



Center for Energy Studies | Report

Silicon Hegemon: Could China Take Over Taiwan's Semiconductor Industry Without Invading?

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In October 2022, [1] the United States imposed restrictions[2] on the sale of high-performance semiconductors to China in defense of American strategic technology and national security interests. The export controls cover advanced chips as well as machinery and human assistance for manufacturing them.[3] Semiconductor chips are perhaps the most strategic resource of the present era, offering power computing capabilities that confer overall technological and economic advantage and could be used in advanced military applications such as autonomous aircraft. [4] As such, these export controls signal a decisive U.S. turn that Beijing assumes is designed to hamper its technological progress.

Taiwan is at the center of this great power collision given that it produces 60% of the world's semiconductors and over 90% of the most advanced chips.[5] Despite

tremendous investment and effort, China has yet to master development and production of the most advanced chips; here Taiwan remains the world's "OPEC++" in its dominance, followed by South Korea in a secondary position. The self-governing island, which the People's Republic of China (PRC) views as a breakaway province, is also a prime political prize coveted by the Chinese Communist Party (CCP), which insists that "reunification" must be fulfilled.[6] Strategic pressures are acute, as General Secretary Xi Jinping commands a set of national capabilities far exceeding those any of his predecessors enjoyed since the PRC's 1949 founding. China now fields the largest military ground, maritime, aviation, and rocket forces in the Indo-Pacific region, and its leaders appear increasingly confident in their country's coercive capabilities.[7] In addition, Xi is working to modernize the People's Liberation Army (PLA), the PRC's main military force, through his Centennial Military Building Goal of 2027. The goal is seemingly designed to give Xi multiple tools — backed by the credible threat of force — to coerce Taiwan into submitting to the CCP's unification vision.[8]

All this means that increasingly, analysts, planners, and policymakers in the U.S. and its allies and partners must now contemplate scenarios and countermeasures that many previously thought unthinkable.[9] Critically among them:

1. Could Beijing take control of Taiwan's world-leading semiconductor base without actually going to war?[1]
2. If so, how might it do so?
3. What measures can the U.S. and its allies and partners take to forestall such a catastrophic outcome?

Semiconductor Strategy: Coercion Contingencies Short of War

Xi appears determined to bring Taiwan under the political control of the PRC. But instead of undertaking a great power war, he prefers to use the PRC's "three warfares" strategy, a multifront approach that weaponizes public opinion, psychology, and the law. The aim is to undermine Taiwan's democracy and its will to resist.

To achieve what Beijing terms “reunification” with the least escalation possible, the PRC might:

- Increasingly surround Taiwan with air, naval, and even missile operations, and attempt to, over time, weaken the responding Taiwanese forces.
- Harass, interfere with, or embargo the cargos of civilian and government or military vessels and aircraft in the international waters and airspace surrounding Taiwan.
- In a more escalatory case, blockade or seize one or more of Taiwan's outlying features and islands.

This last scenario raises difficult questions of probability and significance. The Kinmen and Matsu islands are very close to PRC shores, while the Pratas and Itu Aba islands are distant from mainland Taiwan. All of these islands are so small and geographically vulnerable that PRC planners could be tempted to concentrate overwhelming force against them. However, even a successful PRC seizure of any of these tiny islands could come at great cost: Beijing would lose the element of surprise, and Taiwanese and foreign opposition would be mobilized in ways that could greatly undermine PRC efforts to take control of Taiwan's main island and the capital city Taipei, its ultimate political goal. It is difficult to predict Beijing's calculations with any degree of certainty. Yet we are now at the point where such thorny scenarios demand close examination.

A Scenario of Concern

Imagine the following hypothetical contingency:

August 1, 2027, 0600 CST, Beijing: Having achieved Xi's Centennial Military Building Goal, China's armed forces now offer their Commander-in-Chief a full toolbox of military capabilities regarding Taiwan. Xi insists as never before on changing cross-Strait conditions on his own terms. During this relentless ramp-up over the past several years, progressive intensification of an all-domain pressure campaign heightened fears in Taiwan. Efforts to address them amid increasingly polarized politics have opened up unprecedented vulnerabilities in Taiwan's economy to PRC ownership and influence.

Beginning May 1, 2024, the PLA began intensive but intermittent live fire “exercises” around Taiwan. Hundreds of munitions have been fired at flying, floating, and subsurface targets offshore from the key avenues of approach to the island. Beijing issued notices to mariners and airmen to avoid the entire periphery of Taiwan. As exercises commenced, Xi personally spoke with the heads of key vendors and customers of Taiwan Semiconductor Manufacturing Company Ltd. (TSMC), United Microelectronics Corp. (UMC), and Powerchip Technology Corp. to assure them that shipments to and from those firms’ fabrication plants^[10] as well as coal and gas shipments to power plants supporting the fabs are secure.

Beijing has demanded that aircraft seeking to land in Taiwan first land at the Xiamen Gaoqi International or Quanzhou Jinjiang international airports and that ships first call at PRC ports or anchor in an inspection zone off the coast of Fujian province for inspection. Other vessels and aircraft have been intercepted offshore by PRC “safety escorts” and ordered to exit the area.

Many shippers have avoided sailing into the area following warnings from their London-based insurers, and most air cargo services have halted operations for as long as PRC military activities continue in Taiwan’s vicinity. As food and fuel stockpiles dwindle and unemployment rises, Taiwan faces an internal political crisis, and voices supporting accommodation with Beijing are gaining strength. Meanwhile, the White House has so far refused to have U.S. military assets transit PRC exercise exclusion zones to uphold freedom of navigation.

This morning the heads of China’s National Integrated Circuit Industry Investment Fund and Semiconductor Manufacturing International Corporation called TSMC’s chairman with a private offer: They have a line of credit from China Investment Corporation to purchase a 51% controlling stake in TSMC, whose market capitalization has fallen from \$700 billion at the onset of China’s action to \$300 billion now. If TSMC and Taipei accept the deal, Beijing has pledged upon its financial closing to defend all future air and sea traffic in and out of the island. Alternatively, it may continue unspecified “exercises” for weeks or months to come.

Such a gambit could tempt Beijing with a favorable risk/reward balance. For the U.S., it would be one thing to respond militarily to fight off an attempted invasion of Taiwan by the PRC, but quite another to throw the first kinetic punch^[11] against a

blockade or related contingency imposed by Beijing. The PRC's proximity to Taiwan would also allow it to dial the intensity of a quarantine up and down and use various kinds of interference, ranging from maritime militia[12] vessels up to PLA Navy warships. Commercial shippers (and especially, their insurers) hate 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 Nancy Pelosi visited Taipei,[13] and which has been shown throughout Russia's war on Ukraine.[14] Finally, the ambiguous character of intermittent or informal interruptions would complicate U.S. risk assessment, could impose difficulties on decision-making, and thereby make direct intervention more challenging.

Multiple additional questions arise: What happens if Beijing's conquest were catalyzed by an offshore military presence that never touches the fabrication plants physically? And most importantly, what if the PRC's actions did not trigger a U.S. military response? Taiwan chip manufacturer TSMC and its key suppliers — including Arm (British), ASML (Dutch), and Shin-Etsu (Japanese) — are currently responsive to significant U.S. economic restrictions aimed at Chinese technology, presumably because they would rather lose access to the PRC market than attract Washington's ire. But if a U.S. administration were ever to lack the resolve to ensure air and maritime passage to Taiwan (using force, if necessary), their attitude might well change.

The bottom line is that seizing Taiwan's semiconductor infrastructure without firing a shot to become the world's "silicon hegemon"[15] would be an audacious and brazen move. It could very possibly fail; which in turn, might discourage Xi from ever making such a move in the first place. But what if he were to take such a risk, and succeeded? Our essay examines this low-probability, high-impact contingency seriously because it would bring about extremely dangerous strategic downsides for the U.S. and its allies and partners.

Consequences for American, Allied, and Partner Interests

If China succeeded in becoming the silicon hegemon by coercing Taiwan economically, Beijing would have considerable leverage over the chip industry,

given TSMC's heft. As a result, it would have significant power over the U.S. tech industry (Apple, Nvidia, etc.) and its consumers. Washington could try to ban new chipmaking tools from being sent to Taiwan, but Beijing would have major retaliatory options. It is very plausible that American allies and partners, as well as powerful constituencies within the U.S., would be unwilling to cut off supplies and services to a TSMC now majority-owned by the PRC — because the consequences to their economies would be dire.

The PRC would likely employ chip supplies as a carrot and stick to actively promote division between the remaining silicon allies — the U.S., Japan, South Korea, and the Netherlands. For over a year, U.S. policymakers have avoided meaningfully sanctioning the oil flows that fund Russia's war in Ukraine because they fear the economic impacts at home.^[16] In doing so, they risk influencing the PRC's perceptions about American resolve and willingness to bear financial costs in pursuit of geostrategic objectives. TSMC's global economic importance — and its ability to affect business and consumer interests in the U.S. — is several times greater than that of Russia's oil sector. China could also try to manipulate the environment by continuing chip sales even to American companies; this would likely empower accommodationist voices among key chip consumers and, over time, erode American policymakers' willingness to confront Beijing.

Washington's carefully crafted export controls would be overwhelmed, and the PRC would not only be back in the technological car with the U.S. — it would arguably be in the driver's seat.^[17] Even if the U.S. and allies such as the Netherlands and Japan still maintained jurisdiction over the firms that provide chip designs, lithography equipment, and the chemicals and components necessary for chipmaking, PRC control of production would be a strategic trump card. If the PRC's counterparties accepted the arrangement and locked in dependency on it (a pattern seen in other markets with near-monopoly suppliers, inelastic demand, and few or no substitutes), the technological competitive order would shift to the detriment of U.S. and allied prosperity and security.

TSMC could be prohibited from investing in advanced overseas facilities such as the plants it is currently building in Arizona. As a result, new facilities (even those serving export markets) would increasingly be located in China. Beijing would have

a definite incentive to repeat its previous pattern of action: strong-arming foreign suppliers to set up shop in the PRC and then either share their core intellectual property, or else have it be pilfered.

The PRC already hosts the world's premier electronics hardware manufacturing cluster. Using its dominance in chip production to force design intellectual property and supplier migration into an ecosystem controlled by (and likely physically domiciled in) the PRC would align with Beijing's previous geo-economic policy actions. Just as PRC industrial policy has warped value chains in metals, materials, and many manufactured goods over the past three decades, a similar process could unfold with semiconductors. The end result would likely be an enhanced version of "dual circulation" policies and amplified coercive power in the PRC's hands. [18]

How to Keep Taiwan's Semiconductor Industry Out of Beijing's Hands

For all these reasons, it is far better to deter the PRC from ever seizing control of Taiwanese semiconductor capabilities to become a silicon hegemon in the first place. Preventing a potential hostile takeover of TSMC (and other Taiwan-based chipmakers) will require a holistic set of military, regulatory, and policy responses to help shore up and safeguard Taiwan comprehensively.

Military Responses

On the military front, six concrete areas for investment stand out:

1. Air defense.
2. Anti-ship missiles and loitering munitions.
3. Coastal "kill zone" artillery.
4. Mines.
5. Information warfare (particularly electronic warfare: including jammers and decoys).
6. Resilience of critical infrastructure. [19]

Crucially, each of these areas requires affordability, large numbers, mobility, and lethality against the types of air and maritime assets the PRC would need to employ near the island to impose a blockade. Taiwanese leaders would still face tough decisions about whether or not to fire on PRC quarantine or blockade forces. However, having the credible capacity to engage those forces on a large and sustained scale would complicate Beijing's decision-making, reinforce Taiwanese deterrence, and increase the probability of Xi avoiding such a move to begin with.

Regulatory and Policy Responses

On the regulatory and policy fronts, Taiwan also has many options for hardening its chipmakers against coerced takeover. These explicitly confront the reality that to protect against a capable government requires a capable government.

A Golden Share for Taiwan's Government. Perhaps the most direct way to preempt any attempts by the PRC to acquire TSMC would be to grant Taiwan's government a "golden share" in the company, giving it veto power over others attempting to acquire a controlling stake. The United Kingdom has done this with Rolls-Royce, ensuring that 10 Downing Street can block takeovers by foreign bidders and restrict foreign investors from holding more than 15% of the enterprise's shares.[\[20\]](#)

Golden shares would formalize the ad hoc process Taiwan has used to ward off past takeover attempts by PRC entities. For instance, when the PRC state-backed chip firm Tsinghua Unigroup made an offer for stakes in three Taiwanese chip testing and packaging firms in late 2015, Taipei launched an intensive review process premised on national security grounds and ultimately terminated all three proposed deals.[\[21\]](#) Formalizing the system by issuing golden shares would shrink Beijing's space to create and/or exploit divisions between commerce-focused and national security-focused domestic constituencies in Taiwan.

Taiwan's National Development Fund, established by the Executive Yuan in 1973, is already TSMC's largest shareholder[\[22\]](#) and would be a logical entity in which to vest golden share authority. The semantics of Taiwanese legislators codifying PRC entities as "foreign" would raise hackles in Beijing, but there are many possible

workarounds — including, in particular, a focus on physical domicile in Taiwan. After all, China's recent geoblock on websites in Fujian and other provinces, which prevented access by overseas IP addresses, also excluded IP addresses from Taiwan.[23]

Emphasize TSMC as a Top-level Security Asset. Taiwan's Investment Commission, which among its core responsibilities screens and approves inbound investments,[24] could also publicly emphasize TSMC's importance as an apex economic security asset. 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)[25] and Rio Tinto (2008-09), among others. TSMC would, however, be uncharted territory because 1) it is far more important to Taiwan's economy than either of those firms was to their respective countries, 2) Beijing does not recognize Taiwan as a sovereign entity, 3) Taiwan's semiconductor industry is arguably the most critical and geographically-concentrated global economic input source, and 4) the PLA could not deploy forces to the Gulf of Mexico or off Western Australia to coerce a transaction as it potentially could vis-à-vis Taiwan.

Employee Stock Ownership Plan. Finally, TSMC could grant substantial blocks of shares as part of an employee stock ownership plan. Company employees already participate in a profit-sharing arrangement,[26] so there is precedent for granting stock options or outright ownership. The company could further include change of control[27] clauses, which would void the grants if TSMC came under constructive control of any entity for which the PRC is the ultimate beneficiary. TSMC could amplify the change of control clause's effect by pricing the granted options so they are "in the money" at the time of granting (i.e., allowing employees to buy stock below its current trading price and thus making the grants rapidly monetizable). The resulting vested economic stakes would help disincentivize management and employees from being receptive to overtures from PRC-associated buyers.

Potential Assistance from the US and Allies

Taiwan could likely also count on help from the U.S., and perhaps key American allies such as Japan and Australia.

Invalidation of Coerced Share Sales. One measure would involve U.S. authorities invalidating coerced purchases of TSMC shares. 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 receipts (ADRs)^[28] trading on the New York Stock Exchange. 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 U.S. Securities and Exchange Commission could also potentially bring urgent enforcement actions based on fraud or market manipulation causes of action.

Military Intervention to Break Blockade. The U.S. could also lead a military intervention to break a PRC quarantine or blockade. Consider the global reaction 33 years ago to the invasion of Kuwait by former Iraqi leader Saddam Hussein and the positioning of his armored divisions beside the world's most important oil production zone. The United States found Iraq's action intolerable and after a roughly six-month buildup and intensive diplomacy to build a supporting coalition, forcibly ejected Saddam's forces from Kuwait.

International reactions to a military-backed hostile takeover of TSMC by the PRC would almost certainly be extremely negative. But would they translate into the same degree of military action against China? Unlike Iraq at the time of the Gulf War, the PRC is a nuclear-armed power with a massive, highly capable military, and the country's industrial base is extremely important to the global supply chain. Furthermore, PRC leaders have closely studied the Gulf War and presumably would not repeat Iraq's mistake in allowing a foreign military force to build for months along its borders without striking pre-emptively. Beijing has also almost certainly absorbed a key lesson from Russia's war against Ukraine: Potential third-country intervenors are exceedingly cautious in the face of nuclear coercion, especially when their own territory has not been directly attacked. There are many reasons why Washington might well intervene militarily, and forms in which it might do so;

but for many allies and partners the strongest contributions might come instead in the form of economic statecraft.

Global Sanctions. The U.S. could lead a global sanctions effort against the PRC, including embargoes on the provision of critical software and raw material inputs to TSMC. In August 2022 TSMC Chair Mark Liu told CNN that “Nobody can control TSMC by force. If you take a military force or invasion, you will render [the] TSMC factory not operable.”[\[29\]](#)

TSMC is not a standalone magical chip factory that conjures world-leading semiconductors from thin air. Rather, it is a key culmination point in which exquisite chip designs made with British or American software are etched onto high-purity silicon wafers by extreme ultraviolet lithography machines from a single company in the Netherlands via photoresists and specialty chemicals coming from a handful of largely Japanese suppliers. TSMC's singular importance as a manufacturer of bleeding-edge[\[30\]](#) semiconductors is matched by a supplier ecosystem that is equally singularly located in the United States or countries allied with it. All of these countries presumably wish to avoid economic, political, and military coercion by a PRC silicon hegemon.

Possible Limits on Actual Control. Finally, despite having acquired financial control over Taiwanese semiconductor assets, Beijing could face limits on its practical control over them. Even if a PRC air and sea cordon made it difficult for the U.S. and its allies to exfiltrate key Taiwanese semiconductor personnel from the island, Beijing could discover that compelling people to do things and do them well is much harder than using coercion to dissuade them from acting. For instance, TSMC's local workers might refuse to work for a Beijing-controlled entity and perhaps even engage in quiet sabotage of key fab equipment. Even a small amount of “quiet quitting” or simple refusal to execute tasks with the precision clockwork and extra-mile mindset[\[31\]](#) that have made TSMC a world leader could devastate the firm's productive capacity.

Taiwanese executives, many of whom are also U.S. citizens and/or have children who are U.S. citizens, would likely have great pause working for a PRC-controlled entity. High-profile businesspeople have already disappeared repeatedly in the PRC, apparently at Beijing's whim: it seems that the success and profiles of Alibaba

founder Jack Ma and prominent investment banker Bao Fan, for example, became intolerable for the CCP.

Global Impact and International Repercussions. More broadly, it is important to emphasize the international outrage and concrete penalties that would result from any PRC action that threatened chip supply. An endangered chip supply would endanger trillions of dollars globally, and the actions that put it in peril would invite an international backlash. The United Nations or other international bodies could be used to address the criticality of Taiwanese chips well before any sort of threat against them, since access to these chips impacts all nations. International support or clear statements of support for chip access might help set conditions for possible U.S.-led intervention to break a blockade or other interference, should it ever prove necessary. Clear statements from the United States and its allies and partners could dissuade the PRC from ever engaging in export-affecting activities around Taiwan.

The Bottom Line: Prevent China from Ever Becoming the Silicon Hegemon

Over the past eight decades Asian growth has been a prime mover of the global economy — first in the “Asian Tigers” (Hong Kong, Singapore, South Korea, and Taiwan) and more recently in the PRC. It is crucial to protect the progress made over those 80 years of great power peace from eroding, or outright rupturing, as a result of the CCP’s revisionist impulses. American policy increasingly emphasizes containing those impulses, including in the tech space. But Washington does not seek regional domination in the way that the PRC under Xi likely would. While Beijing likely disagrees, eight decades of lived experience strongly suggest there is a place for both global titans to grow and prosper in an order that rejects conquest by force.

History shows that China grew into a quasi-superpower without annexing Taiwan or its superlative semiconductor industrial base. Yet the emotive commitment of the PRC under Xi to “reunify” Taiwan with the PRC means that the existing peaceful and prosperous order so painstakingly built from the ashes of World War II will not survive spontaneously. Given the risks involved, it is best to hold the line through

this decade of maximum danger through deterrence and thereby prevent Xi from ever reopening such a disastrous Pandora's Box. Ultimately, however, that increasingly precarious peace may need to be defended with military strength.

Washington's approach must therefore anchor to the time-tested maxim of "si vis pacem, para bellum": if you want peace, prepare for war. A lack of capacity or will to defend free maritime and air passage to and from Taiwan would open the doors to strategic catastrophe for the United States and its allies and partners. We need to think through the previously unthinkable and be ready to deter aggression — aiming to stop disaster before it can happen — and prevent China from ever becoming the silicon hegemon in the first place.

Endnotes

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[1] Christopher Miller, a professor of international history at Tufts University's Fletcher School of Law and Diplomacy, alludes to this possibility toward the end of his pathbreaking book: Christopher Miller, *Chip War: The Fight for the World's Most Critical Technology* (New York: Scribner, 2022), 339.

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[10] "Fab" is a commonly used abbreviation for a semiconductor fabrication plant.

[11] "Kinetic warfare" refers to traditional warfare employing major military equipment (warships, aircraft, tanks, and weapons systems, etc.) and forces to

cause significant physical damage and destruction (e.g., missile attacks). Non-kinetic warfare involves actions that are typically non- or minimally, lethal and temporary or reversible in effect (e.g., cyber operations). See, for example, <https://www.datascienceassn.org/content/kinetic-vs-non-kinetic-war>.

[12] The full name used by the U.S. Department of Defense is "China's People's Armed Forces Maritime Militia (PAFMM)." For background on the PRC's maritime militia, see Andrew S. Erickson, "The China Maritime Militia Bookshelf: U.S. Government Coverage, SECNAV Guidance, Official Video—& More!" China Analysis from Original Sources, 30 May 2023,

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[15] A hegemon is a state that has preponderant power and status and exerts dominant influence or authority over others. While the term was previously employed largely to describe relations among states in the international system within political science literature, it has broadened and diversified in application, to include usage in subcategories (e.g., the balance of power within the global semiconductor industry that the authors address in the present essay). See, for example, Mark Beeson, "Hegemony," in Oxford Bibliographies, October 19, 2020, <https://www.oxfordbibliographies.com/display/document/obo-9780199756223/obo-9780199756223-0101.xml>.

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[18] The dual circulation economic strategy model entails growing exports (international circulation) while also expanding domestic demand (domestic circulation). See, for example, Michael Pettis, "Will China's Common Prosperity Upgrade Dual Circulation?" Carnegie Endowment for International Peace, October 15, 2021, <https://carnegieendowment.org/chinafinancialmarkets/8557>.

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