

INDSR Newsletter



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Comment on the Yoon Suk-yeol's Indo-Pacific Strategy

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Topics: Indo-Pacific Region, International Situation

1. News Highlights

In an interview with Reuters on November 29, 2022, South Korean President Yoon Suk-yeol expressed his views on the North Korean nuclear and Taiwan Strait issues.¹ Yoon first warned North Korea that South Korea would unite with its allies to take countermeasures if the North's seventh nuclear test were to be conducted. He also stated that China should play a more important role in the North Korean nuclear issue by jointly responding to the North's military provocations, discouraging the North from advancing its nuclear and missile programs. He also emphasized that Northeast Asian countries, including South Korea, Japan, and the US, should

cooperate in sharing North Korean missile information, adopt a common response strategy, and resume joint military exercises. On the situation in the Taiwan Strait, Yoon said, "any conflict should be resolved according to international rules" and "we oppose any attempt to change the status quo in the Taiwan Strait." As for the role of the South Korean military and the US forces in Korea, Yoon said, "it is of the highest priority to handle the dangerous situation that occurs in our vicinity on the Korean Peninsula."²

Yoon's comments on the Taiwan Strait situation and the North Korean nuclear issue can be seen as part of the "Korean version of the Indo-Pacific strategy." Yoon first proposed the South

1. "Exclusive: South Korea's Yoon Warns of Unprecedented Response to North Korea Nuclear Test, Calls on China to Do More," *Reuters*, November 30, 2022, <https://reurl.cc/336Z2X>.

2. "尹 「北핵실험 어리석은 결정될 것」 …전례없는 공동대응 예고 (종합 3 보) ," 연합뉴스, November 29, <https://reurl.cc/aaR981>.

Korean version of the Indo-Pacific strategy at the East Asia Summit (EAS) in Phnom Penh, Cambodia, on November 11; it has also been mentioned several times at the Korea-US-Japan and Korea-China summits.

2. Security Implications

2-1. South Korea's Indo-Pacific strategy emphasizes "status quo" and "multilateral dialogue"

South Korea's Indo-Pacific Strategy emphasizes "three visions" (freedom, peace, and prosperity) and "three principles" (tolerance, trust, and reciprocity). The main contents are as follows: First, to advocate a comprehensive regional strategy that presupposes peace and stability. Second, to maintain regional order and strengthen the universal values of democracy and freedom as the core objectives. It is Korea's basic principle to oppose the unilateral, disagreed use of force to

change the status quo. Third, to build an open, fair economic order. It's South Korea's major foreign economic policy to promote a rational, prosperous economic and technological system. Fourth, to fulfill the international responsibility and role of an advanced country. South Korea will actively contribute to the diplomacy areas such as climate change, health care, and digital development. Fifth, to include ASEAN as a key partner in South Korea's Indo-Pacific strategy. The country will support and endorse the ASEAN Outlook on the Indo-Pacific (AOIP) and continue strengthening exchanges with ASEAN member countries.³

In short, "to realize a free, peaceful and prosperous Indo-Pacific region" and "to prevent armed conflicts or disputes on the basis of the existing rules (with agreements or in accordance with the current situation) in the Indo-Pacific region." As for the US-China competition, South Korea's Indo-Pacific strategy emphasizes "not to exclude or isolate specific countries, but to jointly pursue

3. 최원기, "윤석열 정부의 인도태평양 전략: 주요내용과 전략적 함의," *IFANS FOCUS (IF2022-29K)*, November 14, 2022, pp.1, <https://reurl.cc/OEmYoD>.

4. "윤 대통령 「자유·평화·번영 3대 비전으로 인도-태평양 전략 이행」," 대한민국정책브리핑, November 11, 2022, <https://reurl.cc/OEz0DR>.

synergy and coexistence in the Indo-Pacific region.”⁴ The statements on the Taiwan Strait situation actually echoed a significant part of the aforementioned content: opposing the use of force to change the current situation in the region.

2.2 South Korea tries expanding the room for maneuvering between the US and China

In the Indo-Pacific strategy of the US and Japan, the main direction is to “contain” China and strengthen military security cooperation in the face of China’s military expansion. In contrast, South Korea’s Indo-Pacific strategy emphasizes that it “does not target any particular country,”⁵ and it is a unified regional strategy to reduce the overtone of “containment.”⁶ The strategy keeps a certain distance from China while maintaining a strategic dialogue with China to retain the “economic security” relationship between the two countries, thereby improving the trading supply

chain between Korea and China for mutual prosperity in the technology and science fields. Regarding security, South Korea will continue to communicate with China on issues such as North Korean nuclear weapons and military provocations, urging the North to return to the negotiating table for the South to maintain effective ambiguity under the US-China competition.

On November 24, 2022, South Korean Defense Minister Lee Jong-sup participated in the 9th ASEAN Defense Minister’s Meeting-Plus (ADMM-Plus) and discussed with Chinese Defense Minister Wei Fenghe the situation on the Korean Peninsula, the North Korean nuclear issue, and the cooperative military exchanges between Korea and China. The discussion has reached the following consensus: First, to recommence the exchange of defense ministerial visits and strategic defense dialogues between South Korea and China interrupted by the COVID-19 epidemic. Second, to better

5. “尹, 6개월 준비해 한국형 ‘인태 전략’ 내놨다...미·일과 다른 이것,” 중앙일보, November 12, 2022, <https://reurl.cc/91xrxv>.

6. “대통령실 「인태 전략, 최초의 포괄적 지역 전략」 ...중국 겨냥 해석엔 거듭 선그어, 서울경제. November 13, 2022, <https://reurl.cc/yMoEWI>; “외교부 「한국의 인태전략, 특정국 겨냥 아니다」, ” 연합뉴스, October 25, 2022, <https://reurl.cc/LXVbe9>.

utilize the South Korea-China military direct telephone and liaison system.⁷ Third, to resume military communication channels, such as visits of officials, training, and cadet exchanges between South Korea and China. Fourth, to better use the military dialogue channels between the two countries to prevent accidental conflicts.⁸

As seen from the speeches of the Chinese representative in the recent meetings with South Korea, the ongoing tensions on the Korean peninsula are not in China's geopolitical interest, while South Korea has also repeatedly stressed that China should play a "constructive role" in the North Korean nuclear issue.

The meeting between the Korean and Chinese defense ministers was actually a realization of Yoon's version of the South Korean Indo-Pacific strategy, which aims to avoid falling into the suspicion of "restraining China" and to maintain the stability of the Korean Peninsula.

3. Trend Observation

3-1. Changes that may affect the South Korea-US-China strategic triangle in the future

In the meeting with South Korean Foreign Minister Park Jin in Seoul on Nov. 30, 2022, John J. Hamre,

7. There are five military hotlines between South Korea and China set up according to the "Memorandum of Understanding on the Establishment of the South Korea-China Navy and Air Force Direct Lines" (한중 해공 간간 직통전화 설치 및 운영에 관한 양해각서) signed and amended by the Ministries of National Defense of South Korea and China in 2008 and 2021 respectively. The South Korean units in charge of the lines are the Ministry of National Defense, the 2nd Fleet of the Navy, and the Air Force's 2nd Central Air Defense Control Department. The five direct military lines are set up between: 1. the Ministry of National Defense of Korea and the Ministry of National Defense of China. 2. The South Korean Navy and the Northern Theater of China's PLA Navy. 3. The South Korean Air Force and the Northern Theater of China's PLA Air Force. 4. The South Korean Navy and the Eastern Theater of China's PLA Navy. 5. The South Korean Air Force and the Eastern Theater of China's PLA Air Force. South Korea has also established military hotlines with Japan's Western Air Guard Control Corps, the Maritime Staff Supervision Department, and the Russian Pacific Fleet Command. Reference: 이권표, 황재호, "「한중 해 / 공군 간 직통전화 설치 및 운영에 관한 양해각서」 체결의 의미," 주간국방논단 (제 1240 호), January 26, 2009, pp.2-3; "한-중, 해공군간 직통전화 개통," 대한민국 정책브리핑, November 25, <https://reurl.cc/qZaAK0>; "한중군사당국 간 직통전화 추가 개설 합의...3 → 5 개로 증가," KBS NEWS, March 2, 2021, <https://reurl.cc/NGOdOn>.

8. "이종섭 국방부장관, 제 9 차 아세안 확대 국방장관회의 본회의 참석," 국방부, November 24, <https://reurl.cc/910abj>.

president of the Center for Strategic and International Studies (CSIS), expressed high praise for South Korea's Indo-Pacific strategy. Hamre said, "The South Korea-US alliance is one of the most successful US foreign relationships. To meet today's geopolitical challenges and contribute to regional peace and prosperity, the potential of the alliance must be maximized," he said. South Korea's Foreign Minister Park Jin said, "Under the Global Comprehensive Strategic Alliance agreed at the May 2022 summit between South Korea and the US, the two countries will deepen their collaborative relationship and continue to maintain a joint defense posture in response to the North Korean missile problem."⁹

In short, although South Korea continues to emphasize that its Indo-Pacific strategy will not target specific countries, it is still, in essence, based on the security alliance between South Korea and the US. With this strategy, South Korea has a considerable degree of participation in the US strategy to contain China and has been supported by the US

and Japan.

In fact, many parts of South Korea's Indo-Pacific strategy proposed by Yoon are quite different from the "New South Policy" proposed by Moon Jae-in in November 2017. Although both focus on Southeast Asia, the Moon administration emphasizes maintaining an "equidistant relationship" between the US and China, attempting to align with the US Indo-Pacific strategy and China's Belt and Road at the same time to avoid involvement in regional disputes. In contrast, Yoon's Indo-Pacific strategy breaks this "distance" and replaces it with a clear statement of South Korea's position on the Taiwan issue and the South China Sea dispute. It also indicates that South Korea will actively participate in future joint military exercises organized by the ASEAN. Such signs indicate that South Korea is indeed leaning heavily on the US in security, making the strategic triangle among South Korea, the US, and China gradually develop into a "romantic" relationship. Therefore, some Korean media have criticized Yoon's South Korean Indo-

9. "박진, 美 CSIS 만나 "우리 인태 전략에 지지 보내달라," 뉴시스, November 30, <https://reurl.cc/mZ7LYG>.

Pacific strategy as “a strategy eyeing only the US and Japan, but not Asia.”¹⁰

The known information about South Korea's Indo-Pacific strategy can be concluded that it coincides with the “multilateral dialogue,” “economic order,” and “maritime security” epitomized in Japan's Indo-Pacific strategy,¹¹ and it should be able to open an opportunity for future security dialogue between Korea and Japan. In addition to the strategic competition between the US and China, the possible future cooperation dynamics among South Korea, the US, and Japan should be continuously paid attention to. Similarly, North Korea's interaction with China and Russia will also be a key issue for South Korea, the US, and Japan.¹² To avoid an irreversible dilemma with China and Russia, South Korea may continue to revise its Indo-Pacific strategy to eventually separate from the US and Japan's versions and become unique to its

own.¹³

3-2. South Korea's internal problems may be an uncertainty

Although Yoon proposed South Korea's version of the Indo-Pacific strategy at the East Asia Summit, details and specifics are still lacking; this needs to be studied and discussed by the Korean government think tanks and domestic scholars. According to the available information, South Korea's Indo-Pacific strategy should be based on the “Korea-US alliance,” “Korea-US-Japan cooperation,” and “economic security” with a “multilateral cooperation” approach to focus on the North Korean nuclear issue, the Taiwan Strait situation, and the security of the South China Sea, and pay attention to the security of Northeast and Southeast Asia to maintain the existing order and strengthen the supply chain operations.

10. “윤 대통령 「인도·태평양 전략」엔 미·일만 있고 아시아가 없다,” 한겨레, November 14, 2022, <https://reurl.cc/EXWnVa>.

11. “自由で開かれたインド太平洋,” *Japanese Ministry of Foreign Affairs*, May 16, <https://reurl.cc/GXQmn3>.

12. 김도희, “미중 전략경쟁 시대, 한미동맹의 방향과 과제,” 이슈와 논점 (제 1977호, 국회입법조사처), August 8, 2022, pp.4, <https://reurl.cc/28QeEn>.

13. “[fn 광장] 한국판 아닌 한국형 인태전략 필요,” 파이낸셜뉴스, December 7, 2022, <https://reurl.cc/NGOMEq>.

However, South Korea's foreign trade has been in deficit for seven consecutive months,¹⁴ and its economic and trade exports to ASEAN member countries have been declining as well.¹⁵ In addition, South Korea's domestic politics has become a full-scale confrontation between the ruling and opposition parties. The recent "Itaewon stampede accident" has caused the Korean parliament to pass a resolution and propose a "dismissal proposal" of Lee Sang-min, Minister of the Interior and Safety, to the Presidential Residence. It is likely to be escalated to impeachment in the future. Although the impeachment should be difficult to succeed,¹⁶ it has aggravated the antagonistic relationship between the Korean government and the parliament. The Yoon administration is seeing gradual improvements in support,¹⁷ but the opposition party may

still constrain it anytime soon. Suppose the confrontations within South Korea continue to deteriorate from political to social levels, it may become one of the uncertainties for Yoon's government to promote South Korea's Indo-Pacific strategy.

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14. "7개월째 무역수지 적자 ...연간 적자, 14년만에 현실로," 매일경제, November 1, 2022, <https://reurl.cc/EXWnQA>.

15. "한국, 아세안 수출 두달 연속 급감...2위 무역시장도 흔들," 중앙일보, December 6, 2022, <https://reurl.cc/zroeKe>.

16. "야, 이상민 탄핵카드 만지작...실현되기까지는 「3대 장벽」 넘어야," 서울신문, December 5, 2022, <https://reurl.cc/06Qjak>.

17. "윤대통령 지지율 41.5%...5개월 만에 40% 넘어" [여론조사공정], 연합뉴스, December 8, 2022, <https://reurl.cc/EXWnbA>.



The Recent Developments of US Chip Bans Against China and Its Impacts on Taiwan

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Topic: International Situation

1. News Highlights

The US government believes that the three most important technologies for the next decade are computing, biotechnology, and green energy generation. The computing technology includes microelectronics, AI, quantum computing, and more. To prevent China from threatening the US position in the future development of these three technologies and their military applications, the US government's new chip ban on October 7, 2022, was more

stringent than the previous measures. The new measures directly specified the restrictive standards of the relevant bans, such as expanding the scope of control on semiconductor processes and defining supercomputers in favor of US control of exports to China,¹ to indirectly constrain China's development of information technology.² The US is currently exploring the feasibility of other export control measures. Although the Biden administration intends to continue the expansion of equipment export

1. The new US rule defines a supercomputer as "a machine capable of performing 100 petaFLOPS in 41,600 cubic feet of volume." This standard threatens to impact China's development of new infrastructure for high-speed computing. The information centers of Chinese Internet companies such as Alibaba could fall into this range and be affected. "Chip War Turns White-hot: the US Unites Industry Leaders Worldwide Against China," *Commercial Times*, October 14, 2022, <https://ctee.com.tw/news/tech/734588.html>.

2. "The US Intends to Expand Its Ban on China," *Commercial Times*, October 22, 2022, <https://ctee.com.tw/news/global/740344.html>.

restrictions, this has caused a backlash from industry stakeholders.³ This article will examine the latest developments and possible implications of the recent US chip bans on China.

2. Security Implications

2-1. The US chip bans on China are approaching a new peak

The Bureau of Industry and Security (BIS) of the US Department of Commerce issued a notice on October 7, 2022, imposing new export controls on advanced computing and semiconductor industries toward China. The notice includes restrictive export controls on semiconductor manufacturing equipment destined for China for “end-use transactions involving certain entities on the Entity List” based on the principle

of “presumption of denial” of exports. The control items are “devices for logic processes below 14/16nm” and “devices for processes below 18nm for DRAM and above 128 layers for NAND flash memory.” At the same time, “some high-end and high-computing processors” were newly added to the list.⁴ Since October 12 of the same year, “US Persons” (US citizens, Green Card holders, persons protected by US law, natural persons in the US, and US corporations) are not allowed to support the development or production of chips by certain semiconductor manufacturers in China without prior approval.⁵ The two-pronged approach controls China’s acquisition of equipment and talents in the semiconductor field. This move has caused companies such as Lam Research and Applied Materials to withdraw their employees and suspend

3. “China Doomed? Netherlands and Japan Joined US Chip Ban,” *The Liberty Times*, December 13, 2022, <https://ec.ltn.com.tw/article/breakingnews/4152936>.

4. “Commerce Implements New Export Controls on Advanced Computing and Semiconductor Manufacturing Items to the People’s Republic of China (PRC),” Department of Commerce, Bureau of Industry and Security, October 7, 2022, <https://www.bis.doc.gov/index.php/documents/about-bis/newsroom/press-releases/3158-2022-10-07-bis-press-release-advanced-computing-and-semiconductor-manufacturing-controls-final/file>.

5. “FAQs for Interim Final Rule - Implementation of Additional Export Controls: Certain Advanced Computing and Semiconductor Manufacturing Items; Supercomputer and Semiconductor End Use; Entity List Modification,” *Department of Commerce, Bureau of Industry and Security*, October 28, 2022, <https://www.bis.doc.gov/index.php/documents/product-guidance/3181-2022-10-28-bis-faqs-advanced-computing-and-semiconductor-manufacturing-items-rule-2/file>.

their advanced production lines in China. To avoid accidentally violating the new regulations, Netherlands' ASML company has announced that its "US Persons" employees have temporarily suspended their business services to Chinese customers.⁶

Since the Biden administration took office, in addition to continuing the policy direction of the Trump era since 2018, it has continued to retard the development of China's high-tech industries even further. The ban after October 2022 has focused on three areas: 1. the first time to start with cutting off the network of talent chain; 2. the expansion of the commercial control list items in a more pervasive manner; 3. execution of "Foreign Direct Product Rule" (FDPR) again to control technology products globally,⁷ including supercomputer-related components and

equipment, such as graphics processors (GPU).⁸ This wave of actions covers the entire spectrum in an unprecedented way and clearly demonstrates the Biden administration's determination to crack down on China's high-tech industry.

2-2. Some major semiconductor equipment manufacturers rebound the ban

China is still the world's largest semiconductor market today. Since 2019, the Trump administration has restricted the development of advanced process technology in China through the Wassenaar Arrangement, which prevents ASML from selling extreme ultraviolet lithography equipment to China.⁹

The Biden administration will likely ask major semiconductor equipment countries such as the Netherlands and

6. "World's Top Chip Equipment Suppliers Halt Business with China," *Financial Times*, October 13, 2022, <https://www.ft.com/content/51f9ec46-ec9e-43a1-ba64-45e0e6e6da71>.

7. This means that foreign companies are restricted from using US technology for military or national security products. i.e., foreign products made with US technology or software must be regulated by the US government. For example, in early 2020, the US Department of Commerce intends to amend the relevant rules to make it mandatory for foreign chip makers "using US chips for manufacturing equipment" to obtain a US license before supplying chips to Huawei, which expands the US control over export licenses. Foreign Direct Product Rule," *The Liberty Times*, February 19, 2022, <https://ec.ltn.com.tw/article/paper/1353084>.

8. "Chip War Turns White-hot: the US Unites Industry Leaders Worldwide Against China," *Commercial Times*, October 14, 2022, <https://ctee.com.tw/news/tech/734588.html>.

9. "SMIC 7nm Chips Lack Competitiveness; the US Expands Control Over DUV Equipment to Affect the Expansion of Matured Manufacturing Processes in China," *The Investor*, August 1, 2022, <https://reurl.cc/GE853>.

Japan to adopt the same export control measures. For instance, the restrictions could be expanded from the originally restricted extreme ultraviolet (EUV) level to the deep ultraviolet (DUV) equipment, especially the immersion DUV types. It is reported that the Dutch and Japanese governments will agree in principle to join the US ban on selling sub-14nm wafer manufacturing equipment to China. If so, the joint US-Dutch-Japanese ban could almost completely block the possibility of China acquiring advanced process equipment and suppress the further development of matured processes.

However, the expected effect of the US ban will depend on the willingness of the two key semiconductor equipment suppliers, Tokyo Electron and ASML, to cooperate. Even if the Japanese government cooperates, it may face a potential backlash from private companies, such as Tokyo Electron, Nikon, Canon, and other small and medium-sized companies.¹⁰ Since the revenue from

China is one of their major profit sources, they will not benefit or be compensated if forced into the semiconductor wars between major powers.

The semiconductor bans in recent years have now caused ASML's senior management to rebound. According to ASML, 15% of its revenue comes from China, but 25% to 30% of US wafer equipment suppliers' revenues come from China. If the US ban restricts the Netherlands, ASML can only sacrifice its interests by giving up related equipment sales to China. However, the US chip makers can sell alternative technologies to China and question the contradictory policy of the US government; this makes the US policy less convincing if it requires the Netherlands to join the new ban.¹¹

In the past, major semiconductor equipment countries were forced to cooperate with export controls on China due to political pressure from the US. However, pressured by profit targets and an imbalanced market,

10. "Japan to Join US Effort to Tighten Chip Exports to China," *Bloomberg*, December 12, 2022, <https://www.bloomberg.com/news/articles/2022-12-12/japan-is-said-to-join-us-effort-to-tighten-chip-exports-to-china?leadSource=uverify%20wall>.

11. "Dutch Chip Equipment Maker ASML's CEO Questions U.S. Export Rules on China," *Reuters*, December 14, 2022, <https://www.reuters.com/technology/ceo-dutch-chip-equipment-maker-asml-questions-us-imposed-export-rules-china-2022-12-13/>.

the companies gradually show their reluctance to cooperate in the long run and unwillingness to become sacrifices in international political wrestling.

3. Trend Observation

3-1. China's countermeasures may have little effect

On December 12, 2022, the Chinese Ministry of Commerce filed a complaint with the World Trade Organization (WTO) dispute settlement mechanism against the US for its targeted export control measures. The complaint accused the US of “continuously generalizing the concept of national security and abusing export control measures in recent years to impede normal international trade in products such as chips, which threaten the stability of the global industrial supply chain and disrupt the international economic and trade order... a typical trade protectionist practice.”¹² With the action, China attempted to persuade the WTO to endorse

its accusation of the US's disruption of the international trade order. The Office of the United States Trade Representative (USTR) said it had received a Request of Consultations from China, but “these US policies are related to national security, and the WTO is not an appropriate forum for discussing such issues.”¹³

The WTO dispute resolution mechanism is an exhausting, time-consuming process; in practice, some past disputes were never effectively resolved through it. China's purpose in bringing this case to the WTO is not to obtain timely, effective legal relief but to demonstrate that it is still a legitimate but injured entity under international trade rules as the US being the violator.

It has also been reported that the Chinese government will propose a more than RMB 1 trillion semiconductor industry support plan in the first quarter of 2023 at the earliest. The plan may encourage domestic semiconductor manufacturing and development and

12. Ministry of Commerce of the People's Republic of China, “Leader of the Department of Articles and Laws of the Ministry of Commerce Answers Reporters' Questions on China's Accusation at WTO Against the US for Abusing Export Control Measures to Restrict Trade in Chips and Other Products,” December 12, 2022, <http://www.mofcom.gov.cn/article/xwfb/xwsjzr/202212/20221203373159.shtml>.

13. “China Starts WTO Dispute Against U.S. Chip Export Curbs,” *Reuters*, December 13, 2022, <https://www.reuters.com/world/china/china-launches-suit-wto-against-us-chip-export-curbs-global-times-2022-12-12/>.

offer financial assistance to purchase related equipment using subsidies and tax concessions to counter the suppression tactics of the US in recent years.¹⁴ However, experience has shown that the fraud case of China's national IC Industry Investment Fund was a major setback in fostering its domestic semiconductor industry.¹⁵ With a culture of corruption within the CCP and the semiconductor industry chain domestication that may take more than a generation, it will take more than a short period to achieve the policy goal of semiconductor self-sufficiency through large amounts of policy subsidies to offset the impact of the US ban.

3-2. The raising chip ban level might benefit Taiwan only in the short term

Officials from Taiwan's Ministry of Economic Affairs have stated that the impact of the chip ban on Taiwan is limited. Since the high-efficiency

computing chips targeted by the ban are still designed by US companies and manufactured in Taiwan, the percentage of such chips in the ban is very low. If the US companies attempt to circumvent the ban, they only need to change their designs, and Taiwanese manufacturers will adjust to the design changes accordingly. Although the ban has covered IC design, chip manufacturing, packaging, and testing directly or indirectly, since it doesn't mean that Taiwan is forbidden to produce the IC in question, the immediate impact on Taiwan's semiconductor industry is still limited for now.¹⁶

However, as the global semiconductor industry has established a complete supply chain over the past decades, the tightening of the US chip policy towards China has caused the chain to deviate from the existing business norm. The new ban covering talents and sub-14nm wafer manufacturing equipment not only restricts chips from matured

14. "Exclusive: China Readying \$143 Billion Package for Its Chip Firms in Face of U.S. Curbs," *Reuters*, December 14, 2022, <https://www.reuters.com/technology/china-plans-over-143-bln-push-boost-domestic-chips-compete-with-us-sources-2022-12-13/>.

15. "China's Semiconductor Industry in A 'Chip Storm' with Complex Investment Relationships of Large Funds Emerge," *Central News Agency*, August 11, 2022, <https://www.cna.com.tw/news/acn/202208110167.aspx>.

16. "Minister of Economic Affairs: US Chip Ban Has Minimum Effect on TSMC," *Economic Daily*, October 19, 2022, https://money.udn.com/money/story/12689/6696861?from=edn_next_story °

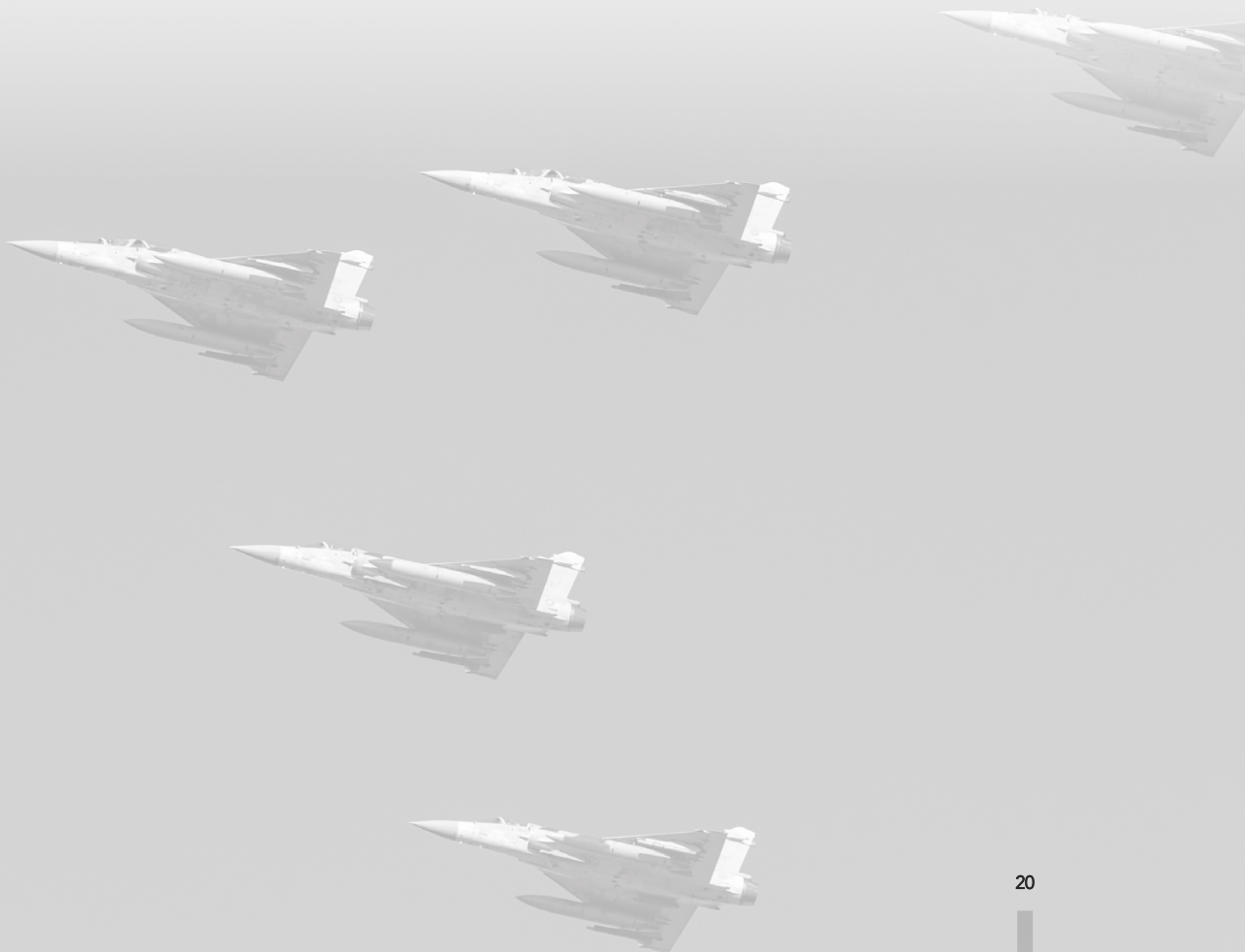
processes but also includes memory, affecting Chinese memory makers' technological development. However, as the demand for computing and memory chips from matured processes in China's domestic market still exists, Taiwanese manufacturers may benefit from the switching effect in the short term. In the long run, since the global semiconductor supply chain had its normal order, and half of Taiwan's exports to China are semiconductors, the escalating one-size-fits-all ban may disrupt the planning of major manufacturers. Under the pressure of reality, Taiwan's semiconductor manufacturers are forced to conform to the ban rules and even to compromise (on resources such as technology and talent). This situation may become more frequent in the future. It is advisable for the Taiwanese semiconductor industry to evaluate the pros and cons early of various possible regulatory consequences in the future and adopt a flexible strategy to maintain operating efficiency and corporate niches.

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The Recent Developments of US Chip Bans Against China and its Impacts on Taiwan



The Strategic Implications of the USAF Development of the B-21 Bomber

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1. News Highlights

The US Air Force B-21 bomber, developed by Northrop Grumman, was launched on December 2, 2022, at Air Force Plant 42 in Palmdale, California. In tribute to the air raid on Tokyo led by Jimmy Doolittle, the World War II US Army Air Force hero, on April 18, 1942, the US Air Force invited Lt. Col. Richard Cole, co-pilot of Doolittle's B-25 bomber, to reveal the name of the new bomber, "Raider," at the Air Force Association's annual meeting in 2016 with a B-25 bomber displayed in the ceremony.¹ The rollout of the B-21 also symbolizes a milestone in the US Air Force's reshaping of the bomber force.

2. Security Implications

In 2015, the US Air Force awarded a contract to the Northrop Grumman Group for the production of the new stealth bomber and released the concept renderings the following year. The design later passed the critical review in 2018. In 2019, the US Air Force selected the 28th Bomb Wing at Ellsworth AFB as the first unit to operate and train with the B-21. Before receiving the B-21 bomber, the base underwent modifications, including a high-security nuclear weapon storage facility, other security facilities, and specialized installations needed to maintain the B-21's stealth surface and other related functions.

1. Stephen Losey, "'Deterrence the American Way': The New B-21 Bomber Debuts," *Defense News*, December 3, 2022, https://www.defensenews.com/air/2022/12/03/deterrence-the-american-way-the-new-b-21-bomber-debuts/?utm_source=Sailthru=email=dfn-breaking.

2-1. Speculating the performance and mission from B-21's appearance

Due to the extreme secrecy of the US Air Force, although the B-21 was officially unveiled, only front-view photos were provided. Still, it's apparent that the aircraft has very good "Low Observation" (LO, or stealth) characteristics. Observing from the front, although the B-21 adopts a full-wing design similar to the earlier B-2 bomber, its seemingly smaller profile may have the weapon payload sacrificed. Its main landing gear is designed with two wheels, unlike the larger and heavier B-2 that employed four tandem main wheels. The front wheelhouse door opens from the side and does not have jagged edges like the B-2.

The small front windshield panels offer adequate upward and forward views, which ensures visual observation of the in-flight refueling procedures; however, the visibility in all other directions is poor. The small, curved side windows are probably a compromise for low visibility and minimization of radar reflection. In fact, there were window-less versions during B-21's design process, and the B-2, developed in the 1980s, was also given serious consideration to eliminating the windows for the best low-visibility profile.

Unlike other US Air Force bombers, the B-21 has a light-gray appearance that means a wider range of mission availability and is not limited to a specific type of attack. The lighter shade means the B-21 may also be suitable for daylight operations. This also manifests that the era that stealth bombers are limited to nighttime operations is coming to an end, but the fuselage color may still change before the design of the B-21 is finalized.

2-2. The B-21 employs the best stealth design

With a wide, flat frontal profile, the B-21 has excellent low observability characteristics as the shapes of its entire fuselage blend smoothly to minimize feature variations and the overall height. To stealth aircraft, the design of the intake ducts always poses a challenge. The B-21's intakes are seamlessly integrated into the upper surface of the fuselage to minimize cross-section visibility; the elimination of support struts and airflow separators in the intake also suggests that this is a twin-engine aircraft. Taking advantage of the latest material, structures, and designs, it's now possible to build and assemble large composite material components to reduce the number of

airframe parts and, therefore, the seams on the exterior, which significantly lowers the radar observability, the high costs for maintaining stealthiness, and the amount of time spent on the ramp for maintenance. This is made possible by the “Digital Twin” technology currently popular in the US aerospace industry, which significantly reduces design time and lowers the cost of building and then revising prototypes in the past.

Due to the very limited publicized information, the overall appearance of the B-21, including the outline of the aircraft, the appearance details such as the most sensitive nozzle design, and the avionics systems, such as the radar and sensors, are not yet widely known. Its performance parameters, including speed, range, maximum altitude, and payload capability, are still classified as well.

2-3. B-21’s future missions will focus on long-range strikes

Obviously, the B-21 will be an extremely efficient aircraft. Its large internal fuel tanks allow long-range flights with fewer in-flight refuelings, and the

large weapon bay can carry a considerable amount of munitions in stealth mode. It’s estimated to have at least half B-2’s capacity or be able to carry a Massive Ordnance Penetrator (MOP) like the GBU-57/B. According to the report, the “keel” of the B-21 is deeper and wider than that of the B-2, suggesting that it may feature a large weapon bay and more fuel capacity for future long-range missions that require direct flights from the continental US to the conflict zones. The width of the B-21 is only about 20 feet shorter than the B-2, but B-21 has a greater swept angle, and the actual wing shape is still unknown.²

As part of the US Air Force’s long-range strike infrastructure, most details of B-21 are still classified, and it may be equipped with some new weapon systems. It is designed to carry long-range stand-off weapons, such as the B61-12 nuclear bomb and cruise missiles with conventional warheads. In addition, the B-21 is also a versatile platform with NTISR (Non-traditional Intelligence, Surveillance, and Reconnaissance) and data-sharing capabilities to handle

2. John Terpak, “Eight Features That Show the New Raider is Not the B-2.1,” *Air Space Forces Magazine*, December 5, 2022, <https://www.airandspaceforces.com/eight-features-that-show-the-new-b-21-raider-is-not-the-b-2-1/?fbclid=IwAR068LPa5E55T9vUiLegdM4OSxyLQTHXmTWFTdbHARmHdRPPWQLsGRUVtZQ>.

missions from intelligence acquisition to combat theater management.³

3. Trend Observation

According to Defense News, as the war between Russia and Ukraine has yet to end, and China's continued psychological and military threats against Taiwan have caused international concern, the unveiling of the B-21 by the US is an apparent stern warning to its potential competitors. The B-21 is designed for future operations in environments with extreme threats to ensure the continued effectiveness of US air power. Defense News believes that if a war breaks out between the US and China, the US Air Force needs bombers capable of infiltrating enemy airspace without being detected, and B-21's excellent stealthiness gives it the ability to perform such penetrating strikes.

3-1. US Air Force to simplify its bomber fleet to reduce costs

The B-21 is scheduled to have its maiden flight in 2023 and will gradually

replace the B-1 and B-2. Since the B-1 and B-2 fleets are in small numbers, they are too costly to operate, support, upgrade, and perform life extension works. The B-1B bomber is currently tasked with cruise missiles for ultra-long-range ground attacks and anti-shipping missions; these missions include 40 hours of non-landing flights launched from the continental US. Since the aging B-1 fleet is soon to be retired and replaced by the B-21, US Air Force expects to deploy B-21 in the mid-2020s while gradually phasing out B-1 until the last in 2036.

Due to the high maintenance and operating cost, the B-1 and B-2 have been on the retirement list for a long time. Following the introduction of B-21, the retirement of B-1 and B-2 will effectively reduce overall operating costs and strengthen the strike capability of the US bomber fleet. With the expandability reserved by the early airframe design, the B-52H, another strategic bomber in service with the US Air Force since 1961, has undergone several structural and performance enhancements. Compared

3. Joseph Trevithik, "B-1B Bomber's New Ultra Long-Range Focus Hints at Future B-21 Ops," *The Drive*, December 14, 2022, <https://www.thedrive.com/the-war-zone/b-1b-bombers-new-ultra-long-range-focus-hints-at-future-b-21-ops>.

with other models, the maintenance cost of the B-52H is relatively lower than other aircraft; and it is capable of carrying a wide range of munitions such as JDAM (Joint Direct Attack Munition) and larger weapons, including hypersonic missiles. The US Air Force plans to replace B-52's current engines with eight Rolls-Royce F130 for improved fuel efficiency and increased service life. The upgraded B-52 will serve in parallel with the B-21 of the next generation to meet the challenges of complex combat environments.

3-2. Standoff deployment of US bombers counters the opponents

The B-1 bombers of the US Air Force's 28th Wing are currently training for ultra-long-range strike missions for the crews to experience the so-called "CONUS-to-CONUS" flights, which start from the Ellsworth Base and end in the same base after non-landing flights. In addition to long flights, the crews are also training for nighttime in-flight refueling and other tasks.

In 2018, the B-1 was certified to carry AGM-158C LRASM (Long Range Anti-Ship Missile), a variation of AGM-158 JASSM (Joint Air-to-Surface Standoff Missile). In 2020, the US Air Force

released photos of loading AGM-158 on B-1 in Guam to demonstrate its airborne anti-ship capabilities in the Indo-Pacific region. The bombers can be rapidly deployed to the edge of the western Pacific Ocean to carry out sea suppression missions and to engage maneuvering sea targets round the clock. Should any conflict occur in the Taiwan Strait or the South China Sea, the US bombers, even if they were from the continental US, can reach the contested area within a dozen hours to quickly respond and suppress hostile vessels. Bombers launched from Guam take only 10 hours to reach the South China Sea. Yet, navy vessels would need a few days to arrive in the same target area, which can be very difficult to keep up with the pace of modern warfare and effectively respond to situation changes.

Although the Russian Navy has the geographical advantage in the Black Sea, it still needs access to the Turkish-controlled Dardanelles and Bosphorus Straits to enter and leave the Black Sea. According to the Montreal Convention, vessels from countries that do not have a Black Sea shoreline are not allowed to stay in the Black Sea for more than 21 days, and warships over a certain tonnage



are not allowed to enter or leave either. To the US, bombers can circumvent such restrictions and carry out strike missions against the targets in the Black Sea and even the surrounding areas, such as the Middle East. In May 2020, the US Air Force sent two B-1Bs on long-range, non-landing flights to the Black Sea and participated in joint exercises with Ukrainian and other air forces to practice striking targets in Russia and intercepting Russian ballistic missiles. A B-1 can carry up to 24 AGM-158C anti-vessel missiles and launch them in safe airspace far away from enemy air defense missiles to suppress the enemy surface ships. That means it takes only two B-1s to effectively suppress the current establishment of Russia's Black Sea fleet of about 50 ships of different sizes.⁴

3-3. Agile Combat Employment of bombers counters the opponents

In recent years, the US Air Force has emphasized the Agile Combat Employment (ACE) concept that deploys

bombers to contested areas through long-range flights to verify the Dynamic Force Employment capabilities for its “strategically predictable but tactically unpredictable” goal. As adversaries continue to improve their Anti-Access/Area Denial (A2/AD) capabilities, large frontline US bases could be attacked by the enemy and lose their ability to support the war effort. The long-range bombers provide tremendous flexibility and will continue to acquire the capability of delivering new weapons, including hypersonic missiles, in the coming years to enhance their long-range strike capability further. In the future, the bombers will play an important role in sea suppression missions to share the burden on the navy and increase the arsenal options available to the US military in the Indo-Pacific region. This makes it more difficult for adversaries, especially Russia and China, to predict the military deployment and maneuvering of the US forces that could pose threats to them.

4. Joseph Trevithik, “Air Force Reveals B-1Bs Were Practicing Decapitating Russia’s Black Sea Fleet Last Week,” *The Drive*, June 9, 2020, <https://www.thedrive.com/the-war-zone/33787/air-force-reveals-b-1bs-were-practicing-decapitating-russias-black-sea-fleet-last-week>.



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The Strategic Implications of the USAF Development of the B-21 Bomber



A4 Revolution: Exacerbating Conflicts between the State and Society in China

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Topic: CCP Politics

On the 26 and 27 of November 2022, Shanghai residents gathered on Wulumuqi Road to mourn the victims who died in the fire due to excessive preventive controls on the 24th in Urumqi, Xinjiang. However, the mourning event turned into a protest. Some people held up and pasted white paper to the tree. Some people even shouted slogans such as “Xi Jinping, step down!” and “Communist party, step down!” Meanwhile, many universities in China joined the protests. The students from Beijing, Tianjin, and Nanjing gathered and held up white paper and slogans during the demonstration. Therefore, the media started to use the White Paper Movement or White Paper

Revolution to describe the protests happening in numerous places in China.¹The CCP has implemented the Zero-COVID policy for almost three years. Why did the White Paper Movement break out at this time? How is the White Paper Movement going to influence the relations between the state and society in China? This article will analyze the cause of the White Paper Movement and predict the future trend from the events that happened these days.

White Paper Movement: The Simmering Anger of the People Finally Exploded

In recent years, the relations between

1. Chu Bailiang, Wang Yuemei, Chang Che, Amy Chang Chien, “After a Deadly Blaze, a Surge of Defiance Against China’s Covid Policies,” *cn.nytimes.com*, November 2nd, 2022, <https://cn.nytimes.com/china/20221128/china-covid-protest/zh-hant/>.

the state and society have been very tense. The economic and social problems triggered by the Zero-COVID policy have further led to public grievances. The Chinese people have faced normalized quarantine procedures and PCR testing over the past three years. Even their livelihoods and cross-provincial activities are affected due to the regional differences in the Health Code standards.² After Shanghai entered a strict lockdown in mid-2022, shocking China and the world, a series of secondary disasters happened due to strict lockdown measures. For example, the quarantine bus crash in Guiyang was caused due to the local authorities rushing those who tested positive to a quarantine facility, killing 27 of those on board. In Lanzhou, a boy was poisoned by gas at home, and the lockdown delayed potentially lifesaving treatment. In mid-October, Foxconn's Zhengzhou Factory was closed to align with the lockdown policy. With the pressure from the Zero-

COVID policy, the employees had to walk home from the factory.³ On November 11th, the CCP rolled out the "Notice of Further Optimizing the Prevention and Control of COVID-19" ("The 20th Notice"), which is seen as the contributing factor to the White Paper Movement. The 20th Notice is seen as an adjustment to loosen the Zero-COVID policy, which is self-contradictory. Compounded with the chaos brought by the overly strict implementation of the policy, public grievances are boiling over.⁴ Although the CCP implemented strict internet censorship to stop the above incidents from spreading, we can imagine that the public grievances are exacerbated due to the secondary disasters and the local government's preventive control performance. The above-mentioned state-social interaction characterizes the political regime of China. Moving from authoritarian to totalitarian or autocracy, the CCP lacks checks and balances, and

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2. Luo Ya, Cheng Jing, "The CCP Proposed to Unify the Health Code. Analysts say: It's Endless Torture to Civilians," *hk.epochtimes.com*, September 5, 2022, <https://hk.epochtimes.com/news/2022-09-05/38450248>.
 3. Li Xueli, Tang Lianguang, "The fire of Urumqi sparked protests in China. The White Paper Movement Spread on the Internet. Citizens in Shanghai: The Protestors Finally Gathered Together," *The Reporter*, November 27, 2022, <https://www.twreporter.org/a/covid-19-urumqi-lockdown-fire-protests-across-china>.
 4. "The 20th Notice: Public Grievances are Boiling over Due to Inconsistent Preventive Controls; The Government is Now Promoting Viruses are Not Scary and Rolled out Q&A to Ease Public Concerns," *The News Lens*, November 18, 2022, <https://www.thenewslens.com/article/176740>.

extreme and impulsive policies such as the Zero-COVID policy were born. The state governs the society and the local governments with a heavy hand, leading to inappropriate responses to the central policies from the local governments—they either do nothing or overdo it.⁵ Socially, the state strongly suppresses mechanisms or organizations that could alleviate conflicts, leaving the people with no channel to voice their opinions. Public grievances are like a pressure cooker without a pressure valve. The pot is full of pressure and will eventually break down.

From “No Lockdown” to “CCP, Step Down”

It is worth noticing that slogans such as “Xi Jinping, Step Down!” and “CCP, Step Down!” appeared during the protest. Since China’s Reform and Opening-up,

few people have dared to criticize CCP leaders during a protest. These slogans may be inspired by the Beijing Sitong Bridge protest prior to the 20th National Congress of the CCP, but also show the difficulty the CCP is currently facing.⁶ Since the Tiananmen Square incident, social movements in China have rarely been confrontational or political, let alone targeting top leaders of the CCP. In the past, protests in China were usually about solving labor or land dispute and were mainly material. These protests were seldom cross-provincial, and the targets of the people were limited to the business owners or local government, with the central government being the “judge”. Past opinion polls also indicated that Chinese people had much more trust in the central government than in the local government.⁷ Therefore, the CCP

5. Hsu Szu-Chien and Chan-Hsi Wang, “The Disappearing Authoritarian Resilience-State Social Relations under Xi Jinping,” edited by Xu S., *The Great Chess Game of Xi Jinping: The Limits of Post-Totalitarian Transformation* (Taipei: Left Bank Culture, 2016), p. 83-114.

6. On October 13, 2022, shortly before the 20th National Congress, a protester hung a banner against the CCP and Xi Jinping on the Sitong Bridge in Beijing, one of which read, “Say no to Covid tests, yes to food. No to lockdown, yes to freedom. No to lies, yes to dignity. No to Cultural Revolution, yes to reforms. No to the leader, yes to vote. Don’t be a slave, be a citizen. Remove dictator and national traitor Xi Jinping. The foreign media calls the incident ‘The Sitong Bridge protest’ and the protestor ‘The Sitong Bridge Warrior’. The iron is still there to make weapons: Beijing Sitong Bridge banner incident: ‘Remove dictator and national traitor Xi Jinping’,” *UDN Global Vision*, October 14, 2022, https://global.udn.com/global_vision/story/8662/6686023.

7. Hsin-Hao Huang, “Explaining Hierarchical Government Trust in China: The Perspectives of Institutional Shaping and Perceived Performance,” *Political Science Review*, Vol. 59, No. 3, March 2014, p. 55-90.

could shift social pressure onto the local government to maintain regime stability. However, when the CCP regime moves towards totalitarianism or dictatorship, Xi Jinping and the top elites around him will be held accountable. Therefore, even if the CCP succeeds in suppressing the protests in various places this time, there will be more protests similar to the White Paper Movement in the future.

The state continues to govern with a heavy hand, but backlash from domestic public opinion has emerged

The White Paper Movement represents the overflowing public discontent in Chinese society, so much so that many people are willing to gather for the protest despite the risk of being arrested or punished. The CCP is likely to take action to suppress and arrest protesters and increase its efforts to block information on the Internet to prevent the protests from escalating. As mentioned before, the CCP under Xi Jinping has destroyed the “pressure valve” where people can voice opinions and fight for rights, forcing the people to gather and hold Xi Jinping and the top leaders of the CCP accountable. The situation would worry the CCP even more and force them

to take tougher actions against the people as they are afraid conceding might lead to a chain reaction or even the collapse of the regime. Although the CCP may continue to promote the 20th Notice to relax local prevention measures and alleviate public discontent, the White Paper Movement represents a challenge to the operation and stability of CCP politics. The social conflicts will likely become more intense and politicized in the future, posing a considerable threat to the CCP regime. Meanwhile, the internal social conflicts in China may prompt the CCP to take a tougher stance towards cross-strait affairs to shift domestic discontent with the CCP regime. The future development of the cross-strait situation deserves our continuous attention.

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