Pier Competitor: China's Power Position in Global Ports
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On August 16, 2019, the People's Liberation Army Navy (PLAN) Type-052C destroyer Xi'an steamed into Egypt's main port of Alexandria for a four-day technical stop.\(^1\) The Chinese warship berthed at a terminal that is operated and majority (over 80 percent) owned by two Chinese firms: the privately owned, Hong Kong–based Hutchison Ports, and the state-owned Shenzhen Yantai Port Group. With a People's Republic of China (PRC) flag flying over the terminal, the Chinese sailors received a warm welcome from the PRC ambassador to Egypt, a throng of PRC citizens, and the Egyptian Navy commander of the adjacent Alexandria naval base. The PLAN destroyer then underwent specialized repairs at the large dry dock on site, loaded supplies and equipment, and replenished its fuel and stores.\(^2\)

Operating as part of the 32nd PLAN task force in the region since 2009, Xi'an's port call might appear entirely unremarkable: a routine episode for a navy that now operates regularly across the eastern Mediterranean and northern Indian Ocean region.\(^3\) Yet it is also a conspicuous display of the growing

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\(^2\) Ibid.

\(^3\) As of February 2022, the PLAN has dispatched forty such task forces to the region. Liu Shangjing, “Zhongguo haijun di 40 pi huihang biandui zhengshi danfu Yadingwan huihang renwu” [China’s 40th escort task force officially undertakes escort mission in the Gulf of Aden], Jiefangjun bao [Liberation Army Daily], February 9, 2022, http://www.mod.gov.cn/action/2022-02/09/content_4904493.htm. These counter-piracy escorts are only one of the PLAN’s expanding mission sets. The PRC Ministry of Defense has publicized naval task group visits to 138 ports in 94 countries since the first PLAN overseas port call in 1985. PLA Maritime Affairs Propaganda Bureau, “Haijun fabu zuixin xingxiang xuanchuanpian ‘zhongguo haijun heping liliang’” [Navy re-
sophistication and scope of Chinese military operations abroad—achieved without a network of overseas bases and allies. Rather than calling at China’s sole overseas military base at Djibouti, on the other end of the Suez Canal and Red Sea, Xi’an used repair facilities at Alexandria to sustain its operations. Like other blue water navies, the PLAN depends on foreign commercial ports for logistics and husbanding services that keep its ships afloat and crews supplied, rested, and combat-ready. Yet unlike other navies, the PLAN enjoys privileged access to dual-use facilities that Chinese firms own and operate overseas.

What are the international security implications of China’s global port expansion? We argue that China’s leveraging of PRC firms’ transnational commercial port network—most evident in the PLAN’s use of commercial ports for military logistics and intelligence functions—constitutes an underappreciated but consequential form of state power projection. We investigate this phenomenon by conducting the first systematic empirical study of PRC firms’

6. Husbanding services refer to the various services rendered to ships and their crews in port, including tugboats, fuel, electrical power, repairs, parts and supplies, and food and water.
7. Although we refer to overseas port terminals “owned and operated” by PRC firms, there are sixteen ports for which the PRC firm holds equity in the lease or concession but has no role in operations because a non-PRC firm holds the operating lease. These are the terminals in which China Merchants Port owns a minority stake in Terminal Link, which is 51 percent owned by the French transport firm CMA CGM. The terms of China Merchants Port’s stake grant it only board representation and no role in operating the terminals in which it holds equity interest. See Preliminary Offering Memorandum (Hong Kong: China Merchants Port Holdings Company Limited, 2018), https://secure.fundsupermart.com/fsm/bond/relatedBondDocument/1126/CMHI%20OC.pdf. China Merchants Port/Terminal Link also owns seven other terminals, but there are other PRC firms who own and operate other terminals at those ports, and so they can be accurately considered PRC firm “owned and operated” ports. For the sake of brevity and readability, “Chinese/PRC firms’ port terminals” (and variations thereof) is used hereafter. This term refers to the following more complex reality: Chinese firms hold an equity stake in the lease or concession on at least one terminal at ninety-six foreign ports; the Chinese firm is also the facility operator—that is, the firm’s personnel (typically as part of a subsidiary or a joint venture with another firm or host government) manage day-to-day terminal activities. The complexity of owner-operator distinctions requires industry reporting to make certain methodological choices about what counts as “ownership” or “operations.” We follow the definitions employed in standard industry reporting by Drewry Research. See Eleanor Hadland, ed., Global Container Terminal Operators: Annual Review and Forecast, Annual Report 2021/22 (London: Drewry Maritime Research, 2021), pp. 278–279.
overseas port assets and how they are utilized. Specifically, we map Chinese firms’ global “port-folios,” investigate their ties to the Chinese Communist Party (CCP) and the state in China (the Party-state), and analyze the technical and functional characteristics of their port assets as well as related PLAN activities. We find that China’s global port expansion already enables vital military functions.

Demonstrated military uses aside, commercial cargo transport remains the primary function of PRC firms’ port terminals at home and abroad. At least 90 percent of China’s trade is seaborne, which significantly exceeds the global average of 80 percent. As the world’s leading trading nation, ports in China are vital nodes in international trade and transport networks. They are the origins, destinations, or transshipment points for immense volumes of global trade. Modern port terminals are necessary conduits for China’s vast imports of energy, raw materials, and advanced technologies, and they are its principal link to global export markets.

Coastal China is home to eight of the world’s top ten ports by total cargo tonnage and seven of the ten highest throughput container ports. In addition, China’s huge domestic port sector has the capi-

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11. For example, over 30 percent of global container throughput passes through ports in mainland China. See Hadland, Global Container Terminal Operators, p. 20.

12. Ports in China and Chinese carriers dominate most international metrics for maritime transport. For example, the PRC has ranked first in the “liner shipping connectivity index,” which “indicates a country’s integration level into global liner shipping networks” since the start of data collection in 2006. See “Liner Shipping Connectivity Index, Quarterly,” December 16, 2021, Maritime Transport folder, Data Center, UNCTADstat, https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=92.

tal, technical expertise, and cargo volumes to build out ports and transport networks overseas.\textsuperscript{14} China’s top leader Xi Jinping touts the country’s trade links with over 600 international ports.\textsuperscript{15} Chinese firms themselves also own/operate\textsuperscript{16} one or more terminals at ninety-six foreign ports, thirty-six of which are among the world’s top one hundred by container throughput. Another twenty-five of these top one hundred are on the Chinese mainland, establishing a PRC nexus for some 61 percent of the world’s leading container ports.

China’s leadership actively supports its companies’ expansion into global port assets. The PRC government has long used policy incentives and material support to facilitate domestic firms’ acquisition, operation, and development of overseas infrastructure. These efforts began at the central level in 1999 with the “going out” policy, continued with targeted industrial plans during the first decade of the twenty-first century,\textsuperscript{17} and have accelerated since the launch of the Belt and Road Initiative in 2013.\textsuperscript{18} In 2015, a central-level policy document emphasized that “facilities connectivity is a priority area for implementing the [Belt and Road] Initiative. . . . With regard to transport infrastructure construction, we should focus on key passageways, junctions and projects.”\textsuperscript{19} Ports facilitate Chinese commerce in partner countries by providing the physical platforms to increase trade and investment ties. PRC firms have therefore

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\textsuperscript{15} “Xi Jinping zong shuji guanxin gangkou fazhan jishi,” July 5, 2017.

\textsuperscript{16} “One Hundred Ports 2021”; Isaac B. Kardon and Wendy Leutert, “PRC Firm-Owned/Operated Port Terminals Worldwide,” 2022, on file with authors. For more details about the authors’ dataset, see the online appendix. This study’s data include only port terminals owned and operated by PRC companies. Chinese company contracting to build or upgrade port facilities is notable as part of the overall international maritime transport network, but such construction projects are beyond the scope of this study.

\textsuperscript{17} For example, the PRC’s 11th Five-Year Plan in 2006 called for “encouraging enterprises to participate in the construction of overseas basic infrastructure, improving the level of project contracting, and steadily developing labor cooperation.” “Zhonghua renmin gongheguo guomin jingji he shehui fazhan di shiyi ge wu nian guihua gangyao” [People’s Republic of China national economic and social development eleventh five-year plan outline], \textit{Xinhua she}, March 16, 2006, http://www.gov.cn/ztzl/2006-03/16/content_228841.htm.


established deep-water ports, hinterland transport networks, and inland resource extraction facilities to advance China’s program for economic development, both at home and abroad.20

Today, China’s growing overseas interests face a higher probability of conflict threatening them. In the post–Cold War era, the relatively open and secure global economic system initially made it unnecessary for the People’s Liberation Army (PLA) to emulate earlier rising powers’ attempts to force open foreign markets or seize resources overseas. But this purported Pax Americana now appears more risky than rewarding to China as “great power competition” with the United States intensifies.21 Chinese leaders now perceive dependence on U.S. military power to ensure their country’s maritime transport, energy supplies, and overseas market access as a profound strategic vulnerability.22 Meanwhile, growing numbers of Chinese citizens and assets abroad increase the country’s “attack surface,” exposing China to greater risk of harm from natural disaster, political disruption, or hostile foreign action.23 Real and perceived security threats to these overseas interests expand demand for PLA protection, which China has duly authorized and deployed.24 As one


prominent Chinese strategic analyst puts it: “Wherever Chinese interests go, our security boundary must also go.” In practice, this means that when PRC firms “go out” to own or operate a major port terminal, the PLAN is responsible for securing both the terminal and the sea lines of communication (SLOCs) that convey trade between PRC firms and China.

The PLA has only one military base abroad, so it must find alternative ways to execute its mission of protecting China’s overseas interests. Commercial port facilities enable considerable military logistics and intelligence capabilities in peacetime. In addition, the global scale and distribution of PRC firms’ network of ports abroad establish a degree of Party-state control over China’s commercial and military supply chains—as well as those of other states. This network also allows the PLA to sustain its growing peacetime operations across the globe and closely monitor those of others.

In wartime scenarios, however, the military utility of PRC firms’ overseas ports is less certain. China’s lack of allies remains a major obstacle because a host state’s decision to permit military use of a port on its soil would almost certainly require it to assume a belligerent status in an international conflict. If armed conflict were to occur, China may not have access to port facilities in states seeking to maintain neutrality. Beyond this political challenge, the technical limitations of most commercial ports further impede their military utility. Container terminals employ specialized handling equipment that is unsuitable for naval ships. Moreover, China would lack the hardened naval facilities, specialized parts, ordnance, equipment, and trained on-site personnel requisite for any complex or contested military operation. Chinese firms’ port network thus produces a distinct but restricted form of power projection: enabling the

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27. For a description of the various functions that a base can provide, see Blechman and Weinland, “Why Coaling Stations Are Necessary,” pp. 89–91. They list “replenishment of consumables,” “intelligence and consumables,” “repairs,” and “direct combat support” as the basic support provided by a shore facility for a fleet. The last is the most problematic at commercial facilities.
PLA to operate with growing scope and scale in peacetime, but providing only limited combat support in wartime.

Our findings advance existing research on the identification and measurement of sources of national power. International security scholars have traditionally considered possession of offensive military capabilities as a key criterion for great power classification. Although overseas bases may be sufficient for a state to project offensive military power overseas, we contend that they are not the sole index of state power projection capabilities. A more comprehensive assessment of power projection must consider a state’s capacity to execute military operations overseas from any platform, including from a network of commercial facilities with dual-use capacity that may be employed periodically (rather than continuously, like a dedicated base). Indeed, the weapons systems, command and control infrastructure and personnel, force protection capabilities, and other specialized features of a military base are only necessary for combat. Logistics and intelligence are foundational missions for military power that may be achieved through a globally scaled and distributed network of less specialized facilities, like commercial port terminals.

This paper proceeds as follows. First, we amend standard conceptualizations of power projection centered on overseas military bases by highlighting a state’s potential ability to control and direct its companies’ transnational commercial assets. Next, we present original data on PRC firms’ overseas port assets, with a focus on the portfolios of the three dominant players: China Ocean Shipping Company (COSCO), China Merchants Group, and CK Hutchison Holdings Ltd. We then outline organizational and legal mechanisms of Chinese Party-state influence over firm assets and operations abroad. Finally, we assess the security consequences of the actual and potential military use of PRC firms’ port-folios, concluding with a discussion of policy implications and future research avenues.

Alternative Modes of Power Projection

States have traditionally projected and sustained military power using overseas bases, typically sited in colonial possessions or allied territories. But states can also project power abroad through their firms’ overseas commercial

portfolios. Using organizational and legal mechanisms, states can direct, mobilize, reorient, or repurpose their companies’ international assets for strategic purposes. States can project power directly via military utilization of these assets, or indirectly by exploiting them to blunt other actors’ economic activities or military power. States can further amplify these benefits by controlling and coordinating multiple firms’ assets. Although power projection relies on the attributes of individual assets, the emergent network’s properties enable states to generate and sustain such power.

The growing literature on “weaponized interdependence” posits that states can exploit advantageous positions in globalized economic networks to gain coercive influence over others. For a state to “weaponize” its advantages in any particular sector, the structure of the network must concentrate activity into one or a few central nodes within its jurisdiction or control. The United States is, unsurprisingly, the main contemporary user (and abuser) of this power, benefiting from its central position in global financial networks and key technologies such as the Internet.

States such as China and Russia may also be able to “exploit their position in global networks to challenge U.S. dominance.” Yet assessing their ability to do so demands deeper consideration of a wider range of networks. In particular, the hypothesized advantages of centrality (i.e., enhanced abilities to monitor, control, and coerce) do not readily accrue in the maritime transport sector, in which critical network nodes (ports) and ties (shipping lines) are globally dispersed. States host major ports largely because of maritime geography (e.g., Panama, Singapore, Djibouti), resource endowments (e.g., the

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35. For a description of the energy maritime transportation network and an illustration of the physical obstacles inherent in interrupting energy shipments, which may reroute or change desti-
Persian Gulf, northern Australia), or hinterland markets (e.g., Rotterdam, Los Angeles).36 Chinese companies, however, have achieved a distinctive kind of centrality in this network by owning and operating terminals at multiple key nodes across the world’s maritime routes. Whether and how this highly distributed “central” position can be effectively weaponized against other states will depend on China’s motives and objectives, which we examine in the next section.

In general, three types of conditions are necessary for a state to reliably project power via its domestic firms’ overseas assets: material, political, and geostrategic. First, from a basic material standpoint, a state must possess companies that have transnational networks of complementary assets. Furthermore, its companies must be able to maintain and exercise operational control, at least temporarily, over their assets abroad.37 Although this does not require sole or majority ownership, a substantial equity position is typically associated with operational control. In addition, these material assets must possess some dual-use capability. Ports are intrinsically useful for merchant and naval ships alike because of their links to networks of communications, transport, and energy infrastructure.38 Yet commercial facilities vary in their ability to support combat operations: some do not have requisite water depths or pier lengths, others lack specialized repair facilities, fuels, parts, and personnel, while unfavorable geography limits still others. Not all individual port terminals must be able to support the requirements of all vessels, but the network as a whole must be able to furnish suitable ports of call for transporting, equipping, and informing armed forces in a given area of operations.

Second, the home state must be able to significantly influence its firms’ overseas operations in order to project power using company assets. Whether firms are actually subject to influence depends on organizational and legal factors in their home countries. For example, power projection will fail if firms can reliably refuse home state entreaties and asset appropriation. If, however, the

37. This operational control requirement leads us to omit consideration of the specific conditions in host or target states that may make it impossible for a foreign state’s military to utilize assets within that state. Only those states that have allowed a Chinese firm to own or operate critical assets within their countries are included among the cases that we consider. Certain host states may have strong public control over port assets that allows them to regulate and modify how foreign actors use these ports, while other states may seize foreign actors’ assets if certain legal conditions are not met or during crises. Such conditions make portfolio power projection difficult, if not impossible.
home state can override company objections by appealing to legal, institutional, organizational, political, or other mandates or norms, there is scope for such control. Although state influence on specific corporate decisions is difficult to observe directly, laws and regulations formally authorizing intervention in firm management, strategy, or operations can provide strong indirect evidence of home state capacity to control company operations and assets abroad.

Host state support, acquiescence, or opposition also conditions the potential for power projection involving overseas commercial assets. Possible uses of these assets depend on the agreed terms of leases, concessions, and contracts—and the host state’s capacity and willingness to enforce them. These quantities vary considerably across jurisdictions, but a foreign firm’s ownership and operation of a commercial asset generally grant it substantial autonomy over how the asset is used. Host state conditions become far more salient in conflict scenarios, which prompt the sovereign decision of whether to permit a foreign state’s military on host state territory. Such contingencies must be analyzed in the context of specific country dyads. This study examines projection from a multilateral perspective under peacetime conditions rather than potential wartime responses by the host state.

Third, the effectiveness of power projection involving any network of commercial assets depends on geostrategic conditions. Foremost among them is a state’s perception of its own interests in projecting power within a given region. Some states are unlikely to pursue military objectives, even if they have a transnational network of commercial assets that could be so employed. A state that does not perceive fundamental security threats to its overseas interests has little incentive to “weaponize” its position. For that small group of strong states with significant security interests under potential threat and military capabilities extending beyond their own regions, the geographic location of their commercial port assets affects whether and where they project power.

For ports, this means that proximity to strategically important resources, sea lanes, maritime chokepoints, markets, and possible conflict sites will dictate the effectiveness of power projection (see table 1).39 Not all individual ports need to be located strategically for them to have a strategic effect in concert. Still, at least some combination of regional assets must afford ready access to a contested arena for the network to support meaningful power projection. For example, for most military operations of sufficient complexity, one or more of

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39. For an extensive analysis by a leading PLA author on maritime chokepoints and their strategic importance, see Liang Fang, *Haishang zhunliu tongdiao lun* [On maritime strategic passages] (Beijing: Shishi chubanshe, 2011).
the regional ports must have a proximate airfield, specialized fuels and parts, dry dock facilities, roll-on/roll-off (RO-RO) piers suitable for military vehicles and equipment, and other technical characteristics. Such requirements vary by region and strategic contingency. Further afield, a more robust array of facilities are required for any substantial military power to be generated and sustained.

Assessing China’s Power Position in Global Ports

This section empirically evaluates PRC firms’ overseas port asset holdings and their attributes. Specifically, we examine the ports’ geography, operational control, and physical capacity.

PRC FIRMS’ INTERNATIONAL PORT-FOLIOS AND POWER PROJECTION

China’s leading position in the global port industry generates considerable capability for power projection. PRC firms exercise continuous control over a

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Table 1. Factors Affecting State Power Projection from Overseas Commercial Ports

<table>
<thead>
<tr>
<th>Material</th>
<th>Political</th>
<th>Geostrategic</th>
</tr>
</thead>
<tbody>
<tr>
<td>transnational network of port assets</td>
<td>home state influence over firms via state ownership and other organizational and legal mechanisms</td>
<td>location</td>
</tr>
<tr>
<td>port infrastructure suitable for military operations</td>
<td>host state support</td>
<td>regional security environment</td>
</tr>
</tbody>
</table>

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40. Developing port facilities that are suitable for potential military use involves installing or upgrading equipment or expanding capacity in port facilities. Specifically, such upgrades and expansions include dredging deeper approach channels and berths, expanding and reinforcing piers and quays, constructing warehousing and medical facilities, reinforcing roll-on/roll-off (RO-RO) platforms and port road networks, and other improvements that meet military standards (especially pertaining to supply and distribution of petroleum, oil, and lubricants).

41. For example, on China’s strategic periphery (within the so-called First Island Chain and around its land boundaries), commercial facilities need not provide much military capacity because of the proximity of the mainland and its many other modes of power projection in the vicinity. For a detailed review of some land-based capabilities, see Stephen Biddle and Ivan Oelrich, “Future Warfare in the Western Pacific: Chinese Antiaccess/Area Denial, U.S. AirSea Battle, and Command of the Commons in East Asia,” International Security, Vol. 41, No. 1 (Summer 2016), pp. 7–48, https://doi.org/10.1162/ISEC_a_00249.

vast transnational network of port assets. The Chinese Party-state can use organizational and legal mechanisms to exert significant influence over its firms’ overseas operations and assets. A handful of Chinese firms, the majority of which are state-owned, hold most foreign port assets; this also facilitates state coordination. Furthermore, Chinese firms’ international port facilities possess significant strategic value and dual-use functions that could help mitigate perceived security threats to Chinese interests overseas. In the next sections, we examine the characteristics of PRC firms’ network of international port assets and analyze the types and degrees of power projection that it supports.

EMPIRICAL STRATEGY AND DATA
To assess the security implications of PRC companies’ overseas portfolios, we employ a three-part empirical strategy. First, we map every ocean port outside of China in which a Chinese firm owns or operates one or more terminals. We identify ninety-six ports in fifty-three countries that meet these criteria and analyze their geographic distribution, ownership, and operational characteristics. Next, we investigate the leading PRC firms’ ties to the CCP and the state bureaucracy it directs (the “Party-state”). We do this by analyzing defined organizational and legal mechanisms of influence extending from the Party-state to firms. Finally, we examine the actual and desired uses of this port network—and its limitations—focusing on observed functions and technical characteristics of the terminals themselves, as well as the international security implications of the broader port network.

Our empirical analysis employs hand-coded original data collected primarily from industry and military sources. Industry sources include IHS Markit’s “Seaweb,” Drewry’s “Global Container Terminal Operators Annual Review

43. As of March 2022, there have been no reported cases in which a foreign government has nationalized port assets operated by a Chinese firm. It is possible that China could seize assets from foreign governments as a form of debt repayment. One such potential case is the Port of Mombasa in Kenya, which was reportedly collateralized against a $2.3 billion loan for the Standard Gauge Railway, linking Nairobi and Mombasa, with a contract waiver specifying that the port would not be protected by Kenya’s sovereign immunity. “Report: Kenya Risks Losing Port of Mombasa to China,” Maritime Executive, December 20, 2018, https://www.maritime-executive.com/article/kenya-risks-losing-port-of-mombasa-to-china.

44. Our observations of PLA capacity to utilize corporate assets for military purposes are necessarily limited to openly reported activities during peacetime.

45. We exclude inland river ports because these are generally part of secondary feeder networks to ocean ports that are the key nodes for global trade.

46. Chinese firms have participated in engineering and procurement contracts in several hundred other ports around the world. These activities (typically construction, dredging, and installation of port machinery) do not confer any type of control over the operations of the port and are excluded from our analysis.
and Forecast,” Lloyd’s List, port companies’ annual reports and disclosures to securities exchanges, and author discussions with industry executives, naval officers, and intelligence analysts conducted between 2018 and 2021. We draw extensively on Chinese-language military, industry, and academic writing, including official planning documents and doctrinal and technical publications from the PLA Academy of Military Sciences, PLA National Defense University, and the PLA Transportation Academy. We also use a database on Chinese military diplomacy compiled by the U.S. National Defense University.47 This study’s combination of industry and military data with Chinese-language sources provides the most complete empirical account to date of PRC firms’ overseas port operations, and PLA utilization of those facilities.48

Although our unit of analysis is networked portfolios rather than individual ports, we develop a basic framework for categorizing ports therein according to their potential military utility. This typology is based on three key factors: geography, operational control, and physical capacity (see table 2). We categorize a port’s overall strategic value as low, medium, or high. For geography, we assess the strategic importance of the port’s location by measuring its proximity to critical maritime chokepoints, China’s strategic SLOCs, and areas of in-

### Table 2. Potential Military Utility of Individual Ports

<table>
<thead>
<tr>
<th>Geography</th>
<th>Operational Control</th>
<th>Physical Capacity</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low utility</td>
<td>not proximate to chokepoints, strategic sea lines of communication, or conflict areas</td>
<td>minority ownership, little or no role in operations</td>
<td>unable to support PLA surface vessels</td>
</tr>
<tr>
<td>Medium utility</td>
<td>proximate to strategic sea lines of communication and/or conflict areas</td>
<td>majority ownership; operational role</td>
<td>can support some PLA surface vessels</td>
</tr>
<tr>
<td>High utility</td>
<td>within 480 nautical miles of maritime chokepoint, proximate to strategic sea lines of communication and/or conflict areas</td>
<td>sole owner and operator</td>
<td>can support largest PLA surface vessels</td>
</tr>
</tbody>
</table>

48. The online appendix presents key data on which this paper’s analysis is based. The master database is on file with the authors. It is not appended in full because it includes proprietary information from commercial vendors.
stability or militarized conflict that may place Chinese assets and citizens at risk. For operational control, we consider whether a firm is the minority or majority owner of the port asset, as well as whether there are other non-PRC firms operating separate terminals at the same port. For physical capacity, we evaluate the suitability of the port’s infrastructure to support various types of military vessels and operations.

**GEOGRAPHY**

PRC firms’ port assets abroad are concentrated close to major resource areas and export markets (see figure 1). The geographic distribution of these ports reflects integrated commercial and strategic objectives. There is little meaningful distinction between “commercial” and “strategic” port locations: the economic importance of resources and markets creates a military imperative to secure access to them. Protecting China’s overseas economic interests has been an explicit PLA mission since 2004, and it became one of its eight “strategic tasks” in 2015.49

Given the global distribution of major resource areas and markets, the regional locations of PRC firms’ port terminals are geographically balanced across the world. The largest cluster outside Asia is in Europe, China’s largest export market, with PRC firm positions at twenty-two ports that are located primarily in the north and west of the continent. There are also significant and growing PRC company port holdings on every oceanic coastline and on every continent except Antarctica.

The practical geography of maritime transport tells a different story than this seemingly uniform regional distribution. Nearly half of Chinese firms’ ports (forty-five of ninety-six) are located along the maritime superhighway that connects coastal China to critical natural resources, major export markets, and high-technology imports (see figure 2).50 This SLOC runs from coastal China through the South China Sea and Malacca Straits, across the northern Indian Ocean, then splits into two routes. One route runs north through the Arabian Sea and into the Strait of Hormuz and the Persian Gulf, where over

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Figure 1. Chinese Companies’ Global Port Positions

Figure 2. China’s “Maritime Lifeline” Sea Lines of Communication

40 percent of China’s imported petroleum originates. The second route branches west to the developing economies of Africa and that continent’s vast oil and mineral wealth. It passes the sole PLA overseas base in Djibouti at the entrance to the Bab al-Mandeb Strait and continues north through the Suez Canal and into the Mediterranean, where PRC firms have established several hub ports connecting China to Europe.

PLAN analysts describe this main east–west SLOC as the PRC’s “maritime lifeline”; securing China’s maritime activity and supply lines along it is the navy’s existential task (see figure 2). Two-thirds of the terminals that PRC firms have acquired since 2015 are located along this route, and more are under active negotiation in East Africa and the Persian Gulf (see table A in the online appendix for a list of PRC firms’ overseas port assets over time).

PRC firms’ port assets are further clustered near vital “maritime chokepoints,” the small number of narrow straits and canals that connect major bodies of water, and through which large volumes of shipping necessarily traverse. Of China’s overseas port projects, 55 percent are within 480 nautical miles of these chokepoints.

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52. European External Action Service, EU-China Relations Factsheet (Brussels: European Union, June 2020), https://eeas.europa.eu/sites/default/files/eu-china_factsheet_06_2020_0.pdf. China’s Eastern Mediterranean hubs include the Piraeus, Greece, megaproject and major terminals in Israel, Turkey, Malta, and Italy. Transshipment to and from the Mediterranean is supported by six PRC companies’ port facilities in and around the Suez Canal in Egypt and Saudi Arabia (see online appendix A).

53. Many PLA writings refer to the “lifeline” designation for this particular SLOC. See, for example, Hu, Huang, and Cai, “Tuijin qianting bingli zouxiang yuanyang de ji dian sikao,” p. 2; and Feng Liang, Du Bo, and Chen Guohua, “Chuangzaoxing kuozhan guoji haiyu liyi de zhanlüe sikao” [Strategic consideration of the creative expansion of maritime interests on the high seas], Taipingyang Xuebao [Pacific Journal], Vol. 22, No. 6 (2014), pp. 89–98.

54. Possible new terminal projects for PRC firms in the region include Bagamoyo (Tanzania), Jask (Iran), and Duqm (Oman)—all are located near the Straits of Hormuz and Bab al-Mandeb.

55. Chokepoints are strategically important because any disruption in or near them can halt or impede commercial vessels, thereby increasing the costs and transit times for cargo, including for critical commodities like hydrocarbons and minerals. Chokepoints may also impede the flow and positioning of naval forces. A chokepoint is thus a point of vulnerability to the possible interdiction of vital cargoes and vessels, even if maritime geography ensures that almost every chokepoint can be circumvented by sailing on a longer route. There is no authoritative list of which maritime chokepoints are the most significant, although a consensus is growing in China’s expert communities. For instance, Liang Fang analyzes the Malacca Straits (and nearby Sunda and Lombok...
miles (i.e., one day steaming at 20 knots) of major chokepoints. Among the ports along the PRC's main SLOC, however, an even more significant geo-strategic concentration is evident. Two-thirds (thirty of forty-five) of these ports are within operational range of the chokepoints between Europe and China's eastern seaboard: the Malacca Straits (through which 80 percent of China's imported oil transits), the Strait of Hormuz, the Bab al-Mandeb Strait, and the Suez Canal. Each port thus represents a potential vulnerability to interdiction or disruption of vital cargoes and vessels—though, importantly, maritime geography ensures that any chokepoint can be circumvented by sailing on a longer route. The positions of Chinese firms' commercial facilities in this network plausibly mitigate interdiction or disruption risks, providing more robust access to a wider range of transshipment points, and furnishing an array of ports with potential for power projection.

**OPERATIONAL CONTROL**

Operational control sufficient for power projection derives from the domestic ownership structure of a given firm and its ownership stakes in overseas port assets (see online appendix table B). Direct state ownership is one key means of Party-state influence. Approximately two-thirds of Chinese compa-

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56. We measure the distance from the port to the nearest point in the strait or canal and code those within 480 nautical miles (i.e., one day steaming at 20 knots) as being "proximate" to the chokepoint. Some PLA engineers who analyze fuel requirements for "far seas" operations use 600 nautical miles as the maneuver space of a warship or taskforce. Wei Zhenkun et al., "Jianting biandui yuanyang zuozhan youliao baozhang liliang bushu" [Deployment of petroleum, oil, and lubricant support forces for warship formations conducting distant ocean operations], *Junshi jiaotong xueyuan xuebao* [Journal of Military Transportation Academy], Vol. 22, No. 4 (April 2020), pp. 53–56.


58. This characteristic of maritime transport networks provides further reason to distinguish it from the "chokepoint" effects described in the literature on "weaponized interdependence."

59. State ownership does not always directly indicate greater company responsiveness to Party-state policies and priorities, but it is one reasonable approximation. Empirical analysis of PRC firms' foreign direct investments (of which port projects are one instance) finds that state-owned firms are more likely to conform closely to official policy goals. See Randall W. Stone, Yu Wang, and Shu Yu, “Chinese Power and the State-Owned Enterprise,” *International Organization*, Vol. 76, No. 1 (2022), pp. 229–250, https://doi.org/10.1017/S0020818321000308. State control over state-owned enterprises (SOEs) is not necessarily absolute, however, and privately owned firms may also be responsive to the state. As William Norris observes, "China's economic statecraft is not limited to the realm of state-owned firms . . . [and] even among Chinese state-owned enterprises, there are instances in which the state is not able to control the behavior of commercial actors." William J. Norris, *Chinese Economic Statecraft: Commercial Actors, Grand Strategy, and State
nies involved in overseas port operations and investments are state-owned enterprises (SOEs). There are two main types of such firms: central SOEs and local SOEs.60 Of Chinese firms’ ninety-six ports abroad, SOEs have operational roles or ownership stakes in sixty-five of them (68 percent). The vast majority of these projects involve a central SOE; only eight solely involve local SOEs. The remaining 32 percent of PRC companies’ overseas ports feature only privately owned PRC firms, though their non-SOE status does not diminish other mechanisms of Party-state influence over their assets and activities.

Chinese firms hold majority ownership in the concessions for most of the international terminals in which they have equity stakes. A Chinese firm is the majority shareholder in at least one terminal at fifty-nine of the ninety-six ports (61 percent). Variation in terminal ownership is important because it affects the level of firm influence over port development and, typically, management of port operations. All else being equal, the larger the ownership stake, the greater the firm’s discretion to divert some commercial space toward developing, utilizing, and maintaining facilities that are suitable for PLAN or other noncommercial uses.61

Ownership typically entails a management or technical role for the firm in facility operations. A Chinese firm is directly involved in operations at one or more terminals in eighty (83 percent) of the ninety-six ports. Sometimes this involvement comes as part of a joint venture, and sometimes a firm is a wholly owned entity incorporated in either the host state or China. Involvement in port terminal operations means PRC company employees exercise discretion over which vessels may call under which circumstances. They oversee cargo movements, transshipment, and storage, and they manage sophisticated trade and commercial data collection to handle cargoes and vessels. In general, the firm holding an operating lease or concession will have primary authority over

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61. Such discretion would be evident, for example, in contracting with another Chinese firm to build a major airfield or road and rail links nearby or by maintaining specialized dry docks or warehousing.
the use of terminal space and equipment. Greater PRC firm operational control thus supports greater potential for military use of commercial terminals. The conditions of highest operational control occur when the PRC firm is the only operator at the port facility, which is the case at twenty-nine (30 percent) of the ninety-six ports. If no other firms are present at the entire port facility, the operator enjoys substantial discretion to use the piers, warehousing, and port equipment according to its preferences. While the commercial desirability of majority ownership and sole operation may vary depending on a firm’s financial and technical conditions, such positions provide higher levels of operational control that are more useful militarily.

The major PRC firms own and operate networks of port terminals (see table B in the online appendix). This networked quality is crucial for both commercial flows and the overall strategic value of these facilities. Coordination among multiple ports can sustain military operations across a given area. Such coordination is more readily achieved within a single company, which can directly manage port calls, pier space, warehousing, and other services across its terminal portfolio. Only three Chinese firms account for most of the country’s overseas ports: COSCO Shipping Ports, China Merchants Port (CMPort), and Hutchison Ports (Hutchison). These large firms, each a subsidiary of a larger enterprise group, own and operate one or more terminals at seventy-eight (81 percent) of the ninety-six PRC company ports. Each firm ranks among the world’s leading terminal operators, and each holds a port-folio that forms a global network in its own right. Additionally, each is integrated into its parent conglomerate’s assets and operations in merchant shipping, shipbuilding, ship and container leasing, finance, maritime insurance, and other industries rele-

63. Because non-PRC firms do not operate any terminals in these instances, this “whole port” operational role grants still further autonomy for the Chinese company to utilize port assets for commercial purposes, or to facilitate PLA or other official uses.
64. See online appendix table B. Of the ninety-six ports, we count each port only once, even if multiple Chinese firms own and operate (either separately or in partnership) individual terminals within a single larger port complex. For example, CMPort and COSCO operate one or more separate terminals in seven ports (Ambarli, Antwerp, Busan, Kaohsiung, Rotterdam, Singapore, and Zeebrugge).
65. COSCO and Hutchison were ranked first and second in 2017 and 2018, respectively, in overall container throughput, and CMPort was ranked seventh, despite initiating its overseas operations only in 2010. In equity-adjusted throughput volumes (i.e., accounting for the proportion of the terminal owned by the firm), Hutchison ranked second, COSCO was third, and CMPort was sixth. In 2019 and 2020, COSCO was first in overall container throughput, Hutchison was fourth, and CMPort was seventh. In equity-adjusted terms, CMPort was second, COSCO was third, and Hutchison was fifth. See Neil Davidson, ed., Global Container Terminal Operators: Annual Review and Forecast, Annual Report 2019 (London: Drewry Maritime Research, 2019), pp. 16–27; and Hadland, Global Container Terminal Operators, pp. 70–79.
vant to maritime trade and transport. Such vertical integration decreases the transaction costs and increases the managerial effectiveness of Party-state utilization or direction of firm assets. Notably, both COSCO and CMPort each hold substantial equity stakes in most of the local SOEs that own and operate ports abroad. This ownership effectively expands each of their portfolios and confers an additional degree of influence over the operations of a still wider network of international port assets.

Yet PRC firms' operational control of overseas port assets varies depending on the host state's jurisdiction. The particular provisions of a port concession stipulate varied permissible facility uses, lease terms and conditions, joint venture partner roles, public or private status of the local port authority, and harbor security arrangements. These technical factors are also subject to China's broader bilateral diplomatic and economic relations with the host state. Across jurisdictions, however, a terminal operator will generally have discretion to grant access for naval vessels seeking to call and to determine priorities for warehousing and storage, fuel and bunkering, and utilization of dry dock, medical, power, and other terminal facilities.

**Physical Capacity**

Specific shore facilities are required for a commercial port to be used for military purposes. In general, civil port infrastructure can fulfill limited, routine military demands for refueling and resupplying naval vessels with food, water, and basic goods readily available through commercial husbanding services. Some ports have dry dock and shipyard facilities that enable more complex ship repairs and maintenance. According to PLA logistics officers, however, more significant military use would require "combat-ready terminals" that feature RO-RO berths built at a higher standard than those used for passenger automobiles, a minimum 10-meter berth depth, assembly sites and

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67. COSCO holds 20 percent of Qingdao Port International Company, 11 percent of Beibu Gulf Port Company, and 15 percent of the Shanghai International Port Group (SIPG)—China's leading domestic port operator, which in 2021 began operating its first international port in Haifa, Israel. CMPort has 27 percent shareholding in SIPG, 27 percent in Modern Terminals Limited (a privately owned Hong Kong firm), 51 percent of Liaoning Port Group, 5 percent of Ningbo Zhoushan Port Company, and 2.4 percent of Qingdao Port International. Hadland, *Global Container Terminal Operators*, pp. 106–125.
68. Port concession documents are not publicly disclosed.
70. RO-RO berths that are unsuitable for heavy wheeled and tracked equipment will need to own and configure heavy-duty loading and unloading machinery that meets military specifications.
storage facilities greater than 120,000 square meters, cold chain storage for overseas replenishment, and high-quality service roads that can bear heavy equipment. Nearby airfields are also highly desirable to rapidly move personnel and equipment (even if at greater expense and smaller scale) in order to support military operations. We are unable to analyze all these requirements because publicly available data about them are limited. But it is evident that the full panoply of optimal military facilities is not available at the majority of PRC firms’ port terminals.

Party-state direction and subsidies are necessary for enterprises to properly construct ports, even domestic ones, that can support intensive military use. Firms’ independent demand for more exacting and expensive military specifications is low because commercial vessels and cargoes have different requirements. China’s ongoing civil-military integration program, detailed in the following section, includes efforts to build and maintain commercial ports to military specifications. Strong demand for pier space and other terminal facilities makes it unlikely that the Chinese military will regularly use the busiest commercial ports.

Even ports without dedicated military facilities have commercial infrastructure that make their occasional military use possible or desirable. Examples include approach channel and berthing space of the specific dimensions that major PLA surface vessels need to safely navigate to and berth at the port. The PLAN’s largest commissioned ship, the Shandong aircraft carrier, requires a

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74. These specifications include pier length, approach depth, berth draft, hardened facilities, heavy loading/unloading equipment, dry dock, munitions storage, medical facilities, reinforced RO-RO and roads, and a proximate airstrip of at least 3 kilometers. See Luo Xiang et al., “Minyong gangkou jianshe guanche guofang yaoqiu gongzuo yanjiu” [Research on the implementation of national defense requirements in the construction of civil ports], *Junshi jiaotong xueyuan xuebao* [Journal of Military Transportation Academy], Vol. 15, No. 11 (November 2013), pp. 6–10; Gu Yuyuan, Wang Ruiqi, and Li Zhiqiang, “Gangkou wuliu junmin ronghe tixi goujian yanjiu” [Research on building civil-military integration systems in port logistics], *Tantao yu yanjiu* [Discussion and Research], No. 10 (2018), pp. 105–107; and Zhang J., Zhang Z., and Zhou, “Zhong mei gangkou jianshe guanche guofang yaoqiu duibiao fenxi,” pp. 35–36.

75. Among the major international terminal operators, COSCO and CMPort have the highest rates of average terminal utilization levels across their portfolios. Davidson, *Global Container Terminal Operators*, p. 40.
According to our data, eighty-three (86 percent) of the ninety-six Chinese firm port terminals abroad meet this basic physical requirement. At other facilities that lack adequate pier space or safe approaches, anchoring a large vessel offshore and servicing it with smaller boats is possible, albeit inefficient and unsuitable for combat scenarios. Most commercial ports have latent potential to provide at least basic services to the entire PLAN fleet because of the large size of modern container and tanker vessels; however, the equipment used for these specialized commercial vessels is of less utility to warships. Nevertheless, some combination of several ports in a given area of operations is typically sufficient to fulfill most peacetime military requirements.

Organizational and Legal Mechanisms of State Influence

The Chinese Party-state’s capacity to utilize PRC firms’ commercial assets for military purposes is controversial and difficult to assess given a lack of reliable public information. Considering both formal and informal mechanisms by which such influence could occur, our analysis reveals a Party-state that retains singular control over the political-legal system and manages key levers of the economy to promote strategic goals. We identify multiple organizational and legal mechanisms by which China may coordinate or coerce its firms to serve state directives. But we cannot definitively conclude that the Party-state directed Chinese companies to acquire commercial port assets with the express intention of using them for military purposes. Notably, PRC firms’ expansion into port assets abroad preceded a number of the organizational and legal mechanisms that formally enable their dual use (see below and online appendix table A). This sequence supports a provisional assessment that centrally initiated efforts to extract military utility from PRC companies’ overseas port terminals are secondary to the largely commercial drivers of their initial acquisition.

At the organizational level, the Party-state can exercise influence over firms


and their assets through state ownership. SOEs are responsive to the state’s direction because it is their shareholder. Although the state can influence both privately owned and state-owned firms through mechanisms such as government subsidies, extra-legal control, and executives’ membership in political bodies, ownership remains a powerful lever of Party-state control. Ownership is an especially significant factor because Chinese firms’ overseas port assets are heavily concentrated in the portfolios of only three massive conglomerates, two of which are state-owned.

Of these “big three,” the central government owns both COSCO Shipping Group and China Merchants Group, the parent companies of CMPort and COSCO Shipping Ports. Of the two, COSCO is subject to greater Party-state influence because it is located in mainland China and belongs to a strategic industry that the government has designated for absolute state control.78 COSCO’s origin as a unit of the PRC Ministry of Transportation, with a monopoly on Chinese domestic and international shipping, further embeds it in the state’s bureaucracy.79 By comparison, the Hong Kong–based China Merchants Group is also centrally owned, but it is a step removed from direct state control.80 Hutchison, a privately owned enterprise also based in Hong Kong, exists even further down the spectrum of state ownership and control. All things being equal, the COSCO commercial network is the most easily leveraged for military power projection, though each of these three large firms own and operate some networked assets that satisfy all criteria.81

Executive appointment authority is another organizational mechanism of

78. “Guoziwei: guoyou jingji ying baochi dui qi ge hanye de juedui kongzhi” [SASAC: State-owned economy should maintain absolute control over seven industries], Xinhua she, December 18, 2006, http://www.gov.cn/jrzg/2006-12/18/content_472256.htm. COSCO’s principal business is shipping, which is among the seven industries designated in this PRC central government program.


80. SASAC has a separate internal classification for Hong Kong–based central SOEs, indicating the different status of these firms. SASAC, Zhongyang qiye jingying yeji kaohe zanxing banfa fudao jiangzuo [Guiding lectures on temporary measures for performance evaluation of central enterprises] (Beijing: Jingji kexue chubanshe, 2003).

81. Our analysis of PLAN port calls supports this assessment because the Chinese Navy has visited ten COSCO terminals (50 percent of the firm’s overseas portfolio) compared to only eight terminals each for both CMPort (25 percent of portfolio) and Hutchison (22 percent of portfolio). The particulars of each port call are not available, so it is possible that PLAN vessels made port calls at non-Chinese terminals at a given port. Some news reporting, however, included photographs that clearly show PLAN vessels’ port calls at COSCO facilities. See, for example, Chen Fawen, Li Yinchuan, and Wang Guanbiao, “Haijun di 33 pi huang biandui fangwen alabo llianhe quizhangguo” [33rd navy escort task force visits United Arab Emirates], Haijun xinwen [Naval News], February 4, 2020, http://www.81.cn/hj/2020-02/04/content_9731359.htm.
state influence. The logic is simple: control the leader, control the firm. In some enterprises, such as Hutchison, executive appointment authority is market-oriented, and boards of directors select executives without formal state participation in nominations, appointments, or approvals. For other firms, such as Chinese central SOEs, the state and/or Party organs can exert “personnel power” through their authority to select, assess, transfer, and remove top company leaders. These executives are themselves government officials and members of the political elite. For both COSCO and China Merchants Group—the parent companies of COSCO Shipping Ports and CMPort, respectively—the Central Organization Department of the CCP exercises appointment authority for the top executive positions (i.e., board chair, Party secretary, and general manager).

Joint and concurrent appointments further facilitate the state’s organizational influence over firms. Joint appointments occur when an individual holds top managerial and Party leadership positions simultaneously. The vesting of decision-making authority in a single person shortens the chain of command between the Party-state and PRC firms and decreases firm-level veto points to state directives. When joint appointments link top managerial and Party positions, they further blur the line between business and political affairs. Joint appointments can limit managerial independence by incentivizing managers to be more responsive to political priorities. Concurrent appointments, which occur when a company executive simultaneously holds positions in external political bodies, can also enable state influence.

Party committees are another way for the Party-state to influence a company’s decision-making and behavior. The CCP constitution requires any organization in China with more than three full Party members to form a Party committee. Inside companies, Party committees exist at every level, from the parent company down to subsidiaries. Party committees can shape corporate

84. In China Merchants Group, for example, Li Jianhong is both the chairman and the Party secretary.
85. For instance, Victor Li is both the chairman of Hutchison and a member of the Standing Committee of the Chinese People’s Political Consultative Conference.
86. For example, there are 206 Party committees in COSCO—from the parent company to the subsidiaries—and 36,064 Party members among employees. “Dangjian gongzuo” [Party building work], China COSCO Shipping Corporation Ltd. (Beijing: COSCO, accessed February 10, 2022), http://www.coscoshipping.com/col/col6863/index.html. CMPort and its parent company China Merchants Group also have Party committees. As a privately owned Hong Kong-based company,
behavior through their authority to discuss “major” decisions—including important operational matters or those involving national security—before they go to the board of directors for final determination. Under Xi Jinping, Party committees have assumed an expanded and formalized leadership role in corporate governance, including decision-making about international business.

Legally, China has enacted defense mobilization and transportation laws and regulations that directly authorize the use of privately held assets. PRC authorities have also acted to better integrate civilian assets in the transport sector into military planning by requiring Chinese firms to build and maintain infrastructure and workforces that can accommodate requests for military use. The National Defense Mobilization Law (“mobilization law”), National Defense Transportation Law (“transportation law”), and associated implementing regulations clearly express the Party-state’s intent to employ civilian assets for defense purposes.


87. This authority originated during the Jiang Zemin administration (1993–2002) with the concept of “three majors, one large,” which directed Party committees to participate in SOEs decision-making when it involved macro-level controls, national strategy, or national security (“three majors”), or if it touches on operational or managerial matters that are important or broad in scope (“one large”).


89. The mobilization law guarantees fiscal reimbursement to central and local budgets (art. 6) and further promises untold “rewards for citizens and organizations that have made outstanding contributions in national defense mobilization” (art. 7). Certain key construction projects are to be built to military standards (art. 23), designated jointly by the State Council and the Central Military Commission (art. 22), with the benefit of “subsidies or other preferential policies” (art. 24). Although lower-level authorities implement the law, its mandate is clear: “any organization or individual has the obligation to accept the expropriation of civil resources in accordance with the law” (art. 55). The law further enumerates legal liabilities for failure to cooperate (arts. 68–71).

90. Departments at central and local levels promulgate implementing regulations and rules. One such set of rules directs party organs to “organize concentrated learning and exchanges” with transportation industry firms and to “strengthen the consciousness of defense transportation obligations” among enterprises and citizens. Central Military Commission and State Council, General Office, “Guanyu xuexi xuanchuan guanche ‘zhonghua renmin gongheguo guofang jiaotongfa de
The 2017 transportation law defines military and state authority to determine when and how civilian assets are employed for national defense. The legislation and its implementing regulations obligate Chinese companies to provide logistical support for PLA forces at home and abroad, directing “large and medium-sized transportation enterprises to organize the construction of strategic projection support forces [i.e., civilian ships and aircraft carrying personnel and supplies for the PLA], strengthen strategic power projection capabilities, and provide effective support for the rapid organization of long-distance and large-scale defense transportation.” 92 The law mandates that “Chinese enterprises (and their overseas agencies) engaged in the international transportation business shall provide for the supply and support of ships, aircraft, vehicles, and personnel of China’s military operations.” 93 The law also stipulates mechanisms for PLA access and use of PRC firm assets in foreign jurisdictions. 94 Further, the law provides that “the military, if necessary, can station military representatives in relevant transportation enterprises.” 95 PLA personnel may therefore be embedded within PRC firms to coordinate firm-military interactions, manage PLA equipment and supplies on site, and even collect intelligence. While firms do not publicize such personnel appointments or uses of corporate assets, there are manifest legal grounds for such activities and a clear inferential basis for assuming direct, sustained PLA access to PRC firm networks.

The 2010 mobilization law establishes a system for state appropriation of civilian assets. The law “adheres to the principle of combining peace with war and combining military with civilians.” 96 This principle of integrating civilian and military functions and assets is to be implemented under the “unified leadership” of the CCP with the goal of “long-term preparation” and “orderly efficiency” in national defense mobilization. On a practical level, the law establishes a system for maintaining and transferring “strategic material reserves” from enterprises to the military, thus enabling state organs to task enterprises with storing, maintaining, and distributing military supplies at overseas facilities. Another provision stipulates that cooperating enterprises “shall enjoy tongzhi” [Notice on studying, promoting, and implementing the “PRC National Defense Transportation Law”], No. 58, June 14, 2017, arts. 2-3.

92. PRC National Defense Transportation Law, art. 36. On how the PLA employs civilian assets, see Kennedy, China Maritime Report No. 4, pp. 4–12.
93. PRC National Defense Transportation Law, art. 38.
94. Ibid., art. 38. The 2017 National Defense Transportation Law designates “state agencies stationed abroad” as responsible for coordinating with firms and “relevant state departments” to provide the “means of entry and exit of personnel, means of transportation, and goods required by Chinese enterprises” to support PLA operations.
95. Ibid., art. 40.
96. Ibid., art. 4.
subsidies or other preferential policies,” underscoring the material and political incentives (and disincentives) that the Party-state can apply to influence firm activities.

Other regulations and industry measures complement these pieces of national legislation. The Central Military Commission and the State Council issued standing defense mobilization regulations in 2003 expressly authorizing the utilization of civil transportation capacity. The State Council amended these regulations in 2011 and 2019 to include more detailed and actionable measures for military utilization of civilian port, airport, rail, and road facilities.97 Civilian leaders must invoke these authorities, but the regulations contain no stipulations that permit enterprises to deny military requests, even in peacetime. Other long-standing legislation confirms this authority: “The State may, in light of the need of mobilization and according to law, requisition the equipment, installations, and means of transportation and other material of organizations and individuals.”98

Even if PRC firms will not profit financially from allowing the military to use their scarce pier time, supplies, or warehouse space for noncommercial purposes, they are legally obliged to do so. The upshot of these legal measures is that “as long as there are Chinese companies, there will be a forward transportation support point for warships,” according to Deng Xianwu, captain of a PLAN amphibious transport dock vessel.99 Whether enthusiastically or grudgingly, industry groups such as the China Port Association have proposed mechanisms by which the military can use port assets more efficiently.100 Acc-


99. This amphibious transport dock vessel moves vehicles, equipment, and personnel from ship to shore and is thus a key platform for potential PLA expeditionary operations. Gao Zhiwen, “Zhongguo zhanjian kao guowai gangkou shixian yi zhan shi fuwu, zhong qi bang da mang” [Chinese warships rely on foreign ports to provide one-stop service, with major help from Chinese enterprises], Zhongguo jun wang [China Military Online], September 30, 2016, http://mil.news.sina.com.cn/china/2016-10-01/doc-ifxwkzyh4035253.shtml.

100. For example, Secretary General of the China Port Association, Ding Li, suggests a “Belt and Road national port liaison mechanism” (Yidai yilu guofang gangkou lianluo jizhi) joining Party, state, and military leaders in a committee to coordinate policy and promote security for Chinese company port terminals overseas. Ding Li, “Yi gangkou wei zhanlue zhidian shuxie 21 shiji haishang sichou zhi lu jianshe xin pianzhang” [Writing a new chapter in the construction of the 21st Cen-
According to PLA analysts, any Chinese military activities in foreign countries are predicated on strong civilian and commercial presence and cooperation: “We should place civil affairs and economics front and center. We must mix the military among civilians and use civilians to conceal the military.”101 Rather than raise international threat perceptions with overt shows of military presence, the PLA may opt to embed plainclothes personnel into PRC firms and use nominally commercial warehousing, communications, and other equipment to quietly meet military needs.

Recent organizational changes in the Chinese military better prepare PLA units to directly employ civilian assets. The ongoing national program of “military-civilian fusion” aims to fully integrate civilian technologies and assets into military modernization.102 The 2017 establishment of the Central Commission for Integrated Military and Civilian Development, a standing CCP body with authority and resources to direct commercial activity in this domain, is one example of several major organizational moves involving the PLA that are driving this integration. The PLA itself has also adopted a variety of organizational reforms to enable it to better “fuse” with civilian assets, such as the 2016 establishment of a National Defense Mobilization Department (“mobilization department”) and Logistics Support Department (“logistics department”).103 Elevated to the central level, these commands better position...
the PLA to formulate and implement “top-level design” of a coordinated system for developing and maintaining civilian assets for military use. The upgraded logistics department has assumed greater leadership of domestic and overseas facilities management and international military engagement. Recognizing the strengths of China’s commercial transport infrastructure, this new PLA department is “outsourcing logistical support to the civilian sector wherever operationally feasible.” The defense mobilization regulations cited above authorize these military organizations to engage directly with enterprises to utilize their overseas assets under defined conditions. The small number of firms that own and operate most of China’s overseas port facilities simplifies the PLA’s organizational task of finding civilian capacity and integrating it into defense mobilization planning and military logistics.

Examples of crisis response in other issue areas affirm the Chinese Party-state’s ability to direct firm behavior. In 2015, Chinese leaders arrested extreme volatility on domestic stock exchanges in part by prohibiting SOEs from selling shares for six months. In 2019, China directed SOEs to support social stability during protests in Hong Kong by boosting investment and strengthening control over assets there to increase employment and calm financial markets. Most recently, Chinese leaders have leveraged SOEs to coordinate the national response to the COVID-19 pandemic by providing emergency relief, building hospitals, ensuring food supplies, developing treatments and vaccines, and coordinating the resumption of industrial production. Given the key role of central SOEs, particularly in China’s defense industry and other
strategic sectors, the government would predictably turn to these firms during international security crises such as inter-state war, internal conflicts, or natural disasters.

**Security Implications and Strategic Intentions**

Chinese naval forces already employ PRC firms’ port network abroad to project military power without the more costly and visible footprint of permanent bases. The PLAN regularly visits overseas ports, including Chinese company owned and operated facilities, and it conducts military exercises with a growing array of host states. The growing scope and sophistication of PLA operations abroad is a source of considerable concern for many foreign states, which interpret the PRC’s ostensible efforts to “protect China’s overseas interests” as a direct or indirect security threat. Whether or not China’s emerging power projection is intended defensively, the security dilemma it generates risks spiraling tensions that are especially acute between the United States and China.110

**INCREASED SCOPE AND INTENSITY OF GLOBAL MILITARY OPERATIONS**

The PLAN’s operations are swiftly expanding beyond the Indo-Pacific and into the Atlantic and polar regions.111 Doing so without a network of bases, the force’s logistics requirements depend on intensive use of commercial port facilities overseas. The PLAN has made one or more calls to refuel, resupply, and “show the flag” for diplomacy in at least one-third of PRC companies’ overseas ports, 69 percent of which (twenty-two of thirty-two) hosted their first PLAN port call after 2012. In at least nine ports, PLAN warships have undergone significant repairs or maintenance for vessels and equipment by making a “technical stop.”112 All these technical stops have occurred since 2017 and only on the route from China across the Indian Ocean and into the Mediterranean—the PRC’s “lifeline SLOC” (see figure 2 and online appendix table B). Given this trend toward more intensive use of commercial facilities and the active efforts to “fuse” the military with civilian capacity, this pat-

112. These ports are Alexandria (Egypt), Colombo (Sri Lanka), Dar es Salaam (Tanzania), Port of Djibouti (Djibouti), Piraeus (Greece), Port Klang (Malaysia), Singapore, Tanjung Priok (Indonesia), and Valencia (Spain).
tern will likely expand to many of the other sixty-four ports for which there is no publicly documented PLA visit. Chinese military ships have already called in all but four of the fifty-three countries in which PRC companies’ port assets are located. This pattern suggests that the presence of Chinese firms in a state’s ports and logistics sector may increase the likelihood of a PLAN visit, even if PRC firms do not own or operate the specific terminal at which the ship calls.¹¹³

The operational routines developed during PLAN visits facilitate the use of PRC firms’ commercial terminals overseas if future crises or conflicts erupt. Ever since the deputy chief of the PLAN Operations Department declared in 2010 that “Chinese enterprise facilities in overseas ports are the next step in building an overseas support system,” the PLAN has increased its focus on these assets.¹¹⁴ Although few open sources discuss pier-side activities, Chinese media reports and official press releases confirm that naval vessels and personnel routinely visit PRC firm owned and operated ports and use their infrastructure to refuel, resupply, and conduct limited repairs. During such visits, PLA personnel interact with Chinese and local service providers, inspect facilities (including fuel, water, power, and airfield infrastructure), and build local knowledge and relationships. This interaction could aid PLA coordination of logistics and other needs during future overseas operations.

The PLA almost certainly collects intelligence and conducts surveillance from overseas commercial ports. Although open sources do not detail intelligence operations, terminal operators routinely document valuable and unique information about port facilities and activities.¹¹⁵ Chinese firms and state entities lead the development of sophisticated logistics data management systems for tracking ship routes, cargoes, and personnel.¹¹⁶ Some PLA analysts even

¹¹³ Those four countries with a PRC firm owned or operated terminal but without a documented PLAN visit are Jamaica, the Bahamas, Taiwan, and Iraq.
¹¹⁵ In routine business, terminal operators observe the callings of ships (including those of foreign navies), their fuel and matériel requirements, the contents of their cargoes, the names of personnel, and their origins and onward destinations. Depending on where dry docks and other facilities are located and how they are utilized, a terminal operator may also observe problems with foreign ships, including their repairs and maintenance. These and other potential observations all provide useful data for both commercial and military intelligence purposes.
¹¹⁶ The LOGINK platform “is a public logistics information service network led by the PRC Ministry of Transportation and the National Development and Reform Commission.” “Guojia tongyunshu wuliu gonggong xinxi pingtai: pingtai gaikuang” [PRC national transportation logistics public information platform: platform overview], LOGINK, n.d., http://www.logink.cn/col/col38/index.html. LOGINK was recently accepted as an international standard and incorpo-
explicitly mention technical collection methods from commercial ports, indicating that such intelligence activities are likely already occurring. For instance, signals intelligence and other sensors or equipment may be discreetly placed in PRC firms’ port terminals abroad, or PLA or intelligence personnel may be embedded in PRC firms’ staff.

NEW OVERSEAS INTERESTS AND MILITARY MISSIONS

The PLA’s growing intent and capability for power projection is unsurprising given the global scope of PRC economic and political interests. Officially, the “security of overseas interests concerning energy and resources, strategic sea lines of communication, as well as institutions, personnel and assets abroad” is an explicit “strategic task” for the PLA. According to China’s 2019 Defense White Paper, the PLA is actively “developing overseas logistical facilities” to “address deficiencies in overseas operations and support” for contingencies including “overseas evacuation.” Crises requiring the rapid rescue of Chinese citizens from dangerous locations provide one reason for an increased military presence overseas. A lack of overseas bases, together with long-standing deficiencies in strategic lift capabilities to deliver PLA forces in time and at scale, constrain the PLA’s capacity to conduct such operations effectively. These acknowledged shortfalls motivate Chinese military planners to...

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117. See, for example, Zheng Chongwei et al., “Jinglüe ’21 shiji haishang sichou zhi lu’: zonghe yingyong pingtai jianshe” [Strategically manage the 21st Century Maritime Silk Road: Comprehensive use of platform construction], Haiyang kaifa yu guanli [Maritime Development and Management], No. 2 (2017), pp. 52–57; and Zhu Dangming and Qin Daguo, “Haitian yiti zhanchang tongyong taishi tu gujian” [Construction of a sea and airspace battlefield situational map], Zhuangbei xueyuan xuebao [Journal of the PLA Equipment Academy], No. 2 (2017), pp. 46–51.

118. SCIO, China’s Military Strategy.


seek fuller utilization of commercial ports to execute their mission to protect China’s overseas interests. 122

Chinese strategists and officials are aware of how other states use maritime power to mitigate threats to their overseas interests. They cite Great Britain and the United States as evidence of how control over vital maritime passages, facilitated by regional basing arrangements, enable a state to pursue and defend its interests abroad. 123 In particular, PRC leaders today view U.S. maritime dominance as a primary security threat. The U.S. Navy’s long-standing intent to control the globe’s “sixteen vital chokepoints” raises particular concerns for China. 124 “In seeking to control them in peacetime,” explains a leading PLAN analyst, “the U.S. is in reality creating for itself an advantageous strategic situation. In wartime, it would be able to ensure at fairly small cost that the U.S. and its allies could use the ocean without impediment while preventing the enemy from doing so.” 125 PRC firms’ dominant international port network also builds resilience against possible U.S. coercion by fostering dynamics of economic dependence that favor China. 126 Specifically, China’s power position in global ports conceivably provides the PRC with retaliatory coercive capabilities of its own through delaying, degrading, or otherwise disrupting the maritime trade flows of other states or regions.

Although China has established one military base in Djibouti and will likely try for more, intense international pushback makes it unlikely that it will successfully develop a large, global base network. Some states will interpret any Chinese basing expansion efforts as aggressive and are likely to take corresponding military and political countermeasures. For example, Chinese analysts expect that overt militarization of China’s commercial presence in Pakistan would prompt India to balance aggressively against China, moving from nonalignment to alignment with the United States. 127 Establishing bases

122. SCIO, China’s National Defense in the New Era.
123. One article on “maritime strategic channels” by Liang Fang discusses the U.S. Navy’s focus on chokepoints and their fundamental importance to sea power. In it, she criticizes “America’s overreliance on force to control maritime strategic passages” and suggests that China can achieve some of the same strategic benefits without overseas bases. Liang Fang, “Meiguokongzhi haishang zhanlue tongdao de lilun shijian yu qishi” [Theory and practice of U.S. control of maritime strategic passages and lessons for China] Zhongguo haiyang daxue xuebao (shehui kexue ban) [Journal of China Ocean University (Social Science Edition)], No. 5 (2019), pp. 39–46.
125. Ibid.
127. For example, see Xue Guifang and Zheng Jie, “Zhongguo 21 shiji haiwai jidi jianshe de xianshi xuqu yu fengxian yingdai” [China’s overseas basing: Necessities and risk response in the
and deploying PLA capabilities to foreign states would likely trigger local countermeasures. For example, the United States might make additional navy deployments, retarget its theater and anti-ship missile capabilities, and expand its antiaircraft batteries.\[128\] The wider political impact of an observed militarization of Chinese facilities overseas would be damaging for the Belt and Road Initiative, and it would contradict China’s narrative of peaceful development.

Building a global network of overseas bases is even less appealing for China because an attractive alternative is available. Chinese companies’ large holdings of commercial assets abroad in critical infrastructure, especially ports, can support logistics, intelligence, and other military missions cheaply and without the geopolitical consequences that dedicated overseas bases would trigger. PLA strategists recognize that PRC firms’ infrastructure portfolios such as ports offer a strategic opportunity for the Chinese military to achieve security objectives without formal bases. PLA logistics officers even argue that China’s networks overseas “create opportunities for firms to participate in or service military operations and provide a platform for the military to leverage the power of businesses.”\[129\] These officers advise the PLA to “use market economic means, and adopt commercial contracting methods to give full play to the advantages of China’s overseas enterprises by sharing their equipment and thereby materially guaranteeing that our military can conduct overseas military operations.”\[130\] Capacity available elsewhere may offset the potential deficits of any individual terminal, as long as other ports in the network offer necessary facilities. Table 3 summarizes PLAN activities and the attributes of PRC companies’ ports that support various military uses.

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130. Ibid., p. 25.
Conclusion

This article analyzed China’s demonstrated ability to use its firms’ overseas commercial port assets for military functions. As essential nodes in the global transport of goods, ports serve a vital military purpose by undergirding the logistics that enable the PLA to project power regionally and globally. To evaluate the international security implications of China’s global port expansion, we mapped and assessed the portfolios of all PRC firms that own and operate terminals overseas. Although the Party-state has varying ties with each global port conglomerate, it possesses multiple organizational and legal mechanisms of influence over all of them. The attributes and distribution of these ports, and the Party-state’s institutionalized influence on the PRC firms that own and operate them, allow the PLA to use this network for military operational and strategic purposes.

As China joins the ranks of great powers pursuing commercial and military advantage across the seven seas, the potential for this networked mode of power projection looms ever larger. We have argued that assessments of state power projection capability centered on overseas military bases are incomplete. Our findings suggest that China can project substantial naval power beyond its borders without developing a large, global network of military bases. The PLA already has a track record of using Chinese commercial port facilities for logistics and likely also for intelligence functions. Chinese military officials and analysts indicate that such utilization will continue and expand in scope and sophistication. Such power projection can be understood as China’s next-best solution: electing to use the substantial assets it already has (i.e., commercial ports) rather than seeking to build the worldwide military base network that PLA planners might prefer.
China’s capability and evident willingness to project power from its firms’ burgeoning port network is already reshaping the international security environment. Chinese companies now own and operate ports across every major region and waterway, and control over these assets is highly concentrated among a few key players that are subject to multiple mechanisms of Party-state influence. Chinese firms’ rapid expansion in the global port industry creates the conditions for embedding China’s military capability within non-Chinese, nonmilitary settings around the world. Yet few states have been willing to block PRC firms from operating or acquiring maritime assets, despite evident security externalities. Neither just one nor several states can sharply limit the power projection capability that PRC firms’ overseas port assets enable. There is neither a single node in this distributed, decentralized network that uniquely produces its coercive capabilities, nor any one that can be taken off-line to undermine its overall functioning.

While analysis of power projection typically only addresses combat power, peacetime functions like logistics and intelligence are fundamental military missions that underpin wartime activities. Chinese companies’ control over international port assets in wartime or other crisis scenarios remains incomplete and vulnerable to foreign military and host state action alike. A host state could seize, nationalize, suspend, delay, or even stop operations at Chinese firm port facilities. Changing governments and geopolitical circumstances present distinct risks, especially given the PRC’s lack of formal military alliances and status of forces agreements. In addition, multiple operational measures could quickly limit a commercial port’s utility: Mining or scuttling a vessel in an approach channel could render an entire port inoperable, while striking nearby transportation infrastructure would limit support and supplies from inland roads and airfields. Technical challenges further limit the PLAN’s ability to fully service military vessels in many commercial ports (particularly in specialized and automated container facilities), while lack of force protection and hardened facilities makes civilian anchorages more susceptible to direct strikes.

China’s leadership can still use PRC firms’ transnational network of assets for coercive purposes in peacetime competition. Although such nonmilitary “weaponization” remains largely hypothetical, Chinese firms’ ascendance in global maritime trade and transportation creates the latent capacity for it. For example, China is uniquely positioned to exploit U.S. supply-chain vulnerabilities.131 In April 2020, Xi Jinping instructed the CCP Central Financial and
Economic Affairs Commission to “tighten the dependence of the international industrial supply chain on China and form a strong counter-measure and deterrent capability for outsiders to artificially cut off supply.” Without meaningful U.S. ownership or control of the ports, shipping, manufacturing, and logistics underpinning the global maritime trade and transport network, flows of goods vital to U.S. economic health and military capabilities are at risk of disruption. PRC firms’ dominant network position affords the Party-state a range of options apart from military power projection to delay, degrade, or otherwise impede such critical flows of goods, using plausibly deniable commercial disruptions (i.e., denying port calls, misdirecting cargoes, delaying or halting terminal operations). The COVID-19 pandemic further accelerated efforts in China to exert greater control over supply chains and their maritime links, and it exacerbated existing U.S. vulnerabilities in this domain.

Other states that have firms with internationally distributed, large-scale transnational networks of commercial assets are unlikely to use them for overseas power projection. For example, Dubai Ports World is a subsidiary of the United Arab Emirates’ state-owned Dubai World and owns and operates terminal assets in fifty ports worldwide. Port of Singapore Authority, another state-owned firm, owns and operates terminals in forty ports worldwide and ranks second behind COSCO in global container throughput. Among privately owned firms, Japanese global port operators (NYK Line, Mitsui O.S.K. Lines, and Kawasaki Kisen Kaisha, Ltd.) and the Korean shipper HMM Company are part of large industrial conglomerates with diverse assets across the transportation sector. These firms’ networks of overseas commercial ports meet most of the basic conditions for power projection (see table 1), but their home states do not evidently possess geostrategic interests motivating such use. Chinese leaders’ perception of mounting threats to overseas interests

135. Ibid., p. 86.
currently renders China the only plausible user of this networked form of power projection.

Future research could analyze the potential and limits of power projection involving other transnational commercial networks, both within and beyond the maritime domain. In the telecommunications industry, for example, the Chinese firm Huawei has already raised concerns that its 5G hardware could be used to collect intelligence, surveil, or otherwise pose security risks. Like global ports, the distributed nature of telecommunications networks and their large, redundant scale facilitate their utilization by the state for military and surveillance purposes. In addition, empirical analysis of the contracts and leases governing individual port operations would illuminate the prior agreements that may govern PLA use of overseas commercial port facilities in the event of a conflict or crisis. Regardless of what those closely held arrangements may be, the observed network already creates new and expanded capabilities for China’s peacetime projection of military power.