

# Decoupling: Is It Possible to Decouple in U.S.-China Supply Chain Competition?

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The U.S. has started to increase efforts to relieve tension with China stemming from their strategic competition. In recent months, U.S. senior officials have traveled to China to communicate with Chinese top leaders, including President Xi Jinping. As the competition continues, some say the U.S. strategy toward China can be called “decoupling.”

This paper will delve into decoupling: what decoupling really is, whether it is appropriate to use the term when describing U.S. strategy toward China in the supply chain competition, whether decoupling would take place in the U.S.-China rivalry, and what implications decoupling will have for Korea.

Following Secretary of State Antony Blinken’s visit to China on June 18, 2023, Treasury Secretary Janet Yellen and Special Presidential Envoy for Climate John Kerry have traveled to China in recent months. However, a series of visits by U.S. senior officials have not brought about a breakthrough to the bilateral relations that were improved since the end of Cold War and have been strained in recent decades. Nor did the visits produce a profound consensus, which will help prevent serious damage to not only the U.S. and China but to the global economy. With that said, a succession of visits by the U.S. can be interpreted as a good start

to discuss issues surrounding both countries. The strategic competition between the U.S. and China started to surface when the U.S. imposed tariffs on China in 2018. The term “decoupling” has been used frequently as the rivalry has gone from overall trade to other critical areas such as advanced technology and supply chains.

This paper will explore what decoupling really is, whether it is appropriate to use the term to describe the intensifying competition between the two countries, whether a true decoupling would really occur, and what implications such term will have for South Korea.

### **What is “Decoupling?”**

The dictionary definition of decoupling refers to “a situation in which two or more activities are separated, or do not develop in the same way.” The term has been traditionally used in finance when one economic phenomenon starts to deviate from another although the two used to have a close relationship: it is especially true when such situation has not been expected before. When something unusual happens between two closely-linked economic phenomena, we call it decoupling. For example, oil prices are closely related to the stock prices of oil companies. They are in a linear relationship: when oil prices go up, stock prices go up; when oil prices go down, stock prices go down. However, when oil prices are down due to higher production and stock prices are up rather than down, we say stock prices are decoupled from oil prices. In a similar vein, the stock prices of companies in the same industry are moving in the same direction. For example, the stock prices of big U.S. tech companies such as Alphabet, Apple, Amazon, and Microsoft are moving in the same direction—up or down—depending on how the U.S. information technology industry performs. When the stock price of a tech company decreases while those of others increase, we can also say the former has been decoupled from the latter.

Relationship dissolution between two economic entities is a prerequisite to a decoupling phenomenon, which may explain why decoupling would mean “economic dissolution” or “minimized correlation.” In finance, decoupling refers to a situation

where individual economic entities are performing activities independently, not affecting each other, due to minimized mutual dependency. For example, if China, as an outstanding developing country, continues to become more self-sufficient and increase its dependency on other developing countries while reducing and minimizing its dependency on advanced countries including the U.S., it is fair to say that a decoupling phenomenon has taken place.

There are two types of decoupling, depending on the scope and intensity: absolute decoupling refers to a situation when the correlation between economic elements or entities is completely gone while relative decoupling refers to reducing such dynamics between those involved.

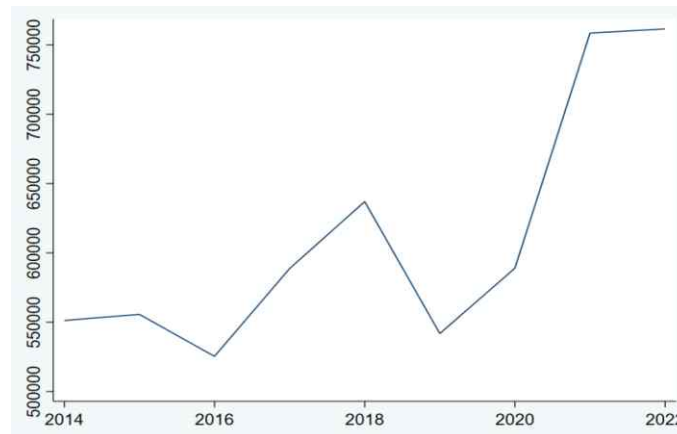
### **Is It Appropriate to Use the Term Decoupling to Describe the U.S.–China Supply Chain Competition?**

The reshuffling of the U.S. supply chains aims to minimize the possibility that China could weaponize its strategic industries, which have the potential to threaten national security, as the two countries continue their strategic competition. To achieve this, the U.S. has the following sub-goals: reducing its high dependency on China, protecting its domestic industries, as well as widening technological gap with China in the cutting edge industries.<sup>1)</sup> Specific action plans include improving its self-sufficiency by diversifying supply chains through friend-shoring, ally-shoring, and reshoring, which will in turn lower its heavy dependency on China while increasing its dependency on allies and partners in supplying raw materials and intermediate goods in the cutting edge industries, including 5G, AI, semiconductors and batteries. It appears that the decoupling strategy the U.S. is pursuing is focused on a few key industries, not overall trade and investment with China.

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<sup>1)</sup> Some argue the most realistic goal that the U.S. can achieve in countering China is to deter the development of high-end technology in China.

<Figure 1> U.S.-China Trade Flows (unit: million USD)



Source: The graph is drawn referring to “The Direction of Trade Statistics,” of the IMF <<https://data.imf.org/?sk=9d6028d4-f14a-464c-a2f2-59b2cd424b85>> (Accessed on July 27, 2023).

Figure 1 shows U.S. trade with China has grown three years in a row since 2020, when the covid-19 started to break out. The bilateral trade volume reached an all-time high of US\$761.5 billion. In 2018, before the onset of the covid-19, U.S. exports to China and imports from China mounted by 14.53% and by 21.18% respectively. In 2022, 8.57% of the total U.S. exports went to China and almost a fourth of all U.S. imports—18.19%—arrive from China.<sup>2)</sup> Indeed, China is the world’s largest manufacturing hub and the U.S. is the world’s largest consumer, making the two economies rely heavily on each other.

Some argue the U.S. efforts to decouple from China in supply chains can be interpreted as “technology decoupling,” “partial decoupling,” or “limited decoupling,” but we have to think about whether such expressions are appropriate to describe the U.S.-China supply chain competition. I would cautiously conclude that the aforementioned expressions are not appropriate enough to describe the ongoing rivalry since global supply chains are a comprehensive, multilayer network and the term “decoupling” itself largely means “uninfluenced,” “cut off,” or

<sup>2)</sup> IMF, “The Direction of Trade Statistics,” <<https://data.imf.org/?sk=9d6028d4-f14a-464c-a2f2-59b2cd424b85>> (Accessed July 27, 2023).

“disconnected,” regardless of the scope of such divergence. It is, therefore, reasonable to think that such “disconnection” or “cut out” may not occur in key and cutting edge industries. A slew of new legislations by the U.S. intends to encourage companies from the U.S. and its allies and partners, which have heavily engaged in business and trade with China, to invest in other regions or countries that the U.S. can easily trust. Efforts by the U.S., export control on China in key semiconductor manufacturing equipment and the issuance of executive order to ban U.S. investment in specific Chinese companies, have not made the U.S.-China relations converge to “nil” in key and cutting edge industries.

<Table 1> China’s Exports of Electronic Integrated Circuits to the U.S. (unit: million USD)

	First half of 2022	First half of 2023
Export volume	961.95	1125.84

Source: The table is made referring to “Customs Statistics” of the General Administration of Customs of China (Accessed on August 5, 2023).

Table 1 shows the U.S. dependence on China for electronic integrated circuits increased, with the China’s export growing by 14.55% from US\$961 million in the first half of 2022 to US\$1.125 billion in the first half of 2023. Furthermore, the amount of the bilateral investments in cutting-edge industries has reached tens of billions of dollars in recent years. Although both countries are fiercely competing in the AI industry, an area being actively developed and utilized in commercial as well as public sectors, their cooperation is rather expanding. According to a report from the Center for Security and Emerging Technology of Georgetown University, 167 U.S. investors injected their money into 401 Chinese companies, which accounts for 17% of overall global investments to China between 2015 and 2021. A total of US\$40.2 billion went into 251 Chinese AI companies in the same period, a number that represents a staggering 37% of the total investment procured by the Chinese AI industry.<sup>3)</sup> Therefore, describing the ongoing bilateral competition as a decoupling phenomenon is not appropriate.

<sup>3)</sup> Emily S. Weinstein and Ngor Luong, “U.S. Outbound Investment into Chinese AI Companies,” Center for Security and Emerging Technology, Georgetown University, February, 2023, <<https://cset.georgetown.edu/publication/u-s-outbound-investment-into-chinese-ai-companies/>> (Accessed July 20, 2023)

## Is Decoupling Even Possible?

It needs to be discussed whether the U.S. can achieve decoupling and secure stable supply chains while widening the technological gap with China. U.S. senior officials are refraining from referring the U.S.–China supply chain competition as “decoupling,” trying to make sure that the current rivalry will not evolve into a decoupled relationship. In May 2023, President Joe Biden said at the G7 summit that the U.S. was looking to reduce dependence on China and diversify supply chains, but not pursue decoupling.<sup>4)</sup> In June, Secretary of State Antony Blinken said, “we have to find a way to coexist peacefully,” noting that Washington was not seeking an economic decoupling from Beijing.<sup>5)</sup> In April, National Security Advisor Jake Sullivan flatly said, “we are striving to de-risk and diversify supply chains, and there is no intention whatsoever to decouple from China” during a conversation at the Brookings Institution.<sup>6)</sup> Treasury Secretary Janet Yellen also noted, “we know that a decoupling of the world’s two largest economies would be disastrous not only for both countries but for the world. And it would be virtually impossible to decouple from China.”<sup>7)</sup> The remarks from the top U.S. officials are clear evidence that they consider the possibility of a decoupling is low.

These laws and executive orders to keep China in check may not lead to a comprehensive decoupling. The CHIPS and Science Act signed by President Biden in August 2022 provides subsidies and a 25% tax credit to companies which invest

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4) Jihye Lee, “‘We are not decoupling’: G-7 leaders agree on approach to ‘de-risk’ from China,” CNBC, May 21, 2023, <<https://www.cnbc.com/2023/05/22/g-7-leaders-de-risk-china.html>> (Accessed on July 21, 2023).

5) Nike Ching, “Blinken: US Seeks to Coexist Peacefully With China,” Voice of America, June 28, 2023, <<https://www.voanews.com/a/blinken-us-seeks-to-coexist-peacefully-with-china-/7159127.html>> (Accessed on July 21, 2023).

6) “Reactions to National Security Advisor Jake Sullivan’s Brookings speech,” Brookings Institute, May 2, 2023, <<https://www.brookings.edu/articles/reactions-to-national-security-advisor-jake-sullivans-brookings-speech/>> (Accessed on July 21, 2023).

7) The U.S. Department of the Treasury, “Remarks by Secretary of the Treasury Janet L. Yellen at Press Conference in Beijing, the People’s Republic of China,” July 8, 2023, <<https://home.treasury.gov/news/press-releases/jy1603>> (Accessed on July 22, 2023).

in building semiconductor infrastructure such as a plant in the States. However, the statute prohibits recipients from engaging in transactions in the next 10 years<sup>8)</sup> that can contribute to the substantial development of semiconductor production in countries of concern, including China, North Korea, Russia, and Iran, which are considered to present a potential threat to U.S. national security. If recipients violate this clause, the U.S. government will “claw back” the benefits given to them. The violators are also subject to “poisonous clauses” that states they must give the U.S. intelligence access to their semiconductor facilities, return excess profits (up to 75% of the subsidy), and submit detailed accounting data (finance, sales, and accounting). Such clauses could cause foreign recipients to experience technology or trade secret leak and/or undermine the profitability and productivity of those companies in China, which points to the need for adjusting poisonous clauses and could be a hindrance to attracting investment from foreign semiconductor companies as the U.S. continues to “narrowly decouple from China.”

The fact that the U.S. has decided to give “grace period” to export controls on China regarding high-end chips and on manufacturing equipment, which are applied to companies investing in China, means it is hard for the U.S. to realize a comprehensive disconnection from China in the semiconductor industry while ignoring the profits of its own and other countries in the semiconductor industry. Washington has imposed export control on China, specifically on high-end semiconductors designed to be installed in high performance AI and supercomputers and allowed Chinese or foreign companies investing in China to export manufacturing equipment, including DRAM chips of 18nm half-pitch or less, NAND flash memory chips with 128 layers or more, and logic chips of 14nm or below. The U.S. has implemented export control restrictions on chipmaking equipment facilities, which give a one-year grace period to Samsung Electronics and SK Hynix, two leading South Korean chipmakers. Under Secretary of Commerce for Industry and Security Alan Estevez announced that the U.S. would

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<sup>8)</sup> World Laws Information Center, Korean translation of the “CHIPS and Science Act,” April 5, 2023, <[https://world.moleg.go.kr/web/wli/lgsInfoReadPage.do?A=A&CTS\\_SEQ=50181&AST\\_SEQ=313](https://world.moleg.go.kr/web/wli/lgsInfoReadPage.do?A=A&CTS_SEQ=50181&AST_SEQ=313)> (Accessed on August 6, 2023)

extend such measure to South Korean and Taiwanese chipmakers.<sup>9)</sup>

For some time, the impact of the U.S. measures to counter China would be felt largely in the semiconductor industry since such actions narrowly target that sector. In the long run, however, the impact is likely to spread to other areas such as autonomous electric vehicles, AI, and high-end computers: chips are essential parts in these industries. The Biden administration is indeed considering expanding similar sanctions to these sectors, raising the possibility of the U.S. ramping up its decoupling efforts. However, an advanced version of decoupling, which could bring about the substantial disconnection in the semiconductor industry and we have not witnessed before, is unlikely to occur. China still maintains its position as the largest semiconductor market in the world, consuming semiconductors worth US\$185.5 billion in 2022, although slightly down from the US\$188.4 from the previous year. In 2019, Intel, the world’s largest chip manufacturer, saw sales revenue of US\$20 billion in China while Qualcomm, a global wireless communication and chip company, recorded US\$11.5 billion in revenue in China and Hong Kong, more than four times higher than its revenue raked in the U.S.<sup>10)</sup> Put simply, sanctions against China would cause a huge loss to the semiconductor industry of the U.S. and of its allies.

<Table 2> Leading Electronic Integrated Circuit Producers’ Export to China (unit: million USD)

	June 2022	June 2023	Change Rate
U.S.	1026.63	645.19	-37.15%
South Korea	7313.29	6056.95	-17.17%
Japan	1571.97	1664.61	+ 5.89%
Taiwan	12742.15	11458.33	-10.07%

Source: “Customs Statistics” of the General Administration of Customs of China.

<sup>9)</sup> Yuka Hayashi, “U.S. to Allow South Korean, Taiwan Chip Makers to Keep Operations in China Analysts say the move will weaken export-control measures aimed at curbing Beijing,” *The Wall Street Journal*, June 12, 2023, <<https://www.wsj.com/articles/u-s-to-allow-south-korean-taiwan-chip-makers-to-keep-operations-in-china-5d7d72cc>> (Accessed on August 6, 2023).

<sup>10)</sup> Robert Lewis, “Decoupling from China rejected by Biden team: According to Tony Blinken, decoupling is ‘unrealistic’ and ‘counterproductive’; it also wouldn’t work,” *Asia Times*, December 8, 2020, <<https://asiatimes.com/2020/12/decoupling-from-china-rejected-by-biden-team/>> (Accessed on August 9, 2023)



Table 2 shows declines in exports of electronic integrated circuits from major chip-producing countries to China. In particular, the U.S. export to China plunged by 37% (yoy) in June 2023 while South Korea and Taiwan exports to China also recorded respective 17% and 10% declines. Japan was in a different trajectory with a 6% growth. It is worth noting that the decrease in the U.S. export to China was two to three times larger than that of its competitors. This provides a meaningful insight to the U.S.: implementing “aggressive and narrowly targeted decoupling from China” will only make the U.S. lose ground on the immense Chinese semiconductor market to its competitors.

The U.S. should also expect China’s retaliation.<sup>11)</sup> China announced in May 2023 that it would impose sanctions on Micron Technology for national security reasons. Accordingly, the products made by the U.S. chip manufacturers are highly likely to be excluded in key infrastructure projects in China. The U.S. Congress was worried because South Korean companies such as Samsung or SK Hynix could replace Micron in the Chinese market. In early July 2023, China’s Ministry of Commerce announced export controls on gallium and germanium (approximately 30 items in total), two key elements used for semiconductors, chargers, solar panels, and wireless communication equipment<sup>12)</sup> before Treasury Secretary Janet Yellen’s visit to China. According to the Critical Raw Materials Alliance, a leading institute of the critical material industries in Europe, globally, China accounts for about 80% of gallium and 60% of germanium production.<sup>13)</sup> Due to China’s export control, U.S. companies and others involved in reorganizing global supply chains may not be able to supply raw materials in a timely manner, a possible scenario that the U.S. should keep in check.

<sup>11)</sup> Thomas Alsop, “Semiconductor sales worldwide 2015–2022, by region,” Statista, March 1, 2023, <<https://www.statista.com/statistics/249509/forecast-of-semiconductor-revenue-in-the-americas-since-2006/>> (Accessed on July 19, 2023).

<sup>12)</sup> Ministry of Commerce of PRC, “Announcement of the General Administration of Customs of the Ministry of Commerce No. 23 of 2023 on the Implementation of Export Control of Items Related to gallium and germanium” July 3, 2023, <<http://big5.mofcom.gov.cn/gate/big5/www.mofcom.gov.cn/article/zwgk/gkzcfb/202307/20230703419666.shtml>> (Accessed on July 18, 2023).

<sup>13)</sup> “Germanium,” The Critical Raw Materials Alliance, <<https://www.crmalliance.eu/germanium>> (Accessed on July 18, 2023); “Gallium,” The Critical Raw Materials Alliance, <<https://www.crmalliance.eu/gallium>> (Accessed on July 18, 2023).

The U.S. also keeps China's involvement with batteries in check. The Inflation Reduction Act of 2022 provides US\$3,750 in tax credit to any electric vehicle made out of more than 50% of the key components of its batteries (cathode, anode, separator, electrolyte, battery cell, and module) produced in North America. The same vehicle can receive another US\$3,750, if more than 40% of the key minerals in its batteries (lithium, nickel, manganese, and cobalt) have been mined and processed in the U.S. or in its partners. Still, China holds 60–90% of the global market share in processing four key minerals. (lithium, nickel, manganese, and cobalt) If China gets back at the U.S. by controlling exports of such key minerals, battery production in the U.S. and those supported U.S.-led sanctions against China will bear the brunt of such retaliation.

The U.S. and China are highly dependent on each other economically and technologically, and the third countries' interests are also connected to the U.S.-China linkage. Therefore, it is reasonable to believe a decoupling from China is unlikely to occur in the foreseeable future. A decoupling in the U.S.-China supply chain competition would be possible if we were living in the era of Cold War, when the two blocks of political systems used to be separated economically and have minimal exchanges. In a free market economy, which was established after the Cold War, taking “decoupling from China” strategy in the long run is not a viable option for the U.S.

### Implications for South Korea

The impracticality of decoupling strategy in the long run doesn't necessarily mean the U.S. will stop its “de-risking” policy toward China. Then, what are the implications for South Korea in this context? Since the “de-risking” strategy by the U.S. includes overt check in China, South Korea is at a risk of losing strategic autonomy to some degree because of its heavy dependence on China for trade and investment. The U.S. is increasingly connecting its economy with its national security, a strategy not in line with South Korea's strategy that says “we turn to the U.S. for security, and the China for economy.”

Whether South Korea can effectively maintain strategic autonomy in its relationship with Washington and Beijing will be largely determined by negotiations with the U.S., which will ensure its interests are not undermined by the U.S. check in China. The CHIPS and Science Act and Inflation Reduction Act have not considered the interests of allies and friendly countries of the U.S while only focusing on the U.S. national interest. This became the basis among some U.S. allies and partners for demanding the adjustment of these two laws and the U.S. has responded by giving “grace period” to several clauses. Korea should continue to persuade the U.S. to make positive changes for us so that we can protect effectively our national interests while not undermining its robust alliance with the U.S. ©KINU 2023

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