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Reshuffling Value Chains South Korea as a Case Study

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Center for Asian
Studies



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Abstract

Despite all the talks about the reshuffling of GVCs and the trend to a form of industrial “Desinicization” (disengagement and decoupling from China), the example of South Korea does not vindicate these assertions.

The expansion of Korean ODI in neighboring countries such as China and ASEAN remains a reality and it has not changed in any fundamental way over the past two decades. Korean companies’ decisions to locate in one country rather than another are still very much based on cost factors, even if security considerations are increasingly factored in.

Similarly, reshoring, which has been high on the South Korean government’s agenda for a long time, remains a marginal phenomenon for South Korean companies, despite the incentives provided.

Rather than the relocation of production (in the form of reshoring or nearshoring) South Korean companies have turned to more unexpected and complex options, such as the development of complementarity-based partnerships or vertically-integrated production networks with commodity suppliers, as in the case of the production of rare earth-based magnets. Such a strategy is likely to become more popular in the future, as it nicely combines economic and security considerations.

Without a doubt, due to the highly politicized nature of the technology involved, the semiconductor industry is the one undergoing the most significant changes. In a context of rising Sino-US rivalry, the US has ramped up pressures on China with far-reaching consequences, leading South Korean semiconductor companies (with the support of the government) to engage in a strategy combining relocation to the US and onshoring in South Korea.

While the economic logic is likely to prevail in most sectors thus limiting the scope for supply chain reshuffling, the examples of the semiconductor and RE-based magnets suggest that important changes can still be expected in the future in industries that are deemed strategic.

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Introduction

The world economy is currently witnessing a profound reorientation of the geography of production, investment and trade, as companies explore new forms of organization to respond to a set of challenges, including the need to reduce their vulnerability to geopolitical tensions, to adapt to changing policy landscapes, to meet new demands related to sustainability, and to exploit the potential of digital technologies.¹

Cross-border supply chains, as one of the main features of a globalized economy, were long perceived unanimously as positive developments. This organization of production, based on the full exploitation of comparative advantages, led to the so-called fragmentation of production and the emergence of global value chains (GVCs) that could shift from one place to another based on shifting comparative advantages. While GVCs used to be based on efficiency considerations, in a context of heated great-power rivalry, the rise of security concerns has changed the calculus. Over the past few years, national “economic security” has become a buzzword in the lexicon of global administrations.²

The emergence of this concept can be accounted for by two main developments, which reflect overall disappointment with economic globalization as it has prevailed so far. Until recently, globalization was deemed to be economically optimal (because it was based on cost-efficiency) and politically desirable (because it was thought to contribute to peace), but these two points have become increasingly challenged.

First, some doubts started to emerge about the unequivocal advantages of globalization. Public authorities realized that globalization was often associated (at least in developed economies) with deindustrialization, hollowing out of the manufacturing basis, and jobs lost to low-wage countries, potentially a source of social costs. Initially, little attention was paid to such considerations by the business sector, for which economic and cost considerations prevailed. Over time, however, these actors found out that fragmented production processes were prone to disruptions that could generate vulnerabilities, and potentially raise costs. To be sure, so long as the disruptions were thought to be temporary (as when they are triggered by some form of natural disaster), they were not perceived as all that serious, were quickly brushed aside and did not result in a reorganization of

1. G. Huiwen et al., *Cambridge Journal of Regions, Economy and Society*, Vol. 15, 2022, pp. 165-181.

2. J. C. Heo, “Geopolitical Risk in the Era Of U.S.-China Strategic Competition and Economic Security”, *World Economic Brief, KIEP*, Vol. 12, No. 35, August 2022.

the production processes. The limited changes induced by the Fukushima nuclear accident and the flooding in Thailand in 2011 are good illustrations of this line of reasoning. The Covid-19 pandemic and the magnitude of the disruptions in supply chains associated with the lockdowns imposed in response resuscitated and amplified the concerns. The crisis laid bare the vulnerabilities resulting from vertically integrated supply chains and called for means to reduce them, be it through reshoring, diversifying suppliers or relocating production in what were deemed safer places. As a result, there was a gradual convergence of views between the public and private sectors about the downsides of globalization and the costs in terms of security of the supply chains.

A second, and probably more important, development is the realization that such disruptions in the supply chains can also be the result of deliberate and malicious maneuvering. The conviction that globalization would provide protection against conflict, because the tight interdependencies associated with it would act as powerful deterrents to engage in a conflict,³ became deeply questioned. In a context of intensifying technological and economic rivalry, the security of supply chains, which was almost exclusively perceived as a technical problem (to be solved by companies), has become a geopolitical problem. Far from being a guarantee of peace, globalization can be turned into an instrument of war, because economic interdependencies can be easily weaponized. Furthermore, overdependence on China is increasingly perceived as a source of concern, and even a threat, because of the perceived risk of weaponization. In this context, companies have become wary of supply-chain overreliance on China—“the world's factory”—and are implementing or considering “China plus one” strategies aimed at building production across multiple markets.

These various developments mean that the “economics trumps geopolitics” era may have drawn to a close. The decisions to relocate production and reorganize value chains are no longer the result of pure economic calculations; countries and companies now need to recalibrate their strategies to adapt to this new context, factoring in geopolitical considerations. Some technical changes such as digitalization may also make previously costly adjustments possible.

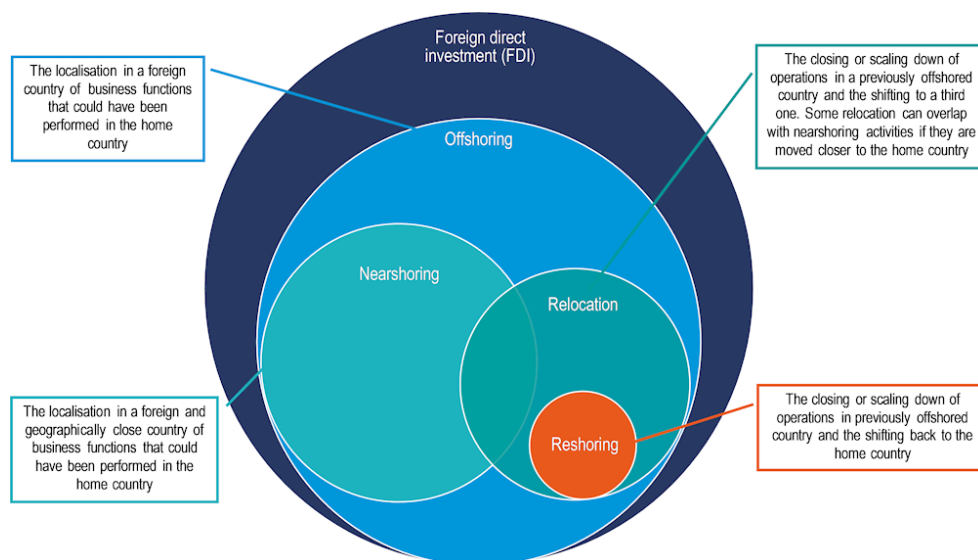
East Asia is probably the region in which globalization has developed in the most dramatic manner. It is well known that parts, components and intermediate goods account for the bulk of intra-East-Asian trade, with China importing such goods from neighboring countries (especially from Japan, South Korea and Taiwan), and that intra-East-Asian trade is essentially intra-industry trade resulting from processing activities. In East

3. Actually, the experience of the First World War should have led us to be more cautious or less hopeful. Before the war, economic interdependencies were quite deep, but this did not prevent the war from breaking out.

Asia, GVCs tend to be to a large extent Sino-centric. In the past few years, however, several developments have occurred which may have brought about changes in the strategic calculations by both countries and companies, leading to a reshuffling in the GVCs, and potentially to a reduction in the central role of China.

The various options open to companies involved in such reshuffling of GVCs can be illustrated as follows.

Figure 1: Localization strategies



Source: OECD, 2020⁴

South Korea, whose economic development heavily relied on its participation in complex cross-border supply chains, and whose economy is tightly intertwined with that of China,⁵ provides an excellent case study to examine the dynamics in the potential reorganization of value chains.

The objective of this paper is to analyze these adjustments (in the form of relocating, reshoring, nearshoring or onshoring strategies), to assess their magnitude, and to identify their drivers, using South Korea as a case study. To that end, it will appraise the relative importance of public policies and private-sector calculations, but also highlight the potential role of external factors, and finally outline further options going forward.

4. OECD, "Production Transformation Policy Review of the Dominican Republic – Preserving Growth, Achieving Resilience", *OECD Development Pathways*, OECD, 2020, available at: www.oecd-ilibrary.org.

5. While manufacturing inputs for China make up over 3.6% of every major nation's manufacturing output, in the case of Korea the number is over 16%. See Leipziger, Danny and Yusuf Shahid, "Global Supply Chains in a Post-Covid Multipolar World: Korea's Options", *Policy References*, 2022, KIEP 22-03.

Relocating vs. Reshoring: Economics Prevails

Relocating Away from China

Korea has been heavily involved in globalization, and its economic development has depended on its ability to make the best of regional complementarities. Over time, South Korean companies have consistently rethought their localization strategies in order to adjust to changes in their economic environment and to preserve their competitiveness.

Preserving Competitiveness as a Priority...

In the first decade of the 21st century, the offshoring phenomenon of South Korean companies venturing overseas (and more precisely in Asia) was focused mainly on China.⁶ After China's accession to the World Trade Organization, in 2001, South Korean multinationals began to offshore parts of the manufacturing process to China with a view to enhancing competitiveness.⁷

Figure 2: Korean manufacturing investment in Asia



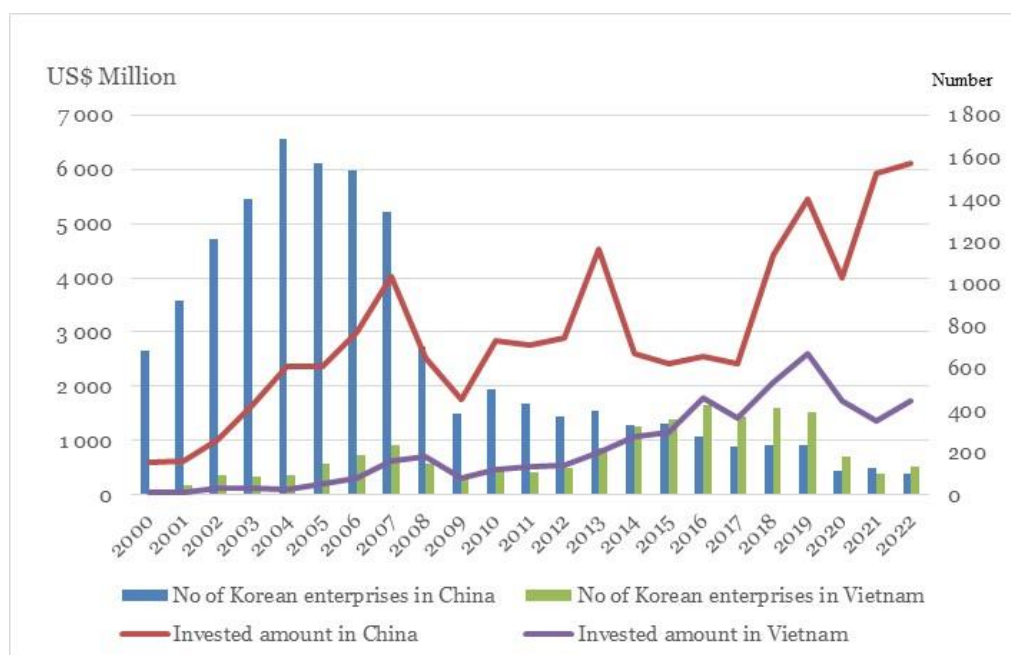
Source: Kexim Bank

6. F. Nicolas, "Korea and the Dual Chinese Challenge", *CNAEC research series*, Seoul: KIEP, 2005, 05-01.

7. M. E. Lovely and A. Dahlman, "South Korea Should Prepare for its Exposure to China-US Technology Tensions", *PIIE Policy Brief*, July 2022, 22-8.

In the 2010s, South Korean multinationals began reducing their Chinese investments and diversified into Southeast Asian countries, whose workers were (and still are) several times cheaper to hire than those in China. South Korean companies have placed a heavy focus on Vietnam, which offers some of the best quality-to-cost ratios as an offshore destination. But South Korea's active involvement in Vietnam may be accounted for by several other factors. First, South Korea's post-China strategy of manufacturing offshoring has intertwined with Vietnam's inward foreign investment strategy.⁸ In addition to relatively cheap labor costs, the overseas relocation of South Korean companies has been boosted by local government policies aimed at wooing foreign investors. In Vietnam, such investor-friendly reforms include the offering of factory lots nearly free of charge.

Figure 3: Korean manufacturing investment in China and Vietnam



Source: Kexim Bank <https://stats.koreaexim.go.kr>

Also, although the primary motive for relocation in Vietnam was cost reduction, the country's proximity with China helped as it gave manufacturers the ability to integrate the region more seamlessly into their existing supply chains.⁹ As a result, Korea ranked among the top foreign

8. Y. Koo and S. Kim, "Follow Sourcing' and the Transplantation and Localization of Korean Electronics Corporations in Northern Vietnam", *Area Development and Policy*, 2022, DOI: 10.1080/23792949.2022.2058569.

9. Southeast Asian countries cannot match China's deep, integrated supply-chain network.

investors in Vietnam, surpassing Japan after 2014.¹⁰ As it can be seen in Figure 3, the number of Korean companies operating in Vietnam rose in line with the invested amounts, reflecting a relatively low level of concentration.

Samsung Electronics sticks out as the classic example of a South Korean company closing or scaling down operations in China and relocating in Vietnam. The company's decision to diversify significantly into Vietnam started as early as 2008¹¹ and, by 2017, Samsung accounted for nearly a quarter of Vietnam's exports. The company has consistently ranked as a top 10 foreign investor in Vietnam over the past decade. Today Samsung is undeniably the largest FDI investor in Vietnam, with a total capital amount of nearly US\$19 billion, 32 times larger compared to the starting point. Around 60% of Samsung's smartphones are now made in Vietnam.

In the case of Samsung, beyond rising production costs, another reason for moving out of China was rising competition from local producers and the Korean company's inability to adjust to local demand.¹² While Samsung held close to 20% of the Chinese mobile-phone market in 2014, its market share dropped to a measly 2% in 2018 and to 0.6% in 2022. As of 2020, Samsung had virtually disappeared from the Chinese mainland market. Given such trends, Samsung decided to relocate all of its manufacturing capacity for final consumer goods outside of China. After shutting down its TV manufacturing plant in Tianjin in 2018, the company closed its last phone factory, located in the southern city of Huizhou in 2019.¹³ Currently it maintains only three factories in China, making intermediate parts: semiconductor chips, batteries for electric cars, and multi-layer ceramic condensers that stabilize electricity flow in circuit boards.¹⁴

In terms of supply-chain segments, what Samsung moved to Vietnam was the production of simple components (audio, video, printed circuit boards) and assembly. In other words, the "Made in" label was switched from China to Vietnam as the latter took over the lowest segments of the production part of the value chain.

10. According to statistics from the General Statistical Office, Singapore took the lead in 2020, accounting for 31.5% of Vietnam's total inward FDI flows, while Korea and mainland China were the runner-up countries, comprising 13.8% and 8.6%, respectively. For more details see Truong, Quang Hoan, "Vietnam's Global Value Chains Participation and Policy Implications for South Korea-Vietnam Economic Cooperation", *World Economy Brief*, KIEP, Vol. 12, No. 37, September 13, 2022.

11. On March 25, 2008, Samsung Electronics Vietnam was granted its first Investment Registration Certificate (IRC), with a registered investment capital of US\$670 million.

12. Analysts often point to Samsung's lack of strategic awareness and understanding of the market in Tier III and IV cities in rural China.

13. This used to be Samsung's biggest company in China, producing a fifth of all smartphones sold in the country.

14. K. Lee, "China's Loss can be Southeast Asia's Gain", *Project Syndicate*, October 11, 2021, available at: www.project-syndicate.org.

Another (more recent) destination favored by South Korean companies is India.¹⁵ In 2018, Samsung opened what it called “the world’s largest mobile factory” in Noida, a city near New Delhi, in an attempt to compete with Chinese producers such as Xiaomi. The new plant is meant to help the company double its annual capacity in the country.

Of course, Samsung is not the only Korean company that chose to relocate in Southeast Asia or India. Such an option was also considered by various labor-intensive companies whose China-based activities had become less cost-effective as wages kept rising in China. For instance, Korean garment producers, such as Cotton Club, moved away from China to the Philippines, Cambodia and Indonesia.¹⁶

More recently, several South Korean companies also chose to relocate to Vietnam to diversify supply chains beyond China, after widespread disruption globally when the novel coronavirus first struck in the world’s manufacturing powerhouse. Although economic considerations remain dominant in these decisions, they may, to some extent, be combined with political factors.

Interestingly, the role of government policies has been rather limited in explaining these relocation strategies. The New Southern Policy (NSP) launched by the Moon Jae-In administration aimed at encouraging such relocation of production in ASEAN (Association of Southeast Asian Nations) and India, but by simply providing a general direction without opting for explicit incentivization (or subsidization).¹⁷ As a confirmation, the observed move largely predates the implementation of the policy.

... but China Remains an Attractive Location

As can be seen in Figure 2, as of 2009 there is a relatively high correlation between Korean manufacturing investment flows to ASEAN and China. Moreover, Figure 3 suggests that, except for the period 2014–2017, there has not been a dramatic drop in Korean overseas direct investment (ODI) in China in parallel to the rise in Vietnam-bound investment. In other words, a massive diversion of Korean capital away from China and towards ASEAN has yet to take place.

In addition, insofar as the relocation of production away from China is happening, it is mostly confined to a limited number of sectors or to a narrow set of mostly labor-intensive activities. Furthermore, the drop in the

15. R. Kumar, “The Supply Chain Diversification and India–South Korea Cooperation in a Contested East Asia in the Post-COVID-19 Era”, *The Journal of Indian and Asian Studies*, Vol. 2, No. 2, 2021.

16. K. Lee, “China’s Loss Can be Southeast Asia’s Gain”, *op. cit.*

17. This is in sharp contrast to Japan which has earmarked US\$2.2 billion of its record economic stimulus package to help its manufacturers shift production out of China as the Covid-19-associated crisis led to disruptions in the supply chains between the major trading partners.

number of companies investing in China has not been accompanied by a parallel drop in the amounts invested, suggesting that the degree of concentration is now much higher than before.

China's supply-chain partners have not completely written it off, and China's share of global manufacturing has been consistently on the rise since the early 2000s. As stressed earlier, China appears to be still irreplaceable when it comes to the middle part of the production chain and intermediate goods¹⁸ and for some specific activities. Moreover, although the Chinese business environment may have become more complex (and even to some extent more hostile to foreign investors), the Chinese market remains extremely attractive, and producing "in China for China" remains a relevant strategy for foreign companies.

Lastly, China's attractiveness is also due to the fact that few countries can match the absorptive capacity, the infrastructures and the deep pool of skilled labor offered by China. As a result, South Korean companies may be scaling down their activities to reduce their exposure, but without leaving China altogether, engaging in a so-called China+1 strategy. All this suggests that economic and market considerations still prevail in South Korean companies' calculations.

Reshoring, a Government's Strategy

The 2013 U-Turn Law: Limited Success

As explained earlier, governments' discontent with globalization, and in particular the perceived risk of hollowing out of manufacturing industries, underlies attempts to attract them back home, i.e. to engage in reshoring. Reshoring refers to the opposite of offshoring, where firms leave their original country and decide to produce and manufacture their goods in different foreign countries, primarily out of cost-efficiency considerations. Reshoring corresponds to a situation where firms return the production and manufacturing of goods to their country of origin.

Reshoring constitutes a standard way of achieving some degree of economic security. While it has become increasingly popular lately in light of the supply-chain issues brought on by the pandemic, in the case of South Korea this strategy predates the pandemic. It was initially put in place primarily because the government feared that the shifting of industrial production and investment overseas might be causing employment and growth to drop off at home.

18. Korean companies' activities in China tend to be increasingly concentrated in high-tech manufacturing industries such as semiconductors and electric vehicles. See Hyun *et al.*, "Strategies of Multinational Companies Entering China in the Era of U.S.-China Competition and Implications for Korea", World Economy Brief, Vol. 13, No. 7, February 28, 2023.

The Korean government began to introduce support measures to facilitate the reshoring of manufacturing companies as early as 2012. In June 2013, the Act on Supporting the Return of Overseas Korean Enterprises, also known as the U-Turn Act, was passed by the National Assembly. In addition, the Korean government founded the Reshoring Support Center and planned to provide reshoring businesses with incentives similar to those provided to foreign-invested companies.¹⁹

The objective of the policy was to facilitate the return of manufacturing companies, thus reinforcing manufacturing industries, and creating jobs. To that end, the government provides incentives in the form of reductions in corporate tax, income tax and customs duty. To be more specific, companies looking to relocate are eligible to have their corporate taxes waived for the first five years, with an additional 50% cut offered for two consecutive years after that. But corporate tax exemption is only for those companies that relocate to other regions outside the area of the capital Seoul. The government also offers support covering part of the reshoring investment costs. For instance, subsidies are granted for land, equipment and employment, but there is no support for Research and Development (R&D) activities.²⁰ Reshoring companies are given an investment subsidy and job creation grant worth up to 30 billion won (US\$23.5 million).

In the initial Act, the definition of U-Turn companies is rather restrictive. Companies are acknowledged as reshoring firms only when they reduce, settle or hand over at least 25% of their overseas establishment and build or add a facility that can produce the same products at home. Businesses in advanced technology and key supply-chain sectors are exempted from reducing overseas operations, but outsourcing companies were excluded.

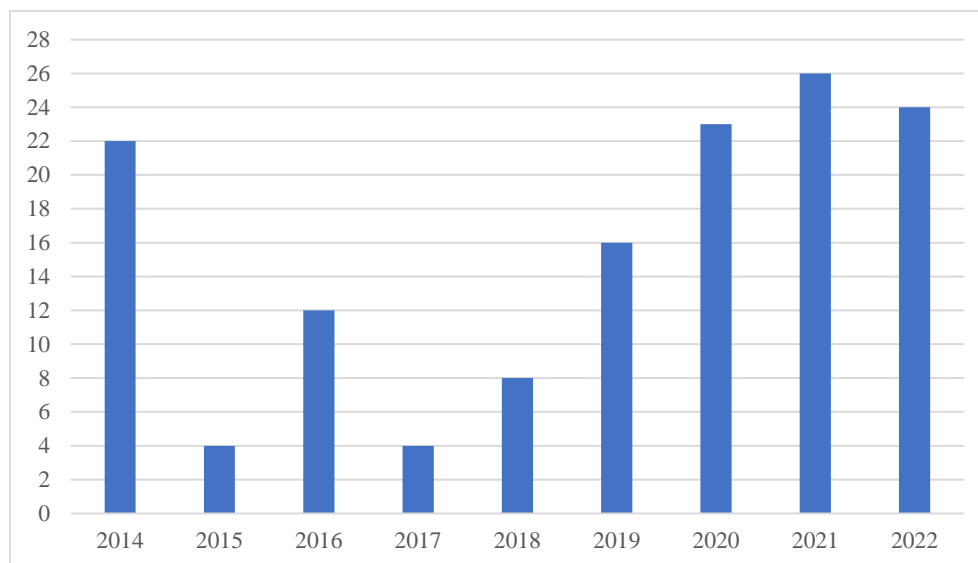
One year after the law was passed, industries asked for a relaxation of regulations and for a broader definition of “U-Turn companies” that would include “outsourcing” companies. Moreover, they argued that the required percentage of how much business sites in foreign countries need to be reduced should be lower than the initially required percentage (25%).

As might be expected, these restrictive provisions were not enough to encourage Korean companies to consider moving back. According to the Ministry of Trade, Industry and Energy (MOTIE), on average only around 10 companies returned every year between 2014 and 2018 (Figure 4), and South Korea’s reliance on external supply chains has only deepened since 2013.²¹

19. K. Kim, “Korea’s Reshoring Policy Far from Effective”, *The Korea Herald*, October 23, 2017, available at: www.koreaherald.com.

20. H. Choi, “Innovation and its Implications for Reshoring”, *KIEP Opinion*, KIEP, February 13, 2019.

21. M. Szczepanski, “Resilience of Global Supply Chains – Challenges and Solutions”, *European Parliament Briefing*, European Parliament Research Service, November 2021.

Figure 4: Number of Korean reshoring companies

Source: Ministry of Trade, Industry and Energy

Korea's experience suggests that a government's policy can do only so much, and that the ultimate reconfiguration of supply chains is dependent upon how private companies assess their risks and respond to the incentives provided by governments.

Explaining the Failure of Korea's Reshoring Policy

In contrast to the US and Japan,²² Korea has been less successful in reshoring despite its government's efforts, and its reshoring policies have often been criticized for their ineffectiveness. The proportion of negative evaluations of the Korean government's reshoring policies was reported to be more than double the proportion of positive evaluations.²³ To be fair, compared to the US in particular, Korea's disadvantage arises, in the main, from the smaller size of its domestic market. But there are other reasons that may account for the failure of the strategy.

The primary reason is that the strategy was ill-targeted. Reshoring was actively pushed by the government without taking the interests of the business sector into account. This is a classic example of the gap that may exist between government and business interests. Security (or other political) considerations (which prevail in governmental calculations) rank

22. The US and Japan have managed to obtain more positive results from policies that encouraged the reshoring of firms.

23. K. Lee and T. Park, "Changing GVC in Post-Pandemic Asia: Korea, China and Southeast Asia", *Working Paper Series*, No. 144, Institute of Economic Research, Seoul National University, October 2021.

behind economic and profitability considerations in companies' calculations, and they may not be defined in the same way.

In a survey conducted by the Korea Economic Research Institute (KERI) in 2018, 16.7% of businesses said they had no intention of reshoring due to high wage costs in Korea. This was the second-most-cited reason for not considering relocating, after the need to have a physical presence in overseas markets to grow business there, at 77.1%.

Also, governments cannot easily dictate companies' behaviors. Proximity to customers and markets, eco-system synergies and the impact on the domestic economy are all reasons why manufacturers want to move production back to their home countries. But these are not elements that can be easily influenced by government measures.

As a matter of fact, the very relevance of such a reshoring policy may be questioned. First, one may wonder whether it makes sense to reshore while the most important industries are embedded in regional (Asian) production networks and need to be optimized within a regionalized production system. What the government should aim at is getting back high value-added, rather than any kind of, activities. Instead of policies that are about unconditionally offering support to U-Turn businesses, it would probably be more appropriate to design selective reshoring policies that can boost high value-added production from a global value-chain perspective.

Secondly, some have also raised questions about the nature of the returning businesses, contending that marginal businesses that have failed to compete in China, Vietnam or elsewhere may return to South Korea exclusively to avail of government assistance.²⁴

Lastly, and perhaps more fundamentally, for an export-oriented economy like Korea,²⁵ the choice of reshoring is questionable since reshoring will likely make exported products more expensive and less competitive. Anecdotal evidence suggests, for instance, that firms considering cutting back operations in China are looking to relocate to ASEAN or India rather than back home.

Reshoring 2.0: Convergence of Companies' and Government's Interests

Over time, and in particular as a result of the Covid-19-induced economic crisis, the rationale for reshoring has changed. From the private-sector perspective, economic security considerations now loom much larger

24. "Business offshoring makes a U-turn as the government encourages reshoring", *Hankyoreh*, August 1, 2016, available at: <https://english.hani.co.kr>.

25. In Korea, exports accounted for 42% of GDP in 2021, after reaching a peak of 53.3% in 2011 (World Bank data).

following the disruption in global supply chains. As a result, public and private sectors' interests have been converging.

Amendments to the U-Turn Law

Taking stock of the relative failure of the initial policy and of the changing context, the Korean government introduced major changes in its policy in early 2020 and again in June 2021. More recently, the Yoon administration has pledged to enhance support for the reshoring of Korean businesses, especially in order to secure supply chains that have been increasingly disrupted due to the pandemic and the US-China trade row.

As a result, reshoring subsidies are now granted to a larger number of sectors (services and IT), and the eligibility criteria have also been significantly loosened. Under the new provisions, companies that add new equipment to their existing plants are considered as “U-Turn companies”; moreover, companies are allowed to build new plants in the free economic zones in the Seoul metropolitan area, and reshoring incentives may be granted to innovative companies without them having to shut down or downsize their overseas operations.²⁶

Currently, to be eligible for tax reduction, South Korean companies should expand manufacturing capacity at home within two years of closing offshore facilities, but President Yoon has promised to extend the time frame to three years, on top of expanding the government's financial incentives and tax cuts for such businesses.

In 2023, the government earmarked 57 billion won (€40 million) to help reshoring companies stabilize their businesses in Korea, and to encourage more to move back home.

Reshoring, beyond Public Efforts

Although it is still too early to tell what the impact of these new provisions will be, an overall acceleration in the number of reshoring cases could already be observed over the past three years, with an average of 25 reshoring companies per year since 2020.²⁷ The companies cited unfavorable business circumstances in foreign countries²⁸ and the growth in demand in the domestic market as major reasons for their return.

26. “Reshoring in Korea on the Rise Amid Stronger Incentives”, *Pulse*, September 19, 2022, available at: <https://pulsenews.co.kr>.

27. Out of the total 126 reshoring companies for the period 2014–2022, 97 had factories in China, representing 77%. In 2022, 15 out the 24 reshoring companies left China to relocate to South Korea, available at: <https://english.hani.co.kr>.

28. Higher costs, lower sales and strengthened regulations in foreign markets were cited as the reasons for reshoring, according to the Korea Trade-Investment Promotion Agency's report on reshored companies.

Anecdotal evidence points to the diversity in the profiles of Korean companies that are contemplating or have already engaged in reshoring, and in their motivations.²⁹ LG Chem in January 2023 decided to invest around 200 billion won (US\$144 million) through 2023 after it was designated as the “No. 1 U-Turn company” by the government. Dongjin Semichem, the fourth company in the world to develop photoresistors for semiconductors, pledged to invest 112.7 billion won in its business in Korea by 2024. Appliance maker LG Electronics recently moved all production of US-bound refrigerators at a facility in Zhejiang Province to South Korea, in an attempt to circumvent US sanctions on Chinese exports. As explained earlier, Samsung moved some of its most valuable activities back to South Korea. In other words, the main beneficiary of Samsung’s decision to leave China was not Vietnam but South Korea. In December 2021, Samsung Electronics also moved part of its smartphone production line in Vietnam to the Gumi plant in North Gyeongsang Province after experiencing production setbacks related to the Covid-19 pandemic. Today, over 30% of Samsung’s supplier sites are in South Korea (and only 14% in Vietnam).

A particularly interesting example of recent reshoring is the case of Star Group (SG Tech), a rare-earth magnet manufacturer, which started manufacturing in Shangqiu, Henan Province, China, in 1999, so as to get easier and cheaper access to rare earths, since China produced at the time more than 70% of the world’s rare earths. Due to uncertainties in China (resulting from the pandemic and the trade and technology spat between the US and China), SG Tech’s economic calculus changed and the advantages of locating abroad were gradually outweighed by the negatives (shipment delays, higher and unpredictable prices, rising political tensions). Also, promises of gaining footholds in foreign countries have become less important. As a result, SG Tech decided to relocate processing facilities back to Korea and build a factory in Daegu, Daesong county, in late 2021. It aims to gradually cut ties with China, starting with raw-material supplies. The company thus decided to process raw materials in Korea, while it is also diversifying its sources, buying rare earths from Australia.

Over the period 2014–2022, there have been 129 cases of reshoring, with a sharp acceleration in the most recent years (Figure 4). Most of them were small or medium-sized enterprises, with the exception in 2019 of Hyundai Mobis, a major car parts supplier, and of LG Chem early this year. These results need, however, to be kept in perspective: according to the MOTIE and the Export-Import Bank of Korea, a total of 27,336 new entities were set up overseas by Korean companies through foreign direct investment over the same period. Annually, 3,050 overseas corporations

29. These companies do not necessarily comply with the requirements imposed by the U-turn Act and are thus not considered as U-turn companies.

were established in 2014, 4,016 in 2019, 2,428 in 2020, 2,330 in 2021, and 1,931 in 2022.³⁰ Reshoring thus remains a very marginal trend.

What Next?

According to the Mono Research poll commissioned by the Federation of Korean Industries (FKI), the country's top business lobby, of the 105 companies³¹ surveyed from February 17 to 24 (2022), 27.8% said they were in the process of reviewing reshoring, a more than ninefold rise from the 3% total of May 2020. Also, six out of 10 businesses showed interest in reshoring, resulting from production disruptions caused by the supply-chain blockages, rising logistics costs and the prolonged trade spat between the United States and China.

However, another 29.2% said they were willing to consider the option of reshoring when and if the local business environment and the government support improved. The respondents also cited deregulation as the most pressing issue for reshoring, at 35.3%, followed by bigger tax reductions at 29.5%, and more financial incentives at 17.6%.

Separate data from the Federation of Korean Industries (FKI) in 2022 further showed that 87% of companies interested in reshoring found the investment environment in Korea "less than satisfactory". In particular, Korea offers a higher corporate tax rate (24%) compared to other countries in the region (the OECD average is 21.2%). This concurs with the view of the Seoul-based Korea Federation of SMEs, which points to a rigid labor market, higher hiring costs and a web of environmental regulations as major hurdles for reshoring.

Although Korea has improved its investment environment, there is still scope for improvement, and reshoring is likely to remain relatively limited.

Digitalization as a Facilitating Factor

More than public incentives, perhaps, the digitalization of production has been (and will be in the future) an important factor driving the increase in reshoring because it changes companies' calculus. When Korean companies move to reshore, it is usually because they have changed their production process. As argued by Lee and Park, more companies are finding that it makes sense to build highly digitized "smart factories" in their home countries and close down old production lines in China, for instance.³² Digitalization affects the economic calculus, making certain options cost-effective.

30. G. Song, D. Park, and E. Lee, "Korean Companies Reluctant to Return to Home Due to Stingy Benefits", *Pulse News*, June 06, 2023, available at: <https://pulsenews.co.kr>.

31. These companies belong to the country's 500 biggest firms by revenue.

32. K. Lee and T. Park, "Changing GVC in Post-Pandemic Asia: Korea, China and Southeast Asia", *op. cit.*

By way of illustration, the South Korean apparel firm G&G Enterprise built a new, fully automated smart factory in southwest Korea that enabled it to be price-competitive and more flexible in product variety – even in the labor-intensive textile sector. Similarly, thanks to South Korea’s digital transformation program, Hyundai Motors has reshored all of its production of wiring harnesses that it used to outsource to suppliers in China.

Increasing digitalization also seems to be an effective way to cope with the challenge of supply-chain disruptions. Public policies should take this reality into account and facilitate robotics-driven automation or digitalization, allowing companies to substitute labor with technology, thus reducing the importance of cost arbitrage advantages.³³

33. S. Ellia *et al.*, “Post-Pandemic Reconfiguration from Global to Domestic and Regional Value Chains: the Role of Public Policies”, *Transnational Corporations*, Vol. 28, No. 2, 2021, pp. 67-96.

GVCs and Geopolitics

Next to traditional economic factors, geopolitics is becoming an important determinant in Korean companies' decision-making calculus. Tensions with Japan and China as well as the Sino-US rivalry provide such examples of political disputes spilling over into the economic sphere in the form of sanctions, export controls and the like.

Onshoring in Response to Geopolitical Tensions with Japan

The case of the recent RoK-Japan trade dispute over semiconductor-materials exports illustrates this trend.

This episode had its roots in political and historical tensions between the two neighboring nations: Japan accused South Korea of lax export controls, while the Korean government said Japan's restrictions had been imposed in retaliation for a Korean Supreme Court decision ordering what is now Nippon Steel to pay reparations to former Korean wartime laborers.

On July 4, 2019, in a context of deteriorating bilateral relations, then-Japanese Prime Minister Shinzo Abe's government decided to impose stricter controls on exports of three chemical materials critical to semiconductor and display production in South Korea: fluorinated polyimides, photoresists and hydrogen fluoride.³⁴ This meant that Japanese exporters had to seek governmental permission each time they wanted to ship these materials to South Korea; the decision, which could officially take up to ninety days, was left to the discretion of the Japanese authorities, making the result highly uncertain. Japanese exporters had to meet strict criteria such as demonstrating that they had established internal export rules and on-site inspections.

On August 28, 2019, the Japanese government went a step further, removing South Korea from a "whitelist" of countries exempt from export controls for certain products, with national security implications. This expanded the new regulation imposed on the three chemical materials to cover all products and materials classified as "strategic" by the Japanese government.³⁵ In response, the RoK threatened to scrap the annual military

34. Hydrogen fluoride and photoresist for extreme-ultraviolet lithography are key items in semiconductor production, and fluorinated polyimides is a key material used in organic light-emitting display (OLED) panels.

35. M. Oh, R. Dohner and T. Herr, *Global Value Chains in an Era of Strategic Uncertainty – Prospects for US-RoK Cooperation*, Atlantic Council, 2020.

information-sharing pact with Japan³⁶ and the Korean MOTIE initiated a WTO dispute complaint against Japanese export controls. A WTO panel was established in July 2020.³⁷

The trade dispute provided an opportunity for South Korean firms to explore options for restructuring GVCs for semiconductors to mitigate potential risks from major disruptions, as well as for the South Korean government to seek private-sector cooperation to reshore supply chains. Then-President Moon Jae-In's government earmarked about 2 trillion won (the equivalent of \$1.55 billion at current rates) a year to fund research and development in a bid to "turn a crisis into an opportunity".

Efforts from both the public and private sectors paid off; the government has been backing policies for developing key materials, and corporations have diversified their sources of supply and turned to domestic production for the affected materials, parts and equipment. If Japan had not imposed the sanctions, South Korea would never have set out to localize production and diversify sources. In other words, Japan's tightening of export controls for Korea had the effect of merging the interests of large Korean device firms and the government, consequently opening new opportunities for Korean and third-country suppliers.³⁸

After the sanctions were announced, fears initially arose that major corporations such as Samsung Electronics, SK Hynix and LG Display would take a direct hit; much to the contrary, they have managed to put up a strong defense.

By June 2020, SK Materials, a semiconductor-component arm of the SK group that owns SK Hynix, announced that it had started mass production of 99.999% pure hydrogen-fluoride gas (also known as etching gas)³⁹ at its factories in Yeongju, Gyeongsangbuk-do province, and that it aimed to increase localization to 70% by 2023. This marked the first time for Korea to localize production of this material, as the country had previously been completely dependent on overseas suppliers (primarily Japan). Two South Korean companies, Soulbrain and RAM Technology, have successfully mass-produced hydrogen fluoride liquid by establishing more factories after Japan's trade restrictions went into effect. RAM Tech supplies them to SK Hynix, and Soulbrain provides the material as well as etching gas to Samsung Electronics. In the display industry, Samsung

36. The threat never materialized and the RoK government suspended its decision in November 2019.

37. In March 2023, ahead of a summit meeting between the two leaders, Japan announced that it would lift the restrictions on exports of the three chemical materials, leading to Korea withdrawing its complaint.

38. H. Yoshioka, "Changes in Relations between Japan and Korea in the IT Industry: Focusing on Components, Materials, and Manufacturing Equipment for Semiconductors and FPDs", *The Journal of Korean Economic Studies*, Vol. 19, 2022, pp. 49-70.

39. It is used to wash away foreign substances in the process of piling up silicon wafers. Japanese firms have dominated the global high-purity hydrogen fluoride market.

Display and LG Display have also entirely localized hydrogen fluoride liquid production that had been previously produced in Japan. Interestingly, Korean companies chose stability of supply over quality (and cost-efficiency), but they did not have much of a choice.

Similarly, fluorinated polyimides, a material used to produce flexible displays such as foldable smartphones and rollable TVs, has also been increasingly localized.⁴⁰ For instance, Kolon Industries started mass-producing fluorinated polyimides after establishing manufacturing facilities in Gumi, North Gyeongsang.

As for photoresists, domestic companies like Dongjin Semichem, which produces argon fluoride, have managed to expand production so as to replace imports from Japan.

The government has played a significant role in securing materials and localizing production. The Trade Ministry has been backing the production of fluorinated polyimide since 2010 and photoresists since 2002, as part of technical development efforts. The operation of an emergency response center for supplying materials and parts has been critical in alleviating the difficulties faced by firms following the import restrictions.

With the nation's success in localizing the production of key materials, parts and equipment and gaining self-reliance in the supply chain, the government has described the sanctions as a blessing in disguise. Korean companies have been able to bridge the gap with Japanese leaders. From Japan's perspective, the export curbs have backfired, and Japan's exports of hydrogen fluoride plummeted quite dramatically over the period 2018–2020, before picking up again slightly.⁴¹ But Japanese producers could also lose out in the RoK export market because South Korean chipmakers could be incentivized to reduce supply-chain risks by diversifying their supplies with domestic and non-Japanese suppliers.

To complement the localization strategy, Korean companies have also engaged in diversifying their sources of supply. For hydrogen fluoride gas, companies diversified their import sources to countries such as the United States. Similarly, for photoresists, which are used to form circuit patterns on chips and were 92% produced in Japan, after the sanctions the import sources have been diversified to include Belgium and Germany.

40. Before the trade dispute, 94% of these materials were imported from Japan, with Sumitomo Chemicals as a major supplier.

41. Y. J. Hong, "What Are the Effects of the Korea-Japan Trade Dispute on Korean and Japanese Hydrogen-Fluoride and Semiconductor Industries?", University College London, 2022, available at: <https://www.ucl.ac.uk>.

As reported in the press, however, besides hydrogen fluoride, there has not been any exceptional impact in terms of localization of production of the two other key materials.⁴²

Although South Korea is unlikely to drop its objective of shifting to domestic production in the name of economic security enhancement, it has so far failed to create domestic supply chains fully independent of Japanese producers, and the expected normalization of the bilateral relation will certainly lead to an adjustment in the strategy, as sourcing from Japan fits the economic logic (combining quality, price competitiveness and speed). The observed changes may prove short-lived.

Reducing the Dependence on China: Rare-Earth Metals Production

Another example of politics spilling over into business decisions is Korea's attempt to reduce its dependence on rare-earth exports from China. Rare-earth elements are a class of 17 metals essential to produce high-powered magnets for devices ranging from batteries, solar panels and wind turbines to smartphones, lasers and jet engines. Over time, China has become the number one producer of rare earths and of other critical minerals, making all other economies dependent on, and vulnerable to, China. It produced 61% of global rare earths in 2021 and 85% of global rare-earth magnets.

Korea is particularly dependent on China for the supply of rare earths because of its geographical proximity and the structure of trade between the two countries, in which intermediate goods account for a very large part.⁴³ Due to the critical nature of rare-earth metals for a wide range of Korean production, and in response to China's recent moves to regulate the mining and exports of rare earths,⁴⁴ South Korea has been seeking for some time to follow in Japan's footsteps,⁴⁵ and to diversify its supplies of rare earths by reducing imports from China and increasing imports from other sources,⁴⁶ as well as by finding innovative ways to reduce consumption of rare earths and enhance its domestic production of rare earth-based magnets.

42. There was a sharp and protracted drop in imports from Japan in the case of hydrogen fluoride, while imports of fluorinated polyimide and photoresists were quick to pick up after an initial fall, available at: <https://asia.nikkei.com>.

43. China accounted for 58.9% of South Korea's rare-earth imports in terms of volume in 2020, according to the KITA. Korea is the third largest importer of Chinese rare earths, behind the US and Germany.

44. In April 2023, China is predicted to clamp down on the export of rare-earth element (REE) magnet manufacturing technologies and techniques.

45. From 2008 to 2018, the share of Japanese rare-earth imports from China fell from 91.3% to 58%.

46. Mining of raw rare earth materials outside of China has ramped up in recent years as several mines around the world (in the US and Australia in particular), have increased their output.

The search for alternatives to China (in rare earths and other critical minerals) was a key focus of President Moon's visit to Australia shortly before the end of his term (late 2021). Australia supplies around 40% of South Korea's critical mineral imports that are crucial for many of the components needed to drive the economy to net zero emissions by 2050. The Yoon administration is following the same policy, extending its partnership to Vietnam. In late 2022, Korea's trade minister signed an agreement with his Vietnamese counterpart to cooperate on the exploration and development of core minerals, including rare earths, in Vietnam. But Korean companies also take individual initiatives. For instance, Hyundai Motor Group signed a long-term contract with Australian company Arafura in November 2022 to purchase 1,500 tons of rare-earth element oxides a year.

Korea is totally dependent on imports of compounds or composites of rare-earth elements as the country does not possess the relevant production capabilities. Over the past year or so, Seoul has engaged in a strategy aimed at setting up an integrated supply chain and localizing the production of rare earth metals. To that end, the South Korean government is also reaching out to Australia, allowing Australian Strategic Metals (ASM) to set up a joint venture with its Korea-based subsidiary, KSM, to produce rare-earth metals in Korea with raw materials sourced from Australia. In May 2022, KSM completed setting up a production plant in Ochang, North Chungcheong province, that is expected to produce 5,000 to 10,000 tons of rare-earth metals annually.

Furthermore, South Korea is seeking to reduce its dependence on imports of rare earth (RE)-based magnets⁴⁷ through localization of production. As explained earlier, South Korean SG Tech, a producer of rare-earth-based magnets, has partnered with Australia to do so. Similarly, ASM's strategy is to become an independent, fully integrated "mine to manufacturer" producer of critical metals. The rare earth metals produced by KSM will be turned into magnets by an intermediary for use by Hyundai Mobis, the parts and services arm of the Korean carmaker.

In its strategy aimed at reducing its dependence on rare-earth-based magnets, in addition to the development of an integrated supply chain based on regional partnerships, South Korea is also contemplating developing a secure rare-earth supply chain for the magnets via a recycling and materialization process.⁴⁸ Magnets produced from secondary resources have less environmental impact and have also the great advantage of not producing any radioactive waste. This technical solution may be a way of

47. Rare-earth-based magnets are indispensable for technologies such as electronic medical appliances, and heavy and light vehicles. China accounts for 88 percent of South Korea's rare earth magnet imports by value.

48. M.Z Rasheed., M.-s. Song, S.-m. Park, S.-w. Nam, J. Hussain, T.-S. Kim, "Rare Earth Magnet Recycling and Materialization for a Circular Economy—A Korean Perspective", *Applied Sciences*, Special issue: Advanced Extraction, Separation and Purification Processes, Vol. 11, 6739, 2021.

alleviating the problem associated with South Korea's high dependence on imports of rare-earth metals from China and reducing its vulnerability to potential Chinese pressure.

Lastly, the government-funded Korean Institute of Material Sciences (KIMS) is supporting efforts aimed at developing rare-earth-saving permanent magnets. These various measures will likely lead to a new configuration of the rare earth production chain.

Korea Caught in the Cross-Fire of Sino-US Rivalry

The last example of geopolitical factors influencing decisions to organize production networks relates to the recent rise in Sino-US rivalry. Obviously, South Korean companies will not remain unscathed due to the country's proximity to the two rivals and to its industrial structure. 5G, semiconductors, batteries and rare-earth elements are industries that are primarily affected by the competition between the US and China, and these are key industries for South Korea. Historically at the heart of various critical supply chains, South Korea finds itself pressured from both sides. Given its high degree of economic integration with China, decoupling from China would be extremely costly. At the same time, since it is engaged in China-linked supply chains for computer and electronic production in particular, South Korea is vulnerable to US pressure aiming at thwarting China's ambitions in cutting-edge technologies.⁴⁹

The US Tightens Its Grip on China

In the past two years, the trade war started by the Trump administration against China has morphed into a technology war. An official objective of the Biden administration is to deny China access to state-of-the-art technologies so as to maintain its technological supremacy. In a speech in September,⁵⁰ US national security advisor Jake Sullivan explained that the US government wanted to hobble China's capabilities in "foundational technologies" such as artificial intelligence, biotech and clean energy, to allow the US to maintain as much of an edge as possible. At the same time, the US is seeking to boost its own manufacturing capacities with a view to both enhancing its autonomy and creating jobs. Several recent decisions illustrate this new direction in US economic policies.

49. J. Y. Lee, "US-China Supply Chain Competition and Korea's Economic Security Diplomacy", *Korean Peninsula Series of Freedom, Peace and Prosperity*, CO22-22, KINU, June 16, 2022.

50. "Remarks by National Security Advisor Jake Sullivan at the Special Competitive Studies Project Global Emerging Technologies Summit", The White House, September 16, 2022, available at: www.whitehouse.gov.

The first such move was the Inflation Reduction Act (IRA), passed in August 2022. Its objective is to induce a sharp reduction in fossil-fuel consumption and encourage reshoring of manufacturing activities, through heavy subsidies, with a focus on “green” industries. Secondly, the Creating Helpful Incentives to Produce Semiconductors for America Act (hereafter the CHIPS Act), passed in August 2022, aims to fund R&D and secure technology supply chains to revive the semiconductor manufacturing industry in the United States.⁵¹ To that end it envisages US\$52 billion in grants to support advanced chip manufacturing in the US, but also contains qualified “guardrails” prohibiting recipients of federal funds from expanding or upgrading their advanced chip capacity in China for a decade.

Lastly, on October 7, 2022, the US Department of Commerce announced new controls on technology exports to China, the objective of which is to prevent companies (including those outside the US) from selling semiconductors to China if they were produced using US equipment, and thus to freeze China’s advanced chip production and supercomputing capabilities.⁵² To that end, exports to China of high-performance semiconductors for supercomputers and advanced computers will be either restricted or banned; moreover, permission will be required when selling cutting-edge semiconductor manufacturing equipment and technology capable of manufacturing chips above a certain level (DRAM of 18 nm or less, NAND flash memory of 128 layers or more, and non-memory semiconductors of 14 nm or less), and sales of these to production facilities in China owned by Chinese companies will be effectively prohibited; lastly, applications for permits are required if the activities of Americans in China lead to support for the development or production of semiconductors that meet certain conditions. With these new export controls, the intention of the United States is to maintain its technological gap with China in semiconductors by not selling cutting-edge semiconductors and by preventing the production of semiconductors above certain levels.

Implications for Korean Companies

Bilateral trade statistics for integrated circuits and LCDs suggest a supply-chain configuration in which components made in Korea are sent to China for further processing and then exported to third markets, including the US. From a Korean firm’s viewpoint, US barriers to Chinese technology exports affect the full value of its exports from China, not just the parts made in Korea. The possibility of US tariffs or bans on Chinese tech exports poses a risk for Korean multinational firms because such measures would disrupt

51. H. G. Jeong, “The U.S.-China Battle for Semiconductor Supremacy and Reshaping of Global Supply Chain”, *World Economic Brief*, KIEP, Vol. 12, No. 44, October 2022.

52. Whether the strategy will be successful is highly debatable. H. Lee-Makiyama and R. Baker, “US chips war hits Allies but likely misses long-term Chinese strategic target”, *East Asia Forum*, December 11, 2022, available at: www.eastasiaforum.org.

significant trade flows between affiliates based in Korea, China and the United States.

The Chips Act and the October 7 export controls directly affect two major Korean companies, SK Hynix and Samsung,⁵³ that use American technology and operate in China to cater in part to the US market. Samsung Electronics has a NAND flash memory factory in Xi'an and a test packaging factory in Suzhou, while SK Hynix has a fab (a microchip manufacturing plant) in Wuxi, near Shanghai, that produces DRAM chips to order for other companies, and a NAND flash memory (formerly an Intel) factory in Dalian.

As for the IRA, while, in promoting a clean energy transition, it may provide important long-term benefits to certain Korean industries that are well advanced in such technologies, it has been a major source of concern for Korean producers who fear being discriminated against. South Korea's concern has focused on the tax provisions in the law that require electric vehicles (EVs) to be assembled in the US, Canada or Mexico for American buyers to be eligible for a US\$7,500 tax credit. Without production facilities in North America for EVs, Hyundai and Kia currently produce EVs in Korea for export to the US market; these vehicles are not eligible for the consumer tax credit for EVs.

South Korea's Response to US Pressure

Soon after the announcement of the October 7 export controls, the Korean Ministry of Trade, Industry and Energy engaged in negotiations with the US Department of Commerce Bureau of Industry and Security on behalf of Samsung and SK Hynix. As a result, the two companies obtained a one-year waiver to continue to use semiconductor equipment containing American technology for producing advanced memory chips in China.

However, what happens next October remains an open question. Both companies tend to see the waiver as potentially giving them a deadline to make changes, rather than a sign that they will continue to benefit. They have thus started a campaign to assess the business risks of their operations in China, as well as to plan for different scenarios. Of course, any retooling of their Chinese operations would be consequential for both companies. SK Hynix's Wuxi plant accounts for nearly half of the company's DRAM memory chip production (which is its main business), while Samsung's plant in Xi'an takes up about 40% of its NAND flash memory output.⁵⁴

53. Samsung and Hynix are the world's two largest memory chipmakers, while Samsung is the world's second-largest contract manufacturer for logic chips behind TSMC.

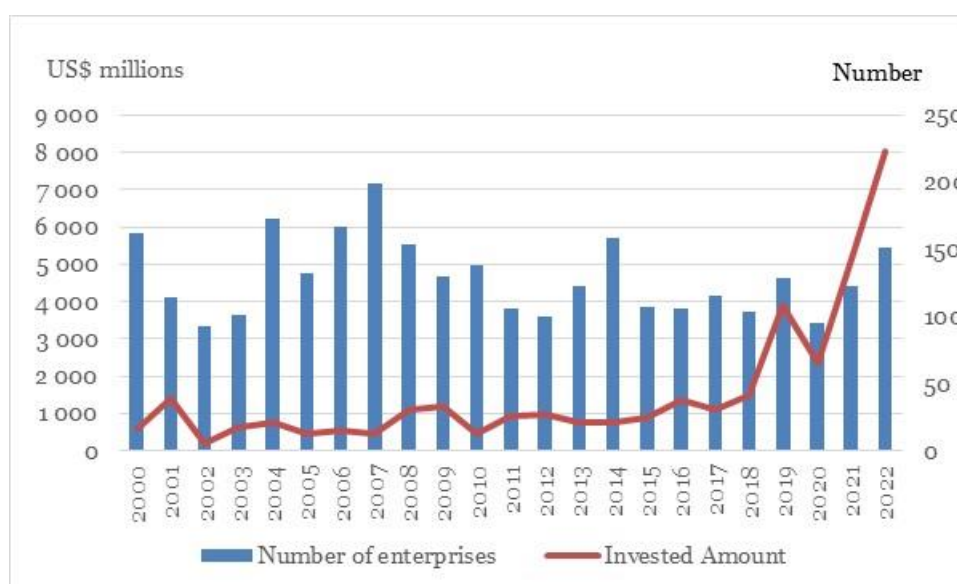
54. Both NAND and DRAM chips are critical components widely used in electronic devices, from computers and smartphones to cars.

Following the October 7 sweeping export controls, SK Hynix's chief marketing officer Kevin Noh said the company would consider selling its memory chip production facilities in China in a worst-case scenario if these controls made it too difficult to continue operations there.⁵⁵

Both Samsung and SK Hynix can be expected to build more plants in the US because they cannot mass-produce cutting-edge chips without US equipment and technology. Indeed, Samsung announced that it was investing US\$17 billion in a new plant in Texas⁵⁶ in an attempt to catch up with Taiwanese rival TSMC in the foundry sector, while SK Hynix announced that it planned to invest US\$22 billion in semiconductor, electric vehicle battery and green technology in the US, including a new advanced chip packaging plant. Up to US\$14 billion will go toward building two new gigafactories in Tennessee and Kentucky.

Similarly, in response to the IRA, South Korean companies are contemplating moving part of their production to the US to be able to benefit from the tax provisions. For instance, South Korea's LG Energy Solution announced that it would resume a stalled US battery project in Arizona with a \$5.6 billion investment to qualify for federal incentives rolled out under the IRA. Along with Japan's Honda Motor, the company also announced, in October 2022, plans for a US\$4.4 billion battery plant in Ohio.

Figure 5: Korean manufacturing investment in the US



Source: Kexim Bank

⁵⁵ J. Kim, "SK Hynix weighs future of China chip plant after U.S. tech curbs", *Nikkei Asia*, October 26, 2022, available at: <https://asia.nikkei.com>.

⁵⁶ T. Byrne, "South Korea – US Economic Ties are Changing", *The Diplomat*, February 8, 2022, available at: <https://thediplomat.com>.

As a result of these various moves, the new Korean wave of investment that has been sweeping through the US⁵⁷ is likely to be reinforced. Korea's direct investment in the US amounted to a net \$28.4 billion in 2022, a near fivefold increase from a decade ago, according to data from the Korea Exim Bank. In the same period, investment in China rose about twofold, to \$6 billion. Even more Korean money may flow to the US as the Biden administration expands efforts to reshore manufacturing. Korea's high-tech firms may turn out to be pivotal to the American effort to realign Asian supply chains to reduce reliance on China, but they are also in a delicate position vis-à-vis their main export market, China.

At the same time, South Korean semiconductor companies are doubling down on investment in South Korea so as to reduce the country's vulnerability. Samsung, which is known for consumer electronics and memory chips, is looking to ramp up its foundry business, in an attempt to catch up with Taiwan's TSMC. South Korea is also forecast to overtake China in spending on advanced chipmaking equipment 2024.

The recently approved "K-Chips Act" aims at boosting the country's semiconductor industry by increasing the tax credit to 15% from the current 8% for major companies investing in manufacturing facilities, while smaller and medium-size firms would see the tax break go to 25%, up from the 16% now.

All these developments clearly suggest that US export controls are reshaping global supply chains for semiconductors and more changes are expected in the future.

⁵⁷ According to the Reshoring Initiative, 34 South Korean enterprises created 35,403 jobs in the United States in 2022, followed by Vietnam (2: 22,500), Japan (46: 14,349), Canada (40: 13,671), Germany (60: 9,855) and China (46: 8,985).

Conclusion

Despite all the talks about the reshuffling of GVCs and the trend to a form of industrial “Desinicization” (or disengagement from China), the example of South Korea does not vindicate such assertions.

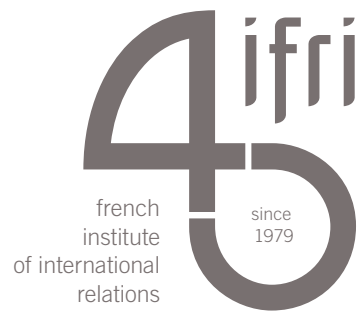
The expansion of Korean ODI in neighboring countries such as China and ASEAN remains a reality, but it has not changed in any fundamental way over the past two decades. Korean companies’ decisions to locate in one country rather than another are still very much based on cost factors, even if security considerations are increasingly factored in. So far, the latter has not often outweighed the former. Also, even if there have been several cases of relocation from China to ASEAN, this does not mean that these two locations are perceived by South Korean companies exclusively as alternatives; they are also to a large extent complementary. Moreover, China, due to the size of its market, cannot be abandoned easily. As a result, a disengagement from China has still to take place.

Similarly, reshoring, which has been high on the South Korean government’s agenda for a long time, remains a marginal phenomenon for South Korean companies, despite the incentives provided. This should not be exclusively blamed on the inadequacy of these incentives. The success of public policies is highly conditional upon converging interests with the private sector, and overall, the objectives of the two actors have simply not aligned so far; economic (primarily cost) considerations still dominate firms’ calculations, inducing them to favor low-cost production locations. Examples of reshoring are primarily observed in some specific industries or activities that may be deemed strategic. However, they may become more frequent as the objective of economic security gains ground and the global environment is perceived as increasingly uncertain.

Rather than the relocation of production (in the form of reshoring or nearshoring), South Korean companies have turned to more unexpected options, such as the development of complementarity-based partnerships or vertically integrated networks between commodity suppliers and final-good producers, as in the case of the production of rare earth-based magnets. These options may also become more popular in the future, as they nicely combine economic and security considerations.

The most recent trend shaping the context in which South Korean companies operate is the rise in Sino-US rivalry and the intensification of pressures from the US. Interestingly, this time, South Korean companies may not be in a position to impose their own way of thinking. The US has ramped up pressures on China with far-reaching consequences, leading

South Korean semiconductor companies (with the support of the government) to engage in a strategy combining relocation to the US and onshoring in South Korea. There is a real risk, however, that US-China trade tensions will upend current supply relationships in ways that raise production costs for Korean companies and encourage supply-chain duplication that is, by definition, economically sub-optimal.



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