

Mirae Asset Securities Co., Ltd.

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000660 KS · Semiconductors

SK Hynix

A new beginning

(Maintain)

Buy

 Target price
W173,000 ▲

 Upside
22.3%

 Current price (12/28/23)
W141,500

KOSPI	2,655.28	Market cap (Wbn)	103,012	Shares outstanding (mn)	728	Foreign ownership (%)	53.1
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Report summary

Memory chip supply/demand outlook

In 2024, we forecast PC, smartphone, and server shipments to climb 3.6%, 3%, and 2.1% YoY, respectively. We expect memory prices to rise rapidly, given the effects of supply cuts/reduced utilization in 2023 and a projected demand recovery in 1H24.

4Q23 and 2024 earnings forecasts

We expect SK Hynix to narrow its operating loss to W252bn in 4Q23 and swing to an operating profit of W10tr in 2024, slightly above market expectations. Profit growth should be driven by a recovery in the conventional DRAM market.

P/B could break above upper end of historical range

We maintain our Buy rating on SK Hynix and raise our target price by 15% to W173,000 (from W150,000), applying a target P/B of 2.0x (vs. 1.8x previously) to our 2024F BPS of W86,290.

Key data

Price performance



Earnings and valuation metrics

(Dec.)	2021	2022	2023F	2024F	2025F
Revenue (Wbn)	42,998	44,622	32,172	51,321	63,046
OP (Wbn)	12,410	6,809	-8,329	9,995	17,543
OP margin (%)	28.9	15.3	-25.9	19.5	27.8
NP (Wbn)	9,602	2,230	-8,235	6,859	13,168
EPS (W)	13,190	3,063	-11,312	9,422	18,088
ROE (%)	16.8	3.6	-14.0	11.9	19.7
P/E (x)	9.9	24.5	-	15.0	7.8
P/B (x)	1.5	0.8	1.8	1.6	1.4
Dividend yield (%)	1.2	1.6	0.8	0.8	0.8

Notes: Under consolidated K-IFRS; NP is attributable to owners of the parent
 Source: Company data, Mirae Asset Securities Research estimates

Industry trends and earnings forecasts

Memory chip supply/demand outlook

IT device demand is likely to grow in 2024 following a two-year slump, with a number of IT parts makers recently presenting upbeat guidance. Taking into account the latest market research forecasts for memory supply/demand, we forecast PC, smartphone, and server shipments to climb 3.6%, 3%, and 2.1% YoY, respectively, in 2024 (broadly in line with our forecasts from last month).

Based on the above, we estimate 2024 bit demand growth at 14.9% for DRAM and 14.7% for NAND. SK Hynix has previously guided bit shipment growth in the high teens for both DRAM and NAND, which was based on the assumption of a low base in 2023. However, with demand showing signs of recovery in 2H23, we believe 2023 forecasts should be raised, resulting in slightly lower 2024 growth forecasts.

On the supply side, bit production growth is estimated at 20.3% for DRAM and 12.1% for NAND. While DRAM production growth may look high relative to bit demand growth, we note that bit production growth entered negative territory (-5.8%) in 2023 for the first time since 2015. Thus, actual bit supply growth (after stockpiling) is unlikely to surpass bit demand growth.

In 2024, we expect memory prices to rise rapidly, given the effects of supply cuts/reduced utilization in 2023 and a projected demand recovery in 1H24. Based on recent contract price forecasts, the DDR5 PC DRAM (16Gb) price is projected to jump 16.4% in 4Q23, 13.6% in 1Q24, and 4.9% in 2Q24.

4Q23 and 2024 earnings forecasts

For 4Q23, we expect SK Hynix to report revenue of W10.7tr (+18.2% QoQ) and an operating loss of W252bn (narrower loss). By unit, we forecast an operating profit of W1.3tr for DRAM and an operating loss of W1.4tr for NAND. We estimate DRAM and NAND bit growth at 9.0% and -10.0%, respectively. We expect ASP to rise 14.0% for DRAM and 12.0% for NAND.

For 2024, we look for revenue of W51.3tr (+59.5% YoY) and operating profit of W10tr (turning to black), slightly above recent market expectations, driven by a recovery in the conventional DRAM market. While growth in graphics DRAM, including high-bandwidth memory (HBM), will likely continue into 2024, we expect conventional DRAM prices to rise more sharply (+41%) than graphics DRAM prices (+30.9%).

Valuation

P/B could break above upper end of historical range

We maintain our Buy rating on SK Hynix and raise our target price by 15% to W173,000 (from W150,000). Our target price is based on our 2024F BPS of W86,290, up 4% from our 2023F BPS of W82,787.

We also raise our target P/B from 1.8x to 2.0x, given that the lower end of the stock's valuation band at the beginning of the current cycle was approximately 10% higher than in the previous cycle. We attribute this to: 1) the industry's attempt to control semiconductor supply by adjusting utilization rates (the first such attempt since the market became an oligopoly); and 2) geopolitical factors affecting semiconductors.

During the current cycle, we expect the stock to break above the upper end of its historical range. Not only has the lower end of the valuation band moved upward despite challenging macro conditions, but the company also has a number of tailwinds, including rapid growth in demand for generative AI-optimized chips (e.g., HBM). Furthermore, demand for conventional memory chips is also expected to pick up, contributing to significant earnings growth. In the current cycle, chipmakers will likely benefit from lessons learned related to demand and risk management, allowing them to avoid suffering annual losses again in the near future. All in all, we expect earnings stability to strengthen further in the medium to long term.

Table 1. Quarterly and annual earnings

(Wbn)

	1Q23	2Q23	3Q23	4Q23F	1Q24F	2Q24F	3Q24F	4Q24F	2021	2022	2023F	2024F	2025F
Revenue	5,088	7,306	9,066	10,712	11,489	13,048	13,696	13,089	42,998	44,622	32,172	51,321	63,046
QoQ/YoY (%)	-33.7	43.6	24.1	18.2	7.3	13.6	5.0	-4.4	34.8	3.8	-27.9	59.5	22.8
DRAM	2,951	4,530	6,074	7,645	8,360	9,300	9,472	8,524	30,820	28,372	21,200	35,656	43,742
NAND	1,679	2,265	2,357	2,407	2,535	3,065	3,473	3,790	10,270	14,230	8,708	12,863	16,016
OP	-3,402	-2,882	-1,792	-252	1,297	2,137	3,179	3,382	12,410	6,809	-8,329	9,995	17,543
QoQ/YoY (%)	RR	RR	RR	RR	TTB	64.9	48.7	6.4	147.6	-45.1	TTR	TTB	75.5
DRAM	-1,476	-91	607	1,264	2,470	3,181	3,794	3,780	12,531	9,478	305	13,226	19,174
NAND	-1,835	-2,689	-2,114	-1,384	-1,054	-907	-465	-243	143	-2,092	-8,023	-2,671	-973
OP margin (%)	-66.9	-39.4	-19.8	-2.4	11.3	16.4	23.2	25.8	28.9	15.3	-25.9	19.5	27.8
DRAM	-50.0	-2.0	10.0	16.5	29.5	34.2	40.1	44.3	40.7	33.4	1.4	37.1	43.8
NAND	-109.3	-118.7	-89.7	-57.5	-41.6	-29.6	-13.4	-6.4	1.4	-14.7	-92.1	-20.8	-6.1
EBITDA	155	612	1,541	2,961	4,471	5,267	6,290	6,491	23,057	20,945	5,268	22,519	30,139
QoQ/YoY (%)	-91.4	295.7	151.9	92.2	51.0	17.8	19.4	3.2	56.0	-9.2	-74.8	327.5	33.8
Pretax profit	-3,525	-3,788	-2,470	-458	952	1,792	2,325	2,520	13,416	4,003	-10,241	7,590	14,063
QoQ/YoY (%)	RR	RR	RR	RR	TTB	88.3	29.7	8.4	115.1	-70.2	TTR	TTB	85.3
NP	-2,580	-2,991	-2,184	-401	758	1,341	1,671	1,812	9,602	2,230	-8,156	5,582	9,886
QoQ/YoY (%)	RR	RR	RR	RR	TTB	76.9	24.6	8.4	101.9	-76.8	TTR	TTB	77.1

Source: Company data, Mirae Asset Securities Research estimates

Table 2. Assumptions by product

(Wbn)

	1Q23	2Q23	3Q23	4Q23F	1Q24F	2Q24F	3Q24F	4Q24F	2021	2022	2023F	2024F	2025F
DRAM													
Bit shipments (bn GB)	12,088	16,440	19,892	21,683	21,249	21,887	21,230	19,107	58,448	59,389	70,103	83,472	95,827
Bit growth (%)	-18.0	36.0	21.0	9.0	-2.0	3.0	-3.0	-10.0	20.0	1.6	18.0	19.1	14.8
ASP (US\$/GB)	0.19	0.21	0.23	0.27	0.30	0.32	0.34	0.34	0.46	0.37	0.23	0.32	0.35
ASP chg. (%)	-16.4	9.4	11.1	14.0	12.0	8.0	5.0	0.0	14.2	-18.7	-38.4	40.1	8.8
NAND													
Bit shipments (bn GB)	27,344	40,469	42,897	38,607	37,449	42,317	46,549	49,808	85,885	126,757	149,317	176,123	207,345
Bit growth (%)	-16.0	48.0	6.0	-10.0	-3.0	13.0	10.0	7.0	57.0	47.6	17.8	18.0	17.7
ASP (US\$/GB)	0.05	0.04	0.04	0.05	0.05	0.05	0.06	0.06	0.10	0.09	0.04	0.06	0.06
ASP chg. (%)	-10.2	-11.7	-1.5	12.0	9.0	7.0	3.0	2.0	-11.2	-15.6	-49.3	23.9	7.7

Source: Company data, Mirae Asset Securities Research estimates

Table 3. Earnings forecast revisions

(Wbn)

	Previous			Revised			Chg. (% , %p)		
	4Q23F	2023F	2024F	4Q23F	2023F	2024F	4Q23F	2023F	2024F
Revenue	7,624	25,026	40,356	10,712	32,172	51,321	40.5	28.6	27.2
QoQ/YoY (%)	18.6	-43.9	61.3	18.2	-27.9	59.5	-0.4	16.0	-1.8
DRAM	4,563	14,257	24,998	7,645	21,200	35,656	67.6	48.7	42.6
NAND	2,328	8,148	11,861	2,407	8,708	12,863	3.4	6.9	8.4
OP	-486	-8,601	7,861	-252	-8,329	9,995	Smaller loss	Smaller loss	27.1
QoQ/YoY (%)	RR	TTR	TTB	RR	TTR	TTB			
DRAM	549	-2,847	7,788	1,264	305	13,226	130.2	-110.7	69.8
NAND	-1,037	-5,498	299	-1,384	-8,023	-2,671	33.5	45.9	-993.2
OP margin (%)	-6.4	-34.4	19.5	-2.4	-25.9	19.5	4.0	8.5	0.0
DRAM	12.0	-20.0	31.2	16.5	1.4	37.1	4.5	21.4	5.9
NAND	-44.6	-67.5	2.5	-57.5	-92.1	-20.8	-12.9	-24.6	-23.3
EBITDA	2,900	5,479	21,334	2,961	5,268	22,519	2.1	-3.9	5.6
QoQ/YoY (%)	115.7	-73.9	289.3	92.2	-74.8	327.5	-23.5	-0.9	38.2
DRAM									
Bit shipments (bn GB)	21,905	67,705	86,995	21,683	70,103	83,472			
Bit growth (%)	20.0	13.2	28.5	9.0	18.0	19.1	-11.0	4.8	-9.4
ASP (US\$/GB)	0.16	0.16	0.22	0.27	0.23	0.32			
ASP chg. (%)	5.0	-56.9	37.8	14.0	-38.4	40.1	9.0	18.5	2.3
NAND									
Bit shipments (bn GB)	49,891	165,309	237,782	38,607	149,317	176,123			
Bit growth (%)	11.2	13.6	43.8	-10.0	17.8	18.0	-21.2	4.2	-25.8
ASP (US\$/GB)	0.04	0.04	0.04	0.05	0.04	0.06			
ASP change (%)	-1.8	-49.1	2.1	12.0	-49.3	23.9	13.8	-0.2	21.8

Source: Mirae Asset Securities Research estimates

Table 4. Valuation

		Value	Details
2024F BPS		₩86,290	
P/B - Current cycle	Target	2.0x	The upper end of SK Hynix's P/B band is likely to rise, as: 1) new demand from generative AI is taking shape; 2) demand for core applications is expected to grow rapidly through 2025; and 3) the lower end of the P/B band has leveled up despite unfavorable macro conditions.
	Lower	1.0x	The lower end of the P/B band has risen amid: 1) supply cuts; 2) geopolitical issues related to Taiwan; and 3) China's Micron ban.
P/B - 2019-21 cycle	Upper	1.6x	The upper end of the P/B band rose due to: 1) expanded liquidity in the market; and 2) supply chain issues.
	Lower	0.9x	The lower end of the P/B band rose due to: 1) growing demand from new applications (servers); and 2) major countries' increased strategic focus on semiconductors.
P/B - 2016-17 cycle	Upper	1.4x	
	Lower	0.6x	
TP		₩172,580	₩173,000

Source: Mirae Asset Securities Research estimates

SK Hynix (000660 KS)

Income statement (summarized)

(Wbn)	2022	2023F	2024F	2025F
Revenue	44,622	32,172	51,321	63,046
Cost of revenue	28,994	33,482	33,608	36,557
GP	15,628	-1,310	17,713	26,489
SG&A expenses	8,818	7,019	7,719	8,946
OP (adj.)	6,809	-8,329	9,995	17,543
OP	6,809	-8,329	9,995	17,543
Non-operating profit	-2,806	-2,045	-1,643	-1,501
Net financial income	-444	-1,262	-1,661	-1,520
Net income from associates	131	19	0	0
Pretax profit	4,003	-10,374	8,352	16,042
Income tax	1,761	-2,136	1,490	2,868
Profit from continuing operations	2,242	-8,238	6,863	13,174
Profit from discontinued operations	0	0	0	0
NP	2,242	-8,238	6,863	13,174
Attributable to owners	2,230	-8,235	6,859	13,168
Attributable to minority interests	12	-3	3	6
Total comprehensive income	2,822	-7,965	6,863	13,174
Attributable to owners	2,802	-7,960	6,859	13,168
Attributable to minority interests	20	-4	3	6
EBITDA	20,961	5,307	22,519	30,139
FCF	-4,230	-5,421	5,294	8,691
EBITDA margin (%)	47.0	16.5	43.9	47.8
OP margin (%)	15.3	-25.9	19.5	27.8
Net margin (%)	5.0	-25.6	13.4	20.9

Balance sheet (summarized)

(Wbn)	2022	2023F	2024F	2025F
Current assets	28,733	39,986	59,910	75,986
Cash & equivalents	4,977	7,341	20,222	25,157
AR & other receivables	5,381	7,513	9,179	11,815
Inventory	15,665	21,872	26,724	34,398
Other current assets	2,710	3,260	3,785	4,616
Non-current assets	75,138	71,977	72,066	74,210
Investments in associates	1,353	1,889	2,308	2,971
PP&E	60,229	53,854	53,924	55,653
Intangible assets	3,512	3,407	2,885	2,442
Total assets	103,872	111,963	131,976	150,195
Current liabilities	19,844	29,072	35,919	40,004
AP & other payables	7,632	10,656	13,020	16,758
Short-term financial liabilities	7,705	12,123	15,210	13,348
Other current liabilities	4,507	6,293	7,689	9,898
Non-current liabilities	20,737	28,346	35,475	37,261
Long-term financial liabilities	17,092	23,256	29,256	29,256
Other non-current liabilities	3,645	5,090	6,219	8,005
Total liabilities	40,581	57,418	71,395	77,265
Equity attributable to owners	63,267	54,516	60,550	72,892
Capital stock	3,658	3,658	3,658	3,658
Capital surplus	4,336	4,346	4,346	4,346
Retained earnings	56,685	47,601	53,635	65,978
Minority interests	24	29	32	38
Shareholders' equity	63,291	54,545	60,582	72,930

Cash flow statement (summarized)

(Wbn)	2022	2023F	2024F	2025F
Operating cash flow	14,781	4,084	17,365	22,573
NP	2,242	-8,238	6,863	13,174
Non-cash income/expenses	19,532	13,631	15,638	16,946
Depreciation	13,372	13,062	12,002	12,153
Amortization	780	575	522	442
Other	5,380	-6	3,114	4,351
Chg. in working capital	-2,690	866	-2,021	-3,197
Chg. in AR & other receivables	3,342	-1,741	-1,606	-2,541
Chg. in inventory	-6,572	-5,985	-4,852	-7,674
Chg. in AP & other payables	141	1,096	677	1,071
Income tax	-3,979	-1,103	-1,490	-2,868
Cash flow from investing activities	-17,884	-8,711	-12,327	-14,287
Chg. in PP&E	-18,687	-8,117	-12,072	-13,882
Chg. in intangible assets	-738	-352	0	0
Chg. in financial assets	43	-327	-256	-405
Other	1,498	85	1	0
Cash flow from financing activities	2,822	7,347	8,261	-2,688
Chg. in financial liabilities	5,642	10,582	9,087	-1,862
Chg. in equity	2	10	0	0
Dividends	-1,681	-826	-826	-826
Other	-1,141	-2,419	0	0
Chg. in cash	-81	2,364	12,880	4,935
Beginning balance	5,058	4,977	7,341	20,222
Ending balance	4,977	7,341	20,222	25,157

Source: Company data, Mirae Asset Securities Research estimates

Key valuation metrics/ratios

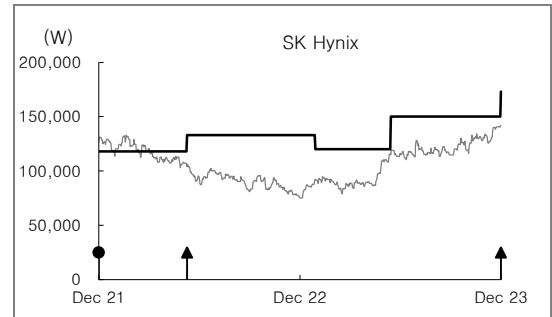
	2022	2023F	2024F	2025F
P/E (x)	24.5	-	15.0	7.8
P/CF (x)	2.5	19.1	4.6	3.4
P/B (x)	0.8	1.8	1.6	1.4
EV/EBITDA (x)	3.5	24.4	5.6	3.9
EPS (W)	3,063	-11,312	9,422	18,088
CFPS (W)	29,909	7,407	30,907	41,374
BPS (W)	90,064	78,008	86,296	103,250
DPS (W)	1,200	1,200	1,200	1,200
Dividend payout ratio (%)	36.8	-10.0	12.0	6.3
Dividend yield (%)	1.6	0.8	0.8	0.8
Revenue growth (%)	3.8	-27.9	59.5	22.8
EBITDA growth (%)	-9.1	-74.7	324.3	33.8
OP growth (%)	-45.1	-	-	75.5
EPS growth (%)	-76.8	-	-	92.0
AR turnover (x)	6.6	5.2	6.4	6.2
Inventory turnover (x)	3.6	1.7	2.1	2.1
AP turnover (x)	16.4	12.8	9.9	8.6
ROA (%)	2.2	-7.6	5.6	9.3
ROE (%)	3.6	-14.0	11.9	19.7
ROIC (%)	5.3	-10.6	10.7	17.8
Debt-to-equity ratio (%)	64.1	105.3	117.8	105.9
Current ratio (%)	144.8	137.5	166.8	189.9
Net debt-to-equity ratio (%)	30.6	48.7	37.3	21.4
Interest coverage ratio (x)	12.8	-5.6	5.0	8.7

Appendix 1

Important disclosures and disclaimers

Two-year rating and TP history

Company	Date	Rating	TP (₩)
SK Hynix (000660)	12/29/23	Buy	173,000
	06/12/23	Buy	150,000
	01/26/23	Buy	120,000
	06/07/22	Buy	133,000
	12/06/21	Hold	118,000



Stock ratings

Buy	Expected 12-month performance: +20% or greater
Trading Buy	Expected 12-month performance: +10% to +20%
Hold	Expected 12-month performance: -10% to +10%
Sell	Expected 12-month performance: -10% or worse

Sector ratings

Overweight	Expected to outperform the market over 12 months
Neutral	Expected to perform in line with the market over 12 months
Underweight	Expected to underperform the market over 12 months

Rating and TP history: Share price (—), TP (—), Not Rated (■), Buy (▲), Trading Buy (■), Hold (●), Sell (◆)

* Our investment rating is a guide to the expected return of the stock over the next 12 months.

* Outside of the official ratings of Mirae Asset Securities Co., Ltd., analysts may call trading opportunities should technical or short-term material developments arise.

* The TP was determined by the research analyst through valuation methods discussed in this report, in part based on estimates of future earnings.

* TP achievement may be impeded by risks related to the subject securities and companies, as well as general market and economic conditions.

Ratings distribution and investment banking services

	Buy	Trading Buy	Hold	Sell
Ratings distribution	88.81%	7.24%	3.29%	0.66%
Investment banking services	95.65%	4.35%	0%	0%

* Based on recommendations in the last 12-months (as of September 30, 2023)

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