

## 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. The combination of increasing political tensions, nuclear modernization in both countries, and developments in U.S.-Russia arms control have prompted increasing concern about longstanding risks of nuclear use and arms racing in the U.S.-China relationship. These nuclear risks are the result of asymmetries in alliances, geography, arsenal size, conventional military power, and non-nuclear strategic relationships that increase incentives for nuclear arms build-ups and nuclear weapons use, if a U.S.-China conflict occurred. But China and the United States do not need to experience a series of dangerous crises and a Chinese arms build-up before they can cooperate to reduce those risks, following the hazardous pathway to arms control based on nuclear symmetry trod by the United States and Soviet Union last century. Instead, the United States and China could cooperate to reduce nuclear risks on the basis of overall strategic symmetry. The U.S.-China strategic relationship is not as lopsided in favor of the United States when the smaller Chinese nuclear arsenal is combined with its space, cyber, conventional long-range strike and missile defense capabilities that can hold U.S. targets at risk of large-scale damage. Combining these capabilities, carefully crafted compromises, and compartmentalizing the strategic relationship could clear the political and strategic obstacles that currently stand in the way of progress towards concrete nuclear risk reduction measures proposed by experts in both countries.*

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 feature of U.S.-China relations. But events of the last 12 months suggest that the absolute weapon could become as central to superpower competition in the future as it was in the past.

On October 1, 2019, China showcased a series of sophisticated nuclear missiles as the finale to its military parade commemorating the 70<sup>th</sup> Anniversary of the founding of the People's Republic. In February 2020, Commander of United States Strategic Command, Admiral Charles

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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.<sup>1</sup> In April, the U.S. State Department claimed that China’s activity at its nuclear test site and interruptions in its provision of data to international test monitoring networks 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.<sup>2</sup> The United States then insisted on Chinese participation in negotiations with Russia about the future nuclear arms control. Chinese Foreign Ministry Spokesman Zhao Lijian dismissed those U.S. calls, bluntly stating that “China has no intention to take part in a trilateral arms control negotiation.”<sup>3</sup> In May, an op-ed by the editor of the Chinese tabloid *Global Times* calling for China to increase its arsenal size received widespread coverage in the Western press, confirming long-held Western expectations that China would “sprint to parity” of arsenal size with the United States and Russia.<sup>4</sup> The op-ed sparked an unusual public debate within China, including a rebuke from a recently retired PLA nuclear researcher who leapt to the defense of China’s nuclear planners and sufficiency of its arsenal.<sup>5</sup>

What explains this sudden spotlight on the U.S.-China nuclear relationship in the past year? Are nuclear weapons posing new risks for the relationship or are they being used as

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<sup>1</sup> Admiral Charles A. Richard, “United States Northern Command and United States Strategic Command,” § Committee on Armed Services (2020), [https://www.armed-services.senate.gov/imo/media/doc/20-04\\_02-13-2020.pdf](https://www.armed-services.senate.gov/imo/media/doc/20-04_02-13-2020.pdf).

<sup>2</sup> Bureau of Arms Control, Verification and Compliance, “Executive Summary of the 2020 Adherence to and Compliance with Arms Control, Nonproliferation, and Disarmament Agreements and Commitments” (Washington, D.C.: U.S. State Department, April 2020), <https://www.state.gov/2020-adherence-to-and-compliance-with-arms-control-nonproliferation-and-disarmament-agreements-and-commitments-compliance-report/>.

<sup>3</sup> “Foreign Ministry Spokesperson Zhao Lijian’s Regular Press Conference on May 15, 2020,” Foreign Ministry of the People’s Republic of China, May 15, 2020, [https://www.fmprc.gov.cn/mfa\\_eng/xwfw\\_665399/s2510\\_665401/t1779579.shtml](https://www.fmprc.gov.cn/mfa_eng/xwfw_665399/s2510_665401/t1779579.shtml).

<sup>4</sup> Hu Xijin, “To Safeguard National Security, It Is Time for China to Build up Nuclear Deterrent,” *Global Times*, May 9, 2020, <https://www.globaltimes.cn/content/1187841.shtml>.

<sup>5</sup> Yang Chengjun, “He Zhanlue Zhuanjia Yang Chengjun: Buyi Zai Wangluo Shang Chaozuo She He Wenti [Nuclear Strategy Expert Yang Chengjun: Issues Concerning Nuclear Weapons Should Not Be Hyped up on the Internet],” *Zuguo*, May 13, 2020, <https://dy.163.com/article/FCHJVDDL05128EJD.html?referFrom=google>.

convenient cudgels in a war of words? How might Beijing and Washington stabilize their nuclear relationship going forward?

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 to an unprecedented degree. The two countries have the best chance of managing those risks through dialogue and cooperation. But borrowing from the U.S.-Soviet playbook for arms control and nuclear risk reduction during the Cold War is unlikely to succeed in the U.S.-China context.

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 relies 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. Asymmetries in stakes and capabilities create incentives for the first use of force in a crisis, whether to demonstrate resolve, make use of advantages at higher levels of violence, or preempt an adversary's use of force for either of those reasons.<sup>6</sup> Asymmetries in doctrine, arsenal size, and non-nuclear weapons that affect nuclear missions create incentives for arms racing, whether to retain or improve a retaliatory capability or to gain or retain a coercive or military advantage.

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<sup>6</sup> Avery Goldstein, "First Things First: The Pressing Danger of Crisis Instability in U.S.-China Relations," *International Security* 37, no. 4 (Spring 2013): 49–89.

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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.<sup>7</sup> Both countries also had more symmetrical extended deterrence commitments. These symmetries enabled the United States and Soviet Union to arrive at the bargaining table in positions of rough equality.<sup>8</sup>

Despite the lack of symmetry in the U.S.-China nuclear relationship, Washington and Beijing can and should strive to avoid the pathway to strategic stability riddled with crises and arms-racing provided by the Cold War example. To do so, they will need to be more creative about the basis for cooperation to reduce nuclear risks. Achieving “nuclear symmetry” in 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’

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<sup>7</sup> Brendan Rittenhouse Green, *The Revolution That Failed: Nuclear Competition, Arms Control and the Cold War* (New York, N.Y: Cambridge University Press, 2020), chap. 5.

<sup>8</sup> U.S.-Soviet arms control nevertheless enabled technological competition that undermined crisis stability in the 1980s. See *ibid*; Brendan Rittenhouse Green and Austin Long, “Stalking Secure Second Strike: Intelligence, Counterforce, and Nuclear Strategy,” *Journal of Strategic Studies* 38, no. 1–2 (2014): 38–73.

mutual interests in nuclear risk reduction and existing efforts to build strategic stability in the relationship, it outlines three principles to enable cooperation on strategic stability. 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 concerns about 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 the other's behavior.<sup>9</sup> 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.<sup>10</sup> 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.”<sup>11</sup> The 2019 Chinese defense white paper countered

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<sup>9</sup> Robert Jervis, *Perception and Misperception in International Politics* (Princeton, N.J.: Princeton University Press, 1976), 62–76; Alastair Iain Johnston, “Is China a Status Quo Power?” *International Security* 27, no. 4 (Spring 2003): 49.

<sup>10</sup> Lora Saalman, “China & the U.S. Nuclear Posture Review” (Washington, D.C.: Carnegie Endowment for International Peace, February 2011), 17–18.

<sup>11</sup> “National Security Strategy of the United States of America” (Washington, D.C.: The White House, December 2017), 25.

that the United States “is engaging in technological and institutional innovation in pursuit of absolute military superiority.”<sup>12</sup> U.S.-China competition is playing out across all aspects of the bilateral relationship, from technology supply chains to international organizations and military capabilities. Both countries view each other’s nuclear postures and policies through this competitive lens and perceive each other as willing to discard longstanding foreign policy principles. If arms control treaties can be torn up, and pledges not to base forces overseas abandoned, reassurances of nuclear restraint might not be reliable either.

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 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.<sup>13</sup> 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. The Trump administration initially insisted on Chinese participation in strategic nuclear arms control as a pre-condition for a future U.S.-Russia treaty.<sup>14</sup> The administration has since softened its stance to enable the existing New START Treaty, set to expire in 2021, to be extended without Chinese participation. But chief arms control negotiator, Ambassador Marshall Billingslea, declared that “the next treaty will have to be multilateral, it will have to include China.”<sup>15</sup>

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<sup>12</sup> State Council Information Office of the People’s Republic of China, “China’s National Defense in the New Era,” July 2019, 3, 6.

<sup>13</sup> David E. Sanger and Edward Wong, “U.S. Ends Cold War Missile Treaty, With Aim of Countering China,” *The New York Times*, August 1, 2019.

<sup>14</sup> David E. Sanger, “Trump Will Withdraw from Open Skies Arms Control Treaty,” *The New York Times*, May 21, 2020.

<sup>15</sup> “Press Briefing with Ambassador Marshall Billingslea, U.S. Special Presidential Envoy for Arms Control And Lt. Gen. Thomas Bussiere, Deputy Commander of the U.S. Strategic Command,” United States Department of State,

These actions undermine Washington's reputation for upholding arms control commitments and reduce the incentives for China to participate in any nuclear dialogue with the United States.<sup>16</sup> 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.<sup>17</sup> If the United States removed numerical limits on its nuclear delivery systems, Beijing's assessments of how many nuclear weapons it needs to deter a U.S. nuclear first strike could also increase.<sup>18</sup>

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. While the modernization plan was finalized in the early 2010s, some aspects could be canceled because of a lack of funding. The U.S. armed services therefore have an organizational incentive to emphasize nuclear threats from China to ensure adequate funding for their nuclear platforms, especially as budgets tighten in the wake of the coronavirus pandemic.

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August 18, 2020, <https://www.state.gov/press-briefing-with-ambassador-marshall-billingslea-u-s-special-presidential-envoy-for-arms-control-and-lt-gen-thomas-bussiere-deputy-commander-of-the-u-s-strategic-command/>.

<sup>16</sup> Anne E. Sartori, "The Might of the Pen: A Reputational Theory of Communication in International Disputes," *International Organization* 56, no. 1 (Winter 2002): 121–49.

<sup>17</sup> Steven Pifer, "Unattainable Conditions for New START Extension?," *Brookings*, November 30, 2019, <https://www.brookings.edu/blog/order-from-chaos/2020/07/01/unattainable-conditions-for-new-start-extension/>.

<sup>18</sup> Tong Zhao, "China in a World with No U.S.-Russia Treaty-Based Arms Control" (Center for Naval Analyses, April 10, 2019), <https://carnegiesinghua.org/2019/04/01/china-in-world-with-no-u.s.-russia-treaty-based-arms-control-pub-78894>.

China's nuclear force structure and operations are changing in ways that are consistent with continuity of its retaliatory force posture but could also enable a shift to a first-use posture. 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. China likely decided to build these systems roughly a decade ago.<sup>19</sup> The People's Liberation Army (PLA) Navy now fields six nuclear-powered ballistic missile submarines.<sup>20</sup> It plans to arm bomber aircraft with nuclear weapons, most likely an air-launched ballistic missile, in the future.<sup>21</sup> 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. A recent Pentagon report suggests that China either already keeps some portion of its nuclear force on day-to-day alert, or will do so in the future.<sup>22</sup> 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.<sup>23</sup> The U.S. Government also worries that China is exploring the option of fielding low-yield nuclear warheads in the future.<sup>24</sup>

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

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<sup>19</sup> The DF-26 design was certified in 2013 and it achieved certified to carry both nuclear and conventional warheads in 2014. Zhang Qiang, "Dongfeng-26 Jinru Huojian Jun Zhandou Xulie: Fanying Kuai Daji Zhunshe Yuancheng [The DF-26 Enters the Rocket Force Order of Battle: Reflecting Rapid Strike, Precision Launch and Long Range]," *Keji Ribao [Science and Technology Daily]*, April 27, 2018, [www.chinanews.com/mil/2018/04-27/8501149.shtml](http://www.chinanews.com/mil/2018/04-27/8501149.shtml).

<sup>20</sup> Minnie Chan, "Chinese Navy Puts Two New Nuclear Submarines into Service," *South China Morning Post*, April 29, 2020.

<sup>21</sup> James Anderson, "China's Arms Buildup Threatens the Nuclear Balance," *The New York Times*, July 29, 2020, <https://www.nytimes.com/2020/07/29/opinion/russia-china-nuclear-weapons.html>.

<sup>22</sup> Office of the Secretary of Defense, "Annual Report to Congress on the Military Power of the People's Republic of China" (Washington, D.C., 2020), 88.

<sup>23</sup> "Russia Helping China to Build Missile Warning System, Says Putin," *South China Morning Post*, October 4, 2019.

<sup>24</sup> Office of the Under Secretary of State for Arms Control and International Security, "Strengthening Deterrence and Reducing Nuclear Risks: The Supplemental Low-Yield U.S. Submarine-Launched Warhead" (Washington, D.C.: U.S. State Department, April 24, 2020), 4, <https://www.state.gov/wp-content/uploads/2020/04/T-Paper-Series-4-W76.pdf>; Office of the Secretary of Defense, "Annual Report to Congress on the Military Power of the People's Republic of China," 88.

Chinese behavior. But many aspects of China's arsenal modernization pre-date China's 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.<sup>25</sup> 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. assets in East Asia, nuclear retaliation against India or Russia, and limited first-use. These developments might be influenced by organizational efficiencies and inter-service competition, in addition to these military applications.<sup>26</sup>

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 blur the boundaries between conventional and nuclear conflict. 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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<sup>25</sup> Shou Xiaosong, ed., *Zhanlue Xue [The Science of Military Strategy]* (Beijing: Junshi Kexue Yuan Chubanshe, 2013), 175, 214, 233.

<sup>26</sup> Fiona S. Cunningham and M. Taylor Fravel, "Dangerous Confidence? Chinese Views of Nuclear Escalation," *International Security* 44, no. 2 (2019): 93–95; Eric Heginbotham et al., "China's Evolving Nuclear Deterrent: Main Drivers and Issues for the United States" (Santa Monica, C.A.: RAND Corporation, 2017), chap. 7; David C. Logan, "Making Sense of China's Missile Forces," in *Chairman Xi Remakes the PLA: Assessing Chinese Military Reforms*, ed. Phillip C. Saunders et al. (Washington, D.C.: National Defense University Press, 2019), 416–17.

### 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 achieve the goals of protecting allies and underwriting 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.<sup>27</sup> U.S. counterforce capabilities are enhanced by regional and limited homeland missile defense systems that, coupled with “left-of-launch” non-kinetic operations to disable or destroy nuclear weapons before they are launched,<sup>28</sup> 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

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<sup>27</sup> Charles L. Glaser and Steve Fetter, “Should the United States Reject MAD? Damage Limitation and U.S. Nuclear Strategy toward China,” *International Security* 41, no. 1 (Summer 2016): 49–98; Eric Heginbotham et al., “The U.S.-China Military Scorecard” (Santa Monica, C.A.: RAND Corporation, 2015), chap. 12; Wu Riqiang, “Living with Uncertainty: Modeling China’s Nuclear Survivability,” *International Security* 44, no. 4 (Spring 2020): 84–118.

<sup>28</sup> David E. Sanger and William J. Broad, “Trump Inherits a Secret Cyberwar Against North Korean Missiles,” *The New York Times*, January 20, 2018.

fired by rogue states.<sup>29</sup> The also United States relies on non-strategic nuclear weapons to deter adversary threats of limited nuclear use.<sup>30</sup>

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.<sup>31</sup> These weapons play a more important 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 for coercive leverage, 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, 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 conventional conflict that is going badly.<sup>32</sup> Chinese strategists have recognized that possibility as well.<sup>33</sup> Instead, China's overall approach to strategic deterrence in such high-intensity conflicts aims to achieve a political victory below

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<sup>29</sup> Office of the Secretary of Defense, “Missile Defense Review Report” (Washington, D.C.: Department of Defense, 2019), V. These reassurances have not assuaged China’s concerns.

<sup>30</sup> U.S. Department of Defense, “2018 Nuclear Posture Review Report”; Office of the Under Secretary of State for Arms Control and International Security, “Strengthening Deterrence and Reducing Nuclear Risks.”

<sup>31</sup> John E. Hyten, “2017 Deterrence Symposium Opening Remarks,” U.S. Strategic Command, July 26, 2017, <http://www.stratcom.mil/Media/Speeches/Article/1263889/2017-deterrence-symposium-opening-remarks/>; Michael Nacht, Patricia Schuster, and Eva C. Uribe, “Cross-Domain Deterrence in American Foreign Policy,” in *Cross-Domain Deterrence: Strategy in an Era of Complexity*, ed. Erik Gartzke and Jon R. Lindsay (New York, N.Y.: Oxford University Press, 2019), 48. The true extent of Russian and Chinese integration of these capabilities into their strategic deterrence operations and campaigns is unknown, and may lag behind the degree of integration implied in the writings of their military researchers.

<sup>32</sup> Keir A. Lieber and Daryl G. Press, *The Myth of the Nuclear Revolution: Power Politics in the Atomic Age* (Ithaca, N.Y.: Cornell University Press, 2020), 103.

<sup>33</sup> 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 nuclear threshold. China has used the threat of damage from large-scale space, cyber, and conventional missile weapons to compensate for its inability to win a conventional military victory.<sup>34</sup> 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.<sup>35</sup> 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. 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.

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. As a consequence of the stakes imbalance, any U.S. nuclear threats to protect an ally threatened by China could lack credibility, whether to China or to the ally. The United States has used a

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<sup>34</sup> Fiona S. Cunningham, “Maximizing Leverage: Explaining China’s Strategic Force Posture Choices in Limited Wars” (Ph.D. Dissertation, Cambridge, M.A., Political Science Department, Massachusetts Institute of Technology, 2018).

<sup>35</sup> M. Taylor Fravel, *Active Defense: China’s Military Strategy Since 1949* (Princeton, N.J., 2019), chap. 8; M. Taylor Fravel and Evan S. Medeiros, “China’s Search for Assured Retaliation: The Evolution of Chinese Nuclear Strategy and Force Posture,” *International Security* 35, no. 2 (Fall 2010): 48–87; Office of the Secretary of Defense, “Annual Report to Congress on the Military Power of the People’s Republic of China,” 85.

nuclear arsenal that limits damage to the United States homeland to compensate for this credibility shortfall since the Cold War.<sup>36</sup> 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, already have their own nuclear weapons, which removes any non-proliferation incentives for China to extend nuclear deterrence to them.

While extended deterrence commitments likely placed greater demands on the U.S. nuclear arsenal than the Soviet arsenal, alliance commitments were more symmetrical during the Cold War than between the United States and China today. 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 than the United States. 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.<sup>37</sup>

### 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

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<sup>36</sup> 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. Instead, the United States needed the more demanding capability to limit damage from a Soviet nuclear strike on the U.S. homeland, using capabilities to compensate for the stakes imbalance. Charles L. Glaser, *Analyzing Strategic Nuclear Policy* (Princeton, N.J.: Princeton University Press, 1990), chap. 1.

<sup>37</sup> Alexander Lanoszka, "Nuclear Proliferation and Nonproliferation among Soviet Allies," *Journal of Global Security Studies* 3, no. 2 (2018): 217–33.

East Asia. 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 U.S. "Joint Concept for Access and Maneuver in the Global Commons" (which replaced the AirSea Battle Concept) of its own to disarm U.S. conventional power projection capabilities with deep strikes on the continental United States. China is more likely to be resolved in a future conventional conflict compared to the United States because its homeland is more likely to suffer a greater extent of damage.

This geographical asymmetry adds to the stakes imbalance in China's favor in the event of a future U.S.-China crisis involving a U.S. ally.<sup>38</sup> It provides China with incentives to use force first to demonstrate resolve. It provides the United States with incentives to compensate for its lack of resolve with a more capable nuclear arsenal.

The United States faced a similar geographic asymmetry during the Cold War.<sup>39</sup> But U.S. strategists argued 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.<sup>40</sup> 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,<sup>41</sup> they have not made an analogous survival argument about protecting U.S. East Asian allies from Chinese domination.<sup>42</sup> The increasingly ideological

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<sup>38</sup> Goldstein, "First Things First."

<sup>39</sup> Barry R. Posen, *Inadvertent Escalation: Conventional War and Nuclear Risks* (Ithaca, N.Y.: Cornell University Press, 1991), 15.

<sup>40</sup> Morton H. Halperin, *Limited War in the Nuclear Age* (New York, N.Y.: John Wiley & Sons, Inc, 1963), 8.

<sup>41</sup> Hillary Rodham Clinton, "America's Pacific Century," U.S. Department of State, November 10, 2011, //2009-2017.state.gov/secretary/20092013clinton/rm/2011/11/176999.htm.

<sup>42</sup> Elbridge Colby and Robert Kaplan argue that U.S. survival requires access to Asian markets, without which U.S. firms would be outclassed by their Chinese rivals, leaving the U.S. vulnerable to Chinese coercive leverage. But they do not claim that Chinese military power projection enabled by its economic power would be pose a direct threat to American survival. Elbridge Colby and Robert D. Kaplan, "The Ideology Delusion," *Foreign Affairs*, September 4, 2020, <https://www.foreignaffairs.com/articles/united-states/2020-09-04/ideology-delusion>.

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.<sup>43</sup>

### 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 to some degree, but a substantial disparity would likely remain.

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).<sup>44</sup> 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.<sup>45</sup> 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.<sup>46</sup>

But according to the Pentagon, "the PRC's nuclear weapons policy prioritizes the maintenance of

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<sup>43</sup> For an argument that the U.S.-China relationship is still 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).

<sup>44</sup> Hans M. Kristensen and Matt Korda, "Chinese Nuclear Forces, 2019," *Bulletin of the Atomic Scientists* 75, no. 4 (2019): 172; Office of the Secretary of Defense, "Annual Report to Congress on the Military Power of the People's Republic of China," 85–86; Office of the Secretary of Defense, "Missile Defense Review Report," V.

<sup>45</sup> Richard Ashley, "Russian and Chinese Nuclear Modernization Trends," remarks at the Hudson Institute, Washington, D.C., May 29, 2019, <https://www.dia.mil/News/Speeches-and-Testimonies/Article-View/Article/1859890/russian-and-chinese-nuclear-modernization-trends/>; testimony of Daniel K. Taylor, Acting Defense Intelligence Officer for East Asia, Defense Intelligence Agency, "Hearing on a 'World-Class' Military: Assessing China's Global Military Ambitions," Before the U.S.-China Economic and Security Review Commission, 116th Cong., 1<sup>st</sup> sess., June 20, 2019. <https://www.uscc.gov/Hearings/%E2%80%98world-class%E2%80%99-military-assessing-china%E2%80%99s-global-military-ambitions>.

<sup>46</sup> Richard, "United States Northern Command and United States Strategic Command," 4, 61–62.

a nuclear force able to survive a first strike and respond with sufficient strength to inflict unacceptable damage on an enemy.”<sup>47</sup>

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 in Europe.<sup>48</sup> This arsenal serves a wider range of goals than China’s, including the protection of allies under the U.S. nuclear umbrella. In addition, the United States deters attacks on its cities and nuclear arsenal, non-nuclear attacks with strategic effects, chemical and biological weapons attacks, and limited nuclear use. The U.S. arsenal is also designed to limit damage to the United States if deterrence fails.<sup>49</sup>

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.<sup>50</sup> China has an incentive to maintain or enhance its retaliatory capability by increasing the size, survivability, and penetrability of its nuclear arsenal.<sup>51</sup> One reason that China’s deployment of new ICBMs has prompted anxiety in Washington is because they erode

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<sup>47</sup> Office of the Secretary of Defense, “Annual Report to Congress on the Military Power of the People’s Republic of China,” 85.

<sup>48</sup> Hans M. Kristensen and Matt Korda, “United States Nuclear Forces, 2020,” *Bulletin of the Atomic Scientists* 76, no. 1 (January 2, 2020): 48; John Rood, “Statement on the Fielding of the W76-2 Low-Yield Submarine Launched Ballistic Missile Warhead,” U.S. Department of Defense, February 4, 2020, <https://www.defense.gov/Newsroom/Releases/Release/Article/2073532/statement-on-the-fielding-of-the-w76-2-low-yield-submarine-launched-ballistic-m/>. The United States also maintains a stockpile of 2000 non-deployed warheads. It reportedly lowered the yield of a “small number” of its warheads mounted on its submarine-launched ballistic missiles, which were fielded in February 2020.

<sup>49</sup> U.S. Department of Defense, “2018 Nuclear Posture Review Report,” 20-23; Joint Chiefs of Staff, “JP 3-72 Nuclear Operations,” June 11, 2019.

<sup>50</sup> Keir A. Lieber and Daryl G. Press, “The New Era of Counterforce: Technological Change and the Future of Nuclear Deterrence,” *International Security* 41, no. 4 (Spring 2017): 9–49.

<sup>51</sup> Glaser and Fetter, “Should the United States Reject MAD?”; Wu, “Living with Uncertainty.”

the U.S. damage limitation capability, which could potentially embolden China in a conventional conflict.<sup>52</sup> Arguments that a large and diverse nuclear arsenal confers bargaining advantages against a state whose adversary has a secure nuclear second-strike remain contested among nuclear strategists.<sup>53</sup> Moreover, Chinese strategists are generally quite skeptical of them.<sup>54</sup>

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.<sup>55</sup> Nevertheless, in 1969 President Nixon “privately acknowledged upon taking office, [that] nuclear parity had definitively arrived between the superpowers.”<sup>56</sup> Some scholars attributed these bloated nuclear arsenals to organizational interests and domestic politics within each country.<sup>57</sup> Others argue that the nuclear balance was actually quite delicate: U.S. and Soviet leaders were aware and afraid that their

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<sup>52</sup> 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,” *Journal of Strategic Studies* 35, no. 4 (2012): 481.

<sup>53</sup> See Glaser, *Analyzing Strategic Nuclear Policy*, chap. 1; Goldstein, “First Things First”; Robert Jervis, *The Meaning of the Nuclear Revolution: Statecraft and the Prospect of Armageddon* (Ithaca, N.Y.: Cornell University Press, 1989); Matthew Kroenig, “Nuclear Superiority and the Balance of Resolve: Explaining Nuclear Crisis Outcomes,” *International Organization* 67 (Winter 2013): 141–71; Todd S. Sechser and Matthew Fuhrmann, “Crisis Bargaining and Nuclear Blackmail,” *International Organization* 67, no. 1 (January 2013): 173–95.

<sup>54</sup> Cunningham and Fravel, “Dangerous Confidence?”; Fravel, *Active Defense*, chap. 8; Fravel and Medeiros, “China’s Search for Assured Retaliation.”

<sup>55</sup> Hans M. Kristensen and Robert S. Norris, “Global Nuclear Weapons Inventories, 1945–2010,” *Bulletin of the Atomic Scientists* 66, no. 4 (2010): 81.

<sup>56</sup> Green, *The Revolution That Failed*, 87.

<sup>57</sup> Glaser, *Analyzing Strategic Nuclear Policy*, 363–67; Robert Jervis, *The Illogic of American Nuclear Strategy* (Ithaca, N.Y.: Cornell University Press, 1984).

arsenal could quickly become inadequate to deter the other.<sup>58</sup> These concerns, coupled with plentiful resources and domestic politics and military organizational interests inflating the requirements of deterrence, could lead the United States and China down the same pathway to a wasteful arms competition.<sup>59</sup>

### Conventional Military Power

Fourth, an 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.<sup>60</sup> Conventional military asymmetry also fuels nuclear crisis instability.<sup>61</sup> 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.<sup>62</sup> NATO planned to use nuclear weapons first in Europe during the Cold War to compensate for its quantitative military inferiority compared to the Warsaw Pact.<sup>63</sup> Today Russia compensates for its conventional military inferiority by threatening nuclear first-use.<sup>64</sup>

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

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<sup>58</sup> Green, *The Revolution That Failed*, chap. 2.

<sup>59</sup> Avery Goldstein, “US-China Rivalry in the Twenty-First Century: Deja vu and Cold War II,” *China International Strategy Review* 2, no. 1 (2020): 56–58.

<sup>60</sup> National Defense Strategy Commission, “Providing for the Common Defense: The Assessments and Recommendations of the National Defense Strategy Commission” (Washington, D.C.: United States Institute of Peace, November 2018), <https://www.usip.org/publications/2018/11/providing-common-defense>.

<sup>61</sup> Goldstein, “First Things First.”

<sup>62</sup> Vipin Narang, *Nuclear Strategy in the Modern Era* (Princeton, N.J.: Princeton University Press, 2014).

<sup>63</sup> Lieber and Press, *The Myth of the Nuclear Revolution*, 110–12.

<sup>64</sup> Kristin Ven Bruusgaard, “Fact and Fiction: Russian Nuclear Strategy after the Cold War” working paper.

no-first-use policy.<sup>65</sup> 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 capabilities or that any use of nuclear weapons, however limited, is acceptable.”<sup>66</sup> China has rejected the idea of compensating for conventional military inferiority with nuclear first-use.<sup>67</sup> 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.

China’s plans to compensate for conventional inferiority by threatening to use non-nuclear strategic weapons to escalate a conflict could still lead to nuclear use in a future conflict with the United States.<sup>68</sup> 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.<sup>69</sup>

#### 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

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<sup>65</sup> Richard K. Betts and Thomas J. Christensen, “China: Getting the Questions Right,” *National Interest*, no. 62 (Winter 2000/01): 17.

<sup>66</sup> U.S. Department of Defense, “2018 Nuclear Posture Review Report,” 32.

<sup>67</sup> Fravel, *Active Defense*, 238–47.

<sup>68</sup> Cunningham, “Maximizing Leverage.”

<sup>69</sup> Goldstein, “First Things First.”

strategic effects: attacks on high-value but non-nuclear targets, and attacks that diminish another 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.<sup>70</sup>

China plans to use non-nuclear strategic weapons first on non-nuclear but high-value targets to sap U.S. will and damage its 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 been much more focused on using 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. 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 explicitly threatened cross-domain, nuclear retaliation for space attacks targeting its nuclear command and control infrastructure and non-nuclear attacks with strategic effects.<sup>71</sup>

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 intentionally (in the U.S. case) damage the adversary’s nuclear forces or supporting

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<sup>70</sup> Jacquelyn G. Schneider, “A Strategic Cyber No-First- Use Policy? Addressing the US Cyber Strategy Problem,” *The Washington Quarterly* 43, no. 2 (Summer 2020): 159–75.

<sup>71</sup> U.S. Department of Defense, “2018 Nuclear Posture Review Report,” 21.

infrastructure.<sup>72</sup> 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 prospect of 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.<sup>73</sup> 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.<sup>74</sup> The Cold War provides no analogue for how to deal with these new technologies.

### 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

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<sup>72</sup> James M. Acton, “Escalation through Entanglement: How the Vulnerability of Command-and-Control Systems Raises the Risks of an Inadvertent Nuclear War,” *International Security* 43, no. 1 (Summer 2018): 56–99; Caitlin Talmadge, “Would China Go Nuclear? Assessing the Risk of Chinese Nuclear Escalation in a Conventional War with the United States,” *International Security* 41, no. 4 (Spring 2017): 50–92; Joshua Rovner, “Two Kinds of Catastrophe: Nuclear Escalation and Protracted War in Asia,” *Journal of Strategic Studies* 40, no. 5 (2017): 696–730.

<sup>73</sup> Fiona S. Cunningham and M. Taylor Fravel, “Assuring Assured Retaliation: China’s Nuclear Strategy and U.S.-China Strategic Stability,” *International Security* 40, no. 2 (Fall 2015): 7–50; Tong Zhao, “Narrowing the U.S.-China Gap on Missile Defense: How to Help Forestall a Nuclear Arms Race” (Washington, D.C.: Carnegie Endowment for International Peace, 2020).

<sup>74</sup> Goldstein, “US-China Rivalry in the Twenty-First Century”; James M. Acton, “Cyber Warfare & Inadvertent Escalation,” *Daedalus* 149, no. 2 (Spring 2020): 133–49; Ben Buchanan and Fiona S. Cunningham, “Preparing the Cyber Battlefield: Assessing A Novel Escalation Risk in a U.S.-China Crisis,” *Texas National Security Review* forthcoming (2020). If the United States has the capability to degrade Chinese command and control systems with cyber attacks, it could not signal that capability to Beijing without increasing the chance that China would take steps to patch the vulnerabilities in its network used to execute the attack. The knowledge that China could not use its nuclear forces as it planned could embolden U.S. behavior without simultaneously restraining Chinese behavior. See Erik Gartzke and Jon R. Lindsay, “The Cyber Commitment Problem and the Destabilization of Nuclear Deterrence,” in *Bytes, Bombs, and Spies: The Strategic Dimensions of Offensive Cyber Operations*, ed. Herbert Lin and Amy Zegart (Washington, D.C.: Brookings Institution Press, 2019), 195–234.

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.<sup>75</sup> Finally, the Soviet Union and United States did not need to account for non-nuclear strategic weapons 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 nuclear arms 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

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<sup>75</sup> Green and Long, "Stalking Secure Second Strike."

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. *Global Times* editorials aside, Chinese strategists view restraint in arsenal size as in its self-interest. They argue 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.<sup>76</sup> These views suggest that no formal agreement with the United States is needed to stop a Chinese "sprint to parity." But U.S. efforts to increase the sophistication of its counterforce capabilities could undermine China's restraint.

The United States also has an interest in avoiding an arms race. Earlier this year, 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."<sup>77</sup> Still, it is difficult to imagine that the United States would have the resources or willingness to spend both China and Russia "into oblivion."<sup>78</sup> 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.<sup>79</sup>

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

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<sup>76</sup> Fu Zhengnan, "Meiguo wuqi zhuangbei fazhan zhanlue tiaozheng de zhuyao neirong" [Important changes to U.S. weapons development strategy], *Waiguo Junshi Xueshu* [Foreign Military Arts], No. 8 (2013), pp. 73–76; Yang, "He zhanlue zhuanjia Yang Chengjun: buyi zai wangluo shang chaozuo she he wenti [Nuclear strategy expert Yang Chengjun: issues concerning nuclear weapons should not be hyped up on the internet]."

<sup>77</sup> "U.S. Prepared to Spend Russia, China 'into Oblivion' to Win Nuclear Arms Race: U.S. Envoy," *Reuters*, May 21, 2020, <https://www.reuters.com/article/uk-usa-armscontrol-idUSKBN22X2LS>.

<sup>78</sup> 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*.

<sup>79</sup> Ashley Townshend, Brendan Thomas-Noone, and Matilda Steward, "Averting Crisis: American Strategy, Military Spending and Collective Defense in the Indo-Pacific" (Sydney: United States Studies Centre, University of Sydney, August 2019).

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.<sup>80</sup> This ambiguity encourages the United States to anticipate that China will use nuclear first in a wider range of situations than it actually would.<sup>81</sup> 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 weapons for such attacks as overkill and might be surprised by the severity of any U.S. reaction.

### 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 2 dialogue has met on a roughly annual basis, with government participants on both sides observing the discussion. One goal of that dialogue was to lay the groundwork for a formal Track 1 discussion.<sup>82</sup> Despite the clear call for an official strategic stability dialogue in the 2010 U.S. *Nuclear Posture Review Report*, to my knowledge, 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. Official and unofficial dialogues have also convened to facilitate U.S.-China cooperation and mutual understanding in cyberspace.<sup>83</sup>

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<sup>80</sup> Cunningham and Fravel, “Assuring Assured Retaliation.”

<sup>81</sup> Acton, “Escalation through Entanglement”; Cunningham and Fravel, “Dangerous Confidence?”

<sup>82</sup> Michael Glosny, Christopher P. Twomey, and Ryan Jacobs, “U.S.-China Strategic Dialogue, Phase VIII Report” (Monterrey, C.A.: Naval Postgraduate School, Center on Contemporary Conflict, 2014), 4, 14.

<sup>83</sup> “First U.S.-China High-Level Joint Dialogue on Cybercrime and Related Issues Summary of Outcomes,” United States Department of Justice, December 2, 2015, <https://www.justice.gov/opa/pr/first-us-china-high-level-joint-dialogue-cybercrime-and-related-issues-summary-outcomes-0>; “U.S.-China Law Enforcement and Cybersecurity

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,<sup>84</sup> Chinese views that the overall political relationship is not conducive to an official nuclear dialogue given the low profile of nuclear weapons,<sup>85</sup> and a lack of U.S.-China agreement on the meaning of strategic stability that should determine the scope of the dialogue.

**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. It 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.

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Dialogue,” United States Department of State, <https://www.state.gov/u-s-china-law-enforcement-and-cybersecurity-dialogue/>; “Track 1.5 U.S.-China Cyber Security Dialogue” Center for Strategic and International Studies, 2020, <https://www.csis.org/programs/technology-policy-program/cybersecurity-and-governance/other-projects-cybersecurity/track-1>.

<sup>84</sup> Wu Riqiang, “Zhongguo He Touming de Shijian Yu Silu [“The Theory and Practice of Nuclear Transparency in China],” in *Lijie Zhongguo He Siwei [Understanding Chinese Nuclear Thinking]*, ed. Bin Li and Tong Zhao (Beijing: Shehui Kexue Wenxian Chubanshe, 2015), 188.

<sup>85</sup> Christensen, “The Meaning of the Nuclear Evolution,” 483.

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.<sup>86</sup> Toning down the Trump administration’s tough rhetoric on arms racing is one compromise that could facilitate dialogue.

A more delicate and substantive compromise regarding the extent of the U.S. damage limitation capability against China could also stabilize arms competition. China will need to accept that the combination of U.S. extended deterrence to Japan and South Korea, and the U.S.-Russia nuclear relationship, require the United States to have a larger and more sophisticated arsenal than China. 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 Japan) 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.<sup>87</sup>

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

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<sup>86</sup> Green, *The Revolution That Failed*.

<sup>87</sup> Zhao, “Narrowing the U.S.-China Gap on Missile Defense.”

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 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.<sup>88</sup> 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

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<sup>88</sup> Talmadge, "Would China Go Nuclear?"

constraints.<sup>89</sup> 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 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.<sup>90</sup>

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.<sup>91</sup> Operational or non-military uses of cyberspace or space should not be included.

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<sup>89</sup> Heather Williams, “Asymmetric Arms Control and Strategic Stability: Scenarios for Limiting Hypersonic Glide Vehicles,” *Journal of Strategic Studies* 42, no. 6 (2019): 804–7.

<sup>90</sup> Christensen, “The Meaning of the Nuclear Evolution,” 483.

<sup>91</sup> Schneider, “A Strategic Cyber No-First- Use Policy?”

## Conclusion

While many areas of the U.S.-China relationship have deteriorated quite dramatically in the past year, 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 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 balanced, but still manageable 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. More ambitiously, cooperation could pave the way to limits on U.S. missile defense, limits on both countries' cyber operations targeting nuclear command and control networks, U.S. recognition of mutual vulnerability with China, 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.

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