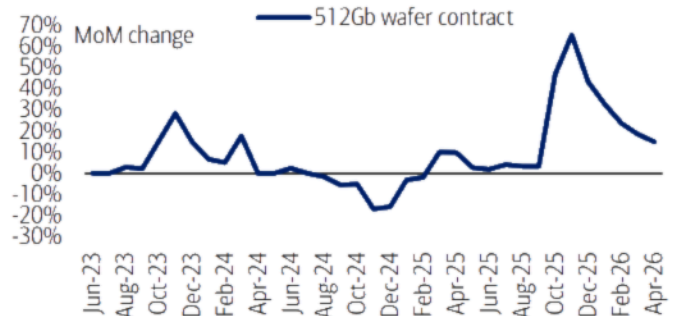


Apr-26 contract price is a forecast by TrendForce released on 16<sup>th</sup> Apr

Source: TrendForce, DRAMeXchange, BofA Global Research

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**Exhibit 24: Mar/Apr price likely up +15-20% similar to Jan/Feb-26 (up 25-30% MoM) even after Oct/Nov/Dec upturn (up 40-60% MoM)**  
MoM change of NAND contract price (512Gb wafer), Jun '23-Apr '26

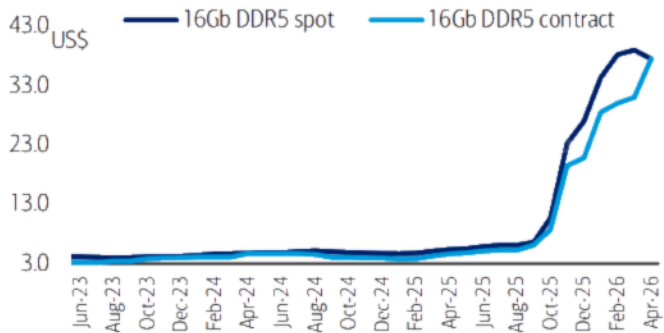


Apr-26 contract price is a forecast by TrendForce released on 16<sup>th</sup> Apr

Source: DRAMeXchange, TrendForce, BofA Global Research

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**Exhibit 25: 16Gb DDR5 spot and contract prices are in the range of US\$30-40 vs historical range of US\$3-5**  
16Gb DDR5 spot vs contract price trend (US\$), Jun '23-Apr '26

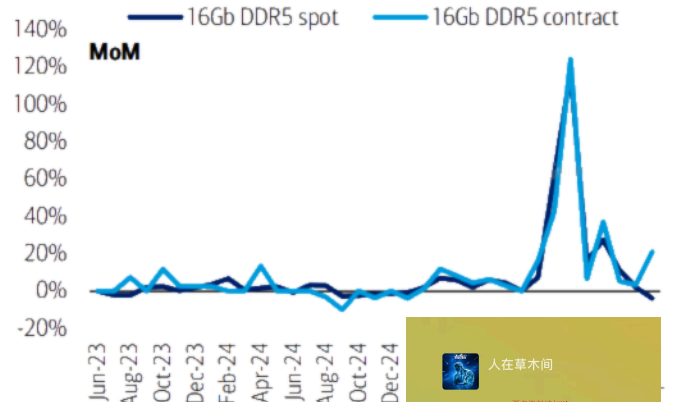


Apr-26 contract price is a forecast by TrendForce released on 16<sup>th</sup> Apr

Source: DRAMeXchange, TrendForce

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**Exhibit 26: Feb/Mar/Apr price rally muted vs Nov/Dec/Jan upturn**  
16Gb DDR5 spot vs contract price trend – MoM change, Jun '23-Apr '26



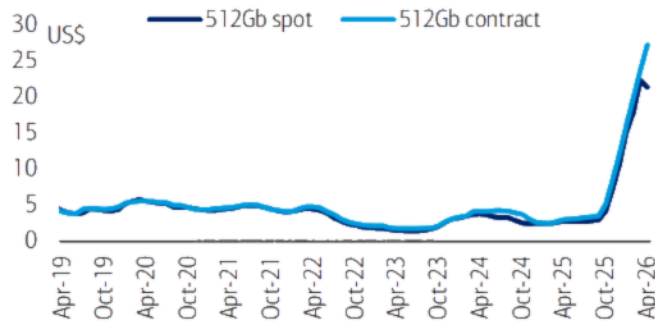
Apr-26 contract price is a forecast by TrendForce released on 16<sup>th</sup> Apr

Source: DRAMeXchange, TrendForce



**Exhibit 27: Current NAND spot and contract prices are a few times higher than 2025 summer level**

512Gb NAND wafer spot vs contract price trend (US\$), Apr '19 - Apr '26

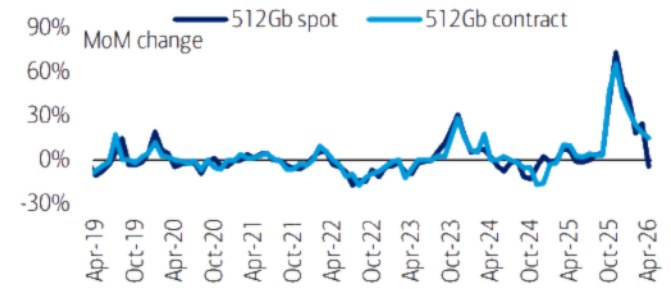


Apr-26 contract price is a forecast by TrendForce released on 16<sup>th</sup> Apr  
 Source: DRAMeXchange, TrendForce

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**Exhibit 28: NAND contract prices still strong (up 20-25% MoM in Feb - Apr) even after strong rally during Oct-25 - Jan-26 (up 40-50% per month); spot price slightly muted in Apr**

512Gb NAND spot vs contract price trend - MoM change, Apr '19 - Apr '26

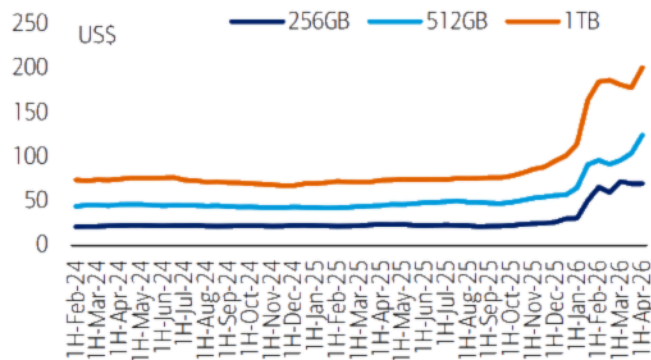


Apr-26 contract price is a forecast by TrendForce released on 16<sup>th</sup> Apr  
 Source: DRAMeXchange, TrendForce

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**Exhibit 29: SSD product prices sharply up in Apr (according to DRAMeXchange update) vs flat in Mar**

Client SSD price trend - mostly for PC (not server), Jan '24 - Apr '26

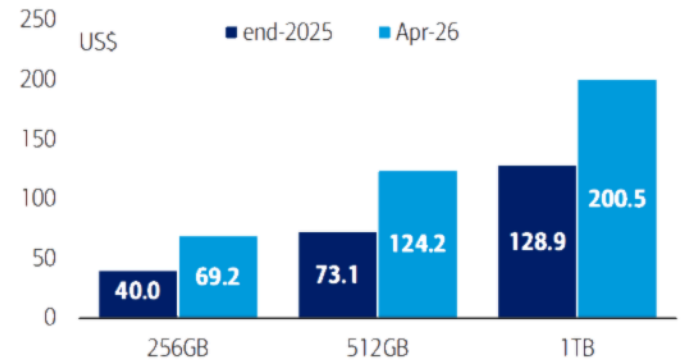


Note: SSD prices are as of 21 Apr 2026, reported by DRAMeXchange. TB = terabyte  
 Source: DRAMeXchange

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**Exhibit 30: April prices are 100% higher than end-2025 levels; 2025 price hike was 35-40% range**

Client SSD (for PC) price comparison - current vs. end-2025

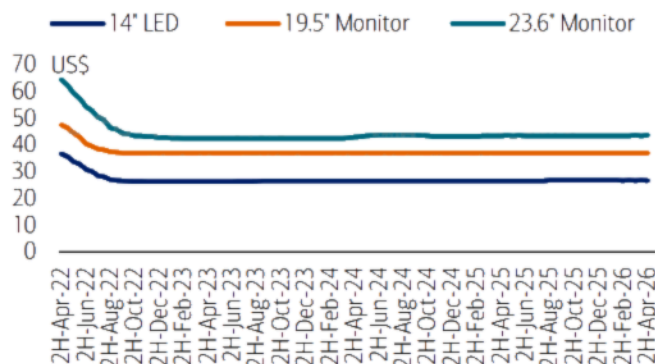


Note: SSD prices are as of 21 Apr 2026, reported by DRAMeXchange  
 Source: DRAMeXchange

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**Exhibit 31: Broadly stable YTD - more China dominant supply vs minimal from Korea**

LCD IT panel price trend - US\$/panel, Apr '22-Apr '26

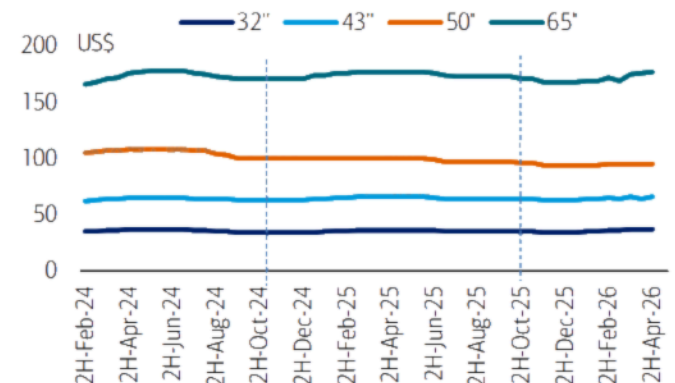


Note: Panel price update from WitsView as of 21 Apr 2026  
 Source: WitsView

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**Exhibit 32: Broadly slightly up in Jan/Feb/Mar/Apr vs flat in 2025; LCD supply more China-centric vs Korea's OLED**

LCD TV panel price trend - US\$/panel, Feb '24-Apr '26



Note: Panel price update from WitsView as of 21 Apr 2026  
 Source: WitsView

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## Valuation and stock performance

### Exhibit 33: Memory companies show very low P/E multiples despite recent solid stock price rebound vs very strong earnings momentum (exceptionally strong DRAM and NAND ASP in 1Q/2Q26)

Valuation comparison among memory and semiconductor supply chain stocks

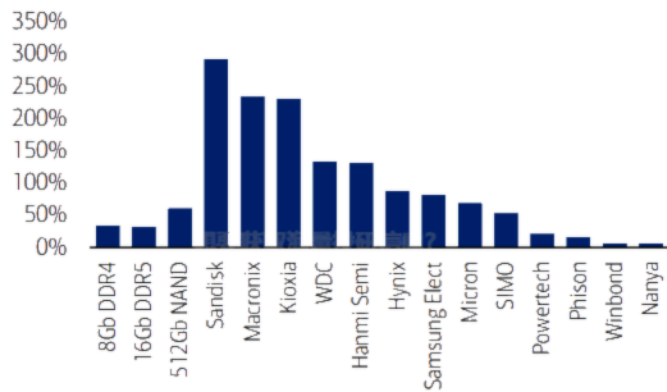
	Ticker	Rating	Price (Local)	Mcap (\$bn)	P/E			P/Book			EV/EBITDA		EV/Sales		ROE			Div. yield	
					FY25	FY26E	FY27E	FY25	FY26E	FY27E	FY26E	FY27E	FY26E	FY27E	FY25	FY26E	FY27E	FY26E	FY27E
<b>Memory/DRAM</b>																			
Samsung	SSNLF	B-1-7	222.500	866.6	30.9	6.2	5.8	3.2	2.2	1.7	3.3	3.1	1.9	1.8	10.8%	41.9%	32.0%	1.5%	2.4%
Micron	MU	C-1-7	481.72	543.3	58.1	8.7	6.2	10.0	4.7	2.6	6.8	4.9	4.9	3.7	18.8%	74.0%	54.4%	0.1%	0.1%
Nanya	NNYAF	B-1-7	206.00	22.5	106.4	5.4	5.1	4.1	2.3	1.7	3.2	3.0	2.3	2.0	3.9%	55.6%	39.2%	4.4%	4.4%
<b>Memory/NAND</b>																			
Kioxia	XIYUF	C-1-9	34,580.00	118.5	35.6	6.9	5.8	14.9	4.7	2.6	4.7	3.9	3.5	2.9	52.8%	103.5%	57.9%	0.0%	0.0%
Sandisk	SNDK	C-1-9	932.43	143.0	n/a	20.5	8.4	15.5	9.0	4.3	15.6	6.4	8.2	4.4	4.3%	55.7%	70.6%	0.0%	0.0%
Western Digital	WDC	C-1-7	403.12	136.7	n/a	42.9	27.1	25.7	13.7	9.3	26.8	17.5	10.8	8.4	22.5%	46.6%	45.7%	0.1%	0.1%
SIMO	SIMO	C-1-7	142.00	4.8	39.0	23.7	21.5	5.6	4.9	4.3	16.3	14.9	3.5	3.2	15.3%	22.7%	21.9%	1.7%	2.0%
Phison	PISNF	C-1-8	1,680.00	11.6	42.3	10.0	15.1	5.8	4.4	3.8	6.7	9.9	1.8	1.9	16.0%	53.1%	28.4%	5.1%	3.3%
<b>US/Taiwan semis</b>																			
NVIDIA	NVDA	C-1-7	199.64	4,851.3	43.9	24.6	18.6	31.6	16.4	10.2	20.1	15.4	13.5	10.5	94.3%	85.5%	64.8%	0.0%	0.0%
AMD	AMD	C-1-9	305.33	497.8	73.2	45.7	28.2	7.9	6.8	5.5	32.7	22.0	10.8	7.5	11.3%	16.1%	21.6%	0.0%	0.0%
Broadcom	AVGO	C-1-7	419.94	1,988.3	61.6	38.4	24.6	24.7	20.2	12.9	29.3	19.3	20.1	13.3	45.3%	59.9%	66.2%	0.6%	0.7%
Intel	INTC	C-3-9	66.78	335.3	155.3	64.2	42.3	2.7	2.4	2.3	16.1	12.6	5.3	4.7	1.7%	4.0%	5.7%	0.0%	0.0%
Arm	ARM	C-2-9	204.61	217.3	116.9	100.3	75.5	25.4	19.3	14.5	77.6	57.4	36.5	27.5	24.3%	22.1%	22.3%	0.0%	0.0%
Qualcomm	QCOM	B-3-7	133.95	142.9	11.1	12.1	11.9	6.7	6.1	5.3	10.3	10.6	3.5	3.5	56.0%	52.7%	45.7%	2.7%	2.7%
TSMC	TSMWF	B-1-7	2,185	1,796.4	33.0	22.1	17.1	10.5	7.6	5.6	14.1	11.1	10.2	8.0	35.4%	39.8%	37.6%	1.1%	1.1%
MediaTek	MDTKF	B-1-7	2,435	123.8	36.8	47.4	23.1	9.7	9.3	7.0	34.9	18.0	6.2	4.1	26.4%	20.0%	34.4%	1.7%	3.4%
<b>Equipment</b>																			
ASML	ASMLF	B-1-7	1,223.80	556.3	49.4	37.9	28.3	24.2	20.0	17.2	30.2	23.2	12.1	10.0	50.6%	57.6%	64.6%	0.7%	0.9%
AMAT	AMAT	B-1-7	403.91	320.5	42.9	37.1	28.5	15.7	11.3	8.1	31.6	24.5	10.4	8.6	38.6%	35.5%	32.9%	0.5%	0.6%
Lam	LRCX	C-1-7	258.56	323.3	62.6	45.8	34.2	32.7	28.2	20.3	37.5	28.1	14.0	11.0	57.9%	66.9%	68.9%	0.4%	0.5%
TEL	TOELF	C-1-7	45,850	135.7	37.7	33.9	27.4	10.3	8.8	7.5	22.8	18.8	7.6	6.5	28.6%	27.9%	29.4%	1.5%	1.8%
Hanmi Semi	HNSIF	C-1-7	291,000	19.0	129.9	93.2	49.8	40.5	30.6	20.4	69.3	36.8	33.9	20.1	34.8%	37.2%	49.0%	0.4%	0.7%
BESI	BESVF	B-1-7	241.80	23.0	143.4	56.5	34.0	45.8	33.7	24.9	42.9	27.1	19.3	13.7	29.2%	69.0%	84.3%	1.7%	2.9%
ASMPT	ASMVF	C-1-7	154.50	8.2	60.1	38.4	28.1	3.7	3.5	3.3	21.7	16.6	3.3	2.7	6.5%	9.4%	12.1%	1.3%	1.8%

Source: Company reports, BofA Global Research estimates, Mcap = market capitalization, ROE = return on equity, Div = dividend.

BofA GLOBAL RESEARCH

### Exhibit 34: NAND/HDD companies relatively outperformed followed by DRAM companies

Memory companies – 2026 YTD stock performance comparison

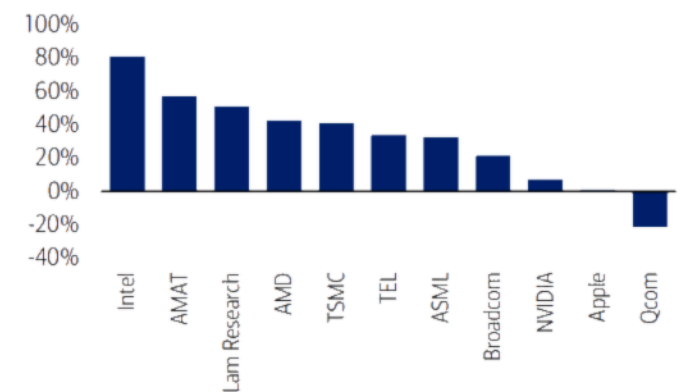


Source: Bloomberg, DRAMeXchange

BofA GLOBAL RESEARCH

### Exhibit 35: Semis equipment companies, Intel, TSMC and AMD outperformed NVIDIA/Apple/QCOM

Global major tech companies – 2026 YTD stock performance comparison



Source: Bloomberg

BofA GLOBAL RESEARCH



**Other stocks mentioned**

Prices and ratings for stocks mentioned in this report

BofA Ticker	Bloomberg ticker	Company name	Price	Rating
<b>XLGQF</b>	011070 KS	LG Innotek	W 492500	B-1-7
<b>SMSGF</b>	009150 KS	SEMCO	W 770000	B-1-7

Source: BofA Global Research

**Price objective basis & risk****LG Innotek (XLGQF)**

Our PO of W750,000 is derived from 18x 2026-27E P/E. This is higher than the previous peak cycle level (15x, year-high share-price-based P/E during 2020-25) due to very strong earnings outlook (not only Apple business, but also new semis substrate). The reason we still use 2026E EPS is considering the Apple business (still quarterly based camera module sourcing) vs more long-term contract-based substrate business. Thus, we use both 2026-27E EPS in our valuation.

Upside risks are stronger iPhone demand or mix improvement with more expensive camera modules, and newly growing semiconductor substrate and auto-parts businesses (rise in new orders).

Downside risks are also mostly related to Apple business (weaker iPhone demand, significant market-share loss, and potential failure to meet iPhone 18 spec upgrade).

**Samsung Electro-Mechanics (SMSGF)**

Our PO of W1,100,000 is derived from 27x 2027-28E P/E (more long-term-based business model seen coupled with US Big Tech companies). This is 50%+ higher than long-term historical average due to the above-trend EPS growth outlook (50%+ CAGR in 2026-28). In fact, P/E hit 30x in 2023 and 2025 once the share price reached a year-high. Since 2026-27 earnings are expected to exceed 2023/25 levels, high-20x or near-30x P/E should be established in 2026, in our view.

Upside risk to our PO is mostly related to the unexpected price rally of MLCC or stronger new orders for semis substrates. Also, successful commercialization of glass substrate (mainly for AI server chip) could offer stronger growth opportunity.

Downside risks should be weaker captive demand (Samsung Electronics' semis and smartphone) and Japan/Taiwan competitors' aggressive price cut (MLCC, substrates, camera modules).

**Analyst Certification**

We, Simon Woo, CFA and Matt Shin, hereby certify that the views each of us has expressed in this research report accurately reflect each of our respective personal views about the subject securities and issuers. We also certify that no part of our respective compensation was, is, or will be, directly or indirectly, related to the specific recommendations or view expressed in this research report.



## APR - Technology Hardware Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
<b>BUY</b>	AAC Technologies	AACAF	2018 HK	Katherine Zhu
	Asia Vital Components	AVMPF	3017 TT	Doris Kao
	BizLink	BIZLF	3665 TT	Doris Kao
	BOE Technology Group Co., Ltd	XCJQF	000725 CH	Brad Lin
	Chenbro	CEOMF	8210 TT	Cindy Lo
	Cowell	CWLLF	1415 HK	Katherine Zhu
	Crystal-Optech	XMKAF	002273 CH	Katherine Zhu
	Delta Electronics Inc.	DLTEF	2308 TT	Robert Cheng
	Duksan Neolux	XDSXF	213420 KS	Simon Woo, CFA
	Dynamic Holding	XLHCF	3715 TT	Mike Yang
	E Ink Holdings	PVWIF	8069 TT	Doris Kao
	Elite Material	ETMCF	2383 TT	Mike Yang
	Foxconn Industrial Internet	XDAZF	601138 CH	Robert Cheng
	Goertek	XGKCF	002241 CH	Katherine Zhu
	Gold Circuit	GOCCF	2368 TT	Doris Kao
	Hon Hai Precision Industry	HNHAF	2317 TT	Robert Cheng
	ISU Petasys	IPTYF	007660 KS	Matt Shin
	Jentech	XVFSF	3653 TT	Doris Kao
	King Slide	KGSLF	2059 TT	Doris Kao
	Kinsus	KNSUF	3189 TT	Mike Yang
	Lens Tech	XLTVF	6613 HK	Katherine Zhu
	LG CNS	XLGLF	064400 KS	Simon Woo, CFA
	LG Electronics	LGEAF	066570 KS	Simon Woo, CFA
	LG Innotek	XLGQF	011070 KS	Simon Woo, CFA
	Lotes	ZYZTF	3533 TT	Doris Kao
	Luxshare	XNJQF	002475 CH	Robert Cheng
	NYPFB	NANYF	8046 TT	Mike Yang
	Quanta Computer	QUCPF	2382 TT	Robert Cheng
	Samsung Electro-Mechanics	SMSGF	009150 KS	Simon Woo, CFA
	Samsung SDS	XWPBF	018260 KS	Simon Woo, CFA
	Shennan Circuits	XAMKF	002916 CH	Katherine Zhu
	Taiwan Union Technology Corporation	TWUNF	6274 TT	Mike Yang
	Unimicron	UMCRF	3037 TT	Mike Yang
	Universal Display	OLED	OLED US	Simon Woo, CFA
	Victory Giant	XENEF	300476 CH	Katherine Zhu
	Wistron	WICOF	3231 TT	Doris Kao
	Wiwynn	XWIQF	6669 TT	Robert Cheng
	Xiaomi Corporation	XIACF	1810 HK	Robert Cheng
	Yageo	YGEQF	2327 TT	Robert Cheng
	Zhen Ding Tech	XFAGF	4958 TT	Doris Kao
	Zhongji Innolight	XZICF	300308 CH	Katherine Zhu
	ZTE Corporation	SHZZF	000063 CH	Katherine Zhu
	ZTE Corporation	ZTCOF	763 HK	Katherine Zhu
<b>NEUTRAL</b>	Advantech	ADTEF	2395 TT	Robert Cheng
	Asustek	AKCPF	2357 TT	Robert Cheng
	AU Optronics	AUOTF	2409 TT	Brad Lin
	AU Optronics	AUOTY	AUOTY US	Brad Lin
	Auras Technology	AUTCF	3324 TT	Doris Kao
	BYD Electronic	BYDIF	285 HK	Katherine Zhu
	DS Precision	XBASF	002384 CH	Katherine Zhu
	Innolux Corporation	CMLXY	3481 TT	Brad Lin
	Largan Precision	LGANF	3008 TT	Robert Cheng
	Lenovo Group	LNVGF	992 HK	Robert Cheng
	Lenovo Group	LNVGY	LNVGY US	Robert Cheng
	Lite-On Tech	LOTZF	2301 TT	Doris Kao
	Sunny Optical	SNPTF	2382 HK	Katherine Zhu
	TCL Technology Group Corp	XTOOF	000100 CH	Brad Lin
<b>UNDERPERFORM</b>	Acer	ASIYF	2353 TT	Robert Cheng
	Catcher Tech	CHCTF	2474 TT	Robert Cheng
	Compal Electron	XLCPF	2324 TT	Doris Kao
	Delta Electronics (Thailand)	XLETF	DELTA TB	Chotipat Leksakul



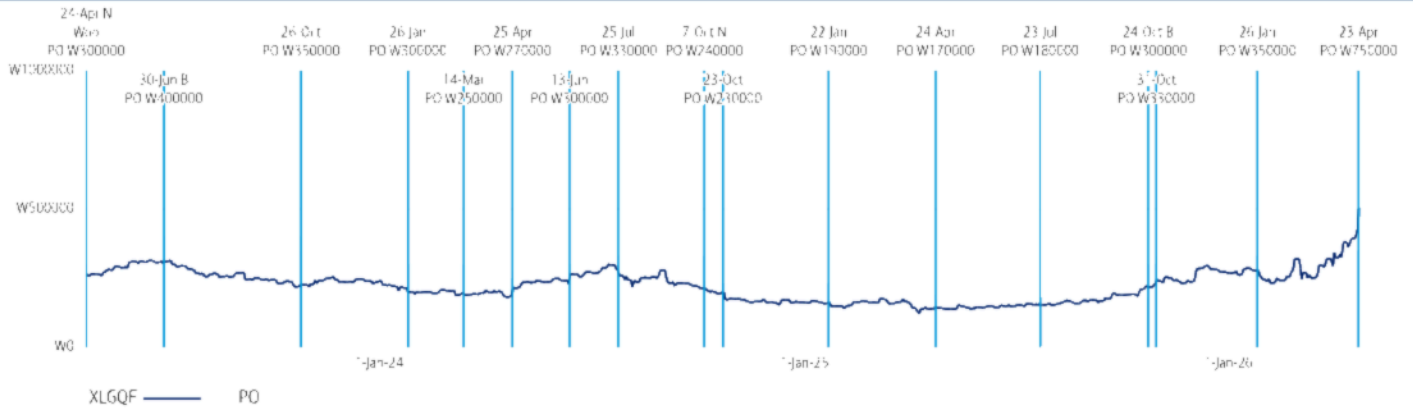
**APR - Technology Hardware Coverage Cluster**

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
	Everwin Precision	XSHZF	300115 CH	Katherine Zhu
	Genius Electronic Optical	GNSEF	3406 TT	Robert Cheng
	Lens Tech	XLTGF	300433 CH	Katherine Zhu
	LG Display	LPHLF	034220 KS	Simon Woo, CFA
	LG Display-ADR	LPL	LPL US	Simon Woo, CFA
	Lianchuang Electronic	XWOF	002036 CH	Katherine Zhu
	Pegatron	PGTRF	4938 TT	Robert Cheng
	Samsung SDI	SSDIF	006400 KS	Simon Woo, CFA
	Sanan Opto	XEQYF	600703 CH	Katherine Zhu
	Seoul Semiconductor	SLSOF	046890 KS	Simon Woo, CFA
	Shengyi	DGUNF	600183 CH	Mike Yang
	Sunway Communications	XWSVF	300136 CH	Katherine Zhu
	Tianma	XVZLF	000050 CH	Brad Lin
	Transsion	XCINF	688036 CH	Robert Cheng

# Disclosures

## Important Disclosures

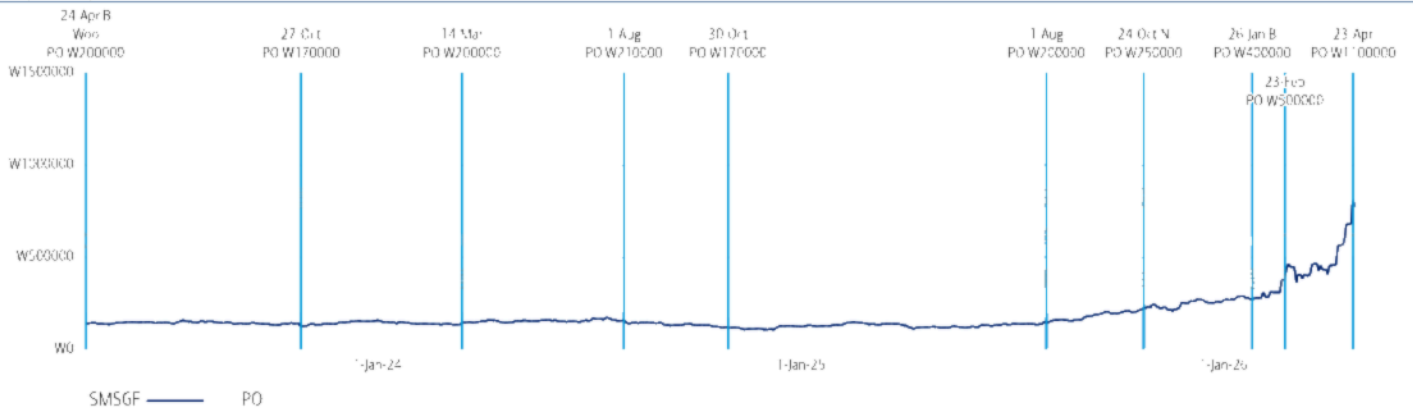
### LG Innotek (XLGQF) Price Chart



B Buy, N Neutral, U Underperform, PO Price Objective, NA No longer valid, NR No Rating

The Investment Opinion System is contained at the end of the report under the heading "Fundamental Equity Opinion Key". Dark grey shading indicates the security is restricted with the opinion suspended. Medium grey shading indicates the security is under review with the opinion withdrawn. Light grey shading indicates the security is not covered. Chart is current as of a date no more than one trading day prior to the date of the report.

### SEMCO (SMSGF) Price Chart



B Buy, N Neutral, U Underperform, PO Price Objective, NA No longer valid, NR No Rating

The Investment Opinion System is contained at the end of the report under the heading "Fundamental Equity Opinion Key". Dark grey shading indicates the security is restricted with the opinion suspended. Medium grey shading indicates the security is under review with the opinion withdrawn. Light grey shading indicates the security is not covered. Chart is current as of a date no more than one trading day prior to the date of the report.

