Chapter Four

Mutual Nuclear Restraint

The United States and China are among the original five nuclear weapons states recognized by the Nuclear Nonproliferation Treaty.[1] Historically, their strategic nuclear relationship—each side's concerns about the other's potential use of nuclear weapons—has not been a major aspect of their overall relations, in part because both were more concerned about the Soviet threat. Now, however, the rising power of China and growing significance of Sino-American relations for world security have put a spotlight on their nuclear relationship. In addition, the deployment of U.S. ballistic missile defense (BMD), cuts in U.S. strategic offensive forces as a result of U.S.-Russian arms control, and the increasing quality, quantity, and survivability of China's strategic offensive forces have raised questions on each side about the nuclear forces and intentions of the other.

For the United States, from the dawn of the nuclear era until recently, the number, features, and doctrine for using nuclear weapons were determined by the U.S.-Soviet rivalry, strategic arms competition, and danger of global war. The effect was to give the United States the ability to accurately deliver thousands of nuclear weapons on strategic missiles and bombers, along with a doctrine that contemplated both tactical and limited strategic use of nuclear weapons, albeit within a context of mutual assured destruction.

Though not its principal motivation, the United States developed ample capacity to destroy China's small and vulnerable nuclear forces, along with much of China. The United States has nuclear superiority over China—numerically (roughly a 30:1 ratio at present), qualitatively, operationally, offensively, and defensively.[2] Because China was weaker than the United States in conventional forces, questions of whether, why, and how the United States would use nuclear forces against China were not given much attention.

During this same period, China has not had a nuclear force with enough range, size, and survivability to give it a credible threat of retaliation against the United States and thus full confidence that it could deter a U.S. nuclear first strike on China in the event of war. Yet except during the

Korean War, the possibility of a U.S. nuclear attack on China has been extremely remote. Sino-American rapprochement in the early 1970s largely ended any reason for the United States to take advantage of its nuclear superiority. For 40 years, China's lack of a fully credible deterrent has not exposed it to significant risk of a U.S. nuclear attack—it has indeed been vulnerable, but not threatened.

Yet the Chinese are increasingly dissatisfied with the one-sidedness of the Sino-American strategic nuclear relationship and now have the economic and technological wherewithal to rectify it. While the Chinese do not aspire to have a strategic nuclear force equivalent in quantity or quality to that of the United States, they are determined to ensure that nuclear deterrence is mutual. The advent of U.S. BMD has deepened Chinese doubts about their ability to deter the United States by threat of retaliation, while also fanning their suspicions that the United States wants to deny China a nuclear deterrent.[3] These suspicions, in turn, make the Chinese skeptical about U.S. assurances that it accepts China as a great power. Far from dissuading China from improving its strategic nuclear forces, U.S. BMD has had the opposite effect.

Since acquiring nuclear weapons half a century ago, China's constant goal has been a minimum nuclear deterrent capability. An enemy should expect at least some Chinese nuclear weapons to survive a nuclear attack, penetrate defenses, and visit such devastating retaliation—say, the destruction of a large city or two—that that enemy, regardless of its nuclear preponderance, would be deterred from striking first.[4] Toward this end, the Chinese built a small number of exceptionally large (3- to 4-megaton) thermonuclear weapons and deployed them on an equally small force of land-based ICBMs. Such a weapon could largely destroy a major American city, if it could get there.[5]

In order to bolster deterrence, and perhaps because of its doubtful ability to retaliate, China has been adamant about its *will* to retaliate. China's 2008 *Defense White Paper* states:

> [I]f China comes under a nuclear threat, the nuclear missile force of the Second Artillery Force [the PLA's strategic nuclear arm] will go into a state of alert and get ready for a nuclear counterattack to deter the enemy from using nuclear weapons against China. If China comes under a nuclear attack . . . the Second Artillery Force will use nuclear missiles to launch a resolute counterattack against the enemy.[6]

China's nuclear posture was based not only on a belief that minimum deterrence was sufficient but also on the paucity of resources and technologies with which to build larger and better strategic forces. Until recently, modernization of their nuclear arsenal was a low priority for the Chinese. They have repeatedly pledged not to use nuclear weapons first, pressed other nuclear powers to make such pledges, resisted being drawn into a strategic arms race, and called for general nuclear disarmament. In a nutshell, the Chinese view nuclear weapons only as a way to prevent nuclear attack, and they do not believe that being a global power necessitates having more nuclear weapons than needed for minimum deterrence, despite the U.S. and Russian examples.

Even with China's economic success and political ambitions, there are no signs of the Chinese moving to a nuclear doctrine beyond minimum deterrence. Their recent efforts to strengthen their nuclear force are impelled by and limited to attaining and maintaining an assured deterrent, with no apparent interest in using nuclear weapons first or for warfighting.[7] Increases in the number, range, mobility, reliability, launch-readiness, and accuracy of its ICBMs[8] are intended to correct deficiencies in China's ability to ride out a U.S. (or Russian) first strike and deliver enough retaliation to deter such a strike. As Chinese President Hu Jintao recently affirmed:

> China . . . is firmly committed to a nuclear strategy of self-defense. We have adhered to the policy of no-first-use of nuclear weapons at any time and under any circumstances. . . . China does not participate in any form of nuclear arms race. We will continue to keep our nuclear capabilities at the minimum level required for national security, and [attempt] to advance the international nuclear disarmament process.[9]

With the tenor of Sino-American relations becoming increasingly crucial for both countries and the rest of the world, it is timely to ask what direction the strategic-nuclear aspect of those relations will and should take. For better or worse, strategic-nuclear matters will affect relations in general: if either side suspects the other of seeking strategic-nuclear supremacy, it is bound to erode that side's trust. Conversely, if the danger of nuclear war and distrust of nuclear intentions between the two can be eliminated, it should unburden the relationship and foster more cooperation. Recognizing this, the Chinese and U.S. governments have agreed to conduct a "strategic security dialogue" to discuss this and related issues.[10]

As this is written, the most salient strategic issue is whether China will attain and maintain an assured capability to strike the United States with nuclear weapons after suffering a U.S. nuclear attack, and whether the United States will try to deny China such a capability. The next part of this chapter explains why China can and will have such a capability, even if faced with a U.S. effort to prevent it. Thus, each country will be vulnerable to the other's nuclear weapons, and each will be able to mitigate this vulnerability by threatening retaliation.

Beyond such conditions of mutual nuclear deterrence, the opportunity and challenge facing the United States and China are to institute mutual restraint in the nuclear field, building confidence on the proposition that both countries accept mutual deterrence and seek to strengthen and institutionalize it cooperatively. In turn, the key issue for the *future* Sino-American strategic relationship is what mutual nuclear deterrence and mutual restraint will mean for Sino-American relations, U.S. interests, East Asia, and the world. The chapter will conclude by recommending how China and the United States should order and manage their nuclear relationship.

The Shifting Balance of Forces

There are two reasons to expect China to gain a credible nuclear retaliatory capability against the United States: first, because it can, and second, because it feels it must.[11] Offense dominance in the nuclear domain makes it easier and less costly for China, even as the less advanced power, to have such a capability than for the United States to prevent it. As a matter of essential national security, China is determined to have such capability—more determined than the United States is to deprive it of one.

Offense Dominance

The dominance of offense over defense in the nuclear realm has both economic and operational meanings: the former applies to arms competition, the latter to conflicts or crises. Economically, above a low threshold of offensive capability, the cost of defense needed to neutralize the next increment of offense is greater than the cost of that increment. Moreover, this disparity grows as the scale of offense does, making offense an increasingly good and defense an increasingly bad investment. To dramatize this, consider that the United States has spent over $100 billion on missile defense over 25 years and, to show for it, now expects to have an ability to knock down an attack on the order of tens of strategic missiles.[12] The cost of those enemy missiles, including their development, is a tiny fraction of what the United States has spent to intercept them. Moreover,

the cost of developing technologies and techniques to penetrate defenses looks to be less than the cost of developing the means to neutralize such antidefense advances.

Figure 4–1 illuminates offense dominance in nuclear missile and intercept systems. It plots the cost of defense (based on the U.S. SM–3 interceptor) against the cost of offense (based on the U.S. Minuteman III ICBM).[13] If each interceptor and ICBM cost the same, if each ICBM carried only one reentry vehicle (RV), and if only one interceptor was needed to destroy one RV, the economic relationship of offense and defense would be as represented by the "Equal cost" line. However, each interceptor costs $3 million more than each ICBM, so the cost advantage of offense accumulates as a function of the number of ICBMs (represented by the "Interceptor vs. single warhead ICBMs" line). Additionally, this ICBM—and China's

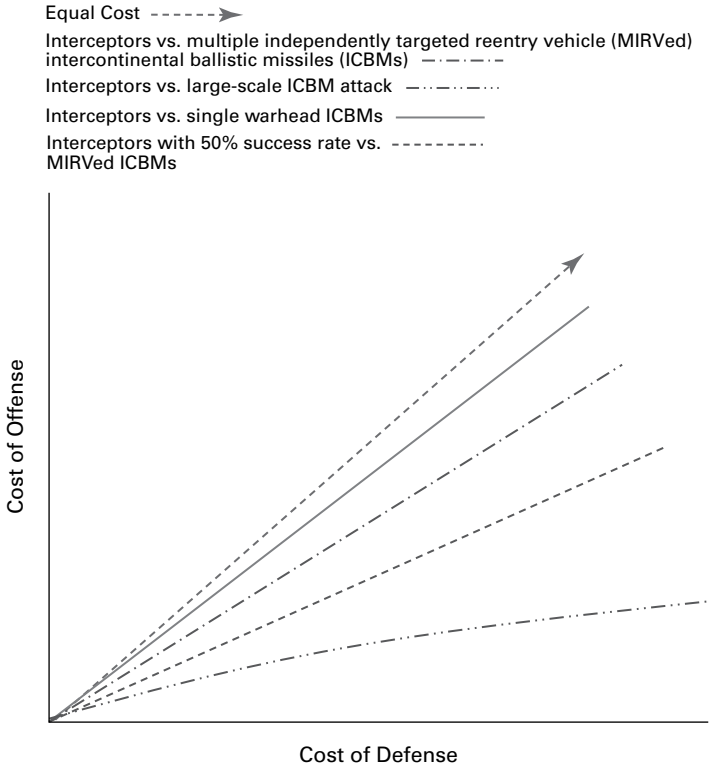

Figure 4–1. Cost of Offense Dominance in Missile and Intercept Systems

future ICBMs, if it so chooses—is capable of carrying multiple independently targetable reentry vehicles (MIRVs), making the cost gap even more favorable to offense (see "Interceptors vs. MIRVed ICBMs" line). Of course, a given interceptor is not certain of destroying a given ICBM, so the "Interceptors with 50% success rate vs. MIRVed ICBMs" line represents the cost gap if an average of two interceptors is needed to destroy each incoming missile.[14]

The odds of successfully intercepting one missile decrease as the size of a missile attack increases, because missile defense systems can be overwhelmed by the complexity of trying to locate, track, target, and strike large attacks. This situation is represented by the "Interceptor vs. large-scale ICBM attack" line, which shows the offense dominance expected from a large attack from MIRVed missiles. Overall, we see sharply diminishing returns for investment in defense and a reward for investing in offense and relying on the threat of retaliation to deter.

Simply put, missile defense may make sense (for those who can afford it at all) against small nuclear threats (such as North Korea) but not against large ones (for example, Russia and China). Even though the United States has the larger economy and can outspend China on strategic capabilities, for the former to commit resources to assure missile defense against the latter would be a bad investment. Indeed, it would be practically unaffordable in the context of already heavy demands on a U.S. defense budget that may have to be cut to help restore fiscal balance. China is more able to assure itself of a nuclear second-strike capability than the United States is to assure itself of a first-strike capability.

Motivations

China is also more strongly motivated to have a second-strike capability than the United States is to have a first-strike capability. Given that the United States would suffer devastation from a Chinese second strike, it may seem counterintuitive that it matters more to China to have such a capability than it matters to the United States to prevent China from having it. This twist of nuclear deterrence is that China's ability to destroy American cities is less relevant to any plausible Chinese nuclear threat to the United States than it is to the nuclear threat the United States poses to China. Even with its reduced post–Cold War nuclear offensive force, the United States can surely deter a Chinese nuclear strike. Much less certain is whether the Chinese have a sufficient retaliatory capability to deter a U.S. attack on China, which is why it is more important for China to have such a capability than it is for the United States to deny it.

Chinese strategists believe that the United States would find the loss of a city or two to be an unacceptably high cost for attacking China with nuclear weapons. Unless the United States had more to lose than the equivalent of a city or two by *not* attacking China with nuclear weapons, the Chinese are correct. It is not easy to imagine what would cause the United States to stake the destruction of, say, Los Angeles and Chicago: Chinese invasion of Taiwan? Chinese sinking of a U.S. aircraft carrier? Chinese backing of North Korea in hostilities with South Korea and the United States? If the United States had no other options but to attack China with nuclear weapons for such provocations, then perhaps it might contemplate such a course. But as the stronger military power with superior conventional capabilities, the United States could make China pay dearly for such actions without triggering a nuclear attack on itself. Moreover, because the United States is so unlikely to use nuclear weapons against China even without a Chinese retaliatory capability, American leaders may not feel that much is lost if China were to have that capability.

The Chinese believe they need a retaliatory capability not only to minimize the danger of an actual U.S. nuclear attack but also to minimize U.S. leverage from the *threat* of such an attack. While a U.S. nuclear attack on China may seem extremely far-fetched, the Chinese cannot ignore the threat, if only because it might enable the United States to coerce China in some possible future crisis, such as over Taiwan. The aversion to "nuclear blackmail" has been a consistent theme in Chinese nuclear doctrine.[15] China's interest in being able to deter a U.S. nuclear attack does not necessarily betray Chinese intent to commit hostile acts against U.S. interests without fear of nuclear war; after all, Chinese acts of war could provoke severe nonnuclear American retribution. But China is worried, justifiably or not, about being bullied by the United States. Whether or not Americans would use nuclear weapons to coerce China, it is unrealistic to expect the Chinese to be complacent in this regard, given its negative history with stronger powers.

During much of the Cold War, the Chinese were more worried about being menaced by the Soviet Union than by the United States. Even now, the Chinese are also motivated to deny Russia any ability to threaten and coerce them, which also fuels their interest in stronger retaliatory forces. Russia retains a nuclear arsenal comparable in size, though inferior in quality, to that of the United States. What is different between Russian and U.S. nuclear postures, from the Chinese perspective, is that Russia, by its own admission, is relying more on nuclear weapons, while the United States is relying less on them. Whereas the United States is stronger than China in

conventional capabilities, Russia is, if anything, weaker. This creates, in theory at least, the danger that Russia would rely on the threat of nuclear weapons to gain an advantage, or to rectify a disadvantage, in a crisis or conflict with China.[16]

Their continuing concern about Russia's nuclear capabilities and doctrine notwithstanding, the Chinese are investing in nuclear force modernization mainly with the United States in mind. This is reflected in China's growing interest in very long range ICBMs and in a sea-based deterrent. Presumably, any Chinese retaliatory force adequate to deter the United States would be adequate to deter Russia. The Sino-American strategic-nuclear relationship is now driving Chinese nuclear strategy and force modernization.

On the matter of being able to deter a U.S. nuclear attack, there is no hint of disagreement or irresoluteness within China. Statements by political leaders and military commanders are clear and consistent.[17] At the same time, the Chinese would reject the notion that having the ability to retaliate for a U.S. nuclear attack is indicative of belligerence toward the United States or prejudicial to a generally cooperative Sino-American relationship. On the contrary, they view mutual deterrence as a way to inoculate the relationship against nuclear threats and coercion, to enhance stability and equity, and thus to facilitate wider cooperation. Perhaps the Chinese are more likely to cooperate internationally with the United States out of confidence than out of fear, though it is also possible that mutual nuclear deterrence will make China more assertive.

Americans do not seem overly suspicious of the Chinese determination to be able to deter a U.S. nuclear attack. U.S. official statements express no alarm about China's quest for a deterrent per se—only about the murkiness of Chinese programs and the need for greater transparency.[18] Even with limited transparency, it is clear enough from Chinese statements, forces, and investments that the goal is mutual deterrence, with China's strategic offensive force smaller than America's but still adequate.

Apart from the sheer difficulty and cost, there are two reasons why the United States should not try to retain the ability to prevent China from being able to retaliate for a U.S. attack. First, no serious American strategist would argue that launching a nuclear first strike on China is essential to safeguard security and U.S. interests in East Asia. Even with no threat of Chinese retaliation, current potential flashpoints in Sino-American relations—Taiwan, maritime rights, war between the Koreas—would not justify a U.S. nuclear attack. They pose no threat to vital American interests, the American way of life, or the American homeland.[19] Second, were the United

States to try to cling to the ability to deny China a nuclear deterrent, it would raise doubts about whether the United States wants the kind of cooperative Sino-American relationship it claims to want, as opposed to one in which the United States can exploit its nuclear leverage. It would be hard to square a U.S. insistence that it must preserve a nuclear first-strike capability against China with the sort of constructive Sino-American relationship that is favored across the U.S. political spectrum. Conversely, it would be easy for the Chinese, given their sensitivities, to interpret U.S. efforts to retain a first-strike capability as indicative of a hegemonic strategy.

It is not surprising, then, that the U.S. Government's official 2010 *Nuclear Posture Review* treats the U.S.-China nuclear relationship conceptually on the same plane as that with Russia, calling for "strategic stability" with both—a formulation that could be read as accepting Sino-U.S. mutual deterrence. This is partly in view of the difficulty and cost of denying China a second-strike capability. But it also reflects an appreciation by the U.S. Government that de facto mutual deterrence with China is compatible with U.S. security interests, including a nonconfrontational and, if possible, cooperative relationship with China. This U.S. stance is also reflected in assurances given to China (although not completely believed there) that U.S. BMD is meant to counter the likes of Iran and North Korea, not China.[20]

The U.S. Government has also shown a strong desire to reduce the prominence of nuclear weapons in world affairs, largely motivated by the belief or hope that this would help slow their proliferation. Toward this end, the administration has adopted a more restrictive policy than any of its predecessors concerning the use of nuclear weapons, stressing that their primary purpose is to deter nuclear attack. It has reserved the first use of nuclear weapons to circumscribed situations—for example, in response to a large-scale biological weapons attack—and has made clear its intent to work toward conditions that would enable it to state that the sole purpose of U.S. nuclear weapons is to deter nuclear attack.[21] This tends to confirm that the United States finds a Chinese second-strike deterrent acceptable if not inevitable.

At the same time, American strategists may still doubt the wisdom of assuring Chinese leaders that the United States would not use nuclear weapons first, as implied by explicit acceptance of mutual deterrence. These doubts include concerns about the reaction of U.S. allies in East Asia, about emboldening China to be more adventurous, and about the loss of U.S. escalation dominance in connection with a confrontation or conflict, such as over Taiwan. Nevertheless, there is little or no indication

that the U.S. Government is prepared to try to deny China a nuclear deterrent vis-à-vis the United States.

A Hypothetical Sino-American Strategic Arms Race

In order to underscore the difficulty, if not futility, of a U.S. effort to deny China a nuclear deterrent, what follows is a rough approximation of the current relationship of Chinese and U.S. strategic forces followed by moves each side could take to gain or retain advantage. Because it is dissatisfied with the status quo and thus more likely to seek to change it, we start with China.

Assume that China has about 50 single-warhead ICBMs capable of reaching the United States, deployed on fixed launchers, 40 percent of them liquid-fueled (and thus slow to prepare for launch). Also assume that the United States has 1,550 nuclear warheads on deployed strategic missiles and bombers (the number allowed under the Russian-American New Strategic Arms Reduction Treaty [START]), as well as substantial long-range conventional airpower (also known as global strike), a modest BMD system, and good but not comprehensive space-based surveillance coverage of China.

Using its surveillance capabilities to locate fixed Chinese ICBMs and, say, 500 of its nuclear warheads plus conventional global strike weapons in a first strike on China, the United States could destroy most if not all of China's ICBMs (along with a lot of the country and its people). If, for the sake of analysis, five Chinese ICBMs survived the U.S. strike and were launched in retaliation, the current U.S. BMD system of sensors and interceptors could potentially destroy them all (assuming it were optimized for the trajectories of Chinese ICBMs). In the face of such odds, the Chinese would not have confidence that any of their nuclear weapons would reach the United States. Conversely, the United States would have reasonable, though not absolute, confidence in its ability to conduct a first strike on China without suffering retaliation. However improbable that the United States would actually attack China with nuclear weapons, these odds could give the United States escalation dominance, which would disfavor China in how a nonnuclear conflict between the two would be settled.[22] Such dominance provides leverage not only in hostilities but also in crises.

Deeming such a correlation of strategic forces to be both intolerable and correctable, the Chinese could in a few years take a number of remedial steps well within their current resource capacity and technological competence. They could increase the number of ICBMs from 50 to, say, 100, with the added ones all solid-fueled (enabling them to be launched

faster) and deployed on mobile launchers (making them harder to target).[23] In that case, perhaps not 5 but 20 Chinese ICBMs would survive a U.S. first strike, presenting U.S. BMD with a challenge near the upper end of its capability. At that point, the United States would have much lower confidence of avoiding Chinese nuclear retaliation altogether and so could be deterred.

In order to restore its ability to deny China a nuclear deterrent, the United States could respond by planning a significantly larger first strike of perhaps 1,000 of its nuclear weapons and a larger share of its conventional strike weapons. In this desktop nuclear arms race, such a move would have very high real and opportunity costs for the United States, by requiring other strategic missions to be neglected, enlarging its conventional global strike force, and perhaps exceeding the START limit of 1,550 on deployed strategic nuclear weapons. The United States could also expand its missile BMD to counter a medium-scale nuclear attack, but also at considerable cost in sensors and interceptors and the installations on which they are deployed.

Observing this U.S. response, China could build and deploy still more mobile ICBMs and accelerate current plans to build five strategic missile–carrying submarines, which, when deployed, are even harder to locate, track, and target than mobile missile launchers. In order to reach the continental United States, the Chinese would need to extend either the patrol range of their submarines or the trajectory range of their strategic submarine-based missiles.[24] The Chinese could also develop and field decoys and other penetration aids to frustrate U.S. BMD. Finally, the Chinese could develop and arm their strategic missiles with MIRVs. All these moves are within China's expanding economic means and technological reach.

Now facing, say, 100 or more incoming weapons, plus decoys, the United States could further enhance its missile defense to counter a large-scale attack, requiring more bases for sensors and interceptors as well as more ships for seaborne missile defense. The United States could also expand its antisubmarine warfare (ASW) capabilities and operations, requiring still more surface ships and attack submarines and/or committing more of the U.S. Navy to this instead of other critical missions. The United States could also attempt to enhance its space-based capabilities for more comprehensive real-time surveillance of China in order to track and target mobile missile launchers.

Finding submarines, intercepting ballistic missiles, and tracking mobile missile launchers are difficult but not impossible tasks, especially for a country blessed with advanced sensor, computing, and communications

technology. In all three cases, it requires locating an object that is moving either evasively or rapidly in the vastness of an ocean, the atmosphere, or a land mass. Once located, it must be tracked as it moves and eventually "locked on" by a long-range weapons system that can reach and destroy it. With current science, such problems can be solved. But the solutions can also be foiled, with less cost and difficulty. The target may be concealed (submarines), disguised (launchers), or accompanied by decoys (missile reentry vehicles). The sensors that seek them and communications that target them may be jammed. Meanwhile, the Chinese may increase the number of strategic targets, which would geometrically increase the technical difficulty of these problems.

During the Cold War and since, the United States has invested hundreds of billions of dollars in ASW, BMD, and space-based land surveillance. Still, it struggles to track submarines, intercept ballistic missiles, and locate missile launchers on the move, especially against large numbers of targets (or decoys). Given the physics, geometrics, and economics at play, China has the resources and know-how to assure offense dominance in the strategic domain—to "win" this hypothetical strategic arms race.

Apart from technological and operational challenges of such undertakings, the costs would either dictate a massive increase in U.S. defense spending—hardly plausible—or result in serious neglect of what are presently considered higher priorities, such as combating violent extremism and strengthening security in the energy-rich Middle East.[25] In an era of shrinking U.S. surface and submarine fleets, thanks to the climbing cost of such vessels, the investment required in naval forces alone for BMD and ASW, or the opportunity costs, would be staggering. The cost of additional satellites with more discriminating radar, optical, and other sensors to support more comprehensive U.S. surveillance of China and more robust BMD could be nearly as hefty as well.

In these major undertakings—enhanced BMD, ASW, and space-based surveillance—the United States would be faced with diminishing returns on ever-growing investments, especially if China deployed decoy weapons, mobile launchers, and underwater vehicles. Every Chinese increment of more or less proven strategic offensive capabilities would require the United States to invest disproportionately in unproven and inherently challenging strategic defenses. And the Chinese could make U.S. prospects even dimmer by adopting a launch-on-warning doctrine for their missiles forces, which they have been disinclined to do but could if and as their own space-based warning capabilities are improved. This would put an even greater burden on U.S. BMD.

As U.S. costs pile up faster than China's, the offense-dominant nature of strategic nuclear forces becomes increasingly pronounced. The Chinese would have growing confidence in their ability to ride out a U.S. first strike, launch a retaliatory barrage, and destroy American cities (along with U.S. military bases, key industrial locations, and so forth). For every increment of strategic offense capability the Chinese added, the U.S. goal of preventing retaliation would further recede.

Because of the awesome destructive power of nuclear weapons, the United States would have to prevent *every* Chinese weapon from detonating on U.S. soil, whereas the Chinese would only have to detonate *any* weapon on U.S. soil. In the course of this hypothetical strategic arms race, the chance that the United States could escape Chinese retaliation would decline. Indeed, as strategic offense-defense competition between large states spirals, the amount of offensive destructive power deliverable on the side attempting to defend itself could grow. This is the fundamental reason the United States elected not to try to defend itself against Soviet missiles during the Cold War, and it still applies today. Assuming the Chinese are determined, the United States would deplete its resources trying in vain to prevent a Chinese deterrent, only to find its cities and its people more vulnerable. In the end, China would be very heavily armed with strategic nuclear weapons. This would not only increase the potential retaliatory damage to the United States, but also would shake up U.S. allies. East Asia, a vital region, would be less stable, and hopes for a constructive Sino-American relationship would be dashed.

While this is no more than a highly simplified illustration, it is important to note that the Chinese are in reality building, developing, or at least contemplating the very strategic capabilities just described to improve the survivability, penetrability, and reliability of their offensive forces: solid-fueled missiles, mobile missile launchers, submarine-based missile forces, MIRVs, and other capabilities to overwhelm missile defenses.[26] They may even have played through multiple moves in the sort of hypothetical arms race just sketched, and as a result they know their priorities. Moreover, as the Chinese have demonstrated in the dramatic expansion of their short-range missile arsenal in recent years, they are quite capable of ramping up production of strategic missiles.

The United States has proven its ability to "pay any price" and to compete on industrial and technological grounds to confront a grave threat, such as Nazi Germany, imperial Japan, and the Soviet Union. But it is unclear how it would justify the ballooning costs of trying to deprive China of a deterrent capability. Even assuming China and the United States

continue to have divergent interests and even find themselves in an occasional confrontation, the stakes would not warrant the effort required, especially in light of the futility of strategic defense against a well-resourced and committed opponent like China. Barring blatant Chinese aggression and expansionism throughout East Asia, it is hard to imagine the United States treating the denial of a Chinese deterrent as a top national security priority, given the other very real threats it faces.

In sum, the lack of a compelling national defense rationale and the technical difficulty and expected cost of countering a determined Chinese strategic-offensive build-up suggest that the United States will acquiesce in a mutual deterrent relationship with China. There are strong indications in U.S. declaratory policy that this is understood, if not unequivocally stated, in Washington. While the latest U.S. *Nuclear Posture Review* stops short of accepting a Chinese deterrent, it conveys no determination to prevent it.[27]

Implications

To say that the United States has neither the means nor the ability to deny China a credible nuclear deterrent is not to say that this is inconsequential for U.S. security interests and East Asian stability. Several potentially deleterious effects come to mind. First, Sino-American "strategic stability," based on mutual nuclear deterrence, could cause increased substrategic instability, especially in East Asia and the western Pacific. Second, the United States would lose escalation dominance, and thus crisis dominance, which could embolden China to become more belligerent and intransigent. Third, mutual deterrence could unsettle U.S. allies and other states in the region, making them either more susceptible to Chinese pressure or, in the case of Japan and possibly South Korea, more inclined toward unilateral capabilities—perhaps even nuclear weapons of their own.

There are two reasons why Japan and South Korea need not, should not, and probably will not become motivated to slip the moorings of their security relationship with the United States as it becomes clear that China can deter a U.S. nuclear attack. First, the United States could and no doubt would continue to extend deterrence to its regional allies against Chinese *nuclear* threats, thanks to its overwhelming retaliatory capability and China's virtual defenselessness. Second, allied and regional confidence would be shaken less by the loss of the U.S. first-strike option than by a Sino-American strategic arms race, which would result in the loss of the U.S. first-strike option and an expansion in Chinese offensive nuclear capabilities.

As for emboldening China, it is prudent to anticipate that China would become less fearful if it became clear that a confrontation with the United States would involve a fading risk of nuclear escalation. But it is uncertain what bearing this would have on the realities of East Asia. Even without the risk of nuclear escalation, the costs of a major conventional conflict with the United States would still be high. Broadly speaking, China has a strong interest in a tranquil external environment, without which its goals of economic growth and political stability could be in jeopardy. Following hostilities with India and Vietnam several decades ago, China has carefully avoided war. The Chinese are aware of the regional backlash that would result from aggression on their part. When China has shown occasional forcefulness in asserting its sovereign claims—for example, missile tests in 1995 and 1996 to dissuade Taiwanese voters from supporting independence, and recently menacing rivals over fishing and resource rights in the East and South China Seas—reactions in the region have turned sharply against China (and in favor of U.S. security ties).

While we can expect continued Chinese outward pressure, especially over maritime and resource rights, Chinese strategy appears to be to probe without galvanizing an anti-Chinese alliance among its neighbors and the United States. While unwelcome and deserving of a firm response, recent Chinese heavy-handedness is well below the threshold at which the United States would invoke a threat of intervention, much less escalation to the nuclear level.

The possible exception, of course, would be Chinese aggression against Taiwan. The improvement of Chinese antiaccess capabilities—systems such as attack submarines and antiship missiles—could erode the ability and will of the United States to come to Taiwan's defense. In time, the Chinese could wrest crisis dominance away from the United States and be better able to prevail in a showdown or conflict over Taiwan or be more able to coerce Taiwan to accept unification on China's terms without war. Might the United States enable Chinese aggression against or coercion of Taiwan by accepting mutual deterrence, especially if China-Taiwan relations take a turn for the worse?

It might, to some degree. Of course, it is most improbable that the United States would launch a nuclear attack on China in defense of Taiwan even in the absence of a credible Chinese nuclear deterrent. Keep in mind that a U.S. first strike on China would have to be very large and destructive in order to completely destroy China's retaliatory capability, with the possibility of millions of Chinese casualties. Nevertheless, because China almost certainly will have a credible nuclear deterrent, the United States

must contemplate whether this could alter Chinese thinking about the use of forces against Taiwan and the possibility of war with the United States.

A Chinese attack on Taiwan cannot be excluded, given that the Chinese claim the right to unify the country by whatever means necessary and are developing and deploying capabilities to prevent or deter the United States from defending Taiwan. They might be marginally more inclined to attack Taiwan if they felt certain that doing so would not result in nuclear war. More likely, the Chinese may try to pressure Taiwan into unification without provoking U.S. intervention at all. But these are not risks that justify a massive, costly, and probably futile effort by the United States to deny China a credible nuclear retaliatory capability. Moreover, it is hard to see how Taiwan would be made more secure if the United States impelled China to expand its nuclear forces but, at the end of the day, was deterred from escalating to nuclear war in order to save Taiwan from China.

More generally, a theoretical argument could be made that East Asia could be destabilized if the United States and China were mutually deterred at the nuclear level. That argument holds that "decoupling" the danger of nuclear war from international relations, disputes, and conventional military conflicts may stimulate reckless behavior. The reasoning is that the local or regional correlation of conventional forces would matter more because the strategic nuclear domain would matter less.[28] This could be especially risky as China improves its position in the regional conventional balance.

This is a slippery argument that bits of history can either support or refute. It is generally thought that the U.S.-Soviet nuclear standoff imposed caution on the part of the superpowers and their principal allies during the Cold War, thus bolstering stability and driving down the probability of World War III. However, it must be noted that the United States explicitly coupled the possibility of nuclear war to Soviet aggression, especially in Europe, where the threat was greatest and most immediate.[29] The North Atlantic Treaty Organization's (NATO's) flexible response strategy made explicit American willingness to initiate and escalate nuclear war if need be to defend Western Europe; and this willingness helped keep NATO allies squarely in the U.S. camp.

Everywhere the United States did not threaten to use nuclear weapons first—for example, in the so-called Third World—conditions were less stable and peaceful during the Cold War, which suggests that Sino-American mutual nuclear deterrence could increase instability in East Asia. However, the Third World instability and conflicts that occurred during the Cold War were largely the result of deliberate use of proxies by one super-

power or the other to gain advantage, with nuclear weapons largely irrelevant. So the analogy is far from strong.

Nuclear weapons have not played and will not play the sort of prominent role in post–Cold War East Asian security that they did in the Soviet-American standoff. First use of nuclear weapons was a credible option when the alternative could have been Soviet seizure of all of Europe. Because of the ideological context of the East-West confrontation and the observed pattern of Soviet conquest and domination in the East, the Soviet threat was seen (correctly or not) as a global and existential one. As already noted, China poses no such threat to East Asia, much less to the United States and its way of life.

Empirically, while the data are sparse, nuclear weapons have not figured in East Asian security the way they did in the U.S.-Soviet confrontation in Europe. The Korean War showed that even with a nuclear monopoly, and even when defeat looked possible, the United States would not resort to nuclear weapons in the face of a use of force by China. It also showed that China would use force if it saw its vital interests threatened even if it lacked the means to deter U.S. nuclear attack.

The deployment of thousands of battlefield nuclear weapons to Europe, the sharing of nuclear weapons with NATO allies (under dual-key arrangements), and the flat U.S. refusal to make a no-first-use pledge all reinforced the credibility of U.S. nuclear coupling with European security. With the United States making a strenuous effort to reduce the role of nuclear weapons in world politics and military affairs, it hardly seems likely that it would now embark on a comparable strategy of coupling strategic nuclear weapons to security in East Asia. If any such coupling still exists, it is very weak and far less important than the conventional Sino-U.S. military balance, stalwart U.S. allies, and wise policy in maintaining East Asian stability.

Would this relatively sanguine analysis of the regional impact of Sino-American mutual nuclear deterrence hold up if China were to gain a conventional military advantage? What if China posed such a threat to U.S. forces in the western Pacific that neither the United States nor its allies could be confident of successful defense against flagrant Chinese aggression? There is no question that such an eventuality could alter the behavior of China, the United States, and U.S. allies. Still, the assessments that China is fundamentally not an expansionist power, that its quest for greater military capabilities is motivated by deep-seated fears and self-defense, and that Chinese growth depends on a peaceful international environment would seem to transcend changes in the regional military balance in China's favor.

It is also true that PLA modernization is improving its antiaccess capabilities much faster than its ability to project and sustain combat power beyond its borders. While predictions a decade out are hazardous, an aggressive China is improbable as much for internal reasons as external ones.

Moreover, U.S. acceptance of mutual deterrence with China would be less deleterious to East Asian security and U.S. interests than a strategic arms race with China, which would swell China's nuclear arsenal and leave the United States and its allies more, not less, vulnerable. Even if the United States did not embrace mutual restraint in the nuclear domain, mutual deterrence appears unavoidable. The United States and the region must in any case prepare *together* for increased Chinese power and strategic decoupling.

While the potential deleterious implications of Sino-American mutual deterrence are likely to be manageable, there could be positive effects for U.S. interests in the Sino-American relationship. The U.S. Government has been trying to convince the Chinese that containment is not the U.S. goal. This U.S. stance is a reflection of not only the infeasibility of containing China and preventing Chinese nuclear deterrence, but also the assessment that China will find cooperation more in its interest than confrontation, especially if U.S. alliances remain strong. Indeed, China and the United States should be more able to cooperate if the United States were to accept rather than try to prevent China's nuclear deterrent. This sense that strategic stability is a natural feature of productive Sino-American relations helps account for growing U.S. acceptance of mutual deterrence. The Chinese are well advised to understand this.

Conclusion

One of the themes of this book is that objective conditions of mutual strategic deterrence in nuclear and other domains need not and should not be ends in themselves but rather a point of departure for mutual strategic restraint, which implies reciprocal acknowledgment of the acceptability of mutual deterrence and commitment to maintain it. In its most basic form, mutual deterrence requires no communication beyond making known the capability and will to attack if attacked. The only "cooperation" needed for mutual deterrence is that both sides behave rationally in the face of the threat of retaliation. Mutual restraint entails at least some communication of good faith and willingness to cooperate.

In this connection, the minimum purposes of the Sino-American strategic security dialogue that the United States has proposed and that China has cautiously accepted are to create greater transparency and to

avoid costly miscalculation. In this dialogue, China could assure the United States that it seeks no more than an effective minimum deterrent, and the United States could assure China that its BMD will not be directed against China. Of course, mere assurances will not lay suspicions to rest on either side. The United States could explain in detail why its capabilities and its plans for missile defense cannot prevent a Chinese second strike yet can protect against the likes of Iran and North Korea. In turn, China could explain how its offensive force modernization programs fall well short of any nuclear aspiration beyond an assured retaliatory capability. Among the potential benefits of such exchanges is that the United States and China could spare themselves the costs of preparing to cope with strategic-offensive forces and missile defenses, respectively, that the other side does not actually intend to have.

Strategic talks could lead to even more significant results. The United States and China could agree explicitly to a mutual nuclear deterrence relationship and even enter into an explicit bilateral no-first-use agreement. This would be a bigger step for the United States than for China, which has long accepted and advocated no first use. While not a substantive concession to China, given that China will in any event possess an effective second-strike capability, the United States should approach this idea judiciously and strategically. The two most important considerations for the United States would be what to expect in return from China, and how such an accord would affect other U.S. interests, particularly in East Asia.

For the United States, the offer of a reciprocal bilateral no-first-use agreement should not be cast narrowly or only as acceptance of the inevitability, or reality, of China's ability to deter the United States, but instead as a joint commitment by the world's two strongest powers to a relationship of mutual and growing respect, trust, cooperation, and international leadership in reducing the importance of nuclear weapons in world affairs.

Ideally, the United States would also get China on record that both will conduct themselves in a way that strengthens security in and beyond East Asia under conditions of strategic nuclear stability. China would certainly not agree that such undertakings would nullify its asserted right to reunify Taiwan with China by whatever means necessary. It might, however, agree to indicate that there is no place for the use or threat of force to settle disputes. Whatever the words, the meaning is that China will not treat the end of U.S. nuclear-based escalation dominance as a license to cause crises.

In addition, the United States should expect China to be more open about its plans for further development of its strategic nuclear forces.

Perhaps most important, the United States should insist that China become a constant partner in nuclear nonproliferation in general and particularly in the toughest cases—Iran and North Korea—where Chinese assistance has been spotty. For the United States and China to exchange no-first-use pledges should bolster the international nonproliferation regime, but a more concrete dividend, in the same spirit, would be stronger Chinese support to sanction Iran and North Korea. By acceding to China's position on no first use, the United States should expect China to partner with it in preventing nuclear proliferation.

China should understand and acknowledge that allies are covered by Sino-American no first use.[30] If there is any doubt on this score, the United States should reiterate that a nuclear attack on its East Asian allies would prompt the United States to respond with means of its choosing, including nuclear weapons.

For the United States, Sino-U.S. nuclear no first use would be a further step toward reducing the importance of nuclear weapons and, as it has promised, to move toward conditions in which the only acceptable role for nuclear weapons is to deter nuclear war. Of course, this would immediately raise the question of U.S.-Russian no-first-use policy. Here, the United States must tread even more cautiously, given the doubts of its more exposed East European allies about NATO's nonnuclear ability and resolve to protect them from Russian aggression. Moreover, now that it finds itself with inferior conventional capabilities, Russia's own policy contemplates the option of nuclear first use. The United States might not find a willing partner in Russia. It is not within the scope of this study to recommend for or against a U.S.-Russia no-first-use agreement; but the pressure that a U.S.-China agreement would create could be productive.

Beyond Russia, if the United States were to begin to form no-first-use agreements with other nuclear powers, where would it lead? Presumably, the United States would not want to reward nuclear proliferation by offering no first use to all nuclear weapons states. On the contrary, only adherence to the Nuclear Nonproliferation Treaty would merit no first use, both for nuclear weapons states and non–nuclear weapons states. Thus, by pledging not to use nuclear weapons first against each other, the United States and China could demonstrate leadership in reducing the utility of nuclear weapons and thus in advancing nonproliferation.

If the United States and China were in effect to "fence off" the nuclear domain from their relationship, whether in good times or bad, why not do likewise in other strategic domains where the offensive power and vulnerability of each are growing? One possibility would be to use nuclear no first

use as a model to exchange wider assurances that the two leading powers will not strike at each other's essential well-being in *any* domain. For example, nuclear no first use could be accompanied by or set the stage for reciprocal assurances that neither will attack the space assets of the other.

The United States could simply, quietly acquiesce in Chinese achievement of a second-strike nuclear capability. Or it could view and use such a development as a way to consolidate trust in Sino-American relations in general, to further its goal of reducing the salience of nuclear weapons, to advance its nonproliferation objectives, and to stabilize its strategic nuclear relationship with China.

Notes

[1] China conducted its first nuclear test in 1964. The primary motivation for this test was to deter the Soviet Union and the United States from using their weapons in a coercive manner.

[2] The United States is obligated under New START to reduce its ICBM force to 1,550, whereas China is currently estimated to possess approximately 20 first-generation fixed ICBMs and approximately 30 second-generation mobile ICBMs. Office of the Secretary of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China* (Washington, DC: Department of Defense, 2010), 34.

[3] According to the 2010 BMD review, the United States is in the process of deploying approximately 30 missile interceptors. Chinese officials have expressed concerns about the potential impact of U.S. missile defenses on China's nuclear deterrent, especially given the potential for technological breakthroughs and U.S. unwillingness to accept any binding restraints on deployment of future BMD capabilities.

[4] See Liping Xia, "China's Nuclear Policy and International Order in the 21st Century," *NIDS International Symposium on Security Affairs* (Tokyo: The National Institute for Defense Studies, 2009), 73–94; Information Office of the State Council of the People's Republic of China, *China's National Defense in 2006* (Beijing: State Council of the People's Republic of China, December 2006); Information Office of the State Council of the People's Republic of China, *China's National Defense in 2008* (Beijing: State Council of the People's Republic of China, January 2009); Shu Guang Zhang, "Between 'Paper' and 'Real Tigers': Mao's View of Nuclear Weapons," in *Cold War Statesmen Confront the Bomb: Nuclear Diplomacy since 1945,* ed. John Lewis Gaddis et al. (New York: Oxford University Press, 1999).

[5] According to calculations done in 2006 by Hans M. Kristensen, Robert S. Norris, and Matthew G. McKinzie, a nuclear exchange with China would cost the United States between 15 million and 40 million casualties. See "Chinese Nuclear Forces and U.S. Nuclear War Planning," Federation of American Scientists/Natural Resources Defense Council, November 2006, 10.

[6] *China's National Defense in 2008,* 29.

[7] M. Taylor Fravel and Evan Medeiros, "China's Search for Assured Retaliation: The Evolution of Chinese Nuclear Strategy and Force Structure," *International Security* 35, no. 2 (Fall 2010), 48–87.

[8] China has deployed approximately 30 DF–31 and DF–31A ICBMs. Both are road-mobile, solid propellant missiles. The DF–31A has an estimated range of 11,200 kilometers and can reach targets throughout the continental United States. Office of the Secretary of Defense, *Annual Report to Congress: Military Power of the People's Republic of China* (Washington, DC: Department of Defense, 2010).

[9] Hu Jintao, comments at the United Nations Security Council Summit on Nuclear Non-Proliferation and Nuclear Disarmament, New York, September 24, 2009.

[10] The first meeting of the Sino-American strategic security dialogue took place at the Strategic and Economic Dialogue meeting in Washington, DC, on May 9–10, 2011. The two sides agreed that a second round of the strategic security dialogue would take place prior to the next Strategic and Economic Dialogue.

[11] This chapter does not analyze whether China currently has the ability to deter a U.S. nuclear attack. If it does, it is probably marginal, and China will need to improve if not expand its offensive forces in order to ensure it has a credible deterrent in the future.

[12] "Week in Review" chart, *The New York Times,* March 3, 2011. U.S. missile defense efforts have also yielded a theater missile defense capability with value in a conventional conflict.

[13] Each interceptor costs about $3 million more than each ICBM (not including development, platforms, support costs, or sensors). It should be noted that the SM–3 is not designed for ICBM intercept, though it has that potential.

[14] A more conservative estimate is that it could require four to five interceptors, on average, to destroy a single incoming target, given current technology, making offense dominance even more pronounced.

[15] Fravel and Medeiros, 48–87.

[16] Although China and Russia signed a detargeting and no-first-use pledge in 1994, Chinese nuclear concerns persist.

[17] See Hu Jintao; *China's National Defense in 2006*; *China's National Defense in 2008*; Pan Zhenqiang, "China's Nuclear Strategy in a Changing World Strategic Situation," in *Unblocking the Road to Zero: Perspective of Advanced Nuclear Nations: China and India,* ed. Barry Blechman (Washington, DC: Stimson Center, March 2009), available at <www.stimson.org/nuke/pdf/UnblockingRoadZeroChina-India.pdf>; Yao Yunzhu, "Chinese Nuclear Policy and the Future of Minimum Deterrence," *Strategic Insights* 4, no. 9 (September 2005), available at <www.nps.edu/Academics/centers/ccc/publications/OnlineJournal/2005/Sep/yaoSep05.html>; Sun Xiangli, "Analysis of China's Nuclear Strategy," *China Security,* no. 1 (Autumn 2005), 23–27, available at <www.wsichina.org/back1_05.html>.

[18] James B. Steinberg, "Administration's Vision of the U.S.-China Relationship," keynote address at the Center for a New American Security, Washington, DC, September 24, 2009, available at <www.state.gov/s/d/2009/129686.htm>; *Military and Security Developments Involving the People's Republic of China,* 34–35.

[19] We define "vital" U.S. interests as those necessary to the essential well-being if not viability of the United States, its population, and its form of government. This would not necessarily include the security of U.S. allies, though the United States has indicated that an attack on allies to which the United States has a defense commitment is tantamount to an attack on the United States itself.

[20] To be clear, U.S. ballistic missile defense, at least in its theater applications, is also intended to counter Chinese conventional missile threats to U.S. forces, ships, and bases and possibly U.S. allies in the western Pacific. Whether the United States can keep pace with the expansion of Chinese short- and medium-range missiles is questionable.

[21] Department of Defense, *Nuclear Posture Review Report* (Washington, DC: Department of Defense, 2010), 15.

[22] In classic deterrence theory, the side lacking escalation dominance can be expected to retreat if convinced that the opponent will escalate; and the opponent can be expected to convince the weaker side that it has the will to escalate and will gain an expanding advantage as it does.

[23] A 2010 Pentagon report indicates that China already has deployed approximately 30 of these mobile ICBMs; *Military and Security Developments Involving the People's Republic of China,* 34.

[24] The JL–2 SLBM, originally scheduled to be deployed in 2010, has an operational range of around 8,000 kilometers, which leaves it unable to pose a threat to the continental United States. Additionally, the Chinese have never successfully deployed and operated a SSBN, making their ability to deploy one during a crisis highly uncertain.

[25] Department of Defense, *Quadrennial Defense Review Report* (Washington, DC: Department of Defense, 2010), 67.

[26] Robert S. Norris and Hans M. Kristensen, "Nuclear Notebook: Chinese Nuclear Forces, 2008," *Bulletin of the Atomic Scientists* 64, no. 3 (July 2008), 42–45.

[27] *Nuclear Posture Review Report*, v.

[28] For further explanation, see Christopher Achen and Duncan Snidal, "Rational Deterrence Theory and Comparative Case Studies," *World Politics* 41 (1989), 152.

[29] See North Atlantic Military Committee, "Final Decision on MC 14/3, A Report by the Military Committee on Overall Strategic Concept for the Defense of the North Atlantic Treaty Organization Area," 9–11, available at <www.nato.int/docu/stratdoc/eng/a680116a.pdf>.

[30] While Chinese acknowledgment that Sino-U.S. nuclear no first use extends to allies might be viewed as Chinese acceptance of the legitimacy of U.S. alliances in the region, Chinese interlocutors have indicated unofficially that this is not an insurmountable obstacle.