

Full Steam Ahead China's Rise in the Global Shipbuilding Industry

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ABSTRACT

China's shipbuilding industry currently commands over half of the global market, driven by strategic government policies, sizable infrastructure investments, and competitive pricing. Its state-owned enterprises benefit from policy initiatives such as "Made in China 2025," the Belt and Road Initiative, and the combining of military and civilian economic infrastructure and technology development goals that have enabled production of advanced ships such as LNG carriers, cruise liners, and naval vessels. The article examines the state of Chinese shipbuilding and notes that Chinese state support plays a pivotal role in bolstering the domestic shipbuilding sector. Among other things, state subsidies and preferential tax policies have reduced operating costs and encouraged continuous expansion allowing Chinese firms a financial advantage over competing shipbuilding nations like South Korea and Japan. While several headwinds exist, including overcapacity, dependence on foreign technology, and rising competition from South Korea, Japan, and emerging markets, this article argues that the Chinese shipbuilding sector is capable of meeting these and other potential challenges owing to strong state support in the form of subsidies for expansion and technological change.

Keywords: China, Shipbuilding, Industrial policy, State-Owned Enterprises, Belt and Road Initiative (BRI), Subsidies

INTRODUCTION

The global shipbuilding industry has shifted its focus toward low-cost manufacturing bases over the past century, driven by competitive labour and production expenses. Emerging nations have benefited from this shift, especially during periods of high demand. The distribution of shipbuilding orders has shown distinct trends across different regions. While South Korea and European countries have seen their order-books dominated by high-value, technologically-advanced vessels, such as container ships and luxury cruise liners, reflecting their expertise in complex shipbuilding, China has focused more heavily on producing bulk carriers, which cater to the demand for cost-effective cargo transportation and align with its mass-production capabilities. These distinctions highlight the strategic specialisations that countries have developed to maintain competitive advantages within the global maritime sector. The global shipbuilding industry has undergone a dramatic shift in the past decade, with China emerging as the undisputed leader in market share, surpassing traditional powerhouses such as South Korea and Japan. While existing scholarship attributes China's

dominance to state-backed financial subsidies, strategic industrial policies, and economies of scale fewer studies critically examine the sustainability of this growth amid evolving geopolitical and technological challenges. Recent analyses have focused on China's subsidy-driven pricing advantages or its capacity to undercut competitors through cost efficiency. However, these studies overlook two critical gaps: (1) the interplay between geopolitical risks and China's shipbuilding resilience, and (2) the industry's preparedness to meet decarbonisation demands and advanced technological standards. Geopolitical tensions, particularly U.S.-China strategic competition, have intensified scrutiny of China's maritime ambitions, with nations like Japan and South Korea framing Chinese dominance as a security threat. Concurrently, the International Maritime Organization's (IMO) 2030 emissions targets have accelerated demand for green vessels, such as LNG-powered and ammonia-fuelled ships, areas where Chinese firms lag behind South Korean and European innovators. While prior research acknowledges these challenges, it does not systematically evaluate how China's state-capitalist model—combining subsidies, R&D investments, and

Relevant conflicts of interest/financial disclosures: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

policy flexibility—could mitigate these risks. This article addresses these gaps by interrogating the adaptive capacity of China’s shipbuilding industry. It argues that despite mounting geopolitical headwinds and technological deficits, China’s centralised governance structure enables rapid reallocation of resources to sustain dominance. For instance, recent state directives prioritise dual-use technologies (e.g., autonomous vessels) and green shipping subsidies, suggesting a strategic pivot overlooked in current literature. By synthesising policy analysis, trade data, and case studies, this study contributes a nuanced framework for understanding how state support shapes industrial resilience in an era of multipolar competition and climate-driven disruption.

China’s Shipbuilding Industry

China’s shipbuilding industry has witnessed remarkable growth since the early 2000s, culminating in its emergence as the world’s largest shipbuilding nation by 2010. In 2023, China accounted for 46% of the world’s completed tonnage and 63.5% of new orders. The year 2024 saw a 52% increase in the output to 87.11 million DWT according to statistics from the China Association of the National Shipbuilding Industry (CANSI). As of 2025, global shipbuilding orders are concentrated in China, the Republic of Korea and Japan. These three economies accounted for 96% of shipbuilding in terms of gross tonnage with China alone responsible for 53%. China has been a big driver of seaborne activity in the last 20 years and is already the third-largest merchant fleet in the world.

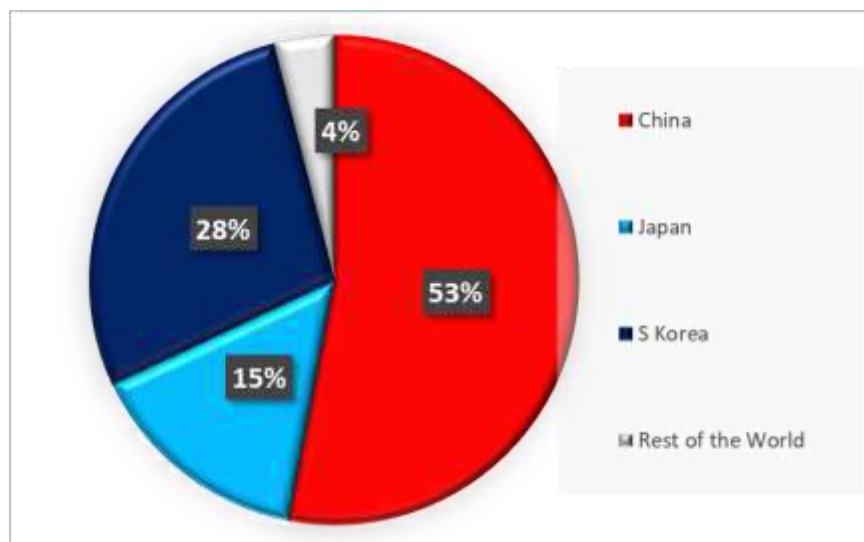


Figure 1 Share of Global Merchant Shipbuilding by Gross Tonnage – 2024.

Source: Authors’ compilation (updated as of 31 December 2024)

Figure 2 shows the increase in China’s market share in the last two decades. Its success can be attributed not only to its ability to produce vessels at competitive prices but also to its expanding capacity to manufacture a wide range of ship types. Europe’s share of the global shipbuilding industry has remained consistently low throughout the period. The decline of

South Korea and Japan can be attributed to higher labour costs, which have made shipbuilding less competitive compared to China. Moreover, their shipbuilding industries have struggled with a lack of government subsidies and lower levels of capacity expansion compared to China. Both countries are now focusing on high-value-added vessels, such as LNG carriers and advanced naval vessels, in an attempt to stay relevant.

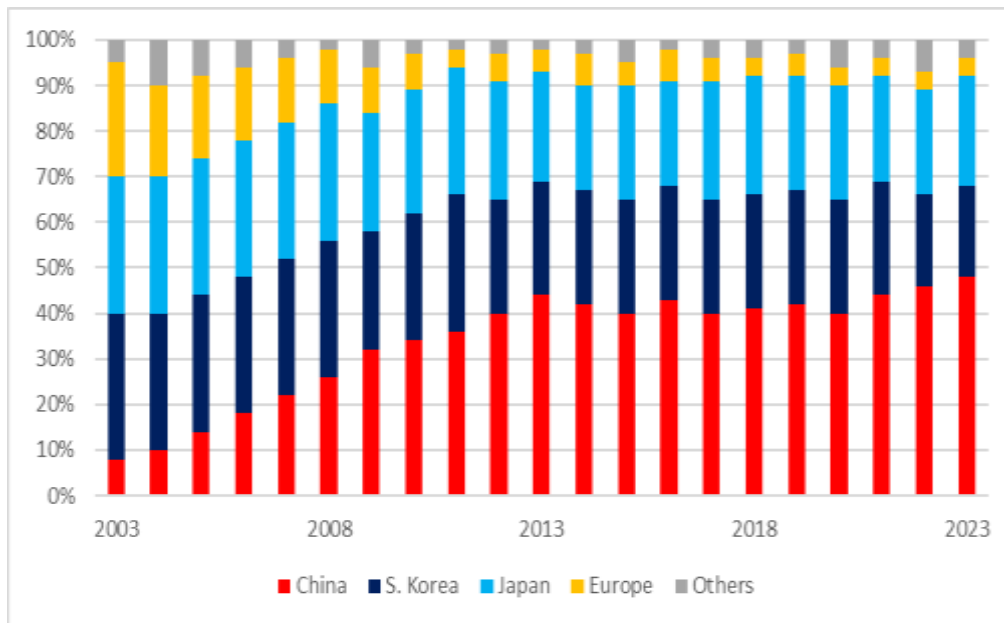


Figure 2 Share of Shipbuilding by Country (2003 – 2023).

Source: UNCTAD (2024).

The Chinese shipbuilding industry can be categorised into three primary segments: state-owned enterprises (SOEs), private domestic shipbuilding companies, and joint ventures involving both foreign and domestic firms. In terms of production measured in

Compensated Gross Tonnage (CGT), 45 of the top 100 shipyards in China are under the ownership of central or local government entities, and thus, classified as SOEs. These shipyards accounted for 59% of China’s total shipbuilding output in 2024 (Table 1).

Table 1 Ownership Distribution of the Leading 100 Chinese Shipyards.

Ownership Type	SOEs		Private Companies	
	National Government	Local Government	Domestic Owner(s)	Foreign Owner(s)
Number of shipyards	35	10	49	5
Completions in CGT ('000s)	6010	719	4089	517
% of completions	53%	6%	36%	5%

Source: UNCTAD (2024).

Since SOEs have a major stake in the shipbuilding industry in China, it is fair to assume that the Chinese government also has a major interest in running the shipbuilding industry efficiently and with good profit margins. China’s maritime interests are prominently highlighted in China’s most recent Defense White Papers, and shipbuilding is a key theme in policy documents such as Made in China 2025 (MIC 2025) and the country’s five-year plans. In its 2015 Defence White Paper, China outlined its strategic intent to expedite the modernisation of the People’s Liberation Army Navy (PLAN) by enhancing its capacity for comprehensive offshore operations. Complementing this military transformation, the MIC 2025 policy

which calls for a focus on “ocean engineering equipment and high-end vessels” sets forth clear milestones for elevating the country’s manufacturing sector by 2020 and 2025. The 14th Five-Year Plan seeks to “actively expand the space for maritime economic development” and emphasises China’s strategic push towards technological self-reliance by fostering R&D in critical industries. The focus on high-value equipment and maritime engineering aligns with the broader goals outlined in MIC 2025, reinforcing China’s pursuit of leadership in strategically significant industries and its growing emphasis on green technologies and sustainable development. China considers shipbuilding as a strategic industry and a catalyst for national growth. Over the years, many changes have taken place in the

Chinese shipbuilding landscape. The existing structure of the Chinese shipbuilding industry as in 2024 is presented in the next few paragraphs.

Production and Orders – From pre-Covid-19 to the post-Covid era

Table 2 provides a detailed breakdown of global and Chinese shipbuilding output across various vessel types, measured in CGT and GT. The data illustrates China's dominance in the bulk carrier sector, where Chinese shipyards contributed 53% of the global CGT and 52.8% of the total GT. This is a significant share, highlighting China's strong presence in this segment.

Table 2 Global Completions of Seagoing Vessels - Selected Ship Types, 2010-2019.

Type	Rest of World		China			
	CGT ('000s)	GT ('000s)	CGT ('000s)	% of World total	GT ('000s)	% of World total
Bulk Carrier	142 538	331 787	75 519	53.0%	175 147	52.8%
Tanker	86 828	175 667	26 168	30.1%	52 098	29.7%
FCC (fully cellular carriers)	66 930	136 613	20 214	30.2%	35 490	26.0%
Offshore Service	20 899	12 296	8 583	41.1%	4 929	40.1%
Gas Carrier	33 577	43 458	3 465	10.3%	3 975	9.1%
PCC (pure car carrier)	8 724	15 587	1 850	21.2%	3 150	20.2%
Cruise	10 252	9 743	20	0.2%	8	0.1%
Passenger/Ferry	8 050	4 361	2 395	29.8%	1 471	33.7%
Ro-ro (roll-on/roll-off)	3 580	5 443	595	16.6%	1 071	19.7%
Dredger	2 572	1 635	1 232	47.9%	766	46.9%
Others	33 011	26 549	12 023	36.4%	11 455	43.1%

Source: OECD (2021).

Overall, the table reveals China's strength in the production of large-volume vessel categories, while its participation in more specialised and technically demanding sectors, such as cruise ships and gas carriers remain relatively lower. This data highlights the choices made by the Chinese shipbuilding industry, emphasising high-volume segments that are in greater demand globally, particularly bulk carriers

and container vessels. In 2019, prior to the COVID-19 pandemic, China's ship completions reached 11.3 million CGT. This represented a steady but modest output, while new contracts experienced a decline from 2017 to 2019, indicating a cooling demand for new ship orders. At the end of 2019, China's shipbuilding order book saw a significant reduction, dropping by around 12% compared to the end of 2018. (Table 3).

Table 3 Activity indicators of China's shipbuilding industry, 2017-2024.

Year	Completions		Contracts		Order book at the end of year	
	Million CGT	Million GT	Million CGT	Million GT	Million CGT	Million GT
2024	48.18	48.18	113.1	208.7	208.7	400.1
2023	33.0	33.0	17.3	34.6	139.4	278.8
2019	11.3	23.0	8.9	18.1	27.3	53.5
2018	11.4	23.3	10.6	21.3	31.1	60.8
2017	11.9	23.8	12.2	25.0	32.9	64.5

Source: Compiled by Authors from China Ministry of Industry and Information Technology Reports, 2017 - 2023; United Nations Conference on Trade and Development, 2023; China Association of the

National Shipbuilding Industry, 2023 However, it is also clear from Table 3 that the order book has expanded considerably if we look at the 2023-2024 period. While the rest of the world experienced an

economic slowdown in the wake of Covid-19, Chinese shipbuilding industry maintained its dominant position. The United Nations Conference on Trade and Development's 2022 report reveals that the shipbuilding industry experienced a marked decline in 2020 due to the impact of the Covid-19 pandemic. Despite a subsequent recovery in 2021, with deliveries growing by 5.2% to 60,779,648 GT, these figures were still lower compared to the 2014-2017 period and 2019. Figure 3 illustrates the global shipbuilding market by country and vessel type,

highlighting China's dominance across all segments, with significant output in bulk carriers, tankers, and containers. Together, these patterns underscore how shipbuilding has become a segmented global market, where each major player exploits its strengths in technology, cost structure, or design specialisation. The figure also highlights why Chinese yards lead in volume but face stiffer competition in premium segments, and how South Korean and European builders continue to carve out lucrative niches in complex vessel categories.

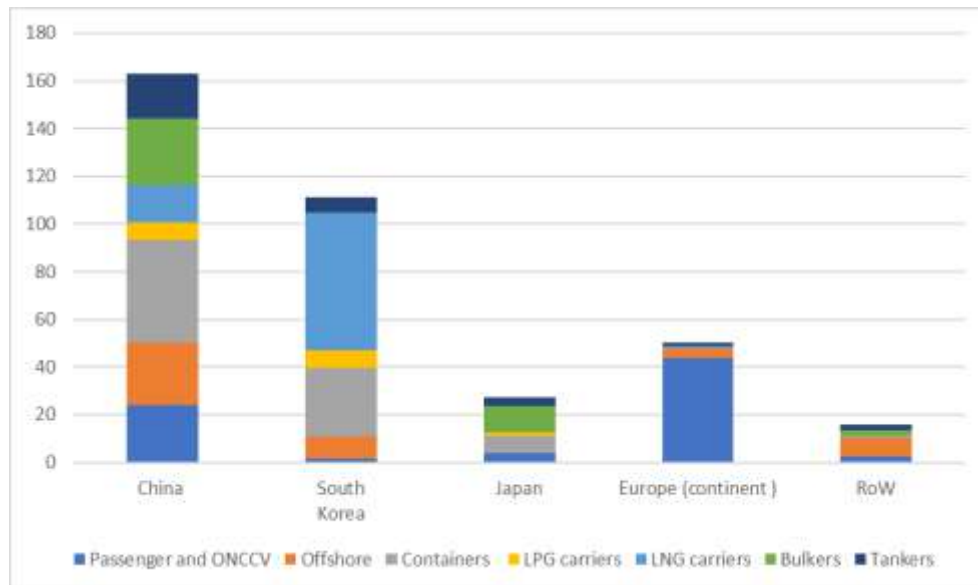


Figure 3 Value of World Orderbook (in US\$ billion, end of 2023).

Source: Sea Europe (2024).

Chinese shipbuilding maintains a lead and holds a dominant position as the ships produced in China continue to be cheaper. However, emerging shipbuilding nations such as Vietnam and Philippines have gained some market share and could give China competition in the coming years. For example, Vietnam's share in shipbuilding has grown ten times in the last decade and is expected to grow at a record CAGR of 6% from 2023 to 2032. The Government of the Philippines, has set the country a target of 2% growth in shipbuilding from 2024-2028 which can also dent China's market share. Meanwhile, strategic considerations and geopolitics may also force some nations (especially NATO/West) to give preference to Japan and South Korea for placing their new

shipbuilding orders albeit at marginally higher costs. NATO-country shipowners might receive more favourable financing terms—or face fewer political barriers—when their vessels are constructed in Japan or South Korea. Vessels built in allied nations may more easily meet Western security vetting requirements (such as for example, in terms of IT network safeguards and high-tech onboard systems). In contrast, ordering from Chinese yards can raise concerns about intellectual property protection or cybersecurity vulnerability, particularly for dual-use ships (i.e., vessels with both commercial and potential military applications). In such instances, the marginal cost increase is often justified by broader strategic, diplomatic, or security concerns, rather than purely commercial criteria.

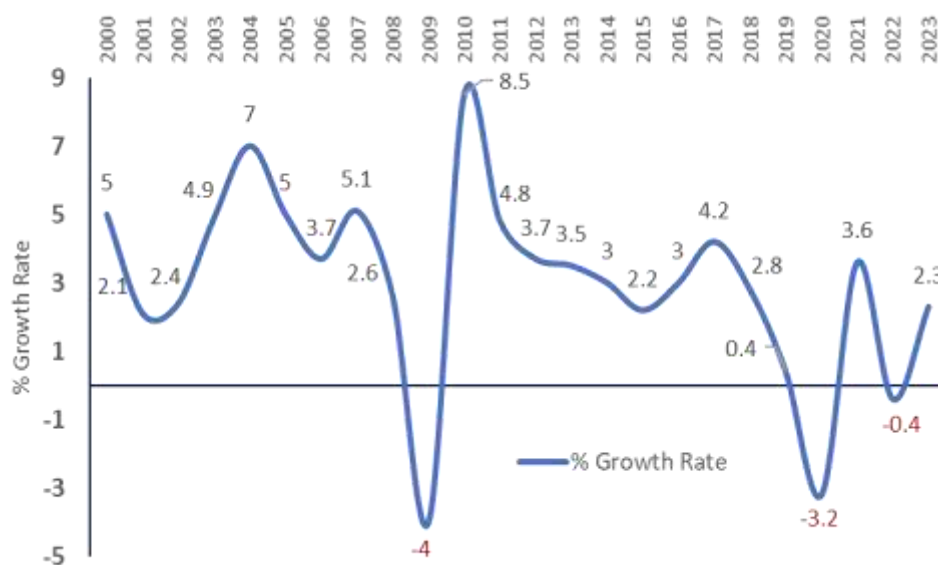
Table 4 Delivery of New Built Vessels 2023.

Vessel Type	China	Japan	S Korea	Europe	Rest of World	World Total	China's % Share
Tankers	1,844,222	350,537	4,988,816	90,014	428,218	7,832,089	12.1
Bulk Carriers	12,473,399	6,352,971	195,148		790,002	19,857,531	30.7
Gen Cargo	644,605	270,809	269,391	818,146	95,291	1,427,841	2.2
Container	13,512,628	2,231,385	7,100,704		42,600	22,887,317	35.3
LNG	1,280,996	351,535	4,952,060	2,999	12,123	6,599,713	10.2
Chemical	524,528	207,459	45,930	9,797	9,376	797,090	1.2
Offshore	1,517,788	3,922	740,491	50,903	181,142	2,494,246	3.9
Passenger	564,993	39,132	24,161	1,263,39	95,956	1,987,561	3.1
Others	684,261	157,432	1,185	19,699	28,804	891,381	1.4
Total	33,047,420	9,965,182	18,317,886	1,623,96	1,820,355	64,774,769	100
% Share	51.0	15.4	28.3	2.5	2.8	100	

Source: UNCTAD (2024)

As Table 4 illustrates, China dominated global shipbuilding in 2023, delivering 51% of new tonnage, followed by South Korea (28.3%) and Japan (15.4%), together contributing 95% of global output. Container ships led deliveries at 35.3%, followed by bulk

carriers (30.7%), oil tankers (12.1%), and LNG carriers (10.2%). Europe and the rest of the world accounted for only 5.3%, highlighting East Asia's dominance in shipbuilding and its critical role in global maritime supply chains. Demand side analysis indicates a cyclical pattern in the demand for new orders over the last 25 years (Figure 4).

**Figure 4 World Seaborne Trade Growth Rate.**

Source: UNCTAD (2024) & OECD (2021)

The fluctuating trade growth rates from 2000 to 2023, as depicted in Figure 4, have significant implications for China's shipbuilding industry, which is highly sensitive to economic cycles, global trade trends, and policy shifts. The sharp contraction in 2009 (-4%), following the global financial crisis, led to reduced demand for new ships, causing delays and

cancellations in ship orders, as seen in China's shipbuilding sector at the time. The subsequent 8.5% rebound in 2010 facilitated a surge in shipbuilding investments, with Chinese yards expanding aggressively to capture global market share. However, the industry's overcapacity issues became more apparent in the following decade, as reflected in the slower growth rates (2015–2019), with some years recording figures as low as 2.2%. The 2020 decline (-

3.2%), coinciding with the Covid-19 pandemic, further disrupted global shipbuilding, leading to supply chain issues, labour shortages, and a reduction in international shipping demand. In the post-pandemic recovery (2021-2023), marked by moderate positive growth, China is making a strategic shift toward green and high-tech shipbuilding, as state-backed incentives prioritise LNG carriers, smart vessels, and emission-free ships. These trends indicate that China's shipbuilding strategy continuously adapts to economic fluctuations, aligning with global trade patterns and sustainability requirements to maintain its competitive edge.

The Role of the Government in Chinese Shipbuilding Industry

A critical driver behind the growth in China's shipbuilding industry is the Chinese government's proactive industrial policies which have driven extensive reforms in its manufacturing and industrial sectors. A pivotal factor in this development was its defence conversion program initiated in 1982. This program strategically redirected resources and expertise from military to civilian production, allowing shipbuilding companies to harness advanced technologies and skilled labour that were previously dedicated to defence projects as China aimed to stimulate economic growth and modernise its industrial base. This strategic shift not only enhanced the efficiency and innovation of former military enterprises but also integrated them into the global marketplace. In 1999, the Chinese leadership established the China Shipbuilding Industry Corporation (CSIC), integrating shipyards in the Northern half of the country that were previously managed by the CSSC into this new conglomerate. By breaking up the CSSC's shipbuilding monopoly and introducing a certain level of competition among domestic shipbuilders, the Chinese government contributed significantly to the industry's rise as a global market leader. The internal competition and increased efficiency positioned Chinese shipbuilders to compete more effectively on the global stage. Since 2001, the Chinese government has designated shipbuilding as a major strategic export industry, implementing a range of policy efforts to promote its development. These efforts are embedded within broader national economic plans, such as the Five-Year Plans, which set strategic priorities and allocate

resources accordingly. The government's commitment is further exemplified by initiatives like the 'scrap-and-build' schemes, introduced in 2010, which incentivise the modernisation of fleets by subsidising the decommissioning of old ships and the construction of new ones. State-led strategies such as the BRI and MIC 2025 have also played pivotal roles in propelling the shipbuilding industry forward. The BRI aims to enhance global trade connectivity through significant investments in infrastructure, including ports and maritime routes. This not only increases demand for new vessels but also positions China as a central hub in global shipping networks. The MIC 2025 initiative focuses on advancing China's manufacturing capabilities, emphasising high-tech industries and encouraging innovation within the shipbuilding sector. According to a study, policy support from 2006 to 2013 resulted in a 140% increase in domestic investment and a 120% rise in market entry within China's shipbuilding industry, expanding its global market share by over 40%. Notably, 70% of this growth was achieved by capturing market share from rival countries, specifically Japan and South Korea. The redistribution of market share underscores the intense competition in the global shipbuilding industry. China's MIC 2025 national plan focuses on advancing China's manufacturing capabilities in ten key sectors, including shipbuilding, which has been designated as a 'strategic sector'. It emphasises high-tech industries and encourages innovation with funding allocated for innovation in green technologies like LNG-powered vessels. Collaboration between shipbuilders and state-funded universities is encouraged in the 14th Five-Year Plan for Maritime Economic Development, which "support[s] the efforts of qualified enterprises to jointly transform scientific research institutes in order to establish industry research institutes". What emerges clearly from MIC 2025 and the 14th Five-Year Plan is the central role that the Chinese government will play right across the industrial sector including the ship-building industry.

Subsidies in Chinese Shipping Industry

China's rapid emergence as a maritime powerhouse has been largely fuelled by strategic and concentrated state support that began in the early 2000s, following its accession to the World Trade Organisation in 2001. The global financial crisis of 2008 served as a catalyst

that accelerated Beijing's efforts. As the worldwide maritime industry faced a severe downturn due to collapsing demand, the Chinese government intensified its support for domestic maritime firms. This included substantial financial investments and policy incentives aimed at insulating these companies from market volatility. Between 2008 and 2018, Chinese companies increased their global market share in shipbuilding by 10% and in shipping finance by 15%. The subsidised "scrap and build" program was aimed at further stimulating demand in the maritime sector, driving modernization and enhancing environmental standards by getting Chinese shipping companies to retire their older, less efficient vessels and replacing them with newer models. Previously, shipping companies were eligible to receive the full subsidy only after they had both scrapped their aging vessels and commissioned new ones. This meant that companies had to invest in building replacement ships before benefiting from the subsidy, which could be financially burdensome and slow down the fleet renewal process. The 2010 change provided immediate financial incentives for companies to retire their older ships without the upfront requirement of ordering new ones. In 2014, the substantial impact of China's 'scrap and build' subsidy program on the nation's shipping industry became particularly evident. COSCO Holdings, a subsidiary of the state-owned COSCO Group, received US\$ 194 million from this subsidy initiative. Notably, this amount was nearly four times greater than the company's annual profit of US\$ 51 million for that year. Similarly, China Shipping Development was granted US\$ 66 million from the same subsidy program, exceeding its annual profit of US\$ 44 million. This initiative not only reduced operational costs for Chinese companies but also increased demand for new ships, providing a substantial boost to China's shipbuilding sector during a time when the global maritime industry was facing challenges. The program effectively strengthened China's competitive position in global shipping by enabling companies to upgrade their fleets affordably and efficiently. According to OECD, the most direct method by which Beijing bolsters its shipping and shipbuilding industries is through traditional government subsidies. Between 2007 and 2019, the Chinese government provided substantial financial support to its maritime industries, reflecting a strategic

commitment to becoming a dominant global maritime power. Specifically, 35 publicly-listed Chinese shipping and port management firms received a total of US\$ 3.4 billion in subsidies, while 12 listed Chinese shipbuilding companies were granted US\$ 2.1 billion during the same period. Chinese government's direct subsidies are proportionally distributed between public and private firms when measured against their overall revenues. Between 2007 and 2019, state-owned shipping lines received direct subsidies amounting to 1.2% of their total revenue. In comparison, the two listed private shipping firms enjoyed slightly higher support, with subsidies accounting for 1.4% of their total revenue. This suggests that the Chinese government is not exclusively favouring state-owned enterprises but is also committed to bolstering private companies to foster a more competitive and resilient industry. Notably, Yangzijiang Shipbuilding Holdings, a company listed in Singapore but operating primarily in China, received direct subsidies equivalent to 1.8% of its revenue. This ratio surpasses that of the state-owned shipbuilders, indicating that Beijing's financial support extends beyond domestic and state-controlled entities. The higher subsidy for a foreign-listed firm underscores China's strategic intent to enhance its maritime industry's global competitiveness by supporting companies that contribute significantly to its growth, regardless of their ownership structure or listing location. Empirical evidence suggests that China has actively intervened to reduce shipyard production costs by 13-20% for Handysize vessels. His research highlights how government policies and subsidies have directly influenced the shipbuilding industry's cost structures in China, enabling domestic shipyards to offer more competitive pricing compared to their international counterparts. This has led to increased market share for Chinese shipbuilders in the Handysize segment, potentially at the expense of shipyards in other countries (notably Japan) that do not receive similar government support. The Chinese government also provides low-interest loans and debt relief to state-owned shipbuilders. For example, the Guidelines for Promoting High-Quality Development of the Shipbuilding Industry explicitly prioritises "financial support for technological upgrades and capacity expansion". Additionally, state-owned banks like the Export-Import Bank of China offer preferential loans

to shipbuilders, as outlined in their annual reports. This highlights how Chinese government subsidies can significantly distort global competition, particularly in industries that rely heavily on capital and long-term infrastructure investments, like shipbuilding. China's ability to use state resources to influence market dynamics is a key reason for its continued dominance in the global shipbuilding market. By securing a larger portion of the global shipbuilding market, it has strengthened its strategic position in global trade, potentially allowing it to exercise more control over shipping routes and pricing. In August 2024, the Ministry of Transport and the National Development and Reform Commission in China introduced a new subsidy program to encourage domestic shipowners to upgrade their fleets with environmentally friendly, fuel-efficient vessels. These subsidies are available for ships as young as 10 years old and vary based on vessel type, starting at US\$ 140 per ton and reaching up to US\$ 210. The initiative aims to foster the adoption of advanced propulsion technologies, including LNG, methanol, hydrogen, ammonia, and battery-electric systems, promoting greener practices in the maritime industry. China's modernisation strategy is anchored in national policies, for example, the Ministry of Industry and Information Technology issued the Green Ship Development Action Plan (2021–2025), mandating that 70% of newly built ships meet energy-efficient and low-emission standards by 2025. Similarly, a 2022 policy subsidises shipowners replacing vessels over 15 years old with LNG-powered, hydrogen-fuelled, or electric ships. The program aims to retire 20% of China's aging fleet by 2025. These developments underscore China's ongoing commitment to modernising its shipping industry through substantial financial support, encouraging the replacement of older vessels with more efficient and environmentally friendly alternatives. While policies like MIC 2025 create trade imbalance and distort global trade, from China's perspective, such policies are used to improve domestic GDP and per capita income. Chinese policies are also intrinsically linked to goals of enhancing China's technological capabilities, reducing dependence on foreign resources, and bolstering national security. All global powers in the past have taken measures to boost their domestic

industry and production by similar policy initiatives and continue to do so.

DISCUSSION

Chinese competitiveness in shipbuilding is primarily driven by cost advantages, whereas for Japan and South Korea, the deviations in contract prices are the key factors. China's cost-driven dominance in bulk carriers contrasts sharply with South Korea's leadership in high-value LNG carriers. Japan, meanwhile, has pivoted to digitalized, eco-friendly shipyards under its "Ocean Future Plan" to offset labour-cost disadvantages. China's success in the shipbuilding industry is attributable to strong R&D, government support, favourable economic policies, and the ability to leverage economies of scale. In addition, state subsidies and low labour costs have also helped Chinese shipyards to capture a significant share of the global market for both commercial and naval vessels. China's BRI has a significant maritime component which directly impacts the shipbuilding industry by enhancing trade routes and increasing maritime activities. Even if the BRI is only partially realised, it is poised to advance global commerce through the improvement of ports, harbours, and shipping infrastructure. These enhancements will lead to increased utilisation of sea routes, necessitating more ships to handle the surge in maritime traffic. Consequently, this heightened demand is likely to further boost China's shipbuilding industry, reinforcing its position as a global leader in ship production. The BRI's maritime component is not merely about economic development but also about expanding China's strategic influence over critical sea lanes. China's overseas port and maritime infrastructure investments have totalled nearly US\$ 78 billion from 2013 to 2022, with projects stretching across Asia, Africa, and Europe. Many of these ventures are linked to the BRI and aim to secure critical trade routes and expand Beijing's geopolitical influence. By investing in and developing ports and maritime infrastructure across Asia, Africa, and Europe, China is securing vital trade routes that enhance its geopolitical leverage and ensure the security of its supply chains. South Korea's Hyundai Heavy Industries now prioritises ammonia-fuelled ships to align with International Maritime Organization (IMO) 2030 targets. However, China's state-backed discounts on land leases and steel inputs

enable firms like CSSC to undercut competitors by 20–30%. Japan and South Korea face a strategic dilemma: collaborate with China on BRI-linked logistics or resist to protect their technological edge. For instance, Japan's Mitsubishi Heavy Industries recently partnered with Danish firms to co-develop zero-emission vessels, sidestepping reliance on Chinese supply chains. As a dominant maritime power, China requires more commercial and naval ships to realise this dream. Data from shipbuilding orders clearly indicates that China will maintain its lead in the shipbuilding sector for the foreseeable future. It is producing more ships than ever and at a faster pace for domestic and foreign orders alike. The world is increasingly becoming dependent on not only the Chinese made goods but also the hulls which carry them. With high focus on naval shipbuilding, China is also ensuring security of its maritime shipping lanes and interests around the globe. Local governments in China provide land leases at discounted rates to shipyards and national port infrastructure projects are funded through the BRI as part of generating “ocean-based prosperity”. The U.S. “Make Shipbuilding Great Again” policy, mandating 15% of exports to use U.S.-flagged ships by 2032, risks inflating freight costs but may inadvertently benefit Japanese and South Korean firms. Ultimately, the sector's future hinges on whether China can bridge its green technology gap before geopolitical friction erodes its pricing advantage.

Weaknesses and Potential Challenges

Despite its many strengths and strong government support, Chinese shipbuilding's dominant position remains vulnerable to market cycles as the demand for new ships varies with the global demand for carriage of goods. One of the significant weaknesses of China's shipbuilding industry is the issue of overcapacity. Chinese industry responded to the global shipping boom with expansion of shipbuilding capacity. For instance, while the initial split of CSSC encouraged competition, by 2019, China recognised that a unified, state-backed giant was more advantageous for long-term strategic goals. The merger strengthened China's position in commercial and military shipbuilding, enabled it to compete with Korean and Japanese rivals while safeguarding critical industries from global economic and geopolitical disruptions. However, the rapid

expansion of China's shipbuilding capacity has frequently surpassed global demand, leading to several industry challenges. Between 2006 and 2013, China invested approximately US\$ 91 billion in subsidies to bolster its shipbuilding sector. Further, according to one analysis, Chinese firms in the shipping and shipbuilding industries received an estimated US\$ 132 billion in total state support between 2010 and 2018. This figure comprises US\$ 127 billion in financing from state-owned banks and US\$ 5 billion in direct subsidies. A significant portion of these funds was allocated to entry subsidies, encouraging the establishment of numerous small and often inefficient shipyards. This influx of new entrants led to industry fragmentation, reduced capital utilization rates, and intensified competition among domestic shipyards, ultimately diminishing profit margins. Many of these less efficient firms have struggled to remain viable, especially during economic downturns, resulting in a decline of over 50% in the number of shipyards from 2009 to 2020. Despite these substantial investments, the return on subsidies was modest, with an estimated gross return rate of only 18%, indicating that for every dollar spent, there was an 18-cent gain in profitability. This scenario underscores the challenges of overcapacity and inefficiency stemming from rapid expansion in the absence of corresponding global demand. Labour shortage is another challenge for the Chinese shipyards. Several sources indicate that Chinese population is shrinking. This can pose challenges for the Chinese shipbuilding industry undercutting the cheap labour advantage it has enjoyed for decades. As the Chinese population becomes more educated and affluent, labour costs in China are expected to rise thus negating its advantage of cheap labour. Countries like India, the Philippines, Vietnam, Brazil, and Bangladesh are also getting into the competition as they have a large pool of educated work force at comparatively lower wages. This has led to a gradual uptick in newbuild orders handled by these nations, particularly for smaller, less complex vessels in recent years. As of 2024, it is estimated that 40% of the workforce in China will retire in the next decade while the green and digital transitions are introducing new skill demands. These developing nations can therefore capture the market pie both in low-end and high-end markets. Chinese shipbuilders face intensifying competition from South Korea and Japan

in the production of environmentally sustainable vessels aligned with the International Maritime Organization's (IMO) 2030 emissions reduction targets. While China dominates conventional shipbuilding sectors, South Korean firms retain a decisive technological edge in high-value green vessels, delivering 75% of global liquefied natural gas (LNG) carrier orders in 2023. Japanese shipyards, meanwhile, are prioritizing hybrid propulsion systems and AI-driven automation under national initiatives such as the "Ocean Future Plan" to mitigate labor-cost disadvantages and accelerate decarbonization. Although China has narrowed the gap in niche markets such as liquefied petroleum gas (LPG) carriers—securing 62 orders in 2024 versus South Korea's 59—its reliance on conventional designs and delayed adoption of ammonia-fueled technology expose persistent innovation deficits. These dynamics underscore how South Korea and Japan leverage specialised R&D to counterbalance China's cost-driven market dominance, even as Chinese policymakers expand subsidies for dual-use green maritime technologies. Buyers seeking high standards and reliable performance often prefer vessels from Japan and South Korea, which limits China's ability to dominate certain high-value segments. South Korea and Japan continue to hold over 60% of the global LNG carrier market, reflecting their reputation for reliability, advanced technology, and stringent quality control. The technological prowess of these countries acts as a differentiator in the global market, where advanced ship types are increasingly in demand. South Korean companies like Hyundai Heavy Industries and Japanese firms like Mitsubishi Shipbuilding have continuously invested in cutting-edge technologies, reinforcing their competitive advantage. Western nations may also offer incentives for their ship owners to purchase vessels from South Korea and Japan rather than from China. For example, US representatives have proposed the Shipbuilding and Harbour Infrastructure for Prosperity and Security (SHIPS) for America Act to revitalise us shipbuilding and commercial maritime industries. US allies, South Korea and Japan are also part of the geopolitical competition with China. This geopolitical alignment positions South Korea and Japan favourably in the eyes of Western policymakers and international businesses that may prefer or be encouraged to engage with allied nations, effectively

countering China's pricing advantages. Moreover, China exhibits a dependency on foreign original equipment manufacturers, particularly from Russia and European countries, for critical components such as marine gas turbines, naval-grade diesel engines, and other high-technology equipment essential for advanced shipbuilding. This reliance on external suppliers presents a strategic vulnerability, especially in the context of military shipbuilding where self-sufficiency is crucial. The inability to domestically produce these sophisticated components limits China's autonomy and control over its supply chain. China's subsidies have also been challenged at the World Trade Organisation. In China — Certain Measures Concerning the Protection of Intellectual Property Rights, the European Union alleged that Chinese shipbuilders benefit from "illegal state aid," including grants and preferential loans (Dispute DS549, para. 2.4). The US government has also taken strong exception to state support for the Chinese shipbuilding industry citing unfair trade practices and its laws allow it to penalise China for engaging in acts that are "unjustifiable" or "unreasonable," or burden U.S. commerce. As per a 2024 report by Office of the United States Trade Representative, "China's market concentration in ... shipbuilding sectors is particularly dangerous when possessed by state enterprises, rather than firms that are market oriented and respond to market signals. For example, China's largest shipbuilding company—CSSC—is a state-owned enterprise. China's control of these sectors, especially in shipbuilding, has provided it with unprecedented capacity that has come at the expense of market-oriented producers and suppliers." In early 2025, the U.S. designated major Chinese shipping firms as 'Chinese military companies,' intensifying their trade dispute. Analysts anticipate further escalation in the new Donald Trump administration. Chinese bureaucracy, highlighting systemic inefficiencies in administrative processes. Additionally, China's most capable engineering resources are often bureaucratized and centralised within SOE research institutes that are geographically and operationally distant from actual construction sites. This separation can hinder effective communication and collaboration between design engineers and shipbuilders, leading to inefficiencies in the construction process and potential delays in project completion. The bureaucratic nature of these

SOEs can stifle innovation and responsiveness to market demands, as they may be insulated from competitive pressures that drive efficiency and technological advancement in the private sector. The centralised and bureaucratic nature of engineering resources may limit the industry's ability to rapidly adapt to new challenges or develop alternative solutions under pressure.

Chinese Responses to Challenges

China has been quick to respond to some of these challenges. As the data shows, China continues to sustain a robust domestic demand for ships, which plays a critical role in stabilising its shipbuilding industry. This strong internal demand acts as a buffer against the cyclical nature of global shipbuilding markets, reducing the impact of international fluctuations. By maintaining a near-constant order book for Chinese shipyards, domestic demand ensures continuous production and employment, fostering long-term planning and investment within the industry. Significantly, China has overtaken Greece to become the world's largest maritime fleet owner in terms of gross tonnage (GT). The latest rankings show Chinese-owned fleet at 249.2 million GT, marginally surpassing Greece's 249 million GT, with Japan in third place at 181 million GT. This achievement reflects China's expanding role in global trade and its strategic emphasis on controlling maritime logistics. Owning the largest fleet enhances China's ability to influence freight rates, secure shipping routes, and ensure the reliability of its supply chains, particularly for essential imports like energy and raw materials. On the technology front, Chinese shipyards have started taking orders for LNG carriers and cruise ships. The merger of two largest shipbuilding companies CSSC and CSIC, provides an opportunity for deeper collaboration and diversification towards more complex product lines. China's unique system of integration of military and civilian functions also provides an opportunity to assimilate cutting edge technologies both by in-house R&D effort and collaboration with major international design houses and universities. Chinese shipbuilders have significantly advanced in adopting green technologies, bolstering their global competitiveness and reinforcing China's status as a leading shipbuilding powerhouse. China's Ministry of Industry and Information Technology data shows that

China secured more than 70 percent of global orders for eco-friendly vessels in the first three quarters of 2024, achieving coverage across all major ship types. Provided this lead is maintained, Chinese shipbuilding industry is likely to dominate the green shipbuilding market, too, eventually. This opportunity, however, is sensitive to global environmental regulations which are evolving rapidly. The Chinese government anticipated geopolitical challenges with its BRI. Chinese shipbuilders have benefited from increased demand from countries involved in BRI for bulk carriers, container ships, and specialised vessels such as LNG carriers. China's ship exports to BRI countries increased by 35% between 2013 and 2020. As of 2024, Chinese shipyards accounted for over 50% of global ship exports, with a significant portion destined for countries involved in the BRI. Countries like Pakistan, Malaysia, Greece, and Egypt, which are strategic maritime nodes within the BRI, have become major recipients of Chinese-built vessels. For example, Pakistan has seen a significant increase in its naval and commercial fleets through Chinese exports, closely linked to the development of the China-Pakistan Economic Corridor. The mutual reinforcement of port and shipbuilding projects enables China to expand its global influence, particularly in regions critical to international trade, such as the Indian Ocean, the Mediterranean, and East Africa.

CONCLUSION

Over the last two decades, China has transitioned from being a modest player to the world's leading shipbuilding nation, surpassing traditional leading players like South Korea and Japan. It leads global shipbuilding in numbers and is beginning to move quickly up the ladder in terms of high-end technology ship-building. Today, Chinese shipbuilding industry is competitive in terms of building technologically-complex vessels such as aircraft carriers, LNG carriers and cruise ships. This transformation is not only attributable to China's competitive pricing but to significant investments in infrastructure, government subsidies, and advanced manufacturing capabilities. Government support to the Chinese shipbuilding industry is one of the key reasons that China is able to outperform its rivals both when it comes to pricing and completion times. This support spans

protectionist economic policies to growth-oriented industrial reforms. As of 2024, China's major shipyards continue to invest in infrastructure thus improving their productivity. Dependence on foreign suppliers for advanced technology required for shipbuilding is considerably reduced and almost all the technology is domestically sourced. Certain vulnerabilities do exist, however, for Chinese shipbuilding. Apart from increased competition from the traditionally-dominant shipbuilders like South Korea and Japan, there is also the geopolitical dimension of pressure from the US and its allies that could limit China's access to both markets and technologies. The geopolitical landscape has grown increasingly tense, with significant repercussions for the Chinese shipbuilding industry. Yet, history has shown that China's shipbuilding sector deals with challenges by adaptation and state-driven resilience. Faced with supply chain restrictions, shifting trade alliances, and technological dependencies, China is actively accelerating its push for self-sufficiency, investing heavily in domestic innovation, alternative markets, and green shipping technologies. While geopolitical and economic turbulence may create obstacles, the strategic trajectory of China's shipbuilding industry suggests that it will not merely weather the storm but attempt to reshape the tides of global shipbuilding itself.

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HOW TO CITE: Mohit Goel*, Full Steam Ahead China's Rise in the Global Shipbuilding Industry, *Int. J. Sci. R. Tech.*, 2025, 2 (9), 79-95. <https://doi.org/10.5281/zenodo.17108602>