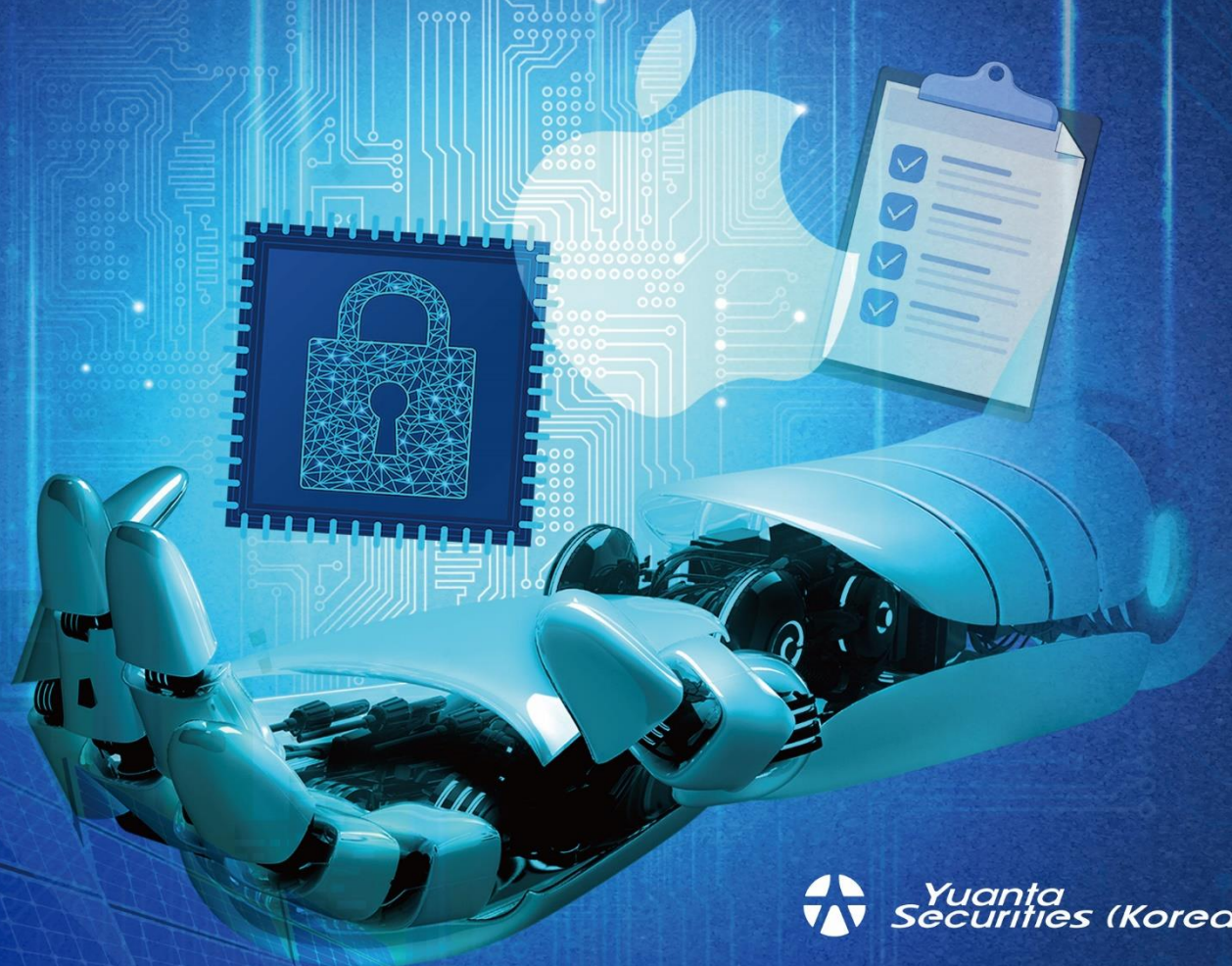


K-Robot Trends & Outlook

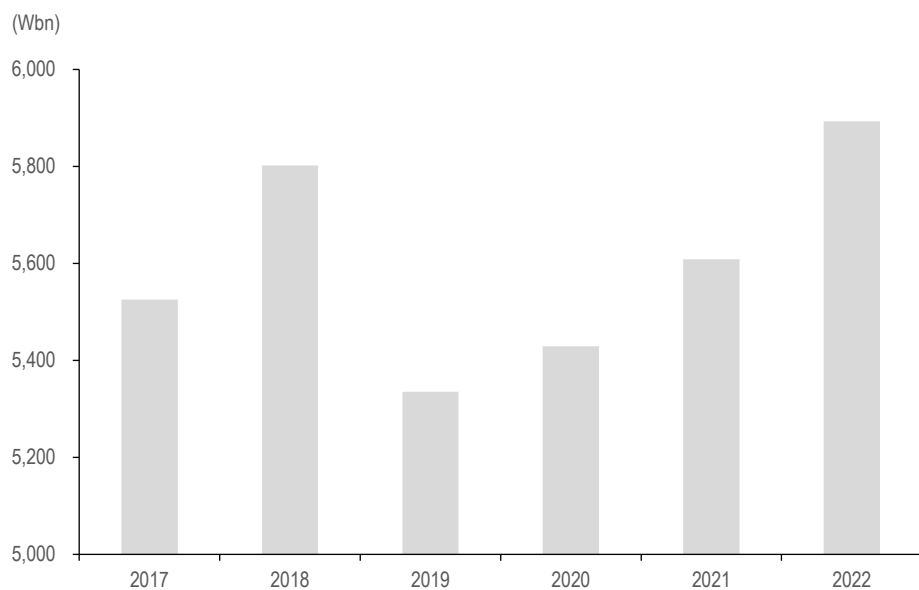


Myoung-chun Kwon Mid-small cap
+822 3770 5587
myoungchun.kwon@yuantakorea.com

1. Overview of Korea's robotics industry

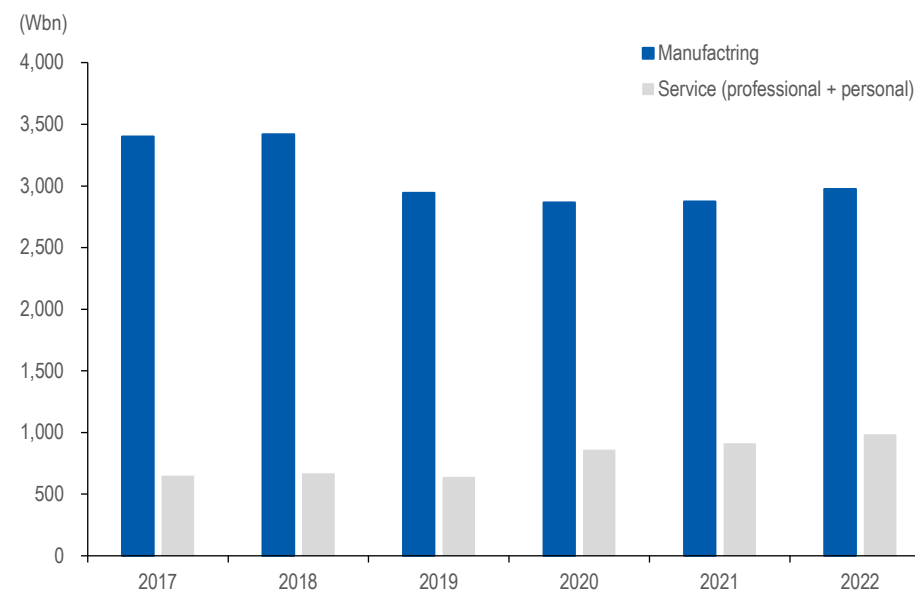
- As of 2022, Korea's robotics market was valued at W5.89tn (+5.1% YoY), exports at W1.23tn (+6.1% YoY), and imports at W638bn (+9.4% YoY) → higher than pre-pandemic levels, with exports growing faster than imports.
- Robots for manufacturing: W2.97tn (+3.5% YoY), exports W932.7bn (+3.9% YoY), imports W458.2bn (+8.5% YoY).
- Service robots: W982.3bn (+8.2% YoY), exports W112.3bn (+12.7% YoY), imports W50.6bn (+10.1% YoY).
- Robot components and software: W1.94tn (+6.0% YoY), exports W179.8bn (+14.6% YoY), imports W129.1bn (+12.3% YoY).

Korea's robot market value in 2022 exceeds pre-pandemic level



Source: Ministry of Trade, Industry and Energy (MOTIE), Korea Institute for Robot Industry Advancement (KIRIA), Korea Association of Robot Industry (KARI), Yuanta Securities

Sales of service robot sales grow faster than industrial robots

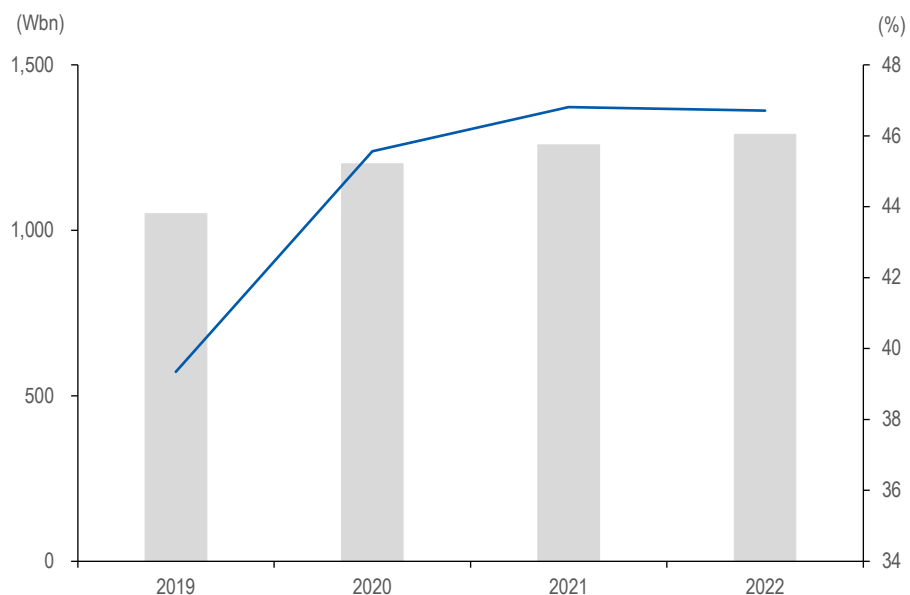


Source: MOTIE, KIRIA, KARI, Yuanta Securities

1. Overview of Korea's robotics industry: 1) Robots for manufacturing

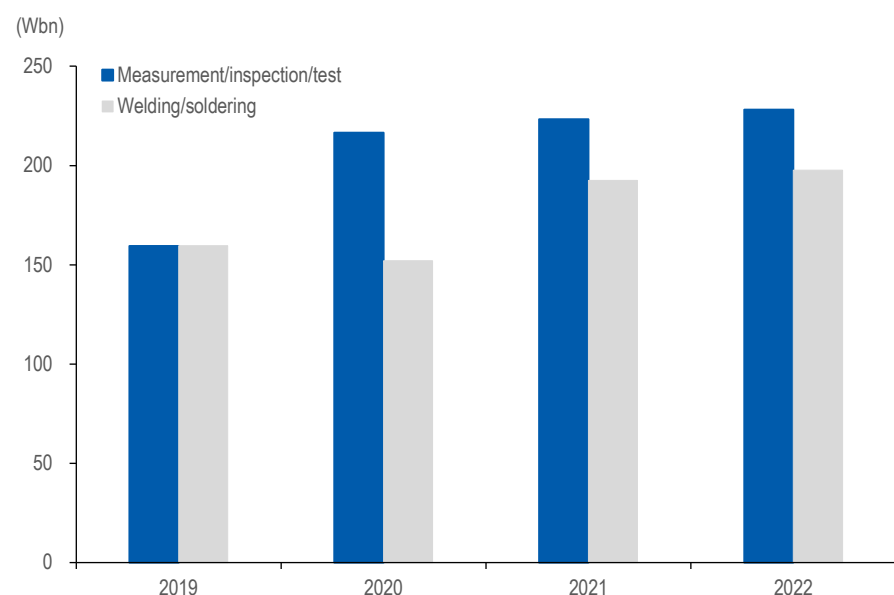
- Production of robots for manufacturing (2019~2022): CAGR of 1.6% from W2.61tn in 2019 to W2.73tn in 2022
→ Account for largest portion of robot market, but weakest growth.
- By type
 - Robots for material handling account for the largest portion of over 40% of total manufacturing robots (CAGR 7.1%).
 - Robots for assembly, disassembly, gluing, marking, and labeling account for the second-largest share, but production and share of robot market continue to decline (CAGR -10.5%).
 - Robots for measurement, inspection, and testing account for third-largest share, but are growing fastest (CAGR 12.7%).
 - Robots for welding and soldering have fourth-largest share, but are growing faster than material handling robots (CAGR 7.4%).→ Robot applications are rising for transportation and inspection.

Production of robots for material handling



Source: MOTIE, KIRIA, KARI, Yuanta Securities

Production of robots for measurement/inspection, welding/soldering

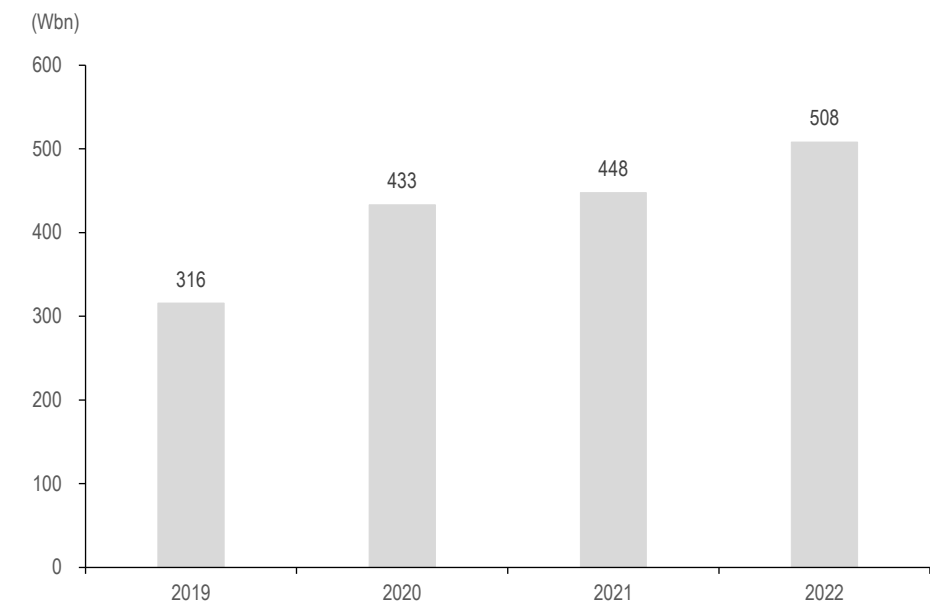


Source: MOTIE, KIRIA, KARI, Yuanta Securities

1. Overview of Korea's robotics industry: 2) Robots for professional service

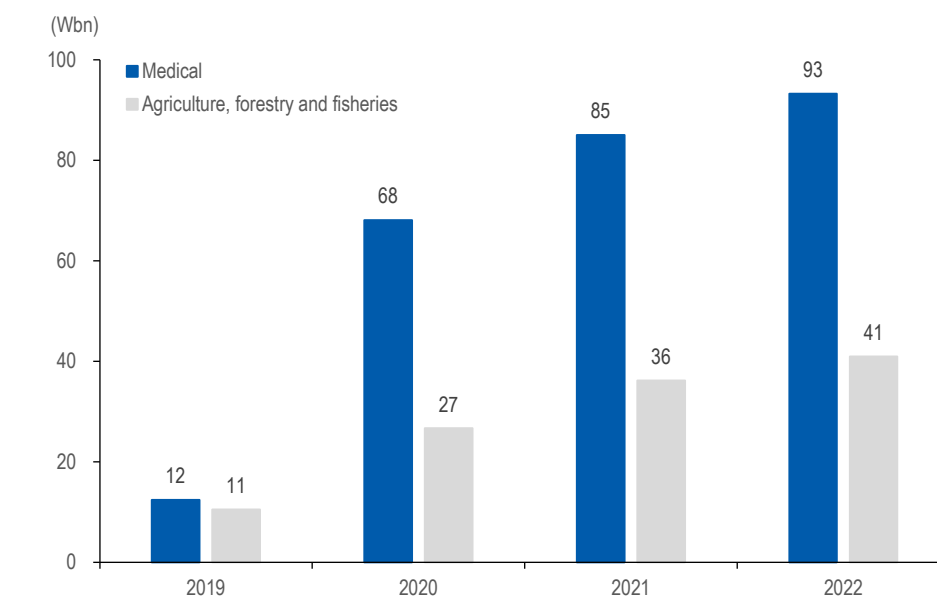
- Production of robots for professional service: up 17.2% from W315.7bn in 2019 to W508.1bn in 2022.
→ CAGR highest among all robot types; stronger than robots for personal service.
- By type
 - Medical: CAGR of 95.8% from W12.4bn in 2019 to W93.3bn in 2022, the fastest growth among robots for professional service.
 - Agriculture/forestry/fisheries: CAGR of 57.3% from W10.5bn in 2019 to W41bn in 2022.
 - Other professional services: CAGR of 37.2% from W84.2bn in 2019 to W217.3bn in 2022 & robots for diverse professional services being developed and manufactured.
 - Meanwhile, production of robots for dangerous work and military services has been falling for the past three years
→ Robot applications rising for medical & agricultural purposes: surgery robots & smart farm robots

Production of robots for professional service



Source: MOTIE, KIRIA, KARI, Yuanta Securities

Production of robots for medical, agriculture/forestry/fisheries

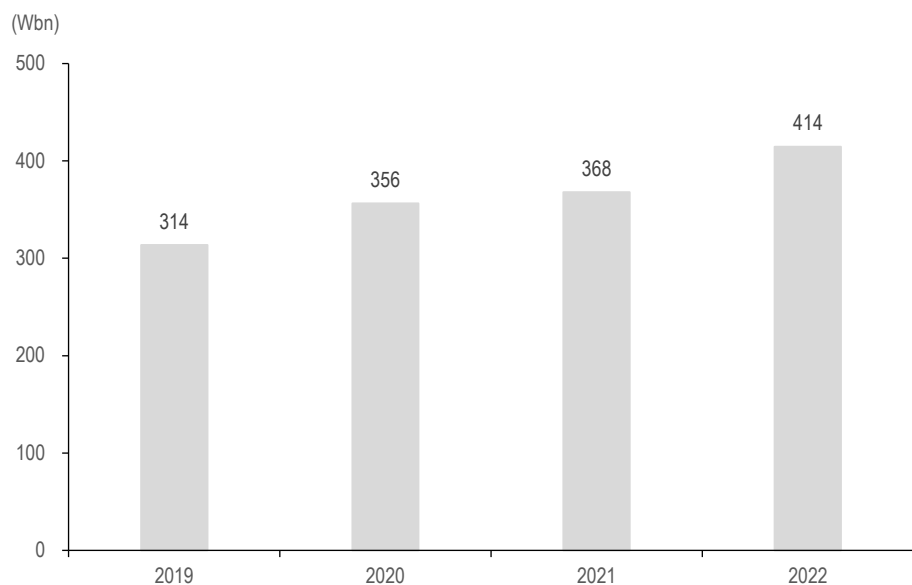


Source: MOTIE, KIRIA, KARI, Yuanta Securities

1. Overview of Korea's robotics industry: 3) Robots for personal service

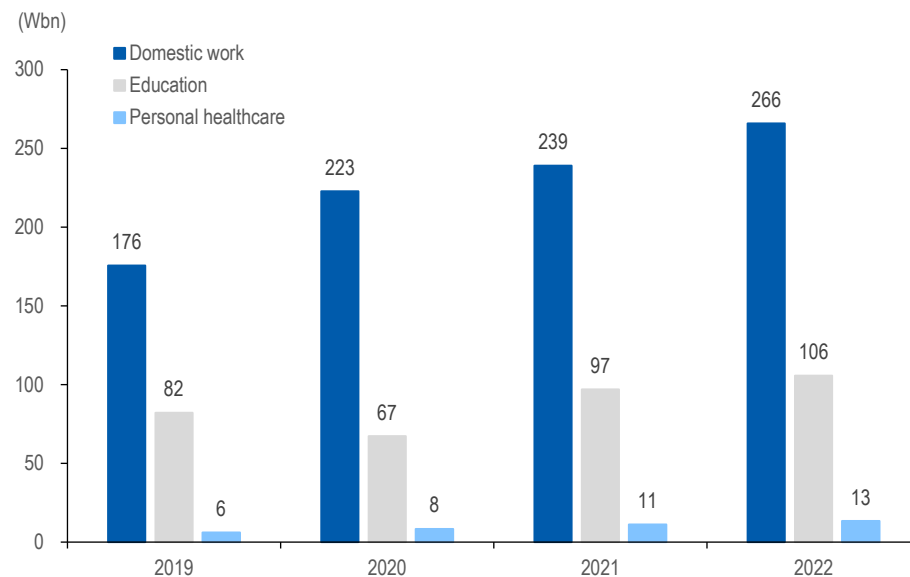
- Production of robots for personal service: CAGR of 14.8% from W313.5bn in 2019 to W414.4bn in 2022
→ Weaker growth than robots for professional service
- By type
 - Domestic work: CAGR of 14.8% from W175.5bn in 2019 to W265.9bn in 2022.
 - Education: CAGR 8.8% from W82bn in 2019 to W105.6bn in 2022.
 - Personal healthcare: CAGR 29.3% from W6.2bn in 2019 → W13.3bn in 2022.
 - Leisure: CAGR 29.3% from W24.7bn in 2019 → W19.8bn in 2022.→ Application rising to vacuums/mops and AI training.

Production of robots for personal service



Source: MOTIE, KIRIA, KARI, Yuanta Securities

Production of robots for domestic work, education, personal healthcare



Source: MOTIE, KIRIA, KARI, Yuanta Securities

2. Korean government's robotics-related policy

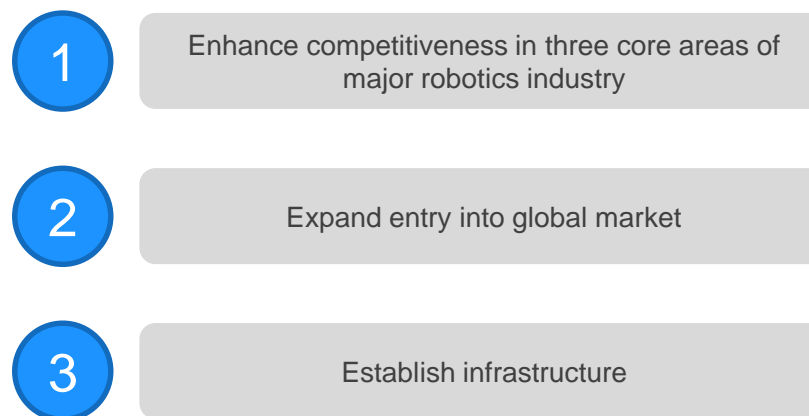
- In Jan 2024, the government announced the Fourth Intelligent Robot Basic Plan (2024~2028) to boost the K-robot sector.
- Korea's robot density in manufacturing is highest in the world, but it is highly dependent on imports for core parts and the penetration of service robots is lower than expected.
- Strategy 1. Secure eight core technologies (five H/W, three S/W); nurture 15,000 personnel in AI/SW sectors; nurture 150 robotics companies.
- Strategy 2. Expand K-robot market's penetration into global markets: increase support for domestic market creation (total 1mn robots by 2030) + entry into overseas markets.
- Strategy 3. Establish robotics industry-friendly infrastructure: regulatory easing/innovation, increased cooperation between large companies and SMEs, and establish safety net including insurance policies

Aims to expand size of K-robotics industry fourfold by 2030



Source: MOTIE, Yuanta Securities

Preemptively secure core competitiveness in advanced robots

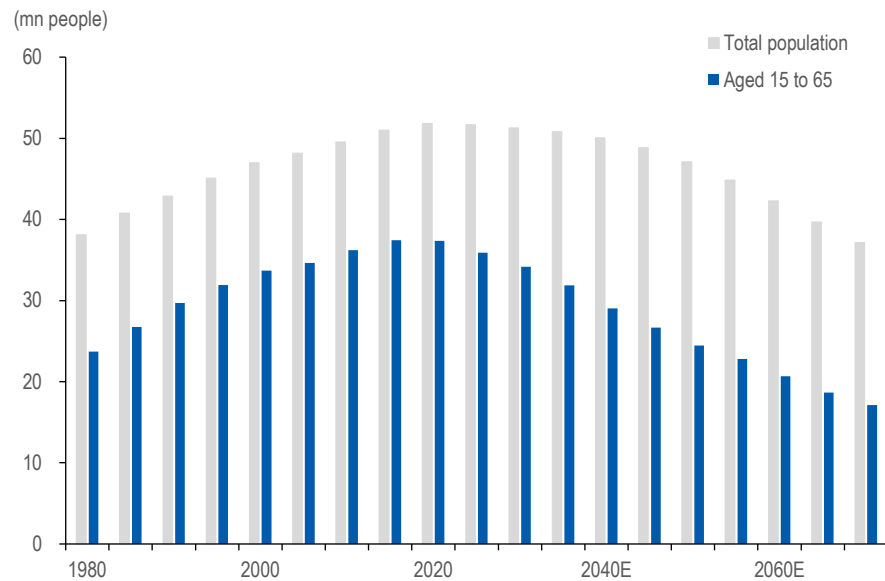


Source: MOTIE, Yuanta Securities

3. Korea: attractive robotics testbed

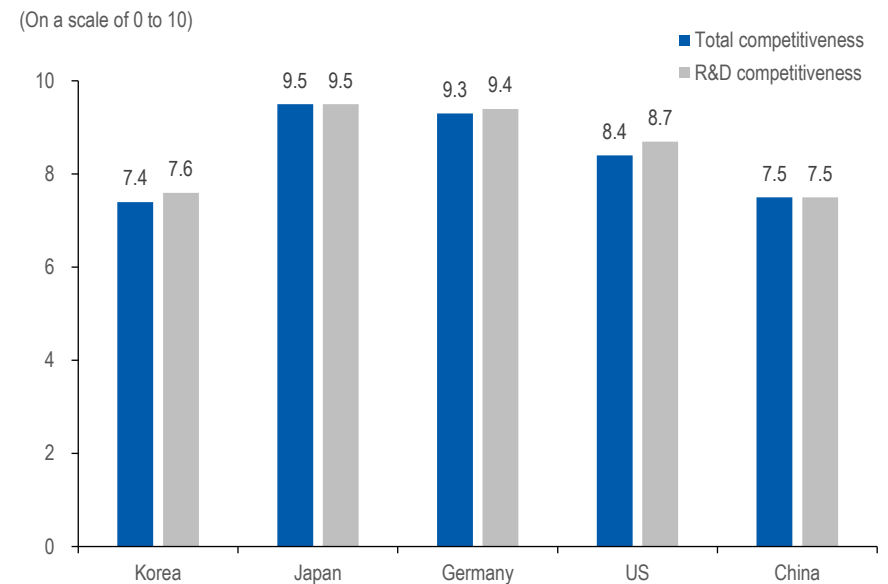
- 1) Economically active population in rapid decline
 - Total population declining since 2020
 - Elderly population increasing
 - Effective workforce to decline → introduction of robots urgently needed
- 2) Most focused on manufacturing robots vs weak competitiveness
 - Concentrated on Korea's key industries and industries where investment is rising such as electronics/auto. Competitiveness weaker than Japan/the US → policy support and corporate investment to rise
 - Low resistance to robot applications (COVID-19 helped reduce resistance to robots)

Economically active population declining



Source: KOSIS, Yuanta Securities

Comprehensive and R&D competitiveness of major countries in robot industry

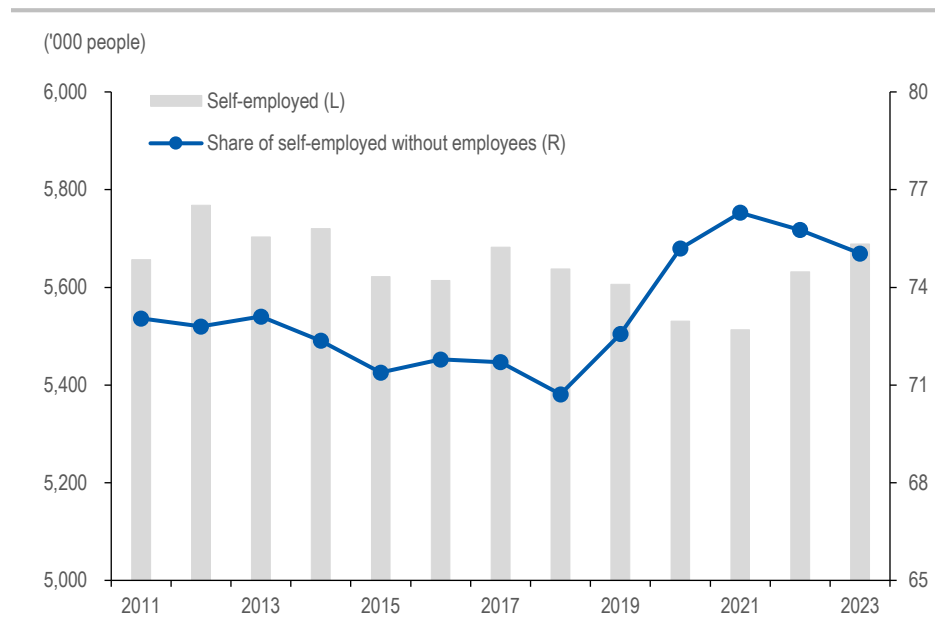


Source: FKI (2022), Yuanta Securities

3. Korea, attractive robotics testbed

- 3) Rising portion of those self-employed without employees
 - Interest in robot adoption rising due to the increasing minimum wage.
 - In particular, those self-employed without employees, who are likely to use robots, has risen since 2018.
- 4) Robots already familiar
 - During the COVID-19 pandemic, contactless services increased → kiosks surged.
 - Since their introduction in 2005, robotic surgery cases have grown rapidly: about 40,000 in 2021 → about 100,000 in 2022.
- 5) Many Korean companies including large corporations view the robotics industry as a future growth driver

Rising share of self-employed without employees → easy to introduce service robots



Source: KOSIS, Yuanta Securities

Large Korean firms that view robotics as future growth driver

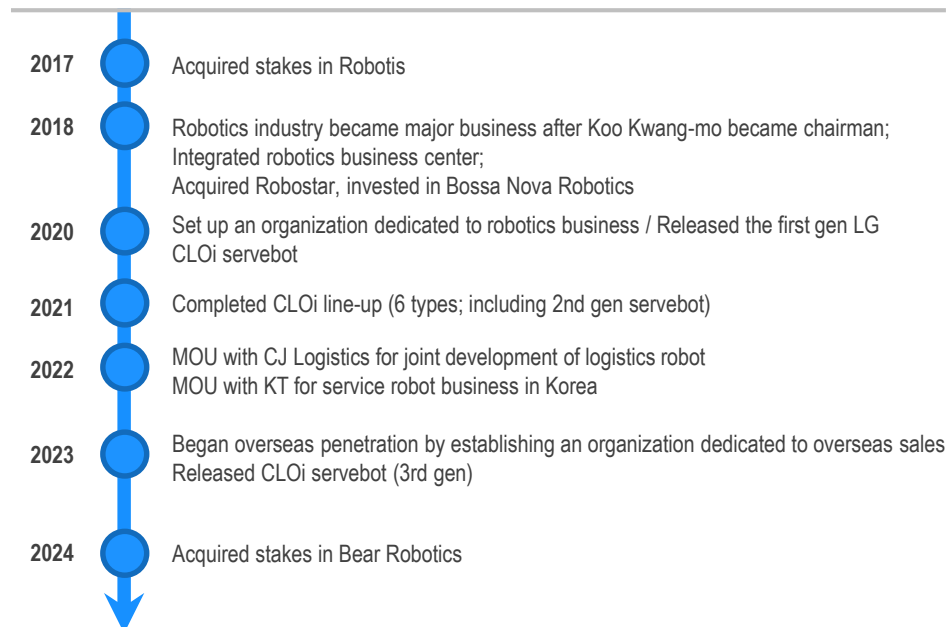


Source: Company data, Yuanta Securities

4. Korean companies: 1) large firms - LG Electronics

- After Koo Kwang-mo became LG Group's chairman in 2018, the firm announced that robotics would become one of the group's major businesses along with EV batteries and auto electronics.
- In 2017, the company acquired stakes in SG Robotics and Robotis.
In 2018, the company acquired Robostar, and invested in Bossa Nova Robotics.
The firm also acquired Acryl (Korean AI start-up, 2017), LeddarTech (Canadian LiDAR company, 2020), Inworld AI (US AI firm, 2021).
- The company signed an MOU with CJ Logistics to jointly develop logistics robots in 2022. It also signed an MOU regarding the Korean service robot business with KT in 2022.

LG Electronics' robotics business timeline



Source: Media reports, Yuanta Securities

LG CLOi

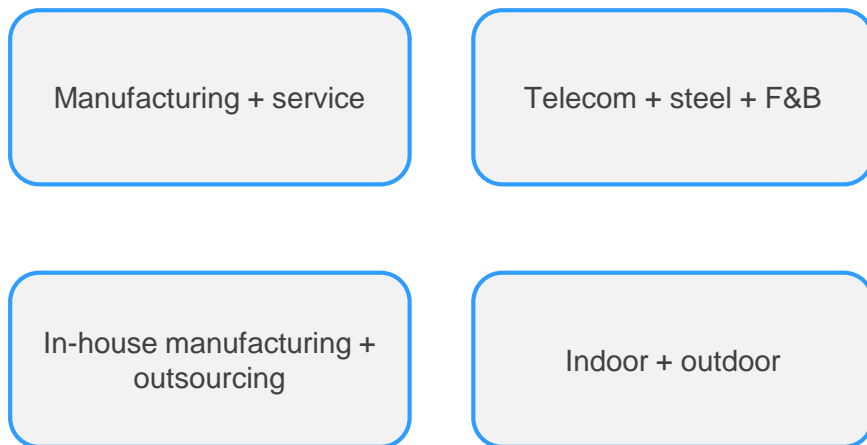
Product name	Characteristic	Date
ChefBot	Simple cooking at restaurants	Nov 19
ServeBot (drawer)	Delivery robot with elevator safe certification	Jul 20
ServeBot (shelf)	Serving robot based on autonomous driving and obstacle recognition/avoidance technologies	Jul 20
BaristaBot	Korea's first to acquire a robot brewing master certificate	Jan 21
GuideBot	Equipped with various features including visitor guide, ad, security	Sep 21
Lawn mowing robot	Lawn mowing robot optimized for Korea's environment	Apr 22
UV-C Bot	Robot with disinfection capabilities	Apr 22
Carrybot	Carries parcels at manufacturing plants and logistics centers	Jun 22
ServeBot (shelf)	Serving robot based on autonomous driving and obstacle recognition/avoidance technologies	Apr 23 (3rd gen)

Source: LG Electronics, Yuanta Securities

4. Korean companies: 1) large firms - LG Electronics

- Characteristic 1. Entry into various fields: serving robot, guidebot, delivery robot, lawn mowing robot, frying robot
- Characteristic 2. Collaboration with various companies
 - Telecom: KT, LG U+
 - Manufacturing: POSCO
 - Food: BHC (friend chicken), CJ Foodville (rice noodles)
- Characteristic 3. Self-manufacturing: The company turned LG CLOi's production from outsourcing to in-house in 2023 (surpassed 1,000 robots in June)
- Characteristic 4. Out/indoor: expectations for cooperation with Robotis.
- Characteristic 5. Entry into overseas market: expectations for overseas entry with Bear Robotics.

LG Electronics' characteristics in robotics industry



Source: Yuanta Securities

Expected to expand to outdoor self-driving robots upon cooperation with Robotis



Source: Robotis, Yuanta Securities

4. Korean companies: 1) large firms - Samsung Electronics

- In Aug 2021, the company included robotics along with semiconductor/bio/AI in its strategic businesses, and announced investment of W240tn.
- The company established a robotics business task force in 2020. The task force was upgraded to a business team in late-2021.
- The company registered its robot brand “Samsung Bot” trademark in the US/Canada.
Can be applied to industrial robots, exoskeleton robots, robot vacuum, home kitchen appliances, humanoid, and serving robots.
- CES: Wearable robot “GEMS” unveiled at CES 2019; Samsung Bot Care and Samsung Bot Handy at CES 2021; AI companion robot “Ballie” at CES 2024
→ Characteristic: focusing on service robots, particularly health care-related robots.

Samsung Electronics' robotics business timeline



Source: Media report, Yuanta Securities

Samsung Electronics' major products



Source: Samsung Electronics, Yuanta Securities

4. Korean companies: 1) large firms - Samsung Electronics

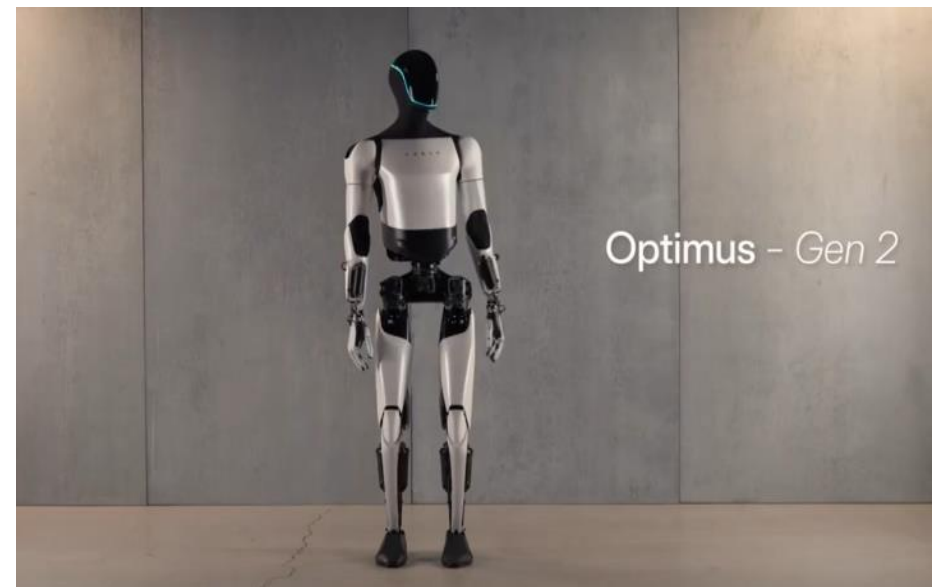
- Humanoid robots: Able to replace humans in the most appropriate form such as carrying loads, guarding and rescuing.
- Samsung Electronics: Acquired 10.22% stake in Rainbow Robotics in Jan 2023, 4.77% in Mar 2023 + call option contract.
- Samsung Electronics created Future Technology Office, focusing on humanoid robot technology development.
- Rainbow Robotics: Exported six bipedal robots, Hubo, to the National Science Foundation of the US in 2011.
- Focused on humanoid robots

Rainbow Robotics' humanoid robot: Hubo



Source: Company data, Yuanta Securities

Foreign humanoid robot: Tesla Optimus



Source: Company data, Yuanta Securities

4. Korean companies: 1) large companies - Hyundai Motor/HD Hyundai

- Hyundai Motor: Last Mile Mobility
 - Selected robotics as one of its five key businesses; announced plans to invest W1.5tn in robotics up to 2025.
 - Acquired a 80% stake in Boston Dynamics in 2020 for about W1tn.
 - Established Robotics AI Lab in Cambridge, Boston, in Aug 2022.
 - Unveiled Boston Dynamics' logistics loading/unloading robot "Stretch" at CES 2021 & signed supply agreement with US logistics firm NFI (Aug 2022).
- HD Hyundai: large industrial collaborative robots
 - Subsidiary HD Robotics: Engine & machinery business at Hyundai Heavy Industries (HHI) → Robot business at HHI → split off as Hyundai Robotics in 2020.
 - At World Robotics Congress 2023, the company unveiled industrial/collaborative/cleaning robots for welding/painting/disinfecting.

Boston Dynamics: Stretch



Source: Company data, Yuanta Securities

HD Hyundai Robotics: robot lineup unveiled at World Robotics Congress 2023



Source: Company data, Yuanta Securities

4. Korean companies: 1) large firms - Doosan & Hanwha

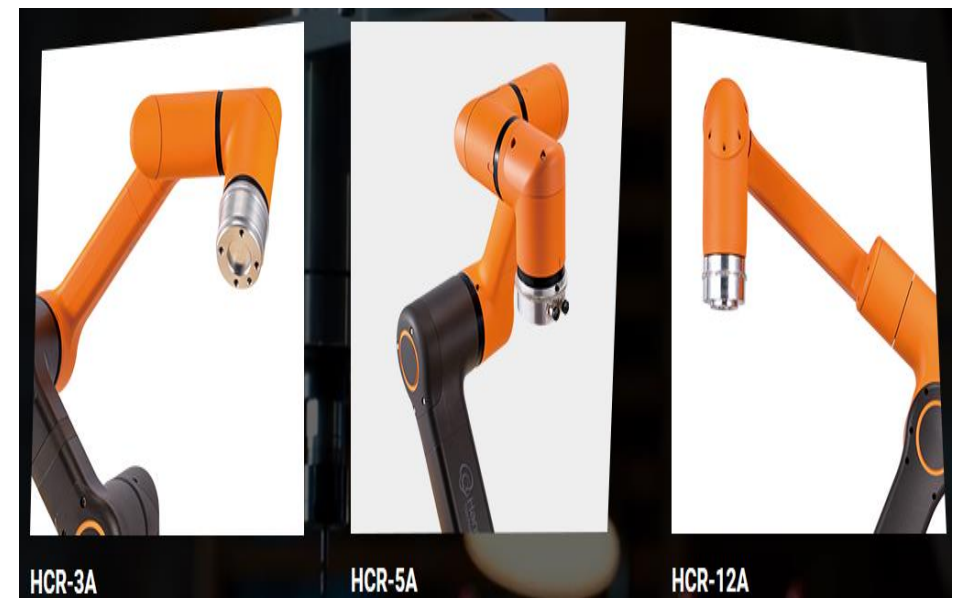
- Doosan: collaborative robots
 - Declared its entry into collaborative robotics market in 2015; established Doosan Robotics.
 - Holds largest collaborative robot market share in Korea.
 - Expands business area by manufacturing diverse products that can be applied to collaborative robots, not only in manufacturing sites but also logistics/service/medical fields.
- Hanwha: collaborative robots
 - Hanwha Robotics established in Oct 2023: collaborative robot and AGV/AMR businesses were spun off from FA business (Hanwha Corp owns a 68% stake, Hotel & Resorts 32%).
 - Acquired Stellar Pizza, a US robot pizza brand (Mar 2024).
 - Based on collaborative robots, likely to penetrate manufacturing robots and service robots (Hotel & Resorts).

Doosan Robotics: collaborative robots



Source: Company data, Yuanta Securities

Hanwha Robotics: collaborative robots



Source: Company data, Yuanta Securities

4. Korean companies: 2) SMEs - robots for manufacturing (transfer)

- Cymechs
 - Semiconductor transfer equipment robots.
 - Localizing ATM (automatic transfer machine) after acquiring Cyborg-Lab in 2020.
- Raon Tech
 - Semiconductor transfer equipment robots.
 - Seeking to penetrate solar cell, display, pharmaceutical/bio robot sectors.
- Rorze Systems
 - Semiconductor/display logistics automation robots.

Semiconductor transfer robots

EFEM

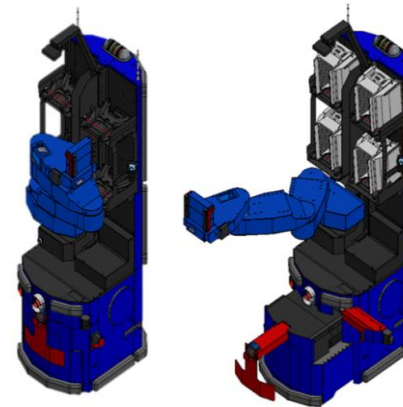


Semiconductor robot

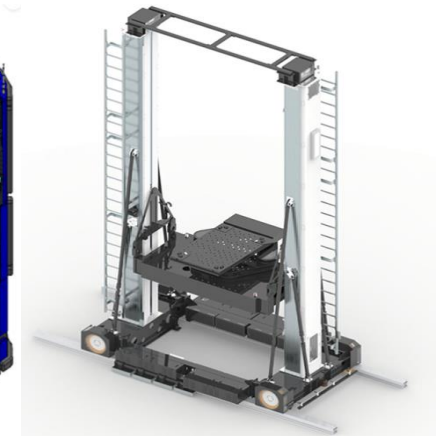


Mobile robot & stocker: Rorze Systems

Mobile robot



Stocker



Source: Company data, Yuanta Securities

Source: Company data, Yuanta Securities

4. Korean companies: 2) SMEs - robots for manufacturing (logistics, AGV/AMR)

- T-Robotics (117730 KS)
 - Display/semiconductor vacuum robotics company.
 - Signed large-scale AMR contract with rechargeable battery company in 2023.
- Syscon, a subsidiary of V-One Tech (251630 KS)
 - Combined software and hardware businesses by merging with Hansung Welltech in 2022.
 - Supplied logistic robots to many companies including Hyundai Moor, LG Electronics, and Samsung Electronics.
- Cowintech
 - Unveiled new AGV in Korea in 2023, enter overseas market in 2024.

Korean AGV/AMR robots

T-Robotics



Syscon, V-One Tech's subsidiary



Cowintech



4. Korean companies: 2) SMEs - robots for manufacturing (inspection)

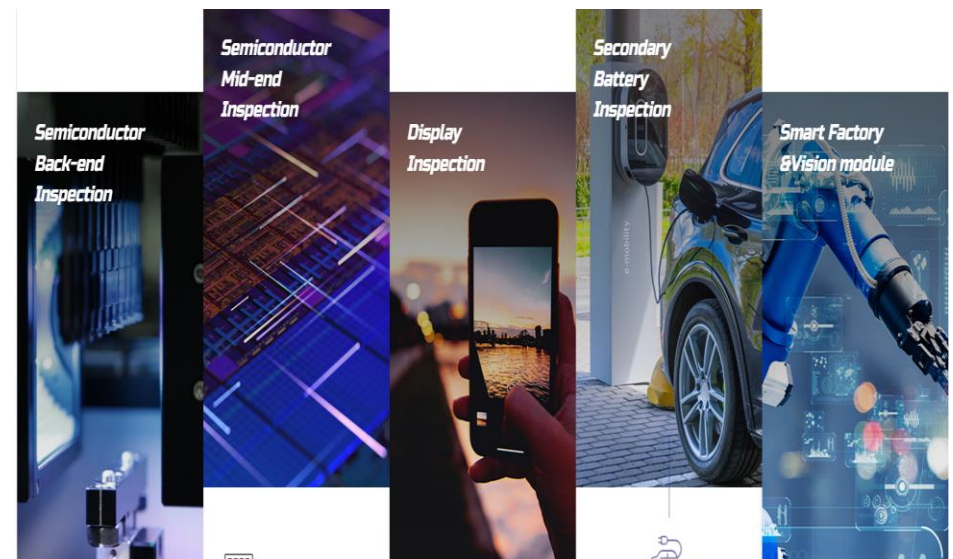
- Among robots for manufacturing, inspection robots are growing fastest; leading companies are Koh Young Technology, Intekplus, Pemtron, Techwing.
- Koh Young Technology/Pemtron: solder paste inspection (SPI), automated optical inspection (AOI), machine optical inspection (MOI).
- Intekplus: semiconductor packaging/display/rechargeable battery/smart factory inspection.
- Techwing: memory/non-memory semiconductor handler.

SPI: Koh Young Technology/Pemtron



Source: Company data, Yuanta Securities

Intekplus: inspection equipment

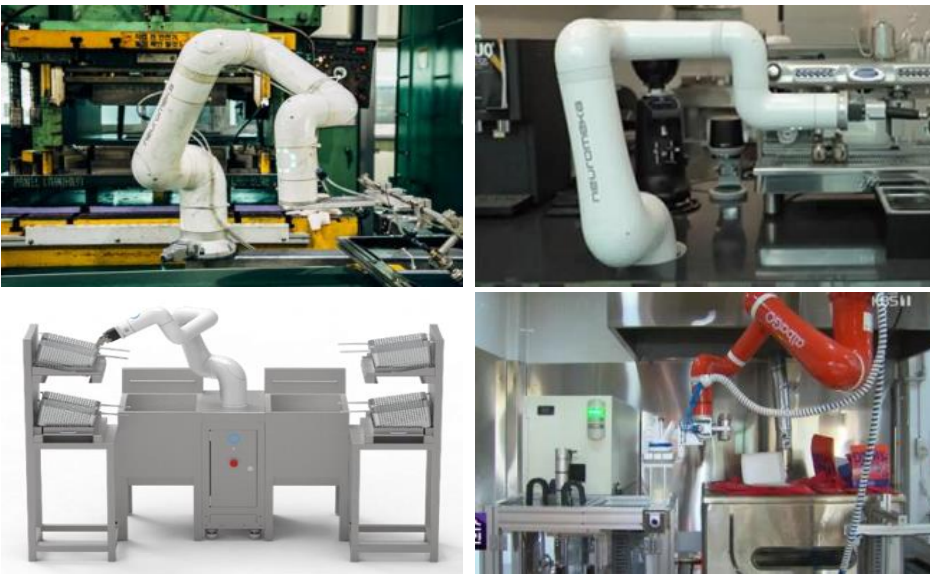


Source: Company data, Yuanta Securities

4. Korean companies: 2) SMEs - service robots (collaborative robot)

- Neuromeka (348340 KS)
 - Manufactures collaborative robots.
 - Expanding to manufacturing robots through welding robots.
 - Expanding to service robots through Kyochon F&B and Curexo.
- Rainbow Robotics (277810 KS)
 - Manufacturer of Korea's first bipedal humanlike robot, "Hubo."
 - Expanding to not only collaborative robots but also service robots and humanoid robots.
 - Trying to internalize core parts including motors and reducers.

Neuromeka



Source: Neuromeka, Yuanta Securities

Rainbow Robotics



Source: Rainbow Robotics, Yuanta Securities

4. Korean companies: 2) SMEs - service robots (medical)

- Koh Young Technology (brain surgery robots)
 - The company is an inspection equipment maker and major products are SPI, AOI, and MOI. (machining optical inspection).
 - The company developed brain surgery robot “Kymero” as part of a national program run by the MOTIE in 2011. The robot was implemented by Severance Hospital in 2020.
- Meerecompany (laparoscopic surgical robot)
 - The company commercialized the laparoscopic surgical robot “REVO-I” for the first time in Korea (competing product: Intuitive Surgica’s “Da Vinci”).
- Curexo (joint surgical robot)
 - CUVIS-Joint received certification by the Ministry of Food and Drug Safety (MFDS) in 2020.
 - The company has other robot line-ups including spinal surgical robot, gait rehabilitation robot, and upper extremity rehabilitation robot.

Korean medical robot line-up



Source: Company data, Yuanta Securities

4. Korean companies: 2) SMEs - parts

- Reducer: SPG (058610 KS), SBB Tech (389500 KS)
 - SPG: Able to mass-produce both planetary and precision reducers.
 - SBB Tech: Specializes in reducer and bearing manufacturing.
- Motor (actuator): Robotis (108490 KS)
 - Robotis: Has varied experience both in Korea and overseas for “Dynamixel (actuator)” and has track record in out/indoor self-driving
- Molding/injection: Robostar (090360 KS), Intops (049070 KS)
 - Robostar: Operates industrial robot manufacturing business; manufactures for LG Electronics.
 - Intops: Has technologies in metal (mold/die casting) and plastic (injection) → expected to play OEM/ODM role for robot manufacturing.

Reducer



Source: Company data, Yuanta Securities

Actuator

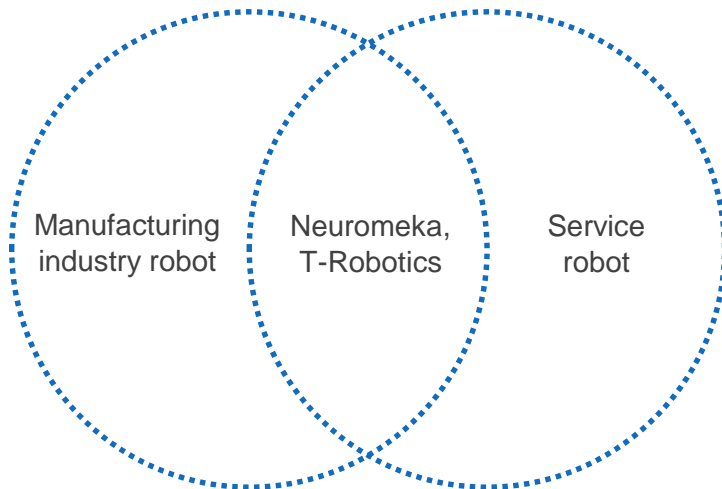


Source: Company data, Yuanta Securities

5. Conclusion

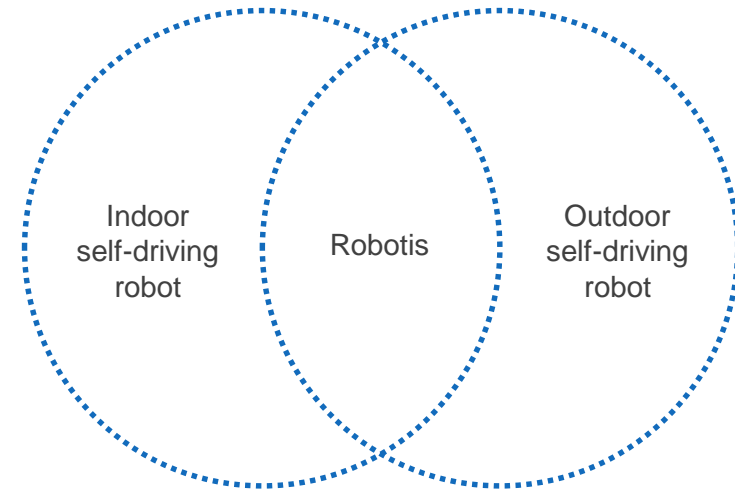
- Services robots are growing faster than manufacturing robots not only overseas but also in Korea.
- Manufacturing robots are important for Korea, as the manufacturing sector is one of Korea's fundamental industries.
- Interest in manufacturing robots and service robots diverges between large companies in Korea.
- Given this, we advise focusing on companies that cover both manufacturing and service robots.
- Moreover, as regulations on outdoor self-driving robots are eased in Korea, growth is expected to accelerate from 2024.

Neuromeka/ T-Robotics



Source: Yuanta Securities

Robotis



Source: Yuanta Securities

Appendix: list of Korean robot companies

Large firms	Manufacturing		LG Electronics	Hyundai Motor/HD Hyundai	Hanwha	Doosan
	Service			Samsung Electronics		
SMEs	Manufacturing	Transfer	Cymechs	Raontec	Rorze Systems	
		Logistics	T-Robotics	V-One Tech (Syscon)	Cowintech	
		Inspection	Koh Young Technology	Pemtron	Intekplus	TechWing
	Service	Collaborative	Neuromeka	Rainbow Robotics		
		Medical	Koh Young Technology	Meerecompany	Curexo	
	Parts	Reducer	SPG	SBB Tech		
		Motor	Robotis			
		OEM/ODM	Robostar	Intops		
	Others	Robot vacuum	Yujin Robot	Everybot		
		Others	Daedong Corp			

Source: Yuanta Securities



Disclosures & disclaimers

This research report has been prepared for informational purposes only; it does not constitute an offer or a solicitation of an offer to buy or sell any securities or other financial instruments. The information and data contained in this report have been obtained from sources we consider reliable; however, we make no representation that the information provided in this report is accurate or complete, and it should not be relied on as such. The recipient of this report should use his/her independent judgment regarding the sale or purchase of any securities or financial instruments mentioned herein. We disclaim any liability whatsoever for any direct or consequential loss arising from any use of this report or its contents. This report is for our clients only. It is copyrighted material and may not be reproduced, transmitted, quoted, or distributed in any manner without the prior written consent of Yuanta Securities Korea Co., Ltd.

As of the date of publication of this report, Yuanta Securities Korea Co., Ltd. does not own 1% or more of the subject company's shares outstanding. As of the date of publication of this report, Yuanta Securities Korea Co., Ltd. does not have any special interests in the subject company.

The material contained herein was not disclosed by Yuanta Securities Korea Co., Ltd. to any institutional investors or third parties prior to its publication. The analyst (s) of this report or the analyst (s)' spouse does not have any financial interest in the securities of the subject company (ies) mentioned herein, nor financial interest of any nature related to the subject company (ies) (including without limitation, whether it consists of any option, right, warrant, future, long or short position), as of the publication date of this report.

Analyst certification

We, as the research analyst/analysts who prepared this research report, do hereby certify that the views expressed in this report accurately reflect my/our personal views about the subject securities discussed in this report.

Stock and sector ratings

- **Stock ratings** include an Investment Rating (Strong Buy, Buy, Hold, Sell) based on the expected absolute return of a stock over the next 6 -12 months.
- - Strong Buy: Expected to return 30% or more
- - Buy: Expected to return between 10% and 30%
- - Hold: Expected to return between -10 and +10%
- - Sell: Expected to return -10% or less
- **Sector ratings** suggest 6 to 12 - month forward investment weighting of a given sector compared to its market capitalization weighting.
- - Overweight: Investment weighting is higher than the market capitalization weighting
- - Neutral: Investment weighting is equal to the market capitalization weighting
- - Underweight: Investment weighting is lower than the market capitalization weighting

Korea Forex & Market Issues



Ho-jung Kim Economist
+822 3770 3630
hojung.kim@yuantakorea.com

Dae-seok Kang Equity Market
+822 3770 3631
daeseok.kang@yuantakorea.com



Ho-jung Kim

Economist

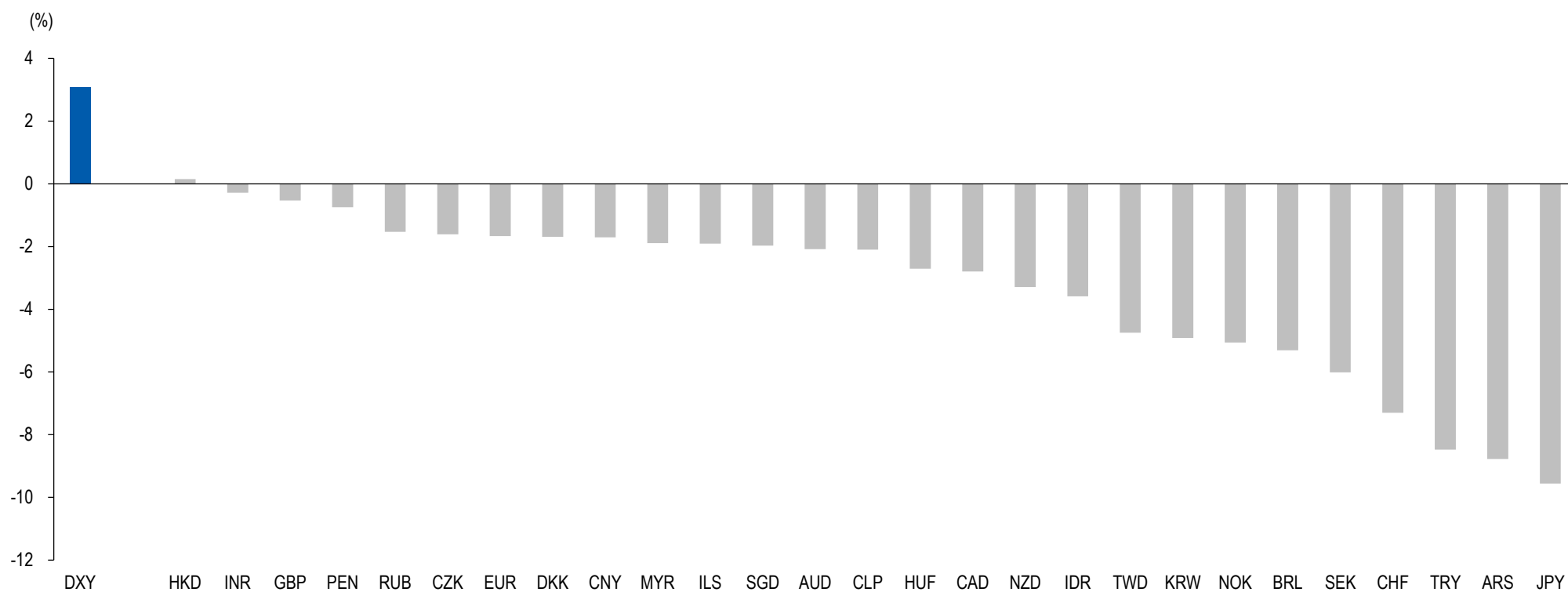
+822 3770 3630

hojung.kim@yuantakorea.com

Review of global forex market

Major global currency returns

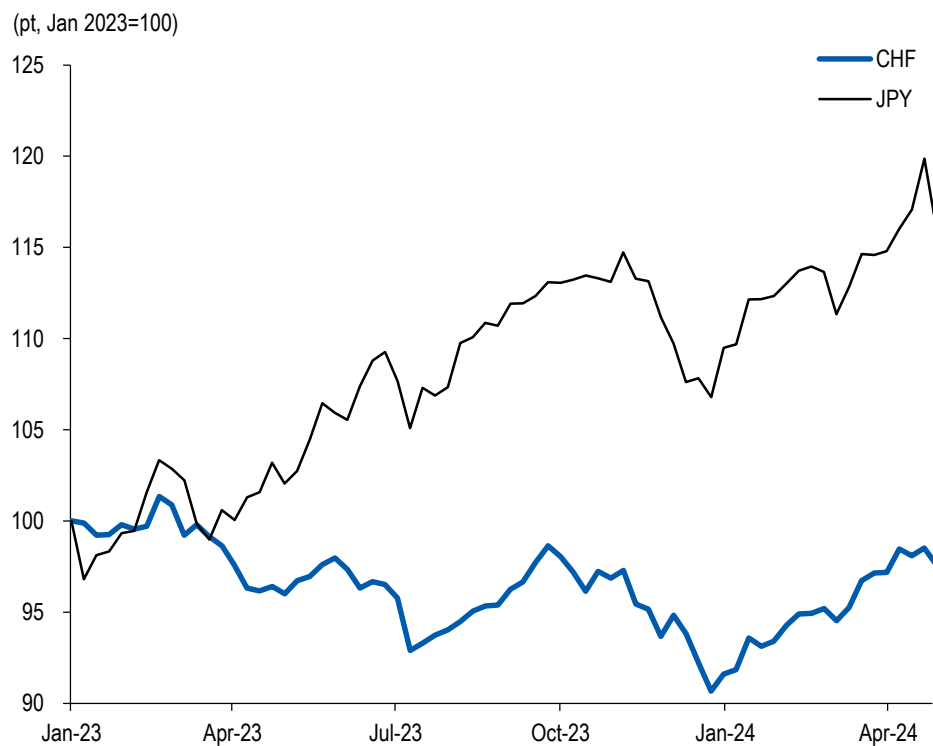
- Looking at the YTD return of major currencies, the dollar has an unrivaled positive return.
- Most currencies other than the dollar recorded negative returns. In particular, currencies in major developed economies such as Switzerland, Singapore, Canada, and Japan also weakened.



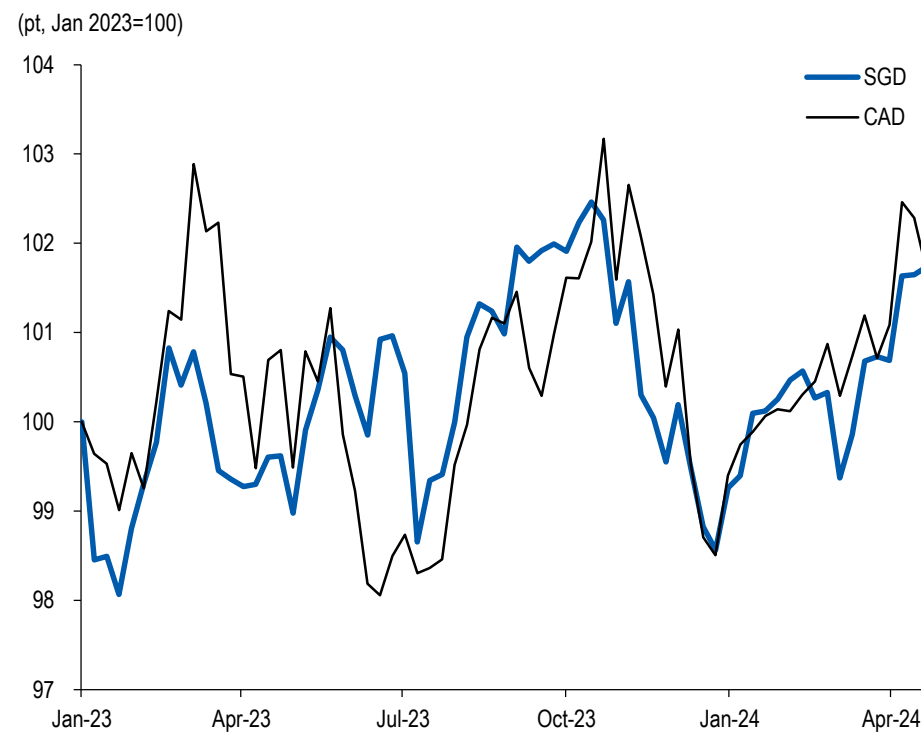
Source: Bloomberg, Yuanta Securities

Period of sluggish DM currencies

- Characteristically, Switzerland, Canada, Singapore, and Japan serve as channels for supplying dollars to financial markets around the world.
- Exchange rate instability in these countries ultimately leads to an increase in dollar supply prices around the world.



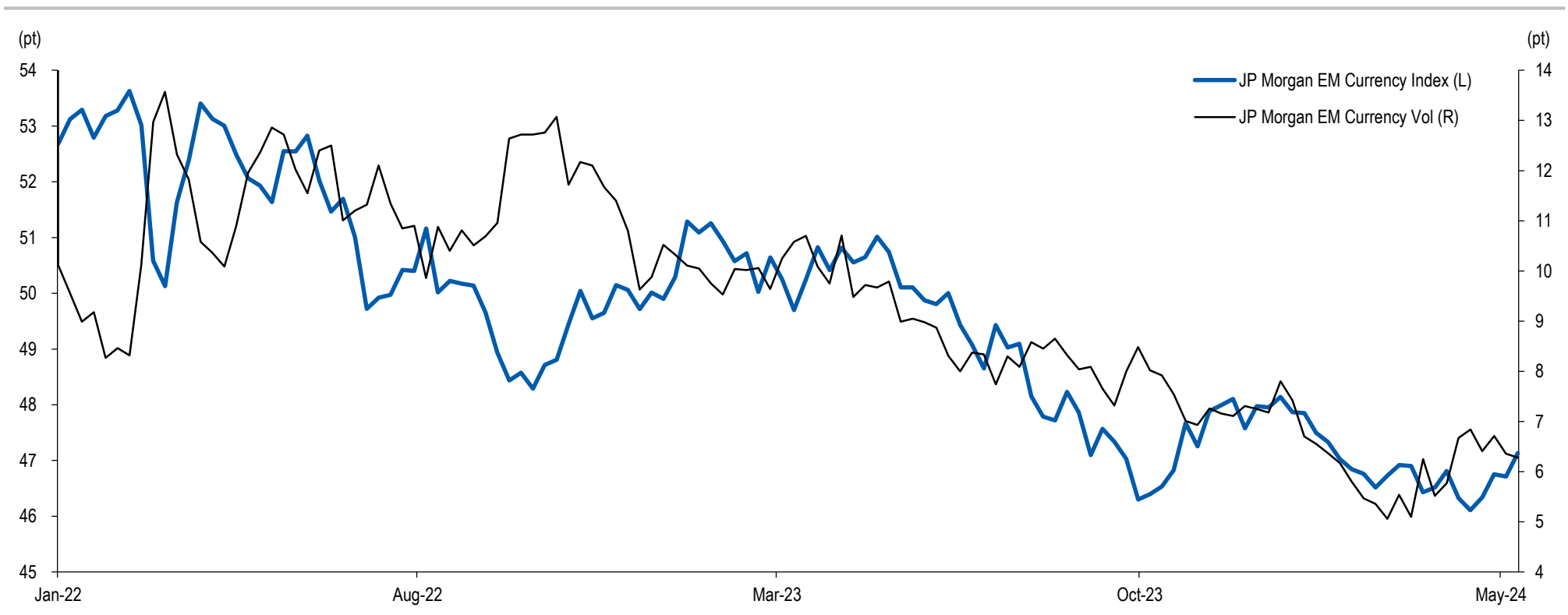
Source: Bloomberg, Yuanta Securities



Source: Bloomberg, Yuanta Securities

Volatility in EM currencies remains

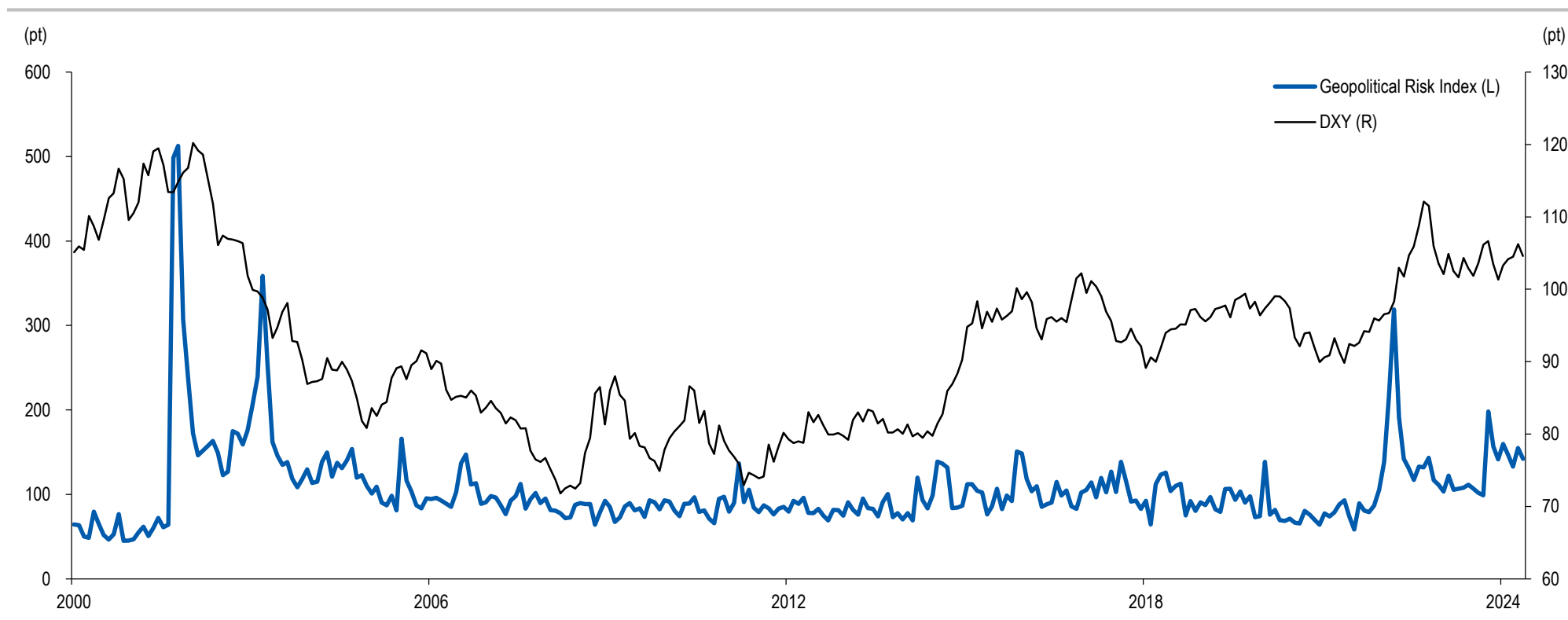
- Emerging market currencies that can be classified as risk currencies are subject to high volatility.
- In particular, in the case of Korea, where dollar supply and demand are rigid, volatility is high.



Source: Bloomberg, Yuanta Securities

Geopolitical risks & price volatility

- The geopolitical risks that have been ongoing since last year directly cause volatility in oil and raw material prices.
- In addition, rising geopolitical risks have disrupted the recovery of export economies in emerging economies, and the outlook for fundamentals is uncertain.



Source: Bloomberg, Yuanta Securities



Ho-jung Kim

Economist

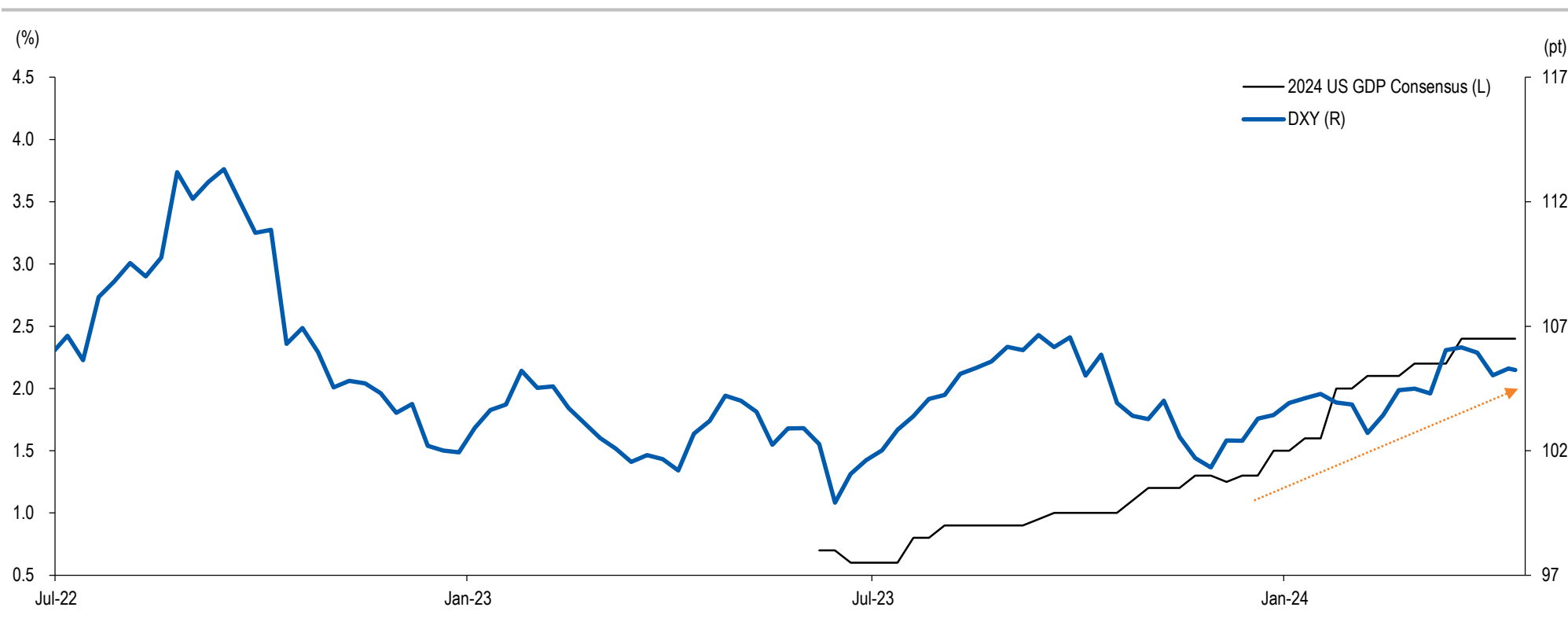
+822 3770 3630

hojung.kim@yuantakorea.com

Strong dollar trend

The strong economy of the United States

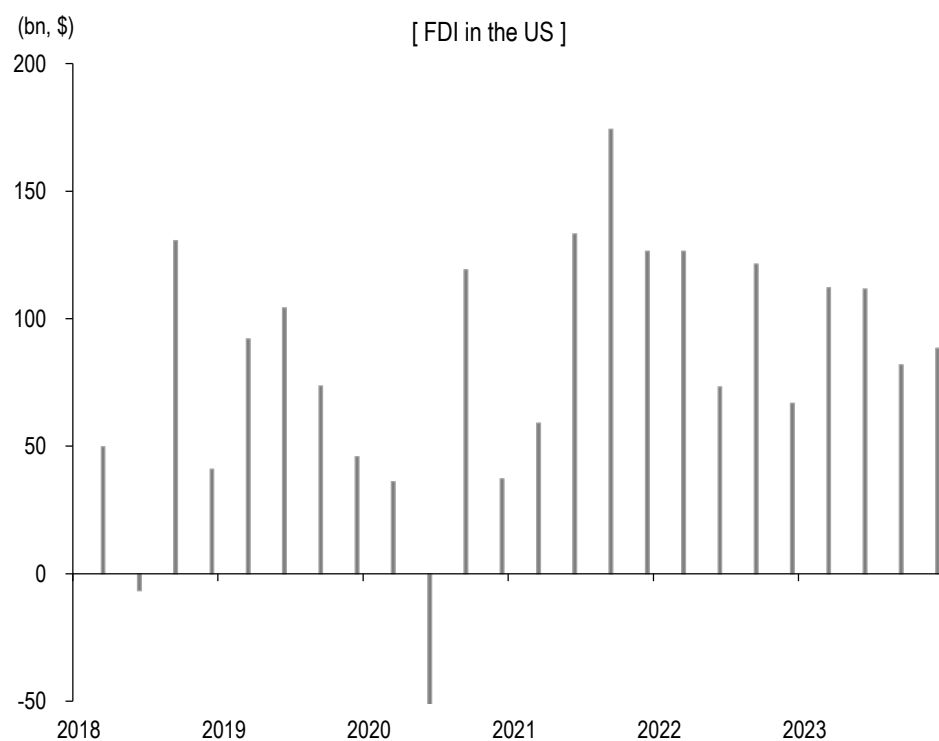
- In the current economic environment, only the United States is growing remarkably. Global growth is stagnant.
- There is much skepticism about US growth after the first-quarter GDP announcement, but if it makes up for sluggish growth in the second quarter, the dollar will likely come under pressure to strengthen again.



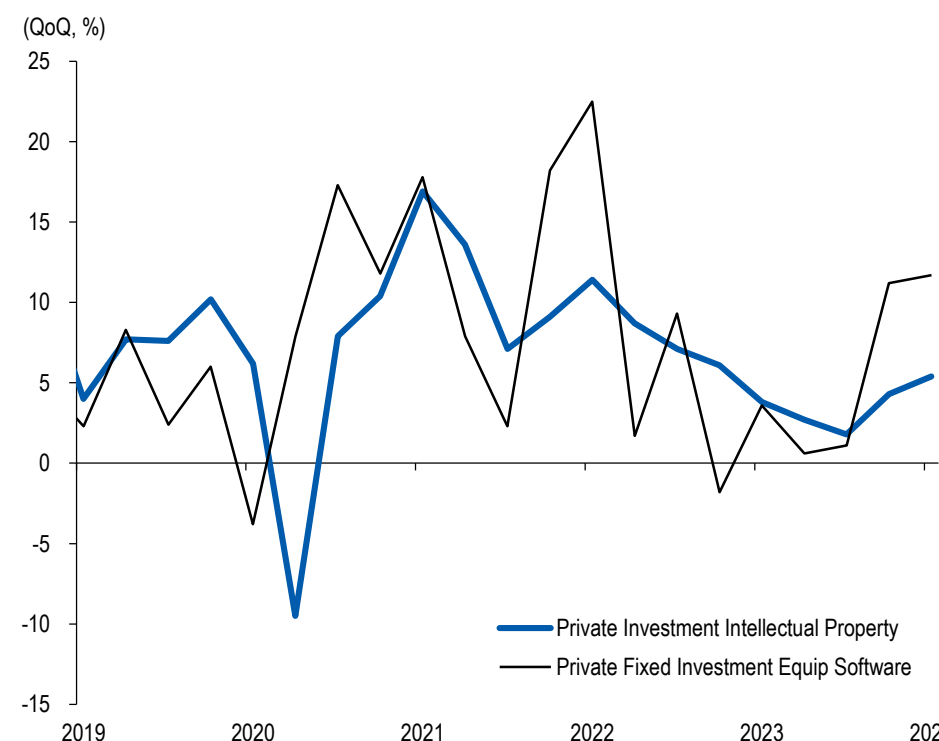
Source: Bloomberg, Yuanta Securities

Investment focused on the United States

- The concentration of investment in the United States is also causing the dollar to strengthen. In the past, the dollar rotated due to investments around the world. Currently, investment is increasing in the US, but sluggish elsewhere.
- In particular, the US has expanded its investment in intangible assets. Intangible assets have low depreciation, so investment costs are also low. The focus of investment in the US causes the dollar to strengthen.



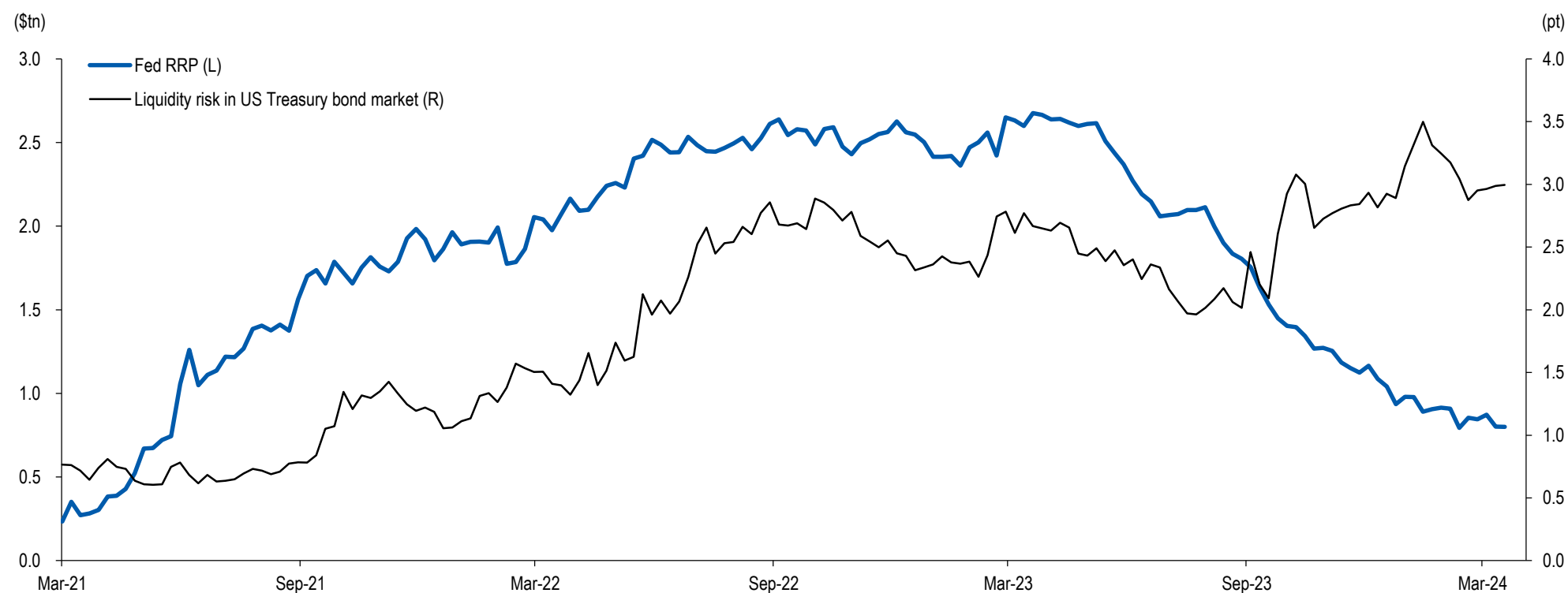
Source: Bloomberg, Yuanta Securities



Source: Bloomberg, Yuanta Securities

Unstable supply-demand of US bond and short-term fund market

- As of April, reverse repo balance stands at around \$400bn, down sharply compared to Dec 2022 (\$2.2tn). Concerns over dollar liquidity supply are rising on depletion of the reverse repo balance.
- With short-term interest rates rising faster recently, bond market supply-demand is likely to become increasingly unstable. Supply-demand in the short-term bond market will lead to liquidity risk aversion and increased US dollar spot demand.



Source: Bloomberg, Yuanta Securities



Ho-jung Kim

Economist

+822 3770 3630

hojung.kim@yuantakorea.com

Outlook on value of the KRW

Dollar supply and demand situation in Korea

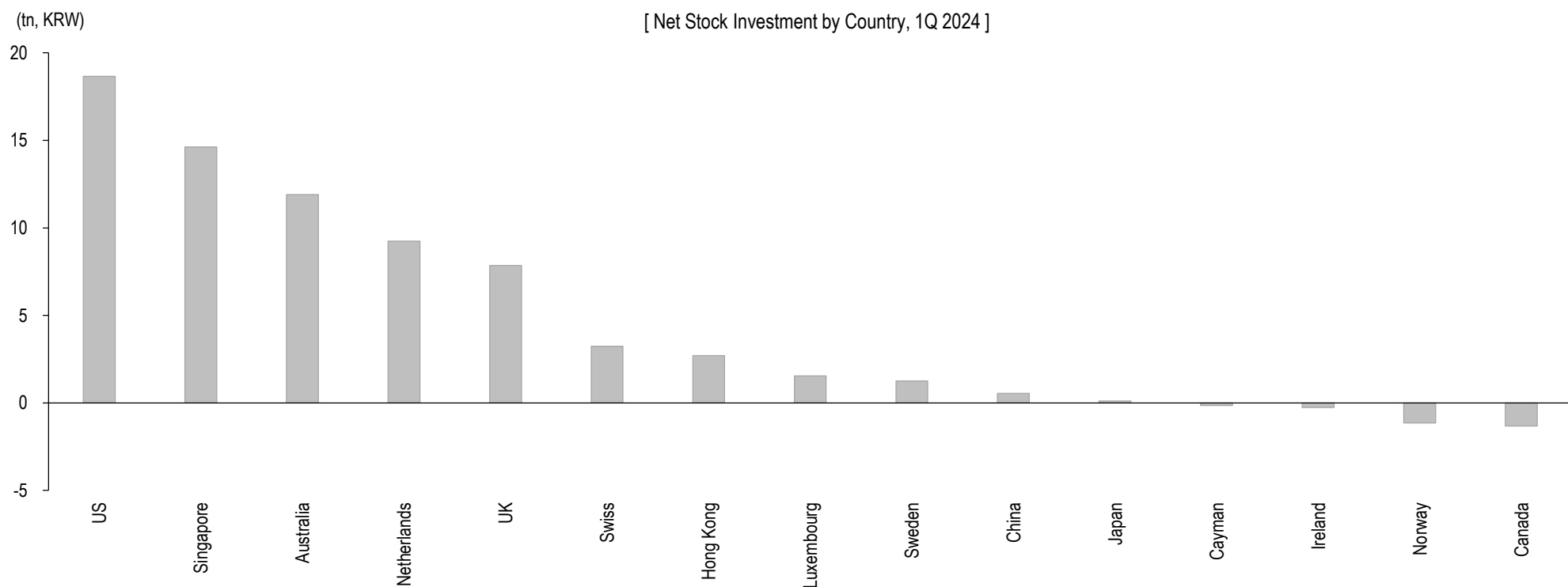
- Korea's stock market is highly dependent on exports and foreign investors. Dollar supply and demand is chronically rigid.
- CDS, an overseas trading cost for USD, have recently fallen, and basis swaps, domestic trading costs for USD, are also highly volatile.



Source: Bloomberg, Yuanta Securities

Foreign investors expand investment in Korean stocks

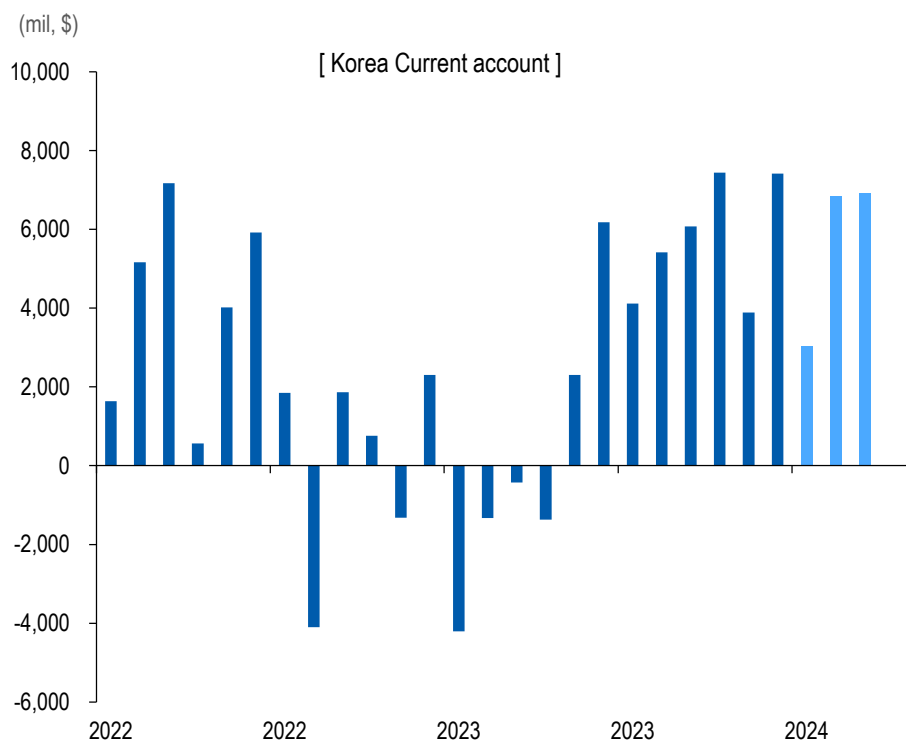
- Expanding foreign investment in Korean stocks is positive, as the won-dollar exchange rate does not rise further.
- Foreign investors net buying of Korean stocks continues due to the “value-up program.” Average daily trading volume on Seoul Exchange surged this year compared to previous years.



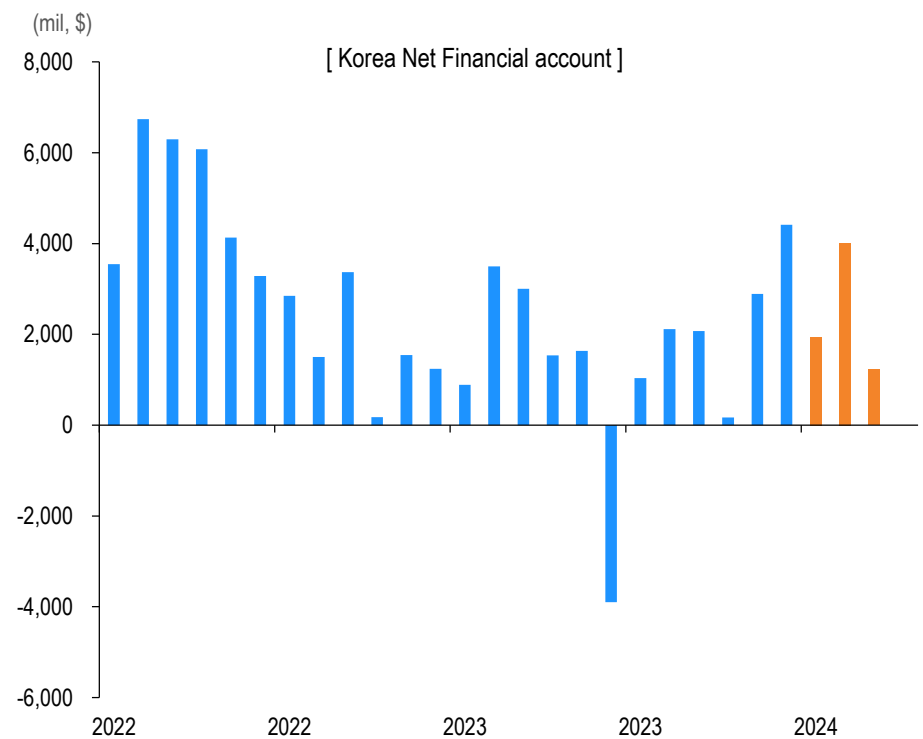
Source: BoK, Yuanta Securities

FX fundamentals - current surplus stance

- The current-account surplus stance is important in relation to foreign borrowing. As of March, Korea's current account stood at +\$6.93 billion, posting a surplus for an 11th straight month.
- The current-account surplus and foreign investment in Korea are factors that increase the value of the KRW by reducing the dependence on external borrowing



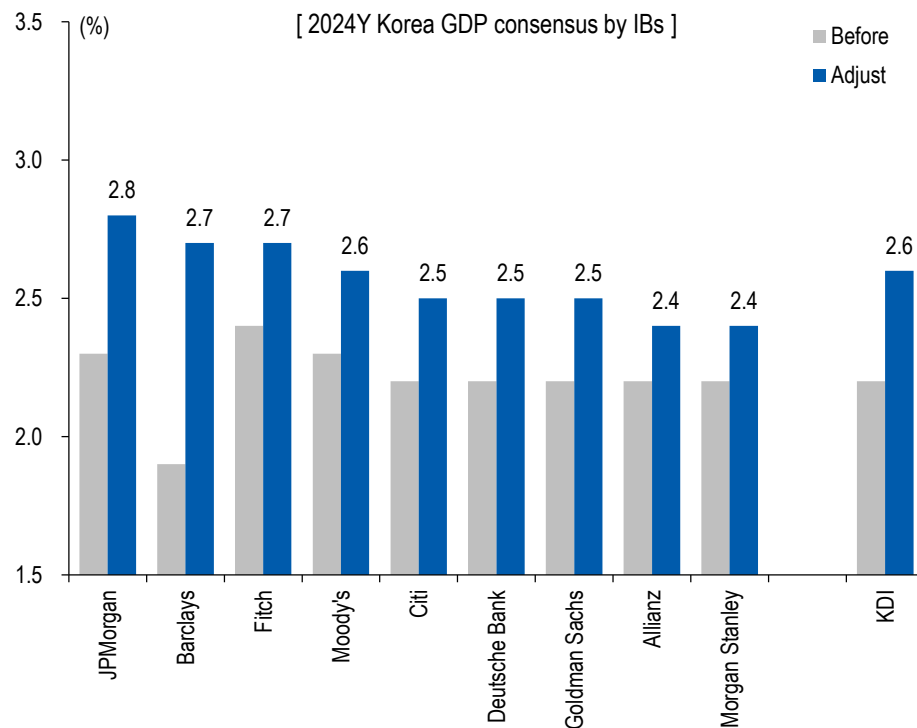
Source: BoK, Yuanta Securities



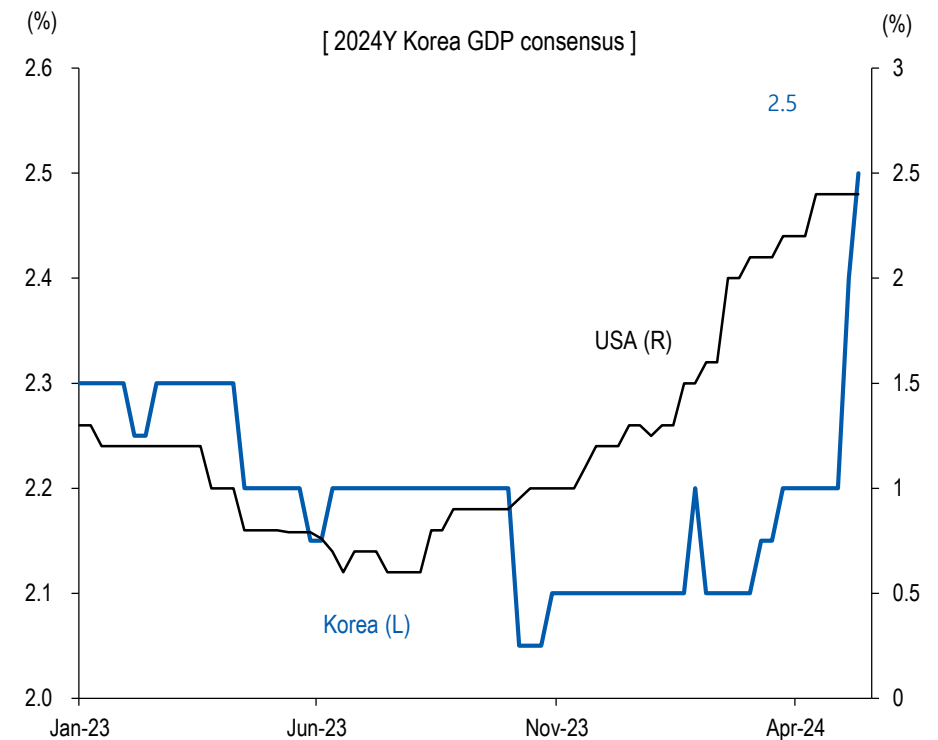
Source: BoK, Yuanta Securities

Forex fundamentals: Korea's economic growth

- Korea's 1Q24 GDP posted surprise growth of 1.3% QoQ, 3.4% YoY. Net exports contributed significantly.
- Global IBs are raising their growth forecasts for Korea in May. The 2024 growth consensus jumped to 2.5%.
- Strong economic growth is a factor that directly contributes to the recovery of the KRW value.



Source: Bloomberg, Yuanta Securities



Source: Bloomberg, Yuanta Securities

Key implications for KRW

- Currently, there is no systemic risk, in contrast to Oct 2022, when the KRW/USD surged to W1,450/\$ due to risks triggered by Credit Suisse. Moreover, Korea's macro fundamentals are sounder than in 2022 thanks to the recovering trade balance and current account balance and decrease in short-term debts.
- Thus, additional overshooting that diverges from the KRW/USD forecast will likely be determined by the global war issue.
- If the war in Middle East escalates into a wider regional conflict, the KRW/USD may temporarily surpass W1,400/\$.
- If oil prices stabilize without further escalation, the KRW/USD should stabilize down at W1,280~1,300/\$ at end-2024.
- Since the Fed is reviewing whether to adjust the pace of tightening, risk in the short-term fund market will likely ease and the dollar may stabilize.
- If a September rate cut becomes gradually certain, as the interest rate futures market expects, the KRW/USD will likely turn down preemptively. YSK Research Center's quarter-end forex forecast: 1Q W1,347/\$ → 2Q W1,355, 3Q W1,315, 4Q W1,290
- Annual forecast: bottom of W1,280/\$, top of W1,420, and average of W1,330.



Dae-seok Kang

Equity Market

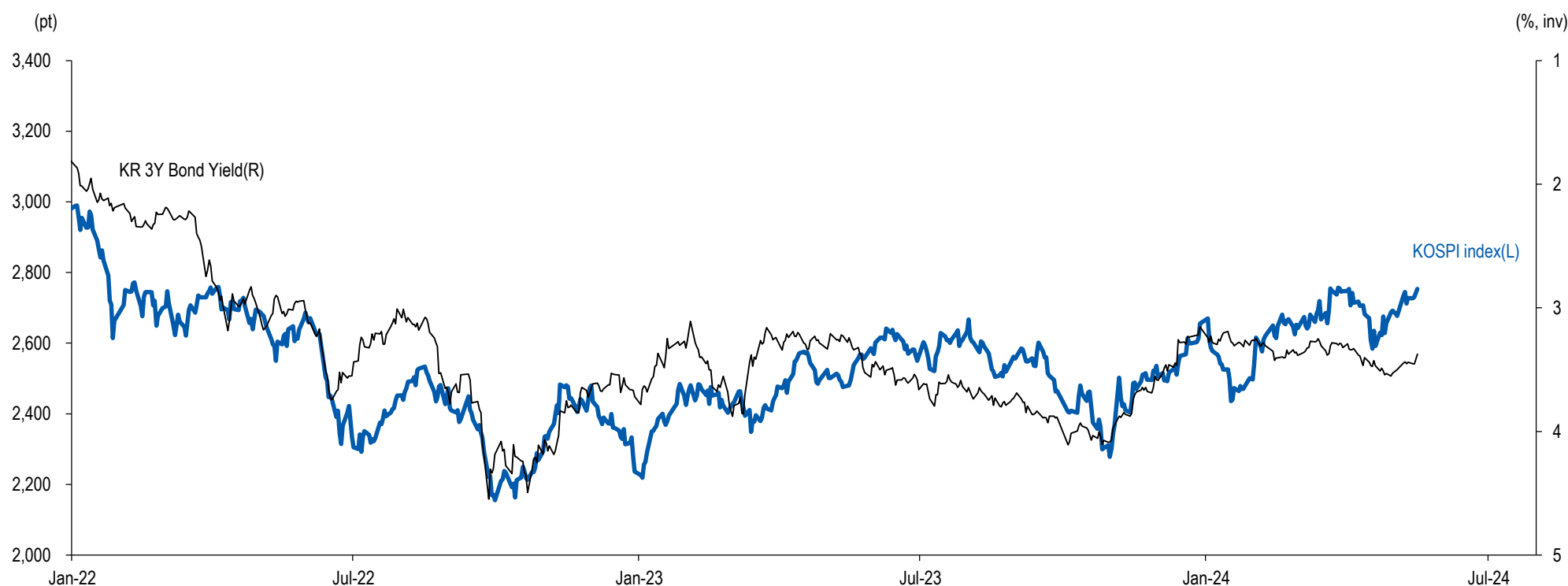
+822 3770 3631

daeseok.kang@yuantakorea.com

Review of Korean stock market

Review of KOSPI

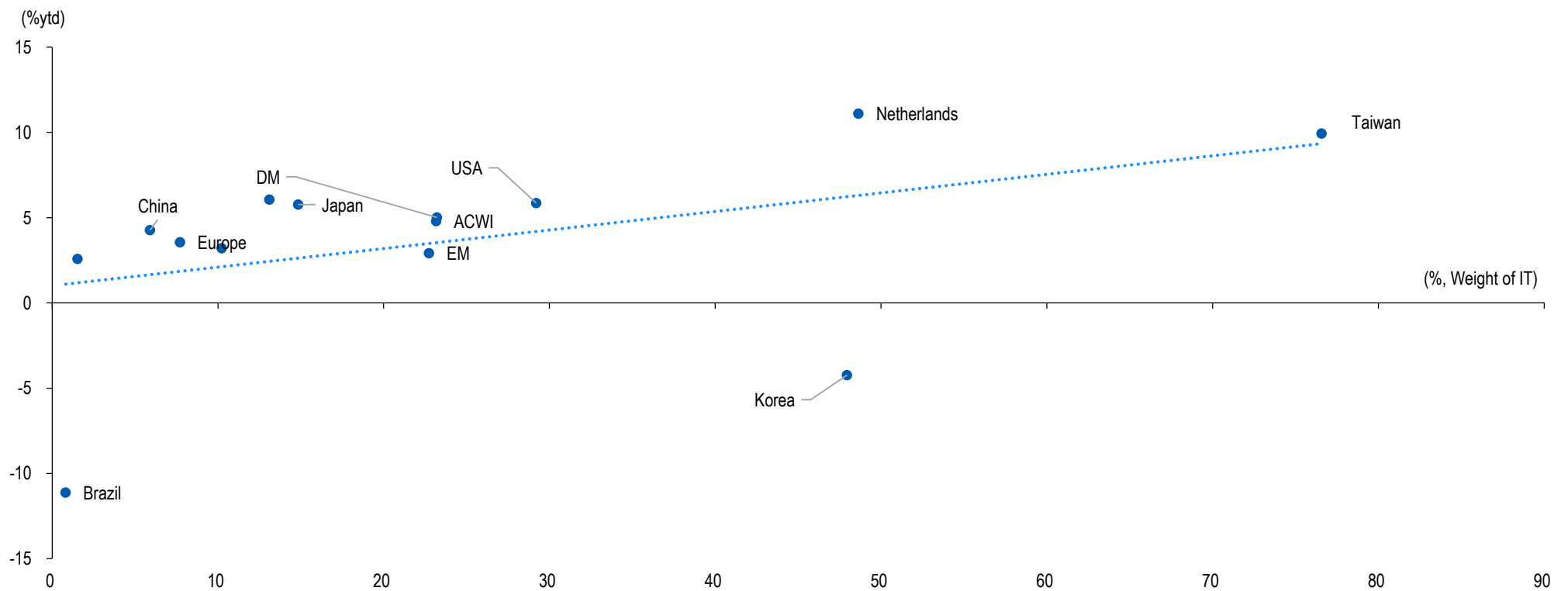
- As of 17 May, the KOSPI is up 2.6% since the start of the year.
- Given the strong correlation with interest rates, there was a correction in April. But the KOSPI has quickly recovered since the end of April. It is now back near 52-week highs and holding there



Source: Yuanta Securities

In USD terms, actually down

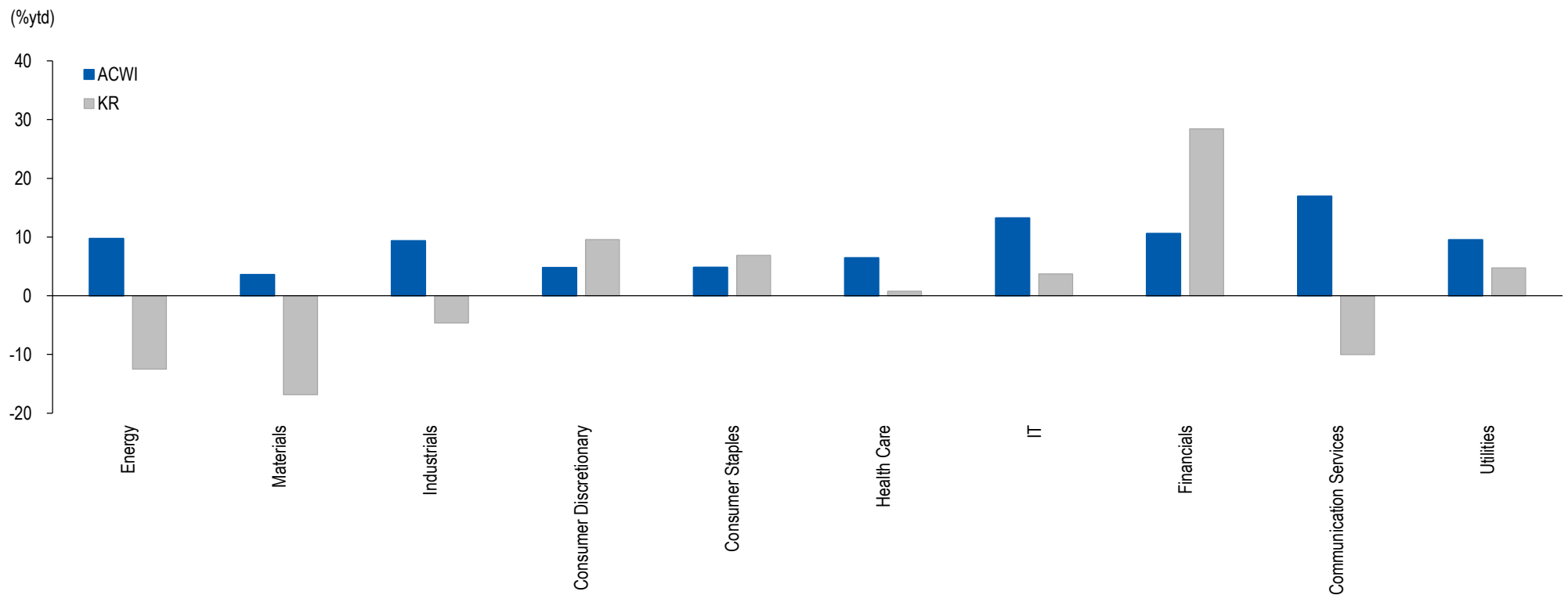
- The MSCI Korea Index is down around 4.2% YTD in dollar terms. This is unusual given that global equity markets have generally been stronger in IT-heavy countries, driven by AI hype.



Source: Bloomberg, Yuanta Securities

Differences in stock price performance by sector

- Looking at the difference in performance between global and Korean equities by sector, IT was strong, but weaker than global equities.
- On the other hand, consumer discretionary (including autos) and financials were stronger than global equities. This is directly related to expectations for the Korean government's Value-up Program.



Source: Bloomberg, Yuanta Securities



Dae-seok Kang

Equity Market

+822 3770 3631

daeseok.kang@yuantakorea.com

Corporate Value-up Program

Progress and plans

- Korean Financial authorities first started discussions on a Value-up Program in late January. Since then, a series of events have been held.
- According to the KRX, there will be more events in the future. It will continue to be a hot topic for the Korean stock market.

Date	Event
2024-05-02	Value-up program 2nd seminar
2024-04-26	Seminar for listed companies (emerging)
2024-04-23	Corporate Value-up advisory group meeting (4th)
2024-04-18	Seminar for listed companies (top 10 conglomerates)
2024-04-17	Seminar for listed companies (mid-market companies)
2024-04-15	Seminar for foreign securities firms
2024-04-11	Corporate Value-up advisory group meeting (3rd)
2024-04-04	Seminar for listed companies (large-cap companies)
2024-03-28	Corporate value-up advisory group meeting (2nd)
2024-03-25	ACGA IR
2024-03-22	Seminar for foreign securities firms
2024-03-14	Seminar for major investors (pension fund, etc.)
2024-03-07	Corporate Value-up advisory group meeting (1st)
2024-02-27	IR in singapore
2024-02-26	Value-up program 1st seminar

Source: KRX, Yuanta Securities

2024	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Disclosure of Corporate Value-up plan (from May)	Disclosure begins							
Opening up of integrated web & investment indicators to be presented (from May)	Open							
On-site regional value-up seminars (From May)	On							
Board instruction (from end of May), disclosure training, English translation services & business consulting (from June)	Instruction begins		Training, etc. begins					
Development of Value-up Index (by Sep.) & ETF (by Dec.)						Announce Index		
Launch of financial instruments such as Index-linked ETF, etc. (by Dec.)								Launch ETF, etc.

Source: KRX, Yuanta Securities

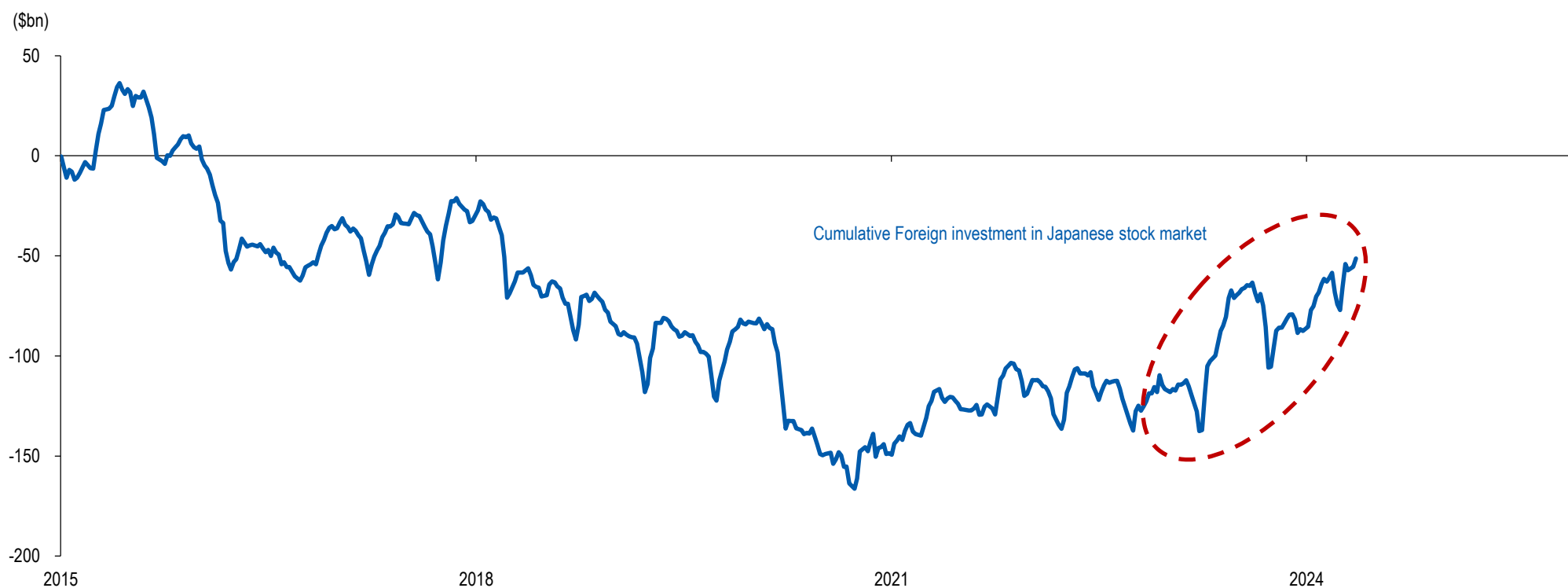
Incentives for voluntary efforts by listed companies

Incentives	Details
Tax benefits	Tax benefits to induce corporate value-up efforts, etc.
	For companies expanding shareholder returns, deductions for corporate tax & dividend income tax
Value-up Awards	Five tax support programs
	Extra points granted when reviewed for exemption from the periodic external auditor designation requirement
	Mitigation in penalties resulting from audit review
	Exemption from KRX annual dues
	Exemption from fees related to making changes to KRX listing status
	Suspension of KRX measures (fines, sanctions, etc.) regarding unfaithful disclosure
	Priority for participation to KRX Joint IR
	Preferential treatment to be included in Korea Value-up Index
Preferential Assessments	Additional points given to KRX best practice companies for disclosure & "KODAQ Grand Prix" companies
	Best practice companies will be published in white paper in May every year
Index, ETF Development	Development of "Korea Value-up Index"(progress)
	Financial instruments such as "Index-linked ETF, etc." to be launched
Stewardship Code	Revision of guidelines (Mar.14) for Stewardship Code
	Expected to be used by pension services, etc.
Comparison of Major Investment Indicators Provided	"Corporate Value-up Integrated Web" will open up in May 2024
	Major investment indicators provided such as PBR/Dividend yield ration etc.

Source: KRX, Yuanta Securities

Expectations for the Japanese case

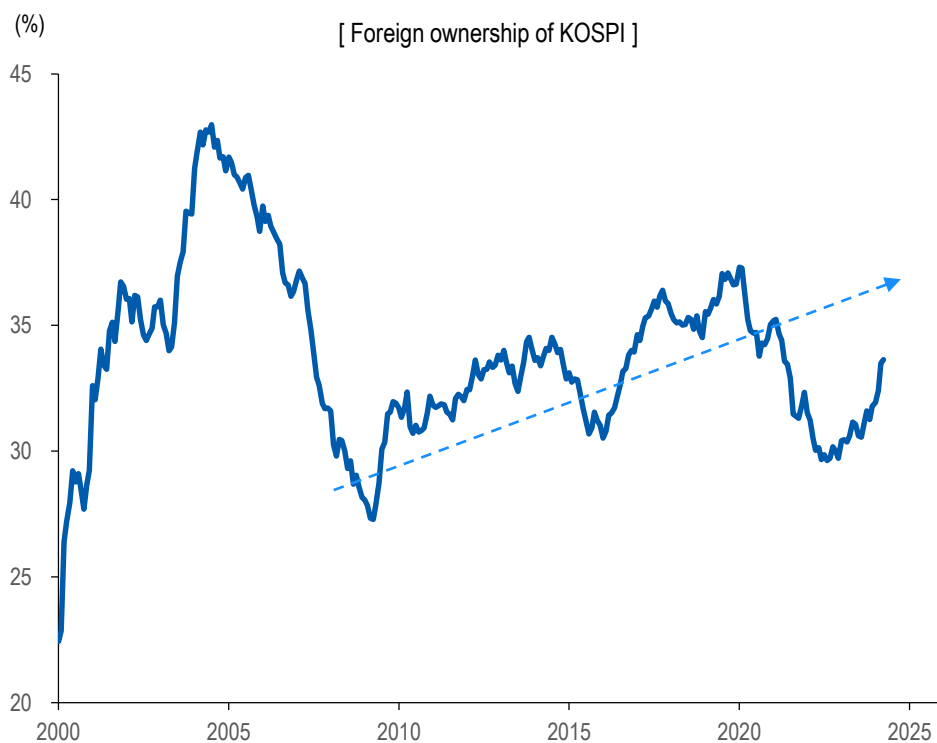
- Investors are looking at the Japanese example. Foreign investors are stepping up their net buying of Japanese equities. One of main triggers was the demand for JPX to disclose its valuation enhancement plan.



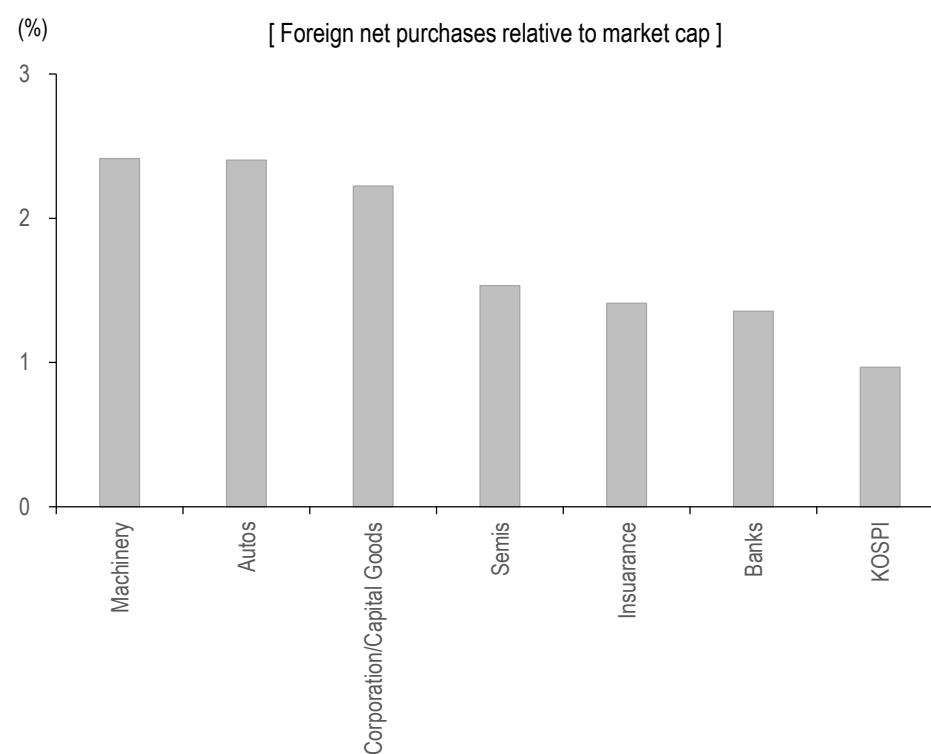
Source: Bloomberg, Yuanta Securities

Similar in Korea

- Foreign investor net buying of Korean equities intensified after the announcement of the Value-up Program. Since the beginning of the year, they have net bought more than 20 trillion won, and have net bought for seven months in a row.
- In terms of net buying intensity relative to market capitalization by sector, autos, corporation/holdings, and financials outperformed the KOSPI.



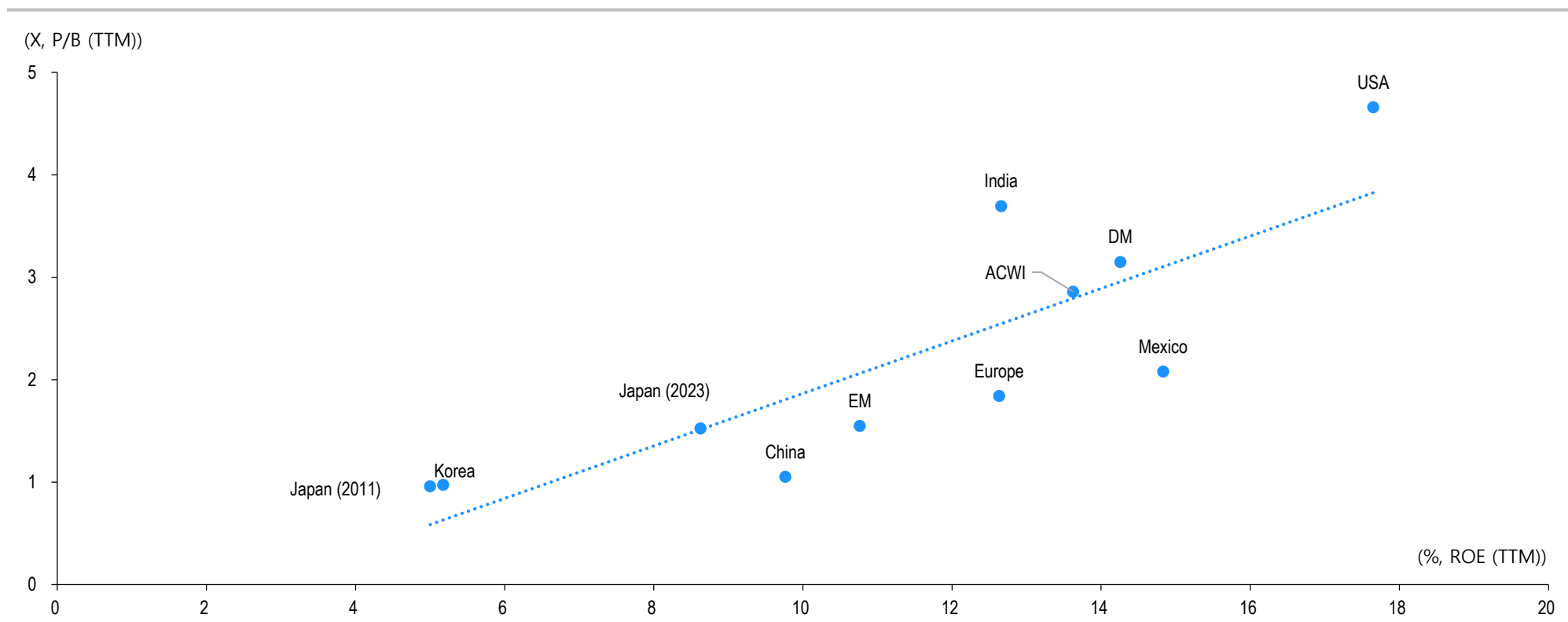
Source: FnGuide, Yuanta Securities



Source: FnGuide, Yuanta Securities

Positive in the long run

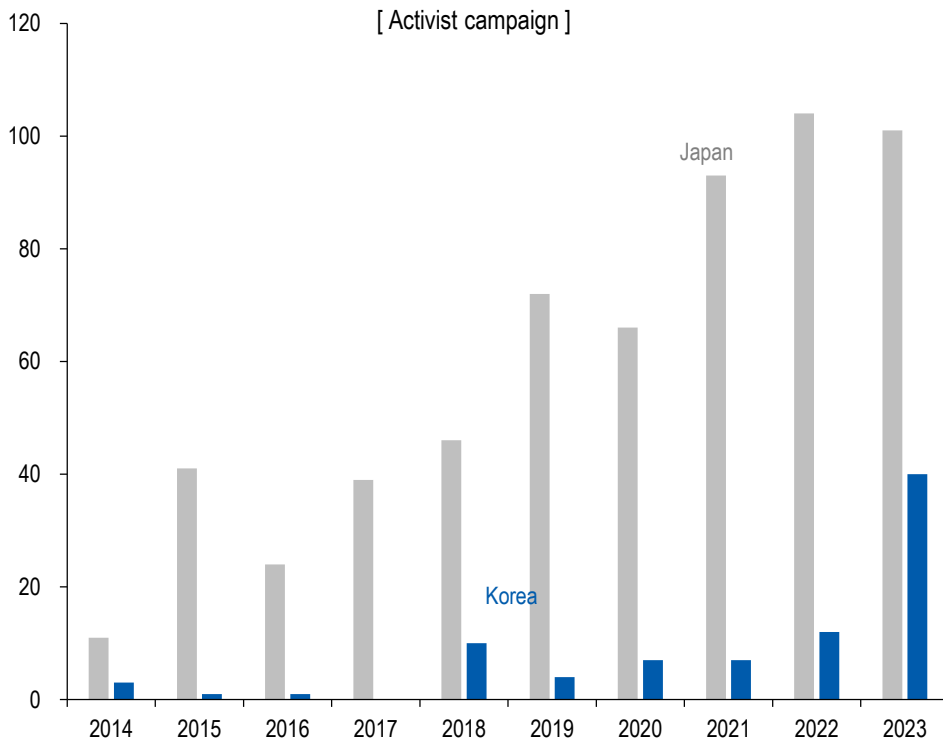
- Profitability and valuations of Japanese stocks before Abenomics were implemented in Japan were similar to those of Korea last year.
- In the long term, we expect the structure of the Korean stock market to improve.



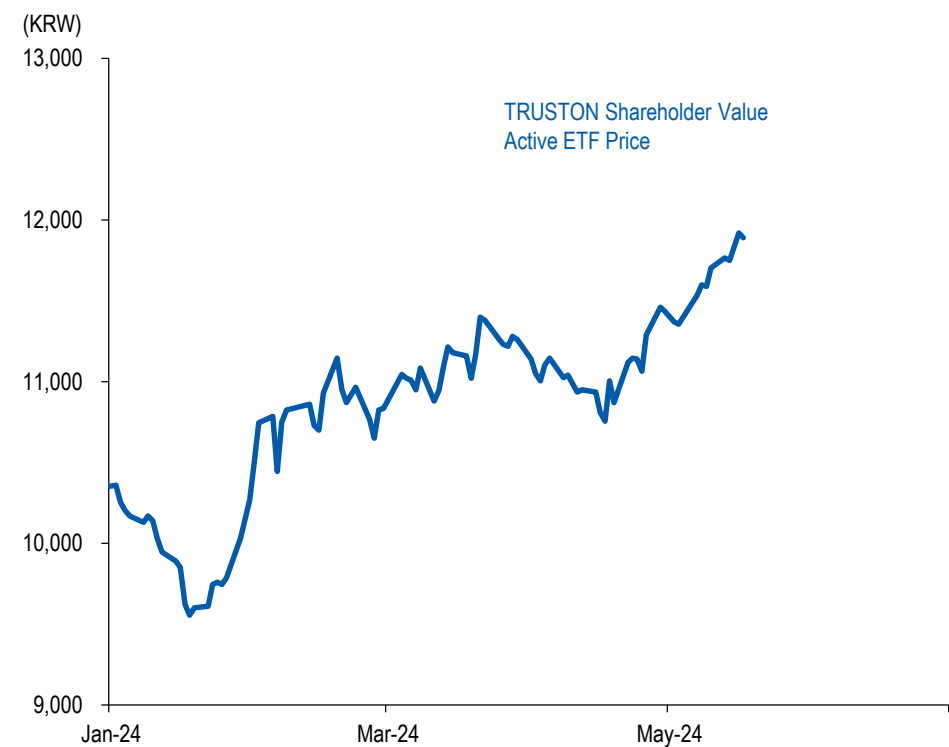
Source: Bloomberg, Yuanta Securities

Interest in activism

- Japan has seen a steady increase in activism campaigns over the past decade. In Korea, the number of activist campaigns is still low, but is slowly increasing.
- For example, an ETF launched by activist-orientated Truston Asset Management in Korea has been gaining traction this year. Up 15% since the start of the year, outperforming the KOSPI.



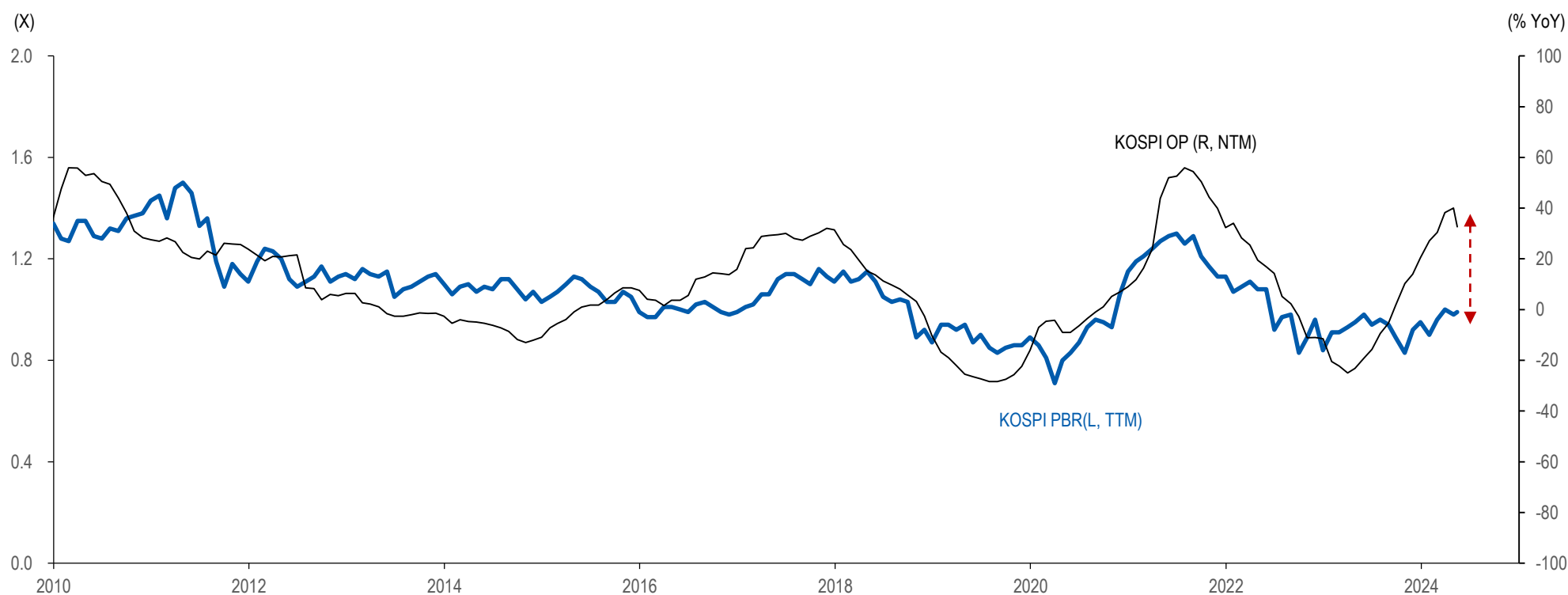
Source: Bloomberg, Yuanta Securities



Source: Bloomberg, Yuanta Securities

Confidence in profits is expected to return

- Korean companies' earnings outlooks and valuations tend to move in tandem. However, valuations remain low despite improving profit forecasts since the second half of last year. This suggests a lack of confidence in the earnings consensus.
- We expect confidence in the earnings outlook to be reassured by the state of Korean exports and global economic conditions. In the process, we believe the Value-up Program could show more positive results.



Source: FnGuide, Yuanta Securities



Disclosures & disclaimers

This research report has been prepared for informational purposes only; it does not constitute an offer or a solicitation of an offer to buy or sell any securities or other financial instruments. The information and data contained in this report have been obtained from sources we consider reliable; however, we make no representation that the information provided in this report is accurate or complete, and it should not be relied on as such. The recipient of this report should use his/her independent judgment regarding the sale or purchase of any securities or financial instruments mentioned herein. We disclaim any liability whatsoever for any direct or consequential loss arising from any use of this report or its contents. This report is for our clients only. It is copyrighted material and may not be reproduced, transmitted, quoted, or distributed in any manner without the prior written consent of Yuanta Securities Korea Co., Ltd.

As of the date of publication of this report, Yuanta Securities Korea Co., Ltd. does not own 1% or more of the subject company's shares outstanding. As of the date of publication of this report, Yuanta Securities Korea Co., Ltd. does not have any special interests in the subject company.

The material contained herein was not disclosed by Yuanta Securities Korea Co., Ltd. to any institutional investors or third parties prior to its publication. The analyst (s) of this report or the analyst (s)' spouse does not have any financial interest in the securities of the subject company (ies) mentioned herein, nor financial interest of any nature related to the subject company (ies) (including without limitation, whether it consists of any option, right, warrant, future, long or short position), as of the publication date of this report.

Analyst certification

We, as the research analyst/analysts who prepared this research report, do hereby certify that the views expressed in this report accurately reflect my/our personal views about the subject securities discussed in this report.

Stock and sector ratings

- **Stock ratings** include an Investment Rating (Strong Buy, Buy, Hold, Sell) based on the expected absolute return of a stock over the next 6 -12 months.
- - Strong Buy: Expected to return 30% or more
- - Buy: Expected to return between 10% and 30%
- - Hold: Expected to return between -10 and +10%
- - Sell: Expected to return -10% or less
- **Sector ratings** suggest 6 to 12 - month forward investment weighting of a given sector compared to its market capitalization weighting.
- - Overweight: Investment weighting is higher than the market capitalization weighting
- - Neutral: Investment weighting is equal to the market capitalization weighting
- - Underweight: Investment weighting is lower than the market capitalization weighting



Thank You



Park Systems Investor Relations

Enabling Nanoscale Advances

→ Disclaimer

This document is an investor relations (Presentation) of Park Systems Corporation (the Company). You are prohibited from making and distributing copies to others without Park Systems's written consent.

Your attendance or reading of this Presentation shall constitute that you have agreed with the above confidentiality notice. And violating it may be punishable by the Act of the Financial Investment Services and Capital Markets.

The forward-looking statements contained in this document are not from verifiable data. The estimates included in this document are forecasted data and not actual data from the past. Those data are denoted as (E), estimate and forecast. The estimated and forecasted numbers and information can change based on the changing business environment. Because this information is inherently difficult to predict, the estimations and forecasts can deviate significantly in actuality.

Furthermore, the forecast is based on the current market conditions and the status of the Company management and plan as of the date of this presentation. The market in the future may change and the Company's plans may be modified without notice. The officers of the Company and the Company will not be responsible for any loss arising from the use of this material (including negligence and others).

This document shall not constitute an offer or solicitation to sales, marketing, or subscription of shares without any part that can be the basis or a basis for investment decisions or contracts and commitments in the document.

Contents



Introduction



Competitiveness



Financials



ESG

Contents



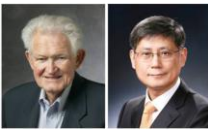
Introduction

- Over 30 yrs. History
- Customers
- Product Line
- Global Channels
- H. R.

Over 30-Year History in Atomic Force Microscopy

Park Systems was founded by one of the original developers of atomic force microscopy (AFM) to bring the world's most accurate nanoscale metrology and imaging instruments to a broad market.

The Birth-Place of AFM



1982-1988

The First AFM Company

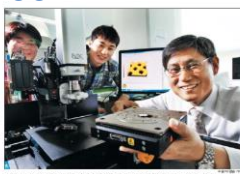


Park Scientific Instruments

1988-1997

세계 최초 원자현미경 개발 실리콘밸리 성공 신화 주역 고국서 두 번째 '벤처 人生'

대기업 퇴직자 박정호(58)는 1988년 미국 실리콘밸리에서 원자현미경 개발을 시작했다. 그는 1982년부터 1988년까지 스탠포드 대학에서 박사학위를 취득하고, 1988년 미국 실리콘밸리에 있는 '벨연구소(Bell Labs)'에서 근무했다. 벨연구소는 원자현미경의 발명자인 Gerd Binnig, Roh Tae-yeon, Heinrich Rohrer와 함께 원자현미경의 개발에 크게 공헌했다. 박정호는 벨연구소에서 원자현미경의 핵심 부품인 '진공 챔버'를 설계하고 제작하는 일을 맡았다. 그는 원자현미경의 성능을 높이기 위해 진공 챔버의 설계와 제작에 몰두했다. 그의 노력은 원자현미경의 성능을 크게 향상시켰고, 이는 원자현미경의 상용화에 크게 공헌했다. 박정호는 벨연구소에서 근무하는 동안 원자현미경의 핵심 기술을 습득했고, 이는 그가 미국에서 창업한 Park Scientific Instruments의 성공에 크게 공헌했다. 그는 원자현미경의 핵심 기술을 미국에서 창업한 Park Scientific Instruments에 전수했고, 이는 Park Scientific Instruments의 성공에 크게 공헌했다. 그는 원자현미경의 핵심 기술을 미국에서 창업한 Park Scientific Instruments에 전수했고, 이는 Park Scientific Instruments의 성공에 크게 공헌했다.



The AFM Technology Innovator



1997-Present

KOSDAQ LISTED COMPANY 2015

세계 2위, 국내 유일 - 원자현미경 분야 '매운 고추'

박태표, 스탠포드에서 물리학 전공 후 교수로도 기용된 노노 분야 개척자 박스시스템즈 창업자 겸 대표인 노노 분야 개척자 박태표(58)는 1997년 미국 실리콘밸리에 있는 '벨연구소(Bell Labs)'에서 근무했다. 벨연구소는 원자현미경의 발명자인 Gerd Binnig, Roh Tae-yeon, Heinrich Rohrer와 함께 원자현미경의 개발에 크게 공헌했다. 박태표는 벨연구소에서 원자현미경의 핵심 부품인 '진공 챔버'를 설계하고 제작하는 일을 맡았다. 그는 원자현미경의 성능을 높이기 위해 진공 챔버의 설계와 제작에 몰두했다. 그의 노력은 원자현미경의 성능을 크게 향상시켰고, 이는 원자현미경의 상용화에 크게 공헌했다. 박태표는 벨연구소에서 근무하는 동안 원자현미경의 핵심 기술을 습득했고, 이는 그가 미국에서 창업한 Park Scientific Instruments의 성공에 크게 공헌했다. 그는 원자현미경의 핵심 기술을 미국에서 창업한 Park Scientific Instruments에 전수했고, 이는 Park Scientific Instruments의 성공에 크게 공헌했다.



한국에서 유일하게 2015년 코스닥에 상장된 박스시스템즈의 창업자 겸 대표인 노노 분야 개척자 박태표(58)는 1997년 미국 실리콘밸리에 있는 '벨연구소(Bell Labs)'에서 근무했다. 벨연구소는 원자현미경의 발명자인 Gerd Binnig, Roh Tae-yeon, Heinrich Rohrer와 함께 원자현미경의 개발에 크게 공헌했다. 박태표는 벨연구소에서 원자현미경의 핵심 부품인 '진공 챔버'를 설계하고 제작하는 일을 맡았다. 그는 원자현미경의 성능을 높이기 위해 진공 챔버의 설계와 제작에 몰두했다. 그의 노력은 원자현미경의 성능을 크게 향상시켰고, 이는 원자현미경의 상용화에 크게 공헌했다. 박태표는 벨연구소에서 근무하는 동안 원자현미경의 핵심 기술을 습득했고, 이는 그가 미국에서 창업한 Park Scientific Instruments의 성공에 크게 공헌했다. 그는 원자현미경의 핵심 기술을 미국에서 창업한 Park Scientific Instruments에 전수했고, 이는 Park Scientific Instruments의 성공에 크게 공헌했다.

Customers

Park Systems' AFM is widely used for nanoscale measurement in Fabs, Global universities, State-run research institutes, Corporate research institutes, and Global semiconductor companies.



Product Line

Park Systems supplies research products for nanotechnology research and industrial products used by HDD manufacturers, Semiconductor manufacturers, and Display manufacturers around the world.

Research



Park NX7



Park NX10



Park NX20



Park NX12



Park NX-Hivac



Park FX40

Park
SYSTEMS

Industrial



Park NX-HDM



Park NX-3DM



Park NX-TSH



Park NX-Wafer



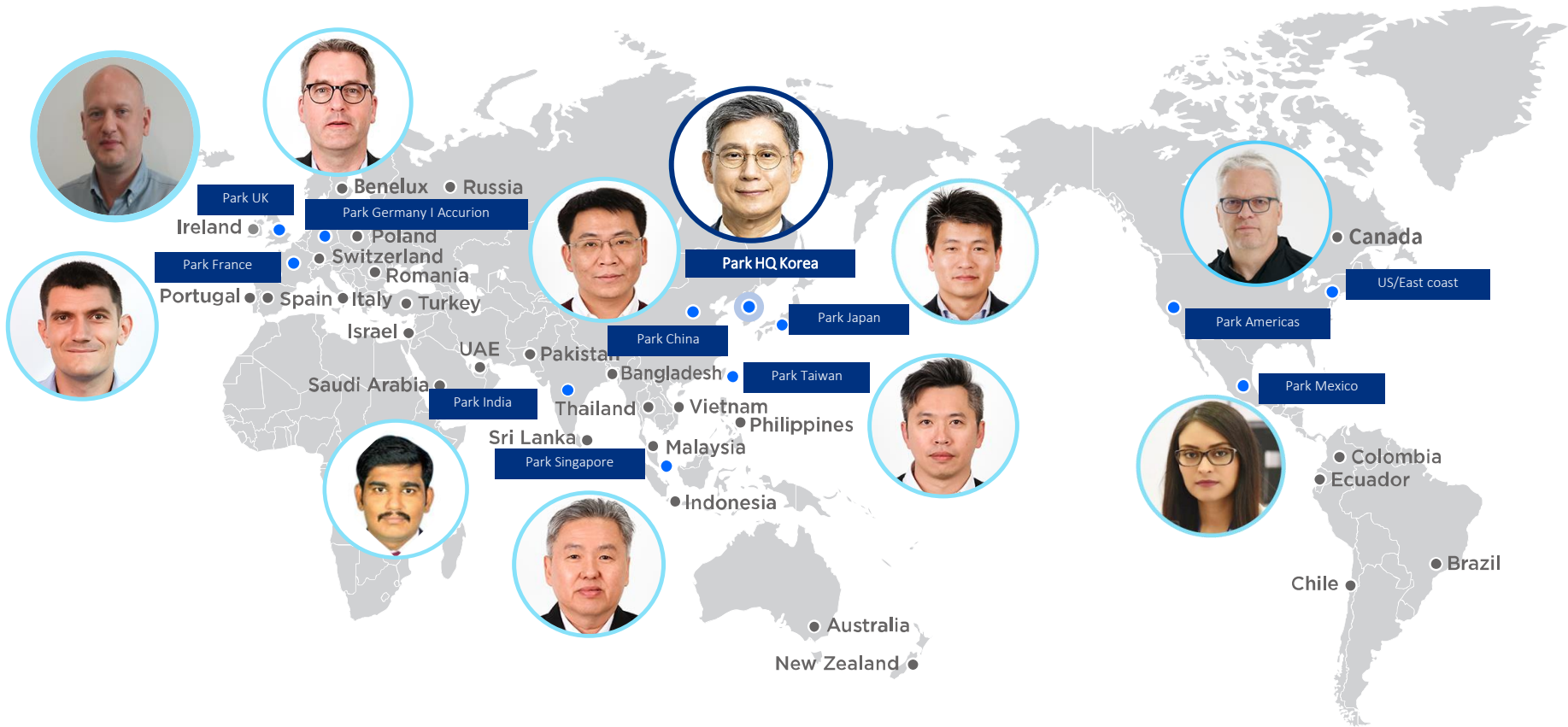
Park NX-Hybrid WLI



Park NX-Mask

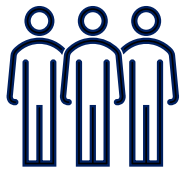
Global Sales and Service Channels

Park Systems operates 12 local offices in 11 countries around the world and has established a sales network in 30 other countries and provided its own brand of products directly to customers worldwide.

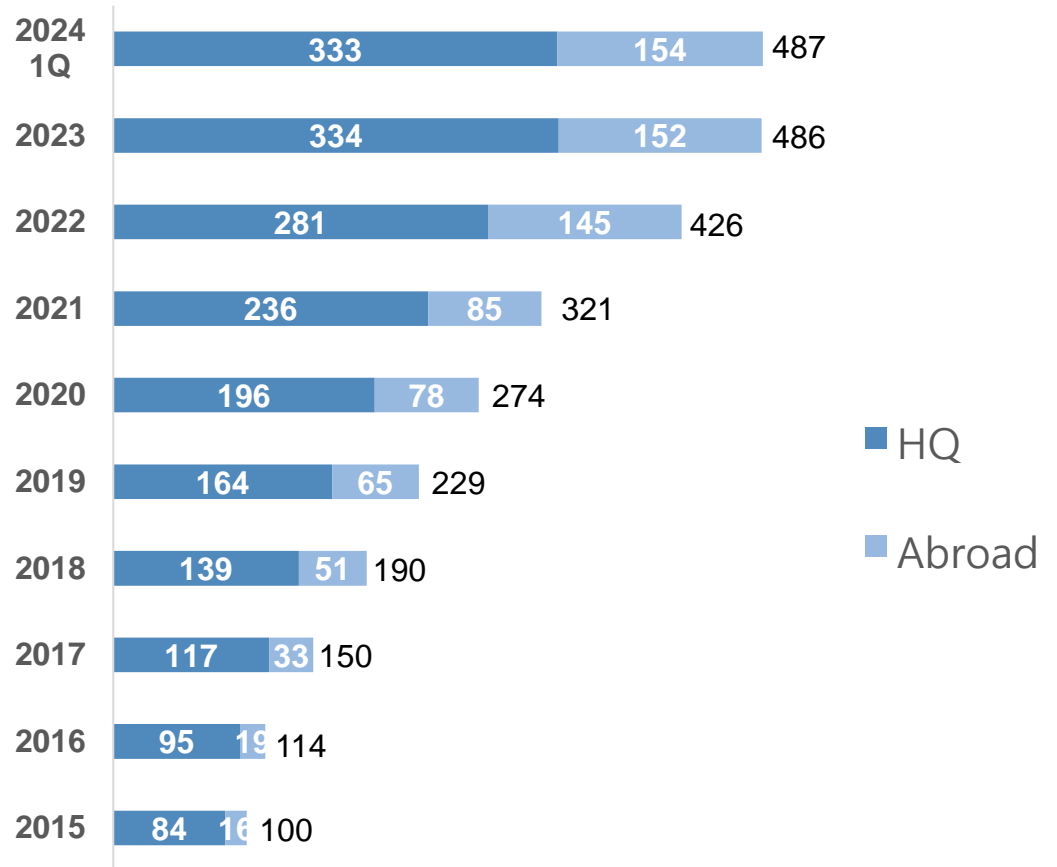


Park Systems currently has a total of 487 employees, 333 in Korea and 154 overseas.

Status of Employees



Total employees :
486 (As of 2023.12.31)



Contents



Competitiveness

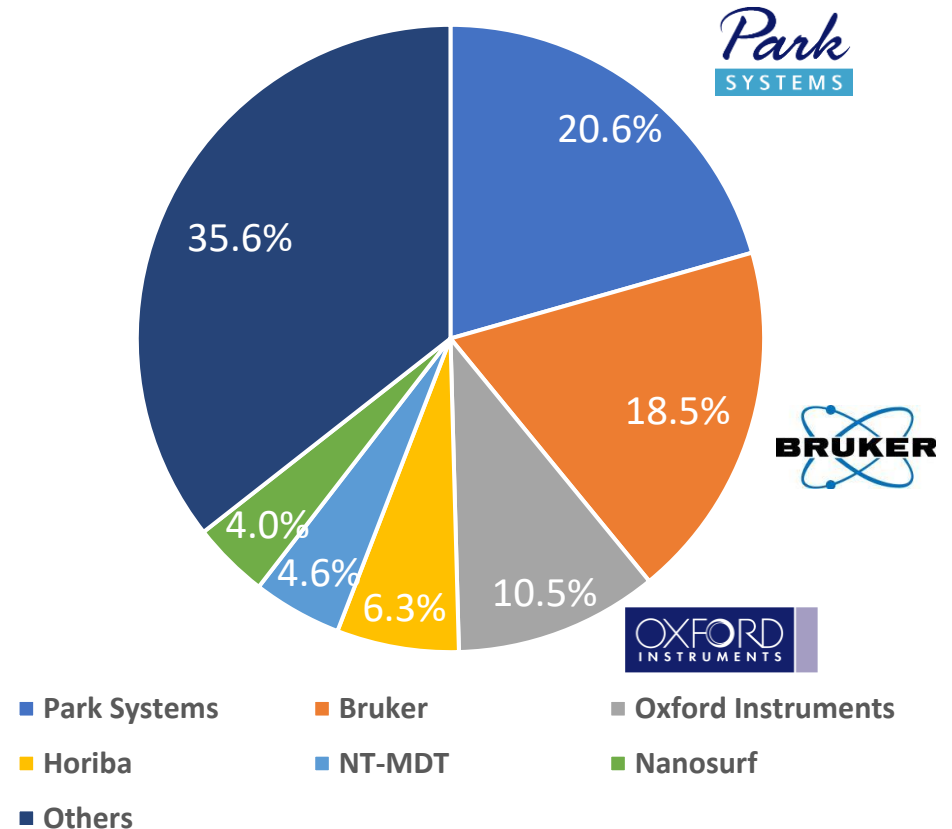
- Market size & Competitors
- R&D Focused Investment
- AFM Technology & Industrial Automation
- Patents

Market size & Competitors

Global No.1 AFM Player*

- Park Systems, a leading manufacturer of nano-metrology systems, proudly maintains its position as the industry leader in the atomic force microscopy (AFM) market for the second consecutive year as of 2023, according to QY Research 2024.
- Park Systems has once again outpaced its competitors by securing the top spot in market share of 20.61% in 2023, demonstrating unwavering excellence and commitment to advancing AFM technology.
- From 2019 to 2023, Park Systems has demonstrated an impressive CAGR of 30%, markedly higher than its main competitors, according to QY Research. While major competitors have grown with CAGRs of approximately 8% and 10% respectively, Park Systems has outpaced the competition with a staggering CAGR.

Top 6 AFM Manufacturers*

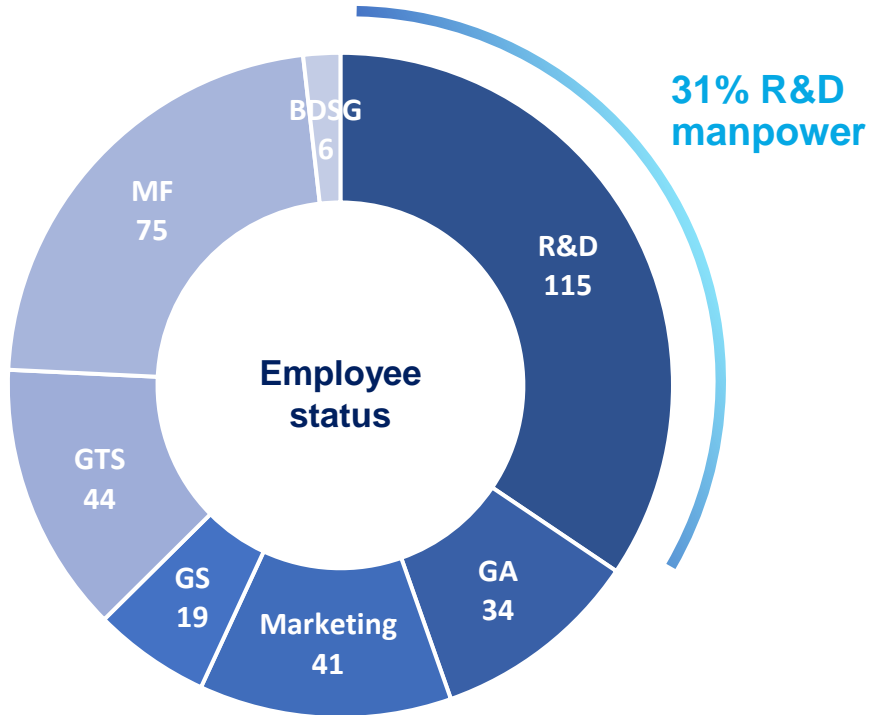


* Source: Global Atomic-force Microscopy Market Report(History and Forecast 2018-2029) by QYResearch

→ R&D Focused Investment

Park Systems is a world leading manufacturer of Atomic Force Microscopes. Headquartered in Suwon, Korea, the company has a **world-class R&D innovation capability for nanoscale metrology.**

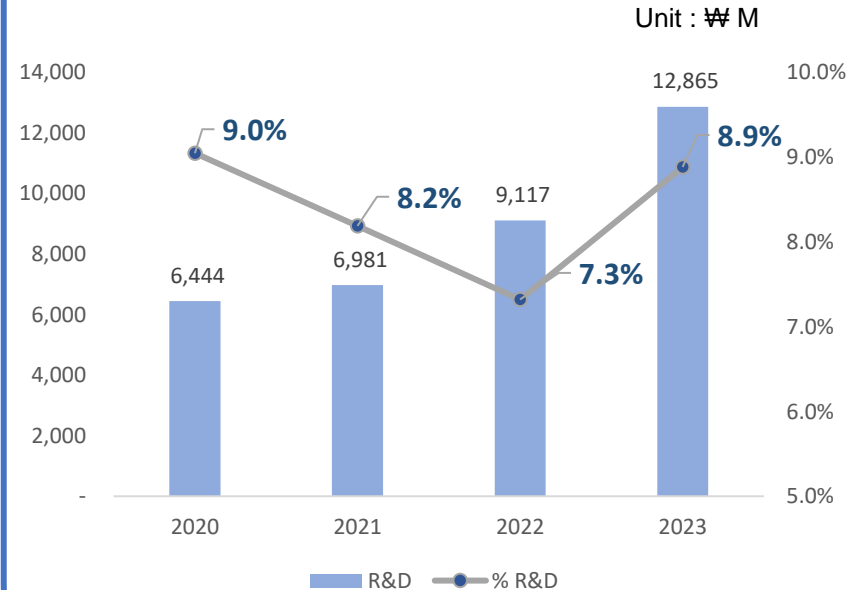
**Manpower by Department
(As of 2024.3.31)**



* The number of employees is based on H.Q

**R&D Expenditure
(As of 2023.12.31)**

Ratio of R&D to Revenue



* This information is based on **consolidated** Financial Statements

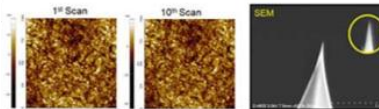
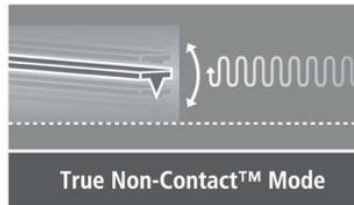
→ Innovative Technology

Park Systems has industry-leading atomic force microscope (AFM) core technologies that provide the accuracy and highest resolution of AFM measurements while maximizing user convenience ready for industrial automation.



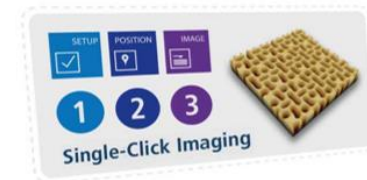
Measurement Accuracy

Park AFM Scanners
Decoupled XY & Z Scanners



Best Resolution

Park AFM Mode
True Non-Contact™ Mode



User Convenience

Park Operating Software
SmartScan™, SmartAnalysis™, XEA

*Park AFM Innovative technology : <https://youtu.be/wiFCYFrXkek>

→ Patents

Division	Contents	Registration date
Patent	ATOMICFORCEMICROSCOPEEQUIPPEDWITHOPTICALMEASUREMENT DEVICEANDMETHODOFACQUIRINGINFORMATIONONSURFACEOFMEASUREMENTTARGETUSINGTHESAME	2023-04-04
Patent	MEASURING METHOD FOR MEASURING HEAT DISTRIBUTION OF SPECIFIC SPACE USING STHM PROBE, METHOD AND DEVICE FOR DETECTING BEAM SPOT OF LIGHT SOURCE	2023-03-21
Patent	An apparatus and method for recognizing a target position in an AFM	2023-03-08
Patent	A method for measuring the heat distribution in a specific space using a thermal sensing probe, a method for detecting a beam spot of a light source, and a device	2022-12-09
Patent	Devices and methods for recognizing probe types in an AFM	2022-11-04
Patent	A method for measuring the heat distribution in a specific space using a thermal sensing probe, a method for detecting a beam spot of a light source, and a device	2022-06-27
Patent	An AFM equipped with an optical measurement device and a method of obtaining information on the surface to be measured using it	2022-06-13
Patent	How to obtain the properties of the surface of the measurement target using an inclined tip, an AFM for this method to be performed, and a computer program stored in a storage medium to perform this method	2021-12-24
Patent	Chip carrier exchanging device and atomic force microscopy apparatus having same	2021-11-16
Patent	AFM and control methods capable of automatic exchange of chip carriers	2020-11-25

43 cases of domestic and international patents in the field of atomic force microscopy

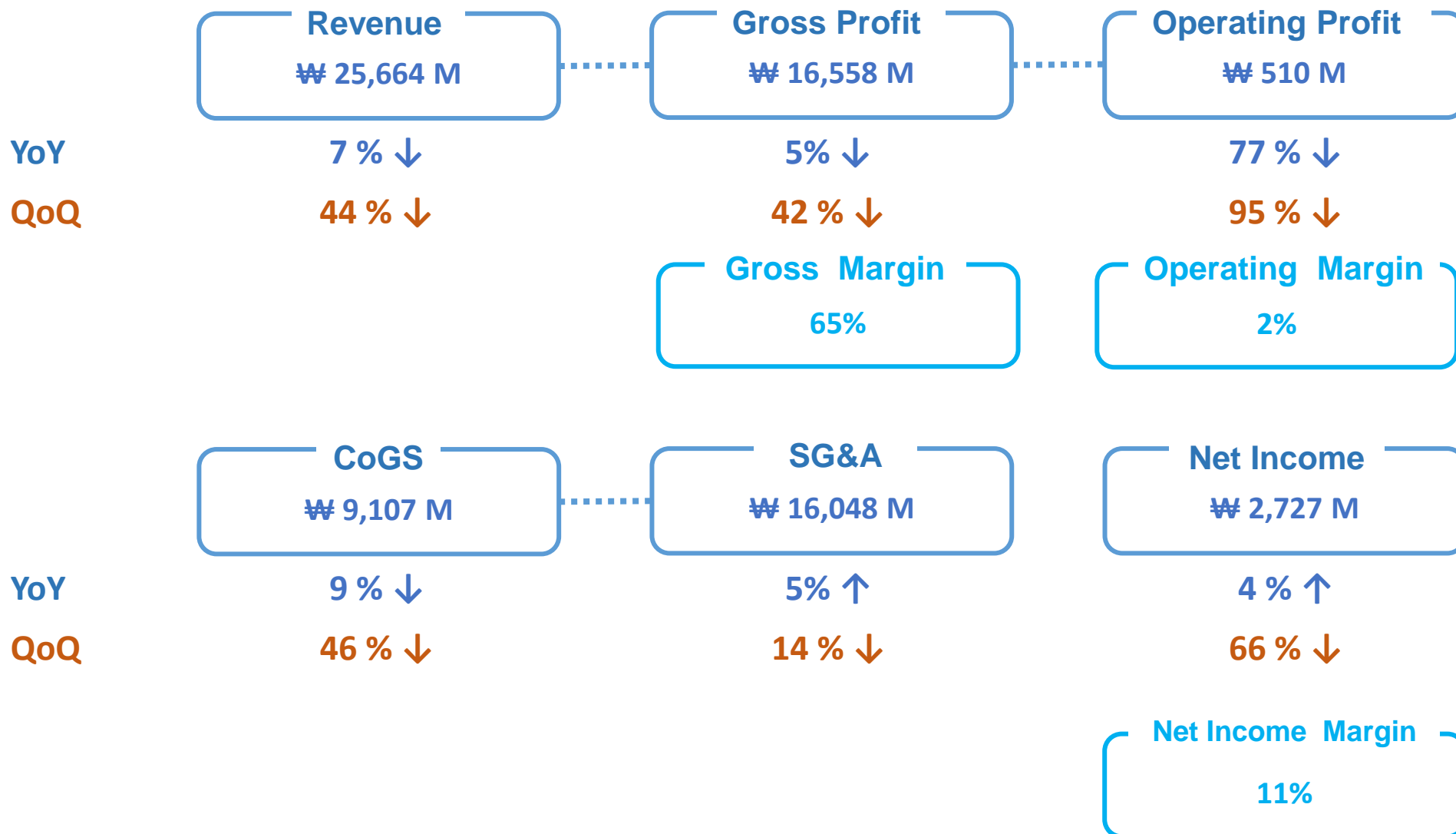
Contents



Financials

- Highlights of I/S
- Sales Breakdown
- Order backlog
- Appendix

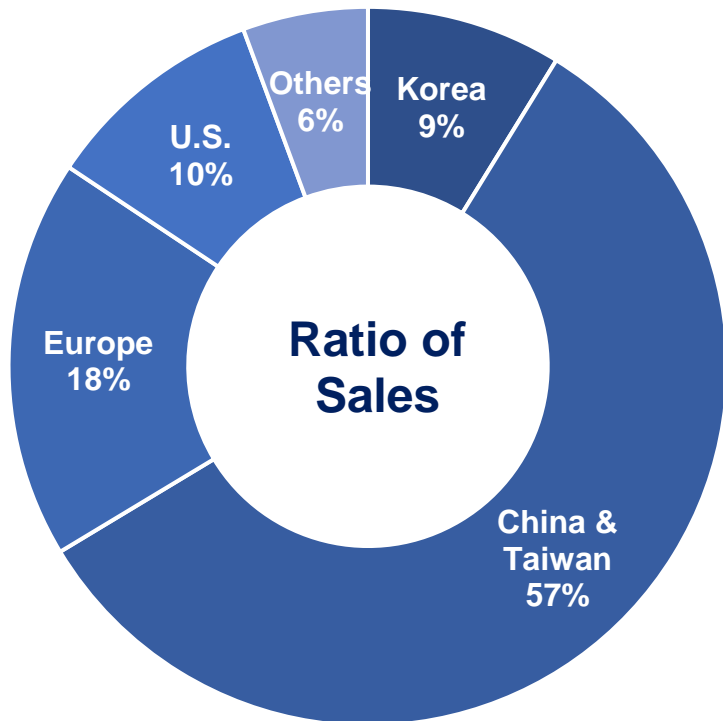
→ Highlight of I/S for 1Q, 2024



→ Sales Breakdown

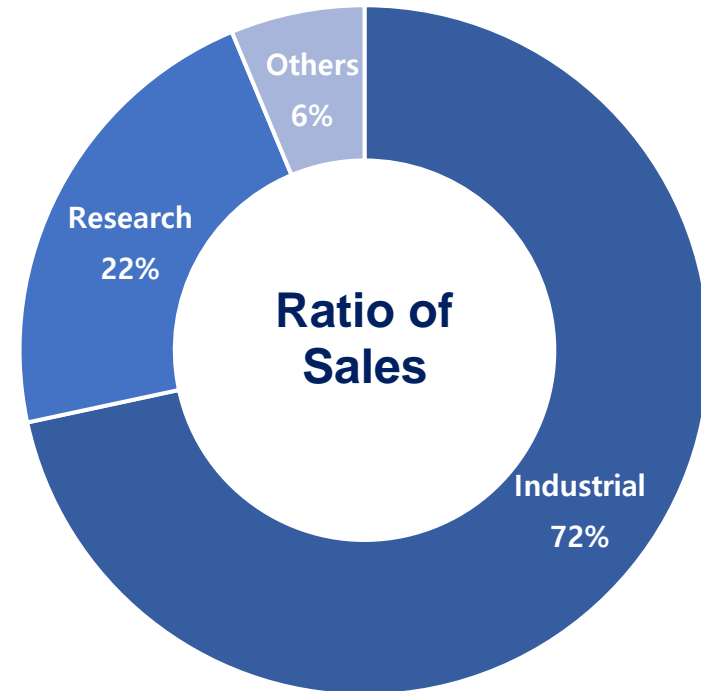
Park Systems generates more than 80% of its total sales from overseas, and by supplying products worldwide, it is realizing customer diversification for stable growth.

by Region



■ Korea ■ China & Taiwan ■ Europe ■ U.S. ■ Others

by Product line

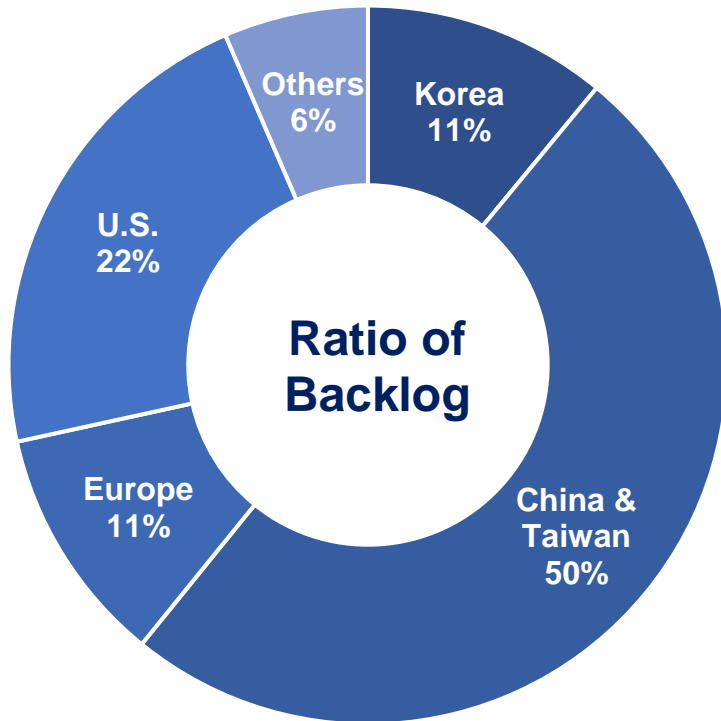


■ Industrial ■ Research ■ Others

→ Order Backlog

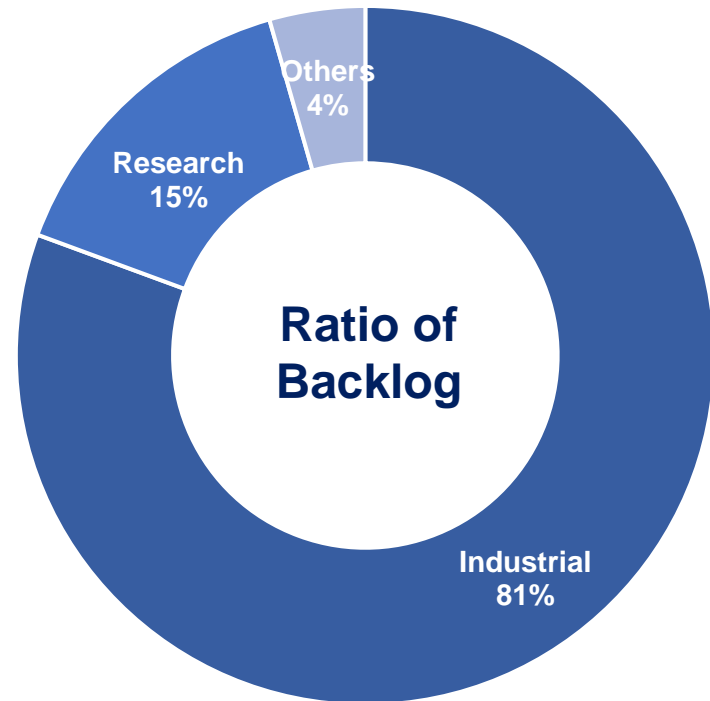
As the demand for AFM increases in many industries, we expect the proportion of industrial product sales to grow faster.

by Region



■ Korea ■ China & Taiwan ■ Europe ■ U.S. ■ Others

by Product line



■ Industrial ■ Research ■ Others

Appendix

Park Systems continues to grow at an annual average of 30% and achieves high profit margins through the supply of high value-added products.

B/S		Unit : ₩ M			
Subject	2021	2022	2023	2024 1Q	
Current assets	106,681	126,307	148,107	149,541	
Non-current assets	27,234	40,742	53,566	58,255	
Total asset	133,915	167,049	201,673	207,796	
Current liabilities	26,669	39,688	49,665	56,305	
Non-current liabilities	17,103	7,898	8,523	8,061	
Total Liabilities	43,772	47,586	58,188	64,366	
Capital	3,449	3,474	3,483	3,485	
Additional paid in capital	43,629	48,146	49,189	49,391	
Others	(203)	(1,692)	(523)	(740)	
Retained earnings	43,267	69,535	91,336	91,295	
Total equity	90,142	119,463	143,485	143,431	

Note : K-IFRS consolidated financial statement basis

I/S		Unit : ₩ M			
Subject	2021	2022	2023	2024 1Q	
Sales Revenue	85,250	124,522	144,806	25,664	
Cost of goods sold	30,063	43,053	52,401	9,107	
Operating expenses	37,606	48,821	64,845	16,048	
Operating profit	17,581	32,648	27,560	510	
Non-operating profit	10,962	11,332	6,662	3,151	
Non-operating expenses	19,788	12,099	7,079	869	
Profit before tax	8,755	31,881	27,143	2,792	
Tax expenses	(330)	3,897	2,581	65	
Net income	9,085	27,984	24,562	2,727	

Note : K-IFRS consolidated financial statement basis

Contents



ESG

- Environmental
- Social
- Governance
- Dividend Policy

Environmental

ISO 14001

ISO 14001 helps an organization achieve the intended outcome of its environmental management system, which provides value for the environment, the organization itself, and interested parties.

(<https://www.iso.org/standard/60857.html>)

Park Systems has got the ‘**Environmental Management System Certificate**’ on 25th, July 2005 and renewed it every two years.

Park Systems is working on an assembly manufacturing process.

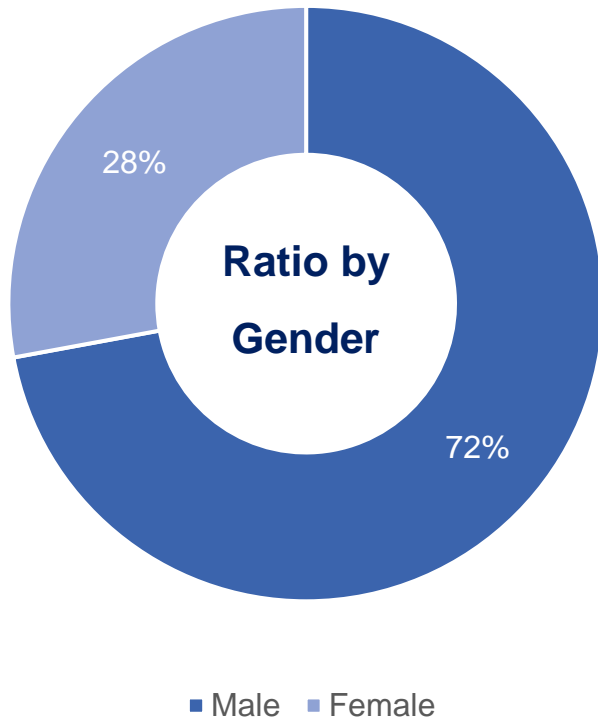
Therefore, there is no carbon and wastewater discharge.



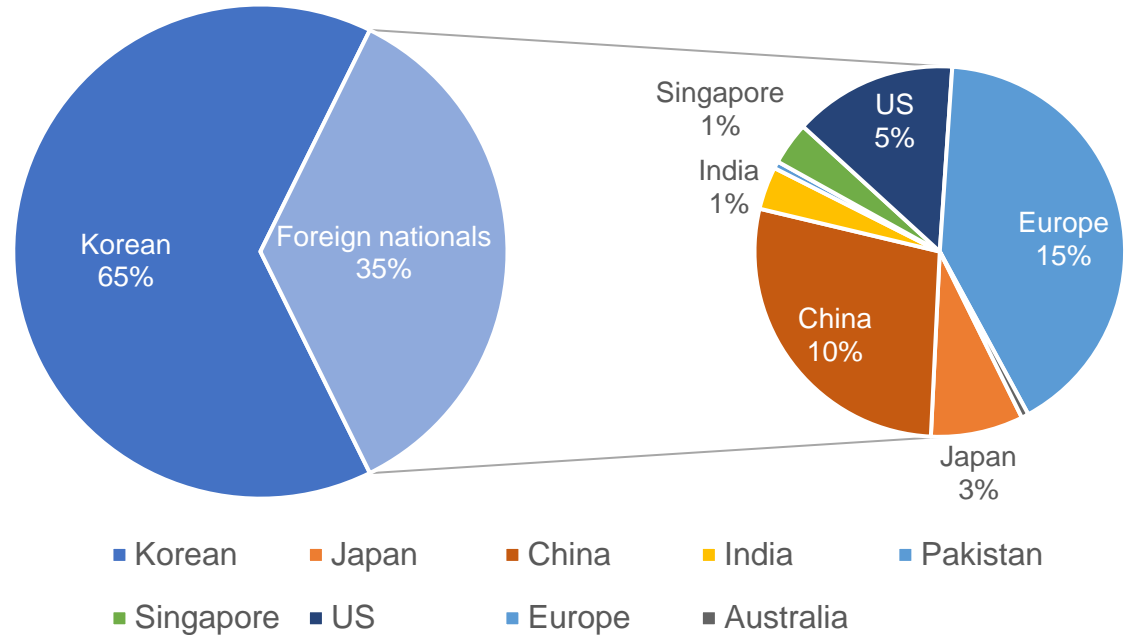
→ Social

Park Systems pursues the diversity of employees in Gender, Nationality, etc.

Gender Composition in H.Q.



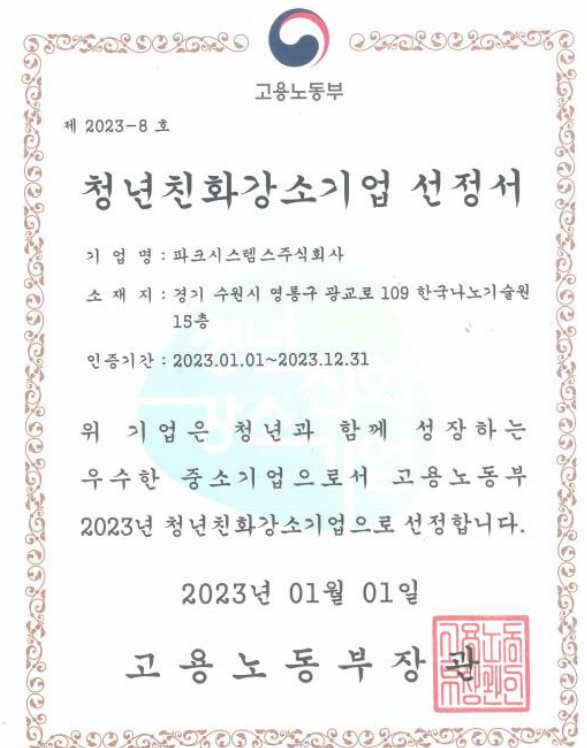
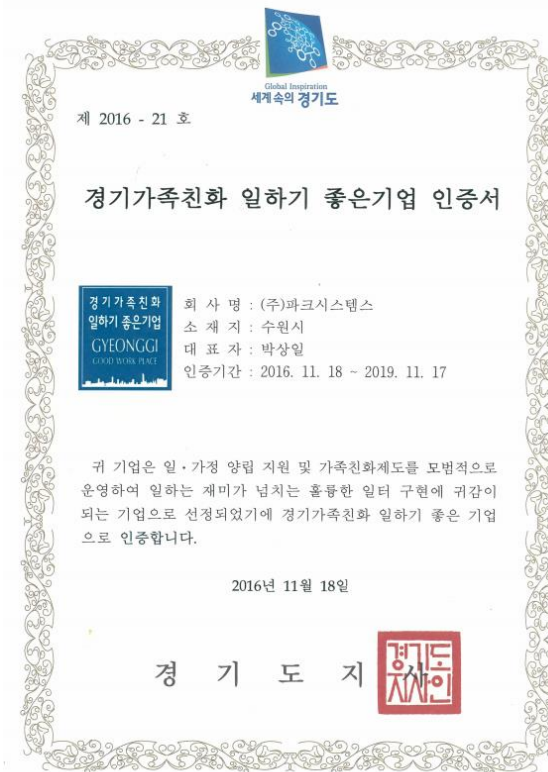
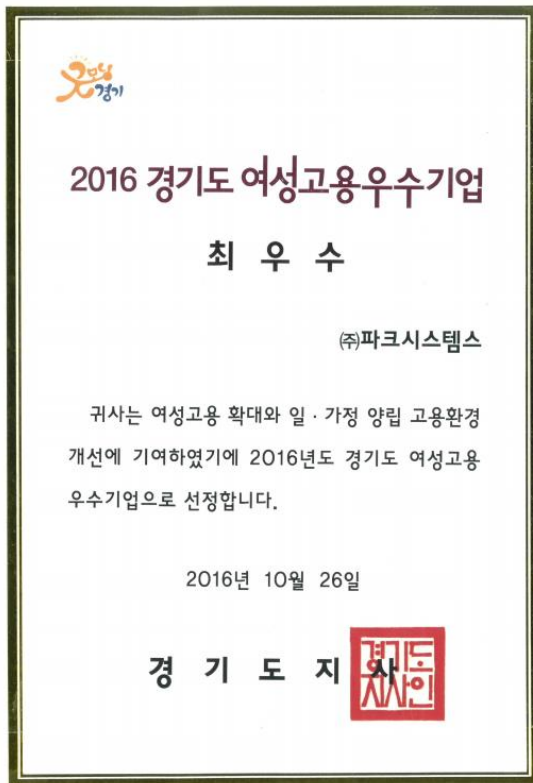
Nationality Composition in Park Systems Group (including overseas subsidiaries)



→ Social

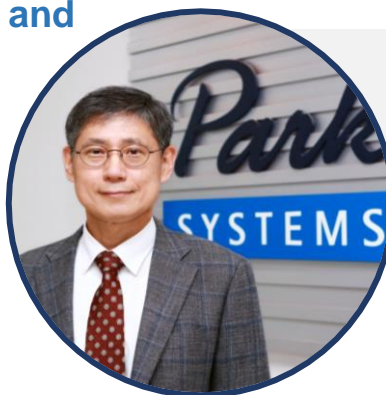
Park Systems was selected as the best female employment company, family-friendly company, and youth-friendly company.

Awards & Certificates



Governance

The Board of Directors consists of 1 CEO and 6 outside directors for transparency in making decisions.



Sang-il Park Chairman

- CEO of Park Systems Corp. (1997~)
- Park Scientific Instruments, CEO (1988~1997)
- MBA, AEA-Stanford Executive Institute (1994)
- Ph.D. Applied Physics, Stanford Univ. (1987)
- BS. Physics, Seoul National Univ. (1981)

Jung-hwa Han Outside Director

- Professor of Hanyang Univ.(1989~)
- Chairman of Asan foundation(2019~2021)
- Director of Small and Medium Business Administration(2013~2016)



Seung-gi Chae Outside Director

- Technical Committee of LG Display(2019~)
- Professor of Sungkyunkwan Univ.(2016~2019)
- Managing Director of Samsung Display(2013~2015)
- Director of Samsung Mobile Display(2011~2012)
- Samsung semiconductor(1993~2010)



Sang-gil Jeon Outside Director

- Professor, Department of Business Administration, Hanyang University
- President, Korea Human Resources Development Institute
- Member of the Personnel Innovation Committee of the Prime Minister's Office



Kyu-Sik Kim Outside Director

- SM Ent. Outside director(2023~)
- Korea governance forum chairman(2021~)
- Executive Director of Soorim Asset Management (2018)
- Audit of Unimax (2016 ~ 2018)
- Risk Judge of Korea Asset Management Corp(2015 ~ 2016)



Ki-jun Park Outside Director

- CPA of Woori accounting firm(2020~)
- Outside Director of Meta-Branding(2023~)
- CEO of Kitus Co., Ltd.(2009~2019)
- EON Group(2007~2009)
- CPA of Garib accounting firm(1997~1999)
- CPA of Anjin accounting firm(1988~1997)



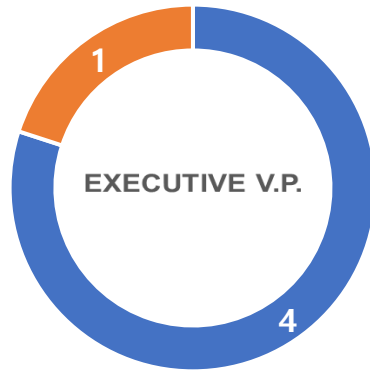
Jun Jeong Non-executive director

- CEO of Solid(1998~)
- Professor of KAIST(2020~)
- Reseacher of Korea Telecom (1994~1998)
- Reseacher of Hitachi(1993~1994)

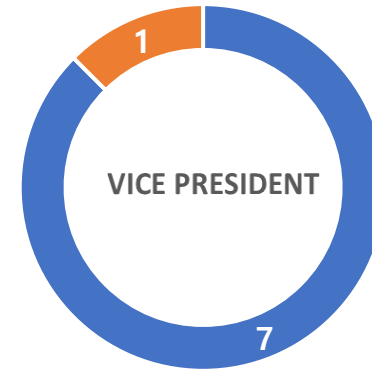


→ Governance

Gender Composition of Executive Directors



■ Male ■ Female



■ Male ■ Female

Compensation Committee

The company set up a compensation committee that comprises 4 non-executive directors

- To decide the compensation policy for all executive directors.
- To provide a transparent and market-acceptable compensation policy, independently

→ Dividend Policy

Dividend Pay-out

	unit	2020	2021	2022	2023
Earnings per Share	₩	1,629	1,508	3,258	3,786
Dividend per share	₩	180	250	400	400
Free Cash Flow (A)	₩ M	9,020	3,693	17,020	17,080
Total dividend (B)	₩ M	1,195	1,717	2,761	2,768
Payout ratio (B/A)	%	13.2%	46.5%	16.2%	16.2%

* FCF = OCF (Operating Cash Flow) minus CAPEX (Capital Expenditure)

** Payout Ratio = Total dividend / FCF

Dividend Policy to enhance shareholders' Value

- The company gives top priority to **investment in organic and inorganic growth** as well.
- And then has plans of **share repurchase and dividend payout**.
- The dividends are supposed to be within the range of **10%~50% of FCF**



Thank You

For more information contact Investor Relations

E-mail ir@parksystems.com

Tel 031 546 6900





SEMCO

Q1 2024 Earnings Result

Apr 29, 2024

Disclaimer

This presentation material is prepared for the convenience of investors, before the external audit on our Q1 2024 financial results is completed.

The audit results may cause some parts of this presentation material to change.

Business data contains forward projections from internal market estimates and publicly available sources. Actual business performance may differ from the projections herein, as a result of unexpected changes in the market environment and other conditions.

The financial information in this document is consolidated earnings results based on K-IFRS.

Table of Contents

Q1 2024 Results

Divisional Results & Outlook

Appendix

Earnings Overview

Income Statement

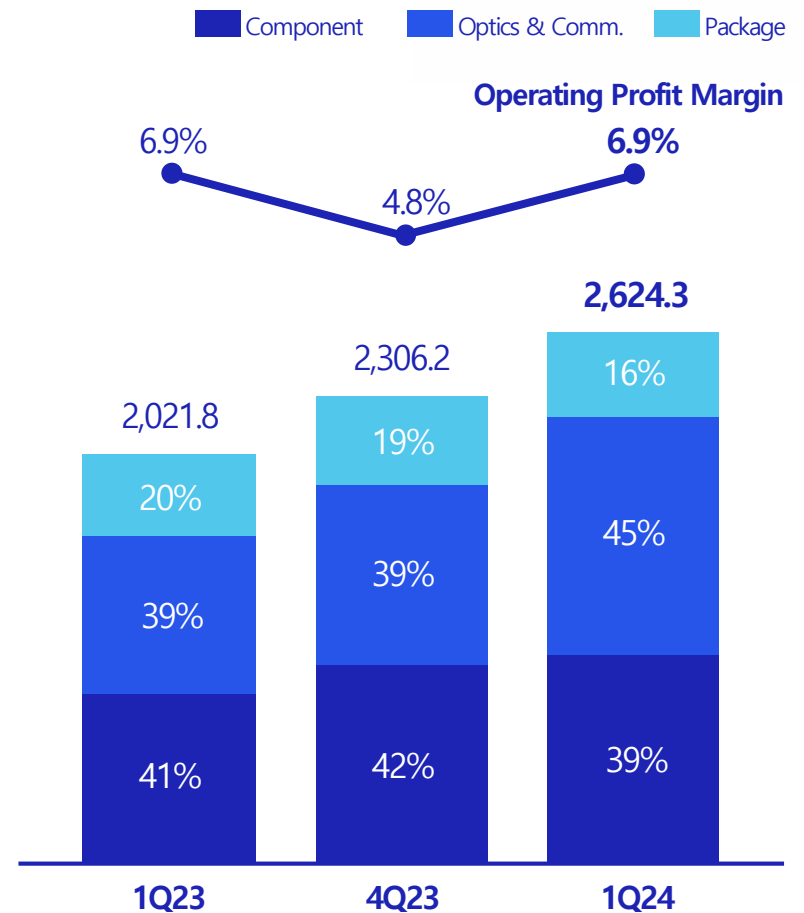
(Unit : KRW Billion)

	1Q24	4Q23	QoQ	1Q23	YoY
Sales	2,624.3	2,306.2	14% ▲	2,021.8	30% ▲
Component	1,023.0	975.1	5% ▲	825.5	24% ▲
Optics & Comm	1,173.3	888.4	32% ▲	798.6	47% ▲
Package	428.0	442.7	3% ▼	397.6	8% ▲
Operating Profit (%)	180.3 (6.9%)	110.4 (4.8%)	63% ▲	140.1 (6.9%)	29% ▲
Pre-tax Profit (%)	219.5 (8.4%)	62.7 (2.7%)	250% ▲	143.0 (7.1%)	53% ▲
Net Income (%)	183.1 (7.0%)	43.4 (1.9%)	322% ▲	111.4 (5.5%)	64% ▲

※ Net income attributable to owners of the parent

Earnings Trend

(Unit : KRW Billion)



Financial Position

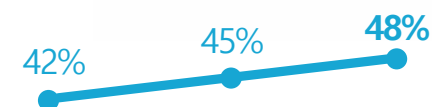
Financial Status

(Unit : KRW Billion)

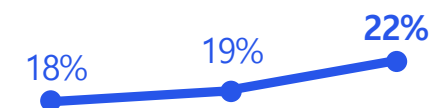
	1Q24	4Q23	QoQ	1Q23
Assets	12,179.9	11,657.9	4% ▲	11,000.1
Cash	2,018.3	1,669.2	21% ▲	1,589.1
Account Receivable	1,183.8	1,126.4	5% ▲	958.9
Inventory	2,145.8	2,119.5	1% ▲	1,902.2
Investment	289.9	281.4	3% ▲	235.2
Tangible	5,739.9	5,603.3	2% ▲	5,403.6
Others	802.2	858.1	7% ▼	911.1
Liabilities	3,962.7	3,627.5	9% ▲	3,245.5
Debts	1,834.3	1,521.5	21% ▲	1,432.2
Equity	8,217.3	8,030.3	2% ▲	7,756.6
Issued Capital	388.0	388.0	-	388.0

Financial Ratio

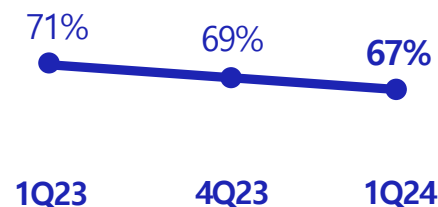
Liability to Equity
(Liabilities/Equity)



Debt to Equity
(Debts/Equity)



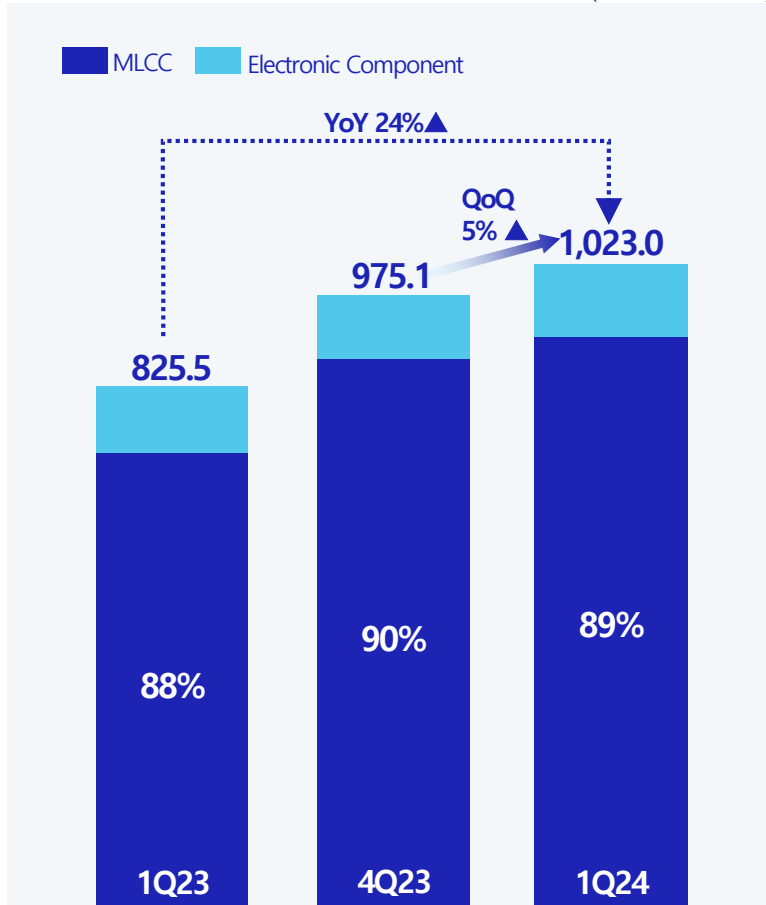
Capital Adequacy Ratio
(Equity/Assets)



Component

Q1 2024 Sales

(Unit : KRW Billion)



Q1 2024 Results

- **Revenue increased with improved product mix with more high-end products, despite weak overall set demand due to seasonality**
 - Increased supply of industrial MLCC such as for AI servers and industrial power equipment
 - Automotive MLCC supply increased, driven by solid automotive demand including hybrid vehicles and ADAS

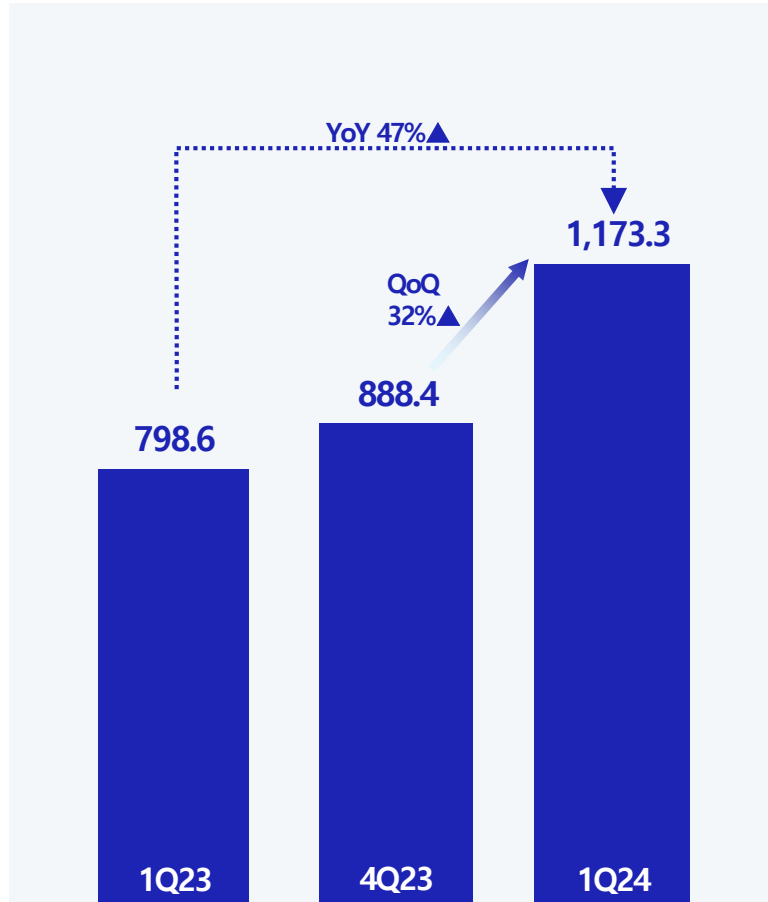
Q2 Market Outlook and Strategy

- **MLCC demand expected to increase with gradual growth in set demand**
 - Focus on timely supply of high-end MLCCs including small-size/high-capacitance for IT applications
 - Focus on continuing revenue growth of industrial and automotive MLCCs by targeting growth areas such as AI server and ADAS

Optics & Communication Solution

Q1 2024 Sales

(Unit : KRW Billion)



Q1 2024 Results

- **Revenue increased supported by demand from major customers' flagship smartphone**
 - Increased supply of 200M pixel product and high image quality slim folded zoom camera for strategic customer
 - Mass production of high-spec camera with multi-step IRIS for Chinese customer
- **Automotive camera module revenue increased with greater supply to overseas customers**

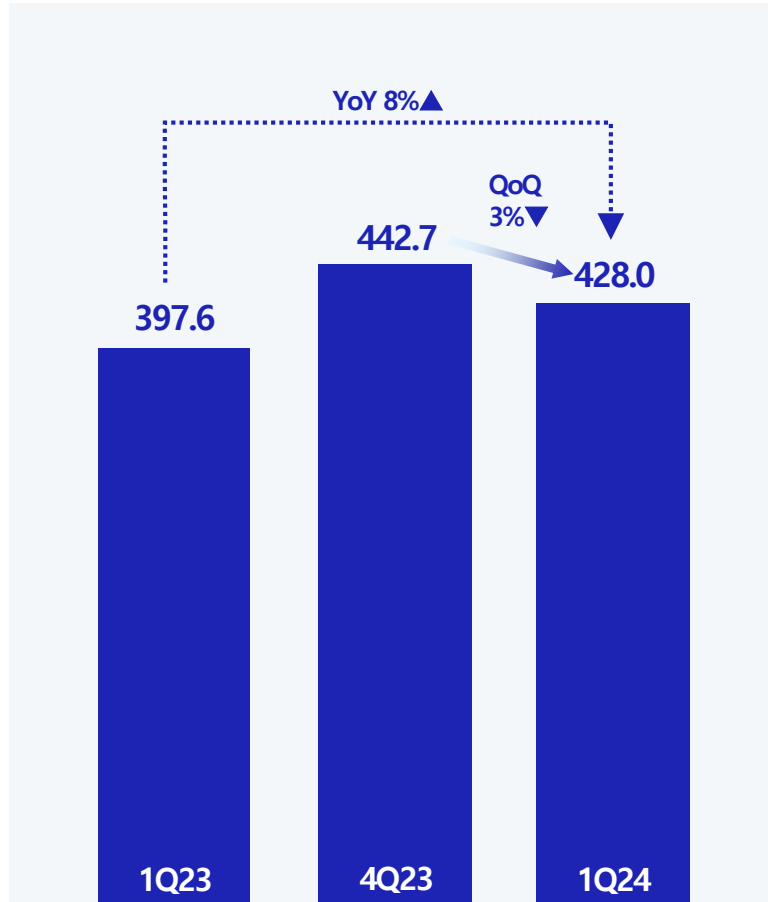
Q2 Market Outlook and Strategy

- **Seasonality of IT cameras and slow-down of auto OEM's EV shipment growth expected. However, demand of differentiated cameras expected to increase, supported by flagships and advances in automotive camera technology**
 - Timely response with high-performance camera module for new flagship smartphones of Korean and overseas customers
 - Increase supply of high-pixel automotive camera modules and strengthen line-up utilizing our specialized technology

Package Solution

Q1 2024 Sales

(Unit : KRW Billion)



Q1 2024 Results

- **Revenue decreased due to demand slowdown in certain applications including mobile and PC**
 - BGA revenue slightly decreased due to decline in AP substrate supply despite increased supply of ARM processor substrates to overseas customer
 - FCBGA revenue fell due to soft demand in some set markets such as PC, despite increased supply of automotive substrates for ADAS/autonomous driving

Q2 Market Outlook and Strategy

- **Downstream set market demand (e.g. PC, server) expected to gradually recover**
 - Focus on increasing supply around demand growth products such as FCBGA for PC/server CPU, BGA for memory
- **Increase demand for high-end/high-performance substrate such as for server and AI accelerators**
 - Establish capability for timely response to customer demand by stabilizing operation and mass production at new Vietnam plant

Appendix

Income Statement

	1Q24	4Q23	QoQ	1Q23	YoY
(Unit : KRW Billion)					
Sales	2,624.3	2,306.2	14% ▲	2,021.8	30% ▲
Cost of Sales	2,149.5	1,918.8	12% ▲	1,634.1	32% ▲
Gross Profit (%)	474.8 (18.1%)	387.4 (16.8%)	23% ▲ (1.3%p ▲)	387.6 (19.2%)	22% ▲ (1.1%p ▼)
SG&A	294.5	277.0	6% ▲	247.6	19% ▲
Operating Profit (%)	180.3 (6.9%)	110.4 (4.8%)	63% ▲ (2.1%p ▲)	140.1 (6.9%)	29% ▲ (-)
Non-operating income/expense	39.2	-47.7	-	3.0	-
Pre-tax Profit (%)	219.5 (8.4%)	62.7 (2.7%)	250% ▲ (5.7%p ▲)	143.0 (7.1%)	53% ▲ (1.3%p ▲)
Income Tax	32.7	12.1	170% ▲	23.0	42% ▲
Continuing Operations	186.8	50.6	269% ▲	120.0	56% ▲
Discontinued Operations	-0.4	-2.6	-	-1.9	-
Net Income (%)	183.1 (7.0%)	43.4 (1.9%)	322% ▲ (5.1%p ▲)	111.4 (5.5%)	64% ▲ (1.5%p ▲)

※ Net income attributable to owners of the parent

Appendix

Financial Status

	1Q24	4Q23	QoQ	1Q23	YoY
(Unit : KRW Billion)					
Assets	12,179.9	11,657.9	4% ▲	11,001.1	11% ▲
Current	5,606.6	5,208.4	8% ▲	4,822.3	16% ▲
Cash	2,018.3	1,669.2	21% ▲	1,589.1	27% ▲
Account Receivable	1,183.8	1,126.4	5% ▲	958.9	23% ▲
Inventory	2,145.8	2,119.5	1% ▲	1,902.2	13% ▲
Others	258.7	293.3	12% ▼	372.1	30% ▼
Non-current	6,573.3	6,449.5	2% ▲	6,177.8	6% ▲
Investment	289.9	281.4	3% ▲	235.2	23% ▲
Tangible	5,739.9	5,603.3	2% ▲	5,403.6	6% ▲
Intangible	149.2	151.4	1% ▼	155.3	4% ▼
Others	394.3	413.4	5% ▼	383.7	3% ▲
Liabilities	3,962.7	3,627.5	9% ▲	3,243.5	22% ▲
Current	3,207.8	2,900.5	11% ▲	2,573.1	25% ▲
Non-current	754.8	727.1	4% ▲	670.4	13% ▲
Equity	8,217.3	8,030.3	2% ▲	7,756.6	6% ▲
Issued Capital	388.0	388.0	-	388.0	-

Appendix

Cash Flow

	1Q24	4Q23	1Q23
(Unit : KRW Billion)			
Cash at the beginning of period	1,663.6	1,585.0	1,619.4
Cash flows from operating activities	176.9	397.8	314.5
Net Income	48.1	164.9	120.7
Depreciation	204.4	208.5	216.4
Cash flows used in investing activities	-256.6	-285.4	-363.4
Increase in tangible/intangible assets	-294.2	-341.2	-479.3
Cash flows from financing activities	93.6	-46.5	143.1
Increase/Decrease in debt	101.6	-17.4	162.1
Foreign exchange difference	-8.3	12.7	-36.5
Net changes in cash	5.6	78.6	57.7
Cash at the end of period	1,669.2	1,663.6	1,677.1