

Aligning Semiconductor Export Controls: Taiwan's Strategy under Trump 2.0

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Export controls are a cornerstone of U.S. strategy in the technological Cold War with China, with Taiwan's semiconductor industry playing a pivotal role. This framework will shape Taiwan-U.S. semiconductor security cooperation in the Trump 2.0 era. Since the Trump 1.0 administration, the U.S. has relied on unilateral measures, explicitly targeting China as a geopolitical rival. Sanctions against Huawei led TSMC to halt chip exports to the company. The foundation of Taiwan-U.S. semiconductor security rests on two critical factors: Taiwan's reliance on U.S. technology within global value chains and the ability of non-Chinese markets to offset order losses from export controls.

The Biden administration has reinforced this hardline stance, reflecting bipartisan agreement on China as the primary target of U.S. export controls. While a second Trump administration may tweak procedural tools, the core national security and foreign policy objectives are unlikely to change.

U.S. Export Control Policy: A Strategic Evolution

The reform of U.S. export control policy may seem drastic under the last two presidencies. Yet, institutional changes take much longer to overhaul. Since the end of the Cold War, the U.S. and its allies have adopted multilateralism, including the Wassenaar Arrangement, to regulate arms and dual-use technologies. The goal: prevent nuclear weapons and WMD proliferation. But the Export Administration Act of 1979, the foundation of the Export Administration Regulation (EAR), expired in 2001. Since then, the U.S. export control regime has relied on Executive Orders and the International Emergency Economic Powers Act (IEEPA). Each administration has maintained this system to address national security concerns without permanent EAR authority. However, gradual institutional changes expanded its scope.

The Clinton Administration reformed the EAR via Executive Orders. It improved licensing processes and imposed sanctions on nations opposed to non-proliferation and peace. During the War on Terror, the Bush Administration expanded export controls, targeting countries linked to terrorism. The Obama Administration introduced new reforms in 2013. It reviewed controlled items and identified critical but less sensitive emerging technologies. Responsibilities were consolidated under the State Department. Licensing processes became simpler and more transparent. The Obama era also marked aggressive use of the entity list for unilateral export controls. This shift stemmed from gaps between foreign investment risk reviews and export control policies.

The Committee on Foreign Investment in the United States (CFIUS) often over-regulated investments, creating unnecessary burdens. Meanwhile, export controls could only regulate listed technologies, leaving loopholes for identical technologies to be transferred easily. The consensus: export controls needed to broaden their scope to match technological advancements.

These efforts paved the way for the Export Control Reform Act of 2018 (ECRA). The ECRA expanded export controls and codified prior reforms, especially the focus on emerging technologies. It addressed end-use and end-user concerns, particularly for China. It also strengthened the Bureau of Industry and Security (BIS) by granting more authority to investigate EAR violations.

Section 1758 of the ECRA was pivotal. It required regular identification of emerging technologies and consideration of comparable foreign technologies. It also mandated assessments of domestic technological impacts and emphasized multilateral controls, including engagement with regimes like the Wassenaar Arrangement. The Trump Administration intensified these efforts. It targeted China through unilateral controls. In 2019, an Executive Order placed Huawei and its affiliates on the BIS entity list. In 2020, the Department of Commerce expanded foreign direct product rules to restrict Huawei's access to American technology, software, and equipment.

The Biden Administration continued these reforms. It prioritized identifying emerging technologies and pursued country-specific initiatives. In September 2022,

National Security Advisor Jake Sullivan underscored the U.S. goal of maintaining a technological lead over China. By October 2022, export controls expanded to restrict China's access to advanced semiconductors, production equipment, and supercomputing technologies. Biden also enhanced multilateral efforts, facilitating newly emerged multilateral controls against Russia and securing a 2023 deal with Japan and the Netherlands to control advanced semiconductor equipment exports. Before leaving office, Biden introduced several additional AI chip export controls. These included restrictions on HBM, expanded licensing requirements for Taiwanese and South Korean chipmakers and packaging/testing suppliers exporting chips below the 14- or 16-nanometer level with high transistor counts, and the proposal of a three-tier global framework for AI chip exports.

This policy trajectory reveals key insights. First, despite varying strategies, administrations share a consistent focus on emerging technologies and concerns about China. Differences lie in unilateral versus multilateral controls and transactional versus principle-based approaches. Second, expanded foreign direct product rules make unilateral controls more effective by identifying American technology chokepoints. Lastly, efforts since the Obama era laid the groundwork for defining security and industrial advantage. These steps highlight the urgency for other nations to broaden their scope and secure critical technologies for economic security.

U.S. and Taiwan: Interwoven Industrial Ties and Security Challenges

U.S. export control policies may have initially been designed with domestic considerations, but their implementation and impact are undeniably global. The U.S.-led export control regime faces two significant challenges: curbing China's technological advancements and addressing disruptions to global supply chains caused by China's state-led model. Achieving these objectives requires support from tech democracies. However, national security rationales differ. Not all nations view China as their primary threat or align with U.S. tech diplomacy. This raises questions about aligning policies while protecting domestic industries and maintaining fair global competition.

The goals of U.S. export control policy have expanded beyond traditional objectives. Taiwan, while not a formal member of the Wassenaar Arrangement, voluntarily aligns its domestic laws with its principles. However, Taiwan's export control framework has not kept pace with the U.S.-China tech rivalry, which has fundamentally altered the post-Cold War framework. Taiwan incorporates Wassenaar Arrangement's strategic trade controls into its *Foreign Trade Act*, including amendments in 2019 to increase penalties for violations of trade controls. However, these controls do not specifically target China. In 2022, Taiwan introduced another important legal reform: the *National Core Critical Technology List*. While this list resembles the U.S. technology-based export control lists, Taiwan has primarily used it to increase penalties for economic espionage rather than for export control enforcement.

Taiwan's semiconductor industry, tightly integrated into the global value chain for over half a century, historically developed under the security framework set by the U.S., which also shaped Taiwan's foundry industry. Today, Taiwan remains a key part of the U.S. semiconductor security strategy. Focused on chip manufacturing, Taiwan relies heavily on the U.S. market—specifically, U.S. brands and IC design companies—as well as U.S. technology to produce advanced semiconductors. This economic interdependence gives U.S. export controls significant leverage. Initially, the emergence of the Chinese market did not disrupt this balance. However, China's state-led model has upended the dynamic by channeling vast resources into building a self-sufficient semiconductor supply chain and enticing tech democracies into its ecosystem with lucrative commercial opportunities. This strategy forces companies to choose between adhering to U.S. regulations and maintaining access to China's market.

A similar dilemma applies to the U.S. case of state-industry relations. Critics argue that U.S. export controls often favor American firms over foreign competitors, raising concerns about fairness and sustainability. For instance, Qualcomm and Intel had received license approvals to sell equipment and components to Huawei, fueling allegations of double standards in U.S. enforcement.¹

¹ Alper, Alexandra, Fanny Potkin, and David Shepardson, "US Revokes Intel, Qualcomm's Export Licenses to Sell to China's Huawei, Sources Say," *Reuters*, May 8, 2024. [Online]. Available: <https://www.reuters.com/technology/us-revoked-some-export-licenses-chinas-huawei-2024-05-07/>.

Taiwan's Divergent Approach to Semiconductor Security Strategy

China's sovereignty claim over Taiwan makes economic interdependence with China a direct threat to Taiwan's political survival, necessitating stricter controls on technology flow. For national security reasons, Taiwan has proactively developed an approach to managing technology interactions with China. However, this framework differs significantly from the U.S. model, largely due to differences in the roles Taiwan and the U.S. occupy within global value chains.

Taiwan's semiconductor industry has historically focused on meeting international market demands and geopolitical rules rather than actively reshape them. Leveraging industrial strengths to shape foreign policy or using technological capabilities as diplomatic bargaining chips has often been viewed as inconsistent with Taiwan's long-standing industrial ecosystem. These factors have led to a regulatory model that ties national security goals to industrial competitiveness. Rather than outright banning Chinese orders, Taiwan advises firms to manage long-term risks when participating in China's tech ecosystem. This pragmatic approach seeks to balance delaying China's technological progress—particularly preventing China from replicating Taiwan's entire semiconductor industry ecosystem to enhance its domestic chip production capabilities—with maintaining the global competitiveness of Taiwanese firms. As a result, nearly all restrictions on Taiwanese firms selling technology to China have so far stemmed from U.S. unilateral measures rather than direct actions by the Taiwanese government.

Laws like the *Act Governing Relations between the People of the Taiwan Area and the Mainland Area* reflect Taiwan's strategy, imposing strict reviews of Chinese investments and monitoring domestic semiconductor firms' plans in China. Taiwan ensures its industrial ecosystem remains globally competitive by requiring greater R&D investments within Taiwan while minimizing technology leakage risks through pre-approval processes and mandating that Taiwanese firms retain control over their subsidiaries in China.

Taiwan's regulatory approach has not fully adapted to the changing geopolitical landscape. Recent legal reforms have largely continued existing policy

objectives. In 2020, Taiwan introduced stricter criteria for assessing Chinese control over entities operating outside of China, making it more difficult for Chinese companies under other jurisdictions to invest in Taiwan. By 2022, Taiwan strengthened its pre-investment review process, blocking further transfers of critical semiconductor technologies by Taiwanese subsidiaries in China. However, these changes did not address Taiwan's export control system. Public discussions on export controls have similarly failed to produce significant reforms, exemplified by the hesitation to designate Huawei and its affiliates as controlled end-users under export regulations.

Misaligned Approaches in U.S.-Taiwan Tech Controls

Since 2022, the Biden administration's export controls have targeted China's domestic chip production capacity, including restrictions on semiconductor manufacturing equipment. This aligns with Taiwan's longstanding goals of limiting China's chip production capabilities. Yet, Taiwan relies on investment reviews to achieve these goals, while the U.S. only implemented an outbound investment screening system in 2024. Taiwan's export control framework emphasizes non-proliferation, while U.S. policy encompasses broader objectives, including human rights, supply chain security, and protecting democratic systems. These differences in approach and stated objectives limit discussions on their alignment.

The Biden administration's collaboration with Japan and the Netherlands in 2022 marked the first multilateral framework focused on semiconductor technology to counter China's advancements. Despite America's dominance in the global value chain, non-U.S. technologies often fall outside its jurisdiction, requiring allied cooperation to expand control over semiconductor equipment and materials. Taiwan, constrained by its diplomatic status, faces challenges in participating in many international multilateral frameworks. Consequently, it primarily engages through bilateral communication with the U.S., lacking opportunities to coordinate with other tech democracies or influence U.S. policy direction as the international export control framework evolves.

As U.S. export controls grow more complex and China implements countermeasures, supply chain dynamics have become increasingly unpredictable.

Taiwanese companies now face heightened geopolitical risks. Initially, U.S. sanctions on Huawei in 2019 forced Taiwanese firms to weigh commercial risks against compliance. By 2024, TSMC faced challenges discerning whether Chinese clients were linked to Huawei, as China deliberately concealed such connections. Reports surfaced that the U.S. Department of Commerce had asked TSMC to halt chip exports of 7nm or below to Chinese clients using them for AI applications, further complicating export control compliance.²

China's countermeasures, such as subsidizing foundational chips (also known as legacy chips), create market distortions that threaten Taiwanese firms. Taiwanese companies like TSMC, UMC, and PSMC are critical suppliers of foundational chips that underpin global supply chains. If China floods the market with subsidized, low-cost foundational chips, it could undermine Taiwan's industry and jeopardize the reliable supply of chips critical for military, aerospace, and space technologies in democratic nations.

Although the Biden administration has initiated a Section 301 investigation, its "small yard, high fence" strategy remains focused on restricting advanced semiconductors, manufacturing equipment, AI, and supercomputers. Discussions within U.S. policy circles remain unresolved. Chris Miller has expressed skepticism about the effectiveness of imposing export controls on foundational chips, arguing that China may already possess the capability to produce semiconductor manufacturing equipment for these chips.³ Former Trump-era Commerce Department official Nazak Nikakhtar, however, advocates for expanding export controls, emphasizing that the U.S. must act early to counter China's ambitions and protect allies like Taiwan and South Korea from potential harm.⁴

² Trendforce, "TSMC Reportedly to Halt 7nm and Below Chip Shipments to China's AI Firms Next Week," *Trendforce*, November 8, 2024. [Online]. Available: <https://www.trendforce.com/news/2024/11/08/news-tsmc-reportedly-to-halt-7nm-and-below-chip-shipments-to-chinas-ai-firms-next-week>.

³ Chang, Chih-Cheng, Chiang Min-yen, Ming-yen Ho, Dah-Wei Yih, and Wei-ting Chen, "Chris Miller Discusses AI Era Chip Geopolitics and the Future of Taiwan's Semiconductor Industry," Upmedia, April 25, 2024. [Online]. Available: https://www.upmedia.mg/news_info.php?Type=2&SerialNo=200194.

⁴ Cohen, Ian, "US Is Late to Export Controls for Legacy Chips, Former BIS Official Says," *Export Compliance Daily*, November 13, 2023. [Online]. Available: <https://exportcompliancedaily.com/news/2023/11/13/us-is-late-to-export-controls-for-legacy-chips-former-bis-official-says-2311090015>.

The stance of tech democracies on regulating foundational chips is particularly critical to Taiwan's semiconductor industry and economic security, even before the U.S. directly faces such threats. During the Trump 2.0 era, Taiwan must not only clearly assert its position to allies but also build the capacity and space necessary to collaborate with other tech supply chain partners in crafting export control measures that align with Taiwan's national interests while safeguarding global supply chain security.

Looking Ahead: Rethinking Taiwan's Export Control Strategy

As the Trump 2.0 administration takes shape, the U.S. will likely adjust its export controls dynamically. China is expected to counter with its own measures, creating unpredictable market trends. The exact direction of Trump 2.0's export controls remains uncertain. However, more unilateral measures are anticipated to restrict tech democracies' commercial ties with China. Stronger countermeasures against China's technological advancements are also likely. These changes may evolve rapidly, leaving less time for coordination with allies.

Taiwan currently lacks the capacity to adjust its export control policies dynamically, making it difficult to keep pace with the U.S. and engage effectively in bilateral discussions. To better align U.S. export control policies with its interests, Taiwan must establish a robust domestic export control framework. This includes setting clear policy objectives, improving transparency in entity list updates, and overhauling technology-based and end-use control lists. Taiwan should target areas in China's semiconductor strategy that pose the greatest threats to its industries. With these tools, Taiwan would gain greater flexibility in bilateral coordination with the U.S.

Taiwan must also understand its existing tech control framework and ensure allies recognize regulatory differences. Coordinating strategies to achieve shared goals through different approaches is essential. Taiwan's polarized political environment complicates export control reform, as opposition parties may resist collaboration with tech democracies. If legislative reforms stall, the government must rely on existing laws. For example, Taiwan's requirement for prior government

approval of all Chinese business activities in Taiwan has helped intercept China's efforts to poach Taiwanese AI chip talent.⁵ This highlights the potential of leveraging existing legal frameworks to address challenges posed by emerging technologies.

China continues to invest heavily in replacing Taiwan's semiconductor ecosystem. Taiwanese firms remain part of Huawei's shadow network of suppliers, supporting China's semiconductor supply chain in areas like cleanroom engineering, waste management, and chemical supplies. These technologies, which do not involve U.S.-origin components, fall outside both U.S. and Taiwanese regulatory scopes. Some Taiwanese suppliers are localizing in China, reducing Taiwan's regulatory leverage.⁶

Similar models could see broader application, impacting larger segments of the supply chain. Persistent gray areas risk undermining Taiwan-U.S. semiconductor security cooperation. China's market incentives attract foreign suppliers and weaken adherence to U.S. regulations. U.S.-led export controls could ultimately fail to regulate a China-led global value chain. To prevent this, Taiwan must work with the U.S. during the Trump 2.0 era to address these challenges by integrating more emerging technologies and key local innovations into domestic export control frameworks.

⁵ Chiang, Min-yen, *The Remote Poaching Model: How China's Bitmain Acquired Taiwan's Edge AI Chip Technology and Its Implications for Economic Security*, Research Institute for Democracy, Society, and Emerging Technology, 2024. [Online]. Available: <https://dset.tw/en/research/00039/>.

⁶ Wang, Tsai-Yi, and Min-yen Chiang, *Uncovering Huawei's Shadow Network: Shenzhen Major Industry Investment Group and Taiwanese Suppliers in China's Semiconductor Strategy*, Research Institute for Democracy, Society, and Emerging Technology, 2024. [Online]. Available: <https://dset.tw/en/research/uncovering-huaweis-shadow-network/>.