# BUSINESS KOREA

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## Chairman Hwang

unveils 'Secret of Jusung Engineering's Enormous Success as a Global Innovator'

**FOCUS** 'Round 2 of Sibling Strife'
Chairman Cho Fortifying Management Rights of Hankook & Company

**ICT** Historic Proximity
SK hynix Closes Gap with Samsung in DRAM, NAND Markets

**INDUSTRY** SDV Competition
Samsung, Hyundai Motor, LG Compete for Software-defined Vehicle Tec

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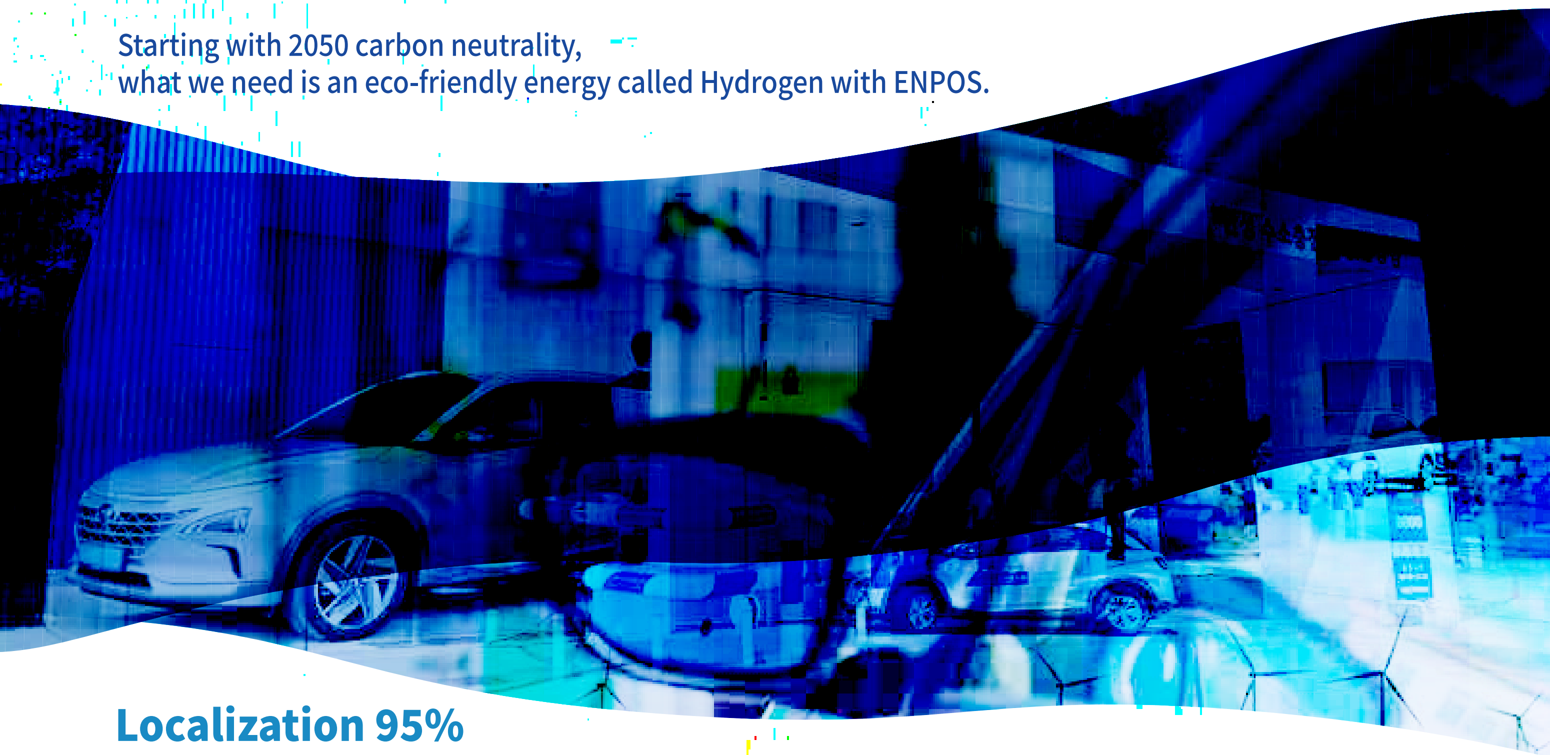

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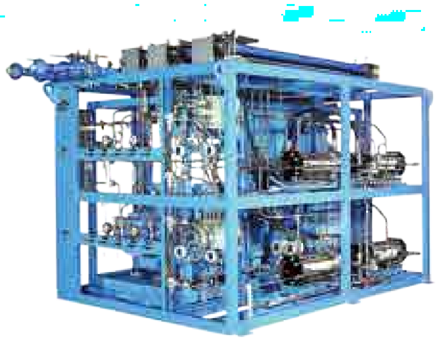

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# South Korea's 'Ultra-Low Birth Rate' Spurs National Extinction Crisis

In South Korea, the prolonged phenomenon of 'ultra-low birth rate' is threatening the sustainability of its population and the very foundation of national existence.

A recent column in The New York Times, titled 'Is South Korea Disappearing?,' has raised alarms about the speed of population decline in South Korea, comparing it to the level experienced during the Black Death. Professor David Coleman of the University of Oxford, a renowned scholar who had previously identified South Korea as the world's first 'population extinction' nation, reiterated his warning this year. He stated, "South Korea achieved the fastest economic growth in human history, but at the cost of losing the next generation to carry it forward." Indeed, South Korea's total fertility rate, which was 1.13 in 2006 when Coleman first identified the country as facing population extinction at a UN forum, fell to 0.78 in 2022 and slumped further to 0.7 in the second quarter of this year.

The Organization for Economic Co-operation and Development (OECD) classifies countries with a total fertility rate below 2.1 as 'low birth rate' nations. South Korea has been experiencing this phenomenon for 40 years since 1983 when its fertility rate was 2.06. Moreover, the country has never rebounded since recording a rate of 1.3 in 2001, the threshold for a 'very low birth rate' nation.

A more alarming issue is the rapid decline of South Korea's total fertility rate compared to other countries. A comparison with Japan using the UN's World Population Prospects (since 1950) shows that it took South Korea only 25 years to drop from a fertility rate of over 2 to below 1.3, while Japan took 43 years. Japan even managed to rebound from a rate of 1.2 in the mid-1990s to levels above 1.5, shedding its label as a very low birth rate country.

The ripple effects of low birth rates are widespread. For instance, the productive age population (15-64 years) is projected to decrease from 37.38 million in 2020 to 17.37 million by 2070, with its proportion dropping from 72.1% to 46.1% of the total population. In contrast, the percentage of the elderly population (over 65) is expected to skyrocket from 17.4% in 2022 to 47.7% by 2072, the highest level among OECD countries. The total dependency ratio, indicating the balance between the productive and elderly populations, is predicted to reach a world-leading 116.8 by 2070, up from 40.8 last year.

The decline in the productive population is also anticipated to impact the Gross Domestic Product (GDP). Projections suggest that by 2050, the GDP could fall by 28.38% compared to 2022. The Bank of Korea warns that failure to address the ultra-low birth rate issue could lead to negative growth by 2050 and cause megaton-level shocks across various sectors, including education, defense, and pensions.

Previous governments have established and attempted various population increase policies, allocating significant budgets to this area. However, population policy governance has remained predominantly government-driven. The success or failure of population policy hinges on how the issues related to childbirth and parenting, such as rare quality-employment opportunities for young people, high housing prices, and competitive education, are addressed.

Consequently, population policy governance needs to evolve into a system where diverse stakeholders, including young generations, the government, businesses, and NGOs, actively participate in social consensus processes to determine policy directions and implement concrete measures. Additionally, the current government has to be sure to follow on its commitment to implementing bold reforms in labor, education, and pensions for future generations.

Park Jung-hwan,
Publisher & Editor-in-Chief


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## 'Round 2 of Sibling Strife' Unleashed

# Chairman Cho Fortifying Management Rights of Hankook & Company

By Yoon Young-sil


Cho Hyun-bum, chairman of Hankook & Company.

With assets totaling 10.4 trillion won (US$7.91 billion), Hankook & Company, formerly known as the Hankook Tire Group, currently ranking 40th in the business sector, reignited a power struggle among siblings. After a slump in 2021, the management dispute between the brothers resurfaced, marking a counteroffensive by the eldest sibling against the younger one in this "Season 2" episode.

On Dec. 5, Ventura Co., Ltd. announced its intention to publicly acquire shares of Hankook & Company. Ventura is a special purpose company established by MBK Partners Special Situations (MBKP SS), a domestic private equity fund manager. On the same day, Ventura announced, "We have entered into a shareholder agreement related to public purchases on the 30th of last month with advisor Cho Hyun-sik of Hankook & Company and Cho Hee-won."

Through Ventura, MBK Partners aimed to acquire management rights in collaboration with Advisor Cho, and the public purchase period extended until Dec. 24. Advisor Cho Hyun-sik is the eldest son of Honorary Chairman Cho Yang-rae of Hankook & Company, while Cho Hee-won is the second daughter of Chairman Cho.

Hankook & Company's largest shareholder is Chairman Cho Hyun-bum, holding a 42.03 percent stake. Advisor Cho Hyun-sik and Cho Hee-won, who joined hands with MBK, each possessed 18.93 percent and 10.61 percent stakes, respectively. The combined ownership of the two individuals was 29.54 percent, and in the event of MBK's successful public acquisition, they could secure management rights with a stake ranging from a minimum of 50 percent+1 share to a maximum of 56.86 percent. The total value of this public acquisition was up to 518.7 billion won (US$394.45 million).

MBK disclosed its intention to publicly acquire shares of Hankook & Company, ranging from a minimum of 19,315,214 shares, or 20.35 percent, to a maximum of 25,934,385 shares, or 27.32 percent. When combined with the holdings of advisor Cho Hyun-sik, this could potentially elevate them to the position of the largest shareholder in Hankook & Company.

MBK and advisor Cho mutually agreed not to jointly exercise their voting rights as the largest shareholders without the consent of the other party. MBKP SS stated, "In the event of a successful public acquisition and securing voting rights exceeding 50 percent, we will promptly introduce a professional management system to enhance the corporate value of Hankook & Company."

There were discussions suggesting that MBK could respond by raising the public acquisition price. A high-ranking official in the financial industry said, "If the initial public acquisition price is set high, the stock price is likely to rise to that level immediately. Considering that the closing price the previous day was 16,820 won, MBK might take a step-by-step approach, and there could be some significant developments."

Regarding the public acquisition price set at 20,000 won, an industry insider said, "It's asking shareholders who bought shares for more than 20,000 won in the past to accept a negative return through the public acquisition. There's skepticism about whether there was a precedent for such a request being successful in past hostile M&A situations." Some in the industry speculated that MBK might be more interested in capitalizing on price differentials resulting from the management dispute rather than pursuing a straightforward takeover of management rights.

The direction of Hankook & Company's stock price was a crucial factor that would determine the outcome. However, MBK Partners' public acquisition of Hankook & Company's shares hit a snag right from the start. Despite the joint efforts of advisor Cho and MBK in initiating a hostile merger and acquisition (M&A) through public acquisition targeting Hankook & Company, the closing price skyrocketed to 21,850 won, well surpassing the public acquisition price of 20,000 won and hitting the daily limit. This situation increased the likelihood that individual shareholders might resist responding to MBK's public acquisition of shares.

## 'White Knights' Intervened the Management Battle

Under the circumstances, Cho Yang-rae, the honorary chairman of Hankook & Company, offered support as a "white knight for Chairman Cho Hyun-bum to whom he transferred managerial authority.

According to the Financial Supervisory Service's electronic disclosure on Dec. 14, Honorary Chairman Cho acquired 2,583,718 shares, or 2.72% ownership, of Hankook & Company from Dec. 7 to date. The average purchase price was 22,056 won per share. In short, Honorary Chairman Cho injected 57 billion won (US$44.08 million) of his own money to defend the management control of Chairman Cho, his second son.

In the meantime, Honorary Chairman Cho increased his stake once again in Hankook & Company by acquiring 300,000 shares or 0.32 percent stake on Dec. 15 through on-market transactions, according to the electronic disclosure system of the Financial Supervisory Service (FSS) on Dec. 18. With the additional purchase, Honorary Chairman Cho's ownership rose from 2.72 percent to 3.04 percent. Hyosung Advanced Materials also secured 146,460 shares, or 0.15 percent, of Hankook & Company's stock, becoming a special related party of Chairman Cho on the same day. Additionally, the company reached an agreement with Chairman Cho for the joint exercise of voting rights.

With the additional support from Honorary Chairman Cho and Hyosung Advanced Materials, Chairman Cho gained a stronger position in the ownership competition. Chairman Cho held a 42.03 percent stake, and the combined shares of the three parties resulted in exceeding 45 percent. If Chairman Cho acquires approximately 5 percent more shares, he could proactively avert any potential management control disputes.

Chairman Cho and Chairman Cho Hyun-joon of Hyosung Group are cousins. Honorary Chairman Cho is the younger brother of Honorary Chairman Cho Seok-rae of Hyosung Group, and, in 1985, he separated from Hyosung Group with Hankook Tire.

## MBK's Hankook & Company Takeover Bid Fails

The industry assessment had suggested that MBK Partners had minimal chances of success in a straightforward share confrontation. Finally the public takeover bid for Hankook & Company by MBK Partners in collaboration with advisor Cho Hyun-sik has fallen through.

On Dec. 26, Ventura, the special purpose company (SPC) of MBK Partners Special Situation Fund (SS) No. 2, announced, "The public takeover of Hankook & Company stock, conducted from the 5th to the 25th of this month, resulted in applications for 8,388,317 shares, falling short of the minimum targeted quantity of 19,315,214 shares, or 20.35 percent."

MBK Partners initially aimed to acquire a stake of 20.35 to 27.32 percent, equivalent to 19,315,214 to 25,934,385 shares of Hankook & Company, through a public takeover at a price of 24,000 won (US$18.51) per share. However, the decision not to proceed with the purchase was made when the subscribed shares fell short of the minimum target.

The power struggle over control has concluded, but the conflict is expected to persist in the form of legal disputes. On Dec. 15, MBK requested an investigation by the Financial Supervisory Service (FSS), expressing suspicion about the "stock price adjustments" during the process where Cho Yang-rae, the honorary chairman of Hankook & Company and the father of current Chairman Cho Hyun-bum, secured a 4.41 percent stake. According to the investigation request submitted by MBK Partners to the FSS, it is alleged that Honorary Chairman Cho purchased shares at a price higher than the closing price to artificially fix Hankook & Company's stock price above the public takeover price. The public takeover bid started on Dec. 6. The next day, Dec. 7, when the closing price dropped to 20,750 won, Honorary Chairman Cho immediately acquired 1.5 million shares of the company. Considering that the average trading volume of Hankook & Company's stock was around 100,000 shares until November, the purchase by Honorary Chairman Cho was ten times the typical trading volume. After that purchase, the stock price of Hankook & Company resumed an upward trend.

Hankook Tire & Technology's headquarters building, named the Technoplex.

Hankook & Company successfully defended its management rights, but it will officially request financial authorities to investigate the suspicion of early buy-in that occurred before MBK Partners' public takeover announcement. The company aims to prevent similar confusion in the future. There have been discussions among investors suggesting that the trading volume and stock price of Hankook & Company surged unusually in the ten days before the MBK Partners' public takeover announcement, potentially indicating some entities profiting from significant market discrepancies possibly amounting to around 10 billion won. Suspicions have been raised about whether this could be a result of early buy-in based on leaked information, with questions arising about whether someone from MBK Partners or advisor Cho Hyun-sik exploited undisclosed information for personal gain. Chairman Cho Hyun-bum had already raised concerns about early buy-in speculation, pointing out that the company's stock price had risen by 40 to 50 percent in the months leading up to the public takeover announcement.

The fact that Chairman Cho is currently undergoing a trial adds considerable fuel to the conflict. In March, Chairman Cho was indicted and detained on charges of embezzlement and breach of trust amounting to 20 billion won as well as allegations of unfair support for affiliated companies. He was released on bail last month. Within the industry, resolving legal risks and enhancing shareholder value are seen as pressing challenges to fortify Chairman Cho's defense of management rights.

# G7 Countries Further Widen Per Capital Income Gaps with South Korea

By Michael Herh


Gross National Income is an important factor in a country's economic health.

The slow growth of South Korea's per-capita income widened its income gap with the Group of Seven (G7) countries. In 2020, the nation surpassed Italy in the GNI per capita standings, celebrating its economic takeoff to rival G7 economies. But South Korea stayed above Italy for only one year, and its gap with Italy widened last year. This is because Korea's low growth and a high exchange rate worsened Korea's dollar-denominated income indicators.

According to the BOK's financial and economic snapshot service on Oct. 30, South Korea's nominal GNI per capita in 2022 was US$35,990, based on the latest World Bank statistics. This was lower than Italy's (US$37,700), the lowest GNI per capita among G7 countries.

Previously, in 2020, South Korea's GNI per capita of US$324.30 outweighed Italy's US$330.4. It was the first time in history that South Korea's GNI per capita eclipsed that of a G7 country.

However, that was a temporary reversal due to the COVID-19 shock. At the time, Italy's real GDP growth rate was -9 percent, significantly lower than South Korea's -0.7 percent. In 2021, when the Italian economy began to normalize, Italy's GNI per capita climbed to US$36,130, surpassing South Korea's US$35,110 by US$1,020. The gap grew to US$1,710 last year.

South Korea's gaps with other G7 countries also widened. The United States' GNI per capita increased from US$64,650 in 2020 to US$76,370 last year. The GNI per capita gap between South Korea and the United States expanded from US$31,610 to US$40,380. Over the same period, the GNI per capita gap between South Korea and Germany widened from US$15,010 to US$17,400 and the gap between South Korea and Canada from US$17,700 to US$16,970. The gap between South Korea and the United Kingdom was US$5550 in 2020, the smallest among G7 countries except Italy, but increased more than 2.3 times to US$12,900 last year. Japan was the only G7 country that South Korea narrowed the gap with as the gap contracted from US$7,830 to US$6,450.

The wider GNI per capita gap between South Korea and the G7 countries last year was due to differences in exchange rates, growth rates, and inflation. According to the Bank of Korea's Economic Statistics System (ECOS), the average won-dollar exchange rate in 2022 was 1,291.95 won, up 12.89 percent from the average in 2021 (1,144.42 won). This was a significant drop in value compared to the United States, which uses U.S. dollars. The euro used by Germany and Italy also depreciated against the dollar, but the rate of the euro's depreciation stood at 10.97 percent. It was lower than that of the Korean won's depreciation.

In terms of economic growth, there have also been cases of Korea lagging behind the G7 countries. Last year, Italy's real GDP grew by 3.7 percent from the previous year, more than 1 percentage point higher than South Korea's 2.6 percent. Canada (3.4 percent) and the United Kingdom (4.1 percent) also outgrew South Korea. GDP deflators also favored the G7 countries. In terms of consumer price inflation in Italy (8.2 percent), the United States (8.0 percent) and the United Kingdom (7.9 percent) significantly outpaced Korea (5.1 percent).

This year, Korea's growth rate may hit 1.4 percent based on the IMF's calculation method, slightly higher than Italy (0.7 percent), France (1.0 percent), and the United Kingdom (0.5 percent), but lower than the United States (2.1 percent) and Japan (2.0 percent), and exchange rate issues may further widen South Korea's GNI per capita gaps, experts forecast.

# China Sends Korea Signal that Graphite Export Controls Will Not Hurt Korean Battery Makers

By Michael Herh

With Chinese authorities set to begin controlling graphite exports, a key raw material for anode materials for batteries, in December, they held an event with Korean companies only to explain how they will enforce their export control policy.

This was the first time China, which has played the weaponize key minerals card amid its strategic rivalry with the United States, held an event of this nature for companies from a specific trading partner. Some analysts called it a friendly gesture to Korea.

On Nov. 21, the Chinese government held a policy briefing for Korean companies at the Four Seasons Hotel in Beijing, according to the Korean Ministry of Trade, Industry and Energy.

At the briefing, Chinese government officials focused on allaying the concerns of Korean companies, saying, "We understand that there are many concerns about export control on dual-use items, but as long as you abide by Chinese laws, there will be no problems."

They added that export simplification through batch export licenses may be available for companies with recognized credibility.

The Korean government and industry are paying much attention to the fact that the business-friendly event was held exclusively for Korean companies amid a series of measures this year by Beijing that signaled to the outside world that it could weaponize key minerals dominated by China.

China imposed export controls on gallium and germanium, which are used in semiconductor manufacturing, in August, followed by graphite, a key raw material for anode materials, in December.

The global semiconductor and battery industries have become increasingly concerned that China's selective denial of export licenses to companies from countries with which it is in conflict could trigger a supply chain crisis from China in unexpected places.

Gallium and germanium are mainly used in semiconductor R&D led by the United States and other countries, so there is not much demand from Korean companies. Rather, there were concerns about the situation following China's implementation of graphite export controls, an important material for the secondary battery industry.

Specifically, concerns have been raised that China may ultimately impose selective export controls on some Korean companies that play a key role in the U.S. electric vehicle battery supply chain in order to pressure the United States.

"China's export control measures are interpreted as retaliatory measures against the United States, so if U.S.-China relationships deteriorate in the future, there is a possibility that export licenses for Korean battery companies with factories in the U.S. may be delayed or canceled," said the Korea International Trade Association in a recent report.

Against this backdrop, China's decision to hold the policy briefing for Korean companies to allay concerns about supply chain stability is seen as a friendly gesture to Korea.

The policy briefing was reportedly held after several bilateral contacts in which the Korean government called on China to be more transparent in its export control and the Chinese side responded to it.

Most notably, the Korean government formally raised concerns that China's graphite export controls could destabilize the global battery supply chain during a bilateral industry ministerial meeting on the sidelines of the Pan-Yellow Sea Rim Economy and Technology Exchange Conference held in China's northeastern city of Dalian in late October.

At the time, the Korean side is said to have expressed its view that China should make efforts to boost policy transparency, such as holding briefings on the guidelines of export controls.

Korean President Yoon Suk-yeol talks with Chinese President Xi Jinping during an informal dialogue and working luncheon with invited countries during the first session of the Asia-Pacific Economic Cooperation summit in San Francisco in the United States on Nov. 16 (local time).

Some diplomats believe that the Chinese move is related to a slow recovery of bilateral ties between China and Korea that hit a low point in June following the Xing Haiming incident and, since then, has been subsiding.

While relations between China and Korea deteriorated significantly following inappropriate remarks by Chinese Ambassador to South Korea Xing Haiming in June, the two countries have since engaged in multi-channel bilateral contacts and have come to a consensus that nothing should negatively affect their common interests, mainly in the economic and trade sectors, according to some sources.

Although a summit was not held, Korean President Yoon Suk-yeol and Chinese President Xi Jinping met and shook hands at a conference room during a recent Asia-Pacific Economic Cooperation (APEC) summit.

Some analysts say that China feels the importance of managing stable relations with Korea as the U.S. Biden administration is upgrading the public export control system for high-tech industries such as semiconductors and strengthening anti-China coalitions that unite allies such as the Indo-Pacific Economic Framework.

On the other hand, a decision by the leaders of the United States and China at the summit held during the APEC summit to emphasize the stabilization of bilateral ties despite disagreements in key areas such as export controls and the Taiwan issue may have had a positive impact on reducing the likelihood of Korean companies being sandwiched amid the intensification of the U.S.-China conflict.

Germany and Korea have had many historical similarities.

# Korea Should Take Cues from Germany's Strategy in Decoupling from China

By Choi Min-hee

As Germany, which shares a similar economic structure with South Korea, takes steps to improve its economic structure and reduce its trade dependence on China, there is a call for South Korea to draw lessons from Germany's example and work towards improving its own economic structure.

According to a report titled "Causes and Responses to Recent Economic Slowdown in Germany" by the Korea Institute for International Economic Policy (KIEP) on Nov. 1, the German federal government has initiated policies aimed at reducing its trade dependence on China as part of its efforts to overcome an economic slowdown.

In July, Germany passed a "Comprehensive China Strategy" for the first time, emphasizing the need to reduce dependence on China. This strategy explicitly recognizes China as both an essential economic partner and a competitor. It outlines a clear intention to maintain strong ties in areas such as trade, commerce, and investment, while reducing dependence on China, particularly in advanced strategic industries. German Foreign Minister Annalena Baerbock announced the comprehensive strategy for China, explaining that it is aimed at "risk reduction" rather than "economic disengagement" from China.

Efforts to transition away from a traditional manufacturing-based structure include an expansion of investments in eco-friendly technology, infrastructure, and research and development. This is because Germany has strengths in traditional manufacturing industries, but its competitiveness in advanced industries is relatively weaker.

The German government plans to include a climate change fund of 211.8 billion euros (US$224.5 billion) in next year's budget and intends to invest in areas such as the hydrogen economy, clean energy, and climate-friendly mobility through the fund. Within this fund, there are plans to develop programs totaling 21.6 billion euros (US$22.76 billion) in the next year alone. The programs will support renewable energy legislation and be utilized for mobility development, including the expansion of charging infrastructure.

KIEP emphasized, "Considering the similarities in economic structure between South Korea and Germany, it is necessary to draw lessons from Germany and come up with measures as economic challenges could manifest in South Korea in the short and long term."

South Korea shares a similar economic structure with Germany. According to KIEP, the manufacturing sector accounted for 28 percent of South Korea's added value, and in Germany, it was 20.4 percent last year. These figures are notably higher compared to other advanced countries such as the United Kingdom at 9.4 percent, France at 10.7 percent, and the United States at 11.1 percent as of 2021. It's worth noting that China is also considered the largest trading partner for both South Korea and Germany. The share of China in total trade volume is nearly the same with South Korea at 21.9 percent and Germany at 22.7 percent. Both countries have a high level of dependence on China for both exports and imports. BK

# Korea Removed from US Currency Manipulator Watchlist After 7 Years

By Yoon Young-sil

The logo and seal of the U.S. Department of the Treasury adorn a wall in an office building.

South Korea has been removed from the U.S. currency manipulator watchlist for the first time. This move comes with recognition of the transparency in South Korea's foreign exchange policies and marks a significant step towards stability in the value of the South Korean won, providing some relief for the nation's foreign exchange authorities.

On Nov. 7 (local time), the U.S. Department of the Treasury released the 2023 second-half currency report, which removed South Korea and Switzerland from the list of countries under scrutiny for currency practices, and added six new countries, including China, Germany, and Vietnam. When compared to the first half of the year, South Korea and Switzerland have been removed, and Vietnam is a new addition to the list. This marks the first time South Korea has been removed from the watchlist since the enactment of the Trade Facilitation and Trade Enforcement Act in February 2016.

Since making the Trade Facilitation and Trade Enforcement Act in 2015, the United States has applied pressure on countries with trade practices that involve making significant profits with the U.S. or intervening in currency stability beyond a certain threshold. The macroeconomic and exchange rate policies of the top 20 trading partners are assessed semi-annually, and if they meet certain criteria, those countries are designated as either watchlist countries or subject to in-depth analysis.

Countries are assessed using three criteria: maintaining a trade surplus with the United States of US$15 billion or more, achieving a current account surplus equal to or greater than 3 percent of its Gross Domestic Product (GDP), and engaging in a net purchase of the U.S. dollar during currency defense efforts by the foreign exchange authorities that is equal to or greater than 2 percent of its GDP for at least 8 months out of the last 12. If a country meets two of these criteria, it is designated as a watchlist country, and if it fulfills all three, it becomes subject to in-depth analysis.

South Korea has been on the watchlist for 13 consecutive times over the past 7 years by meeting two out of the three criteria. However, due to worsening trade conditions since the second half of last year, the current account surplus has registered at 0.5 percent of GDP for two consecutive terms, leading to South Korea's removal from the list for the first time. With the rapid depreciation of the Korean won against the strong U.S. dollar, the foreign exchange authorities found fewer reasons to purchase dollars, leading to a lower assessment of their involvement in the foreign exchange market. This also contributed to South Korea's removal from the watchlist.

In response to the depreciation of the Korean won this year, the foreign exchange actively sold dollars to defend the exchange rate. According to the Bank of Korea, approximately US$2.1 billion was spent to prevent the decline of the Korean won in the first quarter of this year. However, the amount substantially increased to US$5.97 billion in the second quarter, reflecting a more significant intervention.

On that day, the Ministry of Economy and Finance and the Bank of Korea introduced improvement measures to establish market order in preparation for the opening of the foreign exchange market. The foreign exchange authorities have decided to extend the trading hours of the foreign exchange market from 3:30 p.m. to 2 a.m. the following day starting from July next year. During the extended hours, domestic banks will also be allowed to engage in offshore non-deliverable forward electronic transactions. BK

# MOTIE to Initiate International Collaboration for 180 Technologies, Including Semiconductor Packaging

By Kim Eun-jin


A sign on the side of a building of the Ministry of Trade, Industry & Energy

The government is opening up industrial research and development (R&D) to foreign institutions to discover and develop key technologies in areas vulnerable to becoming weak links in South Korea's flagship industry value chains, such as "technology critical for leapfrogging," "next-generation growth-oriented technology," and "game-changer technology," similar to the semiconductor packaging sector.

On Dec. 5, the Ministry of Trade, Industry, and Energy (MOTIE) announced the "Comprehensive Global Technology Collaboration Strategy" at a meeting of Chief Technology Officers (CTOs) from major companies held at the Four Seasons Hotel in Seoul, presided over by Bang Moon-kyu, minister of government policy coordination.

The MOTIE has outlined a significant direction to increase the share of international collaboration in industrial R&D with a total budget of 5.7 trillion won (US$4.33 billion) from a mere 6 percent this year to over 15 percent by 2028. The goal is to swiftly secure technologies that pose challenges for domestic independent development through collaborative research with overseas research institutions.

The expansion of international collaboration in industrial R&D is primarily divided into two categories: 80 key technologies for leapfrogging and 100 foundational technologies for industries. The focus on leapfrogging technologies includes critical technologies in areas such as semiconductors, secondary batteries, biotechnology, and robotics, where South Korean companies have competitiveness in end products but urgently need to secure core technologies due to vulnerabilities in the value chain. The goal is to commercialize these technologies within a relatively short period of five years.

Next year, an investment of 148.7 billion won will be allocated to initiate the development of 48 technologies, with a total investment of 1.2 trillion won by 2030. The MOTIE provided an example of leapfrogging technology, highlighting semiconductor packaging technology that maximizes performance by integrating heterogeneous semiconductor chips. This technology is expected to be secured through collaboration with the United States, Taiwan, and other countries, with an anticipated investment of 100 billion won in its development.

The government has initially narrowed down a list of 95 candidate technologies through discussions primarily involving domestic experts. These technologies span various fields such as high-resolution pixel technology for extended reality (XR) micro-displays, lithium-sulfur battery electrode technology, nucleic acid therapy development including for mRNA, and carbon steel technology for small modular reactors (SMR) for next-generation nuclear modules.

The development of the top 100 foundational technologies in industries focuses on creating South Korea's "next-generation growth areas" with the goal of commercialization within the next decade. This includes technologies such as rare-earth-free permanent magnets for electric vehicle motors, next-generation AI computing, semiconductors, and new cell rejuvenation drugs.

Next year, an investment of 66.5 billion won will kickstart the research and development of 50 projects, with a total investment reaching 687 billion won by 2028.

A collaboration system with the world's leading research institutions possessing foundational technologies in each field will be established based on the demand of domestic companies. "Industry Technology Cooperation Centers" will be set up in top-notch research institutions such as the Massachusetts Institute of Technology and Stanford University.

The government has decided to mandate the obligation for domestic researchers dispatched to overseas institutions to directly participate in research and ensure the right to implement intellectual property rights for technologies developed through joint efforts, enabling companies to actually utilize them.

Through international collaborative R&D efforts, approximately 1.9 trillion won is planned to be invested in securing a total of 180 technologies. When selecting recipients for international collaborative research support, the government plans to use multi-layer verification, including anonymous expert evaluations, to identify technologies where international cooperation is deemed essential.

In addition to the 180 projects, the government plans to initiate a 1 trillion won preliminary feasibility study project by 2025 with the goal of securing 10 "game-changer technologies" to replace existing key industries. These technologies include personalized artificial organs and immersive spatial computing.

Since President Yoon Suk-yeol pointed out the problems with the "share and divide R&D" approach in June, the government has been in the process of shifting its policy direction by reducing domestic R&D budgets and significantly expanding R&D and technology collaboration with the United States and the European Union (EU).

As of this year, South Korea's national R&D budget amounts to 31 trillion won (US$23.57 billion). The Ministry of Science and ICT manages the largest portion, approximately 9.7 trillion won (US$7.38 billion), with a focus on basic fields. The MOTIE manages around 5.7 trillion won (US$4.33 billion), with a focus on projects with high industrial applicability. BK

# 1 in 3 Working-age People in Korea to be Foreigners in 50 Years

A collection of foreign students pose for a photo wearing hanbok, Korean traditional dress, and flashing heart-shaped hand signs.

By Michael Herh

According to an analysis, up to 96,000 new foreigners will enter Korea every year for the next 50 years. Under these circumstances, if a worst-case low-fertility scenario is realized, one in three people of working ages in Korea will be foreign by 2072.

According to the results of the 2022 Population and Housing Census by Statistics Korea on Dec. 17, the number of foreigners in Korea hit 1,752,000 as of November 2022. Among them, the number of people aged 15 to 64 that are of working ages came in at 1,562,000. This accounted for 4.3% of Korea's total working-age population of 36,686,000.

The number of foreigners living in Korea has been on a sharp rise. The number ascended by 28.5% in seven years to more than 1,700,000 from 1,364,000 in 2015.

This upward trend is expected to continue in the future. According to Statistics Korea's future population projections about the 2022 to 2072 period, Korea's international net migration of foreigners is expected to remain at an average of 96,000 per year for the next 50 years.

Narrowing the scope to working-age population, Korea's international net migration of foreigners is estimated to average 91,000 per year. In 50 years, this would add up to about 4,550,000 (91,000 multiplied by 50 years) foreigners of working ages. Assuming that there is no natural increase in the foreign population, given the characteristic of foreign workers that they work in Korea on work visas and return to their home countries, Korea's foreign working-age population in 2072 will be 6.11 million which is the current size (1.56 million) plus cumulative net migration.

If this trend holds and a pessimistic scenario of low fertility and long life expectancy in Korea materializes, the nation's working-age population is expected to fall to 16.67 million in 2072. The share of foreigners may soar to 36.7%. In 50 years, one in three people of working age in Korea will be foreign.

However, if the foreign population grows rapidly and becomes a larger share of society, the impacts of a natural increase and a natural decrease are likely to be greater than now. This means that the demographic trends of a low birthrate and aging in Korea may be more or less the same for foreigners in Korea.

Statistics Korea releases separate population projections through 2040 that reflect international net migration and a natural increase by taking this into account. According to April estimates, a natural increase in the number of foreigners living in Korea will remain at an average of 5,000 per year until 2025, then gradually decline and turn to drop by 1,000 beginning from 2035. The rate of the decline will be slower than that of Koreans, but the downward trend will become the same for foreigners. If this trend is maintained, in 2040, 17 years from now, Korea's working-age population will reach 28,520,000, of which 6.2% or 1,760,000 will be foreigners, Statistics Korea predicted.

# Korean Gov't to Allow More Foreign Workers with E-9 Visas in 2024

By Michael Herh


Immigration is an important social issue in South Korea.

In 2024, 165,000 foreign workers will enter Korea on non-professional work visas (E-9). This will be the highest number ever. The industries they can work in will also be expanded to include restaurants, mining and forestry.

The Ministry of Employment and Labor announced the decision in a meeting of the Foreign Workforce Policy Committee on Nov. 27.

When breaking down the number of E-9 visas issued by industry, manufacturing is the largest with 95,000. This is followed by 16,000 in the agriculture industry, 13,000 in the service industry, 10,000 in the fishing industry, 6,000 in the construction industry, and 5,000 in the shipbuilding industry. The remaining 20,000 are flexible quotas that are allocated regardless of industries.

E-9 visas are issued through an employment permit system introduced in 2004. The employment permit system is a system that issues E-9 and visitor visas (H-2) to small and medium-sized enterprises that cannot find Korean laborers to allow them to hire foreign workers.

So far, the number of foreign laborers who entered Korea with E-9 visas has steadily increased from 52,000 in 2021 to 69,000 in 2022 and 120,000 this year.

The Korean government will expand the scope of E-9 visa issuance industries from agriculture, fishing, manufacturing, construction, and some service industries to restaurants, mining, and forestry in 2024.

In the restaurant industry, the Korean government will pilot the use of foreign laborers as kitchen assistants in restaurants in Jeju, Sejong, and 98 basic local governments in Korea. In principle, full-time (40-hour workweek) employment will be required, and a survey will be conducted by the second half of next year to check laborer management.

Considering the high rate of closures, businesses with fewer than five full-time workers must have at least seven years of business experience to hire one foreign worker, and businesses with five or more workers must have at least five years of business experience to hire two foreign workers.

Currently, only Chinese nationals with H-2 visas can work in the restaurant industry in Korea. Experts expect that 15,000 to 17,000 foreigners will be employed in 100 local restaurants including 13,000 in restaurants with less than five employees and 4,400 in restaurants with more than five employees.

In addition, mining companies with an annual output of more than 150,000 tons can hire foreign workers and forestry companies can hire foreign workers at forestry business corporations and seedling production companies.

As early as April, the restaurant industry will be able to apply for the second round of employment permits next year, following the designation of sending countries, personnel selection, and employment training organizations. The forestry and mining industries will be able to apply for the use of foreign laborers with E-9 visas from July when they apply for the third round of employment permits next year.

However, there are also criticisms that foreign workers will be deployed to restaurants with fewer than five employees as those are blind spots in labor law. In response, the government said that it will consider further expansion of the restaurant industry by fully collecting opinions from stakeholders such as customers and workers in the industry and also the relevant ministries' evaluations of joint pilot projects.

Moreover, the government will strengthen residence management and support for foreign workers to ensure their smooth settlement and resolve difficulties in human resources management at workplaces.

For the newly included industries, the government will conduct job training and occupational safety training specialized for the industries through its own training institutions, such as industry associations, forestry training institutes, and the Korea Mine Rehabilitation and Mineral Resources Corporation, and set acceptance standards in consideration of business environments and the characteristics of the employment permit system.

Meanwhile, the Task Force on Integrated Management of Foreign Labor plans to map out a rational management plan for foreign labor in the first half of next year based on the results of inter-ministerial discussions.

# Statistics Korea's Survey Shows 1 in 3 Foreign Workers Earns 3 Million Won per Month

By Michael Herh

Non-Korean construction workers in Korea are becoming an increasingly common sight.

The number of foreign residents in South Korea exceeded 1.4 million for the first time as the number of foreigners with E-9 visas working in non-professional jobs and international students increased due to the COVID-19 endemic. If including naturalized immigrants who have acquired South Korean citizenship, the number of immigrants will nearly reach 1.5 million.

According to the results of the 2023 Immigrant Stay and Employment Survey released by Statistics Korea on Dec. 18, there were 1.43 million foreigners aged 15 and older who stayed in Korea for more than 90 days as of May 2023. This was a 9.9 percent increase from a year ago and the largest number ever. Among them, the number of employed foreigners stood at 923,000, the highest number ever.

Both the number of foreigners and the number of foreign workers are the highest since the Korean government began to compile such statistics in 2012. However, the number of naturalized Koreans (aged 15 and over) who acquired Korean citizenship within the last five years sat at 51,000 in 2023, about 1,000 fewer compared to 2022.

By nationality, Korean-Chinese including ethnic Koreans accounted for 33.0 percent of the total. They were followed by Vietnamese (14.1 percent). Only 9.7 percent of immigrants were non-Asians. By industry, mining and manufacturing (44.6 percent) were the most common industries where they worked. These were followed by retail, accommodation, and food services (18.4 percent), business, private and public services (15.5 percent), and construction (12.15 percent). In addition, 33.2 percent of employed foreigners were temporary and casual workers.

Qualitatively, their situations were somewhat better than in the past. The largest proportion (50.6 percent) earned an average wage of 2 million to 3 million won (US$1,530 to US$2,295) per month. This was followed by 35.8 percent earning more than 3 million won per month. The proportion of those earning more than 3 million won swelled by 5.7 percentage points from a year ago. This means that one in three foreign workers earned more than 3 million won per month, the largest share ever. This is due to the fact that there were more highly educated and highly paid foreign workers than in the past.

The average monthly wage of Korean wage earners stood at three million won as of August this year. Moreover, 78.5 percent of the foreign workers said their wages were similar to those of Korean workers doing similar jobs in terms of work hours and 67.7 percent in terms of wages.

Foreigners living in Korea spent the most of their earnings on living expenses (39.4 percent). They wired 23.2 percent of their income outside of Korea such as to their home countries. Only 15.7 percent went into savings.

The increase in foreign residents in South Korea was mainly driven by young people. By age group, young adults (15 to 29 years old) increased by nearly 70,000 from 347,000 in 2022 to 416,000 in 2023, accounting for 29.1 percent of all the foreign resident in Korea. Those in their 30s ascended by 33,000 to 396,000 (27.7 percent). Those in their 40s and 60s or older also increased by 12,000 (15.5 percent) and 18,000 (13.0 percent) to 222,000 and 186,000, respectively, compared to the previous year. However, the number of those in their 50s fell by 5,000 (14.7 percent).

According to the results of Future Population Projections (2022-2072) released by Statistics Korea on Dec. 14, the percentage of the working-age population (15 to 64 years old) in the total population in Korea is expected to plummet from 71.1 percent in 2022 to 45.8 percent in 2072 due to the country's demographic structure.

By status of residence, the count of non-professional workers and international students inflated by 60,000 and 25,000, respectively, while the number of visitor workers (H-2 visa holders) and marriage migrants decreased by 10,000 and 3,000, respectively. Of the 1.43 million foreign nationals, the largest number were overseas Koreans (386,000), followed by non-professional workers (269,000), international students (188,000), permanent residents (131,000), and marriage immigrants (120,000). Nepalese (39,000), Cambodians (39,000), and Vietnamese (32,000) were the most common foreign nationalities in non-professional employment.

The employment rate for foreigners fell 0.3 percentage points year on year to 64.5 percent due to an increase in international students. Foreign workers in their 30s or younger took the lead in increasing the number of foreign workers. Those in their 30s accounted for 33.3 percent of the total, up 30,000 from the previous year. Those aged 15 to 29 also climbed by 41,000 or 23.2 percent to 214,000. Those in their 30s and younger accounted for more than half (56.5 percent) of those employed.

Meanwhile, 30.0 percent of the students said they came to Korea to study because of the high quality of education in Korea. This was followed by 21.9 percent because their majors were well suited to their interests and 10.6 percent because they believed that their Korean degrees will help them find decent jobs. Compared to three years ago, the percentage of students who chose to study in Korea because of the quality of curricula in Korea ascended by 4.2 percentage points and that of students who chose to study in Korea because they judged that it will help them get good jobs shrank by 2.8 percentage points.

More than six in ten (63.0 percent) international students said that they wanted to stay in Korea after graduation. This was an 8.3 percentage point jump from three years ago.

## Forest Environment Conservation

# Choi Byeong-am Leads Landslide Prevention Efforts with Check Dams

By Michael Herh

*This summer, the country has seen an unusually high number of landslides due to concentrated heavy rainfalls. In 2023, the nationwide damage from landslides amounted to 2,410 cases with 458 hectares of land lost, resulting in 15 fatalities. Business Korea had a detailed conversation with Choi Byeong-am, the President of the Korea Association of Forest Enviro-conservation Technology, about strategies for preventing forest disasters.*

Choi Byeong-am, head of the Korea Association of Forest Enviro-conservation Technology, formerly known as the Check Dams Association

**Q: Could you introduce the Korea Association of Forest Enviro-conservation Technology?**

The Korea Association of Forest Enviro-conservation Technology (formerly the Check Dam Association) is a special corporation under the jurisdiction of the Korea Forest Service, established on Jan. 5, 2009, according to the Check Dam Project Act to perform tasks such as feasibility evaluation of check dam projects and inspection of erosion control facilities. Currently, our scope of work has expanded to include investigations of landslide-prone areas, surveys on the state of disaster risk areas, feasibility evaluations of forest roads and forest restoration, and surveys on the feasibility of forest land conversion. On Oct. 14, 2021, following a legislative revision, the association's name was changed from the Check Dam Association to the Korea Association of Forest Enviro-conservation Technology. The association employs 115 staff members and has its headquarters in Osong, with eight regional branches nationwide.

**Q: What has the association done this year for disaster prevention and recovery?**

During the summer disaster management period from May 15 to Oct. 15, our association operated a situation room in coordination with the Korea Forest Service, according to the crisis alert levels. We quickly dispatched to disaster sites to assess damage and prevent further losses. Additionally, we participated in the Korea Forest Service's landslide cause investigation team, performing analysis on the causes of landslides and contributing to the establishment of rational recovery plans. We also conducted emergency assessments to prevent secondary damages in areas affected by large forest fires.

We continuously improve our technical expertise and professional capabilities related to landslides to secure prediction and prevention technologies and minimize damage to life and property through proactive measures like the establishment of evacuation systems.

**Q: Could you speak about the necessity and effectiveness of check dam projects?**

Check dam projects aim to prevent landslides and conserve national land by restoring barren lands, preventing collapses in mountainous areas, and controlling the outflow of earth and logs. These projects involve constructing structures and planting vegetation. They have proven to be effective in preventing disasters like landslides, conserving national land, creating a production base for forest resources, water source cultivation,

The 50th Anniversary Symposium Poster

stream environment conservation, and preserving living environments.

In the 1970s and 1980s, when the land was barren, efforts focused on afforestation and preventing mountains from collapsing through forestation and hillside erosion control projects. From the 1990s and into the 2000s, the emphasis shifted to installing check dams and conducting stream conservation projects to prevent large-scale casualties from debris flow.

This year, several media reports have highlighted the role of check dams in preventing forest sediment disasters or mitigating damage from debris flow. For example, a check dam completed in the village of Bisang in the Naesu district of Cheongju city in June successfully held back 700 tons of earth, minimizing damage to the village.

**Q: Please discuss the best strategies for preventing disasters and human casualties due to landslides.**

There are four key measures I'd like to discuss for improving landslide vulnerability area designation and management. First, there's a need to designate and manage areas vulnerable to landslides that are adjacent to forests but outside recognized vulnerable zones, as there are blind spots where landslides still occur. Establishing a management system based on forest watershed units to minimize these blind spots and efficiently manage forest spaces is critical.

Secondly, considering climate change and weather anomalies, managing risk areas for evacuation is crucial. During certain heavy rainfall conditions or times of heightened landslide risk, the introduction of mandatory evacuation policies should be considered.

Third, establishing national landslide statistics is important. The increasing trend of larger and more frequent landslides, due to changes in rainfall patterns with climate change, shows the limitations of our current recovery-focused statistical management. Therefore, creating a systematic basis for landslide statistics for effective prevention and response is necessary. This includes building a spatial information database for previous landslide sites and pushing for national approval of landslide occurrence statistics.

Finally, reinforcing facilities against extreme rainfall is necessary. As I mentioned, we are seeing more frequent intense rainfall events, exceeding 100-year frequencies. For instance, Changwon recorded a 500-year frequency downpour during Typhoon Khanun in August. Therefore, it's necessary to expand the design rainfall amounts for forest roads and erosion control facilities and strengthen installation regulations to prepare for potential disasters. BK

The 50th Anniversary Symposium on Land Greening

# Jusung Engineering:

## Korean Equipment Manufacturer Leading Global Innovation in Semiconductor, Display, Solar Sectors

By Jasmine Choi

Jusung Engineering, a semiconductor, display, and solar equipment company, has carved a mythical path in the barren land of domestic ventures. This year marks its 30th anniversary. Established in 1993, the company has experienced various challenges but has achieved remarkable growth through continuous innovation and taking a step ahead in technology development compared to other companies. Last year, it recorded its highest-ever sales performance, enhancing its reputation as a global company. It reported 437.9 billion won (US$336.6 million) in sales and 123.9 billion won in operating profit. Despite the overall downturn in the semiconductor industry this year, the company has been performing relatively well. Unlike other companies, it turned to profit in the third quarter, and its stock price, exceeding 30,000 won, is on a rising rally, attracting attention as a promising investment company.

Jusung Engineering is fully committed to advancing its semiconductor, display, and solar equipment businesses based on the innovative technologies it has developed over the years. In particular, the company continues to develop both memory and non-memory related semiconductor production equipment based on its differentiated ALD technology. In the display business, it is aiming for sales growth through diversification of equipment for both small and large panels and process expansion.

Jusung Engineering is also actively entering the solar business, which had been facing some difficulties in sales. As part of this effort, it is preparing for innovative technology development and vigorous sales activities. Jusung has introduced the world's first next-generation solar cell (Tandem) equipment capable of achieving more than 35% efficiency based on the integration of ultra-fine semiconductor process technology and large area OLED display deposition technology. Additionally, the company is developing a new type of solar cell by placing the world's highest efficiency heterojunction technology (HJT) solar cell at the bottom and a Perovskite Solar Cell, suitable for short-wavelength and light absorption, on top. This development is part of its plan to expand its customer base into the New Mobility industry, including electric vehicles and Urban Air Mobility (UAM).

Jusung Engineering is also diversifying its preparations for the next 30 years. Starting from early 2020, it has laid the groundwork for growth through infrastructure development, including research and development and manufacturing line reorganization. In early 2020, it established an R&D center in Yongin, spanning 7,900 pyeong, consolidating research and development of semicon-

Hwang Chul-joo,
chairman of Jusung Engineering



R&D center in Yongin(up), The Jusung Engineering headquarters in Gwangju, Korea

ductor, display, and solar equipment in one space, maximizing technological development synergy and efficiency. In the second half of 2022, it built a research and manufacturing facility of about 6,600 pyeong at its Gwangju headquarters, significantly enhancing research and production efficiency. In addition, by participating as an entering company in the Yongin semiconductor cluster construction led by SK hynix in June, it has laid the foundation for expanding semiconductor equipment production.

Business Korea met with Chairman Hwang Chul-joo of Jusung Engineering, who dreams of becoming a top global company in the field of semiconductor, display, and solar equipment, to hear about his success story and future outlook.

**Q: This year marks the 30th anniversary of your company's establishment. Could you share your thoughts on this significant milestone?**

It has been 30 years since the establishment of the company, but it feels like just three months to me. I believe that the achievements we have made today were possible because our customers have recognized and trusted Jusung Engineering's innovations over these 30 years. We have firmly set the goal of "technological independence" by maintaining a lead in self-reliant, cutting-edge technology and have poured all our efforts into research and development for innovation.

Currently, about 65% of our total employees are engaged in research and development, and we have registered over 3,000 patents. Regardless of the circumstances, we invest 15-20% of our sales in "technology development for innovation." Without this, we would inevitably face difficulties in securing unique technological competitiveness and pioneering future markets. While "imitation" can be done through experience, "innovation" requires a fiery passion, determination, and patience to do something better and sooner than others think possible.

What we desperately needed and lacked was innovation. Jusung has grown solely through "innovation" over these 30 years. Throughout this long journey, all employees of Jusung have walked paths untraveled by others, and as a result, have forged new ones. The difficulty of this journey was unimaginably tough, making the 30th anniversary all the more significant and valuable.

**Q: You mentioned facing many challenges. What would you consider the most rewarding achievement in these 30 years?**

Above all, I think it was when we developed our first product. At that time, the prevailing belief was that "developing and producing semiconductor equipment is impossible," and it's true that knowledge and technology in this field were very limited. However, we wanted to overcome this challenging environment and demonstrate our technical superiority. The moment Jusung broke everyone's expectations and introduced semiconductor equipment that was on par with the world's leading companies, the joy was unforgettable.

Later, in the fierce competition between nations and companies in semiconductor materials, components, and equipment, the moment Jusung, leading with innovation, secured competitiveness and gained recognition was indescribably fulfilling. Particularly encouraging was the atmosphere in which world-leading semiconductor companies wanted to collaborate with Jusung.

I believed that innovation alone could lead to business success. However, I realized that without the “trust” and recognition from related global companies, innovation is not enough. It was then that I learned the importance of coexistence between innovation and trust.

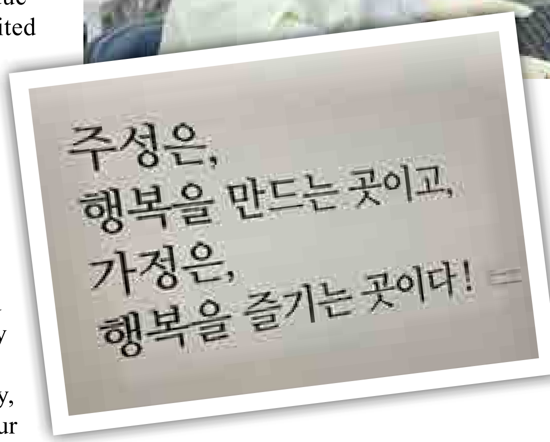
**Q: Can you discuss Jusung’s strengths compared to its competitors?**

Jusung is currently engaged in fierce competition with leading semiconductor equipment companies in the United States and Japan to secure a position in the global market. The difference in company size is enormous. Based on sales performance, we are much smaller, with ratios as stark as 50 to 1 or even 100 to 1. Even in terms of company history, we are no match; while U.S. and Japanese companies have been around for 60 to 70 years, Jusung has only made it to 30 years so far.

But that’s not all. Economically, we are about 1/100th the size, and our workforce is only about 1/50th. In such conditions, the only way for Jusung to win is to introduce advanced technology faster than other companies and to continuously achieve innovation. I believe this is where Jusung’s competitiveness lies.

**Q: In the semiconductor equipment sector, Jusung’s competitiveness is well recognized. What would you consider your most successful technology or equipment?**

It’s Atomic Layer Deposition (ALD). Our company is currently focusing on developing and producing equipment adopting differentiated ALD technology in the semiconductor industry, where tech migration is accelerating. I believe that Jusung has set global standards with ALD. Of course, we didn’t develop ALD technology independently; it was theorized by scientists in the field 40 years ago but not applied in products. Jusung was the first in the world to successfully apply it in equipment manufacturing.




As a result, ALD technology is now recognized as a standard in not only semiconductor equipment but also in display and solar equipment. In this regard, Jusung’s equipment development using ALD technology has significantly contributed to the advancement of global semiconductor and display technologies. Moving forward, our company plans to integrate cutting-edge innovative technology with ALD to innovate in the development of semiconductor, display, and solar equipment.

**Q: There’s a prevailing view that the semiconductor market is facing difficulties this year. The outlook for the equipment industry is also quite negative. What are Jusung’s strategies to overcome this?**

It’s true that the forecast for the semiconductor market this year is not favorable. I understand that South Korean semiconductor, display, and solar companies are facing many difficulties in competing with global corporations. Of course, there has never been a time without challenges. In such situations, creating a market by making products that are better and cheaper with existing technology is easy.

However, what’s more important is creating new products with new technology and thereby establishing a completely new market. If you create a new market, new customers will always exist, enabling a company to achieve remarkable growth. Jusung is focusing on creating new products using world-leading technology, considering these aspects. We are emphasizing the development of global leading technology and creating a corporate environment that is one step ahead and better than other companies, regardless of the challenges. New customers always exist, so we are concentrating our managerial efforts on developing innovative technologies.

**Q: At the 30th anniversary celebration, you mentioned a focus on innovative technology development to become the number one company in semiconductor, display, and solar manufacturing equipment. Could you elaborate on this?**

The innovative technologies we are currently focusing on at Jusung are trade secrets, so it’s difficult to disclose them in detail. As you know, semiconductors can be considered the foundation of all industrial technologies. Display technology converts electricity into light using semiconductor technology, while solar technology converts light into electricity. The technology we are currently commercializing can be considered the core technology for equipment in all three areas – semiconductors, displays, and solar.

Jusung has reached this understanding by not imitating other companies or technologies. It would be more costly to develop technology and apply it only to semiconductors and not to displays. Our company is increasing its competitiveness by developing core technologies that can be applied to all three types of equipment. Hence, we have adopted the slogan, "Jusung is developing future semiconductor, display, and solar technologies," to enhance our image as a global future innovation technology company.

If the source technology developed by Jusung's innovation is properly applied in equipment development, its efficiency is tremendous. Although our current staff is about 600, I believe we will not fall behind in efficiency competition even against companies with 6,000 or 60,000 employees.

**Q: Considering the intense competition for future technology in the semiconductor, display, and solar manufacturing equipment sectors in recent years, what is Jusung's technology development strategy for the next 30 years? What areas will you focus on for competitive advantage?**

I believe semiconductor, display, and solar technologies will always be needed as long as the universe exists. This is based on a combination of transistors and capacitors, and such technology will always be necessary.

Therefore, Jusung is concentrating on researching and developing materials, processes, and equipment that can create significantly improved future transistors and capacitor technologies, pioneering these developments globally. This is our strategy for preparing for the next 30 years. If this progresses well, in the future we expect to achieve more than a hundred times the synergy of the past 30 years. This is also a task that Jusung must undertake and realize for the development of related industries.

**Q: I understand there is a lot of interest in expanding into foreign markets. Could you elaborate on that?**

Currently, South Korea has the world's top competitiveness in the semiconductor memory sector. However, the country does not have the same level of foundational technology in related fields. Despite this, Korean companies are more interested in technologies needed immediately rather than those required for the future.

Jusung is very interested in developing future technologies that are ten years ahead of what our customers envision in order to be competitive in overseas markets. While it's not easy, we are making every effort to support our customers in adopting future technologies.

As part of this, we are continuously engaging in technology sharing and development cooperation with many overseas customers for core technology development. This cooperation with overseas clients is expected to yield synergy beyond expectations soon.

**Q: What are your performance targets for this year?**

In the third quarter of this year, we recorded consolidated sales of 86.1 billion won and an operating profit of 6.2 billion won, which is somewhat lower than last year. While we cannot expect the record-breaking results of last year, the shift to profitability in the third quarter, contrasting the 8.7 billion won operating loss of the second quarter, is a positive sign.

Therefore, there is great anticipation for next year's performance. While poor performance due to technological or sales competition can be seen as a "crisis," I don't consider a downturn in overall economic performance due to a general recession as a significant threat. Jusung is not losing in competition but is rather not achieving expected results due to market recession. We are making various efforts to overcome this. Jusung also has the catchphrase, "Lose a war and become a slave; lose in competition and become destitute," and is searching for ways to win in competition.



**Q: I would like to hear about your management philosophy.**

It's about "living well and being happy." The well-being and happiness of everyone at our company are my concerns. We have adopted the management motto, "Jusung creates happiness, and homes are where happiness is enjoyed." How to realize this is my important management task and goal.

There are three ways to create happiness: economic comfort, time freedom, and environmental liberty. I believe that only when these three are properly implemented can we truly live better and be happier.

Especially in the era of the Fourth Industrial Revolution, the only way to achieve economic comfort is through innovation. Winning in competition and creating added value through innovation leads to economic comfort, which in turn allows for time freedom to make homes happier and naturally enjoy environmental liberty. I think it's difficult to live better and be happier without innovation.

**Q: You established the Korea Entrepreneurship Foundation in 2011 and have been actively giving back to society. Do you have any other plans for social contribution?**

I believe I was the first to use the terms "entrepreneurial spirit" and "co-growth" around 2010. At that time, the term entrepreneurial spirit was unfamiliar, and instead of co-growth, the term "mutual prosperity" was more commonly used. I have consistently spoken about co-growth, meaning growing together based on sharing, as I believe that mutual prosperity without sharing is meaningless.

At that time, there was a lot of interest in young entrepreneurs dreaming of ventures. As you know, innovation can disappear like a bubble due to further innovations, but trust is built over time and effort. Seeing the start-up ecosystem of young entrepreneurs emphasizing innovation over building trust, I established the Korea Entrepreneurship Foundation. I believe many young entrepreneurs are learning the entrepreneurial spirit of building innovation and trust through the foundation. The Ilun Scholarship Foundation, established in 2003, was started in the same context. Going forward, if there are opportunities to share innovation, I plan to continue supporting it through many different types of activities. BK

# 62% Drop in Domestic Major Corporate M&As

By Yoon Young-sil


The number of mergers and acquisitions (M&As) involving major corporations in the country this year has more than halved compared to last year.

On Dec. 20, CEO Score, a corporate data research institute, revealed that the number of M&As this year has reached 60. This information is based on quarterly reports submitted by 356 out of the top 500 companies in terms of revenue this year. It marks a 62 percent decrease compared to the 158 transactions recorded last year, continuing a downward trend for the third consecutive year.

The amount of M&A investments has recorded 14.95 trillion won (US$11.47 billion), representing a 12.1 percent decrease compared to last year's 17 trillion won. However, the number of M&A transactions exceeding 1 trillion won has increased from 3 last year to 5 this year.

Among the M&A transactions completed this year, the largest in terms of investment size was Lotte Chemical's acquisition of Iljin Materials, now Lotte Energy Materials, in March, with a total investment of 2.54 trillion won. Following that, Hanwha Group's affiliates, including Hanwha Aerospace, invested 2 trillion won (US$1.53 billion) in the acquisition of Daewoo Shipbuilding & Marine Engineering, currently Hanwha Ocean.

M&As in the IT sector have also been vibrant. Naver acquired the online used goods trading platform Poshmark, known as the U.S. version of Karrot Market, for 1.75 trillion won. Kakao invested 1.36 trillion won in acquiring SM Entertainment. Kakao emerged as the company with the highest number of M&A transactions this year, totaling six deals and investing a total of 1.41 trillion won, including the acquisition of SM Entertainment.

Meanwhile, this survey has excluded unfinished M&A deals, such as Korean Air's acquisition of Asiana Airlines, Eugene Group's acquisition of YTN, and Harim Group's acquisition of HMM.

# Risk of Capital Loss in Overseas Real Estate Funds Worth 740 Billion Won Sold by Top 5 Korean Banks

By Jung Suk-yee

The recent global downturn in the real estate market has exposed significant risks of substantial losses for overseas real estate funds sold by domestic banks.

According to financial sources on Dec. 18, the aggregated sales balance of overseas real estate funds by the top five banks in South Korea -- Kookmin, Shinhan, Hana, Woori, and Nonghyup -- amounts to 742.7 billion won (US$570 million). Among these, it was revealed that the amounts maturing in the first and second halves of next year are 106.1 billion won and 151 billion won, respectively.

Banks are expressing concerns over potential losses from the funds. The increase in remote work after the COVID-19 pandemic has led to a rise in vacancies in commercial real estate, and the reduced demand for real estate investment due to high interest rates has diminished the value of these assets. A spokesperson from a commercial bank expressed concerns, stating, "Funds that targeted returns in the range of 6 to 7 percent at the time of investment could potentially record negative yields."


Commercial real estate

Considering the funds sold through other channels, such as securities firms, there is a possibility that losses could increase further. According to the Korea Financial Investment Association, the total set-up amount of overseas real estate funds by domestic financial companies amounted to 76.97 trillion won as of Dec. 14, representing an increase of 5.46 trillion won compared to a year ago when it was 71.51 trillion won.

# FSS Discovers 9 Securities Firms Engaging in Self-Trading, Transferring Losses to Other Clients

By Jung Suk-yee

Securities firms have been caught engaging in illegal "bond shuffling" practices, transferring bond losses, sometimes amounting to as much as 500 billion won (US$383.44 million), to other clients in an attempt to preserve investment returns for certain institutions and corporations. These activities were recently uncovered in comprehensive inspections by the Financial Supervisory Service (FSS).

On Dec. 17, the FSS announced the results of concentrated inspections on nine securities firms regarding bond-type wrap account (wrap) and specific monetary trust (trust) operations. The inspections revealed various illegal activities, including self-trading, as well as instances of inadequate internal controls.

Wrap and trust are financial products where securities firms manage assets through one-to-one contracts with investors. The principle of these products is not to guarantee the principal as performance-based dividend products. However, securities firms have traditionally been selling them as if they were principal-protected, engaging in a competitive race for returns.

According to the inspection results from the FSS, all nine securities firms were found to have participated in illegal self-trading, transferring losses from one investor's account to another multiple times. One prevalent example involved selling investment assets such as commercial paper (CP) from customers whose investments had matured to another securities firm at a higher price than the market value. In return, the securities firm purchased other CP from the selling firm at an inflated price using the accounts of customers whose investments had not yet matured.

One securities firm engaged in "bond passing" practices for about a year, starting from July of the previous year, through approximately 6,000 linked and substituted transactions with another securities firm. Ultimately, this resulted in transferring losses totaling 500 billion won (US$383.44 million). In the process, some investors incurred losses. The losses transferred through such practices vary for each securities firm, ranging from tens of billions to hundreds of billions of won. There are speculations that the overall industry-wide scale could be in the trillions of won.

Bond-type wrap and trust products are typically subscribed to by corporations and institutions looking to roll over short-term excess funds for a period of three to six months. Securities firms need to include short-term liquid instruments in their assets to ensure the timely redemption of investment funds. However, there has been a prevalent industry practice where securities firms manage these products by including long-term bonds with maturities of three to five years or low-liquidity instruments like CP. This practice, known as "maturity mismatch management," has been adopted to guarantee high returns for corporate clients.

The sign outside an office of the financial supervisory service

This management practice had not been a significant issue in normal circumstances. However, the situation changed dramatically in the second half of last year when the so-called "Legoland incident" occurred. With the incident, bond interest rates surged and trading was suspended, leading to trillions of won of losses in the bond-type wrap and trust products due to valuation losses resulting from maturity mismatch management. The securities firms, facing substantial losses and unable to return the investment funds, are suspected of using various means, including self-trading and corporate assets, to preserve the returns for corporate clients. This suspicion has prompted investigations by the FSS since May of this year.

The financial regulatory authorities are taking a firm stance on this matter. Given that these transactions were originally prohibited, they plan to use this inspection as an opportunity to tighten control. The FSS intends to report the main allegations against the nine securities firms and around 30 operators responsible for the profit and loss transfer transactions to the investigative authorities. The FSS views their abnormal trading of assets at inflated prices, resulting in passing on losses to customers, as a serious breach of duty in the course of their work.

The possibility of administrative sanctions against owners has also been raised. The FSS previously indicated its intention to hold owners directly accountable for unethical business malpractices. Ham Yong-il, vice chairman of the FSS, stated, "If any department, including compliance, risk management, and audit, fails to prevent illegal activities related to wraps and trusts, it is a serious issue indicating that the overall internal controls were not functioning. The ultimate responsibility for internal control lies with the top management, and it cannot be considered unrelated to them."

# KOSPI-listed Companies with Assets Exceeding 10 Trillion Won to Mandate English Disclosures Starting Next Year

By Yoon Young-sil


Starting next year, KOSPI-listed companies with assets exceeding 10 trillion won (US$7.67 billion) will be obligated to submit disclosures in English. This mandatory requirement is expected to enhance information accessibility for foreign investors.

The Financial Services Commission announced on Dec. 17 that large-cap KOSPI-listed firms must submit English disclosures within three days of their Korean disclosures for critical information in stock exchange filings, effective Jan. 1, 2024.

The mandatory implementation of the first phase of the "Gradual Expansion of English Disclosures" plan, as outlined in the "Enhancement Measures for Foreign Investor Accessibility to the Capital Market" announced in January, is to be in effect.

According to the plan, the phased implementation of mandatory English disclosures is set to occur in two stages. In the first stage from 2024 to 2025, followed by the second stage from 2026 onward, large-cap listed companies will progressively be obligated to disclose information, with a focus on crucial details, in English. Additionally, supportive measures to facilitate the spread of English disclosures will be concurrently implemented.

From 2024 onwards, KOSPI-listed companies with assets surpassing 10 trillion won (US$7.67 billion) will be required to submit mandatory English disclosures. This obligation applies to matters such as financial settlements, including decisions regarding cash or in-kind dividends, significant managerial decisions like decisions on stock dividends and paid-in capital increases, and situations triggering trading halts such as decisions on stock cancellations. In these instances, after submitting disclosures in Korean to the stock exchange, companies must also submit English disclosures within three days.

# Foreign Investor Registration System to be Abolished on Dec. 14

By Yoon Young-sil

The term "Korea Discount" refers to foreigners viewing Korean securities to be worth less than those of other countries.

Starting on Dec. 14, the foreign investor registration system, which was considered one of the causes of the "Korea Discount," or the undervaluation of the South Korean stock market, will be abolished.

According to the financial investment industry on Dec. 12, the "Enforcement Decree of the Capital Market and Financial Investment Business Act," containing the abolition of the foreign investor registration system, will be implemented from the Dec. 14. In the future, foreign investors will be able to open accounts directly with securities companies without the need for prior registration with the Financial Supervisory Service. Foreign corporations will require the standardized ID, known as the Legal Entity Identifier (LEI), while individuals will only need a passport number.

The inconvenience of pre-registering personal information with the financial authorities will be eliminated. For global asset management firms, the procedures and costs associated with the trading and settlement of each fund will disappear. Individual and small to medium-sized institutional investors will find relief from the inconvenience of having to designate separate accounts and custodial institutions in South Korea.

With the abolition of the foreign investor registration system after more than 31 years, there is an expectation of short-term effects in the securities market. However, prevailing opinions suggest that it might be challenging to see a significant influx of foreign investment that could impact the market. Ultimately, the analysis indicates that it is crucial to enhance the attractiveness of the domestic stock market to achieve a virtuous cycle.

The situation in neighboring countries is not entirely positive, especially considering the high dependency of the South Korean economy on China. As a result, the value of the Korean won tends to move in sync with the movements of the Chinese yuan.

# Targeted Companies of Activist Funds: Expectations for Resolving Undervaluation


The City of London Investment Trust is active in its investments.

By Yoon Young-sil

As the shareholder meeting season approaches in March next year, activist funds are gearing up for more assertive actions. Some stocks targeted by activist funds are experiencing price fluctuations in anticipation of the resolution of undervaluation. The securities industry is anticipating that shareholder activities of activist funds will intensify in early next year.

According to the Korea Exchange on Dec. 13, Samsung C&T saw a surge in its stock price at the end of October. From Nov. 1 until that day, the stock price increased by over 20 percent. The stock price increase was triggered by attacks from British activist funds. On Dec. 6, Palliser Capital distributed materials urging the improvement of Samsung C&T's governance structure. Last month, City of London Investment demanded an increase in dividends to 4,500 won (US$3.41) per share and the repurchase of 500 billion won worth of treasury stocks by next year.

Hyundai Elevator, which has been targeted by KCGI Asset Management, has also been experiencing a continuous upward trend in its stock price. The share price has risen by 55 percent since the beginning of the year. KCGI Asset Management sent an open shareholder letter last month, demanding improvements in the governance structure, including the resignation of Chairman Hyun Jeong-eun as an inside director. The chairman recently resigned from the board of directors.

KCGI Asset Management is also demanding the complete cancellation of its treasury shares, which amount to 7.64 percent. It is aiming to apply additional pressure through collaboration with the second-largest shareholder and foreign elevator company Schindler.

The target of activist funds is expanding beyond listed companies to real estate investment trusts (REITs) and other real estate investment entities. At the end of last month, KORAMCO Asset Management changed the purpose of its holdings in REITs such as Shinhan Alpha REIT, E-REITs KOCREF, IGIS Residence REIT, and IGIS Value Plus REIT from "simple investment" to "management participation."

Funds that invest in companies targeted by activist investors are also being launched. Truston Asset Management is set to launch the "TRUSTON Shareholder Value Active" exchange-traded fund (ETF) this month, investing in stocks where shareholder value is expected to expand through governance improvements. The fund focuses on undervalued companies due to reasons such as low shareholder returns. In September, KCGI Asset Management also launched the activist public "ESG Co-growth Fund."

The views on shareholder activism are divided. The securities industry argues that resolving the "Korea discount" through shareholder actions is necessary. However, the business community insists that the practice of attacking companies with small stakes should come to a halt. The hedge fund Palliser Capital, which demanded improvements in the governance structure of Samsung C&T, holds a stake of only 0.62 percent. KCGI Asset Management's stake in Hyundai Elevator is also around 2 percent.

# Activist Funds Expected to Increase Influence at General Shareholders Meetings in 2024

By Yoon Young-sil

Activist funds pushing for better corporate governance and increased shareholder returns are expected to make many moves ahead of the annual shareholder meeting season for listed companies early next year.

Major activist funds Truston Asset Management (Taekwang Industries-BYC), Align Partners Asset Management (JB Financial Group), Flashlight Capital Partners-ANDA Asset Management (KT&G), and Value Partners Asset Management (KISCO Holdings) submitted shareholder proposals at this year's regular general shareholders meetings, but all of them were rejected, according to sources in financial investment industry on Dec. 10.

Activist investors are always something public companies have to watch out for.

While activist funds failed to reach their goals at shareholder meetings this year, their pushes for better governance have been steady. Earlier this month, Flashlight Capital Partners (FCP) sent a letter to KT&G calling for improvements to its presidential candidate appointment process, including a checking period for next presidential candidates and an external disclosure of candidate qualifications. In the process of selecting the next president, KT&G said it will remove the provision that allows the incumbent president who has expressed his intention to remain in office to be considered over other candidates and transparently disclose the process of selecting the next president.

KCGI, which has been demanding an improvement in corporate governance at Hyundai Elevator, has also achieved some results. It recently demanded an improvement in the management structure, the normalization of corporate value, and the cancellation of all treasury shares even after Hyundai Group Chairwoman Hyun Jung-eun resigned as a registered director and chairwoman of the board of directors at Hyundai Elevator.

Truston Asset Management is set to launch an exchange-traded fund (ETF) in the middle of December that will focus on stocks expected to expand shareholder value through activism.

Activist funds are expected to increase their presence in the capital markets next year as they look to improve corporate governance this year. As shareholder proposals must be submitted in writing at least six weeks before the shareholders' meeting date under the Commercial Code, activist funds are expected to become more active towards the end of the year.

The shareholder activism of management participation PEFs will also be closely watched. This year, MBK Partners has tried to buy stakes in companies such as Osstem Implant and Hankook & Company with the aim of improving corporate governance and raising corporate value. It plans to increase corporate value by introducing a professional management system by taking control of Hankook & Company.

However, there are some differences between activism funds and shareholder activism as activism funds aim to influence corporate decision-making, while management participation-type PEFs launch tender offers with the ultimate goal of securing management control.

This has led to some controversy in the financial investment industry over hostile M&As. When MBK Partners made a tender offer for Osstem Implant, it acquired a 9 percent stake in former Chairman Choi Kyu-ok and had discussions with Choi to take over management control, but this tender offer is being conducted without the consent of the largest shareholder, Chairman Choi Hyun-beom.

In addition, Align Partners Asset Management's shareholder activism against SM Entertainment spilled over into a management dispute between HYBE and Kakao due to opposition from former executive producer Lee Su-man, a major shareholder of SM Entertainment.

As a result, some experts pointed out that private equity funds aim for short-term gains by increasing the value of companies after taking over their management control.

# Foreign Investors Return to 'Buy Korea' after Four Months

By Jung Suk-yee

The term Buy Korea refers to the net buying of Korean stocks by foreign actors.

Last month, foreign investment funds in domestic stocks and bonds reversed into net inflows for the first time in four months.

According to a report titled "Trends in International Finance and Foreign Exchange Markets Since November" released by the Bank of Korea on Dec. 12, foreign securities investment funds saw a net inflow of US$4.5 billion last month, marking a shift to positive territory for the first time in four months since July when the inflow was US$1.04 billion.

Foreign investors were observed to be net buyers in the stock market with a total of US$2.64 billion and in the bond market with US$1.86 billion last month.

The analysis suggests that the expectation of a recovery in the semiconductor industry has fueled optimism in stock investments, while concerns over prolonged global high-interest rates have eased, contributing to the net inflow trend in bond investments.

# 5 Major Banks to Halt Sales of Hong Kong HSCEI-linked ELS

By Kim Eun-jin

Five of the major banks in South Korea are halting the sale of equity linked securities of the Hong Kong Hang Seng China Index.

Five major banks in South Korea are suspending the sale of equity linked securities (ELS) linked to the Hong Kong Hang Seng China Index (HSCEI). This decision comes in response to the substantial decline in the HSCEI, heightening the potential for principal losses.

KB Kookmin Bank has announced a temporary suspension of sales of HSCEI-linked ELS products starting from Nov. 30. Hana Bank has also decided to temporarily halt the sale of the HSCEI-linked ELS from Dec. 4.

Accordingly, all five major banks -- KB Kookmin, Shinhan, Hana, Woori, and NH Nonghyup -- have suspended the sale of ELS products linked to the HSCEI. Previously, Shinhan and Woori Bank had halted the sale of HSCEI-linked ELS products since the end of last year, and NH Nonghyup Bank had completely ceased ELS sales from last month.

An ELS is a derivative product with a profit structure determined based on the stock index chosen as the underlying asset. Banks typically sell ELS through private placements or public offerings, presenting them in the form of funds known as ELF and trusts called ELT. As the HSCEI-linked ELS began experiencing potential principal losses due to the sharp decline in the index, banks have decided to halt sales.

Presently, the HSCEI stands at approximately 6,000, which is almost half of its peak in 2021, reaching 12,000. As a result, the HSCEI-linked ELS is anticipated to suffer significant losses corresponding to the scale of the stock market decline. The total value of HSCEI-linked ELS products maturing in the first half of next year is 8.41 trillion won (US$6.46 billion). By bank, KB Kookmin Bank has the highest exposure at 4.77 trillion won, followed by NH Nonghyup Bank with 1.48 trillion won, Shinhan Bank with 1.38 trillion won, Hana Bank with 752.6 billion won, and Woori Bank with 24.9 billion won.

# Warning Signs for Soundness Management: Corporate Loans Surge by 65 Trillion Won in 5 Major Banks

By Yoon Young-sil

It has been revealed that the outstanding corporate loans of the five major commercial banks in South Korea have surged by over 65 trillion won since the beginning of this year. With the government and financial authorities seeking to restrain household loans, there is increasingly intense competition among banks as they shift their focus to corporate loans.

According to financial sources on Dec. 4, the outstanding corporate loans of the five major banks -- KB Kookmin, Shinhan, Hana, Woori, and NH NongHyup -- amounted to 768.93 trillion won (US$588.54 billion) as of the end of November. This represented an increase of 4.61 trillion won compared to the previous month's total of 764.32 trillion won. Compared to the end of last year at 703.73 trillion won, the outstanding corporate loans have increased by 65.2 trillion won, continuing to rise for 11 consecutive months this year. In contrast, the outstanding household loans during the same period have decreased by 2.15 trillion won from 692.53 trillion won to 690.39 trillion won.

As financial authorities apply brakes to the expansion of household loans, banks are shifting their lending strategies from households to corporations. Simultaneously, businesses are opting for bank loans instead of issuing corporate bonds, contributing to a steady increase in outstanding corporate loan balances.

Breaking down by the size of business, the outstanding balance of loans to small and medium-sized enterprises, including loans to individual business owners, has increased by 32.4 trillion won to 630.61 trillion won since the beginning of this year. In contrast, loans to large enterprises have decreased by 32.79 trillion won to 138.31 trillion won. Among the banks, KB Kookmin Bank has the largest corporate loan portfolio, amounting to 175.6 trillion won. It is followed by Hana Bank with 159.17 trillion won, Shinhan Bank with 156.11 trillion won, Woori Bank with 142.3 trillion won, and NH NongHyup Bank with 135.76 trillion won.

The issue lies in the increasing number of companies facing challenges as they either switch to higher interest loans when their loans mature, or find themselves in a situation of enduring high-interest rates. This has led to a growing trend of companies shutting down their businesses due to the limitations imposed by the persistently high interest environment.

According to the Bank of Korea, the outstanding balance of loans to small and medium-sized enterprises (SMEs) from deposit banks reached a record-high of 998 trillion won as of the end of October this year, representing an increase of 3.8 trillion won compared to the previous month. The figures for the end of November have not been released yet. Given the recent growth trend, however, the figures are expected to surpass the 1 quadrillion won mark.

Banking is the bedrock of modern capitalistic life.

The interest rates on corporate loans are also on an upward trend. As of October, the average interest rate for new SME loans from deposit banks increased for the second consecutive month, reaching 5.35 percent. The interest rate for SME loans rose from 2.89 percent in December 2020, the first year of the COVID-19 pandemic, to 3.37 percent in December 2021, and further surged to 5.76 percent in December of the last year. Interest rates for loans to both large and small businesses, including corporate loans, have exceeded the 5 percent threshold for 13 consecutive months since October of the previous year.

The burden of loan interest on businesses is leading to an increase in delinquency rates. According to the Financial Supervisory Service and the Supreme Court, as of September this year, the delinquency rate for SME loans from deposit banks stood at 0.49 percent, showing a 1.8-fold increase compared to the previous year's rate of 0.27 percent. This figure had risen to 0.55 percent in August but slightly decreased in September, partly attributed to end-of-quarter adjustments and disposals.

With the average interest rates for loans to SMEs maintaining levels in the 5 percent range, the increasing delinquency rates have led to a record number of SME bankruptcy filings this year. From January to October, the number of corporate bankruptcy filings received by courts nationwide reached 1,363 cases, marking a sharp increase of 66.8 percent compared to the same period last year. This is the highest number since the available statistics from 2013.

# Do Foreign Investors Leave When Short Selling is Prohibited?

By Yoon Young-sil

A stock trader looks at a screen that displays stock-related information

After the implementation of the short selling ban last month, it has been revealed that foreign investors have acquired over 3 trillion won worth of domestically listed stocks in the past month. This marks a turnaround for foreign investors, shifting from net selling to net buying of domestic stocks for the first time in four months.

According to the stock investment trend report for foreign investors released by the Financial Supervisory Service (FSS) on Dec. 7, foreign investors made net purchases of domestically listed stocks amounting to 3.3 trillion won (US$2.5 billion) in November.

The net buying trend in the domestic stock market by foreign investors has occurred for the first time in four months since July. The net purchase amount is the highest since January of this year when it reached 6.1 trillion won.

The FSS explained that foreign investors shifted to net buying after the complete ban on short selling was implemented on Nov. 5. This outcome stands in contrast to concerns that foreign investors would withdraw from the domestic market due to the comprehensive short selling prohibition measure.

Foreign investors net purchased 2.35 trillion won in the KOSPI market and 949 billion won in the KOSDAQ market. By country, the UK recorded net purchases of 3.5 trillion won, the US saw 800 billion won in net purchases, and Bermuda and Luxembourg experienced net selling of 400 billion won and 300 billion won, respectively.

As of the end of last month, the foreign holdings of listed stocks amounted to 692.2 trillion won, accounting for 26.9 percent of the total market capitalization. Compared to the previous month, the holding balance increased by 67.5 trillion won.

In the bond market, foreign investors turned to net investment after four months, investing a net amount of 2.3 trillion won in listed bonds. They made net purchases of 5.37 trillion won and received matured repayments of 3.14 trillion won. By bond type, foreign investors net invested 2.3 trillion won in government bonds and net redeemed 650 billion won in corporate bonds.

As of the end of last month, foreign investors currently hold 221.8 trillion won, or 90.9 percent, in government bonds and 22 trillion won, or 9.0 percent, in special bonds. The total foreign holding balance of listed bonds as of the end of last month increased by 2.5 trillion won compared to the previous month, reaching 244.1 trillion won. This represents approximately 9.8 percent of the total listed bond balance.

# Prosecutors File Capital Market Law Complaints Against BNP Paribas, HSBC for '560 Billion Won Short Selling'

By Yoon Young-sil


Signs of the banks BNP Paribas and HSBC

Two global investment banks (IB) have been reported to the prosecution for engaging in illegal short selling transactions amounting to around 56 billion won (US$42.86 million).

The Seoul Southern District Prosecutors' Office filed complaints on Dec. 3 related to alleged violations of capital market laws, specifically against BNP Paribas's and HSBC's Hong Kong subsidiaries. The complaints assert that their illicit naked short selling activities fundamentally undermine the fairness of the capital market.

Short selling is an investment technique where one anticipates a decline in stock prices, borrows stocks from others, and issues sell orders. Engaging in uncovered short selling, where one issues sell orders without borrowing stocks, is currently prohibited by law.

Last month, the Financial Supervisory Service (FSS) announced that Company A submitted uncovered short selling orders worth 40 billion won for 101 stocks, including Kakao, from September 2019 to May of last year. Company B placed uncovered short selling orders amounting to 16 billion won (US$12.25 million) for nine stocks, including Hotel Shilla, from August to December 2021. The two companies have been identified later as BNP Paribas and HSBC.

The FSS has expanded its investigation to include 10 global IBs due to the severity of their customary illegal short selling practices. The discovery of the wrongdoing by two to three of these IBs occurred during the expanded investigation process.

Earlier, the FSS had uncovered that the BNP Paribas and HSBC Hong Kong subsidiaries engaged in uncovered short selling, amounting to approximately 40 billion won and 16 billion won, respectively.

# Insurance Industry's Net Profit Surges by 47%

By Jung Suk-yee

This year has seen a significant improvement in the profits of insurance companies, largely attributed to the substantial increase in insurance gains following the introduction of the new IFRS17 international accounting standard. As banks, which have made large-scale interest income this year, are preparing a mutual financial support fund of 2 trillion won (US$1.53 billion), the prospects suggest that the pressure for collaborative efforts towards insurance companies will be noteworthy as well.

According to the Financial Supervisory Service (FSS) on Dec. 4, the cumulative net profit of the insurance industry for the first nine months of this year reached 11.42 trillion won (US$8.74 billion), marking a whopping 47.2 percent increase compared to the same period last year, when it stood at 7.76 trillion won. Life insurance companies saw a 49.4 percent surge, reaching 4.4 trillion won during the same period, while non-life insurance companies experienced a 45.8 percent rise, reaching 7.02 trillion won.

The performance of the insurance industry has been boosted by the gains in insurance profits. Life insurance companies recorded 4.07 trillion won in the first nine months, marking a turnaround from the 16.75 trillion won loss during the same period last year. Non-life insurance companies also registered 7.45 trillion won, reflecting a growth of 7.93 trillion won during the same period. An official from the FSS said, "Life insurance companies saw an increase in sales of guaranteed insurance, while non-life insurance companies demonstrated solid performance in auto insurance. Changes in accounting standards also influenced the improvement in insurance profits."

The insurance business performance showed some variation.


Insurance is an important part of modern life.

Life insurance companies recorded 76.46 trillion won from January to September, representing a decrease of 1.23 trillion won, or 1.6 percent, compared to the same period last year. While there was a rise in income premiums from guaranteed insurance and retirement pensions, a decline in income premiums from savings insurance and variable insurance occurred due to factors such as market downturns in the stock market. In contrast, non-life insurance companies recorded 85.85 trillion won, showing an increase of 7.21 trillion won, or 9.2 percent, during the same period. This growth was driven by a uniform increase in income premiums from long-term insurance, auto insurance, and general insurance.

With a significant improvement in the profits of the insurance industry, the pressure for collaborative efforts is expected to grow. Some experts predict that the insurance industry may contribute a mutual financial support fund of around 1 trillion won, equivalent to half of the banking sector's. Financial authorities are planning to meet with representatives of insurance companies soon to discuss mutual financial support.

# Hyundai Card Reports Losses of 2.27 Billion Won Following Partnership with Apple Pay

By Kim Eun-jin

Analysts suggest that credit card companies partnering with mobile payment systems like Apple Pay experience initial benefits in attracting new customers, but face challenges in anticipating sustained profitability in the long run.

According to sources in the financial sector on Dec. 7, Oh Tae-rok, a research fellow at the Korea Institute of Finance, stated, "Merchant fee revenue increased by 70.6 billion won [US$53.57 million] in the first half of this year compared to the same period last year. However, costs associated with fees


Hyundai Card and Apple Pay have a partnership in South Korea.

paid to affiliated companies surged by 207.4 billion won. There is a need to contemplate the assurance of profitability through the expansion of partnerships with simple payment services and others," during the "12th Credit Finance Forum" held at the Korea Federation of Bank building in Seoul on Dec. 6.

In fact, Hyundai Card, the exclusive partner of Apple Pay that landed in the domestic market this year, saw a surge in new customers only in the early stages. Based on data from the Credit Finance Association, the number of new customers for Hyundai Card reached 203,000 after the introduction of Apple Pay in March. However, in subsequent months the figures showed a downward trend with 166,000 in April, 145,000 in May, and 120,000 in July.

There are concerns that if the introduction of Apple Pay by Hyundai Card does not yield substantial benefits and results in a decline in profitability, existing customers may experience negative consequences or bear the impact of the situation.

During the recent parliamentary audit, Representative Yun Chang-hyun of the People Power Party expressed concerns, stating, "When calculating card eligibility costs two years later, it is possible that the costs of Apple Pay could be passed on to existing customers," adding, "In a situation where companies are facing losses due to high commission payments, a vicious cycle could emerge where these losses are offset by transferring the burden to users."

Currently, it is reported that Hyundai Card is paying a high fee of 0.15 percent to Apple, which is comparatively higher than fees in other countries. According to Representative Yoon's office, Hyundai Card incurred a loss of 2.27 billion won (US$1.72 million) from March, when it introduced Apple Pay, until August. The overall profitability has worsened since the introduction of Apple Pay. Apple Pay's per-transaction performance is lower when compared to regular credit cards, and it carries a higher proportion of fixed costs such as labor and rent. Yoon's office estimates that the fees paid to Apple and Visa alone would amount to 341.7 billion won if Apple Pay took over 10 percent of the credit card market in South Korea.

# Apple Proposes Apple Pay Partnership to 3 Korean Credit Card Issuers

By Michael Herh

A customer shows their Apple Pay-equipped smartphone at a point of sale.

Apple recently sent Apple Pay terms and conditions to three Korean credit card issuers -- Shinhan Card, KB Card, and BC Card -- proposing that they join the Apple Pay camp, according to industry sources on Dec. 5. In addition to explaining Apple Pay's global standard contract terms such as the Apple Pay standard service fees, Apple has asked the three Korean credit card companies to submit their plans to secure Apple Pay infrastructure by the end of December. Apple Pay was launched in Korea earlier this year through a partnership with Hyundai Card.

The three credit card companies are expected to map out and hand in their Apple Pay infrastructure plans according to a schedule set by Apple, and negotiate fees based on them.

The three credit card companies are still sensitive to the cost of introducing Apple Pay, so they think that the Apple Pay infrastructure plans that they will submit will determine the outcomes of their negotiations with Apple, including fee adjustments.

Synergies such as expanding NFC payments are also expected with the addition of the three credit card companies. Shinhan Card is the No. 1 domestic credit card company and KB Card is the No. 2 credit card company. Together, they account for 40 percent of the Korean credit card market (21 percent for Shinhan Card and 17 percent for KB Card).

Apple's move to tell the Apple Pay terms and conditions to the three credit card companies will speed up the selection of additional Apple Pay partners in Korea, analysts say. The three credit card companies had previously submitted letters of intent on participating in the Apple Pay business in Korea to Apple around June this year. However, negotiations have been stalled due to differences in fees and other terms and conditions. In response, Apple decided to discuss business matters with them after delivering the terms and conditions for Apple Pay and creating standards for negotiations with them.

# S. Korea's Advanced Industries Are 77 Percent Stronger Than the Global Average, Ranking Second Overall, New Report Finds

By Kim Eun-jin

WASHINGTON—In advanced industries such as computers and electronics, motor vehicles, and machinery and equipment, South Korea's economy is 77 percent stronger than the relative global average, ranking second behind only Taiwan, according to a new report from the Information Technology and Innovation Foundation (ITIF), the leading think tank for science and technology policy.

But South Korea has been losing global market share in recent years, as its performance has been declining sharply relative to the size-adjusted global average, ITIF found in its Hamilton Index.

"A nation's economic and national security increasingly depends on how well it performs in the global competition for market share in a select group of advanced industries," said ITIF President Robert D. Atkinson, who led the new study. "For South Korea, the period of miracle growth is over. The question now is whether it can remain competitive in China's shadow."

Using the latest data available from the Organization for Economic Cooperation and Development (OECD), ITIF's Hamilton Index ranks 40 countries on their performance in 10 advanced and strategically important industries: IT and information services; computers and electronics; pharmaceuticals and biotechnology; machine equipment; electrical equipment; motor vehicles; other transportation equipment; chemicals; fabricated metals; and basic metals.

To assess nations' performance relative to the size of their economies, ITIF uses an analytical statistic known as a "location quotient" (LQ), which measures any region's level of industrial specialization relative to a larger geographic unit—in this case, a nation relative to the rest of the world.

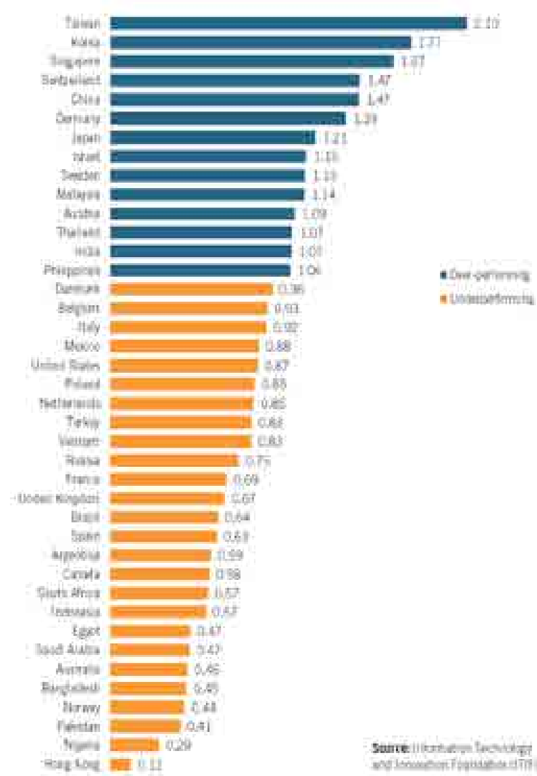
South Korea's LQ in computers and electronics was 4.23, meaning it was more than four times stronger than the global average based on the size of the South Korean economy—ranking 3rd out of 40 countries studied. (See figure 2 below.)

Based on the size of its economy, South Korea performed above the global average in 8 out of the 10 advanced industries in ITIF's index. As a result, its overall LQ was 1.77 (meaning 77 percent stronger than average), ranking 2nd highest out of the 40 countries studied. (See figure 1 below.)

However, South Korea's relative performance declined more than any other country in ITIF's index from 2012 through 2020—dropping by 37 percentage points, from an LQ of 2.12 to 1.77.

South Korea's global market share in advanced industries declined from 4.1 percent of global production in 2017 to 3.4 percent of global production in 2020. In the same period, China increased its market share from 23.6 percent of global production to 25.3 percent.

China now produces more value-added output than any other country in the 10 industries that comprise ITIF's index—and it produces more than all other countries outside the top 10 combined.



Relative Performance in the Information Technology and Innovation Foundation's Hamilton Index (2020 LQ)

Along with the new Hamilton Index report, ITIF also released three interactive data visualization tools that are freely available for media, researchers, and the public to use as reference. They include:

An industry-focused visualization tool showing how the 40 covered nations compare in gross output, relative output (LQ), and global market shares in each of the 10 covered industries plus the composite Hamilton Index.

A country-focused visualization tool that breaks down how each of the 40 covered nations and other multinational groupings perform.

A momentum visualization that weighs how nations' and multinational groupings' output and relative performance has changed over time.

# US-China Tech Competition is Korea-China Tech Race?

By Jasmine Choi

Huawei's launch of a 5G smartphone equipped with a 7-nanometer chip in August sparked immediate calls in the United States for stronger sanctions against China, highlighting the global significance of the U.S.-China tech competition.

However, upon closer examination, this U.S.-China tech rivalry also translates into a Korea-China tech race. In the NAND flash sector, China's Yangtze Memory Technologies Co. (YMTC) is ramping up its production of 3D NAND flash, closely following leaders Samsung Electronics and SK hynix. Although there's a significant gap in the DRAM market, ChangXin Memory Technologies (CXMT) announced new product developments at the end of November.

In the display sector, BOE announced plans to invest in new organic light-emitting diode (OLED) lines, a staggering three times the investment scale of Samsung Display. In the foundry (semiconductor contract manufacturing) sector, Samsung Electronics is chasing TSMC, while Semiconductor Manufacturing International Corporation (SMIC) amazed the world by producing application processors (AP) with a 7-nm process.

According to a "2022 Key Products and Services Market Share Survey" by Japan's Nikkei newspaper in September, Korea topped six out of 63 categories: DRAM with Samsung Electronics at 42.5%, NAND flash memory with Samsung Electronics at 33.7%, OLED panels with Samsung Electronics at 60.0%, smartphones with Samsung Electronics at 21.7%, ultra-thin TVs with Samsung Electronics at 19.0%, and shipbuilding with HD Hyundai Heavy Industries at 18.3%.

While Samsung Electronics dominated five electronics categories, HD Hyundai Heavy Industries led in shipbuilding. The United States ranked first in 22 categories, one-third of total sectors, followed by China with 16, and Korea and Japan tied for third with six each. China's pursuit of semiconductor independence, especially in the sectors where Samsung Electronics leads like DRAM, NAND flash, and foundry, intensifies the Korea-China tech rivalry.

TrendForce reports that in the third quarter of this year, Samsung Electronics led the global DRAM market with a 38.9% share, followed by SK hynix with 34.3%, indicating Korean dominance. However, the gap in technology between Korea and China remains substantial.

Last month, CXMT, a Chinese DRAM manufacturer, announced the production of China's first mobile low-power LPDDR5 DRAM. CXMT has officially launched a series of LPDDR5 products, with its 12 GB LPDDR5 chips already verified in smartphones from Chinese companies like Xiaomi and Transsion.

DRAM, where the technology gap was most significant, sees China closing in. Samsung Electronics announced its 12 GB LPDDR5 about four years ago. Chinese smartphone companies like Xiaomi and Vivo have been using LPDDR5 from Samsung Electronics and SK hynix. However, CXMT's success in mass production could reduce China's reliance on imports.

The gap between companies in the NAND flash sector is narrower. Samsung Electronics leads the global NAND flash market with a 31.4% share in the third quarter, followed by SK hynix (20.2%), Western Digital (16.9%), Kioxia (14.5%), and Micron (12.5%). YMTC is gradually increasing its market share, which has quadrupled from 1% in 2020 to 4.6% in just three years.

YMTC's importance to China lies in the NAND flash sector, where the technological gap with world leaders is the smallest. While insurmountable gaps exist between Taiwan's TSMC and China's SMIC in the foundry sector, and a 4-5 year technology gap between industry

Korea and China compete in a wide variety of tech sectors.

leader Samsung Electronics in DRAM, the gap in NAND flash is just around two years.

YMTC has successfully developed and mass-produced 232-layer 3D NAND flash, closely chasing SK hynix (238-layer) and Samsung Electronics (236-layer). With U.S. sanctions blocking access to advanced semiconductor equipment from companies like ASML, YMTC's role in developing China's semiconductor supply chain becomes even more crucial. The Chinese National Semiconductor Industry Investment Fund (Big Fund) and others have invested US$7 billion in YMTC this year, underscoring its importance.

In the foundry sector, SMIC is proving to be a formidable competitor. With U.S. sanctions in 2020 preventing Taiwan's TSMC from accepting semiconductor production orders from Huawei, China's largest IT company, Huawei faced significant constraints. For the Chinese government, it was crucial to find a way to support Huawei, at the forefront of the U.S.-China tech rivalry.

SMIC stepped up to fulfill this role. At the end of August, Huawei released its Mate60 Pro 5G smartphone, featuring the Kirin9000s application processor produced by SMIC using a 7-nm process. HiSilicon, a subsidiary of Huawei, has already approached the world's leading semiconductor design (fabless) technology, entering the top 10 semiconductor companies globally in the first half of 2020. The foundry sector remains a bottleneck in China's semiconductor supply chain, placing significant responsibility on SMIC.

In the second quarter of this year, TSMC led the global foundry market with a 56.4% share, followed by Samsung Electronics at 11.7%. SMIC ranked fifth with a 5.6% share. However, other

Chinese companies like Hua Hong Semiconductor (ranked 6th) and Nexchip (10th) are gradually expanding China's influence in this sector.

Considering that most of the advanced technology areas China aims to develop overlap with ours, the U.S.-China tech competition essentially translates into a Korea-China tech race. Although China has overtaken the LCD market, Korea hopes to hold its own in the competition with China in sectors like DRAM, NAND flash, OLED, and foundry.

Samsung Display, which has almost monopolized the small and medium-sized OLED market, is now facing accelerated competition from Chinese display manufacturer BOE. OLEDs are divided into large TV-use OLEDs and small-to-medium OLEDs for mobile and laptops. Samsung Display has been dominating the global small-to-medium OLED market with 60-70% market share, thanks to its world-class technology.

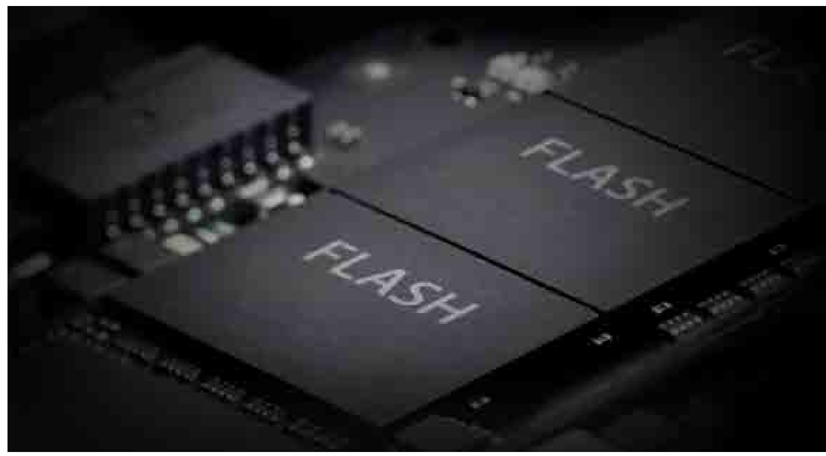
Recently, however, BOE has been gradually increasing its market share. According to market research firm Omdia, in the first quarter of this year, Samsung Display's share in the small-to-medium OLED market fell to the 50% range (54.7%), while BOE climbed to 19.2%, surpassing LG Display's 17.4% to become the world's second-largest manufacturer.

On Nov. 28, BOE announced an investment of 63 billion yuan to build an 8.6-generation OLED production line in Chengdu, Sichuan Province, China. BOE plans to produce high-end medium-sized OLED products targeting the OLED market for Apple's MacBook and iPad. This positions BOE as a competitor to Samsung Display and LG Display, both of which count Apple among their major customers.

BOE's investment amount is nearly three times the 4.1 trillion won that Samsung Display announced in April for the construction of the world's first 8.6-generation production line. Since the early 2010s, with full-scale government support, Chinese companies like BOE and China Star Optoelectronics Technology (CSOT) have taken control of the LCD market through aggressive pricing strategies and massive production. BK

# Samsung, SK hynix Accelerate Recovery with On-device AI-equipped Smartphone Market

By Jasmine Choi




NAND flash memory installed on a circuit board

The smartphone market is witnessing a surge in demand for NAND flash, as manufacturers' significant production cuts have reduced inventory buildup, and the impending launch of smartphones equipped with "on-device artificial intelligence (AI)" is anticipated. This trend is expected to boost NAND prices, hastening the financial recovery of Samsung Electronics and SK hynix.

Market research firm Omdia reported on Dec. 17 that global NAND sales are projected to reach US$52.6 billion next year, a 31% increase from this year. This outlook marks a dramatic shift from this year's 30% market contraction. In the last quarter, NAND market revenue climbed to US$9.229 billion, a 2.9% growth from the previous quarter.

NAND prices are also on the rise. The average transaction price for a generic NAND product (128Gb 16Gx8 MLC) in November was US$4.09, entering the US$4 range for the first time in nine months. Prices are expected to increase by more than 20% next year.

Western Digital, a NAND manufacturer, has already informed its clients of a price hike plan. The company announced that prices could cumulatively increase by 55% with each passing quarter. As the market recovers, other manufacturers like Samsung Electronics and SK hynix are expected to join in raising their prices.

The industry anticipates that the on-device AI market will drive NAND market growth. Starting with the Galaxy S24 series in January next year, Samsung Electronics and most manufacturers plan to embed AI directly into smartphones.

The application of on-device AI in smartphones, capable of learning, inference, and computation, is likely to significantly increase the demand for high-capacity NANDs of 256 GB or more. Additionally, the expansion of AI services by North American data center companies, leading to a general increase in server installations from next year, is also expected.

The rise in NAND prices is projected to speed up the financial improvement of Samsung Electronics and SK hynix. Although their DRAM divisions have returned to profitability, their NAND segments are still incurring losses. This year, the combined NAND losses of both companies are estimated to be close to 21 trillion won. Particularly, SK hynix experienced a greater impact due to its acquisition of Intel's NAND business. BK

# FTC to Promote Establishment of Platform Competition Promotion Act

By Michael Herh

The Fair Trade Commission (FTC) of Korea has decided to promote the enactment of a platform competition promotion act, which will designate large platforms that dominate the market as market dominators and prohibit them from engaging in unfair competition practices such as getting preferential treatment and tie-in sales. Experts predict that Naver, Kakao and Coupang, among others, will be the key targets of the platform competition promotion act, as the FTC will regulate large platforms by preparing an act stronger than the current Fair Trade Act.

The FTC reported a plan to establish the platform competition promotion act to President Yoon Suk-yeol in a cabinet meeting on Dec. 19. "Recently, the voices of small businesses and consumers have been growing, pointing out the problems of big companies in the field of online platforms," President Yoon said in the meeting. "This administration will strongly enforce laws against behaviors that abuse monopoly power to hamper fair competition and damage consumers' rights."

Naver and Kakao represent two competing online and communications platforms in the South Korean market.

The platform competition promotion act designates a company as a dominant platform operator based on quantitative and qualitative conditions including revenue, the numbers of users and market shares. It will prohibit four types of behaviors on these platforms: unfair preferences that expose platforms' products more than competing products; tying which forces users to purchase other products along with platforms' services; restricting multi-homing, or prohibiting platform users from using third-party platforms; and preferential treatment, or the demand of more favorable trading conditions than other platforms.

If the FTC determines that a company is in violation of the act, it is expected to impose fines that are higher than those of the current Fair Trade Act and issue a business suspension order. Under the current Fair Trade Act, fines imposed on market-dominating operators are up to six percent of their sales, but under the platform competition promotion act they are highly likely to rise to 10 percent.

In response, the Digital Economy Confederation comprising Korean IT associations said in a statement, "It is tantamount to handing down a death sentence to domestic platforms in the face of fierce competition with overseas platforms. Baseless and hasty regulations will devastate domestic platforms, causing operators to lose sales channels, and will lead to a huge loss in consumer benefits."

Regulating relationships between platforms and merchants was a key issue for the previous Moon Jae-in administration. Instead of leaving such relationships to self-regulation, the Yoon Suk-yeol administration focused on preventing platforms from engaging in monopolistic behaviors. The platform competition promotion act differs from the existing Fair Trade Act in that it proactively singles out a few large platforms to put them under government control.

Under the Fair Trade Act, in order to determine dominant players in the market, the FTC has to define the market and calculate market shares. However, the platform competition promotion act eliminates this need. It will designate large platforms that meet certain conditions as market dominating platforms in advance. They will be subject to regulations regardless of any illegal behaviors.

Domestic platform companies have reacted strongly. They argued that if platform companies engage in unfair trades, the current antitrust laws are sufficient to sanction them, and the new act would create redundant regulations.

Concerns are growing that the act will reverse discriminate against domestic companies. This is because it will hinder the growth of Korean companies in the domestic market where foreign big tech companies are already active. "It will weaken the global competitiveness of domestic companies in the face of fierce competition with overseas big tech players," an industry insider said.

# China's Self-Sufficiency in AI Chips Rises Despite US Export Controls

By Jasmine Choi

Despite the United States intensifying its export restrictions against China in the semiconductor sector, China's self-sufficiency rate in advanced products such as domestic artificial intelligence (AI) chips is increasing faster than expected.

Market research firm TrendForce reported on Dec. 12 that China-based Huawei recently launched the AI chip Ascend 910B, establishing a foundation for the AI semiconductor chip ecosystem within China. The Ascend 910B is gaining traction as a substitute for Nvidia's A100 among Chinese companies struggling to import AI semiconductors due to U.S. sanctions.

Chinese internet giant Baidu placed a large order last month for 1,600 units of the Ascend 910B. Huawei's partner company iFlytek is using these chips to train AI models.

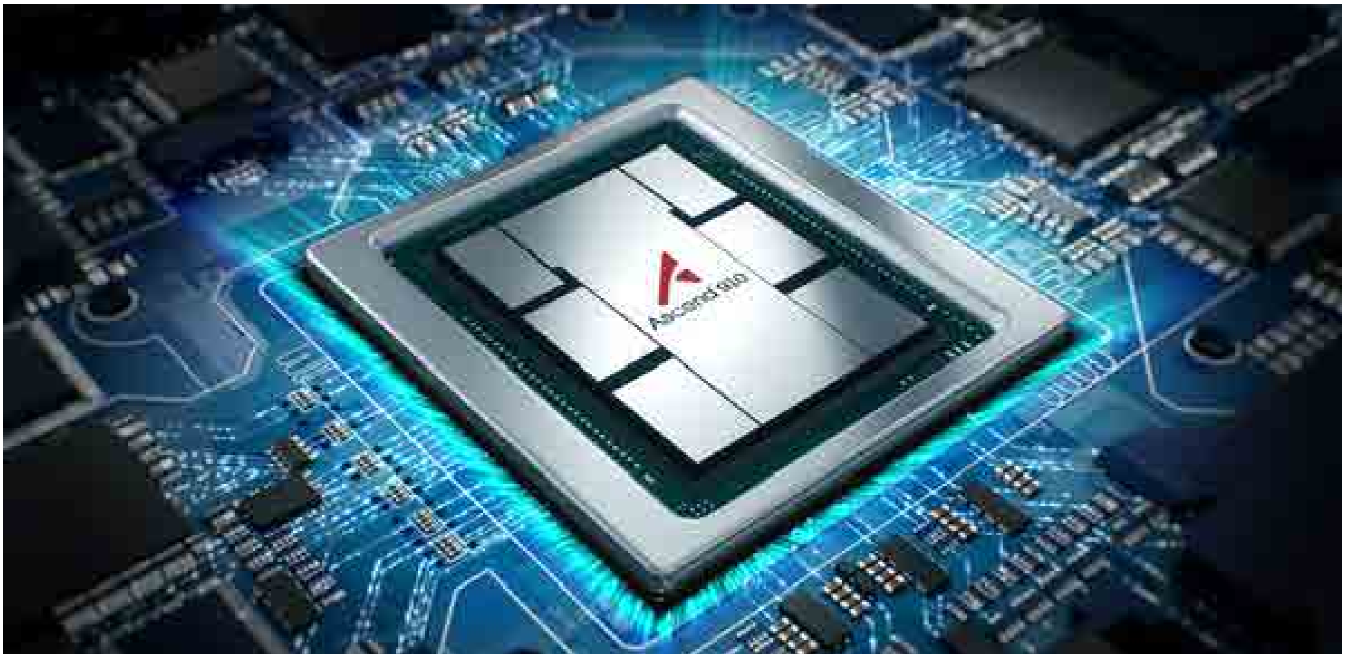
TrendForce noted, "Due to U.S. sanctions, the four major cloud service providers in China -- Baidu, ByteDance, Alibaba, and Tencent, collectively known as VVAT -- are actively investing in AI chip development." Baidu, in particular, has developed its own Kunlun AI chip in 2020 and plans to release the Kunlun 3rd Generation by 2024.

TrendForce also mentioned, "Alibaba plans to enhance its independent design capabilities for next-generation Application-Specific Integrated Circuits (ASICs) for Alibaba Cloud's AI infrastructure by utilizing more internal resources from this year onward. China still holds significant potential to improve and build a complete AI ecosystem."

However, the market views Huawei's Ascend 910B as slightly lagging in performance compared to Nvidia's A800 series and lacking in software ecosystem dominance. TrendForce pointed out that SMIC, the producer of Huawei chips, is still facing issues due to U.S. sanctions on the adoption of Extreme Ultraviolet lithography equipment. Another industry insider analyzed, "China's advanced semiconductor technology has its limits, and it will likely end up focusing on developing generic products."

Amid the possibility of intensified U.S. sanctions, advice has emerged for South Korean fabless semiconductor companies to capitalize on this situation and explore the Chinese market. Non-sanctioned advanced products in China, including those needed for AI and autonomous driving, are seeing increased demand, highlighting the need for South Korean fabless companies to expand their market share in China. Indeed, these companies are currently seeking cooperation with Chinese enterprises like Alibaba, Baidu, and Tencent.

Meanwhile, Samsung Electronics and SK hynix are contemplating their exit strategies from China due to ongoing uncertainties and regulations on equipment imports in their Chinese fabs amid U.S.-China tensions. Another industry source said, "Considering the relationship with China, they must be pondering their exit strategies. Especially in advanced memory, where competitors like YMTC and Changxin Memory are facing difficulties due to U.S. regulations, it's crucial to widen the technology gap." BK




The Ascend 910B, an artificial intelligence chip produced by Huawei

# Samsung Electronics: Aiming to Disrupt TSMC's Dominance with 2 nm Tech

By Jasmine Choi

Amid heightened concerns over China's military threats to Taiwan and major companies like Apple, Nvidia, AMD, and Qualcomm seeking to diversify their supply chains, industry analysts suggest that Samsung Electronics' advancements in 2-nm technology could present a significant opportunity for the company.

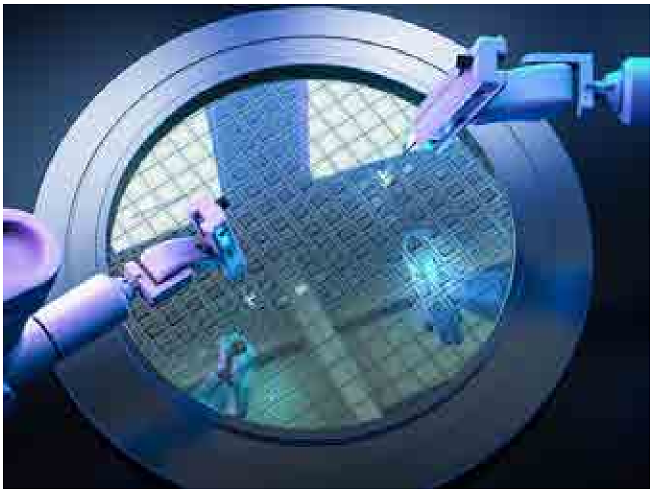
As of Dec. 12, there's a growing belief in the semiconductor industry and international media that the foundry market, currently dominated by TSMC, could see a shift with the mass production of 2-nm processes.

The Financial Times reported on Dec. 11 that TSMC and Samsung Electronics have both showcased 2-nm prototypes to major clients like Apple and Nvidia. Sources indicated that Samsung Electronics offered more competitive pricing than TSMC.

Currently, the most advanced mass production technology is 3 nm. Both Samsung Electronics and TSMC are vigorously competing, aiming to mass-produce 2-nm products by 2025.

Samsung Electronics' opportunity lies in its major clients adopting a "multi-vendor" strategy for their 2-nm supply chain diversification. TrendForce, a Taiwanese market research firm, while acknowledging TSMC's critical role in producing AI products and GPUs, suggested that Samsung Electronics might receive additional orders.

An industry insider highlighted the potential for tumultuous cross-strait relations depending on the results of Taiwan's presidential election on Jan. 13. This uncertainty could lead clients to rely on TSMC as their primary partner while also allocating some orders to Samsung Electronics or Intel to mitigate supply chain risks.



A pair of robotic arms are reflected in a wafer of silicon on which circuits are being created.

Samsung's cutting-edge Gate-All-Around (GAA) process, first applied globally at 3 nm and later by TSMC at 2 nm, is also seen as a game-changing factor.

In May, Samsung Electronics President Kyung Kye-hyeon expressed confidence in a lecture at KAIST in Daejeon, stating, "When we move to 2 nanometers, TSMC will also switch to GAA technology, and we will be on par with them."

However, yield issues remain a hurdle for Samsung Electronics. Industry reports suggest that the yield rate for Samsung's 3-nm GAA technology is around 60%, significantly below client expectations, particularly for high-performance products like Apple's A17 chip or Nvidia's GPUs.

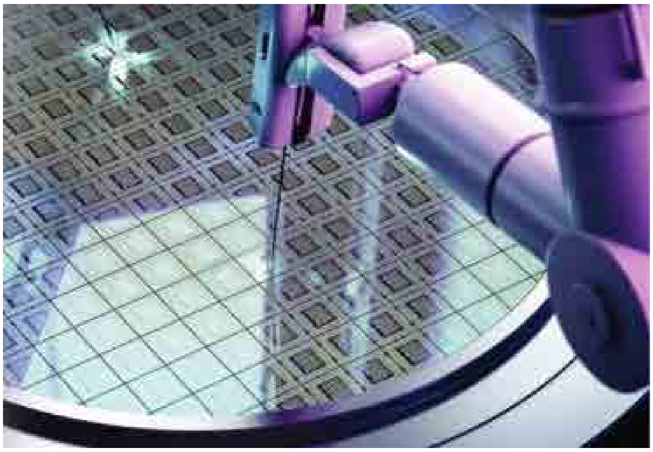
Professor Lee Jong-hwan of Sangmyung University's System Semiconductor Engineering department noted, "Starting with 2 nm, both companies will adopt the GAA process, different from the traditional FinFET process. Samsung, having already implemented the GAA process in its second-generation 3-nm technology, is expected to be more stable than TSMC, which is adopting it for the first time at 2 nm." BK

# Samsung Foundry's Gap with TSMC Widens Again in Third Quarter

By Jasmine Choi

The gap in market share between Taiwan's TSMC, the industry foundry leader, and Samsung Electronics, which ranks second, has widened again in the third quarter of this year.

According to market research firm TrendForce on Dec. 6, Samsung Electronics' foundry sales for the third quarter (July to September) of this year amounted to US$3.69 billion, a 14.1% increase from the previous quarter. Its market share rose from 11.7% to 12.4%, an increase of 0.7 percentage points.



A robotic arm works on a silicon wafer onto which semiconductors are being etched.

TrendForce attributed Samsung Electronics' robust growth to orders for Qualcomm's mid-to-low-end 5th generation AP System-on-Chip (SoC), 5G modems, and 28-nanometer (nm) Organic Light-Emitting Diode (OLED) Display Driver ICs (DDI).

Despite maintaining double-digit growth rates since the previous quarter, Samsung Electronics saw its gap with TSMC widen further. TSMC, after a brief slowdown in the second quarter, rebounded strongly in the third quarter.

TSMC's third-quarter sales reached US$17.249 billion, a 10.2% increase from the second quarter. Its market share rose from 56.4% to 57.9%, expanding the gap with Samsung Electronics from 44.7 percentage points to 45.5 percentage points.

TSMC's sales were driven by increased orders for smartphone and PC semiconductors, including the iPhone 15. Its advanced 3-nm products alone accounted for 6% of its sales, while products using 7-nm or more advanced processes constituted about 60% of its total sales.

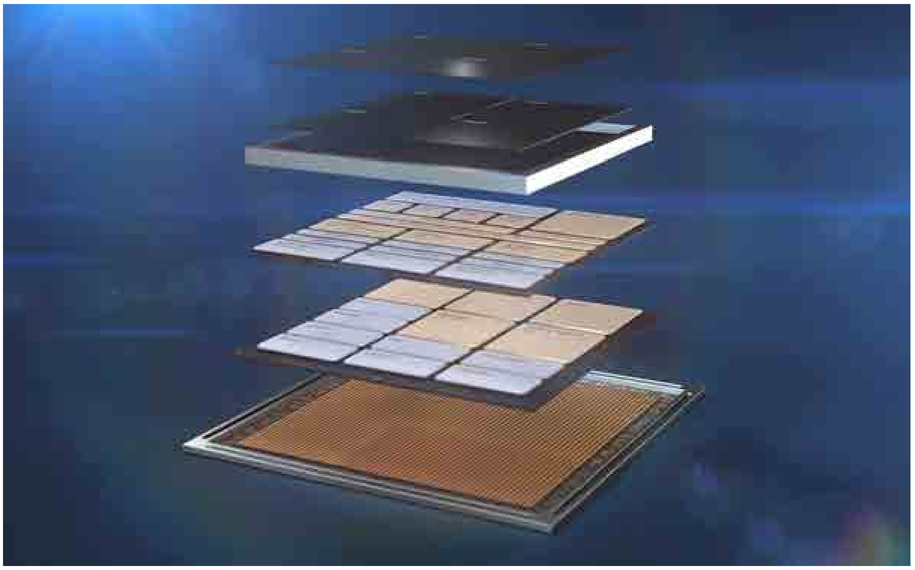
The gap between the two companies, which was 50.1 percentage points in the first quarter, had narrowed slightly in the second quarter but widened again in the third quarter as TSMC's growth accelerated.

Meanwhile, U.S.-based GlobalFoundries maintained its third position with sales of US$1.85 billion, similar to the previous quarter. Taiwan's UMC (6.0%), China's SMIC (5.4%), and China's Hua Hong Group (2.6%) saw their market shares decline compared to the second quarter.

The total foundry market sales for the third quarter were US$28.29 billion, a 7.9% increase from the previous quarter. TrendForce expects the growth rate to exceed the third-quarter level in the fourth quarter, driven by increased demand for smartphones and laptops during the year-end holiday season. BK

# Samsung Electronics Tense Over TSMC-Apple-Amkor 'Arizona Alliance'

By Jasmine Choi



Intel's 3D stacked packaging technology called Foveros, which was introduced in 2019.

Samsung Electronics and TSMC are building semiconductor ecosystems around their foundry plants in the United States, engaging in a fierce battle to secure customer orders.

According to industry sources on Dec. 5, Amkor, the world's second-largest packaging company, announced on April 30 an investment of US$2 billion (approximately 2.6 trillion won) to construct a packaging plant near TSMC's Arizona factory in the U.S. Packaging involves processes like connecting multiple chips or stacking individual chips higher.

An Amkor official stated, "We will package Apple chips produced at the nearby TSMC Arizona foundry in our new factory. Apple will be both the first and largest customer for this plant." TSMC plans to invest US$40 billion by 2025 to build a foundry in Phoenix, Arizona. The ecosystem entails TSMC manufacturing Apple-designed chips and Amkor packaging them. The area in Arizona where TSMC's foundry and Amkor's packaging plants will be located is already a hub for semiconductor companies like Intel, ASML, and Applied Materials.

There are predictions that the TSMC-Amkor alliance will impact Samsung Electronics. Samsung is constructing a foundry in Taylor, Texas, with an investment of US$17 billion. This plant is expected to start mass production of chips in the second half of next year. The TSMC Arizona plant is already in a fierce battle for foundry orders with Samsung, making the TSMC-Amkor alliance unwelcome news.

It's also of interest whether Samsung Electronics will respond to the TSMC-Amkor alliance by setting up packaging facilities at its Taylor plant. The company established an Advanced Packaging (AVP) team at the end of last year and also introduced 2.5D and 3D packaging technologies. Recently, Samsung revealed its "GDP (GAA-DRAM-PACKAGING) strategy," which offers everything from memory supply to foundry and packaging. There's growing interest in whether Samsung's Taylor plant will become the front-line base in its GDP strategy to counter the TSMC-Amkor alliance.

Amkor's investment is also expected to influence Samsung Electronics' strategy for raising capital for its U.S. investments. Amkor plans to request subsidies under the U.S. government's CHIPS Act, which provides US$52 billion in funding. BK

# SK hynix Closes Gap with Samsung Electronics to Historic Proximity in Both DRAM, NAND Markets

**3Q23 Revenue Ranking for NAND Flash Manufacturers** (Unit: Million USD)

| Company | Revenue | | Market Share | |
|---|---|---|---|---|
| | 3Q23 | QoQ (%) | 3Q23 | 2Q23 |
| Samsung | 2,900.0 | 0.0% | 31.4% | 32.3% |
| SK Group (SK hynix + Solidigm) | 1,864.0 | 11.9% | 20.2% | 18.6% |
| WDC | 1,556.0 | 13.0% | 16.9% | 15.3% |
| Kioxia | 1,336.0 | -8.6% | 14.5% | 16.3% |
| Micron | 1,150.0 | -5.2% | 12.5% | 13.5% |
| Others | 423.1 | 19.3% | 4.6% | 4.0% |
| **Total** | 9,229.1 | 2.9% | 100.0% | 100.0% |

The 2023 3rd quarter revenue rankings for NAND flash manufacturers.

By Jasmine Choi

In the third quarter, as the global NAND flash market saw a slight increase in sales, major companies also reported growth in revenue. Samsung Electronics maintained its lead with the number one market share, while SK hynix climbed from third to second place.

Market research firm TrendForce reported on Dec. 5 that NAND market revenue increased by 2.9% from the previous quarter to US$9.2291 billion. This rise is attributed to a market demand surge amid production cuts by major NAND suppliers.

Samsung Electronics' third-quarter revenue was similar to the previous quarter, but its market share slightly decreased to 31.4% from 32.3% in the second quarter, still securing the first place. Notably, there was a shift in the second-place ranking. Japan's Kioxia, which overtook SK hynix for the second spot in last year's third quarter, was surpassed by SK hynix this quarter after a year.

Samsung Electronics recorded a stable revenue of US$2.9 billion, maintaining a 31.4% market share. In contrast, SK hynix's revenue surged by 11.9% to US$1.864 billion, taking over the second spot with a 20.2% market share. Western Digital, a U.S. company, saw a 13% increase in sales to US$1.556 billion, raising its market share from 15.3% to 16.9% and moving from fourth to third place. However, Kioxia's revenue fell by 8.6% to US$1.336 billion, dropping its market share from 16.3% to 14.5% and plummeting from second to fourth place. U.S.-based Micron Technology reported a 5.2% decrease in revenue to US$1.15 billion.

TrendForce explained, "Kioxia saw a 3% increase in average selling price (ASP) for NAND in the third quarter, but its shipments dropped by 10-15% due to delayed orders from customers, leading to a decline in revenue. The SK Group (including SK hynix and its subsidiary Solidigm) saw increased shipments and revenue due to rising demand for high-capacity products in the PC and smartphone sectors."

The market share gap between SK hynix and the leading Samsung Electronics also narrowed to a historic low. Before merging with Solidigm, SK hynix's market share was in the fourth to fifth range, but post-merger it has been in the second to third range. As of the third quarter of this year, the gap in market share with Samsung Electronics was at its smallest at 11.2 percentage points.

Even in the DRAM market, SK hynix has reduced its gap with Samsung Electronics to a historic low. According to TrendForce, in the third quarter, Samsung Electronics and SK hynix held market shares of 38.9% and 34.3%, respectively, narrowing the gap by approximately 5 percentage points from the previous quarter's figures of 39.6% and 30.1%.

# Delayed US Subsidies May Hamper South Korean Semiconductor Industry

By Jasmine Choi

A view of Samsung Electronics' semiconductor factory under construction in Taylor, Texas, the U.S.

Concerns are growing that the implementation of investment subsidies promised by the U.S. government to domestic semiconductor companies like Samsung Electronics may be delayed or reduced.

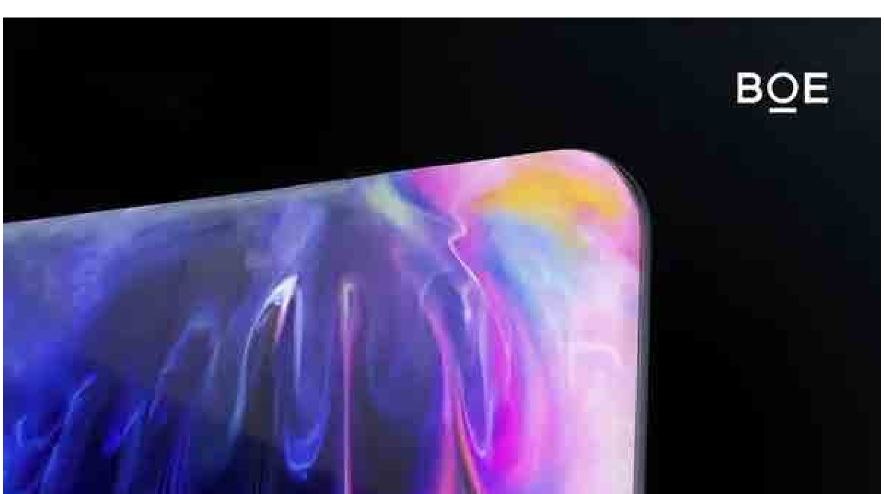
According to the business community and semiconductor industry sources on Dec. 4, Samsung Electronics' U.S. branch hosted a reception last month in Washington, D.C., inviting bipartisan members of both the Senate and the House to analyze the impact of the semiconductor industry. The event was attended by Democratic Senator Mark Kelly and House Representatives Michael McCaul (Republican) and Raja Krishnamoorthi (Democrat).

Samsung Electronics' U.S. branch emphasized that "Samsung Semiconductors has executed investments totaling US$47 billion over 30 years. The decision to invest ahead of the Semiconductor Support Act decision was due to trust in the U.S. Congress and Administration." The hosting of this event in the U.S. appears to be indirect pressure on the U.S. government to fulfill its promised subsidy execution.

The U.S. government had promised a total of US$52.7 billion in subsidies to companies building semiconductor plants in the U.S. as part of the Semiconductor Support Act. However, early last month, reports surfaced that "the U.S. government might prepay up to US$4 billion in subsidies to Intel for the production of military-use semiconductors," raising fears that the policy might shift towards favoring American companies, potentially reducing the subsidy amount or delaying its disbursement. Additionally, with the U.S. presidential election approaching next year, there are analyses suggesting that semiconductor subsidies could become a political issue.

# China's BOE to Invest Three Times More than Samsung in OLED

By Jasmine Choi




An OLED display advertisement from BOE

In the Chinese display industry, leading companies BOE and TCL CSOT are ramping up their investments in Organic Light Emitting Diode (OLED) panels, a domain traditionally dominated by Korean firms, especially in the sectors of laptops and tablets. The move has raised alarms in the industry.

On Dec. 17, it was reported that CSOT, a display subsidiary of Chinese TV manufacturer TCL, plans to start mass production of inkjet-printed OLED panels in the second half of next year. Zhao Jun, co-CEO of TCL Technology and CEO of CSOT, announced at the 2023 TCL CSOT Global Display Eco-Conference (DTC2023) held in Wuhan, China, on Dec. 7, that these OLED panels, initially expected for TVs, will be produced for tablets, laptops, and other IT devices.

Inkjet printing, a method akin to printers where organic materials are sprayed, is a technology used to manufacture panels. It is considered a secret weapon of Japan's JOLED, which is trying to outpace Korea in the OLED sector. JOLED, which filed for bankruptcy in March this year, was initially a joint venture between Sony and Panasonic, launched in January 2015. CSOT, which has focused on LCDs, identified OLED as its future growth area in 2019 and began investing in JOLED from 2020, eventually acquiring its inkjet printing facilities.

BOE, the top player in China's display industry, also revealed plans last month to invest 63 billion yuan (US$8.9 billion) in constructing an 8.6-generation OLED production line in Chengdu, Sichuan Province. This investment is nearly three times the 4.1 trillion won (US$3.1 billion) announced by Samsung Display in April for its own 8.6-generation OLED factory.

The industry expects IT OLEDs to lead the sector next year, as OLED shipments for smartphones and TVs peaked in 2021 but have since declined due to weak demand. The IT OLED market is estimated to be about five times larger than the smartphone OLED market.

Apple's decision to start using OLEDs in tablets next year and in MacBooks from 2025 has further heightened expectations for an expansion of the OLED market beyond smartphones to laptops and monitors. This shift has led BOE and CSOT to challenge the medium-sized OLED market, which Korean companies have previously dominated.

An industry insider noted that while LCDs have standardized processes over a long period, OLEDs, using self-emitting organic materials, have varied production processes by company and size, making it a challenging sector for China to catch up in. However, with significant government subsidies, China could eventually follow the path of LCDs, prompting the need for Korean companies to accelerate research and development.

# China's BOE Closes In on Samsung Display as Leader in Foldable Panel Market

By Jasmine Choi


Samsung's Galaxy Z Fold5

Chinese panel manufacturer BOE is poised to overtake Samsung Display as the world leader in foldable panels by the end of the year, propelled by the aggressive market expansion of Chinese smartphone makers.

Market research firm DSCC reported on Dec. 7 that Samsung Electronics, which leads the foldable phone market in the third and fourth quarters of this year, saw its market share drop to 72%, a 14 percentage point decrease from the same period last year, which was 86%. Huawei and Honor followed, securing second and third places with 9% and 8% market share, respectively.

DSCC predicts that Samsung Electronics' market share in the foldable phone sector will drop from 83% in the fourth quarter of last year to around 42% in the same quarter this year. This decline is attributed to the diminished impact of the Galaxy Z Fold5 and Flip5 launch, coupled with Chinese companies introducing new foldable phone models.

In contrast, Huawei and Honor are expected to rapidly increase their market influence, with projected market shares of 21% and 19%, respectively, in the fourth quarter.

This is bad news for Samsung Display, which counts Samsung Electronics as a key client. Samsung Display exclusively supplies OLED panels for Samsung Electronics' foldable phones.

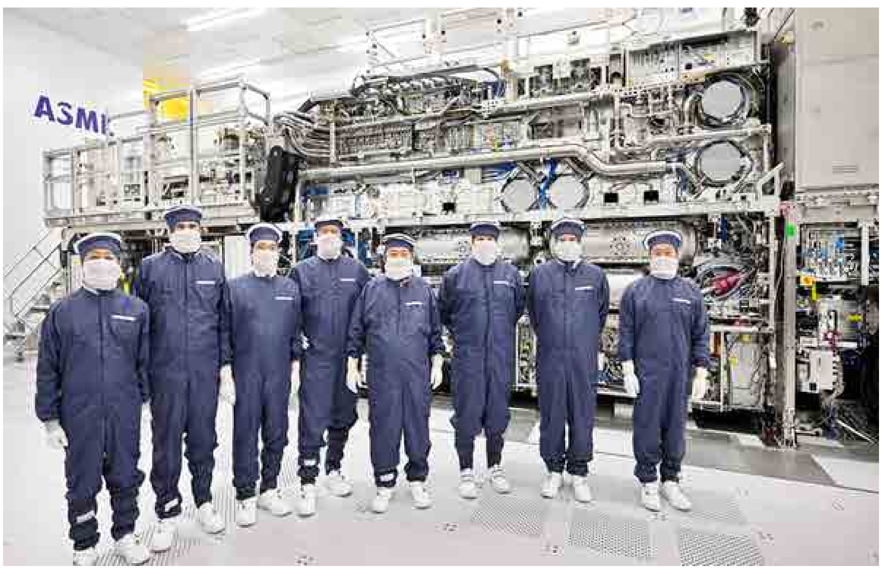
Despite these challenges, Samsung Display still maintained its lead in the foldable panel market in the third and fourth quarters of this year with a 74% market share. This is an increase from 63% in the second quarter but a 17 percentage point drop from 91% in the same period last year.

On the other hand, BOE, which had only 4% market share in the third and fourth quarters of last year, surged to 18% this year. DSCC anticipates that BOE will surpass Samsung Display's market share by expanding its supply to Chinese smartphone manufacturers like Huawei, Honor, and Oppo in the fourth quarter. While Samsung Display's share is expected to fall to the mid-30s percent range, BOE is projected to rise to the mid-40s percent range. Another panel manufacturer, Visionox, is also predicted to reach an 18% market share during this period.

BOE has been a looming threat to the domestic panel industry, shifting its focus from low-profit LCDs to investing in small and medium-sized OLED panels. Recently, BOE embarked on constructing a factory for 8.6-generation IT-use OLED panels in the Chengdu region, backed by support from the Chinese government, with a total investment of US$8.8 billion. This investment is nearly triple that of Samsung Display's investment in 8.6-generation OLED production.

# Top 3 Semiconductor Equipment Companies' R&D Centers to Converge in South Korea

By Jasmine Choi



South Korean President Yoon Suk-yeol, during his state visit to the Netherlands, is seen on Dec. 12 (local time) in a clean room at the ASML headquarters in Veldhoven taking a commemorative photo with King Willem-Alexander of the Netherlands, Samsung Electronics Chairman Lee Jae-yong, SK Group Chairman Chey Tae-won, and ASML CEO Peter Wennink, while all are dressed in clean room suits, colloquially called "bunny suits."

Samsung Electronics and SK hynix are set to gain from synergy with American Applied Materials (AMAT) and Lam Research following the Dutch company ASML establishing a Research and Development (R&D) center in South Korea, based on market share in the semiconductor equipment industry.

According to the semiconductor industry on Dec. 14, Samsung Electronics and ASML agreed on Dec. 12 (local time) at ASML's headquarters in the Netherlands to jointly invest 1 trillion won in building a research facility in South Korea to develop advanced semiconductor microprocessing technology. This Next-Generation Semiconductor Manufacturing Technology R&D Center will focus on developing ultra-fine processes based on next-generation Extreme Ultraviolet (EUV) technology. It marks the first time for ASML to establish an R&D center for semiconductor manufacturing process development in collaboration with a semiconductor manufacturing company overseas.

The industry expects the R&D center to be located in Hwaseong, Gyeonggi Province. This is due to ASML's ongoing construction of its New Campus in Dongtan 2 City, Hwaseong, which includes the Korean branch's new office building, training center, and equipment refurbishing re-manufacturing center, with completion aimed for 2025. The proximity of Samsung Electronics' semiconductor hub, the Hwaseong Campus, which currently operates a production line with ASML EUV equipment, also increases the likelihood of this site selection.

Previously, Applied Materials, the world's leading semiconductor equipment company, announced it was scouting for a site in Gyeonggi Province to establish a core research center for next-generation advanced semiconductor equipment.

Applied Materials had announced the establishment of a semiconductor equipment research institute in Gyeonggi Province during a North American investment announcement ceremony held on Sept. 22, 2022 (local time), coinciding with President Yoon Suk-yeol's visit to the United States to attend the United Nations General Assembly. The Applied Materials Korea Research Institute is expected to be located near the Samsung Electronics and SK hynix semiconductor factories in Yongin, Hwaseong, and Pyeongtaek cities in Gyeonggi Province.

Following ASML, Lam Research, the world's third-largest company in terms of revenue, unveiled its 30,000 square meter comprehensive R&D facility, the Korea Technology Center, in the Janggok neighborhood of Yongin in April last year. Lam Research is already operating major business infrastructure in Korea, including a manufacturing plant, logistics center, customer support center, marketing and sales office, and R&D center, being the first global equipment company to do so.

The reason for the world-renowned semiconductor equipment companies' large-scale investments in South Korea is attributed to the high status South Korea holds in the semiconductor market. AMAT's market share in Korea (18%) is third highest after China (27%) and Taiwan (21%). ASML's market share in Korea is also high at 29% (as of last year), second only to Taiwan's 38%. In terms of regional sales, South Korea ranks second for Lam Research, but including our companies' factories in China, the actual ranking rises to first.

According to global market research firm Omdia, in the last quarter, Samsung Electronics led the DRAM memory semiconductor market with a 39.4% share, followed by SK hynix at 35%, nearly accounting for 75% of the global DRAM market. In the NAND Flash market as well, Samsung Electronics and SK hynix maintain the lead with a 55% market share. BK

# Gov't Announces Investment of 3 Trillion Won+ to Deploy 1 Million K-Robots

By Kim Eun-jin

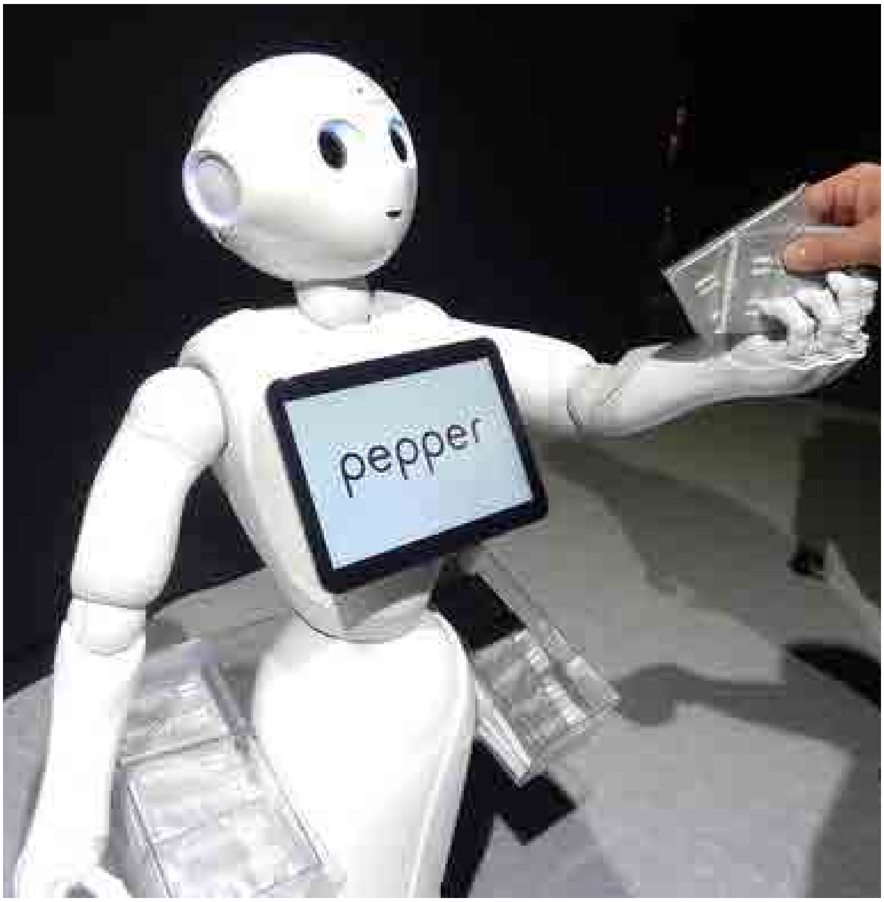
The government has set a goal to expand the K-Robot market to a scale of 20 trillion won by 2030 as the future growth engine. A combined investment of over 3 trillion won from both public and private sectors is planned with the objective of deploying one million robots across various industries, including caregiving and delivery.

On Dec. 14, the Ministry of Trade, Industry, and Energy (MOTIE) held an Advanced Robotics Industry Strategy Meeting presided over by Minister Bang Moon-kyu and announced the "Vision and Strategy for the Advanced Robotics Industry." The focus is on fostering the robotics industry as a new growth engine that can enhance industrial productivity and adapt to demographic shifts, such as the decreasing working-age population.

Advanced robots hold substantial potential not only in traditional manufacturing sectors such as automotive and shipbuilding but also in the defense, aviation, and service industries. Furthermore, securing technological capabilities becomes more achievable with a robust foundation in domestic upstream industries like semiconductors, batteries, and information technology. According to the MOTIE, the global market size is expected to grow rapidly from US$28.2 billion in 2021 to US$83.1 billion by 2030.

The government aims to solidify the domestic K-Robot ecosystem first and seek international expansion, targeting to elevate the market size from around 5.6 trillion won in 2021 to over 20 trillion won by 2030. To achieve this goal, there are plans for a joint public-private investment of "3 trillion won +α" to collaboratively enhance technology, manpower, and corporate competitiveness.

The government will initially focus on securing eight key technologies, including reducers and autonomous operation. A detailed technology development road map is set to be established by the first half of next year. In terms of workforce development, more than 15,000 specialized robotics professionals will be trained, aligning with the mobility industry, including future vehicles and drones, aiming to reach a total of 50,000 experts. Additionally, the goal is to nurture over 30 intelligent robotics specialist companies with annual revenue exceeding 100 billion won by 2030, an increase from the current five.



Banking is the bedrock of modern capitalistic life.

Furthermore, the government has set a goal to significantly expand the deployment of over one million robots across various sectors, ranging from manufacturing to logistics and welfare. Specifically, by 2030, the plan is to introduce 300,000 robots each in the care and medical sectors, including nursing homes and hospitals, as well as in the food and beverage self-employment sector, including restaurants and cafes.

The introduction of robots is expected to transform production sites, aiming to increase labor productivity per worker by an average of 3.4% per year and simultaneously reduce industrial accidents. With a predicted decrease of 3.2 million in the working-age population from 2021 to 2030 alone, the collaboration with robots is seen as a strategic response to the changing labor market dynamics.

## Why is Hyundai's Russian Factory, Valued at 287 Billion Won, being Sold for Just 140,000 Won?

By Jung Min-hee

Chinese companies' share in the European electric vehicle (EV) battery market is sharply rising. Concurrently, Korean battery companies, which have been strong players in the European market, have seen their share on the decline, losing ground to their Chinese competitors.

According to market research firm SNE Research on Oct. 29, Chinese battery cell makers' share of the European market jumped from 15 percent in 2020 to 39 percent in the first half of this year, while Korean companies' dropped from 68 percent to 58 percent over the same period. Korean companies' market share has been declining since peaking at 70.6 percent in 2021.

Yet, demand for EVs in Europe has not contracted. Sales of battery electric vehicles (BEVs) in Europe are reaching new heights, with 194,000 units sold in August, up 103.2 percent year on year, according to Hi Investment & Securities. While sales of plug-in hybrid electric vehicles (PHEVs) were down 15.7 percent year on year, demand remains robust as BEVs account for a large share of the market. BEVs have four to five times the battery cell capacity per vehicle.

Korean companies' position is expected to shrink in the European battery market. First, the European market share of Chinese automotive OEM automakers such as Geely and Shanghai Automotive Industry Corporation (SAIC) has recently surged to 17 percent. The Chinese automotive OEM automakers use CATL's ternary cobalt carbon monoxide (NCM) battery cells. In addition, the adoption of LFP batteries by European automakers is in full swing. LFP batteries have been dominated by Chinese manufacturers. They have the advantage of being cheaper than NCM batteries mainly produced by Korean companies.

Hyundai Motor's Russia plant in St. Petersburg

For Korean companies to regain their share in the European market, they need to have strong price competitiveness in order to win a price war with their Chinese rivals. Korean companies need to actively respond to growing demand for LFP batteries in order to compete with the Chinese rivals who have been leading the development of cheap LFP batteries since early on.

Indeed, Korean battery companies have begun to make moves. In a recent earnings call, LG Energy Solution announced that it will mass-produce LFP batteries for electric vehicles starting from 2026. This is the first time LG Energy Solution has formalized a mass production target for LFP batteries for EVs. Samsung SDI and SK on are also in the process of promoting or considering volume production of LFP batteries.

## SUVs Account for 60%+ of Bestselling New Models in Korea in 2023

By Michael Herh

Sport utility vehicles (SUVs) are dominating the Korean new car market this year. More than six out of 10 new models sold this year were SUVs.

A total of 767,979 SUVs, including recreational vehicles (RVs) such as minivans, were sold in Korea from January to October this year, according to industry sources and the CarIsYou Data Research Institute on Nov. 30. This is an 11.5 percent year-on-year increase. As a result, SUVs accounted for 61 percent of the total passenger vehicle sales of 1,258,089 units this year. This was the first time that the share of SUVs in the Korean new car market exceeded 60 percent.

By vehicle type, Kia's mid-size SUV Sorento sold the most at 68,379 units with its hybrid models leading the way at 44,378. Hybrid models of the Sorento accounted for 64.9 percent of all Sorento sales, while diesel Sorento models only 9.4 percent with 6,419 units sold in the same period.

Among imported models, Tesla's mid-size electric SUV Model Y was the top seller with sales of 9,544 units from January to October. Tesla's recent launch of a rear-wheel drive (RWD) version of the Tesla Model Y in Korea has significantly reduced its price by loading the model with Chinese CATL lithium iron phosphate (LFP) batteries at its Shanghai factory. The price cut contributed to the increase in the model's sales in Korea, many analysts say. In the imported car market of Korea, the

Kia's midsize SUV, The New Sorento

Mercedes-Benz GLC (5,465 units), the GLE (5,334 units), the Volvo X60 (4,519 units), the BMW X4 (4,501 units), and the BMW X5 (4,178 units) sold the most units in the appearing order.

SUV sales are expected to climb higher next year. This is due to the increasing popularity of hybrid models and electric SUVs, which have lowered their prices. In fact, Kia recently added hybrid engines to its lineup for the first time with the launch of a partially redesigned Carnival. Volvo also recently released the EX30, a small electric SUV in the 40 million won price range with a subsidy, in the Korean market.

# Auto Parts Exports Soar to New Heights

By Jung Min-hee

On Nov. 25 (local time), construction began on Hyundai Motor's electric vehicle-dedicated factory, "Hyundai Motor Group Metaplant America (HMGMA)," in Ellabell, Georgia, the U.S.

Alongside the increase in automobile exports, the export of automotive parts is also on the rise. As the supply of finished vehicles to the global market continues to grow, there is an outlook for a simultaneous increase in parts exports.

According to the Korea International Trade Association on Nov. 28, the export of automotive parts reached an all-time high at US$19.9 billion last year. This year, it has already accounted for 82 percent of last year's total, with exports totaling US$16.3 billion until last month.

In particular, the export value of aftermarket service parts for existing vehicles amounted to US$530 million in the third quarter of this year alone. This represents 0.3 percent of the total export value during the period. It indicates a resurgence in the export contribution of automotive parts along with finished vehicles.

In response, automotive parts companies are actively pioneering the global market by not only exporting but also establishing production bases overseas.

Hyundai Mobis has established module factories in Ohio and Michigan in the United States, supplying chassis modules to the U.S. automotive company Stellantis. The two facilities alone have recorded a cumulative production of 6.38 million units as of last year.

Since the second half of last year, Hyundai Mobis has been producing chassis modules at its Alabama plant in the United States, supplying them to Mercedes-Benz's electric SUVs built on a dedicated platform. Additionally, the company provides Stellantis and General Motors with head and rear lamps, display modules, industrial control systems (ICS) and parking brakes.

Hyundai Mobis secured a record-breaking contract worth 5 trillion won for a battery system assembly (BSA), a crucial component for electric vehicles, from Germany-based Volkswagen in August. This marks the largest-ever order for electric vehicle components. Volkswagen plans to integrate Hyundai Mobis' BSA into its next-generation electric vehicle-dedicated platform.

A disassembled Hyundai Genesis

Since 2020, Hyundai WIA, a parts affiliate of the Hyundai Motor Group, has been supplying constant velocity joints to automotive manufacturers in Europe and North America. Constant velocity joints are essential components that transfer the driving force from the engine and transmission to the wheels.

HL Mando is also expanding its dealings not only with Hyundai Motor and Kia Motors but also with global automotive manufacturers such as GM and Ford. Furthermore, the company is diversifying its export regions to include China, India, and Europe. The global sales revenue of HL Mando last year stood at 7.52 trillion won (US$5.8 billion), three times the domestic sales revenue of 2.64 trillion won last year. To cater to overseas customers, HL Mando operates 19 production bases in the United States, Europe, China, and India, with 18 affiliated technology research centers. BK

# China-made Tesla EVs Grab 1st Place in Imported EV Standings in Korea

By Michael Herh

China has overtaken Germany as the top exporter of electric vehicles (EVs) to Korea.

Korea's imports of Chinese EVs totaled US$172 million in October, according to the Korea International Trade Association (KITA). That's more than double the amount of Korea's German EV imports (US$70 million). This is the third consecutive month that China claimed the title of No. 1 EV exporter to Korea after overtaking Germany for the first time ever on a monthly basis in August.

This came as Korea began to import Tesla's Model Y made in China by U.S. EV giant Tesla in the second half of this year. Earlier, Tesla began selling the Chinese-made Model Y powered by lithium-iron phosphate (LFP) batteries in Korea in September. The use of LFP batteries cut the model's price by about 20 million won.

According to the Korea Automotive and Mobility Association (KAMA), Tesla's sales in Korea surged 6.5 times to 4,501 units in September from 696 units in August.

In the Korean market of commercial vehicles such as buses and trucks, Chinese EV makers are also rapidly gaining ground in Korea. In particular, the discontinuation of the Damas and the Labo -- small commercial vehicles from Korean automakers -- was an opportunity for Chinese electric cargo vehicles to quickly fill that void.

According to new vehicle registration statistics from CarIsYou Data Research Institute, sales of Chinese-made electric cargo vehicles reached more than 2,300 units from January to October this year. The SE-A, a one-ton electric van from Chinese automaker Geely, has alone sold more than 600 units since its launch in Korea in June.

A Tesla electric vehicle built in China

On the other hand, Korea posted minimal auto exports to China. In 2011, Korea had a US$2.3 billion surplus in auto trade with China. However, the surplus has been on the wane ever since and has been in the red since 2017. Since hitting US$470 million last year, the deficit already reached US$800 million in the first ten months of this year. BK

# Samsung, Hyundai Motor, LG Compete for Software-defined Vehicle Tech

As the automotive industry shifts its focus from hardware to software, South Korean companies are accelerating their drive towards Software-defined Vehicles (SDVs). SDVs are cars controlled and managed by software. Domestic car and parts manufacturers are actively developing solutions and preparing to showcase them on the global stage next year.

As of Dec. 17, the industry is transitioning towards a software-centric automotive sector. Global car and parts manufacturers are exploring business opportunities in various areas, including electric and electronic architecture, vehicle platforms, and fully autonomous vehicles.

Previously, competition was primarily based on hardware performance, such as the body and engine. However, future competition will likely be dominated by software-centric SDVs that enhance both vehicle infotainment and hardware performance.

Tesla has been at the forefront of the SDV transition, gaining attention for its integrated control of car components through software. Notably, Tesla has been improving vehicle performance and resolving unforeseen errors through Over-the-Air (OTA) software updates. Tesla's software capabilities have allowed it to thrive even during the semiconductor supply shortage faced by the automotive industry.

Hyundai Motor Group is also accelerating its transition to electrification and SDVs. At the beginning of this year, Chairman Chung Eui-sun emphasized the need to "acquire the capacity to create a perfect SDV." Hyundai plans to transform all its models into SDVs by 2025, providing customers with safe and comfortable mobility connected through software, along with innovative user experiences.

Consequently, within the next two years, all models sold globally by Hyundai will come standard with OTA, offering personalized services such as software updates and subscriptions. Hyundai aims to continuously innovate services by connecting and processing various data generated throughout the vehicle's life cycle using a data platform. The group is expected to unveil its software-centric strategy at CES early next year.

The different aspects of a software-defined car

LG Electronics, focusing on vehicle cybersecurity, believes security solutions will become increasingly important as more data is generated within vehicles. LG aims to present innovative cybersecurity management solutions at CES next year, targeting car manufacturers adapting to market changes. The Cyber Security Management System (CSMS) Cockpit Platform, developed with subsidiary Cybellum, will be showcased for the first time to clients. This platform, combining LG's cybersecurity capabilities with Cybellum's cloud-based cybersecurity analysis technology, will serve as a control center, preparing and responding to cybersecurity throughout the vehicle's entire life cycle.

LG Innotek will also introduce software technologies at CES, controlling and managing the performance of electronic parts. Aligning with the SDV trend, LG Innotek plans to showcase solutions that include software technology for controlling and managing the performance of electronic parts based on real-time data collected during vehicle operation.

LG Innotek will also present key electronic components for autonomous vehicles, such as advanced driver-assistance systems (ADAS) camera modules, and LiDAR, featuring world-class optical technology.

Samsung is expected to present related solutions through its subsidiary Harman, specializing in automotive and audio systems. Earlier this year, Samsung Electronics unveiled the future mobility solution Ready Care, jointly developed with Harman at CES 2023. Ready Care is a solution that allows the vehicle to detect changes in the driver's physical and emotional state and activate appropriate functions accordingly. It includes features like inattentive driving detection and stress-free route suggestions. The Ready Tune car audio technology was also introduced.

There is anticipation for what new mobility solutions Samsung and Harman will present at next year's CES, as Samsung Electronics is expected to set up an automotive booth. Recently, Harman announced plans to acquire Roon, a company with competitive audio software and solutions, indicating the potential for new business strategies in the car audio sector and beyond.

# Who is Inciting 'Overbearing Practices' of Automotive Industry Towards Battery Sector?

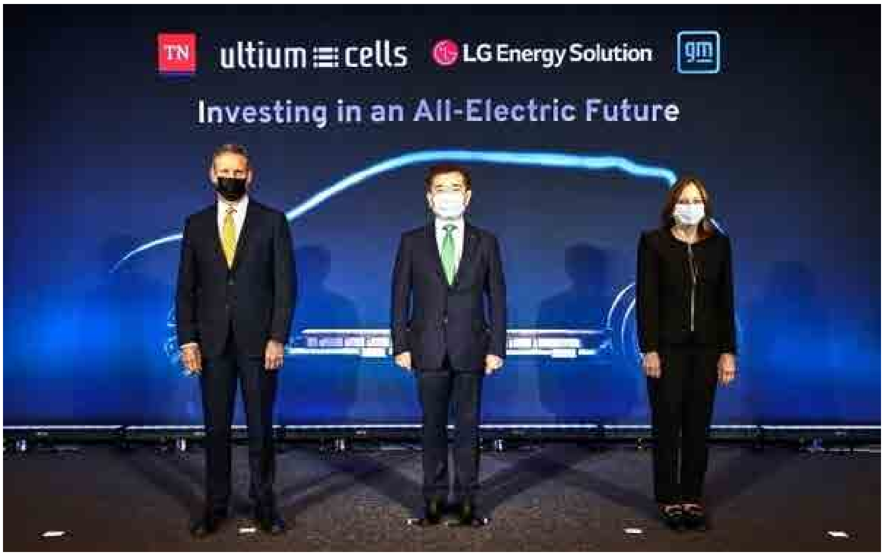
By Jasmine Choi

Domestic battery companies are groaning under the unreasonable demands of global automotive brands. The automotive companies, both customers and joint venture (JV) partners of the battery industry, are intensifying their oppressive tactics as the demand for electric vehicles slows down. This trend of dominance in the automotive industry, often seen as "bullying," is believed to be spurred on by China's involvement.

According to industry sources on Dec. 10, the automotive companies' abuse of their superior contractual position to exploit key component and equipment suppliers has been a long-standing malpractice within the industry. Initially, a few companies, leveraging proprietary engine technology, dominated the market, forcing suppliers to acquiesce to their unfair demands. In the electric vehicle market, where batteries, not engines, are the key to propulsion, this trend was expected to diminish but has instead taken an unexpected turn.

In the electrification market, automotive companies purchasing battery cells, modules, and packs hold the highest status. However, the partnership with battery suppliers, crucial for developing and selling new electric vehicles, has so far prevented any significant issues. The battery industry, aiming to expand the market, has faced challenging demands like lowering product prices or building battery facilities near automotive plants to cut logistics costs. These were considered legitimate discussions linked to the growth of the electric vehicle market and not seen as bullying.

The battery industry began voicing its struggles when these demands started to cross the line. A European automotive company, limiting domestic battery firms to local JVs for North American expansion, insisted on a 50-50 JV partnership while demanding the battery companies bear a greater share of establishment and investment costs. This approach aimed at investing less but reaping more profits. A similar situation was reported with an American automotive company demanding a larger share of profits despite an equal investment in a 50-50 JV.




(from left) Bill Lee, governor of Tennessee; Kim Jong-hyun, president of LG Energy Solution; and Mary Barra, chairman of General Motors pose for a picture during the announcement of the second joint electric vehicle battery factory investment by LG Energy Solution and GM in April 2021 at the Nashville State Museum in Tennessee.

Recent discussions have been marred by disputes over the Advanced Manufacturing Production Credit (AMPC) related to the implementation of the U.S.' Inflation Reduction Act (IRA). Negotiations between JV partners over the distribution of AMPC continue, with some companies even demanding a share of the subsidies, arguing that the battery firms should return part of the grants received from electric vehicle sales.

Industry insiders unanimously agree that such practices in the automotive industry are encouraged by China. Major Chinese battery companies, facing barriers in entering the U.S. market, are reportedly lobbying intensively to break through trade barriers and gain an upper hand over domestic battery companies in Europe. This strategy of leveraging lobbying to relax U.S. regulations and secure substantial volumes in Europe has inadvertently increased the burden on domestic companies.

An industry official commented, "The slowdown in growth and the weakening of the seller's market in the electrification sector play a significant role, but the core issue is China's misguided lobbying approach. There's a risk of accounting manipulation leading to embezzlement and misappropriation, and even if separate contracts mitigate this, it could still be detrimental to long-term corporate profitability. We have no intention of yielding to these excessive demands." The official added, "As the demand and supply of batteries nears a reversal, these harmful practices in the automotive industry are also expected to weaken."

# Korean Battery Companies' JVs with Chinese Firms Face Tension Ahead of US FEOC Disclosure

By Jung Min-hee

The U.S. Department of the Treasury is set to announce detailed regulations on "Foreign Entities of Concern" (FEOC), which excludes some companies from electric vehicle tax incentives under the Inflation Reduction Act (IRA), on Dec. 1 (local time). The South Korean battery industry is closely monitoring whether the FEOC inclusion will impact Sino-Korean joint ventures. Concerns arise as domestic companies could face potential losses of at least several tens of trillion won (US$768.64 billion) if there is a mandatory adjustment of China's ownership stake in Sino-Korean joint ventures under the detailed FEOC regulations. It has been identified that the domestic battery industry has established or jointly invested in more than 20 projects with Chinese companies to produce key battery materials such as precursors and cathodes.

According to industry sources on Nov. 30, domestic battery and material companies are most concerned about the detailed regulations on the criteria for joint ventures eligible for IRA support, particularly the "ownership allowance ratio." China is responding by establishing joint venture corporations not only with U.S. companies but also with Korean companies to exert influence in the U.S. market and qualify for IRA tax benefits.

Industry experts anticipate that the U.S. Department of the Treasury is likely to include provisions in the detailed guidelines for FEOC that restrict the ownership stake of Chinese companies in joint ventures and set limits on the allowance for Chinese-made components and minerals to a certain level. Given that the aim of FEOC under the IRA is essentially to exclude China from the battery component and mineral supply chain, there is a high possibility that the regulations will curb attempts by Chinese companies to enter the U.S. market in the form of joint ventures. The discussed ownership allowance for China ranges from a minimum of 25 percent to less than 50 percent.

The Inflation Reduction Act is a piece of U.S. legislation with far-reaching repercussions.

The challenge lies in the potential increased burden on domestic companies as the ownership stake of Chinese companies in Sino-Korean joint ventures decreases. Notably, leading domestic battery and material companies such as LG Energy Solution, SK on, LG Chem, POSCO Holdings, POSCO Future M, and EcoPro have significantly increased their cases of establishing joint ventures or engaging in collaborative projects with Chinese battery companies since last year. This trend is driven by Chinese companies' belief that they could be eligible for IRA subsidies by producing core materials like cathodes and precursors in countries that have signed free trade agreements (FTA) with the United States, such as South Korea and Morocco, and supplying these materials to North America. The interests of Chinese companies, which need to circumvent the IRA, have aligned with South Korean companies' need for Chinese materials. It is estimated that the number of projects in which companies from both countries have jointly invested in the form of joint ventures exceeds 20, with the investment amount reaching tens of trillions of won.

A prominent example is precursors, components heavily reliant on China. Domestic companies have engaged in joint ventures with Chinese firms for collaborative development in response to this dependence. LG Chem, for instance, has invested 1.2 trillion won in a joint project with Zhejiang Huayou Cobalt. SK on has also joined hands with EcoPro Materials and China's Green Eco-manufacture to establish a precursor factory in Saemangeum Industrial Complex in North Jeolla Province with an investment of 1.21 trillion won. Similarly, POSCO Holdings and POSCO Future M is planning to invest 1.5 trillion won in Pohang, North Gyeongsang Province, to produce nickel and precursors with China's CNGR Advanced Material. Ningbo Ronbay New Energy Technology has received approval to establish an approximately 80,000-ton capacity ternary precursor battery factory in the Saemangeum region of North Jeolla Province.

A representative from the battery industry said, "In the case of Sino-Korean joint ventures, most investments are made in a 5:5 ratio, but there is a safety measure within the contract called ownership ratio adjustment," adding, "As the Chinese investment stake decreases, the additional burden on domestic companies increases in this structure." Production lines for battery materials like cathodes and precursors typically involve capital investments in the range of "tens of trillions," and it is customary for both parties to share the investment equally. To increase the domestic ownership stake in joint ventures up to 75 percent, as per the detailed regulations in the U.S., South Korean companies may need to invest a minimum of several trillion won.

The question of whether a grace period will be granted for the detailed regulations on FEOC is also a matter of concern. There is speculation that there may be a grace period before actual implementation even if the U.S. Department of the Treasury includes numerous Chinese companies in the detailed regulations of FEOC and imposes restrictions on the ownership stake of Chinese companies in joint ventures. The domestic battery industry sees the potential for this grace period to alleviate uncertainties related to Sino-Korean joint ventures and provide time to diversify essential mineral import routes.

The industry has also suggested that the U.S. Department of the Treasury might announce detailed regulations only for FEOC related to battery components and delay the disclosure of regulations concerning core minerals used in batteries until a later date.

In its March announcement of the IRA regulations on battery components and minerals, the U.S. Department of the Treasury stated that starting in 2024 for battery components and 2025 for key minerals used in batteries, tax deduction benefits would not be provided if these components and minerals are sourced from FEOC.

# Korean Gov't to Support Korean EV Chargers Reaching 10% Global Share by 2030

By Michael Herh

Some electric car chargers sit empty awaiting cars to charge in the 2nd level parking garage of the Euljiro Center One E-Fit in the central Jung district of Seoul on July 5, 2021.

The government will scale up the global share of Korean electric vehicle (EV) chargers to 10 percent from the current one percent by 2030. It will also provide support to foster competitive charger manufacturers.

The Ministry of Trade, Industry and Energy (MOTIE) of Korea announced its policy direction in a ceremony held in honor of the launch of the public-private Mobility Charging Industry Convergence Alliance at the Westin Chosun Hotel in the Jung district of Seoul on Dec. 13.

According to the International Energy Agency (IEA), the number of electric vehicles in the world is expected to climb from 30 million in 2022 to 240 million in 2030. Accordingly, the supply of electric vehicle chargers is expected to grow from 2.7 million in 2022 to 12.7 million in 2030. The charging infrastructure market is expected to reach US$325 billion by 2030.

The Korean government said on the day that it aims to secure five core technologies by 2030 and foster at least five charger manufacturers with sales of more than 50 billion won, thereby ramping up Korea's share of the global electric vehicle charging market to 10 percent in 2030, up from just 1.2 percent in 2022. The five core technologies are ultra-fast charging, wireless charging, charging robots, intelligent charging and cybersecurity software (SW).

To this end, the MOTIE launched the alliance with the participation of more than 40 companies and 20 organizations, including charger manufacturers, parts suppliers, charging service operators and testing and certification organizations.


Using silicon in batteries can increase energy density.

# K-Battery's Game Changer:
## Development of Silicon Anode Material to Reduce Dependence on Chinese Graphite

By Jasmine Choi

Korean battery manufacturers are focusing on silicon anode materials as a key strategy to reduce dependence on Chinese graphite, a major weakness of K-batteries. This next-generation material is estimated to have an energy density about 10 times higher than the graphite-based anode materials currently used in most electric vehicle batteries, making it a game changer in improving driving range and reducing charging times for electric vehicles.

According to industry sources on Dec. 11, while Daejoo Electronic Materials has been the sole producer of silicon anode materials, companies like Hansol Chemical and SK materials are expected to join production soon, possibly by the end of this year.

Hansol Chemical has completed a silicon anode material factory in Korea and is currently conducting sample tests with key clients. It plans to start mass production once performance evaluations are completed. The company has invested 85 billion won to achieve an annual production capacity of 750 tons.

SK materials is also advancing into mass production of silicon anode materials through a joint venture with Group14 Technologies, a U.S. battery materials company. They could start production as early as the end of this year and have completed a domestic factory capable of producing 2,000 tons annually, with plans to increase capacity to 10,000 tons by 2025.

SKC and the POSCO Group are also accelerating the establishment of production systems to enter the silicon anode material market. Daejoo Electronic Materials, the only silicon anode material manufacturer in Korea, plans to expand its production capacity from 3,000 tons to 10,000 tons next year, and to 20,000 tons by 2025. With multiple companies entering silicon anode material production, a significant increase in domestic production capacity is expected from next year.

The expansion of silicon anode material production is anticipated to alleviate some dependence on graphite imports from China. Anode materials, one of the four major battery materials, have been almost exclusively dominated by China, from raw materials to material production. According to the International Energy Agency (IEA), China accounted for 70.4% of graphite production in 2021. China halted graphite exports, and the U.S. government restricted Chinese materials through the Inflation Reduction Act (IRA), making the development and production of non-Chinese graphite silicon anode materials urgent for targeting the North American market, including the U.S., with demand expected to rise significantly from next year.

A critical factor is the price of silicon anode materials. Currently, this material costs between US$60 and US$80 per ton, nearly eight times more expensive than graphite-based anode materials, which cost only US$8 per ton. As a result, silicon anode materials are currently used only in high-end brand vehicles. However, the industry expects that as production dramatically increases, the price will stabilize downwards to around US$40 per ton within a few years.

# Korean Shipbuilding Companies Actively Considering Overseas Expansion

By Jung Min-hee

South Korean shipbuilding companies are actively considering the construction of overseas production bases to address a shortage of manpower. However, some are raising concerns about potential "technology leakage" arising from the construction of overseas shipyards.

According to industry sources on Nov. 28, HD Hyundai Heavy Industries is scheduled to begin trial operations of the IMI shipyard, established in collaboration with a local company in Saudi Arabia, starting this month. The IMI aims to be in full operation by the second half of next year. HD Hyundai Heavy Industries is also planning to establish an additional ship engine factory in the vicinity.

HD Hyundai Heavy Industries is also considering leasing the Subic Shipyard in the Philippines. The company has secured a contract to build a total of 10 vessels in the Philippines, including two escort ships, two patrol frigates, and six offshore patrol vessels. The maintenance and upkeep of these vessels will be carried out at the Subic Shipyard.

Hanwha Ocean passed the proposal to establish its U.S. subsidiary, Hanwha Ocean USA Holdings, in a board meeting in September. The U.S. subsidiary will play a role in exploring production bases with a focus on the North American region in the future. Recently, there have been rumors about the potential acquisition by Hanwha Ocean of Philly Shipyard in the United States.

The reason overseas expansion is actively being considered is due to the specific labor shortages prevalent in the shipbuilding industry. The domestic shipbuilding industry is making efforts to expand its workforce to handle a workload spanning the next three to four years, but it continues to grapple with chronic labor shortages and consistently appeals for solutions.

The 700-tonne Goliath crane at Hyundai Vietnam Shipbuilding Co in the Ninh Hoa Town of central Khanh Hoa Province in Vietnam.

According to the Ministry of Trade, Industry, and Energy, domestic shipbuilding companies hired 14,359 employees by the third quarter of this year, surpassing the initially targeted figure of 14,000. It is noteworthy that 85.9 percent of the new hires are foreign workers and the industry is still facing challenges due to a shortage of skilled workers.

A prominent example of an overseas shipyard success story is Hyundai Vietnam Shipbuilding, a joint venture established in 1996 by Hyundai Mipo Dockyard and the state-run Vietnam Shipbuilding Industry Group (Vinashin). Initially established as a ship repair facility, Hyundai Vietnam Shipbuilding transitioned to shipbuilding after providing its employees with over a decade of skill development. Since 2010, the company has secured contracts for more than 200 vessels, experiencing remarkable growth and establishing itself as the largest shipyard in Southeast Asia. It reported a revenue of 700 billion won (US$540.54 million) last year.

The key to success lies in adopting a long-term perspective rather than aiming for short-term operations. Hyundai Vietnam Shipbuilding focused on nurturing local skilled workers over an extended period. Furthermore, Hyundai Mipo Dockyard's active involvement in process management, design, and allocation for new vessels played a crucial role in minimizing risks and contributing to the success of the venture.

The industry anticipates that the overseas shipyard construction boom will continue for the foreseeable future. Many believe that it is inevitable to consider overseas expansion during prosperous periods to ensure the growth of the South Korean shipbuilding industry in the future. With the ongoing challenges of a low birth rate and an aging population, the labor shortage is expected to deepen, and labor costs are likely to rise. This makes it increasingly challenging to sustain domestic shipyard operations in South Korea.

# Korean Shipbuilders Expect Recovery of Offshore Plant Market Thanks to Eco-friendly Trend

By Michael Herh

Offshore plants, the main cause of the shipbuilding industry's prolonged recession, are making a comeback. Demand for offshore plants is changing from oil to eco-friendly energy such as offshore wind power and liquefied natural gas (LNG). It is expected to become a new growth driver for Korean shipbuilders.

As demand for oil exploration and drilling has decreased, orders for related facilities have virtually stopped according to industry sources on Dec. 12. There are occasional orders for floating production, storage and offloading (FPSO) units to be installed in offshore oil fields that have already been explored, but there are no orders for drilling equipment such as drill ships. Offshore wind installations or LNG exploration and production equipment are filling the void.

A floating offshore wind farm

Offshore plants are high-margin vessels with one unit costing up to one trillion won. Depending on market conditions, they become malleable inventory. The Korean shipbuilding industry, which has previously suffered from poor sales, plans to focus on eco-friendly offshore plants, as they are expected to continue to grow in demand. This is why the Korean shipbuilding industry is eyeing the offshore wind power market.

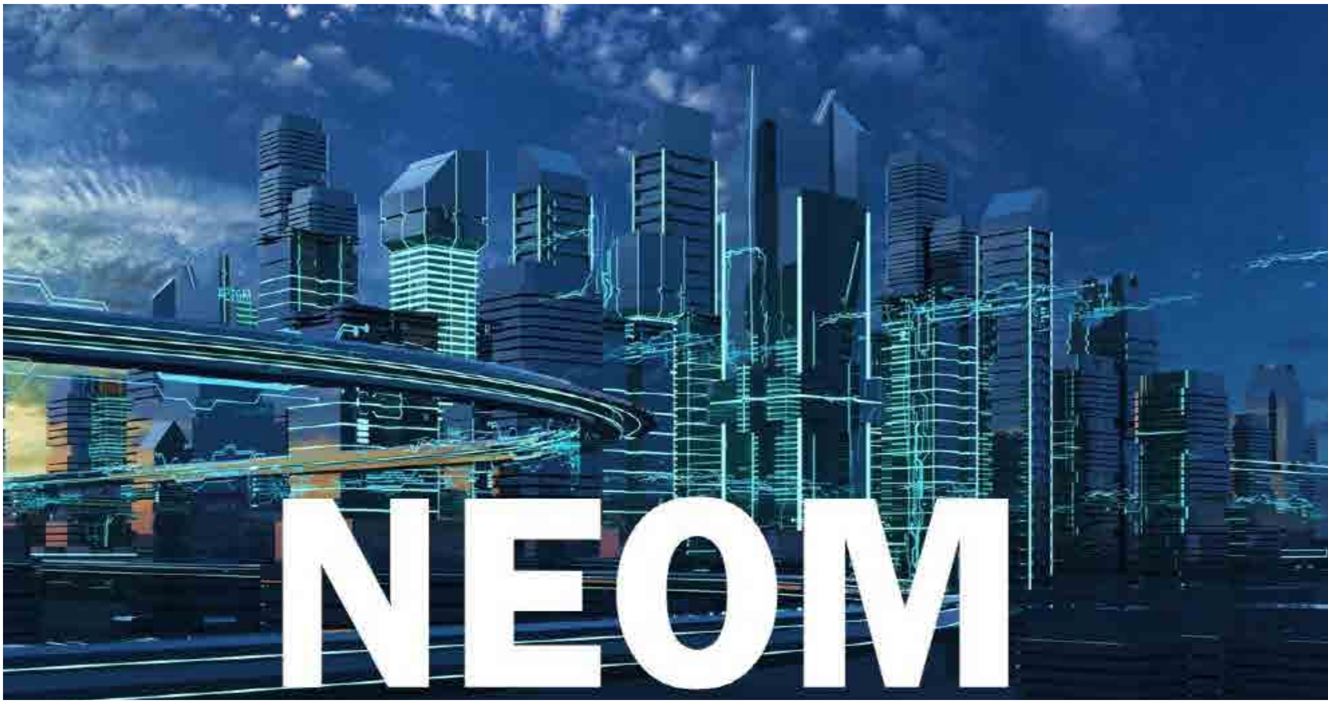
Floating offshore wind turbines have the advantage of being able to be installed in deeper and farther waters than fixed offshore wind turbines, which are limited to a depth of 50 to 60 meters. The former's production cost per unit is twice that of the latter at around 10 billion won, but they are unlikely to become malignant inventory like drill ships. Floating offshore wind turbines are less likely to invite complaints for noise generation and reduced fish catches from residents and fishermen so they can be built on a larger scale than wind turbines on land and offshore. This fact makes floating offshore wind turbines more profitable.

Orders for ships for offshore wind power projects are also being placed. Unprecedented ship orders like a big offshore wind turbine installation vessel (WTIV) ordered from Hanwha Ocean last year are also expected. Although China and Japan have also entered the offshore wind power market, the Korean shipbuilding industry, which has accumulated expertise through various offshore projects, has established a strategy to continue its market leadership by actively participating in the offshore wind power market for strengthening global maritime environmental regulations, RE100 and reducing carbon footprints.

In 2021, HD Hyundai completed the joint development of a 10 MW Korean-type floating offshore wind model with five global vessel classification societies, including Korea Register of Shipping, and is participating in offshore wind farm construction projects in Jeju and Ulsan. It supplies HIMSEN Engine, an eco-friendly engine of its own development, and selective catalytic reduction (SCR) devices to offshore turbine installation vessels (WTIVs), which are essential to offshore wind power construction.

With orders for four WTIVs as strong momentum, Hanwha Ocean will expand its offshore eco-friendly value chain. It will build offshore power generation, conversion, and transmission facilities and produce and transport hydrogen and ammonia through electric power generated there. It will also challenge the seawater desalination and offshore small reactor module markets. Recently, the company applied for the trademark "WindHive" for its floating offshore wind power business.

Samsung Heavy Industries has successfully developed its own WTIV and large offshore floating wind power unit in 2021 by making the most of its experience of having delivered three units to date. BK



Neom is a new city planned by Saudi Arabia to be built in its northwestern region.

# Korea Builders Close to US$30 Billion in Overseas Orders

By Jung Min-hee

The Korean construction industry is expected to surpass US$30 billion in overseas orders for the fourth consecutive year. However, it is still up in the air that it will be able to reach the target of US$35 billion set in the first half of this year.

The amount of overseas construction orders given to Korean contractors in 2023 stood at US$27.74 billion as of Nov. 30, according to the International Contractors Association of Korea's overseas construction monthly order statistics on Dec. 12. This was a 3.7 percent increase from US$26.75 billion in the same period last year. In terms of the number of orders, 546 were awarded through November, up 8.5 percent from 503 in the same period of 2022.

By region, North America and the Pacific region accounted for the largest share (34.1 percent) with US$9.45 billion in construction-oriented orders. The Middle East followed with 30.2 percent. This year, Korean companies were awarded US$8.39 billion for industrial facilities in the Middle East. After the Middle East, Asia received US$5.67 billion in orders for construction, industrial equipment, and electricity facilities. The share was 20.4 percent.

Given the fact that the end of a year sees a rush of overseas construction orders, this year's foreign construction orders are on track to top US$30 billion for the fourth consecutive year. Korea began to collect overseas construction order data in January 1966. The amount of such orders peaked at US$71.578 billion in 2010 when Hyundai E&C landed the Barakah Nuclear Power Plant (Units 1-4) order from the UAE. Since then, it has remained in the US$40-US$60 billion range until 2015. It then dropped to the US$20 billion range from 2016 to 2019, but has been recovering since 2020.

However, it is unlikely to reach the US$35 billion target set by the public-private partnership "One Team Korea" in the first half of this year. At the beginning of the year, the Korean construction industry set a target for overseas construction orders this year that was 50 percent higher than the previous year's amount. This is because Korean companies are making concerted efforts to win the Saudi Neom City project while the Korean government supports Korean contractors winning overseas orders.

In fact, through November this year, the amount of Middle East orders increased by 11.3 percent year on year. Saudi Arabia's orders were up 89 percent year on year. But, orders from Iraq slid by 89.6 percent year over year and those from Qatar 90.6 percent. Those from Asia which accounts for a significant portion of international orders to Korean builders fell by 48.9 percent year over year, halving Korea's overall international order growth.

# Korean Defense Industry Contract at Risk of Nullification Ahead of Regime Change in Poland

Representatives of the Polish government and South Korean defense contractors take a commemorative photograph on July 27, 2022 (local time), at the Ministry of Defense headquarters in Warsaw, Poland, following the signing of a Framework Agreement between South Korea and Poland for the import of Poland's FA-50 light combat aircraft, K2 tanks, and K9 self-propelled howitzers.

By Jasmine Choi

Poland, on the brink of a regime change for the first time in eight years, faces concerns that defense equipment contracts signed with South Korea could be nullified following the general elections in October.

According to Reuters on Dec. 10 (local time), Simon Holownia, a member of the opposition alliance "Poland 2050," stated in an interview with Polish private broadcaster Radio Zet that "agreements signed by the interim government of the Law and Justice Party (PiS) could be invalidated." He remarked that after the Oct. 15 election, PiS should have limited its powers to state administration without spending the budget.

In the Oct. 15 elections, PiS, a nationalist right-wing conservative party, became the largest party in the lower house with 35.4% of the votes but failed to secure a majority. In contrast, the opposition coalition led by former Prime Minister Donald Tusk of the Civic Platform (KO), who had previously served as the President of the European Council, succeeded in winning a majority of seats, positioning themselves to reclaim power after eight years.

Such a political shift in Poland could potentially invalidate previous government agreements, posing a threat to South Korea's defense exports.

Władysław Kosiniak-Kamysz, the leader of the Polish People's Party (PSL), tipped to be the new Minister of National Defense, emphasized the importance of investing in Poland's own defense industry in a media interview the day before. He noted that contracts signed after Oct. 15 by the PiS government would undergo analysis and evaluation.

Following Russia's invasion of Ukraine, Poland, seeking to bolster its defense capabilities, had entered into a multi-billion-dollar arms purchase contract with South Korea. Poland's emergence as a major buyer in the "K-defense" industry had raised domestic expectations. However, the issue of regime change, coupled with funding shortages, has led to growing concerns that the arms export deal could fall through. Last month, the Financial Times reported, "South Korea fears that some of its defense export contracts might be jeopardized due to Poland's regime change and lack of funds."

The Korean government, facing difficulties with the Poland defense export contract due to the financial support limits of the Export-Import Bank, discussed a joint loan form of financial support by calling in officials from the top five commercial banks last month to assist in financing.

Aircraft from both Asiana Airlines and Korean Air on the tarmac

# EU Shows Positive Response to Korean Air-Asiana Airlines Merger for First Time

By Michael Herh

A top European Commission (EC) official has given a positive assessment for the first time to remedial measures submitted by Korean Air to the EC for its merger with Asiana Airlines.

"We have seen very positive progress on some of the proposals in Korean Air's remedial measures," EC Justice Commissioner Didier Lender told local reporters, according to Reuters on Dec. 7 (local time).

"We will provisionally come to a conclusion with regard to a review of a marriage between Korean Air and Asiana Airlines by February 14, 2024," the EC said in an announcement on its website on Dec. 6.

The corrective action plan that the EC deemed as positive progress is the proposed sale of Asiana Airlines' cargo business. Asiana Airlines held an extraordinary board meeting on Nov. 2 to consider and passed a resolution on whether to agree to Korean Air's corrective action plan. The main content was a proposal to sell Asiana Airlines' cargo business. At the time, there was a lot of disagreement among Asiana Airlines board members and the board meeting was adjourned once. But it was finally passed, and Korean Air submitted the new corrective measures to the EC. The new corrective measures included the sale of Asiana Airlines' cargo business and another Korean airliner's entry into four European routes from Incheon to Paris, Frankfurt, Rome, and Barcelona.

One of the challenges for Korean Air in its negotiations with the EC was to loosen its grip on the Korea-Europe cargo business. Only in the first half of this year, Korean Air proposed simply selling off the Asiana Airline freighter fleet to the EC. When the EC rejected this proposal, Korean Air eventually made a stronger proposal to sell off Asiana Airlines' entire cargo business. In addition, Korean Air promised to find a Korean low-cost carrier (LCC) to buy Asiana Airlines' cargo business and wrap up the transaction with the LCC.

The sale of Asiana Airlines' cargo business is also being closely watched by U.S. competition authorities, so once this issue is resolved, U.S. authorities will be more likely to approve the merger. EC, U.S. and Japanese authorities are the only remaining ones from which Korean Air has to receive approval.

Air cargo airplanes mainly carry high-tech products such as semiconductors and biopharmaceuticals classified as strategic goods by the United States and Europe. South Korea is a major producer of semiconductors and biopharmaceuticals, so the merger could raise transportation prices for high-tech products, some analysts say.

Insiders of the Korean airline industry are concerned about whether there will be a Korean LCC that can actually take over Asiana Airlines' cargo business. Jeju Air, a large LCC, did not participate in the bidding from the beginning, and T-way Air is also negative about acquiring Asiana Airlines' cargo business. "Small and medium-sized LCCs such as Asiana Premia are considering acquiring the cargo business from Asiana Airlines but the actual acquisition of it is not clear yet," said an industry insider.

# K.S.PEARL Passes US FDA Inspection for Sunscreen Products

By Jasmine Choi

K.S.PEARL, a cosmetic ingredient specialist company established in 1986, has been supplying innovative and safe cosmetic ingredients and stands shoulder to shoulder with global material companies. Recently, K.S.PEARL has attracted the attention of the industry.

This attention comes as K.S.PEARL successfully passed the U.S. Food and Drug Administration (FDA) inspection for its Over The Counter (OTC) sunscreen product ingredients. In July, the FDA visited K.S.PEARL's Incheon plant to inspect the manufacturing facilities for the Active Pharmaceutical Ingredients (API) of sunscreen products. In early October, K.S.PEARL received an Establishment Inspection Report (EIR) stating that their facilities comply with the Good Manufacturing Practice (GMP) standards.

In South Korea, sunscreen products are classified as functional cosmetics. They can be produced without any issues once they pass an assessment for quality, safety, and efficacy by the Ministry of Food and Drug Safety. However, in the U.S., sunscreens are classified as OTC drugs. Therefore, facilities and products must be registered with the FDA and undergo regular inspections. Meeting the strict and demanding standards for APIs, rather than cosmetic ingredients, makes passing these inspections challenging.

As the global cosmetics market becomes more international, passing FDA inspections is becoming a mandatory condition not only in the U.S. but also in Europe and Asia. Global cosmetics companies consider U.S. market compliance from the product development stage, as it's the largest market. Also, passing FDA inspection is proof of a company's strict production and quality control. Despite its importance, even leading global material companies sometimes fail or give up on passing FDA inspections, which is changing the dynamics of leadership in the global market.

In this context, K.S.PEARL's successful FDA inspection for its sunscreen products is clearly a significant opportunity to strengthen its leadership in not just the North American but also the global market. Since completing FDA facility registration in 2016 and preparing for the export of pharmaceutical ingredients to the U.S., K.S.PEARL started exporting sunscreen pharmaceutical ingredients to the North American market in 2019. This passing FDA inspectionsval is the meaningful outcome of a decade-long investment in predicting global trends and a milestone in expanding into overseas markets.

Regarding this achievement, K.S.PEARL's CEO, Kim Moon-ki, said, "The sunscreen market is now focusing on inorganic sunscreens like TiO2 and ZnO, which are recognized as safe and effective by the U.S. FDA. With the recent FDA inspection approval, these products manufactured at our Incheon plant will become key products in our global export strategy."

K.S.PEARL has been leading the trend in cosmetic ingredient production and sales by listening to customer needs and continually developing innovative products. With the successful FDA inspection of its sunscreen products, the company plans to further enhance its reputation as a specialist in cosmetic ingredients, a legacy built over more than 30 years. K.S.PEARL, having secured additional factory land in the Namdong Industrial Complex in Incheon this past September and expanding its production lines, is expected to strengthen its position both domestically and internationally.

A view of K.S.PEARL's Headquarters building in Incheon, South Korea

# Prosecution Raids Kyungbo Pharmaceutical on Allegations of Multi-billion-won Rebates

By Jasmine Choi

The logo of Kyongbo Pharmaceutical

The prosecution has launched a forcible investigation into Kyungbo Pharmaceutical, accused of providing billions of won in rebates to hospitals.

The Food and Drug Crime Investigation Division of the Seoul Western District Prosecutors' Office (Chief Prosecutor Song Myung-sub) announced that they conducted a search and seizure of Kyungbo Pharmaceutical's headquarters on Dec. 18 on charges of providing hospital rebate funds.

The prosecution has been investigating the case, which was reported to the Anti-Corruption and Civil Rights Commission as a public interest report.

Previously, the Rights Commission received a public interest report that Kyungbo Pharmaceutical, an affiliate of the CKD Healthcare Group, provided hundreds of billions of won in rebates by refunding a portion of the drug costs.

# Huawei Claims "No Cybersecurity Incidents in 30 Years... Contributes to Domestic ICT Industry"

By Jung Min-hee

Huawei Korea held a media event on Dec. 20th to share major business achievements of 2023 and strategic directions for 2024. Balian Wang, CEO of Huawei Korea, emphasized prioritizing cybersecurity on this day.

This year, under the vision of 'Building a Better Eco-Friendly Digital Life with Korea,' Huawei Korea actively contributed to the digital transformation of the domestic industry, adhering to the principle of 'winning with quality,' and achieved modest success in the Korean market by presenting top-notch products and services.

In the 5G sector, Huawei's support for the 5G network in Korea ranked first in the global P3 test, reaffirming Huawei's goal of 'Huawei Product + Huawei Service = Best Network.'

In the enterprise business sector, Huawei provided a diverse portfolio of products and solutions based on various scenarios, including data center networks, campus networks, mid-range and high-end storage, data protection, and optical transmission networks. Especially, Huawei has been recognized for its excellence by customers and partners in industries like manufacturing, finance, education, and media.

Moreover, Huawei Korea provided customers with eco-friendly, simplified, smart, and safe low-carbon solutions in areas like solar inverters, data center energy, critical power supply and distribution, and electric vehicle charging networks.

CEO Balian Wang stated, "Based on Huawei's unique technological prowess and investment in research and development, Huawei Korea is building leading ICT infrastructure for customers and providing momentum for the digitalization of domestic companies and industries. Above all, Huawei strictly adheres to the latest cybersecurity standards to ensure that Korean customers can use Huawei equipment safely and securely."

In 2024, Huawei Korea plans to introduce Huawei's world-class R&D achievements in various fields such as AI, 5G, and cloud computing to the domestic ICT industry, and continue to present safer and more innovative products and services, aiding Korea in achieving its digitalization and carbon neutrality goals. Additionally, they aim to continue supporting the training of 1,000 next-generation ICT talents.


Balian Wang, CEO of Huawei Korea

# Hanwha Successfully Operates Gas Turbine with 100% Hydrogen

By Jasmine Choi

FlameSheets, which are key components of hydrogen co-firing power generation plants, sit in a Hanwha Impact facility.

Hanwha group companies have successfully operated a medium-to-large-scale gas turbine solely on 100% hydrogen fuel, based on their world-class technology. Hanwha Impact and Hanwha Power Systems announced on Dec. 20 that they have demonstrated full hydrogen combustion by increasing the hydrogen mixing ratio in an 80 MW medium-to-large gas turbine from 60% to 100%.

Earlier in April 2023, Hanwha Impact and Hanwha Power Systems, in collaboration with Korea Western Power, had successfully demonstrated 60% hydrogen blending in the same 80 MW class gas turbine - a world first. “Hydrogen blending power generation” involves modifying existing gas turbines, which use LNG to generate electricity, to burn a mix of LNG and hydrogen. When the ratio of hydrogen is increased to 100%, eliminating LNG, it is termed “full hydrogen combustion.”

Hanwha’s technological prowess in this field enabled this successful demonstration. During the 60% hydrogen turbine power generation test in April, carbon dioxide (CO2) emissions were reduced by 22% compared to LNG power generation, and nitrogen oxide (NOx) emissions were confirmed to be below 6 ppm. Although the high flame temperature of hydrogen fuel tends to produce more nitrogen oxides compared to 100% LNG power generation, Hanwha’s hydrogen turbine power generation achieved carbon reduction effects and low-pollution combustion by controlling combustion conditions even without separate reduction devices.

This test marks a significant step towards carbon-free and low-emission power generation. The CO2 concentration in the emissions during the turbine operation was 0.04%, with the combustion process producing virtually zero carbon dioxide. Nitrogen oxide emissions were confirmed to be below 9ppm without any additional reduction devices.

Hanwha’s hydrogen turbine technology is expected to play a significant environmental and economic role by extending the life of aging turbines in existing power facilities. Applying this life extension technology to LNG gas turbines facing obsolescence can potentially double the economic benefits. BK

An employee at LS Cable & System inspects the newly developed copper foil material, CuFlake.

# LS Cable & System Develops World’s First New Material for Copper Foil

By Jasmine Choi

LS Cable & System has developed a new material for copper foil, marking a significant step towards expanding its eco-friendly material business.

On Dec. 20, LS Cable & System announced the development of CuFlake, a new copper material for copper foil. This material is the first in the world to commercialize the use of copper fragments instead of copper wire as the raw material for copper foil.

CuFlake is expected to significantly reduce manufacturing costs by simplifying the processing steps of the raw materials in the copper foil manufacturing process. Copper wire is produced through a 4-5 step process involving the removal of impurities and cleaning of metal scrap. In contrast, CuFlake involves melting the scrap to remove impurities and then forming it into fragments for direct use in copper foil production.

Unlike copper wire, which only uses high-grade scrap, CuFlake can use lower grades, solving the supply issues of scrap, according to LS Cable & System.

LS Cable & System has recently completed sample tests with copper foil manufacturers and expects commercialization as early as next year. The market is anticipated to generate revenues exceeding 100 billion won annually. Together with LS Eco Energy (formerly LS Cable & System Asia), which has entered the rare earth business, LS Cable & System plans to expand its eco-friendly material business. BK

# Hyundai Motor Group Announces 2023 Second-half Executive Appointments

By Jung Suk-yee

A sign of the Hyundai Motor Group

Hyundai Motor Group (the Group) today announced key executive appointments for the second-half of the year 2023. Through the appointments, the Group aims to strengthen its leading position in future mobility solutions and innovations and better prepare for uncertainties in the global business environment.

A total of 252 executives from the Group's affiliates are included in the announcement, the largest number to date. Demonstrating the Group's focus on future technology and business, 30 percent of the appointments are in areas such as R&D, new businesses and manufacturing. Among the 197 newly appointed executives, next-generation leaders in their 40s comprised 38 percent, a number which has continuously grown over the years.

Brian Latouf is promoted to Hyundai Motor Group President and Global Chief Safety & Quality Officer (GCSQO). In this new role, Latouf will be responsible for leading global safety and quality for Hyundai, Genesis and Kia vehicles. He will have full authority to modify and enhance existing safety and quality systems and processes to drive a path to common global standards and best practices. He will also oversee the entire Quality Division, including the processes within R&D and quality gates in preparation for vehicle launches.

Latouf was previously the Global Chief Safety Officer for Hyundai Motor Company, a position he held since July 2022. He successfully helped integrate the company's engineering resources and streamlined its safety operation into a cohesive global technical function. He also led the recent opening of the Hyundai's world-class Safety Test and Investigation Laboratory (STIL) in Michigan. Latouf first joined Hyundai in November 2019 as Chief Safety Officer for Hyundai Motor North America. He will remain based in California with offices at Hyundai Motor Group global headquarters in Seoul and at STIL in Michigan.

The Group also promoted Hyundai Motor Company Executive Vice President Dong Seock Lee to President. As the Head of Domestic Productions, Lee is recognized for his achievements in both vehicle production and labor management. Domestic production reached a historic capacity of 1.86 million units this year under his leadership, and he also helped establish a more stable relationship with labor.

Yun Goo Kim is promoted to President and appointed as CEO of Hyundai AutoEver. Kim previously served as the Group's head of the Corporate Audit Division and the Human Resources Division. In his new role, Kim is expected to utilize his considerable insight into organizational systems and work processes to further strengthen the company and its software capabilities.

Hyung Keun Bae is promoted to President and appointed as CEO of Hyundai Motor Securities. Bae is a leading financial expert within the Group and enhanced future investments for Hyundai Mobis during his tenure as CFO. He also has insight into the Group's overall business strategy, having gained experience at a number of Group affiliates, and is expected to focus on bolstering the company's competitiveness and preemptive risk management.

Byeong Ku Jeon, Head of Corporate Management Unit at Hyundai Card and Hyundai Commercial, is promoted to President. Since joining the company in 1991, Jeon has helped the company overcome numerous crises and is recognized as an expert in risk management. Under his leadership, Hyundai Card and Hyundai Commercial saw a significant growth in operating profits this year and are expected to continue sustainable growth in the mid- to long-term.

The Group newly appointed Hae In Kim as the Head of HR Division at Hyundai Motor Company. A global expert in human resources management, Kim was formerly the Chief Human Resources Officer at British American Tobacco, where she also served as a board member. The appointment is expected to advance and accelerate the diversification of the corporate culture at Hyundai Motor.


Hyundai Mobis booth at CES 2024

# Hyundai Mobis Unveils Future Mobility Innovation Techs, including Transparent Displays, at CES 2024

By Jung Min-hee

The Transparent Display to be unveiled by Hyundai Mobis at CES 2024

Hyundai Mobis (KRX 012330) will unveil 20 production-ready mobility technologies at CES 2024. These include the 'Innovative Display' series, packed with high-value advanced technologies, and the high-power Integrated Charging Control Unit (ICCU), a critical future mobility technology, which are likely to capture the attention of buyers in dedicated spaces for client companies.

Hyundai Mobis announced on 20 its participation in CES 2024, the world's largest technology exhibition to be held at the Las Vegas Convention Center, USA, from January 8th to 11th next year. CES has been gaining more and more attention as an arena for global automakers to compete with new technologies, in line with the recent trend of convergence and innovation across industries.

At this CES, Hyundai Mobis will focus more on sales targeting global automakers. The latest versions of previously exhibited technologies, including the Future Cockpit Integrated Solution (MVICS 5.0), Hologram AR-HUD, and various products for the electrical, electrification, lamp, and AAM sectors, await selection by global automakers.

## Unveiling the Innovative Display Series, including the Debut of Transparent Displays

The Innovative Display series, packed with high-value advanced technologies, takes center stage. This includes the world's first automotive Rollable Display, Swivel Display, and 3D Display, as well as QL Display, which implements OLED-level performance in LCDs.

The automotive Transparent Display, making its debut, deserves special attention. It's a next-generation display technology employing holographic optical elements. It projects clear images onto a transparent panel, offering drivers a greater openness than standard displays.

Its potential application on vehicle windshields is noteworthy. It allows drivers to access various display information without significantly shifting their gaze, enhancing safety. If mass-produced, this novel display solution could remarkably transform vehicle design. Given the substantial demand from global automakers, there's high anticipation for its technological advancement and mass production.

## Leading the Market with the 22kW ICCU

Hyundai Mobis, based on its extensive production experience, also anticipates the demand of global automakers for its innovative technologies in the electrification sector. It confidently showcases the 22kW Integrated Charging Control Unit (ICCU), along with the Battery System Assembly (BSA).

The ICCU, crucial for electric vehicle charging and operation, is a power conversion system integrating DC and AC chargers with communication equipment. Its higher output improves charging speed and efficiency. The ICCU is closely linked with Vehicle to Grid (V2G) technology, using EV batteries as a significant power source. Hyundai Mobis plans to lead the market with its 22kW ICCU, surpassing the commonly used 11kW level.

Hyundai Mobis aims to maximize new orders through aggressive sales, highlighting its core auto-component technology and product appeal. It had recorded USD 8.57 billion in global automotive supplier orders by the third quarter of 2023, substantially exceeding the annual target of USD 5.36 billion and speeding up customer diversification and order performance.

Meanwhile, at CES 2024, Hyundai Mobis will unveil its 'Future Mobility Demonstrator Vehicle' applying next-generation mobility technologies. Whereas previous exhibitions focused on showcasing technology products and concept cars, this event offers a unique opportunity for the public to ride and experience vehicles equipped with technologies like the e-Corner system, bringing the future of mobility closer to today. BK


Teaser image of the demonstrator vehicle featuring Hyundai Mobis' future mobility technologies, debuting at CES 2024

# POSCO International Transforming into Comprehensive Green Business Company

By Jung Min-hee


POSCO executives pose for a photo at the POSCO International Vision Declaration Ceremony held at Songdo Convensia in Incheon on April 13.

POSCO International is rapidly transforming into an eco-friendly comprehensive business company and a business platform provider.

POSCO International announced on Dec. 19 that, in its first year since the merger with POSCO Energy, it has successfully established three major business value chains -- eco-friendly energy, materials, and food -- entering the main track this year. The company is expected to achieve a record-breaking operating profit of around 1.2 trillion won (US$918.13 million) this year.

In specific terms, the eco-friendly business encompasses energy steel, mobility, secondary battery materials, and steel raw materials. For energy steel, POSCO International aims to sell 2.23 million tons by 2030, driven by long-term contracts for POSCO's eco-friendly specialized steel, known as "Greenate." The company plans to seize the future eco-friendly market by participating in projects such as the development of an offshore carbon capture and storage (CCS) platform in Texas in May and winning contracts for an offshore carbon capture, utilization, and storage (CCUS) platform project in Malaysia.

In the mobility business, POSCO International will focus on securing integrated package orders for batteries, components, motors, and chassis. For drive motor cores, a key component in electric vehicles, the company plans to invest 680 billion won by 2035 to establish a production system of 10 million units globally, including in the United States, China, and India. In connection with this, POSCO International has secured a 10-year supply agreement with Hyundai Motor for 10 million units of the drive motor core, with the total transaction amount reaching 2.5 trillion won.

For secondary battery materials, there are plans to establish a supply system of 350,000 tons by 2030, ten times the existing capacity. The goal is to build a value chain covering mining for graphite, lithium and nickel, raw materials for copper foil, materials such as cathode materials, anode materials, active materials, and batteries including recycling. For steel raw materials, the company aims to supply materials from a total of 26 global iron scrap collection bases by 2030.

In the energy business, POSCO International aims to complete the value chain from gas exploration and production (E&P) to power generation. By 2030, the plans include securing gas reserves of 2.5 trillion cubic feet (Tcf), a trading volume of 12 million tons of liquefied natural gas (LNG), a total LNG terminal capacity of 3.14 million kiloliters, a power generation capacity of 6.7 gigawatts (GW), and offshore wind power rights for 2 GW or more.

In the food sector, the company has set a goal of establishing a system handling 21 million tons of global food by 2030 and leaping into the top 10 global food companies.

POSCO International is also making focused investments in secondary battery materials, rapidly expanding the value chain for graphite, lithium, nickel, copper foil, and used batteries through its network of over 100 global locations. This year, it has sequentially invested in mines such as the Molo mine in Madagascar and the Mahenge mine in Tanzania, securing 1.8 million tons of natural graphite from Africa.

POSCO International, which was dominated by the energy sector at 91 percent as of 2015, has rebalanced its portfolio since the restructuring as a comprehensive business company last year. The operating profit distribution among three sectors – investment at 30 percent, trading at 35 percent, and energy at 35 percent – has now achieved a balance around the 30 percent mark.

Until the third quarter of this year, POSCO International recorded sales of 25.22 trillion won and operating profit of 948.5 billion won.

# LG Electronics to Participate in Capital Increase for LG Display's OLED Investment

By Kim Eun-jin

LG Display has invested heavily in OLED technology.

LG Electronics is set to participate in rights offering for LG Display (LGD) amounting to 1.36 trillion won (US$1.04 billion). This move aims to strengthen the competitiveness of the organic light-emitting diode (OLED) business.

The company announced on Dec. 19 that it has convened a board meeting and decided to participate in the capital increase in order to enhance LGD's OLED business competitiveness and strengthen the financial foundation for future growth.

LG Electronics, which is the major shareholder with a 37.9 percent stake in LGD, plans to invest approximately 500 billion won in the rights offering. LGD had previously announced that it would carry out a rights offering of 1.36 trillion won the day before, aiming to secure investment funds and stabilize its financial structure.

Market observers believe that LGD's decision to raise funds through a rights offering, the first since its listing on the stock market, is driven by the increased debt ratio and interest burden. Indeed, LGD's debt ratio surged from 215 percent at the end of the second quarter to 322.2 percent at the end of the third quarter of this year. The prolonged global economic downturn following the boom resulting from the COVID-19 has led to a sharp decline in demand for its main product, OLED panels.

However, market analysts anticipate that LGD will return to profitability in the fourth quarter of this year, ending six consecutive quarters of losses. This positive outlook is attributed to LGD securing contracts to supply panels for Apple's new iPhone models and other products.

The OLED business is expected to account for 40 percent of LGD's total revenue last year, increase to 50 percent this year, and further rise to 60 percent next year. BK

# Coupang to Acquire Farfetch, World's Largest Luxury Platform

By Jung Min-hee

POSCO executives pose for a photo at the POSCO International Vision Declaration Ceremony held at Songdo Convensia in Incheon on April 13.

Coupang is making a significant entry into the 500-trillion-won luxury market by acquiring Farfetch, the world's largest luxury platform. Farfetch boasts a collection of 1,400 luxury brands, including Chanel and Hermes, catering to global consumers in 190 countries such as the United States and the United Kingdom.

On Dece. 18, Coupang Inc. announced the establishment of a joint venture company named "Athena Topco" with Greenoaks Capital with the purpose of acquiring all business and assets of Farfetch. Athena has entered into a loan agreement, or bridge loan, with Farfetch for a nominal acquisition amount and plans to pay US$500 million (653.5 billion won). The ownership of Athena is set to be divided, with Coupang Inc. holding 80.1 percent and Greenoaks

Fund holding 19.9 percent.

The acquisition of a global company by Coupang is the first since its founding. Coupang has expressed a favorable view of Farfetch, citing the company's remarkable transformation into a global enterprise last year. Farfetch has successfully established a worldwide e-commerce network just one year and two months since entering the Taiwanese market. Coupang sees the acquisition of Farfetch as a foundation for domestic K-fashion companies to significantly increase global exports.

Founded by Jose Neves in the U.K. in 2007, Farfetch is the world's largest luxury e-commerce company. It has gained recognition for its explosive growth, expanding to 190 countries worldwide, including the United States, Japan, China, and India, and changing the global luxury market landscape. With an extensive lineup, including 1,400 global luxury brands such as Hermes, Louis Vuitton, and Chanel, the top three luxury brands, Farfetch has established a presence in boutiques and department stores worldwide. The company achieved a revenue of US$2.32 billion last year alone, marking about a 16-fold growth compared to its 2015 revenue of US$142.31 million. Farfetch, which went public on the New York Stock Exchange in 2018, will become a private, unlisted company after Coupang's acquisition.

Coupang's move to acquire Farfetch is driven by the clear growth trajectory in the online fashion and luxury markets. According to Bain & Company, the global personal luxury goods market is estimated to reach around US$400 billion this year, and the online share, or penetration rate, is projected to grow from approximately 20 percent last year to 30 percent by 2030.

The acquisition of Farfetch, a key e-commerce platform for "K-fashion exports," suggests an expansion of overseas exports for related products. Farfetch hosts 10 Korean brands, including WOOYOUNGMI by renowned designer Woo Young-mi, SONGZIO by Song Ji-o, Low Classic by Lee Myung-shin, and Studio Tomboy by Shinsegae International.

The acquisition is also expected to create the synergies with Coupang's extensive logistics network that the company has built through substantial investments. Farfetch has been providing "90-minute delivery" or "same-day delivery" in the areas near brand boutiques in cities like New York, Paris, and Milan. However, regular international deliveries, including to countries like South Korea, can take up to a maximum of five days. By combining logistics expertise, including services like Rocket Delivery, Coupang has the potential to significantly reduce these delivery times.

# OCI Breaks into US Market with Non-Chinese Polysilicon

By Jasmine Choi


Frank van Mierlo (left), CEO of Cubic, and Lee Woo-hyun (right), chairman of OCI Holdings, shake hands at the polysilicon supply contract signing ceremony in Boston, Massachusetts, in the U.S. on Dec. 18 (local time).

OCIM, a wholly owned subsidiary of OCI Holdings in Malaysia, has penetrated the U.S. market by signing a contract worth US$1 billion with an American company. OCIM's strategic product is non-Chinese polysilicon.

OCI Holdings announced on Dec. 19 that it had signed a contract for the supply of polysilicon for solar power with the wafer company Cubic in Boston, Massachusetts, in the U.S., on Dec. 18 (local time). The contract is valued at US$1 billion. OCIM will supply polysilicon to Cubic from the end of 2025 to the first half of 2033.

This contract signifies OCIM's participation in the U.S. solar value chain with an American company. The solar value chain includes a polysilicon wafer cell module. Cubic plans to produce wafers in the U.S. starting from 2025 using polysilicon supplied by OCIM. These wafers will be supplied to cell companies in the U.S.

OCIM expects to expand its sales due to the "non-China premium." The raw material for the polysilicon OCIM manufactures, metallurgical silicon, is entirely non-Chinese. OCIM's polysilicon complies with the U.S. "Uyghur Forced Labor Prevention Act (UFLPA)." Recently, a draft of forced labor sanctions regulations similar to UFLPA was approved in the European Parliament.

The U.S. government's policy to encourage domestic solar production also presents an opportunity for OCIM. According to the U.S. Inflation Reduction Act, domestic solar wafer manufacturing companies receive a tax benefit of US$12 per square meter, cells at 4 cents per watt, and modules at 7 cents per watt.

Cubic is advancing the construction of a wafer production plant in Texas and plans to expand its business scope to include cells and modules in the future. The main shareholder of Cubic is Breakthrough Energy operated by the Bill Gates Foundation.

OCIM currently produces 35,000 tons of solar polysilicon annually at the Samalaju Industrial Park in Sarawak, Northern Borneo Island, Malaysia. The energy source for polysilicon manufacturing is hydropower. This meets the "RE100" criteria, meaning 100% of the power used is sourced from renewable energy. OCIM plans to expand its solar polysilicon plant capacity to 65,000 tons by 2027.

# LG Display Solidifies World Number One Position in Premium Vehicle Displays

By Jasmine Choi

An LG Display exhibition booth installation shows what possibilities flexible OLED screens can achieve in the format of an automobile display panel.

LG Display has accelerated its efforts to secure its global leadership in the vehicle display market, a key area of future growth, by leveraging its superior technology. According to display industry sources on Dec. 19, LG Display entered the vehicle display market in 2005 by producing Central Information Displays (CID). At that time, foreign companies, mainly from Japan, dominated this market. LG Display adopted a strategy to target the high-value, large vehicle display market.

The demand for large and high-resolution vehicle displays has been increasing recently, drawing attention. With the advent of software-centric vehicles (SDVs) and other futuristic cars, there's a growing trend in applying vehicle displays that conveniently manipulate various information.

According to the global market research firm Omdia, LG Display has been global number one in market share (based on sales) of premium vehicle displays larger than 10 inches for five consecutive years since 2018. The company attributes its top position to differentiated technology, strict quality control, and a stable supply capacity.

LG Display has continuously introduced independently developed technologies such as wide viewing angle technology and high-sensitivity touch functions and was the first in the industry to mass-produce vehicle OLEDs in 2019. Its tandem OLED device structure, a pioneering development by LG Display, is a core technology of its vehicle OLEDs. Tandem OLED involves stacking two organic light-emitting layers, which improves durability over the conventional single-layer approach.

LG Display has commenced mass production of second-generation tandem OLEDs this year. This new product improves the efficiency of the organic light-emitting device, enhancing brightness and lifespan. It also reduces power consumption by about 40% compared to previous models, as explained by LG Display.

LG Display plans to strengthen its world-leading position in premium vehicle displays by focusing on three main products: plastic OLED (POLED), Advanced Thin OLED (ATO), and Low-Temperature Polycrystalline Silicon (LTPS) LCD, all based on its tandem OLED technology.

POLED combines tandem OLED elements with a flexible plastic substrate. It cuts power consumption by 60% compared to LCDs and reduces weight by approximately 80%. ATO features a sleek design using a thin glass substrate and is competitively priced. LTPS LCDs are advantageous for larger sizes and higher resolutions compared to traditional LCDs.

# Paris Baguette Cake Advertisement Appears in New York City's Times Square

By Jasmine Choi


An advertisement for a Paris Baguette cake appears on the iconic Nasdaq LED display in Times Square in New York City.

Paris Baguette, the bakery brand of SPC, has continued its global marketing efforts by launching an advertisement in the heart of New York City's Times Square ahead of Christmas. This move comes after Paris Baguette had previously operated a Korean-language advertisement at the stadium of the French football club Paris Saint-Germain, with which it officially partnered in October.

SPC announced on Dec. 19 that Paris Baguette is promoting seasonal products, including cakes, through the advertising billboards in Times Square, Manhattan, New York, from the Dec. 13 to 25.

Earlier, on Dec. 1 to 3, the brand ventured into product exposure through local TV broadcast programs. Employees of Paris Baguette's U.S. branch appeared on a broadcast in the Los Angeles area, showcasing cakes and doughnuts. On Dec. 13, the head of Paris Baguette's U.S. branch appeared on a regional program of NBC, where they introduced the development story and features of the Christmas cakes.

Paris Baguette reported that, up to the second week of this month, cake sales in the U.S. have increased by about 10% compared to the same period last year in anticipation of Christmas.

Paris Baguette operates over 150 stores in North America and approximately 520 stores in 10 countries, including France and Cambodia. BK

# Celltrion Receives Approval in Japan for Phase 1 Clinical Trial of Cosentyx Biosimilar CT-P55

By Jasmine Choi


The sign outside of a Celltrion building

Celltrion announced on Dec. 18 that it has received approval from the Pharmaceuticals and Medical Devices Agency (PMDA) of Japan for a Phase 1 clinical trial plan (IND) for CT-P55, a biosimilar of the psoriasis treatment Cosentyx (active ingredient: secukinumab).

CT-P55 is a new autoimmune disease biosimilar pipeline of Celltrion. The company plans to conduct a Phase 1 clinical trial involving 171 healthy Japanese adults to compare the pharmacokinetic (PK) equivalence between Cosentyx, which is approved in Europe and the United States, and CT-P55.

With this clinical trial, Celltrion is set to commence clinical trials of the interleukin (IL)-17A inhibitor CT-P55, following its IL-12, 23 inhibitor Stelara biosimilar (CT-P43). The company aims to continuously expand its portfolio in the autoimmune disease treatment domain, from tumor necrosis factor alpha (TNF-α) inhibitors to interleukin inhibitors, to strengthen its market competitiveness. BK

# SK E&S Resumes Drilling Australian Gas Field after Being Obstructed by Aboriginal Opposition

By Michael Herh

A South Korean company's overseas gas field project, which had been suspended for nearly a year due to local opposition, has dramatically resumed thanks to intergovernmental cooperation.

The Australian Maritime Safety Authority approved an environmental license for SK E&S to drill an offshore gas field on Dec. 15 (local time), according to industry sources on Dec. 18.

As a result, SK E&S, an SK Group energy business affiliate, will soon be able to import LNG from Barossa Gas Field in Australia into South Korea. Barossa Gas Field, located off the coast of northern Australia, has more than 70 million tons of natural gas reserves, far exceeding South Korea's annual LNG consumption of 40 million tons. This is the first case of a private South Korean company developing an overseas gas field on its own.

Energy industry insiders expect that SK E&S will be able to directly import LNG at a reasonable price with a 20-year contract through the Barossa Gas Field Project. The company has invested 1.5 trillion won since 2012, including taking over a 37.5 percent stake in the gas field, and plans to start commercial production in 2025 going beyond the current process rate of 60 percent.

Drilling at Barossa Gas Field hit a snag in October last year when some Aborigines filed a lawsuit to invalidate the license, citing mythical tales. Local media outlets such as the Herald Sun pointed out that a superstition should not impede the project but Australia's ruling Labor Party was reluctant to mediate, citing the need to improve the status of the Aborigines.

In response, the South Korean government reportedly activated various diplomatic channels to support the project. In fact, Australia is a major exporter of not only LNG but mineral resources to South Korea. The two countries discussed this issue, including strengthening energy cooperation, when the South Korean minister of industry and the Australian minister of climate change and energy met in July, and continued their discussions through an energy cooperation meeting in Australia in October.

Since then, SK E&S has expanded the scope of public opinion collection, submitted data, and reapplied for approval for the project, which finally resulted in a drilling permit for the company last week, allowing the South Korean company to resume its work. "Going forward, we will directly import about 1.3 million tons of low-carbon LNG every year to increase South Korea's energy self-sufficiency," said an SK E&S official.

South Korea relies on imports for all of its LNG and was the third-largest LNG importer (46.38 million tons) behind Japan and China in 2022. BK

Barossa Gas Field off the coast of northern Australia, which SK E&S is developing

Venture capital firms look for investments.

## Number of 100-billion-won+ Venture Funds Reduced by 70% in 2023

By Michael Herh

Fundraising in the venture capital (VC) industry has completely frozen due to continued high interest rates. The number of large venture funds valued at more than 100 billion won, a barometer of a booming VC market, has fallen to just five in the first three quarters of this year. The figure was 17 in 2022 and 21 in 2021.

The number of large venture funds with more than 100 billion won in total capitalization fell to just five from January to September 2023, according to industry sources on Dec. 11. This is a year-on-year decline of 70 percent. Experts forecast that it will be a single digit for the first time in four years since there were only six in 2019.

Large venture funds are often seen as a barometer of venture investment and financial market activity. Large venture funds mainly invest in mid- to late-stage startups, and an increase in the number of large funds is a sign of a healthy market for recouping investment funds such as IPOs.

The number of large venture funds with more than 100 billion won had steadily increased since 2009 when Intervest, one of Korea's largest VC companies, first formed the New Growth Investment Cooperative.

However, industry insiders analyze this year as a year of an unprecedented slump. This is directly attributable to institutional investors putting a halt to venture investments. In particular, pension funds and mutual aid associations which are big players in venture investments invested only 107.6 billion won in venture funds in the first half of this year, 80 percent down from a year earlier.

Under these circumstances, the decline in the establishment of large venture funds is leading to a crisis of small and medium-sized VC companies. This is because large VC companies are ramping up the sizes of their venture funds as investor organizations are conservatively managing their funds and prioritizing investments in VC companies which have proven their excellent management capabilities. In fact, the number of large venture funds established in the first three quarters of this year plummeted but the total amount raised per fund was 324.3 billion won, up from 177 billion won in the previous year.

Most small and medium-sized VC firms have been unable to raise venture funds and have lost capital. This year, eight VC firms received corrective orders from the Ministry of SMEs and Startups for capital losses. This is the highest number since 2020. The number of newly registered VC firms also plunged from 42 in 2022 to 13 at the end of September 2023.

## Ministry of SMEs & Startups Holds Bilateral Talks for 'Korea-Saudi SMEs & Startups Cooperation Roadmap'

By Jasmine Choi


Minister of SMEs and Startups Young Lee meets with Sami bin Ibrahim Alhussaini, the head of the Saudi Small and Medium Enterprises Authority, at the SC Convention Center in the Gangnam district of Seoul on Nov. 7.

The Ministry of SMEs and Startups led by Minister Young Lee and the Saudi Small and Medium Enterprises Authority headed by Sami bin Ibrahim Alhussaini announced that they held bilateral talks in Seoul on Nov. 7 to discuss the establishment of the Korea-Saudi SMEs and Startups Cooperation road map.

The meeting took place in conjunction with Alhussaini's visit to South Korea to attend COMEUP 2023, the country's representative startup festival. This visit was a reciprocal gesture following Minister Lee's participation in the Saudi startup event, Biban, last March.

During the talks, the establishment of the South Korea-Saudi SMEs and Startups Cooperation road map was the central topic of discussion. This follows up on the discussions held last June in Riyadh, where Minister Lee, along with the Saudi Minister of Commerce Majid Al Qasabi and Alhussaini, agreed to strengthen long-term cooperation in the field of SMEs and venture businesses.

Minister Lee suggested, as part of the road map agenda, cooperation with local SME support institutions to ensure the successful operation of the Riyadh Global Business Center (GBC), which was inaugurated during President Yoon Suk-yeol's state visit to Saudi Arabia last October. On the Saudi side, there was an expression of hope that Korea would participate in the Entrepreneurship World Cup scheduled to be held in Saudi Arabia in 2024. Consequently, both institutions agreed to discuss concrete cooperation measures and schedules.

Additionally, the road map will include policies related to the Tech Incubator Program for Startup Korea and strategies to vitalize mutual market entry for SMEs from both countries. A second meeting for related discussions has been scheduled to take place next year in Saudi Arabia.

# 869 Venture Companies Surpass 100 Billion Won in Annual Sales

By Yoon Young-sil

The number of venture companies with annual revenue exceeding 100 billion won (US$76.8 million) last year reached the record high of 869, the highest figure in history. The growth rate also set a new record, achieving an unprecedented 17.6 percent increase, or 130 companies, compared to the previous year's 739 companies. The number of venture companies reaching 1 trillion won in revenue increased by 5 from the previous year, totaling 26.

The Ministry of SMEs and Startups announced the results of a survey on Nov. 27, examining the financial status at the end of 2022 based on sales of 127,851 companies that have received venture certification at least once since the implementation of the venture certification system in 1988.

Out of 869 companies, 674 have consistently exceeded the 100 billion won revenue mark for the second consecutive year since 2021, earning them the title of "Venture 100 Billion Won Companies." Notably, 134 new companies, including Team Fresh, Ably, and Mother's Pharmaceuticals, entered the Venture 100 Billion Won Companies list. Additionally, 61 companies, previously part of the list but excluded at some point, re-entered this year. Among the Venture 100 Billion Won Companies, 82 firms distinguished themselves by maintaining a revenue growth rate surpassing over 20 percent for three consecutive years, earning the distinguished title of "Gazelle Venture 100 Billion Won Companies."

When classified by sector, Venture 100 Billion Won Companies were most prevalent in general manufacturing at 39.1%, followed by advanced manufacturing at 35.4%, and general services at 12.3%. In more detail, the distribution was as follows: machinery, automobiles, and metals in the general manufacturing sector accounted for 24.9 percent; computers, semiconductors, and electronic components in the advanced manufacturing sector made up 16.9 percent; and food, textiles, non-metals, and other manufacturing in the general manufacturing sector constituted 14.3 percent. The average number of years in business was 20.6, with an average period of 18.2 to achieve 100 billion won in revenue after founding. Furthermore, the proportion of listed companies was 44.1 percent.

Venture capital firms look for investments.

When classified by industry, Gazelle-type Venture 100 Billon Companies were most prevalent in advanced manufacturing at 35.4 percent, followed by general services at 26.8 percent and general manufacturing at 22.0 percent. The average number of years in business of Gazelle-type Venture 100 Billon Companies was 16.4 years, shorter than the overall average. Particularly, the average number of years in business of Gazelle-type Venture 100 Billon Companies in Advanced Service sectors such as software was 9.2 years.

Twenty six venture companies joined the 1 Trillion Won Club in revenue, including Naver, Nexon Korea, Deutsch Motors, Celltrion, NCSOFT, L&F, Kakao, and Kakao Entertainment.

The total revenue achieved by Venture 100 Billion Won Companies amounted to 229 trillion won, representing a 16.5 percent increase compared to the previous year. When viewed as a single corporate group, it ranked between Hyundai Motor Group with 240 trillion won in second place and SK Group with 224 trillion won in third. In terms of employment alone, the total workforce stood at 320,000, marking a 6.8 percent growth compared to the previous year and surpassing the employment scale of Samsung Group with 274,000 employees.

Meanwhile, the Korea Venture Business Association launched the "Venture 100 Billion Won Club" to foster the venture ecosystem at the event. Through this initiative, the association plans to actively promote private-sector-led cooperation by facilitating regular networking for information exchange and collaboration, exploring support policies for scale-up venture companies, and fostering junior venture enterprises. BK

## NAEK Presents 7 Key Areas to Lead Korea in 2040 in Forum

By Michael Herh

Seven key areas have been proposed to lead Korea's future in 2040. On Nov. 14, the National Academy of Engineering of Korea (NAEK) hosted the Industrial Strategy for Tomorrow (IS4T) Forum at Josun Palace Hotel to share the results of its research on global future scenarios about 2040 and Korea's response strategies.

In 2018, the NAEK launched the Industrial Future Strategy Committee with the goal of strengthening the future competitiveness and sustainable growth of national industries. In June, through a scenario planning workshop attended by more than 100 members, the committee selected Artificial Super Intelligence, Energy & Environment, Future Mobility, Biomedical, Manufacturing & Farming, ICT Ecosystem, and Living Infrastructure as key domains to enhance the core competitiveness of national industries in 2040.

"It is no exaggeration to say that Korea is in the midst of a global crisis with stagnant economic growth, a demographic cliff, and uncertainties in international affairs," said Kim Ki-nam, chairman of NAEK and of Samsung Advanced Institute of Technology (SAIT). "It is imperative that Korea select key areas to focus on and the Korean government and Korean companies stick together and collaborate with each other."

"Depending on the future of technology and geopolitics, global leaders will change, and the direction of value transfers will also change," said Jang Seok-kwon, a professor emeritus at Hanyang University and chairman of the Industrial Future Strategy Committee. "Korea's presence and strategic position are not visible and Korea is moving away from the center of the future world. In order to overcome this, it is necessary to secure irreplaceability as well as a scenario-based vision strategy."


The Industrial Strategy for Tomorrow Forum at Josun Palace Hotel hosted by the National Academy of Engineering of Korea on Nov. 14.

"Korea is at a crossroads between a high jump and an endless fall," said Jang Woong-sung, head of the R&D Strategic Planning Division at the Ministry of Trade, Industry and Energy. "In order for Korea to become an irreplaceable innovation hub and partner in 2040, the nation needs to muster strength and wisdom and boldly find new growth paths."

As a follow-up project, NAEK plans to publish the Korea Industrial Future Strategy 2040 Report (tentative title) with specific action plans next year.

## Korean Researchers Develop Waste LFP Battery Recycling Tech

By Michael Herh

An increase in the use of electric vehicles (EVs) is increasing the number of waste batteries. Under these circumstances, Korean researchers have developed a new technology to recycle them in an eco-friendly way.

On Dec. 7, the Korea Institute of Geoscience and Mineral Resources (KIGAM) announced that researchers at KIGAM's Resource Utilization Research Center have successfully developed the world's first recycling technology for waste lithium-phosphate-iron (LFP) using a low-temperature dry method. As LFP batteries are expected to account for more than 55 percent of the world's electric vehicle batteries by 2030, it is imperative to develop recycling technology for waste LFP batteries.

Currently, most commercially available recycling technologies target nickel-cobalt-manganese (NCM) or nickel-cobalt-aluminum (NCA) batteries. The batteries are mechanically crushed, dried, sorted, and heat-treated in a series of complex steps. This process finally results in black mass in the form of graphite and black powder, which needs to be separated from graphite because recycling requires a black mass from which minerals can be extracted. However, the process of removing the graphite involves chemicals and water, creating slag and wastewater. Batteries are also crushed and then melted at 1,400 degrees in nitrogen or air to produce cobalt, nickel and copper alloys, a process that is not possible with LFP.

The new technology, on the other hand, can separate and recover more than 80 percent of black mass and graphite by shredding LFP waste batteries, then partially melting and sieving them, the researchers explained. Compared to the existing battery recycling process, the new way is much simpler. The absence of chemicals and water means that there is no sludge or wastewater. Carbon dioxide emissions can also significantly shrink because no nitrogen is required for melting and graphite can be separated by lowering temperature to 1,200 degrees, they added.


Lithium-ion batteries being sorted for recycling

"This technology can also be applied to NCM or NCA batteries," said Kim Byung-soo who orchestrated this research project. "It is easier to operate than the current process and has the advantage of low facility investment costs because it uses low temperatures. We will do our best to secure competitiveness in the eco-friendly resource business by advancing technology to increase the recovery rate of lithium compounds to high purity and actively transferring the technology to companies."

# KIER Develops Key to Hydrogen Economy: Ruthenium Catalyst for Ammonia Decomposition

By Michael Herh

Korean researchers have developed a world-class ruthenium (Ru) catalyst for ammonia decomposition that will accelerate production of clean hydrogen by extracting hydrogen from ammonia, the key to the hydrogen economy quickly and in large quantities. Above all, the world does not have a commercial process to produce high-purity hydrogen from ammonia in the world, and it is necessary to develop catalysts and reactors, which are core technologies.

"The catalyst developed by the Hydrogen Research Team uses half the amount of ruthenium than the existing ruthenium and adds cerium, showing the world's highest hydrogen generation rate (the amount of hydrogen produced by 1 gram of catalyst per hour or minute), which is expected to gain momentum in the production of clean hydrogen," said Lee Chang-keun, director of KIER.

Ammonia (NH3), a compound of nitrogen (N) and hydrogen (H), is the most promising hydrogen carrier because it remains liquid at room temperature and has a smaller volume than gas, making it easier to store and transport in large quantities. In addition, the transported ammonia can be decomposed and the hydrogen can be utilized as a fuel again, so ammonia's status is rising alongside hydrogen.

In order to increase the decomposition efficiency of ammonia, it is necessary to effectively recombine and desorb nitrogen. Currently, ruthenium shows the best activity, but due to its scarcity, high cost and low activity at low temperatures are problems. Therefore, it was necessary to develop a catalyst with high activity and excellent durability at low temperatures.

A member of the Hydrogen Research Team led by Koo Ki-young at the Korea Institute of Energy Research holds a ruthenium catalyst with cerium in a bottle.

By introducing cerium (Ce) as a promoter, the researchers developed a world-class low-cost, high-activity catalyst optimized for ammonia decomposition using only half the amount of ruthenium. This makes the catalyst manufacturing method highly reproducible and practical and is expected to be able to be mass-produced.

"Cerium was added to the surface of a magnesium aluminate (MgAl2O4) catalyst support with high chemical resistance and mechanical strength, and a small amount of ruthenium was evenly dispersed on the surface of a support in a monatomic size," the researchers explained.

"The cerium added as a promoter provides an abundance of oxygen vacancies on the catalyst surface: The oxygen vacancies interact with ruthenium to increase the electron density [the total amount of charge present in a certain volume of the catalyst] which makes the ruthenium catalyst weaker in the bonding of nitrogen and hydrogen atoms and at the same time facilitate a recombination of nitrogen atoms, thus dramatically boosting ammonia decomposition and hydrogen generation rates."

As a result, the catalyst developed by the researchers showed the world's highest hydrogen production rate (27.4 mmolH2/gcat-min) at a low temperature of 450oC, despite having half the content of conventional ruthenium catalysts and a hydrogen production rate eight times higher than a cerium-free catalyst (Ru/MgAl2O4).

The research was supported by the Ministry of Trade, Industry and Energy's Renewable Energy Core Technology Development Project. The results of this study were published in Applied Catalysis B: Environmental (IF 22.1 and the highest 0.9 percent), a prestigious journal in the field of catalysis and materials.

# K-Beauty Triumphs in Japan, Surpassing France with Effective Cost Strategies

By Choi Mun-hee

K-beauty companies are gaining tremendous popularity in the Japanese market, surpassing beauty powerhouse France. Leveraging cost-effectiveness and product quality, these companies are showcasing their presence across both online and offline markets, offering a range of products from basic skincare to makeup.

According to the Cosmetic Importers Association of Japan on Dec. 12, the market share of South Korean cosmetics in the Japanese imported cosmetics market stood at 23.4 percent last year, securing the top position. It surpassed France with 23.0 percent. In the first half of this year, the market share further increased to 25.6 percent, widening the gap with France, which recorded 22.6 percent.

The brands making significant strides in Japan are mostly small and medium-sized enterprises. With a growing interest in K-beauty among the younger generation in Japan, there is a notable trend of preferring cost-effective products from small and medium-sized beauty brands.

Representative small brands include TIRTIR, known for its best-selling product “Mask Fit Red Cushion,” Laka Cosmetics operating the makeup brand “Laka,” and Manyo Factory, which made its debut on the KOSDAQ in June.

According to the Ministry of Food and Drug Safety, the size of the Japanese cosmetics market ranks third in the global market, following the United States and China. South Korean cosmetic companies have been experiencing an annual growth rate of over 27 percent in their exports to Japan.

The rapid progress of small companies is prompting large enterprises to bolster their strategies for the Japanese market. According to LG Household & Health Care, it recorded a remarkable sales growth rate of 300 percent in just about six months after it launched cosmetics products on “Qoo10.” Amorepacific’s business in Japan achieved over 30 percent year-on-year sales growth in both the second and third quarters of this year.


K-beauty refers to the collective of Korean beauty brands and styles popularized by Korean pop culture's international appeal.

# Tving, Wavve to Merge: New Challenger to Netflix?

By Jasmine Choi

Tving and Wavve are both online streaming services.

CJ ENM’s over-the-top (OTT) media platform Tving and SK Square’s Wavve are set to merge. Discussions of the merger between the two companies began in 2020 but had not progressed due to differing views on the specifics. However, discussions have recently accelerated.

The merger of Tving and Wavve is anticipated to create a domestic OTT platform capable of competing with Netflix, which currently holds the number one market share in the South Korean OTT market.

As of Nov. 29, investment banking industry sources revealed that CJ ENM and SK Square are planning to sign a memorandum of understanding (MOU) for the merger of their OTT platforms, Tving and Wavve, in early December. Following due diligence, the companies aim to sign a formal contract early next year.

CJ ENM is expected to become the largest shareholder of the merged entity, with SK Square as the second largest shareholder. Currently, CJ ENM holds 48.85% of Tving, while SK Square owns 40.5% of Wavve. Major shareholders of Tving, including Naver, SLL Central, KT Studio Genie, and major shareholders of Wavve, such as the terrestrial broadcasters SBS, MBC, and KBS, are also discussing whether to remain shareholders in the merged company.

The merged company will emerge as the leading OTT business in South Korea. Tving’s Monthly Active Users (MAU) count is 5.1 million, while Wavve has 4.23 million. Combined, the merged entity’s MAU would exceed 9 million. Even after excluding overlapping subscribers, this surpasses the domestic OTT leader Coupang Play (5.27 million) and closely follows Netflix (11.37 million).

A Tving representative stated, “We are discussing various cooperation methods, including strategic alliances, to strengthen our competitiveness as an OTT platform,” but also added, “Nothing has been finalized yet.”

However, the merger of Tving and Wavve still faces challenges. It must pass the scrutiny of the Fair Trade Commission’s corporate combination review. With Tving and Wavve’s combined market share exceeding 30%, there are predictions that they might face regulatory challenges.

# Korean Ramen Enjoys Unprecedented Global Popularity in 128 Countries

By Choi Mun-hee

A steaming hot bowl of ramen

This year marks the 60th anniversary since the release of ramen in Korea, and its export revenue has exceeded 1 trillion won for the first time in history.

According to the trade statistics from the Korea Customs Service on Dec. 10, the export revenue of ramen from January to October this year reached US$785.25 million (1.04 trillion won), showing a significant increase of 24.7 percent compared to the same period last year. This signifies the ninth consecutive year of achieving the highest export revenue since 2015. Industry experts estimate that the actual export revenue for January to October is likely to exceed 2 trillion won when considering the volume produced in overseas factories and sold in the local markets.

Analysts attribute the sharp increase in ramen exports to the confluence of the COVID-19 pandemic and the popularity of Korea-related content in the market. A representative from the ramen industry said, "During the course of the COVID-19 pandemic, overseas sales have increased significantly," adding, "As people mainly eat at home, they have come to appreciate the advantages of Korean ramen as a suitable meal option compared to ramen from other countries." Additionally, the growing content related to ramen on social media services and the widespread popularity of K-culture, including K-dramas, K-pop, and K-beauty trends, have contributed to heightened interest in the familiar Korean dish ramen.

The popularity of Korean ramen is credited to its unique features, notably an exceptionally spicy flavor that may be unfamiliar to foreigners, allowing it to stand out. Furthermore, its affordability and convenience compared to other instant foods make it easily accessible.

Ramen is exported to 128 countries, approximately two-thirds of the world's 200 countries. In terms of export revenue, China leads with US$174.45 million, followed by the United States with US$107 million, Japan with US$48.66 million, the Netherlands with US$48.64 million, and Malaysia with US$39.67 million. It enjoys popularity across major continents, including the Philippines with US$30.90 million, Australia with US$30.16 million, Thailand with US$30.07 million, and the United Kingdom with US$29.80 million.

Looking at individual companies, Nongshim, the industry leader, had the highest export revenue to Japan this year. However, Nongshim operates production facilities in countries like China and the United States, leading to larger local sales volumes in those regions.

Samyang Foods manufactures its products exclusively in the domestic market, with the highest export revenue coming from China, followed by Southeast Asia and the United States. In Southeast Asian countries, active sales were noted in Malaysia, Thailand, Vietnam, and Indonesia. The "Buldak Bokkeum Myeon," or fire chicken stir-fried noodles, stands out as the best-selling product across all nations. Ottogi, similarly, produces over 90 percent of its goods domestically and exports them. The highest sales come from China and the United States, with a notable trend of rapid growth in sales across Southeast Asia, particularly centered around Vietnam. "Jin Ramen, Mild Flavor" is currently leading in popularity.

# Korean Kimchi Takes Its Place on Tables in 93 Countries

By Choi Mun-hee

This year marks the first time that the number of countries importing Korean kimchi has surpassed 90. The global popularity of Korean kimchi, often attributed to the Hallyu wave and health trends such as vegetarianism, is leading the way in showcasing K-food on the international stage.

According to the Korea Customs Service on Nov. 21, on the eve of "Kimchi Day" on Nov. 22, the number of countries importing Korean kimchi has reached 93 as of October this year, marking the largest scale in history. Compared to a decade ago in 2013 when the number was 61, it has increased by approximately 50%. The total export value of kimchi until October stood at US$130.59 million. An official from the Korea Customs Service stated, "If the current growth trend continues until the end of the year, we are likely to surpass the previous record of US$159.92 million set in 2021."

By country, Japan ranked first with exports totaling US$52.84 million, followed by the United States with US$33.31 million, the Netherlands with US$6.14 million, the United Kingdom with US$4.94 million, and Hong Kong with US$4.90 million. The proportion of kimchi exports to Japan decreased from 73.8% in 2013 to 40.5% as of October this year. During the same period, the share of kimchi exports to the United States increased from 5.5% to 25.5%, reflecting a diversified export landscape. In the United States, kimchi, once available only in Korean markets, has expanded its presence to major local retailers such as Walmart and Costco.

The surge in kimchi exports can be attributed to the increased exposure of kimchi-eating scenes in Korean movies, dramas, variety shows, and other media. As these cultural exports gained popularity, the number of foreigners wanting to experience eating kimchi significantly rose. Additionally, the global rise in preference for vegetarianism has contributed to positioning kimchi as a "healthy food," garnering increased attention on the international stage.

Professor Moon Jung-hoon from the Department of Agricultural and Resource Economics at Seoul National University commented, "There seems to be a cultural aspect influenced by K-content, where individuals, inspired by their favorite idols or actors seen eating certain foods, feel the urge to try those foods themselves."

In a survey conducted by the Korean Food Promotion Institute from September to October last year, targeting 9,000 locals across 16 countries and 18 cities, 38.3% of respondents mentioned kimchi as the first dish that comes to mind when thinking of "Korean food." In a separate survey among those with experience in consuming Korean cuisine, the most favored Korean dish was "Korean-style chicken" at 16.2%, followed by "kimchi" at the second spot with 12.5%.

Among the driving factors behind the globalization of kimchi, one cannot overlook the efforts of domestic companies that have focused on building logistics networks and localization. Currently, "Jongga," Korea's No. 1 kimchi brand owned by Daesang Group, for instance, has expanded its presence to over 60 countries, including the Americas and Europe.

Kimchi ready for serving

A representative from the ramen industry said, "In the Asian region, more than 80% of the exported quantity is consumed by locals, indicating a growing popularity. Additionally, there is a rising trend of locals in Western regions such as the Americas and Europe seeking out kimchi."

Efforts to establish "Kimchi Day" are underway in various countries. Kimchi Day was designated as a legal holiday in 2020 to promote the value and significance of kimchi. It is celebrated annually on Nov. 22, symbolizing the combination of 11 kimchi ingredients that yield more than 22 health benefits.

According to the Ministry of Agriculture, Food and Rural Affairs and the Korea Agro-Fisheries & Food Trade Corporation (aT), as of now, certain regions in three countries -- the United States, Brazil, and the United Kingdom -- along with Argentina have designated November 22 as Kimchi Day.

In the United States, after California designated Kimchi Day in August 2021, states such as Virginia and New York followed suit. In Brazil, Sao Paulo established Kimchi Day in June. Furthermore, Royal Borough of Kingston Upon Thames in the United Kingdom became the first in Europe to designate Kimchi Day in July.

Kim Chun-jin, president of aT, stated, "The proposals for the establishment of Kimchi Day in various countries include content highlighting Korea as the birthplace of kimchi and the UNESCO designation of 'kimjang' as an intangible cultural heritage of humanity. We will leverage this opportunity to increase the export of kimchi that suits the preferences and tastes of people worldwide, enhancing the value of K-food." "Kimjang" refers to the traditional process of making and storing kimchi in preparation for the winter months in Korean culture.

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## ANNIVERSARY OF IFEZ

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