Is the Nuclear Genie Out of the Bottle? Strategic Stability in U.S.-China Relations

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Nuclear weapons have attracted unprecedented attention in the U.S.-China relationship in the last year. Increasing political tensions, nuclear modernization in both countries, and developments in U.S.-Russia arms control have prompted increasing concern about longstanding nuclear risks in the U.S.-China relationship. Asymmetries in alliances, geography, arsenal size, conventional military power, and non-nuclear strategic weapons increase both countries’ incentives for nuclear arms build-ups and nuclear weapons use in a future conflict. But China and the United States do not need to follow the same hazardous pathway to cooperative nuclear risk reduction that Moscow and Washington took during the Cold War, through dangerous nuclear crises and an arms build-up resulting in roughly symmetrical nuclear arsenals. Instead, the United States and China could cooperate to reduce nuclear risks on the basis of overall strategic symmetry. Combining nuclear arsenals with space, cyber, conventional long-range strike and missile defense capabilities, carefully crafted compromises, and compartmentalizing the strategic relationship could surmount the existing obstacles to concrete nuclear risk reduction measures.

Are nuclear weapons poised to take center stage in the emerging strategic competition between the United States and China? Only a few years ago, nuclear weapons were not a prominent aspect of U.S.-China relations. But events since 2019 suggest that the absolute weapon could become as central to superpower competition in the future as it was in the past. The prominence of nuclear weapons and magnitude of nuclear risks in U.S.-China strategic competition will depend on the choices the two countries make in the near future.

The year preceding the November 2020 U.S. presidential election offered a preview of what a future U.S.-China nuclear competition could look like. On October 1, 2019, China showcased a series of sophisticated nuclear missiles as the finale to its military parade commemorating the 70th Anniversary of the founding of the People’s Republic. In February 2020,
Commander of United States Strategic Command, Admiral Charles A. Richard, told the Senate Armed Services Committee that he could “drive a truck through” China’s no-first-use nuclear policy, which China points to as proof of its nuclear restraint. In April, the U.S. State Department claimed that China’s activity at its nuclear test site raised “concerns regarding its adherence to the ‘zero yield’ standard” for nuclear weapons testing heeded by the other Permanent Five members of the U.N. Security Council. The Trump administration then insisted on Chinese participation in negotiations with Russia about a future strategic nuclear arms control treaty. The Chinese government flatly refused to participate. In May, the editor of the Chinese tabloid, the Global Times, called for China to increase its arsenal size. His op-ed received widespread coverage in the Western press as confirmation of long-held expectations that China would “sprint to parity” of arsenal size with the United States and Russia. But the Western press paid far less attention to the public debate that the op-ed sparked within China, which included a strong defense of the adequacy of China’s lean arsenal from a recently retired PLA researcher.

What explains this sudden spotlight on the U.S.-China nuclear relationship? Are new nuclear risks emerging between the two countries? How might Beijing and Washington stabilize

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their nuclear relationship going forward to avoid unbridled nuclear competition and its attendant dangers?

There are nuclear risks in U.S.-China relations, but many of them are not new. The increasing tensions in the U.S.-China relationship, coupled with slow-moving technological trends in both countries’ militaries, have accentuated those risks. U.S.-China crisis stability (the lack of incentives for nuclear use in a crisis) and arms race stability (the lack of incentives to increase arsenal size, diversity, or sophistication) stand on tenuous ground because of asymmetries that create incentives for arms racing and the use of nuclear weapons in a crisis or conflict. The United States extends deterrence to allies in East Asia; China does not. China is situated in East Asia where most conflicts between the two countries would occur; the United States is not. The United States has a large and sophisticated nuclear arsenal; China does not (or at least not yet). China has relied on non-nuclear strategic weapons to compensate for a lack of conventional military power; the United States does not.

Asymmetries in nuclear relationships can reduce both crisis and arms race stability.6 The destabilizing effects of asymmetries are evident from the arms build-up and harrowing nuclear crises of the first half of the Cold War. By the time the United States and Soviet Union began to negotiate nuclear arms control treaties in 1969, the asymmetry in their arsenal sizes was fading fast.7 Moscow and Washington also had more symmetrical alliance commitments. These symmetries enabled the United States and Soviet Union to enter arms control negotiations from a position of rough equality. The United States and China have the best chance of managing nuclear risks through dialogue and cooperation. But borrowing from the U.S.-Soviet playbook

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for arms control and nuclear risk reduction during the Cold War is unlikely to succeed in the U.S.-China context, given the absence of nuclear symmetry.

Despite the lack of symmetry in the U.S.-China nuclear relationship, Washington and Beijing can and should avoid the Cold War pathway to strategic stability riddled with crises and arms-racing. To do so, they will need to be more creative about the basis for cooperation to reduce nuclear risks. Achieving symmetry in nuclear doctrine and arsenal size cannot be that basis. But the overall U.S.-China strategic relationship – which includes nuclear as well as missile defense, counterspace, cyber, and conventional long-range strike capabilities – is more symmetrical than its nuclear component. Overall “strategic symmetry” could thus serve as the basis for the two countries to cooperate to reduce nuclear risks. This pathway to stability will require both parties to be willing to make compromises, combine some non-nuclear issues with nuclear ones, and compartmentalize nuclear relations from other aspects of the relationship. These three principles might enable the two countries to move forward with a number of concrete proposals for cooperative nuclear risk reduction.

This paper begins by sketching out the changing context of U.S.-China strategic stability. It then briefly describes each of the asymmetries in the relationship and explains how they contribute to nuclear crisis or arms race instability. After a brief overview of the two countries’ mutual interests in nuclear risk reduction and past efforts to build strategic stability, it outlines three principles to guide U.S.-China cooperation. It concludes with examples of the concrete cooperative nuclear risk reduction measures that this approach might enable.
A Changing Landscape

A more contentious U.S.-China political relationship is emerging at the same time as a number of unrelated trends in nuclear politics. The coincidence of these developments is putting the spotlight on longstanding risks of nuclear use and arms racing between the United States and China.

First, intensifying U.S.-China competition undermines trust in the other side’s assurances about their defensive nuclear intentions and encourages worst-case scenario interpretations of their behavior.\(^8\) In 2011, some Chinese strategists indicated that “strategic trust” built on respect for each other’s national interest was necessary before the two countries could engage in a strategic stability dialogue.\(^9\) If that trust was insufficient in 2011, it is even more sorely lacking today.

All aspects of the U.S.-China relationship have taken a more confrontational turn in recent years. The 2017 U.S. National Security Strategy proclaimed that “China seeks to displace the United States in the Indo-Pacific region, expand the reaches of its state-driven economic model, and reorder the region in its favor.”\(^10\) This view of U.S.-China relations was not a quirk of the Trump administration. In his first major foreign policy speech, President Biden labeled China as the “most serious competitor” the United States faced and vowed to confront the challenges it posed to American economic, security, and diplomatic interests.\(^11\) The 2019

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Chinese defense white paper countered that the United States “is engaging in technological and institutional innovation in pursuit of absolute military superiority.” ¹² U.S.-China competition is playing out across all aspects of the bilateral relationship, from technology supply chains to military capabilities to the origins of the COVID-19 pandemic. Both countries view each other’s nuclear postures and policies through this competitive lens. If longstanding foreign policy principles can be abandoned in other areas, whether pledges not to base forces overseas or limits on diplomatic exchanges with Taiwan, both sides could reasonably expect the other side to similarly abandon nuclear restraint.

Second, U.S.-Russia arms control has unraveled in recent years, which is likely to increase China’s wariness of arms control with the United States and add to anxieties about the future adequacy of its nuclear arsenal. The lack of constraints on Chinese land-based theater-range missiles factored into U.S. reasons for pulling out of the Intermediate Nuclear Forces (INF) Treaty last year.¹³ In 2020, the Trump administration withdrew from the Open Skies Treaty, which permits the United States and Russia to fly over each other’s territory to verify that no military preparations for an attack are underway.¹⁴ Despite the recent extension of the U.S.-Russia new START Treaty to 2026, negotiating and ratifying a follow-on strategic nuclear arms control treaty will be challenging.¹⁵ The Trump administration’s chief arms control negotiator, Ambassador Marshall Billingslea, declared that “the next treaty will have to be multilateral, it

will have to include China." It remains unclear whether the Biden administration will retain this position. If the United States and Russia fail to maintain numerical limits on their strategic nuclear arsenals, Beijing’s assessments of how many nuclear weapons it needs to deter a U.S. nuclear first strike could also increase.

These events have undermined Washington’s reputation for upholding arms control commitments and reduce the incentives for China to participate in any nuclear dialogue with the United States. China’s nuclear arsenal is an order of magnitude smaller than the U.S. and Russian arsenals. Given the lack of a concrete U.S. proposal for trilateral arms control taking into account these realities, the initial demand for Chinese participation in new START negotiations seemed more like an excuse to weaken U.S.-Russia arms control rather than a genuine effort to engage China. In response to these developments, the Director-General of the Arms Control Department at China’s Foreign Ministry, Fu Cong, remarked, “the fact that the U.S. has withdrawn from all these arms control treaties and international agreements, has seriously undermined the credibility of the United States as a negotiator.” Washington’s reputation for sticking to arms control agreements is unlikely to be quickly or easily restored.

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Third, China and the United States are both in the midst of modernizing their nuclear arsenals, which provides organizational incentives for more hawkish assessments of the other’s nuclear behavior. The United States has embarked on the most sweeping modernization program of its strategic nuclear triad since the end of the Cold War that is estimated to cost at least $1.2 trillion over the next three decades. The 2018 *Nuclear Posture Review Report* added low-yield, submarine-launched “supplemental capabilities” to the U.S. arsenal to enhance its options for limited nuclear strikes. Capabilities required to deter China are likely to influence U.S. decisions about funding for nuclear modernization as budgets tighten in the wake of the coronavirus pandemic. U.S. missile defense capabilities have also improved, both qualitatively and quantitatively, in recent years. The United States plans to increase the number of its ground-based mid-course interceptors for homeland defense from 44 to 64, indicated that it would study options for space-based missile defense, and tested its SM-3 Block IIA interceptors on an intercontinental ballistic missile (ICBM) for the first time in late 2020.

China’s nuclear capabilities and operations are changing in ways that are consistent with continuity of its retaliatory force posture but could also enable a faster shift to a first-use posture in the future. China has deployed two new intercontinental ballistic missiles (ICBMs), the DF-41 and DF-31AG, and a new intermediate range ballistic missile (IRBM), the dual-use DF-26. The People’s Liberation Army (PLA) Navy now fields six nuclear-powered ballistic missile

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submarines.\textsuperscript{25} It plans to arm bomber aircraft with nuclear weapons, most likely an air-launched ballistic missile, in the future.\textsuperscript{26} These capabilities will equip China with a triad of delivery systems for the first time, although its air and sea legs are much less survivable than its land-based missile force. The U.S. Government also worries that China is exploring the option of fielding low-yield nuclear warheads in the future.\textsuperscript{27} A 2020 Pentagon report suggests that China keeps some portion of its nuclear force on day-to-day alert or will do so in the future.\textsuperscript{28} China is building a space-based warning architecture that could enable it to shift to a launch on warning alert status in the future. It has received Russian assistance for that warning system.\textsuperscript{29}

U.S. concerns that China’s nuclear posture is shifting towards first-use are based on its growing nuclear arsenal size and sophistication, coupled with a perception of more assertive Chinese behavior. But many aspects of China’s arsenal modernization pre-date its more ambitious and muscular foreign policy. Some arsenal developments reflect China’s concerns about the adequacy of its retaliatory force five to ten years ago. For example, Chinese strategists mentioned a larger ICBM force, a sea-based nuclear deterrent, and increased readiness to launch in 2013 in the context of overcoming U.S. missile defense.\textsuperscript{30} Other developments, such as its dual-use, accurate, intermediate-range DF-26 missile and the air-leg of its nuclear deterrent have a range of applications, including conventional strikes, limited nuclear retaliation against U.S.


\textsuperscript{29} “Russia Helping China to Build Missile Warning System, Says Putin,” \textit{South China Morning Post}, October 4, 2019.

assets in East Asia, nuclear retaliation against India or Russia, as well as equipping China with more suitable capabilities for limited first-use. Organizational efficiencies and inter-service competition, as well as military requirements, have likely influenced these capability developments.

Fourth, both China and the United States have deployed weapons capable of destroying each other’s space assets, offensive cyber capabilities, conventional precision-strike capabilities, and missile defense in ways that affect each other’s existing plans for nuclear use. These non-nuclear strategic weapons create additional pathways for conventional conflicts to become nuclear wars. The effects of these weapons are too significant for either China or the United States to ignore them in their strategic nuclear deterrence calculations. But it is difficult to draw a distinction between their strategic variants, where the two countries share an interest in setting limits, and nonstrategic variants that generate operational effects in conventional wars, where neither has an interest in limiting their use. These capabilities are discussed at length below.

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Asymmetries and Instability

The changing political and technological landscape has accentuated existing concerns in China and the United States about nuclear arms racing and nuclear use in a crisis. There are five asymmetries in the U.S.-China security relationship that give strategists in both countries reasons to worry: alliances, geography, nuclear arsenal size, conventional military power, and non-nuclear strategic weapons postures. To provide context for the discussion of those asymmetries, this section first provides a short summary of how the United States and China use nuclear and non-nuclear weapons to achieve their political goals in the Indo-Pacific.

To protect allies and underwrite Indo-Pacific security from the other side of the Pacific Ocean, the United States has relied on conventional military superiority and a large, diverse nuclear arsenal. The U.S. nuclear arsenal is capable of conducting a large-scale first strike that could destroy some (but not all) Chinese nuclear weapons and limit some (but not all) damage to the United States homeland from Chinese nuclear retaliation.\(^{34}\) U.S. counterforce capabilities are enhanced by regional and limited homeland missile defense systems. Missile defense, coupled with operations to disable or destroy nuclear weapons before they are launched that are referred to as “left-of-launch” operations,\(^{35}\) could further degrade an adversary’s retaliatory capability. U.S. administrations have clearly stated that missile defenses are neither intended to nor capable of intercepting Chinese ICBMs, but rather would counter the low number of rudimentary


missiles fired by rogue states. The United States also relies on non-strategic nuclear weapons to deter adversary threats of limited nuclear use.

The United States might have been slower than Russia and China to incorporate counterspace and offensive cyber attacks on non-nuclear targets into its concepts for strategic deterrence, likely because of bureaucratic stovepiping. These weapons play a more prominent role in enhancing the effectiveness of U.S. conventional military operations than in strategic deterrence. But they could also be used for coercive leverage, to deter adversaries from using these weapons, or for nuclear counterforce.

China does not rely on threats to use nuclear weapons first to achieve its goals in its main conflict contingency of informatized local wars. China’s goals in a local conflict could include preventing Taiwan from taking steps to achieve more independence, coercing Taiwan to take steps towards reunification, protecting its claims to contested territory, and deterring U.S. intervention on behalf of an ally. Western strategists have speculated that China could consider threatening nuclear first-use to deter U.S. intervention in a Taiwan conflict, or to influence the outcome of a large-scale conventional conflict that is going badly. Chinese strategists have

recognized that possibility as well. Instead, China’s overall approach to strategic deterrence in such high-intensity conflicts aims to achieve a political victory below the nuclear threshold. China has used the escalatory threat of large-scale space, cyber, and conventional missile weapons to compensate for its inability to win a conventional military victory. China’s nuclear arsenal has thus far been optimized for retaliation of nuclear attacks, in accordance with its declaratory policy of nuclear no-first-use. Force structure constraints on China’s ability to credibly threaten nuclear first-use are, however, diminishing as its arsenal modernizes.

Alliances

The first key asymmetry in the U.S.-China nuclear relationship concerns allies. The United States extends nuclear deterrence to geographically distant allies, while China’s nuclear weapons do not deter attacks on any other country than the PRC. Any U.S.-China conflict is likely to begin as a conflict between a U.S. treaty ally (or informal ally, Taiwan) and China. Treaty allies Japan and the Philippines have active territorial disputes with China in the East China Sea and South China Sea respectively. China’s goal of reunification with Taiwan is inconsistent with the island’s survival as a sovereign state. While South Korea has no dispute directly with China, Beijing’s interest in the fate of its nuclear-armed ally, North Korea, could also trigger a U.S.-China conflict.

41 Xiao Tianliang, Xiao Tianliang Jianggao Zixuanji [Selected Lectures of Xiao Tianliang] (Beijing: Guofang Daxue Chubanshe, 2015) 256; Sun Xiangli, “Zhongguo he zhanlue yanjiu” [Research on China’s nuclear strategy], in Zhang Tuosheng, Li Bin, and Fan Jishe, eds., He zhanlue bijiao yanjiu [Comparative research on nuclear strategy] (Beijing: Shehui kexue wenxian chubanshe, 2014), 14.
The alliance asymmetry creates an imbalance in stakes for the United States and China in any East Asian conflict, with implications for both crisis and arms race stability. Any U.S. nuclear threats to protect an ally could lack credibility, whether to China or to the ally, because of China’s ability to retaliate with nuclear weapons against the United States. The United States has relied on a nuclear arsenal that limits damage to the United States homeland to compensate for this extended deterrence credibility shortfall since the Cold War.\textsuperscript{44} By contrast, China has no extended deterrence commitments that could motivate it to pursue a nuclear damage limitation capability. China’s closest partners, Pakistan and North Korea, have their own nuclear weapons, which removes any non-proliferation incentives for China to extend nuclear deterrence to them.

Alliance commitments were more symmetrical during the Cold War than between the United States and China today. While extended deterrence commitments placed greater demands on the U.S. nuclear arsenal than the Soviet arsenal, both Washington and Moscow used their nuclear arsenals to defend allied territory and prevent proliferation. The credibility of Soviet security guarantees to allies in Eastern Europe relied on the forward presence of troops and deployment of nuclear weapons to deter a NATO attack. But Moscow likely relied less on a damage limitation capability for extended deterrence. With the exception of Romania, Eastern European countries hosting Soviet forces did not seek the same degree of reassurance as Western European NATO members. Moreover, the Soviet Union was more relaxed about nuclear proliferation in East Asia than Europe.\textsuperscript{45}

\textsuperscript{44} Some strategists argued that United States could deter the Soviet Union from conquering Western Europe with punishing nuclear retaliation. Others argued that such threats would simply not be credible to an expansionist and risk acceptant adversary. See Charles L. Glaser, Analyzing Strategic Nuclear Policy (Princeton, N.J.: Princeton University Press, 1990), chap. 1.

Geography

The second key asymmetry in the U.S.-China relationship concerns geography. China is located in East Asia, while the United States projects power into the East Asian region from an ocean away. If a U.S.-China conflict occurred, the United States would fight China in its backyard. China is much more likely to suffer damage to its homeland in a conventional war in East Asia because that conflict is more likely to involve U.S. strikes on mainland China than vice versa. U.S. conventional war plans are likely to include operations to disable Chinese long-range strike capabilities, air defenses, and the sensors supporting them, whether on a large scale, as envisaged by the U.S. “Joint Concept for Access and Maneuver in the Global Commons” (JAM-GC, which replaced the AirSea Battle Concept) or more limited scale. By contrast, China’s only known plans for attacking the continental United States involve nuclear retaliation and cyber attacks. The PLA has no equivalent of the JAM-GC to disarm U.S. conventional power projection capabilities with deep strikes on the continental United States.

This geographical asymmetry adds to the stakes imbalance in China’s favor in the event of a future U.S.-China conflict involving a U.S. ally. China is more likely to be more resolved to achieve its aims in a future conventional conflict than the United States because its homeland is more likely to suffer a greater extent of damage. China therefore has an incentive to use force first to demonstrate that resolve. The United States has an incentive to compensate for its lower stakes with a more capable nuclear arsenal.

The United States faced a similar geographic asymmetry during the Cold War, but with different effects because the U.S. had higher stakes in a European war. U.S. strategists argued

46 Goldstein, “First Things First.”
that Soviet domination of Western Europe would enable it to project power across the Atlantic Ocean and threaten the U.S. homeland. Protecting Western Europe from Soviet predation was therefore a question of U.S. survival.\textsuperscript{48} Although officials emphasize the strength of U.S. national security interests in Asia, in particular the importance of U.S. access to Asia’s economic dynamism,\textsuperscript{49} they have not made an analogous survival argument about protecting U.S. East Asian allies from Chinese domination.\textsuperscript{50} The increasingly ideological framing of the U.S.-China relationship could lead to similar U.S. survival arguments in the future, but would depend on whether U.S. allies view China in similar terms.\textsuperscript{51} Nevertheless, the Cold War geographical asymmetry had the effect of giving the Soviet Union a “home court advantage” in the quantitative conventional forces it could mobilize for a war.

**Arsenal Size**

There is a large disparity in the size and sophistication of the U.S. and Chinese nuclear arsenals, which results from the different goals nuclear weapons achieve in the two countries’ respective national security strategies. China’s arsenal modernization and projected growth would narrow this yawning gap, but a substantial disparity would likely remain.

\textsuperscript{51} For an argument that the U.S.-China relationship is unlikely to be characterized by opposing, rigid alliance blocs that could enable these U.S. survival arguments, see Thomas J. Christensen, “No New Cold War: Why US-China Strategic Competition Will Not Be like the US-Soviet Cold War” (Seoul: Asan Institute for Policy Studies, September 10, 2020).
China’s nuclear warhead stockpile is estimated to be in the low 200s. Those warheads are divided among approximately 100 land-based ICBMs, approximately 100 theater-range land-based mobile missiles, and its six ballistic missile submarines each capable of carrying 12 submarine launched ballistic missiles (SLBMs). The U.S. Defense Intelligence Agency estimates that the number of Chinese warheads will double in the future as it fields additional nuclear delivery systems. China’s official declaratory policy of nuclear no first-use, and military teaching texts published in the last decade indicate that China’s nuclear arsenal is intended only to deter nuclear coercion and retaliate for a nuclear attack from one of its nuclear-armed adversaries: the United States, Russia, or India. U.S. officials have raised concerns about the elasticity of China’s no-first-use policy. But according to the Pentagon, “the PRC’s nuclear weapons policy prioritizes the maintenance of a nuclear force able to survive a first strike and respond with sufficient strength to inflict unacceptable damage on an enemy.”

The United States has at least eight times as many warheads as China currently deployed and retains a large warhead stockpile. Approximately 1550 warheads are deployed to bomber bases, ballistic missile submarines conducting constant deterrent patrols at sea, and silo-based ICBMs on the continental United States, with additional nonstrategic warheads forward deployed.

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Arsenal asymmetry creates incentives for both arms build-ups and the use of nuclear weapons in a conflict. The United States has an incentive to maintain or even increase the effectiveness of its damage limitation capability by developing more sophisticated counterforce capabilities.\footnote{Keir A. Lieber and Daryl G. Press, “The New Era of Counterforce: Technological Change and the Future of Nuclear Deterrence,” \textit{International Security} 41, no. 4 (Spring 2017): 9–49.} China has an incentive to maintain or enhance its retaliatory capability by increasing the size, survivability, and penetrability of its nuclear arsenal.\footnote{Glaser and Fetter, “Should the United States Reject MAD?”; Wu, “Living with Uncertainty.”} In a conflict, the United States has an incentive to use its damage limitation capability early, when it is most effective, to preempt an imminent Chinese nuclear strike. One reason that China’s deployment of new ICBMs has prompted anxiety in Washington is because they erode the U.S. damage limitation capability, which could potentially embolden China in a conventional conflict.\footnote{Caitlin Talmadge, “The US-China Nuclear Relationship: Why Competition Is Likely to Intensify” (Washington, D.C.: Brookings Institution, September 2019). It could, however, also lead China to behave less aggressively in a conventional conflict because its leaders would feel more secure. For both arguments, see further Thomas J. Christensen, “The Meaning of the Nuclear Evolution: China’s Strategic Modernization and US-China Security Relations,” \textit{Journal of Strategic Studies} 35, no. 4 (2012): 481.} Arguments that a large and diverse nuclear arsenal gives a state a bargaining advantage against
an adversary that has a secure nuclear second-strike remain contested among nuclear strategists.\textsuperscript{62} Moreover, Chinese strategists are generally quite skeptical of them.\textsuperscript{63}

Asymmetries in arsenal size and sophistication were also a feature of U.S.-Soviet competition, but they narrowed significantly in the second half of the Cold War. When the United States and Soviet Union agreed to open negotiations for their first strategic arms limitation talks (START I) in 1968, there was a large disparity in arsenal size that favored the United States. The Soviet Union fielded 9,399 warheads compared to a staggering 29,561 U.S. warheads. The Soviet Union did not achieve numerical parity with the United States until 1977, as the second round of START negotiations were concluding.\textsuperscript{64} Nevertheless, in 1969 President Nixon “privately acknowledged upon taking office, [that] nuclear parity had definitively arrived between the superpowers.”\textsuperscript{65} Some scholars attributed these bloated nuclear arsenals to organizational interests and domestic politics within each country.\textsuperscript{66} Others argue that the nuclear balance was actually quite delicate: U.S. and Soviet leaders were aware and afraid that their arsenal could quickly become inadequate to deter the other.\textsuperscript{67} These concerns, coupled with plentiful resources and domestic political factors inflating the requirements of deterrence, could lead the United States and China down a similar pathway to a wasteful arms competition.\textsuperscript{68}


\textsuperscript{63} Cunningham and Fravel, “Dangerous Confidence?”; Fravel, \textit{Active Defense}, chap. 8; Fravel and Medeiros, “China’s Search for Assured Retaliation.”.

\textsuperscript{64} Green, \textit{The Revolution That Failed}, 87.


\textsuperscript{66} Green, \textit{The Revolution That Failed}, 87.


Conventional Military Power

A fourth asymmetry, in the conventional military balance of power, continues to favor the United States, despite remarkable Chinese efforts to close that gap in recent years. Conventional military asymmetry also fuels nuclear crisis instability. The weaker state might seek to achieve its political objectives by escalating the conflict to signal resolve, while a stronger state might escalate the conflict to exploit their military advantage. States facing a conventionally superior adversary also tend to adopt military strategies to escalate their way out of a conflict. To compensate for its quantitative military inferiority compared to the Warsaw Pact during the Cold War, NATO adopted a conventional military strategy that generated a risk of nuclear escalation and planned to use nuclear weapons first. Today Russia compensates for its conventional military inferiority by threatening nuclear first-use.

Since the late 1990s, the conventional balance of power has generated a great deal of suspicion within the United States that China would threaten nuclear first-use to compensate for its conventional military inferiority if a high stakes conflict over Taiwan broke out, despite its no-first-use policy. These expectations endure today. The most recent U.S. Nuclear Posture Review Report indicates that the United States must “prevent Beijing from mistakenly concluding that it could secure an advantage through the limited use of its theater nuclear

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70 Goldstein, “First Things First.”
capabilities or that any use of nuclear weapons, however limited, is acceptable.” Chinese sources indicate that its leaders have consistently rejected the idea of compensating for conventional military inferiority with nuclear first-use. But the U.S. expectation that China would behave this way could still lead Washington to misinterpret Chinese actions as preparations for first-use and use its own nuclear weapons preemptively.

Instead of threatening to use nuclear weapons first, China plans to compensate for conventional inferiority by threatening to use non-nuclear strategic weapons to escalate a conflict. This approach could still lead to nuclear use in a future conflict with the United States. The United States still has incentives to attack China’s non-nuclear strategic weapons to remove these intermediate rungs on its escalation ladder. The United States might also not be coerced by these non-nuclear strategic attacks. In either scenario, Beijing would be forced to choose between nuclear first-use and negotiating an end to the conflict from a position of conventional weakness.

Non-Nuclear Strategic Weapons

A fifth asymmetry in the U.S.-China strategic relationship concerns how both countries plan to use their non-nuclear strategic weapons—cyber attacks on strategic military networks and homeland critical infrastructure networks, counterspace weapons, conventional missiles, and missile defense—in a future conflict. These weapons can be used to generate two types of strategic effects: attacks on high-value but non-nuclear targets, and attacks that degrade another

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76 Fravel, Active Defense, 238–47.
77 Cunningham, “Maximizing Leverage.”
78 Goldstein, “First Things First.”
state’s nuclear weapons capability. They can also be used to produce less serious, operational effects in a conflict that enhance the effectiveness of conventional operations.  

China plans to use non-nuclear strategic weapons first on non-nuclear but high-value targets to signal its willingness to escalate a local war, sap U.S. will, and damage U.S. military capability to continue fighting a conflict. These weapons also dare the United States to cross the nuclear threshold to punish China for the damage inflicted. By contrast, the United States has focused on employing these military technologies for operational effects to enhance conventional military outcomes, rather than for strategic effect. It does, however, contemplate using non-nuclear strategic weapons to augment its nuclear counterforce capabilities with “left of launch” conventional and cyber attacks on adversary nuclear capabilities, and missile defenses to capture either limited nuclear use or a retaliatory nuclear strike (although U.S. officials deny that this capability is intended to counter Chinese or Russian nuclear use). The U.S. ability to attack an adversary’s space assets, offensive cyber operations on strategic targets, and precision missile strikes also deter other countries from carrying out those attacks against its digitally dependent society and space-enabled military with threats of in-kind retaliation. But the United States has also explicitly threatened cross-domain, nuclear retaliation for space attacks targeting its nuclear command and control infrastructure and non-nuclear attacks with strategic effects.

Non-nuclear strategic weapons attacks create both nuclear arms race and crisis instability. They could prompt nuclear retaliation if they either inadvertently (in China’s case) or

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intentionally (in the U.S. case) damage the adversary’s nuclear forces or supporting infrastructure.\textsuperscript{83} Non-nuclear strategic weapons attacks could prompt intentional nuclear threats or use if they cause enough damage to warrant a very serious response. Missile defense and the nuclear counterforce applications of non-nuclear strategic weapons have already driven up the number of weapons China believes it needs for a secure retaliatory capability.\textsuperscript{84} Offensive cyber operations could pose additional inadvertent escalation risks. Preparations for an attack and espionage are indistinguishable if discovered by a victim, and the operational requirement for secrecy prevents attackers from reaping the deterrence benefits of cyber-enabled counterforce.\textsuperscript{85} While some of these technologies or their precursors emerged in the late Cold War, their destabilizing consequences were less pronounced than they are today.\textsuperscript{86}

Cooperation Under Asymmetry

Can the United States and China dampen incentives to use nuclear weapons first or build up nuclear arms while these asymmetries endure? The Cold War example offers few reasons for optimism. From the late 1960s onwards, the United States and Soviet Union approached formal arms control with more symmetrical alliance commitments, nuclear arsenals, and doctrines than China and the United States currently have. Those symmetries allowed the two states to enter negotiations on a roughly equal footing. They were also able to reach similar compromises, such as placing limits on missile defenses, land-based intermediate nuclear forces, and the size of their strategic forces. But before those negotiations could take place, both countries acquired five-figure warhead stockpiles and experienced dangerous nuclear crises in Berlin and Cuba. Nor was Cold War arms control a panacea for arms race and crisis instability. It did not prevent qualitative arms racing, which undermined crisis stability in the 1980s.87 Finally, the Soviet Union and United States did not need to account for non-nuclear strategic weapons to the same degree or a third party nuclear great power in their pursuit of arms control.

Nevertheless, China and the United States have mutual interests in reducing the risk of nuclear use and arms racing that they could only achieve through cooperation. If Washington and Beijing want to bypass the dangerous period of crises and arms building that the U.S.-Soviet example suggests is a necessary precursor to cooperation, they will need to adopt a different foundation for their strategic relationship than nuclear symmetry. Past efforts to establish an official U.S.-China dialogue to reduce nuclear risks have not made much progress, despite over a decade of U.S. overtures. The stark asymmetry of nuclear arsenal size is a consistent reason for

China’s lukewarm interest in official dialogue. Three principles – compromise, combine, compartmentalize – applied to the U.S.-China strategic relationship could build a more symmetrical foundation for future cooperation.

**Mutual Interests**

China and the United States have at least two key mutual interests in their nuclear relationship that would be easier to achieve via cooperation. First, they have an interest in avoiding an arms race. It is in the U.S. interest for China to keep its arsenal small (even if it doubles in the medium-term) and avoid any expansion in the goals its nuclear weapons are intended to serve. China’s restraint in the size and goals of its nuclear force to date suggest that it will seek to maintain an assured retaliatory capability, but its arsenal size does not need to be symmetric with the United States. Global Times editorials aside, Chinese strategists have viewed restraint in arsenal size as in China’s self-interest. They argued that nuclear arms racing is a waste of resources, contributed to the collapse of the Soviet Union, and is part of the U.S. playbook for strategic competition with great power adversaries. These views suggest that a formal agreement with the United States might not be necessary to stop a Chinese “sprint to parity.” But U.S. efforts to increase the sophistication of its counterforce capabilities could undermine China’s restraint.

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90 Cunningham and Fravel, “Assuring Assured Retaliation,” 24, 47-8; Fu Zhengnan, “Meiguowuqizhuangbeifazhanzhanleitiaozhengdezhuyao neirong” [Important changes to U.S. weapons development strategy], Waiguo Junshi Xueshu [Foreign Military Arts], No. 8 (2013), pp. 73–76; Yang, “He zhanlue zhanjia Yang Chengjun: buyi zai wangling shang chaozuo she he wenti [Nuclear strategy expert Yang Chengjun: issues concerning nuclear weapons should not be hyped up on the internet].”
The United States also has an interest in avoiding an arms race that would require it to spend more on nuclear weapons. In 2020, Special Presidential Envoy Marshall Billingslea claimed that, “We know how to win these [nuclear arms] races and we know how to spend the adversary into oblivion. If we have to, we will, but we sure would like to avoid it.” But it is difficult to imagine that the United States would have the resources or willingness to spend both China and Russia “into oblivion.” A large increase in U.S. nuclear arms spending would also come at an opportunity cost for investments in conventional military power, which could undermine U.S. extended deterrence in the Indo-Pacific. Moreover, an arms race would worsen U.S. security if it prompted China to change its nuclear force posture.

Second, China and the United States also share an interest in avoiding the use of nuclear weapons in a future conflict. To avoid misperceptions about when the other is likely to use nuclear weapons, the two countries will need to cooperate. This interest is difficult to achieve, however, because both countries leverage ambiguity over when they might use nuclear weapons to deter each other’s conventional attacks. China leverages ambiguity over its no-first-use policy to deter the United States from carrying out conventional military operations that could damage its dual-use missile launchers or infrastructure. This ambiguity encourages the United States to anticipate that China will use nuclear first in a wider range of situations than it actually would. The United States leverages ambiguity over when it would use nuclear weapons first to deter non-nuclear attacks with strategic effects. Chinese strategists tend to dismiss the use of nuclear

92 For a discussion about the challenges U.S. leaders have faced in securing adequate funding for quantitative arms racing, see Green, The Revolution That Failed.
94 Cunningham and Fravel, “Assuring Assured Retaliation.”
95 Acton, “Escalation through Entanglement”; Cunningham and Fravel, “Dangerous Confidence?”
weapons for such attacks as overkill and might be surprised by the severity of any U.S. reaction.\textsuperscript{96}

\section*{Existing Efforts}

Despite these mutual interests, past efforts to build strategic stability in the U.S.-China relationship have floundered. In 2008, one official strategic nuclear dialogue reportedly took place. Since then, an unofficial Track 1.5 dialogue met on a roughly annual basis, with government participants on both sides observing the discussion, but was canceled in 2020.\textsuperscript{97} One goal of that dialogue was to lay the groundwork for a formal Track 1 discussion.\textsuperscript{98} Despite the clear call for an official strategic stability dialogue in the 2010 U.S. \textit{Nuclear Posture Review Report}, no dedicated nuclear or strategic weapons dialogue has convened. Bilateral discussions of nuclear issues have occurred within the structure of the official U.S.-China Strategic and Economic Dialogue.

The asymmetries in the U.S.-China nuclear relationship are a significant contributor to the lack of progress on official dialogue. The three main external obstacles to official talks appear to be Chinese concerns about U.S. demands for more transparency that could undermine arsenal survivability, Chinese views that the overall political relationship is not conducive to an official nuclear dialogue given the low profile of nuclear weapons, and a lack of U.S.-China agreement on the meaning of strategic stability that should determine the scope of the dialogue.\textsuperscript{99}

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\textsuperscript{96} Santoro and Gromoll, “On the Value of Nuclear Dialogue with China,” 19.

\textsuperscript{97} Yao, “Taking Stock,” 12.


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Compromise, Combine, Compartmentalize

The overall U.S.-China strategic relationship is more symmetrical than its nuclear component. In particular, non-nuclear strategic weapons give China the ability to hold valuable U.S. targets at risk and compensate for asymmetries favoring the United States in nuclear and conventional capabilities. This overall strategic symmetry might provide a more promising foundation for U.S.-China cooperation than the unsuccessful efforts to commence a dialogue based on the asymmetrical nuclear relationship. This foundation would recognize the breadth of capabilities affecting arms racing and the risks of nuclear use. It would place China on a more equal footing with the United States in any future dialogue. At a February 2021 meeting of the UN Conference on Disarmament, China’s Ambassador Li Song emphasized the importance of “equality and mutual respect,” rather than parity, as the basis of any future bilateral strategic stability dialogue.100 This foundation could also enable the United States and China to begin a dialogue to reduce nuclear risks now, rather than in the future (if China were to build up its nuclear arsenal and achieve a more symmetrical nuclear relationship), or never (if China does not build up its arsenal) leaving the two countries in a perpetual state of instability without dialogue.

Three principles might help China and the United States to realize this foundation for a more cooperative approach to reducing the risk of nuclear use and arms racing. The first principle that might contribute towards China-U.S. nuclear arms race and crisis stability is an obvious one: compromise. Compromises from both sides might stabilize the build-up of nuclear arms. The United States cannot approach nuclear competition as a promising peacetime “competitive strategy” if it wants to prevent a further build-up in Chinese nuclear weapons.101

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100 Nebehay, “Biden to Pursue Arms Control, Seeks to Engage China: U.S. Envoy.”
101 Green, The Revolution That Failed.
The Biden administration could explicitly reject the Trump administration’s tough rhetoric on arms racing to signal such a compromise.

A more delicate and substantive compromise over the extent of the U.S. damage limitation capability against China could also stabilize arms competition. The combination of U.S. extended deterrence to Japan and South Korea, and the need to deter Russia, require the United States to have a larger and more sophisticated arsenal than China. China will need to accept that the United States will continue to be able to limit damage from a future Chinese nuclear strike as a result. But the extent of that U.S. damage limitation capability may need to be leaner than the U.S. (or its allies) might like if it is to avoid prompting qualitative or quantitative improvements in China’s arsenal. Chinese leaders will do what is necessary to ensure that they have confidence in their retaliatory capabilities. But they likely overestimate the effectiveness of U.S. damage limitation capabilities, such that China’s arsenal requirements might be exaggerated. Dialogue on U.S. missile defense capabilities or both countries’ principles for assessing the effectiveness of damage limitation capabilities could mitigate this problem.102

The second principle that could contribute to U.S.-China nuclear arms race and crisis stability is to combine nuclear issues with issues that are not strictly nuclear. This principle is not only the basis on which the United States and China could approach cooperation on nuclear crisis and arms race risk reduction, but an important substantive problem for bilateral dialogue to address.

The drivers of nuclear weapons use in the U.S.-China relationship and the sufficiency of both countries’ arsenals are no longer determined by nuclear weapons alone. U.S. cyber, conventional missile, and missile defense capabilities employed for nuclear counterforce affect

102 Zhao, “Narrowing the U.S.-China Gap on Missile Defense.”
how many nuclear weapons China needs to assure retaliation. It is reasonable for China to view the use of those capabilities as an attempt to degrade China’s nuclear arsenal and “soften it up” for subsequent nuclear coercion.\(^{103}\) Chinese cyber, counterspace, and conventional missile capabilities used to attack non-nuclear but high-value U.S. targets would be provocative even if they do not cross the nuclear threshold. It is reasonable for the United States to view attacks on ground-based U.S. missile defense assets or U.S. early warning satellites in geosynchronous orbit supporting missile defense and nuclear operations as an attempt to degrade the U.S. nuclear arsenal. These reasonable concerns are, however, likely a misinterpretation of each other’s intentions.

To address some of these concerns, the United States and China could consider taking reciprocal steps towards self-restraint or greater transparency for different kinds of capabilities. For example, the United States could offer to refrain from additional missile defense radar deployments on China’s periphery if China provided information about the capacity of its multiple independently targeted reentry vehicles (MIRV) and limited the number of warheads deployed on them. These kinds of bargains would be difficult to convert into binding constraints.\(^{104}\) But the process of discussing them alone would lead to a better understanding of the consequences of non-nuclear strategic weapons deployments on the overall strategic balance.

The third principle that could contribute to nuclear arms race and crisis stability is compartmentalization. The U.S.-China nuclear relationship is entwined with the two countries’ other nuclear deterrence relationships, alliances, and non-nuclear weapons. Any of these factors could derail efforts to reduce risks of nuclear use or arms racing. Both sides will need to draw

\(^{103}\) Talmadge, “Would China Go Nuclear?”

some firm lines around their nuclear relationship to insulate it from those factors. The United States should compartmentalize its strategic relationship with China from its nuclear relationship with Russia. The two nuclear adversaries are too different for the United States to be able to reach meaningful compromises with both using the same institutions for nuclear risk reduction. China should not tether dialogue on strategic stability to the tenor of the broader political relationship, as it has done in the past.\textsuperscript{105}

The compartmentalization principle also applies to non-nuclear strategic weapons. The two countries could use targets and effects to draw a line between uses of those capabilities that matter for strategic stability and those that do not. Cyber capabilities that relate to counterforce and large-scale critical infrastructure attacks, and counterspace attacks that could influence nuclear command, control, communications and intelligence, should be included in strategic stability.\textsuperscript{106} Operational or non-military uses of cyberspace or space should not be included in strategic stability discussions to ensure a manageable agenda and number of players at the table.

Conclusion

While many areas of the U.S.-China relationship have deteriorated quite dramatically in the past few years, the nuclear relationship need not follow suit. A U.S.-China nuclear relationship that replicated the Cold War U.S.-Soviet competition would serve neither country’s interests. The United States and China therefore have a mutual interest in cooperating now to avoid nuclear arms racing and the use of nuclear weapons in a crisis or conflict. Approaching the nuclear relationship as one component of an overall strategic relationship that also includes some


\textsuperscript{106} Schneider, “A Strategic Cyber No-First-Use Policy?”
conventional, counter-space, cyber attack, missile defense capabilities could overcome the asymmetries that have thus far stood in the way of cooperation. Principles of compromise, combining issues, and compartmentalizing the strategic relationship would help the two countries to build a broader, more equal, but sufficiently focused foundation for cooperation.

What might U.S.-China cooperation to reduce the risk of arms racing and nuclear use ultimately be able to achieve? It might enable the two countries to discuss or achieve a series of concrete proposals for nuclear risk reduction that expert communities in both countries have advocated over the past two decades. Some of those proposals include: correcting any Chinese misperceptions of the technical capabilities of U.S. missile defense and providing greater U.S. understanding of the drivers and intent behind various aspects of China’s nuclear modernization, 107 a bilateral fissile material cutoff and transparency regime, and a trilateral missile and space launch notification regime including Russia. 108 More ambitiously, cooperation could pave the way to limits on U.S. missile defense, limits on theater-range dual-use missile launchers, 109 limits on both countries’ cyber operations targeting nuclear command and control networks, 110 U.S. recognition of mutual vulnerability with China, 111 and Chinese reassurances that it would not sprint to parity that enjoy U.S. confidence. If a new Cold War is brewing between the United States and China, every effort should be made to bypass the dangerous nuclear crises and wasteful nuclear arms racing that characterized the U.S.-Soviet competition last century.

107 Tong Zhao, “Practical Ways to Promote U.S.-China Arms Control Cooperation” (Beijing: Carnegie-Tsinghua Center for Global Policy, October 7, 2020), 2.
109 Zhao, “Practical Ways to Promote U.S.-China Arms Control Cooperation” 3-4.
110 For a discussion of the feasibility of such a proposal, see Gartzke and Lindsay, “The Cyber Commitment Problem,” 227.
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