Frenemies: How the United States Aids China's Economic and Technological Aims

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In the summer of 2021, China launched a pair of nuclear-capable hypersonic weapons into space that bewildered and frightened the U.S. military and intelligence community.[1] The weapons test demonstrated exquisite technology that no other country had matched, that could defeat U.S. missile defenses, and that America's top defense scientists didn't even understand.[2] Yet an even more disturbing detail soon became clear – China's hypersonic breakthroughs were fueled by U.S. technology.[3]

This shouldn't come as much of a surprise. The United States has pumped military technology into China for decades, first as part of a Cold War gambit against the Soviet Union, and later as part of a failed project to democratize China and profit from its rise. The flow of U.S. dual-use technology to China continues today, even as the U.S. belatedly recognizes that the Chinese Communist Party (CCP) is primarily a threat, rather than an opportunity.

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Successive U.S. administrations have agreed that under the CCP, China is an adversary, or at least a competitor, creating something of a bipartisan consensus that China is the United States' preeminent national security concern. China leads the short list of state actors identified as threats to U.S. national security in the intelligence community's authoritative Annual Threat Assessment.[4] Despite this, U.S. policy continues to treat China very differently than the other nations on that list – Russia, Iran, and North Korea.

These discrepancies position China as a 'frenemy.' China enjoys far more financial connectivity to the U.S. economy than other U.S. adversaries, and Chinese entities are far less comprehensively sanctioned than those from other adversaries. And while the United States has embraced technological and economic containment against its other adversaries, it has not done so against China. U.S. policy continues to grant China preferential access to U.S. technology exports, and the research institutions that produce U.S. technology breakthroughs. This special treatment helps the CCP exploit American technology to aid its military modernization, human rights atrocities, and economic warfare.

I. China's Privileged Financial Access Enables Tech Transfer

Each of the nation-states identified as major threats by the United States government are subject to economy-wide financial measures that substantially restrict their access to the U.S. economy and high-tech industries – except for China. Today, Russia, Iran, and North Korea are all almost completely blocked from financial interactions with the United States, but for extremely limited exceptions. It is the opposite for China: most Chinese entities enjoy unfettered access to the U.S. economy, but for narrow and specific prohibitions. This largely unimpeded financial connectivity creates an enabling environment for tech transfer from the U.S. to China, aids the development of China's indigenous technology, and allows China to sell the technology it produces to the world's largest consumer economy.

A. Decoupling is the Norm for Other Adversaries

Except for China, the United States' policy towards its major nation-state adversaries is one of decoupling – the total separation of the U.S. economy from the economies of those countries. The United States has already largely decoupled from the economies of North Korea and Iran, and is rapidly moving towards complete decoupling with Russia as well in the aftermath of Russia's second invasion of Ukraine.

The United States maintains a near-total financial and economic firewall against North Korea, with extremely narrow exceptions that generally relate to humanitarian and charitable purposes. A Treasury Department FAQ page addresses the hypothetical question "Can U.S. persons do business with entities in North Korea?" with a simple answer: "No."[5] A similar firewall exists for Iran. The United States' Iran sanctions "prohibit virtually all… transactions involving Iran or the Government of Iran by U.S. persons or with a nexus to the United States."[6] The Congressional Research Service observes that "U.S. sanctions on Iran… ban nearly all U.S. trade with Iran" and prohibit dealings with broad sectors of the Iranian economy through sanctions.[7]

The United States is also increasingly adopting a policy of economy-wide decoupling from Russia. Recent U.S. Treasury actions have sought to attack Russia's "foundational financial infrastructure," and to isolate and degrade entire sectors of the Russian economy. The policy approach is explicitly one of decoupling and containment.[8] The Treasury Department has premised its actions on the "assessment that Russia has re-oriented its economy and marshalled all parts of its government toward supporting its reprehensible war effort."[9] Then-Treasury Secretary Janet Yellen described Treasury's actions as furthering a policy that has left Russia "deeply isolated from the international financial system, leaving the Kremlin's military desperate for access to the outside world," and striking at "their remaining avenues for international materials and equipment."[10]

B. Outbound Investment Restrictions

The United States' privileged treatment of the Chinese economy relative to other adversaries allows Chinese entities to leverage the U.S. economy for the development of technology in China. While other adversaries are prohibited from receiving outbound investment from the United States, Chinese entities still benefit from the capital, expertise, and connections of U.S. investment.

Russia, Iran, and North Korea are all subject to complete bans on outbound investment from the United States. As noted prior, the North Korean economy is untouchable for U.S. business. Iran has been subject to a near-total trade embargo and outbound investment ban since 1995.[11] Russia is also subject to an outbound investment ban that prohibits virtually any type of new business activity inside Russia.[12]

The United States policy towards outbound investment in China is the opposite. Rather than a total ban on outbound investment with narrow exceptions, outbound investment into China is almost entirely unrestricted, but for narrow exceptions.[13] While this approach has been the default U.S. policy towards investment in China across multiple administrations, the Biden administration explicitly lionized this "small yard, high fence" policy of limited restrictions for China, even as it adopted a completely different approach towards Russia.[14] The Biden administration issued Executive Order 14105 in August 2023 that set the stage to eventually restrict certain investments in certain technologies in China, but these measures were yet to be implemented at the end of the Biden administration. Still, even if those new prohibitions had been successfully implemented and maximally enforced, they would have been narrowly tailored, leaving significant forms of outbound investment untouched.[15]

In fact, recent policy continued to view investments and economic interactions between the United States and China as a 'win-win' proposition. During 2024 Congressional testimony, Secretary Janet Yellen stated: "I think we gain and China gains from trade and investment that is as open as possible, and it would be disastrous for us to attempt to decouple from China."[16]

The clear double standard in favor of investment in China relative to other United States adversaries has aided the development of technology in China that is inimical to U.S. interests in national security and human rights.

In February 2024, an investigation by the U.S. House Select Committee on the Chinese Communist Party (the "China Select Committee") found that American venture capital firms invested billions into China's "critical technology companies, including many aiding the Chinese military, surveillance state, or the CCP's genocide" against Muslims.[17] Another Committee report in April found that American asset managers and index providers used billions of dollars of unwitting Americans' retirement savings to fund "63 [Chinese] companies that the United States government has red-flagged or blacklisted for advancing [Chinese] military capabilities or supporting its human rights abuses."[18]

Other researchers have documented the close relationship between American tech-giants like Microsoft, Amazon, Meta, and Oracle and various entities that are part of the CCP's civil-military fusion effort. Taken on the whole, the operations of American tech-leaders in China, their investment in Chinese firms, and their joint-development with Chinese firms build China's expertise in developing cutting-edge technologies that feed into China's state security apparatus.[19]

The full extent of U.S. investment in emerging technology in China is currently impossible to determine, because U.S. investors are not required to publicly disclose such investments or report them to the federal government – a challenge Executive Order 14105 would ostensibly begin to address. However, the China Select Committee reports capture only a small sliver of U.S. investments into the development of technologies in China that contribute to military threats and human rights abuses. For example, in July 2024, a Financial Times investigation found Intel's venture capital arm owns stakes in over 40 tech startups in China, including a "5G and cloud infrastructure" company, a manufacturer of "micro-optics hardware," 16 AI startups, 15 semiconductor firms, and in "companies developing cloud services, electric vehicles, telecoms, virtual reality systems and batteries."[20]

In other words, as the U.S. government works overtime to restrict the flow of semiconductor and other dual-use technologies to China on national security grounds, U.S. firms are pumping billions of dollars into efforts to build China's indigenous capabilities in these same technologies. Efforts to scrutinize such outbound investments that directly undermine U.S. national security goals face concerted opposition from the financial services sector, which profits from the transactions, and corporate interests that seek to profit from transferring technology and fostering China's domestic innovation. Intel itself is a perfect example of how strongly China's market still tempts such entities to contravene the U.S. national interest – when its dozens of emerging tech investments in China were revealed in 2024, Intel was already the largest recipient of U.S. taxpayer-funded grants under the CHIPS and Science Act, to the tune of $8.5 billion.[21]

C. Inbound Investment Scrutiny

China's privileged access to the U.S. economy also creates vectors of technology transfer stemming from Chinese inbound investment into the United States. The United States' broad financial decoupling from its other adversaries, complemented with robust sanctions programs, means that all, or virtually all inbound investments from North Korea, Iran, and Russia will be prohibited as a matter of law. China's substantial presence in the U.S. economy requires more active efforts from the federal government to investigate and block inbound investments that present national security threats. The U.S. track record in doing so is mixed, at best.

In recent years the United States has sought to strengthen foreign investment reviews by the Committee on Foreign Investment in the United States (CFIUS). In a number of high-profile cases however, the review process has failed to address threats emanating from China and failed to stop instances of technology transfer in critical sectors, challenges which continue today.

CFIUS has approved inbound investment transactions from Chinese entities that present significant homeland security threats, from the Chinese acquisition of Smithfield, the United States' largest pork producer, to a merger that laid the groundwork for TikTok to become the primary source of news for American youth. In 2013, CFIUS approved the acquisition of the U.S. company Complete Genomics by the Chinese genomic company BGI.[22] BGI was later sanctioned for using its technology to assist the CCP's genocide against Uyghurs.[23]

In some cases, CFIUS has simply been unable to block transactions that present manifest national security threats. In 2022, CFIUS informed federal officials that it was unable to act regarding a Chinese company's purchase of 370 acres of land near North Dakota's Grand Forks Air Force Base, which the U.S. Air Force described as "a significant threat to national security."[24] The Grand Forks purchase was a "greenfield" investment that did not involve the acquisition of a U.S. company, which CFIUS generally lacks jurisdiction over, rather than a merger, which CFIUS generally can review.

Chinese inbound investments continue to present national security threats that evade CFIUS review. In September 2024, media reports revealed that the FBI was investigating how a Chinese private equity group became "one of Silicon Valley's most prolific early investors" and potentially "allowed Beijing to obtain the trade secrets of tech start-ups" over the last decade. The firm reportedly targeted "specific technologies with 'critical intellectual property'," and invested in 360 U.S. tech startups in less than three years, including at least one aerospace firm.[25]

The continuing national security and tech transfer threats stemming from inbound Chinese investment are a downstream consequence of China's privileged financial access relative to other nation-state adversaries. Entities in North Korea, Russia, and Iran are, for all intents and purposes, banned from investing in the United States. Chinese entities are completely allowed to acquire U.S. companies or make other investments in the United States, but for narrow exceptions and unless the U.S. government steps in – and in some cases, the U.S. government simply lacks the jurisdiction to intervene.

D. A Permissive Financial Environment for Tech Transfer to China

In terms of financial connectivity, including inbound and outbound bilateral investments, the typical U.S. policy towards nation-state adversaries is almost reversed for China. The totality of China's privileged financial access means that China is much more free to operate in the U.S. economy than other adversaries are. It also means that U.S. actors are much more free to interact with the Chinese economy than they are with other adversaries. Taken together, this creates a permissive environment that facilitates China's ability to exploit U.S. technology against U.S. interests, and provides the underpinnings of further policy double standards that aid China's economic and technological goals.

II. Chinese Entities Are Less Sanctioned and More Able to Access U.S. Technology

In place of the economy-wide measures normally taken towards American adversaries, a robust implementation of financial sanctions on specific entities could mitigate China's relative advantage in acquiring American technology. Unfortunately, the implementation of sanctions is another area in which the U.S. policy towards China is far less assertive than it is against Russia, Iran, and North Korea.

Chinese entities are sanctioned by the U.S. Treasury Department far more rarely than entities from those other adversary nations. And when Chinese entities are subject to Treasury sanctions, it is most commonly a byproduct of sanctions aimed at those other adversaries, rather than China-specific policy objectives. Moreover, while the United States explicitly uses sanctions for the technological containment of other adversaries, it explicitly refrains from doing so towards China.

A. Chinese Entities Are Rarely Subject to Financial Sanctions

A disproportionately small share of Chinese entities are included on the Treasury Department's Specially Designated National (SDN) List relative to other U.S. adversaries. Entities on the SDN List face the United States' most comprehensive financial sanctions, including blocking any access to the U.S. economy and any transactions with entities subject to U.S. jurisdiction.

As of late 2024, less than 800 Chinese individuals and entities appear on the SDN List.[26] As a point of comparison, the SDN List includes more than 500 Iranian individuals and more than 800 Iranian entities. Russian entities and individuals are listed in even greater numbers.

The vast majority of the Chinese entities on the SDN List have been included as part of non-China sanctions programs, rather than targets of sanctions aimed at China itself. More than 200 Chinese entities are sanctioned pursuant to Iran-related legislation or executive action. Nearly as many are included on the SDN list pursuant to Russia-related sanctions. More than 300 of the SDN-listed Chinese entities are included as part of various sanctions programs targeting North Korea, Syria, Venezuela, global terrorism, and nonproliferation.

In contrast, just over 100 Chinese entities are listed on the SDN List pursuant to China-specific aims, concerning human rights abuses, illicit drug trafficking, and the dismantlement of Hong Kong's democracy. The Treasury department also does not operate any China-specific sanctions programs enforced by SDN listings. This means that while numerous Chinese entities are sanctioned under programs aimed at Russia, Iran, North Korea, or other targets, few or no third-country entities are sanctioned as secondary effects of China-related goals.

In absolute terms, far fewer Chinese entities are subject to financial sanctions than entities from other adversary nations.[27] The paucity of entity-specific financial sanctions levied on Chinese entities is even more severe in relative terms. China's economy is roughly 44 times the size of Iran's and nearly nine times as large as Russia's.[28] Using Iran's roughly $400 billion economy as a comparison, per $400 billion in GDP the SDN List includes about 1300 Iranian entities, and approximately 18 Chinese entities. In other words, relative to the size of the two countries' economies Iranian entities are more than 72 times more heavily sanctioned than Chinese entities.

The disparity is even starker given China's substantially greater capabilities in advanced technologies and far larger number of internationally-active technology firms. Chinese entities capable of feeding advanced technology into the Chinese military are more numerous and advanced than those of other adversaries, but are far less constrained by U.S. financial sanctions.

B. Sanctions are Used for Military Tech Containment Against Other Adversaries, but Not for China

The U.S. also imposes financial sanctions against Chinese entities for narrower purposes than those levied against other adversaries. The United States increasingly uses SDN listings for the purpose of technological containment of other adversaries, but has yet to do adopt this approach for China.

President Biden's Executive Order 14024 of April 15, 2021, illustrates the substantial difference in approach. The order directed full blocking sanctions against "any person determined" to operate "in the technology sector or the defense… sector" of the Russian economy, as well as "any other sector of the Russian Federation economy as may be determined by the Secretary of the Treasury."[29] The Treasury Department has used this authority to expand the order's scope to Russia's legal, management consulting, aerospace, electronics, marine, and financial services sectors.[30]

The order reflected a clear cut, expansive policy objective to degrade Russia's technological and defense capabilities writ large. It directed sanctions against entities based on their mere presence in broad sectors of the Russian economy, regardless of whether such entities were specifically involved in Russia's war against Ukraine. While the Treasury Department implicitly considered any Russian technology firm a contributor to Russia's military capabilities, the U.S. government has, historically, taken a philosophically different approach to China.

Sanctions on "Chinese military companies" are based on entity-specific designations, not mere presence in China's technology sector or contributing industries.[31] The less expansive approach is at odds with the U.S. government's understanding of China's "Military-Civil Fusion" strategy under Xi Jinping and of its stated objective of "the elimination of barriers between China's civilian research and commercial sectors, and its military and defense industrial sectors."[32]

The type of sanctions imposed on Chinese military companies are also far less severe than those imposed broadly on the Russian military industrial complex. The United States only prohibits trading in the securities of specifically named Chinese military companies and their subsidiaries. Unlike their Russian counterparts, Chinese military companies are not listed on the SDN List, are not prohibited from transacting with U.S. persons, and are not blocked from doing business in U.S. dollars.[33]

C. The United States Has Created Special, Less Restrictive Sanctions Just for China

The United States' relative reluctance to impose the SDN list's full financial blocking sanctions on Chinese entities has led to a proliferation of unique sanctions lists for China that apply varying forms of lesser sanctions. The very existence of these lists shows an idiosyncratic approach to China, because the lists consist of entities that would likely just be included on the SDN list if they were from Russia, Iran, or North Korea. These China-specific lists also reveal an incoherence to the United States' China policy that is the result of deep technological reliance, economic interdependence, and vested corporate interests.

For example, the U.S. Treasury maintains a "Non-SDN Chinese Military-Industrial Complex Companies List," which prohibits only the purchase or sale of the publicly-traded securities of the listed companies.[34] This list includes entities such as AVIC, the Aviation Industry Corporation of China, a state-owned defense contractor which manufactures China's advanced fighter aircraft. However, both AVIC's Russian counterpart and its Iranian counterpart are included on the SDN List and completely blocked from any financial dealings with U.S. persons.[35]

In total, there are currently 10 different sanctions lists apart from the SDN list that are relevant to China, of which six are China-specific.[36] Certain acts of Congress also impose restrictions on further subsets of Chinese entities. The recently enacted Protecting Americans from Foreign Adversary Controlled Applications Act, for example, would require the divestment of certain Chinese social media companies.[37] The BIOSECURE Act, which passed the House of Representatives in 2024, would have created a further list of "Biotechnology Companies of Concern."[38]

The gaps between these various lists are often nonsensical. For example, the Chinese surveillance giant Hikvision is banned from purchasing U.S. technology or marketing new products in the United States on national security grounds, and is designated as a Chinese military company by the Treasury, but is still permitted to transact in U.S. dollars despite years of consideration in the U.S. government and bipartisan Congressional advocacy to add Hikvision to the SDN list.[39] On the other hand, Chinese server manufacturer Inspur has also been designated as a Chinese military company by the Pentagon, and has been restricted from purchasing U.S. technology for its support of "China's military modernization efforts," but is not prohibited from marketing its products in the United States.[40]

The proliferation of China-specific lists and their various inconsistencies is a symptom of U.S. national security interests being compromised due to ingrained economic and technological reliance on China. China-specific lists that impose consequences short of SDN listing exist not because ejecting certain Chinese companies from the U.S. economy would be the wrong national security choice, but because it would be too costly due to reliances on those companies. For example, the Biden administration at one point came quite close to placing Hikvision on the SDN List, and in 2022 even previewed the move for ally and partner governments, but ultimately flinched – seemingly due to Hikvision's entrenched global footprint and the lack of ready alternatives.[41]

Similarly, the drone maker DJI has been repeatedly assessed to be a Chinese military company by the Pentagon, and is subject to Commerce Department export controls, but has yet to be included on the FCC's Covered List which would prevent their introduction of new drones into the U.S. market.[42] The U.S. Congress has sought to advance legislation to do so, but has faced fierce opposition from law enforcement and public safety agencies, who cited their reliance on DJI's products and the fact that alternatives "have not yet reached parity with China."[43]

III. China Enjoys Privileged Access to U.S. Technology Exports

Broader use of economy-wide, sectoral, and entity-specific financial measures have resulted in substantial technological decoupling between the United States and its other nation state adversaries. The lack of a similar approach towards China has increased the importance of export controls in pursuing U.S. national security goals relating to China.

Export controls are a form of sanctions administered by the U.S. Commerce Department that restrict or block the export of certain technologies to adversary entities. The assertive use of export controls could mitigate technology transfer vulnerabilities that result from Chinese entities' relatively greater access to the U.S. economy. Indeed, the first Trump administration began a more expansive use of export controls against Chinese entities, and the Biden administration went even further by adopting sectoral export controls against China's semiconductor sector. However, some policy choices cut the other way, continuing to grant China preferential access to U.S. technology relative to other adversaries.

The United States maintains a secret agreement with the Chinese government, dating back to 2004, that grants China unique exceptions to Commerce Department end-use checks.[44] These checks are on-site inspections to ensure that restricted technology exported to an entity the Commerce Department approves is not diverted to an unapproved end user. According to the U.S. House Foreign Affairs Committee, which oversees the Commerce Department's export control functions, "[w]ith other countries, U.S. export control officers can conduct end-use checks with few restrictions for up to five years after a technology is shipped. But, unique to the PRC, U.S. officials have only 180 days after an item is shipped."[45]

The Foreign Affairs Committee further found that such inspections "likely verified less than 0.01 percent of all licenses" for restricted technology granted to Chinese entities. In recent years the United States has employed two export control officers in China, who between 2016 and 2021 "conducted on average only 55 end-user checks per year of the roughly 4,000 active licenses in the PRC."[46] Technologists and foreign policy experts have estimated that 5,000 such inspections per year would be necessary to ensure the integrity of the United States' China-related export controls on semiconductors alone.[47]

The Commerce Department may require licenses for certain exports because the relevant technology is generally restricted, or because the Chinese importer has been added to the Commerce Department's Entity List, a list of entities that U.S. persons may not export restricted technology to without a license. There are a similar number of Russian entities and Chinese entities on the Entity List, despite China's far larger economy and Military-Civil Fusion policies.[48] On the other hand, there are very few Iranian entities and no North Korean entities at all on the list – likely because this form of sanction is largely irrelevant for those countries, as virtually all relevant trade is already prohibited by economy-wide financial measures.

Even when a license is required, the Commerce Department "almost never denies it," according to the Foreign Affairs Committee. Data available to the Committee indicates that in 2020, the Commerce Department "denied 2 percent of licenses for U.S. software and technology exports to the PRC and less than 1 percent of licenses to release U.S.-controlled technology and know-how to PRC nationals." As of mid-2021, "the U.S. government was approving more than 95 percent of national security-controlled technology transfer requests" for China.[49]

The Foreign Affairs Committee also found that certain Commerce rules for China are "less restrictive than" corresponding rules applicable to Russia. [50] The divergence is particularly acute following recent rounds of Ukraine-related sanctions, which aim to completely isolate Russia in a large number of sectors from quantum computing to engineering, and have expanded sectoral export controls to cover vast swathes of trade.[51] For China, by contrast, only the semiconductor industry has been subject to a comparable sector-wide technology control effort.[52]

Beginning in 2022, the Commerce Department sought to restrict "the PRC's efforts to obtain semiconductor manufacturing equipment… as well as high-end advanced computing semiconductors necessary to enable… military applications."[53] The effort faces constant attempts at evasion. U.S. manufacturers, such as NVIDIA, have repeatedly sought to design products that comply with the letter but not the intent of the regulations.[54] In third countries, startups have made a business model of helping Chinese AI developers evade U.S. export controls by offering access to controlled chips though cloud services.[55] This loophole would likely not be accessible to a Russian entity, because similar export controls for Russia are complemented by financial sanctions on cloud services, but no such backstop exists for China.[56]

Ultimately, the United States' controls on sensitive exports for China don't look much like those imposed on other adversaries. Relatively few Chinese entities trigger a license requirement for exports of restricted U.S. technology. Even when a license is required, it has almost always been granted. The Commerce Department virtually never checks end users in China, and maintains a secret deal with China that surrenders its right to do so after one-tenth of the usual oversight period. Only one sector of the Chinese economy has been targeted by sector-wide export controls. Major U.S. companies and companies in allied democracies are flagrantly seeking to frustrate and evade the controls. The lack of financial sanctions such as those imposed on other adversaries makes export controls for China more critical, but also simultaneously easier to evade.

IV. China Has Better Access to U.S. Higher Education Than Any Other Adversary

The comparatively low level of prohibitions on economic and technological linkages to China predictably create a much more permissive environment for Chinese entities in the research institutions where U.S. technology is born. The result has been an industrial-scale transfer of military technology from American colleges and universities to the Chinese military-industrial base and the Chinese Communist Party's mechanisms of repression, particularly from U.S. government-funded defense research.

In September 2024, the China Select Committee released a report which found that over the last decade, the U.S. Defense Department had funded thousands of research projects with entities "affiliated with the PRC defense research and industrial base."[57] The vast majority of Pentagon-funded projects with Chinese coauthors involved "advanced research in dual-use, critical, and emerging technologies" including "research with direct military applications." Topics included "high-performance explosives and rocket fuels, tracking of underwater targets, high-speed radar target detection," and drone swarming, as well as dozens or hundreds of projects on "advanced materials that may be relevant to future weapons systems," AI, aerospace, networked computing, nuclear physics, and hypersonics.[58]

Over the same timeframe, the Committee determined that the wider U.S. government had funded more than 70,000 such research publications with Chinese entities that involved "dual-use, critical, and emerging technologies."[59] The Select Committee's report includes numerous case studies of such federally-funded, dual-use research being transferred directly into Chinese government- and military-affiliated institutions.

In contrast, the U.S. is increasingly seeking to prohibit any interactions with the military-industrial base of other adversaries. For example, the U.S. Treasury is sanctioning a growing number of entities involved in developing Russia's capabilities in semiconductors, advanced materials, precision manufacturing, sensing, and other technologies.[60] While their Chinese counterparts feed Pentagon-funded research into China's military-industrial base, the Treasury Department is seeking to completely isolate these Russian entities and threatening secondary sanctions on foreign banks that handle their transactions.[61]

Chinese entities' broad access to the United States' economy relative to other adversaries exacerbates this dynamic and continues to facilitate tech transfer to China. A useful example is provided by the Chinese telecommunications giant Huawei, which has been designated by the Pentagon as a Chinese military company.

Huawei is subject to U.S. sanctions but has remained involved in cutting edge U.S. research as recently as early 2024. While U.S. export controls induced many universities to cut ties with Huawei beginning in 2019, the company remains able to operate in the United States.[62] This allowed Huawei to fund research programs in the U.S. that provided Huawei with "secret, early access to research projects in advanced photonics."[63] Huawei used a U.S. non-profit as a stalking horse to hide its role, a tactic that likely would not have been available if Huawei was subject to the more stringent measures applied to similar Russian, Iranian, and North Korean entities.

Huawei's evasion of U.S. export controls is only one way that the Chinese military-industrial base can subvert the limited prohibitions applied to Chinese entities. The China Select Committee report points out that U.S. export controls provide an exception for "fundamental research," which is "research designed to produce results that will be published in an academic journal or similar widely available publication." The Committee report points out however, that even if findings are to be published, such research "produces extensive applied knowledge and technological expertise that is not captured by resulting publications yet is enormously valuable" and "is frequently the basis for technological breakthroughs and other applications of the research to realworld problems." The use of the fundamental research exception by China's military-industrial base essentially defeats the purpose of the export controls, helping China "develop the sensitive technologies that the U.S. is trying to prevent China from obtaining."[64]

Georgia Tech's collaboration with Tianjin University provides a particularly salient example. Like Huawei, Tianjin University is subject to U.S. export controls for its "contributions to China's military modernization efforts."[65] The Select Committee report extensively details Georgia Tech's U.S. government-funded collaboration with Tianjian University in the area of graphene semiconductors, an alternative to the silicon-based semiconductor technology that is substantially U.S.-controlled. Though the expertise originated with Georgia Tech, in 2024 a group including Tianjin researchers and working primarily in Tianjin succeeded in creating the world's first functional graphene semiconductor.[66] Documents uncovered in the China Select Committee's investigation described the breakthrough as "a 'paradigm shifting' technology that will help China overcome U.S. export controls on the PRC for foundational semiconductor technology." The collaboration, funded in part by the Pentagon, subverted U.S. export controls twice over: those on Tianjin University itself, and those on silicon-based semiconductor technology writ large.

While the fundamental research exception applies globally, it is far more readily available to Chinese entities than it is to other U.S. adversaries by dint of Chinese entities' greater overall access to the U.S. economy. University compliance programs typically focus on a list of "comprehensively sanctioned countries," a group that does not include China.[67] UPenn, for example, hosts a webpage advising its faculty that "most activities involving Iran will require a specific license" from the U.S. Treasury, but has no equivalent public-facing resource for even the lesser prohibitions applicable to China.[68]

VI. Conclusion

Not all U.S. technology transfer to China's military-industrial base is a choice. The prevalence of China-related criminal theft, hacking, and IP violations is no secret. The stunning incompetence of U.S. defense contractors is a part of the problem; more than one prime contractor has negligently given Chinese entities technical specifications of U.S. stealth fighter aircraft.[69] Even when controls and sanctions are in place, evasion and enforcement are constant challenges – thrown into sharp relief by Huawei's recent use of a front company to acquire restricted chips.[70]

In some sectors, such as the consumer drone and electric vehicle markets, China has achieved a domestic technological edge. But in most sectors, China still needs technology from the outside world, and particularly from the United States. The U.S. government sets the rules for its adversaries' access to that technology, and it currently sets different rules for China than it does for Russia, Iran, and North Korea. The technology transfer that results from that gap is a choice.

It is no mystery why this double standard exists. Decades of government-promoted technological and financial interdependence with China have predictably resulted in major pecuniary interests in that interdependence, as well as alarming levels of reliance on China's industrial output. Interdependence with and reliance on the country that the U.S. intelligence community lists as the United States' foremost adversary is increasingly untenable for U.S. national and economic security. It's also increasingly undermining other U.S. goals priorities and interests across the globe.

If China is the head of the "Axis of Chaos," China's industrial economy has become the arsenal of autocracy.[71] The U.S. government is "deeply concerned about China's support for Russia's defense industrial base"[72] and China's expanding support is now "applied directly to the Russian war machine."[73] Attempting technological containment against Russia, or any other member of this emerging Axis, while maintaining a substantially more lenient policy towards China, is proving to be an exercise in futility.

Former Deputy National Security Advisor Matt Pottinger and Congressman Mike Gallagher, the former head of the China Select Committee, have pointed out that pursuing "siloed policies" towards China, Russia, Iran, and North Korea "added up to something manifestly incoherent."[74] The fruits of this incoherent policy are now streaking around the globe in China's hypersonic tests, and showing up on the battlefield in Ukraine.

A coherent policy would treat China like the threat that the U.S. government has determined it is, and would complement, rather than undermine, U.S. national security goals towards other adversaries. In other words, it would treat China more like an enemy, and less like a friend.

Endnotes

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