

CHAPTER 6: KEY ECONOMIC STRATEGIES FOR LEVELING THE U.S.-CHINA PLAYING FIELD

Abstract

Many of China's economic, technological, and military policies are at the expense of and contrary to U.S. and allied interests. Today, China continues to flood global markets with exports in an attempt to boost its domestic economic growth while simultaneously pursuing the development of emerging technologies to assert its global geopolitical interests and spur military modernization. In response, the United States' economic approach toward China is evolving to combat China's state-led, non-market practices. The United States' toolkit for addressing these challenges includes trade policy tools, such as tariffs on imports from China, controls on the transfer of technology, and restrictions on inbound and outbound investment that might advance China's development of sensitive technologies. At the same time, there remains a lack of consensus on the scope and implementation of these measures. Lacking an overarching set of objectives and a comprehensive strategy for achieving them, some policies are implemented at cross-purposes, weakening the United States' approach to economic competition with China. Unlike the National Security Strategy (NSS), the United States does not yet have a unified strategy organizing its approach to economic security. The effectiveness of the United States' economic security strategy faces further limits at present from a lack of data and analytic capabilities as well as a lack of adequate alignment of policies with key allies and partners.

Key Findings

- U.S. trade policy is a key tool for defending against China's non-market economic practices, diversifying U.S. supply chains, and preserving U.S. economic security.
- Efforts to de-risk supply chains are undermined by a lack of a cohesive trade policy as well as the continued presence of Chinese value-added content in non-Chinese imports.
- As China increasingly asserts itself as a significant military power, export controls have emerged as a central tool in U.S. efforts to deny China direct access to critical dual-use goods and advancements in national security-sensitive technologies. However, a number of operational challenges diminish their effectiveness, including lack of coordination among key allies, compliance challenges, and uneven enforcement.
- While Congress in 2018 strengthened the U.S. inbound investment screening mechanism, it considered but did not implement matching rules on outbound investments. In the last few years,

policymakers have actively explored creating an outbound investment screening mechanism. Such a mechanism would curb important U.S. economic support to China's advanced technology ambitions, such as the transfer of management expertise, know-how, and capital that is unaddressed by the United States' existing toolkit, including a yet-to-be-implemented executive order (EO).

- A lack of adequate detailed data on U.S. trade and investment flows poses an acute challenge to effective policy scoping and implementation.
- Economic partners in the G7 and other developed markets have implemented trade measures to address trade distortions caused by China's state-led economy; these measures continue to evolve. They are also exploring parallel export controls and outbound investment screening policies to limit the flow of key technologies. At times, the United States has had difficulty obtaining alignment with allies, which can undercut the effectiveness of U.S. policy and put U.S. companies at a disadvantage.

Recommendations

The Commission recommends:

- Congress consider legislation to eliminate federal tax expenditures for investments in Chinese companies on the Entity List maintained by the U.S. Department of Commerce, or identified as a Chinese military company on either the "Non-Specially Designated National (SDN) Chinese Military-Industrial Complex Companies List" maintained by the U.S. Department of the Treasury or the "Chinese military companies" list maintained by the U.S. Department of Defense. Among the tax expenditures that would be eliminated prospectively are the preferential capital gains tax rate, the capital loss carry-forward provisions, and the treatment of carried interest.
- To enhance the effectiveness of export controls, Congress should:
 - Improve the analytic and enforcement capabilities of the U.S. Department of Commerce's Bureau of Industry and Security (BIS) by providing resources necessary to hire more in-house experts; establish a Secretary's Fellows Program to more effectively attract interagency talent; expand partnerships with the national labs; increase access to data and data analysis tools, including the acquisition of proprietary datasets and modern data analytic systems; and hire additional agents and analysts for the Office of Export Enforcement.
 - Amend the Export Control Reform Act to require that within 30 days of granting a license for export to entities on the Entity List, including under the Foreign Direct Product Rule, BIS shall provide all relevant information about the license approval to the relevant congressional committees, subject to restrictions on further disclosure under 50 U.S.C. § 4820(h)(2) (B)(ii).
 - Direct the president to:

- Designate a senior official to coordinate efforts across the Administration to prioritize bilateral and multilateral support for U.S. export control initiatives; and
- Establish a Joint Interagency Task Force, reporting to and overseen by the national security advisor and with its own budget and staff, to assess ways to achieve the goal of limiting China's access to and development of advanced technologies that pose a national security risk to the United States. The task force should include designees from the U.S. Departments of Commerce, Defense, State, Treasury, and Energy; the intelligence community; and other relevant agencies. It should assess the effectiveness of existing export controls; provide advice on designing new controls and/or using other tools to maximize their effect while minimizing their negative impact on U.S. and allied economies; and recommend new authorities, institutions, or international arrangements in light of the long-term importance of U.S.-China technology competition.
- Codify the "Securing the Information and Communications Technology and Services Supply Chain" Executive Order to ensure that as the authority is used more robustly, challenges to its status as an executive order will not constrain BIS's implementation decisions or delay implementation.
- Congress direct the Administration to create an Outbound Investment Office within the executive branch to oversee investments into countries of concern, including China. The office should have a dedicated staff and appropriated resources and be tasked with:
 - Prohibiting outbound U.S. investment through a sector-based approach in technologies the United States has identified as a threat to its national or economic security;
 - Expanding the list of covered sectors with the goal of aligning outbound investment restrictions with export controls. The office should identify and refine the list of covered technologies in coordination with appropriate agencies as new innovations emerge; and
 - Developing a broader mandatory notification program for sectors where investment is not prohibited to allow policymakers to accumulate visibility needed to identify potential high-risk investments and other sectors that pose a threat to U.S. national or economic security. In addition to direct investments, the notification regime should capture passive investment flows to help inform debates around the expansion of prohibitions to cover portfolio investment.
- Congress repeal Permanent Normal Trade Relations (PNTR) for China. The PNTR status allows China to benefit from the same trade terms as U.S. allies, despite engaging in practices such as intellectual property theft and market manipulation. Repealing PNTR could reintroduce annual reviews of China's trade practices, giving the United States more leverage to address unfair trade behaviors. This move would signal a shift toward a more

assertive trade policy aimed at protecting U.S. industries and workers from economic coercion.

- Congress direct relevant departments and agencies to expand their data collection and transparency initiatives into the volume and types of investment flowing into China by taking the following actions:
 - Amending the International Investment and Trade in Services Survey Act to require the Bureau of Economic Analysis within the U.S. Department of Commerce to publish more detailed sectoral breakdowns of U.S. direct investment in China on a nationality basis and the U.S. Department of the Treasury to publish annual sector breakdowns of U.S. portfolio investment in China on a nationality basis. The portfolio investment sectors should be more specific than those provided by the Commerce Department for direct investment. Additionally, Congress should require the Treasury Department to publish quarterly updates—without sector breakdowns—of nationality-based portfolio investment in China.
 - Requiring the U.S. Department of Commerce to produce a report on the feasibility and methodology for publishing nationality-based results for direct investment, where offshore tax havens and locales of incorporation would not be said to receive hundreds of billions of dollars and true destinations of the capital would be accurately identified.
- Congress direct the Administration to impose sanctions on Chinese financial institutions that violate sanctions, including those that are proven to be working with or supporting the Russian military industrial base or facilitating purchases of Iranian oil.
- In light of the periodic and increasingly frequent removal of some of these materials from Chinese websites, Congress direct the executive branch to fund the creation and operation of a regularly updated, permanent data archive, in effect a series of snapshots of portions of the Chinese internet. In the past decade, foreign analysts have made use of open source Chinese-language materials to gain insight into various aspects of current policy as well as internal (but unclassified) discussions of future military, diplomatic, and economic strategy. Information would be stored in the permanent data archive, accessible to both government and private analysts.
- Congress consider legislation to set priorities and goals for U.S.-China economic relations. These policy priorities and goals should include:
 - Updating existing trade and economic tools to ensure their timely application, utility, and effectiveness in countering China's non-market economic policies;
 - Limiting U.S. economic and security dependence on supply chains in critical and emerging products, technologies, and services provided by companies controlled, operating in, or subject to the influence of China;

- Enhancing the accountability of the executive branch to Congress and increasing the transparency of its actions to ensure coordinated governmental action and respect for Congress’s constitutional Article I, Section 8 authority;
 - Prioritizing domestic production and employment while also recognizing the need, as appropriate, to coordinate and align policies with friends and allies;
 - Acting to address production overcapacity fueled by Chinese policies and actions; and
 - Advancing the resilience of the U.S. economy and ensuring its access to key inputs and technologies.
- Congress pass legislation eliminating the ability of entities operating in U.S. Foreign-Trade Zones (FTZs) to qualify for zero or lower tariffs on products imported from China or Chinese-affiliated or -invested entities into the FTZ and then reexported.
 - The relevant committees of Congress hold hearings to assess the desirability and feasibility of creating a trade defense coalition with other like-minded countries to forestall the risk of a second China shock. Such a grouping would seek to align policies for responding to the recent acceleration in China’s exports of subsidized, underpriced materials and manufactured goods.

Introduction

In recent years, U.S. policymakers have begun to rethink many of the assumptions that undergirded the previous several decades of trade and economic engagement with China. While China undertook some measures to reform its economy in ways to promote private enterprise and foreign investment, such measures invariably proved secondary to the Chinese Communist Party’s (CCP) core goals of remaining in power, strengthening its economy and military power and growing China’s global influence. The CCP never intended to cede control of China’s economy to market forces.

Early indications suggest that attempts by the United States to limit China’s access to and development of certain dual-use and foundational technologies, promote de-risking, and address economic distortions and unfair trade practices from China have had some success. But even as a growing array of policy tools are being deployed to evolve U.S. economic, trade, and related national security policy toward China, the U.S. economy remains deeply intertwined with China’s. There is a need for a more comprehensive policy realignment—including a review of trade tools, export controls, and investment restrictions—as well as a significantly greater effort to align these measures with those of allies and like-minded countries in order to ensure their efficacy.

This chapter begins with a review of how China continues to pursue its economic interests in ways inconsistent with global norms of fair trade. The chapter then reviews the United States’ response to China’s action across three arenas: trade policy, export controls, and investment screening. The chapter draws on the Commission’s May 2024 hearing on “Key Economic Strategies for Leveling the

U.S.-China Playing Field: Trade, Investment, and Technology,” consultations with experts, and open source research and analysis.

Economic Security as a Whole-of-Government Approach

Over the past three decades, U.S. economic policy toward China was substantially developed and implemented in functional silos. The United States tailored policy approaches based on explicit concerns—such as specific market access challenges, intellectual property (IP) theft, or steel and aluminum overcapacity—so as not to derail broader economic cooperation or to slow what was widely hoped to be a process of liberalization by China.¹

Given this, U.S. strategy and implementation of its key economic tools were also siloed. U.S. officials were aware that China’s non-market economic practices frequently advantaged Chinese companies at the expense of U.S. firms and workers and resulted in significant shifts in supply chains. However, optimism that a complex and interdependent global economy would deter conflict and liberalize China tempered the U.S. response and kept the focus on more narrow industry-specific issues or better enforcement of existing trade rules.² Similarly, despite periodic concerns that technology transfers might be assisting the People’s Liberation Army’s military modernization drive, until very recently this was viewed as an issue for narrow export controls on weapons and dual-use products, not a reason to broadly challenge China’s innovation ecosystem or limit flows of U.S. capital and know-how that helped build up China’s technological capabilities in critical and emerging technologies.³

Many policymakers have come to believe that the size, scale, and complexity of China’s challenge to U.S. interests requires more intense coordination between economic and national security goals.⁴ The United States, however, has not reshaped its architecture of economic tools accordingly despite a consensus that China is now a whole-of-government problem.⁵ While the United States has pursued numerous actions to refine and improve the tools it uses to address the trade, technology, and investment challenges it faces from China, its actions remain fundamentally siloed.

U.S. export controls on advanced chips illustrate the risks of the current approach. The U.S. government restricts advanced semiconductor technologies aimed to limit China’s military modernization. Whatever their impact on China’s ability to achieve progress on artificial intelligence (AI) and supercomputing, U.S. export controls have evidently pushed Chinese chip makers to focus additional efforts on legacy chip production.⁶ However, trailing-edge—or legacy—chips are also critical to U.S. and allied commercial and military supply chains.⁷ Chinese dominance of the sector is thus incongruent with U.S. strategic goals.⁸ Expanding export controls would likely be ineffective for this problem. China has secure access to the technology necessary for legacy production and already accounts for 30 percent of worldwide manufacturing capacity.⁹ Instead, other tools will be needed to address the United States’ strategic objectives of maintaining an edge in the most advanced semiconductors while avoiding excessive dependence on China for legacy chips.¹⁰

The United States publishes a comprehensive National Security Strategy (NSS) that helps provide guiding principles and goals, coherence, and coordination across disparate government efforts for myriad U.S. national security policies.¹¹ The NSS also helps provide important messaging and coordination with key allies and partners. The most recent NSS repeatedly mentioned economic issues vis-à-vis U.S. competition with and the national security threat from China. These issues span China's non-market abuses and economic coercion, China's partially closed economy and growing technological capabilities, and China's global economic importance and the benefits it reaps from the open international economic order.¹² Yet even with this recognition of China-related challenges, there is no comparable strategy on the economic side that defines a clear set of principles and goals to guide restructuring of the United States' economic relationship with China, foster coordination across varied departments and policy tools, and drive development of the tools that will be needed.

Deploying Tariffs and Other Trade Measures

Emerging Consensus on Trade Policy Objectives toward China

Key priorities of U.S. trade policy since 1945, according to the Congressional Research Service, have included "(1) fostering economic growth and securing more open, equitable, and reciprocal market access for U.S. exports and investment; (2) protecting U.S. producers from unfair foreign trade practices and rapid surges in fairly traded imports; and (3) strengthening the rules-based multilateral trading system to help achieve the above objectives and further U.S. foreign policy."¹³ Since 2017, however, the focus of U.S. trade policy has shifted in significant ways as the United States pivoted to address what it saw as rising economic challenges and flaws in the previous policy framework, particularly vis-à-vis China.¹⁴ The United States has increasingly deployed its trade policy instruments to address three areas in the U.S.-China economic relationship:

- *China's harmful economic practices:* Since China joined the WTO, the United States has largely sought to address the costs to the U.S. economy from China's non-market practices through bilateral engagement and multilateral mechanisms. Beijing's harmful policies include unfair subsidies, access to free or subsidized credit, and other non-trade barriers; coercive IP transfer and theft; and protectionism and market access restrictions.¹⁵ Distortions in China's system have often led to significant overcapacity, which, when combined with the open international trading system, has enabled China's export-led growth model and injured market-based producers in other countries.¹⁶ In 2018, Section 301 tariffs were unilaterally imposed to make progress on these issues. This marked a shift from a previous approach based on bilateral and multilateral frameworks.¹⁷
- *Supply chain resilience:* In response to growing geopolitical tensions and, later, shocks related to the COVID-19 pandemic, the United States has intensified its efforts to address supply chain risks and reduce reliance on Chinese production. As economist

Emily Blanchard observes, governments are no longer just interested in what goods and services enter or are sold within their borders but also are looking to reshape patterns of production occurring outside their borders and even before domestic firms may be involved, an approach that was not deeply considered when the WTO framework was established.¹⁸

- *The intersection of economic and national security:* In recent years, U.S. trade policy has aimed to address the United States' persistent and massive trade deficit with China, the loss of U.S. jobs and industry, and potential national security concerns arising from trade-related harm to domestic industries such as steel and aluminum.¹⁹ Ongoing policy debates center on how to deploy trade measures to ensure the United States does not lose critical industries to low-cost, state-supported, and non-market-based competition from China.

Recent U.S. Trade Measures

Since 2017, the United States has promulgated a complex web of trade measures to mitigate harms from Chinese imports in an attempt to create a more level playing field. Authorities under Section 301 of the Trade Act of 1974 were used to undertake an expansion in tariffs that was unprecedented in recent history. Alongside these actions, the United States also turned to Section 201 of the Trade Act of 1974 and Section 232 of the Trade Expansion Act to protect domestic industry, including from harmful Chinese economic practices. At the same time, U.S. industry expanded use of quasi-judicial trade remedy tools such as antidumping investigations, which were the source of most pre-2017 additional tariffs on imports from China following its accession to the WTO.²⁰ By the end of 2020, the United States' trade-weighted average tariff on Chinese products (including antidumping duties) was 26.7 percent, compared to 8.4 percent at the start of 2018.*²¹

Section 201 Action on Washing Machines and Solar Panels

On February 7, 2018, the United States placed duties on imports of washing machines and solar cells and modules under Section 201 of the Trade Act of 1974, the first imposition of Section 201 tariffs since 2001.²² According to economic historian Douglas Irwin, Section 201 was meant to be “the principal means by which industries harmed by imports could receive temporary relief from foreign competition.”²³ If the U.S. International Trade Commission (USITC) determines following an investigation that a product's import volume is a “substantial cause of serious injury, or the threat thereof, to the domestic industry,” the U.S. president can then decide to impose trade restrictions.²⁴ Relief under Section 201 is meant to serve as a temporary “global” safeguard, meaning import restrictions for a particular product or industry are applied to imports from all coun-

*The antidumping and countervailing duties (AD/CVD) assessed by the United States tended to be substantially higher than tariffs under Section 301. The average tariff without accounting for these trade remedies rose from 3.1 percent in January 2018 to 19.3 percent in December 2020, reflecting that Section 301 and other trade authorities were the primary drivers of the increase. Chad P. Bown, “U.S.-China Trade War Tariffs: An Up-to-Date Chart,” *Peterson Institute for International Economics*, April 6, 2023.

tries.*²⁵ Although these safeguard duties enable the United States to deal with temporary import surges in a way that is compliant with the WTO’s safeguard provisions, the authority has seen limited use. This is partially because the standard of “substantial cause” has proven difficult to establish, while its requirement of “serious injury” entails a much more onerous burden of proof than the equivalent standard in antidumping and countervailing duties (AD/CVD) proceedings.²⁶

After the USITC concluded two investigations on imports of washing machines and solar products, the U.S. government placed tariffs of up to 50 percent on residential washers and initial tariffs of 30 percent on certain solar cells and modules.†²⁷ Though the Section 201 duties on residential washers ended in February 2023,‡ the measures on solar products were renewed in February 2022 to last until 2026 (see textbox below).²⁸

Overlapping Trade Measures in the Solar Industry

The numerous trade measures covering solar cells and modules illustrates the wide-ranging playbook the United States is employing to counter unfair Chinese trade practices. Christian Roseland, an analyst at Clean Energy Associates, identifies seven separate U.S. trade actions (including repeated use of AD/CVD statutes) covering solar products that remain in effect.²⁹ These measures include:

- *AD/CVD orders*: The United States now enforces three separate AD/CVD orders related to Chinese solar production, and an additional investigation was launched in 2024. In 2012, the U.S. Department of Commerce placed AD/CVD on all solar cells from China.³⁰ In 2015, the Commerce Department issued a new AD/CVD order covering solar modules assembled in China, regardless of where the solar cells originated, and it also placed an antidumping order on Taiwan in response to Chinese companies establishing manufacturing facilities on the island.³¹ In 2022, the Commerce Department found that Chinese companies were routing covered solar products through Cambodia, Malaysia, Thailand, and Vietnam to circumvent the AD/CVD order, although additional duties on these imports were waived until June 2024.³² Most recently, in May 2024, the Commerce Department initiated, at the request of petitioners, a new AD/CVD case aimed at imports from various Southeast Asian countries that are not otherwise subject to the circumvention finding.³³ The inves-

*As a result, Section 201 duties generally cannot be evaded through transshipment, an illicit activity that undermines other trade authorities like AD/CVD orders, which target imports on a country-specific basis. Specific countries are sometimes exempted from Section 201 duties.

†As temporary measures, both tariffs were scheduled to be gradually phased out over a number of years. In addition, the Administration used tariff-rate quotas, which allow a limited number of goods to enter at a lower tariff rate. U.S. Trade Representative, *Fact Sheet: Section 201 Cases: Imported Large Residential Washing Machines and Imported Solar Cells and Modules*.

‡In its statutorily required evaluation of the Section 201 washing machine duties, the USITC assessed that the duties led to a decline in imports of residential washers and an increase in U.S. industry’s market share and financial performance between 2018 and 2022, with LG Electronics USA, Inc. and Samsung Electronic Home Appliance America, LLC emerging as the primary beneficiaries. U.S. International Trade Commission, *Large Residential Washers: Evaluation of the Effectiveness of Import Relief*, August 2023, 1.

Overlapping Trade Measures in the Solar Industry— *Continued*

tigation includes alleged instances of transnational subsidies provided by Chinese policy banks.³⁴ Prior to 2024, the United States did not countervail subsidies provided by a government to firms operating in another country.³⁵ (For more on the Commerce Department’s changing approach to transnational subsidies, see Chapter 4, “Unsafe and Unregulated Chinese Consumer Goods: Challenges in Enforcing Import Regulations and Laws.”)

- *Safeguard duties*: In January 2018, the United States placed a tariff-rate quota on imports of solar cells and modules from all countries—though China was among the largest sources of covered products—for an initial period of four years, which was extended for another four-year period in 2022.³⁶ Between 2019 and 2024, bifacial (i.e., two-sided) solar cells, a product predominantly used in large-scale utility projects, were granted an exclusion from the safeguard action; the U.S. government terminated the moratorium in May 2024 after imports of the product continued to surge.³⁷
- *Section 301*: Solar cells and modules were included in the duties imposed after the Section 301 investigation into China’s technology transfer, IP, and innovation policies. In May 2024, the U.S. government announced that it would double the tariffs on certain solar products from 25 percent to 50 percent as part of the Office of the U.S. Trade Representative’s (USTR) four-year review of the Section 301 action.³⁸
- *Uyghur Forced Labor Prevention Act (UFLPA)*: The UFLPA creates a rebuttable presumption that goods produced in Xinjiang are made using forced labor and therefore barred from importation.³⁹ The United States has used the UFLPA to seize over a thousand shipments of solar products, presumably because they use polysilicon originating from the region.⁴⁰

In total, imports subject to these trade measures face an effective tariff between 91 percent and 286 percent.⁴¹ Other products, such as steel, aluminum, and semiconductors, are also subject to duties under multiple authorities.[†]⁴²

*The Trump Administration also attempted to revoke the exclusion at the end of 2020, one year after introducing it. However, the U.S. Court of International Trade ruled in 2021 that revocation fell outside of the president’s authority and reinstated the exclusion. President Joe Biden elected to maintain the exclusion in 2022 when extending the safeguard measures. In 2023, a federal appeals court overturned the Court of International Trade’s finding, ruling that the president does have authority to terminate exclusions from the tariff. Jennifer A. Dlouhy, “Biden Seeks to Bolster Solar Manufacturers with Tax and Trade Moves,” *Bloomberg*, May 16, 2024.

†These overlapping measures, however, create a complex regulatory environment, and industry representatives have asserted that uncertainty about future duties undermines efforts to create resilient supply chains. Clean Energy Associates and American Council on Renewable Energy, “Potential Impacts of the 2024 Antidumping and Countervailing Duties on the U.S. Solar Industry,” July 9, 2024, 26.

Section 232

Another trade policy tool the United States has deployed is Section 232 of the 1962 Trade Expansion Act, which authorizes actions when the quantity or circumstances of specific imports pose a threat to U.S. national security.*⁴³ Between 2001 and 2017, no Section 232 investigations were conducted.†⁴⁴ Since 2017, however, nine new investigations have been initiated into imports of steel, aluminum, automobiles and automobile parts, and other metals and components.⁴⁵ In seven of these cases, the Commerce Department determined that subject imports posed national security threats, but because Section 232 remedies are viewed as extraordinary, only two of these investigations led to tariff actions.⁴⁶ The steel and aluminum Section 232 investigations resulted in import tariffs of 25 percent and 10 percent, respectively.‡⁴⁷

Section 301

To date, Section 301 of the Trade Act of 1974 has been the most versatile and significant tool for responding to China's non-market policies. Section 301 of the Trade Act of 1974 provides the USTR broad discretion to suspend trade agreement concessions or impose import restrictions if a U.S. trading partner is found violating commitments or engaging in an act, practice, or policy that is "unreasonable or discriminatory and burdens or restricts [U.S.] commerce."⁴⁸ Prior to 2017, Section 301 had largely fallen out of use as a trade remedy tool, with 119 investigations having occurred from 1975 to 2000 and only five between 2000 and 2016.§⁴⁹ The USTR initiated a broad Section 301 investigation in August 2017 into China's technology transfer, IP, and innovation policies. That investigation ultimately became the basis for the United States to impose significant tariffs on two-thirds of all imports from China in four waves of tariff actions between July 2018 and September 2019, impacting \$335 billion in trade¶ with duties ranging between 7.5 percent

*Although a wide variety of actors may trigger the initiation of a Section 232 investigation—incorporating any "interested party," the head of "any department or agency," and the secretary of commerce—investigations have historically been rare. Brock Williams of the Congressional Research Service notes that prior to the 2017 investigations under the Trump Administration, Section 232 action was last taken in 1986, with a total of just 26 investigations and six actual trade enforcement actions occurring before 2017. Brock R. Williams, "Trump Administration Tariff Actions: Frequently Asked Questions," *Congressional Research Service* CRS R 45249, May 18, 2021, 5.

†The use of Section 232 gives the Commerce Department and the president broad authority to examine imports that may threaten national security but otherwise would not be prohibited under the terms of existing trade agreements or the WTO. The majority of the Section 232 investigations took place during the height of the Cold War in response to increased threats facing U.S. national security. Doug Palmer, "The Cold War Origins of Trump's Favorite Trade Weapon," *Politico*, July 5, 2018.

‡The tariffs were not just aimed at China; initially they were imposed on most steel and aluminum imports into the United States. Various countries, including the EU, Japan, and the United Kingdom, later negotiated tariff suspensions on set volumes of imports. China along with other trading partners raised a WTO case against the Section 232 tariffs in 2018. The initial findings of the panel concurred that the Section 232 tariffs went beyond the scope of allowed national security measures under the WTO, and the United States has appealed the case, effectively stopping further developments in the decision-making process. Alan H. Price et al., "United States Notifies Intent to Appeal WTO Panel Reports on Section 232 Steel and Aluminum Measures," *Wiley*, January 30, 2023; Rachel F. Fefer et al., "Section 232 Investigations: Overview and Issues for Congress," *Congressional Research Service* CRS R 45249, May 18, 2021, 8–11, 41–44.

§Among the five Section 301 investigations, in 2010 the Obama Administration launched an investigation into China's policies affecting green technologies, following industry petition. Office of the U.S. Trade Representative, *United States Launches Section 301 Investigation into China's Policies Affecting Trade and Investment in Green Technologies*, October 15, 2010.

¶These figures are relative to 2017 levels, and the targeted products amounted to 66 percent of all imports from China. The United States announced plans to implement tariffs on another

and 25 percent.*⁵⁰ Between July 2018 and May 2024, the United States assessed \$215 billion in duties under the Section 301 action, or roughly \$36 billion per year.⁵¹ For comparison, U.S. Customs and Border Protection collected \$35 billion in duties across all countries and trade authorities in fiscal year (FY) 2017.⁵² According to Jamieson Greer, a partner in the International Trade team at King & Spalding, these tariffs were a key piece of a new approach and enforcement posture toward China that aimed to “level the playing field and potentially create an environment where negotiations for improved terms of trade were possible.”⁵³

In May 2024, the United States modified the Section 301 tariffs to respond to emerging sources of Chinese overcapacity. Following the completion of a review of the 2018–2019 tariffs, the USTR determined to continue the Section 301 duties already in place while announcing new tariffs on products that “are targeted by China for dominance or are sectors where the U.S. has recently made significant investments.”⁵⁴ These tariffs notably included a 100 percent tariff on made-in-China electric vehicles (EVs), effectively doubling the cost of importing an EV from China.[†]⁵⁵ The EV duties are intended to align with ongoing U.S. efforts to boost domestic EV production and promote EV production jobs in the United States, which could otherwise be uncompetitive with low-cost vehicles sold by BYD and other Chinese EV automakers that have benefited from years of heavy subsidies.⁵⁶ Additional tariffs were also placed on imports of Chinese EV batteries, personal protective equipment, certain critical minerals, semiconductors, and ship-to-shore cranes.⁵⁷ These actions placed tariffs on an additional \$18 billion in imports from China, though many have extended phase-in periods.⁵⁸ As a reflection of Section 301’s newly elevated role in U.S. trade strategy toward China, the USTR is considering the need for further action under the statute. In April 2024, the USTR launched a new Section 301 investigation into China’s practices in the shipbuilding, maritime, and logistics sectors.[‡]⁵⁹

The “Phase One” Trade Deal

The Section 301 tariffs became the basis for broad negotiations with China over a variety of trade issues. In January 2020, these negotiations culminated in a trade agreement with China, often called the “Phase One” Economic and Trade Deal, wherein China agreed to address key U.S. concerns in exchange for a reduction in Section 301 tariffs.[§]⁶⁰ China agreed to enhance IP protections, terminate

roughly \$151 billion in goods in December 2019, but it suspended this action because of ongoing trade negotiations with Beijing. Chad P. Bown, “The U.S. China Trade War and Phase One Agreement,” *Peterson Institute for International Economics*, February 2021, 13, 28.

*The list of Section 301 tariffs issued in September 2019 applied an initial duty of 10 percent to \$120 billion in Chinese goods. This tariff was reduced to 7.5 percent as part of the Phase One trade agreement. Office of the U.S. Trade Representative, *United States and China Reach Phase One Trade Agreement*, December 13, 2019.

†U.S. imports of EVs from China totaled \$368 million in 2023, equal to 2 percent of the U.S.’s imports of EVs from all sources. U.S. Census Bureau, *USA Trade Online*, September 9, 2024.

‡A recent paper that constructs an economic model of Chinese subsidies found that China’s shipbuilding industry received \$86 billion (renminbi [RMB] 624 billion) in subsidies, and this policy support caused Chinese shipbuilders to increase their global market share by 40 percent. Panle Jia Barwick, Myrto Kalouptsi, and Nahim Zahur, “Industrial Policy Implementation: Empirical Evidence from China’s Shipbuilding Industry,” *NBER Working Paper*, December 2023, 4.

§As part of the Phase One agreement, the United States reduced the tariff for products on “List 4A,” referring to Section 301 actions the USTR took to expand the Section 301 action in September 2019. The duty rate for this subset of goods was reduced from 15 percent to 7.5 per-

policies that force technology transfer from U.S. companies, and increase purchases of certain U.S. products by specified amounts, among other commitments.

While the COVID-19 pandemic created global disruptions that resulted in a significant change to economic conditions, China fell far short of fulfilling its commitment to purchase an additional \$200 billion worth of U.S. products over 2017 levels before the end of 2021. According to calculations by economist Chad Bown,* China's purchases of covered products reached only 58 percent of its purchase commitments by the end of 2021.⁶¹ Even aside from the purchasing commitments, however, the USTR assessed that China has failed to meet many of its Phase One obligations. Though China's 2020 implementation of the Foreign Investment Law and 2021 amendments to the Copyright Law, Patent Law, and Criminal Law partially met or fulfilled some of the elements of the Phase One deal, many technology transfer-related policies continue. In its Statutory Four-Year Review of the Section 301 measures, the USTR stated, "Instead of pursuing fundamental reform, the Chinese government largely took superficial measures aimed at addressing negative perceptions of its technology transfer-related acts, policies, and practices. At the same time, China has persisted and even become more aggressive, particularly through cyber intrusions and cybertheft, in its attempts to acquire and absorb foreign technology."⁶²

Effects and Consequences of U.S. Trade Action on China

U.S. trade policy since 2017 has had wide-ranging impacts on the U.S. economy and promoted specified trade objectives to varying degrees. In its statutory review of the China Section 301 tariff action in 2024, the USTR assesses that the Section 301 tariffs were "effective in encouraging China to take steps toward eliminating the investigated technology transfer-related acts, policies, and practices, and in counteracting such policies. The Section 301 tariffs have also been effective in reducing the exposure of U.S. persons and companies to China's technology transfer-related acts, policies, and practices."⁶³ Following the tariffs, China's share of total U.S. imports declined steadily, falling from 20 percent in 2017 to 13.1 percent in the first eight months of 2024.[†]⁶⁴ Across sectors covered by Section 301 tariffs, the USITC estimates that tariffs caused imports to decline on average by 13 percent between 2018 and 2021.⁶⁵ Other economies, including Mexico and Vietnam, are emerging as key suppliers of intermediate and final goods for the U.S. economy. (For more on the emerging signs of supply chain diversification from China, see Chapter 1, "U.S.-China Economic and Trade Relations (Year in Review).")

There are differing assessments on the employment and broader economic impact of the tariffs. The USTR notes that the U.S. tar-

cent, while other products subject to the China Section 301 action kept a 25 percent duty. Chad P. Bown, "U.S.-China Trade War Tariffs: An Up-to-Date Chart," *Peterson Institute for International Economics*, April 6, 2024.

*In January 2024, Dr. Bown was sworn-in as the Chief Economist of the U.S. Department of State.

†Due to a lack of data collected on cross-border e-commerce imports from China that utilize the de minimis exception, these figures likely underrepresent China's actual share of the U.S. import market. For more, see Chapter 4, "Unsafe and Unregulated Chinese Consumer Goods: Challenges in Enforcing Import Regulations and Laws."

iffs and Chinese counter-tariffs “have had small negative effects on U.S. aggregate economic welfare, positive impacts on U.S. production in the 10 sectors most directly affected by the tariffs, and minimal impacts on economy-wide prices and employment.”*⁶⁶ Though the tariffs increased costs for some U.S. businesses and consumers, when averaged across the entire U.S. economy, the effect was small † and overwhelmed by inflationary pressures stemming from the COVID-19 pandemic.⁶⁷ The USITC estimated that the tariffs were responsible for a 0.2 percent increase in the price of covered products produced domestically between 2018 and 2021, although prices increased by as much as 15–25 percent in a select number of sectors, including textiles, semiconductors, and motor vehicle parts.‡⁶⁸ The USITC’s modeling also found that the Section 301 tariffs caused domestic production to expand by between 1.2 and 7.5 percent in the ten sectors most directly affected by the tariffs.⁶⁹ As Mr. Greer highlighted in testimony before the Commission, total U.S. manufacturing employment grew by 500,000 workers between 2016 and 2019.⁷⁰ Though this increase in employment occurred after years of stagnant manufacturing jobs growth prior to the tariffs, there are differing assessments on employment effect of the tariffs.⁷¹ For instance, in the steel sector, the Economic Policy Institute highlights how investments announced following the Section 232 steel action in 2018 directly created 3,200 jobs.⁷² However, other estimates show net job losses when accounting for employment in industries downstream from the steel sector. Economists Kadee Russ and Lydia Cox calculate that the March 2018 tariffs on steel and aluminum led to 75,000 fewer jobs in manufacturing by mid-2019.⁷³ Nonetheless, the United States added nearly 250,000 manufacturing jobs in 2018 and at the fastest growth rate since the 1980s.⁷⁴ Various studies find that the overall impact of the tariffs and China’s retaliatory measures was mixed and may have had a small negative impact on overall employment in 2018 and 2019, although total U.S. employment continued to grow during those years.⁷⁵ If there was short-term pain, in Mr. Greer’s assessment, it should be weighed against the “cost of doing nothing or underestimating the threat posed by China.”⁷⁶

Circumvention of U.S. Tariffs Likely Weakened Their Effectiveness

The success of U.S. trade policies against China was at least partially undermined by Chinese exporting firms using various tactics to circumvent or evade the increased tariffs. These measures include: (1) transshipment or re-routing of products through third countries to avoid China-specific duties, (2) fraudulently underval-

*The USTR did not conduct its own economic analysis of the tariffs and instead synthesized the results from numerous studies in academic literature as well as the findings from the USITC report on the impact of the Section 301 tariffs on ten sectors. U.S. Trade Representative, *Four-Year Review of Actions Taken in the Section 301 Investigation: China’s Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation*, May 2024, 64.

† Imports from China amounted to 2.6 percent of GDP in 2018. U.S. Census Bureau, *Trade in Goods with China*, September 9, 2024; U.S. Department of Commerce, Bureau of Economic Analysis, *Gross Domestic Product*.

‡ The import data used in the USITC’s models do not account for shipments valued under \$800 that utilize the de minimis exception. Because low-value goods are more likely to utilize the de minimis exception, their exclusion from USITC’s model could bias their price coefficients, particularly in industries like textiles where cross-border e-commerce trade has grown rapidly.

uing or mis-invoicing imports to U.S. customs to lower the assessed duty, and (3) increased use of duty-free entry for small e-commerce shipments under the de minimis exception. (For more on the increased usage of these channels and the resulting problems for U.S. customs and regulatory officials, see Chapter 4, “Unsafe and Unregulated Chinese Consumer Goods: Challenges in Enforcing Import Regulations and Laws.”) The extent of tariff avoidance through these tactics is unclear due to limited data and enforcement capacity. However, in its four-year review of the Section 301 tariffs, the USTR acknowledged the challenge posed by customs duty evasion.⁷⁷ China also took other actions to mitigate some of the impact of trade tensions on Chinese firms (see textbox below).

China’s Efforts to Offset the Economic Impact of Trade Actions

China designed its retaliation against U.S. trade measures to maximize impact on the United States while minimizing harm to Chinese exporters. China’s retaliatory tariffs covered roughly 60 percent of U.S. imports relative to 2017 levels, raising the average tariff on U.S. goods to 21.1 percent.⁷⁸ A number of studies provide evidence that China strategically targeted U.S. products in what it viewed to be politically sensitive areas.*⁷⁹ China’s retaliatory action most notably included tariffs on nearly all U.S. agriculture products, but China also raised duties on a broad range of U.S. intermediate inputs used by its manufacturing sector.⁸⁰ By 2020, Chinese retaliatory tariffs covered roughly 38 percent of U.S. manufactured goods imports, equivalent to \$30 billion in 2017 terms.⁸¹ However, China refrained from placing tariffs on aviation components and semiconductor products and equipment, suggesting it avoided raising tariffs on key products related to its own technological development priorities.⁸² Instead, China appeared to target products that had alternative suppliers to the United States, ensuring China-based firms could substitute out U.S. inputs impacted by China’s retaliatory measures.† China also reduced its most-favored-nation tariff across a range of products from all other countries shortly after the start of the trade war, further incentivizing China-based firms to shift away from the United States.⁸³ China’s average tariff on goods from other countries fell from 8 percent to 6.5 percent since 2018.‡⁸⁴

*There is some evidence that China’s retaliatory tariffs introduced in 2018 were correlated with Republican candidates losing vote share in the 2018 House elections relative to the results in 2016. However, the magnitude of this impact varies across different studies based on different econometric modeling decisions. Emily J. Blanchard, Chad P. Bown, and Davin Chor, “Did Trump’s Trade War Impact the 2018 Election?” *Journal of International Economics* 148 (2024): 1–23; David Autor et al., “Help for the Heartland? The Employment and Electoral Effects of the Trump Tariffs in the United States,” *NBER Working Papers*, January 2024.

†Economists Davin Chor and Bingjing Li find that China’s imports of intermediate goods picked up from the rest of the world in the first few months after China imposed retaliatory measures on the United States, suggesting that other economies filled in for tariffed U.S. products. Davin Chor and Bingjing Li, “Illuminating the Effects of the U.S.-China Tariff War on China’s Economy,” *Journal of International Economics* 150 (July 2024): Appendix 16.

‡China’s most-favored nation cuts substantially overlapped with the list of U.S. products subject to Chinese retaliatory tariffs, suggesting these reductions aimed to further incentivize Chinese firms to switch away from U.S. suppliers. Between January 2018 and June 2019, China reduced the most-favored nation tariff for 4,646 product lines, nearly three-quarters of which were covered by China’s retaliatory duties on the United States. Chad P. Bown, Euijin Jung, and

China's Efforts to Offset the Economic Impact of Trade Actions—Continued

China implemented other measures to lessen the impact of the trade tensions on China's economy. China's government absorbed some of the cost of the U.S. tariffs by reducing taxes on domestic export manufacturers. China decreased the gross value-added tax (VAT) rate from 17 percent in 2018 to 13 percent by the end of 2020 while also increasing the VAT rebate on exports over the same time period.⁸⁵ The share of Chinese exports that faced an effective VAT rate of zero increased from 5 percent in 2017 to about 50 percent by the end of 2020.⁸⁶ China also made it easier for firms to access its processing trade regime, under which manufacturers approved by Chinese authorities can import inputs duty free, provided they are used to produce exports.⁸⁷ After 2018, the share of U.S. imports that entered China as processing trade rose sharply, suggesting that firms made greater use of the customs arrangement to negate the impact of tariffs; notably, the processing trade share of imports from other countries remained largely unchanged.⁸⁸ Nevertheless, the sum of China's responses led to a diversion of imports away from the United States—by 2023, the United States was the source for just 6.5 percent of China's total imports, down from 7.3 percent before 2018.⁸⁹

The existing U.S. tariff architecture is not well-suited to deter the import of products made in other countries using Chinese components, creating an opportunity for Chinese exporters to continue accessing the U.S. market by moving final assembly outside of China. The Section 301 tariffs on China are designed to duty imports directly from China-based producers. However, under the methodology typically used to determine duty rates, the tariffs generally do not apply to exporters based outside of China that utilize Chinese components, provided that the inputs are modified in such a way to meet the customs standard for the applicable rule of origin (often requiring a "substantial transformation").⁹⁰ This creates a situation where the United States may continue to import Chinese value-added content embedded via third-country supply chain linkages. A number of recent studies note that trade data suggest producers in third countries, such as Vietnam, relied at least in part on Chinese inputs to ramp up their exports to the United States since 2018.⁹¹ Chinese EV makers are reportedly seeking to set up production in Mexico, which could enable them to use Mexico-based operations as a backdoor to import low-cost vehicles into the U.S. market and avoid the 100 percent duties on Chinese EVs under Section 301.⁹² By statute, Section 301 duties apply only to the trading partner in question and do not cover products produced in third countries.*

Eva (Yiwen) Zhang, "Trump Has Gotten China to Lower Its Tariffs. Just Toward Everyone Else," *Peterson Institute for International Economics*, June 12, 2019.

*Other U.S. trade authorities enforced against China account for this dynamic. Section 201 duties are assessed on imports regardless of country of origin, while the Section 232 steel and aluminum duties were assessed on other countries that processed unrefined products made in China for the U.S. market. In the AD/CVD context, the U.S. Commerce Department can also conduct scope and circumvention inquiries to determine and implement remedies if producers in third countries rely on products subject to an AD/CVD order.

Though Mr. Greer acknowledges that even incremental movements of supply chains represent an improvement over the status quo, he notes that third-country workarounds can be addressed by “extending the effect of the measures to imports from Chinese headquartered companies or adjusting the rules of origin for goods subject to the Section 301 tariffs.”⁹³ Tools to accomplish this include utilizing rules of origin requirements in U.S. free trade agreements with other trading partners.

Challenges in Aligning Tariff Measures with Strategic Objectives

The findings of the China Section 301 investigation into China’s technology transfer practices have been used to justify tariffs on a range of products that extend well beyond the original scope of the investigation, leading some to assess that the trade measures lack strategic clarity. Mr. Greer testified before the Commission that the China Section 301 tariffs were designed to target products related to the Made in China 2025 strategy, a national industry policy strategy released in 2015 to promote ten high-tech industries.⁹⁴ An analysis by Mary Lovely and Yang Liang at the Peterson Institute of International Economics compared the products included in the initial Section 301 tariff action—which was implemented on July 6, 2018, and covered \$34 billion in Chinese imports—to a list of sectors identified by the Commerce Department as patent-intensive.⁹⁵ They found that 80 percent of the products in the initial tariff action fell within these industries, consistent with the technologies the USTR identified as subject to extensive Chinese technology transfer practices in its Section 301 investigation.⁹⁶ However, subsequent tariff waves were scoped much more broadly. According to Dr. Lovely, these Section 301 actions placed greater focus on less knowledge-intensive and more labor-intensive sectors.⁹⁷ Because of the expansive scope of the measures, she assessed in testimony before the Commission that “U.S. trade policy objectives have not been clearly linked to the trade policy instruments we currently deploy.”⁹⁸ Some argue that such a broad approach is necessary to respond to the pervasiveness of China’s non-market practices, while others advocate for focusing U.S. trade restrictions on a set of products with national security implications and removing barriers to trade with China in less strategically important areas.⁹⁹ Following the USTR’s 2024 Section 301 review, the U.S. government maintained and selectively reviewed the existing broad-ranging tariff measures, and it also selectively expanded the tariff measures to industries where surging Chinese manufacturing capacity posed a clear threat to ongoing efforts to bolster U.S. domestic production.¹⁰⁰

The China Section 301 tariffs impacted foreign firms in China and raised production costs for U.S.-based firms with Chinese supply chains, reflecting the challenge of targeting tariffs solely at Chinese producers that benefit from state support. In their review of the Section 301 tariff list, Dr. Lovely and Dr. Liang found that products targeted for tariffs were primarily sourced from foreign affiliates operating in China, with the exception of tariffs on China’s chemical sector (see textbox on “Chinese Supply Chains Are Reducing Dependence on Foreign-Invested Enterprises (FIEs)”).¹⁰¹ In the aggregate,

total U.S. trade with China only amounted to 3.2 percent of U.S. gross domestic product (GDP) in 2018, meaning most U.S. economic activity had limited reliance on China.*¹⁰² The Section 301 tariffs did increase production costs for U.S. firms using China as an export production platform or using intermediate inputs from China. Costs for U.S.-based producers that relied on supply chains linked to China also rose. By 2020, 93 percent of Chinese intermediate goods imports were subject to higher duties, compared to 69 percent of consumer goods and 47 percent of capital equipment.¹⁰³ One study found that for U.S. exporting firms with supply chain links to China, the tariffs on imported inputs effectively acted as a 2 percent tariff on their exports.†¹⁰⁴ The USTR engaged in an exclusion review process to mitigate these effects. In addition, an increased number of U.S.-based exporters applied to operate within a U.S. foreign trade zone (FTZ), which provides lower tariffs for imported inputs incorporated into exported products. The share of U.S. merchandise imports from China entering under special duty provisions for warehousing or an FTZ increased from 11 percent in 2017 to 17 percent in 2023, with a total of \$75 billion in inputs entering these zones.‡¹⁰⁵

Chinese Supply Chains Are Reducing Dependence on Foreign-Invested Enterprises (FIEs)

Foreign (non-Chinese) firms in China have historically been an important source of China's exports. Recently, however, domestic Chinese firms have overtaken them as China's leading exporters. In 2014, foreign-invested enterprises (FIEs)—which include subsidiaries of multinational enterprises, Sino-foreign joint ventures, and Hong Kong and Macau-funded enterprises—accounted for 46 percent of China's total exports.¹⁰⁶ In 2014, 60 percent of China's U.S.-bound exports originated from FIEs, reflecting the higher reliance on China as a hub for offshore production within U.S. supply chains.¹⁰⁷ Though more recent data on China's exports to the United States by FIEs are unavailable,§ FIEs' share of China's

*Though China is the largest supplier of imported inputs for manufacturing, most of the goods used in U.S. manufacturing are sourced domestically. One study estimates that the average U.S. manufacturing sector sources 88 percent of manufactured inputs by value added from within the United States. Richard Baldwin, Rebecca Freeman, and Angelos Theodorakopoulos, "Hidden Exposure: Measuring U.S. Supply Chain Reliance," *Brookings*, September 27, 2023, 16.

†In some cases, U.S. manufacturers face a tariff inversion, where tariffs on inputs used in manufacturing exceed the value of the finished good, disadvantaging domestic production compared to imports. For example, the CEO of the U.S.-based television producer Element asserts that it faces an inverted tariff due to U.S. duties on LCD panels from China, and it is challenged to compete on price with televisions assembled in Mexico or other countries and imported into the United States. David Baer, written testimony for U.S. Senate Finance Committee, *Hearing on U.S.-China Relations: Improving U.S. Competitiveness Through Trade*, April 22, 2021, 10.

‡In contrast, the share of U.S. imports from all other countries that entered a warehouse or FTZ fell from 10 percent in 2017 to 7 percent in 2023. U.S. Census Bureau, *USA Trade Online*, September 9, 2024.

§China only publishes data on total exports by FIEs and does not release data that show exports by destination. The 2014 estimate on exports by FIEs to the United States was calculated using microdata from China's customs agency. Commission staff were unable to locate updated calculations based on these data. U.S. trade data on imports from related parties, where the importer has some form of a corporate relationship with the China-based exporter, suggest the role of FIEs in China's U.S.-bound exports followed the trend in its overall exports, though the related party data only captures a portion of all FIE transactions given its focus on U.S.-based multinational enterprises and exporters and importers frequently leaving this data field empty on customs forms. U.S. imports from related parties in China fell from 29 percent in 2014 to 20 percent in 2023. U.S. Census Bureau, *Imports and Exports by Related Parties*, July 3, 2024; Mary Lovely and Yang Liang, "Trump Tariffs Primarily Hit Multinational Supply Chains, Harm U.S. Technology Competitiveness," *Peterson Institute for International Economics*, May 2018, 2.

Chinese Supply Chains Are Reducing Dependence on Foreign-Invested Enterprises (FIEs)—*Continued*

total exports have fallen over the past decade. Between 2014 and 2023, FIEs' share of China's overall exports fell from 46 percent to 28 percent.¹⁰⁸ This decline was likely even sharper within advanced technology products; FIEs' share of exports of "high-tech new products"—a category defined by China's National Bureau of Statistics—dropped from 84 percent in 2011 to 59 percent in 2020.*¹⁰⁹ Though foreign multinationals and global supply chains continue to play a significant role in China's exporting sector, particularly for advanced technology products, domestic Chinese firms are driving a growing share of China's export activity.

Export Controls

China asserts itself as a significant military power, and export controls have emerged as the United States' policy tool of choice for denying China access to critical dual-use technologies and hindering China's capacity to develop such technologies on its own. Adding to the complexity of crafting export control policy toward China is the country's military-civil fusion policy, which blurs the distinction between Chinese commercial enterprise and China's military. With mounting concerns over China's military modernization, growing aggressiveness in the South China Sea, and posture toward Taiwan, the question of how to restrict sensitive technologies that could give China a military edge has taken on added urgency in recent years.†

China has capitalized on years of broad and mostly unfettered access to U.S. and allied foundational technologies by making significant leaps in its domestic capabilities. As U.S. policymakers have shifted their assessment of the threat from China and recognized the growing importance of certain types of technologies like advanced semiconductors, export controls have taken on new significance for their potential ability to help the United States maintain its technological and military edge. The evolution in export control policies faces added challenges of carefully identifying controlled technologies, a fast-moving technological landscape, and fragmented supply chains. New export controls must contend with questions on scope, enforcement, and structure to optimize their effect.

At the same time, in the Export Control Reform Act, Congress required export controls to be evaluated on an ongoing basis to ensure they do not inadvertently harm U.S. technological leadership, which "requires that United States persons are competitive in global markets."¹¹⁰ Congress has further stated as export control policy that "[e]xport controls applied unilaterally to items widely available from foreign sources generally are less effective in preventing end-users

* Chinese statistics distinguish the high-tech exports from firms invested by Hong Kong, Macau, and Taiwan entities from those of all other foreign-invested firms. The latter groups' share of China's high-tech exports fell from 70.5 percent in 2011 to 25 percent in 2020. Scott Kennedy, "The Private Sector Drives Growth in China's High-Tech Exports," *Center for Strategic and International Studies*, April 28, 2022.

† This discussion omits the essential issue of export controls for human rights reasons, as in the case of foreign governments using technology to surveil activity, restrict movement, and otherwise control or limit the rights of their citizens.

from acquiring those items. Application of unilateral export controls should be limited for purposes of protecting specific United States national security and foreign policy interests.”¹¹¹ To underscore the importance of this statement of policy, Congress requires the secretary of commerce to report annually on the impact of export controls on U.S. scientific and technological leadership.¹¹²

Changing Design of Export Controls

The United States’ approach to export controls has evolved as the country’s traditional commitments to the principles of open trade have collided with the realities of adversarial nations seeking to use U.S. technology to further their military aims. The Export Control Reform Act (ECRA) of 2018, motivated by increasing concerns regarding the dual-use technology trade between the United States and China, forms the foundation of the current U.S. export control regime toward China.¹¹³ ECRA gives expansive authority to the president to control the export, reexport, and transfer of items by U.S. or foreign nationals and corporations. It also provides “U.S. persons” authority to limit the ability of U.S. individuals and companies to provide support for certain foreign military-focused activities.¹¹⁴ Unlike prior export control statutes, ECRA explicitly regards economic security as a component of national security and has no expiration date.*¹¹⁵

U.S. Export Control Infrastructure

The Export Administration Regulations (EAR) implement U.S. export control policy for goods and destinations, the license applications process used by exporters, and the Commerce Control List.†¹¹⁶ Much of the EAR’s infrastructure predates ECRA, though ECRA expanded and implemented notable reforms within the EAR.‡¹¹⁷ ECRA created the statutory authority for the Entity List, a list of foreign persons and end uses that are determined to be a threat to U.S. national security. Exports to persons on the Entity List broadly require licensing for all items subject to the EAR. Most persons on the list face a presumption of denial for licenses.¹¹⁸ In recent years, the Entity List has been increasingly used to target key Chinese firms with direct ties to the People’s Liberation Army, such as semiconductor manufacturer SMIC.§¹¹⁹

*The act also mandates a review of export license requirements. The review strengthens the licensing process for countries subject to a comprehensive U.S. arms embargo, like China, and mandates as part of the licensing process an assessment of the impact of granting a license on the U.S. defense industrial base.

†The Commerce Control List is a list of dual-use technologies subject to controls under the EAR. The Bureau of Industry and Security (BIS) within the Department of Commerce administers the EAR. Paul K. Kerr and Christopher A. Casey, “The U.S. Export Control System and the Export Control Reform Act of 2018,” *Congressional Research Service* CRS R 46814, June 7, 2021.

‡Separate regulations control nuclear materials and technology and defense articles and services. U.S. law has expanded to prohibit arms sales to China since 1989. The United States also maintains a policy of denial for exports of satellite and space equipment to China. Karen M. Sutter and Christopher A. Casey, “U.S. Export Controls and China,” *Congressional Research Service* CRS IF 11627, March 24, 2022.

§While the Entity List is the primary list containing parties of concern, BIS also maintains a Denied Persons List, which contains entities that are fully denied export privileges, and an Unverified List, which contains entities that cannot receive license exceptions and require additional scrutiny. U.S. Department of Commerce Bureau of Industry and Security, *Denied Persons List*, 2024; U.S. Department of Commerce Bureau of Industry and Security, *Unverified List*, 2024.

U.S. Export Control Infrastructure—*Continued*

The EAR also regulates the transfer of controlled technologies to a foreign person within the United States, often called “deemed exports,” by requiring a license. Such licenses are typically used by universities, advanced technology research and development institutions, biochemical firms, and the medical and advanced computing sectors, which often rely on highly trained foreign persons to support their research and development (R&D) activities.¹²⁰ Some concerns have been raised that China is seeking to take advantage of the United States’ open research environments to circumvent export controls, heightening the importance of the deemed export rules.¹²¹

A powerful but—until recently—rarely used tool is the Foreign Direct Product Rule (FDPR), which regulates the reexport and transfer of any foreign-made items if their production directly involves certain technology, software, or equipment that originates from the United States, even if the item was produced outside of the United States by a foreign entity.¹²² The Commerce Department has recently utilized the FDPR in conjunction with the Entity List to limit the ability of targeted entities to sidestep U.S. controls by sourcing restricted products from companies outside the United States. For example, the department used the rule against China in 2020 to help improve and expand the effectiveness of controls targeting Huawei.* Specifically, Commerce used the FDPR to expand controls that restricted direct exports of U.S. semiconductors by also controlling exports to Huawei of products made with U.S. technology (even products made wholly outside the United States by foreign firms) that support the manufacture of semiconductors.¹²³ (For more on Huawei, see “Effects of Export Controls” later in this chapter.) In mid-2024, the Department of Commerce announced an expansion of the FDPR rules, albeit with exclusions for key semiconductor manufacturing equipment-producing countries like Japan, the Netherlands, and South Korea, by (1) prohibiting exports to more Chinese end users and (2) lowering the percentage of U.S. content required to trigger the rule.†¹²⁴

ECRA tasked the Administration with creating an interagency process to define and place controls on emerging and foundational technologies.‡ However, the Commission’s 2023 Annual

* Before the FDPR was updated, Huawei was able to maintain access to the supply of advanced foreign chips because it could still purchase chips produced by non-U.S. firms made using U.S. technology (e.g., semiconductor manufacturing equipment). Given the widespread prevalence of U.S. technology at some level in most steps of the semiconductor design and manufacturing process, the expanded FDPR rule significantly expanded the practical scope of the controls. Gregory C. Allen, “In Chip Race, China Gives Huawei the Steering Wheel: Huawei’s New Smartphone and the Future of Semiconductor Export Controls,” *Center for Strategic and International Studies*, October 6, 2023.

† In September 2024, the U.S. Department of Commerce expanded export controls on semiconductors, quantum computing items, and other technologies. U.S. Department of Commerce Bureau of Industry and Security, “Commerce Control List Additions and Revisions; Implementation of Controls on Advanced Technologies Consistent with Controls Implemented by International Partners,” *Federal Register* 89:72926 (September 6, 2024).

‡ This is generally understood to cover the White House’s Critical and Emerging Technologies List: advanced computing, advanced engineering materials, advanced gas turbine engine technologies, advanced manufacturing, advanced and networked sensing and signature management, advanced nuclear energy technologies, AI, autonomous systems and robotics, biotechnologies,

U.S. Export Control Infrastructure—*Continued*

Report identified that “despite increasing the number of specifically named Chinese entities barred from receiving technology, the Department of Commerce’s Bureau of Industry and Security (BIS) has made limited progress in expanding the scope of technologies controlled. In 2018, ECRA tasked the agency with identifying ‘emerging and foundational’ technologies and imposing controls where necessary, but BIS has not identified any foundational technologies.”¹²⁵ In a May 2022 statement, BIS announced it would no longer attempt to distinguish between emerging and foundational technologies.¹²⁶ Instead, BIS would refer to such technologies as Section 1758 technologies since there were definitional challenges to distinguishing between the two and there were few practical implications of the distinction, noting that “the categorization of the technologies has sometimes delayed the imposition of controls.”¹²⁷ In his written testimony to the Commission, partner at the law firm Akin and a former Assistant Secretary of Commerce for Export Administration in BIS Kevin Wolf stated that “BIS has published the first unilateral controls on [emerging and foundational technologies] with its October 2022 [semiconductor-related] rule described above, which clearly meets the spirit and purpose of Section 1758, although not the letter of the section.”¹²⁸

Controls on advanced semiconductors reflect a realization that because certain technologies are so foundational to advanced military capabilities, they need to be controlled more broadly than previously envisioned for dual-use technologies. In testimony before the Commission, nonresident fellow at the Carnegie Endowment for International Peace Peter Harrell commended the October 2022 semiconductor controls. He argued that they leveraged chokepoints effectively, delineated clear objectives, and were devised to reduce diversions and workarounds, reflecting lessons learned from previous controls targeting specific Chinese firms.¹²⁹ BIS export controls on semiconductors expanded in 2022 from an approach that covered a small number of companies in China to broader country-based controls on both semiconductors and semiconductor manufacturing equipment. BIS expanded semiconductor controls again in October 2023 to cover additional types of semiconductors and semiconductor manufacturing equipment. Mr. Harrell sees the flexibility and iterative approach shown by BIS as strengths that allow the United States to “address gaps and workarounds as they are identified” and “reduce the odds of unintended consequences.”¹³⁰ A similar iterative process could be used to expand controls as future emerging technologies take on stronger national security implications, including quantum information science, AI (to the extent not covered by existing controls on advanced semiconductors needed for AI systems),

communication and networking technologies, directed energy, financial technologies, human-machine interfaces, hypersonics, networked sensors and sensing, quantum information technologies, renewable energy generation and storage, semiconductors and microelectronics, and space technologies and systems. John P. Barker et al., “White House Releases Updated Critical and Emerging Technologies List,” *Arnold & Porter*, February 28, 2024.

robotics, and biotechnology. (For more on U.S.-China technology competition in these sectors, see Chapter 3, “U.S.-China Competition in Emerging Technologies.”)

While recent attention has focused on advanced technology products, particularly the most advanced semiconductors and semiconductor manufacturing equipment, some experts have recommended that the United States review more traditional dual-use technologies to identify whether other sensitive chokepoints exist that could hinder China’s ability to develop or advance its own dual-use industries—for example, civilian aerospace. China’s leadership has repeatedly expressed anxiety about its reliance on certain high-end electronic components and specialized steel alloys that are manufactured by a small number of U.S. or allied companies; these inputs currently have no viable high-end Chinese competitors and will likely take years or more to duplicate.¹³¹

Plurilateral vs. Unilateral Export Controls

Due to the interconnected nature of the global trade ecosystem and the lack of tangible methods to track or control the final destinations of physical goods, the effectiveness and sustainability of export controls relies on the cooperation of allies and partners. The United States has traditionally preferred to take a multilateral approach to export controls for three reasons.¹³² First, this approach ensures maximum effectiveness of controls since the controls block trade from a broader range of potential sources of the technology for the targeted country or entity.¹³³ Second, a multilateral approach improves enforcement; absent geolocation solutions that could remotely shut off technology if it travels outside of a proscribed area, preventing reexport of restricted goods relies on allied cooperation, tracking, and enforcement systems.¹³⁴ Third, broad adherence to a uniform set of controls ensures that firms in other countries do not merely “backfill” U.S. exports, which would both limit the effectiveness of the controls and potentially harm U.S. interests by redirecting revenue needed to sustain R&D away from U.S. firms to their international competitors.¹³⁵ In the long run, unilateral controls can create a structural regulatory and economic incentive for U.S. companies and their foreign competitors to develop technologies outside the United States with non-U.S. technology and content. This would undercut the U.S. export control goal of maintaining the country’s technological leadership.

Experience, however, indicates that U.S. leadership on export controls via unilateral implementation can convince allied countries to follow. Allied countries contend with their own domestic interests that are concerned about losing access to profitable markets. When the United States implements export controls ahead of allied countries, this can help allied governments overcome domestic political constraints.¹³⁶ Plurilateral controls also face constraints based on the varying legal powers of foreign governments and the resources available to devote to enforcement and ongoing international cooperation.¹³⁷

The October 2022 controls on advanced semiconductor and semiconductor manufacturing equipment exports to China provide an example.¹³⁸ While U.S. companies design some of the most sophis-

ticated semiconductors and are among the leaders in semiconductor manufacturing equipment, companies in Europe and East Asia also play critical roles in the production of the chips themselves and certain high-end chip-making equipment.¹³⁹ Initially, the October 2022 rules were imposed unilaterally by the United States, though they did expand restrictions and licensing requirements on some foreign-produced items.¹⁴⁰ Aware of the need to multilateralize the rules for effectiveness, the United States designed the rules in consultation with key allies and worked to bring them along. Japan and the Netherlands, home to a number of companies key to advanced semiconductor production, have since imposed similar controls based on the U.S. rollout.¹⁴¹ By moving first, the United States was able to quickly target China's ability to purchase key semiconductor manufacturing equipment supplied by the United States, which could have enabled more advanced domestic semiconductor manufacturing capability.¹⁴² With the United States having demonstrated commitment to sacrificing some short-term economic gain for longer-term security, the Netherlands and Japan also agreed to limit their own exports of advanced equipment to China and to abstain from developing products that would have otherwise filled the gap left by U.S. firms.¹⁴³ In April 2024, Japan expanded its export controls to include additional types of semiconductor manufacturing equipment, following the United States' lead in its October 2023 expansion of its semiconductor controls.¹⁴⁴

Still, most other countries have not imposed export controls to the same extent as the United States. Many countries currently lack a legal regime that allows them to target controls to specific entities of concern versus broader country-targeted controls, which have been the traditional approach of multilateral regimes. Other countries have also been hesitant to adopt analogues to the "U.S. persons" controls, which limit the ability of U.S. individuals and companies to support Chinese semiconductor development and ongoing servicing of certain equipment. While Japan's enhanced export controls on semiconductor equipment apply to all exports, not just China's, and Japan does implement catch-all end user restrictions related to the exports of certain technologies, it does not prohibit non-resident Japanese persons from servicing existing semiconductor machinery. The United States has pressed both Japan and the Netherlands to implement restrictions on ongoing maintenance and servicing of chip-making equipment already in China, without which their ongoing ability to produce cutting-edge chips would deteriorate.¹⁴⁵ This concern is significant given the capabilities and large amount of semiconductor manufacturing equipment China procured both before the controls were announced and between the announcement and when it went into effect.¹⁴⁶

Traditional multilateral frameworks for export controls, set up to control conventional and nuclear weapons, have not adapted well to modern challenges of dual-use technologies and changes in geopolitical realities.* The four existing multilateral export control regimes are informal arrangements whereby member countries can coordinate policies and exchange information and best

* See Appendix I, "Current Multilateral Export Control Regimes" for a list of the current export control regimes.

practices for various types of weapons-related products and technologies.¹⁴⁷ Each regime is consensus-based and does not have legally binding rules. Some regimes have only limited self-reporting on adherence. Additionally, a drawback of consensus-based regimes is that a single state can veto important decisions like admitting new members or updating the control lists. Since 2021, Russia has effectively neutralized new decisions under the Wassenaar Arrangement, which serves to control dual-use items in addition to conventional arms.¹⁴⁸

Bilateral and mini-lateral coordination could provide one solution, particularly for technologies with only a few commercial producers. Negotiations and controls could move faster, be nimbler, and potentially involve higher levels of coordination by having fewer countries involved.¹⁴⁹ As the United States has conferred with nations in smaller settings, a new consensus has emerged on the need to control items such as semiconductors. The informal cooperation between the United States, Japan, and the Netherlands with respect to semiconductor and semiconductor manufacturing equipment controls provides an example of the benefits of and possibilities for mini-lateral approaches. In a statement after a trilateral meeting with representatives from Japan and South Korea, the Department of Commerce affirmed the national security significance of semiconductors and referenced the role of the trilateral U.S.-Japan-Republic of Korea Disruptive Technology Protection Network, launched in April 2024, in combating illicit technology transfer.¹⁵⁰ Another example is the Trilateral Security Partnership between the United States, the United Kingdom, and Australia (AUKUS). In June 2023, the United States announced formal collaboration with its AUKUS partners—the UK and Australia—on export control enforcement, which would involve knowledge sharing and other cooperation.¹⁵¹ This effort has helped spur AUKUS countries to align their relevant lists of controlled equipment and technology and permit exceptions where needed to ensure that trade in these goods between the three countries faces fewer restrictions.¹⁵² Even with a small number of countries, challenges can emerge when export control policy is not aligned or allied governments lack the legal authority to impose the types of controls used by the United States. Progress in AUKUS has reportedly been slowed by the gap between the United States' controls and those of the UK and Australia.¹⁵³

Export Control Outcomes at the U.S.-EU Trade and Technology Council

The U.S.-EU Trade and Technology Council (TTC) has helped advance transatlantic communication on export controls in some aspects, such as evasion and diversion efforts in exports to Russia and Iran, but significant challenges remain in coordinating controls on sensitive technology flows to China. In June 2021, the United States and the EU established the TTC in an effort to deepen ties and coordination on approaches to trade, technology, and security.¹⁵⁴ The TTC hosts ten working groups, including groups on export control cooperation and investment screening

Export Control Outcomes at the U.S.-EU Trade and Technology Council—*Continued*

cooperation.* Although China is not explicitly mentioned in the TTC's outlined mission, addressing China's increasing influence is a point of focus for the TTC. Toward that end, the TTC has produced tangible policy developments, including plans to operationalize a joint early warning mechanism for disruptions in semiconductor supply chains and the development of a joint AI Roadmap.¹⁵⁵ The United States and EU have also set up a platform to share information, including about export control licenses.¹⁵⁶

In addition to EU-level efforts on a broad set of issues, individual European countries have also partnered with the United States to confront China's growing challenge. For example, in March 2023, the Netherlands joined the United States in restricting exports of semiconductor manufacturing technology to China.¹⁵⁷

However, despite a broad commitment to "promote convergent control approaches on sensitive dual-use technologies," the TTC has not resulted in concrete goals or timelines for fundamentally reforming the multilateral export control system or creating a unified approach to export controls on China. In fact, it remains unclear if the TTC can be leveraged in this way.¹⁵⁸ Particularly, there is no EU level uniform export control policy, and EU member states retain autonomy over matters of national security and investment.¹⁵⁹

Bringing Allies and Partners on Board

As Mr. Wolf testified, broad plurilateral controls will only be agreed to if allies believe the controls are in their national security interests, which requires outreach and engagement on the part of the United States. In testimony before the Commission in May 2024, regional experts on industry and trade policies argued that many allies and partners in the Asia Pacific, Latin America and the Caribbean, and Europe still do not understand or agree with the national security justification for U.S. controls.¹⁶⁰ To the extent allies believe export controls are about giving the United States an economic advantage rather than addressing national security concerns, they are less likely to implement parallel domestic export controls. In written testimony for the Commission, Mr. Wolf articulated his view that "if ever the justification for a new control is solely to help U.S. industry succeed economically, it will always eventually result in precisely the opposite outcome because no ally is going to agree to a plurilateral control just to help U.S. industry."¹⁶¹ Furthermore, based on dialogues with foreign governments, think tanks, industry, and media, Mr. Wolf believes many countries outside the United

*Working groups include: tech standards, climate and green tech, secure supply chains, information and communications technology and services (ICTS) security and competitiveness, data governance and tech platform regulation, misuse of technology threatening security and human rights, export controls, investment screening, promoting small and medium-sized enterprises access to and use of digital technologies, and global trade challenges. Office of the U.S. Trade Representative, *U.S.-E.U. Trade and Technology Council (TTC)*.

States take the view that only items with a “direct and immediately identifiable relationship to the development, production, or use of a weapon” should be subject to export controls.¹⁶²

Outreach to help countries better understand burgeoning national security threats has proven effective. The United States used extensive outreach efforts to expose the security threat of Chinese components in global telecommunications networks. Former U.S. Undersecretary of State for Economic Growth, Energy, and the Environment Keith Krach led a team working with allied countries’ governments and telecom corporations to reduce the presence of equipment manufactured by Chinese firm Huawei in telecom infrastructure.¹⁶³ In addition to helping other nations understand the national security justifications for new controls on Huawei equipment, U.S. efforts at coordination with allies and like-minded countries also helped overcome fears of Chinese retaliation; by being a part of a wider group, each country had a buffer against Chinese pressure.¹⁶⁴

Effects of Export Controls

U.S. and allied export controls have slowed China’s technological advancement and made it more difficult for Russia to procure components for weapons systems. Maintaining and improving the effectiveness of export controls has required cooperation with allies, continuous adjustments and additions to the export control regime, and coordination with other economic tools like sanctions. However, experts continue to raise concerns over how long these initial successes will last as China focuses its efforts on becoming a self-sufficient manufacturer of legacy and high-end chips.

Enforcement in the United States and other countries has encountered a number of difficulties. Chinese firms stockpiled equipment from key Dutch and Japanese firms in the period between when export controls were announced and when they went into effect.¹⁶⁵ Even after the effective date of the controls, China continues to be a major buyer of lower-end semiconductor manufacturing equipment not subject to current controls. ASML’s equipment sales to China surged in 2024.¹⁶⁶ Industry experts have claimed that South Korean* and Japanese† firms also continue to sell machines, components, spare parts, and materials to Chinese firms that U.S. firms would not be able to sell due to U.S. restrictions.¹⁶⁷ Chinese firms have also demonstrated the ability to use new or renamed shell companies to avoid enforcement.¹⁶⁸

China has intensified efforts to design out foreign components in its chip-making processes. To build out domestic supply chains, the Chinese government provides financial support to subsidize Chinese chip companies using domestic technology and materials as much as possible in their production processes.¹⁶⁹ Huawei itself plays a key role in nurturing China’s semiconductor ecosystem.¹⁷⁰ Since being

*South Korea is one of China’s largest trading partners for memory chips, silicon wafers, and chip-making materials and parts. In September 2024, South Korea’s Trade Minister indicated they would seek additional incentives from the United States in exchange for further tightening advanced semiconductor export controls. Sam Kim, “Embracing China Chip Curbs,” *Bloomberg*, September 2, 2024; MacKenzie Hawkins and Sam Kim, “US Asks South Korea to Toughen Export Curbs on China Chips,” *Bloomberg*, April 3, 2024.

†China comprises a large and growing share of revenue for major Japanese semiconductor manufacturing equipment companies. Anniek Bao, “Japanese Chip Equipment Firms Count on China Sales Amid U.S. Moves to Block High-End Exports to Beijing,” *CNN*, September 6, 2024.

added to the Entity List and targeted with the FDPR, Huawei has doubled down on developing access to domestic alternatives for advanced chips. Huawei has benefitted from direct subsidies and preferential contracts with the Chinese government.¹⁷¹ These subsidies, along with Huawei's still flourishing telecommunications business, gave it the financial resources to weather the initial drop in revenue from lost smartphone sales and continue investing in R&D.¹⁷² In 2022, Huawei filed patents for proprietary ultraviolet technology, indicating that it was trying to reduce reliance on imported ASML equipment.¹⁷³ At the same time, China has focused on increasing production capacity for legacy chips, which provide much of the computing power needed to modernize China's military and are critical for a wide range of supply chains.¹⁷⁴

Examination of Chinese domestic chip manufacturers and smartphone makers indicates that China's efforts to reduce its reliance on imported semiconductors and chip manufacturing equipment have been slowed by export controls. Although Huawei's smartphone business showed signs of recovery four years after the Department of Commerce tightened export controls, it is clear that China's technology still lags behind the leading global chip producers.¹⁷⁵ In 2023, Huawei released a new smartphone powered by high-end Chinese-made chips,* but these chips trailed the world's most advanced chips in size, energy efficiency, and cost.¹⁷⁶ Huawei's smartphones demonstrated increased self-sufficiency in the percentage of Chinese components in new models released in 2024, but the pace of advancement in semiconductor technology appeared to slow.¹⁷⁷ Huawei reportedly will soon release a new AI chip to replace U.S. chips blocked from export to China by export controls.¹⁷⁸ Equipment stockpiles helped but likely did not solve constraints in fabrication capacity, and China remains dependent on foreign lithography equipment.¹⁷⁹

Coordination between the United States and Europe has played a key role in the effectiveness of export controls on Russia.¹⁸⁰ Export controls and sanctions have been used in concert to increase their effectiveness in safeguarding national security, particularly when export controls alone are not enough to deter aggressive action by an adversary. In late 2021 and early 2022, the G7 sought to use the threat of sanctions and export controls to deter Russia from attacking Ukraine.¹⁸¹ While this effort was ultimately unsuccessful, the imposition of export controls after Putin's invasion of Ukraine, coupled with sanctions that limited the country's access to financial resources, have degraded Russia's military industrial base by forcing it to pivot away from Western technology.¹⁸² After the G7 imposed export controls on Russia, Russia shifted to China and other countries, such as Turkey and Iran, to procure replacement goods.¹⁸³

However, Chinese firms are playing a role in helping Russia evade export controls and procure controlled inputs for weapons systems used against Ukraine. A battlefield report on export controls found that of 2,800 different non-Russian components that experts recovered from Russian weapons in Ukraine, almost all of the compo-

*The chips were manufactured by China's leading semiconductor equipment manufacturer, Semiconductor Manufacturing International Corporation (SMIC). Gregory C. Allen, "In Chip Race, China Gives Huawei the Steering Wheel: Huawei's New Smartphone and the Future of Semiconductor Export Controls," *Center for Strategic and International Studies*, October 6, 2023.

nents—95 percent—originated from Western firms.¹⁸⁴ To address the flow of dual-use goods from these countries to Russia, in December 2023 the Administration issued an EO authorizing sanctions against third country banks that facilitate the sale of dual-use goods to Russia.¹⁸⁵ At the same time, continued transshipment from China and Hong Kong in particular has eroded these export controls and allowed controlled materials to end up on the battlefield. (For more on China’s support for Russia’s war effort, see Chapter 2, “U.S.-China Security and Foreign Affairs (Year in Review).” For more on Hong Kong’s role in export control evasion, see Chapter 10, “Hong Kong.”) Russia has also been attempting to grow its domestic production capacity for military and dual-use goods, often with Chinese technical support.¹⁸⁶

Investment Screening

Like trade, investment flows between the United States and China have become inextricably linked with national security concerns. Cross-border investment can be broken into two categories: direct investment and portfolio investment. Portfolio investment covers transactions involving equity or debt securities of an enterprise but typically does not translate into direct management oversight or input into the business beyond shareholder voting rights. In contrast, direct investment typically involves transactions that provide ownership of 10 percent or more, establishing a lasting interest in and a significant degree of influence over an enterprise.

Chinese investment into the United States has the potential to be a conduit for technology transfer and can provide China with leverage over key sectors of the U.S. economy.¹⁸⁷ Yet from the other direction, U.S. investment into China can provide needed funding and transfer intangible benefits—such as managerial expertise and broader awareness and sophistication about technology markets and business models—to advanced technology companies, which in turn have the potential to enhance Chinese military capabilities.¹⁸⁸ To ensure that cross-border investments do not imperil national security, the United States has expanded its inbound investment screening regime to further scrutinize Chinese direct investment into the United States. It is now also pursuing the creation of an outbound investment screening regime that may look at both direct and portfolio investment.

Inbound Investment Screening

Chinese inbound direct investment in the United States has declined substantially since 2017.* U.S. Bureau of Economic Analysis (BEA) data show that new Chinese foreign direct investment (FDI) peaked in 2016 at \$27.4 billion before plummeting 97.7 percent to \$621 million in 2023.†¹⁸⁹ As of 2023, Chinese entities held \$62.4

*Unless otherwise noted, assume any data on investment stock or flows involving China include investment originating from or directed to Hong Kong and Macau.

†This trend matches alternative data sources such as those compiled by Rhodium Group, an independent research provider, though they capture a higher overall value for investment and find that annual investment has dropped from \$46 billion in 2016 to less than \$5 billion in 2022. The discrepancy in values between the BEA and Rhodium Group data is partially the result of official data being distorted by companies’ usage of holding companies, offshore vehicles, and other complex ownership structures to take advantage of favorable tax policies. Complicated deal structures with “indirect” holdings also make it difficult for statistical agencies to correctly separate

billion of FDI stock in the United States.¹⁹⁰ Policy changes in both the United States and China contributed to the fall. Starting in 2016 and continuing through 2017, China directed its domestic investors to reduce certain foreign holdings and tightened the country's capital controls.¹⁹¹ In 2018, the United States passed the Foreign Investment Risk Review Modernization Act (FIRRMA), which expanded the jurisdiction of the Committee on Foreign Investment in the United States (CFIUS) to block sensitive investments, most notably from China.¹⁹²

CFIUS is an interagency committee chaired by the U.S. secretary of the treasury that reviews certain FDI transactions in the U.S. economy to ensure they do not impair U.S. national security.* FIRRMA strengthened and modernized CFIUS's capacity to take a more assertive role in scrutinizing U.S. inbound investment by broadening the scope of transactions CFIUS can or must review, shifting the filing requirement from voluntary to mandatory in certain more sensitive transactions, expanding the range of national security issues to be considered, and providing more staff and funding to the organization.¹⁹³ While the new scrutiny enabled by FIRRMA likely contributed to a drop in Chinese direct investment into the United States, it has not changed the United States' role as the largest global recipient of FDI.¹⁹⁴ From 2013 to 2017, prior to FIRRMA's passage, the United States accounted for 17.4 percent of global FDI inflows.¹⁹⁵ From 2018 to 2023, the United States' share rose to 19.1 percent of global inflows.¹⁹⁶

FIRRMA helped trigger a global expansion of inbound investment review regimes, restricting Chinese access to key technologies across a range of different economies. The act directed the U.S. Department of the Treasury to "facilitate the harmonization of action" on inbound investments by conferring favored status within CFIUS on countries with their own reliable screening mechanisms.¹⁹⁷ In part because of this, at least 37 countries now have regulatory frameworks for screening investments on national security grounds, including most EU members, the UK, and Japan.¹⁹⁸

Outbound Investment Screening

While negotiating FIRRMA, policymakers debated the merits of restricting or screening U.S. outbound investments to China.¹⁹⁹ Proponents hoped to address many of the same concerns that drive existing restrictions, such as export controls—namely to prevent U.S. resources from helping an adversary country advance technologically. Critics feared new restrictions would undermine the United States' position as the preeminent global capital market.²⁰⁰ Ultimately, a proposed outbound investment program was excluded from FIRRMA.²⁰¹ Since FIRRMA's enactment, policymakers have

FDI from portfolio investment stakes in the surveys they use to collect their data. Alternative data providers like Rhodium Group attempt to rectify this by taking a transactional approach that tracks and captures individual transactions. Thilo Hanemann, Armand Meyer, and Danielle Goh, "Vanishing Act: The Shrinking Footprint of Chinese Companies in the US," *Rhodium Group*, September 7, 2023; Thilo Hanemann et al., "Two-Way Street: 2021 Update US-China Investment Trends," *US-China Investment Project*, May 2021, 36.

*CFIUS jurisdiction includes mergers, acquisitions, and takeovers that could result in foreign control of a U.S. business; certain non-controlling investments in businesses involved in critical technologies, critical infrastructure, or sensitive personal data (so-called "TID U.S. businesses"); and certain real estate transactions. U.S. Department of the Treasury, *CFIUS Frequently Asked Questions*.

returned to outbound investment issues, in part in response to continued concerns over U.S. investment into China.²⁰²

The Scale of U.S. Outbound Investments into China

Inadequate official U.S. government data collection and publication obscures the scale and sectoral allocation of U.S. investments into China. Publicly accessible official U.S. government data do not show U.S. investor positions based on the ultimate destination of their direct and portfolio investments; instead, they permit the reporting of trillions of dollars of investment in the Cayman Islands or other Caribbean islands. The data that is accessible is categorized too broadly to discern the technologies or industries that U.S. investment benefits. Private data providers can address some of these issues, but drawbacks in their collection methods mean they still present an imperfect picture at best. Nevertheless, both official and private data sources suggest that while total U.S. outbound investment flows to China have substantially declined in recent years, direct investment in particular has become increasingly concentrated in innovative sectors with implications for U.S. national security.²⁰³

Official U.S. Data on U.S. Outbound Investments into China

At the end of 2023, U.S. official data showed the total U.S. direct investment stock in mainland China to be \$126.9 billion.²⁰⁴ Including Hong Kong and Macau, U.S. direct investment rises to \$218.5 billion, or 3.3 percent of total U.S. direct investment stock.²⁰⁵ As of 2022, the most recent year with complete data, accumulated U.S. portfolio investment stock in mainland China was a much more sizable \$712 billion.²⁰⁶ Including Hong Kong and Macau, U.S. portfolio investment stock rises to \$910 billion (\$860 billion in equity investments and \$50 billion in bonds), or 8.5 percent of U.S. foreign investment stock.²⁰⁷

In recent years, the growth of U.S. direct investment into China has steadily declined. From 2008 until 2018, U.S. FDI into China increased by an average of \$10.4 billion a year. From 2019 to 2023, the growth rate nearly halved, falling to \$5.6 billion a year.²⁰⁸ Since the end of 2020, the value of U.S. portfolio stock has been falling, though a significant portion of that likely resulted from a reduction in Chinese company valuations rather than a reduction in volume.*²⁰⁹ In 2022, the value of U.S. portfolio investment stock fell by \$258.7 billion compared with 2021.²¹⁰

Limitations of Official U.S. Data Sources on Outbound Investment

A key challenge that has plagued discussions around a U.S. outbound investment mechanism—and the broader U.S.-China financial relationship—has been a lack of reliable, official data released by the U.S. government. The Bureau of Economic Analysis (BEA) under the Commerce Department and the Treasury Department are the primary government bodies responsible for collecting and pub-

*From December 31, 2021, to December 30, 2022, the CSI 300, the benchmark of mainland-traded stocks, fell 21.6 percent, almost identical to the 22.1 percent decline in the value of U.S. portfolio investments in China. Shanghai Stock Exchange, “CSI 300 [2021–2023],” via Haver Analytics; Carol C. Bertaut, Beau Bressler, and Stephanie Curcuru, “Globalization and the Geography of Capital Flows,” *Board of Governors of the Federal Reserve System FEDS Notes*, December 15, 2023.

lishing data on outbound financial flows.²¹¹ However, restrictions around the collection and public reporting of U.S. outbound investment statistics likely obscure the ultimate scale of these flows and prevent a detailed assessment of U.S. direct and portfolio investment in China.²¹²

Table 1: Official Annual Data Collection on U.S. Outbound Investment

Data Type	Collecting Agency	Limitations
Direct Investment	The Department of Commerce Bureau of Economic Analysis (BEA)	Data reflect the place of incorporation of the immediate investment counterpart, which may not be the ultimate destination of the investment.* Data are published with sector categorizations that are too broad to discern the specific industries U.S. investment is supporting.
Portfolio Investment	The Department of Treasury	Data reflect the place of incorporation of the immediate investment counterpart, which may not be the ultimate destination of the investment. Data are published without any sector categorizations.

Source: Various.²¹³

U.S. direct investment statistics reflect the place of incorporation of the immediate investment counterpart, which is not necessarily the country that domiciles the ultimate beneficial owner (UBO).^{†214} As a result, the \$700 billion in reported direct investment stock in offshore tax havens such as Caribbean island non-banking holding companies and financial firms, for example, likely masks considerable additional investment flowing into China.²¹⁵ Legal restrictions within the International Investment and Trade in Services Survey Act—which governs how the BEA is able to collect outbound direct investment data—protect the confidentiality of the data that is released.²¹⁶

These privacy restrictions mean the sectoral breakdowns of U.S. official data are also too broad to discern investment shifts into sectors most relevant for national security. It is impossible to figure

* Every five years, through the Benchmark Survey of U.S. Direct Investment Abroad, the BEA collects data on the universe of foreign affiliates of U.S. entities, including detailed balance sheet and ownership information. By combining the data collected in the Benchmark Survey with data from the BEA's Quarterly Survey of U.S. Direct Investment Abroad, BEA researchers have proposed a methodology to reallocate the U.S. direct investment abroad position to the countries and industries where it is ultimately invested. This reallocation suggests substantial U.S. outbound investment flows to the Cayman Islands and other tax havens are eventually routed to China. For example, using data from the 2019 Benchmark Survey, researchers found that in 2019 the U.S. direct investment position in mainland China could be valued at \$240 billion, or \$140 billion dollars more than what was estimated for that year in official BEA statistics. However, the reallocation methods provide an imperfect and incomplete picture. Additional data would be needed to regularly publish direct investment statistics that attribute investment to the ultimate host economy. Kirsten Brew et al., "Experimental Ultimate Host Economy Statistics for U.S. Direct Investment Abroad," *U.S. Department of Commerce Bureau of Economic Analysis*, October 2023, 7–8, 24.

† Ultimate beneficial ownership (UBO) refers to the person or entity that ultimately owns or controls a company.

out how much U.S. direct investment is flowing into China across areas such as AI, quantum computing, and semiconductors, given that the most detailed U.S. data end at “manufacturing of electrical equipment, appliances, and components,” “information,” and “professional, scientific, and technical services.”²¹⁷ The BEA argues this is to prevent its data from being used to discern information about individual transactions, though analysts have challenged this as being overly cautious.²¹⁸

Data on U.S. portfolio investment in China suffer from issues similar to those of direct investment. The Treasury Department’s Treasury International Capital (TIC) system does not provide the UBO of outbound portfolio investment transactions.²¹⁹ However, other parts of the Federal Government such as the Federal Reserve are able to reconstruct portfolio investment beneficial ownership datasets, though with a severe time lag.²²⁰ Neither the TIC nor any other parts of the Federal Government publish outbound portfolio investment data organized by investment sector.²²¹

Alternative Estimates of U.S. Direct Investment into China

Private sector data sources, such as Pitchbook and fDi Markets, can be an imperfect solution to the inadequacies of official direct investment statistics. However, unlike official sources such as the BEA, which impose mandatory reporting requirements, private data collection firms must rely on methods that are inherently incomplete.* Still, Pitchbook, a private data provider, can provide insight into non-greenfield (mergers and acquisitions, private equity, and venture investment) U.S. investment, which captures the lion’s share of U.S. direct investment to China.† According to calculations using Pitchbook data by Sarah Bauerle Danzman, associate professor at Indiana University Bloomington, new U.S. investment flows in companies headquartered in mainland China, Hong Kong, or Macau peaked in 2018 at just under \$190 billion—a figure considerably higher than official statistics.²²² Investment volumes have declined every year since 2021. In 2023, U.S. non-greenfield investment flow to China was 30 percent of its 2021 value, or slightly below \$40 billion.²²³

While the absence of detailed, official U.S. data means it is impossible to get a complete picture of U.S. direct investment into China, alternative data providers suggest U.S. investors continue to make meaningful contributions to technology sectors at the heart of U.S.-China strategic competition. The United States remains the primary global investor in these sectors and the deals U.S. firms make can generate national security concerns if U.S. investors provide capital and expertise that help China advance its capabilities in sensitive technologies.²²⁴

*Pitchbook, for example, relies on systematic web crawling and is therefore unable to capture investments that have not been reported in regulatory filings, news articles, or press releases. Michael R. Ryan, “Pitchbook Database,” *Texas Tech University Innovation Hub at Research Park*.

†Calculations by Sarah Bauerle Danzman suggest the overwhelming majority of U.S. direct investment flows to China fall under these categories. Dr. Danzman finds U.S. investment through mergers and acquisitions, private equity, and venture capital was about three times as large as global greenfield foreign direct investment to China in 2022, with VC investment making up the largest portion. Sarah Bauerle Danzman, statement for the record for U.S.-China Economic and Security Review Commission, *Hearing on Key Economic Strategies for Leveling the U.S.-China Playing Field: Trade, Investment, and Technology*, May 23, 2024, 2.

U.S. non-greenfield investment in strategic sectors such as semiconductors, quantum computing, and AI is a fraction of U.S. total investment to China and is almost exclusively undertaken by venture capital (VC) firms.*²²⁵ U.S. investment flows in semiconductors, quantum computing, and AI peaked in 2020 at nearly \$17 billion before plummeting to around \$2 billion in 2023, though as discussed below they grew in 2024.²²⁶ Among those sectors, U.S. investment is heavily concentrated in the semiconductor industry, which accounted for over 90 percent of total U.S. investment in China's semiconductors, quantum computing, and AI sectors in 2020.²²⁷ U.S. investors have also been historically very involved with the Chinese AI industry. An analysis by the Center for Security and Emerging Technology (CSET) found that from 2015 to 2021, U.S. investors accounted for 37 percent of the \$110 billion in global funding raised by Chinese AI firms.†²²⁸

The United States is the most important foreign source of investment to semiconductors, quantum computing, and AI in China.²²⁹ U.S. investors consistently contribute more than double the capital to these sectors compared with all non-U.S. investors combined. Despite increased government interest in an outbound investment regime, U.S. investors remain keenly interested in supporting and investing in China's semiconductors, quantum computing, and AI sectors.²³⁰ In the first half of 2024, U.S. direct investment in those sectors had already surpassed the total value of 2023.²³¹

Private sector data sources do not provide estimates of the total allocation of U.S. portfolio investments in China by sector.²³²

Impact of Restricting U.S. Direct and Portfolio Investment

Restricting U.S. direct or portfolio investment would have different impacts on China's innovation ecosystem. Halting the flow of direct investment to specific sectors within the Chinese economy would diminish certain companies' access to funding and the intangible benefits often associated with venture capital firms and early-stage investors.²³³

Direct investment often involves a long-term relationship that gives control over or a significant degree of influence on the management of an enterprise. Historically, China has enforced stringent restrictions on direct investment flows into the country and has forced U.S. and other foreign businesses to acquiesce to joint ventures with Chinese firms and sign over their IP and technology to access the Chinese market.²³⁴ Because of the strategic nature of the investment, in addition to providing capital or technology, U.S. investors often also provide intangible benefits to recipient companies, including an enhanced global reputation, managerial expertise, talent networks, a deep understanding of technology, and U.S. market access.²³⁵

*In calculating investment size, Dr. Danzman specifically defines these sectors to include semiconductors, edge computing semiconductors, generative AI, post-quantum cryptography, quantum computing, quantum sensing, and swarm AI.

†CSET researchers used Crunchbase as their data source instead of Pitchbook, which is the source of the other non-greenfield investment statistics referenced earlier. Without an official source, and because private sector sources have to rely on inherently incomplete collection methods such as web scraping, there may be some minor divergences in the data provided by both sources.

Intangible benefits can be especially meaningful for companies in the startup or early growth phase. When working with founders who are often young and inexperienced, intangible benefits such as how to manage complex supply chains, maintain a skilled workforce, and develop commercial strategies can be critical in determining the success or failure of young technology companies.²³⁶

The scale of U.S. passive investments into China has also generated national security concerns. The relative ease at which transactions can happen mean the value of U.S. portfolio investment stock in China was far larger than the value of U.S. direct investment stock.*²³⁷ Such massive differences in magnitude can help offset the lack of intangible benefits offered.²³⁸ Abundant U.S. equity investments in Chinese markets can help Chinese companies by reducing their costs of capital, allowing them to acquire other businesses with company stock, and attracting and compensating top talent with company stock and stock options.²³⁹

As of 2022, U.S. portfolio holdings of equity made up 5.3 percent of China's domestic market capitalization.† United States firms are likely the largest foreign holder of Chinese equities.‡²⁴⁰ Therefore, while nothing blocks other foreign capital from backfilling any lost U.S. equity investments, the relative scarcity of global capital, combined with the weak performance of Chinese equity markets in recent years, may mean there are insufficient alternative sources to fully make up for U.S. portfolio investments. The United States is by far the largest global investor, making up 25.5 percent of total foreign portfolio investments as of December 2023.²⁴¹ Including the United States' G7 allies, which are also considering an outbound investment screening mechanism, this share jumps to 72.2 percent of global foreign equity investments (as of December 2023, the G7 makes up 48 percent of foreign holdings in the Chinese equity market and 59.3 percent of the Hong Kong equity market).§²⁴² This sig-

* In 2022, the official value of U.S. portfolio investment stock was 435 percent of direct investment (\$910 billion in portfolio investment stock and \$209 billion in direct investment stock). However, limitations in official data collection of U.S. direct investment likely mean the true percentage could be different. Carol C. Bertaut, Beau Bressler, and Stephanie Curcuru, "Globalization and the Geography of Capital Flows," *Board of Governors of the Federal Reserve System FEDS Notes*, December 15, 2023; U.S. Department of Commerce, "Direct Investment by Country and Industry, 2022— U.S. Direct Investment Position Abroad on a Historical-Cost Basis, By Country and Industry [2022]," July 20, 2023.

† This calculation was done by dividing the Federal Reserve's estimate for U.S. holdings of Chinese and Hong Kong securities by their respective stock market capitalization (China at \$11.47 trillion and Hong Kong at \$4.57 trillion). World Bank Group, "Market Capitalization of Listed Domestic Companies (Current US\$) - China, Hong Kong SAR, China"; Carol C. Bertaut, Beau Bressler, and Stephanie Curcuru, "Globalization and the Geography of Capital Flows," *Board of Governors of the Federal Reserve System FEDS Notes*, December 15, 2023.

‡ Based on the Coordinated Portfolio Investment Survey (CPIIS), a voluntary data collection exercise conducted under the auspices of the International Monetary Fund (IMF), the United States is the largest foreign holder of Chinese and Hong Kong equities with nearly double the assets of the next-largest foreign holder, Singapore. Importantly, however, the CPIIS dataset is reliant on national sources to build these data. As a result, the IMF reports 2022 U.S. equity holdings in China and Hong Kong as \$367 billion, which is derived from Treasury Department data on residency. This is far lower than the Fed's nationality-adjusted value of \$860 billion. While this adjustment could mean U.S. investors are by far the largest and most important foreign investor in Chinese equities, contributing four times as much capital as Singapore, the prevalence of tax havens and the imprecision of investment data likely indicate that other countries' total assets are underreported as well. International Monetary Fund, "Coordinated Portfolio Investment Survey—Derived Portfolio Investment Liabilities (All Economies) by Economy of Nonresident Holder: Total Portfolio Investment (Derived from Creditor Data)," June 2023.

§ Note that CPIIS includes mainland China as a foreign investor of the Hong Kong equity market and Hong Kong as a foreign investor of the mainland China equity market. The calculations exclude China and Hong Kong, respectively, as a foreign investor.

nificant share of assets means that if the G7 eventually implements outbound investment restrictions on portfolio investment across all its member economies, it could significantly impact Chinese public companies' access to capital and reduce their ability to compensate talent or conduct mergers and acquisitions.²⁴³

Ongoing Efforts to Regulate Outbound Investment Screening

Ongoing U.S. investment into China raises concerns that remain unaddressed by existing U.S. authorities. CFIUS screens many types of investments into the United States for national security risks, but not outbound flows. Export controls can mitigate the risk from the transfer of sensitive U.S. technologies and prohibit such transfers as part of an investment or via R&D collaboration, but they do not cover other risks that arise from capital investments, particularly VC/FDI. Policymakers have been engaged in an active debate about whether to create an outbound investment screening mechanism, how broad to scope it both in terms of the sectors and the types of investment to be covered, and otherwise how best to structure such a system to achieve the desired policy goals but not interfere with status of the United States as the premier global financial center. In August 2023, the White House issued an EO directing the Treasury Department to create an outbound investment review regime, and debates in Congress continue.*

Implications for the United States

Economic statecraft has become the United States' tool of first resort in addressing the threats China poses to key U.S. interests. Policymakers in Washington have turned to trade measures, export controls and sanctions, and foreign investment reviews to address longstanding concerns about Chinese non-market practices, forced technology transfer, civil-military fusion, Chinese technological and military modernization, and the specter of military confrontation. Some of these tools have not been used at scale in a generation. As a result, the use of each needs to be reviewed regularly to ensure each is addressing the unique challenges posed by the Chinese economy and its system at large.

How the United States coordinates and communicates its trade policy will play a central role in effectively wielding trade instruments to promote resilient and fair economic relations with China. Since 2017, the United States has more aggressively utilized a broader range of trade authorities. However, these tariffs and other trade tools—as blunt yet powerful instruments—have led to wide-ranging effects on the U.S. economy, promoting trade and supply chain objectives in some areas while imposing costs in others. The effectiveness of these trade policies can be enhanced through better calibration of the policy mix. China's surging manufacturing capacity and exports in 2024 and its efforts to develop national champions in key technology areas further underlie the need for a dynamic and strategic approach to counter China's unfair trade practices. Above all, a comprehensive and coherent trade policy must start by addressing

*For additional background on the EO, refer to Appendix II, "Executive Order on an Outbound Investment Security Program."

unresolved questions about U.S. goals and articulating a vision of the desired future U.S.-China economic relationship.

The United States has led a number of key allies to introduce export controls on strategic technologies, most notably semiconductors and semiconductor manufacturing equipment. Through an iterative and collaborative process, the United States has demonstrated both the national security necessity for export controls and that export controls can effectively slow the technological advancement of adversarial nations. The United States should continue to anticipate rapid development in these areas, requiring constant recalibration and coordination with allies and partners on what constitutes a cutting-edge technology. Simultaneously, the United States should not lose sight of legacy chips. Chinese dominance of legacy chip production could create new risks for U.S. commercial supply chains and military procurement. (For more on U.S.-China technology competition, see Chapter 3, “U.S.-China Competition in Emerging Technologies.”)

Debate continues around the desirability of an outbound investment mechanism and how it should be designed and implemented. Broad bipartisan consensus calls for a new tool to stem the flow of capital and nontangible know-how from the United States’ preeminent firms into advanced Chinese technology companies. The August 2023 outbound investment EO is a starting point. However, a durable mechanism will likely need to be founded in legislation. A number of debates around its scope also remain, including the types of investments that should be prohibited. A further challenge in shaping the mechanism is the lack of data around U.S. investments into China. The pervasive use of offshore tax havens and an inability to access granular, sectoral data mean policymakers are flying blind when determining the scale and scope of investment prohibitions.

However, the size and salience of China mean that no single U.S. economic statecraft tool will be a panacea for the challenges its economy poses. Trade measures, export controls and sanctions, and investment restrictions will need to work in tandem to achieve the United States’ most ambitious and important goals. This means that the policy work cannot end when each tool is adopted and streamlined to address the issues in its specific domain. U.S. officials must continuously dismantle bureaucratic siloes and compel implementing agencies to work toward a unified strategy.

Appendix I: Current Multilateral Export Control Regimes

Regime: <i>Founded in:</i>	Nuclear Suppliers Group <i>1974</i>	Australia Group <i>1985</i>	Missile Technology Control Regime <i>1987</i>	Wassenaar Arrangement <i>1996</i>
Covered Technologies:	Nuclear and nuclear-related materials, software, and technology	Equipment, materials, technology, and software that could contribute to chemical and biological weapons activities	Unmanned aerial vehicles capable of delivering weapons of mass destruction	Conventional arms and dual-use items and technologies
Argentina	×	×	×	×
Australia	×	×	×	×
Austria	×	×	×	×
Belarus	×			
Belgium	×	×	×	×
Brazil	×		×	
Bulgaria	×	×	×	×
Canada	×	×	×	×
China	×			
Croatia	×	×		×
Cyprus	×	×		
Czech Republic	×	×	×	×
Denmark	×	×	×	×
Estonia	×	×		×
European Union		×		
Finland	×	×	×	×
France	×	×	×	×
Germany	×	×	×	×
Greece	×	×	×	×
Hungary	×	×	×	×
Iceland	×	×	×	
India		×	×	×

Regime: <i>Founded in:</i>	Nuclear Suppliers Group <i>1974</i>	Australia Group <i>1985</i>	Missile Technology Control Regime <i>1987</i>	Wassenaar Arrangement <i>1996</i>
Covered Technologies:	Nuclear and nuclear-related materials, software, and technology	Equipment, materials, technology, and software that could contribute to chemical and biological weapons activities	Unmanned aerial vehicles capable of delivering weapons of mass destruction	Conventional arms and dual-use items and technologies
Ireland	×	×	×	×
Italy	×	×	×	×
Japan	×	×	×	×
Kazakhstan	×			
Latvia	×	×		×
Lithuania	×	×		×
Luxembourg	×	×	×	×
Malta	×	×		×
Mexico	×	×		×
Netherlands	×	×	×	×
New Zealand	×	×	×	×
Norway	×	×	×	×
Poland	×	×	×	×
Portugal	×	×	×	×
Republic of Korea	×	×	×	×
Romania	×	×		×
Russia	×		×	×
Serbia	×			
Slovakia	×	×		×
Slovenia	×	×		×
South Africa	×		×	×
Spain	×	×	×	×
Sweden	×	×	×	×
Switzerland	×	×	×	×

Regime: <i>Founded in:</i>	Nuclear Suppliers Group <i>1974</i>	Australia Group <i>1985</i>	Missile Technology Control Regime <i>1987</i>	Wassenaar Arrangement <i>1996</i>
Covered Technologies:	Nuclear and nuclear-related materials, software, and technology	Equipment, materials, technology, and software that could contribute to chemical and biological weapons activities	Unmanned aerial vehicles capable of delivering weapons of mass destruction	Conventional arms and dual-use items and technologies
Turkey	×	×	×	×
Ukraine	×	×	×	×
United Kingdom	×	×	×	×
United States	×	×	×	×

Source: Various,²⁴⁴

Appendix II: Executive Order on an Outbound Investment Security Program

On August 9, 2023, in response to worsening relations and the continued flow of U.S. investment into key Chinese technology sectors, the White House issued an EO, “Addressing United States Investments in Certain National Security Technologies and Products in Countries of Concern,” establishing an outbound investment regime.²⁴⁵ The EO takes a sectoral approach focusing on U.S. investments in China across a narrow set of technologies related to semiconductors and microelectronics, quantum information technologies, and AI systems.²⁴⁶ The EO is rooted in the authority granted to the president by the International Emergency Economic Powers Act (IEEPA).^{*247}

Shortly after the EO was released, the Treasury Department issued an Advance Notice of Proposed Rulemaking (ANPRM) that outlined the proposed outbound investment regime and sought public comments.²⁴⁸ In July 2024, the ANPRM was followed up with a Notice of Proposed Rulemaking (NPRM), which detailed the Administration’s current thinking on how to design and implement an outbound investment mechanism.^{†249}

The program aims to limit investment by U.S. persons‡ in Chinese entities that are involved in—or in certain circumstances may become involved in—the development or production of covered technologies.§ It would do this by proposing two categories of concern for outbound direct investments: notifiable transactions that could contribute to a national security threat and prohibited transactions

*IEEPA grants the president sweeping authority to “nullify, void, prevent, or prohibit” transactions, 50 U.S.C. § 1702(a)(1)(B), in response to “any unusual and extraordinary threat... to the national security, foreign policy, or economy of the United States.” 50 U.S.C. § 1701(a).

†While the ANPRM and the NPRM are very similar they do have a few important differences. The definition of AI was harmonized to align with other EOs such as EO 14110. The NPRM elaborates on and refines some ambiguities around the knowledge standard (which describes the knowledge a U.S. person must have about certain facts and circumstances related to a transaction to trigger obligations under the proposed rule); clarifies applicability in very specific transactions types; provides a new exception for transactions involving persons of third countries that have similar measures aimed at outbound investments; and clarifies the scope of limited partner investments that would be covered by the proposed rule and those that would be exempted. U.S. Department of the Treasury, Office of Investment Security, *FACT SHEET: Treasury Department Issues Notice of Proposed Rulemaking on Implementation of Outbound Investment Executive Order (E.O. 14105)*, June 21, 2024.

‡The EO and NPRM impose compliance obligations on “U.S. persons,” defined as a U.S. citizen or lawful permanent resident, as well as any entity organized under the United States or any jurisdiction within the United States, including those entities’ foreign subsidiaries. Notably, the non-U.S. entity also falls under the jurisdiction of the mechanism if it has a majority owner, general partner, or investment adviser to a pooled investment fund that falls under the definition of a U.S. person. Similar to economic sanctions, the rules would also prohibit a U.S. person from making or substantially participating in transactions on behalf of a non-U.S. person that would be prohibited if undertaken by a U.S. person. U.S. Department of the Treasury, “Provisions Pertaining to U.S. Investments in Certain National Security Technologies and Products in Countries of Concern,” *Federal Register* 89:129 (July 5, 2024); Antonia I. Tzinova et al., “Treasury Department Issues Long-Awaited Proposed Rule on Outbound Investment Screening,” *Holland & Knight*, June 26, 2024; U.S. Department of the Treasury, “Provisions Pertaining to U.S. Investments in Certain National Security Technologies and Products in Countries of Concern,” *Federal Register* 89:129 (July 5, 2024).

§The NPRM defines this as “covered transactions,” which happen when a “U.S. person” transacts with a “covered foreign person.” A “covered foreign person” is defined as a “person of a country of concern” that engages in activity related to the technologies specified as notifiable or prohibited in the proposed regulations. “Person of a country of concern” covers any entity headquartered in, with a principal place of business in, or organized in the People’s Republic of China, Hong Kong, and Macau (China); an individual who is a citizen or permanent resident of China; or an entity that is directly or indirectly majority-owned by a Chinese person. U.S. Department of the Treasury, “Provisions Pertaining to U.S. Investments in Certain National Security Technologies and Products in Countries of Concern,” *Federal Register* 89:129 (July 5, 2024).

that “pose a particularly acute national security threat” because of their potential to significantly advance the “military, intelligence, surveillance, or cyber-enabled capabilities” of countries of concern.²⁵⁰ However, any notifiable transaction would be automatically prohibited if the Chinese entity party to the transaction is listed on any one of several U.S. government lists primarily used for export controls and sanctions, including the Entity List and the Specially Designated Nationals (SDN) list.²⁵¹

Unlike CFIUS, the outbound investment program would not operate through a case-by-case review or preapproval requirement. Violations would be retroactively enforced through civil and criminal penalties.²⁵² While the Administration’s approach to prohibited transactions is consistent with its “small yard, high fence” strategy, the regime’s notification requirements are far broader and are intended to fill in critical gaps regarding the United States’ understanding of the nature and scale of domestic investments in Chinese high-tech sectors. (For more, see “Limitations of Official U.S. Data Sources on Outbound Investment” in this chapter.)²⁵³

Table 2: NPRM Proposed Approach to Notifiable and Prohibited Transactions

Technology	Notifiable Transaction	Prohibited Transaction
Semiconductors and microelectronics	The design, fabrication, and packaging of any integrated circuit that is not covered by the definition of prohibited transactions.	Developing or producing advanced integrated circuit design and equipment software; developing or producing specific front-end semiconductor fabrication, advanced packaging, or extreme ultraviolet lithography equipment; designing, fabricating, or packaging integrated circuits that meet or exceed advanced technical thresholds; developing, installing, selling, or producing any supercomputer.
AI systems	Designed to be used by government intelligence or military; cybersecurity applications, digital forensics tools, penetration testing tools, or the control of robotics systems; trained using a quantity of computing power greater than an amount yet to be determined; specialized AI models trained on high-quality data.	AI systems designed to be exclusively used for military, government intelligence, or mass surveillance; frontier AI models; AI systems trained using a certain quantity of computing power; and AI systems trained with biological sequence data.
Quantum information technologies	None	Developing a quantum computer or producing any of its critical components; developing or producing any quantum sensing platform designed for government, intelligence, or mass surveillance purposes; developing or producing certain quantum networks or quantum communication systems.

Source: U.S. Department of the Treasury, “Provisions Pertaining to U.S. Investments in Certain National Security Technologies and Products in Countries of Concern,” *Federal Register* 89:129 (July 5, 2024).

The Administration's program specifically covers active investments, sometimes called "smart money," including the acquisition of equity interests (mergers and acquisitions, private equity, and VC), contingent equity interests, greenfield investments, joint ventures, and equity-convertible debt financing.²⁵⁴ It notably carves out passive investments such as publicly traded securities; securities issued by an investment company, like an index fund, mutual fund, or exchange traded fund; and pooled investment funds.*²⁵⁵

*Treasury is still finalizing its approach to investments in pooled funds and has proposed two approaches. The first exempts them so long as the U.S. investor's rights are consistent with a passive investment and their capital is not more than 50 percent of the total assets under management. The second caps their investment at \$1 million. Janet K. Kim, Sylwia A. Lis, and Rob O'Brien, "US Treasury Department Issues Proposed Rules Restricting US Outbound Investment in Advanced Technologies Involving China," *Baker McKenzie*, June 25, 2024.

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