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ENSURING STRATEGIC STABILITY

IN THE SECOND NUCLEAR AGE

by

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Biography

Lieutenant Colonel Robert Ewers enlisted in the Air Force in 1987. After his initial tour, he separated from active duty in 1991 and enlisted in the Colorado Air National Guard at Buckley Air Base while he attended the University of Colorado. Lt Col Ewers was commissioned in 1995 through the Air Force Officer Training School and has served as an Aircraft Maintenance Officer, Munitions Officer, and Space Officer. He is currently a command missileer in the Minuteman III Intercontinental Ballistic Missile weapon system. Following his initial missile assignment at Malmstrom Air Force Base, Montana, Lt Col Ewers served in numerous staff positions at the major command and air staff levels in ICBM targeting, nuclear survivability and nuclear command, control and communication. He attended intermediate developmental education as an Air Force Fellow at Sandia National Laboratory in the Weapon Intern Program. Lt Col Ewers served as the 91st Missile Wing Chief of Safety, and Operations Officer in the 740th and 741st Missile Squadrons at Minot Air Force Base, North Dakota and then took command of the 320th Missile Squadron at F.E. Warren Air Force Base, Wyoming. He is currently a student at the Air War College, Air University, Maxwell Air Force Base, Alabama.

Abstract

This research paper argues the United States must seek a balanced systems approach to ensure strategic stability in a nuclear multiplicity environment among its nuclear-armed peers, near peers and nonpeers. The paper first analyzes what strategic stability meant during the Cold War and identifies common elements of strategic stability strategies. In the second part, the paper recalculates strategic stability for the 21st century. The second part begins with asserting strategic stability remains a relevant strategy for the United States in the contemporary nuclear-armed world. Then, the concept of stability is redefined among the three categories of nuclear actors the United States must balance in the second nuclear age – nuclear-armed peers, near peers and nonpeers. Finally, using the common strategic stability elements identified in the first part of the paper and applying them systematically to the new stability framework, the paper presents a balanced posture to ensure strategic stability during the second nuclear age.

Introduction

The 2010 Nuclear Posture Review (NPR) discussed, "...strategic stability as a goal that future nuclear reductions must support. Any future nuclear reductions must continue to strengthen deterrence of potential regional adversaries, strategic stability vis-à-vis Russia and China, and assurance of our allies and partners."[1] However, the NPR did not define nor identify ways to achieve or strengthen strategic stability.

The concept of stability is best explained through elementary physics. An object is in static equilibrium when all acting forces on it are canceled or balanced by other forces. The equilibrium is stable if the system recovers from a disturbance and is unstable if it does not. Beyond the realm of physics, there is no widely accepted definition of strategic stability and use of the term has grown since the advent of nuclear weapons. Strategic stability terminology ranges from the absence of incentives to launch a preemptive nuclear strike or build up nuclear forces; to the absence of armed conflict between nuclear-armed states; to the relationships between states to enhance regional or global security.[2] Furthermore, the stability equation has become increasingly more complex and uncertain since the Cold War ended. The world changed from a balanced bipolar world to the "second nuclear age," typified by the increasing multiplicity of nuclear actors threatening a rebalance of power among nuclear-armed states as the United States and Russia further reduce nuclear weapons. The strategic complexity of the second nuclear age drives the requirement to understand strategic stability, as well as how to achieve and maintain it in the 21st century.

This research paper argues the United States must seek a balanced systems approach to ensure strategic stability in a nuclear multiplicity environment among its nuclear-armed peers, near peers and nonpeers. This paper will not address the broadest use of the term "strategic

stability" to define relationships between states to provide global security, nor will it address the other common use on how to avoid any armed conflict between nuclear states. Instead, it will focus on the nuclear component to strategic stability since, should all other stability components breakdown, the nuclear element is the last one to fail between nuclear-armed states. Through this lens, this paper first analyzes what strategic stability meant during the Cold War and identifies common elements of strategic stability strategies. The second part of the paper recalculates strategic stability for the 21st century. Before proposing a new posture, this second part asserts strategic stability remains a relevant strategy for the United States in the contemporary nuclear-armed world. Second, the concept of stability is redefined among the three categories of nuclear actors the United States must balance in the second nuclear age—nuclear-armed peers, near peers and nonpeers. Finally, using the common strategic stability elements identified in the first part of the paper and applying them systematically to the new stability framework, the second part proposes a balanced posture to ensure strategic stability during the second nuclear age.

Defining Strategic Stability

Strategic stability is common terminology lacking a common understanding. There are no clear concise definitions for what strategic stability meant in the past and its use today varies from the nuclear realm to the state of affairs between two or more nations.[3] Within Cold War and post-Cold War literature, numerous concepts of strategic stability are readily available. Concepts include first-strike stability, crisis stability, arms race stability, deterrence stability and global, international and regional stability. However, strategic stability takes on a different shape when viewed from the lens of strategy through ends, ways and means. In strategy, states employ diplomatic, military, economic and informational instruments of national power to achieve political objectives. If the objective (ends) is strategic stability, then nuclear deterrence, extended deterrence, and arms control were the strategic concepts (ways) the United States employed during the Cold War. That is not to suggest the United States did not apply the instruments of national power toward strategic stability, rather, these were the predominant ways. The resources (means) include the first atomic weapons, thermonuclear weapons, long-range bombers, intercontinental ballistic missiles, warning and defensive systems, and the nuclear command and control that integrate them. Throughout the fifty years the Cold War lasted, the strategic concepts and resources constantly evolved responding to changes in technology, shifting theories in deterrence and international relations. After the Cold War, and a de-emphasis on nuclear weapons in US policy, the ways to maintain strategic stability shifted to other instruments of power in an increasing role. Viewing strategic stability through the lens of an evolving strategy offers an explanation why strategic stability is so difficult to define and why the terminology expanded and varied over time. To define what strategic stability means in the

contemporary sense, it is useful to examine its origins and search for common elements over time.

Cold War Origins

A few key strategists laid the foundation for strategic stability before the term was coined. In 1946, Bernard Brodie, argued nuclear weapons threatened cities and attacks would be deterred as long as the attacker believed there was a good chance of nuclear retaliation.[4] Thus, stability centered on the threat the atomic bomb presented, as no promise of victory was beneficial if devastating retaliation was certain. In contrast, William Borden, a contemporary of Brodie's at Yale, argued atomic weapons should be given primacy at the outset of war to disarm the enemy's nuclear forces.[5] Together, the Yale team of Brodie and Borden created the paradox of strategic stability – the vulnerability of surprise attack and the assured ability to retaliate in kind.[6] This paradox provided a balance of deterrence or deterrence stability.

The concept of strategic stability evolved from this starting point. The ability to retaliate forced the concept of damage limitation to ensure a second strike capability. In 1959, Albert Wohlstetter, reasoned survivable nuclear forces guaranteed retaliation in response to a first strike.[7] Likewise, Herman Kahn called for less vulnerability through passive and active strategic defenses to increase the cost of an adversary's first strike and act as a hedge to guarantee retaliation should deterrence fail.[8] In contrast, Thomas Schelling expanded on Wohlstetter's concept of a survivable retaliatory force. The key, according to Schelling, was each nation's vulnerability to nuclear attack increased their confidence in the ability to launch a devastating retaliatory strike.[9] This mutual vulnerability became the central characteristic to strategic stability and forces that reduced vulnerability, like the defenses Kahn advocated, were viewed as destabilizing. "The best defense is an assured offense" became the means of deterring a nuclear

attack. As offensive stockpiles grew to maintain the credibility of a retaliatory strike, there was a growing concern that the arms race lessened strategic stability. Thus, equality became a strategic stability characteristic as rough parity in nuclear capabilities would provide neither side a significant advantage and would encourage restraint on both sides.[10] In summary, strategic stability during the Cold War was a balance between parity in nuclear capabilities, survivable retaliatory forces, and mutual vulnerability. These characteristics provide the baseline to identify the elements of strategic stability in the next section.

Elements of Strategic Stability

The elements of strategic stability are derived from its characteristics of parity, retaliatory forces and mutual vulnerability. First, the relative size of the nuclear arsenals is explored for significance to parity. Greater numbers of nuclear weapons make it more difficult for an adversary to destroy deployed nuclear weapons in a surprise attack and more likely to face a retaliatory strike from surviving nuclear forces. Additionally, the greater number of surviving weapons also provides targeting redundancy to ensure retaliatory strikes on planned targets. In contrast, lower numbers of nuclear weapons increase the adversary's incentive for a surprise preemptive attack in order to reduce the number of surviving forces and lower the probability of retaliatory strikes against planned targets. Lower numbers of nuclear weapons has a negative second order effect. Specifically, if a nation feared a preemptive strike was likely against their smaller nuclear force, they would be more inclined to launch their nuclear forces before their adversary destroyed them. The size of the nuclear arsenal matters and, consequently, is the first element of strategic stability.

Second, targeting strategies are examined for retaliatory forces under strategic stability. Survivable nuclear forces are essential to ensure a second strike capability against the

adversary's vital targets. When more nuclear forces are available, nations hold military targets at risk through a counterforce targeting strategy to prevent escalation and inflict an unacceptable cost to the adversary. When fewer nuclear forces are available, nations hold cities at risk as countervalue targets to threaten the industrial and economic power of the adversary. The targeting strategy depends on the anticipated quantity of surviving nuclear forces available for a retaliatory strike. Therefore, the second nuclear element is the targeting strategy.

Lastly, the mutual vulnerability characteristic is analyzed to determine a nation's ability to limit damage from a nuclear attack. A nation can provide its security through defensive or offensive means should deterrence fail. A defensive posture limits potential damage by raising the potential cost and uncertainty of benefit during an attack. The defensive forces impose a cost to the adversary through the penalty of denial, which reinforces the deterrence equation.[11] On the other hand, a nation can deploy offensive weapons to punish the adversary after an attack. Increasing survivability through hardening, basing and deployment constructs ensure available forces for a second strike and reestablish stability through graduated escalation steps.

In summary, three elements of strategic stability derived from its characteristics are—the number of weapons, the targeting strategy and the defensive posture. Understanding strategic stability's characteristics and elements provide the baseline to recalculate strategic stability for the post-Cold War period of the 21st century.

Recalculating Strategic Stability

The greatest challenge of the Cold War period was maintaining strategic stability despite leaps in technology, the arms race to maintain parity, and limited conventional conflicts fought on the peripheral. Since the end of the Cold War, the relative quantity of nuclear weapons has greatly decreased in proportion to the decreasing bilateral threat. Despite the reduced emphasis

on nuclear weapons, the world's geopolitics steadily became more tumultuous, rousing the vicissitude of nuclear policy and strategic stability. This section will explore current US policy to argue nuclear weapons remain a central component to US national defense and examine US threats in the second nuclear age from nuclear-armed peers, near peers and nonpeers. Then, the concept of a stability triangle to balance strategic stability across all nuclear actors is presented. The section concludes with a new balanced strategic stability posture derived from examining the nuclear actors and the elements of strategic stability.

Nuclear weapons still play a central role in ensuring US strategic stability. The 2009 Congressional Commission on the Strategic Posture of the United States acknowledged, "as long as other nations have nuclear weapons, the United States must maintain a nuclear force to deter adversaries and safeguard its security."[12] Additionally, the 2010 NPR names one of the key objectives of the nuclear force is to "maintain strategic deterrence and stability at reduced nuclear force levels."[13] In 2013, President Obama issued new guidance to align United States nuclear policies to the 21st century. In that guidance, the President affirmed, the United States will maintain a credible deterrent that guarantees the defense of the United States, its allies and partners by convincing potential adversaries the cost of attacking far exceed any potential benefit.[14] More recently, the 2014 Quadrennial Defense Review (QDR) states,

> ... nuclear forces continue to play a limited but critical role in the Nation's strategy to address threats posed by states that possess nuclear weapons and states that are not in compliance with their nuclear nonproliferation obligations. Against such potential adversaries, our nuclear forces deter strategic attack on the homeland and provide the means for effective responses should deterrence fail. Our nuclear forces contribute to deterring aggression against U.S. and allied interests in multiple regions, assuring U.S. allies that our extended deterrence guarantees are credible, and demonstrating that we can defeat or counter aggression if deterrence fails. U.S. nuclear forces also help convince potential adversaries that they cannot successfully escalate their way out of failed conventional aggression against the United States or our allies and partners. [15]

The essence of US policy is nuclear weapons have an enduring role in providing strategic stability through deterring nuclear attacks and ensuring the ability to retaliate despite the reduced emphasis on our nuclear capabilities. The 2010 NPR acknowledges a changed world and asserts the threat of nuclear war has decreased, yet "the risk of nuclear attack has increased."[16] This increased threat comes from new variables added to the strategic stability equation.

Strategic Stability in Second Nuclear Age

If the Cold War was the first nuclear age, then Paul Bracken defines the second nuclear age of the post-Cold War era as one of "shifting great powers, rising regional powers and great uncertainty about the shape of the world order,"[17] In this second nuclear age, "North Korea, Pakistan, and India have joined the nuclear club. Israel, long in the club, is coming out of the closet. Others, such as Iran, are trying to join it. China and Russia, for their part, are improving their arsenals for twenty-first-century conditions. Other countries are thinking about going nuclear, too."[18] Strategic stability mechanisms between the United States and Russia will still apply in the near future. Yet, applying them as a blanket policy against the United States' nuclear peers, near peers and nonpeers in the second nuclear age may be inappropriate and dangerous.[19]

Cold War strategic stability mechanisms assumed a bipolar system with a rough parity of weapons and offensive strike capabilities, and limited defenses to prevent damage from nuclear strikes between two superpowers. This "balance of terror" reduced the incentive to strike first by either nation. However, the second nuclear age brings three new variables to the strategic stability equation: nuclear multiplicity, increased stability complexity with China, and threats from rogue regimes and nonstate actors. While there may be additional variables, these three variables provide a starting point in understanding how strategic stability calculations have

changed. First, the second nuclear age transitions in a multiplicity of great and small nuclear powers and ushers in Herman Kahn's "moment of maximum danger" before reaching a stable multipolar world.[20] During this transition, many nuclear weapon states perceive security threats from two or more nuclear-armed states adding to the system complexity.[21] In physics, a system with three points is more stable than two are, but in the realm of nuclear weapons three actors is more complex and less stable. Instead of the security dilemma experienced in bilateral competition, three actors form a security trilemma where the actions of one state to protect itself from one of the other two results in the third state feeling less secure.[22] Second, the United States and Russia may have bilaterally reduced stockpiles from thousands of weapons to 1,550 each. However, "less is not just less; less is different."[23] China's stockpiles, once dwarfed by the large stockpiles and capabilities of the superpowers and negated from the strategic stability equation, now must be factored into the calculations. Third, with the arrival of the second nuclear age comes a pressing nuclear threat to the United States from rogue regimes and nonstate actors.[24] Due to US conventional superiority, nuclear actors are reasoning how to control conflicts with the United States with the deliberate use of nuclear weapons.[25] The 2014 QDR acknowledges dynamic and unpredictable challenges from regimes in Iran and North Korea. The 2015 National Security Strategy claims, "No threat poses as grave a danger to our security and well-being as the potential use of nuclear weapons and materials by irresponsible states or terrorists."[26] The new strategic system includes nuclear peers, near peers and nonpeers and they should be included in strategic stability calculations since they all have a dynamic pull on the system.

Stability Triangle

In today's contemporary nuclear relationship, the United States only has one peer, Russia, and one near peer, China. The actors and their classification can and most likely will change as the effects of further unilateral or bilateral stockpile reductions between the United States and Russia play out in the second nuclear age; yet, the categories will remain fixed. The peer category is illustrated by the three Cold War strategic stability mechanisms: parity in nuclear capabilities, survivable retaliatory forces and mutual vulnerability. Conversely, the near peer category is portrayed by an imbalance in parity in favor of the United States, yet retains the assured ability to deliver unacceptable damage in retaliation by the near peer. Even with the development of limited US defenses, the chance a handful of the near peer's nuclear weapons will get through the defenses remains certain. In contrast, the nonpeer does not have a survivable retaliatory force and the stockpile difference is extreme. Nevertheless, strategic stability can still be achieved within the system.

As Figure 1 shows, this system can be thought of a triangular relationship between the three actors much like the relationship and the inherent security trilemma between nuclear-armed states discussed above. The system is in equilibrium when the US security needs are balanced between the three nuclear actors. Disruptions to the system are stable as long as the relative position of stability remains within the stable region inside the triangle. However, this model suggests as the United States orients it security needs more toward the near peer or the nonpeer actors, the relative position of stability moves closer towards those actors inside the triangle. Due to the shape of the triangle, the system becomes less stable when the relative position of stability is closer to the edges. Nonetheless, the model suggests the United States can balance

the three types of actors and maintain strategic stability. Using the elements of strategic stability identified earlier, we can explore the stability region.

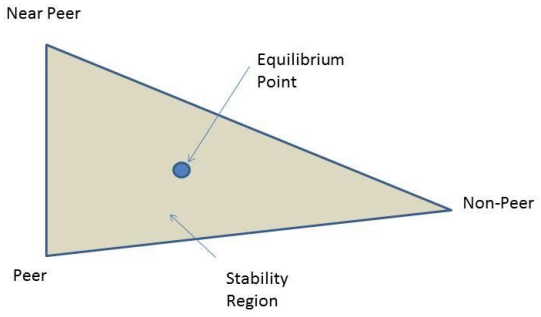

Figure 1. Stability Triangle

A Balanced Strategic Posture

This section takes the elements of strategic stability—number of weapons, targeting strategy and defensive posture—from the first part of the paper and evaluates them against the three categories of US nuclear actors—peers, near peers and nonpeers—from the stability triangle model. Achieving equilibrium between the three actors is difficult to achieve and near impossible to maintain. Yet, the fundamental principle from the stability triangle model shows as long as forces acting on the system stay within the stable region of the triangle, then strategic stability can be maintained. The boundaries of the stability triangle are explored by examining the extremes for each element against each nuclear actor. For example, the number of weapons is analyzed at lower and higher numbers for peers, near peers and nonpeers. Similarly, countervalue and counterforce targeting concepts, and limited and robust defenses are evaluated for each nuclear actor category. Table 1 summarizes the following analysis.

The nuclear peer relationship draws directly from the Cold War strategic stability lessons. As long as rough parity in nuclear weapons and capabilities is maintained, strategic stability is

reinforced. Additionally, increased nuclear stockpiles reduce an adversary's initiative to launch a first strike in attempt to destroy a retaliatory response. As a result, more weapons are more stable than fewer weapons and enhance strategic stability in the peer category. Countervalue targeting, or holding targets the adversary values at risk (i.e., city populations), is more stable than counterforce targeting concepts, holding military and industrial targets at risk. Counterforce is a means of threating a limited nuclear response and showing restraint by striking military forces. However, the advantage in counterforce targeting goes to the side that strikes first and by destroying portions of the adversary's nuclear force, limits potential damage from a retaliatory strike. This creates instability since each side feels pressured to use their nuclear arsenal before the arsenal is lost to a preemptive strike. Countervalue on the other hand, ensures forces will be available for retaliatory strikes and holding cities at risk ensures unacceptable damage to the adversary. While countervalue targeting enhances strategic stability, the American public has had long-standing issues with the targeting concept as it violates legal and moral norms, and raises questions of credibility in holding a country's population at risk.[27] As a result, the United States has rejected the stability of countervalue targeting for offensive damage limitation against military targets through counterforce targeting. The last element for consideration in the peer relationship is defenses. Strategic stability is enhanced through defensive strategies using offensive damage limitation versus deployed active defenses. The offensive capability assures a retaliatory response to a nuclear attack and the mutual vulnerability of both sides upholds the credibility of the threat. There is a downside to offensive damage limitation – it favors the side that strikes first by reducing the number of available warheads for use in a retaliatory strike and thus limits the potential damage to the aggressor. Active defenses, such as missile defense systems, destroy incoming nuclear forces and degrade stability by further reducing the

effectiveness of a retaliatory strike through denial. However, it is likely some weapons will still get through the defenses. An adversary could increase the likelihood by increasing the number of weapons launched against the defenses using multiple weapon systems or using multiple weapons on any system to saturate the defenses. Additionally, the adversary could develop new weapons or capabilities to strike vulnerabilities in the system. The recently revealed Russian nuclear torpedo[28] is a prime example.

The near peer relationship also draws from experience in the Cold War. But, the relationship may change significantly in the second nuclear age. If the United States and Russia continue to drawdown their nuclear stockpiles there will be a transition point where the lower numbers may place an increasing emphasis on China's nuclear capabilities. When the difference between China and the two nuclear superpowers becomes just a few hundred weapons, China may vertically proliferate their stockpile to reach nuclear parity. This will add additional complexity by establishing a trilemma in the peer category. Additionally, China may become more aggressive in its relations with the United States and Russia by engaging in Cold War type coercion tactics of nuclear brinkmanship. Thus, higher number of US weapons enhances strategic stability in the near peer category as it maintains the status quo, keeps the effort and cost high for vertical proliferation, and still allows China to maintain their nuclear capability for retaliatory purposes. Second, countervalue targeting enhances strategic stability for the near peer category. The counterforce targeting strategy is less stable for the same reasons as the peer category. Presumably, due to China's smaller arsenal relative to the US stockpile and no "first use policy" it is likely they have adopted a countervalue targeting policy for their weapons against the United States or other opponents. Lastly, like the peer category, strategic stability is enhanced through defensive strategies using offensive damage in the near peer category. The

deployment of active defenses, such as missile defenses, degrades stability for the near peer. Due to the near peer's smaller stockpile, US active defenses increase the initiative for a preemptive strike on the near peer to reduce their retaliatory forces, and depending on the capability of the US defensive force, deny some or all of the near peer's surviving weapons from hitting their targets in a retaliatory strike. Still, there is no guarantee all the near peer's retaliatory forces would be defeated. The survivability and effectiveness of the near peer's retaliatory force is a function of the US and near peer offensive and defensive strike forces availability, responsiveness, reliability and accuracy. Yet, in a large exchange, it is expected the stronger side would prevail unless the near peer developed and deployed more weapons, or other asymmetric forces and capabilities were developed.

The last category to examine is the nonpeer relationship. The number of weapons the United States holds is insignificant due to the numerical differences between the stockpiles. If a country only has a few nuclear weapons, it makes little difference if the United States has hundreds or thousands. Despite this, lower numbers of nuclear weapons would degrade stability. The arms control and Global Zero proponents have argued the more the United States relies on nuclear forces to uphold its security, the more likely other states will proliferate. Yet, a state with a small arsenal may vertically proliferate to increase their own arsenal if the United States and Russia continue to reduce their stockpiles bilaterally. There would be significant advantages for those countries to grow closer in parity with the United States or Russia and exert influence or coercion on the international community. Additionally, holding nonpeer cities at risk with a countervalue targeting strategy erodes strategic stability. Under this condition, it would be regarded as highly immoral to annihilate the population centers due to the actions of its leadership which it likely has no means of control. Additionally, this would violate the just war

doctrine for conduct in war (jus in bello) and the principles of distinction and proportionality against civilian non-combatants caught in a conflict they did not create. A counterforce strategy is more appropriate even though it may still degrade stability. The difficulty with a counterforce strategy is that it holds the opponent's few weapons at risk, and either through a pre-emptive attack or fear of a potential attack incentivizes the nonpeer to launch the weapons during a conflict before they lose them. Likewise, if the United States does not preemptively attack the weapons, there may be little residual nuclear forces to hold at risk for a retaliatory strike after the nonpeer weapons are used. It may be more stabilizing to consider a counter leadership strategy designed to hold the nonpeer leadership directly at risk. If this approach is adopted, new nuclear capabilities will be required to hold hard and deeply buried leadership targets at risk. Finally, damage limitation through offensive weapons severely erodes stability for the nonpeer category. It leaves the United States vulnerable to attack with very few military targets to hold at risk in return. In the nonpeer category, active defenses enhance strategic stability by countering the threat by assured denial of the nonpeers attack should deterrence fail. There may be other asymmetrical ways to overcome the active defenses but to leave them uncovered invites an eventual attack.

The strategic stability solution for the second nuclear age is complex. The United States cannot simply implement a solution from Table 1 that enhances strategic stability in response to the most pressing threat. Rather, the United States should seek a balanced strategic stability posture from a systems perspective. From this approach, the United States can identify and define the stability domain using the strategic stability elements and the three categories of nuclear actors. The analysis in this section showed a balanced stability posture is

Strategic Stability*						
	Weapons		**Targeting**		**Defenses**	
	Lower Numbers	**Higher Numbers**	**Countervalue**	**Counterforce**	**Limited (Offensive Only)**	**Robust**
Peer	Degraded	Enhanced	Enhanced	Degraded	Enhanced	Degraded
	Rough Parity Risk of First Strike	Rough Parity Survivable Retaliatory Force	Assured Retaliation Unacceptable Damage Moral Limitations	Escalatory Restraint Use or Lose Weapons Advantage to First Use	Assured Retaliation Mutual Vulnerability Advantage to First Use	Questionable Penalty of Denial Defeated with Offensive Mass
Near peer	Degraded	Enhanced	Enhanced	Degraded	Enhanced	Degraded
	Race for Parity Nuclear Brinkmanship	Retaliatory Forces only Maintain Status Quo	Assured Retaliation Unacceptable Damage Moral Limitations	Escalatory restraint Use or Lose Weapons Advantage to First Use	Assured Retaliation Mutual Vulnerability Advantage to First Use	Limited Denial Survival of the Strongest
Nonpeer	Degraded	Non-Factor	Eroded	Degraded	Eroded	Enhanced
	Incentive to Proliferate		Holds Civilian Population Responsible for Government Moral Limitations	Use or Lose Weapons Little Return if Capability Expended	U.S. Vulnerable to Attack Counter US Conventional Capability	Assured Denial Asymmetric Threats Develop

* This table summarizes the previous section's analysis on the elements of strategic stability—the number of weapons, targeting strategy and defensive posture—for each nuclear actor category. The conditional characteristics are summarized in each block and the impact to strategic stability—enhanced, degraded or eroded—is scored at the top.

Table 1. Strategic Stability Elements Applied to the Nuclear Actors

one that: (1) maintains a US nuclear arsenal in rough parity with peers, yet large enough that it upholds the status quo with near peers and doesn't incentivize vertical proliferation with nonpeers; (2) continues the less stable counterforce targeting strategy to hold opponents nuclear targets at risk and provide escalation restraint should deterrence fail; and (3) develops active defenses to protect the United States against nonpeer threats, yet limited in size and scope as to not interfere with the more stable offensive damage limitation strategy in the peer and near peer categories.

Conclusion

The Cold War bilateral strategic stability paradigm is not well suited for multiple nuclear actors in the 21st century and the United States needs a new concept of strategic stability for the second nuclear age. In the contemporary world, the United States must balance three nuclear actors – peers, near peers and nonpeers. The relationship is more complex than the dilemma of the Cold War world, as what the United States does to strengthen its security against one actor will make the other nuclear states feel less secure. Despite the security "trilemma," the United States can balance stability by understanding the stability triangle model. The stability triangle shows as long as forces acting on the system stay within the stable region of the triangle, then strategic stability is maintained. Using elements of strategic stability from the Cold War era but in a different context, the United States can meet its security needs by keeping enough weapons in the deployed arsenal that establishes rough parity with the peers yet does not incentivize vertical proliferation from the near peers and nonpeers. Additionally, the United States should maintain a counterforce targeting strategy to hold the nuclear forces at risk and provide a restraint from escalation with the peers and near peers. Lastly, deterrence theory does not guarantee against nuclear strikes—it just lowers the probability of attack. The United States

should hedge its strategic stability strategy with active defenses such as missile defense systems to protect it from attack from nuclear nonpeers. These defenses should remain limited in size and scope to maintain stability with nuclear peers and near peers, yet, provide a defensive capability that would absolve the chance of a nuclear attack from the growing nuclear nonpeer threat. Viewing strategic stability from this lens provides a framework to minimalize or protect the United States from the contemporary and potential nuclear threats in the 21st century.

Notes

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