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November 15, 2023

U.S. Commercial Shipbuilding in a Global Context

Introduction

Congress has long-standing concern with the state of the U.S. commercial (i.e., non-Navy) shipbuilding industry. Now that China has become the world's leading shipbuilder, that concern has intensified. Cargo ships typically transport 90% of the military equipment needed in overseas wars. Although there are longtime federal financing programs and import restrictions intended to boost domestic commercial shipbuilding, the U.S. industry remains globally uncompetitive. A 2021 Department of Defense (DOD) report states the following:

> While China's naval buildup has been able to piggyback on its rapidly expanding commercial shipbuilding industry, U.S. shipbuilding, by contrast, has become a key vulnerability in the U.S. defense industrial base….

Chinese-built ships are prevalent in the world fleet, and the U.S. military relies on them. Three of the ten commercial oil tankers selected to ship fuel for DOD as part of the newly enacted Tanker Security Fleet are Chinese-built. As for dry cargo supplies for DOD, 7 of the 12 most recently built ships in the Maritime Security Fleet are Chinese-built.

Apprehension over a possible Chinese invasion of Taiwan, the expanse of the Pacific Ocean, and recognition that China and Russia are capable of contesting the U.S. sealift capability have accentuated the national security implications of the shrunken U.S. commercial shipbuilding sector. The COVID-19 pandemic and the war in Ukraine have also led some policymakers to focus on repatriating manufacturing to secure U.S. supply chains and the U.S. defense industrial base.

Global Context

As **Table 1** shows, China is building hundreds of ships per year, and the United States is building five or fewer.

Table 1. Year-End Orderbook for Large Oceangoing Ships

(# of ships under construction)

Shipbuilder	2022	2021	2020
China	1,794	1,708	1,216
South Korea	734	626	441
Japan	587	612	533
Europe	319	288	284
United States	5	3	4

Source: BRS Shipbrokers, *Annual Review*, https://brsshipbrokers.com/publications.

In terms of gross tons, which is a measure of a ship's volume, China, Korea, and Japan build over 90% of the world's tonnage; the United States builds about 0.2%.

The mantle of the world's leading shipbuilder passed from the United Kingdom to Japan in the 1950s, from Japan to South Korea around 2000, and from South Korea to China in 2010. In 1999, in gross tons, China accounted for 5% of cargo ships built that year; Japan and Korea accounted for 42% and 34%, respectively; and the United States accounted for 0.25%. In 2006, China's 11th National 5-Year Economic Plan (2006-2010) was the first of its economic plans to specifically mention shipbuilding with a plan to become a world leader. In 2007, China built about 18% of world tonnage, but it received about 30% (in tonnage) of new ship orders that year, second to Korea.

U.S. Shipyards

The minuscule U.S. market share in shipbuilding long pre-dates China's ascent. The United States was a peacetime world leader in shipbuilding when ships were made of wood in the early 1800s. During World Wars I and II, the United States built thousands of cargo ships. These were sold to merchant carriers after the wars, including foreign buyers, but were soon replaced by more efficient ships built in foreign yards. In the 1970s, U.S. shipyards were building about 5% of the world's tonnage, equating to 15-25 new ships per year. In the 1980s, this fell to around five ships per year, which is the current rate of U.S. shipbuilding.

As **Table 2** indicates, a shipyard in Philadelphia and one in San Diego have built the majority of domestically built commercial cargo ships in recent years.

Table 2.U.S. Shipyards Constructing Large Commercial Cargo Ships, 2010-2023

Shipyard	Location	Ships built
Philly Shipyard	Philadelphia, PA	16 tankers 2 container ships
General Dynamics NASSCO	San Diego, CA	12 tankers 4 container ships
VT Halter Marine*	Pascagoula, MS	2 container ships 1 roll-on/roll-off
Keppel AmFELS	Brownsville, TX	2 container ships
BAE Systems	Mobile, AL**	1 tanker (2012)
Fincantieri Bay Shipbuilding	Sturgeon Bay, WI	1 dry bulk "laker"

Source: U.S. Maritime Administration, Jones Act fleet listing.
Notes: *acquired by Bollinger Shipyards in 2022; **closed in 2018.

Up until 2018, Philly Shipyard built only commercial vessels, but, running out of orders and facing closure, it pursued and was awarded the construction of five maritime academy training ships funded by the federal government. Despite those orders and subsequent commercial orders, the shipyard continues to operate at a loss. The NASSCO shipyard primarily relies on Navy shipbuilding for revenue. Keppel AmFELS is a new builder of container ships, with deliveries in 2022 and 2023, but it has been a longtime builder of offshore oil rigs.

Compared with U.S. shipyards that build large vessels, there are many more U.S. shipyards that build smaller vessels such as tugs and barges; supply vessels for offshore oil, gas, and wind development; and tour boats and ferries. Although these yards support shipyard workforce skills, they lack the infrastructure (e.g., larger dry docks, deeper channels) needed to construct large oceangoing ships.

Federal Support Programs

The termination of the Construction Differential Subsidy program in the 1980s is viewed by some observers as being the principal cause of a reduction in the number of ships built in the 1980s. This program was intended to provide ships to U.S. owners at the world price. Still existing is a federal loan guarantee program (46 U.S.C. Ch. 537) and tax shelters for new ship construction (46 U.S.C. Ch. 533, 535). Also, the Jones Act of 1920 (P.L. 66-261, §27) requires that all vessels used in domestic commerce (not foreign trade) be U.S.-built. This requires ship assembly in the United States, although some components, such as the engines, can be imported.

The Jones Act's domestic construction requirement likely underpins the entirety of U.S. commercial ship construction. None of the U.S.-flag international trading fleet is domestically built, though shipbuilders could take advantage of both the loan guarantee and tax shelter programs discussed above. No overseas purchase of large U.S.-built ships has occurred in decades because U.S.-built ships can be four or more times the world price. Differences in wage rates, particularly for welders, and currency exchange rate policy are factors leading to higher prices in the United States. The lack of exports prevents U.S. shipyards from achieving economies of scale.

Domestic purchase of U.S.-built ships is limited by their high price relative to alternatives where available. Jones Act trade lanes for oceangoing ships are predominantly limited to Hawaii, Puerto Rico, and Alaska—where overland connections (truck, rail, pipeline) to the contiguous United States are not available—as well as to Gulf Coast fuel deliveries to Florida because Florida is not connected to the eastern seaboard pipeline network. As a Jones Act workaround, shippers import on foreign ships rather than source product domestically and employ seagoing barges because they cost less to build and crew per unit of cargo. However, the barges are slower than ships, which limits their range. Barges are also more restricted by sea-state conditions, staying closer to shore. On the one hand, seagoing barges carry as much cargo as the Jones Act ship fleet and are nearly double in number of vessels, diminishing motivation to build a domestic fleet that can serve as a naval auxiliary. On the other hand, a synergy could be pursued between military ships and domestic coastal cargo ships. The military seeks versatility, such as ships that can carry a variety of cargoes and of medium size with their own cranes and ramps for unloading cargo at damaged or undeveloped ports. In the domestic coastal trade, such ships could exploit less-developed (and less-expensive) port property.

Worldwide Overcapacity

Worldwide, overcapacity plagues the shipbuilding sector, though the number of active shipyards in 2022 was 301 compared with a peak of 699 in 2007. Current worldwide shipyard capacity is about 1,200-1,300 ships per year compared with about 2,000 ships per year between 2005 and 2010. The three largest shipbuilding firms in China, Korea, and Japan (nine firms in total) account for 75% of world shipbuilding capacity. In 2022, the European Commission scuttled merger plans between Korean shipbuilders Hyundai and Daewoo on the grounds that such plans would create a monopoly for LNG tanker construction.

Despite consolidation, even the most successful shipbuilding firms in Korea and Japan often operate at a loss. According to an annual market review, ship sale prices seldom exceed their building costs. Korean and Japanese shipbuilders are traditionally part of large manufacturing and financial conglomerates (e.g., Samsung, Hyundai, Mitsubishi, Kawasaki) where other profitable segments can help weather the poor profitability of their shipbuilding sector. Even so, Korean shipbuilders have repeatedly required large government bailouts, which have prompted World Trade Organization disputes from Japan and Europe. In China, 36 of the 100 largest shipyards are owned by the national government, 10 are owned by local governments, and 54 are privately owned. The government-owned yards accounted for 64% of ship tonnage built in China in 2021.

In the 1990s, an effort to end shipbuilding subsidies worldwide through an Organisation for Economic Co-operation and Development (OECD) agreement was not ratified by the United States (S. 1216, 105th Congress). A subsequent attempt initiated in 2002 was abandoned in 2010, but the OECD continues to track subsidy developments.

Policy Considerations

If Congress were to seek a more robust commercial shipbuilding sector, heavy worldwide subsidization, dim profitability, and deeply-rooted federal programs would raise questions on how to proceed. Congress has requested the executive branch formulate a national strategy toward achieving a competitive maritime industry four times in the last decade, most recently in December 2022 (P.L. 117-263, §3542) and has requested three Government Accountability Office reports on the subject.

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