Value despite Vulnerability: Strategic Impact of China’s Carrier

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I: Introduction

A core element of China’s military buildup is a new fleet of aircraft carrier. Possessing and operating sophisticated aircraft carrier battle groups has been a century ambition for China. The commission of the first aircraft carrier of the People’s Liberation Army Navy (PLAN) on Sept. 25, 2012, with a name of Liaoning, opened a new page of PLA naval development. On May 10, 2013, approved by the Central Military Commission (CMC) of the Chinese Communist Party (CPC), the Carrier-Borne Aviation Force comprised of carrier-borne fighter jets, jet trainers and ship-borne helicopters that operate anti-submarine, rescue and vigilance tasks was formally established as part of the PLAN. This force which is vital to the strike force of aircraft carrier demonstrated that “the development of China’s aircraft carriers has entered a new phase”. ¹ There is little doubt that will not be the sole aircraft carrier of PLAN, but a pioneer that would precede the construction and commissioning of homegrown carriers.²

Serious controversy has been engendered concerning the emergence of China’s aircraft carrier fleets due to vulnerability of carriers in military scenarios.³ In addition to a host of exploration about China’s carrier capability building and conjectures of PLAN’s strategic intention, both inherently full of uncertainty, some scholars argue strongly that China’s carrier ambition is an unwise strategic decision because of the inevitable and ever increasing vulnerability of a giant ship in an era of satellite

imagery, global positioning system and over-the-horizon precision strike missiles. Unsurprisingly, this school of thought is marginal and unpopular, not only in China, but in the whole world. However, it is more thought-provoking and meaningful for us to examine the multilayered values of China’s up-and-coming carrier force while keeping the vulnerability issue in mind.

This article assesses the strategic and tactical impact of the looming aircraft carriers fleets for the PLA. It accepts that carriers are increasingly vulnerable, but argues that the strategic importance of carrier vulnerability depends on the missions. In addition to the other naval warships, the carrier fleet of the PLAN will be tasked four major missions. First is to further enhance China’s international prestige as a rising power through global presence. Second is to be a more efficient leverage to provide global public goods. Third is to strengthen offshore sea control capability in naval combat in order to safeguard China’s sovereignty and territorial integrity. Fourth is to provide a more effective instrument for strategic deterrence in a standoff with US navy. The value of China’s aircraft carrier force diversifies according to the nature of the scenarios in which it would probably be used, to which the vulnerability issue has different relevance.

Vulnerability of the carrier fleet does not matter at all for presence or provision of non-security global public goods. PLAN’s aircraft carrier fleet will play an important role in China’s maritime power building. It will function as a symbol of national prestige and international status of an ever-rising China, a benchmark for future blue-water navy roadmap, as well a platform for naval presence to exert global influence, etc. Additionally, such a fleet will commit itself to addressing a series of nontraditional security threats and providing global public goods, including the safeguard of the far-reaching sea lanes of communications, anti-piracy mission, anti-terrorism operation, humanitarian rescue, disaster relief, refugee evacuation, and overseas interest protection, etc. For these two dimensions, vulnerability is obviously not an issue need to worry about.

Vulnerability of the carrier fleet does matter for combat mission of sea control, but depends on the strength of potential adversaries. Given the intensifying territorial disputes between China and some of its neighbors in the East China Sea and South China Sea, the aircraft carrier will be employed for combat mission in case of a maritime conflict, or even a regional war. Dwarfed by the comprehensive and integrated military superiority of China, especially in terms of space and missile capability, most of its potential regional opponents with their flawed anti-ship and air-defense abilities can hardly impose vital threat to China’s aircraft carrier fleet. As an irreplaceable and indispensable leverage for military victory, PLAN’s carriers with multidimensional combatant capabilities are likely to help China capture and maintain sea control versus regional opponents.

Vulnerability of the carrier fleet increases China’s deterrent abilities, particularly by increasing ability to use threats of escalation to deter American involvement in
East Asian security crises. As the security supporter of and arms seller to Taiwan, as well the treaty ally of Japan and Philippine who have territorial disputes with China, US may fall in, or be dragged into, a military stalemate or even a suffocating crisis with China in East Asia. It is true that the formidable power asymmetry means China’s aircraft carrier battle group would be a vulnerable target in the face of the US navy; nonetheless, the high value of an aircraft carrier implies high risk. For a rational decision maker, how to deal with the sequel to the destruction of a carrier belonging to another nuclear power is a much more vital challenge than how to destroy a carrier.

II: China’s Naval Missions

Mission for presence/prestige

Presence on the global scene is one of the major missions for the PLAN. A blue-water navy operating in the international water, a global common covers 70 percent of the earth’s surface, can provide the Chinese leadership the crucial capability of global presence in distant corner of the world. As increasingly entwined with the rest of the world, China’s economy and security are faced with more urgent need of overseas interest protection. Being able to show the flag on the high seas and implement forward deployed presence far from homeland to protect its citizens and interests is of great significance for China to project power and insert influence abroad, as well enhance national integrity and dignity at home.

As a traditionally international service, the PLAN is also tasked to be a “military diplomatic envoy” aiming to “display PLA’s good image, enhance China’s international status”, as ordered by Admiral Wu Shengli, the chief commander of the PLAN. By conducting international port visits, naval exchanges, joint maritime exercises, and fleet cruise worldwide, a powerful navy led by aircraft carriers can function as an effective instrument of diplomacy to booster China’s prestige as a rising global power on the international stage.

Mission for provision of global public goods

Provide public goods to regional and global community is becoming an increasingly important mission for the PLAN in peacetime. Since the end of the Cold War, nontraditional security threats, including piracy, international terrorism, cross-border crimes, natural disasters, humanitarian crisis, etc. have been imposing ever-growing pressure upon international security and stability. With its economic and military development, China is driving the PLA to adapt itself to the new changes of security threats and strengthen relevant capabilities to become a more efficient provider of public goods. For example, in March 2009, President Hu Jintao asked the PLA to concentrate not only on “building core military capabilities,” but also on “the
ability to carry out military operations other than war (MOOTW)”. The White Paper on National Defense in 2010 reemphasized the significance of MOOTW, and demanded the PLA to work out “pre-designed strategic programs” against nontraditional security threats, as well enhance “capabilities in accomplishing diversified military tasks”.

The transnational features of the nontraditional security threats initiated new opportunities and challenges to the PLA, especially the navy. As General Guo Boxiong, the then vice chairman of the CMC, claimed in April 2009 at a conference celebrating the 60th founding anniversary of the PLAN, that the PLAN should “constantly improve ability in completing diversified military tasks in the information age.” This mission requirement has been elaborated by Admiral Wu Shengli that since terrorism, separatism, extremism, piracy and transnational crimes are posing urgent challenges to the global maritime security, the PLAN “is obliged to ensure safety on the oceans, and crack down on such unconventional threats” through international cooperation. The best example of the PLAN’s dedication to the provision of global public goods is the anti-piracy operations off the Horn of the Africa. Since December 2008, the PLAN has continuously sent 17 escort flotillas to the Gulf of Aden in order to protect one of the world’s busiest sea lanes of communication (SLOC) from the rampant piracy. It is not only the first time for the PLAN “to protect the security of important transportation lanes” by naval combat force, but also the biggest and longest MOOTW since the founding of the PLAN.

**Mission for direct combat**

Conduct direct maritime combat and then win victory to safeguard China’s territorial integrity and sovereignty security, the “core national interests”, is obviously the most important mission of the PLAN. With the revision of naval strategy from Coastal Defense to Offshore Defense in 1985, the top mission of the PLAN has become safeguarding territorial integrity, dealing with regional sea war, containing and defeating foreign aggression from the sea. As ordered by General Liu Huaqing, the primary combat capability that PLAN need for sea war is “seize and maintain control of the sea in a limited period of time in major offshore direction of operation”. In a direct maritime conflict, sea control means the command of designated air, surface and subsurface area where opposing fleet’s ability to operate

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will be effectively neutralized so as to achieve limited strategic goals.\textsuperscript{10} For that purpose, two kinds of sea control strategies, defensive sea control and offensive sea control, might be employed.

By defensive sea control, the PLAN needs to establish credible defense barrier on, above and under the waters in a particular area.\textsuperscript{11} Its major task is to “eliminate potential threats to the friendly side in a particular area, gain freedom of action on the sea for the friendly side, and enable the friendly side to effectively utilize the ocean to undertake political, military, and economic action” by deter hostile actions through the threat of destruction.

By offensive sea control, the PLAN, in addition to those aforementioned tasks, needs to launch strike against the opposing fleet, and when necessary, the naval bases, air bases, and aircraft located ashore which can provide assistance. Its major task is to “strip the enemy’s command of the sea, and stop him from using the ocean (or) cause his maritime activities to be limited” by destroy hostile aircraft, ships, and submarines at sea.

\textit{Mission for Deterrence}

Contribution to the nation’s strategic deterrent is the last mission of the PLAN. First and foremost, of course, is nuclear deterrence. Nuclear capability of the navy, typified by the ballistic missile nuclear submarines (SSBNs) equipped with nuclear warheads, serves as one pillar of the nuclear triad. It is the invisibility and mobility of SSBNs that allow for a greater chance of survival from a first-strike, in turn, ensure a credible and reliable means of deterrence by maintaining the threat of a second-strike. Since the establishment of the PRC, Chinese leadership has attached great importance to the development of naval nuclear deterrent capabilities, exemplified by the famous allege of Chairman Mao Zedong that “We must have our own nuclear submarine, even though it will take ten thousand years.” Acquiring and maintaining “powerful nuclear counterattack ability” was listed as one of the four necessary operational capabilities of the PLAN outlined by General Liu Huaqing.\textsuperscript{12}

The second dimension of the PLAN’s deterrent mission is to provide the leadership conventional deterrent capability through construction of a powerful blue-water navy. Such requirement has been expressed on May 2, 1975, in a quite simple but clear word, by Chairman Mao Zedong when he demanded General Su Zhenhua, the then political commissar of the PLAN, that “The navy must do well and make the enemy fear”. Possessing a blue-water navy capable of extra-regional power projection on a sustainable basis, China can deter foreign invasion and harassment from the sea direction, infringement of maritime rights and interests, and threats to

\textsuperscript{11} John Mearsheimer, \textit{A Strategic Misstep}, pp.10-11.
\textsuperscript{12} \textit{Liu Huaqing Huiyilu} \textit{[Memoirs of Liu Huaqing, Jiefangjun Chubanshe [People's Liberation Army Press], 2007, p. 438.}
China’s strategic SLOCs which are vital for its economic development.

III: Carrier Vulnerability

The successful marriage between naval and air power has made aircraft carrier win over the dreadnought and become the trump card for sea control. On the other hand, as the ever biggest, most expensive and valuable warship, aircraft carrier is always the top target in a military conflict. Correspondingly, survivability of the carrier in a maritime conflict is the major concern haunting every navy.

Vulnerability of carrier in Information Age

The outstanding performance of aircraft carrier in the World War II has changed the naval combat pattern and turned itself from scout force into the capital ship of a modern fleet. Undoubtedly, the first task of a fleet commander in any sea battle is to find and destroy the enemy’s aircraft carrier. The best tool to confront the aircraft carrier on the open sea, as demonstrated by the deadly struggle between the US and Japan on the Pacific Ocean, is aircraft carrier itself. Such a fact connotes that an integrated aircraft carrier battle group would face the problem of survivability only before another great naval power with comprehensive defense industry and modern military technology. However, it does not mean it is an easy job, even for such a naval power. It is difficult to locate a carrier which can maneuver freely to choose the best striking position on the sea. It is also difficult to attack a carrier who can launch air attack far beyond the fire range of its opposition. Even though a carrier can be successfully detected, it is not easy for the attacker to penetrate the multilayered and multidimensional defense system provided by the escort formation of the carrier. Finally, the extraordinary floatability as well strike resistance capability benefited from special configuration and huge tonnage makes an aircraft carrier itself not a target easy to be sunk. Therefore, in the Industrial Age, a minor state can hardly threaten a heavily-armored aircraft carrier battle group, while just a few major powers had the ability to impose relatively moderate threat upon a carrier, the central piece of a fleet only can be possessed by another major power. With medium vulnerability versus great power, and little vulnerability versus minor power, aircraft carrier became the dominant monster on the sea for decades.

However, the vulnerability of aircraft carrier is increasing rapidly with a series of unprecedented technological breakthroughs after the World War II. The launch of the first satellite, Sputnik 1, in October 1957 opened the door of human space exploration. From then on, thousands of satellites for earth observation, early warning, communication and navigation have been deployed in orbit for military or intelligence application, including snapping detailed pictures hundred of miles below and conducting continuous surveillance of selected areas of the earth. The technological progress of high resolution photography, electronic reconnaissance, synthetic aperture
radar imaging and close-look telephoto make it a much easier job for a space power to accurately position and target an object, even a floating aircraft carrier.

The Digital Revolution, driven by the development of the digital electronic computer, microprocessor and transmission technologies including computer networking and the internet, marked the onset of the Information Age in the latter half of the 20th century. Digital computing and communication technology brought about revolutionary changes of command and combat model, represented by the establishment of integrated system of command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR), which enables a military to detect, track, locate and attack a target promptly, accurately and efficiently.

Moreover, the considerable advancement of anti-ship capabilities, progressing from unguided to guided torpedoes and bombs, diesel-electric to nuclear-powered submarines, and subsonic to supersonic anti-ship missiles, further highlights the vulnerability of the aircraft carrier. One of the best examples is the SS-N-22 Sunburn, a typical type of anti-ship missile made by Soviet Union against US supercarriers. With the combination of a Mach 2.1 speed, a 100-miles firing range and a flight pattern that hugs the deck and includes “violent end maneuvers” to elude missile defenses, Sunburn can produce devastating consequences for any surface ships. Nowadays, various weapon systems, such as submarines equipped with missiles and high-speed torpedoes, surface vessels and aircrafts armed with long-range anti-ship missiles are posing lethal threats to big warships. The destruction of Israeli destroyer INS Eilat by the SS-N-2 Styx missile from Egyptian Komars-class missile boats in Oct. 1967, the loss of Argentine light cruiser ARA General Belgrano by the torpedoes from Britain nuclear-powered submarine HMS Conqueror in May 1982, as well the sinking of Britain destroyer HMS Sheffield by the Exocet AM-39 missile from Argentine aircraft two days later have forcefully demonstrated the formidable threat the surface warships have to address. It also explains the decision of the PLA, in reaction to the dispatch of two US carrier strike groups near the Taiwan Strait in 1996, to purchase from Russia the Sovremenny-class destroyers and the Kilo-class submarines. The most recent innovative attempt of the PLA is exemplified by the undergoing development of DF-21D medium-range anti-ship ballistic missile (ASBM), a make-to-measure “carrier killer” which has acquired “initial operational capability” as announced by Admiral Robert Willard, commander of US Pacific Command in Dec. 2010.13 It is believed that the very perception of these weapon systems might inflict a destructive damage upon US supercarrier could hold US naval power at a distance during a crisis, or at a minimum, force the US leaders to think twice before they make similar decision in the future. Without sophisticated and

effective air and missile defense capabilities, as well anti-submarine warfare capabilities, the survivability of an aircraft carrier will face great challenges above, on and under the waters.

Another possible scenario worsens the vulnerability of an aircraft carrier. In order to achieve a mission kill, the attacking side is very likely to launch waves of saturation missile attack to overwhelm the effective defense ability of the aircraft carrier and its escort ships. Given the explosive power of the warheads of modern anti-ship missiles, even one missile which can successfully breach the defense system could impose devastating damage to the target carrier by sink it or take it off the battle line. What more important is, if an aircraft carrier which is the center piece of any navy suffers a serious blow and must withdraw from the battlefield, the whole strike group composed of dozens of warships might have to follow. The vulnerability of the carrier would expand to the whole fleet by a single lucky penetration.

In Information Age, aircraft carrier becomes a floating air base with high vulnerability before a great power equipped with global satellite surveillance network, integrated C4ISR system and anti-ship capabilities. Meanwhile, minor powers, whose smaller or weaker navies failed to compete with the armada of great power, are also trying their best to explore the weakness of aircraft carrier by pursuing asymmetric warfare means, usually the establishment of the Anti-Access/Area Denial (AA/AD) capabilities. The initiation and maturation of various countermeasures have deteriorated the survival chances of aircraft carrier and gradually turned it into a warship with medium vulnerability even versus minor states. It is true that aircraft carrier has also witnessed significant improvement in structure design and defense capability in the past decades, however, its adaptability can hardly outmatch the advancement of offensive technologies in the long run. In light of the rapid development of military science and technology, the survivability of aircraft carrier will face escalating risky future.

**Vulnerability of China’s carrier**

Unsurprisingly, the emerging PLAN’s aircraft carrier force itself is facing the same vulnerability challenges confronted the other naval powers, if not worse. Regionally, the long-standing territorial disputes between China and some neighboring countries contribute to in-depth misgivings over China’s blue-water navy ambition. As a result of the countermeasures taken by those suspicious neighbors, China has already become the potential target of their sea denial capabilities establishment and was surrounded by a long list of navies with powerful anti-ship warfare capacities. For example, the Soryu-class submarine fitted with air-independent propulsion and UGM-84 Harpoon sea-skimming anti-ship missile of Japan Maritime Self-Defense Force (JMSDF) is a super-silent hunter under the water. On Oct. 10, 2007, Taiwan administration unveiled the Hsiung Feng III (HF-3), a type of Mach 2 class anti-ship missile applauded as an operational “carrier killer” designed to target PLAN’s surface
Driven by the island disputes with China in the South China Sea, Vietnam also invested great resources in naval modernization. In 2007, Vietnam bought the Gepard-class frigates equipped with Kh-35 Uran/SS-N-25 Switchblade long-range subsonic anti-ship missiles. In Dec. 2009, Vietnam signed the contract with Russia to buy 6 Kilo 636MV submarines equipped with SS-N-27 Sizzler anti-ship missiles, in order to establish the largest and most modern submarines team in Southeast Asia. On May 22, 2013, India test-launched a BrahMos stealth supersonic cruise missile, an upgraded type of the Russian-designed SS-N-26 Yakhont missile with a range of 290 kilometers. With a conventional warhead of up to 300 kilograms, this “fire-and-forget” missile can effectively engage targets from an altitude as low as 10 meters and has a top speed of Mach 2.8.

With the help of the vigorous advancement of military technologies, the AA/AD strategy is becoming an increasingly attractive while more affordable option for even small naval powers if only they have access to mines, land-based or ship-borne anti-ship missiles, small surface warships, submarines and land-based aircrafts. As a type of asymmetric advantage, comparatively weaker navies could trump aircraft carriers with much cheaper weapon systems by launching multiple axis strikes to ensure the effectiveness of attacks. The affordability of anti-carrier capabilities and cost-effectiveness ratio has further deteriorated the vulnerability of large surface vessels. For instance, establishing a fleet of fast-speed stealth corvettes armed with anti-ship missiles has become a popular alternative among some Southeast Asian countries to countering the leviathan of aircraft carriers strike group. One of the successful examples of this trend is the combination of the “carrier killer” Sunburn supersonic anti-ship missiles with the Igra-1M anti-aircraft missiles system on the Project 1242.1 Molniya (Lighting) missile corvette, which has been built originally by Russia and under license production by Vietnam now. With its high speed up to 38 knots, huge sailing range up to 2400 miles, and powerful radar system with 120 kilometers active and 500 kilometers passive range and the capability to track 15 different targets simultaneously and assign 6 designated targets under intensive electronic warfare environment, this corvette would be a significant threat to any seagoing adversary.

In comparison with some regional potential adversaries, the global oceangoing navy of the United States makes the vulnerability of China’s aircraft carrier more evident and striking. First of all, US always enjoy multilayered supremacy over China in terms of the comprehensive military might. The two-decade shrinking of military budget from 1979 to 1999 and the weakness of industrial-technological-scientific infrastructure of China has created “a generational gap” of weapon development between China and US military. The power asymmetry between these two navies is

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even greater. Ever since the end of the World War II, the U.S. has established prominent maritime hegemony and “stands unsurpassed on, above and below the high seas”. The inferiority of PLAN comparing with US navy ranges from “hardware”, including strategic nuclear submarines, long-range force-projection capabilities, anti-air capabilities, and anti-submarine capability, to “software”, characterized by the intelligence, surveillance and reconnaissance capability, level of sophistication in joint warfighting, and mature operational proficiency across the board. It is no surprise that General Chen Bingde, the then chief of the general staff of the PLA, admitted frankly that “China does not have the capability to challenge the United States”.

As for the carrier force, PLAN’s carrier fleet is still in its infancy in terms of size, striking power and combat capabilities, dwarfed especially by US sophisticated nuclear-powered supercarriers. Long time and great effort are required for inexperienced PLAN to turn its carrier into an operational platform for real combat. In addition, the PLAN also needs to learn how to establish an effective battle group composed of escort fleet equipped with sophisticated anti-air, anti-ship and anti-submarine capabilities which is necessary to provide full protection for the aircraft carrier. It is also no easy job to address the command, control, coordination and logistical difficulties of a carrier task force, a challenge far more complicated than a destroyer flotilla the PLAN used to have. It takes years to learn to effectively integrate carrier into fleet operation. Unquestionably, it is still a long way off for PLAN having an aircraft carrier with full fighting capacity. Exposed to US dominant naval power, China’s immature aircraft carrier fleet will be a highly vulnerable target. The “generational gap” lies in the capabilities between these two navies apparently cannot be transcended in a short time.

IV: Value of China’s carrier for mission execution

There is no doubt that the emerging aircraft carrier force of the PLAN over the horizon is faced with serious challenges, in which survivability is the most critical one. However, it could not and should not lead to the negation of the values of the carrier fleet for China. According to the nature of the scenarios in which carrier would probably be used, the values of China’s aircraft carrier force can be categorized mainly into four dimensions to which the vulnerability issue has different relevance.

Value for presence/prestige

Since the First Opium War in 1840, the preface to China’s “one century of humiliation”, China has been invaded for more than 470 times by numerous western...

powers from the sea, hence scorned as “a state with sea but without sea-defense”. Dr. Sun Yat-sen, the founding father of the Republic of China, has warned that “the rise and decline of national power usually determined by the sea instead of the land, and the state that is superior in sea power usually has superior national power to the others.” In celebration of the establishment of the first naval force of PLA in April 1949, Chairman Mao Zedong ordered that “most of the imperialist invasions came from the sea in the past one hundred years”, therefore “we must build a navy which can safeguard our coast and effectively defend the possible invasion of imperialism”. The miserable memory of the “gunboat diplomacy” in the modern history has taught China that a powerful navy is the essential guarantee of national security and an indispensable component of a great power.

Aircraft carrier, the symbol of modern blue-water navy, has attracted the keen attention from generational Chinese leaders and strategists. As early as 1928, Admiral Chen Shaokuan, the chief of naval operation of Republic of China, presented China’s first proposal of carrier building, just 10 years after the construction of the Royal Navy HMS Hermes, the first ship in the world to be designed and built as a dedicated aircraft carrier. After the establishment of the People’s Republic of China in 1949, carrier development program has been suspended because of the imminent security threat from the land as well the backward industrial-scientific infrastructure of China. However, the “carrier complex” has never vanquished. For China, an ocean-going navy commanded by powerful aircraft carrier battle groups is the best embodiment and symbol of its ever-rising comprehensive national power. Just as General Liu Huaqing, former vice chairman of the CMC and chief commander of the PLAN know as “Father of China’s Carrier”, reiterated that “with aircraft, the quality of the navy will witness a great change, and the combat capability of the navy will achieve a great progress, both will contribute to the enhancement of national prestige as well military prestige.”

First, carrier can enhance the international political status of China. Aircraft carrier has been used as a strategic instrument mainly by major power for about one hundred years. Comparing with the other global powers, like US, Russia, Great Britain and France, all are the permanent members of the UN Security Council, China is the last to own an operational aircraft carrier. The uneasiness of the PLA has been strengthened by the deployment of carriers or quasi-carriers belonging to India, Japan, Thailand, Italy and Spain. Just as General Liang Guanglie, the then defense minister of China, stated in March 24, 2009 that China cannot “remain the world’s only major country without an aircraft carrier”.

Second, carrier can display the economic and technological advancement of modern China. The prodigious cost for construction, maintenance, and operation has made the aircraft carrier a monopoly affordable mainly for economic giants. The

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22 It is reported that from 1840 to 1949, more than 470 foreign invasions against China have been launched from the sea by western powers. See Gao Xinseng, Zhongguo gongchandang lingdiao jiti haiyang yanjiu (1949-2009) [Study on the Coast Defence Thought for the Chinese Communist Party’s Leading Group (1949-2009)], Shishi Press, 2010, p. 45.
hesitation and difficulties of the Great Britain and France in keeping their aircraft carrier program highlight the financial challenge. In addition, the capabilities required for the design and construction of a modern aircraft carrier, including large-scale seaworthiness basin and wind tunnel, super computer, special steel, ship borne aircraft and compatible electronic equipment, impose rigid and complicated challenges upon a nation’s defense industry, science and technology system. That is why the commission of the Liaoning has been hailed as “a milestone in the PLA’s history” which “embodies a major achievement of China’s weaponry and equipment development, as well as its national defense modernization.” In view of this, an indigenously built carrier task force can make a much more credible contribution to China’s prestige as a first-rate economic and technological power.

Third, carrier can strengthen the global presence of China. The connectiveness of the ocean and the right of navigation freedom on the open sea enable the navy to maneuver globally for power-projection without asking for permission of host countries for landing or overflight rights. Aircraft carrier battle groups provide the PLAN larger and better ability to maintain more prominent and powerful presence in the world to exert political and diplomatic influence offshore. A stronger forward-deployed capability of the navy at great distances from China can also facilitate China’s national response to overseas interests protection. Just as Premier Wen Jiabao declared on the commission ceremony of the Liaoning on Sept. 25, 2012, that China’s first aircraft carrier in active service is “of great significance in enhancing national defense power and the country’s comprehensive strength”, as well “of great and far-reaching significance in inspiring patriotism, national spirit and driving national defense technologies”.

**Value for provision of global public goods**

With the expansion of national security visions and emergence of nontraditional security threats, the PLAN is tasked to make active planning for the use of armed forces in peacetime, deal effectively with various nontraditional security threats and accomplish diversified military tasks. As the 2010 China’s National Defense White Paper expressed, the PLAN should “develop its capabilities in conducting operations in distant waters and in countering nontraditional security threats”, as well “training models for military operations other than war”. In echoing this requirement, the PLA Navy has been demanded to “improve the capabilities to cope with multilayered security threats and implement diversified military obligations”, as well “incorporate the capacity for non-war military actions to the integrated construction of the army’s...

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27 Ibid. This commission ceremony was overseen by the two top leaders of China, President Hu Jintao and Premier Wen Jiabao, an unprecedented case for a warship of the PLAN.
28 After the concept of “comprehensive security” proposed by President Hu Jintao, President Xi Jinping advocated the outlook of “overall national security” and specified a security system covers 11 fields ranging from politics, territory, military, economy, culture, society, science and technology, information, ecology, nuclear to natural resources on April 16, 2014, when chairing the first meeting of the Central National Security Commission.
power, especially emergency offshore search and rescue and anti-terrorism activities”, so as to implement the increasing non-combat military missions.\(^{30}\)

With its development of blue-water ability, the PLAN has made MOOTW an important form of capability application and participated in a series of the operations associated with international peacekeeping, humanitarian assistance and disaster relief, maritime salvage, narcotics control, emergence rescue, SLOCs protection, refugee evacuation, and counter-piracy operations, etc.. For instance, the Peace Arc of the PLAN, the first ship in the world designed and built exclusively for medical treatment and humanitarian rescue, has provided medical services for more than 100 thousands of patients in dozens of countries. In November, 2013, this 14300-tonnage boat was sent to the coast of Philippine destroyed by Typhoon Haiyan, which is the first time for the PLAN to provide humanitarian medical assistance in overseas disaster area.

Given China is trying to take its international obligation and become an active provider of global public goods, one or more global cruising aircraft carrier formations of the PLAN can be a much more powerful and useful instrument to fulfill the mission because of its more comprehensive response capabilities and quicker response speed. From the operations of the US carrier, the timely pioneer in almost every devastating overseas disaster rescue mission including the Indonesian tsunami in 2004, the Haiti earthquake in 2010, the Japan earthquake in 2011 and the Philippine Typhoon Haiyan in 2013, etc., we can see the irreplaceable role a carrier can play in dealing with natural disasters. Comparing with the other type of naval ships, a carrier can provide more electricity, water and gas for the stricken area where failure of power and water supply is common, provide more room to accommodate the victims, more space to carry rescue teams and relief materials, more efficient research and rescue capabilities with its helicopters, and more manpower for rescue with its onboard officers and sailors, etc.

As the second biggest economy in the world, China is more willingly to assume its due international responsibility and strengthen its overseas operation capabilities ranging from emergency response and rescue, merchant vessel protection at sea, counter-terrorism, evacuation of Chinese nationals or foreign refugees, disaster relief operations to international humanitarian aids.\(^{31}\) Commissioning an aircraft carrier formation, if necessary, to address these nontraditional security challenges will be a more prominent evidence of the good will and friendly gesture of China. Thereupon, it can be helpful for establishing China’s reputation as a responsible stakeholder and a contributor to maintenance of global security and stability.

**Value for direct combat**

Deter and defeat any threats for China’s territorial integrity, maritime security as


well maritime rights and interests are the top duties tasked to the PLAN. The long-lasting maritime territorial disputes involving the Diaoyu Islands (know as Senkaku Islands in Japan) between China and Japan, as well the South China Sea disputes between China and some Southeast Asian countries have triggered off ever-growing tension and anxiety in the past a few years. The risk of military confrontation, or even a regional maritime conflict, whereupon, increases significantly in East Asia.

Maritime territorial disputes

The current Diaoyu Island disputes has greatly exacerbated China-Japan relations, especially after Japan’s Prime Minister Yoshihiko Noda declared the one-sided “nationalization” of the islands on Sept. 11, 2012, disregarding Chinese leaders furious opposition. From then on, China began to dispatch maritime boats and planes to the disputed waters for regular patrols, thereby broke Japan’s so-called “existence on, or control of, the sea areas adjacent to the Diaoyu Islands” which has always been regarded as “illegal and invalid” by China.\(^{32}\) Although Beijing called on to conduct diplomatic negotiation to decrease the tension on the base of “shelving the disputes”, Tokyo insisted that “there is no territorial disputes at all” between Japan and China, denied there is an informal consensus about Diaoyu Islands dispute, and publicly blamed it is “a complete lie by the Chinese”.\(^{33}\) As both sides increased surveillance and reconnaissance near the Diaoyu Islands waters, China and Japan are locked in an escalating face-off in the East China Sea.

On Dec. 13, 2012, a China Marine Surveillance Y-12 twin-propeller plane flew to Diaoyu Islands, the first air patrol of Chinese aircraft for half a century, was responded by one E-2C early-warning airplane and eight F-15 Eagle jet fighters belonging to Japan’s Air Self-Defense Force (JASDF).\(^{34}\) On Jan. 30, 2013, Japan reported, but denied by China, that a PLAN frigate locked its fire-control radar on a Japanese destroyer, which was just 1.5 nautical mile away from PLAN’s training flotilla, too short for a required safe distance between rivalry warships.\(^{35}\) In response to China’s flying a drone near the Diaoyu Islands on Sep. 9, 2013, Prime Minister Shinzo Abe, reported by Japanese media, approved a plan to “shoot down” any drones that enter “Japanese airspace”. Whereupon, China’s military spokesman warned an attack on its aircraft would be considered “an act of war” and that it would “strike back”.\(^{36}\) On Nov. 23, 2013, China established the East China Sea Air Defense

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Identification Zone (ADIZ), and shortly, conducted its first aerial patrol by two large scouts supported and covered by early-warning aircraft and fighters. Japan reacted by jets fighter scrambling to tail and flying through China’s ADIZ without informing Beijing ahead of time. As of Dec. 22, 2013, one month after the establishment of the ADIZ, there were 800 foreign war planes entered this air area, while China has sent 51 rounds of surveillance aircraft, early-warning aircraft and fighters on a total of 87 flights for policing and patrolling in the ADIZ air space. Meanwhile, Japan’s Defense Ministry declared on April 9, 2014 that the fighters of Air Self-Defense Force scrambled to intercept planes from China for 415 times in 2013, the highest record in history. The ever-increasing encounters of the vessels and airplanes between the two sides demonstrated the very real risk of miscalculation or misoperation which may trigger confrontation, or even exchange of live fire, between these two giants in this disputed area. It is no surprise that the commanders of both navies, Admiral Wu Shengli of the PLAN and Admiral Katsutoshi Kawano of Japanese Maritime Self-Defense Force, share the unanimous concern that there is every likelihood that “a discharge while cleaning the gun” or “an unexpected accident and confrontation” might happen in the East China Sea.

What make Beijing reluctant to weaken its stance is the political and military postures of current Abe’s government. Since Prime Minister Abe, a politician famous for its outspoken conservatism and nationalism was elected in a landslide in Dec. 2012, Japan has endeavored to reshape its military structure and seek to become a “normal” country under the name of so-called “proactive pacifism”. In Dec. 2013, Abe established Japan’s first National Security Council and pushed through the controversial Special Secret Protection Law in order to concentrate decision making in the prime minister’s office. On Dec. 17, 2013, Abe’s cabinet unveiled a critical defense policy package comprising new defense program guidelines, a five-year defense buildup plan and the national security strategy, so-called “three arrows of security” aiming to turn Japan into a stronger and more independent military power and a greater player in regional and global defense. By accusing China attempts to “change the status quo by coercion”, the new defense plan will shift troops and equipments to the nation’s southwest territories, including the Diaoyu Islands, so as respond “calmly and resolutely to the rapid expansion and step-up of China’s maritime and air activities”. One of the most notable initiatives is an amphibious brigade, a special Marine Corps-like fast-response-amphibious unit, will be organized to “secure and recapture” separate islands in operations launched from the sea, a type of warfare Japan had given little thought to before the island confrontation with

In addition to the purchase of more surveillance drones, stealthy fighters, submarines and Aegis destroyers, for the first time, Japan will buy V-22 Osprey tilt-rotor aircraft, amphibious assault vehicles and other equipment designed primarily for amphibious warfare. Furthermore, Abe’s claim on April 26, 2013 that “invasion” has no firmly established definition and homage paying to Yasukuni Shrine on Dec. 26, 2013, accompanied by his attempts to lift the ban on exercising the right of collective self-defense, rewrite the interpretation of the pacifist Constitution, and break the restrictions of the “Three Principles on Arms Exports”, has infuriated China and beaten the overall China-Japan relation into a downward spiral. The sovereignty and territorial dispute, interwoven with China’s longstanding alert about the intention of Japanese government to glamorize its brutal invasion history, develop a regular army, and stretch or even revise the anti-war Constitution has driven China to take tough countermeasures and prepare for a potential military confrontation with Japan.

In the South China Sea, Philippine and Vietnam are the two most active disputants with China recently. China and Philippine have competitive claims upon the Scarborough Shoal (known as Huangyan Island in China) and part of the Spratly Islands. Since 1970s, Philippine has occupied 8 islands and reefs in Spratly Islands on which two military airfields have been established and hundreds of soldiers stationed. The airfield located on Thitu Island (know as Zhongye Island in China), the biggest one in the Spratly Islands area with a 1500-meter runway, has the capability to support the take-off and landing of advanced jet fighters, even the C-130 Hercules transportation aircraft which is famous for its flexibility, versatility and relevance. The tension between China and Philippine was renewed by the face-off near the Scarborough Shoal in March 2012 when the Filipino navy sent its flagship, BRP Gregorio del Pilar, an ex-US Coast Guard Hamilton-Class patrol boat acquired in early 2011, in order to capture some Chinese fishing boats there. China deployed several civilian ships belonging to the Maritime Surveillance Bureau thereafter to force Filipinos to withdraw and began to conduct regular patrol in adjacent waters which has sparked off severe protests from Philippine. A new round of maritime wrestle involving the Second Thomas Shoal, a submerged reef, has further worsened the bilateral relations. In 1999, the Philippine Navy intentionally grounded a landing craft, BRP Sierra Madre, on the reef and garrisoned a dozen of marines. Since Philippine refused to tow away the shabby boat, Chinese Coast Guard ships run off a Filipino vessel carrying supplies and construction materials for the garrison in early March 2014. However, on March 29, the Philippines send another ship and successfully delivered supplies and troops despite of the Chinese interception.

Ignoring its repeated official recognition of China’s sovereignty claims, Vietnam, apart from China, is the only country adjacent to the South China Sea that claims for

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the Paracel Islands (know as Xisha Islands in China) and all of the land features of the Spratly Islands. As for the seizure of the Paracel Islands by the PLAN from the South Vietnam in January 1974, the Vietnam government has been constantly condemning Chinese “invasion” and vowed for “recovery” after it fulfilled unification in 1975. Concerning the Spratly Islands, Vietnam has occupied 29 islands and reefs ever since April 1975, more than any other claimants. In order to solidify its control of those land features, Vietnam has endeavored to strengthen its military presence for decades, including the construction of a 600-meter runway and a deep water quay on Spratly Island (know as Nanwei Island in China), one of the biggest islands of the Spratly Islands, to enable the operation of military airplanes and battleships.

**Value for sea control in combat**

Persistent tensions owing to deep-seated historic animosities and territorial disputes have turned the Diaoyu Islands and the Spratly Islands into potential flashpoints which could bring nations into open conflict in the future. Although Beijing has reiterated its policy of “shelving disputes” and principle of peaceful resolution over the maritime territorial disputes, the PLA must prepare for the worst-case scenario. As General Chang Wanquan, China’s state councilor and defense minister, stated at the joint press conference with his US counterpart Chuck Hagel in Beijing on April 8, 2014, that territorial and sovereignty integrity are China’s “core interests” on which China will “never make compromise and concessions”, and the PLA is “ready to assemble at the first call and be capable of fighting and winning”.43

The current friction between China and Japan in the East China Sea, and that between China and Philippine as well as Vietnam in the South China Sea, implies the risk of an unintended military stalemate, or even worse, a limited maritime conflict, because of the escalation of some unexpected incidents. In each circumstance, the aircraft carrier fleets of the PLAN will be an important tactical leverage for Beijing to seize and maintain sea control, by either defensive or offensive ways.

Concerning the Diaoyu Islands disputes, the PLAN will be challenged by Japan Maritime Self-Defense Force (JMSDF), a force with powerful naval power, great technological sophistication and personnel expertise. During the Cold War, Japan has rebuilt a sophisticated naval power with the permission and support of US serving to contain Soviet Union and China along “the First Islands Chain” in the west Pacific and operate out to one thousand nautical miles from its home islands. Over the past several decades, JMSDF has achieved great progress by commissioning a series of advanced naval assets, including three classes of long-deck warships, four *Kongo*-class and two *Atago*-class Aegis-equipped destroyers and *Soryu*-class diesel-electric submarines. The maritime power of Japan has led foreign military observers believe that if China and Japan does spark a war over the Diaoyu Islands, Japan’s “disciplined, professional forces would prevail even without direct US

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intervention”. Most significant, perhaps, is Japan’s acquisition of air-capable surface ships. On August 6, 2013, JMSDF exhorted the commission of its ever biggest warship, the *Izumo* 22DDH, intentionally downplayed as a “helicopter destroyer” by Japan, who shared the same name of the flagship of the Japanese fleet that invaded China in the 1930s. It is widely conceived by strategists as a “quasi-aircraft carrier” because of its 248-meter full-length aircraft carrier type deck and around 20,000 tonnage of displacement which are much larger than many countries’ light aircraft carriers. Since it can accommodate 12 or more F-35B aircrafts which has a vertical takeoff and landing capability, the *Izumo* can be turned easily into a “larger medium-sized regular aircraft carrier of the former Imperial Navy that attacked Pearl Harbor”. Accompanying with some other similar long-deck “helicopter destroyers”, the unveiling of the *Izumo* reflects Japan’s continuous naval buildup and ambition of acquiring carrier-like capabilities. With its financial, personnel, industrial, and technological-scientific resources, Japan remains one of the dominant maritime forces in Asia. Additionally, the F-15 and F-2 equipped with anti-ship missiles, E2-C early-warning airplanes and electromagnetic warfare airplanes of Japan Air Self-Defense Force deployed on Okinawa and home islands adjacent to the waters will pose serious threat to the PLAN fleet.

As tension over the south China Sea linger, Philippine and Vietnam, two primary disputants with China, are also enhancing their military capabilities. Addressing the maritime disputes, the Philippine armed forces are embarking on a modernization and upgrade program to strengthen defense capabilities. The navy is purchasing more advanced ships including several *Hamilton*-Class high-enduring boats retrofitted and modified by the US, anti-submarine corvettes and aircrafts, multi-purpose attack crafts and landing platform docks for strategic sealift. It reportedly is eyeing to buy submarines no later than 2020 for deterrence and subsurface warfare. However, constrained by its resources available, Philippine might not have a navy or air force of any significant for the PLAN in the near future.

In the headlock with China over maritime territory, Vietnam is also making every effort to modernizing its military power, in which the modernization of the navy and the air force are the priorities. In the past a few years, Vietnam has bought and indigenously built several classes of stealthy frigates and missile-armed fast-speed corvettes. The most important step is obviously the purchase of six *Kilo*-class submarine from Russia, worth about 1.8 billion dollars. In November 2013, the first *Kilo* diesel-electric submarine, HQ-182 *Hanoi*, has been handed over to Vietnam. With these super quiet underwater killers, Vietnam will own the largest and most modern submarines team in Southeast Asia and significantly boost its efforts to create a deterrent against China’s naval might. In the air, Vietnam’s SU-27 air

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46 All six of Japan’s first-line aircraft carriers, Akagi, Kaga, sister ships Soryu and Hiryu, and sister ships Shokaku and Zuikaku, were assigned to the mission. With over 420 embarked planes, these ships constituted by far the most powerful carrier task force ever assembled. Cf: “Japanese Aircraft Carrier,” Security Organization, at: http://www.globalsecurity.org/military/world/japan/ddh-x-aircraft-carrier.htm
superiority fighters and newer multi-role SU-30 attack planes, joined by some patrol and tracking airplanes, have significantly strengthened its air defenses and long-range strike capability.47

In case of a conflict in the East or South China Sea, with its comprehensive and multilayered combat abilities for sea control, aircraft carrier of the PLAN can lead its battle groups to implement missions ranging from sea battle, air battle, electromagnetic support and countermeasures, anti-submarine warfare, landing operations and, if necessary, ashore target striking.

For an aircraft carrier battle group, the first and foremost task is ensuring regional air supremacy on the sea. The history of the modern naval battles has demonstrated that the control of the air is the base and guarantee of the command of the sea. As warned in early 1980s by Senior General Xiao Jinguang, the founder and first chief commander of the PLAN, that “Without aircraft carrier, a fleet maneuver in distant waters can not have air control which is the guarantee for combat victory in distant waters. In distant waters, there is no other force can replace the aircraft carrier for capturing air control and covering our fleet.”48 In a possible conflicts involving the Diaoyu Islands, a forward-deployed aircraft carrier can provide immediate air cover for its escort battleships and sailors that might face the pressure from Japan’s quasi-carriers fleet and shore-based airplanes. However, it is frank to admit that the air-control task for China’s carrier is comparatively less important and urgent in the East China Sea. The average distance between Diaoyu Islands waters and China’s east coast is about 380 kilometers. The three major types of third-generation jet fighters of PLA Air Force, J-10, J-11 and J-11B, of which respective combat radius ranging from 1250 kilometers to 1500 kilometers, can reach the conflict area quickly from their land bases and fight in close coordination with the J-15 fighters garrisoned on aircraft carriers. Additionally, the PL-12, an active radar-guided air-to-air missile officially commissioned in 2002 with a fire-and-forget capability comparable to the modern US AIM-120, can provide the PLA fighters further flexibility with a maximum effective range of 70 kilometers.49 The JH-7B (New Feibao) bomber equipped with newly revealed YJ-12 supersonic anti-ship missile which can achieve speeds from Mach 2 to Mach 4 with a max range of 250 kilometers could be another effective combination for short and mid-range naval combat.50

In contrast, the necessity and significance of aircraft carrier battle groups for air control in deep South China Sea, where the disputed Nansha Islands located, will be

much higher. The distance from Lingshui, one of the southernmost military airfields located on Hainan Island, to James Shoal (known as Zengmu Shoal in China), the southernmost feature China claimed, is about 2000 kilometers. Given that, no jet fighters in PLA’s active services can fly from its land base to there, stay airborne, and win an air battle without mid-air refueling. Additionally, the great distance will spark off a series of difficulties, such as the much heavier workload of the pilots, lower sortie generation rates of the fighters, smaller store carrying capacity, and higher maintenance requirements, especially for the fighter engines, etc. During a limited military conflict, this geographical disadvantage will make PLA Air Force very difficult, if not impossible, to take and maintain the air control, which is essential for the security of its fleets around the disputed waters in deep South China Sea.

What make the situation even worse is the location and special geographical shape of Vietnam, who pressed sovereignty claims upon all Spratly Islands. Shaped like an elongated S, Vietnam stretches the length of the Indochinese Peninsula for about 1600 kilometers. Located along the west coast of U shape South China Sea, Vietnam has established scores of shore-based military airfields which are “at the gate” of the disputed Spratly Islands. Theoretically, the mainland Vietnam can function as an “unsinkable aircraft carrier” in a conflict occurred in the South China Sea. With dozens of newly bought Mig-29, Su-27 and Su-30 jet fighters, about 60 in total, Vietnam Air Force can provide necessary and effective air cover for its battleships, while imposing threat to the PLAN fleets deployed there. Whereupon, the PLAN’s aircraft carrier battle groups can play an indispensable role in a crisis or conflict between China and Vietnam, the strongest military power among all the contested claimants against China in the South China Sea. Just as Senior General Xiao Jinguang has pointed out clearly as early as 1987 that “If we go to fight in the waters near the Nansha Islands, we must need aircraft carrier to provide air cover and support for our fleet, as well attack and destroy enemy’s effective.” 51 Take the Liaoning as an example, since it can carry about 30 F-15 fighters, two or three aircraft carriers of the similar tonnage and configuration can bring 60 to 90, or even more, third-generation jet fighters to Vietnam’s coastal waters. Such a prospect itself may deter a rational Vietnam leader from inflicting a military conflict with China. If a conflict does occur, the airplanes on board the aircraft carriers, with the other aircrafts taking off from land bases supported by refueling aircrafts, can effectively neutralize the airpower of Vietnam, provide constant and “local” airborne firepower, capture and hold theatre control of the air for China’s surface fleet.

Providing stronger anti-submarine warfare (ASW) capabilities is another important task for PLAN’s aircraft carriers. How to deal with the underwater threat from the submarines, an outstanding weapon for anti-access tactics, is always a big challenge for PLAN’s surface fleets. A series of new destroyer and frigates of PLAN commissioned in the past decade, including the Type 052B and Type 052C missile destroyer equipped with a Ka-28 or Z-9 anti-submarine warfare helicopter, obviously cannot meet the requirement for modern anti-submarine operations. Faced with the super quiet and powerful submarines, including the Soryu-Class of JMSDF and

51 Xiao Jinguang zhuan, Dangdai zhongguo chubanshe[Contemporary China Publishing House], 2011, p.391.
Kilo-Class of Vietnam, an aircraft carrier, even though one like the Liaoning which can only support ASW helicopters, can carry more and larger ASW airplanes to fight against submarines, and offer much wider and better protection for the fleet. If China military in the near future could make scientific and technological breakthroughs enabling the upcoming aircraft carriers to carry advanced fixed-wing ASW airplanes, the efficiency and capability of the PLAN’s anti-submarine combat will witness a dramatic improvement.

The same logic applies to the early-warning, reconnaissance and surveillance capacity requirement of an ambitious blue-water navy. There is no need to babble how important those capabilities are for any modern battles. In February 2013, the PLAN officially revealed its Russian-made Ka-31 early-warning helicopters, 9 in total, by conducting 19-hour intensive training drills. It is widely believed these Ka-31 helicopters, accompanying with homemade Z-8 helicopters, will provide service on the Liaoning aircraft carrier and the others to come, so as to enlarge the defense depth of the fleet, expand the distance of surveillance, and extend effectively the preparation time to guard against air and surface missile attack. Besides, given the evident shortcomings of an early-warning helicopter in terms of combat radius, hang time and flying height, both Ka-31 and Z-8 will be transitional alternatives for the PLAN.

Various sources have demonstrated that China is doing its utmost to develop more advanced fixed wing early-warning airplanes, including a new type which is smaller but more compatible for an aircraft carrier equipped with steam catapult system. With rotary or fixed wing early-warning airplanes, PLAN’s naval formation can establish an independent and integrated system of command and control far from its coast, especially in the South China Sea. With similar carrier-borne fixed wing electronic warfare aircrafts and surveillance aircrafts that will come into services, the PLAN will establish prominent tactical advantage over its possible opponents without bothering land-based air force.

The rapid development of and easier access to anti-ship technologies and weapon system in information age have attributed more vulnerability to the surface ships of any naval power. In any case, with or without an aircraft carrier, the forward-deployed fleet of the PLAN for sea control mission around the Diaoyu Islands and the Spratly Islands will face different extents of vulnerability, highest against Japan, medium against Vietnam, and lowest against Philippine. However, without aircraft carrier, a fleet of PLAN which is weak in air power, anti-air warfare, anti-submarine warfare, and C4ISR and logistic sustentation must be a comparatively more vulnerable target and face more difficulty, if not impossibility, in seizing and holding sea control in maritime conflicts.

Value as “Risk Carrier” for deterrence

It is concerned by US that a rising China, if emerges as a peer competitor, would threaten US regional and global leadership and bring “disruptive impact” upon the international order established during the era of US preponderance. Some analysts even argued that “war tend to break out…when the upward trajectory of a rising power comes close to intersecting the downward trajectory of a declining power”, hence alleged that conflict between China and US is all but inevitable. China’s blue-water naval development and assertiveness upon its maritime territorial claims in the past years has fanned the concern further from the US. The reactions of the US, including the implementation of the Asia-Pacific Rebalancing Strategy and the advocating of the aggressive Air-Sea Battle doctrine, have correspondingly triggered deep-rooted suspicions from China about the strategic intention of the US. With the consistent buildup of the China’s military power, the possibility of unexpected incidents, like the collision between US EP-3 spy aircraft and China’s J-8 II jet fighter in April 2001 in the air as well the most recent encounter between USS cruiser Cowpens and China’s landing vessel in December 2013 on the sea, is always increasing. A maritime standoff, or even a crisis, between US and China is not a wild imagination.

Additionally, the US and China might be dragged into an intended military standoff because of the behaviors of the third party, especially those treaty allies of US. As discussed above, PLAN’s aircraft carrier strike force would possibly be used in pursuit of sea control in a direct combat to defend China’s territorial integrity and enforce maritime claims. Take the Diaoyu Islands dispute as an example, if China and Japan fall in a military conflict, US, the military ally of Japan for decades, would be obliged to take actions. Actually, since the breakout of the Diaoyu Islands disputes in 2012, US has reiterated its support to Japan’s position, and announced that US-Japan alliance will be applied to the disputed islands, which means if China and Japan fall in a conflict, US navy and air force will come to help its key ally and fight together with Japan’s Self-Defense Force against China. On Jan. 18, 2013, State Secretary Hillary Clinton, during a meeting with her Japanese counterpart, warned China against taking “unilateral” step, either by coercion, threats, or force, to challenge Japanese “administration of the Diaoyu Islands”. It is reported that during the US-China Sunnylands Escort summit, President Obama had urged President Xi to “exercise restraint” to avoid escalation of tensions, and said the US cannot accept China “bullying Japan over the territorial row”, and that they have to “come to Japan’s aid if its defenses are threatened". On Dec. 21, 2012, the US Congress passed the “National Defense Authorization Act for Fiscal Year 2013” with a specific article declaring US “acknowledges the administration of Japan over the Senkakus”, and reaffirming US “commitment to the government of Japan under the Article V of the

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Treaty of Mutual Cooperation and Security”. On April 11, 2014, US Marine Corps Lt. Gen. John Wissler, commander of the 18,000 marines in Okinawa, Japan, said that US marines in the Pacific would swiftly “recapture” the Diaoyu Islands and return it to Japan if China were to invade it. Most recently, President Obama declared that “our treaty commitment to Japan’s security is absolute, and Article 5 covers all territories under Japan’s administration, including the Senkaku islands” during his visit to Japan in April 2014, which is the first time for US president to express such a position.

In addition to the rhetoric, intensive actions have been taken by US and Japan to enhance the combat capabilities of Japan’s Self-Defense Force as well the coordination, integration and interoperability between the two allies. In August 2012, US Marine Corps and Japan’ Ground Self-Defense Force (JGSDF) conducted a joint maneuver on the western Pacific island of Guam, aimed at “regaining control of an island captured by foreign forces”. This 37-day drill was the first of its kind to be held between the two countries to strengthen “their ability to defend remote islands from foreign assault”. Four months later, the 13th US Marine Expeditionary Unit and JGSDF jointly concluded the bilateral training exercise, Iron Fist 2013, off Camp Pendleton, California of US. Amphibious operation training was the top priority for this four-week theatre security cooperation drill, during which the Marine V-22B Osprey aircraft performed its first flight onboard by JGSDF. The US-Japan joint amphibious warfare exercises in June 2013, Dawn Blitz 2013, witnessed several “breakthroughs” which attracted great attention from China. Japan dispatched three warships, including its the then largest vessel, “helicopter destroyer” JS Hyuga, and about 250 soldiers to learn how to fight as a single team with 5,000 US marines and sailors. For the first time, troops from all three Japanese armed services exercised together how to conduct combat operations in order to “seize and defend remote islands”. For the first time, the JGSDF and the JMSDF practiced “joint fires”. For the first time, helicopters of GSDF operated from the ship of MSDF. For the first time, Ospreys practiced landings and takeoffs from the deck of Japanese quasi-aircraft carrier, which has been applauded as “a historic moment” by US Brig. Gen. John Broadmeadow, commander of the 1st Marine Expeditionary Brigade. All of the intensive actions aiming to enhance interoperability between US and Japan militaries and the aforementioned repeated statements of US officials from the president on down imply that the US would probably fulfill its defense treaty obligations to help

Japan military over the Diaoyu islands, thereupon, to be engaged in a confrontation, directly or indirectly, with China.

In a possible standoff or crisis in the East or South China Sea, with aircraft carrier, Chinese leadership will have better choices in its arsenal for deterrence mission. Undoubtedly, compared with a formation led by destroyer, one or more forward-deployed aircraft carrier battle groups will be a much more formidable instrument for deterrence. In fact, a report about naval equipment development plan submitted in March 1987 by General Liu Huaqing has clearly pointed out that aircraft carrier, as same as nuclear submarine, is “a deterrent weapons” both in peace time and war time.61 Thereafter, the deployment of USS Independence and USS Nimitz during the 1996 Taiwan Strait crisis not only forcefully reminded the PLA of American’s ability to command the sea in East Asia, but demonstrated the effectiveness of aircraft carrier as a deterrent instrument. It consequently led to the purchase of the Varyag from Ukraine two years later, a prelude for China’s carrier force development. During a military standoff or crisis, the PLAN’s heavily-armed and well-prepared aircraft carrier strike groups will function as a symbol of Beijing’s political determination to and military readiness for safeguarding China’s claims, and then deter its foreign counterparts, including the US, from take further provocative actions.

Obviously, the effect of deterrence imposed by PLAN’s aircraft carrier will be different, depending on the military capabilities of its opposition. Given the US naval preponderance, there is little doubt that the PLAN’s fleet, with or without aircraft carrier, will be a vulnerable target. It is also true that, if deterrence failed and exchange of fire happened, intentionally or unintentionally, the PLAN will have little chance for victory. However, China might use valuable carriers for deterrence despite or even because of their vulnerability by signaling Beijing’s willingness and resolution to raise the stakes.62

A regional maritime conflict between US and China, in which damage or destruction of China’s warships might occur, would probably trigger off two major types of risky consequences, one is an all-out economic warfare, and another, much more disastrous, is an all-out war accompanied by economic warfare. The results of naval battles, with or without aircraft carrier, might be the same; however, the risks are much different. In comparison with the sinking of a smaller warship, destroyer or frigate for instance, the destruction of an aircraft carrier connotes much greater danger of uncontrollable escalation into a full-scale war. Therefore, in the case of an envisioned scenario between China and US on the high seas, whether or not to attack an aircraft carrier regarded as the symbol of national dignity and power status is essentially a matter of global strategic importance, rather than a tactical issue. The special features of an aircraft carrier make it a really “asset of high value”, not only physically, but spiritually. Any commander in chief has to delve upon, before authorizing its admirals to launch vital attack, the consequences after the sinking of an

aircraft carrier with dozens of advanced airplanes and thousands of elite pilots, officers and sailors. Not surprisingly, the sinking would very likely escalate a limited maritime conflict into a disastrous general war between these two nuclear powers. The formidable consequence of the aforementioned scenario, or the risk, will prevent any imprudent and irresponsible decision from making.\textsuperscript{63}

\textit{Risk for economic mutual destruction}

The tide of globalization after the World War II has integrated US and China into an economically interdependent system. Given the structural complementarities between these two countries, US-China economic relations witnessed a historical leap-forward. For instance, the amount of bilateral trade in 1979, when the two countries established diplomatic relations, was $2,400 millions. The number climbed up to almost $536 billion in 2012, which is 223 times larger than 33 years ago.\textsuperscript{64} For China, the US is always one of the most important trade partners and biggest source of trade surplus. American’s vast domestic market and strong purchasing power have contributed significantly to China’s economic boom. On the other hand, the globalization of supply chains have already made China “a top export destination for US manufacturers, supporting a broad range of US producers regarding industrial supplies and capital goods”.\textsuperscript{65} As each other’s second largest trade partner, China needs access to American market to bolster its export-driven economy, while US needs the cheaper products from China to lower the risk of inflation and continue its consumption-driven economy. Nowadays, there is little doubt about the importance of the economic and trade mutual-benefit relations between US and China.

Another astonishing example of US-China economic closeness is the mutual financial dependence. Since the beginning of the new century, US federal debt increased rapidly, which almost tripled from $5,769 billions in 2001 to $1.67 trillions as of Oct. 2013, almost 105% of US GDP. As one of US most important economic partners, China has invested its massive foreign exchange reserves into buying and holding US debt. In 2001, China held only about $79 billions in US debt. As of June 2013, China, as US biggest banker for several years, owned $1, 275 trillion. Owning US treasury bills, notes and bonds contributes to China’s economy grow by keeping its currency weaker which is helpful for China to maintain export prices competitiveness in US domestic market. On the other hand, allowing China to hold the notes is good to US economy by funding federal government programs, reducing consumer prices, and keeping US interest rate low.

The ever-deepening China-US trade exchanges and financial cooperation has not only contributed to the economic prosperity of both countries, but generated immense

\textsuperscript{63} One hundred years ago, Alfred von Tirpitz, Admiral of German Imperial Navy, proposed its “Risk Fleet” thesis to justify its ambitious navy development blueprint. This article borrows and applies the concept of “risk” of this thesis to discuss the realistic implications of the comparatively weaker PLAN vis-a-vis US global maritime supremacy. Cf: “The ‘Risk Fleet’: Excerpt from a Draft Memo from the Budget Department of the Imperial Naval Office (February 1900),” at: http://www.germanhistorydocs.ghi-dc.org/sub_document.cfm?document_id=792

\textsuperscript{64} “Trade in Goods with China,” US Census Bureau, Department of Commerce, at: http://www.census.gov/foreign-trade/balance/c5700.html

mutual economic vulnerability which can be employed as a weapon of economic deterrence. For example, if China sells, or just threaten to sell, its US debt holdings, US interest rates would rise sharply and beat US economic growth into a downward spiral. And if China calls in part or even all of its debt holdings, the demand for the US dollar would plummet within one day and possibly trigger another financial crisis. China certainly would not use this kind of “financial terrorism” blindly and rashly since China wants to increase the value of its investment, and needs a prosperous US economy which is important for its economic development. However, if the two countries fall into a deadly conflict rising from a maritime clash, Chinese leaders might use anything in their arsenal, including the financial tools, as long as it could hurt US economy and financial system even though China would suffer a lot from that.

Additionally, the economic risk of US-China resulted from a military conflict not only lies in bilateral framework, but in its potential influence for regional and global economy. China’s increasing significance for world economy is best represented by its status of “world factory”, tremendous demand for energy, raw materials, agricultural products and the emerging market of 1.3 billion people. Presently, China and US, are, and will continue to be, the twin major engines for global economic growth. In a world where economic, trade and financial interdependence among the states prevails, even tiny economic volatility and fluctuation of US and China will bring profound influence upon the world struggling in the shadow of the recession still. A full-scale economic warfare between US and China, followed by mutual trade embargo, economic sanction and transportation blockades, will smash most of the country’s hope for economic development, including the US even though it has more opportunity to be in the upper hand. A lose-lose game will lead to a globally all-lose game.

As Jon Huntsman, former US ambassador to China, said that China’s rise and the close interdependence between US and China has created a situation of “mutually assured economic destruction”. Even though the economic balance of power is, and will be in the foreseeable future, marginally in the American favor, a comprehensive economic warfare will bring historically unparalleled damage to both countries. It is true that China’s economy would lose, but the US will also have little to gain. To a large extent, economic mutual dependence could play a role of strategic mutual deterrent.

Risk for mutual destruction

The value of China’s ongoing aircraft carrier project has been challenged by some American military analysts since they are confident that China’s immature carrier force will be a highly vulnerable target for much more experienced and sophisticated US navy. It might be correct in a pure military sense, nonetheless, incorrect in a political sense. This argument is wrong because it has neglected the inherent political
risks of a “successful” military attack launched against China’s aircraft carrier. To
attack and sink as valuable an asset as a carrier must expect a significant response.
Therefore, the point here “is less what the carrier can do and more what an attack on it
promises---full retaliation, and a war that may quickly get out of hand.” Such an
attack might lead to nowhere but a full-scale conventional war between US and China
because it would generate “almost unbearable political pressure for revenge”
domestically.67 Even worse, it may end in a nuclear war in which no one can live to
see the end.

Looking back into the US navy history, the aircraft carrier, praised as the “queen of
the American fleet”, has played an indispensable role in defeating Japan.58 During
and after the Cold War, US aircraft carrier battle groups have taken part in almost
every crisis, conflict and regional war in which US military has been involved. In
most of the cases, including Korean War, Vietnam War, Gulf war, and Iraq War, US
aircraft carriers inflicted vital blow upon its enemies as a combat platform. However,
in some other cases, including the Cuban Missile Crisis in 1962, and the third Taiwan
Strait Crisis in 1996, US aircraft carriers were deployed carefully and functioned
mainly as a tool of deterrence to warn against it opponents. There are many reasons
attributed to the different utilities of the aircraft carriers power, one of them, probably
the most important one, lays in the fact that both Soviet Union and China, unlike
North Korea, Vietnam, Grenada, Iraq, and Yugoslavia, are nuclear powers.

Fifty years ago, Moscow’s plan of placing nuclear missile in Cuba brought the
world to the brink of nuclear disaster which might have led to “the deaths of 100
million Americans and over 100 million Russians”.69 It is generally regarded as the
moment in human history closest to turning into a nuclear conflict. Fortunately, the
mutual assured destruction (MAD) played a determining factor to prevent the
confrontation from escalating into an exchange of live fire or nuclear warheads. The
risk was so high that neither Washington nor Moscow dared to run. The prudence and
self-constraint demonstrated by the leadership from both sides displayed their political
wisdom, rather than military impotence.

A possible scenario of naval conflict between US and China aircraft carrier battle
groups harbors the same “risk”. The enormous political, financial, technological and
personnel investment of a carrier make it an embodiment of the state, “loss of a carrier
in combat would thus be not just a ship lost, but a national loss.”70 If the aircraft
carrier of PLAN is destroyed by US navy on the sea, it will definitely trigger off a
deadly retaliation at once. China might launch counterattack against US navy with its
various short and mid-range missile for revenge. As the key components of the
Chinese military modernization program, China’s DF-21D anti-ship ballistic missile,
dubbed as “carrier killer” and specifically designed to prevent adversary military
forces’ access to regional conflicts, will impose threats to any US naval fleet in west
Pacific. From then on, such a maritime conflict might be escalated first into a

67 Jake Douglas, “Are Aircraft Carrier the New West Berlin?” National Interest, March 26, 2014, at:
http://nationalinterest.org/commentary/are-aircraft-carriers-the-new-west-berlin-10128
70 Bernard Cole, the Great Wall at Sea, 2nd edition, p. 155.
full-scale conventional war by following possible scenarios, including the destruction of one or more US aircraft carriers by waves of saturation attack of DF-21D missiles, US strike on China’s offshore and inland military bases in order to cut the “kill chain” of the PLA’s C4ISR system, the involvement of US forward-deployed troops in Japan and South Korea which might lead to the counter-blow of the PLA, and the anti-satellite warfare aiming to destroy each other’s surveillance and reconnaissance system in space, etc. Then the “Pandora box” will be opened. A conventional war between China and US will be devastating and the risk formidable. The enormous population, vast territorial, strong economic and military power and potential of these two countries forebode the war will be lasting and cruel. Furthermore, the influence of the war will spill over to the whole region and the world, which will lead to the blockade of the some important SLOCs, raise of the prices of oil, gas and food, damage of economic growth, and destruction of regional and global stability. Finally, no matter who will win the war, China and US themselves will be the biggest losers. China will be deprived of its precious opportunity to fulfill national resurgence after 100-year modern history of humiliation. On the other hand, exhausted US will face the risk of losing its global supremacy to some other potential competitors since its comprehensive power will be substantially weakened, just like the Napoleon France after the France-Russia War and the Great Britain after the World War II. As the history has proved again and again, a hegemonic state often loses its hegemony because of a war intended to maintain its hegemony.

Even worse, there is little reason to feel confident that a conventional war could be confined from escalating into a nuclear war between these two powers, which could be brought about by any accident or miscalculation, or the defense failure of each side. It is true that US has established a much stronger nuclear arsenal than China, however, American nuclear superiority is “not likely to be much help in this regard” because China retains a survivable second-strike deterrent force able to defeat U.S. missile defense (e.g., through mobile intercontinental ballistic missiles (ICBMs), submarine-launched ballistic missiles (SLBMs), multiple re-entry vehicles/multiple independent re-entry vehicles (MRV/MIRVs), and penetration aids).71

Adhering to its minimum deterrence doctrine, China has established a smaller nuclear force structure (warheads and missiles). It is estimated that China only possesses 30 to 40 ICBMs that can reach the US mainland, including the DF-5A, DF-31, and DF-31A. However, US missile defense project has driven China to improve the survivability and effectiveness of its delivery mechanisms to secure the credibility of its second strike capabilities. On July 11, 2013, the National Air and Space Intelligence Center of US Department of Defense issued an assessment report named Ballistic and Cruise Missile Threat. The report proved that China “has the most active and diverse ballistic missile development program in the world” and “is developing and testing offensive missiles, forming additional missile units, qualitatively upgrading missile systems, and developing methods to counter ballistic missile defenses”. In light of the expansion of China’s missile force “in both size and

types of missiles”, the report predicted that the number of China’s warheads capable of reaching the US could grow to “well over 100 within the next 15 years”, and warned China’s new intercontinental ballistic missile, DF-31A, and future long-range missiles could be equipped with multiple independently targetable reentry vehicles (MIRBVs), which will be an effective countermeasure to US missile defense under development. When MIRBVs are deployed in an ICBM warhead, several break away as the rocket re-enters the atmosphere, each carrying its own nuclear weapon—making the missile much harder to intercept. This assessment came right after two reported missile tests of the PLA in 2012. Jane’s Defense Weekly noticed a test fire of the road mobile, MIRV capable DF-41 missile which can deliver 10 warheads over a distance of 14,000 kilometers on July 24, 2012. It is also noted that on August 16, 2012, the PLAN successfully conducted flight test of the JL-2, a nuclear-tipped, MIRVed, submarine-launched ballistic missile capable of hitting the United States from Chinese waters with its 3-6 warheads. The prediction of Pentagon’s 2013 report that JL-2 is poised “to reach initial operational capability in 2013” was supported again by the most recent successful test of the missile in Dec. 2013. China’s undersea deterrence will be further strengthened by the deployment of the Jin-class (Type 094) nuclear ballistic missile submarines, reportedly three are currently operational and up to five may enter service before China proceeds to its next generation SSBN (Type 096) over the next decade. With the commissioning of this intercontinental strategic nuclear delivery system, which each housing 12 JL-2 missiles, it makes a total of 60 missiles armed with at most 360 multiple warheads(six warheads for each). The combination of JL-2 missile and Jin-class submarine will enable the PLA Navy to strike parts of the United States from China’s territorial waters and give China “first credible sea-based nuclear deterrent”. Various signals and efforts, including the second flight test of DF-41 missile on Dec. 13, 2013, the assessment that China’s SSBNs will carry out combat patrol in 2014, and the extensive research on “new generation of mobile missiles with warheads consisting of MIRVs and penetration aids” will provide China effective deterrence and ensure its second-strike capability even though in the event of a US first strike.

As warned, the “gravest danger” in China-US relations is “the possibility the two countries will find themselves in a crisis that could escalate into open military

77 Bill Gertz, “China Conducts Second Flight Test of New Long-Range Missile,” Dec. 17, 2013, at:
http://freebeacon.com/china-conducts-second-flight-test-of-new-long-range-missile/
78 “Submarines: China Is Really, Maybe, Going to Do It This Time,” July 31, 2013, at:
conflict”.\textsuperscript{80} The destruction of an aircraft carrier, since it cannot be sunk by “unintentional” or “mistaken” attack like US claimed after its bomb of China Embassy in Belgrade in 1999, would definitely turn the “gravest danger” into reality, which might draw these two countries into an unpredictable catastrophe. In this regard, the value of PLAN’s carrier, though highly vulnerable and inferior to US, can play a role as “Risk Carrier” versus US navy, that is, to “seek peace through force” and avoid internecine conflict by taking advantage of its opponent’s fear for “unacceptable damage”.\textsuperscript{81} Nowadays, the possible damage, comparing with 1910s and 1930s, has become “absolutely unacceptable” because of the creation of nuclear weapons which could lead to the complete destruction of the two countries, even the whole world. The risk will be too high to run since no side could escape from the fate of “perishing in the common ruin”.

V: Conclusion

The challenge to survivability of aircraft carrier has made many military observers alleged that “the carrier is rapidly approaching the end of its useful strategic life”.\textsuperscript{82} Whereupon, the question of what the value of China’s aircraft carrier is has been frequently asked. The effort of China to establish an aircraft carrier force has been regarded a waste of precious resources and strategic misstep given its invincible vulnerability in the face of powerful anti-ship weapons systems onboard various platforms. However, just as old Chinese saying goes, everything has its conqueror. Likewise, no weapon system is invulnerable. The value of the aircraft carrier for the PLAN cannot be precluded by its potential vulnerability.

For the mission of presence/prestige and provision of global public goods, vulnerability is obviously not an issue of much relevance. Aircraft carrier can function as a much more visible evidence of a rising China, a more efficient tool to address diversified nontraditional security challenges, and consequently better serve China’s political, economic and diplomatic interests.

For the mission of direct combat, China’s upcoming aircraft carrier fleet can play an irreplaceable role for long-range power projection in safeguarding national security and territorial integrity. In the event of a military standoff or confrontation against some regional states involving the disputed islands either in the East China Sea or the South China Sea, an aircraft carrier could provide the forward-deployed fleet of the PLAN a series of indispensable capabilities for sea control mission, ranging form air cover, missile defense, early warning to anti-submarine operation, all are necessary for a military victory.


\textsuperscript{81} According to Admiral Tirpitz, although the German Imperial fleet is relatively smaller and weaker than the world spanning Royal Navy of the Great Britain Empire, it will be sufficiently powerful to inflict significant damage in any battle, which could make its enemy unable to maintain its other naval commitments, suffer irreparable harm to its fleet, even run a risk of losing its naval dominance. Thus the central premise of this thesis is that a navy has to be large and strong enough for an opposing force fears to “risk” an engagement.

\textsuperscript{82} Henry Hendrix, \textit{At What Cost a Carrier?} p. 9.
Despite the enormous vulnerability of China’s aircraft carrier overshadowed by US formidable naval power asymmetry, the comparatively weaker carrier fleet of the PLAN find a unique and pivotal value as a “Risk Carrier” in an age of economic interdependence and nuclear weapons. The features of aircraft carrier determine that, comparing with the other types of vessels, its destruction implies much larger risk of escalation from a naval conflict into a full-scale war between these two countries, which will lead to economic mutual destruction, or even utmost mutual destruction assured by nuclear weapons. Keeping that risk in mind, try to avoid any direct clashes at all will be the reasonable goal for both powers. Therefore, the PLAN’s aircraft carrier fleet may play effectively as a valuable instrument for tactical combat, as well strategic deterrence, even though in the face of dominant US navy.