

REDUCING THE RISK OF NUCLEAR WEAPON USE IN NORTHEAST ASIA

COUNTERFORCE DILEMMAS AND THE RISK OF NUCLEAR WAR IN EAST ASIA

IAN BOWERS

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ABOUT THE AUTHOR

Ian Bowers is an Associate Professor at the Centre for Joint Operations at the Royal Danish Defense College. His research focuses on deterrence, the future operational environment, sea power, and East Asian security. His research has been published in several international journals including *International Security*, the *Journal of Strategic Studies*, the *Naval War College Review*, and the *Korean Journal of Defense Analysis*. His most recent co-authored work, titled “Conventional Counterforce Dilemmas: South Korea’s Deterrence Strategy and Stability on the Korean Peninsula,” was published in *International Security*. Bowers has also published a monograph on the modernization of the Republic of Korea Navy, and edited volumes on sea power and military change. Bowers holds a PhD in War Studies from King’s College London.



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Please direct inquiries to:

Asia-Pacific Leadership Network
APLN Secretariat
4th fl., 116 Pirundae-ro
Jongno-gu, Seoul, ROK, 03035
Tel. +82-2-2135-2170
Fax. +82-70-4015-0708
Email. apln@apln.network

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Ian Bowers
Royal Danish Defence College

Reducing the Risk of Nuclear Weapon Use in Northeast Asia

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ABSTRACT

The discovery of new Chinese nuclear missile silos, a seemingly escalating nuclear-conventional arms competition between the Democratic People's Republic of Korea (DPRK) and the Republic of Korea (ROK), and the announcement that Australia, in concert with the US (United States) and UK (United Kingdom), is pursuing nuclear-powered attack submarines are events that collectively indicate a worsening security environment in East Asia. Using geostrategic, operational, and technological factors as the basis for analysis, this paper contextualizes these and other developments and assesses the potential for nuclear war in East Asia in general and on the Korean Peninsula in particular.

The most dangerous threat to strategic stability is a counterforce dilemma where the conventional weapons of the US, China, and regional East Asian actors may create strategic instability by their intentional or inadvertent entanglement or use to target the nuclear forces of another state, resulting in pursuit of more secure second-strike capability by the countries of the region, and forming the heart of conventional warfighting and deterrence strategies. The many different conflictual or competitive relationships

across the region make arms control initiatives unlikely to succeed, but the maritime nature of the geostrategic environment and the lack of existential threat that the United States and China pose to each other may offer fewer natural pathways to the use of nuclear weapons for either China or the United States than there were for the adversaries in the Cold War.

Keywords: United States, China, Conventional Weapons, Arms Control, Nuclear War

I. INTRODUCTION

There are numerous indications of a worsening security environment in East Asia. In January 2022, the DPRK intensified its missile test program with an unprecedented seven missile tests.¹ Over the past year China has continued its military buildup, including constructing new nuclear missile silo fields and further bolstering its ability to exercise power at sea.² In response, the United States (US) and its allies are also strengthening their defense postures. For example, Australia, in concert with the United States and United Kingdom (UK), is now pursuing nuclear-powered attack submarines and other advance military capabilities in order to counter China's growing military power.³

Using geostrategic, operational, and technological factors as the basis for analysis, this paper contextualizes these and other developments and assesses the potential for nuclear war in East Asia in general and on the Korean Peninsula in particular. It argues that the most dangerous threat to strategic stability is a counterforce dilemma where the conventional weapons of the United States, China, and regional East Asian actors may create strategic instability by their intentional or inadvertent entanglement or use to target the nuclear forces of another state.⁴ This has resulted in

¹ Kim Tong-Hyung and Mari Yamaguchi, "North Korea Tests Longest-Range Missile Since 2017," *The Diplomat* (February 01, 2022). <https://thediplomat.com/2022/02/north-korea-tests-longest-range-missile-since-2017/>

² Matt Korda and Hans Kristensen, "China is Building a Second Nuclear Missile Silo Field," *Federation of American Scientists* (July 26, 2021). <https://fas.org/blogs/security/2021/07/china-is-building-a-second-nuclear-missile-silo-field/>

³ "Aukus: UK, US and Australia Launch Pact to Counter China," *BBC News* (September 16, 2021). <https://www.bbc.com/news/world-58564837>

⁴ Strategic instability arises either when first-strike incentives increase due to a specific crisis or when weapons developments lead to fear that mutual vulnerability is undermined. See: Heather Williams, "Asymmetric Arms Control and Strategic Stability: Scenarios for Limiting Hypersonic Glide Vehicles,"

the continued pursuit of a more secure second-strike capability in the region.⁵ Simultaneously, such conventional capabilities form the heart of conventional warfighting and deterrence strategies in the various flashpoints across the region. Consequently, there is a powerful and understandable operational and strategic logic for procuring and maintaining these increasingly powerful conventional capabilities. This ensures that any future arms control initiatives, be they focused on nuclear or conventional capabilities, are unlikely to succeed due to the confluence of different conflictual or competitive relationships across the region. Initiatives to increase stability in one relationship through such measures could result in insecurity in another relationship, thereby ensuring that no party will willingly give up nuclear or conventional capabilities.

It is therefore impossible to separate the wider question of China–United States nuclear stability and control from the various nuclear and conventional security crises that characterize the region and involve the United States, China, US allies, and other regional actors.

Despite this pessimistic argument about problems surrounding conventional arms buildups, counterforce, and entanglement, this paper also argues that there are reasons for limited optimism in relation to escalation dynamics and the risk of nuclear war.

This is primarily due to the maritime nature of the East Asian geostrategic environment. With the exception of the Korean Peninsula, there are no contested land borders in East Asia. Instead, the sea and the airspace above it dominate operational and geostrategic calculations. That contesting states must interact at sea or in the air reduces the existential threat that states pose to each other.⁶ It should be acknowledged, however, that the proliferation of precision guided long-range munitions across the region could mitigate some of the pacifying effects that geography imposes.

Nevertheless, even in the absence of arms control, and even with the increasing number of actors operating on the seas of East Asia, unlike during the Cold War there are fewer natural pathways to the use of nuclear weapons for either China or the United States.

The Journal of Strategic Studies 42 no. 6 (2019): 792; Aaron R. Miles, “The Dynamics of Strategic Stability and Instability,”

Comparative Strategy 35 no. 5 (2016): 425.

⁵ Benjamin Schreer, “China’s Development of a More Secure Nuclear Second-Strike Capability,” *Asia Policy* 19 (2015): 14–20.

⁶ Caitlin Talmadge, “The U.S.-China Nuclear Relationship: Growing Escalation Risks and Implications for the Future,” *Testimony Before the U.S.-China Economic and Security Review Commission Hearing on Chinese Forces* (June 07, 2021). https://www.uscc.gov/sites/default/files/2021-06/Caitlin_Talmadge_Testimony.pdf

This paper proceeds with a description of the unique geostrategic factors that shape the United States–China military relationship and connects these factors to the technological developments that now inform East Asia’s burgeoning counterforce dilemma. The paper then assesses the potential for escalation emerging from the deployment of an increasing number of conventional and nuclear military platforms on the seas of East Asia. Following this, the paper examines the risk of nuclear war between China and the United States through the lens of missile competition, the search for control of the seas, and the risk of conventional-nuclear entanglement. It then extends this analysis by examining how Japan and Taiwan are deploying conventional forces that may exacerbate these risks. The paper then proceeds to examine the continental theatre of the Korean Peninsula and how these risks can be found emerging from the ROK’s pursuit of a conventional counterforce capability. Finally, the paper concludes by connecting these strands and assessing their implications for arms control and the search for strategic stability.

II. TECHNOLOGY, WEAPONS, AND ALTERED GEOSTRATEGIC STATES

This paper argues that a core determinant that links the counterforce dilemma and the risk of nuclear war is the geostrategy of East Asia. Primarily, it is a maritime theatre where the homelands of the two most powerful states, the United States and China, are separated by the expanse of the Pacific Ocean. Although the implications of a United States–China rivalry occurring at and above the sea is an underexplored topic, it can be argued that geography significantly reduces the existential risk posed to each other by conventional forces. This does not preclude the possibility of intentional or accidental clashes on the seas or in the air spaces of East Asia. However, it is less likely that such clashes will escalate into full-scale war.⁷

Even the United States, forward-deployed and with the world’s most potent power projection capabilities, is unlikely to be able or willing to project enough force from the sea to seriously threaten the position of the Communist regime.⁸

⁷ Ian Bowers, “Escalation at Sea: Stability and Instability in Maritime East Asia,” *Naval War College Review* 74 no. 4 (2018).

⁸ Fiona S. Cunningham, “The Maritime Rung on the Escalation Ladder: Naval Blockades in a US-China Conflict,” *Security Studies* 29 no. 4 (2020): 737.

This lack of an immediate existential threat alters how both the United States and China compete for influence and power in the region. Moreover, the deterrent and escalatory calculations that were developed during the Cold War are potentially no longer applicable, as neither side can invade the other. Instead of massed field armies facing each other down on the fields of Europe, the warships and aircraft of China and the United States interact on the seas and in the airspaces of the region on a regular basis.

Take the South China Sea (SCS) as an example. This seaway is vital for regional and global economic prosperity, yet it is an arena for great power military rivalry. China's actions in relation to island-building and the use of coercive measures against the littoral states of the region to reach internal strategic and economic goals are in breach of international law and bring into sharp relief Beijing's revisionist intent. The United States views contesting these efforts as a central element in its competitive dynamic with China, and has now focused on continued and intensified operations in Chinese-claimed waters and on reinforcing deterrent messaging in other areas that are also susceptible to similar Chinese approaches, such as the Japanese-controlled Senkaku Islands in the East China Sea.

A situation has now emerged where both the United States and China have vested economic interest in maintaining the stability of maritime East Asia but are also arming to deny the use of, or exploit the sea for, strategic or operational effects should war occur.

Of course, this rivalry is only one part of a larger construct. Multiple East Asian states are now in competitive or conflictual dynamics with China over various elements of their maritime claims. For example, in November 2021, the Chinese Coast Guard blocked Philippine boats from taking supplies to troops deployed on a contested shoal in the SCS.⁹ Also in late 2021, China deployed coast guard vessels in an attempt to stop Indonesia from conducting exploratory drilling around Nantuna Island.¹⁰ China's actions, in combination with US pressure, are pulling outside powers into regional contested waters, potentially complicating an already complex strategic and operational picture. For example, Australia's pursuit of a nuclear-powered SSN (nuclear-powered general-purpose attack submarine) is designed to provide the Australian Navy with the maximum patrol time in the waters of South and Northeast

⁹ Associated Press, "Chinese Vessels use Water Cannon to Block Philippines Vessels from Disputed Shoal," *The Guardian* (November 18, 2021).

<https://www.theguardian.com/world/2021/nov/18/chinese-vessels-use-water-cannon-to-block-philippines-vessels-from-disputed-shoal>

¹⁰ Sebastian Strangio, "China Demanded Halt to Indonesian Drilling Near Natuna Islands: Report," *The Diplomat* (December 02, 2021). <https://thediplomat.com/2021/12/china-demanded-halt-to-indonesian-drilling-near-natuna-islands-report>

Asia.¹¹ Similarly, European strategists are debating what is the best military role, if any, that European or NATO forces could play in Asia.¹² In 2021, the United Kingdom sent a carrier strike group led by HMS *Queen Elizabeth* on a sustained deployment to the region.¹³ It has also deployed two offshore patrol vessels to the Indo-Pacific for the next five years.¹⁴ In the same year, Germany also deployed a frigate to East Asian waters.

This maritime dynamic is punctuated by a number of specific security flashpoints that could bring the United States and China into direct conflict with each other. The most notable of these are the Korean Peninsula and Taiwan. China's increasingly conflictual maritime relationship with Japan, and to a lesser extent the ROK, raises limited fears of the United States being pulled into a war with China not of their choosing, or of US allies deploying conventional weapon systems that could potentially threaten China's confidence in the security of its nuclear deterrent.¹⁵ Indeed, the cross-regional development and deployment of increasing numbers of long-range, hyper-accurate precision capabilities tied to more accurate and resilient intelligence, surveillance, and reconnaissance systems in order to deny or control the operational area at sea threaten to offset some of the stabilizing effects that the maritime environment imposes. China and the United States have developed operational concepts that would have a significant impact on the ability to use the sea but may also include, on the part of the latter, deep strikes into Chinese territory, and on the former, strikes on US military facilities in Asia.¹⁶

Hence, the characteristics of these weapons and operational concepts ensure not only that they could be used solely within a conventional construct but also that they could form part of a conventional counterforce capability. Historically, counterforce strategies were considered the domain of the great powers and were founded upon the power of nuclear weapons. Now, however, the nuclear and conventional realms are

¹¹ Kyle Mizokami, "France is Furious with Australia over a Broken Submarine Deal. Here's Why," *Popular Mechanics* (September 28, 2021). <https://www.popularmechanics.com/military/navy-ships/a37667312/france-australia-broken-submarine-deal-explained>

¹² Van Jackson, "Is NATO Good for Asia, or is Asia Good for NATO?," *The Duck of Minerva* (September 23, 2021). <https://www.duckofminerva.com/2021/09/is-nato-good-for-asia-or-is-asia-good-for-nato.html>

¹³ Euan Graham, "Reflections on the Royal-Navy's Indo-Pacific Engagement," *IISS* (October 19, 2021). <https://www.iiss.org/blogs/analysis/2021/10/reflections-on-the-royal-navys-indo-pacific-engagement>

¹⁴ "Patrol ships bid farewell to Portsmouth as they begin Indo-Pacific deployment," *The Royal Navy* (September 07, 2021). <https://www.royalnavy.mod.uk/news-and-latest-activity/news/2021/september/07/210907-spey-and-tamar-deploy>

¹⁵ It should be noted that the US usually avoids being entrapped or entangled by an ally's actions, as alliance commitments are sufficiently flexible to allow Washington leeway in decision-making. See: Michael Beckley, "The Myth of Entangling Alliances: Reassessing the Security Risks of U.S. Defense Pacts," *International Security* 39 no. 4 (2015): 7–48.

¹⁶ These concepts include Integrated Air and Missile Defense (IAMD) and the Joint Concept for Access and Maneuver in the Global Commons (JAM-GC).

entangling as the power and sophistication of conventional weapons systems increase and they can, theoretically at least, pose a potent threat to the security of nuclear weapons systems.¹⁷ Developments in three areas — intelligence, surveillance, and reconnaissance — as well as in precision strike systems and missile defenses have enabled states to pursue conventional counterforce as a potentially viable, if still difficult, strategy to pursue. Although many doubt the true ability of conventional systems to fully diminish the nuclear capabilities of another state due to significant operational and technological hurdles, what matters are the opposition's perception of this capability and how that opposition responds to it.¹⁸

The Maritime Theatre and the Risk of War

Despite numerous headlines and articles asserting that tensions are forever rising in the South and East China seas, the reality is that the escalation pathways to war in what is a purely maritime strategic theatre are poorly understood. Vitally, China, the United States, and other actors are competing not over the dominance of land but rather over who can control access to and use of the sea for military purposes during wartime.¹⁹ This is a relatively unique case with few historical or current examples with which it can be compared.

A valid starting point through which to assess the potential for escalation to war is the significant naval buildup that has occurred in the region. China's cross-platform ship-building effort has radically transformed the People's Liberation Army Navy (PLAN), turning it into — on paper at least — a powerful force capable of increasingly sophisticated operations on, above, and beneath the surface.²⁰ The size of China's naval build-up can be summed up by looking at 2021, when over 170,000 gross tons of new vessels were launched.²¹ These included eight guided missile destroyers. Taking the destroyers alone, China has introduced 768 new VLS (vertical launching system) cells in one year. This is more than the entire UK Royal Navy has in service.²²

¹⁷ Austin Long and Brendan Rittenhouse Green, "Stalking the Secure Second Strike: Intelligence, Counterforce, and Nuclear Strategy," *Journal of Strategic Studies* 38 no. 1–2 (2015): 41–42.

¹⁸ Keir A. Lieber and Daryl G. Press, "The New Era of Counterforce: Technological Change and the Future of Nuclear Deterrence," *International Security* 41 no. 4 (Spring 2017): 9–49; Charles L. Glaser and Steve Fetter, "Counterforce Revisited: Assessing the Nuclear Posture Review's New Missions," *International Security* 30 no. 2 (Fall 2005): 84–126.

¹⁹ Alessio Patalano, Article Review 149 on "Security Studies in a New Era of Maritime Competition," *H-Diplo ISSF* (September 29, 2021). <https://issforum.org/articlereviews/149-maritime>

²⁰ Office of the Secretary of Defense, *Military and Security Developments Involving the People's Republic of China* (Washington DC: US DOD, 2020): 44–49.

²¹ Lia Wong with Xavier Vavasseur, "PLAN in Motion: Chinese Navy's Massive Ship Commissionings in 2021," *Naval News* (January 06, 2022). <https://www.navalnews.com/naval-news/2022/01/plan-in-motion-chinese-navys-massive-ship-commissionings-in-2021>

²² *Ibid.*

The US Navy (USN) and its primary regional allies, the Japanese Maritime Self Defense Force (JMSDF) and the Republic of Korea Navy (ROKN), have undergone significant, if smaller, force modernization efforts. It is important to note that in the case of the ROKN, the DPRK remains the primary driver of ROK force modernization efforts, with China taking a secondary but still important role.

As noted by Caverley and Dombrowski, the overall structure of the USN is centered on carrier aviation and, by extension, the core concepts informing its operational doctrine remain relatively unchanged from those of the Cold War and post-Cold War environments.²³ However, in response to the increasing peer challenge of China and to a lesser extent Russia, the USN has increased and continues to introduce new weapons, which will boost the level of lethality in at-range surface engagements. There are also efforts afoot to distribute lethality across as many platforms as possible and to introduce unmanned air, surface, and sub-surface platforms as force multipliers.²⁴

In themselves, naval modernization and even increased platform numbers are not natural indicators of a breakdown of stability at sea. The interaction of the two contrasting operating approaches between China and the United States, however, could increase the prospect of a clash at sea or even escalation to war.

Although the Chinese approach to naval operations seems to be based around dominating the seas within what many analysts have termed the “first island chain” and denying access to US and allied forces, the United States apparently maintains an offensive mindset that calls for the early establishment of sea control.²⁵ In wartime, this would involve anything from the destruction of the Chinese fleet and bases in the South China Sea to the destruction of any infrastructure on the Chinese mainland that would support denying US access to the seas of East Asia.²⁶ As Caverley and Dombrowski write, the peacetime consequences of this approach would be the

“... continuous forward presence in the littoral of another great power to execute this plan, something that has few precedents. Ultimately, should conflict occur, five or six carriers will steam toward the Western Pacific, asserting sea control and projecting power in and around the first island chain.”²⁷

²³ Jonathan D. Caverley and Peter Dombrowski, “Cruising for a Bruising: Maritime Competition in an Anti-Access Age,” *Security Studies* 29 no.4 (2020): 688–692.

²⁴ *Ibid.*: 694–695.

²⁵ The waters within the first island chain are those bounded by Borneo, the Philippines, the Ryukyu islands, and the Japanese Archipelago.

²⁶ Caverley & Dombrowski, *Cruising for a Bruising*, *op. cit.*: 695.

²⁷ *Ibid.*: 695–696.

This operational posture, along with what are determined as standard deterrent operations including regular patrols, FONOPS (Freedom of Navigation Operations), and naval exercises, have the potential to create situations where escalatory clashes could occur.

The specific attributes of naval warfare, including the tactical benefits of first strike and the relative ambiguity of the intentions and capabilities of modern multi-functional warships, could increase the potential for escalation arising from increased pressure on commanding officers. While it is logical to argue that there is a heightened risk of a clash at sea between the two navies, however, historical data suggests that sustained escalatory cycles at sea are rare, and therefore the likelihood of escalation from a clash to war is low.²⁸

This is primarily due to the lack of a strategic trigger or goal. Operations at sea that are unconnected from a political or strategic dynamic are not existential. This makes the cost of escalation too high in relation to the potential gains. Data from the Cold War and the Korean Peninsula shows that leaders generally do not want clashes at sea to upset the strategic balance on land. Further inhibiting factors are the difficulties of immediate attribution, particularly when the incident involves submarines; the problems of escalation dominance and the time required to move sufficient forces into a conflict zone; and the sheer fact that naval ships are very expensive, manpower-intensive platforms, which places a premium on their survival in competitive situations.

Submarine Operations

A notable factor in East Asian naval modernisation is the increased number of submarines that now operate or will soon operate in regional waters. The ROK, Japan, China, and several Southeast Asia states have all invested significant sums in qualitative and quantitative submarine capabilities. The USN maintains the powerful and numerous nuclear-powered submarine fleet.

The emphasis on submarine procurement is driven by the utility of submarines in warfighting at sea and their apparent deterrent effect during peacetime. In essence, submarines are excellent sea-denial platforms that can contribute substantially to sea control and the projection of power on land.²⁹

²⁸ Ian Bowers, “Escalation at Sea,” *op. cit.*

²⁹ Joint Air Power Competence Centre, *Alliance Airborne Anti-Submarine Warfare: A Forecast for Maritime Air ASW in the Future Operational Environment* (Kalkar: Joint Air Power Competence Centre, 2016): 7–10.

China is also developing a nuclear powered at-sea deterrent. This is an extra leg to its second-strike capability. China's development of this capability is still in its formative stages, and faces several operational problems. First, Chinese SSBN's (nuclear-powered ballistic missile submarines) are reportedly still relatively noisy and vulnerable to interception, although as the country's technological prowess develops this weakness will be mitigated.³⁰ Second, China has no natural bastion for the operation of its SSBN fleet. In particular, access routes to the Pacific are difficult to traverse without detection, as the Chinese vessels must transit through Japanese- and US-controlled choke points. Instead, there is data that China's emphasis on controlling the South China Sea is in part driven by the need to create a protected patrol area where its SSBN fleet could securely operate.³¹

It is unclear whether the proliferation of submarines is in itself escalatory. There are well-understood risks related to accidentally targeting an SSBN during a conventional conflict, thereby raising the possibility of an inadvertent nuclear escalation.

A second issue is the potential for accidents in what are already overcrowded waters.³² In Southeast Asia, multiple states operate or are procuring submarines. This is a dangerous and resource-intensive endeavor: The recent sinking of the Indonesian submarine KRI *Nanggala* demonstrates the potential for accidents. However, given the timeframe for discovering a missing submarine — and more importantly attributing the cause of an accident — it is unlikely that such a tragic event would be immediately escalatory.³³

³⁰ Carnegie-Tsinghua Center for Global Policy, *The Survivability of China's SSBNs and Strategic Stability* (October 24, 2018). <https://carnegietsinghua.org/2018/10/24/survivability-of-china-s-ssbns-and-strategic-stability-pub-77494>

³¹ Ian Bowers and Sarah Kirchberger, "Not So Disruptive After All: The 4IR, Navies and the Search for Sea Control," *The Journal of Strategic Studies* 44 no. 4 (2021): 628–629.

³² Zhenhua Lu, "US and China's Underwater Rivalry Fuels Calls for Submarine Code of Conduct to Cut Risk of Accidents," *South China Morning Post* (March 21, 2019). <https://www.scmp.com/news/china/military/article/3002736/us-and-chinas-underwater-rivalry-fuels-calls-submarine-code>

³³ Richard Smoke, *War: Controlling Escalation* (Cambridge, MA: Harvard Univ. Press, 1978): 332.

III. FROM LAND TO SEA

While operations at sea have a low potential for escalation to war or nuclear war, doctrine and operational capabilities that are primarily land-based but have relevance to the sea are much more likely to result in escalatory behavior. Both China and the United States have and are deploying an increasing number of conventional systems with operational constructs that have the potential to undermine strategic stability. These deployments are being driven by strategic and operational logics that either are founded in the conventional realm or are not directly aimed at either protagonist.

Yet, as described above, technological and conceptual developments, combined with an increasingly competitive arms dynamic, mean that a number of these systems can directly impinge on the security of the Chinese nuclear deterrent. This can help to explain the rationale for the recent qualitative and possibly quantitative developments in China's nuclear arsenal.

Chinese Conventional Missile Capabilities

China's emphasis on rapid and significant improvements in its missile capabilities is driven by the strategic desire to hold at risk US and allied naval forces throughout North and Southeast Asia. China's so-called anti-access/area-denial strategy seeks to deny the United States and its allies the secure use of the sea and reduce their operating capacity on land.³⁴ Conceptually, this would allow China to rapidly achieve military objectives while holding off immediate efforts to counter them. The range of these missile systems would include the East and South China Seas (the first island chain) and arguably extend into the Western Pacific in the open seas between Japan and Guam.

To enact such a strategy, China must have the ability to overwhelm missile defenses and still disrupt significant facilities such as airfields, C4 ISR (Command, Control, Communications, Computers [C4] Intelligence, Surveillance and Reconnaissance [ISR]) nodes, ports, and ships at sea. The People's Liberation Army Rocket Forces' (PLARF) conventional missile capabilities, therefore, provide Beijing with either a powerful tool to shape the operational picture should war break out or a potent first-strike capability aimed at degrading the enemy's capabilities before they can respond.

³⁴ "China Naval Modernization: Implications for U.S. Navy Capabilities—Background and Issues for Congress," *Congressional Research Service* (January 20, 2022): 4.

China's current phase of modernization seems to have made substantial inroads into undermining traditional areas of US military strength. Numerous reports now suggest that China has attained the capability to overwhelm US naval platforms and facilities in Japan and the ROK, potentially destroying capabilities before they are deployed.³⁵ Targeting moving naval vessels is a harder proposition. However, China now possesses increasing numbers of advanced sensors capable of covering multiple domains, including over-the-horizon radar and surveillance satellites that, when networked with other capabilities and effective data processing and analytics, provide near-constant coverage of strategically important areas such as the East and South China Seas and the Western Pacific.³⁶

China's military modernization over the preceding 20 years has resulted in rapid developments in its missile and rocket capabilities. China reportedly possesses a potent array of intercontinental, intermediate, medium, and short-range ballistic missiles alongside a large inventory of air-, sea-, and ground-launched cruise missiles. One analysis suggests that these numbers have risen significantly over the past fifteen years.³⁷

Numerical growth is only one element of China's missile modernization. Recently introduced capabilities include multiple and maneuverable terminal stages/warheads, deep penetrating warheads, and increased accuracy.³⁸ China's inventory of SRBMs (short-range ballistic missiles) include the DF-11, DF-12, DF-15, and DF-16 family of missiles, with ranges between 250 and 1000 km. These missiles are capable of carrying multiple types of warheads, and incremental developments indicate a focus on increased accuracy (later models of the DF-11 and -15 may have a circular error probability of 50 m), maneuverability, and stealth.³⁹

The medium-range DF-21 series has also seen substantial development since its introduction in 1991. The DF-21C introduced in 2006 reportedly possesses greater accuracy and greater range than the original missile. The 1500-km range DF-21D is an anti-ship ballistic missile that has attained some notoriety in US defense and media circles, gaining the moniker "carrier killer" due to its suspected mission of targeting

³⁵ See: Thomas Shugart and Javier Gonzalez, *First Strike: China's Missile Threat to U.S. Bases in Asia* (Washington, DC: Center for a New American Security, 2017); Ashley Townshend, Brendan Thomas-Noone & Matilda Steward, *Averting Crisis: American Strategy, Military Spending and Collective Defense in the Indo-Pacific* (Sydney: The United States Studies Centre, 2019).

³⁶ Bowers & Kirchberger, *Not so Disruptive*: 629.

³⁷ US Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2019* (Washington, D.C., 2019): 47.

³⁸ Jane's Sentinel Security Assessment, *Strategic Weapons – China and Northeast Asia* (March 12, 2018).

³⁹ *Ibid.*

US aircraft carriers operating in waters proximate to China.⁴⁰ Similarly, the DF26, which entered service in 2015, has a range of 3000–4000 km. It is the first conventional Chinese missile to be able to target Guam and, if deployed at Chinese facilities in the South China Sea, US facilities in Australia.⁴¹ It has been reported that in the summer of 2020 China successfully tested the DF-21D and the ASBM variant DF-26B against a moving target in the South China Sea.⁴² Importantly, the DF-26 is capable of both nuclear and conventional capabilities; some analysis suggests that DF-26 units in the field have both warheads available to them.⁴³

Exactly why China would do this is impossible to fully explain. One possible reason is to hide the number of nuclear missiles that China has, in a form of shell game. A second is protection: To reduce the risk of US attack, a dual capability puts doubt in the minds of opposition tactical planners about the nature of the target and the potential of uncontrolled escalation from conventional to nuclear war.⁴⁴ This would make a conventionally armed DF-26 more survivable in any conventional warfighting scenario as targeting it would be fraught with potential risk.

The US Response

In response to this sub-optimal operational picture, the United States has sought to build and deploy capabilities and, importantly, to develop strategies that can actively undermine China's approach. The 2019 Missile Defense Review⁴⁵ highlighted the importance to the Pentagon of missile defense, not only to protect the homeland, but also regionally.

Although the review stated that nuclear deterrence and not missile defense was the cornerstone of the strategy to prevent China from utilizing its ICBM capabilities, it

⁴⁰ Missile Defense Project, "Dong Feng 21 (DF-21/CSS-5), Missile Threat," Center for Strategic and International Studies, April 13, 2016, last modified April 23, 2019, <https://missilethreat.csis.org/missile/df-21>

⁴¹ Eric Gomez, "Meet the DF-31AG and the DF-26: The Big Ballistic Missiles at China's Military Anniversary Parade," CATO Institute (August 08, 2017), <https://www.cato.org/commentary/meet-df-31ag-df-26-big-ballistic-missiles-chinas-military-anniversary-parade>

⁴² Harry Kaziani, "China's DF-21D And DF-26B Anti-Ship Missiles Hit Target Vessel In August,"¹⁹⁴⁵ (November 14, 2020). <https://www.19fortyfive.com/2020/11/chinas-df-21d-and-df-26b-anti-ship-missiles-hit-target-vessel-in-august>

⁴³ Joshua Pollack and Scott LaFoy, "China's DF-26: A Hot Swappable Missile?," *Arms Control Wonk* (May 17, 2020). <https://www.armscontrolwonk.com/archive/1209405/chinas-df-26-a-hot-swappable-missile>

⁴⁴ *Ibid.*

⁴⁵ US Department of Defense, *2019 Missile Defense Review* (Washington, D.C., 2019). Summary: <https://www.defense.gov/portals/1/interactive/2018/11-2019-missile-defense-review/mdr-fact-sheet-15-jan-2019-updated.pdf>

was much less clear regarding China's conventional capabilities.⁴⁶ Indeed, the review explicitly highlights the strategic dangers that such capabilities pose to the US and its allies.⁴⁷ Importantly, the review also highlights the Integrated Air and Missile Defense (IAMD) concept that is designed to stop an enemy from using offensive weapons through a combination of deterrent, defensive, and offensive operations.⁴⁸

This combination of capabilities reflects the weaknesses of existing missile defenses (although they are improving) and the need to target C4ISR nodes and launch facilities before the opposition fires its missiles. By raising the possibility of offensive operations, the United States is developing a strategy linked to advances in technology to target the weak points in China's missile architecture. It is also vital to note that these same capabilities could equally be used to target the missile infrastructure of the DPRK.

The United States possesses superior targeting and intelligence capabilities that, if leveraged, will provide US forces with the ability to find and destroy Chinese fixed and mobile capabilities with conventional weapons.⁴⁹

Ongoing investments in stealth capabilities such as the B-21 Raider and upgrades to the B2 Spirit Bomber are intended to ensure that the United States can penetrate high-density enemy defenses like those possessed by China. Additionally, improved and future versions of the Tomahawk cruise missile and AGM-158 JASSM cruise missile provide the US with an increased ability to attack targets from greater distances.

Following the 2019 US withdrawal from the INF (Intermediate Range Nuclear Forces) treaty, the then US Defense Secretary, Mark Esper, stated that he would like to deploy ground-launched intermediate-range missiles in Asia as soon as possible.⁵⁰ Although, as some analysts have pointed out, many countries in Asia may be reluctant to deploy missiles on their territory for fear of Chinese economic and political reprisals, it remains possible that Washington will attempt to deploy them in parts of the Asian theatre. Finally, the Prompt Global Strike Concept (PGS) seeks to use new technologies such as hypersonic glide vehicles to rapidly target and engage enemy capabilities from areas proximate to the United States. These resources could very well

⁴⁶ *Ibid.*: 8.

⁴⁷ *Ibid.*: 19.

⁴⁸ *Ibid.*: 33.

⁴⁹ Long and Rittenhouse Green, "Stalking the Secure Second Strike," 60-64

⁵⁰ Indrees Ali, "US Defense Secretary Says He Favors Placing Missiles in Asia," *Reuters* (August 03, 2019). <https://www.reuters.com/article/us-usa-asia-inf/u-s-defense-secretary-says-he-favors-placing-missiles-in-asia-idUSKCN1UT098>

be used in a China-related scenario, destroying immediate threats and related military infrastructure such as C2 (command and communication) nodes.⁵¹

Away from the offensive capabilities, there has also been a significant investment in and deployment of missile defense systems. These include continuous upgrades of the Patriot Missile Systems deployed in Japan and Korea, the deployment of THAAD (the US' Terminal High Altitude Area Defense system for intercepting incoming ballistic missiles) on the Korean Peninsula, and the continued use of naval vessels as missile defense pickets in the waters around Japan.

Missile defense systems are not a perfect solution to guard against incoming missile threats. Manifest technological and operational difficulties serve to undermine the overall effectiveness of missile defense systems. This is particularly true when defense is required against multiple or simultaneous ballistic missile attacks. However, theoretically at least, particularly when combined with offensive conventional counterforce systems, missile defense could threaten perceptions of mutual vulnerability. Indeed, the Chinese strategic community does argue that US missile defense may undermine China's strategic deterrent.⁵²

However, it is difficult to show that the majority of US missile defenses deployed regionally are intended solely for a China scenario. It is more likely that North Korea is the primary shaping threat for the US missile defense approach. In this case, US military deployments aimed at one party still have strategic and operational implications for another.

Duplicating Postures

US allies are also modelling their missile defense strategies on their larger ally with an increased focus on intermixing offensive and defensive capabilities. Such strategies, particularly when enacted in coordination with the United States, could place the assumptions behind China's nuclear capability in jeopardy. Japan is investing heavily in missile defenses, with a sophisticated array of ground-based sensors across Japan, 28 Patriot PAC-3 missile units, and investment in sea-based missile defense systems. The Japanese Maritime Self Defense Force currently deploys eight AEGIS vessels capable of conducting missile defense.

⁵¹ For a thorough discussion on inadvertent nuclear war and the risk to command and control systems, see: James M. Acton, "Escalation through Entanglement: How the Vulnerability of Command-and-Control Systems Raises the Risks of an Inadvertent Nuclear War," *International Security* 43 no. 1 (Summer 2018): 56–99.

⁵² Fiona S. Cunningham and M. Taylor Fravel, "Assuring Assured Retaliation: China's Nuclear Posture and U.S.-China Strategic Stability," *International Security* 40 no. 2 (Fall 2015): 16–20.

Japan is also gradually introducing more standoff weapons into its arsenal. In offensive terms, Japan is beginning to shrug off the legacy of its self-imposed ban on offensive systems with R&D occurring on precision strike and hypersonic capabilities.⁵³ Japan consequently improved its ability to hold Chinese sea-based capabilities at risk from greater ranges, thereby increasing the potential cost of any Chinese offensive action. There is also an ongoing debate in Japan about developing longer range systems that could target adversary assets in their homeland. This debate is largely framed by the threats posed by the DPRK and China, but the political, technical, and operational hurdles to successfully operationalizing such an approach have not yet been resolved.

Taiwan, albeit on a smaller budget, is similarly upgrading its existing nine Patriot batteries to the PAC3 variant. It is, however, still facing a large deficit in terms of incoming missiles versus interceptors.⁵⁴ Consequently, it is also developing a series of long-range strike missiles, including the still-in-development Yun Feng supersonic cruise missile with a range of between 1200 and 2000 km and the Hsuing Feng IIE subsonic cruise missile with a range between 600 and 1250 km.⁵⁵ It is unknown how many of these missiles are or will be deployed, but they will provide Taiwan with the ability to target Chinese defense systems.

Why This Matters

It is likely that China and the United States are now in a conventional arms dynamic where each is designing around the capabilities of the other. The potential for arms race instability is magnified as new offensive technologies such as hypersonic glide vehicles and defensive technologies such as laser weapons are introduced. China's construction of new missile fields, an at-sea deterrent, and other new nuclear capabilities are likely occurring partly in response to the potential of emergent US conventional capabilities.

Importantly, the difficulty for the United States and China is ensuring that the nuclear and conventional realms remain separate. In the case of China, much of its missile capability and infrastructure is co-located or dual use. This serves to partially protect Chinese capabilities, but could also increase the potential for misunderstanding, as

⁵³ Japan Ministry of Defense, *Defense Programs and Budget of Japan: Overview of the FY2019 Budget* (Tokyo, 2019): 12.

⁵⁴ Alex Calvo, "Taiwan and Missile Defense: Current Situation and Future Prospects," *Taiwan Insight* (February 28, 2018). <https://taiwaninsight.org/2018/02/28/taiwan-and-missile-defense-current-situation-and-future-prospects>

⁵⁵ Missile Defense Project, "Yun Feng," *Missile Threat*, Center for Strategic and International Studies, July 13, 2017, last modified June 15, 2018, <https://missilethreat.csis.org/missile/yun-feng>; Missile Defense Project, "Hsiung Feng IIE," *Missile Threat*, Center for Strategic and International Studies, July 13, 2017, last modified February 27, 2019, <https://missilethreat.csis.org/missile/hsiung-feng-iie>

Beijing may construe a conventional attack as one aimed at undermining nuclear survival.

Moreover, prominent academic work suggests that Chinese strategists view capabilities such as missile defense as directly reducing nuclear vulnerability.⁵⁶ The United States and its allies' approach, which is aimed at countering both conventional Chinese systems and the nuclear capabilities of the DPRK, could be perceived by the Chinese leadership as a direct threat to their nuclear arsenal, leaving them with an increased incentive to escalate beyond the use of conventional weapons should war break out.

IV. THE KOREAN PENINSULA

In the case above, the possibility of nuclear war likely emanates from the risk of entangling the nuclear and conventional realms in any conventional warfighting scenario. On the Korean Peninsula, however, the DPRK's continuous development of nuclear and missile capabilities, in combination with repeated tests, rhetorical threats, and other actions including cyber-attacks, continues to dominate the security picture. Currently, deterrence is likely achieved by a combination of the DPRK regime's own instinct for survival, the presence of US forces, ongoing South Korean modernization measures, and the guarantee of an overwhelming response from the United States should the DPRK ever resort to the use of weapons of mass destruction.

Although a number of crises have erupted on the Korean Peninsula arising from North Korean hostile actions, none has escalated into war due to the restraining hand of the United States or because of one side or the other pulling back from the brink.⁵⁷ It is likely that this relatively stable but still dangerous status quo will remain in place for the foreseeable future.

Importantly, the DPRK's continuous development of nuclear capabilities, in conjunction with uncertainty regarding the security of the US alliance and in particular the credibility of the nuclear umbrella and occasional domestic calls for an

⁵⁶ Caitlin Talmadge, "Would China Go Nuclear? Assessing the Risk of Chinese Nuclear Escalation in a Conventional War with the United States," *International Security* 41 no. 4 (2017): 50–92.

⁵⁷ See: Van Jackson, *On the Brink: Trump, Kim and the Threat of Nuclear War* (New York: Cambridge University Press, 2018).

independent nuclear deterrent, has driven the ROK into pursuing a conventional counterforce capability.⁵⁸

This is an understandable and justifiable reaction to the strategic circumstances that policy makers in Seoul face, yet conventional counterforce as understood and operationalized by the ROK introduces new areas of potential instability that will need to be managed if war on the peninsula is to be avoided. The relative novelty of the conventional counterforce approach means that the instability risks are under-explored, and a number of factors arising from the counterforce dilemma could exacerbate the danger of nuclear weapons use.⁵⁹

The operational counterforce concept in the ROK is based around a triad of approaches: a deterrent by denial component, a deterrent by punishment component, and a missile defense component.⁶⁰ Since the early 2010s and in reaction to DPRK actions, the ROK military has invested large sums in the development and deployment of large numbers of indigenously constructed short-range ballistic missiles, cruise missiles, and other kinetic and non-kinetic offensive systems.⁶¹ Simultaneously, Seoul is deploying new and upgraded missile defense systems. Though these conventional offensive and defensive capabilities are designed to be operated in a manner independent of US capabilities, currently the ROK is working to better integrate them with US systems to enhance their deterrent effect.⁶² Moreover, it is highly unlikely that the ROK would pursue an independent response to a major North Korean provocation; it is more likely that any action would be carried out in coordination with US forces.

Although fully operationalising a conventional counterforce strategy to the point that guaranteed defense against North Korean attack is extremely difficult, its deterrent effect likely lies in its ability to put doubt in the minds of the DPRK's leadership as to the effectiveness of a DPRK attack on the ROK.⁶³

⁵⁸ Lauren Sukin and Toby Dalton, "Why South Korea Shouldn't Build Its Own Nuclear Bombs," *War on the Rocks* (October 26, 2021). <https://warontherocks.com/2021/10/why-south-korea-shouldnt-build-its-own-nuclear-bombs>

⁵⁹ The four risks are taken from Ian Bowers and Henrik Hiim, "Conventional Counterforce Dilemmas: South Korea's Deterrence Strategy and Stability on the Korean Peninsula," *International Security* 45 no. 3 (Winter 2020/2021): 31–36.

⁶⁰ Republic of Korea Ministry of National Defense, *2018 Defense White Paper* (Seoul, 2019): 69–70.

⁶¹ Ian Bowers and Henrik Hiim, "South Korea, Conventional Capabilities, and the Future of the Korean Peninsula," *War on the Rocks* (February 11, 2021). <https://warontherocks.com/2021/02/south-korea-conventional-capabilities-and-the-future-of-the-korean-peninsula>

⁶² Jeff Sedlin, "US, South Korea Updating War Plans for North Korea," *Voice of America* (December 01, 2021). <https://www.voanews.com/a/us-south-korea-updating-war-plans-for-north-korea/6334640.html>

⁶³ Ian Bowers and Henrik Hiim, "Conventional Counterforce Dilemmas," *op. cit.*: 18.

This effect makes the pursuit of conventional counterforce a sensible strategic choice given the ROK's range of strategic options and the United States' existing and developing conventional capabilities. Nevertheless, conventional counterforce could exacerbate the already significant danger posed by the DPRK's pursuit of nuclear weapons.

First there is an increased possibility of misunderstanding. Primarily, even though the ROK counterforce concept is pre-emptive in nature, North Korean fears about a conventional preventative strike from either the ROK or the United States at a time of crisis could place their leadership in a use-them-or-lose-them dilemma. This dilemma could raise the incentives for a first strike, particularly if DPRK leaders believed a disarming or regime-endangering strike on DPRK territory was imminent.

Second, any conventional counterforce strategy places significant stress on the ROK and US leaderships. Given the short flight time of missiles between combatants on the peninsula, leaders will need to make quick decisions as to whether to fire back, raising the possibility of mistake or error.

Third, if the DPRK does fear the survivability of its regime leadership, it could pre-delegate nuclear weapons control or use other procedures to strengthen positive control. This is a pertinent risk given the deterrent by punishment element of the ROK strategy, which aims to target the North Korean leadership. Such threats against leadership targets could also reduce the incentives for negotiation and would make de-escalation even more difficult.

Finally, the danger of arms race instability is increasing as all sides seek to introduce new capabilities that could exacerbate security tensions and cause an escalatory and potentially dangerous arms race. The DPRK has in recent years introduced new missile capabilities aimed at evading existing ROK, US, and Japanese missile defense capabilities. In September 2021, Pyongyang claimed to have tested a pre-fuelled hypersonic weapon that, if operationalized, could mitigate many of the ROK counterforce strategies.⁶⁴

At the same time, the ROK has introduced a wide array of new precision capabilities with longer range and heavier warheads. Many of these systems are designed primarily to destroy hardened DPRK nuclear and command and control facilities. Additionally, the ROK air force and navy are introducing new platforms that massively increase the country's offensive potential. These include the F-35 fighter jet

⁶⁴ This was the first of three claimed hypersonic glide vehicle missile tests. See: *Agence France-Presse*, "North Korea Says It Tested Hypersonic Missile with 'Superior Manoeuvrability'," *The Guardian* (January 12, 2022). <https://www.theguardian.com/world/2022/jan/12/north-korea-says-it-tested-hypersonic-missile-with-superior-manoeuvrability>

and numerous naval vessels capable of launching precision land-attack weapons. Notably, the ROK itself tested a sea-launched ballistic missile and now operates the only conventionally powered submarine capable of launching such weapons.

It should be further noted that even if the DPRK nuclear threat was to subside, it is unlikely that the ROK would be able to reduce its conventional precision capability. The emphasis on precision and high-technology systems is in part aimed at mitigating the drawdown in the army's manpower caused by demographic changes in the ROK. These systems also have increasing utility in the context of any conflict with China. Moreover, they form part of a military posture designed to ensure that the ROK has some level of strategic and operational autonomy in what is an increasingly contested and contentious region.

V. THE IMPOSSIBILITY OF ARMS CONTROL?

The general level of arms procurement that now permeates East Asia, and in particular China's nuclear modernization, has driven sustained calls for arms control negotiations between China and the United States.⁶⁵ This paper argues that such negotiations are likely to be difficult due to the interconnected nature of the strategic picture.

In Northeast Asia, the China-US relationship is only one element in a wider dynamic between China, the United States, Japan, the ROK, and the DPRK. The military postures of all of these countries are linked; therefore, it is difficult to see a grand bargain where all parties would give up capabilities deemed vital to national security. This problem is exacerbated by the sheer difference in warhead numbers between the United States and China.⁶⁶

⁶⁵ Daryl G. Kimball, "Engaging China on Arms Control? Yes, and Here's How," *Arms Control Association* (June 2021) <https://www.armscontrol.org/act/2021-06/focus/engage-china-arms-control-yes-heres-how>; Gareth Evans, "China's New Silos: Nuclear Arms Control More Urgent Than Ever," *The Interpreter* (August 19 2021) <https://www.lowyinstitute.org/the-interpreter/china-s-new-silos-nuclear-arms-control-more-urgent-ever>

⁶⁶ Henrik Stålhane Hiim & Magnus Langset Trøan, "China's Atomic Pessimism and the Future of Arms Control," *War on the Rocks* (June 21, 2021). <https://warontherocks.com/2021/06/chinas-atomic-pessimism-and-the-future-of-arms-control>

Equally, across the region, it is difficult to see a scenario where naval arms control is enacted. States have invested substantial sums in naval capabilities; giving those up would therefore be a costly endeavour. With little or no indication that China is willing to reduce its naval forces or alter its claims in the region, there is little strategic incentive for other states to give up their own capabilities. Moreover, deciding on what basis naval capabilities could be reduced is particularly complex given the multifunctionality of naval vessels and the potential lethality of even small platforms.

As argued in this paper, missile defense is a source of China-US antagonism, but is also an area where many argue arms control could work.⁶⁷ The logic behind negotiating away missile defense capabilities is their current lack of effectiveness against mass missile attacks. By discontinuing research and procurement in missile defense, a negotiated agreement could ensure that states like China and the DPRK are not compelled to continuously design around such defenses.

However, removing such capabilities in the face of the continued threat posed by the DPRK, given Pyongyang's repeated provocations in combination with its failure to adhere to previous international agreements, would be strategically unwise and very difficult to sell to publics in the region (especially in Japan and the ROK). This means that US missile defense systems such as THAAD deployed in the ROK, which may destabilise its relationship with China, are still necessary given the North Korean threat. If the United States is to ensure alliance credibility, it is likely required to maintain such systems despite Beijing's protestations and potential counters.

Even in the context of a conventional attack, missile defense has utility against North Korean systems, so removing US or South Korean systems would make little sense given the sustained threat posed by the DPRK. Further, the cross-regional desire to possess strong precision conventional capabilities would remain.

Even more problematically, if missile defense was the subject of arms control, the possibility of nuclear proliferation could be heightened, as states such as the ROK or Japan may not feel secure enough behind their own conventional counterforce capabilities, nor have full confidence in leaving their security to the US nuclear umbrella.

⁶⁷ David C. Logan, "Trilateral Arms Control: A Realistic Assessment of Chinese Participation," *Stimson* (August 09, 2021). <https://www.stimson.org/2021/trilateral-arms-control-a-realistic-assessment-of-chinese-participation>

VI. CONCLUSION

This paper has endeavored to show that to consider strategic stability in East Asia we must think about a) the entanglement of conventional and nuclear doctrines and capabilities and b) the connection between different strategic relationships and how this connection affects the potential for nuclear war. It has argued that in the maritime theatre, although the potential for escalation to war exists, it is somewhat unlikely due to the nature of naval operations and the lack of natural escalatory pathways.

However, the interaction of sea-control and sea-denial strategies, with a particular emphasis on Chinese land-based missiles and US efforts to counter them, raises the risk of nuclear entanglement and is driving Chinese improvements in its nuclear forces. Similarly, on the Korean Peninsula, the overall deterrent stalemate is largely holding. However, the DPRK's continued pursuit of nuclear and missile capabilities and the ROK and US conventional counterforce response raise the risk of conventional or nuclear conflict breaking out, while simultaneously increasing Chinese fears of removing or undermining mutual nuclear vulnerability.

These connections between the prospects of conventional and nuclear conflict, and the different strategic relationships in East Asia, are likely to be determining factors in future regional stability. Further research is required into how and in what forms arms control can be implemented, not just between China and the United States, but also by including other regional actors and taking account of existing and emerging security dynamics. It is likely that in the near future the risk factors highlighted here will remain and even increase. It will be impossible to consider peace on the Korean Peninsula without placing it within the context of wider East Asian stability, and vice versa. 