

TRIPOLAR INSTABILITY

Nuclear Competition Among
the United States, Russia, and China



Robert S. Litwak



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Preface and Acknowledgments

“And then there were three,” declared *The Economist* magazine in late 2022 in response to China’s emergence as a peer nuclear power to the United States and Russia. Nuclear bipolarity between the United States and the Soviet Union in the Cold War is being supplanted by a tripolar nuclear order in what Henry Kissinger describes as a “new era.” This systemic change is occurring amidst a confluence of geostrategic developments that are creating the gravest risk of nuclear war since the Cuban Missile Crisis. In what the US intelligence community’s *2023 Annual Threat Assessment* called a “tectonic” event, President Vladimir Putin’s unprovoked invasion of Ukraine and nuclear saber-rattling risks an “escalation of the conflict to a military confrontation between Russia and the West” in Europe. In East Asia, a “risen” China under President Xi Jinping is pressing Taiwan on unification and conducting assertive military exercises around the island. Facing a potential crisis on Taiwan, President Joseph R. Biden Jr., breaking with previous US policy, has asserted a US commitment to defend Taiwan should China launch an unprovoked attack.

The central organizing argument of this study is that the combination of emergent nuclear tripolarity and geostrategic dangers over Ukraine and Taiwan are recreating two interlocking Cold War risks. They threaten to undermine arms race stability and crisis stability—the two elements that comprise strategic stability.

The first risk is what analysts called “the stability-instability paradox”—that a nuclear stalemate would deflect competition to regions of peripheral interest in what was then called “the Third World.” In contrast, today Russia and China are vying in strategic competition with the United States over the status quo in regions of vital, not peripheral, interest.

The second risk compounds the first: the “balance of terror” in the emergent tripolar order is becoming less stable. We are on the cusp of unconstrained competition with the dismantling of the arms control architecture, the advent

of destabilizing new technologies, the blurring of conventional military and nuclear operations, and the extension of great-power competition into the new domains of cyberspace and outer space. This study examines the various pathways of escalation—accidental, inadvertent, and instrumental. In the current strategic environment, a dangerous prospect is that Russia and China will pursue instrumental escalation over Ukraine and Taiwan in what strategist Thomas Schelling called a “competition in risk-taking.”

The policy tensions created by these recast Cold War risks cannot be resolved, but they can be managed. The study concludes by identifying the key elements—such as reinforcing comprehensive deterrence and mitigating the risks of unconstrained competition—that will affect the prospects for successful management in the emergent tripolar nuclear order.



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This study is dedicated to Samuel F. Wells, Jr., who gave me my start.

The views expressed here are my own.

Robert S. Litwak

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Robert S. Litwak is senior vice president and director of international security studies at the Woodrow Wilson International Center for Scholars. He is also a consultant to the Los Alamos National Laboratory. Litwak served on the National Security Council staff as director for nonproliferation in the Clinton administration. He was an adjunct professor in the Security Studies Program at Georgetown University's School of Foreign Service and has held visiting fellowships at Harvard University's Center for International Affairs, the International Institute for Strategic Studies, the Russian Academy of Sciences, and Oxford University. Litwak is a member of the Council on Foreign Relations and received a doctorate in international relations from the London School of Economics.



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A Russian Bulava ["Mace"] submarine-launched ballistic missile is test-fired on May 24, 2018. Image source: Russian Defense Ministry Press Service / AP Images



Introduction: A “New Era”

“We are now living in a totally new era,” Henry Kissinger declared in May 2022.¹ This stark observation came during the Ukraine war against the backdrop of Russia’s nuclear saber-rattling. Russian Foreign Minister Sergei Lavrov, echoing earlier statements by President Vladimir Putin, charged the United States and NATO with waging a “proxy” war against Russia in Ukraine and asserted that the risk of nuclear war was “considerable.”² While President Joseph R. Biden Jr. called Russian comments about nuclear war “irresponsible,” CIA Director William J. Burns warned, “Given the potential desperation of President Putin and the Russian leadership, given the setbacks that they’ve faced so far, militarily, none of us can take lightly the threat posed by a potential resort to tactical nuclear weapons or low-yield nuclear weapons.”³ The Ukraine war elevated the risk of Russian nuclear use to a level not seen since the most fraught moments of the Cold War.

As the Biden administration, working with NATO alliance partners, provided Ukraine military assistance to reverse Russian aggression, geopolitical tensions with the United States’ primary great-power rival—China—escalated over Taiwan. On four occasions in 2022, President Biden declared that the United States had a “commitment” to defend Taiwan if it were attacked by China. Though White House aides walked back that formulation, it constituted a shift in declared policy from the longstanding stance of “strategic ambiguity.” The revised commitment was made on the heels of successive largescale Chinese air and naval incursions near Taiwan in mid-2022.

The Taiwan issue is embedded in the broader context of Sino-American relations. A “risen” China under President Xi Jinping constitutes a multifaceted geopolitical challenge to the United States that is unlike the threat posed by the Soviet Union during the Cold War. China, with an economy rivaling that of the United States and a global commercial reach, is not a one-dimensional military superpower. Yet within that traditional metric of state power, China is developing a panoply of military capabilities commensurate with its new superpower status. In the nuclear realm, Xi Jinping has ordered construction of an “advanced strategic deterrent,” entailing a large-scale expansion of China’s land-based intercontinental ballistic missile (ICBM) force and the development of weapons incorporating emergent technologies, such as hypersonic missiles.

Cold War Risks Recast

In this new era, political relations between the United States and its great-power competitors—Russia and China—have recast two traditional risks of the bipolar Cold War era.

The first risk that has been recast in this new era is the relationship between nuclear deterrence and the propensity for conflict at lower levels on the continuum of military force. After both the United States and the Soviet Union acquired thermonuclear weapons in the 1950s, British strategist B.H. Liddell Hart speculated, “To the extent that the H-bomb reduces the likelihood of full-scale war, it increases the possibility of limited war pursued by widespread local aggression.”⁴ Policy analysts would later refer to this as the “stability-instability paradox”—meaning that strategic stability at the nuclear level could generate instability by encouraging rival powers to pursue tactical gains through non-nuclear means in regions peripheral to the central conflict in what was then called the “Third World.” But even with the ideological overlay of the Cold War, these stakes were less than vital, and the conflicts typically involved one superpower against the proxy forces of the other (e.g., Soviet backing of North Vietnam during the Vietnam War, US support for the

Afghan *mujahideen* under the Carter and Reagan administrations). These constraints significantly mitigated the risks of escalation. By contrast, in the emergent tripolar system, potential flashpoints between nuclear-weapon states are not peripheral but vital interests—Taiwan and the South China Sea for China, and Ukraine and the other former Soviet republics for Russia.

The first risk is compounded by a second. At the height of the Cold War, RAND Corporation strategist Albert Wohlstetter challenged the assumption of a stable nuclear deterrent condition in a 1959 *Foreign Affairs* article, “The Delicate Balance of Terror.”⁵ Wohlstetter’s focus at that time was the vulnerability of the US nuclear deterrent force, specifically manned bombers, to a disarming Soviet surprise attack. His concern was that in a crisis, Kremlin leadership could have perceived incentives to launch a preemptive strike. Since the Cuban missile crisis, assured retaliation—eliminating incentives for a surprise first strike—has been the *sine qua non* of strategic stability. In the new era of geostrategic competition, an unconstrained arms race could revive those incentives, making the deterrent relationships more “delicate.” Indeed, complicating the strategic calculus of preemption, such a surprise attack would likely occur in the non-traditional domains of cyberspace and outer space. During a crisis, one could envisage China or Russia launching an attack on US reconnaissance and communications satellites to blind the US military and disrupt command and control.

This study explores the escalatory risks posed by the interaction of these two Cold War dynamics—the “stability-instability paradox” and the “delicate” balance of terror—under the conditions of emergent tripolarity. The Department of Defense’s 2022 *National Defense Strategy* declared that the United States “will increasingly face the challenge of deterring two major powers with modern and diverse nuclear capabilities—the PRC and Russia—creating new stresses on strategic stability.”⁶ Since the bipolar nuclear era of the Cold War, the term *strategic stability* has been defined as encompassing two interrelated components: *arms race stability* and *crisis stability*.

In the aftermath of the Cuban Missile Crisis, when crisis instability had nearly led to nuclear Armageddon, the Soviet Union caught up to the United States in the deployment of secure second-strike strategic nuclear capabilities. The foundation of bipolar *strategic stability* was mutual deterrence based on vulnerability in which both superpowers possessed capabilities for assured retaliation and neither thereby had an incentive to strike first in a crisis. *Crisis stability* was reinforced by strategic stability talks during the détente era (1970-1975) that promoted *arms race stability*. Landmark arms control agreements (SALT and ABM) coordinated the modernization of the superpowers' offensive and defensive systems, and the Prevention of Nuclear War Agreement constituted an aspirational code of conduct to manage superpower competition and reduce the risk of nuclear war. These strategic stability talks set an important precedent and created a shared history. Secure second-strike systems and limited defenses, codified through arms control agreements, created mutual vulnerability and a foundation of strategic stability.

In a Cold War world divided between opposing blocs, bipolarity defined the international order. Within that broad framework, bipolarity also constituted a *nuclear order* through the managed, rules-bound system of deterrence forged during the detente era.⁷

The bipolar nuclear order continued when the Cold War ended in 1992 and the United States emerged as the sole superpower in a unipolar world. Three decades later, in the new era of great power competition, the legacy rules-bound nuclear order is under challenge from an amalgam of geopolitical, military, and technological factors. The Biden administration's 2022 *National Security Strategy* declared, "The risk of conflict between major powers is increasing.... The most pressing strategic challenge" for the United States is Russia and China—"powers that layer authoritarian governance with a revisionist foreign policy."⁸ The international order and the nuclear order embedded within it are in simultaneous flux. This study, whose analysis is structured in four chapters, elucidates those changes and their implications for US strategy and policy.

Organization of the Study

The first chapter addresses the evolution of the nuclear order from Cold War bipolarity to emergent tripolarity. The United States continues to anchor the liberal international order (whose core regions are North America, Western Europe, and Japan) that emerged from the post-World War II settlement, while Russia and China are assertive regional hegemons. Relationships among the three powers do not constitute a tripolar order defining the character of the diverse contemporary international system.⁹ However, their geostrategic interactions are triangular in that the action of one affects the other two. Triangular diplomacy was most dramatically evident in Nixon's 1972 summit meeting with Mao Zedong, which was intended to outflank the Soviet Union. Fifty years later, in February 2022, just weeks before the Russian invasion of Ukraine, Putin and Xi Jinping signed a lengthy joint statement, widely viewed as a tacit alliance, rejecting the US-dominated international order and declaring that their partnership had "no limits." Yet China has set pragmatic parameters on the partnership during the Ukraine war—lending Moscow diplomatic support (by pointing to NATO expansion as the precipitant of the conflict) and expanding bilateral economic relations (including a long-term Russian oil-sales agreement) in contravention of Western sanctions but withholding arms sales and warning Putin against nuclear escalation.

China's alignment with Russia has a geostrategic rationale. An additional motivational factor that must be taken into account in assessing the triangular relationship is that just as the Biden administration characterizes China and Russia as "revisionist," Moscow and Beijing view the United States as a global hegemon and non-status quo power. This perception has been fostered by successive US wars of regime change in Serbia/Kosovo (1999), Iraq (2003), and Libya (2011), as well as the various "colored revolutions" after the Cold War era that brought post-Soviet governance to states in Eastern Europe. Russia and China view US support for democratization and human rights as a frontal assault on their regimes' ruling position.

In terms of raw military and economic power, the three legs of the triangle are not equal. The United States and China are economic superpowers while Russia has a GDP only the size of Italy's. Yet in the nuclear realm, Russia maintains parity with the United States because of its legacy arsenal from the Cold War era, while China is a distant third. From the onset of its nuclear program, China maintained a minimum deterrence stance, based on an assessment that a small survivable force was sufficient to deter any adversary. In an historic departure, Xi Jinping has embarked on an ambitious nuclear modernization to significantly augment China's strategic forces, possibly with the intent to achieve parity with the United States and Russia. Accordingly, the Biden administration's 2022 *Nuclear Posture Review* projected, "By the 2030s the United States will, for the first time in its history, face two major nuclear powers as strategic competitors and potential adversaries. This will create new stresses on stability and new challenges for deterrence, assurance, arms control, and risk reduction."¹⁰ The destabilizing shift from a bipolar to an emergent tripolar nuclear system has been analogized by the head of US Strategic Command, Admiral Charles Richard, to the classic three-body conundrum of Newtonian astrophysics in which a stable two-body celestial system becomes chaotically unstable with the addition of a third body.¹¹ In this study, the triangular nuclear relationship among the United States, Russia, and China is described as "emergent tripolarity" because China, although on a growth trajectory to attain parity with the other two great powers by the 2030, has not yet attained that status.

Building on that opening discussion of nuclear order, chapters two and three address the interrelated components of strategic stability—arms race stability and crisis stability. According to scholars Christopher Chyba and Robert Legvold, *arms race stability* means that nuclear powers "do not have incentives to pursue weapons or weapon deployments resulting in action-reaction cycles that undermine crisis stability, [while] *crisis stability* entails averting nuclear escalation such that even in a conventional war or

faced with a possible nuclear attack, states would not use nuclear weapons for fear that such escalation would bring certain disaster.”¹²

Arms control, which has played a critical role in preventing arms race instability between the United States and the Soviet Union/Russia, faces multiple challenges. Most centrally, the treaty-based arms control architecture erected in the three decades between 1970 and 2000 has been dismantled to the point of near-collapse in the two decades since. The United States, claiming various agreements to have either outlived their purpose or been violated by Russia, withdrew, most notably, from the Anti-Ballistic Missile (ABM) and the Intermediate Nuclear Forces (INF) treaties. The New START treaty, linear successor to the original SALT agreement that numerically bounds the strategic nuclear arsenals of the United States and Russia, was extended by the two parties until 2026. However, Putin suspended Russian participation in the agreement in February 2023 in response to US military support for Ukraine. Though the Biden administration has argued that nuclear arms control should not be linked to Ukraine, the suspension runs the risk of morphing into outright abrogation. But beyond the challenge of the Russian suspension, the United States has explicitly declared that any follow-on agreement to New START after 2026 must include China, which has always operated outside regulatory constraints.

The erosion of arms control occurs as all three powers pursue independently and outside of any agreed framework pursue robust nuclear modernization programs, which in China’s case includes the dramatic expansion of its strategic nuclear forces. Strategic autonomy is the watchword of this emerging era. For the United States and Russia, the open question is whether modernization is driven by the necessity of phasing out obsolescent decades-old systems or is linked to new capabilities and missions that are potentially destabilizing. Modernization also incorporates a host of disruptive new technologies—hypersonic missiles, nuclear cruise missiles and torpedoes, anti-satellite weapons, offensive cyber capabilities—that challenge a system of mutual deterrence based on assured retaliation. Unconstrained

competition threatens to generate arms race instability, which, in turn, could exacerbate crisis instability.

The Ukraine War and looming Taiwan crisis highlight potential escalatory pathways. Of primary concern is the blurring of conventional military and nuclear operations. Putin's nuclear saber-rattling in the face of setbacks on the ground in Ukraine raises the prospect that he views the use of low-yield nuclear weapons as an option to forestall defeat in a conventional war. Biden administration officials have publicly reinforced the conventional-nuclear fire-break and threatened unspecified dire consequences if Putin crosses that threshold. National Security Adviser Jake Sullivan, rejecting any differentiation among possible Russian uses of nuclear weapons, declared, "we're not going to slice the salami."¹³

An alternative escalatory dynamic is evident in East Asia where the conventional and nuclear balances between the United States and China are changing simultaneously. In a future Taiwan crisis, the United States faces the prospect of a China that has regional dominance in conventional air and maritime forces and has attained strategic nuclear parity. This conjunction of Chinese conventional and nuclear forces has significant consequences for US extended deterrence to allies and could lead the Beijing regime to discount escalatory risks and believe it has the coercive upper hand in any showdown over Taiwan. In East Asia, as in Europe, the United States faces the dilemma that its allies are proximate to revisionist great powers.

The extension of strategic competition into the domains of cyberspace and outer space creates additional escalatory risks that undermine crisis stability. Russia employed offensive cyber operations when its 2022 invasion began with a cyberattack on Ukraine's satellite communication system. The aim was to disrupt Ukraine's command and control of its armed forces.¹⁴ This episode is indicative of a future strategic environment in which a perceived incentive to go first or early against an adversary in cyberspace or outer space drives crisis instability. Such a preemptive action could misleadingly

be viewed by the initiator as non-escalatory because it would not entail the traditional use of force.

In analyzing escalatory dynamics, one must distinguish between three variants. As a RAND study delineated them:

"Inadvertent escalation is ... when a combatant deliberately takes actions that it does not perceive to be escalatory but are interpreted that way by the enemy." Alternatively, *instrumental* escalation is when a combatant ... deliberately increases the intensity or scope of an operation to gain advantage or avoid defeat.... Deliberate acts of suggestive escalation may be done to punish enemies for earlier escalatory deeds or to warn them that they are at risk of even greater escalation if they do not comply with coercive demands.... *Accidental* escalation occurs when operators make mistakes, such as bombing the wrong targets or straying across geographical boundaries."¹⁵

Contemporary escalatory dangers must be viewed within the context of the two recast risks of the Cold War. Great power competition is now playing out in zones of vital interest to the parties—Ukraine and Taiwan—as the central strategic balance becomes more “delicate” with revived incentives to go first and early in a crisis. The risks of inadvertent or accidental escalation are evident. In a crisis, one side may make preparations to demonstrate resolve that the other side views as the prelude to use. Of acute concern—given the vital interests at stake—is the increased risk of deliberate instrumental escalation. With Ukraine and Taiwan, Russia, and China may believe that they can prevail in what Thomas C. Schelling termed a “competition in risk-taking” to achieve their objectives through coercive pressure.¹⁶ That is what makes the current and prospective strategic environments so fraught.

Crisis decision-making in Russia and China is difficult to assess as domestic political power has been centralized and personalized by Putin and Xi Jinping to a degree not seen since Joseph Stalin and Mao Zedong.

Putin is prone to miscalculation and risk-taking (dramatically evidenced in the invasion of Ukraine), while Xi Jinping has tapped a form of assertive Chinese nationalism and victimhood in support of his policy toward Taiwan and regional maritime claims. Putin has engaged in nuclear saber rattling during the Ukraine war, while China, which would not use nuclear weapons in a Taiwan crisis, may be emboldened to take coercive actions as the East Asian conventional and nuclear balances are simultaneously shifting vis-à-vis the United States. Both Putin and Xi Jinping view the United States as a revisionist power seeking regime change, and they hold the security of the Russian and Chinese state as synonymous with the survival of their respective regimes. That political reality creates major escalatory risks during a crisis.

The study's fourth and concluding chapter assesses the challenges to strategic stability under the conditions of emergent tripolarity when the bipolar nuclear order—the managed, rules-bound system of deterrence—has been severely eroded. The Biden administration has sought to maintain a dialogue with Russia on strategic nuclear arms even amidst the Ukraine War. The Putin regime, linking the war and arms control, has suspended implementation of the New START treaty. President Biden has also proposed strategic stability talks with China, but Xi Jinping has balked, evidently viewing the initiative as a ploy to lock in US nuclear superiority. Beyond Beijing's suspicions of Washington's intentions, a fundamental impediment to a strategic dialogue with China is the absence of shared strategic concepts (e.g., deterrence) and historical narratives (e.g., the Cuban Missile Crisis—a seminal event affecting US strategic thinking that means little to the Chinese). As a consequence, China's perception of risk, rooted in its own history and culture, may be different than that of US policymakers. When proposing strategic stability talks with China in November 2021, a National Security Council official acknowledged the contrast with Russia, with which the United States has a history dating back to the Soviet era. These differences in strategic cultures must be recognized and taken into

account by US policymakers.

For the US administration, the most significant change in the strategic environment defining the “new era” is that the United States now faces two peer nuclear adversaries. Since China became a nuclear-weapon state, successive US administrations considered it a lesser-included threat—that a US force sized to counter the Soviet threat would be sufficient to address any contingency involving China. Yet the impressive scope, scale, and pace of China’s nuclear modernization program requires a new approach. The requirements of the new era—whether the United States requires a different or larger force—is an open question. But in working toward an answer, a senior Biden administration official has stated that “this is not a game of arithmetic” in which the United States requires nuclear forces equivalent in number to those of Russia and China combined.¹⁷ A central challenge is whether assured retaliation—the key condition of strategic stability in the bipolar nuclear order—will anchor a system of mutual deterrence in a tri-polar nuclear order.

The United States, Russia, and China constitute the core nuclear triangle, but their relationships are affected by developments involving the regional nuclear-weapon states—North Korea, India and Pakistan, as well as Iran, a nuclear threshold state. For example, China responded to the deployment of the Terminal High Altitude Area Defense (THAAD) anti-ballistic missile system to counter North Korea’s expanding nuclear-capable missile capabilities that have the potential to strike the US homeland; whereas China, which has clashed with India along its Himalayan border, must incorporate that South Asian power’s nuclear capabilities into its strategic calculus.

The challenges of crisis stability to prevent escalation are immediate and urgent even as the near-term prospects for a resolution of the Ukraine war or the Taiwan dispute appear remote. The US policy focus should be on preventing escalation—whether instrumental, inadvertent, or accidental.

Key to that imperative is maintaining open lines of communications with the Russian and Chinese leaderships. With Russia, senior Biden administration officials—Secretary of State Antony Blinken, National Security Adviser Jake Sullivan, CIA Director William Burns, and Secretary of Defense Lloyd Austin—have met or spoken to their counterparts. President Biden has conducted virtual and in-person summits with Xi Jinping.

Looking to a future beyond the Ukraine war, the Biden administration and US NATO allies are already considering a revived version of diplomat George Kennan’s containment strategy to deter and balance Russian power on its periphery, whether Putin continues to rule in the Kremlin or not.¹⁸ Kennan’s advocacy in his seminal *Foreign Affairs* article in 1947 of a strategy of the “long-term patient but firm and vigilant containment of Russian expansive tendencies” resonates today. With China, the Biden administration has enunciated security commitments (witness the President’s new formulation on Taiwan) and coercive economic policies (for example, banning the export of US microchip technology) that amounts to neo-containment.

As during the Cold War, such a neo-containment strategy should pragmatically allow for engagement with Russia and China on strategic stability to avoid the prospect of unconstrained and destabilizing arms competition. Whether or not the new state of relations between the United States and Russia and China should be described as a new Cold War, the three powers have a mutual interest in not revisiting the dangers of that era—ensuring that no power has a perceived interest in going first and early in a crisis. The nuclear deterrent relationship should never again be “delicate.”

1. From Bipolarity to Tripolarity



The Chinese Dongfeng ["East Wind"] 41, a nuclear-capable intercontinental ballistic missile, on display during a military parade in Beijing on October 1, 2019. Image source: Kyodo / AP Images



“And then there were three,” declared *The Economist* magazine in late 2022 in response to the expansion of Chinese strategic nuclear forces with the apparent goal of achieving parity with the United States and Russia.¹⁹ This chapter, organized in three sections, traces the transition from the bipolar nuclear order of the Cold War era to an emergent tripolar nuclear order. The first section examines the nature of the bipolar nuclear order that existed in tandem with a bipolar *international order* during the Cold War. In the post-Cold War era, the legacy bipolar *nuclear order* continued within the context of a transformed international order significantly reshaped by America’s paramount power as the sole remaining superpower and a rising China. The second section focuses on triangular diplomacy among the United States, Russia, and China—how relations between two of the powers have been forged in relation to the third, and the shifting evolution of this dynamic through historical phases in response to a changing international environment—from the initial Sino-Soviet alliance of the 1950s to their rift in the 1960s, and from the US opening to China in the 1970s and their tacit alliance against the Soviet Union in the 1980s to the alignment of Russia and China to balance American “hyperpower” in the post-Cold War era. The third, and final, section focuses on the advent of emergent nuclear tripolarity as China transitions from a minimum deterrent posture to aiming for nuclear parity with the United States and Russia over the next decade.

The Bipolar Nuclear Order

In *The Absolute Weapon*, RAND strategist Bernard Brodie laid out the fundamentals of nuclear deterrence a year after Hiroshima and Nagasaki. Contrary to those who viewed the atomic bomb as essentially an extension of conventional strategic bombing—how the US Air Force had deployed its massed bomber fleets against German and Japanese cities during World War II—Brodie argued that the utility of these revolutionary weapons was not in their use but in their *threatened* use.²⁰ With the Soviet Union's acquisition of the "absolute weapon" in 1949, nuclear bipolarity became the defining feature of the Cold War international order.

The Cold War was a global ideological competition, but not all interests were vital. The Eisenhower administration found that its "massive retaliation" strategy—threatening the use of nuclear weapons in the defense of less-than-vital interests (such as during the 1954 Quemoy and Matsu crisis)—was simply not credible. After the Soviet Union tested a thermonuclear weapon that year, the British strategist B.H. Liddell Hart speculated that the central nuclear stalemate between the superpowers, making direct conflict prohibitively dangerous and costly, would deflect competition and lead to the rise of limited, non-nuclear conflicts in peripheral areas where non-vital interests were at stake. The Kennedy administration's "flexible response" strategy answered the credibility problem of threatening nuclear use in conflicts in peripheral areas (such as Vietnam) by significantly expanding US conventional forces so that limited force could be applied to limited contingencies.

The stability of the central strategic balance had been questioned by RAND strategist Albert Wohlstetter in his seminal 1958 article, "The Delicate Balance of Terror" in *Foreign Affairs*. Wohlstetter's concern had focused on the vulnerability of the US deterrent, specifically manned strategic bombers, to a Soviet first strike. Concern about the vulnerability of US strategic nuclear forces was addressed through the deployment of land-based Minuteman intercontinental ballistic missiles (ICBM) in hardened silos and sea-launched ballistic missiles (SLBM) on Polaris submarines. But the Kennedy administration went further by publicly debunking the

“missile gap” myth and additionally asserting that the US numerical advantage (resulting from the deployment of Minuteman and Polaris systems) could allow the United States to target Soviet nuclear assets as part of a damage-limitation (or warfighting, to be more accurate) strategy. The intent was essentially to employ US superiority to gain coercive advantage on the Soviet Union—that the United States could leverage its nuclear superiority to impose a pattern of stability on the Kremlin leadership. But the Soviet reaction—deploying medium-range ballistic missiles on Cuba in a desperate bid to redress the strategic balance—precipitated the most dangerous crisis of the Cold War. The extraordinary danger of a “delicate” balance—a nuclear disposition in which both superpowers perceived an advantage in preemptive action—was exposed.

After the profound shock of the Cuban Missile Crisis, the Soviet Union began to match the US deployment of large numbers of secure second-strike nuclear forces. The crisis also revealed the potentially catastrophic consequences of “unmanaged competition.”²¹ In its aftermath, with the advent of large secure offensive arsenals and limited defensive capabilities, both superpowers developed the capacity for assured retaliation, which became the foundation of strategic stability. As British strategist Lawrence Freedman observed, “The two superpowers began to accept that both sides were locked into a condition of mutual assured destruction (MAD). The search for a plausible first-strike strategy lingered on before it eventually subsided, but caution was now the norm in superpower relations.”²²

The crisis years of 1958-1962, the most fraught years of the Cold War that began over Berlin and culminated with Cuba, paved the way for serious superpower diplomacy that began in 1969. The Strategic Arms Limitations Talks (SALT) yielded the Interim Agreement on Offensive Forces of 1972 that froze the number of delivery vehicles on each side. In tandem, the Anti-Ballistic Missile (ABM) Treaty limited each side’s missile defense systems. Through agreements that capped offensive and defensive systems and created a framework to manage arms competition, the Nixon-Brezhnev summit

meetings in 1972-1973 affirmed the bipolar system of nuclear deterrence based on assured retaliation. As Henry Kissinger characterized the endeavor, “The diplomacy of arms control concentrated on limiting the composition and operating characteristics of strategic forces to reduce the incentive for surprise attack to a minimum.”²³ The logic of deterrence based on survivable forces and assured retaliation was not explicitly acknowledged but, judging by their actions, was tacitly accepted by both superpowers. For the United States, the reality of numerical parity with and vulnerability to Soviet nuclear capabilities required an uneasy psychological adjustment.

The Nixon-Kissinger detente strategy addressed both components of the strategic stability equation. Negotiated limits were intended to prevent arms race instability. In addition, paired with SALT and ABM were two agreements that aspired to avert crisis instability—the May 1972 Statement of Basic Principles and the June 1973 Agreement on the Prevention of Nuclear War. Whereas the former stipulated the renunciation of the pursuit of unilateral political advantage, the latter obligated the parties to consult with each other in those situations in which there existed the risk of escalation. Yet the gap between rhetoric and the reality of continued competition was manifest during the October 1973 Middle East war when the Nixon administration elevated the alert status of US nuclear forces (DEFCON 3) to deter a unilateral Soviet military intervention to support Egypt against Israel.

Soviet activism in the Third World, culminating in the December 1979 invasion of Afghanistan, was consistent with the stability-instability paradox—that the stabilization of the central strategic relationship through arms control deflected competition to regions of peripheral interest. But with the demise of detente, concerns were raised about the stability of the deterrent relationship. In the late 1970s, the focus was on the Soviet heavy missile—the SS-18—and its ability to target the US land-based components of its deterrent triad: bombers and ballistic missiles in fixed silos. The concern was that, in a crisis, the Soviet Union might derive political utility from a perceived asymmetry in military capabilities. This marginal asymmetry

hardly undercut stability through mutual vulnerability (as under any attack scenario the United States would retain invulnerable submarine-launched ballistic missiles for retaliation). But this argument nonetheless drove the case for the deployment of the United States's counterpart to the SS-18, the MX "Peacekeeper" ICBM. By the 1980s, the US and Soviet nuclear arsenals—estimated at 23,000 and 40,000 warheads, respectively—were of a magnitude disconnected from any rational strategy. In contrast, China, the state that would eventually become part of a nuclear triad with the superpowers, then possessed a comparatively meager 225 nuclear weapons—a force structure apparently linked to a strategy of minimum deterrence.²⁴

The crisis years 1979-1985, spanning the late Brezhnev era to the ascension of Mikhail Gorbachev as Soviet leader, were second in virulence and danger only to the intense 1958-1962 period (when the risk of a superpower war starting in Berlin or Cuba was at its greatest). A focal point of tension was the deployment of nuclear-capable intermediate-range missiles—US Pershing IIs and Soviet SS-20—in Europe that posed asymmetrical threats. Whereas the Soviet missiles were a regional capability that did not threaten the United States, the US Pershing missiles, with a six-minute flight time to Moscow, created the potential for a decapitating surprise attack on the Kremlin leadership.²⁵ In November 1983, when US-Soviet relations were at a nadir, a NATO exercise—Able Archer—may have precipitated alarm in the Kremlin that this realistic test of NATO's nuclear command and control might be cover for a surprise attack. A declassified US intelligence review of the "war scare," concluded, "In 1983, we may have inadvertently placed our relations with the Soviet Union on a hair trigger."²⁶

As after the Cuban Missile Crisis, crisis instability during 1979-1985 ushered in a renewed period of détente. Beginning with the Reagan-Gorbachev summit at Reykjavik in 1986, the final years of the Cold War yielded momentous arms control diplomacy with an emphasis on strategic stability. In 1987, the Intermediate Nuclear Forces (INF) Treaty (1987) eliminated the entire class of missiles of that range. In 1991, coordinated reciprocal moves by

the United States and Russia drastically reduced the number of deployed non-strategic or tactical nuclear weapons. That same year, the Strategic Arms Reduction Treaty (START) I, signed by Presidents George H.W. Bush and Gorbachev in Moscow, limited the number of missile launchers and bombers and, importantly, began the process of curtailing the number of deployed strategic nuclear weapons. Implementation of the agreement resulted in the reduction of some 80 percent of the two superpowers' strategic nuclear forces. In 1993, the START II agreement took an additional major step to reduce the number of deployed nuclear warheads. The milestone accord banned MIRVs (multiple independently targetable re-entry vehicles) on ICBMs. This "de-MIRVing" agreement marked an important qualitative development aimed to stabilize deterrence by mutual vulnerability by limiting destabilizing first-strike nuclear capabilities.

During the Cold War, arms control negotiations were the medium for the strategic dialogue between the superpowers and largely defined their relationship. With the improvement in bilateral relations in the 1990s, further significant progress in arms reductions became politically possible. A tangible symbol of the new era was the Cooperative Threat Reduction program (also known as Nunn-Lugar), which entailed unprecedented cooperation between the United States and Russia to secure the vast Soviet-era repository of weapons and weapons-grade fissile material and prevent them from falling into the possession of a "rogue" state or terrorist group. This major initiative to reduce the risk of nuclear terrorism was complemented by a foundational step to forestall "horizontal" proliferation—the acquisition of nuclear weapons by additional states—through the indefinite extension of the Nuclear Non-Proliferation Treaty (NPT).²⁷ A related key development with proliferation implications was the continuation of the bipolar nuclear order through treaty arrangements under which Russia emerged as the sole nuclear-weapon state when the Soviet Union fragmented into fifteen successor states. The Budapest Memorandum, concluded in late 1994 between Ukraine, Russia, the United States, and the United Kingdom, was the

mechanism by which nuclear weapons based in Ukraine were returned to Russia. In addition, Ukraine joined the NPT as a non-nuclear-weapon state in return for security assurances from the nuclear-weapon states that they would respect the sovereignty and existing borders of Ukraine and would neither threaten nor use force against Ukraine. (As further discussed below, subsequent events, such as Russia's annexation of Crimea in 2014 and its invasion of Ukraine in 2022 would make the Budapest Memorandum, as one analyst put it, "a byword for ineffectuality.")²⁸

In the late 1990s, arms control efforts to expand the treaty-based architecture stalled as relations with Russia deteriorated over NATO expansion and the wars in the Balkans. Negotiations on an ambitious START III agreement were suspended and the US Senate refused to ratify the Comprehensive Test Ban Treaty. Although the bipolar *nuclear order* continued after the Cold War, the bipolar *international order*, which had been a global ideological competition between the United States and Soviet Union, did not. Nuclear relations among the United States, Russia, and China must be assessed within the context of that evolving international order.

With the dissolution of the Soviet Union, the United States emerged from the Cold War as the sole remaining superpower—a "hyperpower," the neologism coined to describe the United States's paramount position. The persistent tension in US policy in the post-Cold War era was whether this "unipolar moment" created scope for unilateral action to shape the international order or if US interests were best served by embedding American hyperpower (thereby making it less dangerous and more legitimate to others) in international institutions.

When the Cold War ended, George Kennan, the architect of US containment strategy toward the Soviet Union, cautioned that competition with Russia had morphed, not ended. As he explained to the Senate Foreign Relations Committee in 1989, Russia had evolved from a revolutionary state into "just another great power," with "aspirations" conditioned by geography

and history.²⁹ During the Cold War, the Soviet Union, driven by the ideological nature of its superpower competition with the United States, had cultivated several financially dependent Third World client states, notably Cuba. In the post-Cold War era, with Russian nationalism superseding a defunct ideology, Moscow's primary focus shifted to the Soviet successor states—the so-called “near abroad”—in an emergent sphere-of-interest. As the Cold War in Europe ended, a similar dynamic was evident with China, whose policy of “peaceful rise” was intended to reassure the world that its exponential growth did not pose a threat to international order. China's foreign policy focused on its immediate geographical area—Taiwan and the East and South China Seas. Driven by assertive nationalism, China's sphere-of-influence strategy would subsequently be reflected its expansive maritime and territorial claims of sovereignty.

Russia and China emerged in the post-Cold War era as great powers pursuing hegemony in their regions. But the two posed contrasting challenges. Russia, facing an economic crisis while retaining superpower status through its legacy nuclear capabilities from the Soviet era, was a great power in decline. China, which had traditionally maintained a nuclear posture of minimum deterrence, was a rising power experiencing exponential growth. China is now viewed in American policy circles as the United States' “pacing challenge” across the key hierarchies of power—military, economic, technological. We are on the cusp of nuclear tripolarity. Dating to the early Cold War years, relations among the three great powers have been shaped by a triangular dynamic. But each leg of the triangle is not equivalent because of the uneven distribution of their power (economic and military) and triangular politics, which have evolved over the decades.

In 1971, the stunning breakthrough in Sino-American relations strategically outflanked the Soviet Union. Fifty years later, in February 2022, just weeks before Russia's invasion of Ukraine, a summit meeting between Putin and Xi Jinping reset the geostrategic triangle with a lengthy joint statement declaring that the tacit alliance between Russia and China against the

United States and the West had “no limits” and no “forbidden” areas of cooperation, an evident reference to joint military exercises. But this hyperbolic language belies clear limits that have been evidenced by China’s hedged and withholding support for Russia’s invasion of Ukraine. The historical record since the Cold War reveals a pattern in which a shared perception of threat has led two powers to tacitly align and balance the power of the third. This dynamic has played out under a nuclear shadow.

Triangular Relations

“The Chinese people have stood up,” declared Mao Zedong on the establishment of the People’s Republic of China (PRC) in 1949 after the defeat of Chiang Kai-shek’s Nationalist forces. As historian Chen Jian observes, this invocation was “a legitimacy statement” for Mao’s revolutionary vision of domestic transformation and the revival of the Middle Kingdom’s central position in international relations.³⁰ The communist victory in the protracted Chinese Civil War occurred against the backdrop of the Soviet Union’s first atomic test ending the US nuclear monopoly and the establishment of NATO. That Mao spent weeks in Moscow just after his consolidation of power in China reinforced the perception of a bipolar international order comprising contending blocs. Mao had baldly declared that China would “lean to one side” in the Cold War. In his meeting with the Soviet dictator, Mao pressed Stalin for a treaty alliance that would provide a security guarantee against the United States and military assistance to “liberate” Taiwan.³¹ The Sino-Soviet Treaty did not incorporate the military dimension that Mao sought, but it did provide a framework for Soviet economic aid and technical assistance for which China paid in exports of strategically important natural resources.

In June 1950, with Stalin’s and Mao’s approval, North Korea’s communist leader, Kim Il-sung, launched an invasion of South Korea. The UN Security Council, which the Soviet Union was then boycotting over Taiwan, approved a collective military action to reverse this aggression and unify the peninsula. When the American-led UN forces crossed the 38th parallel and marched

toward the Yalu River border with China, thereby threatening to eliminate North Korea as a buffer state, Mao launched a Chinese counteroffensive to push back the American-led UN forces. A military stalemate along the 38th parallel became the line of control codified in the Korean Armistice Agreement of July 1953. Eisenhower, who had successfully campaigned for the presidency in 1952 on a pledge to end the Korean War, revealed in his memoirs that he had entered office prepared to use nuclear weapons to break the stalemate. Declassified US government documents later revealed the advanced state of planning in March 1953 about possible nuclear use in North Korea should armistice talks have failed. US officials debated whether a US nuclear response in Korea would catalytically escalate into a war with China. Significantly, the Eisenhower administration's deliberations addressed whether a "taboo" against nuclear use existed, while some in the US military leadership questioned whether nuclear weapons would be effective against dug-in North Korean troops along a broad front.³²

Shortly after the Korean War, in 1954, China launched its nuclear-weapons program.³³ With Soviet assistance, China established a uranium enrichment facility to produce weapons-grade uranium. Khrushchev promised China technical nuclear assistance and even agreed to provide a prototype to assist Chinese weapons development to win Mao's political support during the post-Stalin leadership struggle. Khrushchev reneged on the offer to provide a model atomic bomb after bilateral relations deteriorated in the wake of the Soviet leader's "Secret Speech" at the 20th Party Congress denouncing Stalin's crimes and "cult of personality." Khrushchev was also concerned that Mao's precipitation of successive Taiwan crises in the mid-1950s created a risk of escalation, potentially to the nuclear level, with the United States. In 1959, a US intelligence assessment concluded that "critical strains have emerged in the Sino-Soviet relationship" though American policymakers were slow to recognize and act on the reality of a rift.³⁴

In 1964, China became the fifth nuclear-weapon state (joining the United States, Soviet Union, Britain, and France) and two years later successfully

tested a nuclear weapon launched by a ballistic missile. The Kennedy administration had seriously explored the feasibility of a preventive military strike on China's nascent nuclear capability in the early 1960s.³⁵ What drove the administration's consideration was less a general normative concern about proliferation than the perception that China's threat derived from the character of its ruling regime. At that time, Mao's China was the functional equivalent of what in the post-Cold War era would be labeled as a "rogue state." In rejecting the option of "unprovoked" military action, President Lyndon B. Johnson accepted a State Department assessment that a nuclear-armed China would not fundamentally change the balance of power in Asia and that it could be deterred from aggression by overwhelming US conventional and nuclear superiority. At that point, the United States was also increasingly preoccupied with its escalating war in Vietnam.

In 1969, the sharp deterioration in Sino-Soviet relations erupted into fighting along their shared border and the Nixon administration was concerned that the clashes could escalate into war between the Communist powers. Mao described "the Sino-Soviet rift as a border dispute arising out of ideology."³⁶ A telling indicator of the seriousness of the crisis was that a Soviet intelligence officer approached a US official about the possibility of a Soviet preemptive strike on China's nuclear-weapons facilities. A US National Intelligence Estimate assessed that there was "at least some chance" of such a military move but concluded that both the Soviet Union and China wanted to avoid "full scale war."³⁷ Sino-Soviet tensions created a pragmatic basis for the Sino-American rapprochement that culminated in Kissinger's secret mission to Beijing in 1971 and the breakthrough Nixon-Mao summit meeting in 1972, which led to the normalization of diplomatic relations in 1979.

The Soviet invasion of Afghanistan and Vietnam's Soviet-supported invasion of Cambodia to overthrow the Chinese-backed Khmer Rouge regime led to the expansion of Sino-American cooperation, including in the military sphere. Deng Xiaoping's landmark visit to Washington in 1979, the first by a Chinese leader since the 1949 revolution, marked a shift in the triangular

relationship as China and the United States established a tacit anti-Soviet alliance. China permitted the United States to establish listening posts in Xinjiang to monitor Soviet missile launches in central Asia in return for the lifting of US export controls on the sale of dual-use civilian and military technology.³⁸

The 1989-1992 period—from the fall of the Berlin Wall to the dissolution of the Soviet Union—marked a strategic inflection point in the triangular relationship. With these developments, the strategic rationale that had produced the tacit alliance between the United States and China ended.³⁹ In tandem with this development, the alignment of the strategic triangle shifted as China and post-Soviet Russia pursued a rapprochement under the rubric of “constructive partnership.” Against the backdrop of these geostrategic developments, the Deng Xiaoping regime faced a serious domestic political challenge to the ruling Chinese Communist Party. In spring 1989, student demonstrations, which began as a commemoration of the former Premier Hu Yaobang and protest against widespread corruption, escalated into a broad pro-democracy movement. On June 4, 1989, after an estimated one million protesters had gathered in Tiananmen Square, the regime launched a brutal crackdown, which resulted in some 10,000 deaths and mass arrests. The George H.W. Bush administration responded with a cutoff in arms sales but resisted Congressional pressure to implement broader economic sanctions.

For the United States, national security strategy was shaped not only by the end of the Cold War, but also by the concurrent hot war in the Persian Gulf to reverse the Iraqi invasion of Kuwait. In the post-Cold War era, as the risk of great power conflict receded, the focus of US defense strategy was on threats posed by “rogue states,” including Saddam Hussein’s Iraq, Muammar Qaddafi’s Libya, the Kim family’s North Korea, and the mullahs’ Iran. The Clinton administration’s 1994 *National Security Strategy*, titled a strategy of “Engagement and Enlargement,” declared, “The end of the Cold War has fundamentally changed America’s security imperatives. The central security challenge of the past half century—the threat of communist expansion—is gone.”⁴⁰ The overarching grand strategy of engagement and enlargement

aimed to integrate states outside the core of advanced industrial democracies, including post-Soviet Russia and modernizing China, into the liberal international order. Within this reshaped strategic environment, integration, as one US policymaker put it, was “the natural successor to containment.”⁴¹

The Clinton administration framed the post-Cold War expansion of NATO within the context of engagement and enlargement. It asserted that the inclusion of new member states that had been part of the Soviet bloc was a step toward the creation of a new security architecture for Europe that could eventually include Russia. Since first proposed, controversy has surrounded the issue of NATO expansion. Western supporters were divided between two camps—one who favored expansion as part of a process of democratic “engagement and enlargement” potentially open to Russia, while the other (comprised of those who saw Russia as a continuing threat) wanted to draw NATO’s eastern boundary as far east as possible. During the Ukraine war, the revival of this debate (beyond the scope of this study but important to note) turns on whether the extension of Western military power to the periphery of post-Soviet Russia was the precipitant of Putin’s actions in Georgia (2008) and Ukraine (2014, 2022) or whether the Soviet dictator’s paramount concern was that neighboring democratic states posed a threat to the legitimacy and perpetuation of his autocratic regime.⁴²

In the latter half of the 1990s, geostrategic challenges in Taiwan and the Balkans dashed the euphoric hopes about the post-Cold War era and augured the revival of great power competition. In March 1996, the so-called Third Taiwan Strait Crisis occurred when China displayed its growing military power during the lead-up to Taiwan’s first direct presidential election. In response to nearby Chinese military exercises, including test launches of nuclear-capable short-range ballistic missiles, President Clinton deployed two US carrier battle groups to the area, one of which sailed through the Taiwan Straits. As the *Washington Post* reported, “Beijing and Washington had two weeks of extraordinary tension and uncertainty... with undercurrents of nuclear menace.” During the crisis, Chinese officials made two allusions to

nuclear weapons, one implicit and another more direct.⁴³

In Serbia, in spring 1999, NATO took military action to force the Belgrade regime, headed by Slobodan Milosevic, to end its “ethnic cleansing” of the country’s Albanian population in Kosovo. The 78-day air campaign, which ran from March to June 1999, aimed to compel the withdrawal of Serbian police and military forces from Kosovo. The NATO intervention was undertaken without the legitimizing imprimatur of the UN Security Council because of threatened vetoes by Russia and China. On May 7, the United States bombed the Chinese embassy in Belgrade. China rejected President Clinton’s apology and explanation that the strike was an accident arising from an outdated targeting map.

The US-led humanitarian intervention in Kosovo had political and military implications affecting the triangular relationship. The war gave further impetus to the alignment of Russia and China in response to American hyperpower. In July 2001, with echoes of their relationship of the 1950s, the two concluded a twenty-year “Treaty of Good-Neighborliness and Friendly Cooperation,” which included a provision for consultation if either party’s security interests were threatened. At the turn of the century, interactions among the United States, Russia, and China were triangular, with each power taking the actions of the other two into account, but not tripolar. Subsequent developments, particularly the modernization and expansion of China’s nuclear forces with the apparent goal of achieving strategic parity with the United States and Russia, would give rise to an emergent tripolar nuclear order.

Emergent Tripolarity

The 9/11 terrorist attacks by Al Qaeda on New York and Washington did not alter the structure of international relations, but they did lead to a redefinition of threat. In its 2002 *National Security Strategy*, the Bush administration explicitly argued that the dangers of the post-9/11 world derived from the very character of America’s adversaries—irredeemable rogue

states and undeterrable terrorist groups such as Al Qaeda, whose only constraints were practical and technical, not moral or political. Weapons of mass destruction (WMD) proliferation and terrorism created a deadly nexus of capabilities and intentions. US policymakers were driven by the nightmare scenario of a rogue state transferring a nuclear, biological, or chemical capability to a terrorist group to carry out a mass-casualty attack on the American homeland.

The redefinition of threat precipitated a major shift in strategy. The Bush administration asserted that the Cold War concepts of containment and deterrence were “less likely to work against leaders of rogue states [who are] more willing to take risks” and more prone than an orthodox great power rival (post-Soviet Russia or China as viewed in 2001) to use WMD. The administration’s 2002 *National Security Strategy* elevated the use of force against “rogue states” and terrorist groups, as “a matter of common sense and self-defense,” not only preemptively, against imminent threats (a usage consistent with international law), but also preventively, against “emerging threats before they are formed.”⁴⁴ This assessment propelled the shift from a pre-9/11 strategy of containment and deterrence of “rogue states,” especially Saddam’s Iraq, to a post-9/11 emphasis on regime change. Changing the conduct of rogue states was deemed unlikely and inadequate because their threatening behavior was inextricably linked to the character of their ruling regimes.

The 9/11 terrorist attacks highlighted the vulnerability of the American homeland and other Western societies to mass-casualty terrorism. Strikingly, Russia and China perceived the devastating strike on the iconic World Trade Center towers as an assault not on the United States, but on the global economic system in which they had a growing stake. China, in the midst of an unprecedented economic boom, connected the dots—the potential of international terrorism to damage the global economy on which China’s economic growth depended—and reacted accordingly. This shared perception of 9/11 led to what would have been unthinkable

a decade earlier: America's former Cold War adversaries acquiesced to the establishment of US military bases in Central Asia to conduct military operations in Afghanistan. In its 2002 *National Security Strategy*, the Bush administration declared that the United States and Russia were "no longer strategic adversaries," but issued the cautionary that the administration was attentive "to the possible renewal of old patterns of great power competition" as Russia and China were "in the midst of internal transition" and, specifically cautioned that China, "in pursuing capabilities that can threaten its neighbors in the Asia-Pacific region... is following an outdated path."⁴⁵

The Bush administration's 2002 *Nuclear Posture Review* (NPR) acknowledged the changed strategic environment but hedged about the future. With Russia, the NPR declared that United States would "no longer plan, size or sustain its forces as though Russia presented merely a smaller version of the threat posed by the former Soviet Union." Accordingly, the United States would adjust its nuclear force requirements as "a move away from the balance-of-terror policy framework" and "a critical step away from the Cold War policy of mutual vulnerability." At the same time, the 2002 NPR cautioned that Russia faced "strategic problems along its periphery [and its] future course cannot be charted with certainty." The US Department of Defense's 2002 document also hedged on China, stating, "Due to the combination of China's still developing strategic objectives and its ongoing modernization of its nuclear and non-nuclear forces, China is a country that could be involved in an immediate or potential contingency."⁴⁶ To put subsequent developments into context, at the time of the 2002 NPR, China had a nuclear weapons inventory estimated at approximately 200 warheads, whereas the United States and Russia had stocks (counting both deployed and those in storage) totaling some 10,000 (a number greatly reduced from Cold War highs).⁴⁷

In the post-9/11 security environment, the Bush administration explicitly

argued that the exigencies of the new era could require unilateral US action outside the structure of international institutions and norms created through American leadership. In 2002, the administration withdrew the United States from the ABM Treaty in order to pursue ballistic missile defenses—a move strongly condemned by Putin, who had succeeded Yeltsin in 2000. In 2003, international solidarity manifested after 9/11 dissipated when the Bush administration extended the war on terrorism to Iraq and initiated a war of regime change without UN Security Council authorization. Russia and China opposed the invasion as an encroachment on Iraqi state sovereignty and called for the withdrawal of US forces.

The Bush administration sought to seize what a conservative columnist called “the unipolar moment” in its military relations with Russia and China through a strategy of “dissuasion.” The underlying assumption of this strategy, as declared in the Defense Department’s *Quadrennial Defense Review* in 2001, was to leverage US hyperpower—its preponderant military capabilities, technological superiority, and economic primacy—to “dissuade other countries from initiating future military competitions,” including in the nuclear domain.⁴⁸ But the exercise of American hyperpower—the 1999 war against Serbia that led to the creation of an independent Kosovo (2008); the wars of regime change in Iraq and Afghanistan, and later Libya (2011); the Bush administration’s controversial proposal to expand NATO to Russia’s border through the membership of Ukraine and Georgia (2008); and the global economic crisis that started in the United States (2008)—tarnished the US model and exposed the limits of its power. Neither Russia nor China were dissuaded from competition by American hyperpower in the nuclear realm. Russia, facing a protracted economic crisis, has viewed its nuclear capabilities in the post-Cold War era as the hallmark of its great power status and an alternative to costly largescale conventional military forces. Putin launched a robust nuclear modernization program upon assuming power and adopted an increasingly assertive stance along Russia’s periphery (notably the 2008 military intervention in Georgia). In 2007, a

rising China, accelerating a decade-long trend, sharply boosted military spending with the announced goal of improving its ability to wage high-tech warfare.⁴⁹ The increase was evidently undertaken to close the conventional military gap with the United States, which had demonstrated the efficacy of its advanced precision-guided capabilities in Iraq and Kosovo.

The Obama administration's 2010 *Nuclear Posture Review* (NPR) was released against the backdrop of its diplomatic effort to "reset" relations with Russia, as well as a continuing engagement strategy toward China to promote its integration as a stakeholder into the liberal international order. Consistent with the post-9/11 redefinition of security, the 2010 NPR's primary focus remained on the challenges of nuclear proliferation and terrorism, but the document also emphasized that the United States would "continue to address the more familiar challenge of ensuring strategic stability with existing nuclear powers – most notably Russia and China." The document observed that Russia was "America's only peer in the area of nuclear weapons capabilities... and continues to modernize its still-formidable nuclear forces." That said, the 2010 NPR concluded, Russia and the United States "are no longer adversaries, and prospects for military confrontation have declined dramatically." The abbreviated discussion of China's nuclear capabilities noted only that its arsenal remains "much smaller" than that of the United States "but the lack of transparency surrounding its nuclear programs—their pace and scope, as well as the strategy and doctrine that guides them—raises questions about China's future strategic intentions."⁵⁰

The centerpiece of the Trump administration's 2018 *Nuclear Posture Review* was "the return of great power competition." The document noted that Russia retained large numbers of non-strategic (i.e., tactical) nuclear weapons and was comprehensively modernizing its strategic nuclear systems. The modernization program was unfolding within the context of "Russia's seizure of Crimea and nuclear threats against our allies" and was linked to a "troubling" doctrinal shift under which Russia has adopted

“military strategies and capabilities that rely on nuclear escalation for their success.” Addressing Chinese nuclear forces, the 2018 NPR stated, “China is pursuing entirely new nuclear capabilities tailored to achieve particular national security objectives while also modernizing its conventional military, challenging traditional US military superiority in the Western Pacific.”⁵¹

Under Xi Jinping, a rising China has undertaken the broad expansion of its military capabilities, both conventional and nuclear, to complement its global economic power. China’s nuclear expansion and modernization program signals the transition from a bipolar to a tripolar nuclear world. The US Defense Department’s 2021 annual report on Chinese military power projected that the PRC stockpile of nuclear warheads would increase from the low 200s to 700 deliverable weapons by 2027 and that China “intends to have at least 1,000 warheads by 2030.”⁵² China’s drive toward nuclear parity with the United States, in tandem with the expansion of its conventional air and maritime forces, create a new strategic calculus, especially with respect to contingencies in Taiwan.

More broadly, nuclear relations between each dyad in the US-Russia-China triangular relationship affect the third power. Hence, for example, the US withdrawal from ABM treaty, thereby auguring a possible strategic environment with unconstrained ballistic missile defenses, had implications for the sufficiency of China’s minimum deterrent posture. The termination of the Intermediate-Range Nuclear Forces (INF) Treaty, concluded with the Soviet Union in 1988, could now permit US deployment of intermediate-range ballistic missiles in Asia to counter China.

The Biden administration’s 2022 *Nuclear Posture Review* cautioned that “by the 2030s the United States will, for the first time in its history, face two major nuclear powers as strategic competitors and potential adversaries.” The “stresses on stability” in this emergent tripolar nuclear order will arise from advanced technologies and the extension of strategic competition into the domains of cyberspace and outer space that pose “new challenges for

deterrence, assurance, arms control, and risk reduction.”⁵³ General Mark A. Milley, chairman of the Joint Chiefs of Staff, characterized China’s testing of a hypersonic missile capable of evading current US defenses a near “Sputnik moment” for the United States. In this new era, geostrategic and technological developments are dangerously recasting the two major risks of the Cold War: the stability-instability paradox, in which the stakes of great power competition—Ukraine and Taiwan—are of vital, not peripheral interest, and the “delicate” balance of terror, in which a revived incentive to act preemptively against an adversary undermines crisis stability.



Chinese President Xi Jinping and Russian President Vladimir Putin at their summit meeting in Beijing on February 4, 2022. Image source: Alexei Druzhinin, Sputnik, Kremlin Pool Photo / AP Images



2. Arms Race Instability in a Tripolar Nuclear World

Unconstrained Competition?

Arms race stability is a condition in which “nuclear powers do not have incentives to pursue weapons or weapon deployments resulting in action-reaction cycles that undermine crisis stability.” The two elements—arms race stability and crisis stability—comprise “strategic stability.” The United States faces a great-power crisis with Russia, over its actual invasion of Ukraine, and a potential one with China, over Taiwan. The rupture in US relations with Russia and the sharp deterioration in relations with China make the avoidance of crisis instability and escalation an acute risk—a danger exacerbated by emerging arms race instability. Within this volatile strategic context, the “balance of terror,” in the Cold War formulation of RAND strategist Albert Wohlstetter, could become dangerously “delicate” with revived incentives for both sides to act preemptively in a crisis.

Arms control, which played a critical role in promoting strategic stability between nuclear adversaries in the Cold War era, faces multiple challenges in an emergent tripolar nuclear order. Most obviously, the treaty-based arms control architecture erected in the three decades between 1970 and 2000 has been dismantled to the point of near-collapse in the two decades since. The United States, claiming various agreements to have either outlived their purpose or been violated by Russia, withdrew from the Anti-Ballistic Missile

(ABM) Treaty (2002), the Intermediate-Range Nuclear Forces (INF) Treaty (2019), and the Open Skies Treaty (2020). The New Strategic Arms Reduction Treaty (START), linear successor to the original Strategic Arms Limitation Talks (SALT) agreement, was extended in 2021 by US President Joe Biden and Russian President Vladimir Putin for an additional five years—and then suspended by Putin at the one-year mark of the Ukraine War. For the time being, Russia has stated that it will continue to abide by the agreement’s numerical constraints. But whether Putin’s suspension augurs outright abrogation is uncertain.

The strategic nuclear forces of the United States and Russia have been bound by the constraints of the New START treaty, which achieved a significant reduction in the number of US and Russian nuclear warheads relative to the size of their arsenals at the height of the Cold War. The treaty’s complex counting rules limit each side to 1,550 warheads on 700 deployed strategic vehicles—ICBMs, submarine-launched ballistic missiles (SLBMs), and heavy bombers—with sub-limits on how many of those missiles and bombers can be deployed. In announcing its suspension of New START, Russia affirmed that it would continue to abide by the treaty’s numerical constraints.

The Trump administration had opposed a clean extension of New START, arguing that China should be included in a follow-on agreement to account for its rising nuclear capabilities. The administration’s position—that arms control had become a “three-way street”—reflected the view that negotiating future constraints on US and Russian forces is neither feasible nor realistic when China is unconstrained. Beijing has conditioned its participation in trilateral negotiations on the United States and Russia reducing the size of their nuclear arsenals to that of China’s level. Even before Putin’s suspension of New START, the impasse with China, as well as the advent of emergent technologies in cyberspace and outer space affecting strategic stability, cast doubt on the future of treaty-based arms control and risked ushering in an era of unconstrained competition. Within an emergent tripolar nuclear order, all three great powers are engaged in the modernization (and, in the case of

China, expansion) of their nuclear forces. This transformed geostrategic and technological environment will shape the evolution of nuclear doctrines.⁵⁴

Nuclear Forces and Doctrines

United States

The first quarter century of the Cold War—the period spanning Hiroshima to the advent of superpower detente in 1970—was an era of unconstrained competition between the United States and the Soviet Union. The United States had developed and then dropped two atomic bombs to end World War II, but policymakers, who initially viewed nuclear weapons as an extension of strategic bombing during that global conflagration, eventually recognized that the primary role of nuclear weapons was to deter war. At the height of the Cold War, a RAND Corporation study on overall US defense spending famously asked, “How Much is Enough?”⁵⁵ In the nuclear realm, the answer to that question, for the United States (as with the Soviet Union), was essentially unbound and arbitrary. In 1967, the US arsenal peaked at 31,255 nuclear warheads—a number without any rational relation to strategy.⁵⁶ One force that gave rise to the massive numbers was inter-service bureaucratic rivalries in which the various branches adopted nuclear weapons “for almost every conceivable military mission.”⁵⁷ For example, in the 1950s, the US Army deployed low-yield nuclear weapons, including an “atomic cannon,” for battlefield use.

The immense scale of the US nuclear programs reflected the persistent policy tension between deterrence and warfighting in strategy—whether the role of nuclear weapons was to deter war or employ in direct conflict should a crisis (such as Berlin) escalate. This tension was unresolved but was managed by policymakers with the formulation: *the primary role of nuclear weapons is as a deterrent, but if deterrence fails, the threat of nuclear weapons must be credible*. The scenario that drove the development of a spectrum of nuclear capabilities was a conventional attack by superior Warsaw Pact conventional forces on NATO. In the event that NATO forces

were losing a conventional war, the use of a non-strategic (i.e., tactical) nuclear weapons was contemplated to signal resolve and the possibility of escalation. This scenario was viewed as more plausible than the alternative of rapid escalation to the strategic nuclear level (framed as trading New York for Berlin). Having such a capability was viewed as important for extended deterrence as it reinforced the credibility of the American security commitment to NATO allies. Maintaining this escalatory option in the event of conflict in central Europe with the Warsaw Pact required that the United States not adopt a “no first use” (NFU) posture. But because Germany and the NATO zone were vital interests for the United States, the stability-instability paradox deflected superpower competition to peripheral areas of what was then called the Third World. In those contingencies of less-than-vital interest, the threatened use of nuclear weapons was simply not credible.

The development and deployment of secure second-strike nuclear systems ushered in a new nuclear era between the United States and Soviet Union. This made the central strategic relationship less “delicate” by removing the incentive for early preventive action during a crisis. Assured retaliation (captured in the infelicitous acronym MAD, mutual assured destruction) became the foundation of strategic stability. Deterrence based on mutual vulnerability was the predicate for superpower arms control in the 1970s. It made possible the process of bounding competition through the negotiation of limits on strategic nuclear forces. For the United States, whose geographical location had long conferred absolute security from foreign attack, the acceptance of vulnerability was (and remains) a difficult psychological adjustment.

When the Cold War ended, the United States had a stockpile of some 10,000 nuclear weapons. As of 2020, under the constraints of the New START Treaty with Russia, the United States has an arsenal of 1,372 deployed strategic nuclear weapons on Minuteman III ICBMs, Trident II D-5 SLBMs, and B-52H and B-2A bombers.⁵⁸ The Obama administration’s 2010 *Nuclear Posture Review* reaffirmed that the United States would retain the

nuclear triad of ICBMs (for prompt responsiveness), SLBMs (for survivability), and bombers (for the ability to recall). The United States is extending the life of current systems and planning a rebooted triad: a new ICBM to replace the Minuteman, called the Sentinel, scheduled to become operational around 2029; a new Columbia-class submarine to replace the Trident fleet beginning in 2031; and a new stealth heavy bomber with intercontinental range, the B-21, to replace the B-2 fleet.⁵⁹

The US congressional budget debate over nuclear modernization turns on the question whether it is only necessary to phase out obsolescent decades-old systems or whether modernization entails new capabilities and missions beyond assured retaliation that could affect strategic stability. Critics have questioned the need for a land-based ICBM replacement, arguing that more survivable submarine-based missiles provide ample deterrence through the threat of assured retaliation. Modernization plans also include the now deployed low-yield nuclear warhead for the Trident D5 missile. Proponents viewed this move as a response to what US analysts call Russia's "escalate to deescalate" strategy, while critics contend that it increases the risk of war by lowering the threshold for nuclear use.⁶⁰

In US nuclear strategy, the reemergence of great power competition was tangibly symbolized by the George W. Bush administration's inclusion of China in the nuclear war plan, which reversed the Reagan administration's decision to remove it. That document, periodically updated, is the "Strategic Deterrence and Force Employment" plan or OOPLAN 8010 (successor to the Cold War era SIOP, Single Integrated Operational Plan). OPLAN 8010 consists of "a family of plans" directed against great power adversaries—Russia and China, as well as North Korea and Iran.⁶¹ The document "emphasizes escalation control designed to end hostilities and resolve the conflict at the lowest practicable level." This strategy of escalation control, which has a lineage dating back to the Kennedy administration's "flexible response," is not unlike the "escalate to deescalate" stance that US officials have attributed to Russia.⁶²

Like the Obama administration, the Biden administration has aspired to reduce the role of nuclear weapons in international security but has eschewed an overt “no first use” pledge and not advanced the minimalist position that the sole role of US nuclear weapons is to deter an adversary’s nuclear weapons.⁶³ The administration emphasized constraints on nuclear use, stating, “The United States would only consider the use of nuclear weapons in extreme circumstances to defend the vital interests of the United States or its allies and partners.”⁶⁴ Yet when compared to the Trump administration’s 2018 *Nuclear Posture Review*, the Biden administration’s articulation was a narrowing of conditions under which nuclear use would be considered. The Trump administration had used the same “extreme circumstances” formulation but added that they “could include significant non-nuclear strategic attacks,” which appeared to allow for a nuclear response to a mass-casualty cyber- or bioweapon attack.⁶⁵

The centerpiece of the Biden administration’s 2022 *National Defense Strategy* was great power competition. The document characterized China as “our most consequential strategic competitor and the pacing challenge” and declared that Russia, in the wake of “its brutal and unprovoked” invasion of Ukraine, “poses acute threats.”⁶⁶ Advancing a whole-of-government strategy of “integrated deterrence,” which includes diplomacy and non-military instruments, the Biden administration reiterated the longstanding foundations of US strategy—“combat-credible [conventional] forces, backstopped by a safe, secure, and effective nuclear deterrent.” But the document went on to declare that the United States needs the capabilities and doctrine to operate “seamlessly across warfighting domains.” The new “domains” reference was to cyberspace and outer space, where escalation in the new era is likely to occur during a crisis.⁶⁷

For the Biden administration, the most significant change in the strategic environment is that the United States now faces two peer nuclear adversaries. During the Cold War and post-Cold War eras, China was considered a lesser-included case, meaning that a US nuclear force configured against the

enormous Soviet arsenal could address whatever contingency arose with China and its relatively small, minimum deterrent capability. China is now in the midst of a robust nuclear force modernization and expansion with a projected growth trajectory that would attain parity with the United States and Russia in the mid-2030s. The impressive scope, scale, and pace of China's nuclear modernization program creates a strategic inflection point for US national security officials. Yet in addressing the implications of this development for the future US nuclear force posture, Colin Kahl, the Biden administration's Under Secretary of Defense for Policy, has argued, "This is not a game of arithmetic... [W]e shouldn't think... that if Russia has 2,000 nuclear weapons and China has 1,000 nuclear weapons, the United States needs 3,001 nuclear weapons." Under Biden, the United States' emphasis will remain on "a survivable second-strike capability" such that in any contingency with Russia and China the United States would retain "enough in reserve to hold at risk so much that other nuclear powers hold valuable, that they wouldn't dare to challenge the United States."⁶⁸ The Biden administration's stance is consistent with a posture of maintaining an assured retaliatory capability *vis-à-vis* the United States' two peer nuclear competitors. Critics have argued for a substantial expansion of US nuclear forces as a hedge against two potential contingencies—that the quasi-alliance between Russia and China might lead them to coordinate their nuclear operations and, alternatively, that China's projected attainment of nuclear parity with the United States in the mid-2030s might allow Beijing to conduct coercive diplomacy with the United States in a future confrontation. Both scenarios are far-fetched and would not negate the efficacy of the US strategic nuclear deterrent, some two-thirds of which is deployed on highly survivable submarines.

Russia

In 1949, the Soviet Union ended the US nuclear monopoly with an atomic test and four years later tested a thermonuclear device. The crossing of this technological threshold ushered in a bipolar nuclear order existing in tandem with the Cold War's bipolar international order. The Soviet Union

moved quickly from tests to the development of delivery vehicles: It air dropped a nuclear bomb in 1951 and, by 1956, had developed a strategic bomber capable of reaching the United States. In 1957, the launch of the Sputnik satellite demonstrated a nascent ICBM capability and generated US fears of vulnerability to a Soviet first strike (hence, Wohlstetter's concern about the "delicate balance of terror"). Yet the "missile gap" that Kennedy campaigned on in the 1960 presidential election, in fact, favored the United States. As the United States began large-scale deployments of Minuteman ICBMs and Polaris SLBMs, the Soviet Union possessed a small ICBM force (estimated at 10 launchers) in 1961.⁶⁹ The Soviet deployment of intermediate-range SS-4 ballistic missiles in Cuba in 1962 was a desperate effort to redress the nuclear imbalance.

During the 1960s, the Soviet Union attained nuclear parity through the development of a nuclear triad of ICBMs, SLBMs, and strategic bombers that matched US capabilities. By the early 1970s, Moscow had acquired a survivable second-strike force numbering some 1,500 launchers.⁷⁰ The condition of assured retaliation created the prerequisite for superpower arms control negotiations in the detente era with the aim of promoting strategic stability. Superpower summitry yielded landmark arms control agreements—SALT and ABM—to codify parity in numbers of offensive strategic launchers and sharply curtail ballistic missile defenses, thereby reducing the incentive for a first strike in a crisis. Notwithstanding efforts to avoid arms race instability, the Soviet Union acquired a massive arsenal of some 40,000 nuclear weapons, ranging from strategic weapons to nuclear mines and artillery, at its peak in early 1986.

When the USSR disintegrated in December 1991, the urgent question regarding the disposition of the Soviet arsenal was how many of the 15 successor states would retain nuclear weapons. At the time, three of the newly independent states—Belarus, Ukraine, and Kazakhstan—had approximately 3,400 strategic nuclear weapons capable of striking the United States and more than 3,000 tactical nuclear weapons deployed on their territory.

Weapons deployed in these three republics of the then Soviet Union were controlled by Moscow. The United States and Russia diplomatically engaged these states to conclude the Lisbon Protocol of May 1992, which committed the three to transfer all weapons to Russia and to accede to the Nuclear Non-Proliferation Treaty (NPT) as non-nuclear weapon states. By the end of 1992, all tactical nuclear weapons had reportedly been returned to Russia.⁷¹ Despite some political balking by Belarus and Ukraine, the process of transferring strategic weapons to Russia was completed in November 1996. Through implementation of the Lisbon Protocol, Russia emerged as the sole successor nuclear weapon-state to the Soviet Union.

Over a two-decade period after the Cold War, the massive Soviet-era nuclear arsenal was dramatically reduced as a result of the limits established by New START and the Cooperative Threat Reduction program, a joint effort launched in the aftermath of the Cold War to dismantle Soviet-era nuclear weapons and secure fissile material. By 2022, according to the Federation of American Scientists, Russia had a stockpile of approximately 4,477 warheads, with a deployed force of 1,588 strategic warheads on ballistic missiles and heavy bombers and an additional 977 strategic warheads and 1,912 nonstrategic (i.e., tactical) warheads held in reserve.⁷² Like the United States, Russia has a nuclear “triad” comprised of ICBMs, SLBMs, and long-range bombers.

Russia has continued to invest in nuclear weapons as a symbol of great power status and as a less expensive option to conventional military forces. As relations with the United States deteriorated, Russia’s nuclear forces were also a response to NATO’s conventional superiority, which was demonstrated during the Gulf War of 1991 and NATO’s intervention in Serbia/Kosovo in 1999. Russia’s modernization program began around 2000 and, by 2020, was at an advanced stage, with Putin claiming that over 80 percent of the country’s nuclear triad was composed of advanced systems. A new generation of Russian capabilities, such as the Avangard hypersonic glide vehicle (a maneuverable warhead deployed on the SS-19), were designed to

penetrate an antiballistic missile system. This development reflects Russian concern about the absence of constraints on defensive systems since the United States withdrew from the ABM Treaty.

To draw on the old Soviet lexicon, to the outside world, Russia's nuclear strategy and doctrine present several contradictions. In the years leading up to the 2022 invasion of Ukraine, Putin's speeches frequently referenced nuclear weapons, including one (with an accompanying video) announcing the development of a huge nuclear-armed torpedo, code-named *Kanyon* by the United States, that could traverse an ocean to blanket a huge coastal area with radioactivity.⁷³ This doomsday weapon aside, a range of other new systems has fueled speculation among some US analysts that Russia's nuclear strategy extends beyond a traditional core deterrence mission to regional warfighting.⁷⁴ The Trump administration's 2018 *Nuclear Posture Review* speculated that Russia had adopted an "escalate to deescalate" strategy entailing the early use of tactical nuclear weapons.⁷⁵ Russia's nuclear modernization program includes the development of a new generation of "nonstrategic weapons" not constrained under the New START Treaty.

The closest Russian analogue to the US *Nuclear Posture Review* was a six-page document, "Basic Principles of State Policy of the Russian Federation on Nuclear Deterrence," released as a public decree by Putin in June 2020. It declared that "The Russian Federation considers nuclear weapons exclusively as a means of deterrence."⁷⁶ This formulation emphasizing the deterrent function of nuclear weapons may have been intended as a response to the Trump administration's claim that a Russian "escalate to deescalate" doctrine threatened to lower the threshold for nuclear use.⁷⁷

The "Basic Principles" document stipulated four conditions under which Russia would employ nuclear weapons: first, a launch on warning stance—the Kremlin would take preemptive action "on the arrival of reliable data" that an adversary had launched missiles against Russia; second, retaliation against an adversary that had attacked Russia with a weapon of mass

destruction; third, in response to an attack on “critical governmental or military sites” that would disrupt or undermine the command-and-control of Russia’s nuclear force; and, fourth, in response to “aggression against the Russian Federation with the use of conventional weapons *when the very existence of the state is in jeopardy*” (emphasis added).⁷⁸

Putin’s nuclear threats during the Ukraine War should be viewed within the context of the “Basic Principles” framework. In his February 24, 2022 speech justifying Russia’s invasion in the face of worldwide condemnation, Putin echoed its language as he declared, “For our country, it is a matter of life and death, a matter of our historical future as a nation. This is not an exaggeration; this is a fact. It is not only a very real threat to our interests but to the very existence of our state and to its sovereignty.”⁷⁹ Putin defines an existential threat to the state as synonymous with the survival of his regime. Russian nuclear saber-rattling provoked Western fears, especially when Russia was experiencing early setbacks on the battlefield in northern Ukraine, that Putin could cross the nuclear threshold out of “desperation,” according to CIA Director William J. Burns.

China

Even though China emerged as a global superpower and economic rival to America, it possesses only a small strategic nuclear force relative to the United States and Russia. In the 1990s, at the advent of the post-Cold War era, China had an estimated 20 ICBMs capable of striking the United States. Two decades later, in 2015, the ICBM force had grown to a relatively modest 50-60 missile launchers. By 2020, according to a study by the Federation of American Scientists, China had “a stockpile of approximately 350 nuclear warheads for delivery by approximately 280 operational land-based ballistic missiles, 72 sea-based ballistic missiles, and 20 nuclear gravity bombs assigned to bombers.”⁸⁰

The Chinese arsenal is approximately one-fifth that permitted to the United States and Russia each under New START. That gap is likely to narrow

in the 2020s as China has embarked on a nuclear modernization program to substantially expand that force. In 2021, Xi Jinping called on the Chinese military “to accelerate the construction of high-level strategic deterrent” systems.⁸¹ US non-governmental organizations, drawing on commercial satellite imagery, revealed the existence of three newly constructed missile-silo fields in western China that could potentially base 300 launchers.⁸² In addition to those fixed silos, China possesses 100-plus road-mobile ICBM launchers.⁸³ The US Defense Department projects that China will have 700 deliverable strategic warheads by 2027 and 1,000 warheads by 2030.⁸⁴

Through its nuclear modernization program, China is replacing obsolescent liquid-fueled, slow-launching (vulnerable) missiles with a new generation of longer-range, road-mobile, solid-fuel, quicker-launching (more survivable) missiles. A new generation ICBM capable of carrying multiple warheads is likely intended to penetrate US missile defenses. Xi Jinping has also made the expansion of China’s arsenal of submarine-launched ballistic missiles (SLBMs) a priority. With these land and sea-based capabilities, as well as a strategic bomber fleet, China has joined the United States and Russia in possessing a nuclear triad. In addition, China is developing emergent technologies. Notably, in what US General Mark A. Milley, Chairman of the Joint Chiefs of Staff, described as “very close” to a “Sputnik moment,” in 2021 China tested a new category of weapon—a nuclear-capable “hypersonic glide vehicle” designed to evade US missile defenses.⁸⁵ US officials regard China’s nuclear modernization program as a crash program to achieve nuclear parity with the United States and Russia.

Since acquiring nuclear weapons in 1964, China has pursued what Western analysts characterize as a doctrine of “minimum deterrence,” which accounts for China’s historically low number of ICBMs compared to its great power competitors. The Chinese leadership evidently believed that a minimum deterrence force that could inflict unacceptable damage on an adversary was sufficient. The central question is whether China’s nuclear modernization program, which entails the enlargement of its nuclear force

and the development of new capabilities (e.g., nuclear-capable hypersonics and cruise missiles), is intended to maintain an assured retaliatory capability consistent with a minimum deterrence or to develop new warfighting capabilities. Chinese military officers have described their emerging nuclear posture as “limited deterrence,” the median between minimum and maximum deterrence.⁹⁶ But China’s lack of transparency and assertive regional policies belies a limited deterrence posture.

China faces a 21st century strategic environment in which it must hedge against a range of nuclear-weapon states. China’s primary great power rival—the United States—“is deeply enmeshed in East Asia, the region that Beijing considers its hegemonic sphere.” Although Russia is China’s current strategic partner, Beijing has not forgotten that the Soviet Union, amidst border clashes in 1969, reportedly considered an attack on China’s nuclear infrastructure. Beyond the tripolar nuclear order, Beijing must also consider two other adjacent nuclear-weapon states—India, with which it has had intermittent skirmishes over the disputed Himalayan border, and even North Korea, with which Beijing has a complicated relationship.

Various motivations for China’s nuclear modernization and expansion program, none mutually exclusive, can be surmised. First, the drive to expand nuclear capabilities is a key element of Xi Jinping’s mandate that China become a world-class power. Second, China’s actions may have arisen out of concern that its existing minimalist nuclear force was susceptible to a US first strike—a vulnerability that could give the United States a coercive-diplomacy option during a crisis. Third, the obverse of the second, is that these nuclear capabilities, in tandem with the expansion of China’s conventional capabilities at the theater level, could provide Beijing coercive escalatory options during a crisis, most obviously over Taiwan with the United States.

The expansion of the PRC’s nuclear forces has called into question its longstanding no first use (NFU) commitment, under which China pledged to eschew nuclear use unless attacked by an adversary employing nuclear

weapons. Some ambiguity about the status of the pledge has been injected by Chinese military officers who have discussed nuclear first use in certain instances, such as conventional attacks threatening the country's nuclear forces or the survival of the Chinese Communist Party (CCP). Related to the NFU issue is the readiness of China's nuclear forces. None of China's nuclear warheads, per the order of China's Central Military Commission, now chaired by Xi, have been deployed on missiles. This doctrinal policy of separating warheads and delivery vehicles may be undergoing reevaluation. Having deployed advanced radar that would alert of an impending attack, China may view such a launch on warning posture as consistent with its NFU pledge.⁸⁷

In 2021, US State Department officials revealed that China conducted launch-on-warning exercises and deployed a satellite to support that posture. Is a launch-on-warning policy a hedge to ensure the survival of China's nuclear force against a US first strike or central to a more aggressive Chinese strategy?⁸⁸ These alternative explanations are not mutually exclusive. Indeed, the ambiguity reflects a core tension in the Chinese word for "deterrence" (*weishe*), which has dual meaning—one syllable, *she*, encompasses the classic Western definition of forestalling an undesired action, while the other, *wei*, is a form of compulsion in which the target state is coerced into acquiescing to Beijing's preferred policy outcome.⁸⁹

China's nuclear modernization and expansion program, which is moving toward parity with the United States, may have "paradoxical" implications for strategic stability. As nuclear experts Abraham Denmark and Caitlin Talmadge argue, a "nuclear stalemate might lead to more rather than less risk-taking by Chinese leaders: they could come to see conventional attacks or nonmilitary gray-zone aggression as a 'safer' option, carrying little risk of nuclear escalation."⁹⁰ This prospective development is a form of stability-in-stability paradox. The risk of conflict is all the greater because both powers view the stakes, especially over Taiwan, where Biden has made an explicit US defense commitment, as vital.

New Domains of Competition: Outer Space and Cyberspace

Arms race instability is exacerbated by the extension of tripolar competition into the new domains of outer space and cyberspace. This section provides an overview of these emergent domains in which unconstrained competition creates new escalatory pathways.

Outer Space

Strategic competition among the United States, Russia, and China in the largely unregulated domain of outer space is growing. The US Defense Intelligence Agency's 2022 *Challenges to Security in Space* reported that in 2019-2021 the combined operational space fleets of China and Russia grew by approximately 70 percent. This expansion followed a 200 percent surge in 2015-2018.⁹¹ All three countries have established separate commands for space forces within their militaries and integrated space scenarios into their military exercises.⁹² The Outer Space Treaty of 1967, to which all three are signatories, prohibits states from placing nuclear or other weapons of mass destruction in orbit. (Intercontinental and sea-launched ballistic missiles, which are the foundation of the system of nuclear deterrence, are excluded because those systems traverse outer space but do not orbit.) But the Treaty does not proscribe other military activities—most notably, the development and deployment of anti-satellite (ASAT) systems to threaten an adversary's orbiting communication and reconnaissance satellites.

Interest in anti-satellite systems dates to the dawn of the space age. The United States developed its first ASAT capability (an air-launched missile, "Bold Orion," that would approach the target satellite and detonate) in response to the Soviet Union's launching of Sputnik. The Soviet Union developed a comparable capability. But the collateral damage of these ASAT tests has been the generation of dangerous space debris that threatens commercial satellites and, potentially, manned missions. In 1985, the United

States conducted an ASAT test destroying a satellite in low-earth orbit and the trackable debris took 17 years to clear out. In 2007, China's ASAT prototype destroyed a derelict satellite creating some 4,000 trackable objects (and an estimated 40,000 small untrackable pieces) that could remain in orbit for decades. In November 2021, a Russian ASAT test generated some 1500 trackable objects. The risk of collisions has required astronauts in the International Space Station to shelter multiple times. After the Russian test, the head of US Space Command, General James H. Dickinson, warned that Russia is "developing and deploying capabilities to actively deny access to and use of space" to the United States.⁹³ US Vice President Kamala Harris, addressing the danger of space debris, declared a US moratorium on direct ascent ASAT tests and urged other countries to join the United States in making this an international norm. The proposal was advanced as an environmental measure to maintain the viability of space for commercial and scientific purposes. The proposed moratorium would not include a new generation of non-kinetic (i.e., non-explosive) electromagnetic and laser-based technologies

But underlying an ASAT moratorium, and a potential ban on capabilities to attack satellites, is a vital military concern affecting strategic stability—revival of the incentive to go first or early in a crisis to disrupt an adversary's nuclear command, control, communication, and intelligence (C3I) capabilities. The vulnerability of these systems makes the central strategic relationships more "delicate" and could lead to inadvertent, or conceivably, instrumental escalation in a crisis. As nuclear expert James Acton argues, "Driving these risks is the possibility that Chinese, Russian, or US C3I assets located outside—potentially far outside—theaters of operation could be attacked over the course of a conventional conflict." In this scenario, inadvertent escalation could occur because of "entanglement"—the comingling within satellites of communications and reconnaissance capabilities supporting both conventional and nuclear operations. Thus, an attack on C3I assets during a limited conventional conflict could result in degrading nuclear systems. The

belligerent could perceive such an attack as the prelude to nuclear use.⁹⁴ For the United States, arms race instability driven by unconstrained ASAT acquisition and deployment could exacerbate crisis instability—with China over Taiwan, with Russia over Ukraine. To mitigate the risks of escalation, the three powers should each take steps to “disentangle” their conventional and nuclear C3I assets.⁹⁵

Cyberspace

Cyberweapons have been described by *New York Times* national security correspondent David Sanger as “the perfect weapon” that has “transformed geopolitics like nothing since the invention of the atomic bomb.”⁹⁶ Cyberweapons encompass a spectrum of capabilities that have widely proliferated beyond state actors to non-state criminal and terrorist organizations and even to individuals. The broad proliferation of these technologies highlights the challenge of attributing their potential employment back to the perpetrator. The United States has been at the forefront of creating cybertechnologies. American society is also most vulnerable to attacks employing those capabilities. Concerned about retaliation, US administrations have been reluctant to employ cyberweapons offensively in confrontations with adversaries. For example, the Obama administration reportedly abstained from mounting an offensive cyberoperation during NATO’s Libyan intervention in 2011.

One concern of this study is the vulnerability of nuclear command, control, and communications (NC3) systems, both ground and space-based, to cyberattack. Developments in the cyber domain create new escalatory pathways. The United States, Russia, and China are all believed to have created cyberweapons to target NC3 facilities and to have attempted to implant malware for activation against an adversary as a crisis unfolds. A perceived vulnerability of NC3 capabilities to cyberattack could create an incentive among decision-makers to act early or preemptively in a crisis.⁹⁷ The co-mingling of command, control, and communications systems

carries the escalatory risk that a cyberattack during a conventional confrontation could take out systems necessary for nuclear operations. Unlike ASATs, cyberweapons may be regarded, misleadingly, as less escalatory because they are not kinetic. Citing the vulnerability of NC3 systems to hacking, nuclear expert Bruce Blair argued that nuclear forces should be taken off alert status and that the United States should engage Russia and China to establish the “reddest line”—putting nuclear networks off limits to cyberintrusion.⁹⁸

“The Delicate Balance of Terror” Redux

The “new era” of great competition has recast dangers that led to a succession of crises during the Cold War. Paramount is the eroding of strategic stability in which nuclear relationships become more “delicate” through the revival of incentives for a power to act early or preemptively in a crisis. To recap, arms race instability reviving those incentives is driven by the implications of emergent tripolarity for deterrence and the creation of new pathways for escalation as competition moves into new domains and is affected by emergent technologies.

Tripolarity and unconstrained competition—The United States now faces two peer nuclear competitors—a “risen” China that is the United States’ “pacing challenge;” and a declining Russia, now embroiled in a quagmire in Ukraine, whose claim to great power status primarily rests on its nuclear arsenal. The expansion and modernization of China’s nuclear forces marks a move toward achieving parity with the United States and is a major shift from its longstanding minimal deterrent posture. The Biden administration’s 2022 *Nuclear Posture Review* stated that the rise of nuclear tripolarity creates “new stresses on stability and new challenges for deterrence, assurance, arms control, and risk reduction.”

Compounding the threat to strategic stability, the tripolar nuclear order is emerging amidst a collapsing arms control architecture. Putin’s

suspension of New START, the last vestige of superpower arms control from the Cold War could lead to the lifting of constraints on offensive strategic nuclear forces. The Biden administration has stated that the current size and composition of US nuclear forces—the 1,550 deployed strategic warheads permitted under New START—is adequate to meet the combined challenge of Russia and China. But some strategic analysts have advocated increasing the force to 3,000-6,000 warheads by drawing on stored weapons out of concern these two peer nuclear competitors may establish a quasi-alliance.⁹⁹

New escalatory pathways—The extension of great power competition into outer space and cyberspace has created new escalatory pathways. Antisatellite weapons—both kinetic (i.e., explosive) and non-kinetic (employing lasers)—could destroy or blind nuclear command, control, and communication systems. Alternatively, cyberweapons can target NC3 capabilities with malware to disrupt or terminate their functioning. Given the vulnerability of these critical systems, decision-makers may perceive that they are in a use-it-or-lose-it situation and undertake preemptive action. Inadvertent escalation may also arise from attacks on conventional C3 systems that are co-located with those related to nuclear operations.

The line between conventional and nuclear military operations is also under challenge from the use of nuclear-capable strategic delivery vehicles carrying conventional warheads. Russia and China have tested and deployed high altitude hypersonic glide vehicles on platforms that could support nuclear operations—and decision-makers responding to an incoming hypersonic weapon may not know whether it carries a conventional or nuclear payload. Moreover, the maneuverability of these systems at supersonic speed facilitates their ability to evade existing defensive systems, which could threaten stability by creating an option to decapitate an adversary's leadership. The United States is developing comparable hypersonic systems but intends to configure them solely with conventional warheads.

Deterrence vs war-fighting—The core tension persists over whether the sole mission of nuclear weapons is to deter an adversary’s capabilities or to be employed for signaling (under an escalate to deescalate strategy) and damage-limitation (i.e., warfighting) to degrade an adversary’s capabilities. Reflecting this persisting tension is the continued deployment and modernization of non-strategic (i.e., tactical) nuclear weapons in the three powers’ nuclear arsenals.

Arms race stability, which was forged in the late Cold War and extended into its aftermath, is now being supplanted by arms race instability. Erosion of the stability of nuclear relationships, with China now joining the United States and Russia as a peer, is recreating this acute danger. Arms race stability and crisis stability are the twin components of strategic stability—and they are linked. Arms race instability can create and exacerbate crisis instability, to which this analysis now turns.



Russian rockets launched against Ukraine as seen at dawn in Kharkiv, Ukraine, on Feb. 8, 2023. Image source: Vadim Belikov / AP Photo



3. Crisis Instability: Ukraine and Taiwan

Since the Cuban Missile Crisis, assured retaliation—eliminating incentives for a surprise first strike—has been the sine qua non of strategic nuclear stability. But an amalgam of developments is now driving arms race instability: the collapsing arms control architecture, a “risen” China’s status as a nuclear peer competitor, the impact of new technologies such as hypersonic glide vehicles, and the extension of great power competition into the new domains of cyberspace and outer space. To reprise the main theme of this study, in the emergent tripolar order arms race instability is recasting a Cold War danger and making deterrent relationships “delicate” by reviving the incentives for preemptive action in a confrontation. This risk is compounded by the recasting of the other major Cold War dynamic—the stability-instability paradox in which a nuclear stalemate between the superpowers deflected competition to areas of peripheral interest in what was then called Third World. Today, not only are the central strategic relationships among the three powers becoming more “delicate,” but the stakes in contention between the United States and its peer competitors are of vital, not peripheral, interest. Those vital interests are for Russia, Ukraine and its “near abroad,” and, for China, Taiwan and its regional maritime and territorial claims. In short, arms race instability is exacerbating crisis instability.

Addressing the challenges of crisis instability requires delineating three types of escalation—accidental, inadvertent, and instrumental. Attention

has long focused primarily on accidental and inadvertent escalatory pathways as being most likely. Yet in the new strategic environment, with regional conventional and nuclear balances simultaneously shifting, Russia and China may perceive opportunities to pursue coercive strategies involving instrumental escalation to achieve their policy objectives. With Ukraine and Taiwan, Russian and China may believe they can win what Thomas Schelling called a “competition in risk-taking” with the United States. The discussion of escalatory dynamics will frame more detailed analysis of the two most pressing cases—the Ukraine war, in which the Putin regime’s aggression and saber-rattling has created the most dangerous nuclear episode since the Cuban Missile Crisis; and Taiwan, which is playing out against the backdrop of broadly deteriorating relations with the United States, and what Chinese Foreign Minister Qin Gang describes as a drift toward “conflict and confrontation.”¹⁰⁰

Escalation Dynamics

Deterrence and Escalation

For the United States, now facing a crisis in Ukraine and a potential one in Taiwan, the recasting of the two Cold War dangers—the stability-instability paradox and the “delicate balance of terror”—has made the challenge of deterrence more complex and more susceptible to miscalculation and misperception, and thereby has heightened escalatory risks.

The efforts of the Biden administration to deter the Putin regime in the weeks leading up to the Russian invasion in February 2022 from invading Ukraine were unsuccessful. President Biden’s messaging during that period was a mix of *deterrence*—that Russia would face “powerful sanction” if it attacked—and *reassurance*—that neither NATO nor Ukraine posed a threat to Russia and that the United States did not “seek to destabilize Russia.”¹⁰¹ The massing of Russian troops on the Ukraine border looked like an invasion, but the conventional wisdom was that the projected costs of crossing that escalatory threshold would lead Putin to exercise restraint.

The Ukraine War has revealed Putin to be a miscalculator and a risk-taker. The punitive costs that his regime and Russia are now paying are the reasons why Western experts did not believe the Russian autocrat would invade. Putin overestimated the quality and effectiveness of the Russian military, whose leaders told service members that a military operation in Ukraine would be “a walk in the park.”¹⁰² Moreover, his strategy was predicated on the assumptions that the Zelensky government could be defeated quickly and replaced by a quisling regime and that Russian forces would be welcomed by the Ukrainian people. Instead, the invasion has led to a protracted conflict that has isolated Russia and imposed unprecedented international economic sanctions on the country. For Putin, the “special military operation” has had the further negative consequences of precipitating a mass exodus of talent from Russia and unifying the European Union and NATO, which is bolstering its northern flank with the inclusion of Sweden and Finland.

The Ukraine War has coincided with revived tensions between China and the United States over Taiwan. In response to a press query in October of 2021, President Biden strengthened the US commitment to the island in October 2021—departing from the longstanding stance of “calculated ambiguity” in which the possible US military response to a possible Chinese military action was left open. Biden’s statement, though subsequently rolled back by the White House, went further by asserting an overt commitment to defend Taiwan. In August 2022, the visit to Taiwan by US House Speaker Nancy Pelosi was hyperbolically described by China’s English-language state media as the “Taiwan Straits version of the Cuban Missile crisis.” China also responded with large-scale military exercises around Taiwan, including the firing of ballistic missiles over the island itself. That preparations for the maneuvers had clearly predated the Pelosi visit fueled speculation that China was using Pelosi’s visit as an occasion to test limits and conditions for escalation dominance.¹⁰³ Secretary of State Antony Blinken warned that China had made “a fundamental decision that

the status quo was no longer acceptable, and that Beijing was determined to pursue reunification on a much faster timeline....”¹⁰⁴ To deter that action, US officials have expressed hope that Ukraine will serve as a cautionary tale. CIA Director William Burns testified to a House Intelligence Committee hearing that “nobody has watched more intently Vladimir Putin’s experience in Ukraine than Xi Jinping has, and I think he’s been sobered... by the extent to which the West was able to maintain solidarity and absorb some short-term economic costs in the interest of imposing even greater long term economic costs on Russia.”¹⁰⁵

The Ukraine crisis and a potential one in Taiwan embroiling the United States in a confrontation with Russia and China, respectively, highlight potential escalatory pathways arising from the recasting of the two Cold War dangers—the stakes are of vital (not peripheral) interest and the central strategic relationships in the emergent tripolar nuclear order are becoming more “delicate.” Crisis stability entails averting nuclear escalation such that “even in a conventional war or faced with a possible nuclear attack, states would not use nuclear weapons for fear that such escalation would bring certain disaster.”¹⁰⁶ Taking into account escalatory risks in the domains of cyberspace and outer space, this conceptualization should additionally include refraining from actions that compromise the command and control of, and communications with, nuclear systems.

Building on a rich body of analytical work on the topic from the Cold War, a RAND study usefully defined escalation as “an increase in the intensity or scope of conflict that crosses threshold(s) considered significant” by one state or the other in a confrontation.¹⁰⁷ During the Cold War, nuclear strategist Herman Kahn famously used the rungs of a ladder as a metaphor to convey how the United States could raise or lower escalatory threats or the actual use of force, including nuclear weapons. In assessing potential confrontations in tripolar nuclear world, an alternative metaphor better conveys various factors: circuit breakers, which would escalation, and conveyer belts, which heighten escalatory risks.¹⁰⁸ In this schema, a state would demarcate

and reinforce escalatory thresholds to deter an adversary from crossing them. “The subjective nature of escalation thresholds,” the RAND study noted, “has been an enduring problem for those seeking to control escalation, either to prevent it from occurring or to use the prospect of potential escalation as a coercive lever.”¹⁰⁹ During the Cold War, western policy-makers and analysts strived, with mixed success, to divine Soviet intentions and how the Kremlin would perceive escalatory thresholds in various contingencies.

Analyzing how a specific adversary assesses escalatory thresholds is inherently particularistic, contingent, and context specific. To unpack the concept of escalation, one can apply the analytical approach of political scientist Alexander George, who delineated three types of knowledge—abstract, generic, and actor-specific. At an abstract level, one can develop a rudimentary understanding of the basic factors that affect the relationship between deterrence and escalation without reference to any specific actors. A rigorous comparative analysis of historical cases can reveal conditional generalizations about escalation—the generic conditions under which escalation occurred or been avoided in the past. An assessment of a particular case requires specific knowledge about the target state—its strategic culture and leadership’s worldview and hierarchy of interests—to develop an “actor-specific model,” in George’s schema. Such a targeted strategy moves beyond the abstract and generic to address the specific requirements to deter the adversary from crossing an escalatory threshold in a particular contingency. How can Putin be deterred from using nuclear weapons in Ukraine? Or Xi from launching an invasion of Taiwan?

Escalatory Pathways

Analytically there are three main types of escalation—accidental, inadvertent, and instrumental.

Accidental Escalation occurs when a party to a conflict makes a bombing error through faulty targeting or takes a military action beyond its geographical bounds. An example of a pure accident was the US bombing of

the Chinese embassy in Belgrade in May 1999 during NATO's intervention in Yugoslavia over Kosovo. The strike, which killed three Chinese embassy employees and injured 20, viewed by China through the prism of its suspicions of US intentions, triggered anti-American demonstrations in Beijing. A contemporary example was in November 2022, when a missile detonated in Poland killed two citizens during the war in Ukraine. Ukraine charged, and Moscow denied, that it was a Russian missile. The United States determined that the missile was actually a defensive Ukrainian air defense missile that had mistakenly strayed into Poland. Before that clarification, speculation focused on whether the strike constituted a geographical extension of the war by Russia beyond Ukraine.

Automated systems pose a different risk of accidental escalation and war. The "closest we've come to accidental nuclear war," according to nuclear expert Bruce Blair, was a Soviet false alarm incident on September 26, 1983. A Soviet computer indicated that five US ICBMs had been launched at the Soviet Union. The false alarm was later attributed to a satellite malfunction. The incident occurred at a nadir in superpower relations, when the Soviet leadership was on edge about the possibility of a decapitating US first strike, particularly after the deployment of Pershing II missiles in West Germany with a 10-minute flight time to Moscow. According to Soviet military protocol, the alert should have triggered an order to prepare for retaliation, but the Soviet officer on duty correctly ascertained the alert to be a malfunction and did not report the alert to the senior leadership.¹¹⁰

The United States has experienced similar false alerts, including on June 3, 1980, when National Security Advisor Zbigniew Brzezinski was alerted that NORAD (North American Aerospace Defense Command) had detected 2,200 incoming Soviet missiles. Just before Brzezinski was going to inform President Carter and prepare a retaliatory strike, he received confirmation that a false alarm resulted from a computer simulation of a Soviet attack mistakenly fed into NORAD's live warning system.¹¹¹

The Cold War-era risks of automated systems are being recast with the prospect of artificial intelligence being integrated into early warning systems. A related danger arises from the use of AI in computational models for analyzing threats.¹¹² In the 1980s, the Soviet Union developed such a program, codenamed VRYAN, whose function, according to US intelligence, was “to collect data and subject it to computer analysis in a way that would warn the USSR when the US had achieved decisive military superiority.”¹¹³ Russia and China are reportedly exploring modern computational models for threat analysis, which could have destabilizing implications for nuclear alerting if activated without human safeguards.¹¹⁴

Inadvertent Escalation can occur during a crisis through misperception, as when one side makes preparations to demonstrate resolve and the other side views them as a prelude to use. In the nuclear realm, a heightened alert status and observable steps to prepare systems for operation by one side may create escalatory pressure on the other to act preemptively. Such a dynamic was evident in November 1983 when a major NATO military exercise involving nuclear release—codenamed “Able Archer”—created genuine concern in the Kremlin that the United States was possibly preparing a surprise nuclear attack on the Soviet Union. A subsequent review by the President’s Foreign Intelligence Advisory Board (PFIAB) concluded that the United States “may have inadvertently placed our relations with the Soviet Union on a hair trigger” during the 1983 exercise.¹¹⁵

This variant of inadvertent escalation highlights the controversy over a “launch-on-warning” policy, which runs destabilizing risks. In addition to the dangers of false alerts and computer hacking, a launch-on-warning posture is indistinguishable from a strategic force configured for a first strike. The United States has rejected a launch-on-warning posture in its declared policy on nuclear employment. US doctrine allows for the possibility of a “launch-under-attack,” but, with some two-thirds of US strategic nuclear weapons deployed on submarines, does “not rely on launch-under-attack to ensure a credible response.”¹¹⁶ Putin has stated that Russian doctrine is

based on a “launch on warning” concept. “When the early warning system receives a signal about a missile attack,” Putin declared, “we launch hundreds of missiles that are impossible to stop. Enemy missile warheads would inevitably reach the territory of the Russian Federation. But nothing would be left of the enemy too, because it’s impossible to intercept hundreds of missiles. And this, of course, is a factor of deterrence.”¹¹⁷

A related potential driver of inadvertent escalation is the targeting of an adversary’s conventional capabilities that are co-located with its nuclear capabilities, which could blur the line between conventional and nuclear operations. Political scientist Barry Posen elucidated “how the interplay between conventional military operations and nuclear forces can inadvertently produce pressures for nuclear escalation in conflicts among states armed with both conventional and nuclear weaponry.”¹¹⁸ During the Cold War, concern focused on the escalatory potential to the nuclear level of a large-scale NATO-Warsaw Pact conventional conflict. In the contemporary strategic relationship between the United States and China, an analogously dangerous dynamic is evident—that in the event of a conventional clash over Taiwan, the co-location of Chinese conventional and nuclear capabilities has inadvertent escalatory potential.¹¹⁹ In terms of US forces, the collocation of conventional and nuclear-capable bombers in the same task forces could create confusion and an escalatory risk.¹²⁰

The extension of great power competition into the unregulated domains of cyberspace and outer space creates new pathways of inadvertent escalation. The US Defense Department’s 2022 *National Defense Strategy* stated that in these domains “the risk of inadvertent escalation is particularly high due to unclear norms of behavior and escalation thresholds, complex domain interactions, and new capabilities.”¹²¹ A major unknown is whether this escalatory risk is similarly Russia and China, who may minimize the escalatory implications of non-kinetic actions in these domains. For example, does China view attacks on satellites without any immediate loss of life as escalatory?

Instrumental Escalation, as defined in a RAND study, occurs when “a combatant... deliberately increases the intensity or scope of an operation to gain advantage or avoid defeat.... Deliberate acts of suggestive escalation may be done to punish enemies for earlier escalatory deeds or to warn them that they are at risk of even greater escalation if they do not comply with coercive demands....”¹²² Instrumental escalation—a coercive action to change the status quo and attain an objective—is a form of compellence, which Schelling distinguished from deterrence, the goal of which is to preserve the status quo. Both Russia and China, in an attempt to change the dynamic in their respective crises over Ukraine and Taiwan with the United States, may decide to deliberately cross an escalatory threshold.

In Ukraine, Russia is tenuously holding a line of control in eastern Ukraine. If that military situation were to deteriorate, Putin might consider instrumental escalation out of “desperation,” as CIA Director Burns stated. This could take the form of expanding the geographical scope of the conflict or the use of a tactical nuclear weapon. Such a move would be consistent with the “escalate to deescalate” strategy that US administrations have attributed to Russia. Conversely, in East Asia, China’s military position relative to the United States is improving as the conventional regional and strategic nuclear balances are shifting simultaneously. This could promote a more assertive Chinese stance. As discussed in chapter 2, the Chinese word for “deterrence” (*weishè*) has a dual meaning—one encompassing the classic Western definition of forestalling an undesired action to maintain the status quo, while the other is a form of compellence in which the target state is coerced into acquiescing to a change in the status quo that accords with Beijing’s preferred policy outcome.¹²³ In the Ukraine and Taiwan contingencies, Russia and China may believe they can prevail in a “competition in risk-taking.”

Though analytically distinct, the three types of escalation are not mutually exclusive—for example, instrumental escalation by one combatant could lead to accidental or inadvertent escalation by the other.

Ukraine: War Under a Nuclear Shadow

Russia's 2022 invasion of Ukraine, following on the 2014 annexation of Crimea has reset the debate over Vladimir Putin's revanchist intentions. The contemporary roots of Russia's relationship with the former Soviet republics constituting the "near abroad" date to 1991 and the dissolution of the USSR. Each of these successor states gained independence and sovereignty based on their internal Soviet-era borders. All states agreed to respect those borders, but Russia did not abide by that commitment—pressuring Georgia and Moldova through support of breakaway regions, which included direct fighting between Russia and Georgia in 2008. The Kremlin has asserted a right to "protect" ethnic Russians and Russian speakers beyond Russia's borders (which it says numbers some 25 million people) and has offered citizenship to millions of ethnic Russians living in neighboring former Soviet republics. This expansive definition of security has important implications for the former Soviet republics in the Baltic—Latvia, Lithuania, and Estonia—that are NATO members. According to a RAND Corporation study, these states, already the targets of Russian strategic information operations to foment ethnic division and undermine confidence in their governing institutions and NATO, are "vulnerable to low-level, hybrid, and full-scale attacks by Russian special operations and regular military forces deployed close to their borders."¹²⁴ As the Baltic states enjoy NATO's Article V commitment of collective defense, which was reaffirmed by President Biden during the Ukraine war, any overt Russian military action would escalate into a confrontation with the United States and the major West European powers. Russian foreign policy, under which Moscow has declared "privileged interests" in the Soviet successor states of the near abroad, essentially entails the assertion of a sphere-of-interest. The case of Ukraine crossed into overt aggression and revanchism.¹²⁵

Russian Nuclear Threats

Russia's invasion of Ukraine and the ensuing war occurred under a nuclear shadow. In a speech on February 24, 2022 just after the invasion, Putin engaged in nuclear saber-rattling, warning the United States and NATO

countries of “consequences... such as you have never seen in your entire history” if they intervened militarily.¹²⁶ Several days later, the Russian leader declared that he had placed the country’s nuclear forces on “special combat readiness”—a heightened alert status (equivalent to the US DEFCON 3)—though the order did not translate into any operational changes in Russia’s nuclear force posture. The Biden administration, seeking to deescalate the crisis, did not alter the US nuclear alert status.

After US Secretary of State Antony Blinken visited Kiev and met with Ukrainian President Volodymyr Zelensky in April 2022, Russian Foreign Minister Sergei Lavrov ramped up the rhetoric. Secretary Blinken’s mission to Kiev was a tangible symbol that the Russian offensive to seize the Ukrainian capital had failed. Against that backdrop, when asked on Russian state television whether the current situation was comparable to the Cuban Missile Crisis, Lavrov declared, “The danger is serious, it’s real. It should not be underestimated.... NATO, in essence, is engaged in a war with Russia through a proxy and is arming that proxy.... War means war.”¹²⁷ In announcing the “partial mobilization” of Russian troops in September 2022, Putin issued another veiled nuclear threat, warning that Russia “will use all the means at our disposal” to defend its territory, which was by then deemed to include four provinces in eastern Ukraine that the Russian leader had illegally annexed but did not fully control.¹²⁸ Also asserting that the Biden administration was seeking the collapse of Russia, Putin declared that the United States had “created a precedent” by using nuclear weapons against Japan.¹²⁹

Spikes in Russian nuclear saber-rattling have coincided with setbacks on the battlefield. In October 2022, a Ukrainian counteroffensive forced Russian withdrawals from the occupied cities of Kharkiv and Kherson. Against this backdrop, Russian Defense Minister Sergei Shoigu leveled the contrived charge that Ukraine was preparing to use a radiological “dirty bomb” against Russia.¹³⁰ Secretary Blinken observed that the Kremlin had a history of accusing other countries of actions that Russia was considering. Such a “false flag” operation could present a pretext for Putin to exploit.¹³¹

Escalatory Risks

According to Director of National Intelligence Avril Haines, US officials believe Putin could resort to nuclear weapons if “he perceives that he is losing the war in Ukraine, and that NATO in effect is either intervening or about to intervene.”¹³² In November 2022, as Russia was suffering military setbacks along the front in eastern Ukraine, US intelligence reported that discussions among senior Russian generals, not involving Putin, had addressed when and how a tactical nuclear weapon might be used in the conflict. US intelligence did not detect any operational preparations, such as moving weapons from their storage “igloos,” and continued to assess the odds of actual use as low.¹³³

One contingency examined by the Biden administration’s National Security Council staff was Putin’s potential employment of a single tactical nuclear weapon—either demonstrative or against a Ukrainian military target—under a military doctrine attributed to Russia that US defense officials characterize as “escalate to deescalate.” A “desperate” Putin (to use CIA Director Burns’s word) would undertake this option—a form of instrumental escalation—if Russia were on the verge of military defeat in Ukraine and the stability of his Kremlin regime was threatened. Russian military doctrine stipulates that nuclear weapons may be employed in the face of an existential threat to the Russian state. Putin, of course, views that as synonymous with the survival of his regime. In this scenario, *escalation*—breaking the nuclear taboo—would be intended to compel *de-escalation* on the parts of NATO and the Zelensky government through their acceptance of settlement terms favorable to Moscow.

Having failed to deter Putin’s invasion of Ukraine, the Biden administration is now pursuing intra-war deterrence to forestall Russia from crossing the nuclear threshold. As President Biden wrote in a *New York Times* op-ed in May 2022, “Any use of nuclear weapons in this conflict on any scale would be completely unacceptable to us as well as the rest of the world and would entail *severe consequences*.”¹³⁴ Biden’s public ambiguity about

a possible US response to Russian nuclear use was complemented by a direct private warning in November 2022 that CIA Director William Burns delivered in Turkey to his Russian counterpart. A CIA spokesperson's read-out of the meeting was that Director Burns had conveyed "a message on the consequences of the use of nuclear weapons by Russia and the risks of escalation to strategic stability."¹³⁵

Other countries have joined in the effort to deter Russian use of nuclear weapons in Ukraine. After a meeting with Xi Jinping in Beijing in November 2022, which occurred during a spike in Western concern about possible Russian nuclear use, German Chancellor Olaf Scholz stated that the two leaders "agree that nuclear threats are irresponsible and highly dangerous. By using nuclear weapons, Russia would cross a line that the international community has drawn together."¹³⁶ India's Prime Minister Narendra Modi, also joined in registering strong opposition to Putin's nuclear saber-rattling. Secretary Blinken has credited the influence of China and India in deterring Putin's use of nuclear weapons in Ukraine.¹³⁷

President Biden's op-ed in the *New York Times* suggested that any US response to Russian use of a nuclear weapon in Ukraine would be non-nuclear. That was the outcome of a high-level war game on this scenario conducted during the Obama administration in 2014. A non-nuclear response would encompass economic sanctions and a diplomatic campaign to turn Russia under Putin into an international pariah. The United States might also retaliate to Russia's demonstrative use of a nuclear weapon with conventional military strikes. In such a contingency, according to a Biden administration official, Washington would "signal immediate de-escalation" to avoid a spiraling conflict with Russia.¹³⁸

The Ukraine war continues to be waged under a nuclear shadow. Throughout the crisis, the Putin regime has engaged in dangerous rhetoric, but its military has not taken observable preparatory steps to employ nuclear weapons in Ukraine.¹³⁹ By early 2023, Putin's nuclear saber-rattling,

which had spiked in autumn 2022 as Russia suffered military setbacks in Ukraine, appeared less imminent. This shift was attributed by Biden administration officials to the stabilization of Russia's military situation along the front in eastern Ukraine, the positive deterrent effect of China's warning against nuclear use, and improved communications between Washington and Moscow.¹⁴⁰ CIA Director Burns has stated that "desperation" could potentially lead Russia to use a tactical nuclear weapon as a warning shot. US officials have identified two contingencies that would fit that criterion: the catastrophic collapse of Russia's military position in eastern Ukraine and any perceived threat to the survival of the Putin regime itself.¹⁴¹ Demonstrative nuclear use by Putin under these conditions would be an instance of *instrumental escalation*. His goal would be compellence: coercing the contending parties to the conflict—the Zelensky government, the United States, and NATO—to acquiesce to Moscow's terms for ending the war. In such a contingency, crisis instability in Ukraine would be exacerbated by emergent arms race instability—making the US-Russian strategic relationship more "delicate"—and thereby creating a heightened potential for either *inadvertent or accidental* escalation beyond Ukraine.

Taiwan: The Fourth Crisis

Historical Background

The most likely pathway to war between the United States and China stems from the unresolved status of Taiwan, the island to which the Chinese Nationalist government under Chiang Kai-shek fled after the Chinese communists gained power on the mainland in 1949. Taiwan was the focal point of two Cold War crises during brief skirmishes in 1954 and 1958 between the Communist People's Republic of China (PRC) and the Nationalist Republic of China (ROC) over the islands of Quemoy and Matsu.

The *First Taiwan Strait Crisis* began in August 1954 with the stationing of Nationalist troops on both islands. Chinese Premier Zhou En-lai declared that Quemoy and Matsu should be "liberated," and the People's Liberation

Army (PLA) began shelling the islands from the mainland. In March 1955, Secretary of State John Foster Dulles ramped up pressure on China by publicly warning that the United States was considering the use of nuclear weapons. Escalation was avoided with the cessation of PLA shelling in May 1955 and the initiation of an ambassadorial-level diplomatic track in Geneva in August 1955.

The *Second Taiwan Strait Crisis*, essentially a continuation of the First, began in August 1958 with the resumption of Chinese shelling of islands controlled by Taiwan. As American naval vessels escorted Nationalist ships through the Strait to break the artillery blockade of the islands, the US Joint Chiefs of Staff developed military plans, which included nuclear strikes on the Chinese mainland. Contingency planning for a nuclear option reflected defense officials' skepticism that the United States could defend Taiwan solely through US conventional capabilities—a conclusion with contemporary resonance.¹⁴² Intermittent Chinese shelling continued until late 1960 when United States warships deployed to the Strait for escort duty.

In 1971, with the seismic geopolitical shift in Sino-American relations under President Richard Nixon, the United Nations recognized the People's Republic of China (PRC) as the sole legitimate government in China. In 1979, the United States affirmed a "One China" policy when Washington established diplomatic relations with the PRC, while maintaining unofficial relations with Taiwan. The United States adopted a policy acknowledging neither the PRC's sovereignty over Taiwan nor the ROC's claim that it is an independent sovereign state and called for the two sides to peacefully resolve their dispute. This altered relationship between the United States and Taiwan was codified in the Taiwan Relations Act (TRA) of 1979, which has permitted the continued transfer of US defensive arms to Taiwan. The TRA did not include a US security commitment to Taiwan but maintained a stance of "strategic ambiguity" about the US response if China attacked Taiwan.

In 1996, the *Third Taiwan Strait Crisis* occurred when China displayed its growing military power during the lead-up to Taiwan's first direct presidential election in March 1996. The crisis culminated a period of growing tensions between Beijing and Washington over the George H.W. Bush administration's sale of F-16s to Taiwan and the subsequent visit of the Taiwanese President Lee Teng-hui to speak at Cornell University, his alma mater, in June 1995. Beijing castigated these US actions for eroding the "One China" policy and encouraging the independence movement in Taiwan. China responded with a series of military exercises around Taiwan and assertive rhetoric with veiled threats of the use of force "if Taiwan declares 'independence' or if foreign forces meddle."¹⁴³ Two weeks before the presidential election, China conducted test launches of nuclear-capable short-range M-9 missiles that landed in target areas near Taiwan. The Clinton administration viewed the PLA's air, ground, and naval exercises not as a prelude to invasion, but as coercive diplomacy to intimidate Taiwan and affect the presidential election. To reinforce the administration's deterrence diplomacy with China, President Clinton deployed two US carrier battle groups to the region, including one which sailed through the Taiwan Straits. After the Taiwanese elections, the crisis abated, though the issue would remain the most contentious in the US-China relationship. The competing strategies revealed during the Third Taiwan Strait Crisis—Chinese coercive diplomacy versus American deterrence—would be put to the test again 26 years later in the Fourth Crisis.

China's Disputed Maritime Claims

China's intent to change the status quo on Taiwan should be viewed within the broader context of its efforts to create an exclusive maritime zone. The resource-rich South China Sea, through which over \$3 trillion in trade transits annually, is a geostrategic arena of competition between China and its regional neighbors and the United States. China has asserted expansive claims of sovereignty over islands and maritime zones in the Western Pacific: in the South China Sea over the Spratly and Paracel islands and in the East China Sea over the Diaoyu/Senkaku islands (in contention with Japan). China

has declared this vast maritime expanse, holding an estimated 11 billion barrels of untapped oil and 190 trillion cubic feet of natural gas as its exclusive economic zone (EEZ) and has sought to bar foreign militaries access to these international waters and airspace.

China has buttressed its claims by establishing “facts”—building ports and airstrips—and has mounted large-scale engineering projects to create and enlarge new islands. The Philippines’ challenge to China’s unilateral sovereignty claim was upheld by an Arbitral Tribunal in The Hague in July 2016, but the Beijing regime refused to accept the court’s authority, even though its ruling was based on the United Nations Convention of the Law of the Sea (UNCLOS) to which China is a signatory.¹⁴⁴ The Obama administration objected but did nothing at the time. The Trump administration called on China to abide by The Hague ruling and rejected Beijing’s assertion of “unilateral dominion.”¹⁴⁵ To counter China’s excessive maritime claims, the United States has conducted freedom of navigation operations (FONOPs) in the South and East China Seas “to demonstrate that the United States will fly, sail, and operate wherever international law allows.”¹⁴⁶ On multiple occasions, the Chinese military has harassed US naval vessels conducting FONOPs in that maritime area. In March 2023, China threatened “severe consequences” after a US Navy destroyer sailed near the disputed Parcel islands.¹⁴⁷ The United States’s attempts to rebuff China’s unilateral changes to the territorial status quo (as through FONOPS) run the risk of a military incident that could escalate.

The Fourth Crisis and Escalatory Risks

Under its 2005 Anti-Secession Law, China reserves the right to use force should Taiwan declare independence. The Chinese military has declared that China does not recognize the Taiwan Strait as an international waterway and has conducted air and sea exercises simulating the invasion of Taiwan. The rapid modernization and expansion of the PLA’s conventional and nuclear capabilities, which has eroded American conventional superiority, has been accompanied by heightened assertiveness. In February 2023, CIA Director

Burns stated that Xi Jinping had instructed the PLA to “be ready” to “conduct a successful invasion” of Taiwan by 2027, but with the qualification that the order “does not mean that he’s decided to conduct an invasion.”¹⁴⁸ In June 2022, Defense Minister Wei Fenghe warned the United States not to intervene in China’s internal affairs and declared that China “will not hesitate to fight” if Taiwan moves toward independence.¹⁴⁹ These developments occurred against the backdrop of President Biden’s repeated statements (on each occasion walked back by the White House) supplanting “strategic ambiguity” by extending Taiwan an explicit security guarantee. The conjunction of Chinese and US military capabilities and strategic interests have created significant escalatory risks for the *Fourth Taiwan Strait Crisis*.

The precipitant of the Fourth Crisis was the visit of Speaker of the House Nancy Pelosi to Taiwan on August 2-3, 2022. China responded with large-scale air and naval exercises around Taiwan on August 4-7 that demonstrated its resolve and the capacity to escalate. On the mainland, the PLA Eastern Theater Command, responsible for military operations against Taiwan, was placed on high alert and significant troop movements were observed. On August 4, China fired short-range ballistic missiles into landing zones north, south, and east of Taiwan.¹⁵⁰

The Pelosi visit occasioned a crisis that allowed China to conduct evidently long-planned integrated exercises demonstrating the full panoply of military capabilities necessary for a full-scale invasion. China also used the crisis to push limits—notably by crossing the median line in the Strait, which the United States and China had long agreed, tacitly, separated China and Taiwan. Chinese naval vessels and aircraft, which had been testing the median line in recent years, repeatedly crossed it during the August 2022 crisis. National Security Council spokesperson John Kirby stated that China was attempting to unilaterally create “a new normal,” but “we’re not going to accept it.”¹⁵¹

During the Fourth Crisis, China displayed military capabilities for purposes of signaling and deterrence. According to a RAND study, two events—the

1995–1996 Taiwan Strait Crisis and the May 1999 accidental bombing of China’s embassy in Belgrade—had a formative impact on China’s military modernization program. From Beijing’s perspective, China’s military inferiority had left the country vulnerable to intimidation and coercion from American hyperpower.¹⁵² In the quarter century between the Third and Fourth crises, China developed a spectrum of conventional capabilities (including aircraft carriers, anti-shipping missiles and attack submarines) for power projection to counter the US naval and air presence in east Asia.

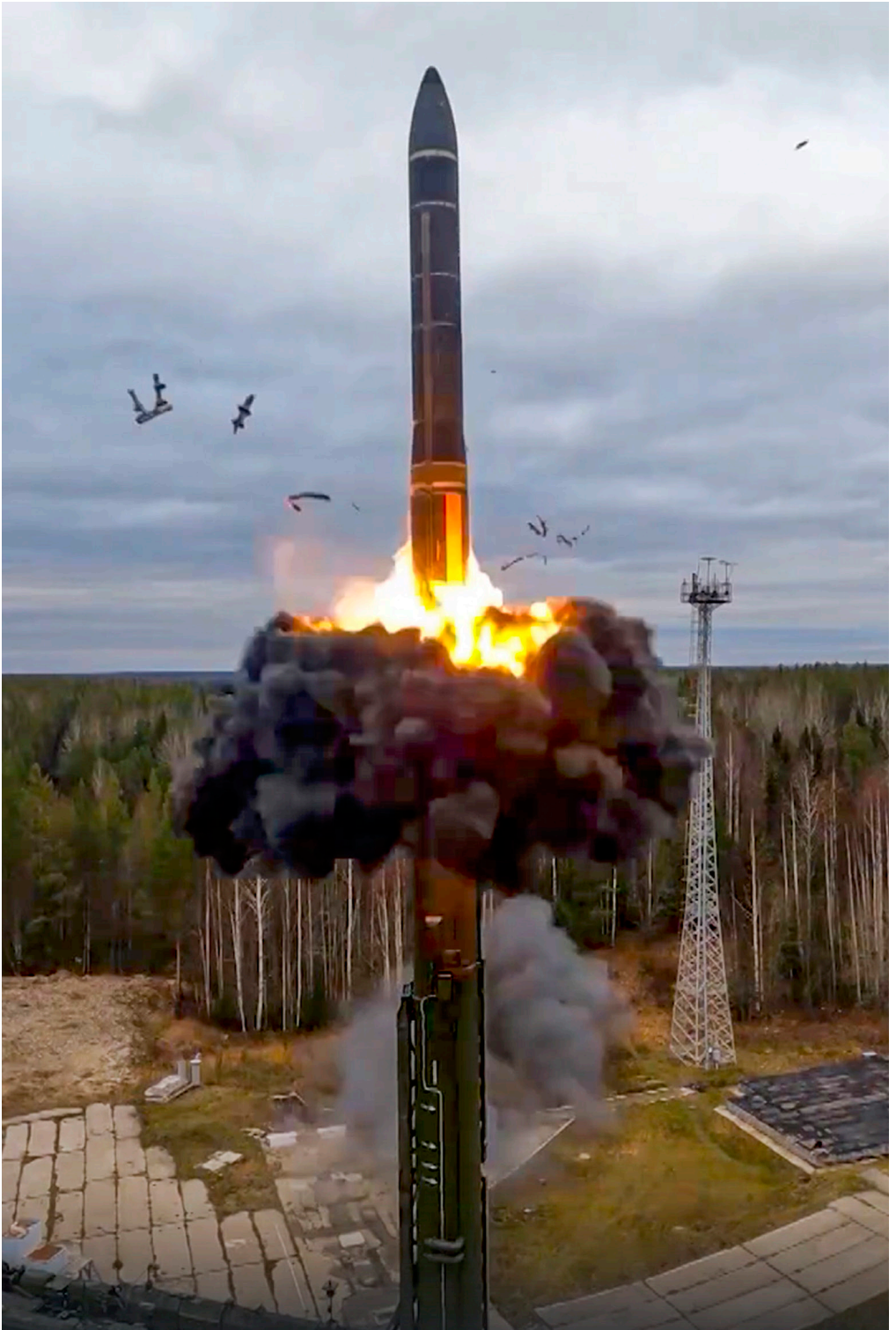
In the new tripolar era, the conventional and nuclear balances are changing simultaneously. China has emerged as the United States’s second peer nuclear power and, in East Asia, US conventional superiority is eroding. These military developments will reset what Allen Whiting in his classic 1975 study termed the “Chinese calculus of deterrence,” with significant implications for escalation and crisis stability. As the US Directorate of National Intelligence’s 2023 *Annual Threat Assessment* observed, China “uses coordinated, whole-of-government tools to demonstrate strength and compel neighbors to acquiesce to its preferences, including its land, sea, and air claims in the region and its assertions of sovereignty over Taiwan.” With respect to disputed maritime and territorial claim in the South and East China seas, the DNI assessment stated, China “will continue to use growing numbers of air, naval, coast guard, and militia forces to intimidate rival claimants and to attempt to signal that China has effective control over contested areas.”¹⁵³

The US intelligence assessment of China’s intentions and capabilities highlights the Chinese dual definition of deterrence, which encompasses both traditional Western usage and compellence through coercive diplomacy. In Taiwan and the disputed maritime areas over which China claims sovereignty, Beijing may believe that China can win a “competition in risk-taking” (in Schelling’s phrase) with the United States. A study by the Lawrence Livermore National Laboratory concluded Beijing believes “China can best the United States in a confrontation over Taiwan by taking advantage of

mass and geography and winning a competition of risk-taking because of an asymmetry of stakes that favors China.”¹⁵⁴ Scenarios involving instrumental escalation by China include a naval blockade of Taiwan or Chinese occupation of the uninhabited island of Taiping, which is administered by Taiwan.

Within the contemporary strategic environment—one shaped by simultaneous changes in the nuclear and conventional balances—the Xi Jinping regime may pursue coercive strategies involving *instrumental escalation* to further China’s policy objectives vis-à-vis Taiwan and its maritime claims. The Chinese calculus of risk-taking would need to take into account President Biden’s avowed security commitment to Taiwan, as well as the negative example of Putin’s effort to change the regional status quo through his regime’s invasion of Ukraine. As political scientist Alexander George observed, compellence (to alter the status quo) is more difficult than deterrence (to maintain it).

The term “calculus” belies a human process of decision-making inherently subject to miscalculation and misperception. Instrumental escalation by China over Taiwan would precipitate a reaction and a dynamic with potentially catastrophic consequences. Instrumental escalation runs a significant risk of precipitating inadvertent escalation. Inadvertent escalation could arise from the co-location of conventional and nuclear capabilities and the expansion of competition into the new domains of cyberspace and outer space, in which China may misleadingly believe that non-kinetic actions are non-escalatory. With China and Taiwan, as with Russia in Ukraine, crisis instability is exacerbated by arms race instability. That dangerous conjunction, the focus of the next chapter, poses a profound challenge to strategic stability in Kissinger’s “new era.”



The Russian Yars [an acronym for "nuclear deterrence rocket"] intercontinental missile is test-fired in a nuclear drill during the Ukraine War on October 27, 2022. Image source: Russian Defense Ministry Press Service / AP Images



4. A Precarious Tripolar World

Against the backdrop of Putin's nuclear saber-rattling in Ukraine and China's increasingly assertive naval and air exercises around Taiwan, UN Secretary-General Antonio Guterres has warned that "humanity is just one misunderstanding, one miscalculation away from nuclear annihilation."¹⁵⁵ The Director of National Intelligence's 2023 *Annual Threat Assessment*, which is not a document prone to hyperbole, baldly stated, "Russia's unprovoked war of aggression against Ukraine is a tectonic event that is reshaping Russia's relationships with the West and China. Escalation of the conflict to a military confrontation between Russia and the West carries the greater risk...."¹⁵⁶

The new era of geopolitics is shaped by a confluence of developments:

- *Power shifts*—Whereas Washington views Russia as a declining, one-dimensional nuclear power, China is now considered the United States's "pacing challenge," with which it competes across all the dimensions of power, especially military and economic. As the 2023 *Annual Threat Assessment* observed, "China has the capability to directly attempt to alter the rules-based global order in every realm and across multiple regions as a near-peer competitor that is increasingly pushing to change global norms and potentially threatening its neighbors."¹⁵⁷
- *A new geostrategic triangle*—Driven by shared worldviews and interests, Russia and China have developed a pragmatic quasi-alliance

against the United States. Russia and China, along with states with like-minded regimes, constitute an authoritarian bloc that stands in opposition to the bloc of democratic states in North America, Europe, and East Asia, which is led by the United States and committed to the “rules-based international order.”

- *Revisionist powers, vital stakes*—In this new Cold War between contending blocs, each side perceives the other as revisionist. The United States views both Russia and China as aggressive hegemonies pursuing revanchist claims: Russia in Ukraine and its “near abroad,” China in Taiwan and through its expansive maritime claims. For Washington, the stakes of this great power competition are vital, not peripheral. Ukraine and the outcome of the war are central to the future of European security architecture. Taiwan holds a normative interest—that the territorial status quo should not be changed by force. Moreover, the credibility of the US extended deterrence commitment to Asian allies would be undermined. Conversely, Russia and China view the United States as a non-status quo power as evidenced by Washington’s wars of regime change in Kosovo, Iraq, and Libya, as well as their perceptions of Washington’s involvement in the “color revolutions” in Europe. The United States’s great-power competitors view Washington’s commitment to democratization and human rights as cynical rubrics that disguise the United States’s goal of fomenting internal dissension against Putin and undermining the Chinese Communist Party. Hence the Putin-Xi communique’s defiant rejection, “It is only up to the people of the country to decide whether their State is a democratic one.”¹⁵⁸ For both Putin and Xi, the paramount interest is regime survival.
- *Emergent nuclear tripolarity*—Nuclear bipolarity of the Cold War and post-Cold War eras is being supplanted by emergent nuclear tripolarity. In China and Russia, the United States now faces two peer nuclear powers which have established a quasi-alliance. China has shed its longstanding “minimal deterrence” nuclear posture and is on

trajectory to attain parity with the United States over the next decade. The impressive scope, scale, and pace of China's nuclear modernization program creates a strategic inflection point for US national security officials. The expansion of China's nuclear capabilities is coinciding with the erosion of US conventional superiority in East Asia.

- *Unconstrained competition*—The major agreements that constituted US-Russian arms control architecture have been dismantled to the point of near collapse. For all three nuclear great powers, strategic autonomy is the watchword of this emerging era of unregulated competition, including in the new domains of cyber and outer space. These developments have significant implications for maintaining stable deterrence and avoiding escalation through misperception and miscalculation.

The core argument of this study is that these developments have recast the two traditional Cold War dangers—the stability-instability paradox (that a nuclear stalemate may embolden lower-level aggression) and the “delicate” balance of terror (calling into question the stability of the nuclear balance). Together these conditions shaping the triangular relationship are undermining arms race stability and crisis stability, which are the twin components of strategic stability.

Deterrence Challenges

Since the early Cold War, relations among the three great powers have been shaped by a triangular dynamic. The sides of the triangle are not equivalent, however, because of the uneven distribution of the three states' power (economic and military) and triangular politics, which have evolved over the decades. The nuclear triangle during that period was isosceles, not equilateral—with the United States and the Soviet Union acquiring massive arsenals beyond any obvious relationship to strategy and China retaining a limited nuclear force commensurate with its minimal deterrence posture.

Washington and Moscow codified their parity relationship—*symmetrical* deterrence—through successive arms control agreements. In contrast, given the disparity between their nuclear arsenals, the deterrent relationships between the two superpowers and China were inherently *asymmetrical*. The nuclear shadow created by this asymmetry figured prominently in past crises with China: in 1954-1958, during the Taiwan crises when the Eisenhower considered the use of nuclear weapons, and in 1969, when Sino-Soviet border clashes along the Ussuri River prompted Kremlin consideration of a preemptive strike to eliminate China's nuclear weapons infrastructure. In these adversarial episodes, the asymmetrical nuclear relationship was overt. Alternatively, during periods when relations with either nuclear superpower and China have been aligned—with the United States in the early 1980s against the Soviet Union and later with Russia in the 2020s against the United States—the nuclear factor has been latent.¹⁵⁹

With China's status as a near-peer nuclear power, the world is on the cusp of nuclear tripolarity. By the 2030s, based on current projections, China will be a full-nuclear peer competitor with the United States. International relations theorists have long debated whether bipolar or multipolar great-power systems are more stable, while in astrophysics a stable two-body celestial system becomes chaotically unstable with the addition of a third body. For the United States the two-peer problem posed by Russia and China will recast the challenge of deterrence in three critical areas:

- first, force posture—the size and composition of US nuclear forces
- second, mission—the traditional tension between warfighting (counterforce) and deterrence (based on mutual vulnerability and assured retaliation); and
- third, extended deterrence—how to maintain the credibility of the US nuclear umbrella to regional allies and prevent additional proliferation in a tripolar system.

Nuclear Force Posture

During the Cold War and post-Cold War eras, US defense planners regarded China as a lesser-included case, meaning that a US nuclear force configured against the enormous Soviet arsenal could address whatever contingency arose with China and its minimum deterrent capability. China's emergence as a near-peer nuclear competitor marks a shift from a bipolar to tripolar nuclear order, but that systemic shift has not prompted a fundamental change in planning for the US nuclear force structure. The Biden administration has stated that the issue is not "arithmetic"—that US nuclear forces need not equal those of Russia and China combined. Rather, according to Colin Kahl, the Biden administration's Under Secretary of Defense for Policy, US nuclear strategy under the conditions of tripolarity will be on maintaining "a survivable second-strike capability" such that in any contingency with Russia and China the United States would retain "enough in reserve to hold at risk so much that other nuclear powers hold valuable, that they wouldn't dare to challenge the United States."¹⁶⁰

Critics and congressmen have argued for a substantial expansion of US nuclear forces as a hedge against the contingency that their current geostrategic alignment might lead Russia and China to coordinate their nuclear operations. The February 2022 communique after the Putin-Xi Jinping summit affirmed that the relationship between these powers has "no limits" nor "forbidden" areas, including the nuclear area. In 2019, Putin announced that Russia was helping China build a new missile attack warning system.¹⁶¹ Significantly expanding that cooperation in 2023, Rosatom, Russia's state nuclear agency, was reportedly providing highly enriched uranium for Chinese fast breeder reactors, the operation of which would yield plutonium for weapons production.¹⁶² But one cannot extrapolate from that circumscribed pragmatic cooperation to posit overt wartime operational coordination of nuclear strikes against the United States. The Russia-China alignment with "no limits" indeed has limits—witness China's restrained diplomatic

support for Putin's war in Ukraine and its unwillingness, at least so far, to sell Russia advanced weaponry.

Russia's deterrent relationship with China during the current period of alignment against the United States has been characterized as "latent"—just as the United States' stance was in the early 1980s when Beijing and Washington were aligned against the Soviet Union.¹⁶³ Before the Ukraine war, Russian military doctrine emphasized the importance of theater nuclear forces for deterring a large-scale regional war. Within this context, China has a force of intermediate-range missile that could target Russia east of the Urals—and then, of course, shared memories of their near conflict in 1969 remain. So even as relations are currently aligned, Russia will continue to hedge against a possible downturn in relations with China. That continuing hedge, among other factors, will circumscribe the extent of Moscow and Beijing's nuclear cooperation and would probably preclude operational coordination in the event of war.

A major factor that could affect the size and composition of the US nuclear force posture is the uncertain future of arms control. Putin has suspended Russia's compliance with New START, but the Kremlin has said that Russia will continue to observe the treaty's constraints of 1,550 nuclear warheads on 700 deployed strategic vehicles. But the bilateral New START expires in 2026 and neither side is open to an additional extension, particularly taking into account China's emergence as a peer-nuclear power.¹⁶⁴ If Russia were to exceed the 1,550 ceiling after New START lapses, that contingency would necessitate a reassessment of US force requirements to maintain a stable deterrent relationship.

Counterforce and Assured Retaliation

After the Cuban Missile Crisis, the foundation of strategic stability between the United States and Soviet Union was mutual vulnerability based on assured retaliation. British strategist Philip Windsor commented that the most important arms control development of the Cold War was the

creation of survivable second-strike nuclear delivery systems. Those capabilities, making assured retaliation a certainty, eliminated the possibility of a disarming first strike. In the late 1970s, US defense planners focused on a Soviet heavy missile—the SS-18—with its ability to target the US land-based components of its deterrent triad: bombers and ballistic missiles in fixed silos. The concern was that, in a crisis, the Soviet Union might pursue coercive diplomacy with the United States through a perceived asymmetry in military capabilities. But such a marginal asymmetry hardly undercut stability through mutual vulnerability because under any attack scenario, the United States would retain invulnerable submarine-launched ballistic missiles for retaliation. A variation of this concern has been raised in connection with China’s rise as a nuclear peer competitor in a tripolar world—that if the United States were to suffer a first strike from China or Russia, the United States’s depleted arsenal would leave Washington exposed to coercion from either.¹⁶⁵ As the United States has some two-thirds of its deployed nuclear weapons on comparatively invulnerable submarines, it would retain an assured retaliatory capacity vis-à-vis both Russia and China. For now, assuming New START’s numerical constraints on strategic nuclear forces hold, the Biden administration has hedged against and sought to deter the possibility of a counterforce against the United States by Russia and/or China through its emphasis on retaining a “survivable second-strike capability” that could deliver a devastating retaliatory blow.

As after the Cuban Missile Crisis, the key criterion of strategic stability in the current era is assured retaliation based on secure second-strike nuclear systems. From this perspective, China’s development of a larger survivable force may play a stabilizing role. With a relatively small and vulnerable minimal deterrent force, China faced the classic “use-it-or-lose-it” dilemma and may have accordingly adopted a dangerous launch-on-warning doctrine. Chinese nuclear expert Li Bin expressed Chinese concern about vulnerability to a theoretical US first-strike capability, writing: “In the United States, some nuclear experts believe that damage limitation vis-à-vis China is a feasible

and desirable strategy. Some Chinese strategists therefore worry about the possibility that China's very thin nuclear retaliatory capability would be denied by some US damage limitation approaches, such as missile defense or conventional strikes."¹⁶⁶ In short, the combination of a US first strike (made possible by superior numbers) in tandem with ballistic missile defenses could deny China an assured retaliatory capability. Chinese decision-making is opaque, but these factors, in addition to strong US rhetoric during the Trump administration bordering on a call for regime change in Beijing, provided additional impetus to China's decision to eschew its minimum deterrent posture and build up to parity with the United States and Russia.

Extended Deterrence

At the advent of the nuclear age, RAND strategist Bernard Brodie argued that the utility of these revolutionary weapons was not in their use, but in their threatened use. In that respect, nuclear weapons are used every day—politically—to maintain international order. During the Cold War, the structure of bipolarity inhibited proliferation: the United States and the Soviet Union implemented strategies of extended deterrence within their competing alliance systems to assuage the security concerns of their smaller allies. For that reason, NATO, which institutionalized the extended deterrent commitment of the United States, was one of the most effective nonproliferation instruments in history.

Europe and Northeast Asia are the two regions in which allies—NATO countries and Japan and South Korea—are reliant on the United States's nuclear umbrella to counter coercion and aggression from Russia and China (as well as, for Seoul and Tokyo, North Korea). The most likely pathway to a nuclear war with either peer-nuclear competitor is escalation from a theater conflict. During the Cold War, the driving scenario was an attack by superior Warsaw Pact conventional forces on NATO. If NATO forces were losing a conventional war, the use of non-strategic (i.e., tactical) nuclear weapons would be contemplated to signal resolve and the possibility of escalation. Having a credible alternative to rapid escalation to the strategic nuclear level

(framed as trading New York for Berlin) was the centerpiece of US extended deterrence. Maintaining this escalatory option in the event of conflict in central Europe with the Warsaw Pact required that the United States not adopt a “no first use” (NFU) posture.

Extended deterrence highlights the persisting tension between deterrence and warfighting—that the primary role of nuclear weapons is as a deterrent, but if deterrence fails, the threat of nuclear weapons must be credible. In the new era, the challenge of extended deterrence has been recast.

In Europe, the Biden administration reinforced NATO’s Article V commitment in response to Russia’s invasion of Ukraine while galvanizing the alliance to provide military assistance to Ukraine to reverse Russian aggression. Putin has further fueled tensions with his nuclear saber-rattling over Ukraine and his announcement in March 2023 that Russia, for the first time since the end of the Cold War, would deploy nuclear weapons beyond its borders, in Belarus. Putin declared that this decision was consistent with the precedent set by the United States’s forward-basing of tactical nuclear weapons in NATO countries.

In Northeast Asia, the strategic environment is shaped by China’s emergence as a near-peer nuclear competitor and eroding US conventional military superiority. Concern about Chinese theater-range missiles, both nuclear and conventional, was a major factor underlying the Trump administration’s February 2019 decision to withdraw from the INF Treaty. The administration asserted that Russia was violating the INF Treaty and that the agreement, which banned an entire category of missiles based on range, was blocking the US ability to meet the growing Chinese missile threat to its Asian allies.¹⁶⁷ The Trump administration announced the follow-on decision to test a new intermediate-range missile with East Asia as its intended theater of deployment.

The Biden administration’s 2022 *Nuclear Posture Review* declared that extended deterrence “couples US and Allied security and gives Allies and partners the confidence to resist coercion and vigorously defend shared

interests.... [T]hese extended deterrence relationships convey to [Russia and China] the risk that local aggression could widen, with potentially catastrophic consequences.”¹⁶⁸ Achieving this aspirational goal will require updating what National Security Advisor Jake Sullivan called the “hardware” and “software” of extended deterrence.¹⁶⁹ “Hardware” refers to force posture and deployments of capabilities. Hence, in response to the Ukraine invasion, to reinforce the credibility of its extended deterrent commitment, the United States committed to modernizing its nuclear weapons forward-deployed in Europe and transitioning with its NATO allies to a new generation of nuclear-capable aircraft, including the US F-35A Joint Strike Fighter. In Northeast Asia, where the United States does not have forward-deployed nuclear weapons (having withdrawn ground-based missiles in the 1990s from Korea), it deploys nuclear-capable aircraft, including the B-2 bomber, to the region during military exercises with Japan and South Korea as a tangible symbol of the US nuclear umbrella. “Software” refers to nuclear consultations, planning, and exercises.¹⁷⁰ In Europe, the United States has an institutional software in NATO’s Nuclear Planning Group, while in Northeast Asia, an analogue has been proposed for Japan and South Korea.¹⁷¹ During the visit of South Korean President Yoon Suk Yeol to Washington in April 2023, President Biden committed to expanding joint consultations on nuclear operations in any conflict with North Korea.¹⁷²

Maintaining conventional military balances is an indispensable complement to the nuclear umbrella. Credible conventional options in Europe and Northeast Asia promote deterrence by denial—that is, denying an adversary the ability to attain its objective—and make nuclear escalation less likely. US adversaries have the asymmetrical advantage of geographical proximity, but the United States need not match their capabilities quantitatively if it can compensate qualitatively. In Europe, Russian military performance in the Ukraine war casts doubt about Russia’s ability to conduct an offensive conventional operation against a NATO country. In Northeast Asia, preventing the erosion of US conventional superiority in the context of a Taiwan contingency is challenged by China’s surge in numbers of ships and aircraft, supported

by shore-based missiles capable of targeting US aircraft carriers. Consistent US messaging is also essential. The credibility of the US extended deterrent commitment was called into question when President Trump threatened in 2020 to remove US troops from Germany and South Korea. This policy was reversed by the Biden administration, but damage was done. Effective extended deterrence remains an essential tool in preventing nuclear proliferation. In the face of an assertive China and a saber-rattling nuclear North Korea, South Korea's continued willingness to rely on US extended deterrent is uncertain. A 2022 public opinion poll revealed that more than 70 percent of South Koreans want their country to develop an independent nuclear capability.¹⁷³

The “Nth Country Problem”: North Korea, Iran, India, and Pakistan

In the early Cold War, a seminal RAND study explored what it termed the “Nth country problem”—nuclear proliferation.¹⁷⁴ The current era of nuclear tripolarity was presaged in 1964 when China crossed the nuclear threshold, joining the United States and Soviet Union (as well as Britain and France). In a tripolar order, nuclear relations between each dyad in the US-Russia-China triangular relationship affect the third power. Hence, for example, the US withdrawal from the bilateral ABM treaty with Russia had strategic implications for China. The development augured a possible strategic environment with unconstrained ballistic missile defenses, which China perceived as undermining the sufficiency of its minimum deterrent posture. To cite another example of complex linkages, the termination of the Intermediate-Range Nuclear Forces (INF) Treaty concluded with the Soviet Union in 1988 could permit US deployment of intermediate-range ballistic missiles in Asia to counter China.

Beyond their triangular relationship, the three powers are also affected by other nuclear states. China must consider two other adjacent nuclear-weapon states—India, with which it has had intermittent skirmishes over the disputed Himalayan border, and North Korea, with which Beijing has a complicated relationship. China, seeking to check India, provided essential technical

assistance, including provision of a working bomb design, to Pakistan for its nuclear weapons program. The United States faces two adversarial proliferators that US administrations have variously referred to as “rogue” or “outlier” states—North Korea, which is on the cusp of attaining the capability to target the US homeland with an ICBM with a nuclear warhead; and Iran which, no longer constrained by the 2015 nuclear agreement, is a nuclear threshold state.¹⁷⁵ Iran’s ability to enrich uranium provides a hedge for a weapon. Successive US administrations, including the Biden administration, have declared weaponization by Iran as a red line that could precipitate military action. The linkages between the great powers’ triangular nuclear relationship and other nuclear states are complex. For example, China has charged that the US deployment of the Terminal High Altitude Area Defense (THAAD) system to South Korea to address the North’s ballistic missile threatened to degrade China’s nuclear deterrent. This section will address the recast “Nth country problem”—the nuclear capabilities of North Korea, Iran, and India and their effects on the great powers that constitute the tripolar nuclear order.

North Korea

The US intelligence community’s 2023 *Annual Threat Assessment* stated that North Korean leader Kim Jong-un “almost certainly views nuclear weapons and ICBMs as the ultimate guarantor of his autocratic rule and has no intention of abandoning those programs, believing that over time he will gain international acceptance as a nuclear power.”¹⁷⁶ DNI’s assessment is that the ability to threaten the United States with nuclear weapons mounted on ICBMs is essential for the survival of the Kim regime. US diplomatic efforts—from the 1994 Agreed Framework to the multilateral Six-Party Talks in the 2000s to bilateral diplomacy during the Trump administration—failed to prevent North Korea from acquiring nuclear weapons and developing an ICBM that could target the US homeland.

Since becoming a nuclear-weapons state in 2006, North Korea has conducted six tests, the latest in 2017. Estimates of North Korea’s nuclear arsenal range from 20 to over 100 warheads. These are soft estimates based

on calculations of North Korea's ability to produce weapons-grade fissile matter—both plutonium and highly enriched uranium. A 2017 Defense Intelligence Agency analysis, which placed North Korea's arsenal at 60 weapons, assessed that North Korea had mastered the ability to miniaturize a nuclear warhead for deployment on a ballistic missile.¹⁷⁷ In recent years, North Korea has conducted dozens of ballistic missile tests of all ranges—short, intermediate, intercontinental—and has test-launched cruise missiles from submarines and developed tactical nuclear weapons. North Korea's ICBM, the Hwasong-17, can carry multiple warheads and targeting the US homeland. Uncertainty remains on whether North Korea has mastered the complex integrated set of technologies required to target the United States—that is, a miniaturized nuclear warhead, a ballistic missile capable of being fitted with a nuclear warhead and with adequate range, and a warhead able to survive reentry into the earth's atmosphere and strike with accuracy. In 2018, General John E. Hyten, then heading US Strategic Command, stated, "The one thing they have not demonstrated to the United States is the ability to put everything together, end to end, and use it. [W]hen we, the United States, built that capability, that endgame was the hardest part for us." Expert views remain divided on whether North Korea, which has not demonstrated warhead reentry, could attain that capability without testing.

The Trump administration's designation of North Korea as a "rogue state" implied that Pyongyang was irrational. In 2017, when North Korea was conducting nuclear and long-range missile tests and Washington and Pyongyang were trading threats (such as Trump's "fire and fury" comments), then National Security Advisor H.R. McMaster asserted that "classical deterrence theory" does not "apply to a regime like the regime in North Korea."¹⁷⁸ Though the summits between Trump and Kim did not produce a breakthrough on denuclearization, the meetings changed the psychology of the crisis. In meeting with and touting his personal relationship with Kim, Trump normalized the Pyongyang regime. North Korea is no longer characterized as a crazy state that is undeterrable. For Pyongyang, nuclear capabilities not

only provide a deterrent to external attack but are also North Korea's perennial bargaining chip to win food and other economic aid from South Korea and Japan and, increasingly, an instrument of coercive diplomacy. The avowed US goal of "CVID" (complete, verifiable, and irreversible denuclearization) is not on the table as long as the Kim family rules in Pyongyang—particularly after the US-led wars of regime change in Iraq and Libya.

The Biden administration has adopted a "calibrated, practical approach" that "is open to and will explore diplomacy with North Korea."¹⁷⁹ This transactional approach would offer partial sanctions relief to the Pyongyang regime in return for negotiated constraints on North Korea's capabilities. But Kim Jong-un has indicated no interest in resuming nuclear diplomacy and has instead doubled down with an extraordinary tempo of missile tests and the prospect of a seventh nuclear weapons test. What had historically been an incremental and determined program to develop nuclear and missile capabilities became Kim Jong-un's Manhattan Project—a crash effort to target the US homeland with a nuclear weapon.

Kim Jong-un's past statements have emphasized the deterrent value of survivable nuclear forces as a hedge against US preemption. But in September 2022, the Kim regime expanded the conditions under which North Korea would use nuclear weapons in retaliation to now include a conventional, preemptive strike or the appearance that such an attack was imminent.¹⁸⁰ North Korean concern in this context is the decapitation of the Kim regime through a preemptive conventional strike. The expanded policy for nuclear use calls for "automatic" launches if the Kim regime or its command-and-control systems are threatened.¹⁸¹ These cumulative developments in doctrine and nuclear force posture create potential opportunities for the Kim regime to pursue coercive diplomacy toward South Korea and even consider offensive operations to further its long-term goal of unifying the Korean peninsula under its control. The Wilson Center's Sue Terry has raised a plausible contingency in which Kim Jong-un may "calculate that even if he uses nuclear weapons preemptively against the South or US

bases in the region, the United States will not retaliate as long as his long-range ICBM force threatens the US mainland.”¹⁸² These developments in doctrine and force posture will make it more difficult to avert crisis instability and inadvertent escalation.

Two seismic geostrategic shifts—the Ukraine war and the deterioration in US-China relations—create opportunities for North Korea to exploit the triangular relationship to its advantage.¹⁸³ For China, the continued utility of the North as a strategic buffer translates into essentially unconditional support—economically, militarily, and diplomatically for Pyongyang. Meanwhile, Putin’s Russia has provided North Korea diplomatic support for UN sanctions relief and has reportedly turned to the Kim regime for arms sales in support of its military operations in Ukraine. In the new strategic environment, North Korea is furthering its paramount goal—survival of the Kim family regime—by aligning with the Russia-China axis in opposition to the contending bloc comprising the United States and its democratic allies in East Asia and Europe.

Iran

The Biden administration reversed President Trump’s 2018 decision to withdraw from the 2015 Iran nuclear agreement (the Joint Comprehensive Plan of Action or JCPOA). The JCPOA was quintessentially transactional—a deal focused exclusively on constraining Iran’s nuclear aspirations by blocking its access to weapons-usable fissile materials. It was a discrete agreement, not a grand bargain encompassing other objectionable aspects of Iranian behavior, such as the Tehran regime’s destabilizing regional policies and human rights abuses.

The Trump administration rejected the JCPOA precisely because it was transactional, not transformational. The administration’s “maximum pressure” campaign to deny the Tehran regime any oil revenues, coupled with its appeals to the Iranian people to voice their objections to the regime’s “malign activities,” indicated that regime change was the Trump administration’s

objective. Trump's withdrawal from the JCPOA had unintended consequences. It diplomatically isolated the United States, not Iran. Moreover, the Tehran regime met US "maximum pressure" with its own pressure by breaching the JCPOA's limits on uranium enrichment and employing an asymmetrical strategy to attack Saudi oil installations and threaten shipping in the Persian Gulf.

Iran's status as a nuclear threshold state derives from its ability to fabricate fissile material.¹⁸⁴ What distinguishes Iran from threshold states with similar capabilities, such as Brazil and Japan, is intent. While many nuclear-capable countries have demonstrated restraint through compliance with IAEA safeguards on declared civil nuclear facilities, Iran's intentions have been exposed through its covert uranium enrichment and weapons-related activities dating back decades.

The dilemma of the Iranian nuclear challenge arises from its mastery of uranium enrichment: centrifuges that spin to produce low-enriched uranium for nuclear power can keep spinning to yield highly enriched uranium for bombs. Since nuclear diplomacy with Iran through the JCPOA has focused on bounding, not eliminating, Iran's uranium enrichment program, the regime retains the option—a *hedge*—for a nuclear weapon. A US prerequisite for any comprehensive nuclear agreement was that this *breakout* period for converting a latent capability into a weapon should be long enough (12 months) for the United States to have sufficient strategic warning to mobilize an international response. In short, the goal of nuclear diplomacy has been to keep Iran's latent capability latent.

With Iraq's Saddam toppled and US military disengagement from the region after Afghanistan, a nuclear hedge is Iran's strategic sweet spot—maintaining the potential for a nuclear option, while avoiding the regional and international repercussions of actual weaponization. Iran's acceptance of the 2015 nuclear agreement—constraining its uranium enrichment program in return for sanctions relief—was consistent with a hedge strategy.

Biden administration officials believe that core bargain, with modifications (such as extending “sunset” provisions), could provide a basis for a revived JCPOA 2.0. After the Trump administration’s withdrawal from the JCPOA, Iran breached the 2015 agreement’s constraints on uranium enrichment. A senior Biden administration official estimated that Iran could acquire sufficient weapons-grade to produce a single nuclear bomb in as little as 12 days.¹⁸⁵

Having shortened the breakout time to weaponization. Iran’s hedge is now less hedged. This is the urgent dilemma confronting the Biden administration: On one hand, the longstanding goal of US policy has been to prevent Iran from obtaining a nuclear weapon. On the other, by drawing this red line of preventing weaponization, successive US administrations essentially signaled that the United States would not undertake preventive military action to deny Iran any nuclear hedge option—but Israel might.

The openly-debated military option runs up against four major liabilities: first, military action would only set back the program for several years, not end it; second, more fundamentally, in Tehran, military action would be viewed as the initiation of a regime-toppling war that the Iranian leadership has vowed to escalate geographically (for example, through Hezbollah in Lebanon striking Israel or through attacks on Gulf oil facilities on which the West is dependent); third, an American attack could well generate a nationalist backlash within Iran which would bolster the clerical regime; and, fourth, notwithstanding claims about the ability of US bunker-busters to surgically collapse hardened targets, military strikes on “hot” sites containing toxic fissile material (e.g., uranium hexafluoride, enriched uranium, etc.) could have disastrous environmental consequences.

Against the backdrop of stalled diplomacy and a problematic military option, the Iran nuclear issue remains at an impasse but with inherent escalatory potential. Iran’s Supreme Leader Ali Khamenei has neither decided to cross the threshold of weaponization nor sought economic relief from sanctions by accepting a revived deal that re-imposes meaningful

constraints on Iran's nuclear program. Central to the identity and putative legitimacy of Iran's theocratic regime is rejection of a liberal international order led by the United States.

Iran is exploiting the triangular relationship to its advantage. According to a senior Biden administration official, Iran and Russia have established "a full-scale defense partnership." Iran has provided Russia hundreds of drones for the Ukraine war and, in return, has received from Russia advanced weapons, possibly including the S-400 air defense system.¹⁸⁶ With China, Iran has signed by securing long-term oil deals and is prepared to accept payment in renminbi. The Russia-China bloc provides Iran's clerical regime tangible economic and military benefits and an alternative to infectious political contact with and economic reliance on the West.

India and Pakistan

Border clashes involving two pairs of states possessing nuclear weapons—China and India, and India and Pakistan—highlight the dangerous intersection between the tripolar nuclear order and the South Asia's strategic stability. In February 2019, India and Pakistan clashed in the disputed region of Kashmir in a confrontation that escalated to reciprocal air strikes. In May-June 2020, India and China exchanged deadly gunfire along their frontier in the Himalayas for the first time in 45 years. These incidents carried the risk of escalation. For India, as strategic expert Ashley Tellis has observed, the political context is shaped by China's assertive regional policies and "salami-slicing" tactics on its Himalayan border.¹⁸⁷ The open question is whether provocative marginal shifts in the status quo, such as China's construction of forward military facilities in contested territory, will be acquiesced to or precipitate an Indian countermove. Those shifting stakes, combined with the omnipresent chance of misperception and miscalculation, create significant escalatory risks.

The nuclearization of South Asia is accelerating against the backdrop of these tensions. India and Pakistan, each possessing some 150 nuclear

warheads, are expanding their arsenals (as well as their production of weapons-usable fissile material) and modernizing the delivery vehicles that would carry them. Mirroring the nuclear-force structures of the nuclear great powers, they have developed their own triads—with land-based and sea-based weapons, as well as bombers. As South Asia nuclear expert Michael Krepon observed, these non-signatories of the NPT “have not accepted any constraints on their strategic autonomy.”¹⁸⁸ India and Pakistan remain locked in an unconstrained nuclear-arms competition. China is continuing its long history of assisting the Pakistani nuclear program, which has included providing a bomb design and technical support.¹⁸⁹

The strategic environment for India and Pakistan is shaped by important asymmetries. India is a continental power, rich in resources, and has a GDP of \$3 trillion, which is ten times larger than Pakistan’s. That economic asymmetry has translated into India’s ability to field much larger conventional military forces, which drives Pakistan’s emphasis on nuclear weapons in response to the conventional imbalance. Whereas the Pakistan nuclear program is focused exclusively on India, the Indian program is intended to deter China as well as Pakistan. India has viewed nuclear weapons primarily as instruments for deterrence, and therefore has focused on developing second-strike systems to have an assured retaliatory capability. By contrast, Pakistan has a more expansive view of the role of nuclear weapons which goes beyond the core deterrence requirement to include war-fighting capabilities on the tactical level.¹⁹⁰ Indian conventional superiority could potentially lower the nuclear threshold and thereby increase the risk of inadvertent escalation during a crisis. India has not matched Pakistan’s development of tactical nuclear weapons.

Maintaining an assured retaliation posture, India has deployed eight nuclear-capable delivery systems: two aircraft, four land-based ballistic missiles, and two sea-based ballistic missiles. But China’s increased regional assertiveness is driving the modernization of New Delhi’s force posture. India has developed the Agni-V, its first ICBM, which will permit it to target all of

China, including its leadership in Beijing.¹⁹¹ India's acquisition of advanced nuclear delivery platforms establishes a credible assured retaliation against China, but also creates escalatory options vis-à-vis Pakistan.

The geopolitics of the China-India-Pakistan triad are in flux. As Ashley Tellis observes, "The security competition between China, India, and Pakistan continues unabated, with China and Pakistan increasingly positioned as partners in their opposition toward India."¹⁹² Facing the China-Pakistan alignment is the "Quad"—the quasi-alliance of the United States, Japan, Australia, and India—that seeks to counter China's increasingly assertive efforts to change the regional status quo. China's staunch support for Pakistan against India provides strategic utility that is analogous to Beijing's unconditional support for North Korea against the United States and Japan. With Russia suffering reversal in the Ukraine war, China could conceivably use its alignment and leverage with Russia to press Putin to curtail relations with India.

President Kennedy's nightmare vision of thirty or more nuclear weapon states by the 1970s did not come to pass. The "Nth country problem" remains bound. Beyond the P5 (United States, Russia, China, Britain, and France), India, Pakistan, and North Korea are declared weapons states, Israel is an undeclared but acknowledged weapon state, and Iran is a nuclear threshold state. How nuclear tripolarity will affect proliferation is unclear, but it is unlikely to suppress any state motivated to acquire an independent nuclear capability.



A SpaceX Falcon Heavy rocket launches military payloads for the US Space Force from Cape Canaveral in January 2023. Image source: Paul Hennessy / SOPA Images / Sipa USA / Sipa via AP Images



Conclusion: Managing Instability

Strategist and Nobel laureate Thomas Schelling cautioned that the nuclear powers in a complex and dangerous multipolar system view the world through their own prisms, which can give rise to misperception, miscalculation, and inadvertent escalation. Compared to the advent of the nuclear age in 1945, Schelling observed in 2013, “the world is so much changed, so much more complicated, so multivariate, so unpredictable, involving so many nations and cultures and languages in nuclear relationships, many of them asymmetric, that it is even difficult to know how many meanings there are for ‘strategic stability’”—or whether states define the prerequisites for stable deterrence the same way.¹⁹³ Apropos Schelling’s observation, when the Biden administration announced in November 2021 that the President and Chinese leader Xi Jinping had agreed to “strategic stability” discussions, an NSC spokesperson obliquely alluded to the absence of a shared understanding of key concepts such as deterrence by comparison to the longstanding strategic dialogue with Russia dating to the Soviet era: “It should be clear... this is not the same as the talks we have with Russia, which are mature and have history.”¹⁹⁴

The Biden administration has sought strategic stability talks with China to establish “guardrails”—parameters to responsibly manage the relationship—but Beijing has balked on moving forward.¹⁹⁵ Putin’s announced suspension of New START closed off that institutional forum for strategic dialogue with Russia. Expressing receptivity to dialogue with both peer

competitors, Assistant Secretary of State Mallory Stewart stated, “Arms control isn’t something you cast aside when tensions are on the rise. On the contrary, the value of arms control is greatest when conditions are ripe for miscalculation, escalation, and spiraling arms races.”¹⁹⁶

With Russia waging a major war of aggression in Europe, conditions are not ripe for the type of diplomacy that during the early 1970s yielded SALT and the “Basic Principles of Relations” with the Soviet Union. Avoiding escalation in Ukraine while keeping the door open to strategic stability talks remains the placeholder strategy. Roiling the prospects for strategic dialogue with Russia is Putin’s belief, reinforced during the Ukraine war by the United States’s imposition of comprehensive sanctions and export controls on Russia, that the US objective is regime change. President Biden’s declaration that Washington does not seek to “destabilize” Russia through its support of Ukraine is as far as a US administration can currently go in offering reassurance to the Putin regime.

With China, conditions for strategic dialogue are also not mature. As National Security Advisor Jake Sullivan indicated, the two sides do not have a shared understanding of strategic concepts. Like Russia, China views the United States as a revisionist power seeking to undermine Chinese Communist Party rule. To ameliorate Chinese concern and help stabilize this fraught bilateral relationship, Kissinger Institute Director Robert Daly proposed that the United States articulate “a new One China Policy”—one it truly believes in—and then abide by it. The new formulation must include opposition to Taiwan’s independence and China’s use of force and must reject the idea that Taiwan is an American asset.”¹⁹⁷

Promoting Strategic Stability

Key elements— some aspirational, others operational, most uncertain— will affect the prospects for successful management in the emergent tri-polar nuclear order. Even if the pathways for implementing these measures

are not evident *politically*, we can *analytically* distinguish major policies that would promote strategic stability.

- **Reinforce comprehensive deterrence**—Managing instability in a tri-polar world requires the United States to maintain a robust strategy of deterrence in both its variants—deterrence by denial and deterrence by punishment. *Deterrence by punishment* seeks to affect the intention of a state to carry out a hostile act through the credible threat of a punitive response. After Russia’s invasion of Ukraine, the United States bolstered this variant of deterrence by reaffirming its collective security commitment through NATO and threatening “severe consequences” if Russia used nuclear weapons of any magnitude (and would not “slice the salami” in National Security Advisor Sullivan’s phrase).

Alternatively, *deterrence by denial* would entail defensive measures that frustrate an adversary’s ability to achieve its objective. In the new domains of cyber and space warfare, deterrence by denial strategies would entail hardening cyber and space assets to deny an adversary the benefits of an attack and thereby decrease the incentive for preemptive action in a crisis. Maintaining credible conventional military forces in key theaters is a form of deterrence by denial. Since the Russian invasion of Ukraine, NATO countries have increased military spending and forward deployed forces that are both more capable and visible.¹⁹⁸ In East Asia, the United States, whose conventional superiority has eroded, faces an analogous defense challenge with China over Taiwan. A comprehensive deterrence policy—one that integrates both variants—can affect Russia’s and China’s strategic calculus. The goal is to have them abstain from Schelling’s “competition in risk-taking” with the United States.

- **Maintain the residual arms control architecture**—Though Putin has suspended New START, Russia has stated it will continue to abide by its numerical constraint of 1,550 warheads on 700 delivery vehicles.

New START will expire in 2026 and will not be extended beyond that date. With China's emergence as a peer nuclear competitor, the United States has made clear that China should be a party to any follow-on negotiations. The emerging conventional wisdom that "arms control is dead" must be qualified. States will participate in arms control negotiations when their leaderships believe it serves their interest. Superpower arms control created a framework that structured US and Soviet force posture development—providing transparency and predictability. As China modernizes and expands its nuclear forces, Beijing may see that participating in trilateral arms control serves its interest by preserving the New START ceiling on strategic nuclear systems and thereby locking in its emergent parity status. Though China has eschewed trilateral negotiations on strategic nuclear arms, the demise of the INF Treaty could create an incentive for the Beijing regime to engage Washington on theater missiles to forestall a regional arms race. In addition, as China moves toward near-peer nuclear status with the United States, Beijing's increased confidence that China has attained an assured retaliatory capacity may create the basis for its participation in trilateral arms control talks.¹⁹⁹

- ***Mitigate the risks of unconstrained competition***—In the absence of an arms control architecture, each nuclear power in the multipolar system will have strategic autonomy to structure its offensive and defensive systems. Since the Cuban missile crisis, assured retaliation—eliminating incentives for a surprise first strike—has been the sine qua non of strategic stability. The risk for crisis stability is that arms race instability—unregulated numbers of offensive and defensive systems, in tandem with new weapons technologies and cross-domain threats to space and cyber assets—could revive those incentives, making the deterrent relationships more "delicate." In the past, arms control negotiations provided a forum for strategic discourse. In their absence, less structured government-to-government contacts and unofficial

“Track II” expert contacts could yield understandings and norms short of formal agreements about force structures and doctrines to bolster stability. As with the removal of tactical nuclear weapons from the Korean peninsula in 1991 by Gorbachev and George H.W. Bush, progress may be made through reciprocal independent actions based on mutual interests. For example, the United States has proposed a moratorium on tests of destructive, direct-ascent anti-satellite (ASAT) explosives that could be used preemptively against military satellites in a crisis. ASAT tests are also the source of destructive space debris in low earth orbit that threaten manned space missions and satellites. Without a formal agreement, the United States, Russia, and China might each unilaterally observe a tacit norm that proscribes ASAT tests. In February 2023, the Biden administration proposed norms governing the responsible military use of artificial intelligence. The impetus is that the traditional risks of automated systems, which dangerously generated several false alerts of attacks during the Cold War, are being recast with the prospect of artificial intelligence being integrated into nuclear warning systems. Emphasizing the primacy of human safeguards over any nuclear use, the administration advanced the norm that “States should maintain human control and involvement for all actions critical to informing and executing sovereign decisions concerning nuclear weapons employment.”²⁰⁰ The current level of tension in US relations with Russia and China could lend credence to a faulty alert and precipitate preemptive action. The three powers have a mutual interest in preventing this threat to strategic stability. Paul Stares of the Council on Foreign Relations has proposed “a deliberate process of mutual reassurance and reciprocated restraint” that he characterizes as “mutual assured survival.”²⁰¹

- ***Avoid blurring conventional military and nuclear operations to prevent inadvertent escalation***—Placing conventional warheads on ballistic or hypersonic missiles, such as that envisioned in the

“Conventional Prompt Global Strike,” has utility (the ability to reach any target on the globe in under one hour), but runs the risk that Russia may perceive (and respond to) the launch of a missile it associates with US nuclear capabilities as the initiation of such an attack. A similar concern has been raised with respect to dual-use hypersonic weapons developed by Russia and China that could carry either nuclear or conventional warheads. An additional driver of inadvertent escalation is the targeting of an adversary’s conventional capabilities that are co-located with its nuclear capabilities. Concern that the use of conventional military weapons could escalate a conflict by placing nuclear assets at risk has been raised most acutely with respect to the strategic competition between the United States and China.²⁰²

- **Maintain open diplomatic and military communication lines**—US Secretary of Defense Lloyd Austin, citing “the importance of maintaining lines of communication amid the ongoing war,” has spoken to Russian Minister of Defense Sergei Shoigu several times. Director of Central Intelligence William J. Burns has likewise maintained an open channel of communication with his counterparts to communicate messages to Putin from Biden, including a warning Russia against any use of tactical nuclear weapons in Ukraine. In addition, NATO and the Russian military have a “deconfliction” line, which, as with the other channels, can avoid miscommunications and inadvertent escalation. With China, the Code for Unplanned Encounters at Sea (CUES), to which both China and the United States are signatories, may be a mechanism for managing maritime tensions between their navies.
- **Manage complex linkages in a tripolar system**—Actions taken to address one adversary in a triadic relationship can affect the other. The US withdrawal from the INF Treaty was occasioned by Russian cheating (with deployment of a new cruise missile) but was precipitated by the theater-missile threat in East Asia posed by a risen China. These complex linkages were also evident in China’s response to the US

deployment of the Terminal High Altitude Area Defense (THAAD) anti-missile system in South Korea that was precipitated by North Korea's ballistic missile advances, but which the Beijing regime perceives as the precursor to a more elaborate defensive capability aimed at neutralizing China's nuclear deterrent.²⁰³ Similarly, the United States's thin anti-ballistic missile deployments in Alaska are focused on North Korea's rising ballistic missile threat to the US homeland.

A Strategic Inflection Point

When Einstein was asked how he could unravel the structure of the atom but was unable to devise political means to prevent it from destroying humanity, he famously replied, because "politics is more difficult than physics." Current nuclear risks are even more complex and dangerous because of the multiplicity of actors, emergent technologies, and the absence of an institutional framework to manage competition. The policy tensions created by the recasting of the Cold War risks—the "stability-instability paradox" and the "delicate balance of terror"—will affect the prospects for strategic stability and the avoidance of crisis instability in Europe (related to the Ukraine War) and in Asia (over Taiwan).

In the new tripolar nuclear world, these policy tensions cannot be resolved, but they can be managed. They cannot even be managed, however, absent a threshold recognition among the three powers of their mutual interest in halting the destabilizing spiral into unconstrained competition.

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One Woodrow Wilson Plaza
1300 Pennsylvania Avenue NW
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