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Annexation of Taiwan: A Defeat From Which the US and Its Allies Could Not Retreat

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Gabriel Collins, J.D., Baker Botts Fellow in Energy & Environmental
Regulatory Affairs

Andrew S. Erickson, Ph.D., Professor of Strategy, U.S. Naval War College's
China Maritime Studies Institute; Visiting Scholar, Harvard University's
Government Department

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Table of Contents

Executive Summary	1
Methodology and Scope	3
Introduction: Taiwan at Risk – The Growing Danger of PRC Control	4
Testing Eisenhower, Biden, and Beyond: PRC Military Buildup and Displays of Force	5
Annexation Short of Outright Invasion Could be Potent for China, Devastating for US Interests	18
The Decade of Maximum Danger	21
Consequence 1: Semiconductor Starvation (or Coercion)	24
Taiwan Chip Disruption Would Be Far Worse Than Shortfall During Pandemic	25
How Would a Sustained Taiwan Chip Outage Affect the Global Economy?	26
Alternative Scenario: PRC Coercive Takeover of TSMC (Silicon Škoda Works)	29
What if Beijing Succeeded?	30
Consequence 2: Trade Exclusion and Economic Coercion	38
Consequence 3: Linchpin of the First Island Chain – Alliance Erosion	49
The Differentiated Credibility Test: Beijing’s Strongest Strategy for Achieving Hegemony in Asia	54
Consequence 4: Military Threats and Nuclear Proliferation	64
Assessing the Nuclear Weapons Potential of Key East Asian Powers	68
Potential Parameters of a Multiregional Nuclear Proliferation Cascade	76
US Policymakers Must Act Urgently to Deter China	78
Conclusion: Eisenhower’s Warning – Why Taiwan Matters for America	81
Appendix 1: Deterring or Defeating by Denial a PRC Attack on Taiwan – Recommendations for Taipei (and Washington)	87
Porcupine Defense: Best Overall Concept	88
Appendix 2: Chips Down, No Retreat – Semiconductor Analysis	96
Software Cannot ‘Eat the World’ Without Digital Hardware Powered by Cutting-Edge Chips	96
Appendix 3: Semiconductor Takeover Prevention Analysis	102
Prospective Ways in Which a PRC Attempt to Control TSMC Could Fail	102
Appendix 4: Trade Exclusion and De-Dollarization	105
Appendix 5: PRC Missile Force and Nuclear Developments	108
Author Affiliations	118
Notes	118

Executive Summary

This paper addresses one of the most dangerous, consequential flashpoints on the planet today, and for years into the future: a potential attempt by the People's Republic of China (PRC) to annex Taiwan. The aftermath would likely trigger the worst economic shocks experienced in more than a century, unleashing a cycle of repression and diminishing the quality of life for populations across Asia and beyond, with devastating impacts on American interests and Americans' well-being. Moreover, China's annexation of Taiwan could exacerbate regional tensions and extend into a broader, global conflict. At stake are crucial interests such as the semiconductors that power today's big data world and the national security of U.S. allies and partners. Neighboring states' responses to PRC expansion could also result in the erosion of American military advantages as well as the destabilization of democracy and the international order.

With Xi Jinping, the paramount leader of the PRC, consolidating power and approaching the zenith of his ambitions and ability to execute them, this increasingly worrisome scenario and its profound implications demand immediate attention. With so much at stake, it is critical to take proactive measures to avert such a crisis. U.S. policymakers must urgently double down on efforts to deter Xi throughout this "decade of maximum danger."¹

Key findings presented in this paper include:²

- Xi has strong motivations to annex Taiwan through the threat or use of force. The key objective would be to assert political control over the island and capture much of its industrial and technological infrastructure intact while attempting to limit escalation and thwart intervention. Such a move would mark a critical step toward achieving Xi's so-called "China Dream" and fulfilling the Chinese Communist Party's (CCP) promise to reclaim all major territories historically associated with China in some form, of which Taiwan is the crown jewel.
- Due to Taiwan's global dominance in the semiconductor industry, it is important to emphasize that America could not fully retreat from such a defeat. A coercive unification of Taiwan with China would likely disrupt global techno-industrial supply chains for years to come.
- Under some scenarios, the disruption would emanate from Beijing achieving control over an operational Taiwanese semiconductor industry. Under other scenarios involving kinetic action or an embargo by a U.S.-led tech alliance, semiconductor supply disruptions would likely be substantially worse than the challenges created by the most intense phase of the COVID-19 pandemic in 2020–21.

- A major semiconductor supply disruption triggered by PRC coercive annexation of Taiwan could result in global economic loss on a par with, or worse than, that caused by World War II – the largest decline in gross domestic product (GDP) in the past 120 years.
- A disruption in the supply of advanced Taiwanese semiconductors would stall progress in critical fields such as medicine and materials science. Inferior substitutes would, in a best case, require massively increased electricity use – with major energy costs and climate security impact – merely to deliver vital societal functions at reduced performance and potential.
- In a scenario where Indo-Pacific alliances are compromised and the majority of global advanced semiconductor production is either destroyed or falls under Beijing’s sway, the United States risks becoming an embattled “Fortress America” in a world increasingly under Beijing’s influence and control. This would set the stage for insecurity, economic deprivation, and – quite possibly – future warfare between China and the United States.
- The PRC’s successful annexation of Taiwan would cripple U.S. regional credibility and seriously damage its alliance relationships. China would likely be perceived as Asia’s clear dominant power if it subsumed Taiwan while managing to deter (or defeat) a U.S.-led military intervention.
- To Beijing, conquering Taiwan is a necessary, albeit insufficient, milestone in China’s quest for regional dominance and global preeminence. Accordingly, PRC success in coercively annexing Taiwan would not end or stabilize the current competition of systems between the United States and China and the associated risk of armed conflict. Instead, it would likely accelerate and intensify it.
- Economic exclusion from East/Southeast Asia or access conditioned on acquiescence to a PRC-dominated system would threaten American security and prosperity. Moreover, unlike Washington, a regionally-dominant Beijing would likely reject strategic hedging by members of the Association of Southeast Asian Nations (ASEAN).
- Beijing’s core political and informational motivations for extinguishing Taiwan’s autonomy underscore the island’s unique importance. As a beacon of capitalist democracy, it demonstrates the ability of a society with diverse Chinese (and other) heritage to address repressive history, value individual life and liberty, engage cooperatively abroad, and chart its own course.
- China’s gaining control of Taiwan would compromise sensitive technologies and information, degrade monitoring of PRC military operations, and enable PRC dominance over the primary approaches to South Korea, Japan, and the Philippines. This could significantly affect the ability of Seoul, Tokyo, and Manila

to act autonomously, thereby calling into question U.S. commitments to its allies. It could also drive Seoul and Tokyo to seriously contemplate developing nuclear weapons as a means to backstop their autonomy.

- If American allies in Asia were to lose confidence in U.S. security guarantees, a cascade of multi-regional nuclear proliferation pressures would be unleashed. Competition among the three global nuclear superpowers – China, Russia, and the United States – would intensify, and India, Pakistan, and potentially Japan, South Korea, Iran, Saudi Arabia, and Israel could be prompted to develop or increase nuclear capabilities. This process could add dozens of nuclear warheads to global stockpiles each year.
- PRC attainment of hegemony in East/Southeast Asia could also destabilize China-Russia relations and other pivotal international dynamics.

In sum, Taiwan is in many ways akin to the “West Berlin” and “West Germany” of a Cold War 2.0.³ In this decade of maximum danger, American president(s) will likely face Taiwan-related scenarios at least as severe as those Dwight D. Eisenhower confronted during the First and Second Taiwan Strait Crises of 1954–55 and 1958 – but without the overwhelming military advantages that helped Bill Clinton diffuse the Third Taiwan Strait Crisis of 1995–96, or the inherently limited nature of the Fourth Taiwan Strait Crisis during the Biden-Harris administration in 2022.⁴ At stake are critical American and allied interests, the post-war international order, and the peace, prosperity, and freedom it undergirds. American policymakers must act urgently to deter PRC aggression and maximize capabilities to prevent China from coercively annexing Taiwan.

The risk window is here and now. The PRC’s publicly documented military modernization continues as Beijing works to shape the battlespace through an all-domain pressure campaign including political warfare, cyber and space activities, and physical deployment of military platforms and weapons. These actions are essential preconditions for coercive annexation and reflect the increasingly tight alignment between PRC capabilities and intentions concerning Taiwan. Therefore, absent a substantial U.S. investment in and reinforcement of effective deterrence, Beijing will likely attempt annexation of Taiwan before this decade is out. Safeguarding Taiwan should thus be urgently and relentlessly prioritized in American defense and foreign policy efforts. Some of America’s most vital interests hang in the balance.

Methodology and Scope

This paper is a work of anticipatory scholarly research based solely on unclassified open sources.⁵ It focuses on specific outcomes that would likely result from the PRC’s coercive annexation of Taiwan in the form of a prioritized survey rather than exhaustive explication. If the PRC were to extinguish Taiwan’s current existence as a free,

democratic polity, it would likely trigger a multitude of direct consequences including disruptions to semiconductor supply chains, the economic displacement of the United States in Asia, the erosion of U.S. alliances, and nuclear proliferation on a global scale. Other territorial conquest/conflict scenarios – for instance, dispute(s) over features in the South or East China Seas – also carry potentially severe consequences but are beyond the scope of this paper and thus excluded.⁶

Introduction: Taiwan at Risk – The Growing Danger of PRC Control

“Some indeed still hold to the now somewhat obvious delusion that we ... can safely permit the United States to become ... a lone island in a world dominated by the philosophy of force. ... Such an island represents to me and to the overwhelming majority of Americans today a helpless nightmare of a people without freedom ... lodged in prison, handcuffed, hungry, and fed through the bars from day to day by the contemptuous, unpitying masters of other continents.”

– President Franklin D. Roosevelt, June 10, 1940⁷

As PRC options to credibly use force in the region increase, a pressing strategic question arises: What are the consequences for the United States if China were to succeed in coercively annexing Taiwan? This paper examines the potential for “coercive annexation” and how Beijing could attempt to bring Taiwan to heel politically while capturing much of the island’s industrial and technological infrastructure intact through (ideally) limited use of force.⁸ “Coercive annexation” grows from two lexical roots – coerce, “to achieve by force or threat,” and annex, “to incorporate (an additional geographic area) within the domain of a country, state, etc.”⁹ Put simply, one political entity employs force or the threat thereof to induce another to cede its autonomy and capacity for self-determination.

Coercive annexation of Taiwan by China is among the most consequential potential security contingencies the United States faces, against a formidable adversary.¹⁰ This paper describes four significant repercussions that could follow. First, given Taiwan's global leadership in the production of advanced semiconductors, the United States could face a severe semiconductor shortage. Second, with Taiwan under its control, China could potentially compromise American trade access and leverage economic coercion to assert its dominance. Third, the credibility of U.S. alliances would likely diminish, leading to their eventual disintegration. Lastly, as U.S. alliances erode, other nations may be prompted to develop nuclear capabilities, resulting in nuclear proliferation on a global scale.

In summarizing similar consequences to those explicated here, U.S. Indo-Pacific Command concludes, “China’s assimilation of Taiwan – with or without a fight – would mark a significant shift of (the) balance of power in the 21st century with global repercussions.”¹¹ Figure 1 depicts these consequences, including key victories for China and losses for America, should Taiwan fall.

Figure 1 – US Indo-Pacific Command: ‘Why Taiwan Matters’

UNCLASSIFIED
Why Taiwan Matters

ENSURING A FREE AND OPEN INDO-PACIFIC

In the event of a successful effort by Beijing to compel unification,

<p style="text-align: center;"><i>China would gain:</i></p> <ul style="list-style-type: none"> • A major “China rejuvenation” victory • Extraordinary new legitimacy for Xi and CCP • Ideological win over democracy, freedom, the West • Assimilation of a major economy • Confidence in pursuing other territorial claims • New strategic advantages for projecting military power • Domination near global sea lanes and chokepoints • Control over Taiwan’s critical technology (e.g., largest global semi-conductor manufacturer) • Greater international deference to China’s comprehensive national power & influence • Momentum for new forms for assertiveness 	<p style="text-align: center;"><i>the U.S. would lose:</i></p> <ul style="list-style-type: none"> • Credibility regarding American commitment to a Free & Open Indo-Pacific • A Chinese-speaking democracy in Asia • Access to a U.S. “top ten” trade partner • Allied & partner confidence in U.S. security commitments and willingness to protect friends • Credibility of U.S. military in eyes of adversaries (weakened deterrence) • Ability to forestall further erosion of international norms, rules-based order • International influence and standing. Enhanced perception of U.S. decline
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China’s assimilation of Taiwan—with or without a fight—would mark a significant shift of balance of power in the 21st century with global repercussions

Source: U.S. Indo-Pacific Command.¹²

Testing Eisenhower, Biden, and Beyond: PRC Military Buildup and Displays of Force

Powered by what for years was the world’s largest population and fastest-growing, multitrillion-dollar economy (distinctions achieved by India in 2023), China has achieved the most dramatic military buildup since World War II.¹³ Leveraging its extensive human-organizational technology acquisition and application infrastructure, Beijing has built the largest air, land, sea, and rocket forces in the Indo-Pacific, and a substantial portion of this combat power is purposefully deployed against Taiwan.¹⁴

Beijing already commands the world's largest active-duty military force, ground forces, navy, other maritime forces, and overall conventional ballistic and cruise missile forces.¹⁵ It also controls the region's largest military aviation forces and what is "soon to be the world's largest Air Force."¹⁶ According to the Pentagon, "China has the world's leading hypersonic arsenal, and has dramatically advanced its development of both conventional and nuclear-armed hypersonic missile technologies during the past 20 years."¹⁷ As Appendix 5 details, under Xi, China has abandoned its previous relative numerical restraint in developing and deploying nuclear weapons and is now engaged in a historic buildup to firmly become a top-three nuclear power together with Russia and the United States.

Nuclear weapons policy is the sole preserve of China's paramount leader. Here Xi is making his mark with a nuclear breakout that departs greatly from his predecessors' relative quantitative restraint regarding the production and deployment of nuclear weapons. An extensively researched New York Times investigation reveals his prioritization and rationale: "Nineteen days after taking power as China's leader, Xi Jinping convened the generals overseeing the country's nuclear missiles and issued a blunt demand. China had to be ready for possible confrontation with a formidable adversary, he said, signaling that he wanted a more potent nuclear capability to counter the threat."¹⁸

Nearly a dozen years later, China still refuses to explain its nuclear ramp-up publicly, or even to discuss it behind closed doors with the United States. However, the overall purpose is clear. Xi's nuclear ramp-up is part of his goal to "build a strong strategic deterrent system" that he articulated in his report to the 20th Party Congress in 2022, drawing on previous doctrine and planning.¹⁹ As the Pentagon explains, PRC deterrent system strengthening consists of both "the development of traditional nuclear deterrent force building and the construction of conventional strategic deterrent forces in emerging fields and technologies." The chief motivation is likely "threat perceptions of the United States and ... specific concerns over Taiwan." Accordingly, Beijing views such efforts as a "'trump card' for safeguarding the PRC's core interest of achieving unification with Taiwan."²⁰ For the PRC under Xi, any considerations regarding arms racing, strategic instability, or escalation appear to be trumped by an overriding goal: to have demonstrated capabilities available in every domain and at every rung of the potential escalation ladder and thereby attempt to dissuade potential adversaries by convincing them that Beijing can meet and overcome them in any scenario — particularly regarding Taiwan.

Under the auspices of the People's Liberation Army Air Force (PLAAF), as part of an integrated air defense system extending robustly and redundantly out to 300 nautical miles (556 kilometers/km) from its coast, China also has one of the world's largest, most sophisticated, and longest-range surface-to-air missile forces.²¹ And with one of

the world's most extensive sets of surveillance and reconnaissance architecture, including a number of operational satellites second only to those of the United States, PRC forces are equipped with increasing accuracy and reliability. The Pentagon documents that "As of March 2022, China's ISR (intelligence, surveillance, and reconnaissance) satellite fleet contained more than 290 systems – a quantity second only to the United States, and nearly doubling China's in-orbit systems since 2018." Furthermore, "The PLA owns and operates about half of the world's ISR systems, most of which could support monitoring, tracking, and targeting of U.S. and allied forces worldwide, especially throughout the Indo-Pacific region."²² Most recently, on June 17, 2024, General Stephen Whiting, Commander, U.S. Space Command, encapsulated China's military space development and its terrestrial battlespace significance: "In the last six years, [China has] tripled the number of intelligence, surveillance, and reconnaissance satellites they have on orbit. Hundreds and hundreds of satellites...purpose-built and designed to find, fix, track, target, and yes, potentially engage U.S. and allied forces across the Indo-Pacific AOR [area of responsibility]."²³

Meanwhile, in the maritime domain, the PLA Navy (PLAN) already operates considerably more battle force ships than the U.S. Navy, making it the world's largest naval fleet numerically at over 370 ships and counting.²⁴ This margin is likely to increase throughout this decade of maximum danger as the world's largest shipyard infrastructure continues to pursue the most extensive and fastest production-capacity expansion since World War II and a buildout of naval power unparalleled in the modern era.²⁵ Even with the PLAN having transferred 22 Jiangdao-class corvettes to China's Coast Guard in 2021, the Pentagon anticipates 395 PLAN ships by 2025 and 435 by 2030.²⁶ All told, a substantial portion of China's armed forces is effectively dedicated to addressing various aspects of a potential Taiwan contingency. "China's official defense budget continues to grow to around \$230 billion in 2022, about 12 times larger than Taiwan's defense budget," the Pentagon explains, "with much of China's defense budget focused on developing the capability to unify Taiwan with the PRC by force."²⁷ Regardless of how analysts measure and quantify China's defense budget, it is clear that Beijing controls an enormous and powerful arsenal that targets Taiwan tremendously.

Since its establishment in 1949, the PRC has been threatening Taiwan with an increasing array of military forces and activities. Figure 2 depicts the nearly 75 years of CCP-directed efforts from the perspective of Taiwan's Ministry of National Defense.

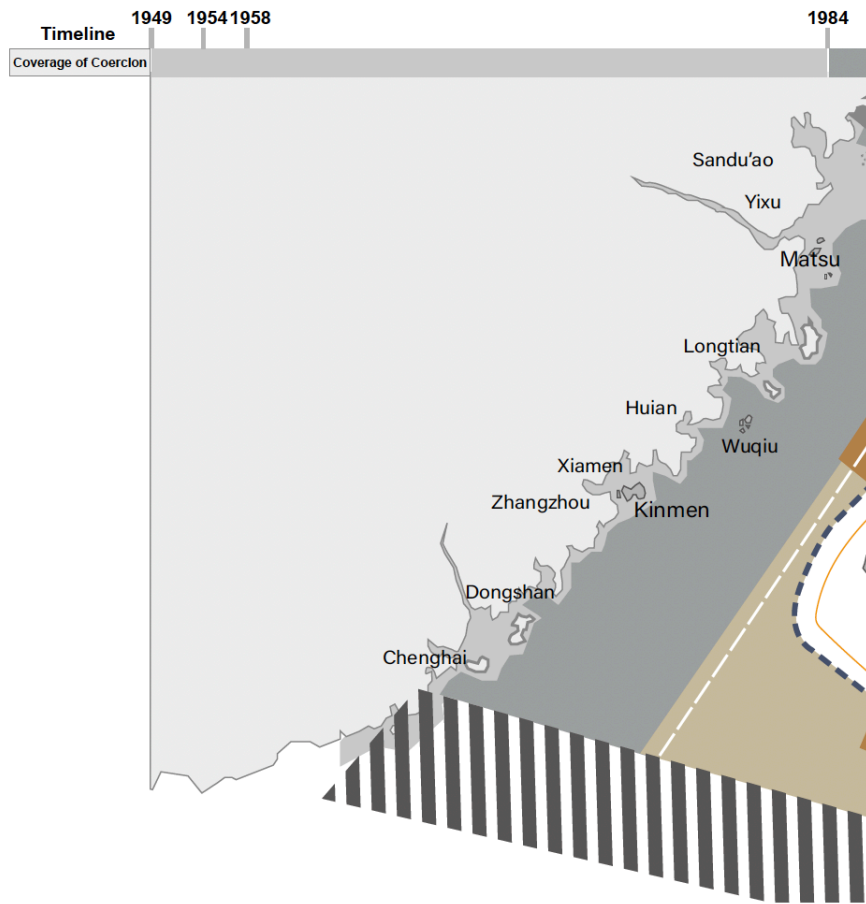
Under Xi today, China's armed forces offer an increasing menu of coercive options. PRC "responses" to then-House Speaker Nancy Pelosi's August 2022 visit to Taiwan and Taiwan President Tsai Ing-wen's meeting with then-Speaker Kevin McCarthy and other U.S. officials in April 2023 in California illustrate the evolving trend. Both involved premeditated, punitive PLA pouncing. Known as the Fourth Taiwan Strait Crisis of 2022, the PLA's military exercises during this time were even more aggressive than those

during the Third Taiwan Strait Crisis of 1995–96.²⁸ They occurred simultaneously and in close proximity to Taiwan’s main island and were unprecedented in the number of affected zones. PLA activities through the end of August 2022 and beyond seemed designed to impose “confusion and uncertainty,” assert a “new status quo” or a “new normal,” and exploit a “battle lab” for practicing operations relevant to the conduct of future military campaigns.²⁹

Pelosi traveled to Taipei on Aug. 2–3, 2022. As early as July 28, Beijing commenced military activities and coordinated messaging in an attempt to deter her from visiting Taiwan. After that failed, China announced live-fire exercises and live-fire drills in the South China Sea (Aug. 2–6), flew PLA aircraft close to the strait centerline on Aug. 2, and ominously cancelled civilian flights at multiple Fujian Province airports.³⁰ The day after Pelosi’s departure, PLA forces rapidly launched unprecedented activities including simulated joint blockade and joint firepower strike training operations in six zones surrounding Taiwan that would have required significant advance preparation.³¹ Furthermore, the PLA Rocket Force (PLARF) fired ballistic missiles into impact zones in waters surrounding Taiwan and conducted unprecedented overflights of Taiwan’s main island itself with at least four ballistic missiles.³² Five ballistic missiles even landed in Japan’s exclusive economic zone, with one ballistic missile reportedly landing near Japan’s Yonaguni Island, only 68 miles from the coast of northeastern Taiwan’s Yilan county.³³ “I saw a big splash of water when the missile fell into the sea,” recalls Yonaguni local Shotaro Maja. “We were very worried.”³⁴ Residents of Matsu, with whom one of the authors met and spoke with extensively there in March 2024, suggested that it was possible to see and hear missiles flying overhead from the small archipelago near PRC shores in Fujian province. Matsu’s 36 islands and islets are among Taiwan’s 168 outlying islands and features, many of which are both strategically situated and acutely vulnerable to PRC predations.

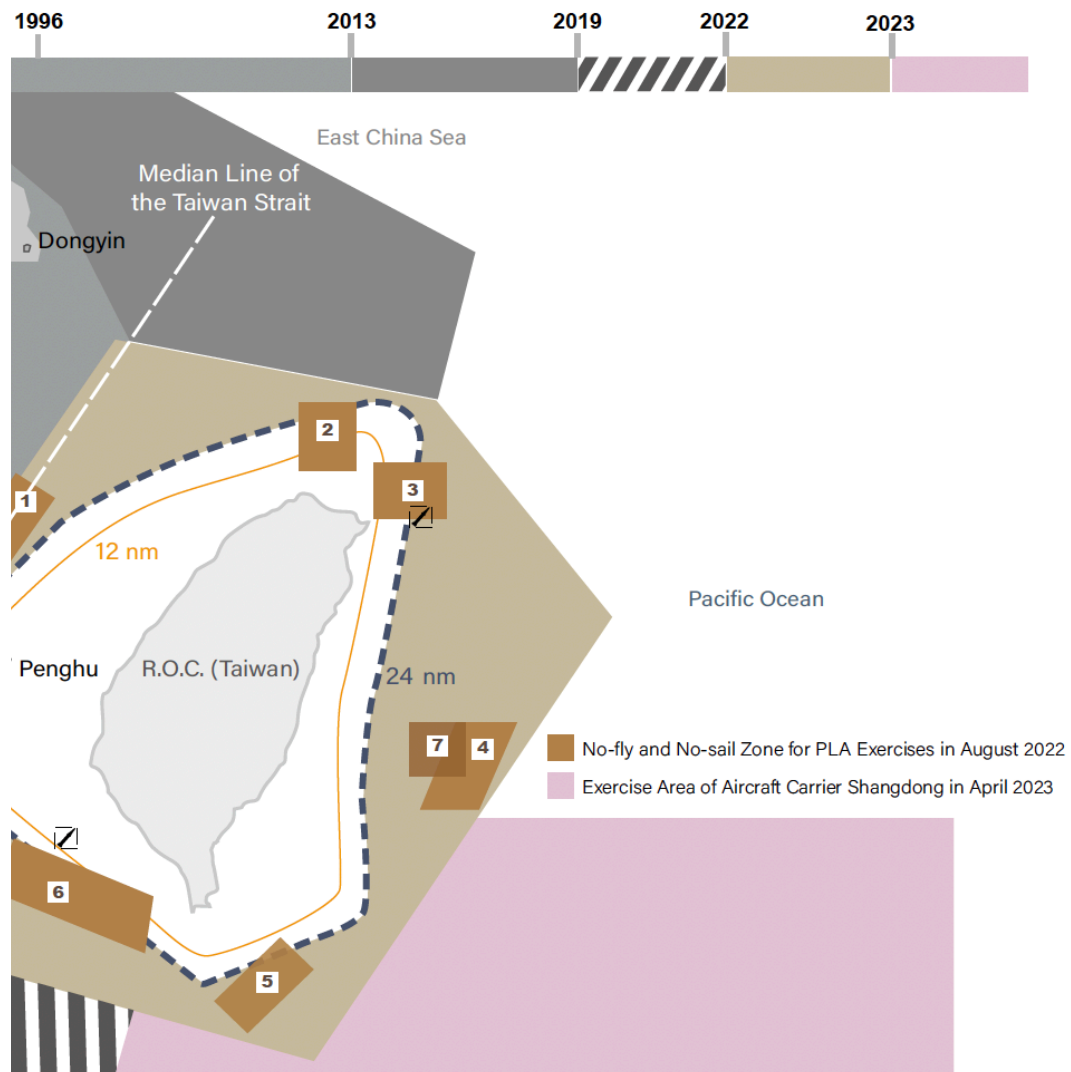
Military drills conducted by the Eastern Theater Command included flying more than 250 fighter aircraft into Taiwan’s self-declared air defense identification zone (ADIZ) and operating 13 PLAN vessels around Taiwan.³⁵ On Aug. 5 alone, the PLA deployed 68 aircraft and 13 vessels around Taiwan. It dispatched 49 aircraft into Taiwan’s ADIZ and across the median line, the second-highest on a single day. From Aug. 2–8, the number of PLA aircraft entering Taiwan’s ADIZ each day rose nearly tenfold from prior baselines to 26 per day on average.³⁶ These acts caused merchant ships to delay sailing to Taiwan’s largest port, Kaohsiung.³⁷

Figure 2 – Growing PRC Threats Since 1949 as Depicted by Taiwan’s Ministry of National Defense



Focus of Policies towards Taiwan	Armed Liberation	Peaceful Liberation	Peaceful United Front	Peaceful Unification and One Country, Two Systems (Never Renounce the Use of Force against Taiwan)		
Types of Military Threats	Activities of PRC's aircraft and vessels along its shorelines		PLA assets' being away from shorelines and close to the median line	Vessels trans-TC long-distance training (passing through the Taiwan Strait)	Aircraft constant incursions against Taiwan	
Major Events	<ul style="list-style-type: none"> ● Battle of Gunin' tou in 1949 ● Battle of Yijiang' shan Islands and Retreat from Dachen Archipelago. ● Battle on August 23rd 1958 ● Establishment of U.S.-PRC diplomatic relations in 1979 		<ul style="list-style-type: none"> ● The Lifting of Martial Law in 1987 // Missile Crisis in 1995 // Missile Crisis in 1996 	<ul style="list-style-type: none"> ● Establishment of East China Sea ADIZ and the first trans-TC training of Liaoning and aircraft in 2013 ● The first incursion of vessels and aircraft against Taiwan in 2016 ● The first maritime patrol of PLA vessels in 2018 		
Manufacture of Major Weapons			Type 071 Amphibious Transport Dock x 4	Type 071 Amphibious Transport Dock x 4 Type 075 Landing Helicopter Dock x 2 Aircraft Carrier Liaoning	J-15 carrier-borne fighter Y-20 Transport	

[PRC's Policies towards Taiwan and Illustration of Heightening Threats since 1949]

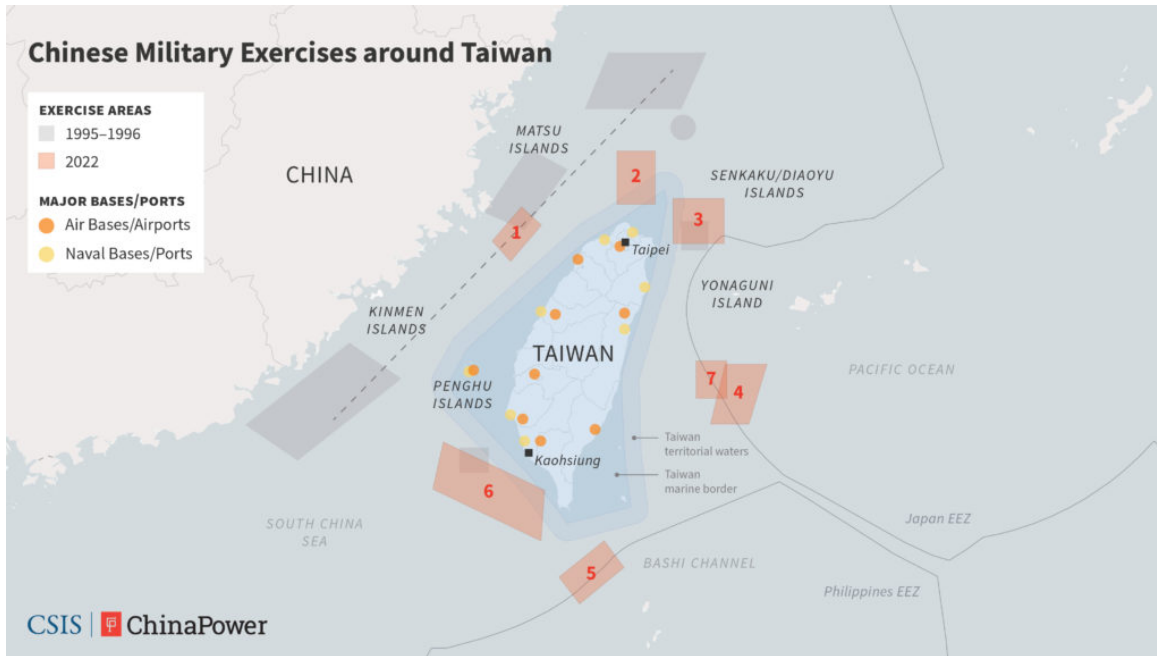


Taiwan Version of One Country, Two Systems
(Never Renounce the Use of Force against Taiwan)

Vessels trans-TC long-distance training (passing through the Taiwan Strait)	Aircraft constant incursions against Taiwan (crossing the median line)	Multi-dimensional Incursions against Our Airspace and Territorial Waters
<ul style="list-style-type: none"> ● The first passing through the Taiwan Strait by Aircraft Carrier Shangdong in 2019 ● The first PRC's aircraft incursion against the southwestern corner of Taiwan's ADIZ occurred in 2019, and became normalized since 2020 and onward ● PRC's aircraft crossing the median line over 49 sorties in 2020 	<ul style="list-style-type: none"> ● PRC's Eastern TC launched ballistic missiles across Taiwan (through outer space) during realistic live-fire joint drills from 2nd to 10th August 2022 ● Normalized combat patrols of PRC's aircraft and vessels in waters around Taiwan ● Conducting combat patrols around Taiwan and Keen Sword exercise from 8th to 10th April 2023 	
Type 075 Landing Helicopter Dock Aircraft Carrier Shangdong Type 055 Destroyer x 4	J-20 carrier-borne fighter Z-20 helicopters	Aircraft Carrier Fujian YU-20 Transport KJ-500

Source: ROC National Defense Report 2023.³⁸

Figure 3 – PRC Military Exercises Surrounding Taiwan, 1995–96 Versus 2022



Source: Center for Strategic and International Studies (CSIS).³⁹

Figure 4 – PLARF Ballistic Missile Flights Over and Proximate to Taiwan, Aug. 4, 2022



Source: CSIS.⁴⁰

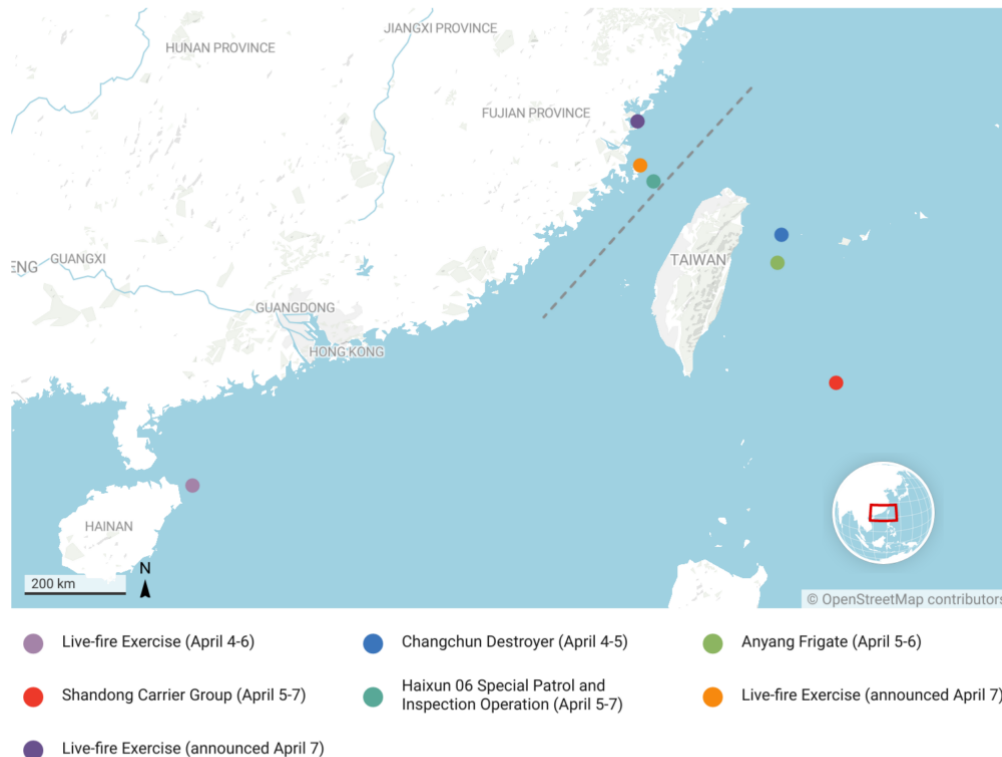
Only a few months passed before Beijing's next set of cross-strait drills and signaling. Having increased military operations during President Tsai Ing-wen's seventh transit of the United States in late March and early April 2023, China launched its strongest-yet military response to any of the 27 transits to date by a Taiwanese leader. En route to Guatemala and Belize, Tsai stopped in New York City on March 29–31, where she was received by then-Taiwan Representative to the United States Hsiao Bi-khim (now Taiwan's vice president) and newly appointed American Institute in Taiwan Chairperson Laura Rosenberger. On the way back through the United States, Tsai stopped in Los Angeles. At the Ronald Reagan Presidential Library and Museum, she met with then-House Speaker McCarthy and other congressional leaders.⁴¹ Figure 5 shows major military activities conducted by the PRC that coincided with the final portion of Tsai's transit.

On April 8, the day after Tsai's return to Taipei, the PLA announced and launched large-scale "joint sword" military exercises around the island. It engaged in a panoply of drills and apparent signaling operations through April 30, in close coordination with PRC diplomatic, informational, and other activities.⁴² PRC state media explicitly described simulated strikes on Taiwan through the exercises.⁴³ China also flew at least 283 air sorties near the island and deployed nearly 50 PLAN vessels, including a strike group led by the aircraft carrier Shandong in the Philippine Sea.⁴⁴ Additionally, in what may well prove a harbinger of ambiguous but challenging efforts to come, on April 5, China announced (but did not implement) Coast Guard inspections of ships in the Taiwan Strait:

"China announced a three-day 'special joint patrol and inspection operation' in the central and northern areas of the Taiwan Strait. As part of this operation, Chinese maritime law enforcement officials were tasked with conducting on-site inspections (现场检查) aboard vessels in the Taiwan Strait, but there were no reports of such on-site inspections taking place. The operation was led by China's first large-scale patrol vessel in the Taiwan Strait, the Haixun 06. Vessels from the Fujian Maritime Safety Administration, East China Sea Rescue Bureau and the East China Sea Maritime Security Center joined. Notably, the first law enforcement patrol the Haixun 06 embarked on occurred during then-Speaker of the House Pelosi's visit to Taiwan in August 2022. In response to Haixun 06's April 2023 operations, Taiwan's Maritime and Port Bureau issued a statement that relevant shipping companies have been told to refuse these inspections."⁴⁵

Subsequently, China's armed forces continue to develop and drill with a broad range of increasingly formidable capabilities relevant to various Taiwan contingencies, some exquisitely attuned thereto. In October 2022, for example, amphibious landing exercises on PRC Taiwan Strait beaches included seven retrofitted roll-on, roll-off (RO-RO) car ferries, operated by Maritime Militia personnel.⁴⁶

Figure 5 – Major PRC Military Activities Through Last Part of Tsai’s April 2023 US Transit

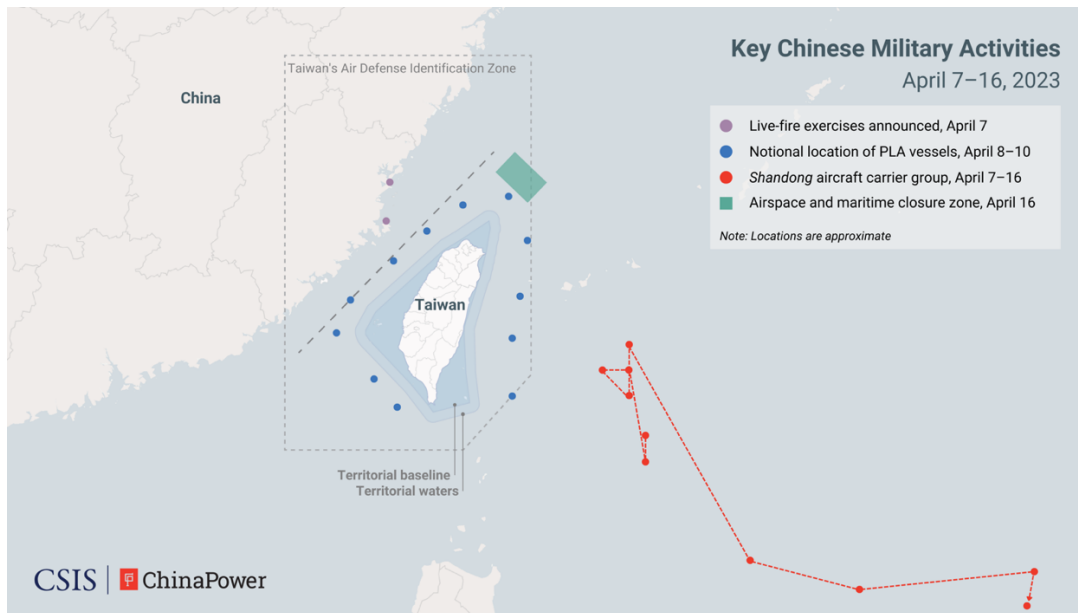


Note: Locations for live-fire exercises are precise; other locations are approximated.
 Source: CSIS China Power Project

Source: CSIS.⁴⁷

The nature of the threat is constantly evolving, but its essential dynamics reflect historical patterns seen during the Cold War, a period during which American leaders maintained peace through great strength and statesmanship. Over six decades ago, during both of his terms in office, America’s 34th president, Dwight D. Eisenhower, faced Taiwan-related challenges that starkly underscored the stakes if Taiwan’s offshore islands, and by extension its main island, fell to Communist aggression. Unlike General Douglas MacArthur – who, on the brink of the Korean War, foretold Taiwan’s future potential for economic prosperity and political openness – President Eisenhower does not express such foresight in available historical records.⁴⁸ Nevertheless, both five-star generals – two of only nine servicemen to attain such rank in American history – with access to the greatest government analyses of their time, independently came to the same realization: Taiwan’s status was pivotal, both geopolitically worldwide, and for regional and American security.

Figure 6 – PLA ‘Joint Sword’ Exercises, April 2023



Source: CSIS.⁴⁹

MacArthur was surely familiar with the 1948 Joint Chiefs of Staff study that demarcated an American defensive perimeter running from the Aleutian Islands south through Japan, Taiwan, and the Philippines.⁵⁰ He explicitly linked the Pacific Island Chains to American constraint of Communist hostility, with Taiwan (then called Formosa by U.S. officials) serving as an irreplaceable linchpin.⁵¹ MacArthur did so most memorably in his farewell address to Congress in 1951:

“Of ... direct and immediate bearing upon our national security are the changes wrought in the strategic potential of the Pacific Ocean in the course of the past war. Prior thereto, the Western strategic frontier of the United States lay on the littoral lines of the Americas with an exposed island salient extending out through Hawaii, Midway, and Guam to the Philippines. That salient proved not an outpost of strength but an avenue of weakness along which the enemy could and did attack. The Pacific was a potential area of advance for any predatory force intent upon striking at the bordering land areas.

All this was changed by our Pacific victory. Our strategic frontier then shifted to embrace the entire Pacific Ocean which became a vast moat to protect us as long as we hold it. Indeed, it acts as a protective shield for all of the Americas and all free lands of the Pacific Ocean area. We control it to the shores of Asia by a chain of islands extending in an arc from the Aleutians to the Marianas held by us and our free allies.

From this island chain we can dominate with sea and air power every Asiatic port from Vladivostok to Singapore and prevent any hostile movement into the Pacific. Any predatory attack from Asia must be an amphibious effort. No amphibious force can be successful without control of the sea lanes and air over those lands in its avenue of advance. With naval and air supremacy and modest ground elements to defend bases, any major attack from continental Asia toward us or our friends of the Pacific would be doomed to failure. Under such conditions the Pacific no longer represents menacing avenues of encroachment for a prospective invader — it assumes instead the friendly aspect of a peaceful lake. Our line of defense is a natural one. ... It envisions no attack against anyone nor does it provide the bastions essential for offensive operations, but properly maintained would be an invincible defense against aggression.

The holding of this littoral defense line in the Western Pacific is entirely dependent on holding all segments thereof, for any major breach of that line by an unfriendly power would render vulnerable to determined attack every other segment. This is a military estimate as to which I have yet to find a military leader who will take exception. For that reason I have strongly recommended in the past as a matter of military urgency that under no circumstances must Formosa fall under Communist control. Such an eventuality would at once threaten the freedom of the Philippines and the loss of Japan, and might well force our Western frontier back to the coasts of California, Oregon and Washington.⁵²

Eisenhower was alerted to the First Taiwan Strait Crisis (Sept. 3, 1954–May 1, 1955) when handed a message at around 7 pm on Sept. 3 at his Summer White House in Denver. Just over three hours earlier, “the Chinese Communists had begun a heavy shelling of Quemoy Island. ... Two Americans in uniform had been killed; fourteen were being evacuated.”⁵³ Eisenhower sent a top-secret teletype to his trusted advisor Walter Bedell Smith, then under secretary of state, asking, “What are the Chiefs of Staff suggestions about Quemoy?”⁵⁴

In Chapter 19 of his memoirs, “Formosa Doctrine,” Eisenhower offers a captivating account of the 1954 crisis and his decision-making therein. What stands out, after some of the particulars have receded into history, is his consistent vision of larger American stakes and his insistence on upholding them prudently but firmly.

The gravity of the crisis spurred wide-ranging debate in Congress and among American allies about what parts of Taiwan to support and defend, and at what cost. Prime Minister Winston Churchill, a staunch defender of European security a decade earlier, questioned the value of Taiwan’s offshore islands. During the crisis, the two World War II heroes engaged in friendly but forceful correspondence on the subject. On Sept. 7, through Under Secretary of State Smith, Eisenhower conveyed a top-secret message to Churchill. He stressed that “all along the Eastern edge of Asia, from the Bering Sea to Indonesia, there

is a constantly boiling kettle of possible trouble.” His primary concern was “an aggression out of continental China against Formosa.” Eisenhower underscored his belief “that America is morally bound to take such action under these circumstances and that it would be definitely in the interests of the whole free world to do so.”⁵⁵

Eisenhower emphatically linked Taiwan’s offshore islands to the critical importance of the island chains, which MacArthur had likewise stressed were vital to containing Communist aggression. Eisenhower emphasized the paramount need to “assure the integrity of the island barrier in the Pacific” and Taiwan’s importance therein: “We rounded out the far Pacific security chain by a Treaty with the Nationalists.”⁵⁶ This was, in fact, one of the five supporting points of the Formosa Resolution: “the secure possession by friendly governments of the Western Pacific Island Chain, of which Formosa is a part, is essential to the vital interests of the United States and all friendly nations in or bordering upon the Pacific Ocean.”⁵⁷ “Ever since World War II,” Eisenhower recapitulated, “the United States had recognized the strategic necessity of maintaining the integrity of the Western Pacific island chain, including Formosa as one of its principal links. Our readiness to go to the defense of that island, if it were attacked, had been announced as governmental policy before I was inaugurated, and I had personally emphasized the importance of this island’s safety to our nation’s security.”⁵⁸ It was with this framing that Eisenhower appealed to Churchill through geostrategic reasoning. “It is probably difficult for you, in your geographical position, to understand how concerned this country is with the solidarity of the Island Barrier in the Western Pacific,” he wrote in response to Churchill’s concerns expressed in a letter and accompanying memorandum. “Moreover, we are concerned that the psychological effect of deserting our friends on Formosa would risk a collapse of Asiatic resistance to the Communists. Such possibilities cannot be lightly dismissed; in our view they are almost as important, in the long term, to you as they are to us.”⁵⁹

Eisenhower was adamant that ceding offshore islands to the CCP was not a solution. “What they are really interested in is Formosa – and later on Japan,” he reasoned. “Therefore, I think, that if the Chinese Nationalists got out of Quemoy and the Matsus, they would not be solving the real problem, which is far more basic.”⁶⁰ Eisenhower acknowledged that “responsible and intelligent citizens questioned the United States policy.” Nevertheless, he insisted that overall considerations of national interest trumped legalistic technicalities: “our strategic situation would be seriously – possibly even fatally – damaged in the western Pacific if we should lose Formosa to the Communists.”⁶¹ In the end, Eisenhower believed he had used Mao’s own protracted war strategy against him: “In the Formosa Strait in 1955 we refused to retreat, and the enemy, true to his formula, for a while tried harassment but refused to attack. The crisis had cooled; it would not heat up again for three years.”⁶²

Eisenhower addresses the Second Taiwan Strait Crisis (Aug. 23–Dec. 2, 1958) in Chapter 12 of the second volume of his memoirs, appropriately titled “The Troubled Islands Again—Quemoy and Matsu, 1958.” Soviet military buildup and aggression had been a defining feature of the previous three years. Meanwhile, the CCP “had built a complex of military airfields in the Fukien area near the coast that would enable them to launch air attacks not only against the tiny offshore islands but against the main Chinese Nationalist base on Formosa as well. Extensive artillery emplacements now almost ringed Quemoy.”⁶³ As CCP belligerence intensified, Eisenhower and his administration faced scenarios that reverberate to this day. “We had to consider that the Chinese Communists might attempt to starve out the offshore islands by blockade,” Eisenhower related. “There was also the possibility of an amphibious assault against the offshore islands, against Formosa, or both. There was the likelihood that they might employ air forces to strike the Nationalists’ airfields on Formosa. The Joint Chiefs of Staff thought they would.”⁶⁴

Then, as before, Eisenhower saw tremendous stakes. “This modern possibility that ‘for want of a nail, a shoe was lost’ had led to reaffirmation of the conclusion that Quemoy and Matsu were essential to America’s security,” he recalled in his memoirs. “Moreover, the Communist threats and propaganda were never directed primarily to those two small island groups; rather, the announced objective was Formosa.”⁶⁵ Secretary of State John Foster Dulles, in whom Eisenhower placed special trust, “pointed out that the ties between the offshore islands and Formosa have become closer, that their interdependence has increased, and that he believed that it would be ‘highly hazardous’ for anyone to assume that if the Chinese Communists were to attempt to change the situation by force and now attack or seek to conquer these islands, that it could be a limited operation.”⁶⁶

Eisenhower expressed these positions firmly to domestic political stakeholders and foreign allies alike.⁶⁷ In response to a fearful letter from 91-year-old Senate Foreign Relations Committee Chairman Senator T.F. Green, Eisenhower stated, “The Chinese and Soviet Communist leaders assert, and have reason to believe, that if they can take Quemoy and Matsu by armed assault that will open the way for them to take Formosa and the Pescadores and, as they put it, ‘expel’ the United States from the West Pacific and cause its Fleet to leave international waters and ‘go home’.”⁶⁸

Across the array of plausible scenarios, Eisenhower and his advisors judged America’s role to be determinative. “We concluded that if the Reds became convinced that the United States would avoid intervention, they would in all likelihood launch an amphibious assault against Quemoy and possibly Matsu,” he recalled.⁶⁹ “On the other hand, if the Communists were convinced that we would come to the aid of Quemoy, they would probably refrain from outright attack, confining their actions, at least initially, to blockade and interdiction tactics.” As for the Eisenhower administration, “once we

had intervened with major military force to save Quemoy, we would accept nothing less than victory; only in this way could we maintain the confidence of the Free World.”⁷⁰

This Second Taiwan Crisis subsided as CCP forces settled for shelling Nationalist convoys on odd-numbered days of the month, while allowing unhindered resupply of the offshore island garrisons on even-numbered days. Eisenhower experienced a subsequent echo of what would become a two-decade limited barrage when he met with Chiang Kai-shek in Taipei on June 19–20, 1960.⁷¹ “Free China lived under the threat of the Chinese Communists to take Formosa by force,” he reflected in his memoirs. “Indeed, to emphasize this, the Reds welcomed my arrival on Formosa with an intensive bombardment of Matsu and Quemoy.”⁷² To this day, Eisenhower remains the only sitting American president to have visited Taiwan. While there are some differences with the present era, Eisenhower’s vision, challenges, and decisions regarding the threatened strategic island merit revisiting and offer insights relevant in this critical decade, as Taiwan’s future once again hangs in the balance.

Annexation Short of Outright Invasion Could be Potent for China, Devastating for US Interests

Why does Beijing choose to overtly operate its armed forces when it has many other means to pressure Taiwan? One plausible explanation is that demonstrated (and implicit) capacity to use force is the “anvil” against which China can threaten to pound Taiwan. A credible, solid anvil amplifies the impact of the many nonmilitary tools Beijing wields as part of its all-domain pressure campaign, spanning the gamut of comprehensive national power in the economic, diplomatic, cultural, informational, law enforcement, criminal (triad links), gray zone warfare, and technological arenas.⁷³ Moreover, China’s governance system can tightly coordinate the economic, diplomatic, informational, and military actions necessary to attempt to incrementally erode Taiwan’s autonomy in ways short of provoking U.S. intervention.

A PRC endeavor to coercively assume control of Taiwan with the least possible escalation is a substantially higher probability than a large D-Day-style invasion, at least as an initial attempt. Such an approach aligns well with Beijing’s practice of exerting political influence through all-domain pressure campaigns while attempting to minimize the risk of wars that, in the best case, could undermine the PRC’s longer-term growth and development objectives and, in the worst case, could threaten the CCP’s hold on power.⁷⁴ Accordingly, Beijing is trying first to employ a “united front” approach, including the use of what it calls the “three warfares” – public opinion warfare, psychological warfare, and legal warfare – to undermine Taiwan’s democracy and the public will to resist in pursuit of “peaceful reunification” and “winning without fighting.”⁷⁵ In its latest annual report, the Defense Intelligence Agency forecasts that “Beijing will continue to apply military and economic pressure as well as public messaging and influence

activities while promoting long-term cross-Strait economic and social integration to induce Taiwan to move toward unification. ... Beijing will use even stronger measures to push back against perceived increases in U.S. support to Taiwan.”⁷⁶

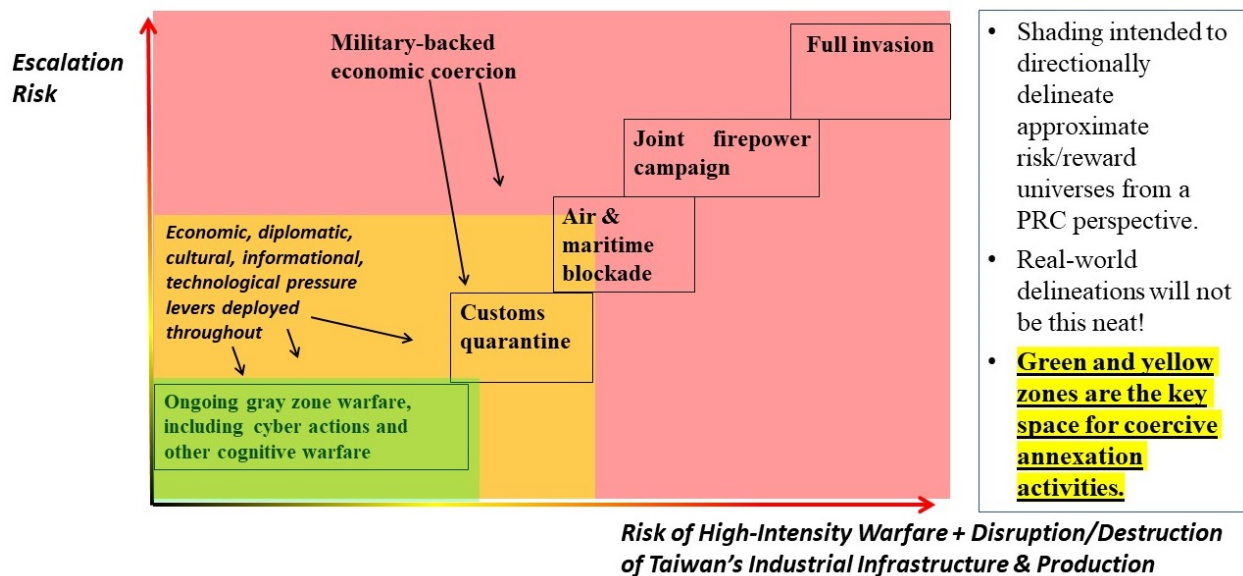
A PRC takeover of Taiwan accomplished somehow through “winning without fighting” (or “winning with relatively little fighting”) could potentially allow Beijing to capture its industrial and technological infrastructure intact. En route to victory, Beijing could tactically retreat from ineffective actions and, over time, erode Taipei’s will to resist. Such an approach could pose serious strategic dilemmas for the United States, Japan, and other countries by forcing them to 1) confront PRC actions and thereby be accused of “destabilizing” behavior or 2) stand by as Beijing consolidates a status quo that can then serve as a launchpad for further coercive actions that would narrow the scope of available options for Taiwan and its allies to maneuver. Absent substantial remedial actions, the erosion of Taiwan’s will to resist could compound over time, setting the stage for Beijing to gradually paint Taiwan’s leadership into a corner where it believes there remains only a stark binary choice between military conflict or a political and economic merger with China. Figure 7 situates coercive annexation within Beijing’s larger ecosystem of options for attempting to impose its will on Taiwan.

Coercive annexation is in many ways China’s strongest strategy for attempting a takeover of Taiwan. Not only would this approach allow China to try to leverage ambiguity, it would also allow for temporary face-saving retreats from ineffective actions under almost any circumstance, short of the extremely unlikely event of Taiwan declaring formal independence. It could also steadily pressure Taiwan, the United States, Japan, and others to either publicly escalate the situation or else run the risk that inaction solidifies into a new status quo favoring PRC demands. As options for third party intervention narrow, Beijing’s latitude to “persuade” Taiwan that annexation offers the best resolution widens.

China is already coercing Taiwan using all instruments of national power. While the military angles are relatively easy to identify, tracing the targeted economic restrictions that the PRC is currently imposing, the ongoing PRC information campaign, and Beijing’s progressive diplomatic isolation of Taipei further illustrate the coercive trend line. It is not just that Beijing will apply these tools in the future; it is applying them now. However, as we subsequently discuss, there are additional tools that the PRC might bring to bear in an attempt to coercively annex Taiwan. All told, the PRC would likely employ a combination of its many instruments of national power to achieve coercive annexation.

Historically speaking, coercive annexation with limited escalation is less common than direct land grabs or outright conquest, but it aligns better with Beijing’s objective of bringing Taiwan under PRC political control while minimizing the risk of a war that would almost certainly undermine China’s longer-term growth and development objectives.

Figure 7 – Where Coercive Annexation Fits into China’s Spectrum of Options Vis-à-Vis Taiwan



Source: Gabriel Collins and Andrew S. Erickson, authors.

Coercive annexation aims to place the onus of escalation on Taipei and Washington, as well as other key stakeholders.⁷⁷ Ambiguity, a core feature in Beijing’s doctrinal operating system, enhances PRC dominance in this area. PLA writings suggest a substantial acceptance of a “quasi-war” or a blurred state that is not quite war and not quite peace.⁷⁸ Some of these writings explicitly note that the objective of quasi-war activities is to deter and intimidate the adversary in order to “create the conditions for a political solution.”⁷⁹ While not explicitly stated, PRC operational ambiguity may also be designed to amplify the impact of the longstanding U.S. policy of “strategic ambiguity” as to whether or not Washington would militarily defend Taiwan. In particular, the PRC aims to use military force to maximally pressure Taipei to submit while refraining from a D-Day-style assault – thus leaving space for decision-makers in Washington and allied nations to generate rationales for avoiding intervention.

A porous blockade, for example, might offer Beijing the prospect of substantial coercive leverage, the exercise of which might possibly fall below the threshold at which the United States, as well as key allies and partners, would intervene with kinetic force. By emphasizing “coercion” (blocking weapons but allowing key items through, such as baseline food and energy supplies, semiconductor inputs, and finished microchips) over “domination” (a much tighter blockade familiar to Western militaries), Beijing could attempt to enlist Taiwan’s foreign commercial counterparties to pressure their home governments to accept the PRC’s actions, lest they suffer disruption in access to semiconductors and other Taiwanese exports that collectively underpin tens of trillions

of dollars' worth of global commerce annually.⁸⁰ Lack of a decisive foreign intervention would solidify PRC de facto control as the new status quo and, over time, erode Taiwanese confidence in the United States. Beijing would hope to dominate the cross-strait cognitive space, which it would attempt to parlay into preeminence in the economic, political, and physical domains. Beijing's end goal: a "political solution" of "peaceful reunification" through Taiwan effectively becoming subsumed under Beijing's authority and control.

Coercive annexation generally intensifies over time as the aggressor paints the victim into a corner and then culminates in what can be a more precipitous move to complete the fait accompli. For a relevant historical example, consider that Imperial Japan annexed the disputed Takeshima/Dokdo Islands in January 1905 and placed Korea's ability to conduct foreign affairs under Japanese control in November 1905, but waited until August 1910 to formally annex Korea despite having exerted de facto control for years.⁸¹ Fortunately, Taiwan in 2024 has much stronger links to the international community than Korea in 1905. But the slow roll toward the de facto dominance approach is one Beijing understands well. Indeed, it has demonstrated this with its creeping militarization of the South China Sea over the past decade.

Even more importantly, PRC actions over the past two to three years reflect an intensifying focus on setting the stage for coercive annexation. Consider, for instance, the April 2023 deployment of China Coast Guard vessels into the Taiwan Strait and public statements that ships traversing the strait could be boarded as part of a safety operation following President Tsai Ing-wen's meeting with then-U.S. House Speaker McCarthy.⁸² While not actively operationalized at the time, China's actions laid the conceptual groundwork for more extensive assertions of maritime sovereignty surrounding Taiwan, with the potential to escalate to a "customs quarantine" or various sorts of blockades enforced by the China Coast Guard and/or Maritime Militia on the low end, and PLA Navy and other military forces under higher-end scenarios.

The Decade of Maximum Danger

President Biden and his successors face a far more formidable PRC and paramount leader, compared to the one Eisenhower successfully deterred twice over six decades ago. Between now and roughly 2030, General Secretary Xi, the CCP, and the PRC will likely reach the apogee of their respective powers.⁸³

The situation could scarcely be more urgent. Admiral John Aquilino's final testimony as commander of the U.S. Indo-Pacific Command is bracing. "All indications point to the PLA meeting President Xi Jinping's directive to be ready to invade Taiwan by 2027. Furthermore, the PLA's actions indicate their ability to meet Xi's preferred timeline to unify Taiwan with mainland China by force if directed," Aquilino stated on March 24,

2024. “Modernization has remained aggressive, and China remains committed to delivering the capabilities needed to achieve its objective by 2027.”⁸⁴ The 2027 date is not an arbitrary or abstract U.S. government extrapolation but rather Xi’s completion deadline for his Centennial Military Building Goal. By this date, Xi has ordered China’s armed forces to provide him with a potent toolbox of capabilities – clearly intended to enable a full range of military options against Taiwan.⁸⁵

The precise moment when China’s power has “peaked” will only become apparent in hindsight. However, its leadership will likely discern gathering factors beforehand that heighten their sense of time pressure, potentially leading to precipitous actions that a country more confident in its continued ascent would not undertake. There is no political-historical prize more tempting to Xi than Taiwan, and no greater target of concerted preparations to generate actionable options for coercion. As a result, U.S. and allied policymakers have now fully entered a decade of maximum danger, and the strategic stakes are commensurately high.

Taiwan influences U.S. national security in ways far more profound than the island’s Florida-sized population of nearly 24 million or its small physical dimensions (slightly smaller than the Netherlands or roughly the size Maryland and Delaware combined) superficially suggest. Coercive annexation of Taiwan would substantially bolster China in the ongoing competition between two global paradigms. The first is an international order led by the United States that prioritizes universal principles beneficial to all, such as freedom of the global commons and the preservation of sovereignty and territorial integrity of smaller states. The second falls under China’s Leninist leadership, which operates without restraint on the premise of “might makes right.” As the Pentagon emphasizes, “The 2022 National Security Strategy states that the People’s Republic of China (PRC) is the only competitor to the United States with the intent and, increasingly, the capacity to reshape the international order.”⁸⁶ Annexation of Taiwan would strengthen Beijing’s quest to establish a PRC-centric international order dominated by autocratic governance. Under this framework, smaller states would constantly be subjected to the territorial depredations of those larger and more powerful, creating a dynamic often referred to as the “clash of systems.”⁸⁷ Moreover, annexation would likely trigger a technological supply chain crisis of unprecedented scale, reverse an 80-year period of rapid global improvement in human well-being, and sow the seeds of future conflicts.

The aftermath of a coercive annexation of Taiwan would adversely impact Americans’ security and well-being to a far greater degree than what would have happened if Operation Desert Storm failed in 1991 and Saddam Hussein retained control of Kuwait, exerting influence over vital Persian Gulf energy resources (which at that point in time supported about 27% of total global oil production).⁸⁸ The cutting-edge chips that only Taiwan can make at maximum sophistication and scale are the key currency of our big data and tech-driven world. If its fabrication facilities (fabs) are damaged, destroyed, or

fall under PRC operational control, the consequences would be severe, as the following sections will illustrate in depth.

Nearly 40 years ago, Deng Xiaoping noted that, with respect to the PRC goal of unification with Taiwan, “If it cannot be accomplished in 100 years, it will be in 1,000 years.”⁸⁹ While made in the context of a broader discussion that explicitly named use of force as an option, Deng’s statement (and a similar one from Mao 12 years prior) suggests that the CCP’s most foundational paramount leaders saw wisdom in strategic patience. Pragmatism might have arisen in part from lack of capability – a constraint increasingly inapplicable to Xi, who commands a rapidly modernizing PLA and a level of economic, diplomatic, and informational advantage that none of his predecessors enjoyed.⁹⁰ Xi marked his impatience early in his rule, noting in an October 2013 speech ahead of the Asia-Pacific Economic Cooperation (APEC) summit that “the issue of political disagreements that exist between the two sides must reach a final resolution, step by step, and these issues cannot be passed on from generation to generation.”⁹¹ As capability more strongly supports intent, it is plausible to conclude that Xi would attempt to coercively annex Taiwan if he calculates his probability of success to be sufficiently high and the costs sufficiently predictable, but he will likely be deterred so long as his probability of success remains too low to justify the tremendous risks involved and the costs too unpredictable.⁹²

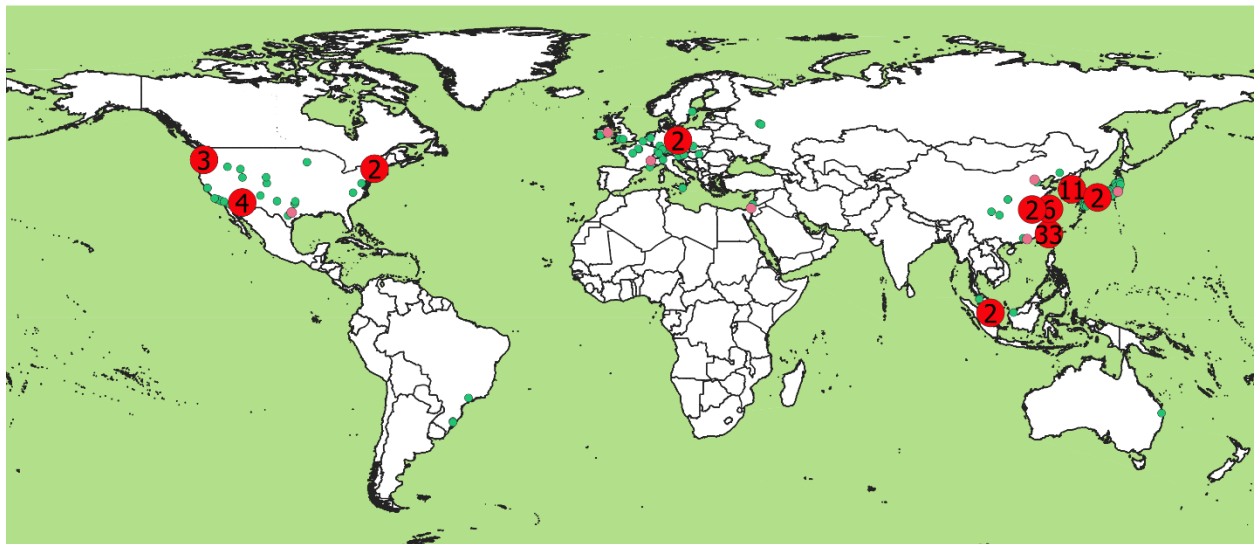
The deterrence burden for Taiwan, the United States, and our allies is thus heavy but vital. China became the world’s second largest economy and an influential global power without Taiwan under its political control, meaning parties on all sides will lose if Beijing attempts to force the issue violently. Unfortunately, warnings of economic damage or threats to progress alone may prove insufficient to successfully deter Xi. Revisionists are often willing to trade blood and economic prospects for territory, as Russian President Vladimir Putin’s decision to invade Ukraine graphically demonstrates. In an Indo-Pacific context, actions Washington might see as “irrational” may instead appear “irreplaceable” to Xi as he pursues the so-called “China Dream” of national rejuvenation to ensure control at home and deference abroad. This ideological campaign aims to ensure that the Party and Xi himself remain in absolute control of China’s economic, political, and military power structure. Expressed differently, the CCP’s apparent entanglement of Taiwan’s subjugation with Party legitimacy means that Xi is unlikely to spontaneously self-deter. The United States and its allies must therefore strive to make Xi conclude that today, tomorrow, next year, and several years hence are too risky to attempt the coercive annexation of Taiwan. To underscore that urgency, the following sections examine some of the foremost adverse strategic consequences were such deterrence efforts to fail.

Consequence 1: Semiconductor Starvation (or Coercion)

As a global commodity, microchips are as important as oil – if not more so. Indeed, they are less easy to acquire from alternative sources, and their relative value is growing quickly while that of oil is diminishing. If China could capture Taiwan with minimal direct use of military force, it could potentially obtain a near-monopoly over one of the 21st century’s most critical economic inputs. That could help to catapult Beijing into a position of global preeminence and, in turn, might allow China to dominate the world economy even in the face of sanctions (which may be temporally limited, especially when allied governments realize how difficult it is to achieve semiconductor self-sufficiency).

Semiconductors are indispensable linchpins of the modern economy, with approximately \$600 billion worth now produced globally each year.⁹³ These are incorporated into physical items collectively worth multiple trillions of dollars, and the services delivered by these devices amount to tens of trillions of dollars annually.⁹⁴ Microchips power smartphones, data centers, and high-performance computing applications like artificial intelligence (AI), as well as the electronic brains controlling systems in aircraft, cars, tools, machinery, and many other items. Unlike oil, however, the very latest generation silicon chips (node size 5 nanometers/nm or less) are presently produced in only two places – Taiwan (by Taiwan Semiconductor Manufacturing Company Limited/TSMC) and, to a lesser extent, South Korea (by Samsung) (Figure 8).

Figure 8 – Map of Key Global Chip Fabrication Plants



Source: Company reports; industry media; authors’ analysis.⁹⁵

Note: **Red** denotes ≤ 28 nm, a.k.a. “advanced” chips; numbered clusters indicate number of semiconductor fabrication plants (fabs) within a close vicinity.

This geography, and its perilous proximity to China, is no accident. It has been critically shaped by decades of American government and corporate alliances, investment, and supply chain development as well as advanced Asian counterparts that pursued microchip production for prosperity, security, and the binding power of American interests.⁹⁶ From a growth and production standpoint, the results have proven stupendously successful. Taiwan now accounts for about 90% of global production of the most advanced chips and about half of semiconductor “foundry” capacity worldwide. It also serves top global tech firms that no longer operate their own chip fabs, including Apple, Google, and NVIDIA.⁹⁷

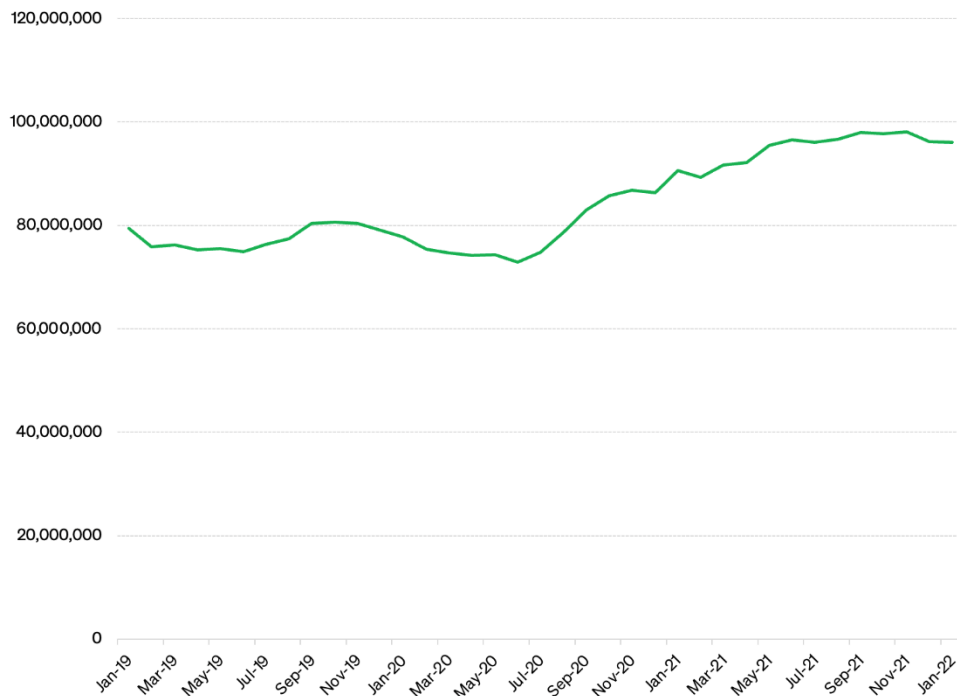
Even in scenarios short of a full invasion, PRC coercive actions – and the reactions of commercial firms supplying energy and other resources to Taiwan – could very plausibly interrupt the production of semiconductors and other key industrial goods.⁹⁸

Taiwan Chip Disruption Would Be Far Worse Than Shortfall During Pandemic

During the COVID-19 pandemic, microchip output never fell absolutely but instead lagged behind demand (Figure 9).⁹⁹ Deloitte estimates that this chip shortage cost the world economy more than \$500 billion in lost revenue in 2021.¹⁰⁰ One of the hardest hit sectors, automobile production, saw global output fall by nearly 8 million vehicles in 2021, roughly 10% of output in a typical year.¹⁰¹ Yet the shortages primarily affected older chip technologies, such as automobile applications’ legacy 40-nm node. When the pandemic first hit and demand for cars declined precipitously, carmakers’ reduced microchip orders forced semiconductor manufacturers to pursue other markets that required more advanced chips, ultimately resulting in the closure of facilities making the older, but still important, chips.¹⁰² The resulting gap in the market seriously affected makers of multiple devices and machines, including cars, forklifts, and other mechanical implements.¹⁰³ In contrast, a Google Pixel 4a smartphone with its 8-nm Qualcomm central processing unit fabricated in Korea by Samsung could be procured directly from Google for delivery in two to three days with no price inflation.¹⁰⁴

A disruption of microchip supplies from Taiwan would go far beyond the recent semiconductor shortage and massively affect high-end applications while also impacting legacy chip nodes. Semiconductor fabs on the island produce a disproportionate volume of the world’s most sophisticated transistor packages, with the state-of-the-art mass production node size now down to 3 nm – 1/40th the diameter of a SARS-CoV-2 coronavirus and small enough for more than 30,000 transistors to fit atop the diameter of a human hair.¹⁰⁵ The most powerful chips in the world, whether in iPhones, NVIDIA graphics processing units (GPUs) that power AI applications, or bespoke data center servers at Microsoft or Google, overwhelmingly come from Taiwanese plants – specifically, those run by TSMC.

Figure 9 – Global Semiconductor Units Sold, Monthly, 3-Month Moving Average



Sources: Semiconductor Industry Association; authors' analysis.¹⁰⁶

How Would a Sustained Taiwan Chip Outage Affect the Global Economy?

Humanity's appetite for computing power has grown relentlessly.¹⁰⁷ Much as cheap energy from Russia was until recently a core driver of German economic power, the abundant supply of Taiwanese semiconductors has been a key driver of global technological progress.¹⁰⁸ Thanks to Taiwanese manufacturers' efficient scaling, transistors now only cost billionths of a cent apiece, or tens to hundreds of dollars for extremely powerful semiconductor chips.

A major disruption of Taiwan-origin semiconductor supplies would likely temporarily halt human technological progress and could retard global economic growth for years thereafter. This is because microchip production lines constructed elsewhere to replace damaged or PRC-controlled facilities in Taiwan could take a minimum of two to three years to bring into service even under accelerated replacement programs.¹⁰⁹ Five years might be a more realistic estimate given the depth and complexity of multinational supply chains producing silicon wafers, chemicals like photoresists and exotic gases, and other critical inputs, and the need to effectively replicate the highly skilled workforce that builds and maintains fabs on the island.¹¹⁰ The length of time likely needed to reconstitute supply chains matters, because chips are ubiquitous in everything from automobiles to high-performance computing facilities that power cutting-edge drug discovery and

genomics research.¹¹¹ Each year of delay in resuming chip supplies at pretakeover levels would introduce cascading losses in the global economy.

As computing power is deployed, its innovation and productivity effects tend to compound upon each other and are multiplicative (i.e., exponential) rather than additive (linear), as most other basic commodities such as oil, copper, corn, etc., tend to be. As former Google CEO and Chairman Eric Schmidt explains, “Faster airplanes did not help build faster airplanes, but faster computers will help build faster computers.”¹¹²

However, the corollary of generative progress is that when the system is starved of the crucial inputs driving the progress (cheap computing power), direct and opportunity costs will also likely feed off each other and grow exponentially.

Losing Taiwanese chip supplies would shatter that virtuous cycle. Unlike oil and gas, which can be more easily sourced from different suppliers, high-end semiconductors lack such fungibility. It would take years to build and activate high-end chip production facilities to replace Taiwanese foundries. Each month of delay in resuming chip supplies at precrisis levels would cause compounding global economic losses and stall progress in critical fields, including next-generation energy technologies and hypersonics. Inferior substitutes would in a best case require massively increased electricity use – with tremendous energy costs and climate security dangers – merely to deliver critical societal functions at reduced performance and potential. In the more probable case, global computing power would effectively be capped for a prolonged period, with profound economic, political, and human impacts.

Loss of Taiwanese semiconductor supplies from war damage or a global sanctions effort against China for coercively annexing Taiwan would thus likely trigger a global economic cataclysm at the very least on a par with the global financial crisis of 2007–09. That event’s cumulative losses ran as high as \$22 trillion in the United States alone, according to estimates from the Government Accountability Office (GAO).¹¹³ Financial market participants see a semiconductor disruption as causing still worse economic impacts. For instance, Citadel CEO Kenneth Griffin stated at a November 2022 conference that he believed “If we lose access to Taiwanese semiconductors, the hit to U.S. GDP is probably in the order of magnitude of 5% to 10%. It’s an immediate Great Depression.”¹¹⁴ The longer-term effects on the global and U.S. economies could be unprecedented in scale and scope.

Historical examples bolster Griffin’s estimate. World War II offers a concerning historical benchmark. It was the largest economic disruption for at least the past 120 years – featuring a peak global GDP loss of 6% year on year between 1944 and 1945 and even larger cumulative impacts.¹¹⁵ Yet this net number understates the impact outside the United States itself. The American economy increased in size nearly 2.5 times between 1939 and 1945 as the United States rallied for war, mobilized industrial

capacity idled by the Great Depression, and became the “arsenal of democracy.”¹¹⁶ This significantly decreased the economic downturn’s severity on a net global basis. None of the positive prerequisites that existed during World War II, such as spare U.S. industrial capacity, remain. A loss of semiconductor access would play out differently – and likely, worse. The world’s most productive economies are also the most semiconductor-hungry and thus could face disproportionate impacts that would magnify the effects of a global slowdown rather than ameliorating them as the United States did during World War II. A loss of Taiwanese semiconductors could thus realistically trigger an economic disruption even worse than that of World War II – with impacts potentially resounding for years.

It is instructive to consider the impacts of World War II on industrialized countries in Europe (as well as Japan), which were far more exposed to the losses imposed by cessation of trade, loss of raw material supplies, physical damage, and other privations of conflict compared to the relatively self-sufficient U.S. economy. Robert Barro’s seminal academic paper on the topic, published in the *Quarterly Journal of Economics*, reveals that the decline in real per capita GDP in Austria, Belgium, Denmark, France, Germany, Greece, Italy, Japan, the Netherlands, and Norway during World War II ranged from 24% to nearly 60%, with impacts accruing over periods of one to six years, depending on the country.¹¹⁷ Even countries that were not directly impacted by kinetic activity still experienced deep recessions, with Peru’s real per capita GDP declining 18% between 1941 and 1943, and Venezuela’s falling by 22% between 1939 and 1942.¹¹⁸ While not perfectly analogous to a substantial disruption of semiconductor supplies from Taiwan, the World War II historical examples show how events that curtail trade and raw material supplies have tremendous impacts and leave little sanctuary anywhere in the world.

Secondary impacts would amplify economic losses over time, including the compounding consequences of delayed technological improvements, foregone commercial and scientific breakthroughs, and the slowing/cessation of the myriad benefits brought by access to inexpensive and powerful computer processing capacity (Appendix 2). Slower economic growth and a decoupling of the semiconductor world into a “PRC bloc” and an “American bloc” would also reduce the size of markets accessible to chipmakers in either camp and risk creating long-term overcapacity in the system that could depress investment and hinder innovation.¹¹⁹

Control of chip supplies would also become an enduring leverage point for the PRC, if it were it to successfully annex Taiwan. If Taiwan’s fabs remained intact and operational, the PRC would control virtually the entire world’s supply of the most advanced semiconductors. In this scenario, Beijing, whose explicit strategy is to acquire leverage over other nations through dominating high-tech supply chains, would impose adverse economic and trade realignments that would diminish American power and the industrial

might of other industrialized democracies.¹²⁰ If, on the other hand, Taiwan's fabs struggled to resume operations, the world would have to settle for significantly inferior older-generation chips – of which the PRC is on course to become the largest producer.

While nearly any scenario would impact China's economy, the PRC's Marxist-Leninist rulers might well conclude that their nation's economy could weather a chip supply disruption better than its techno-industrial competitors and ultimately emerge with qualitative and quantitative dominance through cross-strait chip capabilities and capacity.

Alternative Scenario: PRC Coercive Takeover of TSMC (Silicon Škoda Works)

There is an alternative scenario in which Beijing uses Taiwan's microchip industry as its entry point for attempting a coercive annexation with the least escalation conceivable.¹²¹ Consider, for instance, a PRC maritime and air quarantine of Taiwan, if Beijing could first achieve a period of ascendant pressure designed to cause Taipei and Washington to shrink from the challenge. If, somehow, PRC threat of massive kinetic force cowed Taiwan and undermined what would normally be presidential-congressional discussions and a serious response, under the auspices of the Taiwan Relations Act, Beijing might attempt to pursue a settlement that left the island nominally sovereign but ceded control of TSMC to PRC state-controlled entities. If this happened, the physical and human infrastructure of Taiwan's chip industry would be unscathed. The strategic impacts would be far more severe than the historical analogue presented by Nazi Germany's takeover of the Škoda Works arms factory complex in Czechoslovakia on the eve of World War II.¹²²

Such a gambit could tempt Beijing with the prospect of a favorable risk/reward balance. For the United States, it would be one thing to respond militarily to fight off an attempted invasion of Taiwan by China, but quite another to initiate kinetic action against a blockade or related contingency imposed by Beijing. China's proximity to Taiwan would also allow it to dial the intensity of a quarantine up or down and use various kinds of interference, ranging from Maritime Militia vessels up to PLA Navy warships. Commercial shippers (and especially, their insurers) detest uncertainty and generally avoid an area as soon as the first missile is fired – which is what happened during Beijing's surrounding of Taiwan with military exercises in August 2022, after then-U.S. House Speaker Pelosi visited Taipei.¹²³ A protracted version of this dynamic has also been seen throughout Russia's war on Ukraine.¹²⁴ Finally, the ambiguous character of intermittent or informal interruptions would complicate U.S. risk assessment, impose difficulties on decision-making, and thereby make direct intervention more challenging.

Such a gambit would be audacious and brazen, as revisionist campaigns sometimes are. Given the stakes and the risk, it is worth exploring both pathways to determine the consequences of success or failure. Appendix 3 offers details regarding how such a masterstroke attempt aimed at establishing silicon hegemony might fail, and – critically – how to deter or thwart such a disastrous PRC gambit in the first place.

What if Beijing Succeeded?

What would happen if Beijing somehow succeeded in conquest without triggering a U.S. military response? A “peaceful” acquisition of a controlling stake in TSMC in exchange for lifting a quarantine would potentially give China access to intact fabs and the critical know-how of the personnel that run them. Operation Paperclip, under which the United States brought more than 1,600 leading German rocket program personnel to America after World War II, offers an illustrative analogy for the value of leading-edge human capital infusions in apex technology competitions.

While history typically rhymes rather than repeats, the results from combining cutting-edge German scientific expertise with substantial indigenous U.S. scientific capacity and massive financial support were phenomenal. Wernher von Braun and his team were instrumental in designing the Saturn 5 rocket that facilitated the manned moon landings in 1969–72, a feat that remains unsurpassed. The U.S. Army estimated that leveraging the experience and skills of the German scientists advanced U.S. rocket programs by 10 years and saved billions of dollars for investment elsewhere.¹²⁵

Technological shifts of this magnitude are the type of once-in-every-few-decades events that in hindsight reveal themselves as tipping points in existential competitions between systems.¹²⁶ If Beijing succeeded in a TSMC takeover and then exercised its silicon power adroitly, the United States would likely find it hard to push back successfully. TSMC and its suppliers are currently responsive to significant U.S. techno-economic restrictions aimed at China.¹²⁷ After all, TSMC itself, as well as key suppliers including ARM (UK), ASML (the Netherlands), and Shin-Etsu (Japan), would almost certainly rather lose access to a large PRC market than appear in Washington’s crosshairs.¹²⁸ But if a U.S. administration were ever to lack the resolve to ensure free air and maritime passage to Taiwan (using force, if necessary), U.S. economic statecraft would prove far less credible, and these manufacturers’ attitudes might well change.

Under such “slippery slope” conditions, U.S. allies (as well as powerful constituencies within the United States) might prove unwilling to sever supplies and services to a now majority-PRC-owned TSMC and thereby launch what would, in practical terms, be an economic murder-suicide pact. And it would not just be a Washington-driven decision cycle – Beijing would almost certainly actively employ chip supplies as a carrot and stick to sow division within the “silicon allies” (chiefly the United States, Japan, and the

Netherlands). Washington's painstakingly crafted export controls would collapse. To paraphrase former National Security Council China Director Matt Turpin, China would not only be back in the technological "car" with the United States, but it would also arguably sit in the "driver's seat."¹²⁹

Even if the United States and its allies, such as the Netherlands and Japan, still maintained jurisdiction over the firms that provided microchip designs, lithography equipment, and the chemicals and components necessary for chipmaking, PRC control over production would be a strategic trump card. A standoff based on mutually assured economic destruction would ensue.

Xi and his advisors might plausibly conclude that the PRC could weather and leverage any Taiwanese production limitations better than China's techno-industrial competitors, meaning Beijing would be positioned to use chip supplies as a manipulation tool. For instance, Beijing might continue chip sales to foreign firms but condition them on acceptance of PRC control of Taiwan. China might also impose export controls and reserve the most powerful chips for PRC firms, locking in structural competitive advantage. It could also predicate chip supplies on foreign firms' willingness to share intellectual property (IP). Whether through these pathways or other permutations, the ultimate impact would be to empower accommodationist voices abroad and diminish American and allied industrial might.

TSMC's global economic importance and ability to affect business and consumer interests in the United States is at least several times greater than that of Russia's oil sector – with TSMC's 55% share of the global contract chip fabrication market handily exceeding Russia's roughly 10% of global crude oil supply.¹³⁰ Losing the primary source of one of the world's most core technologies would make the political blow of \$5 or more per gallon of gasoline seem light. Gasoline consumption in the United States averaged just shy of 500 gallons per year per passenger car and truck in 2021.¹³¹ Accordingly, a 50% price increase relative to the 2022 national average price of \$4 per gallon would take \$1,000 out of the average driver's pocket over the course of a year.¹³² While difficult to quantify precisely, a deep semiconductor shortage-induced recession would likely impact consumers far worse. China could also further manipulate the market environment by maintaining most chip sales even to U.S. entities. Such a "snowballing" effect could well stimulate accommodationist advocacy among key chip consumers and constituencies fearing economic fallout. It might even, over time, deter Washington from interdicting operations now controlled from, or at least substantially influenced by, Beijing.

If semiconductor buyers accepted the arrangement and locked in dependency on it (a pattern seen in many other commodity markets with exploitative suppliers, inelastic demand, and few or no substitutes), the technological competitive order would shift to

the detriment of the United States and its allies, adversely affecting both their prosperity and security. TSMC would likely be prohibited from investing in advanced overseas facilities such as the plants it is currently building in Arizona, and “off island” facilities (even those serving export markets) would increasingly be located in the PRC. Beijing would have strong incentives to replicate its pattern of exploitation from the 1990s through the present, whereby foreign suppliers are strong-armed to set up shop in China and either “share” core IP or else have it pilfered.¹³³

China already hosts the world’s premier electronics hardware manufacturing cluster, and using microchip production dominance to force design IP and supplier migration into a PRC-controlled (and likely, physically domiciled) ecosystem would make strategic sense as well as align with Beijing’s historical geoeconomic policy actions. Innovation often follows production activity, and just as PRC industrial policy warped value chains in metals, materials, and many manufactured goods over the past three decades, a similar process would likely unfold for semiconductors.¹³⁴ The end result would enhance China’s global techno-industrial position at America’s expense.

If PRC interests effectively controlled high-end chip output, China would be positioned to ensure that its cloud giants — Alibaba, Baidu, Huawei, and Tencent — could access the cutting-edge silicon that allied export controls now seek to deny. Preferential PRC access to Taiwanese semiconductors would also reinforce the competitive position of Beijing’s technological ecosystem, which in many ways is an IT parallel infrastructure with massive scale (mostly physically located in the PRC). If this ecosystem gained “right of first refusal” access to the world’s most modern semiconductors, PRC officials could potentially induce foreign technology firms to employ PRC-based data storage and AI processing services because the demands of commercial competitiveness they face would preclude them from being able to wait years for large-scale alternative leading-edge chip fabrication capacity to be constructed outside Taiwan. China’s commercial potential and espionage capacity through storing and handling data (“consensually,” in this case) would both be massively amplified.

Elbridge Colby underscores a related consequence if China were to seize Taiwan and thereby dominate the semiconductor industry: “To make it concrete: Many if not most Americans agree that there are huge problems with our social media companies and the way they are regulated today. But we are all assuming that *Americans* have the power to remedy the problem. ... if Beijing is dominant over the world economy, that will not be the case. The social media companies will ultimately be answerable to Beijing, and the situation will be even worse.”¹³⁵ Far worse.

PRC chip coercion would be especially destructive to the U.S. tech titans that are most directly exposed to a Taiwan-centric chip supply disruption. In 2019, OpenAI estimated global computing hardware spending to be at around \$1 trillion annually, with U.S. firms

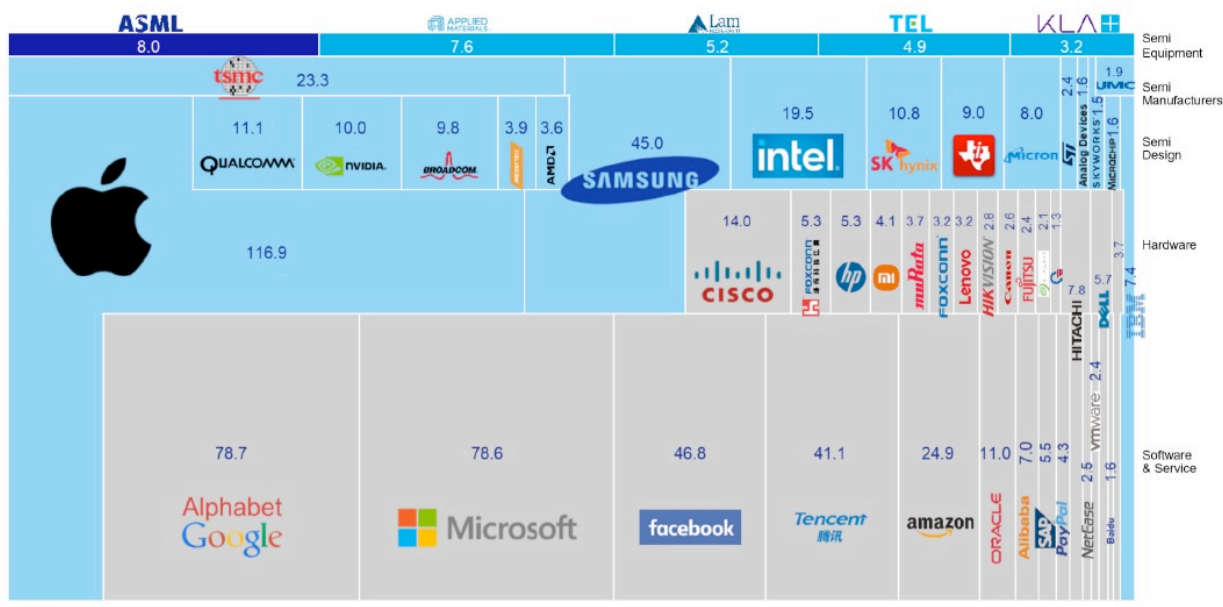
accounting for an outsized portion of this figure (which is likely materially larger now) (Figure 10).¹³⁶ After decades of outsourcing chip production, TSMC is effectively “America’s fab” (Figure 11). In oil market terms, Taiwan is the “OPEC++” of semiconductor fabrication, accounting for more than 60% of global output, and the United States is the “OPEC++” of semiconductor intellectual property, design, and sales. Indeed, U.S. firms account for nearly 50% of global semiconductor sales. At this point, U.S. tech firms could perhaps reconstitute production capacity after many years of construction and workforce development and hundreds of billions of dollars in capital investments. By then, however, critical technologies and market dynamics would have moved along dramatically, further imperiling any such catch-up efforts.

Companies like AMD, Apple, Microsoft, Google, Qualcomm, and NVIDIA have become instruments of American strategic economic power on a par with the large international oil companies that dominated the global market during their oil heyday between the late 1920s and late 1960s (Shell, Exxon, etc. — collectively called the “Seven Sisters”).¹³⁷ And just like the Seven Sisters, these companies depend on physical assets that could be harmed or seized by an adversary country. But microchips differ from oil in key respects that make semiconductor vulnerabilities worse than oil-driven ones.

The oil analogy is important on another level as well: understanding how efforts to diversify chip production may or may not alter the strategic picture. Recent legislation in the United States — the primary location for leading-edge or near-leading-edge chip production outside of Taiwan and South Korea — has helped unleash close to \$200 billion in announced investments for expansion of existing plants and newbuild fabrication projects.¹³⁸ The plants cover a range of semiconductor classes, including analog chips (for Texas Instruments) and the advanced logic chips of which Taiwan is such a critical supplier (for TSMC, Intel, Samsung, etc.).

Existing projects and actual construction activity suggest the bulk of the projects’ diversification impact will not occur until 2025 or later, well into the decade of maximum danger. Chipmakers are also likely chasing a moving target. Demand for advanced logic chips is expanding rapidly. ASML, the world’s leading manufacturer of advanced lithography machines, which are used to produce the world’s most advanced semiconductors, estimates an increase from 12 million wafer/starts annually in 2020 to more than 25 million in 2025 and over 38 million by 2030.¹³⁹ While such forecasts by nature require informed speculation and could be derailed by macro events of the very type this report addresses, industry views strongly suggest Taiwan’s semiconductor predominance, within the context of the island facing coercive annexation, will pose grave security liabilities for longer than presently expected.

Figure 10 – US Firms Dominate Among Leading-Edge Semiconductor Purchasers and Users



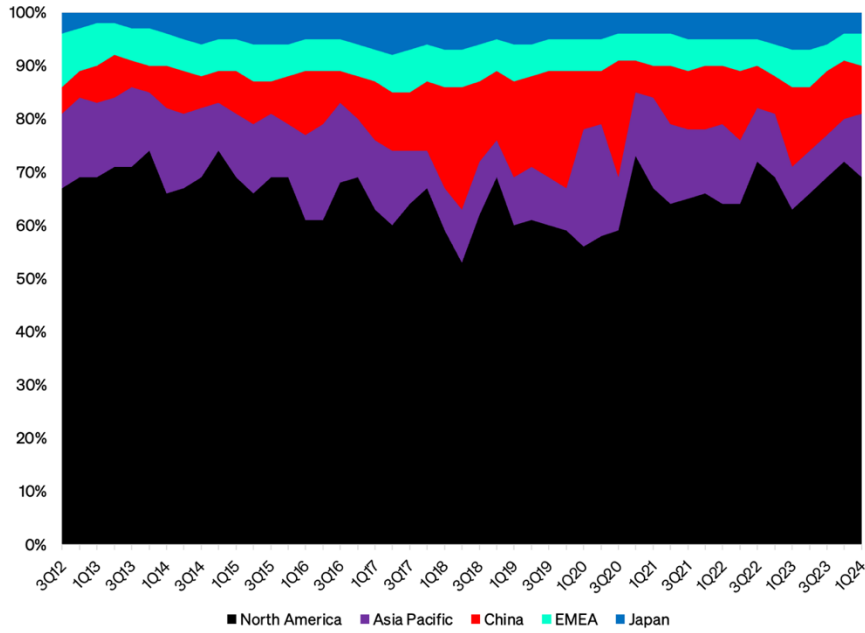
Source: ASML.¹⁴⁰

Note: Earnings before interest and taxation, billion U.S. dollars (USD) (2021).

Oil can be purchased from alternative producers, new fields can be brought online, and the heat energy derived from oil is often substitutable with other sources. Oil supply competitiveness is fundamentally based on cost of supply, with the lowest firms on the curve being the most competitive. Semiconductors differ markedly. They are not fungible, production is even more continuously capital-intensive than most oil and gas operations, and technological performance trumps cost of supply and differentiates products. The performance loss from lower-performance semiconductors creates significant and compounding consequences over time.¹⁴¹

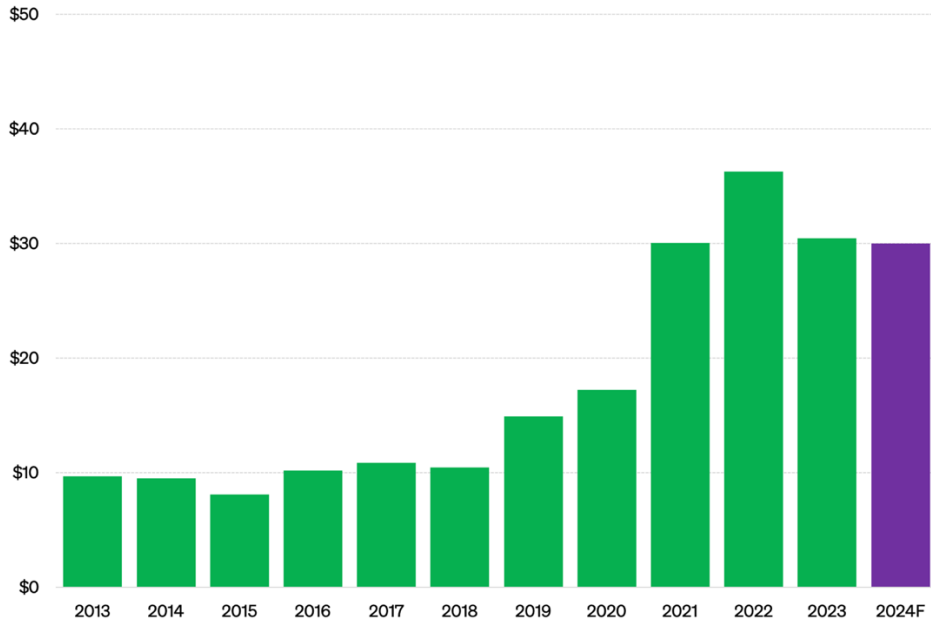
Indeed, even as TSMC begins to invest in more advanced facilities off-island, its industrial center of gravity is still clearly in Taiwan, where it has commenced commercial production of 3 nm logic chips and is preparing a six-phase plan for making 2 nm chips at its Hsinchu and Central Taiwan Science Park campuses.¹⁴² TSMC’s capital investment plans provide additional empirical support for this view, with annual capital expenditure now exceeding \$35 billion and only a fraction of those funds being deployed abroad.¹⁴³

Figure 11 – North American (Mostly US) Firms Are TSMC’s Core Customers



Source: TSMC.¹⁴⁴

Figure 12 – TSMC Annual Capital Investment, Billion USD



Source: Company reports.¹⁴⁵

TSMC demonstrates sensitivity to external concerns, as evidenced by its pending new Arizona fabs. But it also combines first-mover advantage and startup hunger in an extremely competitive global semiconductor marketplace. It has invested more than \$160 billion in its operations and infrastructure over the past decade and, even with a weakening microchip market, is still poised to invest as much as \$36 billion in 2023, much of it in Taiwan (Figure 12).¹⁴⁶

If the global semiconductor market grows as projected, which would imply a 40% expansion in dollar terms by 2030, TSMC will almost certainly seek to capture incremental demand for the most leading-edge chips, which are both the highest margin and most capital intensive – and the hardest to make. Other firms are increasing their investments, but only TSMC can consistently invest nearly \$40 billion annually in its current and future productive prospects while also being a true pure play foundry that does not compete with its customers because it builds semiconductors rather than designing them.

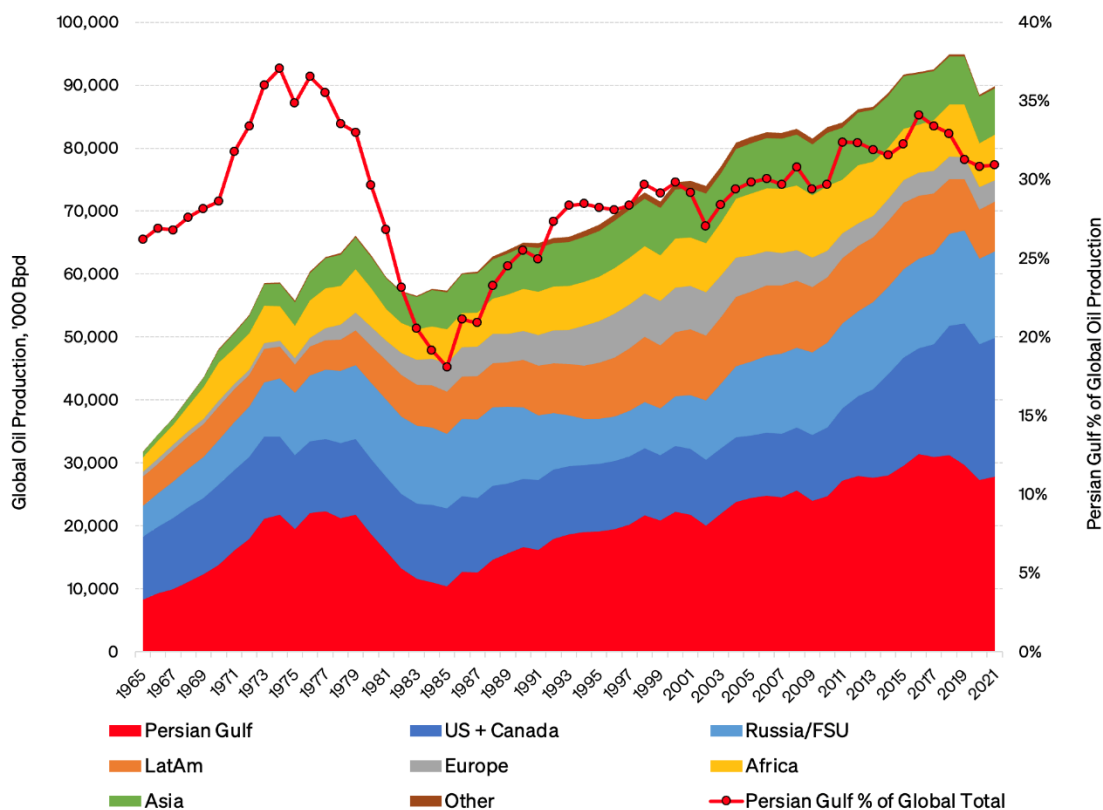
The coming five-to-eight-year period – in which TSMC will likely invest in the United States and other jurisdictions for primarily geopolitical reasons – is likely to see each unit of capacity abroad matched by continuing major developments back on-island.¹⁴⁷ The end result will be that absolute volumes of advanced chips produced outside Taiwan will increase, but as a proportion of global supply, the most sophisticated “bleeding-edge” production will substantially remain in Taiwan’s existing domestic chip clusters. Taiwan’s relative importance in the global semiconductor supply chain is thus likely to persist and could remain steadier than expected for the most advanced chips.

The closest analogy for U.S. policymakers may be Persian Gulf oil and the Carter Doctrine. In his 1980 State of the Union Address, President Jimmy Carter declared that the United States would defend its “vital interests” in the region, using military force if necessary.¹⁴⁸ A decade of turmoil, punctuated by the 1973 Arab Oil Embargo and 1979 Iranian Revolution, severely affected global energy security, and higher oil prices prompted a wave of investment aimed at diversifying global oil supplies. Production increased in Europe, Africa, and elsewhere. Nevertheless, the Gulf region’s bountiful oil reserves and low production costs allowed it to weather the volatility of a cyclical oil market and steadily regain market share beginning in the late 1980s. The trend continued until, by the late 2010s, the Persian Gulf region’s global share of oil production exceeded its pre-1970s level (Figure 13).

Equally important, even though the United States managed to reduce its imports of Gulf oil over time as a proportion of total oil and energy use, the region remained a key strategic focus both because the United States remained tied into a global marketplace and also because its allies depended heavily on the region’s oil and would have been vulnerable to coercion had it fallen under Soviet control. These concerns drove the

promulgation of the Carter Doctrine and also motivated the American-led coalition effort to eject Saddam Hussein’s forces from Kuwait in 1991, lest he consolidate control over still greater reserves and production in the world’s most important oil supply region.¹⁴⁹ Thirty years later, U.S. strategic interest (backed by significant combat power) remains meaningfully oriented toward the region, with the 2022 National Security Strategy noting that American policies will prioritize actions to “bolster energy stability” there.¹⁵⁰

Figure 13 – Persian Gulf Oil’s Proportion of Global Supply



Sources: BP Statistical Review of World Energy 2022; authors’ analysis.¹⁵¹

Geology is much more deterministic than technology, as Intel CEO Pat Gelsinger pointed out in a 2021 speech, noting that “God decided where the oil reserves are, we get to decide where the fabs are.”¹⁵² Nevertheless, an economy that has built the world’s premier semiconductor manufacturing ecosystem is unlikely to rapidly relinquish its central place in the global supply network. The same critical importance that registers as a “vulnerability” in external eyes transmutes into a “silicon shield” from the Taiwanese perspective – including at the highest levels of leadership.¹⁵³

Key dynamics and factors discussed in this section all point to a future in which Taiwanese-made semiconductors, like Gulf oil, will continue to occupy a central role in U.S. economic and national security policymaking, even if the United States itself incrementally increases its silicon self-reliance through some revitalization of domestic manufacturing. Further to the Gulf oil analogy, U.S. unconventional oil and gas producers have deployed more than \$1 trillion in exploration and production capital (i.e., 20 times what the CHIPS Act commits) during the past decade alone.¹⁵⁴

Yet while the United States is now the single-largest global hydrocarbons producer, the potential for events overseas to spike oil prices remains nearly as acute as when the Carter Doctrine was announced over 40 years ago. This raises a relevant, if sobering, historical comparison: Given that the United States has been motivated to take military action multiple times in the Middle East over oil-related concerns – including two major wars in the past 35 years – would it not also be willing to engage in intense deterrence and, as a last resort, warfare over semiconductor supplies on which its economy is even more proportionally dependent?

Microchips thus will be a key concern for U.S. policymakers, but far from the only one given the irreplaceable importance of a free and democratic Taiwan to the regional trade architecture and global geostrategic, geopolitical, and alliance structures – not to mention its role in containing nuclear proliferation risks. This paper will address each in turn.

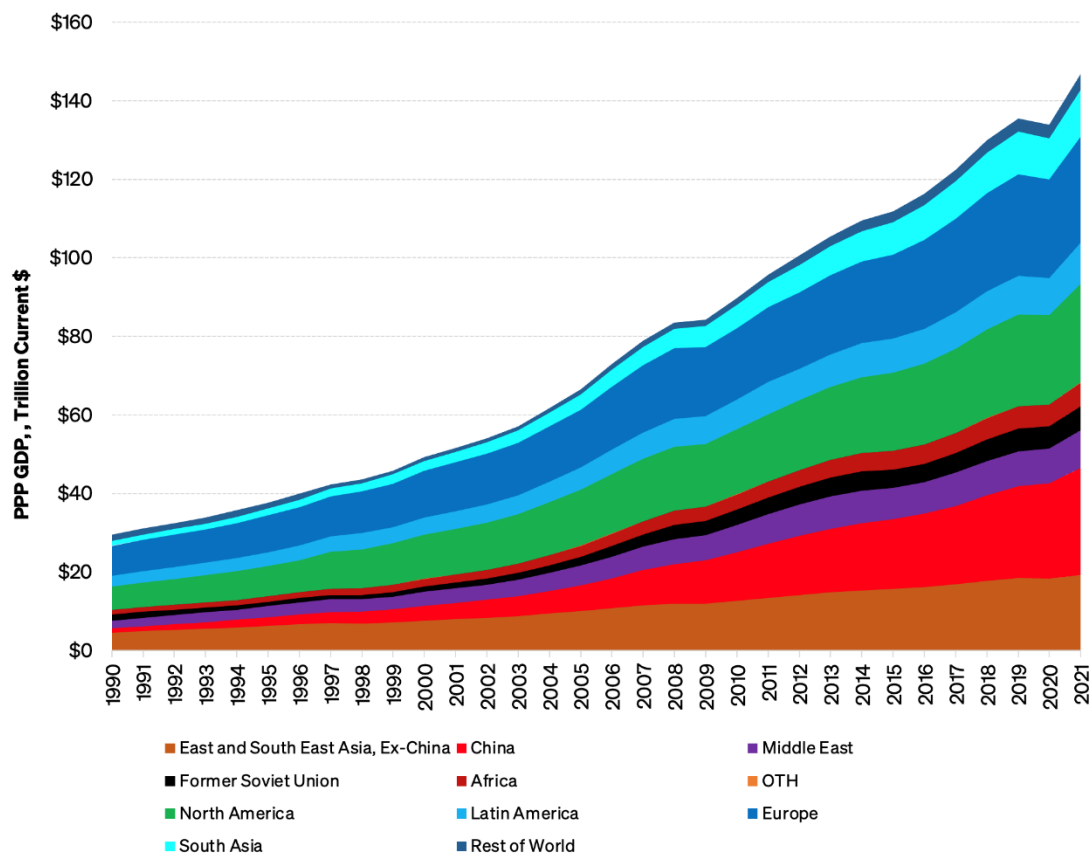
Consequence 2: Trade Exclusion and Economic Coercion

Open market access is an essential element of American power. Historian Nicholas Lambert notes that “The efficient functioning of the global trading system (and a high level of trade) was critical to the British Empire’s prosperity and strength” more than a century ago.¹⁵⁵ While crucially different in its domestic and international politics, in the present post-imperial era, the United States occupies an economic position that is analogous to the British Empire in its heyday. This helps explain why, despite periodic spasms of isolationism, U.S. strategy overall has recognized for decades that America’s prosperity is tied to free and open access to the world and robust flows of trade.¹⁵⁶ Accordingly, constrained access and exclusion of U.S. exports would be disproportionately harmful to America’s power and position over time. Exclusion from Asia would also cripple the United States’ future economic prospects. Curtailment of U.S. access to economic opportunities in Asia would be a very real possibility in the wake of the PRC’s coercive annexation of Taiwan.

Reduced U.S. trade flows with Asia in a post-Taiwan-invasion world order would be especially impactful, given the region’s current and future status as the largest, most dynamic global economic activity zone. Asia is uniquely positioned for such a

contingency to occur, primarily due to China’s status as a near-peer competitor and an aggressive authoritarian power. Additionally, repercussions of this displacement would be most significant in the region. East Asia and the Pacific account for one-third of global GDP in purchasing power parity terms, a share that is by far the world’s largest and about twice that of the United States (Figure 14).

Figure 14 – Global GDP by Macro-Region, Purchasing Power Parity, Trillions of Current International Dollars



Sources: World Bank; authors’ analysis.¹⁵⁷

Successful PRC coercive annexation of Taiwan would position Beijing to economically and militarily subjugate its regional neighbors, including some of the world’s most important economic and industrial powers and key U.S. treaty allies. PRC policymakers clearly view the world through a harsh hierarchical lens defined by counterparts’ size and power. Japan would have a hard time defending itself after the fall of Taiwan, but the situation facing the Philippines and other Southeast Asian nations would be still worse. As MacArthur and Eisenhower warned, PRC control of even part of the First Island Chain (i.e., the islands and archipelagos extending from the Kuril Islands in the north, through Japan, the Ryukyu Islands, Taiwan, the Philippines, Indonesia, and

terminating in the South China Sea) would put Beijing in a position to complicate U.S. access to East Asia, Southeast Asia, and the Indian Ocean — regions constituting the coastline of the most populous and economically active part of the world. If the First Island Chain is like a belt constraining China's increasing heft and pressure, then Taiwan is its buckle (or linchpin). If that already-strained "buckle" were to break, it would be devastating to the current rules-based order.

The United States' own history shows how achieving regional preeminence facilitates global power projection. As Sean Mirski points out in his recent book "We May Dominate the World," securing regional hegemony in the Western Hemisphere "freed the United States to leave the hemisphere behind and to become a global superpower." But the United States was, in Mirski's assessment, a superpower "invested in the security and stability of the world at large."¹⁵⁸ We cannot know in advance precisely how the PRC might act as a global power freed from the constraints imposed by a robust American economic and military presence in Asia, but a multidecade pattern of action suggests it would take a far less benign approach.

Hegemony encompasses not only military dominance, but also economic prowess. Curtailment of U.S. access to economic opportunities in Asia would be an all-too-real prospect in the wake of a PRC annexation of Taiwan. The threat would require serious attention because free access to global trading opportunities is a foundational dimension of American prosperity and comprehensive national power.

History shows a strong correlation between cementing hegemony and restricting rivals' economic prospects. In a 2018 Foreign Affairs article considering what "Life in China's Asia" might look like, Dartmouth scholar Jennifer Lind points out that "Great powers typically dominate their regions in their quest for security" and that as part of the venture, "They develop and wield tremendous economic power."¹⁵⁹ East and Southeast Asia's critical importance to global supply chains would reinforce Beijing's incentives to do this. Even under a scenario of greater direct "decoupling" between the PRC and U.S. economies, regional countries would likely still host PRC-invested and influenced firms that would remain critical supply chain nodes for companies domiciled in the United States and allied countries.

The challenge would endure for at least three fundamental reasons. First, East Asia and the Indo-Pacific account for one-third of global GDP in purchasing power parity terms, a share roughly twice that of the United States. Second, the greater Indo-Pacific region represents the most significant global economic activity zone, including the high-growth potential subregion of ASEAN. Third, a hegemonic PRC's intolerance of external rivals (among which the United States would be first) would probably drive economic and other coercion against Asian states that sought to continue robust trading and investment relationships with American entities.

To that point, recent PRC behavior in the region is already consistent with an apparent effort to economically displace the United States. While ASEAN states have for decades demonstrated they prefer making free economic choices, the actions described above suggest that under PRC hegemony, their economic sovereignty would be seriously compromised.

American policymakers have previously confronted the prospect of an adverse power controlling the world's economic, industrial, and technological center of gravity. In 1939, as World War II overtook Europe, President Franklin Delano Roosevelt warned, "So soon as one nation dominates Europe, that nation will be able to turn to the world sphere."¹⁶⁰ The threat that PRC hegemony over East Asia would pose today is arguably greater than that which our forebears faced regarding Europe nine decades ago and deserves commensurately proactive policy responses.

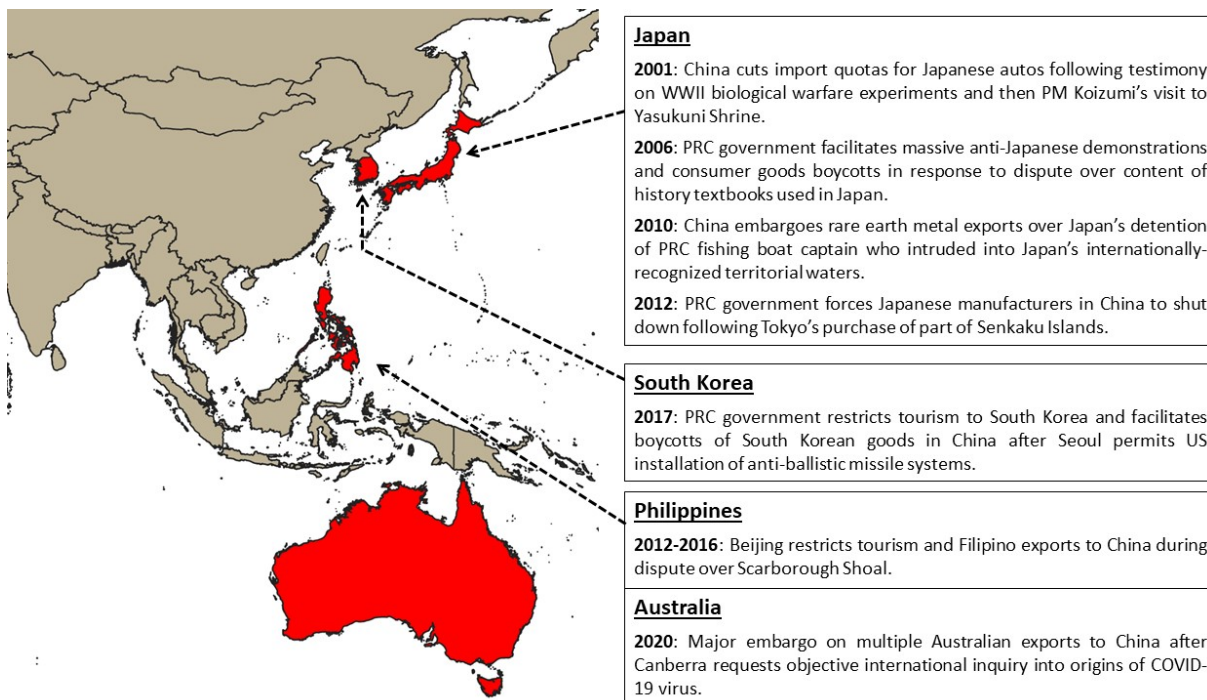
Then-PRC Foreign Minister Yang Jiechi's remark at the 2010 ASEAN Summit that "China is a big country and you are small countries and that is a fact" exemplifies Beijing's very different, highly concerning approach.¹⁶¹ Yang's remarks set a tone that Beijing backed up with de facto annexation of territory in the South China Sea and a military buildup that has made the PLA far more formidable. Accordingly, without American power to offset it in Asia, China's strategic position would risk leaving many regional states as quasi-vassals.¹⁶²

Beijing's raw hierarchical view of the world and its regional actions in practice point to a stark reality: Punishment awaits those who attempt to defy it. As Ming official Zhang Juzheng (Chang Chü-cheng/張居正) noted more than four centuries ago of vassal states subservient to China, "Just like dogs, if they wag their tails, bones will be thrown to them; if they bark wildly, they will be beaten with sticks; after the beating, if they submit again, bones will be thrown to them again; after the bones, if they bark again, then more beating."¹⁶³ Such humiliating "stroke and poke" domination is why most regional states seek to counterbalance China's growing influence. They generally want to avoid choosing the United States over China as strategic competition intensifies, but often even more deeply, they hope to avoid facing China alone. A successful coercive takeover of Taiwan by China would badly diminish the United States' position as a strategic counterweight, and among its key effects, would quickly lend PRC economic coercion much more gravity than before. Equally important, it would make regional states fear even the mere prospect of such coercion being deployed against them, thus setting them up to preemptively cede sovereign decision-making on economic and trade matters, lest they offend Beijing.

Here China would have high credibility, for it has a history of using economic coercion in service of foreign policy objectives, including economic warfare against U.S. treaty allies in Asia (Figure 15). In the cases of both Japan and the Philippines, Beijing employed

economic coercion to enhance its leverage amid ongoing maritime territorial disputes.¹⁶⁴ South Korea was targeted in 2017 upon agreeing to host American Terminal High Altitude Area Defense (THAAD) antiballistic missile systems.¹⁶⁵ China targeted Australia in 2020 after Canberra sought an international inquiry into the origins of COVID-19.¹⁶⁶ While history does not precisely foretell future outcomes, it can illuminate preferred patterns of action, and in China's case, there is a multidecade, multileader pattern of using economic coercion as a core tool of statecraft.

Figure 15 – Selected Examples of PRC Economic Coercion Against US Allies Over Past Two Decades



Sources: ABC; CNAS; Reuters; authors' analysis.¹⁶⁷

Economic coercion would not be employed in service of narrow objectives, but rather to further a broad regional economic restructuring designed to prioritize PRC interests. If Beijing succeeded in coercively annexing Taiwan, it might first launch a soft power public relations effort to try to persuade other Asian states that China would be a benign hegemon. But reality would likely intervene rapidly. For more than a decade, Beijing has interspersed overt revisionist behavior with periodic charm offensives while continuing to simultaneously deploy diplomatic, economic, and military heft to coerce neighbors and reshape Asia.¹⁶⁸ Restraint is thus a possible path but not a probable one. And its chances would diminish further after a successful coercive annexation of Taiwan.

Economic power is central to the entire hegemonic enterprise but is often intimately intertwined with the diplomatic, military, and coercive instruments needed to promote and protect the hegemon's desired "operating system" for international interactions. Put differently, the provider of security (or at a minimum, the dominant regional military power) is by default positioned to promote ideas and systems that best serve its interests.

As foreign policy historian Robert Kagan noted a quarter century ago, "Good ideas and technologies need a strong power that promotes those ideas by example and protects those ideas by winning on the battlefield. ... If a lesser power were promoting our ideas and technologies, they would not have the global currency that they have. And when a strong power, the Soviet Union, promoted its bad ideas, they had a lot of currency for more than half a century."¹⁶⁹ The operating system of modern economic prosperity is the (relatively) free flow of people, ideas, and the capital to support and then commercially scale innovation. China has clearly benefitted from this system. But equally clearly, it seeks to substantially revise the global economic, diplomatic, and security dimensions of that operating system.

Key proposals Beijing has advanced include the One Belt, One Road/Belt and Road Initiative (BRI), Community of Common Destiny, and most recently, the Global Security Initiative. Fusing the stated goals and demonstrated actions of these three concepts into an assessment of PRC strategic intent suggests the following: 1) Beijing seeks to create a web of PRC-centric partnerships cemented by physical investments to gradually displace (or preempt) countries' alliances and their depth of cooperation with the United States, 2) China is most intensely focused on adjacent Asian countries and, secondarily, other regions, and 3) each concept features florid rhetoric about equality and mutual benefit but in reality reflects what one commentator aptly calls the "yawning gap between China's high-sounding moralistic posturing and the manifested reality of its nationalistic foreign policy."¹⁷⁰ This triune reality elucidates how Beijing would likely seek to reshape Asia's economic landscape following annexation of Taiwan.

Curtailed U.S. access to economic opportunities in Asia would be a very real prospect in the wake of PRC coercive annexation of Taiwan. Great powers, especially ones that attain hegemonic status, tend to behave in ways that contradict their seemingly harmless statements in theoretical position papers. No hegemon is immune, but China's intense commitment to self-interest suggests a regional hegemony facilitated by its coercive annexation of Taiwan would prove especially oppressive. Viewing the prospect of PRC hegemony in historical context, Lind emphasizes that great powers, left unchecked, typically "build massive militaries, expel external rivals, and use regional institutions and cultural programs to entrench their influence. Because hegemonies fear that neighboring countries will allow external rivals to establish a

military foothold, they develop a profound interest in the domestic politics of their neighborhood, and even seek to spread their culture to draw other countries closer.”¹⁷¹

A hegemonic PRC intolerance of external rivals (including the United States, first and foremost) could plausibly drive economic and other coercion against Asian states that sought to continue robust trading and investment relationships with American entities. Beijing’s approach might not necessarily entail outright exclusion but instead require acceptance of political conditions in exchange for the right to economic access. Control would not be cost-free. Destruction of economic and trade activity could trigger a global recession – and more likely, something closer to a depression because the situation would likely endure for years. From a PRC perspective, effectively controlling or at least more deeply influencing a significantly larger portion of a stagnant or even somewhat shrunken global GDP could still prove a major strategic win.¹⁷²

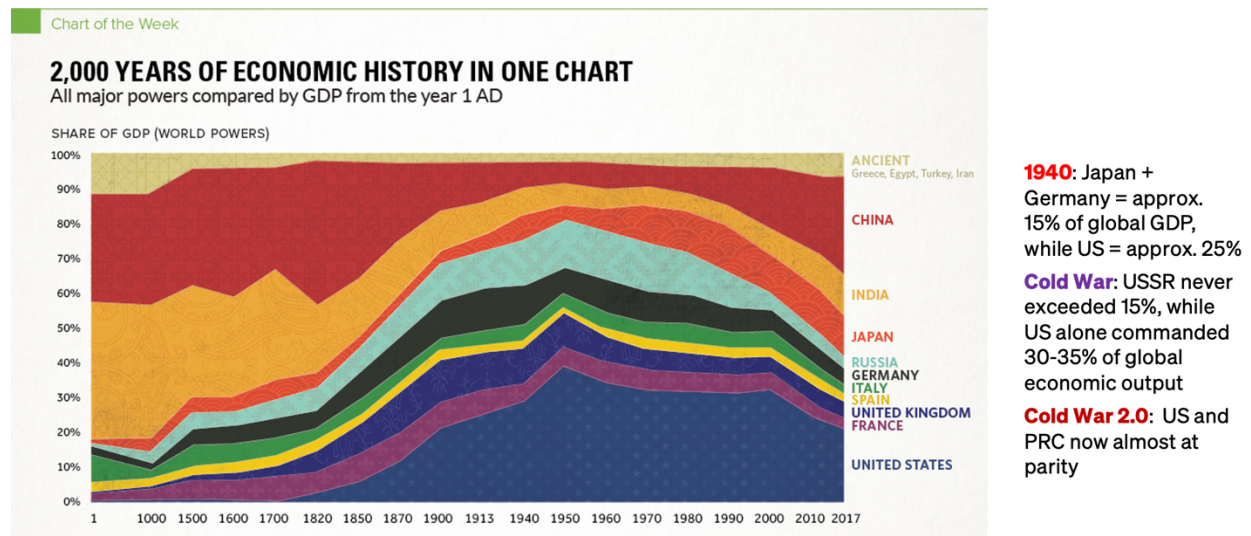
The PRC would become a type of hegemonic power that Asia has not experienced for a century or more. The United States, by contrast, has maintained a substantial economic and military presence in the region with few economic conditions attached. Consider for instance how virtually every country in the region now trades substantially more with China than it does with the United States and how, with the recent exception of a few highly sensitive sectors, Washington accepts this. PRC hegemony would likely be more broadly analogous to Imperial Japan’s Greater East Asia Co-Prosperty Sphere, but with critical differences that would make a contemporary PRC imposition of regional suzerainty a higher risk to U.S. interests over the long run.

Imperial Japan was a regional military titan but an economic and demographic middleweight. Today’s PRC, in contrast, is a heavyweight in all three dimensions (demographic, economic, and military). On the eve of World War II, Japan accounted for about 10% of global GDP on a purchasing power parity basis. China today accounts for twice that share. Japan’s economic mass was also overshadowed by the balancing effect of U.S. economic heft to the degree that contemporary China is now. In 1894, by which point Japan had entered an era of Asian conquest, U.S. GDP was several times larger, and the gap persisted as U.S. domestic growth generally outstripped the GDP impacts of Japan’s forcible conquests throughout Asia (Figure 16). Furthermore, in 1940, Japan accounted for less than 6% of Asia’s population.¹⁷³ China’s share of Asia’s population in 2020 was about five times larger, according to World Bank data.

Depending on how the process of China attempting to assert itself as the regional hegemon unfolded, additional economic consequences might arise. Industrial capacity relevant to peacetime economic competitiveness and sustainment of warfighting capability, as well as the United States’ present financial preeminence, would both face an unprecedented threat from a resurgent PRC. Crucial global manufacturing bases residing within America’s key Asian allies and much of the associated human capital

could either physically fall into PRC hands (e.g., Taiwanese semiconductors) or else become much more susceptible to Beijing’s geoeconomic coercion. This vulnerability extends to South Korean semiconductor production, shipbuilding, and other industries, as well as Japan’s world-class industrial infrastructure. Regional manufacturing facilities could face sanctions, raw material supply disruptions, and other forms of economic coercion, especially if the domicile country took actions to oppose China’s coercive annexation of Taiwan.

Figure 16 – 2,000 Years of Global GDP



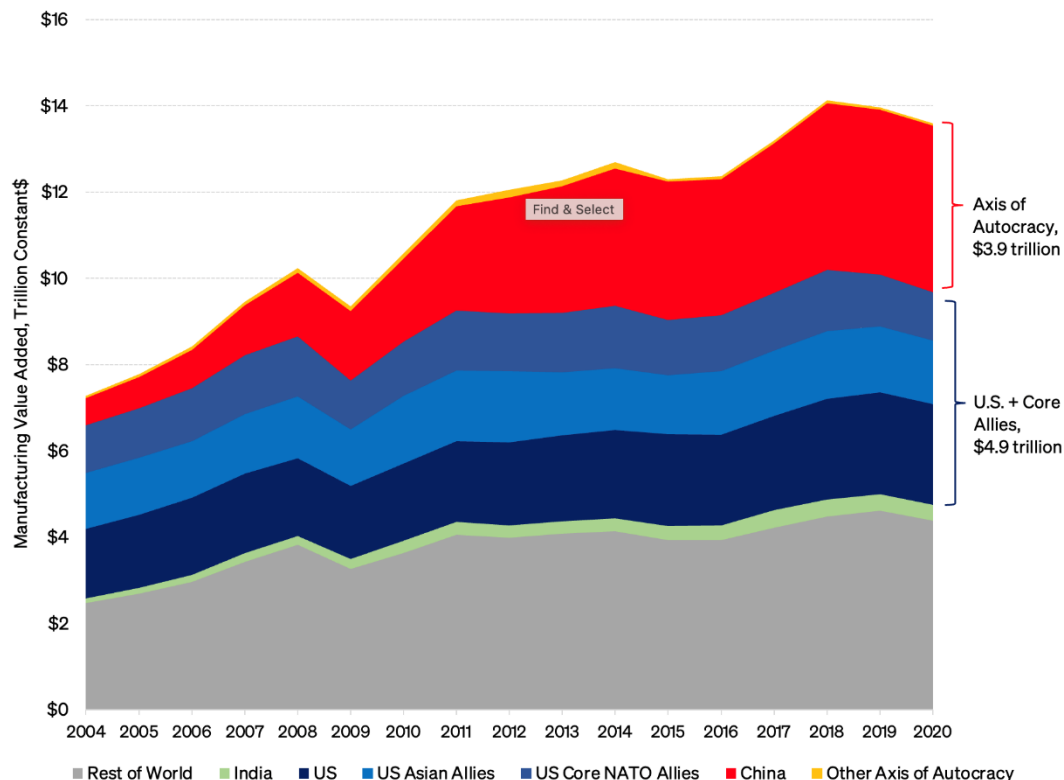
Sources: IMF; Angus Maddison; Visual Capitalist.¹⁷⁴

Figure 17 illustrates the overwhelming concentration of economic power and opportunity in Asia and shows how the aggregate manufacturing value-added of a PRC-led “Axis of Autocracy” is now only \$1 trillion less than that of the “Axis of Democracy,” represented by the United States and its core allies. This makes major advances and acquisitions by Beijing a potential tipping point in geosocial and geoeconomic power trends. Perhaps even more importantly, China’s global manufacturing share now substantially exceeds that of the United States, meaning that a bilateral industrial war would be stacked in Beijing’s favor. This in turn would amplify the importance of PRC efforts to drive wedges between the United States and its allies and partners.

Under such conditions, commercial actors based in Japan, South Korea, and other regional states might find themselves coerced into charting a considerably different course than they do now. Potential unity of purpose between advanced industrial democracies could then be fractured and weaken what would otherwise be a key economic counterweight against Beijing’s quest for regional hegemony and perhaps, eventual global superpower status. Asia is the global center of economic and

technological gravity today that Europe was 85 years ago, and we assess that the danger to American strategic interests from its domination by a hostile power would be equally grave.

Figure 17 – Manufacturing Value-Added, Trillion Constant Dollars

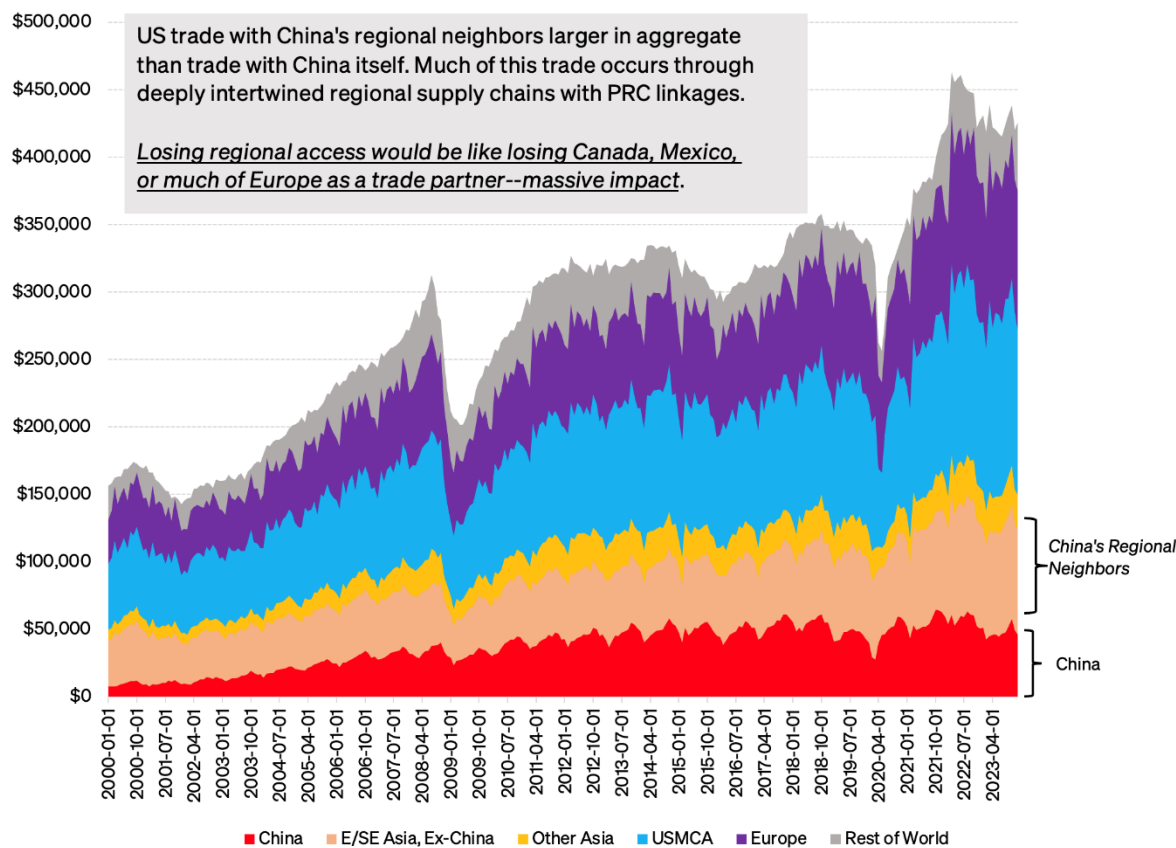


Sources: World Bank; authors’ analysis.¹⁷⁵

From the early days of Deng Xiaoping’s post-1978 “reform and opening-up” to the present, PRC economic interests have substantially subverted the rules-based system’s operational intent, but China has not yet replaced it with a new order of its own.¹⁷⁶ Subsuming Taiwan could finally enable such control by imperiling America’s position in Asian economic networks. A complex rules-based order wherein various ASEAN, East Asian, U.S., and PRC economic entities alternately cooperate and compete to trade and ship goods over sea lanes protected by U.S. naval and other military power would likely yield to a more explicitly Sinocentric security architecture. Today’s dynamic Asian economic ecosystem would likely devolve into more of a “hub-and-spoke” system with PRC hubs, subjugated spokes, and PLA-provided physical protection. In a worst-case scenario, the United States could lose access to trade volumes akin to its annual commerce with Canada plus Mexico, or most of Europe. Such an outcome could place the nation in a position of strategic disadvantage not experienced since the Republic’s early days, if ever.¹⁷⁷

America is one of non-PRC Asia's largest capital investors. U.S. direct trade with Asia is significant, with the Pacific Rim representing a total trade volume approximately equivalent to that between the United States and Canada plus Mexico (Figure 18).

Figure 18 – A Substantial Portion of America's Roughly \$4.5 Trillion Annual Goods Trade is With Asian Partners

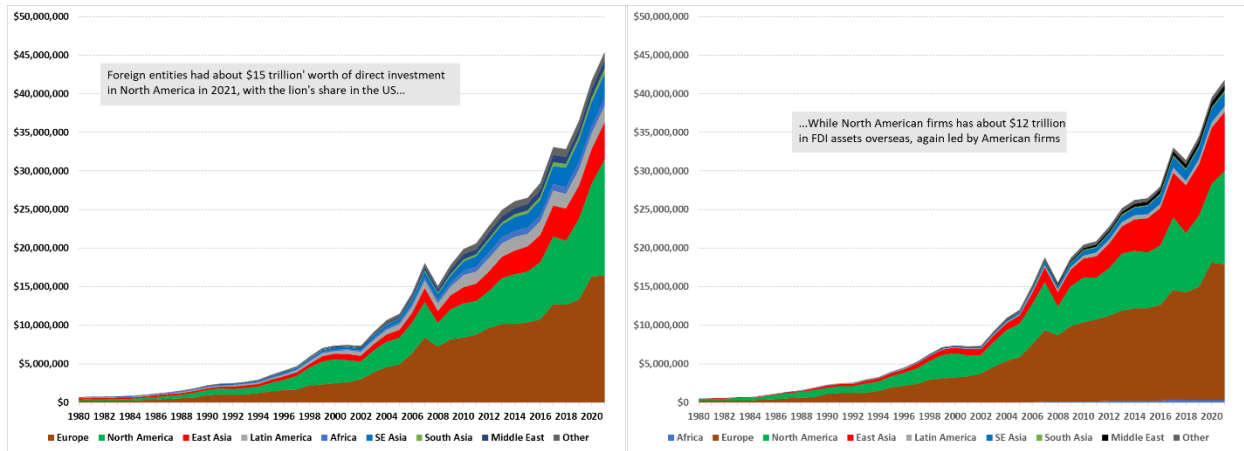


Sources: Bureau of Economic Analysis; authors' analysis.¹⁷⁸

American investors also hold trillions of dollars' worth of overseas fixed assets, with a substantial portion in countries neighboring China (Figure 19). Factories, data centers, real estate, and other brick and mortar infrastructure yield substantial economic returns but are also physically fixed, financially illiquid, and would be vulnerable to changes of ownership (perhaps under coercion by PRC entities). They cannot be moved in response to political shifts, such as the imposition of a *Pax Sinica*. Imagine if, hypothetically, an ascendant Taiwan-dominating PRC were to pressure Indonesia, Malaysia, and Singapore over an American company's ownership of data centers in those countries. It could claim they posed security risks, ban PRC firms and counterparties with access to the PRC companies' data from using the infrastructure in question, and then offer to have a trusted PRC firm like Huawei or Alibaba Cloud either build new parallel data

centers or “purchase” the existing ones, knowing that pressure would likely allow acquisition of highly functional assets at a distressed price.¹⁷⁹ Such a scenario could be repeated with various permutations across many types of fixed assets.

Figure 19 – American Firms and Workers are Major Beneficiaries of the Global Capital Cycle



Source: United Nations Conference on Trade and Development (UNCTAD).¹⁸⁰

Note: Foreign direct investment stocks, million USD (inbound, left side; outbound, right side).

As part of reshaping the regional trade architecture, a PRC that had annexed Taiwan would also likely accelerate ongoing efforts to promote de-dollarization in the world’s largest economic region. The ultimate scope and potential strategic impacts of de-dollarization activities remain unclear (see Appendix 3). One area of relatively greater clarity concerns China’s aspirations for its yuan to become a much more important regional currency, with the People’s Bank of China signing multiple currency swap agreements with neighboring countries and nearly 20% of China-Russia trade occurring in yuan in 2021.¹⁸¹

Recent PRC behavior in the region is already consistent with an apparent effort to displace the United States economically. To assess de-dollarization risks, China’s trade with the ASEAN countries will be a key barometer to watch. PRC sources trumpet the rapidly growing share of regional trade settled in yuan.¹⁸² A well-informed Malaysian scholar recently noted that China is attempting to have ASEAN states denominate more of their trade with other ASEAN states in yuan and that “this is being done to score points against the U.S., not to improve the way trade is conducted.”¹⁸³ ASEAN states likely would prefer to not be forced into a binary choice between the dollar and yuan, just as they seek to avoid taking clear political sides in the unfolding Sino-American strategic competition. But a less-constrained Beijing could plausibly seek to abolish

such a middle course in the wake of a successful coercive annexation of Taiwan and presumptive diminishment of U.S. presence and role.

With America serving as a counterbalance to China through its commitment to freedom of navigation and economic access, insulated from geopolitical tensions, it is possible to achieve prosperity for all, even for the PRC, as evidenced by the experience of the last eight decades. But without such a counterbalance, and even if the most powerful countries manage to mostly maintain their territorial integrity in the face of a hegemonic PRC, their economic sovereignty and long-term national power potential would be compromised. The invariable lack of trust in American security commitments after an annexation of Taiwan would probably reinforce the incentives of key countries to develop their own nuclear weapons.

Consequence 3: Linchpin of the First Island Chain – Alliance Erosion

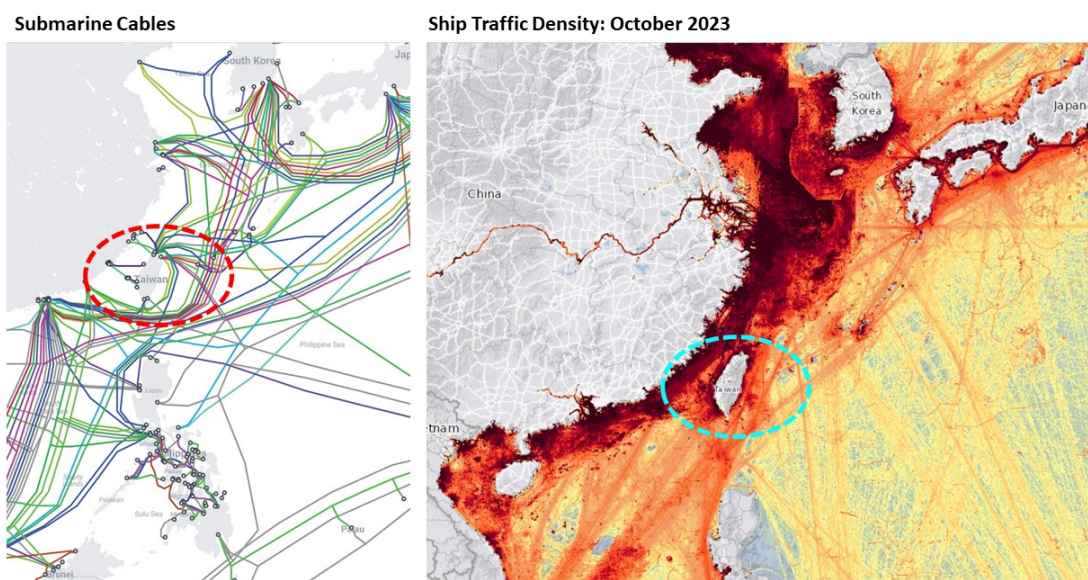
Taiwan is not simply a source of cutting-edge microchips but also what MacArthur, Eisenhower, and others recognized well over half a century ago: the linchpin (or “buckle”) of the First Island Chain and a frontline in the competition between a PRC-centric “Axis of Autocracy” and the rules-based global order underwritten by America and its allies. This global order emphasizes peaceful resolution of disputes, eschews territorial conquest, gives countries an international voice beyond their individual size and power, and promotes freer exchange of capital, ideas, and people. This makes the island strongly worth supporting and defending even if it becomes less central to the global technology architecture.¹⁸⁴

A failure to defend Taiwan from coerced annexation by China would have at least three system-changing consequences that would extend far beyond the semiconductor ecosystem. First, the U.S. alliance system in Asia would come under severe strain and might even rupture. Such a setback could jeopardize American forward basing and access in the Western Pacific, which MacArthur emphasized was critical to protecting the continental United States. Second, China would be positioned to dominate the region and project power much farther afield. Third, the Sino-Russian revisionist relationship might dramatically increase in scope and scale if a successful coerced annexation of Taiwan destroyed the present web of U.S. security relationships in East and Southeast Asia, or at least weakened them to the point that Beijing no longer viewed them as a serious constraint on its ambitions.¹⁸⁵

Physical control of Taiwan would enable China to dominate the air and waters to the island’s north, east, and south. PRC bases in Taiwan coupled with existing base facilities on reclaimed features in the South China Sea would turn the waterway from Singapore to Okinawa into a virtual PRC lake. This would offer Beijing opportunities to

not only interfere with shipping and air traffic in the region, but also to threaten submarine cables connecting South Korea and Japan with Southeast Asia, Australia, and other points to the west. As Figure 20 shows, Taiwan lies near some of the world's busiest shipping lanes, which serve not only the PRC, but also Japan and South Korea. It also sits near key submarine cables linking these U.S. treaty allies informationally to their commercial and security partners in the region as well as globally. A spate of damage to subsea infrastructure globally over the past two years, reportedly involving PRC-linked parties – including cables ruptured near Matsu and a gas pipeline broken by an anchor dragged near Finland – suggests the imminence of the threat and how it could be amplified by PRC forces being able to operate out of Taiwanese bases hundreds of miles closer to these vital but vulnerable assets.

Figure 20 – Submarine Cables and Ship Traffic Density Near Taiwan



Source: Submarinecablemap.com, National Geospatial Agency.¹⁸⁶

If Southeast Asian countries hemmed in by a PRC-controlling Taiwan subsequently caved to pressure from Beijing, this could complicate U.S. access to the Indian Ocean. Elsewhere in East Asia, reduced credibility of American will and capability to protect allies and key partners from China could plausibly prompt those sufficiently capable to pursue nuclear weapon development (e.g., Japan and South Korea) to deter PRC nuclear and conventional coercion and attack.¹⁸⁷

The United States' postwar alliance structure in Asia has faced periodic medium-intensity tests. These have included the Taiwan crises in the mid-to-late 1950s under Eisenhower, losing the war in Vietnam, becoming bogged down in the Persian Gulf region between

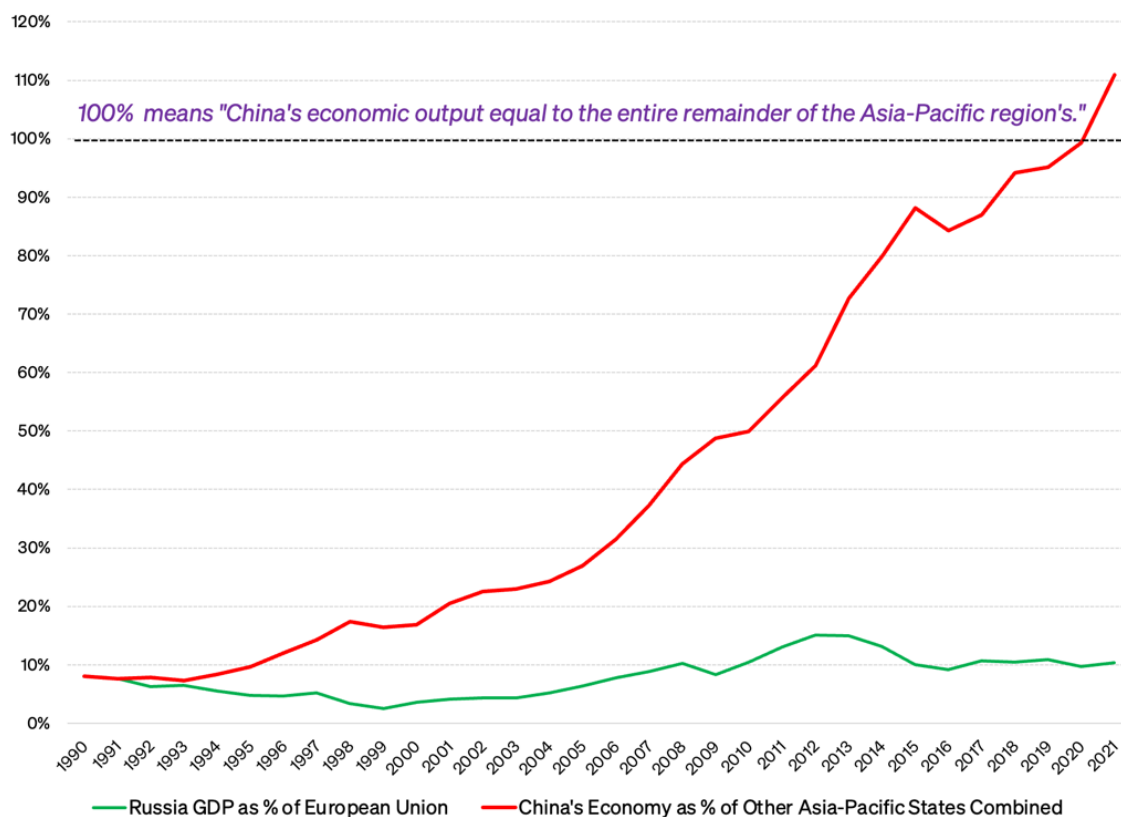
1991 and the mid-2010s, and failing to achieve coalition-based progress in Afghanistan during the first two decades of the 21st century before withdrawing haphazardly by Aug. 30, 2021. In these instances, U.S. allies were often more concerned about a lack of strategic discipline than they were the specific outcome of a given commitment, revealing that they may be particularly worried about how the United States might behave when a truly vital interest comes under threat.¹⁸⁸ To that point, since the Vietnam War, Washington has not had to cope with a direct, large-scale military assault on a military ally in the Indo-Pacific (e.g., Japan, South Korea, the Philippines, Australia) or a vital partner (Taiwan).¹⁸⁹ A PRC coercive annexation campaign against Taiwan, perhaps via a militarily enforced air/naval quarantine operation or outright blockade, would change this reality overnight and usher in a critical period for alliance credibility with impacts that would likely reverberate for decades to come.

The Soviet Union had the potential to test American security alliances in Asia, including through operations against Japan and potentially, proxy actions by North Korea. Thankfully, the Japan scenario never materialized. After Stalin (and Mao) effectively allowed North Korean dictator Kim Il Sung's invasion of South Korea in 1950, Pyongyang experienced initial success before allied nations responded decisively.¹⁹⁰ After the Korean War, the next four decades of Soviet and PRC revisionist challenges were generally peripheral and became restrained by Sino-Soviet enmity.

After a post-Cold War interlude, the United States and its regional allies face a historically unprecedented challenge: the rise of a China that is distinctly revisionist and whose comprehensive economic, industrial, and military power is an order of magnitude beyond what the Soviet Union and Cold War PRC combined could bring to bear. Despite a peaking population and a corresponding slowdown in its long-term growth potential, China's extant economic heft and domestic techno-industrial base position it to be a far more durable competitor across multiple domains than the Soviet Union ever could be. Accordingly, the U.S. position as a strategic balancer is irreplaceable for maintaining an Asian order that has delivered decades of prosperity, relative peace, and benefits to all parties involved – even China itself, which now seeks to displace American presence and power.

Two key drivers of comprehensive national power give a sense of how China stacks up against the rest of the Indo-Pacific region. Critically, they also illustrate why a loss of confidence in alliance relationships with the United States would trigger survival imperatives that could realign and reorder the region in ways that facilitate Beijing's hegemony and erode U.S. national security. First is economic output. World Bank data reveal that China achieved "economic parity" with the rest of the region combined in 2020.¹⁹¹ In other words, its 2020 GDP was equal to that of every other country in the region combined. The margin has since increased, with China's GDP in 2021 approximately 1.1 times that of all other regional countries (Figure 21).

Figure 21 – PRC Economic Power Versus Rest of Asia



Sources: World Bank; authors’ analysis.¹⁹²

One can (as the authors have) seriously dispute the quality and accuracy of China’s officially reported GDP numbers.¹⁹³ But even a 25% downward correction to the reported statistics still paints a stark strategic picture of China, whose economic heft has grown to the point that only deep U.S. engagement can offset it and support the continuation of an open trading architecture. American retreat or ejection would open the way for Beijing to create a more self-accommodating system, one that would emphasize subordination to PRC interests rather than the relatively unconstrained pursuit of commercial opportunity and profit that currently drive the region’s trade flows.

As evidence of China’s medium- and long-term strategic goals for trading system architecture, consider the concept of “dual circulation” (双循环) that Xi revealed in 2020. Dual circulation aims to maximize China’s raw materials and input self-sufficiency, establish the domestic economy as the country’s primary economic growth driver, and tap the international economy on a more limited basis for capital, inputs, and export opportunities.¹⁹⁴ A primary objective is to help reduce PRC strategic exposure to an international environment that Beijing sees as becoming more averse to its interests. Such PRC repositioning could very well hasten the trend toward global material,

ideational, and capital networks reorienting loosely along PRC-centric versus U.S./ Organisation for Economic Co-operation and Development (OECD)-centric lines.

Second, the sheer size of China's economy also reflects the pool of resources that Beijing can exploit to modernize its military, which it has done concertedly. Even with slower growth in the future, China will still be able to do this sustainably at a scale no other country in the world, save the United States itself, can muster. "The PRC can support continued growth in defense spending for at least the next five to 10 years," the Pentagon judges, "based on economic data and growth projections."¹⁹⁵ Comparing China's share of regional economic output to Russia's vis-à-vis Europe is instructive: With just 10%–15% of the economic output of its competitors, Russia has still been able to build a set of destructive military capabilities. A China that can apply its formidable resource pool to its domestic techno-industrial base, and perhaps also incorporate additional Russian technologies and know-how, creates a competitor that could realistically be 10 times more capable than Russia across the full spectrum of national power.¹⁹⁶

A separate but related factor helps to illustrate a potential cause of the erosion of American ability to serve as a strategic counterweight to China and consequently an amplifier of regional states' incentives to accept PRC dominance. The PLA Navy's modernization exemplifies a regional trend toward China being "almost un-balanceable" absent meaningful U.S. countermeasures. Asia's most economically productive regions are almost exclusively "maritime" (located within 100 miles of the sea), and the region's littoral and archipelagic character means that most trade either moves by ship or, in the case of high-end electronics, by aircraft that overfly waters that can be commanded by missile-carrying ships.

With 90% of world trade occurring by sea and up to 99% of global data flows travelling by undersea cable, naval power is of inherent importance.¹⁹⁷ The capacity underpinning naval power, in turn, lends itself to several major measurement metrics. The authors use "universal vertical launch system and area air defense cells afloat" as a crude but meaningful yardstick. This encompasses munitions that are carried in large vertical launch systems (VLS) capable of variously accommodating long-range surface-to-air missiles, long-range anti-ship missiles, and land-attack cruise missiles. As of year-end 2023, the PLA Navy's Type 052D destroyers and Type 055 cruisers accounted for 2,496 universal VLS tubes. The PLAN also had 1,312 air-defense-only HHQ-16 VLS cells aboard its Type 052B, 051B, Project 956E destroyers and Type 054A frigates, which could in theory accommodate newer versions of the HHQ-16 series area air defense missiles. In addition, the air-defense only HQ-9 equipped Type 052C destroyers and the Rif-M/SA-N-20 equipped Type 051C destroyers bring another 384 VLS cells to bear. Combining all of the various VLS categories together gives the PLAN surface order-of-battle a total of 4,192 VLS cells.¹⁹⁸

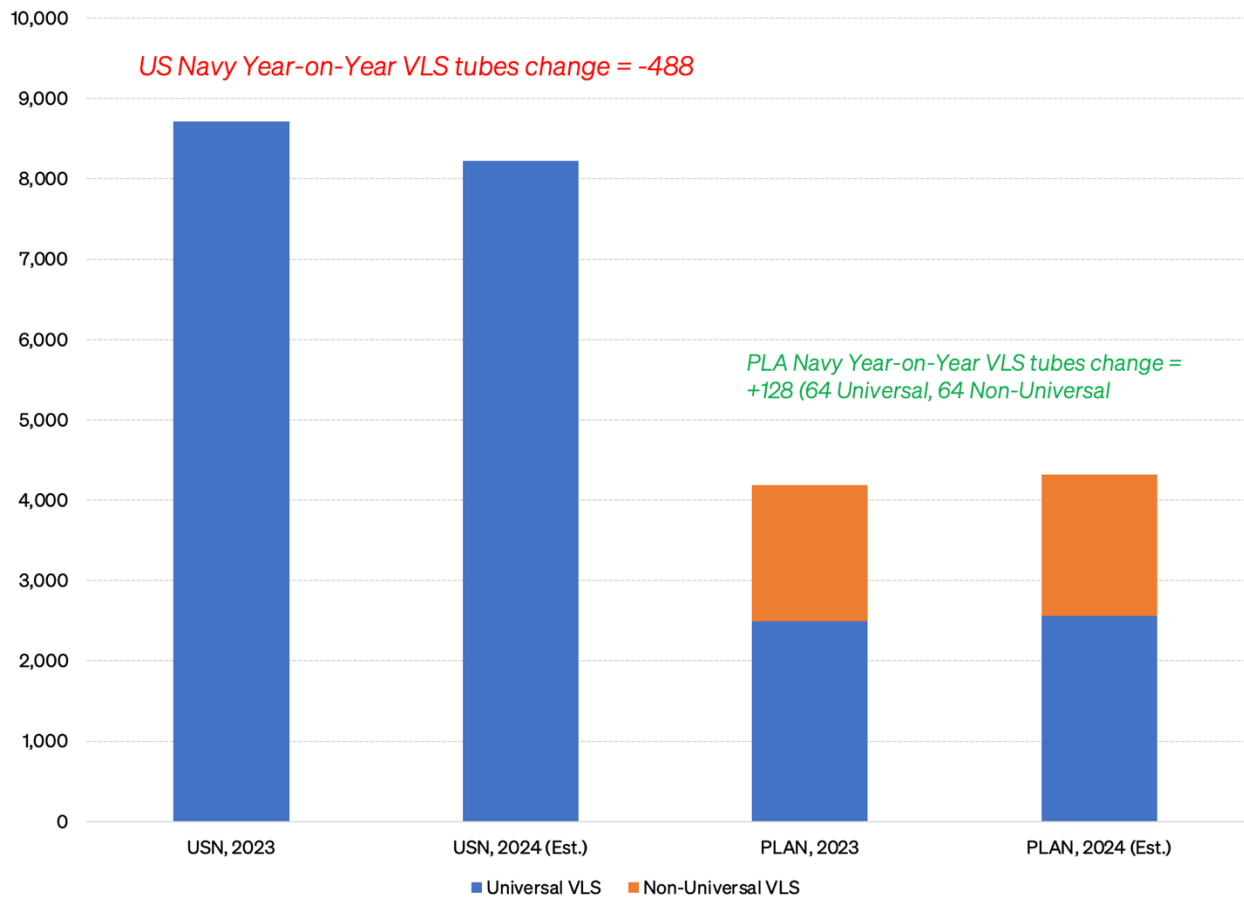
By comparison, the U.S. Navy had 8,714 VLS cells in its fleet at the end of 2023, making it the critical regional balancer.¹⁹⁹ Moving forward, however, the U.S. Navy is expected to lose 488 VLS cells in 2024 with the decommissioning of four Bunker Hill-class Aegis cruisers, while the PLAN is expected to gain another 64 Universal VLS cells and 62 HQ-16 capable VLS cells in the same year.²⁰⁰ The United States maintains a quantitative edge in this important area, but the gap continues to narrow. Figure 22 depicts comparative VLS cell counts for the PRC and U.S. navies in 2023 and 2024, respectively.

The importance of U.S. naval power will only increase as China already greatly exceeds its neighbors in overall fleet firepower and is adding additional capacity far faster. The following datapoints illustrate this great and growing disparity. At the end of 2023, the Japan Maritime Self-Defense Force (JMSDF)'s 30 VLS-equipped ships have just over half the VLS cells (888 versus 1,600) of China's 25 Type 052D/DL destroyers. Although Taiwan does not have any VLS-equipped ships, from a weapons capacity perspective, China's eight Type 055 Renhai cruisers each have greater combat power than all of Taiwan's larger ships (four destroyers, eight guided-missile frigates, and 14 frigates) combined. The major ROC (Taiwan) Navy ships only carry 108 SAMs using twin or single-arm mechanical launchers on the four Kidd-class destroyers and eight Oliver Hazard Perry-class frigates. Taiwan has two additional Oliver Hazard Perry-class frigates, but they were transferred without the Mk13 launcher, leaving them with point defense missiles and separate anti-ship missile launch canisters. By most measures, each of China's Type 055 cruisers alone thus has more combat capability than Taiwan's entire navy.

The Differentiated Credibility Test: Beijing's Strongest Strategy for Achieving Hegemony in Asia

China's combination of growing regional economic power and, increasingly, military power, have set the stage for a harsh test of what Elbridge Colby terms the United States' "differentiated credibility" in maritime Asia.²⁰¹ Even though Taiwan is not a *de jure* American ally, other key regional states view American decision-making regarding its fate as an indication of what the United States might do if China launched a coercion campaign or outright attack on them.²⁰² Security analysts based in the region echo these views, with Japanese and Korean authors in a recent Pacific Forum special issue noting that a PRC annexation of Taiwan — whether or not opposed by the United States — would severely shake their countries' confidence in the capacity of the U.S. to protect them.²⁰³

Figure 22 – Vertical Launch System Tubes in PRC Versus US Navies, 2023 and 2024



Source: Modern Chinese Maritime Forces, “Naval Vessel Register”; authors’ analysis.

If Washington lost its allies’ confidence, its ability to restore it would be extremely uncertain. An operation to eject PRC forces from Taiwan would likely require a protracted blockade operation to strangle China’s economy (with commensurate ongoing global impacts) followed by a major bombardment campaign and amphibious operation in the face of substantial residual anti-access capabilities. This would be a mammoth undertaking with no guarantee of success and tremendous potential for PRC escalation with various forms of Russian support.²⁰⁴ Even as a theater-size, maritime-specific microcosm, the World War II Battle of Okinawa offers a very loose historical analogue but with U.S. vessels now lacking the numerical overmatch they enjoyed in 1945 and facing supersonic anti-ship missiles, ballistic missiles, and modern submarines instead of kamikazes. Moreover, this would put U.S. forces on the wrong side of Taiwan’s formidable natural defenses and their potential for augmentation by counter-intervention forces based there. Operation Causeway, an American plan to invade Imperial Japan-occupied Taiwan toward the end of World War

It that was abandoned because of its extreme difficulty, remains a potent warning from the pre-atomic age for would-be invaders of Taiwan.²⁰⁵

Furthermore, risk of nuclear escalation would be substantial. As PRC leaders watch NATO's careful deliberations regarding support to Ukraine amid Russian nuclear threats, they are almost certainly concluding that if Taiwan were captured, bringing it under the nuclear umbrella unambiguously would be critical to forestall future U.S. rollback attempts.²⁰⁶ For the CCP, retaining a conquered Taiwan would likely be a political survival imperative given its post-1943 campaign to indoctrinate the PRC population with the notion that Taiwan rightfully belongs under Beijing's control.²⁰⁷ China's leaders would certainly do all they could to instill in American policymakers the belief that actions to de-annex Taiwan would trigger nuclear use by China. China's nuclear threats would be substantially more credible than Russia's were in 2022–23. Nebulous insistence on "no first use" of nuclear weapons notwithstanding, China is building a substantial number of additional warheads, silos, and new delivery platforms in a series of actions that U.S. Strategic Command notes are "inconsistent with its [China's] historical minimum deterrence posture."²⁰⁸

If the United States proved unable to preserve (or failing that, restore) Taiwan's freedom, Asia's strategic tectonics would likely shake wildly and rapidly realign in ways both explicitly and implicitly favorable to China's objective of establishing regional hegemony. Neighboring states would rapidly face a relatively binary strategic choice. They could either bandwagon with China or else gird for a besieged existence in the shadow of a new hegemonic power that 1) demonstrates a credible military capacity to conquer or at least severely punish neighboring states and 2) acts without restraint due to the United States either being unwilling or unable to intervene preventatively.

Southeast Asian nations would be the most likely to either explicitly bandwagon with China or disaffiliate from Washington given their close physical proximity and insufficient military power to stand up to Beijing alone or even in coalition. The region is thus Beijing's key attack surface for fracturing the U.S.-led coalition that currently prevents PRC hegemony in the region.

Geopolitical and economic factors reinforce each other. The ASEAN countries combined already command approximately \$3.5 trillion in annual economic output; this could rise to more than \$6 trillion by 2030.²⁰⁹ While ASEAN is already the world's fifth-largest economic bloc and a key growth engine, its members generally have not converted pecuniary power into commensurate military might. Deep economic ties with China (approximately 20% of goods trade flows), proximity, and lack of military power to offset the PRC make regional governments loathe to choose sides in the intensifying Sino-American strategic competition.

Southeast Asian states have adapted well to the present competitive bipolarity with PRC economic leadership and substantial American economic participation under a security umbrella dominated by the United States but increasingly featuring PRC hard power presence as well, especially in the South China Sea. Today's strategic ambivalence conceals a powerful corollary: If ASEAN states lost faith and confidence in U.S. security guarantees following a coerced annexation of Taiwan, a period of uncertainty would likely ensue. If Beijing began to behave in a more blatantly hegemonic manner, as described in the previous section, regional states would likely rapidly move to accommodate PRC demands from which U.S. power has thus far protected them. These might include territorial concessions in the South China Sea by the Philippines, formal renunciations of security partnerships with extra-regional states like the United States, and politically dictated shifts of trade flows into a more explicitly PRC-centric architecture. If they did not fall in line, China might more overtly use hard power to force compliance.

Such shifts would confirm Beijing's achievement of regional hegemony. They would also likely geopolitically bifurcate Asia. One side would feature an ASEAN vassalized to China. The other would be a loose antihegemony bloc of Japan, South Korea, Australia, and a diminished United States that retained substantial military power, but whose strategic reputation was substantially devalued. This bloc could (and likely would) work in various ways to oppose PRC hegemony. However, it would be seriously compromised by collective action problems and new physical, political, and economic positioning that would confer the positive network effects of being a dominant trader, military power, and currency issuer upon Beijing rather than Washington.

The Philippines

If Taiwan fell, the Philippines would be the most vulnerable American ally in Asia. As Eisenhower emphasized in his memoirs, "Any weakening of our determination to maintain the defense of Formosa or to support any other threatened area could easily have had the most devastating effect in [the Philippine] archipelago."²¹⁰ It is located close to China – and would be even more so were Taiwan forcibly annexed. As the map on the cover of this report illustrates starkly, only 100 miles separate the northern island of Itbayat from southern Taiwan. Manila also lacks substantial high-end military power and would find itself particularly outclassed by China's armed forces in the air, maritime, and other domains.

If Manila lost faith in its alliance with Washington, Beijing would have a free hand and an ample set of capabilities to coerce it into capitulating quickly, perhaps even adopting a position of neutrality or formally renouncing the U.S. alliance in exchange for Beijing's foregoing military action. Conscious of the United States' own 15-year challenge with insurgency in the Philippines during the early 20th century, Beijing might first seek

“voluntary” rejection of the U.S. alliance by Manila to preserve its forces for coercive action elsewhere in the region.

Among other elements, consider the effect that leadership alone could have on whether a country in the Philippines’ position might accept Beijing’s blandishments in exchange for relinquishing significant sovereignty. Former Filipino President Rodrigo Duterte initially took a pro-PRC tack and then several years later veered back toward Washington as PRC behavior became increasingly coercive. His successor, Bongbong Marcos, has continued to align strongly with the United States.²¹¹ The difference in a post-Taiwan annexation strategic environment is that U.S. stature might become so sufficiently eroded that Filipino (and other regional leaders) could very well lack the optionality they have under Asia’s contemporary competitive bipolarity between the United States and China.

South Korea and Japan

South Korea is physically proximate to China but has a substantial military that continues to rapidly upgrade its capabilities. Japan’s home islands are more distant from China, but the Senkakus and other southwestern islands would be automatic friction points given their proximity to Taiwan and preexisting territorial disputes between Beijing and Tokyo.

Direct military assault by China on anything other than outlying South Korean or Japanese territories would be unlikely. The maritime distances are significant, and whatever challenges an invasion of Taiwan presented would be dramatically amplified with a campaign that had to cross larger expanses of open water against even more formidable defenses. Moreover, a PRC attack on South Korea or Japan would automatically trigger intervention by the United States under its defense treaties, even if it had been bloodied or failed to act during the PRC invasion of Taiwan. Whether China would adopt a 1950-redux approach and greenlight a North Korean attack on South Korea – or at least engage in distracting mobilization and maneuvers, or encourage or compel Pyongyang to do so – is unclear. Beijing would likely not take such a decision lightly since a coalition of South Korea, the United States, and Japan would have solid prospects of defeating North Korea and presenting China with a unified, oppositional Korea on its border. The conflict could also realistically involve nuclear weapons use, of which the risks for China could conceivably outweigh the potential rewards of a more pro-PRC Korean Peninsula unified by the North.

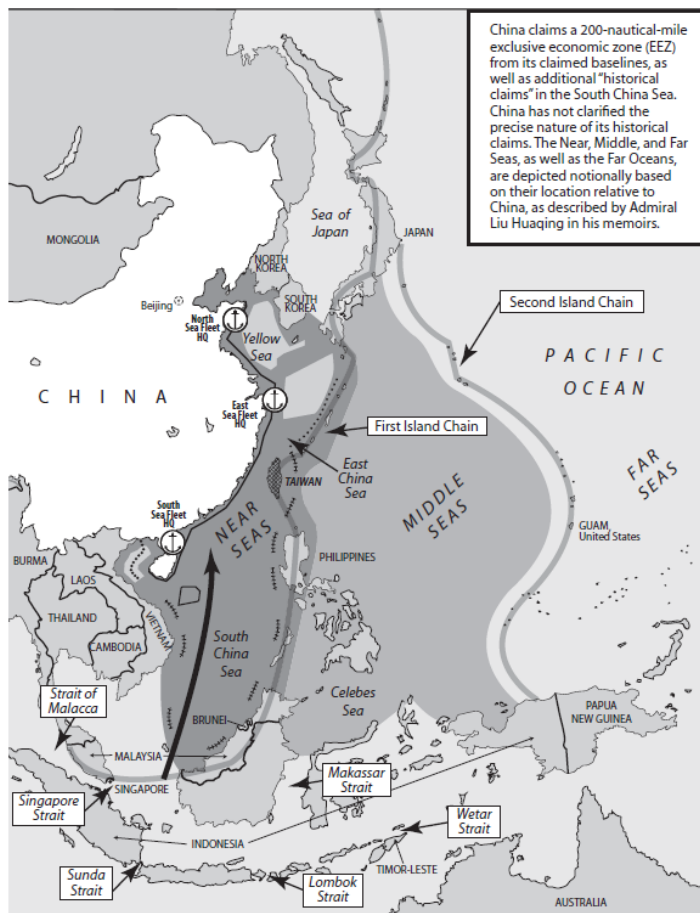
While invasion would be a low-probability scenario, however, maritime coercion by China against both Japan and South Korea would be far more likely. A PRC-controlled Taiwan would offer naval-basing options immediately adjacent to deep water east of the island and, with that, rapid entry into the Philippine Sea and the Western Pacific beyond.²¹² This would position PLA forces to threaten Japan’s Pacific approaches, a level of maritime security challenge Tokyo has not confronted since facing off against the Soviet Pacific

Fleet during the Cold War. Taiwan under PRC control would also open a corridor for PRC nuclear-powered ballistic missile submarines (SSBNs) home-ported in Hainan to access the open Pacific more easily or to be directly based on Taiwan's East Coast. Chinese writings suggest that Beijing sees the naval correlation of forces vis-à-vis Tokyo shifting in its favor.²¹³ Japan's fleet is still larger in terms of tonnage and firepower than South Korea's; hence, if Beijing perceives a naval overmatch against Tokyo, then it would have the same (and by a greater margin) against Seoul.

Naval power dynamics, plus the geographic alteration in PRC military posture that subjugation of Taiwan would bring, add up to a stark picture for both Japan and South Korea given that most of their trade traverses routes just east of Taiwan (Figure 23). Such concerns likely helped motivate South Korean Foreign Minister Park Jin's unprecedented February 2023 statement that "Peace and stability in the Taiwan Strait is essential for peace and stability on the Korean Peninsula, and it's indispensable for security and prosperity of the region as a whole."²¹⁴ A major part of South Korea's "Taiwan conundrum" in recent years likely stemmed from concerns about U.S. military power being diverted from deterring North Korean aggression and South Korean worries about being drawn into a direct conflict with China.²¹⁵ Those real challenges notwithstanding, Seoul's realization that it faces a fundamentally similar threat to its maritime lifelines as Japan in the event of a PRC conquest of Taiwan might become the straw that breaks the camel's back. Decision-makers and planners in Seoul may also be coming to grips with the fact that a China flushed with the confidence of conquest is unlikely to become more respectful of their sovereignty and could, in fact, launch intensified economic and military actions that fundamentally undermine South Korean prosperity and security.

Japan, meanwhile, would face enhanced and highly credible threats from PLA warships, submarines, and aircraft utilizing a newly permissive Western Pacific operating area. Rerouting commerce through the Makassar and Lombok Straits to avoid Taiwan would not resolve this problem, and China would thus have an avenue to create persistent multifront naval security challenges for Japan in more ways and more easily than it can now. Such leverage would facilitate "salami-slicing" in the form of incessant incremental gray zone actions against Japan's southern outer islands with limited intensity to complicate Tokyo's response.²¹⁶ It would also enable China to impose irregular and longer-term "taxation" on the Japanese economy through various types of "soft" interdiction and interference (such as live-fire exercises and temporary exclusion zones along key routes) that drive shipping costs up and sap shippers' confidence in the safety of the maritime commons in and around Japan.

Figure 23 – Potential PRC Areas of Operation Deeper Into Western Pacific Threaten Japan and South Korea’s Maritime Lifelines



Source: Naval War College Review.²¹⁷

Australia

An Australian analyst minces no words in cogently describing how the country’s strategic environment would evolve in the wake of a successful PRC conquest of Taiwan: “Beijing would have little inhibition in seeking to quickly shape a new regional order, and pressuring Australia to accommodate its interests.”²¹⁸ China’s recent record – including multiyear trade bans on grain, timber, seafood, wine, and even coal after Australia sought an objective inquiry into the origins of COVID-19 – does not bode well for how a less constrained Beijing would treat Canberra.²¹⁹ Years-long PRC political influence operations in Australia, which former Prime Minister Malcolm Turnbull attests remain ongoing, further suggest that China is unlikely to be a benign hegemon.²²⁰

In contrast to Japan, the Philippines, and South Korea, Australia enjoys a far greater geographic buffer between it and China. Yet it could not rely on distance alone for protection. With a population and economy smaller than that of Texas and a very capable but quantitatively limited military, unchecked economic and military coercion by China would be an existential threat. Accordingly, Canberra is starting to take actions to mitigate risk – for instance, it is working to accelerate the establishment of a Sovereign Guided Weapons Enterprise, seeking greater indigenous long-range fires capability, and reorienting for air and maritime conflict.²²¹ Australia is also upgrading basing facilities in Northern Australia. For instance, upgrades at Royal Australian Air Force (RAAF) Base Tindal – currently set for completion in late 2026 – are aimed at increasing the base’s capacity to host American B-52s.²²² Facility improvements across Australia’s Top End also appear aimed at facilitating the projection of substantial combat power northward, an idea reinforced by the July 2022 temporary deployment of B-2 Spirit stealth bombers to RAAF Base Amberley.²²³

The rotational bomber deployments plus Australian investment in base facilities are reminiscent of the U.S. relationship with Qatar, where substantial investments in Al-Udeid Airbase help ensure a robust U.S. presence that profoundly enhances host country security. U.S.-Australia strategic trust levels are high. The only non-U.S. territory other than Australia through which the U.S. Air Force has rotated B-2s to date is the United Kingdom (and UK-controlled Diego Garcia), a country with which the United States has shared nuclear weapons and submarine technology, the latter of which it is now sharing with Australia via the trilateral Australia, UK, and U.S. (AUKUS) security pact. The depth of existing U.S.-Australia bonds suggests at least two core preliminary conclusions: 1) Canberra is likely to be a receptive partner should Washington rapidly and robustly increase its investment in deterrence posture vis-à-vis the Taiwan Strait situation, and 2) Australia would be more likely than allies further north to demand a doubling down of U.S. presence and commitment in the event China succeeds in coercively annexing Taiwan.

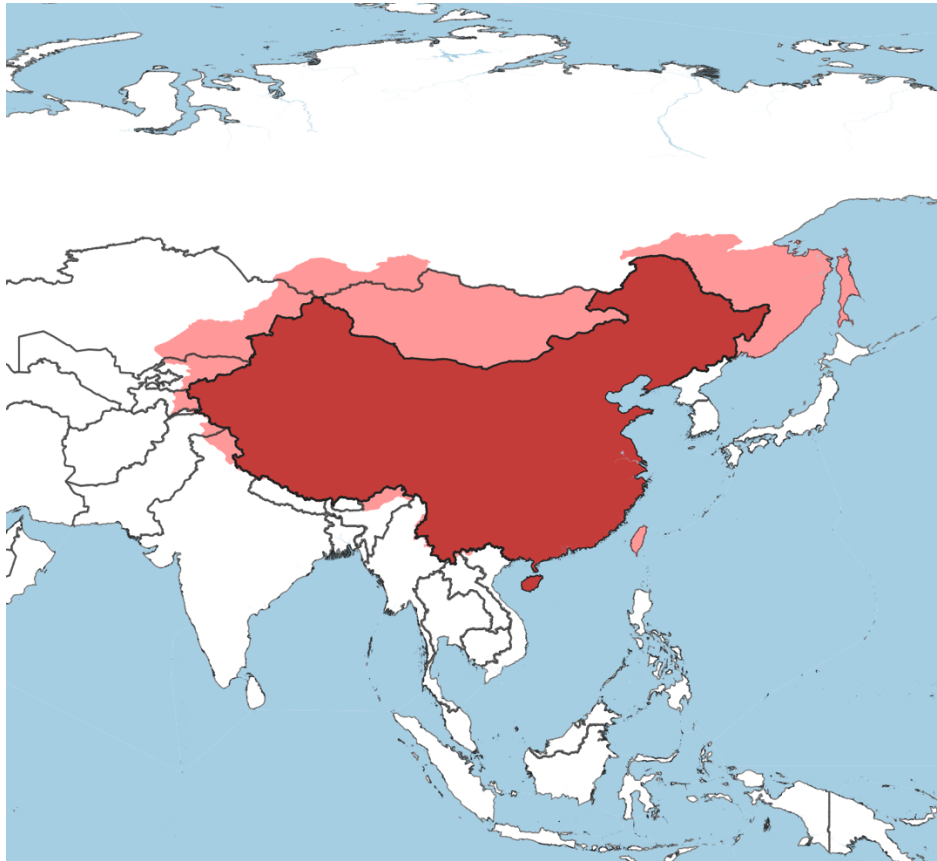
PRC Coercive Annexation of Taiwan Could Also Destabilize Much of Terrestrial Eurasia

Discussion thus far has focused on how a PRC conquest of Taiwan would affect maritime Asia. Coercive annexation of Taiwan by China could also affect terrestrial Eurasia in unpredictable but devastating ways.

The 2022 Russian invasion of Ukraine appears to have been inspired by Putin’s vision of restoring the Russian Empire, including self-comparison of his position with that of Peter the Great in the Northern War. While the CCP leadership is more disciplined in its public statements, assessments of potential consequences from a PRC takeover of Taiwan should also account for the fact that within the last two centuries, China’s position on the Eurasian landmass was in fact substantially larger than it is today

(Figure 24). Historical imperial geography by no means defines a country's present policy orientation, but the echoes can exert substantial influence — particularly in a terrestrial Eurasian context where the millennia-old pattern is the ebb and flow of weaker powers ceding territory to stronger ones.

Figure 24 – Imperial China's Boundaries in 1820 Versus China's Today



Source: Harvard Geospatial Library.²²⁴

The map in Figure 24 immediately makes two things clear, each of which would raise foreboding questions in the event China forcibly annexed Taiwan. First, as Sergei Radchenko points out, Mongolia was legally a part of China until 1945, when Stalin, with the Red Army on the march near northeastern China, “encouraged” Chiang Kai-shek to recognize Mongolian independence.²²⁵ Second, during the Opium War period, an embattled Qing dynasty signed the Treaty of Aigun (1858) followed by the Treaty of Peking (1860), codifying the Russian seizure of Chinese territory roughly 1.5 times the size of Texas.²²⁶ Mongolia’s geostrategic and economic position is the most compromised. Completely surrounded by China and Russia, roughly 80% of its exports go to China, and its continued sovereignty in the wake of a Taiwan conquest would be entirely at Beijing’s behest.²²⁷

Russia presents a more dynamic set of circumstances. The ambitious nationalistic autocrats leading China and Russia share a powerful desire to undermine a rules-based order that they consider the bedrock of an American-dominated international system impeding their self-proclaimed historical missions and present prerogatives.²²⁸ Yet a broad common objective of eroding U.S. dominance does not eliminate fundamental sources of friction and suspicion that on a multiyear time frame plausibly could curtail, or even derail entirely, the Sino-Russian partnership and, with it, maritime-security cooperation. Indeed, this has happened already at least once in relatively recent history, with the 1960s Sino-Soviet split.

The two countries' shared history is what one might expect of two adjacent empires: variable over time but with a tendency toward storminess and tremendous fluctuations. Jo Inge Bekkevold encapsulates the relationship's extreme vicissitudes: "During the last century, China has seen Russia as an imperialist, a comrade in arms, a foe, and a partner, and is now discussing whether it should be an ally."²²⁹ Shared opposition to the United States and its allies has driven recent Sino-Russian rapprochement under Xi and Putin, yet various deconstructive dynamics could upset this powerful alignment in the future.

In related research, the authors have examined such disruptive currents.²³⁰ One potential source of Sino-Russian friction and falling out stems from latent PRC grievances over unequal treaties imposed on China one-and-a-half centuries ago. Another arises from the reality that China sees the world in hierarchical terms (with itself on top), while Russia seeks to be accorded peer or quasi-peer status far exceeding the demographically declining nation's power — economic, technological, and soft — on the world stage. Perhaps most fundamental is this question: What happens to China's present geostrategic "need" for Russian support if by taking Taiwan, China so severely undercuts the United States that Beijing becomes Asia's hegemon? One potential, albeit highly speculative, outcome would entail U.S.-Russia cooperation to balance a PRC exerting hegemony in Asia. While hard to imagine in today's environment, such an alignment existed 80 years ago when the United States and Soviet Union opposed the Axis Powers. It would likely be revisited anew in a post-Taiwan-annexation, post-Putin world.

A China that was a multidomain hegemon in Asia (i.e., across the economic and military spectrum) would be able to project economic and hard power globally to a degree well beyond its current capacity. Put somewhat differently, not only would Beijing not need Moscow as a spoiler to impose costs on the United States, but it might also much more explicitly begin to view Russia as a liability to its ambitions and interests as the new global superpower.

The mismatch between the degree of influence Moscow wishes to have and the degree that it actually achieves spurs it repeatedly to seek relevance and recognition through high-risk geopolitical actions — including energy-supply cutoffs, nuclear posturing,

invasion of neighbors, and military intervention on behalf of fellow autocratic regimes. Beijing tolerates such behaviors now because it views them not through the narrow lens of Sino-Russian ties but instead through the much broader kaleidoscope of its global competition of systems with the United States and its partners. Whether such tolerance would endure if China became the hegemon of Asia is an open question and, given historical Chinese preferences for stability, would be unlikely to find resolution in Russia's favor.

Consequence 4: Military Threats and Nuclear Proliferation

As a strategic and operational watchtower, Taiwan, along with its government facilities, organizations, and military-civilian expertise, offers irreplaceable monitoring and analysis of an increasingly opaque PRC. Its capabilities also offer crucial indications and warnings of PRC actions. Its conquest, by contrast, would afford the PRC valuable insights into world-class American weapons, communications systems, analytical methodologies, and intelligence.

Coercive annexation of Taiwan would enable expansion of PRC military basing and operations, and extension outward of the denial of physical and informational access to others. A great degree of unique information sharing reportedly occurs between the United States and Taiwan.²³¹ The United States has sold Taiwan drones, advanced surveillance radars, and other sophisticated information collection assets. The U.S. government trains people in Taiwan in Mandarin and Chinese culture. When combined with Taiwan's indigenous capabilities, proximity to China, and inherently favorable geography (which includes high mountains overlooking lower-elevation targets such as PLA bases across the strait), these capabilities and programs offer a tremendous informational advantage that the United States cannot afford to lose.²³²

The military implications of an occupied Taiwan are ugly to consider, given the island's tremendous basing infrastructure. For example, it hosts major mountain bases like Chiashan and protected deep-water naval ports like Su'ao. If seized by the PRC, it would give PLAN SSBNs a strategic bastion, a giant staging platform, and a launching point for future aggression in the form of surprise attacks against American and allied interests and territory. Moreover, it would likely be devastating for the United States to have Apache helicopter gunships, Patriot ballistic missile defense batteries, and other advanced systems fall into hostile hands.²³³ Seeing a lack or ineffectiveness of U.S. commitment to Taiwan would also likely drive much of Southeast Asia to cave to Beijing. That could complicate U.S. access to the Indian Ocean by giving Beijing veto power over whether the United States can traverse the waters and airspace of Southeast Asia.

Enhancement of PRC power projection capacity is another likely consequence of a successful PRC conquest of Taiwan, with global implications. The island's absorption by the PRC would potentially facilitate a significant expansion in China's global power projection capacity. The fungibility of naval power means that if Taiwan were forcibly annexed without major attrition of PRC naval forces, the maritime power that helped facilitate that outcome would rapidly be "freed up" for other tasks.

Furthermore, while a minority subset of the PLA Navy (shorter-ranged, fast missile boats) might be characterized as regionally focused, the bulk of the fleet's tonnage and firepower comes in the form of Type 055 cruisers, Type 052D destroyers, and Type 054A frigates that are long-range systems with high power projection potential. PLA forces have sustained anti-piracy deployments off the Horn of Africa for over 15 years, completing 46 (and counting) task force deployments using some of these very vessels (especially the Type 054A). The operational experiences and lessons garnered there are permeating the fleet.

Finally, a PRC that controlled Taiwan would likely feel less regionally constrained, thereby facilitating greater power projection at scale far from China. There are many open questions in this regard. For instance, would China seek involvement in regions such as the Middle East at an intensity that results in substantial numbers of permanent bases beyond Djibouti?²³⁴ Overseas basing is a fraught and expensive endeavor that can lead to counterbalancing behavior, excessive risk-taking by host countries, entrapment in local conflicts, or even being ejected from the base if the host country decides its interests are no longer sufficiently aligned to accept the intrusion on its sovereignty that base hosting foreign military forces inescapably represents.²³⁵ Potential downsides notwithstanding, a CCP leadership infused with hubris after coercively annexing Taiwan might nonetheless significantly expand basing footprints abroad to defend PRC economic and other interests.

Yet the most dangerous consequences could well lie in broader conventional security implications and the reaction of regional neighbors. Control of Taiwan would enable China to dominate the waters to the island's north and south. This means it would be in a position not only to potentially veto shipping and air traffic in the region, but also to threaten submarine cables linking South Korea and Japan with Southeast Asia, Australia, and points further west. Being able to connect with the outside world is key to Japanese and South Korean prosperity. Coercive annexation would either create instability in Northeast Asia or enable a situation where Korea and Japan are compelled to accommodate PRC demands. The reduced credibility of American will and capability to protect allies from China would force countries to pursue nuclear weapons development to protect themselves from China's nuclearization and deter PRC conventional attack.²³⁶

A coerced takeover of Taiwan by the PRC would likely be the strongest event to motivate nuclear proliferation across Asia to date.²³⁷ America's nuclear umbrella in Asia has thus far weathered multiple stress tests over six decades, including China's development of nuclear weapons, Washington's normalization of relations with Beijing in 1972, the American loss of the Vietnam War a year later, President Carter's 1976 campaign pledge to withdraw troops from the Korean Peninsula, and North Korea's acquisition of nuclear weapons. This history reflects the potential downsides of nuclearization for Asian allies presently covered by the U.S. nuclear umbrella.²³⁸ Yet the credibility and conditions regarding U.S. extended deterrence are already being questioned in South Korea, among other allies, and a successful PRC coercive annexation of Taiwan would intensify the trend substantially.²³⁹

Prior disruptions buffeted regional parties' confidence in American security guarantees – and helped induce South Korea and Taiwan to pursue clandestine nuclear weapons programs that were later shuttered under U.S. pressure – but they did not shake the structure to its foundation.²⁴⁰ Through all these previous stressors, the United States remained dominant across the economic, technological, and military domains in Asia as a legacy of its residual physical positioning from World War II and the Korean War and economic dynamism thereafter. Furthermore, the USSR was far more Europe-oriented, while the PRC, for all but the past 20 years, was relatively weak. These factors kept U.S. power credible and conferred the leverage needed to dissuade all East/Southeast Asian states that were not nuclear as of 1965, save North Korea, from going nuclear. Washington was able to offer the “carrot” of coverage by a first-class nuclear umbrella, while wielding the “stick” of economic, technological, and hard security exclusion against countries that insisted on pursuing nuclear weapons capability.

A scenario wherein the PRC coercively took over Taiwan would present very different circumstances. At this point, only a coalition of states that includes the United States can credibly balance China in the conventional military realm. In the nuclear arena, none of China's East Asian neighbors can fully deter, much less balance, its power. Furthermore, a successful takeover of Taiwan short of full invasion and war could also leave PRC military forces mostly intact – and thus available as a credible coercive instrument. This, in turn, would give Beijing enormous leverage in Asia and beyond.

The U.S. “carrot” would be sharply questioned, and the “stick” would inspire less fear given American diminishment in regional eyes. Simultaneously, fear would be a powerful motivator in a new regional order where “might makes right” and coerced annexation becomes a proven means of territorial aggrandizement. Successful annexation of Taiwan could, depending on the circumstances, imbue PRC forces with institutional operational knowledge. Moreover, it would likely inject China's political leadership with confidence that other regional territory is potentially conquerable in a

way that they might not have believed previously. The 1938 Sudetenland analogy is imperfect, yet strongly illustrative.

Moreover, it is exceedingly unlikely that the PLA would demobilize or otherwise purposely degrade conventional forces that, no longer needed for coercing Taiwan, would give it enormous leverage in Asia and beyond. Cross-strait gains might even arouse PRC temptations to further expand its land territory by force or to use a combination of island/feature conquests and construction as well as a much more aggressive military presence to effectively implement its own version of the Monroe Doctrine across maritime Asia.²⁴¹ If the PLA had just helped annex Taiwan by coercing the island's leadership and deterring American intervention, this would close the gap between apparent capability and perceived operational capacity. The corollary is that regional states would then likely perceive an urgent need to acquire deterrence against attack or coercion by Beijing in both the conventional and nuclear domains.²⁴²

If there is a single best example of the difference Xi is making as a consequential leader, it is his unprecedented nuclear weapons buildup. Appendix 5 summarizes particularly concerning missile force and nuclear weapons developments in China as outlined by the Pentagon's latest (2023) China Military Power Report.

Stronger regional players such as India, Japan, and South Korea would likely feel enormous pressure to adopt a "fortress" mindset and pursue independent security solutions in a world in which the PRC has annexed Taiwan. Economic growth would suffer, nuclear weapons acquisition (or stockpile expansion, in India's case) would likely proceed with dangerous speed, technological progress would slow dramatically as cooperative fabrics unravel, and the human condition would worsen. American power and presence have been a generally benign "leviathan" that stabilizes the Asian regional system, and rapidly removing it could transform Thomas Hobbes's "state of nature" – in which "continual fear, and danger of violent death" make life "solitary, poor, nasty, brutish, and short" – from textbook theory into lived reality.

Lost American leverage combined with fear-driven survivalism could very realistically create a "new normal" where nuclearization begins to appear necessary to leaders of sufficiently capable nations neighboring China. Even without factoring in China's increasingly bellicose statements and aggressive actions under Xi, the sheer size, scope, and trajectory of its military ramp-up already leads regional states such as Japan and South Korea to question their security from both PRC conventional and nuclear threats, and how both they themselves and their alliances with the United States can deter PRC coercion and defend against it as necessary.

As the military balance continues to worsen and China builds nuclear capabilities that may enhance its ability to cast doubt on the viability of America's nuclear umbrella in Asia, decision-makers in Tokyo, Seoul, and beyond will seek further assurance that America can reliably provide them extended deterrence. Should they develop sufficient doubts concerning the adequacy of the guarantees Washington offers or their likely reliability in practice – the latter of which would certainly come under question if China coercively annexed Taiwan – then they might be motivated to consider options that they previously rejected outright or shelved given the potential difficulty and downsides.

Assessing the Nuclear Weapons Potential of Key East Asian Powers

In his authoritative study of the subject, MIT professor Vipin Narang, who currently serves as acting assistant secretary of defense for space policy at the U.S. Department of Defense, draws on his exceptional insights as both scholar and practitioner to offer a comprehensive catalogue of nuclear options available to decision-makers.²⁴³ He warns, "So long as nuclear weapons exist and are perceived to be a valuable security and political tool, states will continue to seek them. Possible nuclear aspirants in the future do not just include American adversaries such as Iran and Syria but also 'friends' such as Saudi Arabia. Even formal U.S. allies such as Japan, South Korea, Turkey, and even Germany may one day disrupt the East Asian and European security architectures by deciding that an independent nuclear weapons capability is preferable to depending on Washington's security commitments."²⁴⁴

In Narang's analysis, a potential nuclear aspirant's four main options are hiding, sheltered pursuit, hedging, and sprinting.²⁴⁵ "Hedging is a strategy to develop a bomb *option*," Narang explains, "laying the groundwork for weaponization in the future under some set of strategic conditions."²⁴⁶ Hedging may be subdivided into the minimalist category of technical hedging and two progressively more robust categories: "insurance hedging" and "hard hedging."

Insurance hedging, Narang explains, "involves steps to reduce the time to the bomb should a state need to develop nuclear weapons (for example, if a security threat intensifies or if the hedger is abandoned by an ally)."²⁴⁷ Hard hedgers, by contrast, "attempt to become threshold nuclear states with many of the pieces in place for a functional nuclear weapons program. They have potentially intense demand for nuclear weapons but intentionally stop short of the finish line."²⁴⁸ In sum, "Hedgers are not failed proliferators, they are simply warming up and deciding whether they will eventually run the race."²⁴⁹

Adding to uncertainty and concern, Narang cautions, "Categorizing types of hedgers in real time may be difficult because the activities that distinguish hard hedging from insurance hedging, for example, consist of technical work and deliberation that is likely

done in secret. In practice, most external observers may assume that anything resembling technical hedging could very well be hard hedging.”²⁵⁰ This means, in actuality, that even if the U.S. government could detect the difference, other regional governments and societies might assume the worst regardless.

Sprinting, an openly acknowledged effort to “develop a nuclear weapons capability as quickly as possible,” almost always involves attempted “tactical obfuscation.”²⁵¹ Importantly, Narang emphasizes, “if a state directs the necessary resources to a nuclear weapons effort and is immune from economic or military preventative action, its prospects for achieving its goals are very high.”²⁵² Indeed, “contrary to the conventional wisdom that successful nuclear proliferation is rare, over *half* – ten of nineteen – of the active proliferators succeeded in developing nuclear weapons. Within active proliferators, sprinters ... have never failed to get the bomb.”²⁵³

Applying Narang’s framework to American allies and partners in East Asia, Taiwan pursued insurance hedging from 1967–74 and then a hidden nuclear program from 1974–88, but it ultimately failed to keep its program concealed. Under intense pressure from Washington, it abandoned its program following the defection of Chang Hsien-Yi, deputy director of Taiwan’s Institute of Nuclear Energy Research, to the United States in 1988.²⁵⁴ If not for Chang’s defection, Narang argues, “it is entirely possible that Taiwan would have succeeded in building nuclear weapons through a hiding strategy.”²⁵⁵

Japan is currently hedging, specifically as “the quintessential insurance hedger in the international system” from 1954 to the present.²⁵⁶ But it is also a potential sprinter.²⁵⁷ Narang emphasizes, “The quintessential example of nuclear hedging where a pursuer faces an acute security threat but benefits from a formal alliance is Japan. Japan thus uses the implicit threat of nuclear breakout with its insurance hedge to elicit stronger commitments from the United States, but also to put the pieces in place for an independent nuclear deterrent should it ever face abandonment ... or if the severity of its underlying threats increases to the point that the alliance with the United States no longer meets its security needs.”²⁵⁸

Specifically, Japan’s putting the technical pieces in place “comprises a very real, and potentially swift, pathway to a nuclear weapons arsenal in the event of a rapid deterioration of Japan’s security environment, either because its underlying threats ... become unbearably menacing or because the U.S. alliance is insufficient to meet Japan’s security needs (or both).”²⁵⁹

Such potential changes are not simply theoretical in nature: “Any time there has been a perturbation in the external security environment that causes Japan to question America’s extended deterrent, Japanese leaders – across all parties – have not so

subtly mentioned the threat to go nuclear if American security guarantees are deemed insufficient to Tokyo,” Narang writes.²⁶⁰

After pursuing secret nuclear weapons efforts from 1970–74, when it feared American abandonment, South Korea has subsequently pursued insurance hedging.²⁶¹ While South Korea lacks Japan’s plutonium reprocessing ability, it has much stronger popular support for nuclear weapons.²⁶² “Historically, some 60–70 percent of the South Korean public supports possessing independent nuclear weapons,” Narang notes, “which is remarkably high compared to most states.”²⁶³

“In many ways, South Korea may be more willing to pursue an active weaponization strategy if it continues to fear abandonment and with such high levels of public support for nuclear weapons,” he concludes.²⁶⁴

Not all states would have the economic, industrial, and technological capacity to take the nuclear road, but Japan and South Korea clearly would. The following sections accordingly offer a summary of each country’s nuclear weapons acquisition potential, as well as a brief assessment of the risks for conflict that could be sparked by a Japanese or South Korean decision to approach or cross the weaponization threshold.

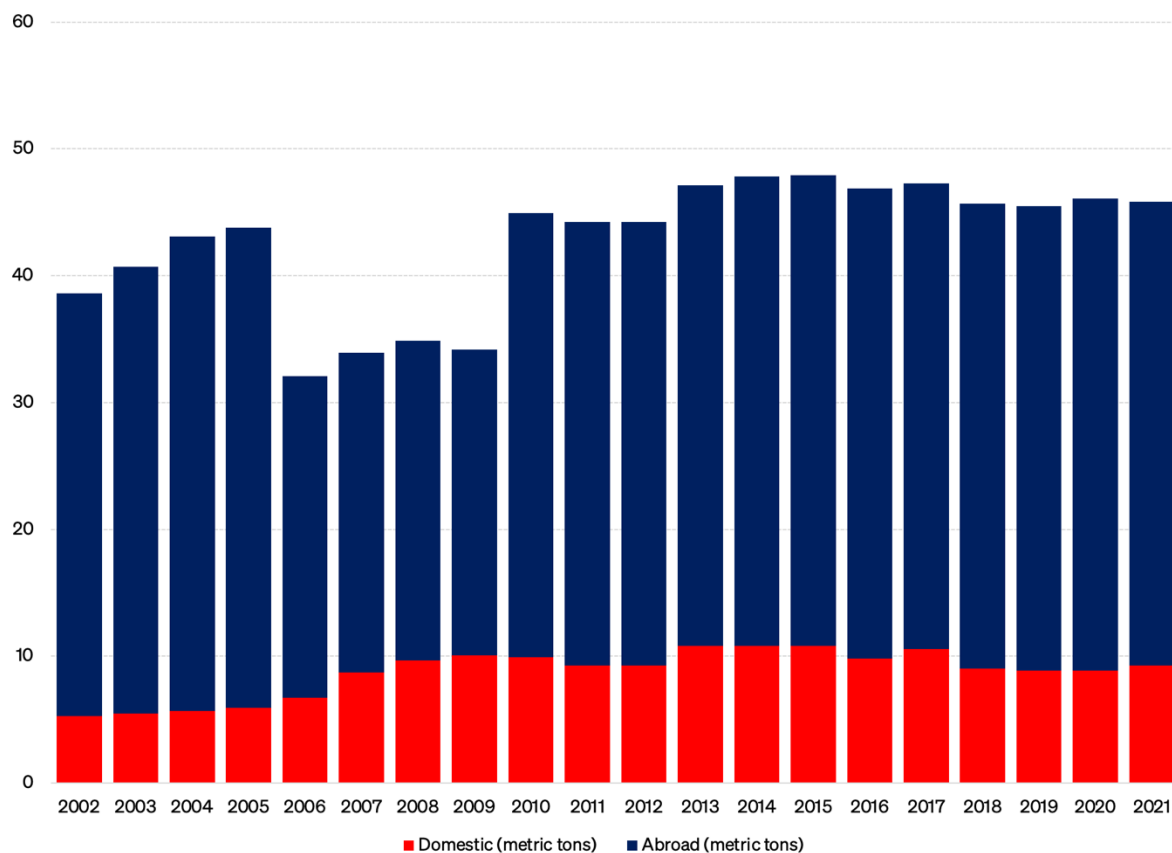
Japan

For its part, despite consistently high political opposition across much of its society to nuclear weapons thus far, Japan has the highest nuclear potential among nonnuclear weapons states in Asia and the shortest track to “sprint” to nuclear status.²⁶⁵ China’s simultaneous unwillingness to embrace concrete arms control commitments and emphasis on breeder reactors and determination to control the nuclear fuel cycle may have particular influence in Japan, which has similar sovereign reprocessing capabilities despite heretofore forswearing the development of nuclear weapons themselves. Japan possesses a full onshore nuclear fuel cycle, including the world’s third-largest commercial reprocessing plant, in Rokkasho.²⁶⁶ Furthermore, it already possesses what is likely the world’s largest plutonium stockpile – nearly 45 metric tons at the end of 2021, with approximately 9 metric tons held domestically under sovereign control (Figure 25).

For perspective, 1 metric ton of plutonium could be used to produce 162 “Fat Man” atomic bombs, or 250 “pits” for a modern thermonuclear weapon.²⁶⁷ Japan has also demonstrated the ability to domestically produce space launch vehicles – implying a clear capability to eventually produce large ballistic missiles.

Nuclear weapons are also creeping into Japanese political discourse. Contemporary events are reanimating nuclear discussions in Japan, with the most forward-leaning statement coming in February 2022 from the late Shinzo Abe. The former prime minister, although then a Liberal Democratic Party politician without a government post, posited the possibility of Japan engaging in “nuclear sharing” agreements, similar to the arrangements the United States has with Belgium, Germany, and the Netherlands. Under these agreements, nuclear weapons are stored in-country under U.S. custody but are deliverable by nuclear-capable aircraft possessed by both the United States and the host country.²⁶⁸

Figure 25 – Japan Plutonium Inventory, By Location (Metric Tons)



Source: Japan Atomic Energy Commission.²⁶⁹

Prime Minister Fumio Kishida, who long represented the Hiroshima 1st district in Japan’s Diet, quickly denounced Abe’s remarks as “unacceptable,” but the very fact that any politician with Abe’s stature would even float the idea of nuclear sharing is significant.²⁷⁰ It suggests that a more profound world change (for example, the conquest of Taiwan by China) could plausibly shift Japanese public opinion in a more nuclear weapons-acceptant direction.

Such a shift might take the form of the “phased approach” that Narang hypothesizes, in which even “domestic hurdles to overt weaponization generally faced by political elites” in Japan could give way to the “abandon[ment] of insurance hedging for a more active nuclear weaponization strategy.”²⁷¹ As part of this, Narang elaborates, “Should Tokyo perceive an existential threat from China, it may force the United States to develop ‘novel’ sharing procedures with the Japanese to forestall them breaking out of their modern-day insurance hedge.”²⁷²

If China coercively annexed Taiwan, Japan would quite possibly first try to establish a NATO-style sharing arrangement. That said, U.S. inaction could open the door to Japan more actively pursuing a sovereign nuclear deterrent option.

Consider that in his February 2022 remarks, Abe also pointedly noted that, had Ukraine retained nuclear weapons following the fall of the Soviet Union, it might have prevented Russia from invading.²⁷³ This statement is of particular relevance given the potential for nuclear weapons to help a smaller state deter a militarily larger one. While real-world examples are scarce so far, American restraint toward North Korea despite Pyongyang’s broad range of sometimes violent regional troublemaking suggests in part that nuclear weapons have a deterrent effect.²⁷⁴

On a practical level, Japanese pursuit of nuclear weapons would be difficult to conceal in a democracy with a relatively free press. There would likely be a window of several years between the decision to pursue nuclear weapons and the actual deployment of weaponized systems — a period in which an adversary state like China might conclude that it should conduct armed coercion or warfare against Tokyo immediately, rather than wait for Japan to become a more capable foe.²⁷⁵ Concretely speaking, revelations of a Japanese nuclear weapons program amid a loss of confidence in the American conventional and nuclear umbrellas could, for instance, prompt acceleration of PRC efforts to physically seize control of the Senkaku Islands.

A preemptive PRC attack on Japan’s home islands would appear to be a much lower probability scenario, especially if key nuclear assets were located underground and in hardened facilities.²⁷⁶ Such a situation would demand multiple waves of air and/or missile strikes through robust Japanese air defenses and would likely fail to destroy the program. Preemptive strikes would also potentially spark retaliation by Japan against targets in China — and lead to American intervention.

The wild card in all scenarios of preemptive strikes on Japanese (or South Korean) nuclear programs is that the United States, even if its strategic position in East Asia was undercut by unwillingness to physically prevent China from coercively annexing Taiwan, would, like China, retain its full military power. It is thus plausible that decision-makers in Beijing would choose to accept South Korean and possibly even Japanese nuclearization

rather than risk war with the United States. This would be especially likely since regional states' nuclearization would not prevent economic coercion by Beijing, nor would it be a meaningful buffer against gray zone actions by China's shadowy Maritime Militia and other "deniable," or at least limited, instruments of national power.²⁷⁷

South Korea

With North Korea's nuclear threat growing, Republic of Korea (ROK) President Yoon Suk Yeol made an unprecedented – if carefully caveated – statement at a joint policy briefing by his defense and foreign ministries on Jan. 11, 2023: "It's possible that the problem gets worse and our country will introduce tactical nuclear weapons or build them on our own. If that's the case, we can have our own nuclear weapons pretty quickly, given our scientific and technological capabilities."²⁷⁸

At the White House on April 26, 2023, to mark the 70th anniversary of the U.S.-ROK Alliance, Yoon signed the Washington Declaration with President Joe Biden.²⁷⁹ In "reaffirm[ing] South Korea's intention to stay in the Nuclear Nonproliferation Treaty (NPT)," the Yoon administration effectively "set aside the prospect that South Korea would develop and deploy an independent nuclear weapons capability in favor of a robust alliance-centered response."²⁸⁰

Under normal circumstances, Seoul would probably not risk jeopardizing its security partnership with Washington by openly pursuing nuclear weapons breakout capability in the form of sovereign enrichment or reprocessing infrastructure. It would also probably be unable to do so secretly in a society that is far more open and transparent than it was in the 1970s, when then-President Park Chung-hee began a nuclear weapons program. But what if a coercive annexation of Taiwan by China and ensuing regional tectonic shifts changed the current position?

South Korea has a world-class civilian nuclear program, with 26 reactors in service that supply more than a quarter of the country's electricity needs.²⁸¹ Seoul's nuclear infrastructure is less comprehensive than Japan's; however, it does not control the nuclear fuel cycle and lacks the domestic uranium enrichment or reprocessing ("plutonium recovery") facilities that would be required to build nuclear weapons. South Korea differs fundamentally from Japan in that while it lacks some of the key nuclear fuel cycle infrastructure, public support for nuclear weapons acquisition appears far stronger.

Many in South Korea already have already been questioning U.S. extended deterrence. Nuclearization is not a radical proposal in South Korea, where 76% of respondents in a February 2023 poll supported acquiring nuclear weapons as a deterrent option against North Korea and China.²⁸² While far from conclusive, public support in South Korea for nuclearization has trended upward for years, especially since Russia's assault on

Ukraine, and has remained robust even following reassurance from the Washington Declaration.

Seoul Mayor Oh Se-hoon – who is a member of Yoon’s own party and South Korea’s second most powerful elected official, with the ability to attend Cabinet meetings and communicate with the president directly – stated in a September 16, 2003, interview, “Only nukes can counter nukes.” Oh underscored the highly contingent nature of South Korean opinion with regard to nuclear weapons: “If the U.S. stationed nuclear weapons here, we wouldn’t have to talk about developing our own nuclear weapons.”²⁸³

A successful coercive annexation of Taiwan by China – which would likely both amplify the North Korean threat by blunting U.S. military credibility and increase Beijing’s coercive options with regard to South Korea – could substantially intensify calls for a nuclear deterrent under South Korean control.

It is plausible that an America whose credibility was tarnished by an inability to deter coercive annexation of Taiwan might redouble efforts to bolster relationships with formal treaty allies. For example, it might affirm support for a South Korean nuclear weapons program and pledge to take kinetic action against any attacks on it. Indeed, some have suggested at various points during the past decade that the United States might have to accept Japanese and South Korean acquisition of nuclear weapons to ease the burden of extending the U.S. nuclear umbrella.

Pursuit of nuclear weapons, if discovered by China and/or North Korea, could expose South Korea to the risk of preemptive attack.²⁸⁴ That said, South Korea maintains sufficient sovereign conventional warfare capacity directed at North Korea that if Pyongyang were to risk a war, it would potentially either topple the Kim Jong Un regime or prompt Pyongyang to use nuclear weapons itself, with a likelihood of American intervention. Under any of these scenarios, the risk/reward balance would be distinctly unfavorable for Pyongyang, which would have to choose between the risk of a nuclear neighbor (albeit under a stable, democratic government) or a potentially regime-ending war.

For China, its conventional combat power, already substantial nuclear arsenal, and lack of bitter history with South Korea (unlike Beijing’s relationship with Tokyo) would also likely tilt the risk/reward balance away from kinetic action against an emerging South Korean nuclear program. Beijing would be more likely to take diplomatic and extraterritorial punitive economic actions against firms (whether French, Indian, Russian, or American) that assisted South Korea with nuclear weapon development. It might also attempt cyber-sabotage, as the United States and Israel have reportedly done against Iran’s nuclear program.²⁸⁵

North Korea would have fewer nonmilitary options due to its lack of global diplomatic and economic heft. Given Pyongyang's historical pattern of hostile actions, it might well attempt to employ cyberattacks and/or physical sabotage operations against South Korea. Such efforts would persist even if South Korea acquired a sovereign nuclear deterrent, and South Korea would remain vulnerable to a variety of potential North Korean incitements.²⁸⁶ An existing example of a nuclear arsenal failing to prevent a destabilizing provocation comes from the 2008 Mumbai attacks, in which Lashkar-e-Taiba terrorists, trained in Pakistan, infiltrated India's commercial capital, Mumbai, by boat and launched a 60-hour attack that killed 172 people.²⁸⁷

The aforementioned dynamics merit close attention: The pressure on policymakers in the United States and other countries would be intense owing to the short time frames involved, driven by South Korea's technical competence and preexisting weapons systems, which could plausibly be adapted to deliver nuclear warheads.

Consider an analysis performed in 1977 after a period of international turbulence akin to what the 2020s have brought thus far. Oak Ridge National Laboratory (ORNL) was asked to assess the prospects for the building and operating of covert reprocessing facilities by nonnuclear weapons states. The ORNL experts estimated that a "small" reprocessing plant could be built within four to six months after breaking ground, yield 10 kilograms (kg) of plutonium within a week of commencing operations, and yield 5 kg/day thereafter – enough for at least one nuclear weapon per week.²⁸⁸ An analysis of the ORNL report by the GAO added additional time based on other requirements, such as post-construction plant testing and diversion and transportation of spent fuel to the plant.

Ultimately, the GAO found that the ORNL estimate of four to six months "should be considered credible in some circumstances," while the Department of Energy estimated 19 months, the Arms Control and Disarmament Agency estimated 24 months or more, and the Congressional Research Service calculated that 24 to 30 months would be required.²⁸⁹ Weaponizing a device would likely take even more time, with at least one Korean nuclear scientist estimating in 2018 that South Korea would need two to three years to actually build an atomic bomb.²⁹⁰ If South Korea's now world-class science complex and techno-industrial base were mobilized in pursuit of nuclear capability under critical strategic circumstances, it would be reasonable to assume Seoul could produce deployable fission devices very quickly.²⁹¹

Japan currently has the highest nuclear potential thanks to its massive plutonium stocks, but South Korea would likely have an edge in rapidly developing a proven indigenous delivery system. Japan's "peace constitution" has hindered the development of longer-range strike missile platforms, a deficiency highlighted by the December 2022 announcement that Japan's self-defense forces were seeking to spend more than \$2 billion to purchase "several hundred" Tomahawk cruise missiles.²⁹² South Korea, by

contrast, now fields multiple land-attack cruise missiles with ranges between 500 and 1,500 km and short-range ballistic missiles with ranges from 180 to 800 km.²⁹³

In April 2022, South Korea flight-tested two submarine-launched ballistic missiles (SLBMs) based on the 500 km-range Hyunmoo-2B.²⁹⁴ The missile is conventional, but as Carnegie Endowment for International Peace Fellow Ankit Panda points out, “should the alliance with the United States fray in the future or South Korea’s national defence needs drastically shift, these SLBMs would provide an immediately available foundation for a limited, survivable nuclear force.”²⁹⁵ It is less clear whether Seoul could nuclearize its land attack cruise missiles, but considering that the old 11-kiloton American W34 fission warhead was used in the MK-45 ASTOR nuclear torpedo, it would appear possible to do so.²⁹⁶ The MK-45’s 19-inch/0.48-meter diameter is almost identical to that of the Hyunmoo land-attack cruise missile family.

Potential Parameters of a Multiregional Nuclear Proliferation Cascade

Policymakers who assume, logically, that a PRC coercive annexation of Taiwan would result in adverse consequences should also factor in the following likelihood: A security shock severe enough to prompt either Seoul or Tokyo to go nuclear would probably also motivate them to pursue a sovereign deterrent capability. The next question would then be: What impact might nuclear proliferation involving Asia’s second- and third-largest powers have on nuclear weapons decisions by others in the region and beyond?

One related question is how China would respond to Japanese nuclearization beyond potentially considering whether to wage a direct preemptive assault. As discussed above, we believe Beijing would evaluate the situation on a risk/reward basis. Even if Japan announced it were only pursuing a limited nuclear deterrent, Beijing might find itself unpersuaded given that Japanese domestic plutonium stocks could theoretically support the construction of at least 1,000 warheads.²⁹⁷ PRC leaders might well conclude they need even more than the 1,500 warheads that the Pentagon projected in 2022 and 2023 to be in their arsenal by 2035.²⁹⁸ That decision would have substantial ramifications for both American and Russian nuclear stockpile decisions.

As the 2022 U.S. Nuclear Posture Review notes, “By the 2030s the United States will, for the first time in its history, face two major nuclear powers as strategic competitors and potential adversaries. This will create new stresses on stability and new challenges for deterrence, assurance, arms control, and risk reduction.”²⁹⁹ The United States is already working to reconstitute the capability to produce 80 war reserve plutonium pits per year and has announced plans for the new W93 warhead to arm its submarine-launched ballistic missiles.³⁰⁰

Recapitalization of America's stockpile would, together with a nuclear competition between China and Japan, raise at least two disturbing scenarios, neither of which existed during the Cold War. In the first, U.S. planners would worry about the sum of all fears in an unstable tripolar nuclear great power system: the prospect of Russia and China presenting a combined nuclear front against the United States and its allies.³⁰¹ This "two against one" concern was never realized during the Cold War because China used a minimum deterrence strategy with significant limitations on weapons technology, force structure, and posture, and because of mutual hostility between China and the Soviet Union. A world in which China and Russia were still more aligned strategically, and China fielded a larger and more capable nuclear force, would pose a far greater, yet less predictable threat.

On the other hand, if relations between Beijing and Moscow sour, Russia might upgrade its forces faster, possibly build more strategic warheads, and consider new, potentially destabilizing deployment options to deter both the United States and a far larger and more capable PRC nuclear triad.³⁰²

Major nuclear expansion by China following an annexation of Taiwan would also very likely pressure India to expand its stockpile and associated delivery options. Warning signs already loom on the horizon: In December 2022, India tested an updated version of its Agni-5 ballistic missile that allegedly now has a range of more than 7,000 km – sufficient to range all of China.³⁰³

It is unclear how India might respond to China's large, ongoing nuclear stockpile buildup (or a further accelerated one), but the French approach to deterring the USSR during the Cold War may be instructive, at least as far as Indian minimum deterrence of Beijing is concerned. During the Cold War, France's Deterrence Force maintained a triad with air-delivered warheads, 18 land-based intermediate-range ballistic missiles, and a fleet of six Redoubtable-class SSBNs, each with 16 ballistic missiles bearing six warheads apiece – a force of approximately 115 long-range strategic warheads.³⁰⁴ Considering contingencies involving China and Pakistan, the Indian nuclear stockpile could potentially double from its current level. Historical data suggests that Pakistan would then likely seek warhead parity with India.³⁰⁵

Within East and Southeast Asia, it is unlikely that any country other than Japan or South Korea could realistically develop and deploy domestic nuclear weapons, even in a 10-year span. That said, Japan and South Korea's key natural resource supply trade partners in the region, Indonesia and Australia, would have substantial leverage to parlay assured supplies of coal, grains, hydrocarbons, iron ore, nickel, and, in Australia's case, uranium reserves, into inclusion in nuclear security guarantees by Seoul, Tokyo, or potentially both.

Asian nuclear proliferation would also affect the Middle East. Iran was already continuing to edge closer to breakout capability even before the Israel-Hamas war started sending shockwaves throughout the region and around the world following Hamas's unprecedented terrorist attacks in Israel on Oct. 7, 2023. If Iran were to acquire nuclear weapons, it would likely motivate Saudi Arabia to urgently do the same.³⁰⁶ As Saudi Crown Prince Mohammed bin Salman stated point-blank in 2018, "without a doubt if Iran developed a nuclear bomb, we will follow suit as soon as possible."³⁰⁷

Riyadh might do so first through a stopgap sharing agreement with Pakistan and subsequently through domestic production with foreign assistance. Indeed, Saudi Arabia has already announced plans to build a substantial nuclear system with a full fuel cycle (including enrichment) that would use domestic uranium resources and thus be exempted from International Atomic Energy Agency safeguards.³⁰⁸

Riyadh's nuclear development appears to emphasize civilian nuclear power, but having a full domestic fuel cycle at the very least signals the existence of a potential nuclear hedge, especially if the local enrichment operator acquires the technical expertise over time to enrich beyond the 5% U-235 isotope concentration that typically characterizes commercial reactor fuel. If a U.S. loss of credibility either opened the door for Japan and South Korea to seek nuclear weapons, or a more isolationist America actually encouraged them to do so, it would become very difficult to argue for continued nonproliferation measures against Iran or other parties in the Middle East.³⁰⁹

A baseline nuclear proliferation cascade following a PRC coerced annexation of Taiwan could potentially see hundreds of nuclear warheads added to stockpiles globally. More dire cases — for example, in which Japan and/or South Korea nuclearized extensively, China responded, and the United States and Russia then each expanded their nuclear forces — could trigger a chain of proliferation that ultimately adds a thousand or more warheads to nuclear stockpiles around the world.

US Policymakers Must Act Urgently to Deter China

All of the cases presented above suggest that keeping China from coercively annexing Taiwan is essential to avoid a vast array of severely damaging consequences. This includes managing nuclear proliferation risks to keep the atomic doomsday clock a few ticks further back from midnight. One need only consider the dramatic, disturbing PRC nuclear weapons developments detailed with the very latest publicly available data in the Pentagon's 2023 report to see how previous long-held assumptions about forswearing nuclear development could well come under question in Tokyo, Seoul, and beyond. Recent developments — including the fall of Afghanistan's U.S.- and ally-supported government to the Taliban in 2021, Putin's invasion of Ukraine in 2022, and security threats and continued loss of life across the Middle East — emphasize the importance of

maintaining deterrence within a nation's own control instead of relying on political decisions in faraway capitals with competing priorities.

Ukraine is perhaps the signature contemporary example of what the worst case can look like when ultimate deterrent power lies outside one's own borders and sovereign control. In 1994, Ukraine relinquished the world's third-largest nuclear arsenal (composed of roughly 5,000 nuclear weapons) through the Budapest Memorandum. In exchange, Russia, Britain, and the United States promised "that none ... would use force or threats against Ukraine and all would respect its sovereignty and existing borders." And, "if aggression took place, the signatories would seek immediate action from the United Nations Security Council to aid Ukraine."³¹⁰

Beijing offered additional assurances to Kiev through the 2013 PRC-Ukraine Treaty of Friendship & Cooperation/Joint Communiqué, concluded and signed by Xi himself.³¹¹ The treaty is set to remain in effect for 25 years, through 2038. Like the treaty, the communiqué is signed personally by Xi and Ukraine's then-President Viktor Yanukovich. It thus represents Xi's personal guarantee and commitment, given his central role in the PRC system. Articles 5, 6, and 7 of the treaty are particularly noteworthy, as they convey at least some form of PRC support for Ukraine's "sovereignty, security, [and] territorial integrity."³¹² This links the mutually supporting treaty and communiqué to the PRC's own claims over Taiwan, as well as efforts to maintain control over its current territory.

Since Russia's February 2022 invasion, China has largely avoided contradicting outright the language of the Ukraine-China treaty of 2013. Beijing has generally refrained from questioning Ukraine's sovereignty and territorial integrity, has urged the parties involved to resolve the differences through dialogue and negotiations, and has proposed peaceful settlements in theory. But China has neither openly condemned Russia's actions in Ukraine nor actively upheld the sovereignty and security provisions accorded to Ukraine as one of the two parties to the 2013 PRC-Ukraine Treaty of Friendship and Cooperation and associated Joint Communiqué. Instead, General Secretary Xi has personally embraced Putin and a Sino-Russian strategic partnership, and has also materially supported Russia's war of conquest against Ukraine.³¹³

Among several PRC threats to Euro-Atlantic security, NATO's Joint Declaration at its 75th Anniversary summit in 2024 condemned Beijing's "large-scale support" for Putin's Ukraine War: "We call on the PRC...to cease all material and political support to Russia's war effort" including "inputs for Russia's defence sector."³¹⁴ At the closing press conference, Secretary General Jens Stoltenberg used similar wording to stress that "China has become a decisive enabler of Russia's war against Ukraine. Through its no-limits partnership and support for Russia's defence industrial base. This includes the transfer of dual-use materials such as weapon components, equipment and raw materials."³¹⁵

To a certain extent, most great powers make strategic decisions when their commitments conflict with their perceived interests, sometimes with brutal trade-offs. But the PRC poses an unusually extreme case insofar as its willingness to agree to legally binding commitments and then rapidly abandon them when its leaders discern a shift in power dynamics. Consider, for example, Beijing's decision to renege on an international treaty and related commitments made to Hong Kong. Also noteworthy is the PRC's current narrative of the "1992 Consensus" with Taiwan. This consensus, which lacks explicit mention of the "different interpretations" of "one China" previously emphasized by the Kuomintang (the Chinese Nationalist Party), fails to recognize that many within the Democratic Progressive Party and elsewhere in Taiwan never agreed to any form of "consensus."³¹⁶

Recent PRC revisionist position changes will likely profoundly impact regional states' assessment of how urgently they need sovereign deterrent capabilities in the event U.S. presence and influence are diminished by a PRC coercive annexation of Taiwan. A leading example is PRC officials' persistent dissemination of outright falsehoods that deliberately conflate the long-established and fundamentally different U.S. "One China Policy" with the PRC "One China Principle."³¹⁷ Similarly extreme revisionism can be seen in PRC statements regarding the United Nations General Assembly Resolution 2758 (the Resolution on Admitting Peking). Furthermore, Xi has explicitly linked the "1992 Consensus" to the "One Country, Two Systems" model now suffocating Hong Kong, and insists that Taiwan must accept the same.³¹⁸ Beijing's latest Taiwan-focused white paper, titled "The Taiwan Question and China's Reunification in the New Era," reflects a far less reassuring, far more coercive vision than any such PRC policy statement in recent decades.³¹⁹ As Mainland Affairs Council opinion polls and National Chengchi University Election Study Center polls indicate, a large and growing number of Taiwanese find PRC assurances lacking credibility for these and other related reasons.³²⁰

Repeated PRC readiness to subordinate legally binding commitments to raw power politics would make it a very different hegemon than the United States, which has a longer (and more reassuring) track record of abiding by its promises. How much can Beijing's partners, established and potential, expect it to live up to agreements, especially when real world events become complex and challenging – precisely the conditions under which agreements tend to matter most? China's previous support to the Rajapaksa government in Sri Lanka, and its ongoing meddling in the Solomon Islands and elsewhere, show these are real, not hypothetical, concerns.

How the Sino-Ukraine Treaty plays out in practice is one way to assess PRC commitments on an issue less entangled with other PRC interests. There the PRC track record thus far suggests that even if Beijing keeps to the letter of its agreements (per its own narrative), in practice, its commitment to upholding their underlying principles is often unreliable. Of note, the 2013 Sino-Ukraine Treaty was signed before Putin's

annexation of Crimea, and it remains unclear what – if anything – Beijing did to support Ukrainian sovereignty and territorial integrity then. More than a decade later, the same question remains.

In a fundamental contrast with Ukraine, Israel, having developed nuclear weapons after a concerted, clandestine effort, now wields them as one of its few trump cards against the predations of an Iran that still lacks them. It is essential to remember that what may appear to external observers to be “good enough” for a nation’s security may not fully align with the perceived requirements of that nation’s decision-makers, particularly those duty bound to protect against the worst of all possible threats, whatever their context and probability of materializing. Would their American counterparts accept anything less than ironclad deterrent capabilities for our own country?

With all that being said, a significant portion of potential nuclear proliferation scenarios are highly contingent. If the security needs of Japan and South Korea continue to be met through robust, credible American extended deterrence, Tokyo and Seoul are unlikely to assume the risks and costs of indigenous nuclear weapons development and deployment in practice. The minute American deterrence and alliance credibility fundamentally comes into question, however, things would become subject to change in dangerous ways. Advancing any further along that path could send shock waves of instability and perilous geopolitical crosswinds and downdrafts – not least of all between Japan and South Korea themselves, who remain haunted by history and benefit greatly from the crosscutting reassurances of American alliances. All this underscores one of several important reasons why the United States must do everything it can to prevent Taiwan’s fall.

Conclusion: Eisenhower’s Warning – Why Taiwan Matters for America

“All free men, wherever they may live, are citizens of Berlin.”

– President John F. Kennedy, June 26, 1963³²¹

MacArthur, Eisenhower, and others who helped deter aggression against Taiwan during the Cold War have faded away into history, leaving new generations to hold that critical line. Meanwhile, Taiwan’s importance has only grown. Symbolically, Eisenhower still keeps watch. Funded in part through a \$1 million donation from Taiwan’s government, the Dwight D. Eisenhower Memorial has a sightline to the Capitol Building.³²² It is a short ride, or run, to the White House. There the sitting U.S. president may soon make decisions regarding Taiwan that prove even more consequential than those the great American soldier-statesman from Abilene, Kansas, made in 1954–55 and 1958.

Toward the very end of the 1,391 pages of Eisenhower's memoirs, "Appendix O: Memorandum Re Formosa Strait Situation" stands out as a warning of unfinished business from one of the most successful presidencies in American history. Dated Sept. 4, 1958, during the height of the Second Taiwan Strait Crisis, it underscores what Eisenhower and his advisors believed to be at stake: "The taking over of Taiwan by the Communists would greatly enhance Communist influence and prestige throughout the free Asian world and depreciate that of the U.S." This judgement was based on government estimates of the time and larger strategic analysis for which Eisenhower himself took ultimate responsibility.³²³

The following points have particular resonance today:

"6) If Quemoy were lost either to assault or surrender, this would have a serious impact upon the authority and military capability of the anti-Communist, pro-US, government on Formosa. It would be exposed to subversive and/or military action which would probably bring about a government which would eventually advocate union with Communist China and the elimination of US positions on the island.

7) If the foregoing occurred, it would seriously jeopardize the anti-Communist barrier consisting of the insular and peninsular positions in the Western Pacific; e.g., Japan, Republic of Korea, Republic of China, Republic of the Philippines, Thailand and Vietnam. Other governments in Southeast Asia such as those of Indonesia, Malaya, Cambodia, Laos and Burma would probably come fully under Communist influence. US positions in this area, perhaps even Okinawa, would probably become untenable, or unusable, and Japan with its great industrial potential would probably fall within the Sino-Soviet orbit. ... The consequences in the Far East would be even more far-reaching and catastrophic than those which followed when the United States allowed the Chinese mainland to be taken over by the Chinese Communists, aided and abetted by the Soviet Union.

8) The impact of these adverse developments in the Western Pacific and Southeast Asia would undoubtedly have serious, world-wide effects."³²⁴

Sixty-six years later, this paper has taken a hard look at the world's most concerning scenario throughout this dangerous and critical decade. Much future history may hinge on Taiwan's fate. In the most calamitous scenarios, the manner in which Taiwan falls is of lesser importance than the undeniable fact of its fall. Taiwan's strategic significance and the far-ranging damage from its coercive annexation by China would be a devastating loss from which the United States could neither fully retreat nor readily recover. Furthermore, as Peter Mattis explains, "The Party's view of security is defined by the absence of threats, not its ability to manage those risks. This is an unlimited view of security in which the border that matters is between the CCP and everyone else, not

the PRC and the world.”³²⁵ Make no mistake: Taiwan’s importance, including for concrete American national interests specifically, is tremendous.³²⁶

As Xi consolidates power and approaches what may be the apogee of his personal ability to pursue his grand ambitions, the consequences of PRC aggression against Taiwan merit urgent examination. American leadership in deterrence is indispensable for safeguarding shared aspirations for a better future and thwarting Xi’s personal ambitions for territorial conquest.

This paper is a call to action. It emphasizes “why” the United States should decisively lead in supporting Taiwan, because clearly articulating the “why” can help clarify “how” to preserve a self-governing Taiwan and ensure a peaceful, prosperous Asia, as well as a less disastrous future for the world. Aligning the “why” and the “how” is essential for fostering the bipartisan political consensus needed for enabling sustained, comprehensive support for Taiwan across successive U.S. presidential administrations spanning the decade of maximum danger.

Being able to sustain the effort is critical because the consequences of failure are so significant. The United States could walk away from long-term deployments in Afghanistan and Iraq with some reputational damage but limited damage in the way of economic harm, alliance disruption, technological loss, or nuclear proliferation risks. In the Cold War, the United States was able to do the same when it pulled out of Vietnam. However, Taiwan is very different. A coerced takeover of Taiwan would not alleviate Sino-American tensions but instead would likely supercharge them. Moreover, failing to support Taiwan would create an unprecedented crisis of confidence among American allies in Asia and Europe. They would be confronted with the unsettling prospect of the United States failing to protect a polity that, despite lacking formal alliance status, is a steadfast ally in all but name.

The adverse consequences examined in this paper should command the attention of American policymakers, prompting a redoubling of efforts to deter Xi from attempting such a catastrophic gambit in the first place. A coercive takeover of Taiwan resulting from American inaction or ineffective response would prompt serious global questioning of U.S. commitments to the security of allies and the defense of democracy. Moreover, it would bolster autocratic regimes in the ongoing worldwide contest of systems. The impact would likely usher in a major global regression, undermining the liberal, rules-based order that has underpinned so much improvement in the human condition over the past 80 years.

Beijing’s emphasis on repression over opportunity and prosperity — already evident in its actions such as the internment of Uighurs, suffocation of Hong Kong, and unparalleled domestic surveillance — would extend further on a worldwide scale if it

were to succeed in coercively annexing Taiwan. This expansion would affect nations across the Global South and OECD, including rising powers like India and Indonesia, as well as longstanding American allies and partners such as Japan, the Philippines, South Korea, and Thailand. Equally important, the consequences would boomerang back to the PRC itself, constricting future prospects for nearly 1.5 billion people. This decline in well-being would elevate the likelihood of conflict and impede future development. Ultimately, the adverse effects would be felt universally, with some nations facing catastrophic consequences.

Moreover, with Taiwan serving as a key hub for semiconductor production, a PRC strengthened by conquest would hold sway over the majority of the world's best microchips. Advanced semiconductor technology plays a crucial role in global progress, and inferior substitutes would simply not meet individual or societal needs, either in America or around the world. Furthermore, if the PRC succeeded in coercively annexing Taiwan, Beijing would almost certainly impose economic and trade realignments that could hamstring America's position and power. It would also exert immense pressure on U.S. allies and the broader alliance network, eroding the credibility of U.S. commitments and destabilizing alliances. Consequently, the United States would be at risk of losing the forward basing and access crucial for its global power projection, allowing PRC forces to expand to fill the vacuum.

Taiwan's fall would precipitate profound nuclear proliferation risks. The prospect of nuclear proliferation among untrusting or former allies looms large, potentially unleashing torrents of instability. Given the catastrophic potential of such proliferation, it is imperative that it be prevented at all costs. Armed with this stark realization and recognizing the other vital stakes that hang in the balance, policymakers must urgently shore up deterrence before it fails.³²⁷ Indeed, U.S. policymakers must redouble their efforts to deter Xi's ambitions and prevent such disastrous consequences from ever materializing in the first place.

This paper has endeavored to address the economic, military, and geopolitical impacts of coercive annexation, with particular focus on semiconductors, weapons systems, allies, and partners. An instrument of national power that is more nebulous but merits additional attention is the "information" and "international order" component. Here, the potential impact extends beyond allies to the very structure of the existing international order. Policymakers should contemplate how the PRC could enhance its ability to shape international norms, standards, and laws through Taiwan's coercive annexation and take prompt preventative measures accordingly.

Isolationism shrouded in realpolitik may sound attractive on the campaign trail or from the back benches of legislative chambers, but it is doomed to failure, just as it was in the years before World War I and World War II. The United States must, therefore, in the

prescient words of George Kennan's 1946 Long Telegram, "have the courage and self-confidence to cling to our own methods and conceptions of human society. After all, the greatest danger that can befall us in coping with this problem of Soviet Communism, is that we shall allow ourselves to become like those with whom we are coping."³²⁸ The present challenges are certainly more complex than that which Kennan's generation faced. The CCP can marshal a reservoir of resources tenfold what the Communist Party of the Soviet Union (CPSU) could. And while the CPSU sought to destabilize the rules-based order, it was never woven into its economic and political fabric to even a fraction of the degree that the CCP is now with the more unified political-economic corpus of "CCP + China Inc." and its potent vectors of influence and cooptation of foreign elites.³²⁹

The contrast between influential PRC personalities' words and actions when dealing with much of the democratic world highlights a contradictory juxtaposition. General Secretary Xi and his coterie express outward confidence that they will progressively overwhelm the United States, its allies, and the system they uphold. Yet, while PRC officials assail the U.S. avatar of a rules-based system and push revisionist policies that risk war, they simultaneously hedge their bets by sending children to American universities and squirreling away assets across the rule-of-law world. China's top leaders and their families systematically engage in such behavior – witness Xi's own daughter Xi Mingze receiving her undergraduate degree from Harvard in 2015 and the plethora of politically exposed persons from China who appear in the leak of the Panama Papers in 2015 and the Pandora Papers six years later.³³⁰ Some of this activity is fully legitimate, while other portions may fall under deeper shades of gray.³³¹

PRC parties' eagerness to keep assets in this sphere as opposed to repatriating them to China speaks volumes, since a vote with one's wallet is often a vote of confidence as to where something of value will be safest in the future. This is not a cause for relaxation, as it may stem from a systemic misunderstanding whereby the PRC personages involved somehow think that their assets would be protected from the consequences of war sparked by the revisionism they promote. In fact, no one would be shielded if shooting started. Accordingly, the free world must intensify its pushback and deterrence actions and invest to rapidly expand its capabilities, demonstrating to CCP diehards that America and its allies and partners will hold the line.³³²

Beijing is striving to employ economic and other forms of coercion against Taiwan to bring about its capitulation. On the economic front, there may need to be some consideration of counter-coercive measures, such as the instruments currently being developed in the EU. However, given Taiwan's political sensitivity in many countries that face PRC political conditioning of trade relationships, it will likely fall to the United States to plan and coordinate efforts to alleviate economic coercion toward Taiwan. Taiwan's diplomatic isolation makes it more vulnerable to economic coercion, so there should be some thinking on how to circumvent this challenge without playing into the

PRC's hands. Ideally, any response from the PRC should appear disproportionate, thus minimizing its effectiveness.

The PRC also seeks to undermine Taiwan's institutions and society from within by eroding democracy through disinformation, elite capture, and the creation of cynicism and confusion. It will primarily be up to Taiwan to address these issues, but confidence in continued support from the United States and key U.S. allies in the region and beyond (e.g., Japan, Australia, and NATO) could boost Taiwanese resolve. This could harden Taiwan as a target against corrosive PRC efforts at engineering a takeover.

Finally, any successful and stable cooperation with the PRC rests on credible deterrence. Otherwise, Xi will feel incentivized to press forward toward his goals regarding Taiwan and other legacy-defining issues, at the sacrifice of stability and possible shared interests. Ultimately, only deterrence can provide a firmer basis for cooperation, including contact and mutually beneficial collaboration, whenever and however that proves possible.

Taiwan is in a sense the "West Berlin" and "West Germany" of what might loosely be termed a Second Cold War now unfolding between the PRC and the free world. It is an outpost of liberty, prosperity, and democracy living in the shadow of an authoritarian superpower and demonstrating daily that Chinese heritage is no barrier to pluralistic diversity, democracy, rule of law, or freedom. During the first Cold War, West Berliners, and indeed West Germans overall, demonstrated resilience in the face of a formidable arsenal wielded by the Soviet Union and its Warsaw Pact allies. Despite the looming threat, they built a dynamic economy and a society characterized by an appreciation of individual liberties. This emphasis on the inherent dignity and value of each citizen made the whole far stronger than the sum of the parts. The free world, undergirded by American leadership, decided these were interests worth defending – and took concerted action to do so, for the concrete benefit of all.

Decades after Eisenhower's farsighted presidential decision-making and the Cold War's peaceful conclusion, Washington, its allies, and supporters of liberty and freedom around the world now stand at a similar junction with respect to Taiwan. The results will critically shape the world for many years to come. It would be best by far for all parties concerned if the perilous "Pandora's Box" of China coercively annexing Taiwan is never opened in the first place. Whatever American policies and decisions ensue, if the chips go down, there will be no escaping the tremendous and enduring consequences. It is not too late to hold the line where it matters most, but time is indeed running out.³³³ In the words of General Secretary Xi himself, "History never waits for those who hesitate, those who look on, those who are idle, or those who are weak."³³⁴ Given its irreplaceable importance for American national interests, safeguarding Taiwan should be urgently and relentlessly prioritized in U.S. defense and foreign policy efforts.

Appendix 1: Deterring or Defeating by Denial a PRC Attack on Taiwan – Recommendations for Taipei (and Washington)

Through concerted efforts over the past quarter-century, China has achieved the most dramatic military buildup since World War II. Previously limited in its ability to execute its joint firepower strike, joint blockade, and joint island landing campaigns against Taiwan, the PLA is making rapid progress across the board as it prepares to meet the requirements of Xi's Centennial Military Building Goal of 2027.

As this paper explains, the stakes could scarcely be higher, and the clock is ticking. This raises an urgent question: What can Taiwan do – potentially with American advice and support – to convince Xi and his successors that a military attack would very likely fail? Additionally, how can Taiwan effectively counter and reliably defeat – with potential U.S. assistance – any military aggression from the PRC, should such an attack occur?³³⁵ For the United States to relentlessly prioritize safeguarding Taiwan, Taiwan must relentlessly prioritize its own defense – where it matters most.

The information in this appendix therefore underscores the key dynamics that should inform Taiwan's defense and highlights six areas to prioritize above all else, including legacy systems: 1) air defense, 2) mines, 3) anti-ship missiles and munitions, 4) coastal artillery, 5) information warfare, and 6) critical infrastructure resilience. In some cases, Taipei and Washington have made initial, gradual efforts. However, both must significantly accelerate and intensify their efforts to keep Xi's gathering forces at bay. This includes clearing the extensive backlog of foreign military sales (FMS) to Taiwan on which the United States has not yet delivered.

Putin's invasion of Ukraine highlights the critical need for advanced preparation, especially considering that Taiwan cannot be easily resupplied during combat, unlike Ukraine over the past two years. The systems present on the island at the time of the first PLA missile strike are very likely what Taiwan's military will rely on for at least the following 30 days.³³⁶ Given this context, deterrence and denial are the most effective strategies for a vulnerable society facing a quantitatively larger invading force.³³⁷ Successfully denying lodgment to PRC amphibious and air assault forces would buy time for intervention by the United States and its allies, which is the island's most viable path to maintaining autonomy if Beijing attempts forcible unification.³³⁸

The quote, "Gentlemen, we have run out of money. Now we have to think," often attributed to Winston Churchill, encapsulates a central challenge confronting Taiwan's defense today. Fueled by tremendous economic advancement, China has developed and deployed a panoply of systems designed to transform the strategic environment from one in which the United States and Taiwan enjoyed overwhelming advantages and

could operate with impunity, into one in which many of their military operations can only be conducted at great risk.

These new PRC additions are primarily weapons systems that place the United States on the costly end of a series of competitions. It is far cheaper and more effective to attack with a missile, for instance, than to defend against it. China has exploited this dynamic by developing the world's largest, most diverse conventional missile force, which includes unprecedented systems such as the DF-17, DF-21D, and DF-26 anti-ship ballistic missiles. Other areas of potentially disproportionate cost- and operational-effectiveness that China has developed include conventionally-powered submarines and naval mines. By playing to the advantages of its physical environment, China is adopting a strategy that strives to negate Taiwan and America's military strengths by directly targeting their military bases, ships, and aircraft – the very items necessary to defend Taiwan.

China's relentless and massive military buildup targets Taiwan first and foremost. While increasing spending on defense should be an urgent priority to prepare for all conceivable scenarios, Taipei nevertheless must decide how to face this threat while operating with suboptimal resources, arms suppliers, and military forces. Given Taiwan's costly history of defense budget constraints and its focus on legacy platforms, it is crucial to avoid expending resources and efforts in ways that fail to effectively address China's mounting military threat. However, Taiwan need not be condemned to coercive annexation – provided that it immediately doubles down on efforts to follow the smartest available strategies, with strong American support.

Porcupine Defense: Best Overall Concept

Several leading assessments have advocated for Taiwan to pursue a “porcupine strategy” that prioritizes “a large number of small things” for the island's defense.³³⁹ “Porcupine defense” emphasizes numbers, size, affordability, mobility, simplicity, and concealment. Naval War College Professor William Murray describes it as “many, small, mobile, and lethal.” Small assets are easy to conceal, while many and mobile assets are more survivable. Lethal capability is self-explanatory.³⁴⁰ The overall goal is to deploy and train with affordable systems that would place China at a disadvantage in an arms competition.

One crucial principle for Taiwan might be described as the “bullet versus body” competition. Surface ships and fixed air bases increasingly represent “bodies” vulnerable to “bullets” in the form of missiles. While “bullets” can be expended freely, a hit to a “body” can be terminal. Taiwan should avoid offering up “bodies” for easy destruction and instead focus on shooting its own “bullets” at PRC “bodies” essential for cross-strait military operations, such as airborne and seaborne troop transports

during an invasion attempt. However, Taiwan cannot readily protect its airbases (“bodies”) from the “bullets” of China’s PLA Rocket Force and thus should reduce its reliance on such vulnerable assets. One particularly potent way to trade “bullets” for “bodies” is to fire from within “clutter” – the echoes or other misleading signals in radar/sensor data that can compromise target detection and identification. Taiwan’s mountainous terrain, complex urban environments, and dense cloudy weather provide natural sources of protective masking clutter.

In the concept of “target versus background,” sea waves can produce various reflections, but it is relatively straightforward to discern a target against the air or ocean surface, allowing missiles to devastate any detected ship or aircraft. Significant advantages will accrue to the side whose systems’ signal-to-noise ratio enables them to disappear below the noise floor, thereby blending into the background or clutter. Examples include the disproportionately effective actions of U.S. adversaries in the 1991 Gulf War “Scud Hunt” and the 1999 Kosovo War.³⁴¹ Viewed through this prism, Taiwan, when fully leveraged by resident and allied forces, is not just a mountainous, moated island; it is a haven for hiding in clutter and “shooting and scooting” to fire on enemy forces that expose themselves in attempting to cross the Taiwan Strait.

Another key dynamic is the mobility of assets. Taiwan’s acquisitions and developments should be highly mobile, as the survivability of a given weapons system depends on how mobile it is in practice. Systems should thus be truly mobile, not just “relocatable.” Where feasible, weapons should be mounted on relatively inexpensive trucks that can hide in the radar clutter generated by Taiwan’s diverse landscape and environment, or on small high-speed vessels. Pursuing both approaches would present the PLA with markedly different and difficult problems to solve. Vessels on the ocean are unlikely to ever blend into surface clutter the way that transporter erector launchers (TELs) and other vehicles blend into land clutter, which offers Taiwan’s on-island forces potential physics-based advantages over PRC forces crossing the Taiwan Strait.

All told, those tasked with conceiving and executing Taiwan’s defense should strive to reclaim what we term the “right end of physics” by adopting a minimum energy approach consistent with military cost-exchange ratios. The goal is to prevent or make prohibitively costly a successful PRC military attack on Taiwan. Both Taiwanese and American planners should concentrate on creating a substantial “no man’s land” or “hellscape” between Taiwan’s maritime approaches and its shores, where China’s forces cannot operate.³⁴² This approach aims to deter by demonstrating the ability to prevent China from achieving its military objectives: deterrence by denial. With limited defense budgets and a tight threat timeline, Taiwan must prioritize deploying and maintaining many affordable, small, mobile, and lethal weapons to destroy attacking forces as rapidly and effectively as possible.

Each day that Xi is persuaded that “today is not the day” to attack Taiwan buys another day of peace, allowing policymakers to navigate this dangerous and critical decade. To help ensure the means to maintain cross-strait peace, Taiwan’s government should urgently redouble its investment and effort in six concrete areas: 1) air defense, 2) mines, 3) anti-ship missiles and munitions, 4) coastal “kill zone” artillery, 5) information warfare (particularly electronic warfare including jammers, decoys, and deception), and 6) critical infrastructure resilience.³⁴³ We now survey each in turn.

1. Air Defense

Taiwan must prevent the PLA from achieving and maintaining air superiority. Ukraine’s experience demonstrates the importance of mobile ground-based air defenses that, even if imperfect, can deny an attacker air control over key terrain. As Harry Halem and Eyck Freymann explain, “Without air control ... China would be incapable of executing almost any military plan against Taiwan.”³⁴⁴ Furthermore, PLA strategists regard air control as a key precondition for a joint island landing campaign.

Mobile, medium-range missiles offer a potent means of denying Taiwan’s skies to PLA aircraft. The Norwegian advanced surface-to-air missile system (NASAMS) platform stands out as an asset that is mobile, survivable, combat-proven, and capable of firing a range of readily available missiles, including the AIM-120 AMRAAM, AIM-9X, IRIS-T, and AMRAAM-ER.³⁴⁵ Each NASAMS battery firing AIM-120s could deny a column of airspace roughly 20 miles across and 50,000 feet high.³⁴⁶ The system is also comparatively affordable. For the same cost as Taiwan’s 2019 deal to acquire 66 F-16V fighters, the island’s military could purchase more than 150 NASAMS batteries.³⁴⁷ Additionally, its ability to fire multiple missile types allows for future adaptation. The advanced medium range air-to-air missile-extended range could expand the existing AIM-120’s engagement range by 50% and altitude by 70%.³⁴⁸ Truck-mounted NASAMS sensors and launchers dispersed throughout Taiwan would present a formidable challenge to the PLAAF. Truly mobile systems can serve as formidable “bullets,” while systems that are merely “relocatable” represent “bodies” likely doomed to destruction in actual combat conditions.

For their part, short-range air defense (SHORAD) systems can offer critical protection against lower-flying aircraft, helicopters, and unmanned aerial vehicles (UAVs). In this area, Taiwan needs large stocks of man-portable air-defense systems (MANPADS), which already have shown their utility in Ukraine against aircraft with performance characteristics similar to many of those in China’s air force. MANPADS could make an airborne assault prohibitively risky and costly. As of July 1, 2024, the United States alone has delivered more than 2,000 Stinger MANPADS to Ukraine, illustrating the significant munitions mass likely to be required to contest airspace against a capable, determined invader.³⁴⁹

2. Mines

Within the concept of “bullets vs. bodies,” mines are a type of particularly advantageous “bullet.” While Taiwan’s planners understand the importance of sea mines in countering a PLA amphibious campaign, they must accelerate their efforts.³⁵⁰ Taiwan should urgently build or acquire substantial numbers of shallow-water mines akin to the Russian PDM series, which could be rapidly deployed in tidal zones at likely landing points.³⁵¹ Additionally, using inexpensive, rapidly deployable passive obstacles, such as steel Czech hedgehogs, along Taiwan’s west coast beaches could complement elevated highways and other preexisting impediments.³⁵² These measures would canalize (channel) incoming landing forces, thereby amplifying the lethality of mines and artillery against an invasion force as it tried to land. Ukraine’s use of mines and shore-based anti-ship missiles (the topic of the next section) likely helped deter a Russian amphibious assault on Odessa — a lesson worth considering for Taiwan. Furthermore, Taiwan must be prepared for the PLAN’s potential use of offensive mining to isolate the island and hinder the operations of allied militaries. The best defense against this is not to improve mine-countermeasures but to turn this challenging discipline against the PLA, denying it the ability to move an invasion force overwater onto Taiwan.

3. Anti-Ship Missiles and Munitions

Rapidly maximizing the quantity and survivability of Taiwan’s long-range anti-ship missiles could seriously challenge PLAN operations near the island and have a deterrent effect.³⁵³ Modern anti-ship cruise missiles (ASCMs) can cause severe damage to ships, particularly if fires spread. The United States has already approved the sale of 100 Harpoon land-based coastal-defense cruise-missile launchers, 400 missiles, and 25 associated radars to Taiwan.³⁵⁴

Invading amphibious forces are most vulnerable while they are still aboard their ships. Taiwan should therefore prioritize targeting ships at sea. Escalation risks aside, it is more militarily efficient to sink an invasion force at sea after it has left PRC ports and when it is concentrated in a relatively few large (and flammable) amphibious transports and “civilian” roll-on/roll-off vessels than to bombard it after it has landed and dispersed amid port and urban clutter, potentially with a host of camouflage, concealment, and deception assets nearby. The closer PRC amphibious ships are to Taiwan (as long as armored fighting vehicles have not yet debarked), the simpler Taiwan’s targeting problem becomes. Targeting will become easier as an invasion force nears Taiwan if shore-based sensors and cheaper, prolific shorter-range UAVs are able to detect the force and help onshore shooters more accurately target their weapons.

While ASCMs can certainly be lethal, the PLAN would also need to consider the damage smaller, loitering munitions can cause. Even a relatively small warhead can inflict a

mission kill (i.e., rendering an enemy platform incapable of accomplishing its objective without necessarily destroying it completely) by damaging radars and other sensitive, exposed equipment on ships. In doing so, loitering munitions can augment ASCMs.

Taiwan should thus both produce and import long-range loitering munitions, such as the Switchblade-600 and Altius-600/700 series, each of which can be fired from a range of mobile launchers with sufficient range to cover the entire breadth of the strait. Taiwan is already developing indigenous loitering munitions. The National Chung-Shan Institute of Science and Technology's Chien Hsiang antiradiation loitering munition, for example, can be launched from a trailer mounting 12 box launchers or from naval vessels.³⁵⁵ But volume matters, and an accelerated combination of imports and domestic production will likely be required to build sufficiently large stocks to credibly threaten a PLA amphibious assault force throughout the decade of maximum danger; Taiwan's production of the Chien Hsiang alone is not enough. Loitering munitions can augment ASCMs by damaging radars. The United States can also export potent loitering munitions and has already agreed to do so in the form of 720 Switchblade 300 (SB300) all up rounds and up to 291 Altius 600M-V systems.³⁵⁶ A robust combination of fast ASCMs and many slow UAVs can overwhelm PLAN defense and destroy invading ships.

4. Coastal 'Kill Zone' Artillery

Precision fires can turn Taiwan's near-shore waters, beaches, and airborne landing areas into kill zones for invading forces, helping to deny lodgment or facilitate the destruction/eviction of any forces that managed to get ashore. The Ukrainian military's use of artillery to destroy a lightly armored (and poorly dispersed) Russian assault force at the Hostomel Airport near Kyiv in February 2022 is illustrative, while other examples from Ukraine highlight the potency of submunitions and area-effect warheads.³⁵⁷

Taiwan's forces thus need multiple-launch rocket artillery (e.g., high-mobility artillery rocket systems/HIMARS) with submunitions and/or area-effect warheads to target any landing force close to or on the beach (or in a drop zone).³⁵⁸ As demonstrated in the Russia-Ukraine war and previous conflicts, HIMARS – especially with area munitions (i.e., cluster munitions designed to disperse multiple smaller submunitions over a wide area) – are devastating to unprotected infantry. Additionally, HIMARS could employ Saab's ground-launched small diameter bomb (GLSDB), which now has a laser-homing mode to engage moving targets.³⁵⁹ The GLSDB's 150 km range and high precision would allow rocket systems dispersed throughout Taiwan to target a PRC amphibious landing force.³⁶⁰

The effectiveness of HIMARS for Taiwan has already been recognized, with 11 HIMARS scheduled to be delivered to Taiwan from the United States by 2027.³⁶¹ This demonstrates that leaders are already thinking about the value of mobility, small

size, and lethality. However, delivering substantially more of these systems would be even better and could contribute to deterring a PRC invasion by ensuring sufficient mass of fire against a potential invasion force, which would likely be massive, despite combat attrition.

Mobile tube artillery systems are also important, particularly when coupled with Excalibur-type precision shells or submunitions such as dual-purpose improved conventional munitions (DPICMs). The highly accurate 155 mm M982 Excalibur precision-guided artillery projectile is the U.S. Army and Marine Corps' next-generation cannon artillery precision munition.³⁶² It can be fired from the 155 mm M109A6 medium self-propelled howitzer system, of which the United States has agreed to sell 40 to Taiwan, together with associated systems.³⁶³ DPICMs are area/cluster munitions designed to target enemy personnel and light-armored vehicles. Both are optimized for use against invading forces.

The United States has substantial stockpiles of such shells, with the ability (at least in theory) to deliver them rapidly, as they would be immediately compatible with existing Taiwanese 155 mm artillery systems. Taiwan already operates the M109 155 mm self-propelled howitzer and could assimilate more of these platforms into its force. The U.S. Army has roughly 500 M109A6 systems in storage.³⁶⁴ A lend-lease type deal that put 100–150 of them on Taiwan would help substantially bolster the Taiwanese Army's ability to destroy PRC forces that made it onto the beach or into a drop zone.

Taiwan should also stockpile relatively high-volume, lower-cost precision-guided munitions to saturate invading troop concentrations. Effective anti-tank guided missiles (ATGMs) on trucks or high mobility multipurpose wheeled vehicles (HUMVEEs) are lethal, mobile, and relatively cheap. Taiwan needs more of them. AGM-114 ground-launched hellfire-light missiles, deployed from a modified HUMVEE chassis, offer a strong option for destroying incoming armor, amphibious assault vehicles, and landing craft while they are still afloat.³⁶⁵ Another potentially useful system is the Javelin advanced anti-tank weapon system-medium, with rounds pre-positioned in hardened locations near likely landing areas.³⁶⁶ Ukraine's experience thus far suggests that repelling an intense, multivector invasion requires thousands of anti-armor munitions.³⁶⁷

5. Information/Electronic Warfare: Jamming, Decoys, Deception

Recent history suggests decoys remain effective by inducing an adversary to waste expensive guided weapons. Military aircraft are extremely expensive, and Taiwan's aircraft could potentially be grounded or otherwise unusable in the event of a conflict. However, decoys and deceptive tactics are a potential means of reducing the effectiveness of PRC air forces. NATO's 1999 bombing of Yugoslavia was rendered measurably more difficult and less effective by Serbian deception, particularly in the

form of decoys.³⁶⁸ Ukraine has also employed a wide range of decoys effectively against Russian forces.³⁶⁹ For Taiwan today, inflatable decoys resembling beach, surface-to-air missile, and coastal battery vehicles and radars should be deployed and moved frequently to reduce the PLA's situational awareness. Both decoys and actual vehicles should employ camouflage to further complicate the PRC's targeting efforts. Ideally, decoys and actual vehicles should be indistinguishable to China's military. Posting distant photos of camouflaged decoys on social media can enhance their perceived authenticity and attractiveness as targets. Taiwan could also disguise actual armored vehicles and missile launch systems as civilian trucks or heavy equipment to complicate PRC targeting efforts.³⁷⁰

Lastly, decoys can distract operators and radars on warships, enabling other strikes. Ukrainian officials assert Bayraktar TB2 drones used in this way enabled Neptune anti-ship missiles to sink the Russian Navy's Black Sea Fleet flagship Moskva.³⁷¹ This suggests Taiwan could use aerial and aquatic "active decoy" drones to facilitate attacks against blockading or invading ships.

6. Life-Essential Infrastructure

Resilience is one of the key factors that will enable Taiwan to withstand a conflict. The island should prepare for the possibility of PLA siege warfare, particularly in the context of a PRC blockade or quarantine operation. Taiwan's Petroleum Administration Law currently requires that the government holds petroleum stocks at a level equivalent to 30 days of consumption during the prior year, which is approximately 1 million barrels per day.³⁷² However, it would be better to store 60 days of liquid fuel in hardened, buried, and dispersed locations.³⁷³

Emergency stockpiles should be prepared at higher elevations, with buried pipelines running to generators and fuel offtake risers downhill, allowing fuel to be moved by gravity in the event of total power loss. Fuel suppliers should practice "over the shore" fuel deliveries, similar to those used to resupply facilities in austere locations, in case PRC strikes deny or destroy ports normally used for fuel deliveries.³⁷⁴ Increasing inventory levels in a more dispersed manner, though costly (roughly \$3.5 billion at today's prices), would reduce vulnerability to precision-guided munition strikes and enhance Taiwan's ability to withstand a blockade.³⁷⁵

Experiences from Mariupol and other Ukrainian cities indicate that invaders may target food and water supplies.³⁷⁶ Accordingly, 120 days of basic food stocks should be dispersed to ensure resilience against possible attempts of a maritime blockade or quarantine by Beijing. During the early phase of the COVID-19 pandemic, Taiwan's Ministry of Economic Affairs estimated realistically that local food and key goods stocks were sufficient for one to three months — an amount likely insufficient to

weather a prolonged blockade.³⁷⁷ Ensuring access to potable water is also essential. Every Taiwanese community of 5,000 or more people should drill groundwater wells and connect them to high-resiliency backup power to maintain potable water supplies in case PRC forces strike reservoirs, main aqueduct systems, and the electricity grid that normally powers pumping operations.

Taiwan also needs redundant communications systems if PRC attacks disrupt undersea cables.³⁷⁸ The recent Tonga volcanic eruption underscores the value of Starlink-type satellite internet receivers, which can enable continuity and support military operations, as demonstrated in Ukraine.

To ensure basic electricity for water supply and communications, multifuel turbine electrical power generators should be distributed and installed near fuel storage locations. These generators, can use diesel fuel (with its low fire risk) as well as gasoline, liquid propane gas, natural gas, biogas, and other sources.³⁷⁹ Fuel supplies for the generators should be dispersed, and to the extent possible, tanks should be placed underground, in caves, or in subsurface structures resistant to air and missile attacks. There is much more that Taiwan can do to ensure adequate supplies of water, fuel, and food, particularly during a prolonged blockade. Increasing resiliency in these areas merits immediate attention, additional research, and dedicated efforts.

The PLA is studying Russia's experiences in Ukraine and collaborating with Russia to enhance its capabilities and operations. Taiwan must learn and implement its own lessons, including through collaboration with the United States, to counter the mounting PRC military threat.³⁸⁰ Against that backdrop, the six urgent focus areas recommended here reflect harsh realities. China seeks to win without fighting – or with minimal fighting – but Taiwan's best strategy is to deter conflict by demonstrating its ability to prevent China from consolidating meaningful gains before American and allied firepower can respond. The bottom line is simple: A war deterred is by far the ideal outcome for all concerned. To that end, with urgent assistance, munitions, and training, the United States can help Taiwan become a truly deterrent porcupine before it is too late.

Appendix 2: Chips Down, No Retreat – Semiconductor Analysis

Semiconductor shortages for items such as cars, in which microchips are necessary for function but not the “engine” of the system, give engineers latitude to adapt.³⁸¹ Surveys of product engineers’ responses to the recent chip shortage found that many were able to redesign control boards, apply replacement components, use functional equivalent parts, and make firmware and software changes to compensate.³⁸² In the worst cases, products can be delayed or production runs reduced. These adaptive actions are not ideal, and in the more extreme shortage cases, create substantial economic impacts and consumer hardship.

A severe shortage of leading-edge chips would impose considerably tighter constraints, particularly because they serve as the fundamental core of the products into which they are integrated, notably high-performance computing modules. Substituting legacy chips either yields a functionally nonviable product or else one whose performance loss would be roughly analogous to replacing an F-35’s Pratt & Whitney F135 turbofan with a 1950s-vintage J79 turbojet.

Several factors make access to cutting-edge microchips a “winner take nearly all” proposition. The country (or company) that establishes technological dominance not only gets the prime corner of the sandbox, but also determines the box’s shape, the type of sand, and, at a basic level, the terms that others must meet if they wish to enter the box and play.³⁸³

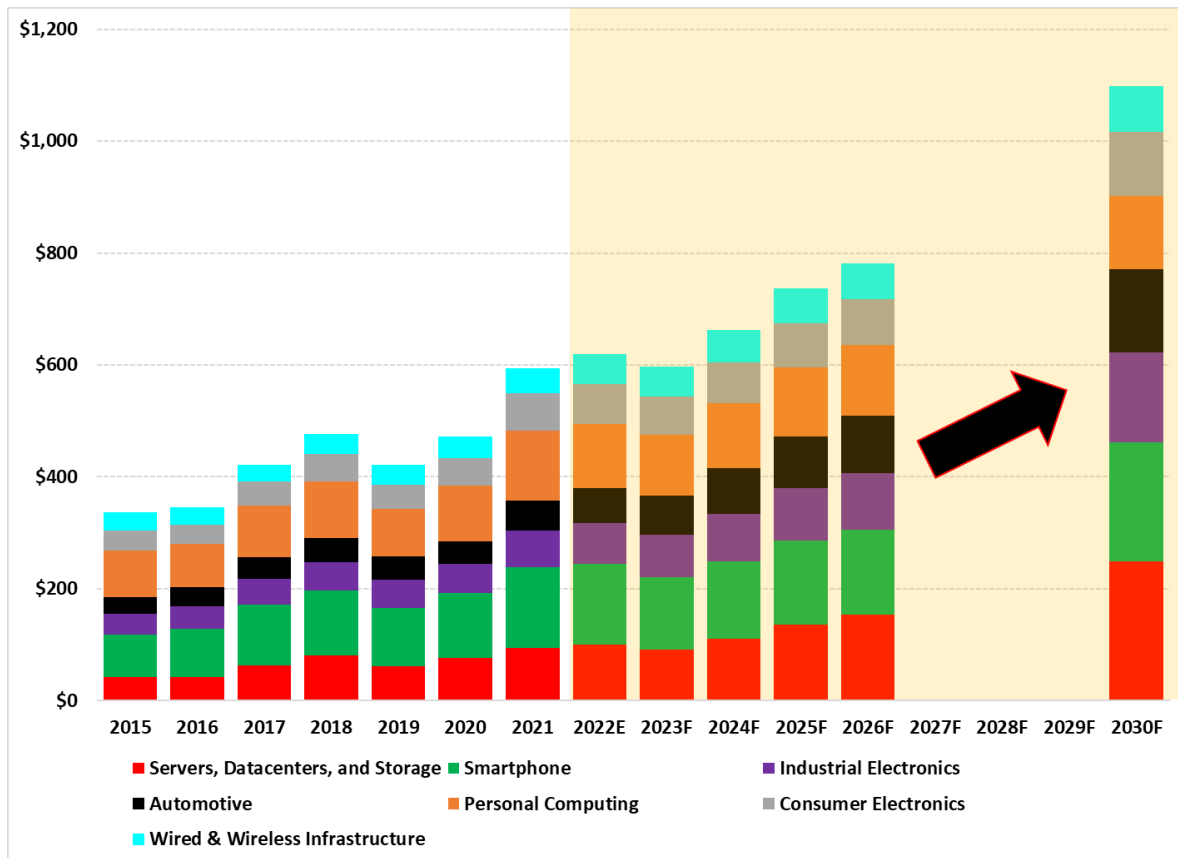
Importantly, datacenters and associated infrastructure rely on highly advanced chips. Cloud services (e.g., Amazon Web Services, Google Workspace, Microsoft Azure, Oracle, and Apple iCloud) are not only hosting ever-more personal data, but they are also being used increasingly by businesses and government agencies both for backup and for primary storage of data. ASML, a Dutch firm that is the world’s leading vendor of photolithography machines (which are critical for chip manufacture), projects that by 2030, servers, datacenters, and storage applications will be the single largest global consumer of chips, as measured by sales value (Figure A).

Software Cannot ‘Eat the World’ Without Digital Hardware Powered by Cutting-Edge Chips

At the risk of some oversimplification, the category of “servers, datacenters, and storage” condenses into what we might colloquially call “cloud computing.” Cloud computing involves more than Google Docs, Office 365, or other relatively passive storage/movement of simpler applications from personal computers onto the global network of servers that support activities involving data, applications, and services online. Rather, it is also about active provision of services and generation of value. On

the important, but more linear end – when, as Marc Andreessen puts it, “software eats the world” – cloud computing enabled by cutting-edge semiconductors is often involved. Consider, for instance, Dish Networks’ new 5G telecom services, which, rather than being run from the edge, are fundamentally made up of “a cluster of code that runs on Amazon Web Services.”³⁸⁴

Figure A – Actual and Projected Semiconductor Sales by End Use



Sources: ASML; authors’ analysis.³⁸⁵

The more “active” end of cloud computing entails powerful clusters of hundreds or even thousands of high-end chips conducting AI operations on models that may have over a hundred billion data points apiece. AI applications subdivide these into network deployment areas. The most time-sensitive Internet of Things (IoT) systems (e.g., self-driving cars, where milliseconds count) inhabit the cutting edge of the network and are powered by special purpose-made chips.³⁸⁶ Applying AI across the billions of endpoint devices around the global industrial ecosystem will likely be transformative – yet these benefits would be curtailed or even eliminated by disruptions in leading-edge chip supplies from Taiwan, since many will be fabricated at 16 nm or smaller node sizes.

But the cloud is likely to remain the ultimate center of gravity for AI operations – particularly those that are not millisecond-urgent and those that employ massive datasets in ways that can facilitate innovation in drug discovery, hypersonic flight, materials science, operations research, intelligence data processing/inference generation, and other applications offering distinct long-term innovation and economic development advantages.³⁸⁷

Consider the very existence of Microsoft’s “Cloud + AI Group.”³⁸⁸ While a single data point is not probative, it is noteworthy that Microsoft, a key market player with world-class insights, sees the cloud and AI as so integrally and strategically related that it has structured a core business division accordingly. As further evidence of large-scale datacenters’ importance to AI development, consider the need of multiple AI startups to affiliate with cloud computing giants to access the vast computational power needed to make their models work.³⁸⁹

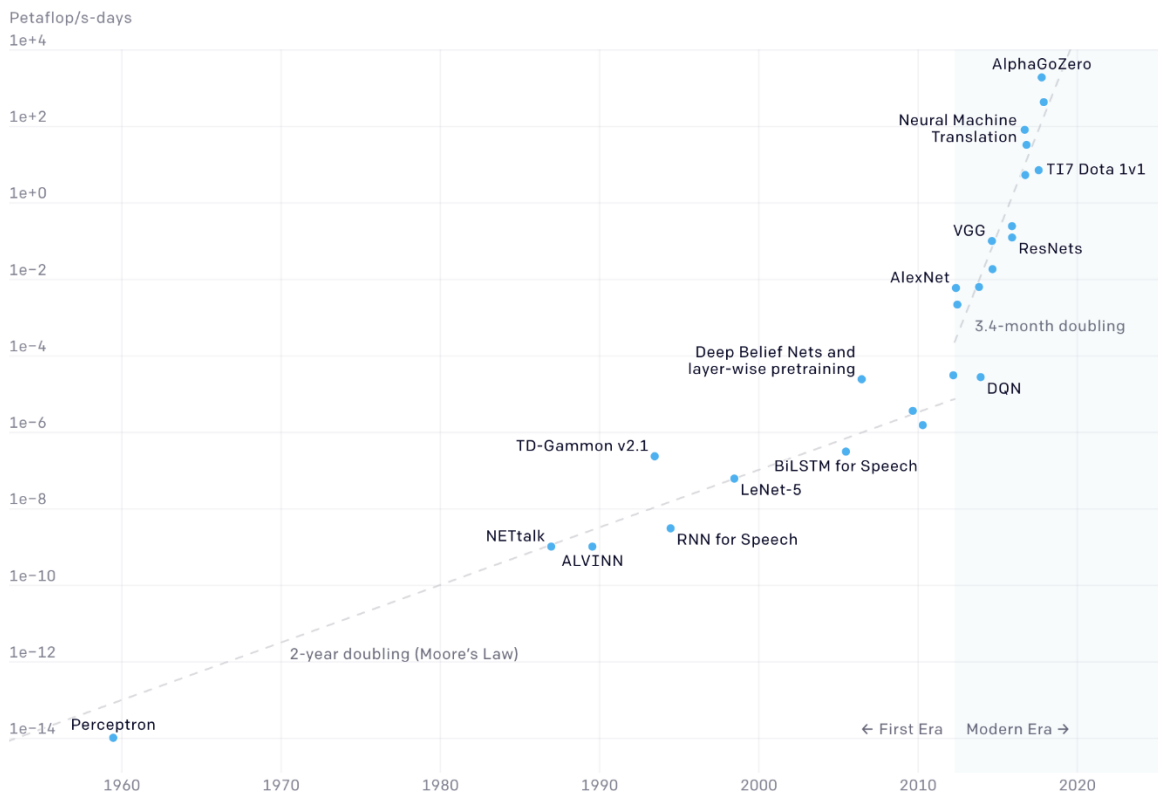
A Microsoft commercial partner, OpenAI, embodies three key factors behind AI advances: “algorithmic innovation, data (which can be either supervised data or interactive environments), and the amount of compute available for training.”³⁹⁰ Intel defines “AI model training” as “processing large amounts of data through the AI model in iterative test loops and checking the results to ensure accuracy, and that the model is behaving as expected and desired. Engineers are on hand during this process to modify and improve the AI model as it learns.”³⁹¹ Computational power is the irreplaceable horsepower and torque behind insights an AI system can ultimately generate, and this has grown as model sizes explode in a somewhat self-reinforcing circle in which greater processing power opens new frontiers now explorable with exponentially larger datasets (Figure B).

For all of these AI activities, energy efficiency matters. IoT devices that require physically small chips with miniscule power loads simply would not work with larger-node, power-hungry ones. Cloud-based applications, meanwhile, may need economically, and in some instances, physically prohibitive quantities of electricity if forced to utilize legacy chips rather than the more energy-efficient models at the node sizes presently fabricated primarily in Taiwan and, to a lesser extent, South Korea. Herein lies the second advantage conferred by sub-7 nm Taiwanese semiconductors: the commercial and energy “tax” imposed on technical laggards.

As the senior director of technology at chip-designer ARM recently put it, “The compute demand of neural networks is insatiable.”³⁹² The larger the network, the better the results, and the more problems you can solve. Energy usage is proportional to the size of the network.”³⁹³ Training an AI model requires copious quantities of energy.³⁹⁴ Recent research indicates just how much energy a large AI system can require for machine learning model development. OpenAI’s GPT-3 model that underpins the now-famous

ChatGPT chatbot may have needed as much as 1,300 megawatt-hours of electricity.³⁹⁵ That is approximately as much electrical power as a Virginia-class attack submarine’s S9G nuclear reactor could yield in a day, or the energy equivalent of nearly enough jet fuel to fill the internal tankage of 12 F-35Cs.³⁹⁶ Energy disadvantages do not end with training but instead continue accruing over time because an AI system’s post-training inferential work (i.e., “actual use”) accounts for 80%–90% of its lifetime energy consumption.³⁹⁷

Figure B – Two Distinct Eras of Computational Usage in Training AI Systems



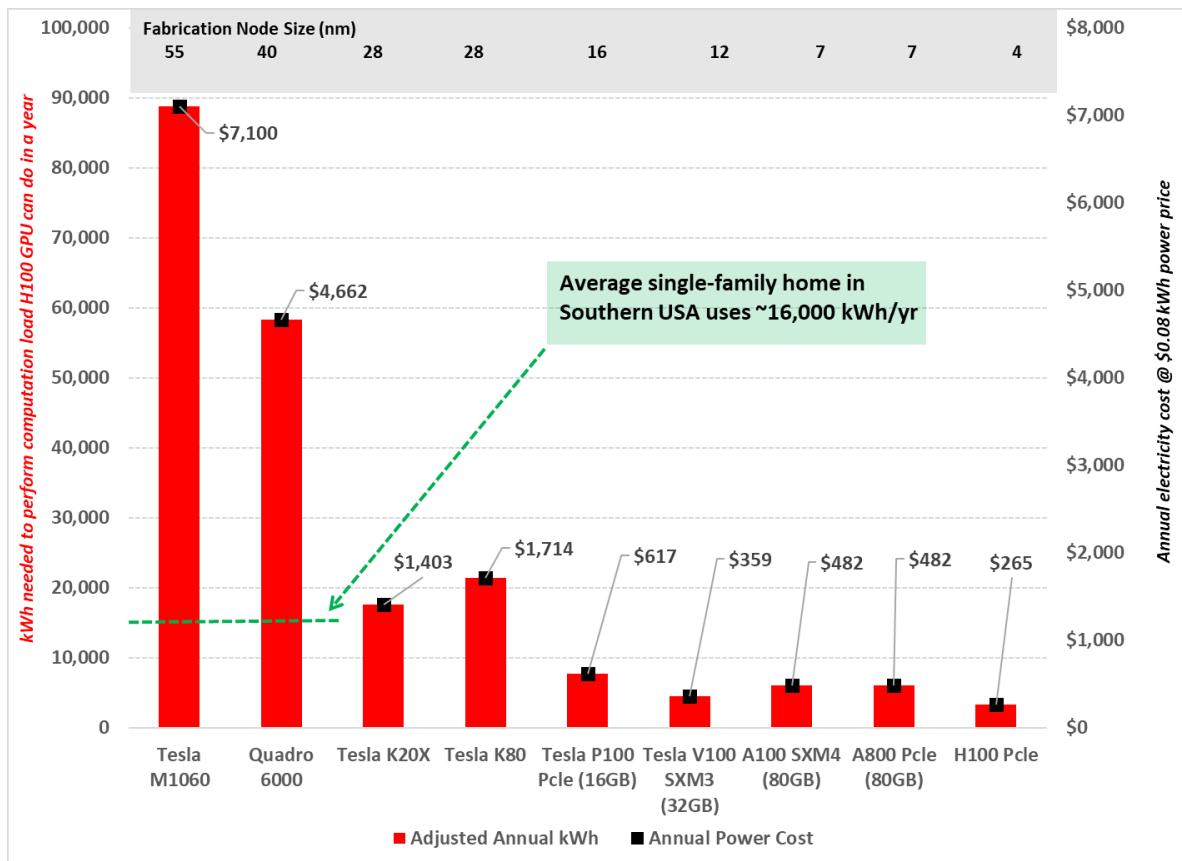
Source: OpenAI.³⁹⁸

A simple model of lifetime energy use per chip shows the advantage. An NVIDIA H100 GPU fabricated by TSMC would likely use about \$265 worth of electricity per year to perform the volume of computations one would expect at the 33% utilization rate OpenAI cites as a baseline, based on its own operational experience.³⁹⁹ Chips fabricated at the less Taiwan-centric 28 nm would use about seven times as much electricity to perform the same volume of computational work (Figure C).

These electricity use and dollar figures translate into stark strategic realities. First, if one country’s AI industrial complex uses 4 nm chips and the others can only get 16 nm

or larger chips, the country with the 4 nm chips powering its compute infrastructure will have a massive, compounding advantage in the ways it can deploy computing power across civilian and dual-use economic activities that constitute the ultimate foundation of national power. A recent Georgetown Public Policy Review report puts it starkly: “When a competitor has the advantage of cutting-edge microchips, better algorithms, and more computing power, they can out-compete others.”⁴⁰⁰ Outcompeting generally means “economically surpassing” one’s competitors, evoking Cicero’s timeless observation that “money is the sinews of war.” Two millennia later, wealth generation and the innovation that creates the next round of wealth in the future each hinge upon technical prowess applied within a sociopolitical system that funds and facilitates progress. Bleeding-edge semiconductors are foundational for the contemporary technology-wealth-power cycle.

Figure C – Estimated Energy Consumption for Selected NVIDIA GPUs



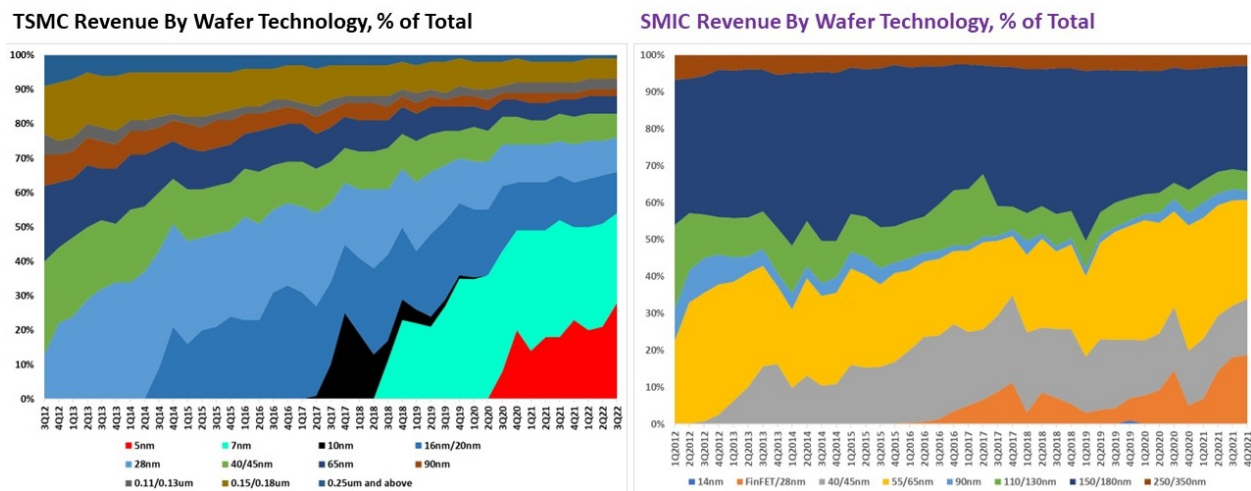
Sources: NVIDIA; OpenAI; Energy Information Administration (EIA) (household electricity use); authors’ analysis.⁴⁰¹

As for the relative capabilities of some of the major producers involved, Intel’s U.S. plants produce microchips two generations behind TSMC’s. China’s SMIC, which is a

generation further behind, appears to have some degree of 14 nm production and has apparently accomplished low-volume 7 nm chip output.⁴⁰² Achieving the scale of chip production needed to supply the near-bottomless end-user markets in the United States and China requires massive investment, a point hammered home by comparing the technology transition rate of TSMC versus SMIC and also the quarterly capital investment volumes of the two national chip champions.

Since the first quarter of 2012, SMIC reports investing approximately \$27 billion in its factories and operations. Over the same time frame, TSMC has invested approximately six times as much. The Taiwanese firm’s sharply higher investment intensity and obsession with pushing the technological envelope are evident as it transitions through chip size nodes at crisp and regular intervals while staying multiple generations ahead of its largest PRC competitor and all others on the planet (Figure D).

Figure D – TSMC and SMIC Wafer Revenue by Node Size, nm



Decisive, crisp breaks as TSMC advances from node to node and maintains world-leading scale...

...While SMIC is 2-3 generations behind and advances more slowly

Note: Charts Not To Scale. TSMC’s revenues in 2021 were 10X larger Than SMIC’s

Sources: Company reports.⁴⁰³

Appendix 3: Semiconductor Takeover Prevention Analysis

The following potential options are ordered from preemptive to responsive and, among responsive options, from least to most escalatory.

Prospective Ways in Which a PRC Attempt to Control TSMC Could Fail

- 1. Taiwanese authorities could preempt PRC acquisition attempts.** Perhaps the most direct approach would be to grant Taiwan's government a "golden share" in TSMC that would have veto power over others attempting to acquire a controlling stake. Taiwan's Investment Commission, which, among its core responsibilities, screens and approves inbound investments, could publicly emphasize TSMC's importance as a national economic security asset.⁴⁰⁴ Such statements would strongly suggest to Beijing and its proxies that it would be difficult to leverage Taiwanese regulators. PRC interests would be sensitive to the political warnings embedded in such a message, given that national security concerns helped scuttle PRC firms' attempted purchases of Unocal (2005) and Rio Tinto (2008–09), among others.⁴⁰⁵ A gambit to acquire TSMC would represent uncharted territory because A) it is far more important to Taiwan's economy than either of those firms was to their respective domicile countries, B) Beijing does not recognize Taiwan as a sovereign entity, and C) the PLA could not deploy forces to the Gulf of Mexico or Western Australia to coerce a transaction in the way that it potentially could regarding Taiwan.
- 2. TSMC could move to harden itself against a potential hostile takeover.** TSMC could grant substantial blocks of share as part of an employee stock ownership plan and price the granted options so that they are "in the money" at the time of granting. Company employees already participate in a profit-sharing arrangement, so granting stock options or outright ownership would have a degree of precedent.⁴⁰⁶ The company could further include "change of control" clauses voiding the grants if TSMC came under constructive control of any entity for which China is the ultimate beneficiary.⁴⁰⁷
- 3. U.S. authorities could invalidate the coerced share purchases.** U.S.-domiciled entities hold 41% of the TSMC shares traded on the Taiwan Stock Exchange and 68% of the company's "Sponsored American Depository Shares" trading on the New York Stock Exchange.⁴⁰⁸ PRC institutional investors appear to directly hold few, if any, shares and would thus attract substantial attention if they began building material positions. TSMC representatives could seek a court order to freeze shares if transactions were predicated upon, or in collusion with, PRC military coercion against Taiwan. The Securities and Exchange Commission (SEC) could also bring enforcement actions based on fraud or market manipulation causes of action. Government action could be motivated not only by purely national interest concerns,

but also lobbying by investors who had purchased discounted TSMC shares to try to get ahead of U.S. intervention that could quickly reflate the company's value. Such activist investors would also soak up the potential pool of floating shares Beijing and its nominees might otherwise seek to purchase, thus complicating China's ability to affect a "market-based" acquisition of a controlling interest in TSMC.

4. **The United States could lead a global sanctions effort against China, including embargoes on the provision of critical software and raw material inputs to TSMC.**⁴⁰⁹ Such a campaign would likely include export controls and embargoes on the provision of critical software and raw material inputs to TSMC. TSMC Chairman Mark Liu told CNN in August 2022 that "Nobody can control TSMC by force. If you take a military force or invasion, you will render [the] TSMC factory not operable."⁴¹⁰ Liu's statement reflects the reality that TSMC requires a complex global supply fabric to function. The company takes chip designs (often made with British or American software) and etches them onto high-purity silicon wafers using extreme ultraviolet lithography machines from a single company in the Netherlands. It also obtains photoresists and specialty chemicals from a handful of largely Japanese suppliers.⁴¹¹ TSMC's singular importance as a semiconductor maker coexists with a supplier ecosystem whose key nodes are almost entirely located in the United States or countries allied with it. These states would presumably actively work to avoid economic, political, and military coercion by a Beijing-based silicon hegemon.
5. **TSMC's local workers could refuse to work for a Beijing-controlled entity, sabotage key fab equipment, or be exfiltrated from the island by allied forces in a 21st century version of Operation Paperclip.** Taiwanese executives would likely have great pause working for a PRC-controlled entity as they watch the rolling wave of high-profile businesspeople disappearing and being controlled at Beijing's whim. The cases of Alibaba founder Jack Ma and prominent investment banker Bao Fan, whose success and prominence became intolerable for the Party, are illustrative examples.⁴¹² Note also the sudden, still unexplained disappearance of Qin Gang around his 207th day as China's foreign minister, making him the shortest-serving such official in PRC history. Furthermore, the example of Hong Kong's suffocation renders Beijing's "one country, two systems" model, or any cross-strait variant that Xi might propose, utterly unpalatable across the entire political spectrum in Taiwan. Even under a nominally independent policy, a vital corporate actor like TSMC that becomes part of "China, Inc." would be carefully – and tightly – controlled from Beijing.⁴¹³ Even a small amount of quiet quitting or simple refusal to execute tasks with the precision-clockwork and extra-mile mindset that have made TSMC a world leader could devastate the firm's productive capacity.⁴¹⁴
6. **Finally, the United States could lead a military intervention to break a PRC blockade.** Consider the global reaction 34 years ago to Saddam Hussein's invasion of Kuwait

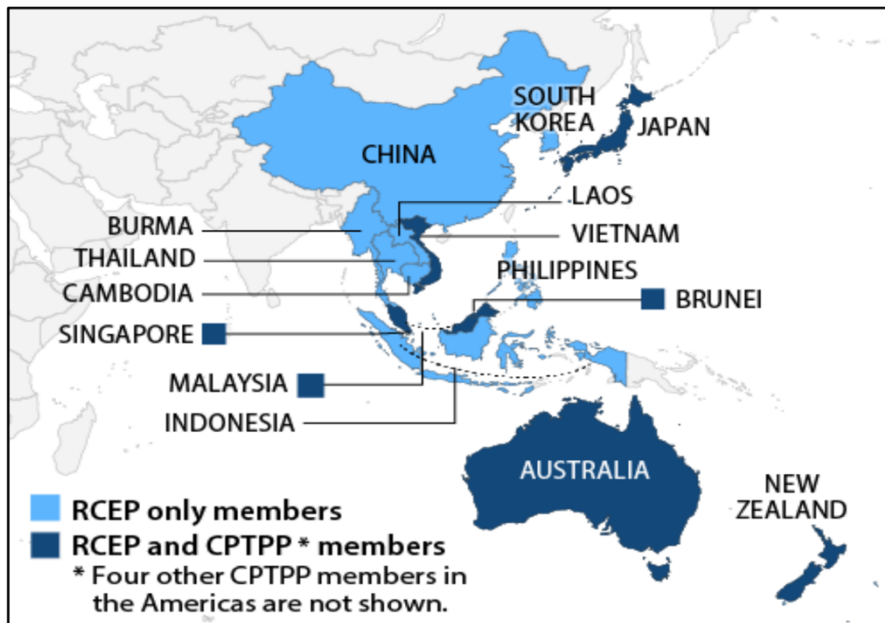
and his positioning of armored divisions in and around the world's most important oil production zone. The United States found Iraq's action intolerable and, following approximately six months of preparation and extensive diplomatic efforts to assemble a supporting coalition, forcibly ejected Saddam's forces from Kuwait. International reactions to a military-backed PRC hostile takeover of TSMC would almost certainly be extremely hostile. Yet whether they would translate into military action against China is far from clear. Unlike Iraq circa 1990–91, the PRC is a nuclear-armed power with a massive, highly capable military and systemic global supply chain importance. PRC leaders have also closely studied the Gulf War and presumably would not repeat Iraq's mistake of allowing a foreign military force postured for rollback to build for months along its borders. In addition, Beijing has almost certainly absorbed a key lesson from Russia's war against Ukraine: Potential third-party intervenors are exceedingly cautious and incremental in the face of nuclear threats, especially when the revisionist has not directly attacked their territory. This is yet another reason why U.S. decision-makers must urgently redouble their efforts to hold the line on deterrence in the first place.

Appendix 4: Trade Exclusion and De-Dollarization

Regional economies denominate substantial portions of their trade in U.S. dollars, with Japan settling about 50% of its exports in USD and other key regional players, including Indonesia and South Korea, settling 80%–90% of theirs in USD.⁴¹⁵ East and Southeast Asian entities are thus key locomotives of global dollar flows that exceed \$650 trillion annually.⁴¹⁶

China's initial geostrategic foray into promoting the yuan for trade settlement mainly focuses on natural resource imports from BRI countries, with the conversation about petro-yuan accelerating in the wake of Russia's assault on Ukraine.⁴¹⁷ But oil commerce values are small compared to Asian regional trade flows. Even if China were to convince its Gulf oil suppliers (totaling about 5 million barrels per day) to accept payment exclusively in yuan, and if oil cost an average of \$80/barrel, about \$150 billion per year of dollar-denominated commerce would be at risk. In contrast, if the PRC could force just one third of its annual trade flows with ASEAN to be denominated in yuan, the dollar displacement could be twice that of re-denominating all its Gulf oil imports.⁴¹⁸ Repricing broader ASEAN trade flows in a more China-centric, post-Taiwan annexation regional order would only amplify the impact.⁴¹⁹ And China's coercive leverage after annexing Taiwan would likely be significantly higher in the ASEAN region than in the much more physically distant Gulf region.

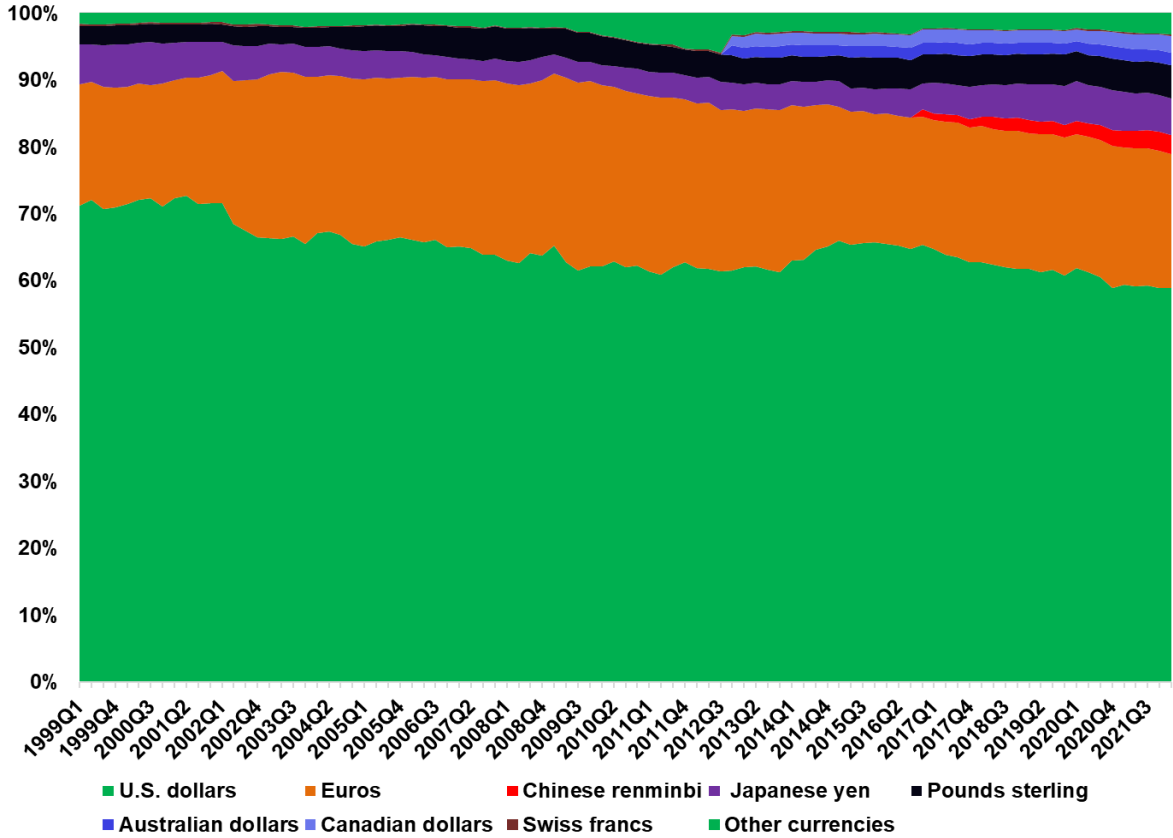
Figure E – RCEP Participant Countries



Source: Congressional Research Service (CRS).⁴²⁰

Internationalizing the yuan is already a stated PRC policy objective in Asia.⁴²¹ China signed the Regional Comprehensive Economic Partnership (RCEP) in 2020 with 14 regional countries: Australia, Brunei, Burma, Cambodia, Indonesia, Japan, Laos, Malaysia, New Zealand, the Philippines, Singapore, South Korea, Thailand, and Vietnam (Figure E).⁴²² RCEP is a broad-scope trade agreement and a “living agreement” under which the parties intend to negotiate additional provisions, for instance investor-state dispute settlement.⁴²³ Beijing clearly views the RCEP as an opportunity to accelerate renminbi (RMB) internationalization, with the People’s Bank of China noting in its 2021 RMB Internationalization Report that “The signing of the Regional Comprehensive Economic Partnership (RCEP) will further enhance the development of trade in the Asia-Pacific region and enlarge the room for the use of the RMB in trade and investment activities. The use of the RMB in commodity trade already had a good start and is expected to be a growth pillar for the cross-border use of the RMB. New trade modes such as the cross-border e-commerce will enrich the scenarios of the use of the RMB and promote the use in foreign trade.”⁴²⁴

Figure F – Global Reserve Currencies: 1999–2022, Percentage of Total Reserves Held Globally



Source: International Monetary Fund (IMF).

A rapid de-dollarization campaign in East/Southeast Asia, one of the world's three core economic regions, could be significantly disruptive across currencies, commodity asset classes, and for financial stability overall, not least to China itself. Moreover, the probability of Beijing pursuing accelerated de-dollarization in the wake of a successful coercive annexation of Taiwan may be greater than widely appreciated. Before 2022, real questions existed as to the willingness of even staunchly revisionist leaders in our modern era to risk massive economic consequences in attempting to acquire territory by force of arms. Putin reframed the risk lens overnight on Feb. 24, 2022, with his multivector combined arms assault on Ukraine.

Xi faces a different set of circumstances vis-à-vis Taiwan, but the geopolitical phase induced by Russia's invasion of Ukraine now suggests a need to recalibrate assessments of Xi's potential risk acceptance. Xi may have higher than expected willingness to accept major immediate economic pain in exchange for a territorial conquest that, if successful, could substantially accelerate China's desired end goal of becoming the hegemon of East and Southeast Asia – and the preeminent global power.⁴²⁵ If such a campaign succeeded and China had already suffered massive sanctions, trade disruptions, and financial market turmoil, the prospects of additional incremental pain to seek financial displacement of a weakened American currency with a more internationalized yuan might well seem a price worth paying for Beijing.

Appendix 5: PRC Missile Force and Nuclear Developments

Proximity to China imposes mounting insecurity, particularly to nations that suffer pressure from Beijing now and may suffer still worse in the future. China’s meteoric military buildup is rapidly adding extraordinary numbers of weapons and means to deliver them across all domains, posing already severe, and continually growing, security challenges for other nations, particularly its neighbors. This, in turn, prompts them to review, and potentially reconsider, how best to ensure their own security.

Perhaps of greatest concern for the United States and China’s neighbors alike, Beijing has the world’s largest arsenal of conventional ballistic and cruise missiles, controlled primarily by the PLARF. Figure G tabulates the tremendous number and variety of missile systems already deployed by the PLARF.

Figure G – PLARF Missile Systems Currently Fielded by China

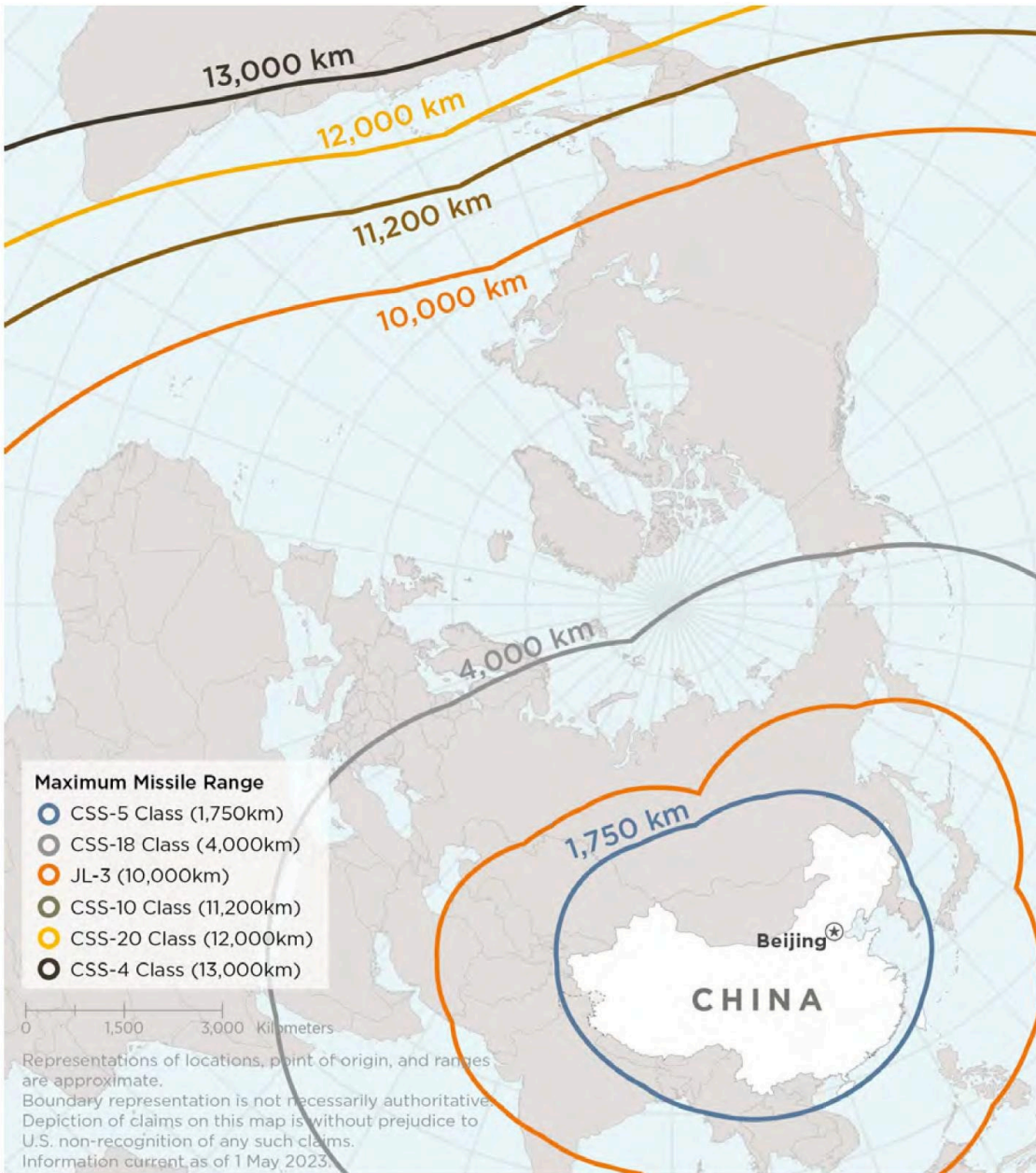
Type of System	Number of Launchers	Number of Missiles	Estimated Range (km)
Inter-Continental Ballistic Missiles (ICBM)	500	350	>5,500
Intermediate-Range Ballistic Missiles (IRBM)	250	500	3,000-5,500
Medium-Range Ballistic Missiles (MRBM)	300	1,000	1,000-3,000
Short-Range Ballistic Missiles (SRBM)	200	1,000	300-1,000
Ground-launched Cruise Missiles (GLCM)	150	300	>1,500

Source: China Military Power Report 2023.⁴²⁶

Nearly a dozen years in to Xi’s time in charge, China has a rapidly growing nuclear triad second only to Russia and the United States at over 500 operational nuclear warheads by May 2023, and “approximately 350 ICBMs in its arsenal, all of which can reach CONUS [the continental United States].”⁴²⁷ This trajectory offers a path to some form of overall China-Russia-U.S. parity with over 1,000 warheads projected by 2030 and 1,500 by 2035.⁴²⁸ Much of the more than 1,000 PRC nuclear warheads the Pentagon anticipates by 2030 “will be deployed at higher readiness levels,” and “most will be fielded on systems capable of ranging the CONUS.”⁴²⁹ Following its own repeated public underestimates, the Pentagon emphasizes, “These changes to the numbers, capability, and readiness of China’s nuclear forces in the coming years are likely to outpace

potential developments by the force of any competitor.”⁴³⁰ Figure H depicts the respective range rings of PRC nuclear ballistic missiles that are already operational.

Figure H – Nuclear Ballistic Missiles Fielded by China



Fielded Nuclear Ballistic Missiles

Source: China Military Power Report 2023.⁴³¹

Such a rapid upsurge was unforeseen even by the Defense Department: “Compared to the PLA’s nuclear modernization efforts a decade ago, current efforts dwarf previous attempts in both scale and complexity.”⁴³² This calls for analytical humility. Even the authors’ own assessments regarding “coercive annexation” may be understating the risk of a PRC attempt at outright seizure of Taiwan. In any case, “Over the next decade, the PRC probably will continue to pursue selective qualitative parity with an increasing scope of U.S. and Russian capabilities,” the Pentagon projects. “The PLA seeks a diverse nuclear force, comprised of systems ranging from low-yield precision strike missiles to ICBMs with multi-megaton yields.”⁴³³

As part of the low end of this all-level effort, China has reportedly developed “a lower-yield weapon ... for use against campaign and tactical targets that would reduce collateral damage.”⁴³⁴ Potential related applications include “controlled use of nuclear weapons, in the warzone, for warning and deterrence.” The Pentagon judges that China’s DF-26 intermediate-range ballistic missile (IRBM) “is the PRC’s first nuclear-capable missile system that can conduct precision strikes, and therefore, is the most likely weapon system to field a lower-yield warhead in the near term.”⁴³⁵

To operationalize this ambitious approach, China under Xi is engaged in a gargantuan campaign of nuclear weapons development and deployment across the board. In 2022, China likely completed construction of three new solid-propellant silo fields, with 300+ new silos that can accept either DF-31 or DF-41 ICBMs – at least some already loaded.⁴³⁶ For multimegaton warhead delivery, utilizing liquid fuel, China is fielding a new DF-5C silo-based ICBM.⁴³⁷ It is likely “developing an upgrade to” its existing DF-5 ICBMs with multiple independently targetable reentry vehicles (MIRVs). As part of these efforts, “The PRC is building more silos for DF-5 class ICBMs; increasing the number of brigades while simultaneously increasing the number of launchers per brigade.”⁴³⁸ Figures I–L plot and depict China’s new solid-propellant ICBM silo fields and the training sites associated with them.

Regarding solid-fueled road-mobile ICBMs, China “is establishing additional nuclear units and increasing the number of launchers in mobile ICBM units.”⁴³⁹ The DF-41 “has improved range and accuracy” and as many as “three warheads per missile.”⁴⁴⁰

Xi has instructed the PLA Navy to “accelerate its sea-based nuclear capability,” including through his “2018 directive for the SSBN force to achieve ‘stronger growth.’”⁴⁴¹ China already has a portion of its six operational Type 094 Jin-class SSBNs conducting “near-continuous at-sea deterrence patrols,” outfitted with a combination of JL-2 and JL-3 submarine-launched ballistic missiles (SLBMs). JL-3 SLBMs, which are now operationally deployed, can range the continental United States from PRC littoral bastions (e.g., in the South China Sea and potentially the Bohai Gulf).⁴⁴² China continues to build additional Type 094 SSBNs; and, in the “early 2020s,” will likely start

construction of an improved Type 096 SSBN “probably intended to field MIRVed SLBMs.”⁴⁴³ Figure M depicts the addition of submarine piers at China’s SSBN base on Hainan Island in the South China Sea.

Figure I – PRC Solid Propellant ICBM Silo Fields and Associated Training Site Locations

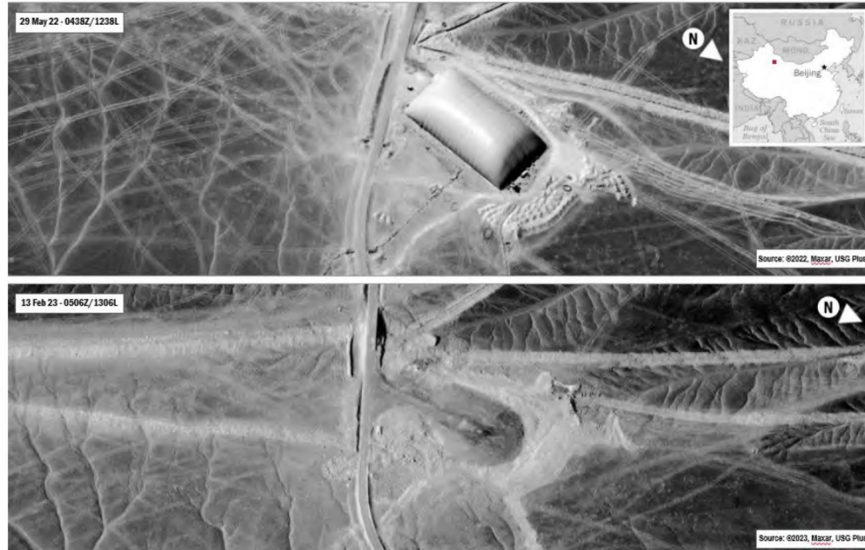


China: Solid Propellant ICBM Silo Fields and Associated Training Site Locations

Source: China Military Power Report 2023.⁴⁴⁴

China is finally initiating the third leg of its modern nuclear triad with the “operationally fielded” H-6N bomber. This long-range airframe has an “air-to-air refueling probe” and uses “recessed fuselage modifications” to carry a nuclear-capable air-launched ballistic missile (ALBM) externally.⁴⁴⁵ “The ALBM carried by the H-6N appears to be armed with a maneuvering reentry vehicle, indicating that the ALBM, along with the DF-26 IRBM, is likely capable of conducting nuclear precision strikes against targets in the Indo-Pacific theater.”⁴⁴⁶ Additionally, China is, in all likelihood, “developing a strategic stealth bomber.”⁴⁴⁷

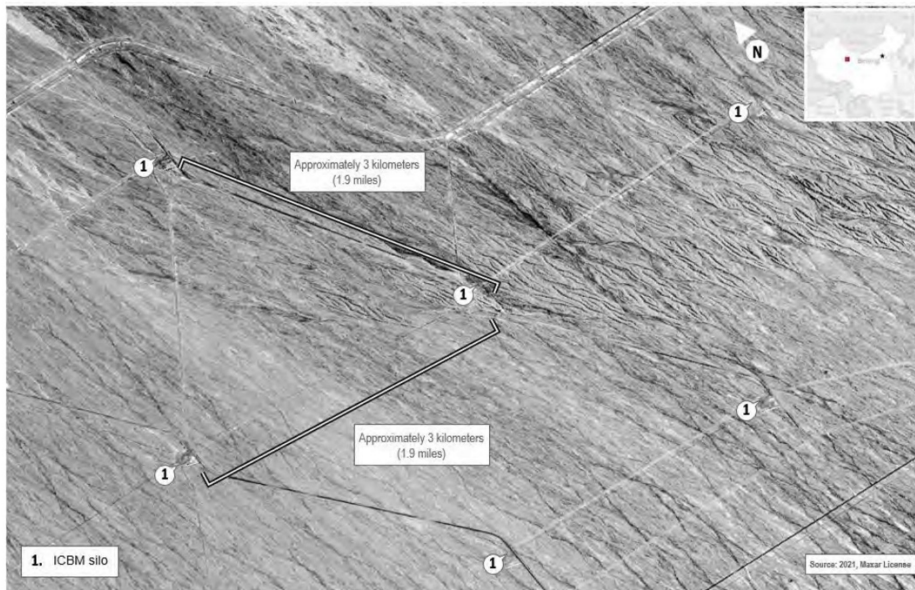
Figure J – ICBM Silo Externally Completed – Hami Silo Fields



China: ICBM Silo Externally Completed - Hami Silo Fields

Source: China Military Power Report 2023.⁴⁴⁸

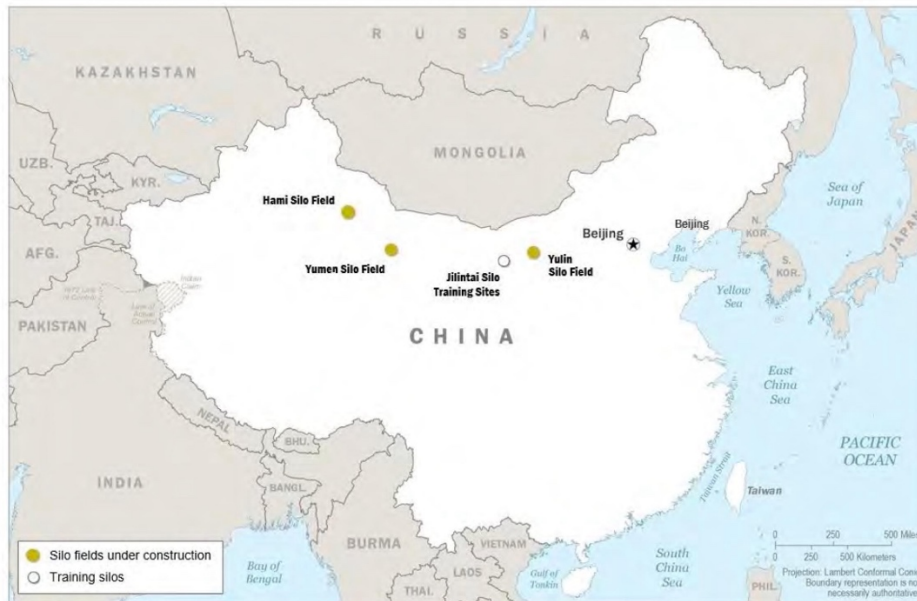
Figure K – Yumen Silo Field Launch Sites



China: Yumen Silo Field Launch Sites

Source: China Military Power Report 2023.⁴⁴⁹

Figure L – Example of Military Garrisons Constructed at Newly Built ICBM Silo Fields – Guanzhou ICBM Silo Field Missile Garrison



China: Solid Propellant ICBM Silo Fields and Associated Training Site Locations

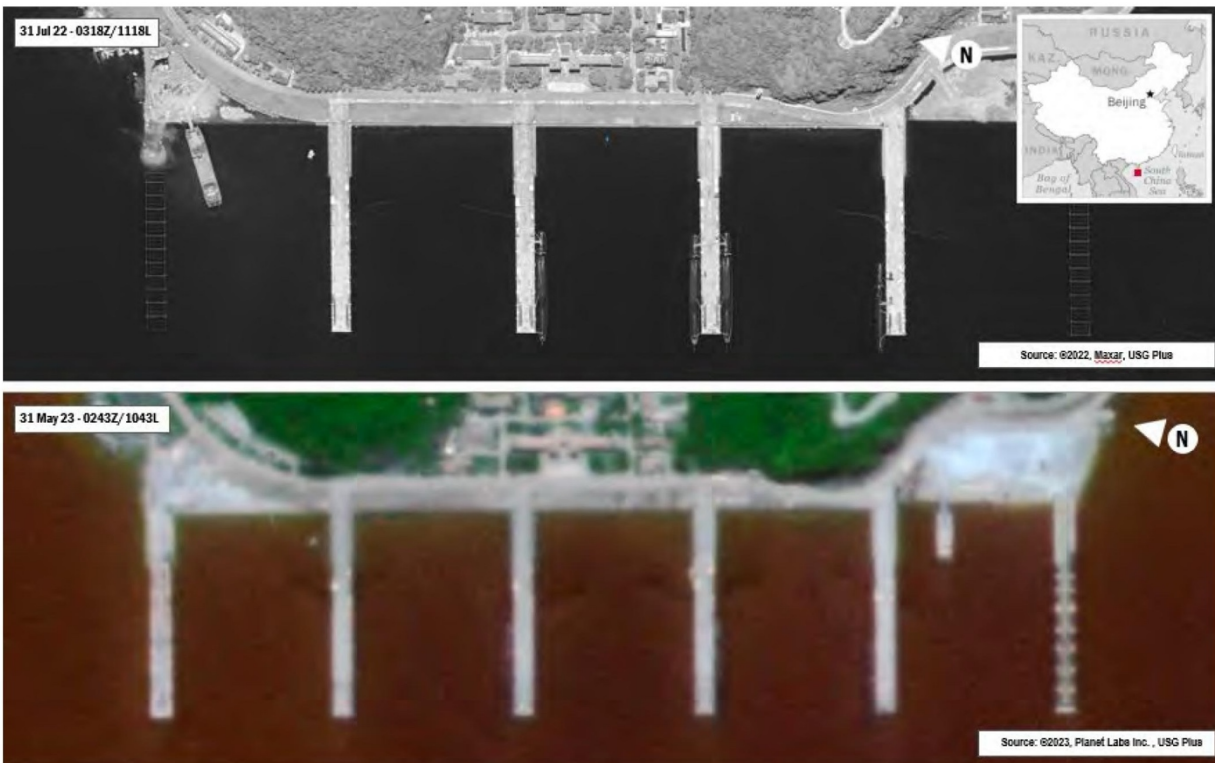
Source: China Military Power Report 2023.⁴⁵⁰

As part of an effort to extend advanced nuclear weapons delivery options and circumvent American missile defenses, China is also probably developing “a strategic hypersonic glide vehicle and FOB [fractional orbital bombardment] system.” On July 27, 2021, Beijing “conducted a 40,000-km hypersonic glide vehicle test” that “likely demonstrated the PRC’s technical ability to field a FOB system.”⁴⁵¹ Importantly, the Soviet Union abandoned efforts to develop FOBs in part because of their extremely escalatory nature, which might incentivize preemptive strike.⁴⁵²

China is underwriting its dramatic nuclear force expansion with commensurate research, development, production, and reprocessing facilities expansion – as well as potential unacknowledged and possible future testing. Russia is literally helping to fuel this effort, providing highly-enriched uranium (HEU) for China’s two CFR-600 “national defense investment project” fast breeder reactors on Changbiao Island in Xiapu County, Fujian province.⁴⁵³ The Pentagon judges that China’s dual CFR-600 reactors will “probably” generate weapons-grade plutonium for nuclear weapons, and that each can produce “enough plutonium for dozens of nuclear warheads annually.”⁴⁵⁴ Sino-Russian cooperation in this regard is highly significant and concerning: “By December 2022, Russia delivered the first three batches of HEU nuclear fuel assemblies, to China for the

first core loading and the first refueling of the CFR-600. In early 2023, think-tank reporting indicates the quantity of HEU transferred from Russia to China for its CFR-600 reactors is more than the entire amount of HEU removed worldwide under the U.S. and International Atomic Energy Agency (IAEA) auspices in the last three decades. In March 2023, the PRC and Russia signed an agreement that includes commitments for continued cooperation on fast reactor and reprocessing technology development, extending this relationship for ‘the decades ahead.’”⁴⁵⁵

Figure M – PLA Navy Constructs Additional Submarine Piers at Yalong Naval Base



China: PLA Navy Constructs Additional Submarine Piers – Yalong Naval Base

Source: China Military Power Report 2023.⁴⁵⁶

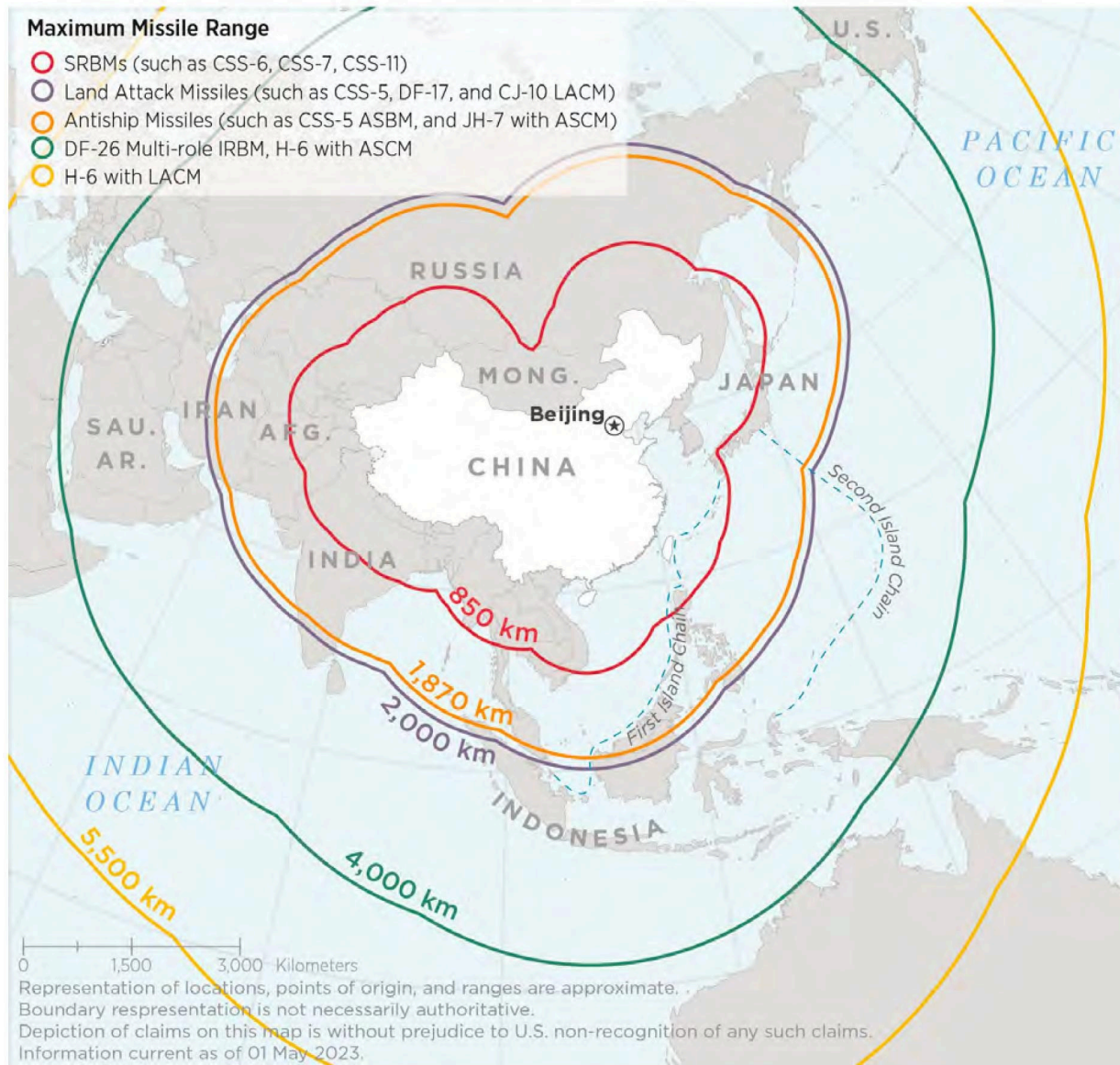
For weapons-grade plutonium extraction, China may utilize reprocessing Plant 404 at the Jiuquan nuclear complex in Gansu province (50 ton/year capacity); and/or, through their expected coming online by 2025, may also use the dual plants being built at China National Nuclear Corporation (CNNC)’s Gansu Nuclear Technology Park in Jinta, several tens of kilometers southeast of Plant 404.⁴⁵⁷ Additionally, China endeavors “to expand and diversify its capacity to produce tritium.”⁴⁵⁸ Moreover, China’s “possible preparation to operate its Lop Nur nuclear test site year-round and lack of transparency on its nuclear activities have raised concerns regarding its adherence to the U.S. ‘zero yield’ standard

adhered to by the United States, the United Kingdom, and France in their respective nuclear testing moratoria."⁴⁵⁹ Newly-drilled boreholes for vertical shafts and other developments involving supporting infrastructure in key areas of the Lop Nur complex offer fresh evidence of preparations that could support extensive nuclear testing, decades after the other major nuclear powers began refraining from doing so.⁴⁶⁰

Beijing is taking this ambitious approach despite declaring support for a Fissile Material Cutoff Treaty, which it is simultaneously undermining at the Conference on Disarmament as part of the typical PRC "say-do" gap concerning arms control that resists self-restriction while attempting to impose restrictions on others.⁴⁶¹ Beijing has also "refused international calls to apply" International Atomic Energy Agency (IAEA) "safeguards, under a Voluntary Offer Agreement on its civilian reactors," to the abovementioned reprocessing plants.⁴⁶²

Beijing's nuclear strategy, redlines, and limits remain highly uncertain: China is developing its forces rapidly while offering neither substantial transparency nor dialogue, to say nothing of confidence building measures, let alone binding arms control agreements of the sort that Washington and Moscow concluded successfully in later Cold War years. Beijing officially maintains a strict "no first use" (NFU) policy, but it seems unlikely that it could be relied upon in the event of foreign strikes that threatened PRC command and control (C2) nodes or major strategic effects, or in the event that the Party and its army faced failure in a Taiwan conflict.⁴⁶³ Risks of confusion, misperception, and escalation are all heightened by PRC comingling of nuclear and conventional missiles, or the "dispersal of mobile missile systems to hide sites" whereby it may be unclear which type of system is where at a given time.⁴⁶⁴ As part of this risk-raising approach, China "may be exploring development of conventionally-armed intercontinental range missile systems. ... such capabilities would allow the PRC to threaten conventional strikes against targets in the continental United States, Hawaii, and Alaska. Conventionally armed ICBMs would present significant risks to strategic stability."⁴⁶⁵ Figure N depicts the respective range rings of PRC conventional strike systems (missiles, some aircraft-delivered, thereby extending their range) that are already operational.

Figure N – Conventional Strike Weapons Systems Fielded by China



Fielded Conventional Strike

Source: China Military Power Report 2023.⁴⁶⁶

Beijing has nevertheless “refused to join the Hague Code of Conduct or participate in other confidence-building measures designed to reduce the risk of accidental nuclear war.”⁴⁶⁷ And, continuing an established pattern, in 2022 “the PRC rejected requests by the United States to discuss strategic stability or strategic risk reduction, and other aspects of the PRC’s rapid nuclear buildup.”⁴⁶⁸

Heightened readiness enables China to operationalize its swiftly shifting nuclear posture from “minimum deterrence” in rhetoric to upper bands of “limited deterrence” in practice but heightens risk.⁴⁶⁹ Whereas most if not all PRC nuclear forces were previously maintained in “peacetime status with separated launchers, missiles, and warheads,” the PLARF now maintains an increasing portion of its forces on “combat readiness duty” and “high alert duty” – “which includes assigning a missile battalion to be ready to rapidly launch.”⁴⁷⁰ Furthermore, at least part of PLARF nuclear forces, including the new silo-based ICBMs entering the PLARF, “will probably be operating under China’s developing ‘Early Warning Counterstrike’ (预警反击) posture (the PLA term for Launch On Warning, or LOW), enabling a rapid responsive nuclear strike” “before an enemy first strike can detonate.”⁴⁷¹ To enable a LOW posture, China has developed ground- and space-based sensors, and trained accordingly. “As of 2022, the PRC likely has at least three early warning satellites in orbit,” the Defense Department asserts.⁴⁷² In yet another area of growing Russo-Chinese cooperation, Putin declared in 2019 “that Russia is aiding the PRC in developing a ballistic missile early warning system.”⁴⁷³

Author Affiliations

Gabriel Collins is the Baker Botts Fellow in Energy & Environmental Regulatory Affairs at the Baker Institute Center for Energy Studies and co-heads the center's Energy and Geopolitics in Eurasia Program.

Andrew S. Erickson is a professor of strategy in the U.S. Naval War College's China Maritime Studies Institute and a visiting scholar in Harvard University's Government Department.

The views expressed here, based solely on open sources, are those of the authors alone and do not represent those of any institution with which they are, or have been, affiliated. The authors thank numerous anonymous experts for invaluable inputs.

Notes

¹ For the first known assessment that China under Xi might be entering a perceived window of opportunity to recover "lost territories" (foremost Taiwan) with military force if necessary — perspicaciously published precisely 10 years before what is now the completion date for Xi's 2027 Centennial Military Building Goal — see Captain Jim Fanell, U.S. Navy (Ret.), "Now Hear This—The Clock is Ticking in China: The Decade of Concern Has Begun," U.S. Naval Institute *Proceedings* 143, no. 10 (October 2017), <https://www.usni.org/magazines/proceedings/2017/october/now-hear-clock-ticking-china-decade-concern-has-begun>. For subsequent analysis discerning a peaking of Xi and the PRC's military and national power applicable to attempting control of Taiwan and other strategic priorities, see Andrew S. Erickson and Gabriel B. Collins, "A Dangerous Decade of Chinese Power Is Here," *Foreign Policy*, October 18, 2021, foreignpolicy.com/2021/10/18/china-danger-military-missile-taiwan/; Collins and Erickson, "U.S.-China Competition Enters the Decade of Maximum Danger: Policy Ideas to Avoid Losing the 2020s" (Houston: Rice University's Baker Institute for Public Policy, December 20, 2021), <https://doi.org/10.25613/T3FG-YV16>. For related policy recommendations, see Brent D. Sadler, *U.S. Naval Power in the 21st Century: A New Strategy for Facing the Chinese and Russian Threat* (Annapolis: Naval Institute Press, 2023). For more information on perceived windows of vulnerability and opportunity and how they have helped motivate paths to conflict for irredentist great powers — notably Nazi Germany from 1933–45 and Imperial Japan in 1940–41 — see Stephen Van Evera, *Causes of War: Power and the Roots of Conflict* (Ithaca: Cornell University Press, 1999), 73–4. For a work that applies both such historical cases and the previously mentioned dynamics to assessing the potential for a peaking Xi and PRC to attempt to attack Taiwan, see Michael Beckley and Hal Brands, *Danger Zone: The Coming Conflict with China* (New York: W. W. Norton & Company, 2022).

² For a concise encapsulation of the global stakes, see Erickson, Collins, and Matthew Pottinger, “The Taiwan Catastrophe: What America—and the World—Would Lose If China Took the Island,” *Foreign Affairs*, February 16, 2024, <https://www.foreignaffairs.com/united-states/taiwan-catastrophe>; and Collins, Erickson, and Pottinger, “Taiwan: The Stakes,” in *The Boiling Moat: Urgent Steps to Defend Taiwan*, edited by Pottinger (Palo Alto: Hoover Institution Press, 2024), 23–42.

³ Both the West Berlin/West Germany and Cold War analogies are highly imperfect. Taiwan’s history as a free, democratic polity remains ongoing. But amid uncertainty, the alternative path is as clear for Taiwan as it was 75 years ago during the Berlin Blockade and Berlin Airlift — a lack of resolve and insufficient preparation and action by the democratic world would abandon a beacon of freedom and hope to the dark suffocation of autocracy and repression. In the case of Taiwan, the impact of successful PRC subjugation of the island would be rapid and global. It could also trigger shocks on par with the economic impacts of World War II — or worse — in key respects.

⁴ For background, see Andrew Scobell, *Show of Force: The PLA and the 1995–1996 Taiwan Strait Crisis* (Nottingham: Asia Research Institute, University of Nottingham, January 1999), <https://www.theasiadialogue.com/wp-content/uploads/2017/12/Scobell.pdf>.

⁵ This report leverages a broad range of open-source data from industry associations, corporate financial reporting, trade publications, geospatial repositories, nuclear weapons and materials stockpile monitoring, U.S. and international media, government reports (including from historical archives), historical accounts of economic warfare between great powers, and tech industry hardware analyses. The authors also held in-depth discussions with manifold subject matter experts focused on technology, military issues, and financial transactions. The authors draw upon their combined four-plus decades of professional experience assessing China’s economic and military development, Eurasian strategic issues, global energy and commodity markets, and the corpus of dozens of publications yielded from that work on behalf of the U.S. government, as well as diverse academic institutions and private sector entities.

⁶ Importantly, the Senkakus are clearly covered under article 5 of the U.S.-Japan Security Treaty, but this subject is beyond the scope of the present study. Mark E. Manyin, *The Senkakus (Diaoyu/Diaoyutai) Dispute: US Treaty Obligations*, CRS Report Prepared for Members and Committees of Congress (Washington, DC: Congressional Research Service, March 1, 2024), <https://crsreports.congress.gov/product/pdf/R/R42761/>.

⁷ Franklin D. Roosevelt, “Stab in the Back” (speech), June 10, 1940, Miller Center, University of Virginia, <https://millercenter.org/the-presidency/presidential-speeches/june-10-1940-stab-back-speech>.

⁸ PRC bombardment would risk hardening Taiwan’s will to resist and would also likely simplify the U.S. decision to intervene. Outright invasion would clarify the situation even further for Washington, Tokyo, Canberra, and other relevant regional capitals. Any scenario involving external military intervention on Taiwan’s behalf would 1) stack the

risk/reward ratio against Beijing by raising the risk that its invasion fails, and 2) substantially increase the risk of a prolonged war between industrial powers that would unleash global economic devastation. See, e.g., David C. Gompert, Astrid Stuth Cevallos, and Cristina L. Garafola, *War With China: Thinking Through the Unthinkable* (Santa Monica: RAND Corporation, 2016), https://www.rand.org/pubs/research_reports/RR1140.html. It would be far better for all concerned, however, if Washington and Taipei deterred any use of force in the first place through concerted preparations. See Appendix 1 for details.

⁹ For commonly accepted definitions, see *Merriam-Webster's Collegiate Dictionary*, s.v. "coerce," accessed July 2024, <https://www.merriam-webster.com/dictionary/coerce>; and *Merriam-Webster's Collegiate Dictionary*, s.v. "annex," accessed July 2024, <https://www.merriam-webster.com/dictionary/annex>.

¹⁰ A Council on Foreign Relations report offers related analysis of the issues at stake and how much they matter to America, its allies, and the international system: "If China were to annex Taiwan against the will of the Taiwanese people, it would undermine the most basic tenet of international order: that territory is not to be acquired through force. If China were to station its military on the island, it would gain power projection capabilities that would make it significantly more difficult for the United States to defend its allies. Should the United States fail to counter Chinese military aggression against Taiwan, its allies in the region would come to have grave doubts as to whether they could rely on the United States for their security and would then choose to either accommodate China or pursue strategic autonomy, which could include developing nuclear weapons. Given Taiwan's dominance in semiconductor production, a conflict in the Taiwan Strait would shave trillions of dollars off global economic output. Finally, if China were to take control of Taiwan, it would extinguish a liberal democracy" (Susan M. Gordon, Michael G. Mullen, and David Sacks, *U.S.-Taiwan Relations in a New Era: Responding to a More Assertive China*, Independent Task Force Report No. 81 [New York: Council on Foreign Relations, 2023], vii, https://live-tfr-cdn.cfr.org/sites/default/files/2023-06/TFR81_U.S.-TaiwanRelationsNewEra_SinglePages_2023-06-05_Online.pdf).

¹¹ Cited in a pathbreaking report by U.S. Senator Dan Sullivan, who has given numerous presentations cogently explaining Taiwan's importance to America ("A Test of Will: Why Taiwan Matters," Global Taiwan Institute, 2024, 16, https://globaltaiwan.org/wp-content/uploads/2024/01/Taiwan-Booklet_04042312.pdf).

¹² The unclassified U.S. Indo-Pacific Command slide assesses that "China would gain: A major 'China rejuvenation' victory, Extraordinary new legitimacy for Xi & CCP, Ideological win over democracy, freedom, the West [;] Assimilation of a major economy [;] Confidence in pursuing other territorial claims [;] New strategic advantages for projecting military power [;] Domination near global sea lanes and chokepoints [;] Control over Taiwan's critical technology (e.g., largest global semi-conductor manufacturer) [;] Access to, and exploitation of, major U.S. weapon systems currently in Taiwan [;] Greater international deference to China's comprehensive national power &

influence [; and] Momentum for new forms for assertiveness.” It judges that “America would lose: Credibility regarding U.S. commitments to a Free & Open Indo-Pacific [;] A Chinese-speaking democracy in Asia [;] Access to a U.S. ‘top ten’ trade partner [;] Allied & partner confidence in U.S. security commitments and willingness to protect friends [;] Credibility of U.S. military in eyes of adversaries (weakened deterrence) [;] Ability to forestall further erosion of international norms, rules-based order [;] Critical intelligence collection opportunities vs China [;] International influence and standing. Enhanced perception of U.S. decline” (Sullivan, “A Test of Will,” 16).

¹³ “India Poised to Become World’s Most Populous Nation,” *UN News*, April 24, 2023, <https://news.un.org/en/story/2023/04/1135967>; Rajiv Biswas, “India Seizes Crown of Fastest Growing G20 Economy,” *S&P Global*, December 8, 2023, <https://www.spglobal.com/marketintelligence/en/mi/research-analysis/india-seizes-crown-of-fastest-growing-g20-economy-Dec23.html>.

¹⁴ China Military Power Report (CMPR) 2022, *Military and Security Developments Involving the People’s Republic of China*, Annual Report to Congress (Washington, DC: U.S. Department of Defense, November 29, 2022), <https://media.defense.gov/2022/Nov/29/2003122279/-1/-1/1/2022-MILITARY-AND-SECURITY-DEVELOPMENTS-INVOLVING-THE-PEOPLES-REPUBLIC-OF-CHINA.PDF>. See also CMPR 2023, *Military and Security Developments Involving the People’s Republic of China 2023*, Annual Report to Congress (Washington, DC: U.S. Department of Defense, October 19, 2023), <https://media.defense.gov/2023/Oct/19/2003323409/-1/-1/1/2023-MILITARY-AND-SECURITY-DEVELOPMENTS-INVOLVING-THE-PEOPLES-REPUBLIC-OF-CHINA.PDF>.

¹⁵ For China’s numerous world maritime superlatives, see Erickson, “Foreword,” in Manfred Meyer, *Modern Chinese Maritime Forces*, Second Edition (Admiralty Trilogy Group, April 1, 2024), 3.

¹⁶ CMPR 2023, 47, 62; Unshin Lee Harpley, “INDOPACOM Boss: China ‘Soon to Be World’s Largest Air Force’,” *Air & Space Forces Magazine*, March 28, 2024, <https://www.airandspaceforces.com/indopacom-boss-china-soon-world-largest-air-force/>; and U.S. Congress, Senate, Committee on Armed Services, “Open/Closed: To Receive Testimony on the Posture of United States Indo-Pacific Command and United States Forces Korea in Review of the Defense Authorization Request for Fiscal Year 2025 and the Future Years Defense Program,” 118th Cong., 2nd sess., March 21, 2024, <https://www.armed-services.senate.gov/hearings/to-receive-testimony-on-the-posture-of-united-states-indo-pacific-command-and-united-states-forces-korea-in-review-of-the-defense-authorization-request-for-fiscal-year-2025-and-the-future-years-defense-program>.

¹⁷ CMPR 2023, 166.

¹⁸ Chris Buckley, “Fear and Ambition Propel Xi’s Nuclear Acceleration: China Expands Nuclear Arsenal Under Xi, Bracing for Growing Rivalry With U.S.,” *New York Times*,

February 4, 2024, <https://www.nytimes.com/2024/02/04/world/asia/china-nuclear-missiles.html>.

¹⁹ CMPR 2023, 180.

²⁰ CMPR 2023, 181.

²¹ CMPR 2023, viii, 64.

²² CMPR 2023, 99–100.

²³ General Stephen Whiting, “Infinity and Beyond: Space and National Security,” panel at Aspen Security Forum, Aspen, CO, July 17, 2024, 37:00 to 37:19, https://www.youtube.com/watch?v=xqwtvg-_l98.

²⁴ Ronald O’Rourke, *China Naval Modernization: Implications for U.S. Navy Capabilities—Background and Issues for Congress*, CRS Report Prepared for Members and Committees of Congress (Washington, DC: Congressional Research Service, January 30, 2024), 6, <https://crsreports.congress.gov/product/pdf/RL/RL33153>.

²⁵ Erickson, “A Guide to China’s Unprecedented Naval Shipbuilding Drive,” *The Maritime Executive*, February 11, 2021, <https://www.maritime-executive.com/editorials/a-guide-to-china-s-unprecedented-naval-shipbuilding-drive>.

²⁶ CMPR 2023, 55–6.

²⁷ CMPR 2023, 147.

²⁸ Of note, the military component of this crisis began when China initiated military exercises and live-fire drills in late July 1995, following Taiwan President Lee Teng-Hui’s “private visit” to the United States in June. China has subsequently launched military activities following several Taiwanese presidential transits, including Tsai’s July 2019 transit. For details, see Bonny Lin et al., “Putting Taiwan President Tsai Ing-wen’s 2023 U.S. Transit in Context,” *ChinaPower Project*, Center for Strategic and International Studies (CSIS), March 27, 2023, updated January 31, 2024, <https://chinapower.csis.org/taiwan-president-tsai-ing-wen-transit-united-states/>.

²⁹ Lin et al., “Tracking the Fourth Taiwan Strait Crisis,” *ChinaPower Project*, CSIS, August 5, 2022, updated November 8, 2023, <https://chinapower.csis.org/tracking-the-fourth-taiwan-strait-crisis/>; Lin and Joel Wuthnow, “Pushing Back Against China’s New Normal in the Taiwan Strait,” *War on the Rocks*, August 16, 2022, <https://warontherocks.com/2022/08/pushing-back-against-chinas-new-normal-in-the-taiwan-strait/>.

³⁰ Lin et al., “Tracking the Fourth Taiwan Strait Crisis.”

³¹ CMPR 2023, 140.

³² CMPR 2023, 41, 140.

³³ “Extraordinary Press Conference by Foreign Minister Hayashi Yoshimasa,” Ministry of Foreign Affairs of Japan, August 4, 2022, https://www.mofa.go.jp/press/kaiken/kaiken24e_000149.html.

³⁴ “Part I: Taiwan’s ‘Satellite’ Island,” *Radio Free Asia*, <https://www.rfa.org/english/news/special/yonaguni-island/p1-taiwan-satellite-island.html>.

³⁵ CMPR 2023, 140.

³⁶ Lin et al., “Tracking the Fourth Taiwan Strait Crisis.”

³⁷ Ann Koh et al., “Ships Delay Sailing to Taiwan Port to Avoid China Drill Zone,” *Bloomberg*, August 5, 2022, <https://www.bloomberg.com/news/articles/2022-08-05/ships-delay-sailing-to-key-taiwan-port-to-avoid-china-drill-zone>.

³⁸ *ROC National Defense Report 2023* (Taipei: Ministry of National Defense, September 2023), 66–7, <https://www.ustaiwandefense.com/tdnswp/wp-content/uploads/2023/09/Taiwan-National-Defense-Report-2023.pdf>.

³⁹ Lin et al., “Tracking the Fourth Taiwan Strait Crisis.”

⁴⁰ Lin et al., “Tracking the Fourth Taiwan Strait Crisis.”

⁴¹ Lin et al., “Putting Taiwan President Tsai Ing-wen’s 2023 U.S. Transit in Context.”

⁴² Ying Yu Lin, “Sword out of Sheath? Assessing the Strategic Implications of the PLA’s April Exercises Around Taiwan,” *Jamestown China Brief* 23, no. 8 (May 5, 2023), <https://jamestown.org/program/sword-out-of-sheath-assessing-the-strategic-implications-of-the-plas-april-exercises-around-taiwan/>.

⁴³ Lin et al., “Tracking China’s April 2023 Military Exercises Around Taiwan.”

⁴⁴ Liu Xuanzun and Guo Yuandan, “Shandong Aircraft Carrier Group Hosts J-15 Fighter Sorties on Final Day of PLA Drills Encircling Taiwan Island, Forming Blockade,” *Global Times* (syndicated by *People’s Daily*), April 11, 2023, <http://en.people.cn/n3/2023/0411/c90000-20003824.html>; “China to Inspect Ships in Taiwan Strait, Taiwan Says Won’t Cooperate,” *Reuters*, April 5, 2023, <https://www.reuters.com/world/asia-pacific/china-inspect-ships-taiwan-strait-taiwan-says-wont-cooperate-2023-04-06/>; and “Taiwan ADIZ Violations” (compiled from Taiwan Ministry of Defense disclosures), <https://docs.google.com/spreadsheets/d/1qbfYF0VgDBJoFZN5elpZwNTiKZ4nvCUcs5a7oYwm52g/edit#gid=1336574245>.

⁴⁵ Lin et al., “Tracking China’s April 2023 Military Exercises Around Taiwan.” A related analysis explains, “The operation is significant in multiple respects. First, although there is no evidence that the operation actually stopped any vessels, it laid out an example of what China could do if it wanted to escalate. The intended ‘targets’ of this operation encompassed several commercial shipping routes, including the Pingtan-Taiwan direct container route, the ‘mini three links’ (小三通), and areas with heavy commercial and

fishing vessel traffic. This, coupled with changes in Chinese maritime safety regulations, allows China to set conditions for an escalatory stance in the Taiwan Strait and around Taiwan. It also reflects another effort to assert Beijing's claims (which contradict international law) that China has 'sovereign rights and jurisdiction' over the 'internal waters' of the Taiwan Strait. Finally, the operation demonstrated China's civilian mobilization capabilities and its capacity for operational coordination of civilian maritime actors in support of a joint operation" (Lin et al., "Analyzing China's Escalation After Taiwan President Tsai Ing-wen's 2023 U.S. Transit," *ChinaPower Project*, CSIS, April 26, 2023, updated January 23, 2024, <https://chinapower.csis.org/analyzing-chinas-response-to-taiwan-president-tsai-ing-wen-transit/>).

⁴⁶ CMPR 2023, 141.

⁴⁷ Lin et al., "Tracking China's April 2023 Military Exercises Around Taiwan," *ChinaPower Project*, Center for Strategic & International Studies, April 10, 2023, updated November 8, 2023, <https://chinapower.csis.org/tracking-chinas-april-2023-military-exercises-around-taiwan/>.

⁴⁸ Office of the Historian, "Memorandum of Conversation, by the Ambassador at Large (Jessup)," Subject: Korean Situation Foreign Relations of the United States, 1950, Korea, Volume VII (Washington, DC: US Department of State, June 25, 1950); Collins, Erickson, and Pottinger, "Taiwan: The Stakes."

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⁵⁰ Bernard D. Cole, *The Great Wall at Sea: China's Navy in the Twenty-First Century*, Second Edition (Annapolis: Naval Institute Press, 2010), 274, note 18.

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⁵² Emphasis added. "Gen. Douglas MacArthur's 'Old Soldiers Never Die' Address to Congress, 19 April 1951," Library of Congress, 3–5, <https://www.loc.gov/resource/mcc.034/?sp=4&st=image>.

⁵³ Dwight D. Eisenhower, *The White House Years: Mandate for Change, 1953–56* (Garden City: Doubleday & Company, Inc., 1963), 459.

⁵⁴ "To Walter Bedell Smith, Teletype. Top Secret; 1047, EM, AWF, Dulles-Herter Series, September 3, 1954," in *The Papers of Dwight David Eisenhower – The Presidency: The*

Middle Way, XV, eds. Louis Galambos and Duan Van EE (Baltimore: Johns Hopkins University Press, 1996), 1278–79.

⁵⁵ “To Walter Bedell Smith,” 1281–82.

⁵⁶ Eisenhower, *The White House Years: Mandate for Change*, 472.

⁵⁷ Eisenhower, “Appendix N: Text of Joint Resolution on Defense of Formosa,” in *The White House Years: Mandate for Change*, 608.

⁵⁸ Eisenhower, *The White House Years: Mandate for Change*, 168.

⁵⁹ Eisenhower, “Appendix O: Excerpts from a Letter to Winston Churchill, January 25, 1955,” in *The White House Years: Mandate for Change*, 609–10.

⁶⁰ Eisenhower, *The White House Years: Mandate for Change*, 473.

⁶¹ Eisenhower, *The White House Years: Mandate for Change*, 475.

⁶² Eisenhower, *The White House Years: Mandate for Change*, 483.

⁶³ Eisenhower, *The White House Years: Waging Peace, 1956–1961* (Garden City: Doubleday & Company, Inc., 1965), 293.

⁶⁴ Eisenhower, *The White House Years: Waging Peace*, 294.

⁶⁵ Eisenhower, *The White House Years: Waging Peace*, 294.

⁶⁶ Eisenhower, “Appendix P,” in *The White House Years: Waging Peace*, 694.

⁶⁷ See, e.g., “To Harold Macmillan, Cable. Secret; 844, EM, AWF, International Series: Macmillan, September 6, 1958,” in *The Papers of Dwight David Eisenhower – The Presidency: Keeping the Peace*, XIX, eds. Galambos and Van EE, (Baltimore: Johns Hopkins University Press, 2001), 1092–94.

⁶⁸ “To Theodore Francis Green; 878, EM, WHCF, Official File 168-B-1, October 2, 1958,” in *The Papers of Dwight David Eisenhower – The Presidency: Keeping the Peace*, XIX, eds. Galambos and Van EE, (Baltimore: Johns Hopkins University Press, 2001), 1131.

⁶⁹ Eisenhower, *The White House Years: Waging Peace*, 294.

⁷⁰ Eisenhower, *The White House Years: Waging Peace*, 295.

⁷¹ “Dwight D. Eisenhower in Taiwan, 1960,” *Stars and Stripes*, June 12, 2022, https://www.stripes.com/history/archive_photo_of_the_day/2022-06-12/eisenhower-taiwan-visit-1960-6318782.html.

⁷² Eisenhower, *The White House Years: Waging Peace*, 564.

⁷³ As an example of how concerning some of these potential linkages could be, and the chaos and harm they might facilitate, consider alleged links between PRC officials and a multibillion-dollar narcotics money laundering enterprise (Sebastian Rotella and Kirsten Berg, “How a Chinese American Gangster Transformed Money Laundering for Drug Cartels,” *ProPublica*, October 11, 2022, <https://www.propublica.org/article/china-cartels-xizhi-li-money-laundering>; Vanda Felbab-Brown, “China and Synthetic Drugs

Control: Fentanyl, Methamphetamines, and Precursors,” Brookings Institution, March 2022, <https://www.brookings.edu/research/china-and-synthetic-drugs-control-fentanyl-methamphetamines-and-precursors/>). The CCP has a track record of using triads to advance its policy objectives, particularly in Hong Kong as well as in Taiwan. Support from triads includes money laundering and local muscle (Ian Easton, *The Chinese Invasion Threat: Taiwan’s Defense and American Strategy in Asia* [Arlington: Project 2049 Institute, 2017], 82–3; J. Michael Cole, “Taiwan Confirms China’s ‘Black Hand’ Behind Anti-Reform Protests,” *Taiwan Democracy Brief*, July 18, 2017, <https://bulletin.tfd.org.tw/tdb-vol-1-no-10-china-black-hand-protests/>; J. Michael Cole, “Illiberal Forces Push Back in Taiwan,” *Taiwan Democracy Brief*, October 3, 2017, <https://bulletin.tfd.org.tw/tdb-vol-1-no-14-illiberal-forces-push-back-in-taiwan/>; Rotella, “Outlaw Alliance: How China and Chinese Mafias Overseas Protect Each Other’s Interests,” *ProPublica*, July 12, 2023, <https://www.propublica.org/article/how-beijing-chinese-mafia-europe-protect-interests>).

⁷⁴ Dan Altman’s comprehensive academic investigation documents that between 1918 and 2016, states unilaterally deployed forces to seize territory 112 times. Yet during that same period, only 13 land cessions occurred based on coercion alone and all but three of those instances transpired between 1935 and 1940 as the world careened toward World War II. Perhaps the most (in)famous example comes from Nazi Germany’s coerced annexation of Czechoslovakia’s Sudetenland in 1938 — an act facilitated by the looming presence of the Wehrmacht and Adolf Hitler’s obvious search for a *casus belli* (“By Fait Accompli, Not Coercion: How States Wrest Territory from Their Adversaries,” *International Studies Quarterly* 61, no. 4 [December 2017]: 881–91, <https://doi.org/10.1093/isq/sqx049>).

⁷⁵ For a hierarchy of CCP-preferred approaches applied directly to Taiwan, see the following article by a prominent diplomat who served as director of the Taiwan Affairs Office of the State Council (2018–22) after serving as China’s permanent representative to the UN (2013–17). 刘结一 [Liu Jieyi], “坚持贯彻新时代党解决台湾问题的总体方略” [Adhere to the Party’s Overall Strategy for Resolving the Taiwan Issue in the New Era], 求是 [Seeking Truth], 2023, via CSIS translate. See also Mark Stokes and Russell Hsiao, *The People’s Liberation Army General Political Department: Political Warfare with Chinese Characteristics* (Arlington: Project 2049 Institute, October 14, 2013), <https://project2049.net/2013/10/14/the-peoples-liberation-army-general-political-department-political-warfare-with-chinese-characteristics/>.

⁷⁶ U.S. Office of the Director of National Intelligence, *Annual Threat Assessment of the U.S. Intelligence Community*, February 5, 2024, 8, <https://www.dni.gov/files/ODNI/documents/assessments/ATA-2024-Unclassified-Report.pdf>.

⁷⁷ Key questions that may arise for policymakers in both the United States and Taiwan include: Would Washington really risk kinetic conflict with a nuclear-armed China over “Coast Guard safety” or customs inspections, particularly if Western customers could still trade unimpeded so long as they submitted to Beijing’s customs checks? Would

even a well-armed and fully “porcupine Taiwan” with numerous anti-ship and surface-to-air missiles actually fire on PLA ships or aircraft that are operating astride shipping lanes 20 miles offshore to steer merchantmen for customs clearance in Xiamen or Hong Kong before sailing for Kaohsiung and Taipei? Lest the questions appear one-sided, PRC decision-makers would be asking the inverse of the same questions as they assess their options. That, in turn, creates dynamic opportunities for the United States and its partners to send signals to deter and dissuade PRC revisionist actions – in part through relevant military preparations.

⁷⁸ Alison A. Kaufman and Daniel M. Hartnett, *Managing Conflict: Examining Recent PLA Writings on Escalation Control* (Alexandria: CNA Corporation, 2016), <https://apps.dtic.mil/sti/pdfs/AD1005033.pdf>.

⁷⁹ Kaufman and Hartnett, 28.

⁸⁰ Michael Martina, “Chinese Embassy Lobbies US Business to Oppose China Bills – Sources,” *Reuters*, November 15, 2021, <https://www.reuters.com/business/exclusive-chinese-embassy-lobbies-us-business-oppose-china-bills-sources-2021-11-12/>.

⁸¹ Terence Roehrig, “The Rough State of Japan–South Korea Relations: Friction and Disputes in the Maritime Domain,” NBR Maritime Awareness Project, January 15, 2021, https://www.nbr.org/wp-content/uploads/pdfs/publications/analysis_roehrig_011521.pdf; Totsuka Etsuro, “Japan’s Colonization of Korea in Light of International Law,” *Asia-Pacific Journal* 9, no. 9 (February 28, 2011), <https://apjff.org/2011/9/9/Totsuka-Etsuro/3493/article.html>; *Korea: Treaties and Agreements* (Washington, DC: Carnegie Endowment For International Peace, 1921), 55–6, <https://books.google.com/books?id=DtcBAAAAYAAJ&pg=PAvii#v=onepage&q&f=false>; and “Treaty of Annexation: 22 August 1910,” UCLA International Institute, <https://international.ucla.edu/institute/article/18447>.

⁸² Joyu Wang and James T. Areddy, “Taiwan Warns Subtle China Response to Tsai’s US Visit Could Be Deceiving,” *Wall Street Journal*, April 6, 2023, https://www.wsj.com/articles/taiwan-warns-of-subtle-china-responses-as-u-s-lawmakers-embrace-taipei-2bc52831?mod=series_chinataiwan.

⁸³ Collins and Erickson, “U.S.-China Competition Enters the Decade of Maximum Danger;” Collins and Erickson, “Hold The Line through 2035: A Strategy to Offset China’s Revisionist Actions and Sustain a Rules-Based Order in the Asia-Pacific” (Houston: Rice University’s Baker Institute for Public Policy, November 12, 2020), <https://doi.org/10.25613/4fzk-1v17>.

⁸⁴ U.S. Congress, Senate, Committee on Armed Services, 118th Cong., 2nd Sess. (March 21, 2024) (statement of Admiral John C. Aquilino, U.S. Navy, Commander, U.S. Indo-Pacific Command, “U.S. Indo-Pacific Command Posture”), 2, 6, https://www.armed-services.senate.gov/imo/media/doc/aquilino_statement.pdf.

⁸⁵ Erickson, “PRC Pursuit of 2027 ‘Centennial Military Building Goal’ (建军一百年奋斗目标): Sources & Analysis,” *China Analysis from Original Sources* 以第一手资料研究中国, December 19, 2021, updated April 18, 2023, <https://www.andrewerickson.com/2021/12/prc-pursuit-of-2027-centennial-military-building-goal-sources-analysis/>. As the Pentagon elaborates, “During his October 2022 speech at the opening ceremony of the 20th Party Congress, Xi reaffirmed his commitment to the PLA’s 2027 milestone for modernization to accelerate the integrated development of mechanization, informatization, and intelligentization of the PRC’s armed forces. If realized, this capability milestone could give the PLA the capacity to be a more credible military tool for the CCP’s Taiwan unification efforts” (CMPR 2023, iv). Additionally, “PRC media, citing a military source, connected the PLA’s 2027 goals to developing the capabilities to counter the U.S. military in the Indo-Pacific region, and compel Taiwan’s leadership to the negotiation table on the PRC’s terms” (CMPR 2023, 39).

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⁸⁷ Brands and John Lewis Gaddis, “The New Cold War: America, China, and the Echoes of History,” *Foreign Affairs*, October 19, 2021, <https://www.foreignaffairs.com/articles/united-states/2021-10-19/new-cold-war>.

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⁸⁹ Deng Xiaoping, “One Country, Two Systems,” *China.org.cn*, June 22–3, 1984, <http://www.china.org.cn/english/features/dengxiaoping/103372.htm>.

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⁹⁴ Steve Blank, “The Semiconductor Ecosystem – Explained,” January 25, 2022, <https://steveblank.com/2022/01/25/the-semiconductor-ecosystem/>.

⁹⁵ TSMC, "TSMC Fabs," https://www.tsmc.com/english/aboutTSMC/TSMC_Fabs; Samsung, "Global Manufacturing Sites," <https://semiconductor.samsung.com/foundry/manufacturing/>; Intel, "Global Manufacturing at Intel," <https://www.intel.com/content/www/us/en/newsroom/resources/global-manufacturing.html>; Micron, "Locations," <https://www.micron.com/about/locations>; SK Hynix, "Global Network," <https://www.skhynix.com/company/UI-FR-CP06>; and Wikipedia contributors, "List of Semiconductor Fabrication Plants," *Wikipedia, The Free Encyclopedia*, https://en.wikipedia.org/wiki/List_of_semiconductor_fabrication_plants.

⁹⁶ Morris Chang personifies this geo-technological convergence. He was born in China and raised in World War II-era Hong Kong after fleeing Shanghai with his family twice. He was educated at Harvard, Massachusetts Institute of Technology (MIT), and Stanford and helped build America's pioneering semiconductor industry at Texas Instruments, while developing chips for the U.S. military with a Top Secret security clearance. Chang founded TSMC and made it the world leader after being passed over for Texas Instruments CEO and recruited by Taiwanese officials to head the island's semiconductor industry with great financial, policy, and human resources at his disposal (Tekla S. Perry, "Morris Chang: Foundry Father," *IEEE Spectrum*, April 19, 2011, <https://spectrum.ieee.org/morris-chang-foundry-father>).

⁹⁷ Tudor Cibeau, "Taiwan Controls Almost Half of the Global Foundry Capacity, Other Governments Racing to Build More Fabs Locally," *TechSpot*, April 26, 2022, <https://www.techspot.com/news/94352-taiwan-controls-almost-half-global-foundry-capacity-other.html>.

⁹⁸ For an example of semiconductor production's sensitivity to electricity supply interruptions, see Kara Carlson, "Shutdown of Austin Fab during Freeze Cost Samsung At Least \$268 Million," *Austin American Statesman*, April 30, 2021, <https://eu.statesman.com/story/business/2021/04/30/austin-fab-shutdown-during-texas-freeze-cost-samsung-millions/4891405001/>; and "Samsung Electronics Chip Output at South Korea Plant Partly Halted Due to Short Blackout," *Reuters*, December 31, 2019, <https://www.reuters.com/article/us-samsung-elec-plant-idUSKBN1Z01K3>.

⁹⁹ Semiconductor shortages would also profoundly shape the post-conflict recovery trajectory and, if certain dynamics play out, potentially drastically reshape global technological and economic power dynamics. As the world learned during the COVID-19 pandemic, even a shortfall of chips relative to demand comprehensively impacts consumers and worsens economic conditions, with production idled for vehicles, household appliances, phones, computers, and many other civilian (and military or dual-use) items. Actual loss of supply, especially at large scale and for a long period, could trigger economic impacts of a magnitude not experienced since World War II or the Great Depression.

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- ¹⁰⁴ Gsmarena, “Google Pixel 4a,” https://www.gsmarena.com/google_pixel_4a-10123.php; Qualcomm, “Qualcomm Snapdragon 730G Mobile Platform,” <https://www.qualcomm.com/content/dam/qcomm-martech/dm-assets/documents/qualcomm-snapdragon-730g-mobile-platform-product-brief.pdf>; and UnbxTech, “System on Chip (SoC) Database,” <https://www.unbxtech.com/soc-database>.
- ¹⁰⁵ Rebecca McClellan, “A Nanoscale Look at Coronavirus Infection,” *Stanford News*, March 1, 2022, <https://news.stanford.edu/2022/03/01/nanoscale-look-coronavirus-infection/>.
- ¹⁰⁶ Semiconductor Industry Association, “SIA Global Semiconductor Unit Sales Dashboard,” <https://www.semiconductors.org/sia-unit-sales-dashboard/>.
- ¹⁰⁷ Consider that in 1960, global transistor production was on the order of a billion units versus global GDP of about \$1.4 trillion (0.0007 transistors per \$). By 2014, this had risen to 250 X 1,018 transistors produced against global GDP of \$79.7 trillion (31.3 million transistors per dollar) – a nearly 45-billion-fold increase in transistor intensity.
- ¹⁰⁸ When Russia withheld gas supplies, a regional and then globalized energy crisis promptly resulted (Collins, Anna Mikulska, and Steven Miles, “Winning the Long War in Ukraine Requires Gas Geoeconomics” [Houston: Rice University’s Baker Institute for Public Policy, August 25, 2022], <https://doi.org/10.25613/SGBD-QM60>; Collins, Mikulska, and Miles, “Gas Geoeconomics Essential to Win the ‘Long War’ In Ukraine—And Asia,” Baker Institute Presentation, September 2022, https://collinsresearchportal.files.wordpress.com/2022/09/collins-mikulska-miles_gas-geoeconomics-essential-to-win-long-war-in-ukraine_september-2022-posting-version.pdf).
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¹²¹ For further details, see Collins and Erickson, “Silicon Hegemon: Could China Take Over Taiwan’s Semiconductor Industry Without Invading?” (Houston: Rice University’s Baker Institute for Public Policy, September 27, 2023), <https://doi.org/10.25613/D4ER-0D37>.

¹²² Note the statement of Herman Goering in April 1939: “However, the heavy armament of Czechoslovakia shows, in any case, how dangerous this country could have been, even after Munich, in the event of a serious conflict. Because of Germany’s action the situation of both axis countries was ameliorated, among other reasons because of the economic possibilities which result from the transfer to Germany of the great production capacity (armament potential) of Czechoslovakia” (“Notes on the Conference Between General Field Marshal Goering and the Duce in the Presence of Count Ciano,” in *Nazi Conspiracy and Aggression Volume IV*, Office of the United States Chief Counsel for Prosecution of Axis Criminality [Washington, DC : United States Government Printing Office, 1946], <https://avalon.law.yale.edu/imt/1874-ps.asp>).

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¹²⁴ Sam Mednick, “Concerns Rise as Russia Resumes Grain Blockade of Ukraine,” ABC News, October 30, 2022, <https://abcnews.go.com/Business/wireStory/global-food-concerns-rise-russia-halts-ukraine-grain-92382961>; Koh et al., “Ships Delay Sailing to Taiwan.”

¹²⁵ Frederick I. Ordway III and Mitchell Sharpe, *The Rocket Team* (New York: Thomas Y. Crowell, 1979), 409.

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on international marketing that would be exceedingly vulnerable to U.S. enforcement if export controls were violated.

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¹⁷⁷ The importance of free maritime navigation that facilitates trade is literally embedded in America’s founding documents. The Constitution speaks of naval forces in permanent terms, with section 8 noting that a purpose of congressional power of the purse is “To provide and maintain a Navy.” In contrast, Congress can raise revenue “To raise and support Armies” but with the stipulation that “no Appropriation of Money to that Use shall be for a longer Term than two Years” (“The Constitution of the United States: A Transcription,” National Archives, <https://www.archives.gov/founding-docs/constitution-transcript>).

¹⁷⁸ Bureau of Economic Analysis, “International Trade in Goods and Services,” <https://www.bea.gov/data/intl-trade-investment/international-trade-goods-and-services>.

¹⁷⁹ Such a scenario would not go much beyond the “rip and replace” initiatives being proposed in the United States and other countries for the substitution of Huawei gear in telecommunications infrastructure. The PRC government would be able to exert a much higher degree of coercive power on the local government hosting the U.S. infrastructure, perhaps by conditioning goods access or engaging in informal pressure such as “sanitary inspections.” See, for instance, PRC restrictions in 2019 imposed against Canadian canola exports, citing unsubstantiated claims of “pests” in shipments (Reuters Staff, “China Customs Says Suspends Clearance of Canola Imports from Canada’s Richardson,” *Reuters*, March 6, 2019, <https://www.reuters.com/article/us-china-canada-trade-canola-response-idUSKCN1Q004U>).

¹⁸⁰ United Nations Conference on Trade and Development (UNCTAD), “Investment Statistics and Trends,” <https://unctad.org/topic/investment/investment-statistics-and-trends>.

¹⁸¹ Zongyuan Zoe Liu, “China Is Quietly Trying to Dethrone the Dollar,” *Foreign Policy*, September 21, 2022, <https://foreignpolicy.com/2022/09/21/china-yuan-us-dollar-sco-currency/>.

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¹⁸⁴ How quickly semiconductor production could be meaningfully diversified away from Taiwan remains a very open question. See, for instance, Alexander Burns, “Taiwan’s Tech King to Nancy Pelosi: US Is in Over Its Head,” *Politico*, February 14, 2023, <https://www.politico.com/news/2023/02/14/taiwan-tech-king-pelosi-powerhouse-microchip-industry-00082646>.

¹⁸⁵ Erickson and Collins, “Putin’s Ukraine Invasion: Turbocharging Sino-Russian Collaboration in Energy, Maritime Security, and Beyond?” *Naval War College Review* 75, no. 4 (Autumn 2022): 91–126, <https://digital-commons.usnwc.edu/nwc-review/vol75/iss4/8/>.

¹⁸⁶ National Geospatial Agency, [Submarine cable map](https://gmts.maplarge.com/public/ext/GMTDS/Main?$root.map.zoom=5&$root.map.center={%22lat%22:27.036894865049838,%22lng%22:133.4619140625}&$root.projecti%20onSelect=%22EPSG:3857%22), [https://gmts.maplarge.com/public/ext/GMTDS/Main?\\$root.map.zoom=5&\\$root.map.center={%22lat%22:27.036894865049838,%22lng%22:133.4619140625}&\\$root.projecti%20onSelect=%22EPSG:3857%22](https://gmts.maplarge.com/public/ext/GMTDS/Main?$root.map.zoom=5&$root.map.center={%22lat%22:27.036894865049838,%22lng%22:133.4619140625}&$root.projecti%20onSelect=%22EPSG:3857%22).

¹⁸⁷ Collins and Erickson, “Reaping the Whirlwind: How China’s Coercive Annexation of Taiwan Could Trigger Nuclear Proliferation in Asia and Beyond” (Houston: Rice University’s Baker Institute for Public Policy, Rice University, October 25, 2023), <https://doi.org/10.25613/FBM1-JE11>.

¹⁸⁸ Ronald R. Krebs and Jennifer Spindel, “Did the Afghanistan Exit Diminish US Credibility Among Its Allies? Probably Not,” *The Washington Post*, September 1, 2021, <https://www.washingtonpost.com/politics/2021/09/01/did-afghanistan-exit-diminish-us-credibility-among-its-allies-probably-not/>.

¹⁸⁹ The U.S.-South Korea alliance was forged in the 1953 Mutual Defense Treaty (U.S. Department of State Bureau of Political-Military Affairs, “US Security Cooperation With Korea,” Fact Sheet, January 20, 2021, <https://www.state.gov/u-s-security-cooperation-with-korea/>).

¹⁹⁰ Charles Kraus, “Preparing for War: Soviet-North Korean Relations, 1947–1950,” Wilson Center, June 3, 2020, <https://www.wilsoncenter.org/blog-post/preparing-war-soviet-north-korean-relations-1947-1950>.

¹⁹¹ World Bank, “GDP, PPP (Current International \$).”

¹⁹² World Bank, “GDP, PPP (Current International \$).”

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¹⁹⁴ Zoey Zhang, “What is China’s Dual Circulation Strategy?” *AmCham Shanghai*, December 22, 2020, <https://www.amcham-shanghai.org/en/article/what-chinas-dual-circulation-strategy#>.

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¹⁹⁶ Erickson and Collins, “Putin’s Ukraine Invasion.”

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¹⁹⁸ Manfred Meyer, *Modern Chinese Maritime Forces*, Second Edition, edited by Larry Bond and Chris Carlson (Admiralty Trilogry Group, July 1, 2024); Ronald O’Rourke, *China Naval Modernization: Implications for US Navy Capabilities—Background and Issues for Congress*, CRS Report Prepared for Members and Committees of Congress (Washington, DC: Congressional Research Service, January 20, 2024), <https://crsreports.congress.gov/product/pdf/RL/RL33153/>; “Chapter Six: Asia,” *The Military Balance* 123, no. 1 (London: International Institute for Strategic Studies, 2023), 208–301; and *China’s People’s Liberation Army Navy (PLAN), Coast Guard, and Government Maritime Forces 2022–2023 Recognition and Identification Guide* (Suitland, MD: U.S. Office of Naval Intelligence, December 14, 2022), https://www.oni.navy.mil/Portals/12/2022_PLAN_Recognition_Poster_UNCLASSIFIED.pdf. We also spot-checked with other analyses, e.g., Eric Wertheim, “Type 055 Renhai-class Cruiser: China’s Premier Surface Combatant,” *Proceedings* 149, no. 3, March 2023, <https://www.usni.org/magazines/proceedings/2023/march/type-055-renhai-class-cruiser-chinas-premier-surface-combatant>; and Wertheim, “China’s Luyang III/Type 052D Destroyer Is a Potent Adversary,” *Proceedings* 146, no. 1 (January 2020), <https://www.usni.org/magazines/proceedings/2020/january/chinas-luyang-iiitype-052d-destroyer-potent-adversary>.

¹⁹⁹ “Naval Vessel Register,” updated July 24, 2024, <https://www.nvr.navy.mil/>; “USNI News Fleet and Marine Tracker: July 15, 2024,” updated: July 15, 2024, U.S. Naval Institute, <https://news.usni.org/2024/07/15/usni-news-fleet-and-marine-tracker-july-15->

2024; and Congressional Budget Office, *An Analysis of the Navy's Fiscal Year 2023 Shipbuilding Plan*, November 10, 2022, <https://www.cbo.gov/publication/58447#data>.

²⁰⁰ Authors' analysis in consultation with Capt. Christopher Carlson, U.S. Navy (Ret.).

²⁰¹ "Differentiated credibility," as defined by Elbridge Colby, describes the relative willingness to commit to, maintain, and if necessary, suffer consequences to defend a specific interest – in this case, the free and democratic existence of Taiwan (*The Strategy of Denial: American Defense in an Age of Great Power Conflict* [New Haven: Yale University Press, 2021], especially 65–72). While Taiwan is not formally a U.S. ally, it is an attractive target for a PRC government seeking to undermine the American-Asian alliance structure by damaging Washington's differentiated credibility. As Colby articulates, from Beijing's perspective Taiwan offers the advantages of 1) comprising a territory China badly wants, 2) being located very close to major PRC military power, 3) allowing more intensive PRC military power projection into the Western Pacific and beyond once conquered, and 4) representing a "canary in the coal mine" for American differentiated credibility (*The Strategy of Denial*, especially 115–20).

²⁰² Colby, *The Strategy of Denial*, 116.

²⁰³ David Santoro and Ralph Cossa, eds., "The World After Taiwan's Fall," special issue, *Issues & Insights* 23, SR2 (February 2023), https://pacforum.org/wp-content/uploads/2023/02/IssuesandInsights_VOL23_SR2.pdf.

²⁰⁴ Collins, "A Maritime Oil Blockade Against China—Tactically Tempting but Strategically Flawed," *Naval War College Review* 71, no. 2 (Spring 2018): 49–78, <https://digital-commons.usnwc.edu/nwc-review/vol71/iss2/6>.

²⁰⁵ Easton, "Operation Causeway: Taiwan's Wartime History and Implications for the Current Strategic Environment" (presentation to Vice Admiral Christopher W. Grady, U.S. Navy, Vice Chairman, Joint Chiefs of Staff at Naval War College, Newport, RI, April 22, 2024).

²⁰⁶ Pierre de Dreuzy and Andrea Gilli, "Russia's Nuclear Coercion in Ukraine," *NATO Review*, November 29, 2022, <https://www.nato.int/docu/review/articles/2022/11/29/russias-nuclear-coercion-in-ukraine/index.html>.

²⁰⁷ Gerrit van der Wees, "When the CCP Thought Taiwan Should Be Independent," *The Diplomat*, May 3, 2022, <https://thediplomat.com/2022/05/when-the-ccp-thought-taiwan-should-be-independent/>; Frank S. T. Hsiao and Lawrence R. Sullivan, "The Chinese Communist Party and the Status of Taiwan, 1928–1943," *Pacific Affairs* 52, no. 3 (Autumn 1979): 446–67; and Edward Friedman, "China's Changing Taiwan Policy," *American Journal of Chinese Studies* 14, no. 2 (October 2007): 11–34.

²⁰⁸ U.S. Strategic Command, *2023 Posture Statement*, <https://www.stratcom.mil/2023-Posture-Statement/>.

²⁰⁹ ASEAN Key Figures 2021 (Jakarta: The ASEAN Secretariat, December 2021), <https://asean.org/wp-content/uploads/2021/12/ASEAN-KEY-FIGURES-Chapter-1-4-Rev-28-Dec-2021.pdf>; Rajiv Biswas, “ASEAN Foreign Direct Investment Inflows Reach Record High,” *S&P Global Market Intelligence*, October 6, 2022, <https://www.spglobal.com/marketintelligence/en/mi/research-analysis/asean-foreign-direct-investment-inflows-reach-record-high.html>.

²¹⁰ Eisenhower, *The White House Years: Mandate for Change*, 168.

²¹¹ Derek Grossman, “Duterte’s Dalliance With China Is Over,” *Foreign Policy*, November 2, 2021, <https://foreignpolicy.com/2021/11/02/duterte-china-philippines-united-states-defense-military-geopolitics/>.

²¹² Nuclear-powered submarines, if able to both reach and operate quietly in the open ocean, could potentially have global reach in time, and eventually even threaten the Atlantic via transiting south of Australia and back north, eastbound via Cape Horn or via the Arctic (perhaps with Russian collaboration). If such submarines were equipped with land attack cruise missiles, they would be a distinct threat to the U.S. homeland. See, e.g., Erickson and Collins, “Putin’s Ukraine Invasion.”

²¹³ Toshi Yoshihara, *Dragon Against the Sun: Chinese Views of Japanese Seapower* (Washington, DC: Center for Strategic & Budgetary Assessments, May 19, 2020), [https://csbaonline.org/uploads/documents/CSBA8211_\(Dragon_against_the_Sun_Report\)_FINAL.pdf](https://csbaonline.org/uploads/documents/CSBA8211_(Dragon_against_the_Sun_Report)_FINAL.pdf).

²¹⁴ Paula Hancocks et al., “Exclusive: North Korea a ‘Clear and Present Danger,’ Says South Korean Foreign Minister,” *CNN*, February 23, 2023, <https://edition.cnn.com/2023/02/22/asia/south-korea-foreign-minister-interview-intl-hnk/index.html>.

²¹⁵ Sungmin Cho, “South Korea’s Taiwan Conundrum,” *War on the Rocks*, December 31, 2021, <https://warontherocks.com/2021/12/south-koreas-taiwan-conundrum/>.

²¹⁶ See Peter Dutton, “Conceptualizing China’s Maritime Gray Zone Operations,” in *Maritime Gray Zone Operations: Challenges and Countermeasures in the Indo-Pacific*, ed. Erickson (New York: Routledge Cass Series: Naval Policy & History, 2022), 19–34. See especially Table 1.1., “Comparison Chart of Warfare Concepts,” on page 30. This exhibit compares and contrasts maritime gray zone operations with hybrid warfare and gunboat diplomacy in terms of actions, actors, objectives, and governing principles.

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²¹⁸ Malcolm Davis, “Chinese Victory Over Taiwan – An Australian Perspective,” in *The World After Taiwan’s Fall*, edited by Santoro and Cossa, special issue, *Issues & Insights* 23, SR2 (February 2023): 19–28, 26, https://pacforum.org/wp-content/uploads/2023/02/IssuesandInsights_VOL23_SR2.pdf.

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²²² Angus Grigg, Lesley Robinson, and Meghna Bali, "US Air Force to Deploy Nuclear-Capable B-52 Bombers to Australia as Tensions With China Grow," ABC News (Australia), October 30, 2022, <https://www.abc.net.au/news/2022-10-31/china-tensions-taiwan-us-military-deploy-bombers-to-australia/101585380>.

²²³ Dylan Nuckolls, "B-2 Spirit Stealth Bombers Deploy to RAAF Base Amberley, Australia," *Pacific Air Forces Public Affairs*, July 10, 2022, <https://www.whiteman.af.mil/News/Article/3088451/b-2-spirit-stealth-bombers-deploy-to-raaf-base-amberley-australia/>.

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²²⁵ Sergey Radchenko, "The Truth About Mongolia's Independence 70 Years Ago," *The Diplomat*, October 22, 2015, <https://thediplomat.com/2015/10/the-truth-about-mongolias-independence-70-years-ago/>.

²²⁶ China Power Team, "What Are the Weaknesses of the China-Russia Relationship?" *ChinaPower Project*, CSIS, August 22, 2022, <https://chinapower.csis.org/china-russia-relationship-weaknesses-mistrust/>.

²²⁷ "Mongolia: Economy," *CIA World Factbook*, <https://www.cia.gov/the-world-factbook/countries/mongolia/#economy>.

²²⁸ Of course, this desire is notwithstanding the reality that each country's development over the past quarter-century benefited tremendously from this very system.

²²⁹ Jo Inge Bekkevold, "Imperialist Master, Comrade in Arms, Foe, Partner, and Now Ally? China's Changing Views of Russia," in *Russia-China Relations: Emerging Alliance or Eternal Rivals?* edited by Sarah Kirchberger, Svenja Sinjen, and Nils Wörmer (New York: Springer, 2022), 42, https://link.springer.com/chapter/10.1007/978-3-030-97012-3_3.

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²³⁸ For a comprehensive overview, see Mark Fitzpatrick, *Asia’s Latent Nuclear Powers: Japan, South Korea, and Taiwan* (London: International Institute for Strategic Studies, 2016).

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²⁴¹ Consider, for instance, Beijing’s features reclamation program in the South China Sea (Niharika Mandhana, “How Beijing Boxed America Out of the South China Sea,” *The Wall Street Journal*, March 11, 2023, <https://www.wsj.com/articles/china-boxed-america-out-of-south-china-sea-military-d2833768>).

²⁴² China’s neighbors would have doubly strong motivation after watching Russia invade Ukraine. Note, for instance, former President Bill Clinton’s lament: “I feel a personal stake because I got them [Ukraine] to agree to give up their nuclear weapons. ... None of them believe that Russia would have pulled this stunt if Ukraine still had their weapons” (Ellie Cook, “Bill Clinton: My Nuke Deal to Blame for Russia’s Invasion of Ukraine,” *Newsweek*, April 5, 2023, <https://www.newsweek.com/bill-clinton-ukraine-war-russia-nuclear-weapons-deal-vladimir-putin-1792682>).

²⁴³ Narang’s portfolio includes space, missile defense, nuclear deterrence, and countering weapons of mass destruction policy (“Dr. Vipin Narang,” U.S. Department of Defense, <https://www.defense.gov/About/Biographies/Biography/Article/3001188/dr-vipin-narang/>).

²⁴⁴ Vipin Narang, *Seeking the Bomb: Strategies of Nuclear Proliferation* (Princeton: Princeton University Press, 2022), 352.

²⁴⁵ Narang, 3.

²⁴⁶ Narang, 17.

²⁴⁷ Narang, 18.

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²⁴⁹ Narang, 46.

²⁵⁰ Narang, 20.

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²⁵³ Narang, 46.

²⁵⁴ Narang, 42–3, 13, 237, 255–69, 348–49.

²⁵⁵ Narang, 268.

²⁵⁶ Narang, 3, 8, 84, 42, 4, 12, 76, 342, 348.

²⁵⁷ Narang, 5, 36, 74–88, 175, 293, 336, 340, 343.

²⁵⁸ Narang, 30, 46.

²⁵⁹ Narang, 81.

²⁶⁰ Narang, 83.

²⁶¹ Narang, 87, 349, 42–3, 342, 348.

²⁶² Narang, 298–9.

²⁶³ Narang, 88.

²⁶⁴ Narang, 88.

²⁶⁵ Fitzpatrick, “How Japan Could Go Nuclear: It Has the Smarts and the Resources, But Does Tokyo Have the Will?” *Foreign Affairs*, October 3, 2019, <https://www.foreignaffairs.com/articles/asia/2019-10-03/how-japan-could-go-nuclear>; Narang, 52, 347.

²⁶⁶ “Processing of Used Nuclear Fuel,” World Nuclear Association, updated December 2020, <https://world-nuclear.org/information-library/nuclear-fuel-cycle/fuel-recycling/processing-of-used-nuclear-fuel.aspx>.

²⁶⁷ “Little Boy and Fat Man,” Atomic Heritage Foundation, July 23, 2014, <https://www.atomicheritage.org/history/little-boy-and-fat-man>; Arjun Makhijani, Howard Hu, and Katherine Yih, *Nuclear Wastelands: A Global Guide to Nuclear Weapons Production and its Health and Environmental Effects* (Takoma Park: International Physicians for the Prevention of Nuclear War, Institute for Energy and Environmental Research, 1995), 58.

²⁶⁸ Jesse Johnson, “Japan Should Consider Hosting U.S. Nuclear Weapons, Abe Says,” *Japan Times*, February 27, 2022, <https://www.japantimes.co.jp/news/2022/02/27/national/politics-diplomacy/shinzo-abe-japan-nuclear-weapons-taiwan/>.

²⁶⁹ “Plutonium Utilization in Japan,” Japan Atomic Energy Commission, http://www.aec.go.jp/jicst/NC/iinkai/teirei/plutonium_management.htm.

²⁷⁰ Rupert Wingfield-Hayes, “Will Ukraine Invasion Push Japan to Go Nuclear?” BBC News, March 26, 2022, <https://www.bbc.com/news/world-asia-60857346>.

²⁷¹ Narang, 87.

²⁷² Narang, 99–100.

²⁷³ Wingfield-Hayes.

²⁷⁴ In addition to its nuclear weapons program, Pyongyang derives deterrent leverage from its deployment of extensive forces — most notably, conventional artillery, capable of ranging across the Demilitarized Zone and into the greater Seoul area — South Korea’s largest conurbation, economic center of gravity, and seat of government. RAND researchers assess that “North Korea maintains nearly 6,000 artillery systems within range of major South Korean population centers, which it could use to kill many thousands in just an hour, even without resorting to chemical or nuclear weapons” (D. Sean Barnett et al., *North Korean Conventional Artillery: A Means to Retaliate, Coerce, Deter, or Terrorize Populations*, RR-A619-1 [Santa Monica: RAND, 2020], https://www.rand.org/pubs/research_reports/RRA619-1.html).

²⁷⁵ Contemporary events may hold some lessons. In particular, part of the reason Putin chose to invade Ukraine in 2022, rather than waiting, may have been the realization that as Ukrainian domestic weapons-makers, motivated by the 2014 seizure of Crimea, began to master standoff weapons, such as the Grom short-range ballistic missile and Neptune anti-ship missile, plus a host of other land warfare equipment, a future invasion would become far more costly and likely to fail. Quoting Rob Lee in relevant part: “Moscow likely believes a significant military escalation now would be less costly today than in the future if Ukraine continues to strengthen its military capabilities. If Ukraine had longer-range missiles, it could threaten Russian cities or military infrastructure, limiting Russia’s ability to use military threats to coerce Kyiv” (“Moscow’s Compellence Strategy,” Foreign Policy Research Institute, January 18, 2022, <https://www.fpri.org/article/2022/01/moscows-compellence-strategy/>).

²⁷⁶ Iran’s nuclear program offers a cautionary tale. Holding intermediate underground facilities such as Fordo at risk requires munitions such as the 30,000-lb GBU-57 Massive Ordnance Penetrator. Deeper facilities, such as the one revealed in 2023 at Natanz, could lie even beyond the range of GBU-57 type weapons (John Gambrell, “An Iranian Nuclear Facility Is So Deep Underground That US Airstrikes Likely Couldn’t Reach It,” *Associated Press*, May 22, 2023, <https://apnews.com/article/iran-nuclear-natanz-uranium-enrichment-underground-project-04dae673fc937af04e62b65dd78db2e0>). Japan and South Korea each have mountainous terrain that could see critical nuclear weapons facilities protected by 100 meters or more of rock. The PRC military currently appears to lack such earth penetrators and also does not field survivable low-observable platforms such as the American B-2 or B-21 that can carry such large bombs.

²⁷⁷ The U.S. reaction to China’s nuclear program holds potential clues. In the run-up to the PRC’s 1964 inaugural nuclear test, the John F. Kennedy and Lyndon B. Johnson administrations seriously considered preemptive military action against Beijing’s nuclear program, even going so far as to ask the Soviet Union about the possibility of a joint operation. Ultimately, however, the United States chose to “live with” a nuclear China (Burr and Jeffrey T. Richelson, “Whether to ‘Strangle the Baby in the Cradle’: The United States and the Chinese Nuclear Program, 1960-64,” *International Security* 25, no. 3 (2000): 54–99, https://www.belfercenter.org/sites/default/files/files/publication/burr_and_richelson_winter_00_01.pdf).

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²⁸⁰ Scott A. Snyder, “The Washington Declaration: Expanding the Nuclear Dimension of the U.S.-South Korean Alliance Response,” Council on Foreign Relations (blog), April 27,

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- Ukraine supports the PRC side’s policies on questions of national unification and territorial integrity. The Ukrainian side reiterates that the principles behind its statements on the Taiwan question remains unchanged from the political documents signed and ratified by the heads of state of the two countries between 1992 and 2013.
- The Ukrainian side recognizes that there is only one China in the world and the PRC is the only legal government representing China, Taiwan is an inseparable part of China.
- The Chinese side supports the efforts of the policies of Ukrainian side to protect the unity and territorial integrity of Ukraine and related questions.

Art. VI:

- Neither contracting party shall take actions that damage the sovereignty, security, or territorial integrity of the other (contracting party).
- Neither contracting party shall permit third countries to use their sovereign territory to damage the sovereignty, sector, or territorial integrity of the other (contracting party).
- Both contracting parties shall, in accordance with their own national law and international treaties they have entered into, not permit the formation of separatist, terrorist, and extremist groups or their affiliates that damage the sovereignty, security, and territorial integrity of the other contracting party and shall prohibit such activities.

Art. VII:

- Once complicated situations emerge internationally or regionally that threaten the peace, sovereignty, unity, or territorial integrity of either contracting party, the contracting parties shall immediately begin discussions to develop countermeasures.

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