EXHIBIT 15

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Staff Research Report

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China's Banking Sector Risks and Implications for the United States

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Executive Summary

Banks are the dominant players in China's financial system, but they are also a source of systemic risk as China's growing debt burden is concentrated on their balance sheets. While Chinese banks appear similar to their U.S. counterparts, there is a key difference: they remain beholden to and supported by the state. This makes them operate in fundamentally different ways than U.S. banks. Despite four decades of promised liberalization, the Communist Party-state retains the ability to intervene decisively in the banking system to achieve desired outcomes. However, the government's efforts to control and direct the financial system have also limited the growth of direct financing channels such as stock and bond markets, leaving banks as the main providers of credit in China's economy and, thus, indispensable. Beijing has consequently been forced to bail them out on several occasions.

Beijing's focus on maintaining stability and control warps market incentives by encouraging investors, creditors, and depositors to evaluate a bank based on its likelihood of receiving government support if there is a risk of insolvency rather than on its individual fundamentals. Banks themselves follow the same logic and prefer to lend to companies that enjoy explicit or implicit government support. Thus, the subordination of banks' commercial objectives to political priorities distorts credit allocation and undermines the development of a professionalized financial system based on market fundamentals.

The giant stimulus Beijing deployed during the 2008–2009 global financial crisis prompted banks to engage in a decade of risky expansion. This has left them without sufficient capital to cover foreseeable risks and saddled them with large volumes of nonperforming loans (NPLs). Regional banks, restricted to serving a specific province or metropolitan area, were the most aggressive and borrowed heavily from larger nationally licensed banks to fund their expansion. In late 2016, financial regulators belatedly recognized the severity of these risks and initiated a cleanup campaign. Nevertheless, liquidity risks erupted in dramatic fashion in 2019, first with the Baoshang Bank bailout in May and followed by problems at other regional banks. The scale of the problem will require an extended period of unwinding characterized by slower growth. The probability of additional isolated bank crises remains high. Meanwhile, the outbreak of the novel coronavirus (COVID-19) has complicated this effort by straining companies' financials and damaging their ability to repay loans. Banks now face renewed pressure from the government to extend extra support to struggling companies even as they face a possible spike in new NPLs, compounding existing capital shortages and liquidity problems.

To cope with a changing economic and policy environment, many banks have turned to consumers to drive continued growth. Here, too, significant headwinds are emerging. As tracked by the Bank for International Settlements, households in China borrowed faster than in any other country over the last decade, and they are beginning to reduce consumption to pay down their debt. Moreover, not all banks are equally equipped to take advantage of the rise in consumer borrowing. Financial technology (fintech) companies, which collect large volumes of consumer data and offer attractive alternatives to standard bank deposits, present a further challenge to bank profitability. Regional banks, the weakest link in China's banking system, are especially poorly positioned to attract new retail customers.

Despite the challenges facing Chinese banks, observers should be cautious about predicting an imminent financial crisis. Beijing has demonstrated capacity and willingness to intervene as necessary to prevent bank collapse. Yet its capacity to do so more broadly, especially amid the unprecedented global shock of COVID-19, remains untested. Further, such individual bank interventions are intrinsically market distorting and may exacerbate problems in the future. In some cases, government bailouts hurt the value of assets held by U.S. investors, whose interests are secondary to the Chinese government's need for stability. The fate of Chinese banks is also of growing relevance to the United States because Beijing has slowly expanded market access for foreign financial companies and portfolio investors. Through their investment or retirement accounts, individual U.S. savers are increasingly likely to have exposure to China's financial markets, own equity in Chinese banks, and acquire Chinese NPLs. U.S. investors thus have a growing stake in China's financial system and all its unattenuated economic and political risks. This is an important issue for policymakers to assess.

Introduction

Over the past decade, China's banking sector has grown fourfold from $10.2 trillion in 2009 to $41.6 trillion at the end of 2019 and is now the world's largest.* [1] However, this expansion was not matched by commensurate economic growth during the same period. China's gross domestic product (GDP) increased by only $9.2 trillion between 2009 and 2019, and the pace of growth slowed significantly, already hitting a 29-year low before the COVID-19 pandemic.[2] This mismatch between bank-sector expansion and decelerating growth reflects decreased efficiency in the allocation of financial resources as new credit generates diminishing economic returns. Behind China's significant corporate debt burden is a mountain of bank loans, a significant portion of which are backed by opaque, high-risk assets. Beijing's current regulatory approach to the financial system can largely be understood as an attempt to reduce the threat these risky assets present to overall financial stability while keeping borrowing sufficiently high to stimulate growth. This report reviews the structure of China's banking sector and the causes of its current challenges. It then assesses recent regulatory efforts to curb risky lending, offload bad assets, and recapitalize banks. It concludes by examining China's booming retail banking market and analyzing the implications of China's banking policies for the United States.

Structural Overview

Composition of China's Banking System

On the surface, China possesses a well-developed and diverse financial system. As of January 2020, the Shanghai and Shenzhen stock exchanges had a combined market capitalization of $8.5 trillion, making China the second-largest equities market in the world after the United States.[3] In addition to banks, a wide range of financial institutions—including brokerages, financial leasing companies, trust companies, fintech companies, etc.—are active in China's financial market. Despite this apparent diversity, commercial banks† overwhelmingly dominate China's financial sector, accounting for more than 80 percent of all assets held by Chinese financial institutions and provided 67.8 percent of all credit to the economy in 2019.‡ [4] Moreover, although there are over 4,000 commercial banks,§ the six largest state-owned banks—Industrial and Commercial Bank of China (ICBC), China Construction Bank, Bank of China, Agricultural Bank of China, Postal Savings Bank of China, and the Bank of Communications—hold 47 percent or $15.9 trillion of all commercial bank assets (see Figure 1).[5] These are followed by 12 national joint-stock banks,** which hold an additional 21 percent of total commercial bank assets.[6] There are also a multitude of regional banking institutions with various ownership structures, including 134 city commercial banks, around 1,400 rural commercial banks, and thousands of rural credit cooperatives.

* Other countries' banking systems also expanded during this period. For example, between January 2009 and December 2019, total U.S. commercial bank assets grew from $12.3 trillion to 17.8 trillion, while those of Japan grew from $8.9 trillion (804.6 trillion yen) to $10.4 trillion (1129.5 trillion yen) over the same period. However, the speed and scale of China's credit expansion was far greater than that of other countries and was unprecedented in modern history. See Dinny McMahon, *China's Great Wall of Debt: Shadow Banks, Ghost Cities, Massive Loans, and the End of the Chinese Miracle*, Houghton Mifflin Harcourt, 2019, 31; FRED, Federal Reserve Bank of St. Louis, "Total Assets All Commercial Banks." *https://fred.stlouisfed.org/series/TLAACBW027SBOG*; Bank of Japan, "Assets and Liabilities of Domestically Licensed Banks." *https://www.boj.or.jp/en/statistics/asli_fi/index.htm/*.

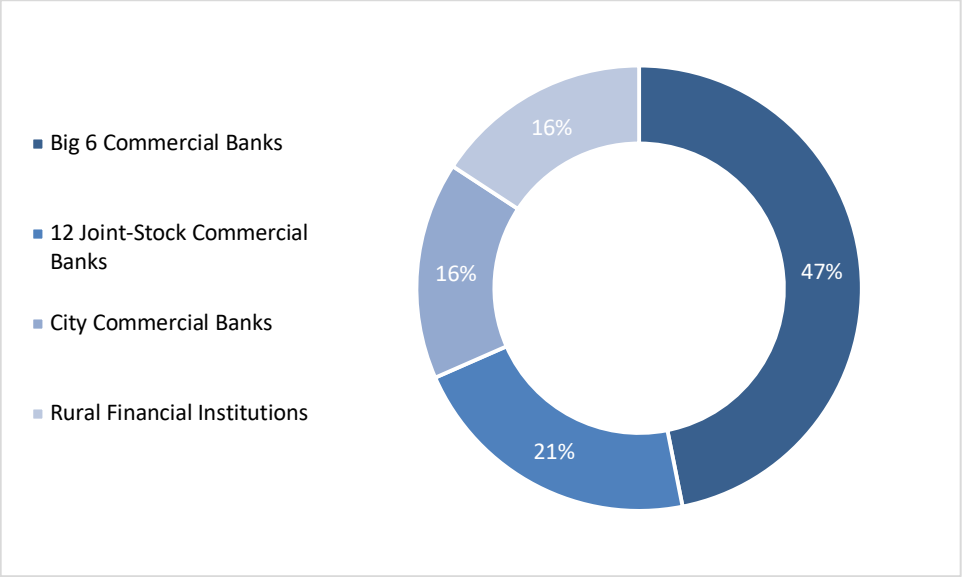
† The use of the term "commercial banks" in this report does not imply that such banks operate according to free-market principles. Commercial banks—as opposed to investment banks and policy banks—here refers simply to banks that accept deposits from individuals or corporations; make business, consumer, and mortgage loans; and provide checking account services. Commercial banks primarily earn a profit from the spread between the interest rates they pay to depositors and those they receive on loans they have extended. They also collect fees for certain services they provide, such as credit card transactions and currency exchange. The consumer-oriented portion of a commercial bank's business is called retail banking.

‡ This figure includes only formal bank loans. If off-balance-sheet shadow loans are included, then the percentage would be higher.

§ This number includes rural credit cooperatives: financial institutions that provide the same services as commercial banks to rural communities, where the larger commercial banks do not have a physical presence.

** The shareholders of these joint stock—or shareholding—banks are corporations. Unlike the big six banks, these are not necessarily wholly state owned, but the government often has a strategic or controlling interest through state-owned investment or holding companies. The 12 national joint-stock banks are China Merchants Bank, Shanghai Pudong Development Bank, China Citic Bank, Hua Xia Bank, China Everbright Bank, China Minsheng Bank, Industrial Bank (distinct from ICBC), China Guangdong Development Bank, Ping An Bank, China Zheshang Bank, China Bohai Bank, and Hengfeng Bank. See Sun Guofeng, "Banking Institutions and Banking Regulations" (draft) in Marlene Amstad, Guofeng Sun, and Wei Xiong, eds., *The Handbook of China's Financial System* (forthcoming in Princeton University Press), 12. *https://www.chinafinancialsystem.com/chapters/*.

Figure 1: Chinese Commercial Bank Assets by Bank Type, December 2019



Note: This figure includes the assets of rural credit cooperatives, which largely perform the same function as commercial banks but are not counted in the aggregate commercial bank asset figure published by the China Banking and Insurance Regulatory Commission's (CBIRC).
Source: China Banking and Insurance Regulatory Commission via CEIC database.

In addition to commercial banks, China also has three national state-owned policy banks: China Development Bank, Export-Import Bank of China (Exim Bank), and Agricultural Development Bank of China. The Chinese government does not publish disaggregated figures for the policy banks' assets, but the three banks' most recent annual reports reveal that their combined assets equaled about $4 trillion at the end of 2018.[7] The three policy banks were established as part of a restructuring effort in 1994 to separate commercial and policy financing functions, with each bank charged with specific policy domains. For example, China Development Bank was formed specifically to finance domestic and international development projects, while the Exim Bank provides financial services for importers and exporters.[8] The existence of separate policy banks does not mean China's commercial banks are nonpolitical enterprises. The central government, as well as regional and local governments, regularly influence the lending decisions of commercial banks by issuing policy directives or through informal dialogue known as "window guidance."[*] [9] This subordination of banks' commercial objectives to political priorities distorts credit allocation and undermines the development of a professionalized financial system.

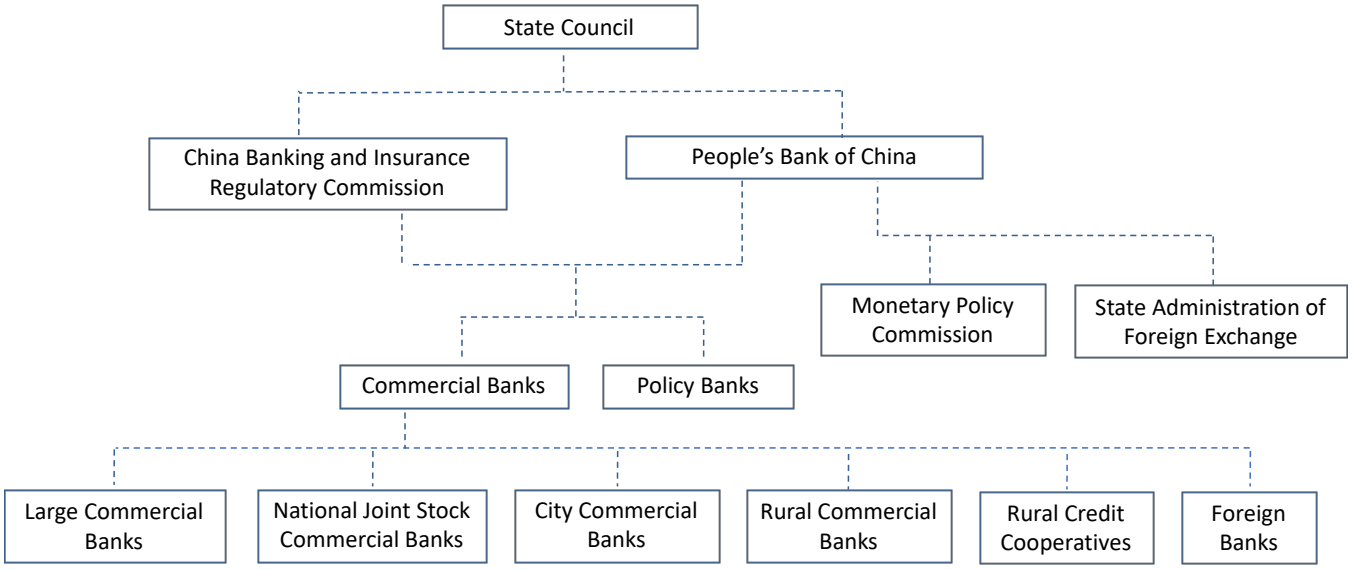
Policy and Regulatory Oversight

The two main regulatory authorities responsible for overseeing China's banking system are the People's Bank of China (PBOC) and the China Banking and Insurance Regulatory Commission (CBIRC). The PBOC is China's central bank and, similar to the Federal Reserve System in the United States, is tasked with setting monetary policy and maintaining stability in the financial system.[10] Although the 1995 Law of the People's Bank of China mandates currency stability as its key monetary policy objective, in practice the PBOC pursues several high-level goals simultaneously. These include maintaining price stability, supporting economic growth, ensuring employment, maintaining stability in China's balance of payments, and promoting financial reform and financial market development.[11]

[*] Window guidance is an unconventional method of conducting monetary policy in which authorities seek to influence banks' lending volumes through dialogue and "moral suasion" rather than through legislation or formal regulations. See Georgina Lee, "China's Biggest Banks Well Prepped on Nonperforming Loans, Ready for Stricter Reporting Standard," *South China Morning Post*, May 15, 2019. *https://www.scmp.com/business/article/3010372/chinas-biggest-banks-well-prepped-non-performing-loans-ready-stricter*; Stefan Angrick and Naoyuki Yoshino, "From Window Guidance to Interbank Rates: Tracking the Transition of Monetary Policy in Japan and China," *Bank of Finland Institute for Economies in Transition*, 2018, 1. *https://helda.helsinki.fi/bof/bitstream/handle/123456789/15212/dp0418.pdf;jsessionid=E48CC5018DB01891C2A27F2BD740B5CF?sequence=1*.

A critical difference between the PBOC and the U.S. Federal Reserve System is that it does not have the same degree of institutional independence. The PBOC is subordinate to the State Council (see Figure 2)—China's highest administrative authority—and must submit "decisions about money supply, interest rates, exchange rates and other specified important matters" to the State Council for approval before implementing them.[12] The PBOC must therefore formulate monetary policy in coordination with other government agencies and is ultimately answerable to the political will of the Chinese Communist Party (CCP).

Figure 2: Oversight Structure of China's Financial System



Source: Created by Commission staff.

The CBIRC is the successor institution to the China Banking Regulatory Commission (CBRC), which existed from 2003 to 2018 and then merged with China's insurance regulator during a government-wide bureaucratic overhaul at the 13th National People's Congress in March 2018. The CBRC was originally created to take over supervisory and regulatory functions of the PBOC for banks and some nonbank financial institutions (NBFIs)* in China.[13] The CBIRC retains many of these powers, such as drafting and promulgating rules and approving the creation of financial institutions. However, following the March 2018 reorganization, the PBOC largely regained control of regulatory policy development as the CBIRC's role was narrowed to that of a supervisory institution to oversee banks and insurance companies.[14]

Under the leadership of General Secretary of the CCP Xi Jinping, financial policymaking has become increasingly integrated and directly subordinate to the Party. In 2017, the State Council established a Financial Stability and Development Committee (FSDC) to coordinate across different agencies and ensure that monetary, fiscal, and financial policy are better aligned.[15] The committee includes representatives from the PBOC, CBIRC, China Securities Exchange Commission, National Development and Reform Commission, and National Council for Social Security Fund. It is chaired by Vice Premier Liu He, General Secretary Xi's top advisor on economic issues.[16] Vice Premier Liu has a close personal relationship with General Secretary Xi and also heads the general office of the Central Leading Small Group on Financial and Economic Affairs, a Party coordinating body.[17] Thus, the FSDC represents a parallel structure concentrating power in the hands of General Secretary Xi's trusted lieutenant and bypassing Premier Li Keqiang, who retains formal authority over financial policymaking as head of the State Council.

* The CBIRC's Non-Bank Inspection Bureau performs onsite inspections and evaluations of insurance companies, trust companies, and other financial companies. The Non-Bank Department handles market entry and offsite stress testing for financial asset management companies, corporate group finance companies, financial leasing companies, auto leasing companies, consumer finance companies, currency brokerages, and other financial institutions. China Banking and Insurance Regulatory Commission, *Non-Bank Inspection Bureau* (非银检查局). *http://www.cbirc.gov.cn/cn/view/pages/jigougaikuang/nsjg-xiangqing.html#87*; China Banking and Insurance Regulatory Commission, *Non-Bank Department* (非银部). *http://www.cbirc.gov.cn/cn/view/pages/jigougaikuang/nsjg-xiangqing.html#102.*

How the PBOC Manages Interest Rates

The PBOC uses a variety of tools to achieve its monetary policy objectives. Unlike in the United States, where there is a single benchmark interest rate—the federal funds rate—China's central bank maintains several different interest rates that can be reasonably seen as having benchmark status.[18] Until the second half of 2019, the most watched of these were the so-called benchmark lending and deposit rates, which have remained unchanged at 4.35 percent and 1.5 percent, respectively, since 2015.[19] Although interest rates were nominally liberalized in 2015, commercial banks still based their own interest rates on the benchmarks (and continue to do so for deposit rates).[20]

In August 2019, the PBOC changed the way it calculates the Loan Prime Rate (LPR)—the average rate a collection of 18 banks charge their best customers. Participating banks now must submit their LPR quotations in terms of a spread over the Medium-Term Lending Facility (MLF).* Although this reform was trumpeted as making the LPR more market based, linking it to the MLF actually gives the PBOC greater influence over the LPR since it can cut or raise the MLF rate at any time, and thereby also prevents banks from colluding to keep lending rates high.[21] In December 2019, the PBOC ordered banks to reprice all outstanding floating interest rate loans† according to the LPR instead of the old benchmark lending rate by August 2020—effectively replacing the benchmark rate.[22]

The MLF in turn tends to track the PBOC's interest rate on seven-day reverse repurchase agreements or "reverse repos."[23] In a reverse repo, the PBOC buys securities (usually with maturities of seven days) from major banks, which agree to repurchase them at a higher price on the maturity date—effectively a short-term loan from the PBOC to major banks.[24] The PBOC regularly conducts reverse repos through its open market operations, and uses them as its primary tool for short-term liquidity management. The seven-day reverse repo rate also serves as the benchmark for money market rates.[25]

Through the LPR, MLF, reverse repo, and benchmark deposit rates, the PBOC is firmly in control of the actual interest rates banks offer depositors and charge their customers. However, prior to the COVID-19 pandemic, the PBOC was extremely reluctant to cut interest rates despite a significant slowdown in economic growth. This was partly because it was afraid to stimulate the property market (which is widely believed to be overheated) as mortgage loans are also linked to the LPR.[26] However, it was also because lowering interest rates too much would squeeze banks' guaranteed profit margin that results from the spread between lending rates and the artificially suppressed deposit rates.[27] Although the economic impact of COVID-19 has forced the PBOC to trim interest rates slightly, this second factor continues to keep China's interest rates higher than in most of the developed world and helps explain why the LPR was 3.85 percent as of April 2020 compared to 0.5 percent for the federal funds rate.[28]

Underdevelopment of Direct Financing

The banking sector's dominance of the financial system has limited development and growth of China's domestic stock and bond markets. Despite its headline-grabbing volatility, China's stock market accounted for only 2.9 percent of China's total outstanding credit stock at the end of 2019.[29] This contrasts with the United States, where stock holdings account for 51.8 percent of outstanding corporate liabilities.[30] Corporate bonds do account for a significant share of financing in China—13 percent in 2019.[31] However, the bond market is dominated by banks, which held 56.2 percent of corporate bonds and 86.1 percent of local government bonds traded on the interbank bond market at the end of 2019, according to official statistics.[32] The actual numbers are likely higher as this data does not account for off-balance-sheet bond purchases funded through wealth management products.‡ [33] Combined

* Alongside reverse repurchase agreements and its Standard Lending Facility, the Medium-Term Lending Facility (MLF) is a monetary policy tool the PBOC uses to increase liquidity in the banking system. As the name suggests, the MLF consists of PBOC loans to the banking sector of a medium-term maturity (i.e., between three months and one year). *Bloomberg*, "China's Evolving Toolkit to Manage Monetary Policy," June 7, 2019. *https://www.bloomberg.com/news/articles/2018-06-14/china-s-evolving-toolkit-to-manage-monetary-policy-quicktake*.

† A floating interest rate—as opposed to a fixed interest rate—is one that fluctuates according to the market as represented by an index. Previously, floating interest rate loans were indexed against the benchmark lending rate. Kevin Yao, "China to Switch Benchmark for Floating-Rate Loans to Lower Funding Costs," *Reuters*, December 27, 2019. *https://www.reuters.com/article/us-china-economy/china-to-switch-benchmark-for-floating-rate-loans-to-lower-funding-costs-idUSKBN1YW00N*; Financial Industry Regulation Authority, "Can You 'Float' with Rate Hikes? 6 Things to Know about Floating-Rate Loan Funds." *https://www.finra.org/investors/insights/can-you-float-rate-hikes-6-things-know-about-floating-rate-loan-funds*.

‡ In China, WMPs are essentially uninsured, high-yield certificates of deposit. Issuers of WMPs typically invest the funds in property development or other risky ventures. For further discussion of WMPs, see U.S.-China Economic and Security Review Commission, Chapter 1, Section 1, "Year in Review: Economics and Trade," in *2018 Annual Report to Congress*, November 2019, 53.

with the fact that commercial banks tend to pursue buy and hold strategies (which reduce market liquidity), this strongly suggests the majority of China's bond market activity is little more than disguised bank lending.[*] [34] This chronic underdevelopment of China's financial markets forces small entrepreneurial firms to seek unofficial sources of funding, primarily from shadow banking intermediaries.

In the Chinese government's own assessment, this reliance on bank loans and underdevelopment of capital markets tends to distort credit allocation in favor of large companies and has contributed to China's high corporate debt levels.[35] It disadvantages smaller, less politically connected firms because banks are less willing to lend to them. Yet government policy is itself a key obstacle to the development of a mature and diversified financial system. Although China's economic policymakers have called repeatedly for the expansion of so-called "direct financing"[†] channels, they remain fearful that liberalizing stock markets would threaten stability and therefore have taken only limited steps to address the issue.[36] China's 2015 stock market meltdown delayed improvements to China's initial public offering (IPO) approval system for nearly five years, resulting in a backlog of 400 applications.[37] Only recently, amid the urgency of a slowing economy and the COVID-19 pandemic, have regulators accelerated efforts to encourage domestic stock listings.[38]

The Role of Shadow Banking

China's financial institutions perform a variety of credit intermediation functions outside of formal banking channels—also known as shadow banking.[39] A distinctive feature of China's shadow banking system is that traditional banks themselves are also key participants.[‡] [40] After the global financial crisis, traditional banks began partnering with NBFIs to extend shadow loans. This enabled them to lend more to meet local funding needs and circumvent a regulation capping on-book loans at 75 percent of deposits (this cap was removed in 2015 to stimulate lending).[41] They accomplished this primarily by channeling loans through NBFIs—establishing contractual arrangements that convert the loans into investments in NBFI financial products backed by loans—in order to move the loans and risk off the bank's own balance sheet.[42]

Shadow banking is intentionally opaque, and it is impossible to calculate the precise distribution of shadow assets within the banking sector. Broadly, though, exposure to risky shadow assets is concentrated among regional banks, particularly city commercial banks, while the balance sheets of the big six banks are comparatively strong.[43] In terms of overall size, analysts have offered a wide variety of estimates. Data published by Moody's and the Bank for International Settlements suggests shadow banking accounted for 24 percent of total nonfinancial sector debt in China as of the third quarter of 2019 and was roughly equivalent to 60 percent of China's GDP, or around U.S. $8.3 trillion.[44] Before the 2008–2009 global financial crisis, the Reserve Bank of Australia calculates it was about 5 percent of nonfinancial credit.[45]

Beginning in late 2016, the central government started to curb risky shadow lending as part of a broader financial cleanup. Guo Shuqing, head of the CBIRC, has spearheaded the effort by unleashing a barrage of new banking regulations aimed at controlling the riskiest forms of speculation. This has led to a contraction in shadow banking activity and a reduction in the most destabilizing behavior. However, the thrust of Guo's regulatory effort is aimed at preventing systemic risks in the banking system rather than reducing China's overall debt stock. This is especially clear from the way regulators selectively eased pressure on certain subsets of shadow banking in 2019 to stimulate lending while maintaining curbs on those elements that present the greatest systemic risk—namely banks' channel business with NBFIs.[46]

[*] The commercial banks that dominate China's bond market tend to pursue buy and hold strategies. If a bank buys a corporate bond and holds the bond on its balance sheet until maturity, then this is functionally equivalent to a bank loan. See Tian Chen, "Why China's Bond Market Is About to Get Less Exotic," *Bloomberg*, March 28, 2019. *https://www.bloomberg.com/professional/blog/chinas-bond-market-get-less-exotic/*.

[†] Direct financing refers to fundraising channels that do not require an intermediary. Bank lending is considered "indirect" because the bank intermediates between lenders and borrowers.

[‡] Shadow banking typically describes lightly regulated NBFIs engaging in bank-like borrowing and lending. In China, there is an additional component: banks themselves partner with NBFIs to extend high-risk loans that would otherwise require them to increase their capital reserves. This is often termed banks' "channel business" because the banks act as an intermediary or "channel" between depositors and NBFIs.

Trends and Policy Developments

The bailout of Baoshang Bank (discussed later) in May 2019 exposed a number of latent risks in China's banking system. However, government intervention to support or recapitalize failing banks is not a new phenomenon in China. In the late 1990s and early 2000s, the government bailed out China's four largest banks at a cost of $385 billion.[47] This time around, however, Beijing is contending with the slowest economic growth in 29 years and an unprecedented global pandemic, making it difficult to replicate past rescue efforts.[48] Although policymakers are employing a variety of strategies to reduce risks, help banks recapitalize, and deal with high NPL levels, it remains unclear whether they can correct the underlying structural challenges and avert either economic stagnation or a significant downward adjustment to the value of bank assets.

The Evolution of Balance Sheet Risks

Over the past decade, Chinese commercial banks undertook an unprecedented expansion of their balance sheets, extending massive quantities of new loans to companies and local governments. Between 2009 and 2019, China's total banking assets grew from $10.2 trillion to $41.6 trillion.[49] This expansion was initially kicked off by stimulus policies rolled out by the Chinese government at the onset of the global financial crisis, but quickly took on a momentum of its own. In November 2008, Beijing announced a fiscal stimulus package of $586 billion (renminbi [RMB] 4 trillion), but because the plan required local governments to share project costs with Beijing it had to be augmented with an expansion of bank lending. Local governments exploited the loosened credit conditions to fund infrastructure projects, and banks sought to scale up their operations by swelling their balance sheets.[50] Within a month of the announcement of the stimulus package, investment projects proposed by local governments totaled $2.6 trillion (RMB 18 trillion).[51] Not all of these projects were ultimately funded, but conservative estimates still place the final stimulus bill at around $1.4 trillion (RMB 9.5 trillion)—more than double the value of the original package.[52] Bank lending also remained inflated for years afterward and did not return to pre-stimulus levels until May 2013.[53]

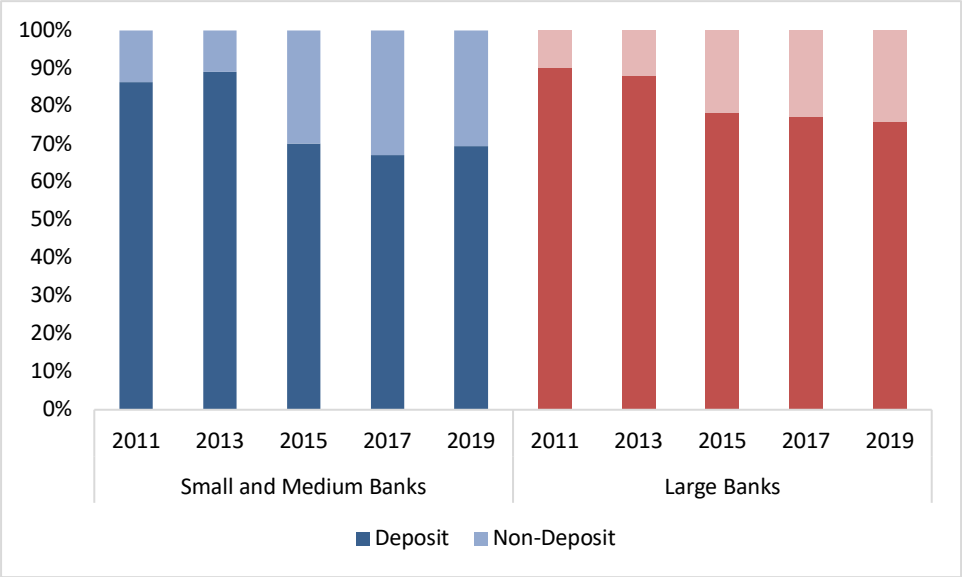
Local governments' insatiable demand for credit stems from a structural imbalance in the fiscal relationship between local governments and Beijing. While they shoulder the majority of expenditure obligations, local governments receive less than half of all tax revenue and are legally prohibited from running a budget deficit.[*] Theoretically, this gap should be closed with fiscal transfers from the central government, but in practice these transfers do not always cover local government expenses, resulting in a de facto unfunded mandate.[54] Moreover, the Party's emphasis on economic growth targets as a key performance indicator for local cadres prevents them from imposing fiscal discipline on their jurisdictions.[55]

The scale of the credit boom that followed the government's stimulus efforts in 2008–2009 eventually outgrew banks' ability to fund new loans through standard deposits, forcing them to search for alternative funding channels. A variety of external factors—among them declining household savings rates after 2010 and the launch of Alibaba's first money market fund, Yu'e Bao, in 2013—also suppressed growth of deposits as people invested money elsewhere or spent it on consumption.[56] However, 2014 marked a watershed as large-scale capital outflows from China[†] permanently reversed its large capital account surplus, prompting a structural change in the composition of bank balance sheets.[57] The funding crunch was particularly severe for small and medium-sized commercial banks as they relied more on corporate deposits, which tend to fluctuate with the business cycle.[58] Between 2013 and 2016, total deposits declined from 89.1 percent to 67.1 percent of total funding at small and medium banks (see Figure 3).[59]

[*] Article 35 of China's revised Budget Law, adopted in 2014, explicitly prohibits local governments from running a deficit. However, in an effort to eliminate the practice of borrowing through local government financing vehicles, the article also allows local governments to issue bonds within limits set by—and with the approval of—the State Council. China's National People's Congress, *Budget Law of the People's Republic of China* (中华人民共和国预算法), November 2, 2014. Translation. *http://www.npc.gov.cn/wxzl/gongbao/2014-11/02/content_1892137.htm*.

[†] China has experienced persistent capital outflows since 2014. These were caused by waning confidence in China's economy and a reversal of the RMB's appreciation. From 2005 to 2014, the RMB consistently appreciated against the dollar; since 2014, its movements have been much more volatile, but it has generally depreciated against the dollar. See *Bloomberg*, "What's Causing Those Capital Outflows from China: Quicktake Q&A," January 13, 2017. *https://www.bloomberg.com/news/articles/2017-01-13/what-s-causing-those-capital-outflows-from-china-quicktake-q-a*; China State Administration of Foreign Exchange via CEIC database.

Figure 3: Chinese Banks Deposit and Non-Deposit Funding, 2011–2019



Note: Non-deposit sources of funding include bonds issued, central bank borrowing, interbank borrowing, and repurchase agreements.
Source: People's Bank of China via CEIC database.

Rather than scale back lending, banks increased borrowing through interbank channels to fill the funding hole that opened up after 2014.[60] They also began issuing large volumes of Negotiable Certificates of Deposit (NCDs)—a commonly used instrument for high-volume, short-term (the most common maturity is three months) borrowing on interbank markets. Until 2017, banks were not required to report NCDs as interbank liabilities, enabling them to circumvent a regulatory rule limiting the amount a bank can borrow from other financial institutions to one-third of its total debt.[61] Between the second quarter of 2015—the first full quarter in which the PBOC published data on NCDs—and the end of 2018, quarterly NCD issuance rose from $153.5 billion (RMB 950 billion) to $770.3 billion (RMB 5.3 trillion) and reached 14.4 percent of total bank assets.[62] Initially, large banks were the main issuers, but joint-stock banks and then city commercial banks soon became the most active sellers in the NCD market.[63] The rapid rise of NCDs and other interbank instruments has exposed regional banks to significant liquidity risks, as these are less reliable than standard deposits in the face of market volatility. The aftermath of the Baoshang Bank episode (discussed later in the report) brought these risks into sharp relief and contributed to 2019 seeing the first annual contraction in NCD sales since the PBOC first approved them for China's market.[64]

Another way banks continued to generate credit was through their channel business with NBFIs. In these arrangements, banks carved out a profitable role for themselves as intermediaries that channeled funding from depositors to various NBFIs—mainly trust companies and securities brokerages—that then extended shadow loans to subprime borrowers.[65] Although the specifics of these arrangements have changed over time, their basic function is to repackage loans as investments for accounting purposes, allowing banks to avoid meeting loan-loss reserve requirements[*] that apply only to loans.[66]

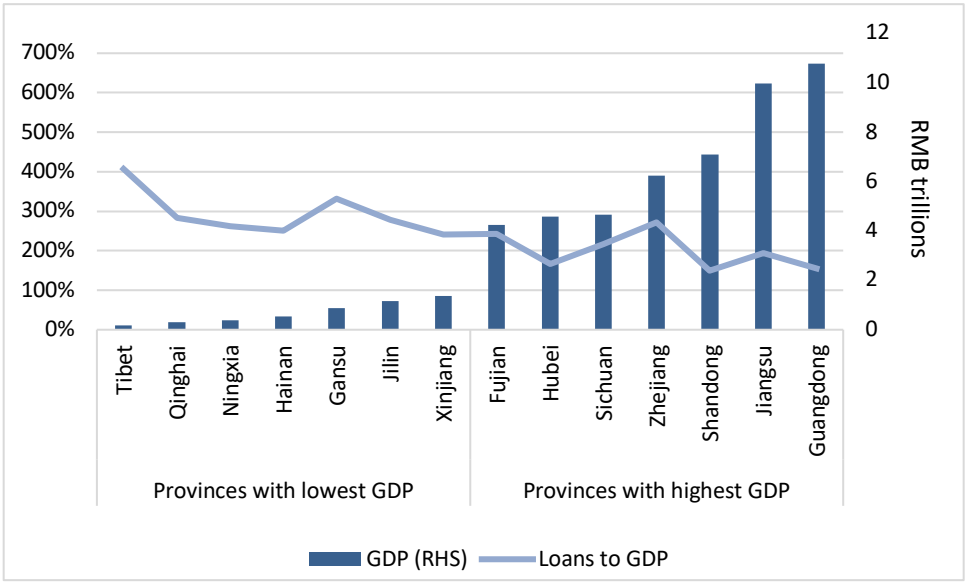
To raise funding for their channel business, banks sold wealth management products (WMPs) to depositors. In China, WMPs are uninsured investment products offered by banks and other institutions that provide significantly higher returns than standard deposits—4.1 percent annually on average compared to 0.3 percent on standard deposits, as of February 2020—and typically have shorter-term maturities than the underlying loans.[67] The PBOC maintains tight control over interest rates paid to depositors, and WMPs provide a way for banks to offer depositors higher-yielding products that skirt government controls.[68] However, they also expose banks to liquidity risks due to the maturity mismatch on their balance sheets and the higher returns they must pay to investors.[69] These risks are

[*] Because one of the chief risks in commercial banking is that borrowers will not repay loans, regulators usually require that banks set aside a certain amount of capital to cover potential losses. The required amount is typically expressed as a percentage of the value of the NPLs on the bank's balance sheet. Since March 2018, the CBIRC's loss-provisioning capital requirement is 120–150 percent of NPLs. See *Xinhua*, "CBIRC Adjusts Regulatory Requirements for Bank Loan Loss Provisions" (银监会调整银行贷款损失准备监管要求), March 7, 2018. Translation. *http://www.xinhuanet.com/fortune/2018-03/07/c_129824425.htm*.

magnified when WMPs are sold on interbank markets rather than to retail depositors because such cross-selling transfers the liquidity and repayment risks of the issuing bank's WMP onto the balance sheet of the purchasing bank. The practice of using funds raised through WMPs to purchase other banks' WMPs became widespread prior to 2017 when the CBIRC began cracking down on this kind of behavior.[70]

These issues with the structure of bank liabilities might have been less problematic if the asset side of their balance sheet (i.e., the loans they extended) were based on a sound assessment of borrower creditworthiness. Instead, balance sheet expansion was predicated on the assumption that the government would backstop the loans and bail out any bank that ran into trouble. This widespread assumption that the full fiscal firepower of the Chinese government stands behind the financial system is often referred to as the "implicit guarantee." The implicit guarantee has distorted capital allocation and disincentivized banks from accurately pricing risk. A regional comparison of bank assets to GDP in 2019 shows the heaviest speculative activity has been concentrated in weaker provincial economies, generating asset bubbles along China's rust belt (see Figure 4).[71]

Figure 4: Comparison of Regional Bank Loans to GDP in 2019



Note: GDP figures are for full-year 2019. Bank loan figures are total outstanding based on the latest published data.
Source: China National Bureau of National Statistics and China Banking and Insurance Regulatory Commission via CEIC database.

China's impoverished western regions of Tibet, Qinghai, Ningxia, and Gansu are among the largest loan recipients relative to the size of their economies. Economic growth in these provinces has not been proportional to the rate of credit expansion, suggesting a speculative dimension to the loans.[72] Meanwhile, lending to wealthy coastal provinces like Guangdong, Jiangsu, and Shandong is much lower in proportion to their economic weight.[73] Overlending to economically unproductive regions is symptomatic of the lack of market pricing mechanisms and reflects the distortive impact of political interference in the financial system.

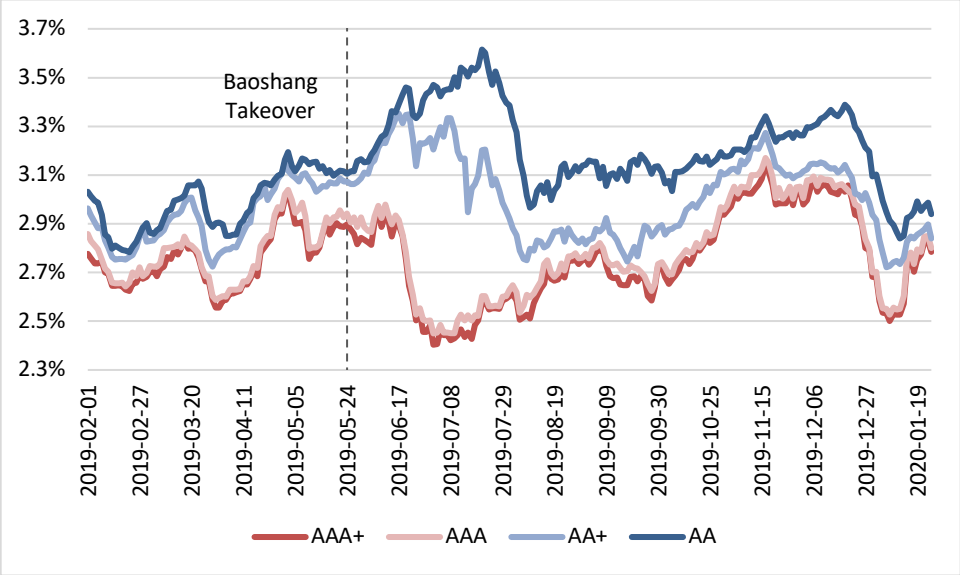
2019: Year of the Bailouts

The problems with bank balance sheets led to the Chinese government intervening in six regional banks and one joint-stock bank since May 2019. The first and most significant of these interventions occurred in May 2019, when the CBIRC, citing "severe credit risks," took over direct control of Inner Mongolia-based Baoshang Bank through a one-year government receivership. At a press conference shortly after the takeover, the PBOC announced it would guarantee deposits and interbank liabilities up to $7.1 million (RMB 50 million) but force Baoshang's larger creditors to accept losses of up to 30 percent.[74] This protected retail depositors while also warning other banks against reckless lending. In subsequent months, central and local authorities also directly and indirectly intervened to varying degrees in six other banks (Bank of Jilin, Bank of Jinzhou, Hengfeng Bank, Harbin Bank, Chengdu Rural Commercial Bank, and Bank of Gansu) by acquiring strategic stakes and assembling bailout coalitions.[75]

So far, however, Baoshang remains the only instance where the government forced creditors to take losses on their investment—raising some limited questions as to the absoluteness of the implicit guarantee. This is partially due to

special circumstances in the case of Baoshang. In the years prior to the takeover, Baoshang had become captive to the interests of its former majority shareholder, Tomorrow Group, whose chairman, Xiao Jianhua, ran afoul of authorities and was detained in 2017.[76] In other ways, however, Baoshang was less unique. Before the takeover, former UBS analyst Jason Bedford identified 24 other banks with similar lending and funding structures to Baoshang (e.g., lending repackaged as investments, a low share of deposits to liabilities, and overreliance on interbank funding sources).[77] Although the PBOC sought to present Baoshang as an isolated case, the bank was just more aggressive than its peers in pursuing growth during the years before the financial de-risking campaign. According to Chinese media reports, Baoshang's interbank liabilities accounted for about 44 percent of its total liabilities before the bailout, a significant portion of which were in NCDs.[78] This explains the significant interest rate spread between banks at different credit rating tiers that suddenly appeared in the NCD market following the Baoshang takeover (see Figure 5). After Baoshang, banks with a credit rating below AAA experienced a significant funding squeeze* as lenders increased the premium charged on loans to struggling banks to more accurately reflect their risk profiles.

Figure 5: Three-Month NCD Yields by Credit Rating, February 2019–January 2020



Source: China National Interbank Funding Center.

The severity of the interbank market reaction appears to have taken regulators by surprise. In addition to substantial short-term liquidity injections into the market, on June 6 the PBOC lent $72 billion (RMB 500 billion) to banks through its MLF—the second-largest such single-day injection on record at the time—to ease the liquidity shortage for small and medium banks while simultaneously applying informal pressure on shadow banking intermediaries to keep credit taps open.[79]

Alongside substantial liquidity injections, subsequent bailouts of Bank of Jinzhou, Hengfeng Bank, and others—in which creditors did not take losses—seem to have assuaged market jitters. By the end of 2019, the spread on funding costs between different banks had basically returned to pre-Baoshang levels. Analysts largely agree the Baoshang takeover was an experiment that served as a warning against overly aggressive expansion by regional banks and perhaps as an initial step in rolling back the implicit guarantee. However, regulators' actions on the six other banks suggest they are unlikely to take a similar approach to other banks in the immediate future.[80]

* The CBIRC requires that banks and insurance companies only invest in bonds rated AA or higher. This gives domestic credit ratings agencies—the majority of which are state owned—little incentive to give ratings below a grade of AA. This results in a high concentration of AAA and AA ratings compared to developed markets such as the United States. In testimony before the Commission, University of Chicago Booth School of Business professor Zhiguo He said that although credit ratings in China are clearly inflated, market participants can discern the creditworthiness of borrowers from their relative credit rankings. U.S.-China Economic and Security Review Commission, *Hearing on China's Quest for Capita: Motivations, Methods and Implications*, oral testimony of Zhiguo He, January 23, 2020, 95; Asia Securities Industry and Financial Markets Association, "China's Capital Markets: The Pace of Change Accelerates," June 2019, 64. *https://www.asifma.org/wp-content/uploads/2019/06/final-english-china-capital-markets-report-2019.pdf.*

Beijing's approach to the string of regional bank failures over the last year suggests financial regulators believe the best way to strengthen regional banks is to overhaul their shareholder structure. The CBIRC is scrutinizing banks' shareholders, and it claims to have discovered 3,000 violations relating to 1,400 shareholders.[81] It is also looking to potentially restructure China's small banks through a sweeping set of mergers.[82] But while the CBIRC characterizes these measures as "vigorous reform," Beijing's solution has thus far amounted to forcing state-backed companies to make or increase investments in banks that are performing poorly.[83] This rescue template merely swaps troublesome private shareholders for state-owned ones, some of which have their own financial difficulties, and does not resolve the fundamental problem that the government is on the hook when the bank's loans go bad.[84]

Nonperforming Loans and Capital Replenishment

A key ingredient to the massive growth in bank assets was the undercounting of loans on bank balance sheets. Although shadow banking is by design opaque and difficult to account for, analysts at Moody's estimate that by the end of 2019 the scale of China's shadow banking sector reached $8.3 trillion, equal to about one-fifth of total bank assets.[85] The process by which Chinese banks generated shadow credit involved collaborating with NBFIs to disguise loans as investments on their balance sheets. Booking loans as investments has allowed Chinese banks to effectively underreport the extent of NPLs on their books and avoid complying with minimum capital requirements.

Officially, China's NPL ratio* was only 1.9 percent as of the fourth quarter of 2019.[86] However, this number is not credible and significantly understates the true extent of NPLs.[87] This is demonstrated by the fact that in 2018, write downs and disposals of NPLs exceeded the total amount of outstanding NPLs officially recognized in December 2017.[88] In testimony before the Commission, Dinny McMahon, former *Wall Street Journal* reporter and expert on China's debt issues, said Beijing's continuing toleration of low NPL recognition is "strategic" because it buys time for regulators to deal with the problem. Mr. McMahon noted, "If Beijing were to acknowledge a significantly higher NPL ratio, then the banks would have to immediately raise huge amounts of capital, all at once, and at fire sale prices."[89] However, since the financial de-risking campaign began in 2016, Beijing seems to be encouraging banks to accelerate their disposals of NPLs.[90]

Several factors have lent urgency to the need for banks to clean up their books. In the aftermath of the global financial crisis, the Basel Committee on Banking Supervision† developed a set of revised international prudential standards (collectively known as Basel III) to strengthen bank stability. As a signatory to Basel III, China designed regulations in 2012 to increase the minimum available capital banks are required to hold in proportion to their risk-weighted assets.‡ [91] However, Beijing allowed a six-year grace period for banks to comply, setting the deadline for December 2018.[92] Although Chinese banks are nominally compliant with Basel III requirements—the CBIRC reported capital adequacy ratios of 16.3 percent, 13.4 percent, and 12.7 percent for the big six, joint-stock, and city commercial banks, respectively, at the end of 2019—this is only because they have yet to recognize the true extent of NPLs on their balance sheets.[93] Doing so would require them to raise large amounts of additional capital as NPLs carry a significant risk premium in terms of minimum capital requirements under Basel III.[94] This also helps explain multiple delays to the implementation of new rules for asset management products, which would have forced banks to bring many off-balance-sheet loans back onto their balance sheets.[95]

In 2018 and 2019, the CBIRC also rolled out new regulations on how banks disclose NPLs. The changes forced banks to change the way they classify NPLs, broadening the definition to include other asset categories in addition

* The NPL ratio is the ratio of nonperforming loans on a bank's balance sheet to total loans in its portfolio. The CBIRC regularly publishes the combined NPL ratio of all commercial banks, which is referenced here.

† The Basel Committee on Banking Supervision (BCBS) is the main global standards-setter for banking regulations. Its membership comprises representatives of central banks and other bank supervisory authorities from 28 jurisdictions, including the CBIRC. Bank for International Settlements, "The Basel Committee – Overview." *https://www.bis.org/bcbs/*; Bank for International Settlements, "Basel Committee Membership." *https://www.bis.org/bcbs/membership.htm*.

‡ Risk weighted assets (RWA) is a concept used by international banking regulators to determine how much capital a bank must hold in reserve to cover potential losses. Each asset class is assigned a risk weighting (expressed as a percent) that is multiplied by the total value of assets in that class. Therefore, RWA is the sum of all assets multiplied by their respective risk weights. The minimum capital requirement under Basel III for banks not designated as systemically important is 10.5 percent of their RWA. As a signatory to Basel III, China also requires banks to maintain capital equal to least 10.5 percent of their RWA. See Basel Committee on Banking Supervision, "Basel III Monitoring Report," *Bank for International Settlements*, October 2019, 17, 105. *https://www.bis.org/bcbs/publ/d477.pdf*; China State Council, *CBRC FAQ on Capital Management Methods for Commercial Banks* (银监会就《商业银行资本管理办法（试行）》答问), June 8, 2012. Translation. *http://www.gov.cn/gzdt/2012-06/08/content_2156787.htm*; *Financial Times*, "Lexicon, Definition of Risk Weighted Assets." *http://markets.ft.com/research/Lexicon/Term?term=risk_weighted-assets*.

to loans.[96] New regulations also removed banks' discretion to designate loans more than 90 days overdue as "overdue but not impaired"—a category previously not counted toward their NPL ratios.[97] All of these regulatory changes require banks to either raise additional capital to cover NPLs or dispose of the NPLs themselves. Banks are pursuing both strategies simultaneously.

Tighter regulations have spurred banks to dispose of large volumes of NPLs over the last three years. Between 2016 and the end of 2019, Chinese banks disposed of $900 billion (RMB 6.4 trillion) worth of NPLs, with annual disposals doubling from $144.1 billion (RMB 1 trillion) to $287.4 billion (RMB 2 trillion) over this period.[98] This pace of disposal is likely not sustainable. As banks began offloading NPLs, the market experienced a surge in supply. This initially attracted a wave of new investors to the secondary distressed asset market. The competition made it easy for Chinese asset management companies to purchase NPLs from banks and resell them for a profit, pushing up NPL prices to unrealistic levels in 2017 and early 2018.[99] According to Chinese media reports, some buyers were paying 70–80 percent of face value to acquire NPLs. By the second half of 2018, the glut in supply overwhelmed the market and prices cratered.[100] Lower prices make it more difficult for banks to extract value from NPLs, and if asset management companies do not purchase them in sufficient quantities, then increasing numbers of NPLs will need to be written down at a loss.[101]

At the same time, increased minimum capital requirements and changes to NPL recognition standards have made recapitalization an urgent priority. Throughout 2019, the State Council and the PBOC encouraged commercial banks to rebuild their available capital and cleared away regulatory and technical obstacles to facilitate new capital raising. Capital replenishment has taken three main forms: new equity, new debt, and government-orchestrated capital injections:

- *Equity:* Exchange-listed banks have the option to raise capital by issuing new equity; however, few banks have been able to avail themselves of this avenue because their shares are trading at historical lows.[102] Chinese regulations prevent listed Chinese banks from conducting new share issues unless their traded share value is equal to at least 100 percent of their last audited book value (i.e., their price-to-book ratio is at least 1).[*] As of January 2020, less than half of China's 36 A-listed banks were trading above book value.[103] Unlisted banks can issue shares through private placements, but were previously required to first sell shares on over-the-counter markets. In July 2019, the CBIRC removed this requirement, making it easier for unlisted banks to raise capital.[104]
- *Debt:* Encouraged by Beijing, banks have leveraged a variety of innovative capital-raising instruments—such as bonds that convert to equity—to refill their coffers. But in 2019, regulators appeared to settle on perpetual bonds as the preferred tool for new capital raises. Perpetual bonds—a type of fixed income security with no maturity date[†]—count toward minimum capital requirements under Basel III, and are an option available to both listed and unlisted banks. The State Council initially approved the use of perpetual bonds in December 2018, and in November 2019 began allowing regional banks to raise capital this way. In January 2019, the PBOC also created a central bills swap tool that allows bond market dealers to swap perpetual bonds for central bank bills—usable as high-quality collateral—to facilitate perpetual bond issuances.[105] In its 2019 third-quarter monetary policy report, the PBOC characterized perpetual bonds as a "breakthrough" solution to the recapitalization puzzle.[106] In total, Chinese banks issued $167.2 billion (RMB 1.2 trillion) in new debt instruments in 2019, of which perpetual bonds accounted for $81.8 billion (RMB 569.6 billion).[107]
- *Capital injections:* For banks whose financial or liquidity troubles are severe enough to preclude raising new capital through market channels, central and local authorities have demonstrated a willingness to arrange capital infusions. For example, to avoid an outright takeover (as happened with Baoshang), the

[*] A company's price-to-book ratio is calculated by dividing its market price per share by its book value per share. A company's book value is the value of its net assets (assets minus liabilities) according to its audited financial statements. In China, banks whose price-to-book ratio is less than 1 are prohibited from issuing new equity.

[†] Although perpetual bonds have no maturity date, they often have a callable feature, which enables the borrower to pay back the principal at a predetermined price on certain dates established at the time of issuance. They can also be written down at the behest of regulators if the issuing bank's capital falls below a certain threshold or it becomes insolvent. Wu Hongyuran and Denise Jia, "China's Regulator Revises Rules on Banks' Capital Replenishment Tools," *Caixin Global*, November 30, 2019. *https://www.caixinglobal.com/2019-11-30/chinas-regulator-revises-rules-on-banks-capital-replenishment-tools-101489026.html*; BNP Paribas, "What Are Perpetual Bonds or Perpetuals?" *https://www.bnpparibasfortis.be/rsc/contrib/document/1-Website/5-Docserver/BNP/F04824E.pdf*.

PBOC organized a bailout coalition of three state-owned enterprises (SOEs) to acquire strategic stakes in the Bank of Jinzhou in July 2019.* This demonstration of government support was sufficient to enable a new ICBC-supplied board of directors to seek an $866 million (RMB 62 billion) share placement just two months after the bailout.[108] In the case of Harbin Bank, it was local SOEs that took stakes in the company.† It is worth noting that capital injections have not been limited to the banks that grabbed headlines in 2019. In June 2019, Shengjing Bank, which was severely undercapitalized, quietly received a significant capital transfusion from Evergrande—the bank's largest shareholder—through a private share placement, enabling it to maintain compliance with NPL coverage rules.[109] Evergrande, a property developer with ambitions to move into electric vehicle manufacturing, initially acquired a stake in Shengjing in 2016, and returns on its initial investment have been poor. It is highly unlikely that absent government pressure it would have increased its stake on the business merits of the move.[110] Moreover, the company itself is already heavily indebted and had to raise $2 billion from offshore investors to recapitalize Shengjing.[111]

Although recapitalizing China's banks is a positive step toward greater financial stability, the efficacy of this strategy ultimately hinges on whether Beijing will hold banks to a higher regulatory standard and whether the banks can effectively dispose of NPLs. Effective NPL disposal in turn requires at least moderately high levels of economic growth. This is because rapid economic growth transforms at least some once-delinquent borrowers into profitable companies. Conversely, if economic growth stagnates, then indebted companies are unlikely to turn their businesses around.

In fact, China's banks have been through this process once before in the late 1990s and 2000s. In 1999, the PBOC created China's original four asset management companies (AMCs), or "bad banks," to buy up $170 billion (RMB 1.4 trillion) worth of NPLs at face value.[112] They financed these acquisitions by issuing bonds to the banks themselves. The AMCs thus effectively warehoused these loans for several years and enabled the banks to transform the loans into investment receivables on their balance sheets.[113] These AMCs were only able to eventually extract some value from the NPLs because China's double-digit economic growth increased the worth of the collateral.[114] Even so, the AMCs were unable to fully resolve their original NPL portfolios, and the Ministry of Finance was forced to provide financial backing. The State Council assisted by extending the tenure of the AMCs' bonds when they came due in 2009.[115]

It is far from clear that even this mixed performance can be repeated now that China's economy is contracting due to the impact of COVID-19.[116] Nonetheless, financial regulators appear ready to try the old playbook once more, but this time secure foreign buy-in as well. On March 5, 2020, the CBIRC approved the creation of a fifth national AMC—the first such approval in more than 20 years.[117] The new AMC's controlling shareholder is a subsidiary of China's sovereign wealth fund.[118] At a press briefing on the approval, CBIRC chief risk officer Xiao Yuanqi suggested that more new AMCs could soon follow, especially as the Phase One trade agreement with the United States has enabled foreign distressed asset managers to purchase NPLs directly from Chinese banks.[119]

Pandemic Banking

The COVID-19 pandemic that began in Wuhan in late 2019 has added to the challenges China's banks face as they try to clean up their balance sheets and offload risky assets. The biggest risk for banks is a potential surge in NPLs as corporate borrowers struggle to regain their financial footing in the wake of the government's travel lockdown and disruptions to the global supply chain. A February 2020 survey conducted by Tsinghua University and Peking University of 995 coronavirus-impacted small and medium enterprises showed that 85 percent did not have enough cash on hand to survive a three-month shutdown.[120] The survey also cited bank loan repayment as among the top three financial burdens facing these firms.[121] If these companies fail, banks that have loaned to them will see a sudden increase in new NPLs on their balance sheets. To mitigate this challenge, on March 2, 2020, the CBIRC preemptively ordered banks to postpone loan repayments until after June 30 and allowed them to postpone recognizing the affected loans as NPLs until after that date.[122] Whether or not the loan forbearance will be sufficient

* For more information on the bailout of Bank of Jinzhou, see U.S.-China Economic and Security Review Commission, "Bank of Jinzhou Receives Different Treatment from Baoshang," in *Economics and Trade Bulletin*, August 2019, 10. *https://www.uscc.gov/trade-bulletins/august-2019-trade-bulletin*.

† For more information on the Harbin Bank bailout, see U.S.-China Economic and Security Review Commission, "A Regional Bank Gets Government Backing," in *Economics and Trade Bulletin*, December 5, 2019, 4. *https://www.uscc.gov/sites/default/files/2019-12/December%202019%20Trade%20Bulletin.pdf*.

to salvage corporate financials depends on the future course of the epidemic. But even an optimistic scenario will likely entail a spike in NPLs after the extensions expire and will put additional pressure on the balance sheets of many banks.

To help fight the economic impact of COVID-19, the PBOC has also established a new preferential lending facility for companies deemed essential to fighting the disease. Through this "relending" facility, the PBOC has allocated $114.8 billion (RMB 800 billion) in discounted financing to designated national and Hubei-based banks, which can then relend it to their choice of eligible companies.[123] Eligibility is jointly determined by the National Development and Reform Commission and Ministry of Industry and Information Technology through a "list of key enterprises for guaranteeing epidemic prevention and control."[124] The interest rate on these reloans is capped at 3.15 percent—well below the current one year LPR of 3.85 percent—and is further subsidized by the Ministry of Finance, lowering the actual interest rate to 1.6 percent.[125]

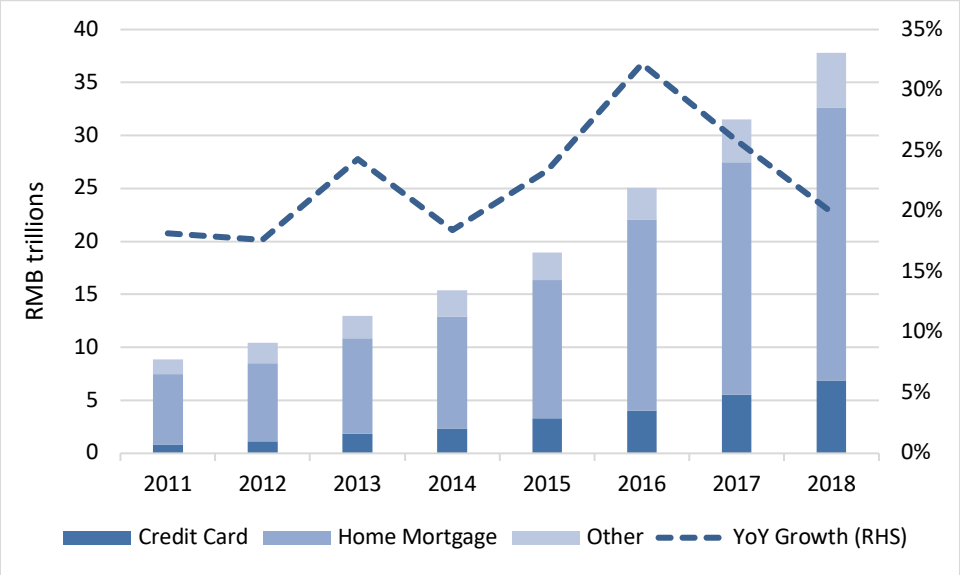
Despite these measures, the companies most in need will likely not receive the majority of funding as banks still prefer to lend to financially strong or politically connected firms that they view as safer bets.[126] Moreover, oversight problems have emerged as companies seeking to game the system have applied for loans under the program. As a consequence, the PBOC removed 48 companies from the eligibility list less than a month after the program launched.[127] For example, one state-owned coal company was removed after it was caught falsely claiming it manufactured disinfectant.[128]

Spotlight: Retail Banking

About three years ago, analysts inside and outside the Chinese government started sounding the alarm on China's rapidly rising household debt.[129] According to the Bank for International Settlements, China's household debt grew from 23.5 percent of GDP at the end of 2009 to 54.4 percent in the third quarter of 2019—faster than in any of the other 44 economies tracked by the bank.[130] Although this presents certain macroeconomic challenges, it represents a fast-growing new market for commercial banks. Chinese media reports and bank financial statements frequently reference a "retail transformation" (i.e., a structural shift away from corporate lending and toward a greater emphasis on consumer lending) that many of China's major banks have taken advantage of to expand their business.[131] A combination of generational changes in spending habits (young Chinese save less than their parents) and a decline in corporate demand for new credit amid slowing economic growth and financial de-risking has led many bankers to regard consumer lending as a significant driver of future profits.[132]

Consumer loans comprise an increasingly important portion of bank balance sheets. Between 2015 and 2019, consumer loans in China increased from 9.8 percent of all commercial bank assets to 17 percent.[133] This is significantly higher than in the United States, where consumer loans account for 9 percent of total commercial bank assets.[134] The vast majority of Chinese banks' consumer loans are mortgage loans, but credit card debt has grown at a much faster clip, averaging 29.5 percent year-on-year growth between 2015 and the third quarter of 2019 (see Figure 6).[135] This is partly because it started from a low base. According to the Global Findex database, only 21 percent of people in China have a credit card, compared to 66 percent in the United States and 68 percent in Japan.[136]

Figure 6: Composition of Consumer Loans, 2011–2018



Source: People's Bank of China via CEIC database.

Not all commercial banks are equally positioned to take advantage of rising consumer borrowing. Even among national joint-stock commercial banks, which have been the most aggressive in pursuing an expansion of their retail customer base, there remains significant differentiation (see Table 1). Some banks are better equipped to cope with slowing credit demand among corporate customers than others and will have a competitive edge over their peers as China's economy continues to transition toward consumption-led growth.

Table 1: Selected Banks' Retail Share of Operating Revenue, 2017–H1 2019

Bank Name	Classification	2017 (% of total)	2018 (% of total)	2019 H1 (% of total)
Ping An Bank	Joint-Stock	44.1	53.0	56.9
Zheshang Bank	Joint-Stock	11.0	13.0	16.9
China Merchants Bank	Joint-Stock	49.1	50.6	54.5
China Citic Bank	Joint-Stock	34.7	34.7	36.2
Minsheng Bank	Joint-Stock	35.2	36.0	36.6
Everbright Bank	Joint-Stock	38.7	42.1	40.8
Bank of Beijing	City Commercial	16.6	20.0	21.2
Bank of Shanghai	City Commercial	19.1	24.4	26.8
Bank of Jiangsu	City Commercial	16.4	18.2	22.5
Bank of Nanjing	City Commercial	11.9	15.8	16.1

Note: The six joint-stock banks excluded from this table either do not publish disaggregated operating revenue figures by business segment or have not yet published their 2019 interim financial report and therefore do not have directly comparable data. The four selected city commercial banks are the largest banks at this tier that publish disaggregated operating revenue figures.
Source: Various.[137]

The banks that have been most effective in expanding their retail segments are those that have successfully leveraged technology. For example, Ping An Bank, China Merchants Bank, Everbright Bank, and China Minsheng Bank have all established fintech units.[138] The biggest losers from the scramble for retail customers are China's city commercial banks, most of which generate a comparatively small portion of their operating revenue from their retail business.[139]

The Rise of Fintech and Its Disruption of Banking

Expansion via the consumer segment has brought banks more directly into competition with China's technology giants. Since 2013, e-commerce companies such as Alibaba and Tencent have launched a variety of fintech products, including payments platforms, money market funds, and peer-to-peer lending platforms. These products provide consumers with new investment and borrowing opportunities that directly compete with banks. Chinese commercial banks are latecomers to the fintech business, and only six have established independent fintech units.[140]

Fintech has already started to impact banks' retail market share. For example, bank card penetration rates* essentially plateaued after 2013—when Tencent launched WeChat Pay—increasing only from 44.4 percent in the fourth quarter of 2012 to 49.04 percent in the third quarter of 2019.[141] Meanwhile, investors in Alibaba's $157.8 billion Yu'e Bao money market fund—until recently the largest in the world—have consistently enjoyed higher returns than traditional bank depositors.[142] As of March 5, 2020, Yu'e Bao had a seven-day annualized yield of 2.3 percent, compared to 0.3 percent for standard bank deposits and between 1.5 and 2.25 percent on one-year fixed deposits.[143]

The proliferation of online peer-to-peer lending platforms, through which Chinese consumers can easily lend money to one another through mobile phone apps, initially threatened banks' consumer lending business. However, the government's regulatory crackdown on peer-to-peer lending has largely removed this challenge. Between 2015 and 2019, regulators reduced the number of such lending platforms from 3,600 to just 427.[144] Nonetheless, fintech competitors still represent a significant source of competition for retail deposits. Despite selling off nearly a third of its assets in 2018, Yu'e Bao's manager, Tianhong Asset Management, saw a 24 percent expansion of its customer base during the same year.[145]

A 2018 Bank for International Settlements report on fintech points out that the growing prevalence of fintech products around the world creates liquidity risks by improving the ease with which customers shift funds between accounts as they search for better returns.[146] However, some Chinese fintech companies have opted to partner rather than compete with banks as they try to capitalize on the growing retail banking boom. For example, in April 2019 consumer finance company Lexin Fintech announced a partnership with 19 commercial banks to use its consumer data to match lenders to borrowers with good credit histories.[147]

Impact on Consumption

Although China's rapidly rising household leverage has boosted short-term consumption and fueled a boom in retail lending, in the long term it may weigh on future growth. Recent scholarship on the relationship between household debt and economic growth reveals that while a rapid increase in household borrowing can increase consumption and growth in the short term, it usually leads to reduced GDP growth in the longer term as households adjust their consumption to meet debt obligations.[148] The COVID-19 pandemic has accelerated this process. Retail sales crashed as the economy shut down, contracting 20.5 percent year-on-year in January and February and 15.7 percent in March.[149] Although retail sales may see an uptick as the economy reopens, households are likely to curtail spending for some time as economic uncertainty persists. There is also a risk that as the majority of consumer loans are for mortgages, a correction in China's property market could erase a substantial portion of household wealth and expose banks to repayment risks. The widespread purchasing of investment homes has left China with 65 million empty apartments.[150] Any risk of a price decrease, therefore, could lead to a sudden supply glut as speculators seek to cash out and minimize their losses.

Analysts at S&P Global pointed out in July 2019 that the upsurge in China's credit card lending is reminiscent of similar booms experienced in Hong Kong, South Korea, and Taiwan in the early 2000s.[151] Like China, banks in these countries contended with declining corporate demand for credit and competed with one another for retail customers to drive growth. When the economy came under pressure and employment conditions worsened, consumer NPLs surged.[152] The COVID-19 pandemic could be a catalyst for a large increase in consumer NPLs in China as employment conditions have worsened significantly. China's official unemployment rate rose to 5.9 percent in March 2020, up from 5.2 percent in December 2019, and some economists estimate the real number of

* The PBOC defines bank card penetration as the consumption via bank cards as a percentage of total retail sales' value. See People's Bank of China, *PBOC Report: Average National Per Capita Bank Card Ownership Is 3.99* (央行报告：全国人均持有银行卡 3. 99 张), April 5, 2016. *http://www.gov.cn/xinwen/2016-04/05/content_5061472.htm*.

jobless could be more than twice as high.[153] In May 2020, *Financial News*, the official media outlet of the PBOC, highlighted growing repayment risks in the consumer lending segment due to layoffs and lost wages.[154]

Conclusion and Considerations for Congress

China's banking system has reached an important juncture. Banks of all sizes are under pressure to clean up their balance sheets, raise new capital, and dispose of bad loans. At the same time, Beijing is forcing them to boost lending to struggling companies at nonmarket rates to forestall a further slowdown in the pace of economic growth. China's large state-owned banks and national joint-stock banks are better positioned to adapt and take advantage of new business opportunities in retail banking. Regional banks are much less prepared to meet these challenges. Nonetheless, U.S. policymakers should be cautious about interpreting the troubles of regional banks as indications of an imminent financial crisis. Although Beijing is seeking opportunities to roll back its implicit guarantee, bailouts by central and regional authorities in the second half of 2019 clearly demonstrate that the PBOC and the CCP leadership remain committed to ensuring stability. Authorities have so far successfully contained isolated bank failures and prevented sector-wide contagion, though the economic shock of COVID-19 could complicate this strategy by hurting overall bank profitability. If the current pandemic does lead to sustained problems in China's financial sector, exchange rates are the most likely channel through which economic pain could be transmitted to U.S. investors, as an RMB devaluation would reduce the dollar value of their mainland assets.

U.S. Investor Exposure: How the Chinese government manages the banking system is significant for U.S. investors and fund managers even if Beijing successfully forestalls a financial crisis. U.S. investor portfolios have growing exposure to China's banking sector through MSCI and FTSE Russell's inclusion of Chinese A-shares[*] into widely tracked benchmark indexes. Both the MSCI Emerging Market Index and FTSE Russell Global Equity Index Series now include shares of Chinese state-owned banks, which may have political priorities that are misaligned with their fiduciary duty to U.S. shareholders.[155] For example, ICBC, which is included in the MSCI Emerging Market Index, answered Beijing's call to deploy $430 million (RMB 3 billion) to shore up Bank of Jinzhou.[156] ICBC's investor announcement provided no explanation for the acquisition.[157] Such episodes demonstrate how China's banking system remains captive to state and Party interests, and banks may make decisions on a political basis that harm U.S. investors' financial interests.

Even absent direct political interference, it is very difficult for U.S. investors and creditors to determine the true level of risk to which Chinese banks are exposed. Not only do Chinese ratings firms systematically inflate the ratings of bonds sold on China's interbank bond market, but the routine booking of loans as investments also enables Chinese banks to drastically underreport the extent of NPLs on their books. Banks that appear stable and compliant with international prudential standards may in reality be undercapitalized and exposed to large, undisclosed risks. The opacity of China's NPL market is also a challenge for U.S. distressed asset investors, who are now beginning to buy NPLs directly from Chinese banks. Without access to accurate market and pricing information, investors cannot accurately assess asset values and may wind up footing the bill for China's financial cleanup. Moreover, asset quality in China's NPL market is such that even domestic AMCs often struggle to profit from their ostensibly core business domain of resolving NPLs.[158]

Opportunities and Tradeoffs: The challenges facing China's banking system may also present some opportunities for U.S. financial companies. Despite its unprecedented expansion after the 2008–2009 global financial crisis, China's financial system remains underdeveloped and lacks robust mechanisms for pricing risk. Chinese policymakers know this and would like to harness foreign expertise to professionalize the financial sector and find innovative solutions to current problems. Although the moderate expansion of market access to China's financial markets over the last two years stems in part from a need for capital,[†] stresses in the banking sector do underpin legitimate demand for the services of foreign ratings agencies, insurers, fund managers, and distressed asset

[*] A-shares are RMB-denominated securities of companies incorporated in China that trade on either the Shanghai or Shenzhen stock exchanges. A-share trading is restricted to Chinese residents, and foreigners can only access the A-shares market through special investment programs such as the Qualified Foreign Institutional Investor program and the Stock Connect programs. A-shares are distinct from other Chinese share classes such as H-shares (shares in Chinese incorporated companies listed on the Hong Kong Stock Exchange), trading of which is not restricted to Chinese residents. FTSE Russell, "Guide to Chinese Share Classes," May 2019. *https://research.ftserussell.com/products/downloads/Guide_to_Chinese_Share_Classes.pdfhttps://research.ftserussell.com/products/downloads/Guide_to_Chinese_Share_Classes.pdf*.

[†] For a detailed discussion of China's financial market opening measures, see U.S.-China Economic and Security Review Commission, Chapter 1, Section 1, "Year in Review Economics and Trade," in *2019 Annual Report to Congress*, November 2019, 63–66.

managers. The question is, how much will the U.S. economy benefit from this and is it in the United States' interests to encourage U.S. financial firms to help Beijing fix China's banking system? Some companies certainly stand to profit from aiding China's financial cleanup. Yet the historical record also suggests that since China joined the WTO, U.S. efforts to encourage China to adopt market-oriented reforms have had little success. This is unlikely to change now. Ultimately, Congress must decide if the extent of market access on offer is worth the potential risks to U.S. investors. It must also evaluate the desirability of greater U.S. participation in a financial market that remains warped by the political priorities of a strategic competitor.

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EXHIBIT 16

G | M | F

IDEAS LEADERSHIP HOPE

CHINA GLOBAL PODCAST:

China's Industrial Policy and Semiconductors

April 25, 2023 By Bonnie S. Glaser, John Lee

China's use of industrial policies is neither new nor unique, but only in the last decade has the Chinese Communist Party (CCP) provided systematic support to frontier technologies such as artificial intelligence, robotics, and communications. President Xi Jinping announced in 2015 a "Made in China 2025" plan whose aim is Chinese global dominance in 20 key sectors including information technology, green energy technology, and semiconductors. Since then, the CCP has become increasingly involved in private-sector innovation to build Chinese self-sufficiency in cutting-edge technologies. The CCP does not reveal official data on state subsidies but estimates of expenditures range from 1.7% to 4.9% of GDP, far surpassing any other nation's spending on industrial policy. Yet the success of these costly measures is at best uneven, especially in the crucial semiconductor sector, where China's design and manufacturing challenges are now compounded by US-led export controls.

To discuss Chinese industrial policies and their overlap with Chinese foreign policy, host Bonnie Glaser speaks with John Lee, director of East West Futures, a political and risk consultancy that focuses on China. Lee is also a researcher with the Leiden Asia Center and has worked for the Australian Department of Defense, the Australian Department of Foreign Affairs and Trade, and the Mercator Institute for China Studies. Lee's research focuses on China's semiconductor-related industries, cyberspace governance, and the future of telecommunications networks.

Episode Highlights:

[02:14] China's Implementation of Industrial Policy

[05:20] Industrial Policy to Achieve Foreign Policy Objectives

[08:02] Influence of Strategic Competition on Industrial Policy

[10:42] Efficacy of Chinese Industrial Policies

[14:17] Semiconductor Subsidies and Export Controls

[19:06] Chinese Countermeasures to Export Controls

[22:39] Assessment of U.S. Policy

[25:58] Forecast of Competition on Advanced Technologies

[29:50] Balance of Centralization and Adaptation

EXHIBIT 17

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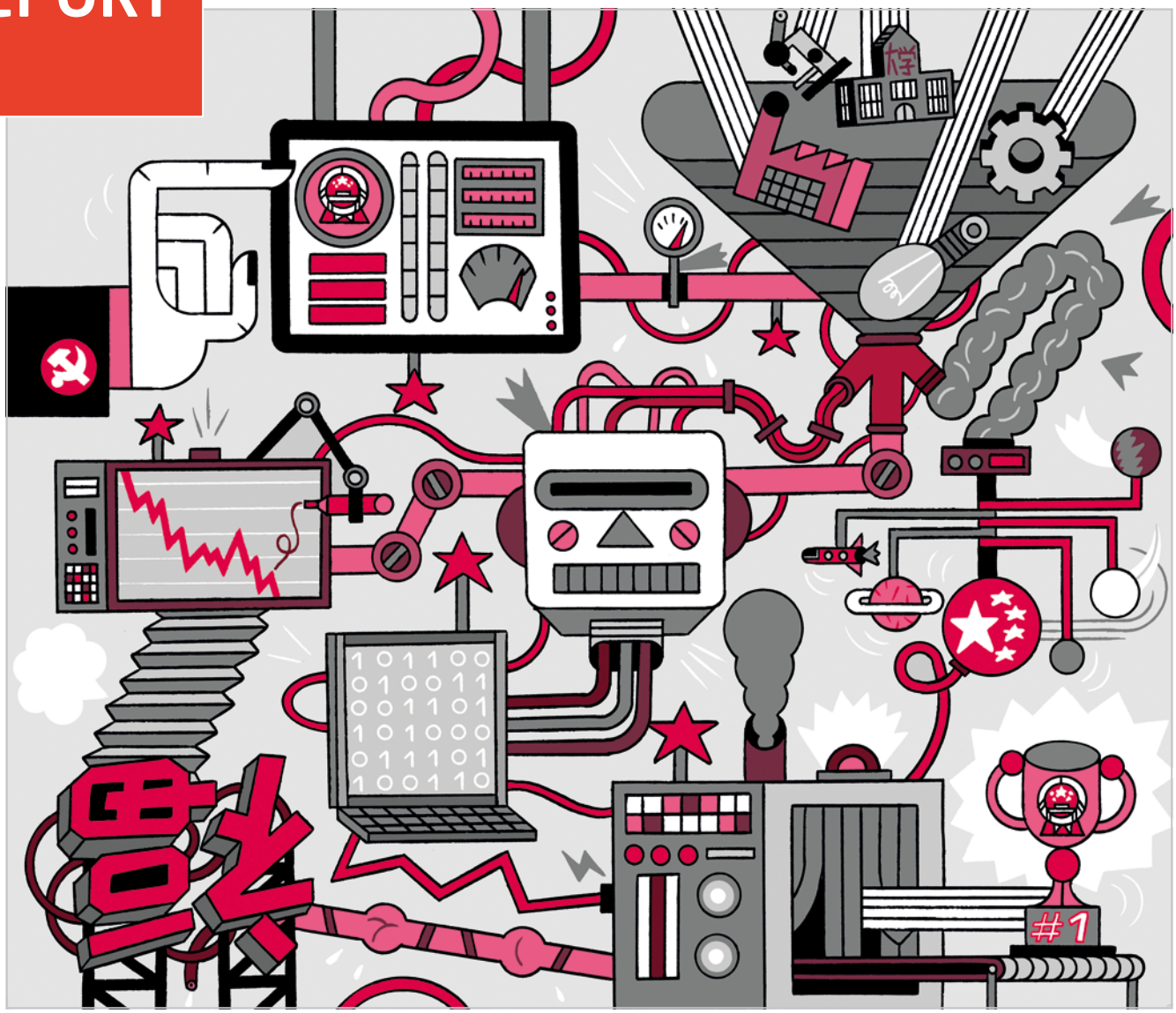
REPORT



THE PARTY KNOWS BEST

Aligning economic actors with China's strategic goals

October 2023

MERICS
Mercator Institute for China Studies

THE PARTY KNOWS BEST

Aligning economic actors with China's strategic goals

Max J. Zenglein | Jacob Gunter

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It is important to clarify that any errors present in the text are solely the responsibility of the authors.

Executive Summary

THE PARTY STATE AIMS TO RETURN CHINA TO THE CENTER OF THE GLOBAL ECONOMY

After a decade in power Xi Jinping has fundamentally reshaped China's political economy and the nation's reform path. The shifts currently unfolding in China's economy are showcasing the systemic features of what China's leaders today call "Chinese-style modernization" (中国式现代化) and how it will materialize at home and abroad. The impacts are visible in the domestic economy as the party expands its control over businesses in an attempt to align them, by hook or by crook, with national strategic priorities. Internationally, China's relationship with liberal market economies is moving from integration to intense competition – and potential conflict.

Simultaneously reconfiguring the domestic economy and China's international economic relations is generating frictions. Economic growth may be in a slump, but China is not in a crisis. A key factor is the downsizing of the real estate sector, which is part of a painful but necessary transition – and that means nobody should expect meaningful course correction. For better or worse, this is the development path put forward by Xi Jinping as the Chinese Communist Party (CCP) aspires to achieve "The Great Rejuvenation of the Chinese Nation" (中华民族伟大复兴) – the return of a strong and prosperous China to the heart of the global economy by 2049.

Policymakers and corporate leaders across the world are faced with a new environment in which China-induced risks and challenges abound. These encompass economic and tech competition, but also competition over markets and influence in the "global south".

By analyzing the structural shifts in China's economic governance, this report aims to provide a better understanding of China's future path under Xi Jinping's strategic vision for the nation. It is likely that already significant differences between China's economic model and those in Europe and other liberal market economies will continue to grow and create more friction. Observers should shed any wishful thinking of a return to pragmatism and focus less on hoping that Beijing will course correct itself. Instead, it is necessary to consider their own strategy to deal with a changing China.

THE PARTY HAS ALTERED THE POLITICAL ECONOMY IN PURSUIT OF ITS STRATEGIC GOALS FOR THE NATION

During his first decade as China's paramount leader, Xi Jinping steadily broke away from the political economy norms of his predecessors – Deng Xiaoping, Jiang Zemin, and Hu Jintao. Where the previous era was governed under a development-oriented political economy, Xi's new era has been put under a geopolitically oriented political economy. Growth and socio-economic progress still matter in Xi's China, just as catching up with the developed world technologically always mattered in the past.

However, Xi's recalibration of the political economy first and foremost aims not at boosting China's overall development, but rather at securitization – the pursuit of resilience in a geopolitically challenging environment - as the precursor to national "rejuvenation". To realize such a vision, the party-state is increasing its control and guidance over economic actors to

steer them towards three chief priorities throughout the intermittent period between now and 2049:

- **Priority #1 - Attaining technological and supply chain self-reliance –** Where possible, the CCP will endeavor to localize supply chains and close technology gaps to secure value chains within China's own borders. The goal is to make it impossible for any other nation to hold China down through access to resources, technology, capital, or markets.

- **Priority #2 – Reshaping and diversifying China's international economic ties –** Where China cannot localize supplies, such as for oil, gas, soybeans, iron ore, and critical raw minerals, the CCP aims to diversify suppliers to build resilience. The party state also seeks to diversify and develop export markets, and to take a central role in the global economy, especially as the self-proclaimed leader of the developing world.

- **Priority #3 – Maintaining and strengthening China's socio-economic base –** While no longer the top priority for Beijing, development still matters. However, in recent years there has been a clear priority in managing risks in the domestic market like in real estate and deleveraging rather than prioritizing growth. Meanwhile, consumption growth has lagged despite Xi's own calls for higher spending by households.

THE PARTY STATE STRIVES FOR NATIONAL REJUVENATION WITH A NEW TOOLKIT TO STEER ECONOMIC ACTORS ALONG

Xi's economic policies encompass Marxist-Leninist elements with a much stronger role for the CCP. The new political economy promotes an "all of nation model" that engages in a 21st century type of economic and technological mass mobilization. Party-state controls and guidance over economic actors were extended drastically, ensuring alignment with contributing to reaching national strategic goals. The measures include a mix of discipline system and incentives. Xi Jinping's policies focus less on profitability of companies or enriching the middle class. Instead, economic resources should be geared toward strategic sectors in the real economy – mainly high-tech manufacturing and emerging technologies such as AI. Sectors such as the real estate sector or consumer internet are seen as non-strategic and/or destabilizing, resulting in massive crackdowns over the past two years.

More party guidance has significant implications on the business environment of China's private sector and entrepreneurs who occupy key roles in reaching high-tech supremacy. Ownership and governance models that help Beijing influence the steering wheel of companies have materialized, with golden shares securing veto-rights in some firms while party influence and window guidance pull on strings behind closed doors.

Meanwhile, sticks have been brought to bear against firms unaligned with Beijing's goals, with crackdowns and rectification campaigns, blocked IPOs, and seemingly capricious (but actually orchestrated) regulatory enforcement beating prominent firms into line while sending a message to everyone else. At the same time, for the firms already in line with Beijing's vision, carrots are ripe for the picking, like advantageous stock listings, protection from foreign competition, and access to everything from subsidies and cheap financing to the Little Giants Initiative – a government incentive to foster world leading high tech small and medium sized companies.

THE PRIVATE SECTOR MUST FOLLOW THE PARTY'S LEAD

By prioritizing ideology over pragmatism, some have suggested that the CCP is now opposed to the private sector. To the contrary, Xi is not trying to undermine the private sector, he is aligning those that he needs to fall in line while rewarding those already on board. After all, tech rectification didn't aim to kill the tech giants, but to align them with strategic goals and bring them into compliance with the evolving national security ecosystem – especially on cyber and data security matters.

The efficacy of this model has shown some success, as seen in some of China's most technologically advanced and globally competitive firms, each of which are examined in case studies throughout this report:

- **Alibaba**, which, after taking a beating from a variety of Beijing's sticks, has so aligned with the party-state agenda that it has broken itself into six different entities so that different lines of business can align with respective strategic goals, with a priority on tech self-reliance.
- **Tencent**, which has experienced blows from many sticks, and is not so subtly being told by regulators that are tightening down on the gaming sector including with a lengthy freeze on new approvals that it should focus less on the domestic gaming market and more on local tech gaps.
- **Huawei**, which needed no discipline from Beijing to get in line with national objectives, largely because it already was aligned with them. Instead of sticks, Huawei has enjoyed a bounty of carrots in the form of support and protection to close the tech gaps identified by Beijing.
- **BYD**, which was already fully in line with Beijing's aspirations for the electric vehicle market and enjoyed extensive procurement favoritism, local subsidies, and a wide range of other carrots as it has skyrocketed in the home market even while it secures a global export and investment footprint.
- **COSCO**, which is already under the direct control of Beijing as one of the centrally owned SOEs, is not only already aligned with national strategies, but also enjoys tremendous support and protection at home. As it projects its home market advantages overseas, COSCO is playing a central role in China's international shift, especially through the Belt and Road Initiative.
- **GAC-Toyota,** which as a sino-foreign JV must manage a delicate balance in terms of party-state control, largely benefits from benign neglect. In Beijing's eyes, the company fulfills a role as an economic baseline holder that provides jobs, tax revenue, job training, etc. as it flies under the radar.
- **Leaderdrive,** one of China's "Little Giants" that enjoys massive support through policy measures and through favorable state promotion, including in special financial markets. In many ways, smaller high-tech firms embedded in strategic technologies are co-opted and nurtured by the party state that seeks to accelerate their upward trajectory.

STRONGER GUIDANCE IS HERE TO STAY DESPITE POLICY ADJUSTMENTS FOLLOWING WEAK GROWTH

The current technology-centered agenda has set China on a clear trajectory, though its success is far from guaranteed. The sustainability of Xi's path will be put to the test when ideology-driven ambitions clash with economic reality. The policy direction is effectively being

implemented but the choices made come with trade-offs and economic costs. GDP growth is waning, and China is running a serious risk of failing to unleash its potential thriving middle-class consumer market. The two big areas where resource allocation remains strong are in tech self-reliance and military modernization. But at the same time, productivity gains are stalling, despite aggressive industrial upgrading. That is not to say that the self-reliance campaign is not yielding results, but the productivity gains are secondary, and they add limited real productivity gains when all they have done is replace something they used to just import.

As Beijing approaches the 2023 Third Plenum – an event which could further indicate the direction of China's overall political economy – it is critical to understand the context under which it is taking place. The leadership acknowledges the current economic challenges and the increasing pressure to shore up confidence. Recent minor policy shifts have given the impression of a return to pragmatic economic policymaking, but those few data points should not be interpreted as a break from a trendline that has taken shape over years.

Xi has given no indication that he intends to walk back the substantial strides the party has taken in the past decade to enhance its control over the economy. Although plenty in China and overseas may express frustration, Xi's economic vision remains steadfast. Policymakers and business leaders should plan accordingly.

1. A new era: Xi steers China's economy on a different path

1. A new era: Xi steers China's economy on a different path

KEY FINDINGS

- China is contending for the central position in the global economic order and to establish itself as an innovation power.
- Xi's new policies are responding to slower growth and perceived Western containment, but they also aim to establish foundations for a new development path for its economy.
- Beijing's answer is a tech-centered agenda – to deal with a shrinking workforce, enhance productivity, and decrease reliance on the US and its allies.
- China's future development path is shaped by growing distrust between China and liberal market economies. In contrast to previous decades of economic integration and accepted interdependencies, in the new era risk mitigation is at the top of everyone's agendas.

China's economy is at a critical juncture

After four decades of market reform and global integration, China's economy is at a critical juncture. It now faces the most challenging phase of economic development as a new growth model is needed to break through the middle-income trap and become more innovative and productive. The Third Plenum of the 20th Central Committee in fall 2023 will shape China's economic trajectory for years to come. At the Third Plenum in 2013, Xi Jinping introduced his priorities for political and economic reform: a careful balance between the role of the state and the market. Many abroad were hopeful he might be the reformer China needed, even as his reforms represented a compromise between the more liberal and more conservative forces in the party. Xi's adjustments to China's economic policies aim to deal with the negative side effects of what he terms "unbalanced and inadequate growth", a legacy of the previous growth model. This includes, for example, a highly leveraged financial system and a real estate sector accounting for nearly 30 percent of GDP". Simultaneously, they are also a response to perceived Western containment and its efforts to limit China's access to technology.

Xi Jinping wants new kind of modernity for China by 2049, achieving key milestones and development targets by 2035. The path forward under Xi will lay the foundation for the Chinese Communist Party's (CCP's) aim of "national rejuvenation" – returning a strong and prosperous modern China to the center of the global economy and innovation by 2049. Achieving this with China's special economic model – Socialism with Chinese Characteristics – would establish a system that can outcompete the liberal market economic system and prove that Chinese-style modernization can be dynamic and innovative. If successful, the CCP could establish China as the superior economic system. But there is also a real risk that the economy will hit a period of stagnation during Xi's third term, as the country confronts a complex set of domestic and international challenges.

1.1 POLICY PRIORITIES ARE UNLIKELY TO MEANINGFUL CHANGE EVEN AS ECONOMY IS FACING HEADWINDS

At the start of his third term, Xi clarified his vision of how the CCP should reach its targets for the country. Over his first two terms, economic policy shifted towards political, ideological and security objectives. But 2022 marked a sea change for Xi's policy priorities and their attendant trade-offs. Xi's ideological views permeated economic policy – to the detriment of economic growth. To reverse the downturn after the prolonged lockdown of its "zero-Covid" policy, China has downplayed ideology in 2023, and "pragmatism" has returned to economic policymaking.

Economic relations with China are likely to be profoundly different in the future

This is not a course reversal, but rather a matter of tone and timing. Despite softer language and a less ideological tone, the flurry of rules and regulations imposed in 2020-2022 to strengthen the party's grip over the economy have not been abolished. They are simply taking a back seat to boosting investor and consumer confidence amid a disappointing post-Covid recovery. China's leadership has gone into overdrive to woo foreign investors who have become wary of China, not only due to growth prospects but also to political dynamics – both in China and at home.

China is now an economic giant, accounting for around 20 percent of global gross domestic product (GDP) and 30 percent of global manufacturing. Xi Jinping no longer feels bound to the foundations that guided his predecessors. In the past, leaders tolerated considerable risk in their domestic reforms in order to maximize economic development opportunities. These included the massive displacement of capital and labor with Zhu Rongji's state-owned enterprise (SOE) reforms, or Deng Xiaoping's agenda of opening up and pushing integration with the global economy.

This "gamble" has paid off, and Xi is setting his sights on taking China to a higher level of development and global influence. In pursuit of the second centennial goal (100th anniversary of the PRC / 中华人民共和国成立100周年), Xi has shifted the party baseline (党的基本路线) from focusing on economic development to coordinating development and security (统筹发展和安全). This marks a new direction that emphasizes party control over the free hand of the market and puts a greater priority on minimizing risks and achieving political and geopolitical goals than on economic development.

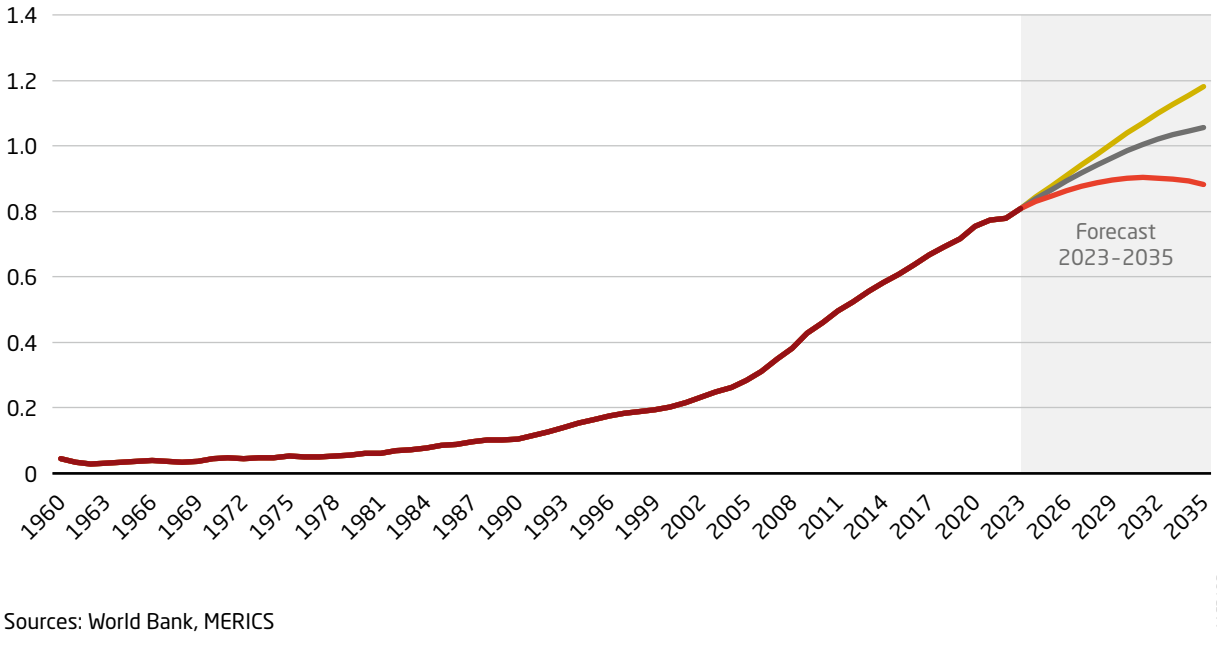
China's economic policymaking in the last decade was characterized by an urgency to build an economy that could withstand external shocks. Increasingly, its policy priorities are geared toward a geopolitically oriented economy that is obsessed with US-China competition and deprioritizes the emphasis on social development. A key metric in measuring success is whether or not China can eclipse the US economy. This depends on many factors, including GDP growth in China and the US, inflation and exchange rates. This offers a range of possible outcomes (see Exhibit 1). Following years of strong growth, China's next phase of "catching up" will be accompanied by slower growth. But success is also measured in relative terms: China sees the US and the West as in decline. Regardless of its relative size to the US economy, China is back on the world stage and will remain an economic heavyweight.

Globalization and economic relations with China are likely to be profoundly different in the future. This year's Third Plenum will have historic significance comparable to the opening up and reform process that began in 1978 or the country's WTO accession in 2001. But while China's rise was largely seen as an opportunity in Europe and elsewhere, fundamental changes are at play that could – once again – shake up the world economy. The Third

Exhibit 1

Economic competition for the world's top spot

History and growth projections of China's GDP relative US GDP



Sources: World Bank, MERICS

Plenum is taking place at an inflection point for China's economy, with several key factors shaping its future development:

- **A period of slower and more volatile GDP growth:** China's economy is undergoing an inevitable structural slowdown after a period of rapid growth. This requires adjustments to its growth model. Engineering a stable economic slowdown has become more difficult amid China's disruptive policy shifts in response to external and internal challenges such as Covid-19, high debt levels and the prioritization of national strategic goals in face of rising geopolitical risk.

- **Quickly rising innovation capacities that have yet to yield productivity dividends:** China has made remarkable strides in boosting its innovation capacity, becoming a cutting-edge nation in a number of technologies ranging from traditional sectors such as high-speed rail to emerging technologies such as artificial intelligence. At the same time China's total productivity growth has decelerated.

- **China's gravitational pull on the global economy:** Despite slower growth, China is an economic heavyweight aiming to challenge the global economic order, establish itself as an innovation power and an expand its global economic footprint.

- **The politicization of globalization:** Geopolitical risks and efforts to strengthen economic security in China and worldwide are shaping international global supply chains and innovation.

- **Non-convergence with liberal market economies:** China is seeking its own development path that serves the goal of "perfecting" the Chinese socialist system. Under the leadership of the CCP, new theoretical foundations of economic development are being created with an emphasis on tech-centered economic nationalism.

1.2 IDEOLOGY MEETS ECONOMIC REALITIES: TRADE-OFFS IN XI'S TECH-CENTERED ECONOMIC NATIONALISM

Looking forward, a key challenge will be reconciling Xi's national strategic priorities with economic prospects, including jobs and income. China is neither ending its era of reform and opening up nor returning to the closed Mao years that preceded it. Instead, its internal reform and external opening agendas are taking place under fundamentally different conditions with new political parameters, incentives, and drivers. In the past, internal reform was heavily driven by maximizing development opportunities, while external opening was about accepting interdependencies to accelerate growth and expand export opportunities with liberal market economies.

Under Xi, economic reforms are about fine-tuning control

Under Xi, internal reform is about fine-tuning control of the economy to steer it through domestic hard times with an aging population and sluggish productivity growth. External opening aims to reduce interdependencies with liberal market economies that recently began to restrict China's access to their key technologies. Xi's answer to these problems is technology – to deal with a shrinking workforce, enhance productivity, and decrease reliance on the US and other countries Beijing believes to be Washington's pawns.

The current technology-centered agenda has set the country on a clear trajectory, though its success is far from guaranteed. The sustainability of Xi's path will be put to the test when ideology-driven ambitions clash with economic reality. For example, despite China establishing itself as a global innovation power, total factor productivity growth has slowed from 22 percent between 2003 and 2011 to only 5 percent between 2011 and 2019.[1] Aligning national strategic goals with the national wellbeing is causing tensions. Another example is the popular backlash in November 2022 over economically stifling zero-Covid policies triggered a rapid course correction, with further corrections taking place amid a sluggish economic recovery in 2023. But this is no paradigm change or return to economic pragmatism. There may be bigger tests ahead if Xi continues down his chosen path and the strategy fails (see Exhibit 2).

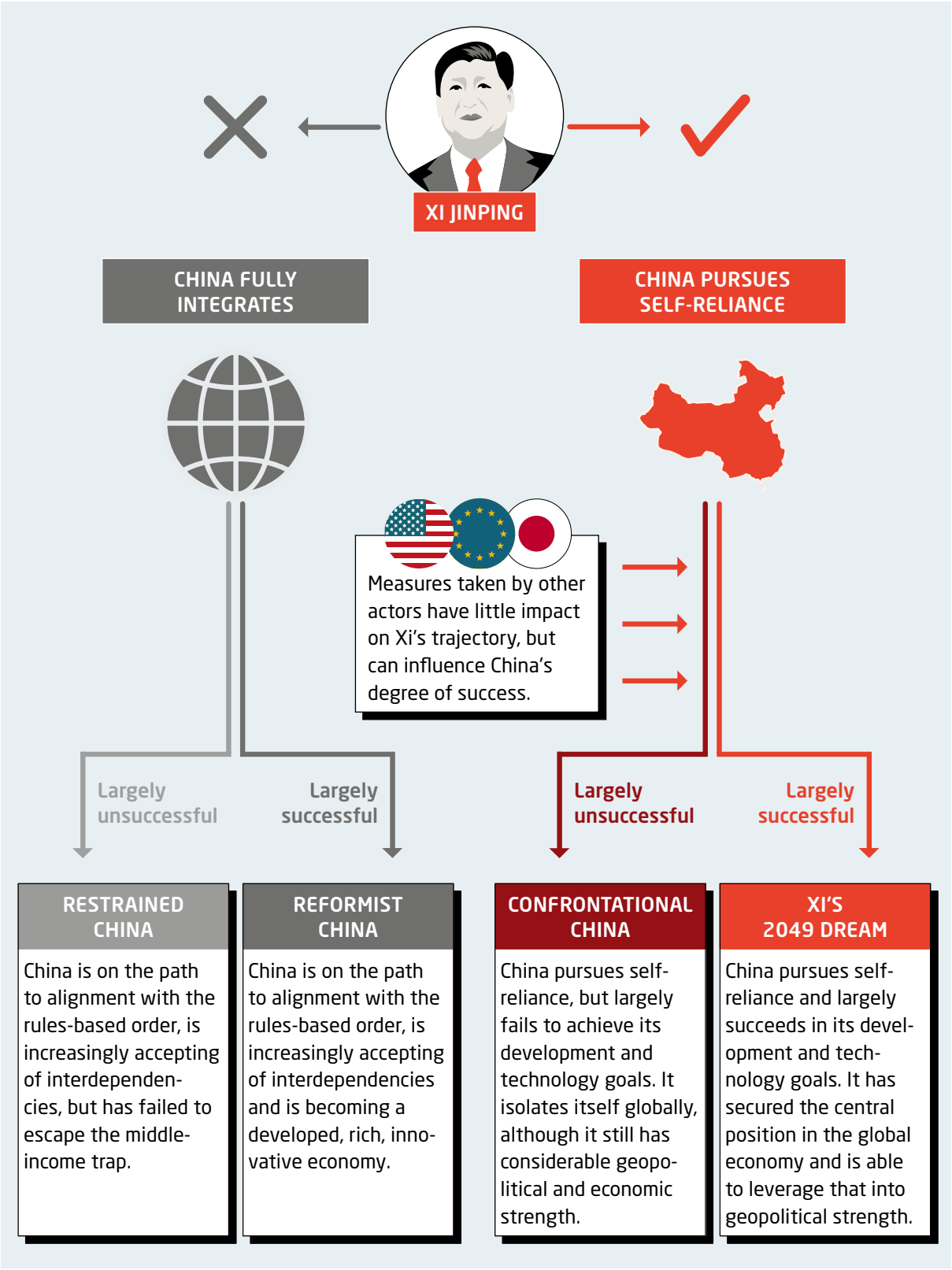
1.3 XI HAS CHOSEN CHINA'S TRAJECTORY, BUT OTHER ACTORS ARE CHOOSING HOW TO RESPOND

While countries may only exert limited pressure on China to deviate from Xi's charted course, there are plenty of other ways to affect its chances for success. Somewhat oversimplified, countries with liberal market economies may continue to give China access to their markets and technologies, or they may further restrict it. China, on the other hand, may accept economic and technological interdependencies with liberal market economies, or further pursue self-reliance. The issue is that every step China takes toward self-reliance pushes liberal market economies to restrict China's access to their markets and technology. In turn, this drives China further down the road of self-reliance.

Exhibit 2

Xi has chosen China's path

Breaking from previous leaders, Xi has aggressively pursued an agenda of self-reliance



Source: MERICS

In that sense, China and liberal market economies are on a path toward long-term, profound disruption to economic and technological globalization, despite likely worse outcomes for all actors. The net positive result for all would be to restore globalization with all sides willing to accept common rules and norms as well as interdependencies. This goes as much for the US, EU and Japan depending on China as it does China depending on them.

But the disincentive for China to reverse course and abandon its self-reliance campaign is that liberal market economy countries might cut it off anyway, leaving it too far behind to catch up. The disincentive for liberal market economies to allow China access to their markets is that Beijing might maintain its path to self-reliance and succeed, unleashing China's geopolitical power and "replacing" them in the global economy.

The problem of renewed globalization is that, for each side, the net gain from the best-case scenario is less beneficial than the net damage is from the worst-case scenario – meaning countries have more incentive to take damage-limiting action than to pursue risky opportunities. Furthermore, the growing distrust between China and liberal market economies and previous actions by both China and the US have put everyone in a poor position.

1.4 HIGH STAKES: CHINA'S ECONOMIC DEVELOPMENT IS SHAPING THE GLOBAL ORDER

China's development also depends on access to technology

The evolution of China's political economy, market reforms and integration in the global economy under Xi will shape its economic path forward. Its development also very much depends on how advanced economies control access to technology. Success or failure not only depend on China's own performance but how liberal market democracies respond to the current structural shifts shaking up the global order.

Dealing with an economically large, technological capable, and systemically non-convergent China requires a deep understanding of the structural shifts in China's next stage of development:

- What are the key building blocks of China's political economy under Xi's ideology?
- Which party and state measures are used to steer economic actors?
- How will the CCP attempt to secure the socio-economic base?
- How will innovation look under an increasingly authoritarian regime?
- How will China pursue global integration?

Our baseline scenario is that China will continue down Xi's chosen path, at least as long as he is in power, with continued uncertainty over the success or failure of his strategy. Keen to ensure success, Xi recently codified his own economic thought in a new development model worthy of his "New Era." This vision aims to contend with, as he puts it, "changes unseen in a century," and is matched with a growing set of measures to shape the economy. These party and state measures aim to operationalize his ideology and galvanize all economic actors to strive for strategic goals – all to enable the success of the 2049 dream.

2. Xi's policies serve strategic national goals beyond growth

2. Xi's policies serve strategic national goals beyond growth

KEY FINDINGS

- Xi Jinping economic thought is expanding the roles of the party and state to guide economic actors towards Beijing's strategic goals.
- Economic liberalization as a goal in and of itself is dead in Beijing. Xi uses market forces as a tool when convenient, but only as a part of a broader party-state toolkit.
- The leadership has no intention of isolating China. dual circulation strategy aims to alter China's position in the global economy – remaining open to the global economy while boosting domestic consumption and climbing global value chains.
- Beijing has begun to heavily emphasize the "New type of all-of-nation system" to close key technology gaps, and economic actors are increasingly playing along.
- In Xi's view, the private sector had become detached from national interests and drove up systemic risks in the financial sector, an issue that could only be addressed with more control.

After the Mao years, China experienced four stages of economic development, each characterized by a distinct approach to political economy in respective generations of leadership: Deradicalization (reform and opening up), liberalization, stabilization, and now, under Xi, securitization, which means assessing all political economy issues as though they were security issues for China. During his first two terms, Xi harnessed the CCP's greatly diminished confidence in market forces as the central driver in resource distribution after the global financial crisis to advance his economic ideology.

Trust in market forces stagnated under Hu and deteriorated under Xi

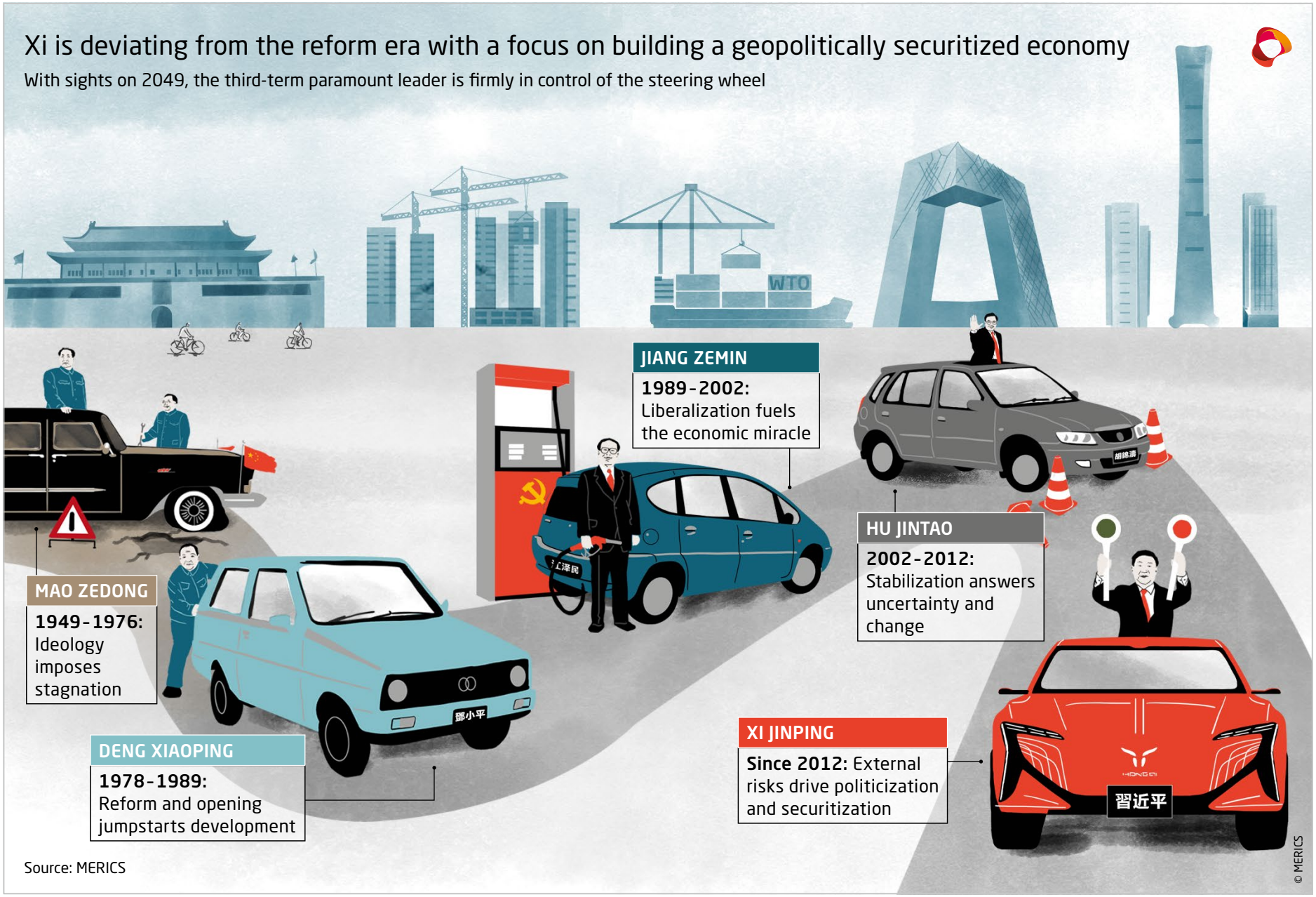
As Deng Xiaoping *deradicalized* the economy in the 1980s, state-owned enterprises (SOEs) remained the undisputed champions, with privately owned enterprises (POEs) only allowed at the cottage industry level, as pragmatism and experimentation took hold.[2] As POEs emerged, the Jiang Zemin era of the 1990s saw the reforms of his premier, Zhu Rongji, who *liberalized* the economy with a focus on SOE reform under the mantra of "grasp the large and let go the small" (抓大放小). The state held onto hundreds of the country's most important firms, Lenin's "commanding heights" of the economy, while the rest were privatized or allowed to collapse.

From then on, the national SOEs were largely used to advance the strategic goals of the CCP. Under Hu Jintao in the 2000s, liberalization slowed and SOEs retrenched to *stabilize* the economy in light of the global financial crisis. SOEs developed infrastructure, supported employment, provided social security, and maintained China's industrial foundation, independent of market forces. Meanwhile, POEs pursued profits, job creation, development, and innovation. Trust in market forces stagnated under Hu, after growing under Deng and Jiang, and then deteriorated under Xi (see Exhibit 3).

Exhibit 3

Xi is deviating from the reform era with a focus on building a geopolitically securitized economy

With sights on 2049, the third-term paramount leader is firmly in control of the steering wheel



Source: MERICS

2.1 XI BREAKS FROM THE REFORM ERA AND ENVISIONS STRATEGIC ROLES FOR ALL COMPANIES

Xi initially wanted to continue Hu's approach to the SOE–POE divide, as expressed in the 2013 Third Plenum Decision document naming both state ownership and market forces as central pillars to development. But faced with emerging and clear risks in 2015-18, Xi shifted course and pushed back against more reform-minded factions in the party. Key triggers were:

A. Financial instability: Highly leveraged companies, fears of a housing bubble, financial market turbulence in 2015-16. This triggered a deleveraging campaign in 2016 and set the seeds for crackdowns on real estate (and tech) to control speculative investments and markets not aligned with national strategic goals.

B. Foreign dependencies: Already suspicious of the US, trust in China's dependency on foreign tech evaporated with the US trade and tech wars starting in 2018 and US President Donald Trump's threats to block telecommunications firm ZTE from American technology.

The steady shifts in Xi's management of the economy are underscored by an attempt to construct or at least project a coherent economic governance model. As a somewhat clearer picture of his vision for the economy emerges (internally promoted as "Xi Jinping economic thought for a New Era"), Deng's era of opening up and reform looks like a transitional period, now possibly succeeded by an era of security and control.

According to China's leaders, the country is on a path to completing a "historic transformation from standing up and becoming prosperous, to growing strong."[3] (从站起来、富起来到强起来[4]) China's reform process and global integration have substantially advanced living standards and science and technology capabilities. But to "reach the new development stage of socialist modernization" (社会主义现代化) by 2035, the CCP under Xi Jinping is resorting to policies that held back China's development for decades: ideology, centralization, securitization, and reversing the separation of party and state.

After the 19th Party Congress in 2017 and the subsequent Central Economic Work Conference, Xi Jinping economic thought became the CCP's central ideology shaping China's economic development. Loyalty to Xi and his agenda have always mattered most, as manifested in Xi's omnipresent anti-corruption campaign launched in 2012. But beyond loyalty and ideological adherence, Xi Jinping Thought also demands competence – Xi still believes that technocrats are best placed to advance the country and has promoted STEM graduates to leadership positions during his tenure at a higher pace than under Hu Jintao.[5]

Xi still believes that technocrats are best placed to advance the country

Those cascading requirements – loyalty, ideological alignment, and competence – were on full display in the selection of cadres elevated to top leadership at the 20th Party Congress. Competing factions, such as the Communist Youth League, were sidelined while close contacts of Xi rose to the surface.[6] Anyone with a voice that could have pushed back on Xi's strategies was suppressed, be it Li Keqiang or Hu Jintao's protégé, Hu Chunhua. Meanwhile, promotions were in line for Xi loyalists like Li Qiang, who stuck to the zero-Covid ideological position that locked down Shanghai for weeks in 2022.

Xi's Economic Thought is laying the key building blocks for China's economic system. It is defining the role of the state for guiding economic actors and expectations for companies and society, as well as how China engages with the rest of the world. Even more ideological are the goals laid out by the CCP and the means by which Xi intends to reach them. Econom-

ic liberalization as a goal in and of itself is dead in Beijing. It is not seen as compatible with the political system. Xi Jinping's ideological choice has been to extract the tool of market forces from the scrap heap of economic liberalization and to use it only for specific goals – while building out new economic measures in which the party-state plays a central role.

Liberalization as a goal in and of itself is dead in Beijing

The CCP dominates the economic system in a similar way it does the political system through strategic guidance and controlling market mechanisms and by demanding strict obedience from those companies and individuals that can contribute to national strategic goals.

2.2 XI'S ECONOMIC THOUGHT IS A CONTINUATION IN SOME AREAS AND A CLEAN BREAK IN OTHERS

Some of the clearest origins of what would later become Xi Jinping economic thought were revealed in August 2020 when Qiushi, the CCP's chief theory journal, published a speech he had delivered on November 23, 2015, one of his earliest speeches as paramount leader overviewing his ideological perspective on China's political economy. The speech, made during a study session of the Politburo, outlines key priorities in Xi's political economic strategy in a post-Third Plenum and pre-19th Party Congress interregnum. Titled "Unceasingly open up the borders of contemporary Chinese Marxist political economy" (不断开拓当代中国马克思主义政治经济学新境界), it focuses on six key goals:[7]

- **First,** adhere to the people-centered development philosophy.
  (第一，坚持以人民为中心的发展思想)
- **Second,** adhere to the new development concept.
  (第二，坚持新的发展理念)
- **Third,** uphold and improve the basic socialist economic system.
  (第三，坚持和完善社会主义基本经济制度)
- **Fourth,** uphold and improve the basic socialist distribution system.
  (第四，坚持和完善社会主义基本分配制度)
- **Fifth,** adhere to the direction of socialist market economic reform.
  (第五，坚持社会主义市场经济改革方向)
- **Sixth,** adhere to the basic national policy of opening up.
  (第六，坚持对外开放基本国策)

Over the rest of his first and second terms in office, these core tenets of what would become Xi Jinping economic thought were matched with Xi-specific slogans and campaigns.

The core goal: Adhere to a people-centered development philosophy.
This is Xi's primary aim for his New Era. At the 19th Party Congress, Xi changed the "principal contradiction" at the core of CCP thinking from was "between the ever-growing material and cultural needs of the people and backward social production" to "between unbalanced and inadequate development and the people's ever-growing needs for a better life." Instead of the previous approach of development at all costs, Xi has now put "quality over quantity" into the development mix.

Subsidiary goals: Adhere to the new development concept of quality over quantity.
Xi frequently emphasizes the need to focus on quality development rather than merely driving up the numbers – meaning people-centered development. However, Xi also often elaborates that the "New Development Concept" must balance innovation, coordination, greening, openness, and "sharing."

The economic model: Uphold and improve the basic socialist economic system and adhere to socialist market economic reform.
This has been interpreted in the West as raising the role of market forces in allocating resources. Xi has repeated many times that there are two pillars to China's economic model, one public and one non-public. In other words, socialism with Chinese characteristics only works with both strong SOE and strong POE sides to the economy, referred to as "the two unwaverings" – meaning unwavering support for both.

Economic distribution: Uphold and improve the basic socialist distribution system. In China, the basic socialist distribution system is based on "distribution according to work," although multiple parallel systems for distribution exist (...我们确立了按劳分配为主体、多种分配方式并存的分配制度). Xi would later spotlight distribution in prioritizing "common prosperity." The term dates back to Mao but is known from Deng Xiaoping's famous quote, "Let some get rich first... then lead the rest into common prosperity." Xi quickly clarified that China will not revert to broad redistribution. Common prosperity is a goal, but not via means like "welfare universalism."

Over the rest of his first and second terms in office, these core tenets of what would become Xi Jinping economic thought were matched with Xi-specific slogans and campaigns.

China's global economic position: Adhere to the basic national policy of opening up. Xi has no intention of isolating China and is instead eager to grow China's role in the global economy. His signature foreign economic policy has been the Belt and Road Initiative (BRI), China's major infrastructure project to connect Asia, Africa and Europe via land and sea. This would grow into Beijing's dual circulation strategy which aims to alter China's position in the global economy – remaining open to the global economy while boosting domestic demand. Unlike Deng's idea to drive growth by luring technology, investment, and raw materials to produce low – to mid-value goods for export, Xi aims to import raw materials and lower-value goods and export higher-value goods, tech, and outbound investment.

Xi is eager to grow China's role in the global economy

Some core priorities of Xi's economic thought weren't part of his 2015 speech. Innovation and technology have begun to play a much more central role in Xi's economic policymaking. The US trade war gave this momentum, especially actions against Chinese tech companies and recent export controls. Xi has begun to heavily emphasize the "all of nation effort" to close key technology gaps. Consumption-driven growth is also a major focus. This has always been a goal, and is the second half of the dual circulation strategy – external circulation being China's position in the global economy and internal circulation being domestic consumption as the key driver of growth (rather than exports) (see Exhibit 4).

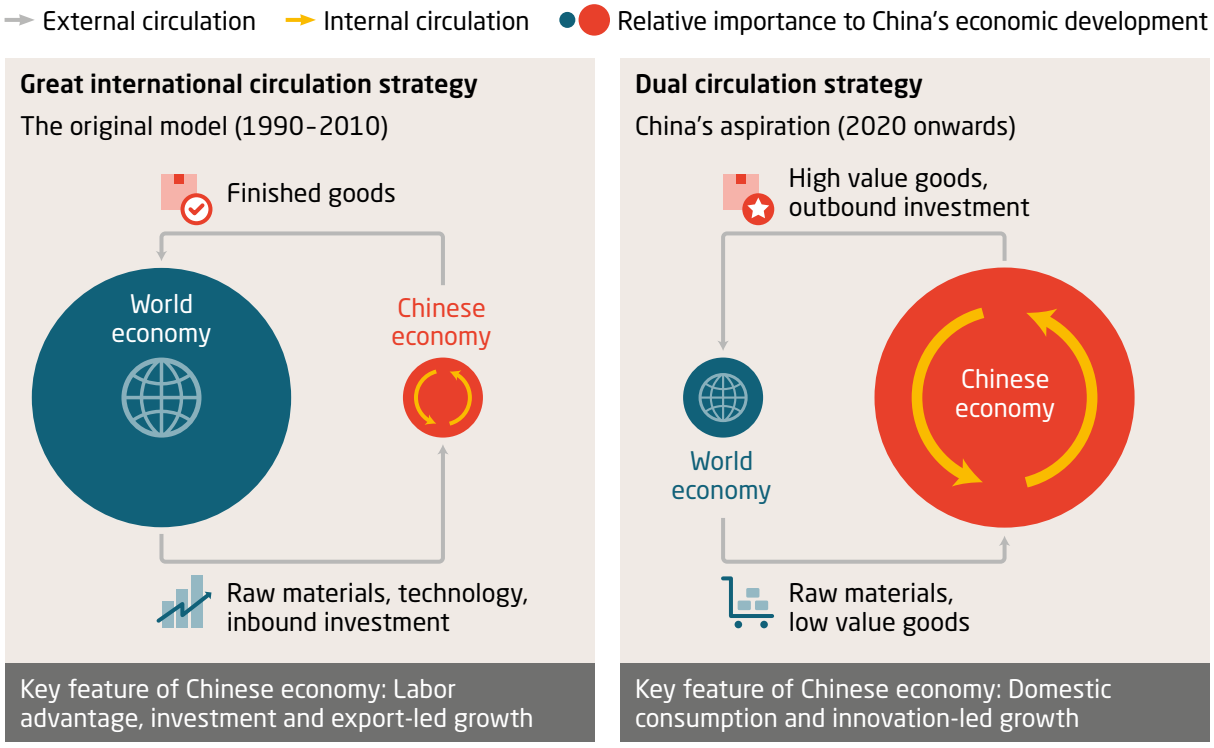
2.3 THE TRADE WAR AND THE PANDEMIC CATALYZED DEEPLY ROOTED SELF-RELIANCE IN XI'S ECONOMIC THOUGHT

Xi consolidated his power base over his first two terms, but there were limitations as to how aggressively he could push his then still-evolving economic ideology. First, it was difficult to get buy-in for his radical approach to self-reliance from most economic actors at a time when China had virtually complete access to foreign markets and technologies. Second, The CCP's very legitimacy had, since the crackdown on the Tiananmen Square protests, been dependent on securing economic development gains in return for political silence from the masses – meaning that Xi needed to keep growth strong, irrespective of his ideology. Two things happened to change this: The US-China trade and tech war and the pandemic.

Exhibit 4

Beijing aims to decrease dependencies for growth and advanced technology

Comparing the great international circulation strategy and the dual circulation strategy



Source: MERICS

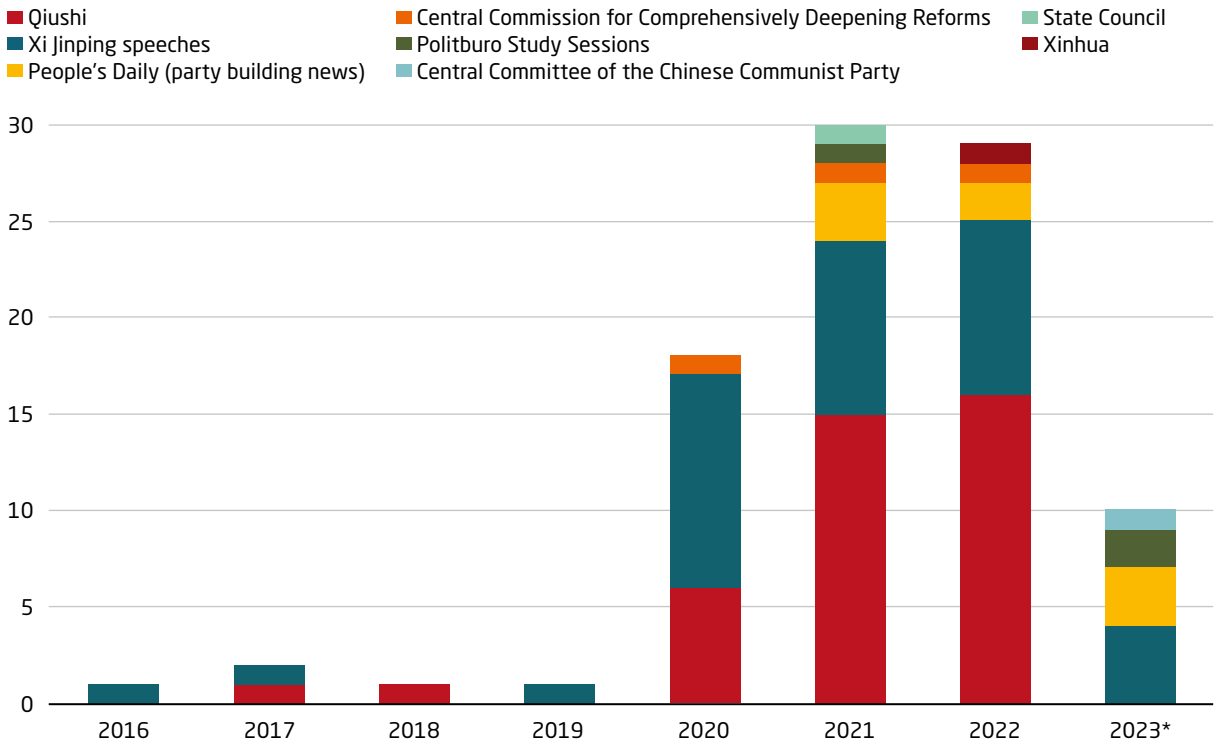
Self-reliance is a long-standing principle in CCP ideology – indeed, of any communist or more generally authoritarian ideology. However, aside from more ideologically conservative types in the CCP and China's major SOEs, much of China's private sector, scientific community, and broader society were not behind the idea. The US-China trade war, and the more significant tech war that began with restrictions on Huawei and ZTE, changed that around 2018. Private companies faced being technologically strangled by the US. For the first time in decades, there was truth behind the idea of an all-of-nation effort to close the tech gap and achieve self-reliance. This opened up considerable political space for Xi to push his economic ideology (see Exhibit 5).

The pandemic did something similar. China's initial failure to contain the virus was later met with an effective zero-Covid policy that, despite its often draconian nature, worked for the first two years. Compared to the rest of the world, China seemed stable and back to "normal life" – something state media was happy to demonstrate with coverage of global chaos next to rosy reports about Beijing's leadership. This gave Xi political space to deprioritize economic growth as a measure of success in pursuit of other political goals. This is not to say that multiple crackdowns on the tech sector, private tutoring or the real estate sector would not have happened in absence of the pandemic, but the unquestionable legitimacy of Covid measures offered a window of opportunity to advance these goals.

Exhibit 5

Calls to mobilize the whole country towards Xi's objectives have surged

Number of references of "New type of all-of-nation concept" in non-normative documents by source



*Note: 2023 data is incomplete at time of writing.

Source: MERICS

2.4 THE TRANSFORMATION FROM CHINA, INC. TO CCP, INC.

Xi Jinping economic thought did not emerge by design but evolved in response to weak spots in the domestic economy and shifts in the external environment, marked by confrontation with the US – all of which empowered Xi Jinping's vision for the economy. The CCP seeks to increasingly dominate the economic system just like the political system. It uses strategic guidance to contain "misguided" market decisions that increase financial risks and fail to advance strategic objectives or "de-risk" from the West. Economic policy is becoming more problem-oriented, preparing the nation for difficulties ahead. One priority is to reestablish the party's leadership in China's modernization efforts and foster the securitization of everything.

This has allowed the CCP to reach into the private sector, which in Xi's view has become detached from national interests and has contributed to systemic risks in the financial sector. As a result, some of China's most successful and celebrated private companies found themselves up against a wall.

First, a deleveraging campaign launched in 2016 targeted highly indebted companies, especially in the real estate and property sectors, which had contributed to excessive debt and

risks to the financial system. While SOEs were also targeted in an effort to improve their performance, regulators started to focus on private companies including the rapidly expanding industrial conglomerate HNA Group and Anbang Insurance Group in 2017. The companies have since ended in bankruptcy or become defunct with their founders imprisoned.[8]

Some of the most successful companies and entrepreneurs were increasingly seen as rivals to the CCP's grip on power. Most prominent was the halting of the world's largest IPO in 2020 – Ant Financial, after founder Jack Ma made comments challenging the state-dominated banking system.[9] His subsequent de facto silencing sent a signal to other entrepreneurs about who was in charge, which was combined with a broader crackdown on tech firms accused of "disorderly expansion of capital." This meant they had done so well that too much capital was flowing their way at the expense of investment in areas designated by Beijing.

Xi's elevation of the party is a remarkable shift in China's political economy

This can be seen as a follow up to Xi's first anti-corruption campaign targeting officials. But this time, the CCP targeted the private sector and entrepreneurs to force their alignment with the ideological and political goals of the party-state. While not a return to a command economy through state takeovers of private firms, it is a new model that raises party interests above both the state and the private sector, thus advancing the transformation from "China, Inc." to "CCP, Inc."[10]

2.5 ALL ECONOMIC ACTORS MUST ADVANCE STRATEGIC GOALS

Xi Jinping's economic vision has expanded over the years. His elevation of the party is a remarkable shift in China's political economy. Hu Jintao once tried to rein in state-owned enterprises that had wandered from their core industries but failed due to vested interests. Even the People's Liberation Army (PLA) was notorious prior to Xi for its wide array of investments in the private sector. Leveraging ideology, Xi managed not only to rein in SOEs and get the PLA to divest, but expanded the CCP's control over private companies.

Xi's tenure in office began with a clear continuation of Hu Jintao's dual-pillar economic model – POEs were responsible for growth and innovation, SOEs were responsible for stability and intervention. The extent of party involvement depends largely on two factors:

First, the strategic relevance of a given firm. This spans from the most strategically important firms on one end – the "tech gap closers" that help overcome China's technological deficit in relation to liberal market economies – to the strategically important, though less critical "high-value development drivers" that are the new areas of growth that help China climb global value chains, and also to the least strategically relevant, though still important, "economic baseline holders" that fulfil the roles of maintaining employment, managing logistics and traditional infrastructure, and even to those sectors viewed with hostility from Beijing.

Second, the degree of party-state control/guidance, which operates on a scale from high to low. This is reflected in the areas in which the CCP needs to advance control to drive innovation or consolidate and advance monopolistic national champions at home and abroad, as well as the areas in which the CCP wants to have greater control, such as over digital champions that process vast quantities of consumer data or in the sectors Beijing wants to suppress for political reasons, such as the gaming industry and private tutoring (see Exhibit 6).

Xi's vision: A role for every company, and every company in its role

Companies are allocated roles based on their capabilities, and the party state will apply control, sticks, and carrots to get them in line

DEGREE OF PARTY-STATE DIRECTION/CONTROL	STRATEGIC RELEVANCE: ECONOMIC BASELINE HOLDERS	STRATEGIC RELEVANCE: HIGH-VALUE DEVELOPMENT DRIVERS	STRATEGIC RELEVANCE: TECH-GAP CLOSERS
HIGH	**The untrusted** Can't quite be done away with but social risks demand extensive control *Examples:* Consumer internet, Tencent Games, tutoring/training schools	**The new commanding heights** Key SOEs that lead and facilitate China Inc going global *Examples:* High speed rail, nuclear, aerospace, space, shipping, shipbuilding	**The must-haves** Technologies that Beijing demands self-reliance, and expends whole-of-nation efforts on *Examples:* SMIC semiconductors, OS like Kailin, industrial and consumer software, Alibaba Chip development, Hisense AI
MODERATE	**The old commanding heights** Provide important economic stability and ballast, but too important to trust to the market fully *Examples:* Real estate, transportation, freight rail	**Consumption multipliers** Facilitates higher domestic consumption and helps connect urban consumers to rural producers *Examples:* Digital Digital platforms and services, e-commerce, such as Alibaba Cloud, AliExpress, Rural Taobao	**Known domestic gems** Leading global competitors that need protection and support *Examples:* AI [Alibaba City Brain, AliOS; Ant Group (AI)] Huawei Harmony OS, Tencent
LOW	**The dead-end employers** Provide jobs, but little value elsewhere *Examples:* Low-value consumer goods, retail, consumer services, local SOEs	**Value-chain climbers** Non-sensitive goods/tech that contribute to higher value consumption and exports *Examples:* Higher value consumer goods, growing consumer brands like Xiaomi, ANTA, Geely	**Known foreign gems and unknown domestic gems** Key tech providers that could leave China (foreign) or that fly under the CCP's radar *Examples:* Exxon Mobil, BASF, Tesla

Source: MERICS

This shift from a division of labor in which SOEs had certain roles and POEs had others to one based not on ownership type but on the strategic relevance and degree of control over individual actors creates many niche roles that companies can occupy in Xi's new economic model.

A series of case studies demonstrating this shift in detail are referred to throughout the text, and the full version of those case studies can be found in the annex of this report. However, perhaps the clearest example of the varied strategic roles companies are meant to play is the planned break-up of Alibaba into six different lines of business, as outlined in the case study below.

Case Study: Alibaba falls in line on national strategic goals, breaks itself up

Jacob Gunter

China's retail and e-commerce giant Alibaba was long a key private company driving extensive growth and innovation, but Beijing has taken a critical view of the company and its founder Jack Ma in recent years. Certain lines of business, such as digital financing, were viewed as risky to socio-economic stability under the party-state campaign against the "disorderly expansion of capital," while other socio-economic goals under the "common prosperity" banner and "anti-trust" rules have also been impressed on Alibaba.

Meanwhile, the tech giant has been pushed to play more of a role in China's tech self-reliance campaign, with the expectation clearly to use its innovative potential not only on lines of business that consumers demand, but also those that are strategic bottlenecks for Beijing. In that sense, Alibaba's decision to split itself into six entities with different lines of business is a prime example of a private company being cowed into aligning with Beijing's strategic goals.

DIRECT CONTROL AND MANY STRIKES AT ALIBABA WITH REGULATORY AND POLITICAL STICKS

Blocked IPO – In November 2020, Beijing suddenly blocked the IPO of Alibaba's Ant Financial (set to be the largest in history).[11]

Regulatory crackdown – Days after this, the State Administration for Market Regulation (SAMR) released anti-trust regulations for comment that were finalized in February 2021. The measures specifically target the internet platform industry. Alibaba's stock price has yet to recover, with its high of EUR 261/share on October 30, 2020, greatly eclipsing its value of EUR 198 at the end of 2021 and EUR 99 at the end of 2022.[12]

Golden shares – The party-state has used state-owned investment vehicles to take one percent stakes with special voting rights in two of Alibaba's units. Zhejiang Media Group seized one percent of Alibaba's Youku Film and TV unit, while an entity under the Cyberspace Administration of China took a one percent share in Alibaba's Guangzhou Lujiao.[13]

Common prosperity – Alibaba created a Common Prosperity fund in September 2021 that will reach a planned USD 15.5 billion by 2025. The funds are planned to support SMEs, enhance insurance for workers in the gig-economy, and promote rural development.[14]

Tech self-reliance – Alibaba traditionally focused its R&D and R&D collaboration specifically in the design part of the semiconductor value chain but has recently expanded its investments in closing the technology gap in other segments of the value chain.

ALIBABA IS RESHAPING ITSELF ALONG BEIJING'S OBJECTIVES

Not only has Alibaba fully aligned with the regulatory crackdown, both data and anti-trust related, but also with Beijing's self-reliance goals – in terms of the tech it was already developing, like cloud solutions and AI development, and in other technologies Beijing needs, like the broader semiconductor value chain.

In fact, Alibaba has fallen in line so obediently with party-state goals that founder Jack Ma largely has stepped back from the company and public life and the company has split itself into six different entities: China-based e-commerce, global e-commerce, logistics, cloud computing, digital mapping and food delivery, and media and entertainment. The stated goal is to allow these subsidiaries, all run independently by different CEOs, the flexibility to operate in a changing environment, and especially to make it easier for each entity to pursue an IPO when the time is right.

Beyond that goal, splitting up the company will allow for more differentiated political alignment. For example, the media and entertainment entity will need to move slowly and in line with what is politically correct at any given moment without poisoning other lines of the business; dividing up China and global e-commerce will make compliance with different data regimes easier; and separating cloud computing, and with it much of the semiconductor value chain and innovation on AI and quantum computing, allows the company to contribute to Beijing's tech and innovation goals without getting bogged down in the sensitivity of other lines of business.

3. The party state's emerging toolkit gets companies in line

3. The party state's emerging toolkit gets companies in line

KEY FINDINGS

- Xi isn't unwinding earlier reforms, but is giving the party-state a stronger role in shaping the ecosystem that economic actors must navigate.
- Breaking from the old model where SOEs advance national goals while POEs drive growth, Xi seems ambivalent about ownership and instead has varied goals for firms based on their relevance to his strategic goals.
- Beijing is using a toolkit of policies, regulations and informal instruments to reshape economic actors that do not align with strategic goals, or to direct support to firms that are on board. Ownership/governance, carrots, and sticks are the key tools.
- The government understands that private firms often have the dynamism and creativity SOEs lack to innovate and commercialize emerging technologies - key ingredients for China's new development agenda – but that they sometimes need steering to develop the 'right' technology.

On the surface, it might seem the market reform process is advancing, if not even accelerating. Xi Jinping rhetorically supports the "decisive role of the market" and he and his cadres often repeat the line that private firms provide "50 percent of tax revenue, 60 percent of GDP, 70 percent of innovation, and 80 percent of urban employment."[15] The share of private companies in key sectors and their presence in the top 100 companies has steadily increased.[16]

China's financial markets have also become more sophisticated. Private companies are omnipresent and financial markets have adjusted to serve the needs of these innovation drivers. Over the past 15 years, stock exchanges like ChiNext (2009), STAR Market (2019) and the Beijing Stock Market (2021) were launched to provide funding for the country's fast-growing companies that were not adequately served by the state-owned banking system. Venture capital also grew alongside new investment channels for foreigners, such as the stock connect mechanism, which allows participation in Chinese capital markets like Hong Kong, Shanghai, and Shenzhen.[17]

On the surface, it might seem the market reform process is advancing

Today, such market reforms are not being rolled back but the function and scope of prices determining economic activities has become far more restrictive. Prices as a coordinating mechanism fluctuate within a lower and upper band in which the government is comfortable, similar to the managed exchange rate of the renminbi (RMB). Sudden and rapid changes increasingly trigger a policy response to "correct" the market. Faced with increasing capital outflow pressure from a depreciating exchange rate, the People's Bank of China (PBOC) introduced an opaque "counter cyclical factor" – an adjustment to daily yuan quotes by the central bank – to "help" guide the market.[18] Another prominent example was the heavy-handed government intervention during the stock market crash in 2015 or interventions to manage commodity prices in 2021.[19] With increasing levels of intervention,

prices are losing their significance as a regulator in the economy. Increasingly, the CCP is the deciding factor determining levels of supply, production, and investment.

3.1 XI ISN'T UNWINDING EARLIER REFORMS, BUT IS GIVING THE CCP A STRONGER ROLE

As private companies have gained a foothold in strategically relevant sectors, the CCP has had to develop a new disciplinary system and incentive structure to compel rent-seeking entrepreneurs to serve the party's interests. This was done in part by regulatory intervention in previously largely unregulated sectors. To increase political and operational control over private companies, regulatory measures have been complemented by stronger party affiliation of the management and traditional economic guidance tools via the state-controlled financial system. As the structure of the economy has changed, the party-state has supplemented its toolkit, turning increasingly to the private sector to achieve ambitious national priorities.

Beijing reshapes economic actors that do not align with strategic goals

As demonstrated with Alibaba, Beijing is using this growing set of policies, regulations, and informal instruments to reshape economic actors that do not align with strategic goals, or to direct support and guidance to firms that are generally on board. These new tools fall broadly into three categories: Ownership/governance, sticks, and carrots. These are discussed briefly here but are illustrated in detailed case studies at the end of this report.

Ownership/governance

- Direct ownership
- Mixed-ownership/reverse-mixed-ownership
- Golden shares
- Party roles in decision making
- Market access restrictions
- Vertically integrated value chains
- Facilitated investment/divestment

Ownership/governance tools give Beijing direct influence in the decision-making processes of economic actors. Some of this happens through traditional means like direct ownership of SOEs at the central or even local level of the government, or through market access restrictions that have historically forced foreign private companies into joint ventures (JVs) with (often state-owned) local partners, thus creating channels for the party-state to guide decisions.

Others are the result of more recent efforts like mixed ownership reform efforts that in many ways tied SOEs and private companies together, or the application of golden shares in certain companies to ensure the party-state has certain veto powers. Finally, the party-state has other unique means to intervene, such as through party roles of board members, the ability to facilitate investment or divestment (to offload toxic assets from firms like the troubled real estate behemoth Evergrande or to raise funds through rapid sales like tech giant Huawei did with its Honor smartphone brand), or the ability of the State-owned Assets Supervision and Administration Commission (SASAC) to use its ownership of multiple SOEs in a given value chain to coordinate action.

Sticks

- Regulatory direction
- "Crackdowns" and "rectifications"
- IPO blocks
- Common Prosperity demands
- Assignment to "national teams"

Sticks in Beijing's arsenal give it the means to drive unruly actors away from the things Beijing doesn't include in its objectives. This can happen through traditional regulatory direction, both to drive legitimate compliance (like with the new cyber and data legal regime) or as means of political signaling through "crackdowns" and "rectification campaigns" (like choosing the internet platform sector for its first round of cyber and data rules enforcement to send a message to other industries). This can also include steps like scuttling planned IPOs at the political direction of Xi himself. Some sticks don't look so offensive or damaging, but instead are means of atonement, like embracing Common Prosperity by putting billions into common prosperity funds or joining "national teams" to help close strategic technology gaps.

Economic policies increasingly focus on high-tech SMEs

Carrots

- Direct subsidies/tax relief
- Policy banks
- Cheap loans
- Advantageous stock listings
- Implicit guarantees
- State guidance funds
- Little Giants status
- HNTE status
- Ensured customer base
- R&D support
- Protected home market

Carrots are a way for Beijing to direct support to economic actors already aligned with national goals to help facilitate their success. They include many traditional means of state aid like subsidies, tax relief, cheap loans from state-run commercial and policy banks, implicit guarantees for SOEs, and protection from foreign competition. However, new support mechanisms have emerged in recent years to help achieve strategic goals, especially those related to closing the tech gap: advantageous stock listings in tech- and SME-specific markets, state guidance funds, status as a Little Giant (small firms in important areas of development) or as a High and New Technology Enterprise, ensured customer bases through public procurement or support from SOE customers, and extensive support in R&D through China's innovation chain strategy.

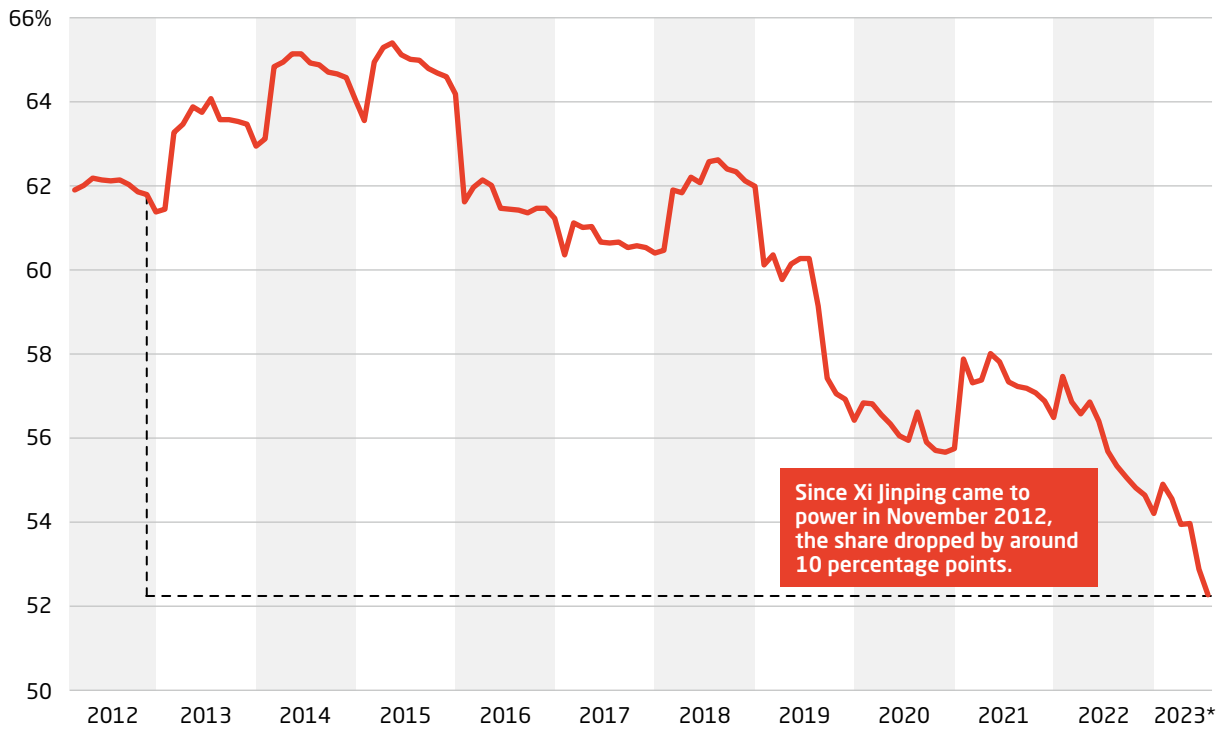
3.2 THE GROWING CAST OF ROLES FOR POES

Economic policies increasingly focus on private enterprises, particularly high-tech small and mid-size enterprises (SMEs), as key actors to solve core issues like technological bottlenecks and economic self-reliance (see Exhibit 7).

Exhibit 7

Under Xi the role of the private sector in investments tumbled

Private-owned enterprise share of total fix-asset investment



*Note: Year-to-date as of July 2023.

Source: NBS

The tech sector has benefited from "walled gardens" protecting them against foreign competition. Now that they have blossomed into strategically relevant companies, the CCP is beginning to tighten its grip. Private firms' increasing prominence in policies also entails greater party-state guidance to focus on core objectives (see Exhibit 8). Prominent cadres call on private enterprises to "continuously increase S&T innovation efforts [...] and to strive to become the force to solve the bottleneck technology problem."[20] The government understands that private firms often have the dynamism and creativity that SOEs lack to innovate and commercialize emerging technologies, which are key ingredients for China's new development agenda.

The greater guidance of private enterprises is accompanied by new carrots and sticks. If private companies follow party-state guidance, they stand to benefit from direct and indirect policy support and improved financing options. A top-level policy published in 2019 by the CCPCC and the State Council is directed at improving the business environment and financing options for private firms to harness their innovation for national goals.[21] Furthermore, the party has greater expectations of the private sector to fulfill national priorities and "unswervingly listen to and follow the party at all times."[22]

This does not mean that all companies are tightly controlled by the party-state – far from it. The bulk of private firms fall outside of the areas deemed strategically relevant by Beijing. Even in some important industries like the new energy vehicle (NEV) sector, which is

critical for China's green transition and is also an important growth sector where Chinese firms are on the cutting edge, the party-state has given considerable space to private actors.

It has adopted a surprisingly lax approach to directing NEV makers while also throwing mountains of state aid into the sector to drive up demand – effectively dedicating a large field where contenders could take root with ample fertilizer for all. Only after some NEV makers emerged as commercially viable did Beijing begin to tighten standards and cut off state-aid – eventually leading the weakest players to exit the field and leave the remaining space to China's most promising NEV brands.

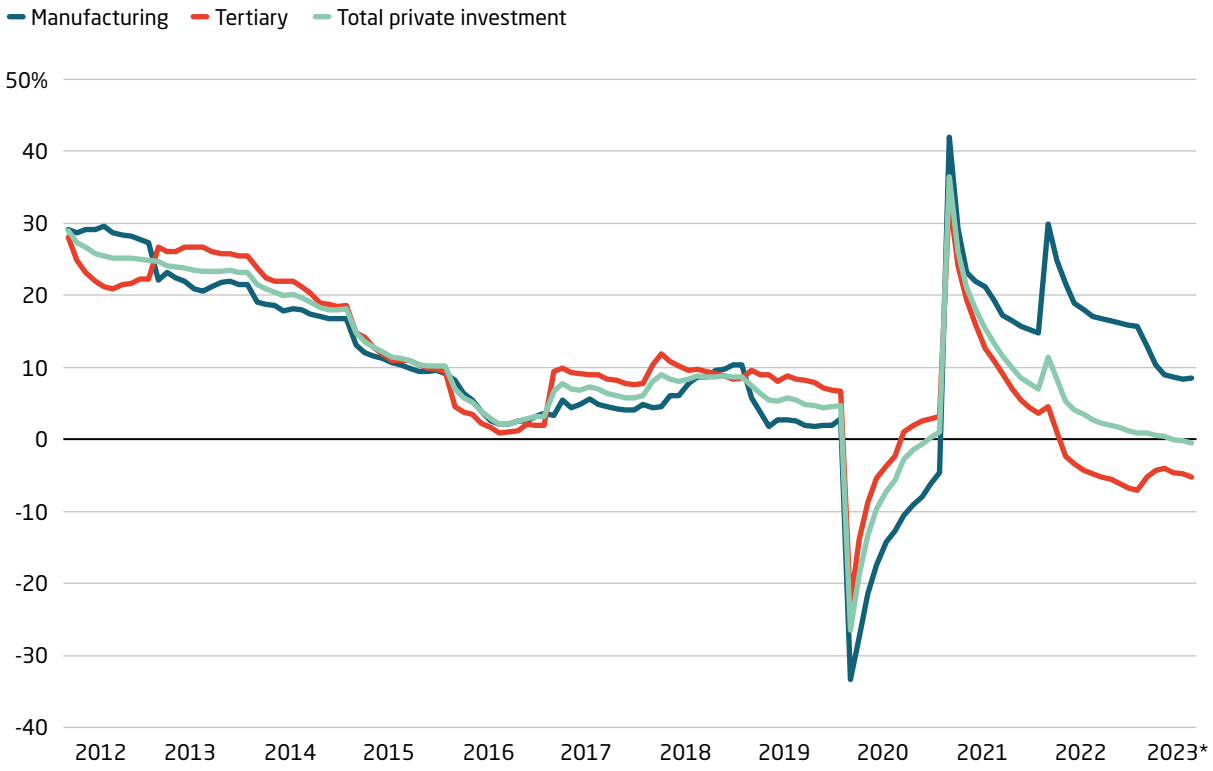
Since at least the 2013 Third Plenum, the leadership has been optimizing economic policies in order to establish a more efficient economic system (driven in part by market forces) that also responds to the guidance of the party. Xi recognizes the superiority of a competitive environment in allocating economic resources in terms of *market efficiency* for the purposes of growth and general development. However, in areas where investment would not be efficient from a market perspective, but where the leadership urgently needs China to be technologically competitive on a global scale, party-state intervention is essential. From the perspective of the CCP, this is not seen as a contradiction.

In Xi Jinping's era the share of POE in China's fixed asset investment has deteriorated by nearly 10 percentage points. Despite these notable shifts, China is not a command economy

Exhibit 8

Private sector investments in manufacturing are growing strong

Growth private fixed asset investment by sector, ytd yoy



*Note: Year-to-date as of July 2023.

Source: NBS

in which all companies follow the party overlord by investing in the "real economy." The deterioration of POE investment is mainly due to a slowdown in services and real estate, while investment in manufacturing has been growing in the double digits.

But the private sector remains fairly reluctant to follow the CCP's growing influence, requiring the CCP to develop new tools for control and guidance. Private companies continue to have similar opportunities as in far more capitalistic systems. But market mechanisms, including how private companies and financial markets operate, are increasingly guided, if not dominated, by the CCP. All in all, the CCP is trying to come up with a system of economic rules that forcefully merges party control with market mechanisms.

4. Beijing advances technological self-reliance by all means

4. Beijing advances technological self-reliance by all means

KEY FINDINGS

- Tech self-reliance in a geopolitically focused economy is the central goal that Xi has in his economic agenda.
- A whole-of-nation approach aims to close tech gaps and make China less dependent on foreign actors Xi believes aim to hold China back.
- Taking hold of the innovation chain, the party-state guides and supports each actor to gain tech effectiveness and market efficiency, while centralizing and streamlining everything from basic research to commercialization.
- Beijing will promote indigenous solutions where it can, even at the expense of efficiency, but will also welcome foreign investors in areas where China's tech gap is largest – better to have secure, onshored foreign technology providers than rely on easily targeted imports.
- China is using its dominance in raw materials and is also seeking disruptive technologies where it can lead, to be used as trump cards in international technology rivalries.

Xi's geopolitically focused political economy is on full display in the way innovation is being pursued in China, as well as how the country's innovation dividend is materializing. Considering the remarkable progress that China has made in advancing itself as a technological great power, there would normally be an expectation that total factor productivity would have climbed as the returns on innovation gains kick in. Instead, total factor productivity has trended downward, begging the question of where the dividend has gone.[23] Rather than going towards productivity, much of it has gone towards Xi's tech self-reliance goals. This is because in most technologies, China is playing catch up in terms of tech effectiveness, but it has enjoyed extensive access to foreign technology – in previous years, Chinese firms could simply acquire the foreign technology to maximize their return, which could bring productivity growth. Instead, Xi has set the country on a path where, in many key areas, it is more important that companies expensively develop that tech themselves. Had China instead focused on its own comparative advantages and accepted interdependencies on others in areas where it lagged, the innovation dividend would likely have moved the needle up on productivity, but instead, it has only gone to closing tech gaps (see Exhibit 9).

The tech self-reliance priority has now been cemented in place. Now facing a showdown with the US and its allies, Xi has called for a "New type of whole-of-nation approach" (新型举国体制) in the 2020 Central Economic Work Conference to close technology gaps and rid China of its dependency on the foreign actors he believes intend to contain his country.[24]

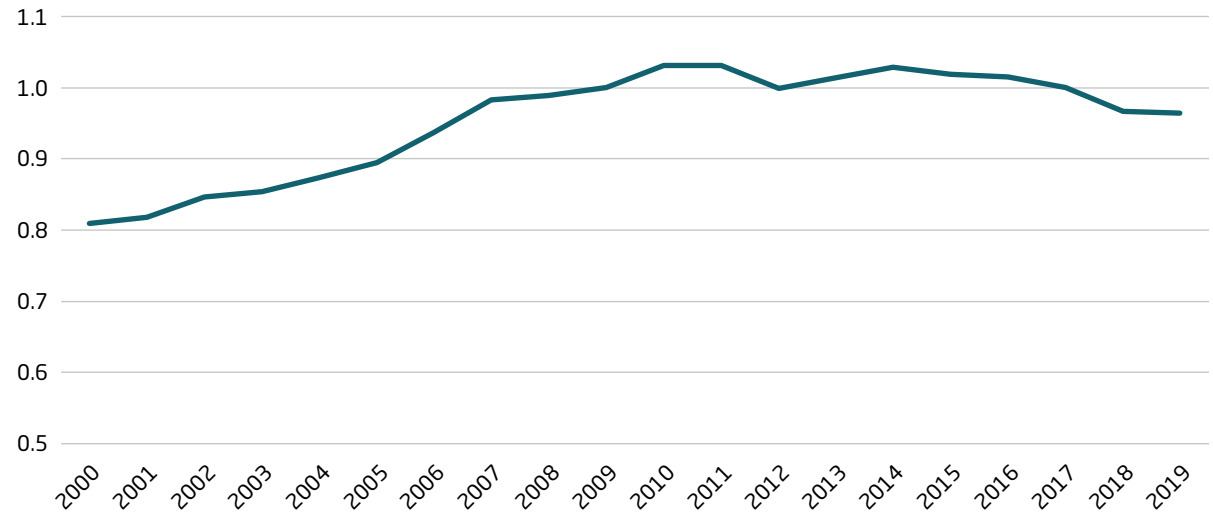
The tech self-reliance priority has been cemented in place

Several clear patterns in these efforts have emerged in the national strategy: First, closing gaps across as many strategic technologies as possible. Second, in strategic technologies where China has achieved effective competitiveness, protecting market share from foreign competition so indigenous firms can achieve *market efficiency*. Third, in strategic technologies where China remains far behind, attracting foreign investment where possible and continuing to import from abroad *where necessary*.

Exhibit 9

China's productivity growth is stalling, despite technological progress

Index of total factor productivity at constant national prices, 2017=1



Sources: University of Groningen and University of California, Davis, retrieved from FRED

4.1 INNOVATE EVERYTHING, EVERYWHERE, ALL AT ONCE

In an attempt to better align innovation and industry, the CCP is setting up new hierarchies within the economy. By mixing tested methods with a stronger embrace of "technocratic laboratory capitalism" – a form of capitalism that operates in a highly controlled environment – the CCP aims to increase centralization and coordination of economic actors. While higher levels of political control may hinder innovation of privately owned companies, the CCP is also attempting to integrate them into China's evolving innovation ecosystem, including networking them with national research institutions, universities and other companies.

The government has also recognized the private sectors strength in emerging technology and incentivizes technology development and competition by reducing their financial risk. The new type of centralized administration of innovation aims to accelerate innovation in strategic areas by aligning the private and state sectors in pursuing national strategic targets.

Ministries and relevant departments play a crucial role in developing the required plans, including roadmaps, timetables and responsibilities. The plans set the framework for direct and indirect financial incentives that help steer market actors toward the most efficient way to reach targets. In sectors where POEs dominates, they compete for full government support, currently especially seen in semiconductors, but previously for electric vehicles (EVs).

Likewise, in sectors where SOEs dominate, they are expected to help reach goals by transforming themselves into profitable drivers of innovation. This is consistent with the emphasis on POEs and SOEs as pillars of the Chinese economy outlined in the 2013 Third Plenum. Increasingly, both are operating in a similar environment with the CCP exerting control over their operational direction regardless of their ownership.

Yet, it is not simply down to POEs and SOEs to contribute to the leadership's call for innovation. In line with the whole-of-nation approach, Beijing has been refining its approach to bringing the party-state and the scientific community in at early stages and then fostering commercialization at the corporate end of China's innovation chain. The intention of the innovation chain is to centralize and streamline everything from the earliest basic research to eventual commercialization, first in terms of tech effectiveness and then market efficiency, all with the party-state guiding and supporting each actor along the way.

The party-state is guiding all actors along the innovation chain

Encapsulating the whole-of-nation approach is the role that larger POEs and SOEs are also meant to play in the innovation chain. This includes expectations that they support the scientific community in the research phase, and often also invest – either in their own subsidiaries (which then benefit from tech transfer) or in startups (providing much needed capital and business support). For China's startups seen as having the potential to close the technology gap in key areas, that support can also come through China's "Little Giants Initiative." Little Giants provides extensive support to qualifying SMEs through the innovation chain model and by connecting them with financial markets like the Beijing Stock Market (see the case study on the Little Giant company Leaderdrive at the end of this chapter). In 2022, 40 percent of listings on the Shanghai, Shenzhen and Beijing stock exchanges were made by Little Giant companies.[25]

4.2 TAKING INDIGENOUS CHAMPIONS FROM TECH EFFECTIVENESS TO MARKET EFFICIENCY

As innovation is often a contest of incremental improvements, technology that is one or two steps behind the cutting edge can still achieve much of what its most advanced version can. An EV with a range of 200 km can fulfil most of the same needs of commuter drivers as an EV with a range of 300 km. And a chip made with the 22 nm process can achieve in a smart phone much, but certainly not all, of the same functionality as a 14 nm version.

Even if the more advanced tech can do some things its lesser version cannot, there is still enough overlap to satisfy many customers. Obviously, Beijing would like to be on the cutting edge in many technologies, but it will often settle first for getting close enough to produce most of the desired applications of a given tech.

This tried and true formula has been demonstrated most clearly in the area of high-speed rail (HSR) technology. China's ambition to create an HSR network was hampered by a lack of expertise and technology to build domestic models. Foreign HSR companies were invited into the market and required to enter JVs and transfer technology to local players such as northern and southern rolling stock companies CNR and CSR. Brands like Kawasaki, Alstom, Siemens and Bombardier all jumped into the market hoping to become the dominant players.

Over time, CNR and CSR merged into a single monopolistic giant CRRC which then had access to all of the transferred foreign tech and eventually caught up and managed to produce technologically effective alternatives to the foreign brands. It didn't take long for the procurement system in charge of purchasing engines and rolling stock to favor CRRC over its foreign competitors, effectively pushing them out of the market aside from some niche tech related to HSR. Since then, China's HSR network has dwarfed all others. Anyone who has ridden the CRRC Fuxing "(national) Rejuvenation" line, which is the exclusive intellectual property of CRRC, can tell you how its speed and smooth ride make European high-speed rail feel outdated.

A similar story is currently playing out with Huawei, which has overtaken its rivals in 5G technology and now enjoys a protected home market to build out almost entirely without foreign competition. Beyond that, Huawei is central to Beijing's strategic ambition to close other technology gaps, and the company is covered in a case study at the end of this chapter.

Some of the same rules that are benefiting Huawei as sources of protection in its home market are also applicable to other sectors. Xi's ambition to securitize China in every possible way have created regulatory and other means to drive out undesirable foreign competition in certain industries, but also to compel the rest of the foreign business community and local firms to integrate with indigenous tech in affected areas.

This is happening most sharply in the Critical Information Infrastructure (CII) (关键信息基础设施) space, where suppliers of relevant information communications technology (ICT) and digital solutions must be whitelisted by a multitude of government bodies for customers designated as CII operators. The rules have a massive negative impact on foreign suppliers and operators. The former report to the European Chamber of Commerce that they face far higher levels of scrutiny than their local competitors, while the latter say they often need to gut their hardware and software used globally and furnish their China operations with indigenous solutions.

A less deep-cutting, but more widespread, source of protectionism is the autonomous and controllable (A&C) (自主可控) campaign, which aims to ensure value chains that can go it alone if needed. Importantly, as more and more industries undergo digitalization and rely more on networking and automation, there is a higher likelihood they will fall under greater scrutiny as operators. It is hard to imagine that Beijing will allow highly automated chemical plants (in a country with a history of exploding chemical plants) or autonomous vehicles to operate without much more oversight and intervention from authorities.

4.3 DRAWING IN FOREIGN TECH WHERE POSSIBLE, IMPORTING IT WHERE NECESSARY

It is impossible to talk about China's own tech self-reliance ambitions without also covering the very dependencies on foreign technologies it seeks to remedy.

China also approaches self-reliance through opening up

Where China remains too far behind foreign technology providers, it approaches self-reliance through opening up. The onshoring of foreign technology brings that tech within China's borders and under Beijing's jurisdiction – a much preferred choice to importing it and being subject to potential restrictions from the US or elsewhere. This can mean removing restrictions, but also rolling out the red carpet with additional support measures to incentivize onshoring. While a variety of external restrictions make it impossible, Beijing would eagerly provide abundant support to companies on the cutting edge in the semiconductor value chain – firms like TSMC, ASML, Nikon, and Intel could effectively name their price if they onshored their most advanced production.

A similar situation emerged for foreign chemical makers BASF and Exxon Mobil when they each announced plans in 2018 to build plants valued at USD 10 billion in Guangdong. These chemical plants will produce highly advanced chemicals for customers in China that previously would have been imported – which would potentially have subjected them to disruption. To facilitate this investment, Beijing approved 100 percent foreign ownership for each investment, something that had never before happened in China.

Finally, China will reluctantly continue to import foreign technology where it has no other choice – though it will simultaneously focus efforts on closing the tech gap in these areas. This is most widely the case in the semiconductor space, where China must import the most cutting-edge chips that empower its own innovation system and its exports, albeit with much greater difficulty since the October 2022 restrictions on US chip tech and the early 2023 joint agreement of the US, Japan, and the Netherlands to restrict exports of the most advanced lithography machines. However, this applies to far more technologies than Beijing would like. Just to name a few:

- Due to their status as military contractors in the US and Europe, many of Airbus and Boeing's suppliers are only allowed to export certain components to Chinese passenger airliner aspirant COMAC
- A multitude of European and Japanese industrial machinery makers will only export their most cutting-edge products to China
- Legions of hidden champions/so-called Mittelstand firms that fill niche roles as the primary (or even sole) providers of certain components have the luxury of a seller's market and are under no pressure to onshore.

4.4 SEEKING TECH SUPREMACY, CHINA HAS USED DOMINANCE IN MANUFACTURING AND RAW MATERIALS AS LEVERAGE

In one of his signature speeches, *Some Major Problems Facing Medium to Long Term National Economic and Social Development* (国家中长期经济社会发展战略若干重大问题) published in Qiushi (the CCP's theory journal) in late 2020, but originally delivered in April 2020, Xi expounded on his vision for China that was very technology-centric.[26] Coming out of the intense initial lockdowns at the start of the pandemic, the speech called first for a resilient domestic market to decrease reliance on foreign demand and second for localized value chains and secure technology access. One plank for achieving secure technology access is by catching up and overtaking the technological high grounds so that Beijing will have deterrence through a sort of technological mutually assured destruction position. Specifically, Xi envisions "assassin's mace" technologies – the Chinese equivalent of a trump card, something which can be unexpectedly thrown into a contest or a fight that changes the dynamic.

The aim is to become the dominant supplier for an emerging technology

The ambition is to establish China as the dominant tech supplier for an emerging technology that will be in high demand globally. From that position, Beijing would control its own tech bottleneck which it could credibly use against other markets, much in the way Washington uses the semiconductor bottleneck to gain a hold on China. The effect would be deterrence – so the US would think twice about cutting China off from its chip technology lest China cut the US off from its bottleneck technology. This could be in AI, quantum computing, life sciences, or new materials – anything China is currently on the edge of and which could become critical in empowering not just one or two end products, but multiple value chains, and a country's innovative capacity itself.

For now, that also means other technologies that can drive deterrence. Beijing's early 2023 crafting of restrictions on outbound intellectual property related to photovoltaic (solar panels) tech opens the door to a kind of export control over a key technology for the green transition – and one where China holds around 80 percent of the global market share in the full

value chain for solar panels.[27] [28] Meanwhile, on July 3, 2023, China's Ministry of Commerce announced export controls on gallium and germanium-related materials on the grounds that they have dual-use applications.[29] China produces around two-thirds of the world's germanium, and 97 percent of its gallium, with each mineral being the base for a variety of applications in semiconductor, optics, and electronics more generally.[30] This came after the Netherlands announced details of its own restrictions on exports of cutting edge lithography machines aligned with the US and Japan. Beijing clearly had prepared its own response and kept it ready to play at the right moment as a possible deterrent – gallium, for example, is essential for cutting-edge chip wafers made by Japanese firms, used by Korean and Taiwanese chipmakers, all made with Japanese and Dutch lithography machines.

Case Study: Leaderdrive, one of Beijing's "Little Giants"

Alexander Brown

Leaderdrive (Leader Harmonious Drive Systems (绿的谐波)) is a private SME and producer of harmonic reducers, a type of core component for robots. Beijing has long sought to build up domestic capabilities in robotics core technologies, where foreign firms dominate.[31]

Robots and CNC (computer numerical control) machines are among the ten key industries included in the Made in China 2025 strategy. Beijing set targets for indigenous Chinese firms to occupy 50 and 70 percent of the domestic market for industrial robots by 2020 and 2025, respectively. It is also aiming to increase localized production of core robotics components to 50 and 80 percent by 2020 and 2025, respectively.[32]

But the industry has so far failed to meet the government's expectations. In 2020, the domestic market share of indigenous brands in industrial robot production was about one quarter.[33] With regard to core components in 2020, the localization rate of reducers, servo systems and controllers had reached about 36 percent, 25 percent and 31 percent, respectively.[34]

Hence, the robotics sector is one where China's dreams of technological self-reliance remain unfulfilled. This is particularly the case in upstream components, where Leaderdrive has the potential to fill a gap in China's domestic supply chain.

ABUNDANT GUIDANCE THROUGHOUT THE INNOVATION CHAIN

Little Giant program: Leaderdrive was included in the first batch of Little Giant (小巨人) firms, announced in 2019.[35] Little Giant companies are high-tech SME firms with strong innovation capabilities operating in niche markets. The designation grants companies special access to government support and encourages both public and private sector actors to facilitate the companies' growth, which includes not only extensive support mechanisms, but also guidance mechanisms that the firms can tap into.

Government subsidies: Since gaining the Little Giant title, Leaderdrive received CNY 78 million in subsidies between 2019 and 2022, accounting for 6 percent of its revenue over this period. Subsidies amounted to just 3 percent of revenue during the period 2017-2018.[36]

Equity financing: The company received a large windfall following its listing on the STAR market in August 2020, where it raised CNY 1.06 billion in capital. It has received direct equity investments from private and public investors, including government guidance funds. For instance, the Advanced Manufacturing Investment Fund is the third largest shareholder in the company, holding 5 percent.[37]

R&D support: Leaderdrive has developed long-term collaborative partnerships with several universities, including Harbin Institute of Technology, Shanghai Jiao Tong University and Southeast University. It led a National Key R&D program project into robotic reducer manufacturing launched in 2017, with CNY 13.4 million in funding support from the central government.[38]

Customer base: Beijing encourages large firms to build stronger links to high-tech SMEs and support their growth. Leaderdrive counts some of the largest indigenous producers of industrial robots such as Siasun, Estun, STEP Electric and Huashu Robot among its key customers.

Manufacturing Champion program: In 2021, Leaderdrive was further recognized as a Manufacturing Champion (制造业单项冠军), essentially one step above a Little Giant company. This marks it as a leading manufacturing company in a specific subsector and further underlines its importance to the government.[39]

LEADERDRIVE AS A SUCCESS STORY FOR CCP GUIDANCE TO FURTHER NATIONAL GOALS

Leaderdrive's growth trajectory has accelerated since its selection as a Little Giant. The company's revenue more than doubled and its assets more than tripled between 2019 and 2022. In 2021, Leaderdrive accounted for 25 percent of the domestic harmonic reducer market, ranking second.[40] Among the three main core components of industrial robots (reducers, controllers and servo systems), reducers are the only ones where a Chinese firm has a significant market share (above five percent).[41]

The firm has been lauded by the Chinese Institute of Electronics for its success in achieving breakthroughs in "bottleneck" technologies and developing robotics core components.[42] According to Zhang Yuwen, deputy general manager of Leaderdrive, the company is fulfilling the mission Beijing has ascribed to it. Through its high-quality, reliable and relatively cheap products, it has successfully reduced the dependence of Chinese robot makers on high-end harmonic reducers imported from Japan.[43]

Case Study: Huawei's base station tech overtakes foreign competitors

Alexander Brown

Huawei Technologies (华为技术) is the flag bearer of China's progress in high-tech manufacturing. It is one of the first private Chinese firms to become a global leader in high-tech goods. In 2012, it became the largest telecommunications equipment producer in the world.[44] Its products underpin the telecommunications infrastructure in China, deemed to be of critical importance for national security. The company's leadership in 5G technology, supported by heavy investment in R&D and innovation, has enabled China to roll out the latest network technology far more quickly than other advanced economies. This will support digitalization and greater productivity across all sectors, from manufacturing, to transport and health. Since 2018, when Huawei was directly targeted by technology restrictions imposed by the US, Huawei has led the charge in efforts to build up self-reliance. It has moved swiftly to replace hardware and software previously sourced directly or indirectly from the US, either through developing its own technology or by supporting other domestic firms.

FRONTLINE LEVELS OF SUPPORT FROM THE PARTY-STATE

Technology transfer: In exchange for market access, foreign telecommunications firms were required to share intellectual property with domestic firms such as Huawei, facilitating its early development.[45]

Protected market: Priority access to contracts for the rollout of telecommunications equipment in China has provided a huge market for Huawei and helped it to scale up. As of 2022, China accounted for over 60 percent of the world's 5G base stations.[46]

Policy banks: Tens of billions of US dollars have been granted to Huawei and its international customers to support projects overseas.[47]

Grants and tax incentives: A review conducted by the Wall Street Journal suggests the company has received USD 46 billion from loans, credit lines and other support from state lenders. Tax incentives saved Huawei as much as USD 25 billion between 2008 and 2018.[48] Subsidies granted to Huawei more than doubled in 2022 to reach over RMB 6.5 billion (approximately USD 950 million).[49]

Facilitated divestment: Beijing acted as an "investor of first resort" to transfer Huawei's HONOR brand assets to a non-Huawei entity, to bring them outside the scope of US sanctions.[50]

Economic coercion: Chinese officials have on multiple occasions threatened to retaliate should Huawei be excluded from supplying equipment to markets overseas countries.[51]

PRIME EXAMPLE OF BEIJING'S INNOVATION HOPES AND CONTAINMENT FEARS

Government backing smoothed the way for Huawei's transformation into a technology powerhouse. The company is among China's most innovative firms and most prolific generators of invention patents.[52] It has successfully entered markets all over the world, and to a large degree European countries still use Huawei technology in their 5G networks, although this may not last.[53] Ultimately Huawei's ties to the government and its home market advantages have caused pushback overseas and are beginning to restrict its access to some markets in advanced economies. The company has been drawn into the center of China's stormy relationship with the US.

Huawei's fight for survival amid the US technology embargo embodies the Chinese government's fears for the country as a whole. Over the past few years, it has made significant progress in fully localizing its supply chains. Ren Zhengfei, the company's founder, says domestic alternatives have been found for more than 13,000 components and over 4,000 circuit boards redesigned.[54] In the realm of industrial software, Huawei has switched to its own MetaERP (enterprise resource planning system), thus replacing US vendors.[55] The company is also active in the semiconductor space. It has become a leading supplier of AI chips for the domestic market and is leading local advances in electronic design automation tools for chips.[56] What's more, in 2019 Huawei launched a semiconductor investment fund which has backed over 80 local firms.[57]

Most importantly for Beijing's goals, Huawei and SMIC had jointly worked on near-7 nanometer chip technology, which seems to have yielded effective, though likely not efficient, results. In early September, 2023, Huawei unveiled its new Mate 60 Pro smartphone, which uses Kirin 9000-S chips made by SMIC. While a tear-down of the technologies in the phone are ongoing at time of writing, it suggests that major progress has been made through indigenous innovation.

5. Xi's emerging social contract puts strategic objectives first

5. Xi's emerging social contract puts strategic objectives first

KEY FINDINGS

- The transition towards a consumption led growth model is taking the back seat. Achieving industrial policy objectives takes precedence over advancing socio-economic targets, so long as the economic baseline is held.
- Despite Xi's ambitious social reforms, advancing structural socio-economic change and redistribution have never been the priority for CCP since it embarked on economic reforms.
- Under Common prosperity there is discontent with those displaying excessive wealth and an expectation for companies to take on more social responsibility.
- Aligning strategic priorities with jobs and income is becoming more difficult as China deals with a more demanding middle class and its needs and wants.
- Ideology and geopolitical rivalry are nurturing a more repressive political economy that may well run counter to the expectations of a large middle class.

China's economic transition has been a remarkable success. In the process, over 800 million people have escaped poverty.[58] Just in time for the CCP's centennial in 2021, Xi declared the end of extreme poverty. The annual income of at least 100 million people had exceeded RMB 4,000 – China's definition as the rural poverty line. In 2022, GDP per capita reached USD 12,720, putting it close to the World Bank's definition of a high-income country of USD 13,845.[59] But this still leaves China below Bulgaria (USD 13,772) and Romania (USD 15,892), the countries with the lowest GDP per capita in the EU.

Solely focusing on national GDP per capita levels in China might be misleading as it is already an innovation power to reckon with. In a large economy like China, various development stages take place simultaneously. Already 42 percent of its population lives in regions that would be categorized as high income by the World Bank. Jiangsu, Fujian, Zhejiang and Guangdong all have a GDP per capita greater than USD 15,000 in 2022. Together, their population is over 330 million, giving China a very sizable middle class.

In China, various development stages take place simultaneously

Despite this remarkable success in improving the well-being of society, China's economic policies have remained geared toward supporting industry in pursuit of greater technological sophistication. Reaching national strategic goals requires large capital investments in infrastructure, production capacity and science and innovation. Empowering the autonomy of private households' consumption patterns is not compatible in a system that seeks greater centralization and control – after all, consumers might not buy what the party wants them to. This sets limits to the decade-old demands for rebalancing the economy to rely less on investment. In Xi's economic logic, it is a strong capacity to provide effective

supply that creates jobs and income – and from that follows demand.

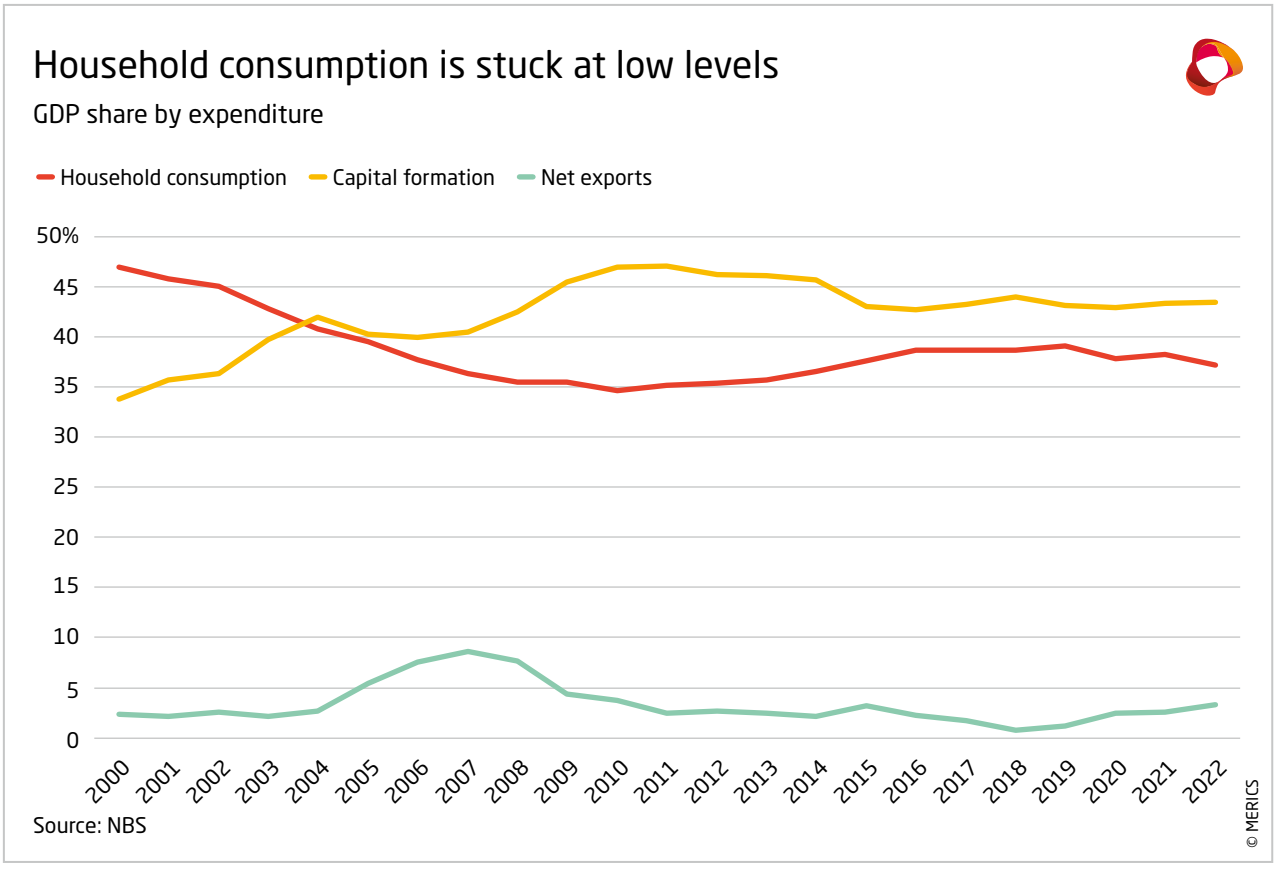
The type of socialism that Xi Jinping envisions for China emphasizes ideology and nationalism. A fundamental part of this are collectivist principles as an important feature of China's economic system. This means that the nation's interest supersedes that of the individual. While individuals are not yet only seen as a means to an end by the CCP, more repressive structures in the political economy are limiting their corridors of economic activity.

Advancing authoritarian elements as a key principle of governance under the leadership of Xi Jinping is leaving its marks on the socio-economic structure of the country. As in other parts of China's economy, the CCP is advancing its position and guidance over economic actors. This does not bode well for a substantial shift in China's growth model toward more household consumption and has significant implications for China's development path.

5.1 CONSUMPTION-DRIVEN GROWTH FAILS TO LIFT OFF

One of Xi's signature policy agendas, The dual circulation strategy, is centered around just that. The core principle is to shift China from its previous model of export- and investment-driven growth to one that is primarily fueled by domestic consumption, and in which exports play a supplementary role. However, broad acknowledgement that such a shift toward consumption-driven growth is necessary does not inherently facilitate that transition. There are other priorities to consider, and Xi has clearly ranked consumption-driven growth as a second-tier goal.

Exhibit 11



Countries with higher government control over the economy have generally lower degrees of private consumption.[60] The household consumption share of GDP has barely improved since Xi's first term in 2013 – going from 34.3 percent in 2010 to 38.5 in 2021, basically the same level over the past five years. Despite a long debate on the transition to a more sustainable growth model, investment remains the most important element in the economy. This should not come as a surprise as achieving industrial policy objectives takes precedent over advancing socio-economic targets. A higher share of consumption and the autonomy of households would counter efforts toward greater centralization of China's economic system favoring industrial policy (see Exhibit 11).

The household consumption share of GDP for countries classified as middle income by the World Bank is typically around 50 percent while for high income countries the share is around 60 percent. In isolation, the failure of the dual circulation strategy to drive change might suggest a policy failure, but in the broader context of Xi's economic policy making, it is rather a failure caused by tradeoffs. From the perspective of Xi's economic thought, however, a low household consumption share should be understood as a feature of China's economic system rather than a structural problem.

5.2 THE REBUTTAL OF THE WELFARE STATE: SOCIO-ECONOMIC INDICATORS STAGNATE UNDER XI

Advancing redistribution has not been the mainstay of the CCP

Advancing socio-economic policies and redistribution have not been the mainstay of the CCP since it embarked on economic reforms – and are not under Xi Jinping either. Zhu Rongji ended the Mao-era social safety net of the company-level work unit (单位) during the reform of SOEs in the 1990s. Disbanding the "iron rice bowl" was replaced by a laissez faire social system akin to a neoliberal economy.[61] Any substantial rebalancing effort would require a meaningful redistribution and increased social expenditure by the government which would come at the expense of investments in expanding manufacturing capabilities and innovation. This requires change to be institutionalized rather than a campaign-style approach such as battling extreme poverty.

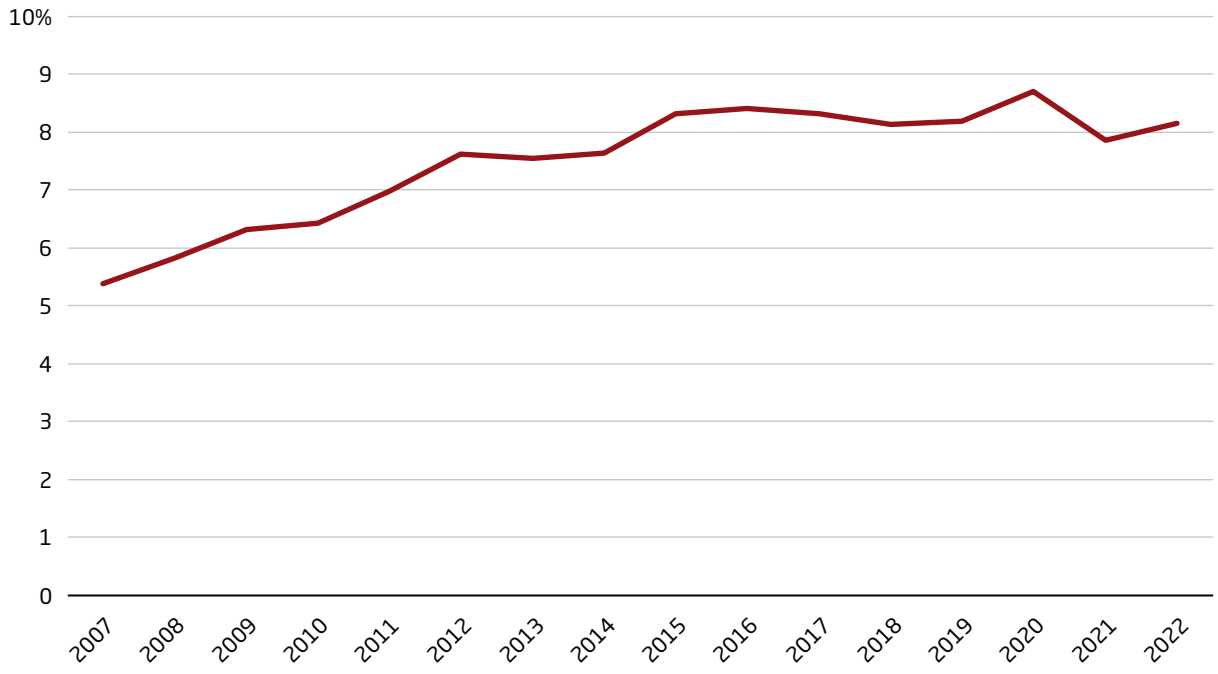
These priorities are unlikely to change anytime soon under Xi Jinping despite ambitious social reforms announced in 2013. Public spending on health, education, social security, and employment largely remained unchanged in Xi's first two terms, reaching 8.1 percent in 2022. Xi has inherited many of the problems of previous leaders, but despite some lip service to structural reform he continues to kick the can down the road. Addressing these long-lasting structural issues will become even more pressing as GDP growth slows, society ages and the working population shrinks further from its peak in 2015, and highly leveraged local governments struggle to fund social services (see Exhibit 12).[62]

The lack of a proper social safety net helps explain China's exceptionally high savings rate. Households save money for health care or retirement rather than consume. High saving rates in turn promote an investment-led growth model as it facilitates cheap capital. Savings as share of GDP halve held steady at levels close to 45 percent since 2013. China's saving rate is almost in a league of its own and far higher than for middle- or high-income countries as classified by the World Bank. The impression of hyper-consumption in China's modern mega-cities or online retail frenzy do not reflect the macroeconomic reality but rather a snapshot of the society – and entrenched inequality.

Exhibit 12

Xi's common prosperity push has no effect on social expenditure

Public expenditures on health, education, social security and employment as share of GDP

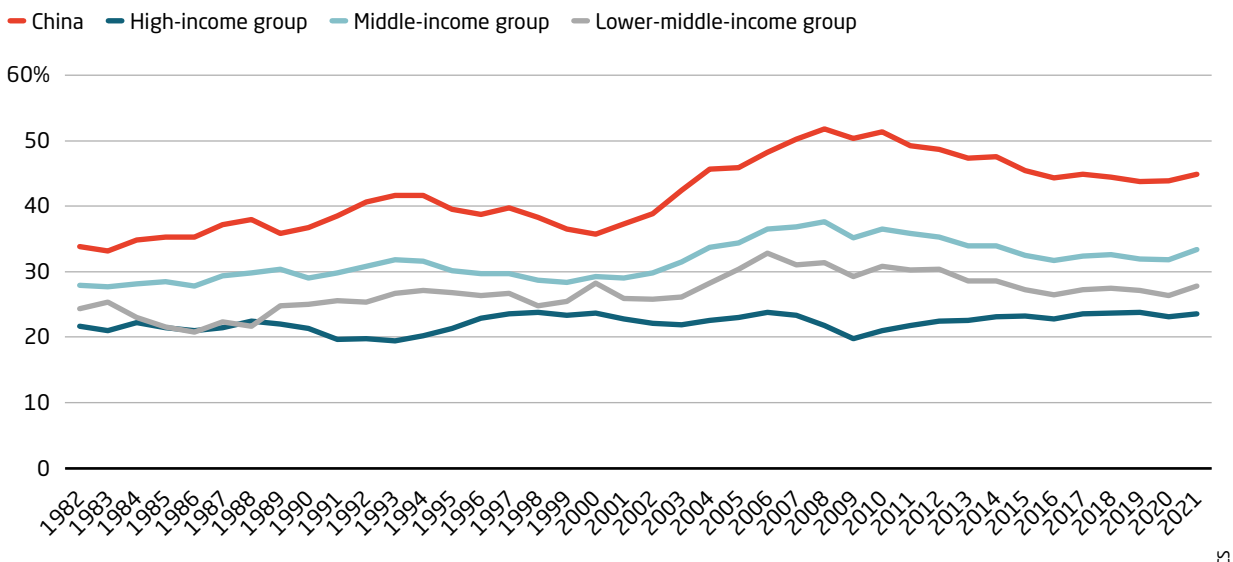


Source: MERICS calculations based on NBS data

Exhibit 13

China's savings rate remains expectionally high

Gross saving as share of GDP by income group



Source: World Bank

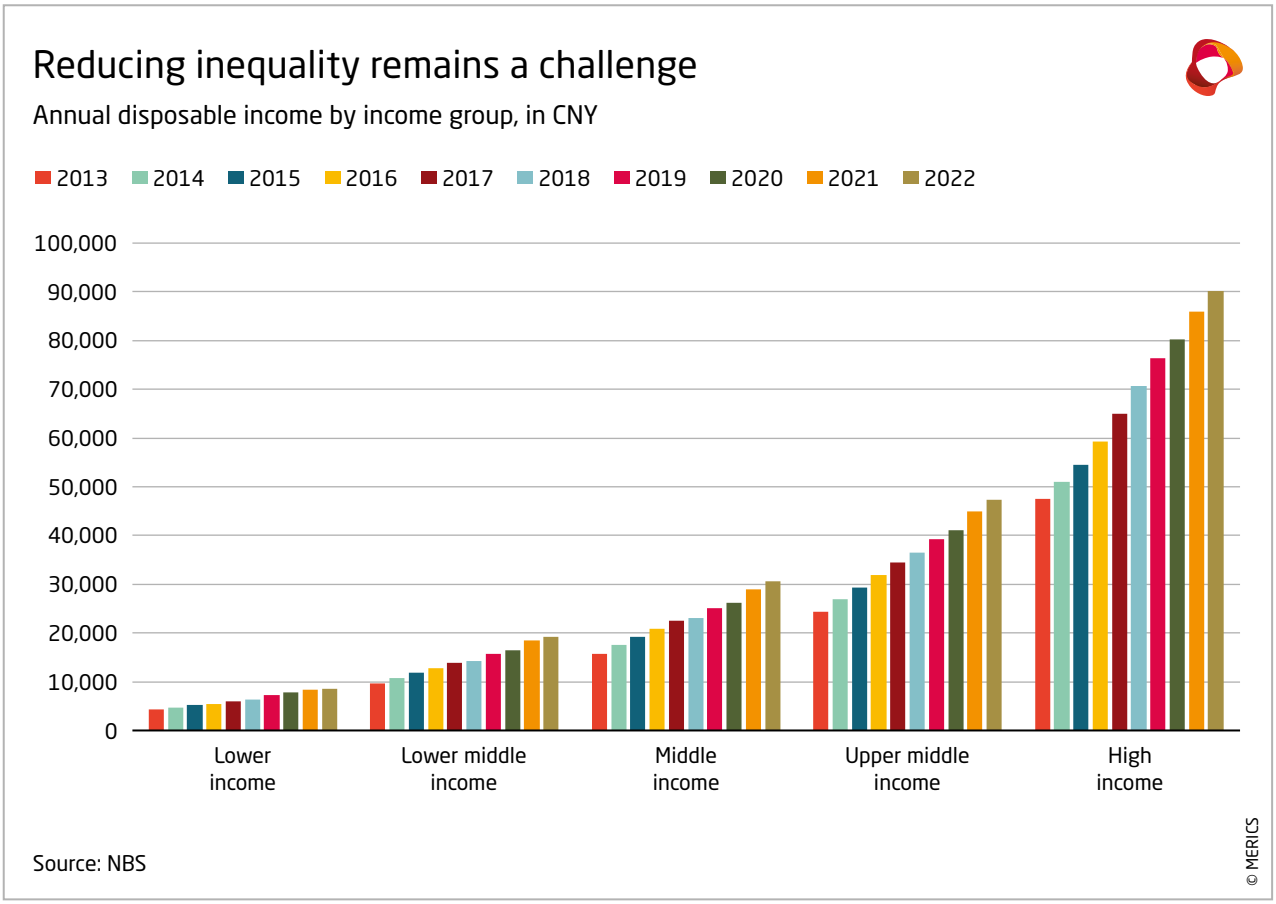
China's inequality has remained persistent but has been less of a policy issue for as long as economic growth remained strong enough to improve the lives of all income groups. This has given the CCP the liberty to set economic policy priorities other than strengthening the social system (see Exhibit 13 and Exhibit 14).

5.3 COMMON PROSPERITY IS MORE SYMBOLISM THAN STRUCTURAL CHANGE

The failure to direct more income to households belies another core tenet of Xi's economic ideology in practice. Common prosperity re-entered the lexicon in 2021 when it was wielded alongside the broader crackdowns on digital tech and real estate. Many initially expected that large-scale redistribution was in store, but this failed to materialize beyond some talk of tertiary distribution – the redistribution from wealth via donation or charities. Companies got the message to take on more social responsibility by expanding philanthropic work, including donating to those in need and setting up funds focusing on rural development and announcing measures to reduce the income gap within companies.[63]

Under Xi Jinping, the flashy display of wealth by business elites is becoming less fashionable – and potentially risky. China's entrepreneurs could be facing consequences similar to local officials during the anti-corruption campaign in the early days of Xi's rule. In response, officials could no longer hold fancy banquets or be seen with expensive watches. There is an increasing expectation of modesty and the need to demonstrate a role in developing the nation. As a result, China's billionaires donated a record sum of USD 10 billion in 2022 – more than a drop in the bucket.[64]

Exhibit 14



Common prosperity has been used alongside pressure on China's most innovative companies to put their capital and expertise to use in achieving national strategic goals, like closing the technology gap. But Common prosperity is not about deriving prosperity for the working class at the expense of higher taxes on the wealthy or increasing costly social services. Xi's policies, including a crackdown on private companies and elites, in part resemble populist policies introduced by disgraced former senior CCP official Bo Xilai in Chongqing, who was convicted of embezzlement, but they do not concretely address key issues including redistribution and inequality.[65]

So far, his efforts pale in comparison to those under former President Hu Jintao. Hu expanded labor legislation, including contract law and a more serious implementation of minimum wage and improved access to medical insurance for migrant workers, although these efforts lost steam at the end of his term in 2012.[66] Ironically, Xi's vision of Chinese socialism comes with a rejection of Western-style socialism with its stronger role for the state. Instead of deepening institutional reforms, the responsibility of providing is left in large part to individuals themselves while the state contribution is kept to a minimum. Stronger guidance on companies under Common prosperity is little more than signaling right now, but if accelerated, could shift toward a larger burden falling directly on companies.

This sentiment is also captured in the case study on Tencent at the end of this chapter. The company was front and center during the consumer internet/platform crackdowns of 2020-2021, and it has been pushed by Beijing to align its strengths towards supporting the real economy. Furthermore, Beijing has heavily punished the gaming side of Tencent's operations, with tight regulations not only limiting approvals for new games, but for restricting gaming time for some users. The result is that the company has been cowed domestically and is strategically going overseas to make up for the lost business opportunities within China.

5.4 THE NEW SOCIAL CONTRACT MEANS CONTRIBUTING TO NATIONAL REJUVENATION

Aligning strategic priorities with jobs and income is becoming more difficult

Policies under Xi Jinping increasingly appear motivated by non-economic targets that do not aim to increase profits or the welfare of individuals and private companies, but rather to promote self-reliance and national power, including military power. Allocating national resources to building a welfare state is a luxury the CCP does not want to pursue in a time of growing systemic rivalry with the US. Increasingly, the economic beneficiaries of China's development in past decades, notably entrepreneurs, the wealthy and the middle class, will now be expected to be grateful to the party for allowing them to be far better off than the hard-working generations before them. The new message is: Don't become complacent. Tighten your (economic) belts and roll up your sleeves to do what is in your power to rejuvenate the Chinese nation.

Aligning national strategic priorities with jobs and income is becoming more difficult as China deals with a more demanding middle class and its needs for jobs and income. This comes as social fault lines are becoming more complex. Youth unemployment reached record levels of over 20 percent in Q2 2023, yet companies are struggling to fill vacancies in factories.[67] One reason for this is a growing mismatch of skills and expectations. Workers with the vocational skills needed in manufacturing are scarce. On the other hand, not every university graduate will become a high-profile scientist helping China close the technology gap. Encouraging youth to work in the countryside seems to be a hard sell for an aspiring future generation.[68] Most young urbanites most likely do not expect to return to rural life, nor are they keen to work in 3D manufacturing jobs (dirty, demanding, difficult).

Creating a large middle class, one of China's biggest economic reform successes, now looks like a potential vulnerability for the CCP. There is a real risk that parts of society will see a stagnation, or even a possible deterioration, in economic well-being. The CCP will need to respond to these demands of the middle class. It has already shown a return to pragmatism following intense economic pressure built up during the three-year zero-Covid policy. The CCP must control social economic risks, using, for example, extensive party and state intervention in sectors like real-estate, most infamously with the debt-ridden property giant Evergrande, but also to provide an economic baseline that ensures employment and income to satisfy the minimum needs of the majority of society.

Social and regional divisions are likely to become a major issue

Beijing views the role of most companies as holding that economic baseline. This includes companies with a limited role in driving forward high value-added production or helping in the innovation drive to close key tech gaps. One example, GAC-Toyota, a Sino-Japanese JV internal combustion engine automaker, is covered in the case study below.

The greater importance of ideology and geopolitical rivalry are nurturing a more repressive political economy which tends to be less responsive to a moderate society.[69] Under such a system, social and regional divisions are likely to become a major issue going forward. Though more policy changes attempting to address the resulting problems can be expected in the context of Common prosperity, the overall prioritization of national strategic goals over economic growth seems to be a new hallmark of China's economic system.

Case Study: GAC-Toyota JV shifts from tech provider to economic baseline holder

Gregor Sebastian

GAC-Toyota is a JV between Chinese SOE Guangzhou Auto (GAC) and Japanese car giant Toyota, focused on making passenger vehicles. Both partners have additional, competing automotive JVs and production bases in China. Unlike in the past, Toyota is no longer viewed by Beijing as a technology provider, and such sino-foreign automotive JVs that are not fully committed to EVs will play a limited role in the future – holding up the economic baseline until they are phased out over time.

From Beijing's point of view, the strategic role of such JVs has shifted in recent years. Initially, Beijing saw these primarily as a means to help Chinese carmakers move up the value chain by introducing Japanese car-making technology and knowhow into China. But China's shift to EVs means Toyota is no longer seen as such an important technology partner. Nonetheless, the JV continues to fulfill several important functions such as contributing to economic growth and promoting employment and tax payments. What's more, it continues to serve as an important anchor for Japanese suppliers to localize production in China.

GAC'S STATE OWNERSHIP GIVES BEIJING INFLUENCE THROUGH JV REQUIREMENTS

Market access restrictions: To promote the development of Chinese carmakers, Beijing has restricted the access of foreign carmakers, including Toyota, to China's market. High tariffs have made exporting to China unpalatable but producing locally meant entering into a JV with a local partner and sharing technologies and knowhow.

Promoting electric vehicles: Beijing has reduced its technological reliance on the JV by promoting EV technologies that had not yet been dominated by foreign carmakers such as Toyota. The government incentivized carmakers to develop and produce new energy vehicles (NEVs) using carrots, including subsidies, and sticks, such as a production quota. In an initial pilot phase, hybrid vehicles had been trialed, but fearing future dependency on Japanese carmakers like Toyota, Beijing excluded hybrids from the NEV definition.[70]

The loss of relevance of hybrid technology made Toyota more willing to share its knowhow. In 2019, the Japanese carmaker even offered patented hybrid technologies free of charge to Chinese producers in the hope that hybrid vehicles would be taken up more widely. In 2020, Toyota licensed its hybrid tech to GAC.[71] The JV also announced additional investments for a new NEV plant, further promoting growth in Guangzhou.[72]

GAC-TOYOTA WILL STILL IMPORTANT FOR BEIJING IN PROMOTING GROWTH

The initial goal of promoting technology transfer from Toyota to GAC has partly worked. While GAC is not yet an internationally competitive carmaker and has lagged Toyota in producing internal combustion engine vehicles, it has fared among the best in Chinese state-owned carmakers. Its own brands in the ICE (Trumpchi brand) and EV (Aion brand) have been successful in China. GAC own brands have benefitted from the knowhow and engineering expertise of the Toyota JV. Indeed, with the shift to NEVs, a "reverse technology transfer" has taken place, as jointly produced EVs have used a GAC-developed electric powertrain.

The draw of Toyota has also helped China attract investment from Japanese and other international suppliers. Japanese Nidec formed a JV in 2019 with a GAC subsidiary to produce electric motors for GAC.[73]

Beijing's perspective on the JV has shifted from seeing it primarily as a source of technology to considering it more as a means of maintaining an economic baseline. Nevertheless, Guangzhou's robust local economic prowess and GAC's capacity to compensate for potential employment losses resulting from the JV have greatly diminished its significance over time, even as an economic baseline.

Case Study: Tencent's best lines of business are under the most political pressure

Aya Adachi

The Shenzhen-based tech conglomerate Tencent has many lines of business, and has experienced some of the most intense application of Beijing's party-state toolkit after initially benefiting from protection from foreign tech giants. The bulk of its products are consumer internet in nature: social media companies like Wechat and Weibo, entertainment, digital payment systems and gaming; and have thus been highly exposed. Despite being one of China's most profitable and innovative companies, the firm has been so besieged to change its behavior at home that it is now seeking foreign markets to balance out the domestic market's now-diminished growth potential.

FROM "VALUE-CHAIN CLIMBER" TO "THE UNTRUSTED," TENCENT HAS SUFFERED MOST IN ITS GAMING SECTOR

Once a boon for consumption growth on paper, Tencent has come under heavy pressure not only for failing to contribute to key national strategic goals, but for allegedly dragging them down. Tencent's data collection across its lines of business likely presented a comprehensive look at many Chinese citizens and their habits, which are seen by authorities as bad enough to become a central focus of the platform crackdown. Tencent has channeled its resources and research capacity to work on, from a stand point of national interests, not-so-important social media, gaming, and entertainment. Worse yet, those very products have proven unwelcome distractions for students whom the party-state expects to focus on their studies, and for young people who, instead of playing video games, should be contributing more to China's rejuvenation.

TENCENT WAS HIT BY THE TECH CRACKDOWN AND A RAFT OF ANTI-TRUST AND GAMING RULES

Frontline levels of support from the party-state

Technology transfer: In exchange for market access, foreign telecommunications firms were required to share intellectual property with domestic firms such as Huawei, facilitating its early development.[74]

Protected market: Priority access to contracts for the rollout of telecommunications equipment in China has provided a huge market for Huawei and helped it to scale up. As of 2022, China accounted for over 60 percent of the world's 5G base stations.[75]

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6. China contends for the central position in the global economy

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KEY FINDINGS

- China is reinforcing and strengthening controls over international trade and finance, in- and outbound investment and the flow of data and people that make up "fortress" China.
- Xi sees that China must remain connected to the global economy to advance its development and expand its global power – but is wary of unfettered, Western-style globalization.
- It is not in China's interest to completely disconnect with liberal market economies, as it still needs their markets for exports and capital and technology to overcome tech dependencies.
- Similarly, Beijing aims to build up ties with global south countries as raw material sources, growing export and investment markets, and destinations for China's tech and capital.
- Key features of China's global engagement: challenging the existing economic order, mitigating risks with liberal market economies and engaging with emerging and developing countries.

Throughout the reform process initiated under Deng Xiaoping, China's foreign economic policies remained highly restrictive and controlled – most notably, its strict capital controls and restrictions on foreign investments. The general mantra of hedged integration with the global economy has not changed under Xi Jinping. But the parameters for China's future opening are increasingly happening on its own terms. In the process, China is reinforcing and strengthening controls over international trade and finance, in- and outbound investment and the flow of data and people that make up "fortress" China. It is also a reminder that the relative trade openness that has been a key driver for China's integration over the past decades is more the exception than the norm for China.

Global economic integration should now be on China's terms

Global economic integration should now be on China's terms to safeguard its national interests and long-term economic development. The objective is to create economic and technological dependencies by developing new markets, controlling value chains and securing access to key resources for China's industry, energy, and food needs. Instead of pursuing Western-style globalization driven by capitalism, China is seeking its own path consistent with greater party control and guidance. A world in which companies act independently from national strategic goals in pursuit of profitability conflicts with Xi's economic principles. National interest should take precedence over profit-driven motivations. Beijing recognizes the need for China to remain connected to the global economy to advance its development and expand global power – but is wary of unfettered, Western-style globalization.

However, China is not on a path towards isolation. It is not in China's interest to completely disconnect with liberal market economies, as it still needs their markets for exports and needs its capital and technology to overcome existing tech dependencies. Providing eco-

nomic incentives is also an effective tool to keep countries in line with China's interests and positions. To facilitate this, China is highly active in deepening ties with the Global South as it seeks to develop new alternatives.

Three key features of China's engagement with the world are: challenging the existing global economic order, mitigating risks with liberal market economies and engaging with emerging and developing countries.

China is deepening ties with the Global South

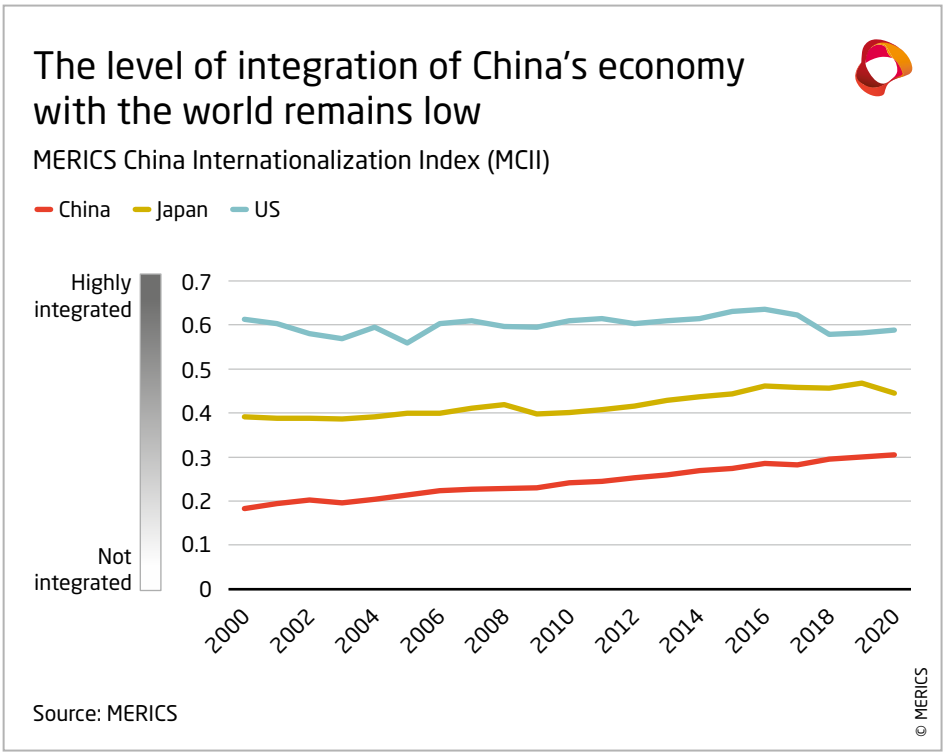
- **Challenging the global order:** The leadership's efforts to strengthen China's position as a global economic power lacks neither vision nor ambition. China is doubling down in its effort to pull more and more countries and companies into its sphere of economic influence. The BRI has helped China expand its trade faster and served as a new source of external demand. Investment-driven engagement has focused on building hardware, complemented by agreements to provide the software to run it. US economic sanctions and concerns that American global hegemony is waning have provided China additional inroads and growing economic clout. In response to geopolitical shifts, China has accelerated its efforts by rolling out numerous new initiatives. In 2022, it launched the trinity of the Global Development Initiative (GDI), the Global Security Instigative (GSI) and the Global Civilization Initiative (GCI). Older formats such as the Shanghai Cooperation Organization formed in 2001 seem to have gained new momentum.

- **Shifting the economic center of gravity:** Ideally, China should provide an alternative if not replace the dominance of liberal market economies as a global provider of technology and capital. While expanding economic ties with liberal market economies was a catalyst for China's development in the past, China is now seeking greater engagement with the Global South, promoting development in these new markets to cultivate new customers for its exports. It portrays itself as the champion of the Global South, which frustrated with the American-led world order that leverages the gravitational pull of its economy. In a shifting global context, China's multifaceted set of policies are finding welcome takers around the world.

- **Develop China's own de-risking strategy:** Just as voices in advanced economies say there is no second China as a market, the reality is that there is no second set of liberal market economies for China when it comes to technology, capital, and demand for Chinese exports. While it aims for autarky, China is not in a position to cut all foreign dependencies without massive implications for its own development. One way is by absorbing global value chains though greater localization of foreign companies. China has opened up many sectors to foreign investment to onshore key technology providers – ironically, opening up in such areas advances technological self-reliance by bringing foreign technology under Beijing's jurisdiction.

Tracking integration: The shifting dynamics of China's opening up

Exhibit 15



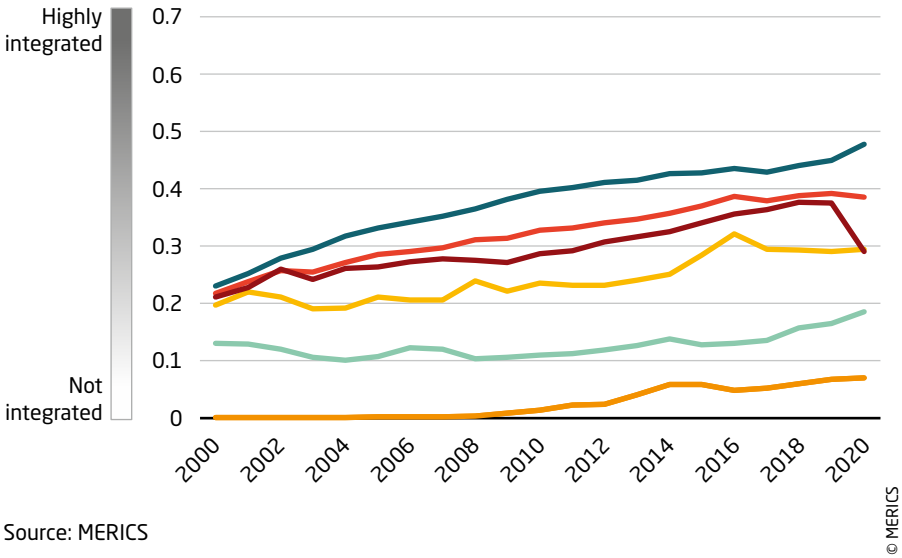
China's integration into the world economy has been a rather continuous process over the past two decades. But this is showing signs of leveling off and reaching a ceiling at much lower levels than the US or Japan. Shifts in the Xi era do not bode well for continued integration. A growing gap between de jure and de facto integration indicates that, despite the announcement of numerous measures to open up, these are no longer creating actual change as in previous years. To capture the dynamics and shifts in China's internationalization process we have developed the MERICS China Internationalization Index (MCII) and benchmarked it to the United States and Japan.

Starting in 2016, de facto integration in the MCII comes to a standstill despite the de jure index leaping from 0.4 to 0.51. The MCII continued to rise, reaching a new peak of 0.31 in 2020. The MCII reconciles apparently conflicting views that China has been disconnecting from the world over the last few years while at the same time it has become more important to the global economy. Indeed, the sub-index of the integration of the Chinese economy in globalization from a Chinese perspective plateaued from 2006 to 2016, while the sub-index for the importance of China for the rest of the world steadily increased.

Exhibit 16

Trade is the main driver for China's integration with the world economy

MCII China sub-index



Source: MERICS

The index is designed to capture the development of China's integration with the world using nearly 50 variables and a dozen sub-indexes. For each of the variables, the importance relative to China and the world is measured. Sixty percent of the weighting is attributed to the real economy, including the flow of trade, investment, people, and knowledge. The remaining 40 percent measures the level of integration in the financial economy, including equities, loans, bonds, and currency. The range of the index and subindexes is from 0, meaning no integration, to 1, meaning full integration. The latter is calibrated on the maximal value encountered by G20 countries, with some adjustments when specificities makes such a generalization inappropriate. *François Chimits*

The globalization that has driven China's engagement with the world is undergoing a structural break, with new risks and opportunities for China to shape its own position. To understand the direction China is taking in its relationship with the rest of the world, it is critical to examine its changing patterns of trade, investment, technology and finance. Two case studies at the end of this chapter cover how an emerging global tech leader in the EV space, BYD, as well as the old state-owned national shipping champion, COSCO, contribute to the strategic goals of Beijing at home, but especially overseas.

6.1 TRADE: CHINA WANTS TO DEVELOP NEW EXPORT MARKETS AND INCREASE DEPENDENCIES ON THE CHINESE MARKET

How China integrates with the world will be crucial to measuring its development

Growing trade ties have long been the key driver for China's global integration. China overtook the US as the biggest trade partner of 71 percent of the world in 2021.[87] Gaining access to the large Chinese market is an irresistible lure to deepen ties with China, including through new bilateral or regional trade agreements. After years of booming trade with advanced economies, export volumes are nearing saturation, but with 40 percent of China's exports going to the EU, US, and Japan in 2022, developing new export markets is still an uphill battle. Regional trade deals like the Regional Comprehensive Economic Partnership (RECEP) and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) are useful for Beijing to build regional supply chains and markets, especially in Southeast Asia where more geopolitically neutral countries in its immediate neighborhood are less likely to sign on to what China perceives as US containment efforts.

China is still heavily dependent on a few Western countries for high tech but also for key commodities (e.g., US for soy or Australian iron ore and coal). While self-sufficiency is a feasible solution for reducing tech dependencies, diversification efforts facilitated by the BRI are a key for commodities that China lacks (e.g, Brazil for soy and iron ore) – after all, no effort from Beijing will make iron ore spontaneously materialize within China's borders (see Exhibit 17).

Exhibit 17

China dominates global iron ore sales, but is heavily reliant on Australia and Brazil as suppliers

Top five importing and exporting countries of iron ores in 2022

TOP FIVE IMPORTERS			TOP FIVE EXPORTERS		
COUNTRY	VOLUME (MILLION TONS)	PERCENTAGE OF TOTAL GLOBAL IMPORTS	COUNTRY	VOLUME (MILLION TONS)	PERCENTAGE OF TOTAL GLOBAL EXPORTS
China	1,097	69.1	**Australia**	856	59.2
Japan	107	6.7	**Brazil**	344	23.8
Republic of Korea	67	4.2	**South Africa**	58	4.0
Germany	36	2.3	**Canada**	56	3.9
Taiwan	22	1.4	**Ukraine**	25	1.7
Total global imports	1,586.8		**Total global exports**	1,447	

Sources: SteelMint, World Steel Association

China is now focused on deepening ties with the Global South. China's strategic engagement with emerging countries expanded its global economic footprint and helped to improve food security and access to raw materials including ones critical for the energy transition. Starting December 1, 2022, China reduced trade restrictions on nine African countries for over 8,000 items and the pursuit of trade deals in Latin America for market access and securing commodities.[89]

China has much to gain from providing better market access, especially for exports of commodities and lower value products, while competition in higher value goods with advanced economies will likely impact the trade structure. However, during a meeting of the Central Finance Committee (中央财经委员会) in May 2023, it was stressed that China should not give up on low end industry and instead transform it, as it provides an important foundation for manufacturing.[90]

China has a trade deficit with only around 20 countries

China's trade structure will need to considerably change, becoming less export driven and relying on more diversified import structures beyond commodities and high tech. Growing trade is often accompanied with a growing trade deficit due to China's dominance in manufacturing. China has a trade deficit with only around 20 countries – all commodity exporters with the exception of South Korea, Taiwan, Singapore and Switzerland. But the sheer size of the Chinese market remains the government's biggest driver for deepening economic ties. For emerging economies, it provides a welcome alternative to Western markets, while for advanced economies deeper trade should act as a bridge over the growing political divide (see Exhibit 18).

6.2 INVESTMENT: CHINA WANTS TO BECOME A KEY INVESTOR IN EMERGING ECONOMIES AND ATTRACT HIGH-TECH INVESTMENT

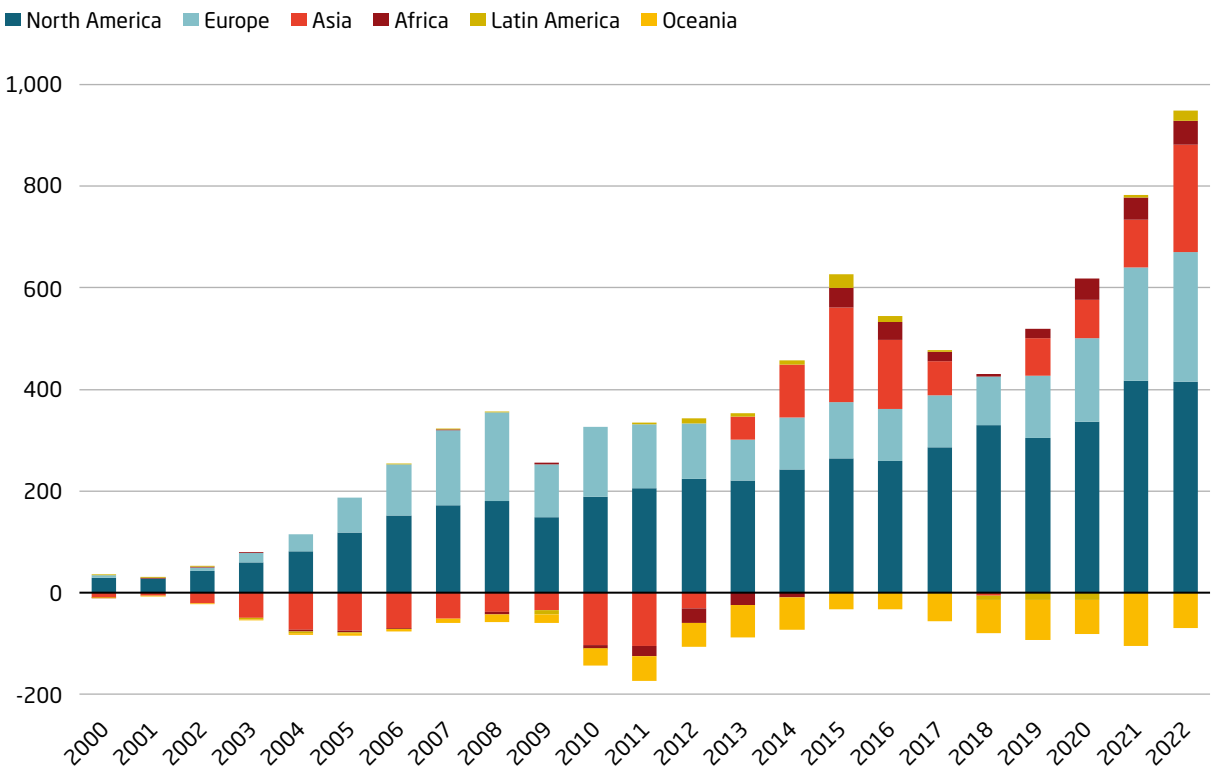
China has been a long-term recipient and beneficiary of foreign investment and continues to open access by trimming its negative list that restricts foreign investment in certain sectors and revising the catalogue for sectors that encourage foreign investment. Slower growth prospects, geopolitical risks and a more restrictive political environment has tarnished China's appeal for many foreign companies. Coupled with a weaker global economic outlook, foreign direct investment (FDI) in china fell to a 25-year low in the first half of 2023.[91] FDI now more than ever is focused on helping close technological gaps and improve supply chain resilience. This means companies in high-tech sectors can expect red carpet treatment to onshore high value-added production and R&D. The importance and concern of dwindling FDI has let the State Council released a new set of measure aimed at attracting high quality investment in August 2023.[92]

During the last decade, China has started to establish itself as a major investor overseas. Initially, Chinese investments were focused on developing countries. The BRI, launched in 2013, and the Asian Infrastructure and Investment Bank (AIIB) in 2015 were prominent efforts in Xi's ambition to strengthen China's position in the world. China does provide an attractive alternative for many developing countries – and one that does not tie investments to issues of human rights or environmental protection. Central elements of the BRI and the AIIB have been their emphasis on financing and infrastructure projects to meet their transportation, communication and energy infrastructure demands in foreign countries. But there are also examples of dedicated development zones such as the Sihanoukville Special Economic Zone in Cambodia.

Exhibit 18

Trade relations with China tend to be highly unbalanced

China's trade balance by region, in USD billion



Source: The General Administration of Customs(GAC)

Despite criticism of being a potential debt trap and pushback in some regions amid disappointment about delivering on pledged investments, the initiatives have yielded tangible results. China is seen as a partner for economic development for a wide range of projects from infrastructure to dealing with climate change.

In developed countries, Chinese companies have also started to gain traction as an investor. In 2016, Chinese firms invested a record EUR 47.5 billion in EU27 and the UK.[93] However, investment has steadily slowed. In 2022, Chinese investment in Europe was only EUR 7.9 billion, down 83 percent from the 2016 peak. The decline is caused by tightening capital restrictions in China – to prevent investments in non-strategic areas such as football clubs or real estate – and political and regulatory pushback in the US and Europe that has made it more difficult for Chinese firms to conduct merger and acquisition (M&A) transactions, especially in critical infrastructure and technology assets. As in 2022 M&A fell to its lowest levels since 2011 (EUR 3.4 billion), record greenfield (EUR 4.5 billion) has become new bright spot of Chinese investments in Europe, albeit fragile for now because this has targeted only a few sectors, primarily EV batteries.

Despite China's surging outbound investment in the last decade, investment relations between liberal market economies (liberal market economies) and China remain heavily uneven. While companies from those countries continue to invest heavily in China, the same

is not true in the reverse. By 2021, European firms have invested an aggregated EUR 233.6 billion in China which is more than three times the amount that Chinese firms have invested in Europe (EUR 69.9 billion).[94]

China's role as a global investor is likely to increase but will be met with more competition as liberal market economies roll out new development projects in response to the BRI. The investment structure will need to shift more from infrastructure and M&A to greenfield investments, increasing the international exposure of Chinese companies. As of now China's investment in manufacturing in ASEAN, for example, significantly lags those of the US, EU or Japan (see Exhibit 19).

6.3 TECHNOLOGY: CHINA WANTS TO EXPAND ITS FOOTPRINT TO BECOME A GLOBAL PROVIDER

China has become an indispensable location for high-tech companies

China can still tap into global knowhow via its overseas students or by acquiring crucial licenses. For example, the MCCI sub-index on intellectual property rights (IPR) imports reached 0.52 in 2020, indicating a high level of integration. Access to foreign IPR is essential for China to continue to expand its industrial capabilities. But China has already evolved into a viable provider for technology, issuing IPR of its own, with strong growth since 2017 (see Exhibit 20). Companies from Huawei to Xiaomi are household names in the area of consumer electronics. Chinese companies can provide a wide range of products from 5G networks to high-speed railway systems and energy solutions (including green tech).

Xi's visit to Saudi Arabia in December 2022 was a demonstration of China's attractiveness as a development partner. The deal signed included commitments on developing hydrogen energy, data centers and EV factories in Saudi Arabia. Digital companies have expanded their footprint as technology providers from artificial intelligence, e-commerce and mobile payment applications to communication, smart cities and surveillance equipment. In November 2022 alone, China completed e-commerce agreements with Laos, Thailand, Singapore and Pakistan (see Exhibit 20).

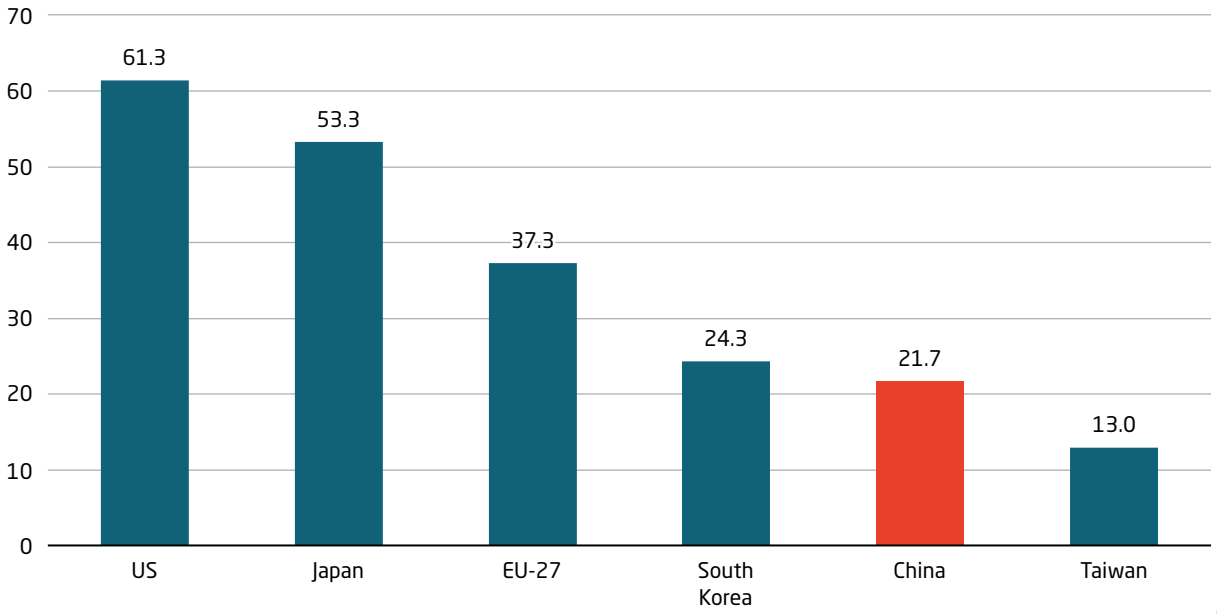
China's growing technological clout is a result of its improved innovation capacity. High-tech companies in liberal market economies now consider it essential to be part of the Chinese innovation ecosystem by expanding R&D capacity to safeguard their global competitiveness.[95] It is an indispensable location for foreign companies, especially in dynamic sectors like digital applications, smart manufacturing and electric/autonomous vehicles. China will leverage its growth potential and improved position in the high-tech sector to make it an irresistible market for high-tech companies.

Maintaining access to technology remains vital for China's future ability to innovate. China is successfully engaging abroad to help create demand for Chinese technology. While its engagement in emerging countries is more focused on government-to-government relations, China is increasingly building on ties to companies in liberal market economies. In an attempt to tie them into China's innovation system, they hope to make international access to technology more resilient.

Exhibit 19

China's greenfield investment in ASEAN lags liberal market economies

Inflow of Foreign Direct Investment in the manufacturing sector in ASEAN by source, in USD billion

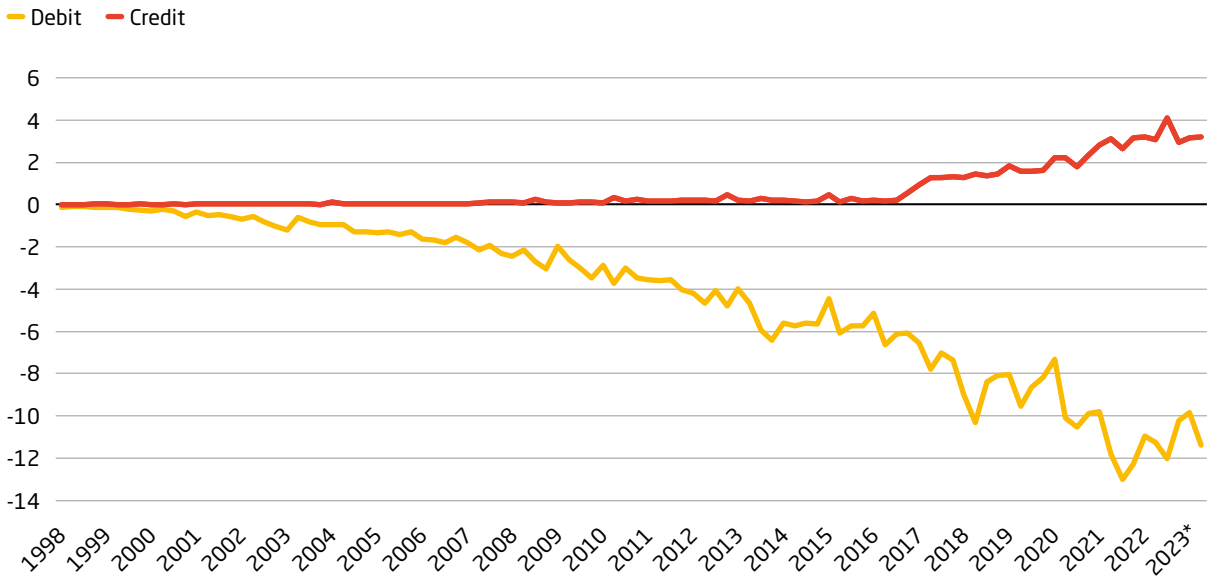


Source: ASEAN Statistics Division

Exhibit 20

Despite progress, China relies on access to foreign know-how

Intellectual property royalties as per balance of payments, quarterly in USD billion



*Note: Year-to-date as of July 2023.

Source: SAFE

6.4 FINANCE: CHINA WANTS TO PROVIDE AN ALTERNATIVE TO THE USD-DOMINATED FINANCIAL SYSTEM

After years of promises and the opening of China's financial markets in theory, real capital flows are now materializing. Strict capital controls remain in place, but China has expanded existing channels and introduced new ones to connect (e.g., Hong Kong Stock Connect or the Shanghai-London Stock Connect) its financial markets with the world.[96] While in the past financial integration was mostly a one-way street with Chinese purchasing equities (including of Chinese companies listed abroad) and bonds (including US treasuries), the picture is now becoming more balanced. The sophistication and complexity of China's financial system has greatly improved, creating an additional pull for foreign investors to participate. This includes issuing CNY-denominated bonds in China and expanding offshore financial markets.

Existing capital account restrictions and growing political risks are likely to keep liberal market economies' investors underinvested in China relative to its share in the global economy. But gradual financial integration is likely to remain a key driver for China's global economic ties as it provides alternatives for advanced and emerging economies alike.

The CNY's internationalization will likely accelerate, but with limitations

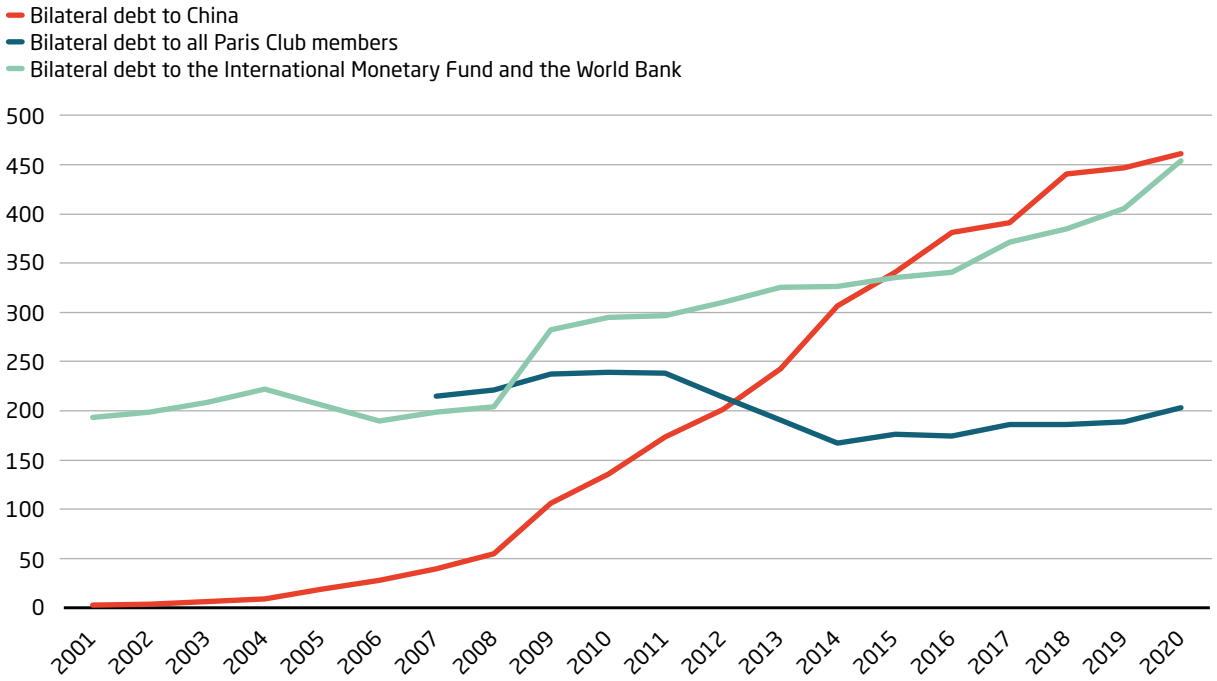
China is also actively trying to break USD dominance in global trade settlement. New hope rests on the introduction of the e-CNY, the PBOC's digital currency, as well as CHIPS, the alternative to the current global payment system SWIFT. For Russia, this has provided a helpful alternative, as the Chinese currency was used for 17.9 percent of settlements in 2021, up from 3.1 percent in 2014.[97] In 2023, agreements with Saudi Arabia, Argentina, and Brazil aimed to increase use of the CNY for trade with China (e.g., via swap agreements between the central banks). The CNY's internationalization will likely accelerate but with limitations, as this would require China to give up its strict capital account controls.

The emphasis on infrastructure-driven investment has also turned China into a major loan provider, providing USD 450 billion in net lending as of 2020 (see Exhibit 21).[98] Consistent with its narrative of championing the Global South, most of the lending has gone to developing countries. As a major lender, China can project more financial might, but it is also not risk free. Debt defaults pose a substantial external risk to its financial system.

Exhibit 21

China overtakes Paris Club and even the IMF and World Bank in loans

Bilateral debt of low and-middle-income countries, in USD billion



Methodology: Data for 2000 to 2017 are from Horn et al. (March 2021 update), which were then extrapolated based on the trends observed in the World Bank international debt statistics for low- and middle-income countries. Chinese data are based on trends of total bilateral debt to China, while from IMF & World Bank it is derived from multilateral lending, and for the Paris Club it is the residual official bilateral debt excluding China.

Sources: Horn et al. "China's oversea lending" (2021), World Bank, authors calculations

Case Study:
COSCO, the embodiment of China Inc., is going global

Jacob Gunter

As a shipping service provider and port operator, COSCO plays a key role in Xi's international ambitions. The state-owned shipping giant has grown considerably in the last decade and has a truly global footprint.

COSCO IS DIRECTLY MANAGED BY THE PARTY STATE AND ENJOYS CONSIDERABLE SUPPORT IN ITS STRATEGIC ROLE

State-ownership: As one of the 97 central SOEs owned and managed by SASAC (which reports to the State Council in Beijing), COSCO is under the direct control of the party-state. While much of the company's day to day business is done on normal market and commercial terms, it is critical to understand that COSCO does not operate with a fiduciary responsibility to shareholders, but rather with the strategic goals of Beijing in mind.

Protected home market advantage: China allows foreign shipping companies to perform only international shipping services in China, reserving its domestic shipping and transshipping services exclusively for Chinese-flagged vessels owned by Chinese companies. Meanwhile, COSCO can provide all shipping types in Europe, either directly or through local subsidiaries.

Cheap state financing: Research by the Washington, DC, think tank Center for Strategic and International Studies (CSIS) shows that China's shipping industry benefitted from USD 127 billion in financing from state-run financial institutions in 2010-2018.

Subsidies: The same CSIS report identified at least USD 58 billion in direct subsidies to the shipping industry in 2010-2018.

BRI support: As one of the key players in BRI port projects, COSCO benefits from privileged access to BRI contracts in ports themselves during procurement and thus also cements itself as a partner for corresponding shipping services.

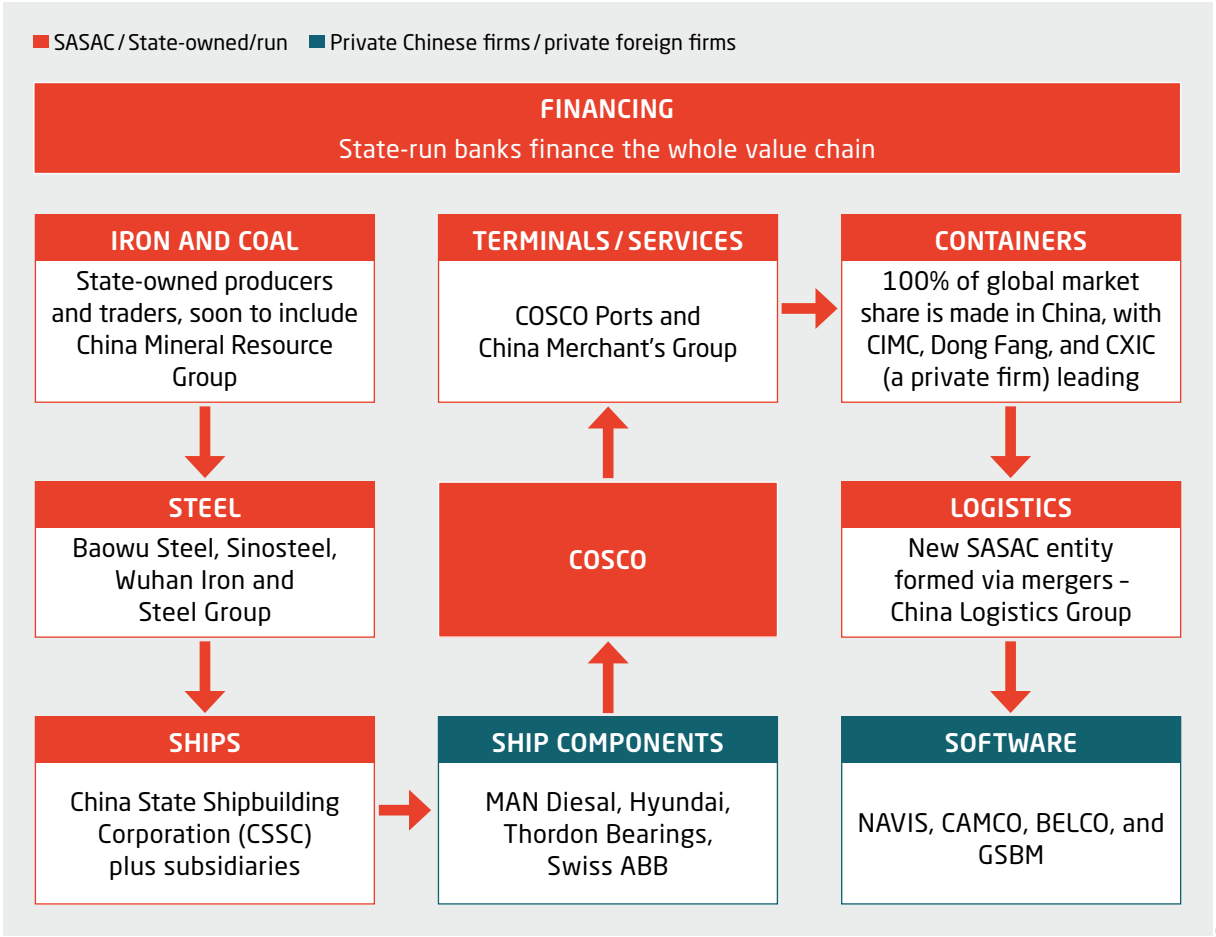
SASAC-directed equity injections: SASAC can coordinate and facilitate the sale of equity between SOEs to raise funds for specific projects – something that could be done in normal financial markets, but which benefits the seller because SASAC makes the political case to purchasers, rather than having to make a case to a market full of potential investors. This happened in 2017, for example, to raise funds for ship purchases (from the SASAC-owned shipbuilding monopoly), when COSCO sold equity to eight other SOEs. Importantly, this can happen the other direction – with COSCO having the burden of being commanded to invest in other SOEs.

SASAC's vertically integrated value chain: COSCO is one of the 97 centrally owned SOEs under SASAC – the holding company and manager of those firms. Both upstream and downstream, many of COSCO's suppliers and customers are state-owned, many specifically SASAC-owned. This opens up possibilities for coordination to pass along subsidies through lower prices from suppliers or higher prices from customers to support COSCO. Importantly, support can be directed to COSCO, but it can also be demanded from it (see Exhibit 22).

Exhibit 22

COSCO is just one link in a long state-owned value chain

Except components and software, major value chain segments are SASAC or other state-owned/run



Sources: MERICS, company annual reports

FULLY ALIGNED WITH BEIJING, COSCO CAN ALMOST FREELY ADVANCE XI'S STRATEGIC GOALS

COSCO is a critical player in Beijing's overseas ambitions and has greatly expanded its fleet as well as its investment footprint in ports all over the world. The company enjoys extensive support in its protected and heavily subsidized home market and has successfully projected the abroad. It can fiercely compete for market share without the same fiduciary responsibility for shareholder returns European shippers face. Importantly, some of COSCO's port investments and its large footprint in some developing markets are potential avenues for Beijing's economic coercion toward others, as the sudden divestment or suspension of shipping operations could seriously impact trade. So far, COSCO has advanced Beijing's interests overseas with little pushback. But the shift in attitudes in the EU from COSCO's earlier investments in European ports (which were met with little scrutiny) to stronger pushback, for example over a deal in the port of Hamburg, suggests this may be changing.

Case Study: BYD is taking China's EV revolution overseas

Gregor Sebastian

With Beijing's support, electric vehicle-maker BYD is on a path to become the global industry leader, helping Beijing achieve its long-standing goal of being a manufacturing powerhouse with some of the world's biggest automotive brands. BYD is deeply integrated in automotive supply chains and is not only assembling components made by suppliers but actually producing high-value components like batteries, IGBT chips and engines. BYD is thus integral to Beijing's campaign to achieve technological self-reliance and move up global value chains. It also plays a key role in Beijing's internationalization efforts, going global (along with the whole EV ecosystem), and becoming a high-value export, an investment vehicle in overseas markets, and a technology provider to both developed and developing markets.

BYD BENEFITTED FROM AMPLE SUPPORT

Local government protection: Wang Chuanfu has remarked, "without Shenzhen, of course there would be no BYD."[99] Indeed, the local government has not only promoted the rise of BYD through preferential policies such as encouraging research institutes to partner with the firm, but it has also established joint ventures with BYD and designed tailormade subsidies that excluded other carmakers.[100] [101] [102]

Protected home market advantage: China shielded Chinese battery makers, including BYD, from overseas competition by making EV purchasing subsidies contingent on the use of battery makers on a whitelist.[103] Only Chinese battery makers were on the list before it was discontinued.

Cheap state financing: BYD has repeatedly benefited from credit from state-owned policy banks that often hand out capital to such strategic firms. In 2008, the China Development Bank gave BYD a loan and a year later the Bank of China handed it USD 2.2 billion.[104] [105]

Subsidies: The central government's purchasing subsidies have enabled BYD's EV business model – the firm received CNY 32.9 billion in purchasing subsidies in addition to the CNY 5 billion in direct (and publicly known) subsidies to the firm.[106] [107]

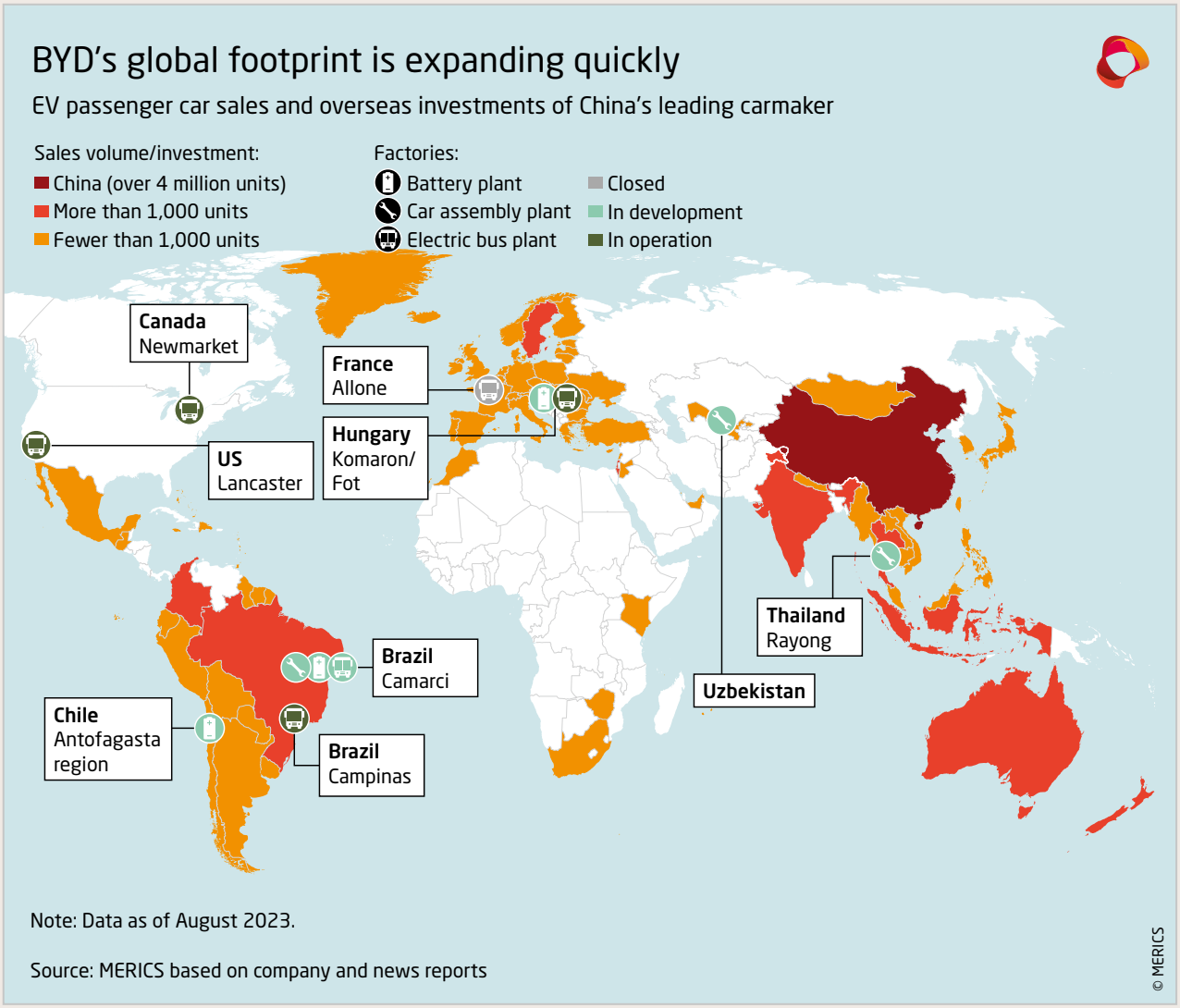
Upstream support and state-owned partners: BYD has also benefited from close collaboration with and support from state-owned or state-supported suppliers. Since 2020, the firm has had an R&D collaboration with state-owned steelmaker AnSteel.[108] BYD and its subsidiaries such as FAW Fudi New Energy Technology also have several joint ventures with state owned enterprises, potentially further ramping up the firm's production capacity and R&D capabilities. BYD also benefited indirectly from cheap financing for firms involved in mining and raw material refining necessary for battery production.

BYD'S GLOBAL FOOTPRINT SUGGESTS SUCCESS IN BEIJING'S EV AMBITIONS

Beijing has been very effective in supporting BYD's rise, which is directly linked to government support. Without Beijing's protection and nurture, it is unlikely that Chinese car and battery makers like BYD would have thrived as much.

In turn, BYD is also helping Beijing achieve its industrial policy goals. The company is helping China move up global value chains and reduce the country's reliance on foreign technology, like internal combustion engines, as well as oil imports. What's more, BYD is helping Beijing gain overseas economic and political influence. The firm is dominating important overseas electric bus markets, for instance in South America, and is now supporting China's rise as an EV exporter (see Exhibit 23).

Exhibit 23



7. Beijing struggles to balance economy and ideology

7. Beijing struggles to balance economy and ideology

Over the past decade Xi Jinping was able to progressively expand his own vision for China's economic system by reconfiguring it with the ideological principles outlined in the previous chapters. In 2023 the economy is – again – under much stronger guidance of the party – and economic policy making is beset by growing distrust of liberal market economies. The implementation of Xi's economic priorities are in full swing in pursuit of achieving the 2049 vision of the great rejuvenation. But clearly it is not all smooth sailing and Xi's third term looks to be off to a rocky start.

It is becoming inherently difficult to reconcile economic interests with political ones and becoming obvious that pursuing geopolitical priorities comes with a price on the economy. The expectations of a swift return to pre-pandemic consumption patterns within Chinese households have been thwarted while private companies are struggling. It seems as if the leadership underestimated the profound impact of the confluence of factors from zero Covid, the crackdown on the dynamic tech sector and real estate - as well as rising geopolitical risks.

After decades of improvement in livelihood the outlook is changing for some

As the economy is absorbing the policy-medicine the party-state prescribed it is causing side effects for the different actors:

- **Society:** After decades of improvement in livelihood the outlook is changing for some. There is a risk of parts of China's youth being part of the first generation since the start of the reform process that sees its development stall. Record levels of youth unemployment and poor wage prospects have resulted in growing disillusion. While growing nationalism might counter this to some extent, accepting hardship for the greater good of nation will be a difficult sell for many.

- **Bureaucracy:** Compared to the start of Xi's first term, party and government officials are operating in a very different ecosystem. The anti-corruption campaigns, the return of ideology, an increasingly top-down and campaign-style approach to policy making have diminished the incentives for policy-making experimentation at the local level. Officials that must do their job while wearing their political hats will likely continue to decide that doing what is ideologically right is more important than what might actually work in their ecosystem, or worse yet, that they will choose inaction out of fear that the consequences of any steps they take will yield the wrong results.

- **Chinese companies:** Many private companies are at odds with the direction of economic policies – while without doubt some companies also flourish as they fully embrace the priorities. There is a real risk of many highly innovative and productive economic actors choosing to hold their heads down by not being willing to take on entrepreneurial risk if the prospects of returns are limited if they are not aligned with the strategic priorities of the party. Similarly, the many export-oriented SMEs that have thrived over the past decades serving liberal market economies might also be at odds with politics increasingly getting in the way of business.

Foreign firms need to strike a balance between de-risking and localization

- **Foreign companies:** Lower growth prospects and changing market environment are forcing foreign companies to make strategic adjustments on how they position themselves in the Chinese market. Many need to strike a balance between de-risking and localization in a way that does not undermine their competitive position. While China continues to court foreign companies, especially in technological areas it needs, companies are increasingly at risk at being caught up in opaque national security regulations or punished for actions of their home government.

RECENT ECONOMIC POLICY ADJUSTMENTS DO NOT MARK A RETURN TO MORE LIBERAL ECONOMIC POLICIES

In response to the struggling economy, the party released a range of policies aimed at alleviating concerns of private and foreign companies as well as households over the summer of 2023. They seem to be geared towards alleviating concerns over the direction of the economic system. Some the most noticeable measures include:

- **14th July 2023, on the private sector:** "Opinions of the Central Committee of the Communist Party and the State Council on Promoting the Development and Growth of the Private Economy" (中共中央 国务院关于促进民营经济发展壮大的意见),[109]

- **31st July 2023, on consumption:** the "General Office of the State Council Forwards the Notice of the National Development and Reform Commission on Measures to Restore and Expand Consumption" (国务院办公厅转发国家发展改革委关于恢复和扩大消费措施的通知),[110]

- **13th August 2023, on foreign investment:** "Opinions of the State Council on Further Optimizing the Foreign Investment Environment and Enhancing the Attraction of Foreign Investment" (国务院关于进一步优化外商投资环境 加大吸引外商投资力度的意见),[111]

- **4th September 2023, on the private sector:** "Private Economic Development Bureau" (民营经济发展局) by the National Reform and Development Commission (NDRC) is newly established.[112]

The policies embrace fair competition, market-oriented restructuring, stronger rule of law, efforts to boost consumption as well as more opportunities for foreign companies. Such measures are a recognition of how implementing Xi's the party's economic principles has affected sentiment of the private sector and households. The efforts to shore up economic growth revive more reformist language and contrast the efforts aimed at strengthening party oversight. However, the oft-billed "pragmatism" of such measures and language are not yet likely to be indicative of a sea change in Xi's approach to economic governance. Rather, these steps are matters of tone and timing.

As the third plenum approaches more such language can be expected for as long as China's economy continues to struggle. In an effort to improve business sentiment the importance of markets and openness will be stressed. The aim is to soften the impact that economic actors are feeling as they settle into the new normal of Xi's geopolitically focused political economy. But akin to what was said in the 2013 third plenum, the words need to be seen in the larger context of Xi's visions for the country and the role the party has in it.

The policy direction set during the third plenum will be a test and an opportunity to evaluate the attempt how the leadership tries to reconcile trade-offs between strategic priorities and sufficient economic growth. At the moment the adjustments are more symbolic than substantive. A meaningful shift of policy direction would likely demand far more economic and social pressure. Nevertheless, the recent measures to reinforce the private sector are reminders that the leadership is not immune to market sentiment and that the party struggles to sell its policy objectives to all its subjects.

Success of course is not certain. There is the risk that the ideological streamlining of the economy fails, forcing for more substantial policy adjustments in the future. But for now, the overall direction is rigorously following the path Xi has set out over the past ten years. Even in times of lower growth it seems more likely that Xi will force his vision on economic actors and limit any adjustments to minor concessions.

The events currently unfolding might be as impactful as China's integration into the world economy in the early 2000s. But the economic and geopolitical context has dramatically shifted from integration to competition – if not conflict – with liberal market economies. China's future reforms and opening must be seen in the context of Xi Jinping's strategy for its next stage of development. Instead of again engaging in wishful thinking about China's development path as was done in 2013, Europe and other liberal market economies will need to accept the systemic differences and work out a pathway for mutual existence – that includes accepting the systemic challenge and preparing for competition.

The overall direction is rigorously following the path Xi has set out

Dealing with China and the structural break of today's globalization should be seen as a wake-up call for Europe. It presents an opportunity and will require the courage to break though decades old thinking. Policymakers and corporate boardrooms continue to take a defensive posture as they face the dilemma of responding to a changing China. European policy is focused on measures to defend the common market from distortions from and dependencies on China, while C-suite discussions are about how to defend their footprint in the China market.

All actors would do well to adopt more offensive postures that cooly calculate what will be necessary to compete with China in third markets. For corporates, that means assertive strategies to secure market share in third markets and to wrestle with increasingly advanced competitors. For policymakers, that means strengthening ties with third countries and building the framework necessary to support European exports and investors in markets beyond Europe's jurisdiction. In other words: pursue in other markets the kind of strategies Europe applied to China after it began reform and opening up.

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Report on China's shipbuilding industry and policies affecting it

OECD Shipbuilding Unit[1]

Abstract

This report analyses the structural characteristics of China's shipbuilding industry, notably through comparison of other major shipbuilding economies. Building upon previous reports drafted in 2008 and 2011, it aims to analyse China's shipbuilding sector from a holistic and multidisciplinary perspective (e.g. the interconnection between trade, competition, monetary, financial, fiscal and industrial policies), with a particular emphasis on government support measures. Key findings from these analyses suggest that: 1) China's shipbuilding industry has been labelled as a strategic industry, which may equally explain China's intention to move up the shipbuilding value chain, 2) State-owned conglomerates hold a lot of influence in China's shipbuilding industry, 3) Government support to the Chinese shipbuilding industry is alleged to have contributed to global excess capacity.

Keywords: Shipbuilding, China, State-owned enterprise, Support measures, Excess capacity

[1] For further information please contact the OECD Directorate for Science, Technology and Innovation at sti.contact@oecd.org or shipbuilding@oecd.org.

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List of abbreviations

ECA: Export Credit Agency

CANSI: Chinese Association of the National Shipbuilding Industry

CBRC: China Banking Regulatory Commission

CDB: China's Development Bank

Cexim: Chinese Export-Import Bank

CMIH: China Merchants Industry Holding

COSTIND: Commission of Science, Technology and Industry for National Defence

CSSG: China State Shipbuilding Group

CSIC: China Shipbuilding Industry Corporation

CSSC: China State Shipbuilding Corporation

CSSRC: China Ship Scientific Research Center

LNG: Liquefied Natural Gas

NDRC: National Development and Reform Commission

MARIC: Marine Design and Research Institute of China

M&As: merger and acquisitions

MIIT: Ministry of Industry and Information Technology

MOFCOM: Ministry of Commerce

PBOC: People's Bank of China

Sinosure: The China Export and Credit Insurance Corporation

SOA: State Ocean Administration

SOE: state-owned enterprise

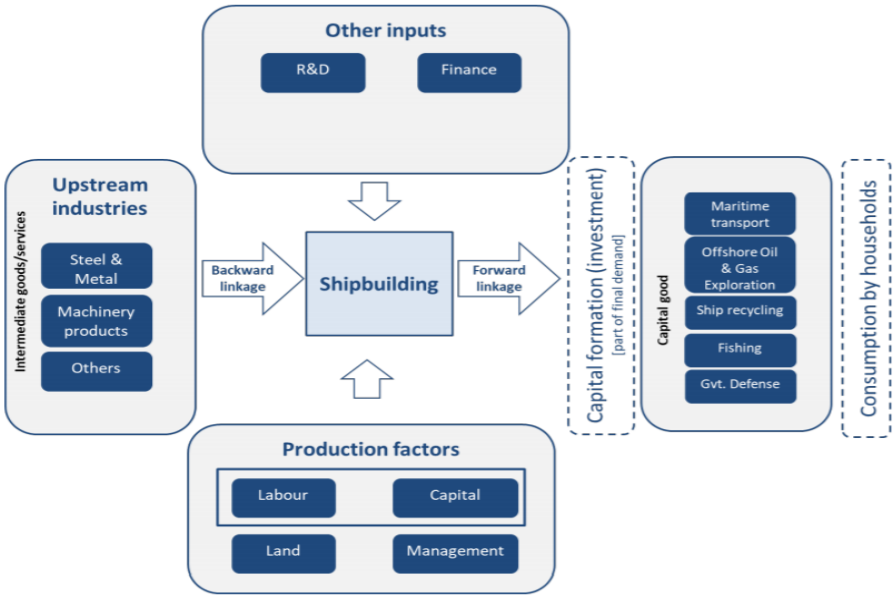
VLCC: very large tankers for crude oil and chemicals

1. Introduction

The OECD drafted reports on the shipbuilding industry in the People's Republic of China (hereafter 'China') in 2008 and in 2011.[1] While the present report intends to build on the observations of these previous reports, it significantly expands the analysis of Chinese shipbuilding policies. China has become a major player in the shipbuilding sector since the previous WP6 reports and certain government policies may have had an impact on the global shipbuilding market.

The report mainly focuses on the construction of ships used for the shipping of goods (i.e. bulkers, tankers and container ships), as China has built a strong reputation in these segments of the shipbuilding market. While China's overall influence in more high-value added segments of the market is at present less noticeable, Chinese policy documents clearly articulate the ambition to move up the value chain. Therefore - at times - references are equally made to other segments of the shipbuilding market such as passenger ships (i.e. cruises or ferries), specialised ships (e.g. research vessels and dredgers) or marine equipment. To the extent possible, the report assesses the Chinese shipbuilding industry from the perspective of the entire value chain. The shipbuilding value chain can be visualised as follows:

Figure 1. Overview of main industries involved in the shipbuilding value chain



Source: Chart taken from K. Gourdon and Ch. Steidl, '*'Global Value Chains and the Shipbuilding Industry*'', OECD Working Papers 2019, 16.

China is also a major producer of naval vessels. Several Chinese policy documents indicate that China is actively promoting a system of dual-use[2], allowing shipyards to both build civilian and naval vessels and share technologies between both ship types.[3] It has been argued that this civil-military integration could be a possible element to explain the large amounts of resources invested by the Chinese government in its shipbuilding sector.[4] It should be noted however that this report does not include an analysis of naval shipbuilding or marine technologies with dual-use, as these types of activities fall outside the scope of the WP6's mandate.

The report mainly draws upon public sources including documents of listed companies, academic journals, and news articles. To the extent possible, reference is made to primary sources, including Chinese laws and official press, supplemented with secondary sources, including external authors providing comments on primary sources, and the Secretariat's analysis. However, the paucity of available

data has restricted the Secretariat in undertaking a thorough evidence-based analysis. While drafting the report, it became clear that not all primary sources are publicly accessible. Additionally, only the companies that are listed on the stock market, and hence are required to issue public statements about their activities, were researched. Their parent companies are often not listed and were consequently not scrutinised in detail. This implies that the analysis may suffer from data gaps.

The results of this study show that China's shipbuilding industry has grown rapidly since the year 2000 and that China became the world's largest shipbuilding economy in 2010. This is – amongst other factors - attributable to the large-scale expansion of facilities by China's shipbuilders during the historic boom period from 2003 to 2008 and the Chinese government's policy efforts to promote the shipbuilding industry as a major strategic export industry since 2001.

China's shipyards have been involved in the production of a wide variety of vessel types in the past ten years. While China has traditionally been focusing on bulk carriers, tankers and containers, in more recent years China increasingly built highly specialised vessels such as gas carriers, offshore service vessels, passenger ships, car carriers, and roll-on/roll-off (ro-ro) vessels. In terms of completions in CGT, 45 of the largest 100 Chinese shipyards are owned by the central and local governments and these shipyards represented 59% of China's shipbuilding production in 2019.

The growth of the Chinese shipbuilding industry seems linked to the government's industrial policies, including its Five-Year Plans, Scrap-and-Build schemes, and specific Action Plans accompanied by state-led strategies such as the Belt and Road Initiative and Made in China 2025. These policy measures contributed to the fast expansion of the Chinese shipbuilding industry and, according to some experts, were accompanied by a considerable subsidisation of the industry (see 3.2.2.).

After the Global Financial Crisis in 2008 and 2009, which led to a negative shock in ship demand from 2011 onwards and exacerbated the excess capacity situation, many private Chinese yards exited the market. Subsequently, the Chinese government installed policies such as the White List to rationalise and promote the concentration of the shipbuilding market. These developments are notably articulated by the merger between the two large shipbuilding State-Owned Enterprises (SOEs), i.e. CSSC and CSIC.

The report also addresses the impact of the COVID-19 outbreak on the Chinese shipbuilding industry. Chinese yards had to stop their operations because of the lockdown promulgated in many Chinese provinces but managed to recover quickly during the spring and summer of 2020. The relatively better performance of Chinese yards compared to yards located in other countries can be explained by the numerous domestic ship orders in China. However, as a consequence of the economic downturn, the decrease of seaborne trade is expected to weigh on certain ship segments' demand in the coming years.

2. The Chinese shipbuilding industry

2.1. Global Perspective

China is the world's largest manufacturing economy and exporter of goods. In 2018, the added value of China's manufacturing industry corresponded to USD 4 trillion, accounting for 28.2% of the world's total production. China accounted for 12.6% of the world's exports. The value added of China's manufacturing industry increased by about 13% per year on average during the last fifteen years.[5] Of all 116 industrial sectors in China, 97 are associated to the shipbuilding sector[6] as the shipbuilding industry is heavily connected with other upstream and downstream sectors (China Association of the National Shipbuilding Industry). Therefore, it will be important to approach the Chinese shipbuilding sector from the perspective of the entire global shipbuilding value chain.[7]

While the Chinese shipyards delivered only 0.9% of all worldwide built ships in terms of GT (Gross Tonnage) in 1985, this number increased to 4.7% in 2000[8]. China's ship completions reached 2 million of CGT in the early 2000s, which was three times the level registered in the second half of the 1990s, driven by big investments and some policy measures which were implemented in the mid-1990s. The growth of the Chinese shipbuilding industry is highly linked to and driven by industrial policies and state-led strategies, which are presented in detail in the next section of this report.

Like most of China's heavy industry sectors, the shipbuilding industry has grown rapidly since 2000. While China accounted for less than 10% of global ship completions of seagoing vessels in 2000, it became the world largest shipbuilding economy in 2010. While first driven by exports, this strong growth in China's shipbuilding industry was closely linked to the growth in domestic seaborne transportation services. Unlike other emerging economies that used foreign shipping services, China built up its own domestic fleet in parallel. Domestic orders and government-led strategies are envisaged as two of the main determinants of the Chinese shipbuilding industry's development.

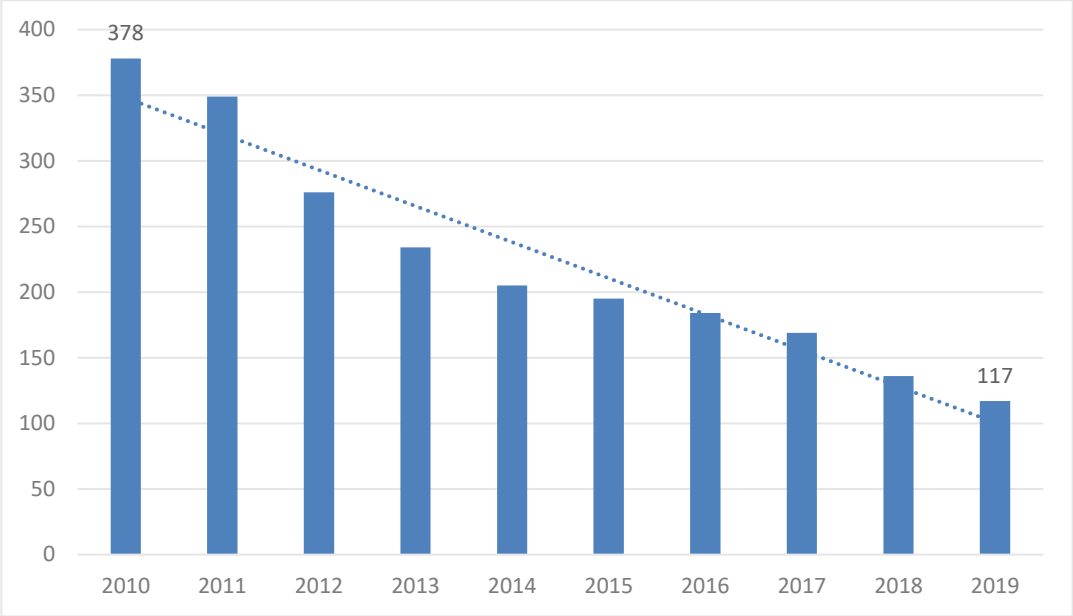
During the period of the 10th and 11th Five-Year Plan (2001-2010), the Chinese shipbuilding production reached 21 million CGT, which accounted for 37% of world completions and which represented a compound annual growth rate of 31%. Barwick, Kalouptsidi and Zahur (2019) have estimated that the Chinese shipbuilding industry received CNY 540 billion (USD 90 billion) in subsidies between 2006 and 2013. According to this study, this had a direct impact on the Korean and Japanese shipbuilding industries, which saw their respective market shares decrease in the same period from 47% to 38% and from 24% to 21%, respectively. This decrease in market share corresponded to a loss of CNY 140 billion (USD 21 billion) for the two countries combined.[9] The fast expansion of the Chinese shipbuilding industry also weighed on the EU's shipbuilding industry. In recent years, Chinese shipyards have for instance been able to attract several new build ferry orders, in line with the Chinese objectives of targeting the higher value ship building and marine equipment segments. In addition to the price, access to innovative forms of financing were important elements to attract these orders.[10]

China's newbuild orderbook (m. GT) illustrates the rapid rise of China in the shipbuilding sector. Based on orderbook figures, China ranked second in 2007, after Korea and before Japan. By 2010, China had already surpassed Japan and Korea. This rapid expansion of China's shipbuilding industry correlates with the large-scale expansion of facilities by China's shipbuilders during the historic boom period from 2003 to 2008 and the Chinese government's policy efforts to foster the shipbuilding industry as a major strategic export industry since 2001.

Weak demand in the global shipbuilding market after the global financial crisis of 2008 and accumulated excess capacity have triggered the restructuring of the Chinese shipbuilding industry. The Ministry of Industry and Information Technology (MIIT) of China established a so called "White List"[11] in 2014 to establish a guide of shipyards that were considered the most efficient by public authorities and implicitly would be eligible for public support. However, its presumable underlying objective was to concentrate

ship orders at strong and viable facilities, thereby enhancing the consolidation and competitiveness of these top shipyards. The number of active shipyards (with at least one vessel over 1000 GT on order) fell in China from 379 in 2010 to 117 at the end of 2019 (Figure 2). During this period, a large number of small private shipyards exited the market. Following a number of revisions, MIIT eliminated the White List in March 2019.

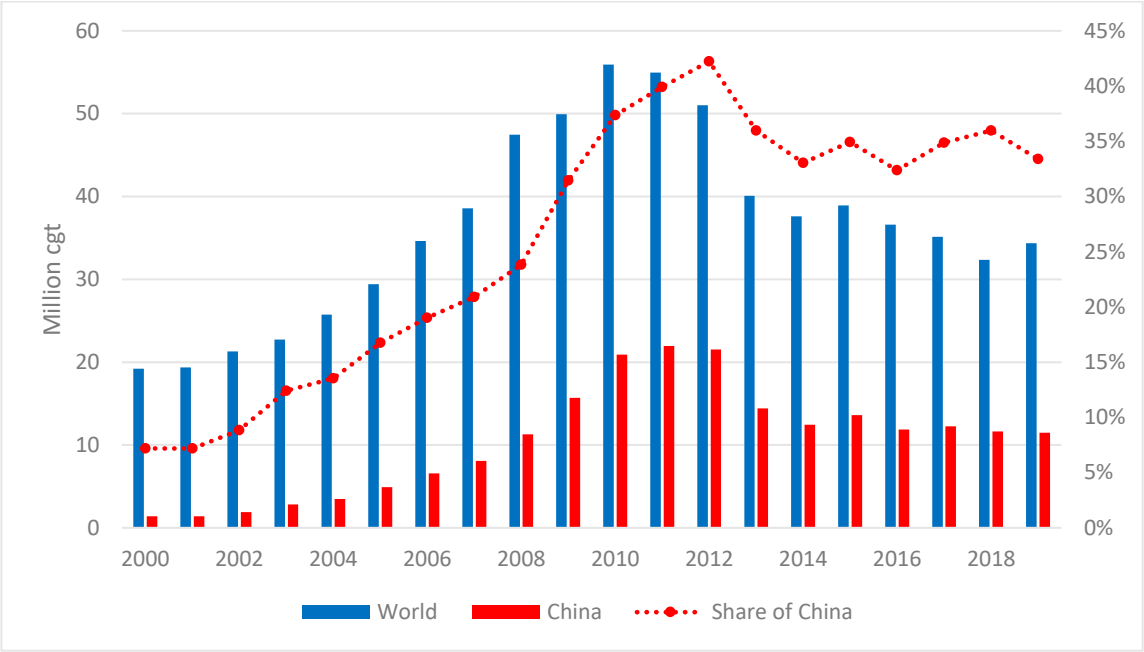
Figure 2. Number of active shipyards in China, 2010-2019



Note: An active shipyard is a yard with at least one vessel over 1 000 GT in its order book at the end of each year.
Source: OECD calculations based on Clarksons Research Services Limited (2020), *World Fleet Register*, https://www.clarksons.net/wfr.

Nevertheless, China remained the largest shipbuilding economy in 2019 with ship completions in China accounting for 11.4 million CGT representing 33.4% of world total (Figure 3).

Figure 3. Completions of seagoing vessels in China, 2000-2019



Note: This figure includes all seagoing vessels above 100 GT.
Source: OECD calculations based on Clarksons Research Services Limited (2020), *World Fleet Register*, https://www.clarksons.net/wfr.

At the end of 2019, China's orderbook ranked first, accounting for 25.7 million CGT and representing 33.3% of the world total (Table 1). Korea, EU and Japan followed China with 27.7%, 14.9%, and 14.3% of the orderbook respectively.

Table 1. Orderbook for selected shipbuilding economies, December 2019

Country	Number of ships	Million CGT	% of total
China	1 519	25.7	33.3%
Korea	457	21.4	27.7%
European Union	419	11.5	14.9%
Japan	674	11.0	14.3%
Russia	124	1.6	2.1%
Turkey	180	0.8	1.0%
Viet Nam	131	0.7	0.9%
Philippines	42	0.6	0.8%
Brazil	45	0.6	0.8%
India	94	0.5	0.6%
Others	657	2.7	3.5%

Note: The figures of EU are calculated based on member states of EU at the end of 2019.
Source: IHS Markit Maritime & Trade, World Shipbuilding Statistics 2019

2.2. Typology of the Chinese shipbuilding sector

China's shipbuilding industry can be divided into three broad categories: state-owned enterprises (SOEs), private domestic shipbuilding enterprises, and joint ventures consisting of foreign and domestic

companies. In terms of completions in CGT, 45 of the Chinese largest 100 shipyards are owned by the central and local governments and thus are State-Owned Enterprises (SOEs). These shipyards represented 59% of China's shipbuilding production in 2019 (Table 2).

Table 2. Ownership structure of the top 100 Chinese shipyards in 2019

Ownership Type	SOEs		Private companies	
	National government	Local government	Domestic owner(s) only	Foreign owner(s)
Number of shipyards	35	10	49	5
Completions in CGT ('000s)	6 010	719	4 089	517
% of completions	53%	6%	36%	5%

Note: This table includes all seagoing vessels from 100 GT. The ownership type is based on the information of yard administration (meaning a majority state ownership) in *World Fleet Register* of Clarksons Research Services.
Source: OECD calculations based on Clarksons Research Services Limited (2020), *World Fleet Register*, https://www.clarksons.net/wfr.

2.2.1. Major shipbuilding conglomerates

The two main Chinese shipbuilding conglomerates are CSSC and CSIC. These two SOEs are supervised by the central government. As of 2018, shipyards owned by CSSC and CSIC accounted for 36% of all CGT delivered and 35% of all CGT contracted in China (Table 3).

Table 3. Deliveries and contracts of shipyards owned by CSSC and CSIC in 2018

	Deliveries (CGT in '000s)	Contracts (CGT in '000s)
China's shipbuilders in general	11 645	10 593
CSSC group	2 978	2 769
CSIC group	1 253	975

Note: This table includes all seagoing vessels from 100 GT.
Source: OECD calculations based on Clarksons Research Services Limited (2020), *World Fleet Register*, https://www.clarksons.net/wfr.

These two groups merged on 25 October 2019, in accordance with the decision of the Party Central Committee and upon approval by the State Council. The new entity's name is the China Shipbuilding Group Corporation (CSGC), which owns 147 subsidiaries, including shipyards, equipment manufacturers, research institutes and other firms and accounts for 310 000 employees. Its combined assets amount to CNY 790 billion (approximately USD 112 billion). The new group is one of the largest merchant shipbuilding entities globally and represented a combined global market share of 20.85% in 2018.[12] According to data from Clarksons Research, CSGC's subsidiary yards have delivered around 210 vessels per year on average between 2009 and 2019.

Another major shipbuilding conglomerate is COSCO Shipping Heavy Industry, which is a subsidiary of the COSCO shipping group (*i.e.* the largest state-owned shipping operator in China). COSCO Shipping Heavy Industry has nine shipyards. Major shipyards under its direction are COSCO HI (Zhoushan), COSCO HI (Yangzhou), COSCO HI (Guangdong), COSCO HI (Dalian), Nantong COSCO KHI, and Dalian COSCO KHI. The two COSCO KHI shipyards are both joint ventures with Kawasaki Heavy Industry of Japan. As of 2019, the shipyards of COSCO shipping heavy industry accounted for 14% of all CGT delivered and 13% of all CCT contracted in China.

Table 4. Ship deliveries and contracts of shipyards owned by COSCO shipping heavy industry in 2019

Shipyards	Deliveries		Contracts	
	CGT ('000s)	Rank in China	CGT ('000s)	Rank in China
Nantong COSCO KHI	421	6	58	31
COSCO HI (Zhoushan)	384	7	52	35
Dalian COSCO KHI	314	13	158	18
COSCO HI (Yangzhou)	291	14	350	7
COSCO HI (Guangdong)	133	23	58	32
COSCO HI (Dalian)	75	35	131	21
COSCO HI (Qidong)	41	49	-	-

Note: This table includes all seagoing vessels from 100 GT.
Source: OECD calculations based on Clarksons Research Services Limited (2020), *World Fleet Register*, https://www.clarksons.net/wfr.

The Yangzijiang Shipbuilding Group, established in 1956, is China's largest private shipbuilder. The group owns four shipyards, which are located along the Yangtze River in the province of Jiangsu. These yards are named Jiangsu New Yangzi Shipbuilding, Jiangsu Yangzi Xinfu Shipbuilding, Jiangsu Yangzijiang Offshore Engineering, and Jiangsu Yangzijiang Shipbuilding. Also, the group established Jiangsu Yangzi-Mitsui Shipbuilding through a joint investment with Mitsui of Japan in May 2019.

Table 5. Two major shipyards of the Yangzijiang shipbuilding group

Shipyard	Overview	Key figures
Jiangsu New Yangzi Shipbuilding	Founded in 2005, it is located in Jingjiang & Jiangyin industrial zone, Jingjiang city. It is engaged in the production of large and medium-sized ships and ocean engineering equipment design and manufacturing, with 30 vessels or 3 million deadweight tons annually in shipbuilding capacity. Its shipbuilding capacity and output are in the top 5 of Chinese shipbuilding enterprises. Its product covers series of container vessels (1 100 TEU to 10 000 TEU), bulk carriers and multipurpose ships (36 000 DWT to 93 000 DWT), LNG ships (27 500 m^2), etc.	Deliveries (2019) : 995 259 CGT (No. 1 in China) Contracts (2019) : 236 512 CGT (No. 12 in China) Employees : about 2 300 Total assets : over CNY 17 billion
Jiangsu Yangzi Xinfu Shipbuilding	Founded in 2011, It is located in Hongqiao Industrial Park, Taixing City. It focuses on the construction of large ships and offshore engineering equipment. Major products include 10 000 TEU container vessels, 11 800 TEU container vessels, 208 000 DWT bulk carriers, 261 000 DWT VLOC and 400 000 DWT VLOC.	Deliveries (2019) : 455 797 CGT (No. 4 ranked in China) Contracts (2019) : 178 410 CGT (No. 16 ranked in China)

Source: Website of Yangzijiang shipbuilding group (http://www.yzjship.com) and OECD calculations based on Clarksons Research Services Limited (2020), *World Fleet Register*, https://www.clarksons.net/wfr.

2.2.2. Geographic distribution of main ship construction facilities

The Chinese shipbuilding and ship repair industry is composed of a large number of yards, ranging from yards capable of building VLCCs to small yards generally building small boats and local craft. These

yards are located in various geographical areas, both coastal and inland, reflecting the development of marine industries along the main Chinese rivers.

China's major shipyards are primarily located along the eastern coastline between the Yangtze River and the Pearl River, and at the mouths of these rivers. China is considering to connect these two waterways by excavating two canals (i.e. the Gan-Yue Canal and the Xiang-Gui Canal).[13] In Northern China, shipbuilding is concentrated at the mouth of the Yellow River and in the coastal areas bordering the Bohai Gulf.

The major shipbuilding and repair activities are concentrated in specific areas, notably Zhejiang, Jiangsu and Shanghai. These areas accounted for 74.1% of total Chinese completions in 2019 (Table 6).

Table 6. Shipyard distribution and ship construction by province in China, 2019

Province	Number of shipyards	Completions (CGT in '000s)	% of Completions
Jiangsu	41	5 217 272	45.5
Zhejiang	31	1 673 796	14.6
Shanghai	7	1 601 112	14.0
Guangdong	18	1 115 686	9.7
Liaoning	6	747 926	6.5
Shandong	7	424 367	3.7
Fujian	3	251 040	2.2
Anhui	4	170 993	1.5
Tianjin	1	117 280	1.0
Hubei	5	83 827	0.7
Hebei	1	21 292	0.2
Hunan	2	18 191	0.2
Jiangxi	2	15 618	0.1
Shenzhen	1	13 168	0.1
Total	129	11 471 567	100.0

Note: This table includes all seagoing vessels from 100 GT.
Source: OECD calculations based on Clarksons Research Services Limited (2020), *World Fleet Register*, https://www.clarksons.net/wfr.

China's largest shipbuilding cluster is located in the Yangtze River Delta region. The Yangtze River rises in the far West and ends in Shanghai, where it merges into the Yellow Sea. Important private shipyards, including the Jiangsu New Yangzijiang, New Times and Jiansu Yangzi Xinfu shipyards, and the main shipyards of state-owned enterprise CSSC are located in this region (Table 7).

Table 7. Main shipyards in the Yangtze River area

Province	Name of shipyard	Parent Company	Administration
Jiangsu	Jiangsu New Yangzijiang Shipbuilding	Jiansu Yangzijiang shipbuilding group	Independent
	New Times Shipbuilding	-	Independent
	Jiangsu Yangzi Xinfu Shipbuilding	Jiansu Yangzijiang shipbuilding group	Independent
	Nantong COSCO KHI Ship Eng.	COSCO Shipping	National government
	Jinling Shipyard	CMI	National government
	Chengxi Shipyard	CSSC	National government
	COSCO Shipping HI (Yangzhou)	COSCO Shipping	National government
	Nantong Xiangyu Shipbuilding and Offshore Eng.	Xiamen Xiangyu	Local government
	New Dayang Shipbuilding	SUMEC group	National government
	Jiangsu Hantong ship HI	Jiangsu Hantong group	Independent
Shanghai	Shanghai Waigaoqiao shipbuilding	CSSC	National government

	Jiangnan shipyard Group	CSSC	National government
	Shanghai Jiangnan Changxing Shipbuilding	CSSC	National government
	Hudong Zhonghua shipbuilding	CSSC	National government
Anhui	Wuhu Shipyard	-	Local government
Hubei	Wuchang Shipbuilding Industry Group	CSSC	National government

Source: OECD Secretariat and yard administration in *World Fleet Register* of Clarksons Research Services.

China has an extensive coastline from the south of Shanghai down to the Pearl River. It includes Zhejiang, Fujian, Hainan provinces and Hong Kong (China). The main shipyards in the region are listed in Table 8.

Table 8. Main shipyards of the East and South China coasts

Province	Name of shipyard	Parent Company	Administration
Zhejiang	COSCO Zhoushan shipyard	COSCO Shipping	National government
	Tsuneishi Group(Zhoushan) Shipbuilding	Tsuneishi Group	Independent (FO)
	Yangfan Group	-	Independent
	Samsung HI Ningbo	Samsung HI	Independent (FO)
Fujian	Fujian Mawei Shipbuilding	Fujian Shipbuilding industry group	Local government
	Fujian Southeast Shipbuilding	Fujian Shipbuilding industry group	Local government
	Xiamen Shipbuilding Industry	Fujian Shipbuilding industry group	Local government

Source: OECD Secretariat and yard administration in *World Fleet Register* of Clarksons Research Services.

The Pearl River is the largest river in South China. As for the Yangtze River, numerous shipbuilding facilities are located near the mouth of the Pearl River, especially around the Guangdong province. The main shipyards in this region are shown in Table 9.

Table 9. Main shipyards of the Pearl River area

Province	Name of shipyard	Parent Company	Administration
Guangdong	Guangzhou Shipyard International	CSSC	National government
Guangdong	Huangpu Wenchong Shipbuilding	CSSC	National government
Guangdong	COSCO shipping HI (Guangdong)	COSCO shipping	National government
Guangdong	Jiangmen Nanyang Ship Engineering	-	Independent

Source: OECD Secretariat and yard administration in *World Fleet Register* of Clarksons Research Services.

Another cluster of shipbuilding facilities is located in the area located between the Yellow River and the Heilong River in northern China. The main shipyards in this region are presented in Table 10.

Table 10. Selected shipyards of the Yellow River, Heilong River and North China coast area

Province	Name of shipyard	Parent Company	Administration
Liaoning	Dalian COSCO KHI Ship Engineering	COSCO shipping	National government
Liaoning	Dalian Shipbuilding Industry	CSIC	National government
Liaoning	COSCO Dalian Shipyard	COSCO shipping	National government
Liaoning	Bohai Shipbuilding HI	CSIC	National government
Shandong	Qingdao Beihai Shipbuilding HI	CSIC	National government

Shandong	Shandong Huanghai Shipbuilding	-	Independent
Tianjin	Tianjin Xingang Shipbuilding HI	CSIC	National government

Source: OECD Secretariat and yard administration in *World Fleet Register* of Clarksons Research Services.

2.2.3. Chinese shipbuilding associations

China accommodates several interest groups that represent different industries associated with shipbuilding. Their roles are to provide a forum for industrial news, analysis and developments, as well as to provide consultancy services. Some of the associations represented are shown in Table 11 .

Table 11. The role of Chinese shipbuilding associations

China Association of National Shipbuilding Industry (CANSI) (http://www.cansi.org.cn)	· The most significant organisation in the shipbuilding industry with its members accounting for 95% of the total production. · Consisting of shipbuilders, ship repairers, marine equipment producers, as well as shipbuilding research institutes and related universities. · Publishes statistics about the Chinese shipbuilding sectors each year.
Chinese Society of Shipbuilding Engineering (CSNAME) (www.csname.org.cn)	· Non-profit organisation with a membership of more than 30 000 national professionals from research institutions, academies and industry. · Aims to promote the development of the shipbuilding industry by exchanging knowledge and promoting advanced technology and consultancy services.
Chinese Classification Society (CCS) (https://www.ccs.org.cn)	· Technical organisation providing classification and statutory surveys of ships, offshore installations, containers and other related equipment and materials, as well as providing technical consultancy services. · Member of the International Association of Classification Societies (IACS) and has established 120 offices across the globe.
China Classification Society Industrial Corporation (CCSI) (http://en.ccsi.com.cn)	· Subsidiary to CCS with the status of an independent legal entity, engaged in the supervision and inspection of engineering equipment, and enterprise management consulting. · With Headquarters located in Beijing, 17 branches covering large and medium-sized cities along the sea and the river in China.

Source: The shipbuilding industry in China (OECD, 2011) and websites of each institution.

2.2.4. Marine equipment

The Chinese marine equipment industry is concentrated around shipyard locations, mainly in Jiangsu, Shanghai, Liaoning, Hubei, Chongqing, Zhejiang, Shandong and Guangdong. According to CANSI, the sales revenue of the marine equipment industry was 55.3 billion CNY (USD 8.1 billion) in 2018, a decrease of 33.7% from the previous year, and the total profit amounted to 3.75 billion CNY (USD 0.55 billion) in 2018, i.e. a decrease of 30.8%.

According to CANSI, there were 420 marine equipment manufacturers in 2018. The major enterprises are mostly state-owned, many of which are affiliates of CSIC and CSSC. As of 2018, 18 of the top 20 companies are SOEs, of which 13 are affiliates of CSSC and CSIC (Table 12).

Table 12. China's major marine equipment manufacturers in 2018

Company name (Ownership type)	Revenue (billion CNY)	Main products

Wuhan marine machinery (State-owned, CSSC)	4.01	Winch, steering gear and crane
Hudong heavy machinery (State-owned, CSSC)	3.93	Low-speed marine diesel engines
China shipbuilding industry corporation diesel engine (State-owned, CSIC)	2.22	Low-speed marine diesel engines
Ningbo C.S.I. power & machinery group (State-owned)	1.86	Marine diesel engines and generator sets
Shaanxi diesel heavy industry (State-owned, CSIC)	1.60	Medium and high speed marine diesel engines
China shipbuilding industry group power (State-owned, CSIC)	1.19	Marine diesel engines and generator sets
Weichai Holding group (State-owned)	1.13	Marine diesel engines
Jiangsu Yaxing anchor chain (Private)	0.99	Marine anchor chain and offshore mooring chain
Henan diesel engine industry (State-owned, CSIC)	0.87	High-speed marine diesel engines
Zhongnan equipment (State-owned, CISIC)	0.86	Optical devices
Wuhan heavy industry casting and forging (State-owned, CSIC)	0.85	Marine shaft, rudder, propeller and diesel engine crankshaft
Nanjing Luzhou machine (State-owned, CSSC)	0.80	Deck machinery
Zibo TAA metal technology (Joint venture with Japanese TAA)	0.75	Metal abrasive
Qingdao Shuangrui marine environmental engineering (State-owned, CSIC)	0.65	Marine ballast water management system
Yichang marine diesel engine (State-owned, CSIC)	0.56	Low-speed marine diesel engines
Hangzhou advance gearbox group (State-owned)	0.54	Marine gearboxes
Qingdao Haixi marine diesel engine (State-owned, CSIC)	0.51	Marine diesel engines
Zichai power (State-owned)	0.45	Marine diesel engines and generator sets
Guangzhou diesel engine factory (State-owned)	0.42	Medium-speed marine diesel engines
Anqing marine diesel engine (State-owned, CSSC)	0.41	Medium-speed marine diesel engines

Source: 中國船舶工業年鑑 2019 (China shipbuilding industry yearbook 2019), CANSI and websites of each company

The main product of China's marine equipment manufacturers is a marine diesel engine. In 2018, China produced 11 272 marine diesel engines with a capacity of 9.3 million kW (Table 13). China is one of the world-renowned marine diesel engine producers, along with Korea and Japan, accounting for one third of the global production[14]. Deck machinery and cabin equipment equally constitute major segments of China's marine equipment production. However, for high-tech product lines such as high-end diesel engine, propulsion systems, and communication and navigation equipment, China still relies heavily on imports from Korea and the EU. In 2017, China's total imports of marine equipment amounted to 1.45 billion USD and exports to 0.97 million USD[15]. To upgrade their product portfolio with more high value-added ship types, Chinese shipbuilding and marine equipment companies were focusing in recent years on technology introduction and cooperation, localisation of equipment, new product development and the establishment of joint ventures with foreign companies.

Table 13. Major products of China's marine equipment industry in 2018

Product	Quantity
1. Power system and device	
Low speed diesel engine	223 units (3 759 thousand kW)
Medium speed diesel engine	5 525 units (4 069 thousand kW)
High speed diesel engine	5 524 units (1 518 thousand kW)
Propulsion device	161 pieces
Low speed diesel engine crankshaft	169 pieces
2. Deck machinery	
Mooring equipment	1 082 units
Loading and unloading equipment	374 units
Steering gear	205 units
Anchor chain	177 060 ton
3. Cabin equipment	
Fan	4 804 units
Marine boiler	26 units
Marine environment protection equipment	261 units

Source: 中國船舶工業年鑑 2019 (China shipbuilding industry yearbook 2019), CANSI

2.3. Production and Orders

China's shipyards have been manufacturing a wide variety of vessel types in the past ten years. While China has traditionally been focusing on bulk carriers, tankers and containers, in more recent years China also became active in the construction of highly specialised vessels such as LNG carriers, offshore service vessels[16], passenger ships[17], dredgers[18], car carriers, roll-on/roll-off (ro-ro) and naval ships, thereby facilitating the sharing of technology between naval and civilian ships [19]. Between 2010 and 2019, China has accounted for 53% of the global production of bulk carriers in CGT terms, for 30.1% of the global production of tankers, for 30.2% of the global production of containers, for 41.1% of the global production of offshore service vessels, and for 10.3% of the global production of gas carriers (Table 14). China is also engaged in the instalment of scrubbers and ballast water treatments[20].

Table 14. Global completions of seagoing vessels by selected ship types, 2010-2019

Type	World		China			
	CGT ('000s)	GT ('000s)	CGT ('000s)	% of World total	GT ('000s)	% of World total
Bulk Carrier	142 538	331 787	75 519	53.0%	175 147	52.8%
Tanker	86 828	175 667	26 168	30.1%	52 098	29.7%
FCC (fully cellular carriers)	66 930	136 613	20 214	30.2%	35 490	26.0%

Offshore Service	20 899	12 296	8 583	41.1%	4 929	40.1%
Gas Carrier	33 577	43 458	3 465	10.3%	3 975	9.1%
PCC (pure car carrier)	8 724	15 587	1 850	21.2%	3 150	20.2%
Cruise	10 252	9 743	20	0.2%	8	0.1%
Passenger/Ferry	8 050	4 361	2 395	29.8%	1 471	33.7%
Ro-ro (roll-on/roll-off)	3 580	5 443	595	16.6%	1 071	19.7%
Dredger	2 572	1 635	1 232	47.9%	766	46.9%
Others	33 011	26 549	12 023	36.4%	11 455	43.1%

Note: This table includes all seagoing vessels from 100 GT. The category "Bulk carriers" includes the groups of "bulk carriers", "bulk ore carriers", and "bulk/oil".
Source: OECD calculations based on Clarksons Research Services Limited (2020), *World Fleet Register*, https://www.clarksons.net/wfr.

In 2019, China's ship completions amounted to 11.3 million CGT. New contracts have declined over the past three years (2017-2019). The order book in 2019 fell considerably, by about 12% compared to 2018.

Table 15. Activity indicators of China's shipbuilding industry, 2017-2019

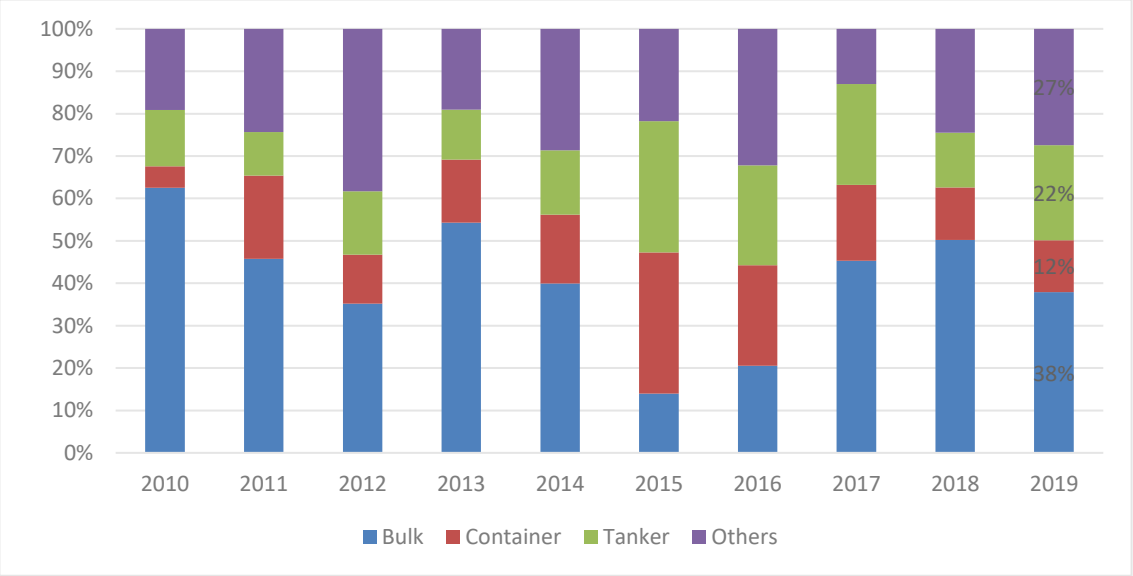
Year	Completions		Contracts		Order book at the end of year	
	Million CGT	Million GT	Million CGT	Million GT	Million CGT	Million GT
2019	11.3	23.0	8.9	18.1	27.3	53.5
2018	11.4	23.3	10.6	21.3	31.1	60.8
2017	11.9	23.8	12.2	25.0	32.9	64.5

Note: This table includes all seagoing vessels from 100 GT.
Source: World Shipyard Monitor (February of 2020), Clarksons Research.

The recent decrease in Chinese ship completions in CGT is associated with the weaker global demand for ships and the excess capacity characterising the shipbuilding market. In addition, Chinese manufacturing costs are increasing, notably because of the rising labour costs and land prices. As a result, Chinese yards are targeting higher value added segments in the marine sector such as marine equipment, LNG carriers, yachts and cruise ships, in accordance with the Chinese governmental strategies.[21]

From the chart below, one can observe that the Chinese shipbuilding industry's dependence on bulk carriers has highly fluctuated over the last decade (Figure 4). The share in CGT of this ship-type in contracts sharply declined from 63% in 2010 to 14% in 2015, but rebounded in 2016 to 21%. In 2019, bulk carriers still accounted for the largest share of ships manufactured in China(38%).

Figure 4. Share of contracts of Chinese yards by shiptype, 2010-2019

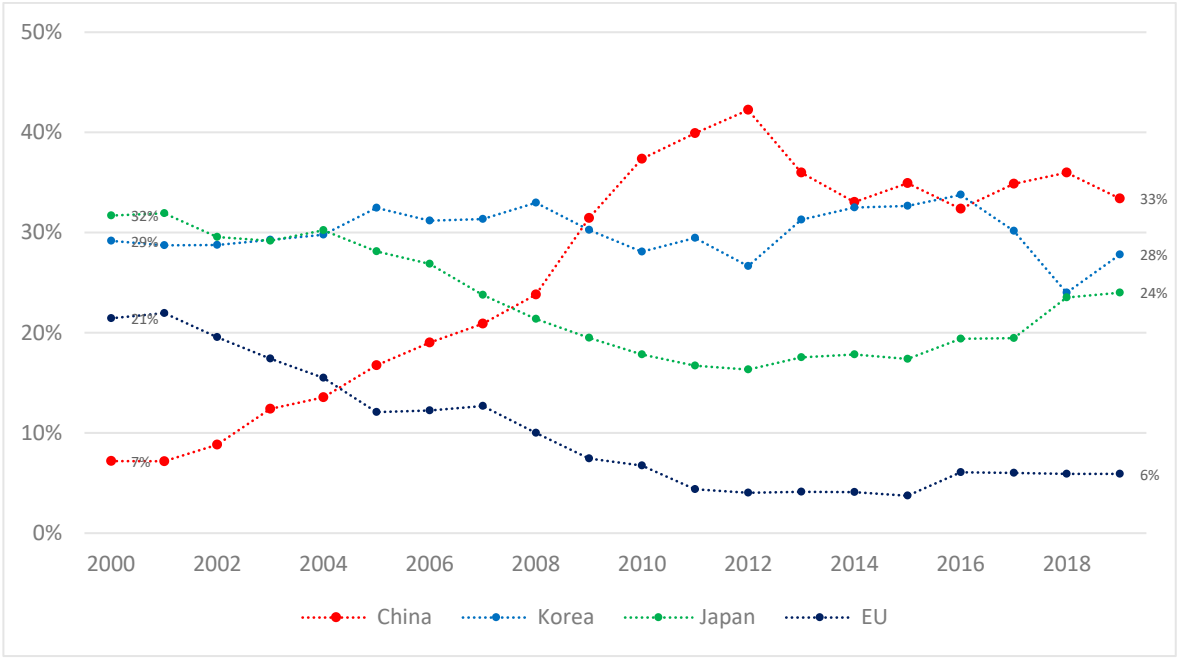


Note: The shares are based on CGT, including all seagoing vessels from 100 GT and the category "Bulk" includes the groups "bulk carriers", "bulk ore carriers", and "bulk/oil".
Source: OECD calculations based on Clarksons Research Services Limited (2020), *World Fleet Register*, https://www.clarksons.net/wfr.

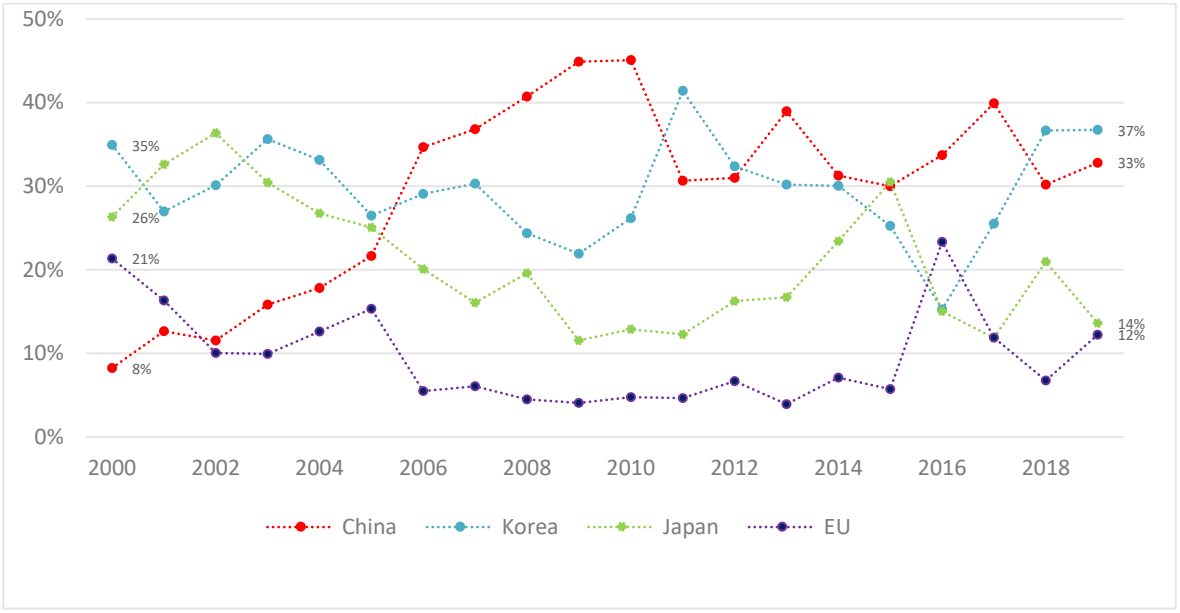
China's global market share in shipbuilding rose sharply from 7% in 2000 to 42% in 2012 (Figure 5). During the same period, EU's market share dropped from 24% to 4%. China, Korea and Japan represented 85% of all CGT delivered and 84% of all CGT contracted in 2019. During the last ten years – with the exception of 2016 - China ranked first in terms of completions. Regarding new contracts, China ranked second after Korea - both in 2018 and 2019 - due to higher demand for LNG and VLCC vessels (Table 16).

Figure 5. Global shipbuilding market shares of China, Korea, Japan and EU, 2000-2019

(a) Production



(b) New contracts



Note: The market shares are based on CGT, including all seagoing vessels from 100 GT. The figures of the EU are calculated based on the member states of the EU at the end of 2019.
Source: OECD calculations based on Clarksons Research Services Limited (2020), *World Fleet Register*, https://www.clarksons.net/wfr.

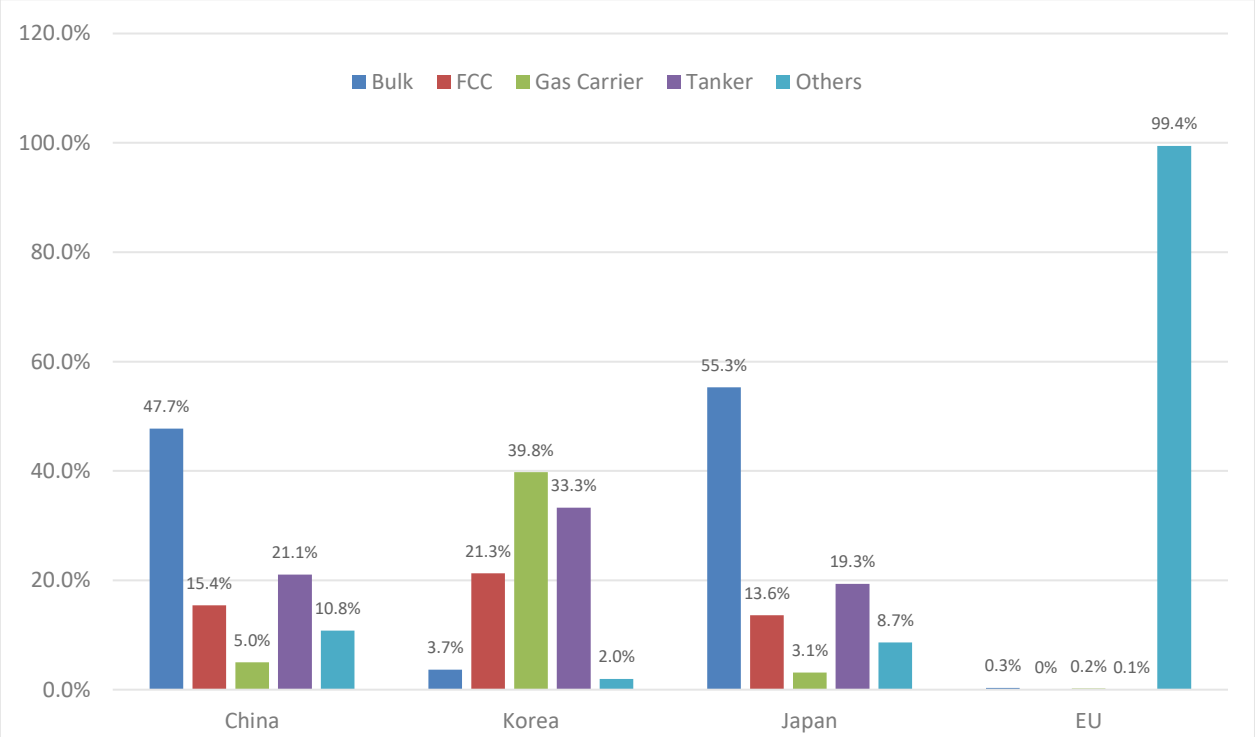
Table 16. Global contracts of LNG carriers and VLCCs, 2016-2019

Year	LNG carrier		VLCC	
	Number of ships	CGT ('000s)	Number of ships	CGT ('000s)
2016	10	731	14	616
2017	18	1 284	56	2 480
2018	77	5 940	49	2 147
2019	60	4 489	31	1 334

Source: Clarksons Research Services Limited (2020), *World Fleet Register*, https://www.clarksons.net/wfr.

New orders between 2017 and 2019 show that China and Japan have relatively similar product portfolios, i.e. highly depending on the market of bulk and ore carriers (Figure 6). Korea, by contrast, has moved away from the bulk carrier market and focused on building gas carriers and large-sized tankers. The EU has a very different product portfolio from China, Korea, and Japan. Cruise/passenger ships accounted for 90.8% of EU's new orders, while bulk, gas carrier, and tanker represented only 0.6% during that period (Figure 6).

Figure 6. Share of contracts by ship type in China, Korea and Japan, 2017-2019



Note: The shares are based on CGT, including all seagoing vessels from 100 GT and the category "Bulk" includes the groups "bulk carriers", "bulk ore carriers", and "bulk/oil". The figures are calculated based on the member states of the EU at the end of 2019.
Source: OECD calculations based on Clarksons Research Services Limited (2020), *World Fleet Register*, https://www.clarksons.net/wfr

Korea ranks first in the segments of very large tankers for crude oil and chemicals (VLCCs), LNG carriers, and large container vessels, representing global market shares (GT) of 42%, 92% and 52%, respectively (Table 17). China has a significant share of the VLCC and large container vessel market, amounting to

29% and 28% respectively. However, China's market share of 7% for LNG carriers remains relatively low. Building LNG carriers namely requires more advanced technologies than manufacturing a conventional storage tank. For example, building LNG carriers requires the ability to design and build storage tanks which can resist temperatures up to minus 162 °C. In China, only the Shanghai-based shipbuilding company Hudong Zhonghua (part of CSSC) has experience in building large LNG carriers and LNG equipment.[22] The shipyard has produced 23 LNG tankers so far, which makes it the fourth-largest LNG vessel builder in the world,[23] and aims to double its annual output of LNG carriers to 12 by 2025[24]. A recent order for a first slot of eight 174 000 cubic meters (cum) LNG carriers by Qatar (and an option for eight more)[25], its plan to deliver the largest LNG carrier in the world (270 000 cum) in the next years[26], an order by Cosco and PetroChina for three 174 000 cmb LNG carriers[27], and the delivering of the world's first ultra-large container ship with LNG[28] all underscore this objective. Other Chinese shipyards have uttered their interest to expand the production of LNG carriers and other gas carriers. Dalian Shipbuilding (part of CSIC) for instance already declared that it wants to attract more resources to focus more on niche industries such as LNG carriers.[29] Dalian In (part of COSCO) already delivered a small LNG carrier, although the project was heavily delayed.[30] COSCO Shipping Heavy Industry signed several cooperation agreements to further develop LNG ship repair and construction.[31] Chinese leasing houses have also ordered two large dual fuel ethane carriers already at Jiangnan Shipyard (part of CSSC).[32] Finally, Yangzijiang Shipbuilding concluded a joint venture with Mitsui Engineering (i.e. Jiangsu Yangzi Mitsui Shipbuilding Co.) in May 2019 to construct LNG carriers - amongst other commercial ships. In June 2020, Yangzijiang Shipbuilding announced a joint project with Tiger Gas for the construction of LNG carriers.[33] In addition to manufacturing LNG carriers, China is also entering the market of LNG carrier designing.[34]

Table 17. Orderbooks of China, Korea and Japan for large-sized and high value-added vessels, February 2020

Country	VLCC (200,000+ DWT)		LNG carrier		Container (8,000+ TEU)	
	Number of ships	Million GT (% of total)	Number of ships	Million GT (% of total)	Number of ships	Million GT (% of total)
China	18	2.8 (29%)	25	1.0 (7%)	30	4.8 (28%)
Korea	27	4.1 (42%)	120	13.1 (92%)	64	10.0 (57%)
Japan	18	2.8 (29%)	2	0.0	24	2.6 (15%)
Others	-	-	2	0.2 (1%)	-	-
World Total	63	9.7	149	14.3	118	17.4

Source: World Shipyard Monitor (February of 2020), Clarksons Research.

Only one large cruise ship has been built in China to date[35]. However, CSSC plans to expand its activities in the high value-added niche market of large cruises. In September 2016, CSSC, Carnival Corporation and Fincantieri jointly signed a Memorandum of Understanding (MOU) for the construction of large luxury 133 500 GT cruise ships. As a follow-up to the MOU, the project partners concluded a binding agreement in February 2017 for the construction of two cruise ships, with an option for four additional ships. The first ships are scheduled to be delivered in 2023 and 2024[36]. The ships will be built at the shipyard of Shanghai Waigaoqiao Shipbuilding (SWS), i.e. a subsidiary of CSSC.[37] China Merchant Industry Holding has equally announced to expand its activities in the construction of cruises.[38]

China has commenced with the construction of dredgers too. State-owned enterprise China Communications Construction Company (CCCC), part of the China Communications Construction Group (CCCG), is the largest dredging company in China.[39] Other companies that are involved in the

construction of dredgers and associated equipment are Qingzhou Yong Dredging Machinery Co. and Shandong Haohai Dredging Equipment Co. [40] Chinese dredging companies for instance already manufactured dredging equipment, mineral processing equipment, a salt mining dredger, an amphibious dredger and the largest cutting by suction dredger in Asia. According to a Chinese press agency, the Ministry of Commerce has prohibited the export of large cutter-suction dredgers without approval. This requirement is deemed to avoid foreign purchases of large-scale engineering ships.[41]

Box 1. The Chinese shipbuilding industry and the effect of COVID-19

The COVID-19 outbreak has consequences for global GDP growth, seaborne trade, and global supply chains, which are key factors for developments in the shipbuilding industry. The COVID-19 outbreak affected the Chinese shipbuilding industry with a number of yard closures in February and March 2020. Many shipyards delayed the restart of their operations after the Chinese new-year holidays and some invoked the force majeure clause as they could not meet the deadline of their contracts. Yards notably had to stop their operations because of the lockdown announced in many Chinese provinces. According to Clarksons, in the first half of 2020, ship deliveries by Chinese yards decreased by 22% in compensated gross tonnes compared to the same period in 2020, which is a similar drop as the one experienced by yards at the global level.

Major shipbuilding companies in China are located at the coast and have only minor capacity in Hubei province. But a relatively high number of COVID-19 cases were registered in the coastal provinces of Guangdong and Zhejiang, which are respectively the fourth and second largest provinces in terms of ship completions where many yards had to stop temporary their activities. The Chinese government supported the resumption of work with policies encompassing social insurance deductions, tax benefits and subsidies. As reported by Clarkson Research (February, 2020) guidelines issued by MIIT on resuming production highlight that sectors with the potential to promote economic growth, such as shipbuilding, will be given priority in resuming production. Chinese shipbuilding SOE CSSC issued a short term (i.e. maturity of 270 days) "Corona bond" similarly to COSCO (a major Chinese shipping SOE which also has shipbuilding activities). According to Tradewinds, Chinese authorities promote the use of corona bonds among domestic investors to meet short-term capital needs via a fast track approval process. To be eligible, the bond seller has to spend at least 10% of the funds raised in actions taken by companies linked to the adaptation of the work to the pandemic situation.

Chinese yards are now reported to return to their activity level before the COVID-19 outbreak. The major global demand shock as well as supply disruptions affecting the maritime sector led to a drop of ship orders to Chinese yards by 25% year-on-year in the first half of 2020, compared to a decrease by 59% at the global level. The relative better performance of orders at Chinese yards can be explained by the numerous domestic ship orders in China and by the fact that some other shipbuilding economies were more heavily affected by the pandemic than China. Moreover, according to TradeWinds, Chinese yards decreased their prices up to 20% compared to prices seen six months ago to attract shipowners[42]. Thomson Reuters reported in 2012 that Chinese yards' price decreased by 5 to 20% after the financial crisis, which could indicate that Chinese yards have the capability to decrease sharply their prices during crises.[43]

2.4. Orders from domestic ship owners

The growth of China's shipbuilding industry has been notably driven by the fast development of its shipping industry linked to the Chinese exports of industrial products and imports of energy and mineral resources[44]. In 2019, China's ship owners owned the second largest fleet in the world, after Greece, representing 304 million dead weight tonnes (DWT), and accounting for 15.5% of the world tonnage[45]. Most of China's shipping companies are SOEs.

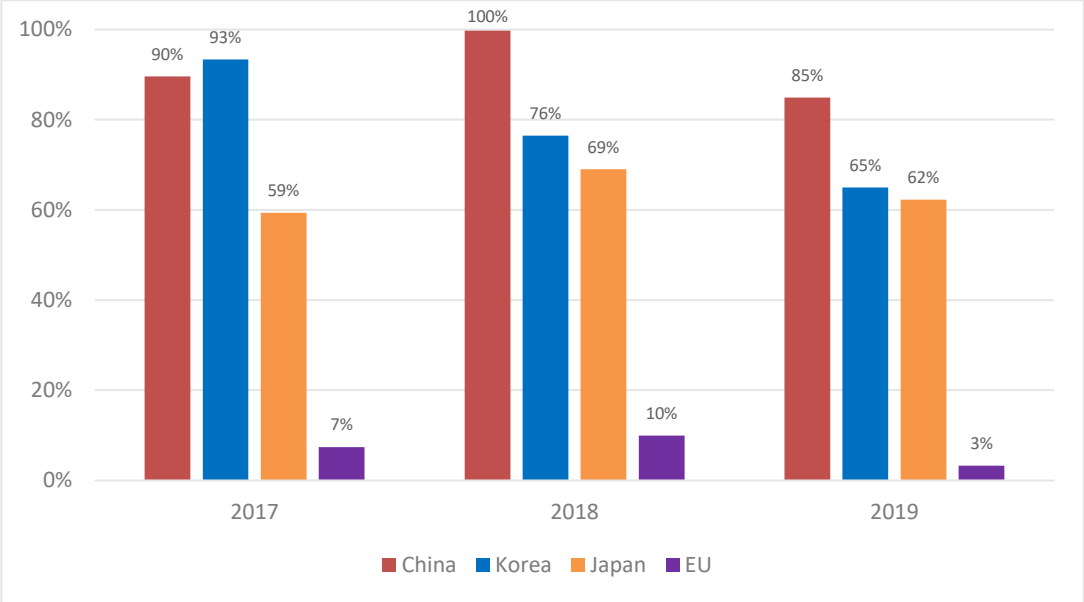
Chinese shipping companies have a strong impact on the Chinese shipbuilding market. Chinese ship owners accounted for 13.2% of global new contracts between 2017 and 2019, which is the world's second largest volume of orders after Japanese ship owners (Table 18). During this time period, about 90% of Chinese ship owner's orders were placed with Chinese shipbuilders. Figure 7 shows that Chinese ship owners are inclined to concentrate their orders more often at domestic shipyards than their Korean and Japanese counterparts.

Table 18. New contracts by owner countries in CGT, 2017-2019

Country of ownership	2017	2018	2019	Average of 2017-2019	
	CGT ('000s)	CGT ('000s)	CGT ('000s)	CGT ('000s)	% of total
Japan	4 051	7 611	3 572	5 078	16.6%
China	4 487 (656)	3 051 (882)	4 559 (1 343)	4 032 (960)	13.2% (3.1%)
Greece	3 225	5 184	2 733	3 714	12.1%
Korea	1 640	2 676	1 920	2 079	6.8%
Singapore	2 377	2 280	1 531	2 063	6.7%
United States	2 446	1 480	1 459	1 795	5.9%
Others	12 141	12 805	10 618	11 854	38.7%

Note: The table includes all seagoing vessels from 100 GT. In this table, China includes Hong Kong.
Source: OECD calculations based on Clarksons Research Services Limited (2020), *World Fleet Register*, https://www.clarksons.net/wfr

Figure 7. Share of domestic shipbuilders in domestic orders in CGT, 2017-2019

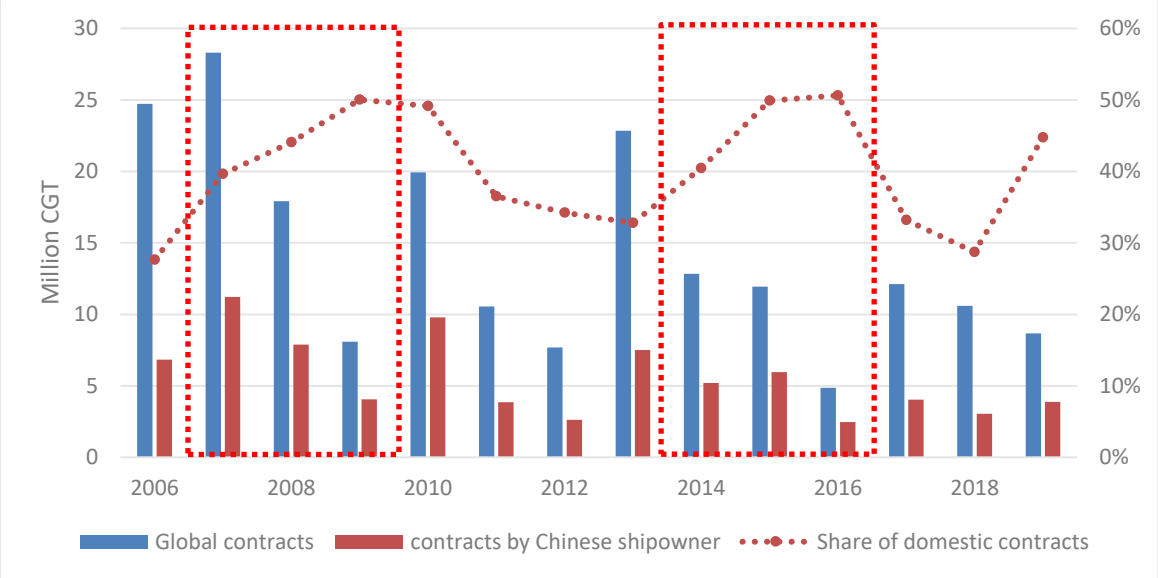


Note: The figure includes all seagoing vessels from 100 GT. Chinese ship owners include those based in Hong Kong (China). The figures of EU are calculated based on member states of EU at the end of 2019.
Source: OECD calculations based on Clarksons Research (2020), *World Fleet Register*, https://www.clarksons.net/wfr

The share of domestic orders placed at Chinese shipyards tended to increase particularly during periods of weaker global ship demand. From 2007 to 2010, the share of domestic contracts increased from 40% to 50%, and from 2013 to 2016 it increased from 33% to 51% (Figure 8). Despite the weak market conditions, Chinese – notably state-owned - ship-owners tried to maintain a level of orders placed at Chinese shipyards. As illustrated in the sections below, government-led strategies, state finance and attractive financial packages played an important role in attracting these domestic orders. In the context of the COVID-19 crisis, countercyclical investments and domestic orders equally increased in China.[46]

Figure 8. Share of domestic contracts in new contracts of Chinese shipbuilders, 2006 -2019

Rectangles represent periods when the share of domestic orders increased



Note: The figure includes all seagoing vessels from 100 GT. In this figure, Chinese ship owners include ship owners of Hong Kong (China).
Source: OECD calculations based on Clarksons Research Services Limited (2020), *World Fleet Register*, https://www.clarksons.net/wfr

3. Policies affecting the Chinese shipbuilding industry

The Chinese government has implemented ambitious industrial policies[47] to support strategic sectors such as shipbuilding.[48] This is also confirmed by previous OECD work on semiconductors and aluminium.[49] The following sections of the report describe how the shipbuilding industry in China has benefited from these strategic industrial policy instruments. This report touches upon the main elements of each strategic policy to assess its impact on the shipbuilding industry. While doing so, there is a particular emphasis on government support measures. This analysis of government support measures stems from an independent assessment by the Secretariat and is predominantly based on primary sources of the OECD Secretariat in its yearly Inventory on Support Measures of non-WP6 Members as well as on documents drafted by or statements made by Chinese officials. These sources are supplemented with secondary information from research papers by experts and other public sources, notably where primary sources were not available.

3.1. Overview of strategic policy instruments

The current subsection provides an overview of the most important centrally-led strategic Chinese policy documents that govern the shipbuilding industry. These central strategies are supplemented by provincial and local initiatives. A paper by Y. Wu and X. Zhu indicates that local governments are incentivised to mirror and complement Beijing's central policies.[50] Therefore, selected regional policy initiatives are also touched upon in this report – though to a lesser extent.

China has taken several initiatives to spur the development of its shipbuilding sector. Some of these policies are specific to the shipbuilding industry, while others couple with programmes that are more general in nature. To grasp the impact of the Chinese policies that directly or indirectly apply to the shipbuilding sector, one consequently will have to examine how all these different policies interact.

For the sake of completeness, the box below offers an overview of the different legal and administrative documents in China. For more information about the Chinese legislative process and the interactions between different public and private institutions, reference is made to a paper by the Center for Strategic and International Studies.[51]

Box 2: classification of Chinese legal and administrative documents[52]

After the Constitution, **laws**, which are exclusively passed by the National People's Congress (NPC) or its Standing Committee, are the highest-ranking legal documents.

Regulations, which in effect make administrative directives on the implementation of laws, rank just below laws, and are issued by the State Council, China's highest executive authority.

One step below in the hierarchy are **departmental rules**, which are usually titled "provisions" or "measures". These are issued by ministry-level bodies, and have full legal validity.

Most documents are titled "opinions", "notices", "guidelines" or "circulars", and thus fall into the category of so-called **regulatory documents**, which can be issued both by the State Council and ministry-level bodies, but are not legally binding.

As a general caveat one has to keep in mind that Chinese policy makers often ''learn by doing''.[53] Therefore, Chinese policies are often adaptable to changing circumstances. Also, there may remain important gaps between the strategic objectives of a policy and their implementation. A paper by K.A. Jaros and Y. Tan for instance demonstrates how provinces have used their so-called ''development space'' to divert from central objectives towards provincial priorities, notably to strategic investment projects with tangible results.[54] For these reasons, there may be less coherence between all different policy initiatives than assumed.[55] The establishment of the Leading Group for the Building of a National Manufacturing Power[56] intends to meet this need. It aims to coordinate China's industrial policies, although practical challenges seem to persist.

A first and second part of this subsector focus on two particularly important horizontal strategies, namely the 13th Five-Year Plan, and the Made in China 2025 Plan. The subsection further provides a short overview of some principle policy documents regarding the shipbuilding and maritime sector, which were in place in the 1990s and 2000s. The intention of this short overview is to highlight some general historic tendencies.

3.1.1. The 13th Five-Year Plan (2016-2020) and sectoral implementation

The 13th Five-Year Plan (2016-2020)

The Chinese Five-Year Plans incorporate the general strategic objectives and priorities of the Chinese central administration for economic, ecological and social development in a given five-year period. The 13th Chinese Five-Year Plan was ratified in March 2016 and runs from 2016 until 2020.[57] The plan's goals include innovation-led[58] economic growth, high-value added manufacturing, regional development and inclusive growth, green growth and an increasing openness to expand China's international outreach. In line with these objectives, the plan reinforces the support for the Made in China 2025 plan, the SOE reforms of 2015 and the Belt and Road Initiative (ANNEX 1). The 13th Five-Year Plan is supported by numerous ministerial[59] and industrial initiatives at several policy levels[60], which include more concrete proposals to encourage private actors to implement some of the public objectives.[61]

The 13th Five-Year Plan also covers the shipbuilding industry, marine engineering equipment and high-tech vessels. More specifically, it refers to "developing equipment and systems for deep-water exploration[62], ocean drilling, seafloor resource development and utilisation, and marine operations support; promoting the development and engineering of deep-sea stations and large floating structures; focusing on breakthroughs in technologies for cruise ships and other high-tech vessels, as well as for the integrated, intelligent, and modular design and manufacturing of key accessory equipment for such vessels''.[63] These objectives build upon the 12th Five-Year Plan (2011-2015)[64], the Implementation Plan of the Shipbuilding Industry to Accelerate Structural Adjustment and Promote Transformation and Upgrading (2013-2015)[65], the Ministry of Industry and Information Technology (MIIT) Guidelines for Research Projects on High-Tech Ships (2014)[66], and the National Medium-And Long-Term Program for Science and Technology Development (2006-2020)[67]. The Guidelines for Research Projects on High-Tech Ships encompass R&D projects and desired outcomes to further develop the Chinese high-tech shipbuilding industry. They include research initiatives on - amongst others - the promotion of LNG carriers (e.g. research on the design of LNG fuel storage and supply systems, manufacturing of core components for LNG fuelled ships, LNG fuel supply monitoring and security system design and integration of key technologies) and cruise ships (e.g. research on structural design technology and hydrodynamic performance of medium-sized luxury cruise ships). These research initiatives often constitute collaborations between universities (e.g. Shanghai Maritime University or Dalian Maritime University), the government and (state-owned) companies (e.g. Shanghai Electrical Apparatus Research Institute, the Shanghai Merchant Design and Research Institute, the Guangzhou Marine Engineering Corporation or the Marine Design & Research Institute of China).

The strategy to target higher value marine industries indicates that China aims to move up the shipbuilding and marine equipment value chain. A document issued by CSSC for instance highlights that the excess capacity and low profit margins in the sector incentivise Chinese industry players to shift to high-end shipbuilding and marine technology segments.[68] The 13th Five-Year Plan and the China Ocean Agenda 21 (2009) also encourage Chinese firms to ''go global'' by engaging in international cooperation on production capacity and equipment manufacturing as well as to build overseas industrial clusters suitable to local conditions.[69]

Sectoral implementation

The Chinese Ministry of Industry and Information Technology (MIIT), the National Development and Reform Commission (NDRC) and other departments published a policy document in 2017, unveiling an industry specific shipbuilding plan (Updated Five-Year Shipbuilding Action Plan (2016-2020).[70] This blueprint aims at reforming and transforming the shipbuilding industry to align its sector specific objectives with the national 13th Five-Year Plan. The overall goal is to improve the competitiveness of the Chinese shipbuilding industry so China can transform from a shipbuilding ''power'' into a shipbuilding ''giant''. Further on, the shipbuilding plan intends to strengthen state-owned enterprise (SOE) cooperation, targets a domestic market share of 70% by 2020 for China's biggest shipbuilding yards, and includes a target for Chinese high-tech ships of 34% to 40% of the global market by the same date.[71] Next, the blueprint focuses on extending technological and innovative applications (including green and smart shipping), streamlining capacity, incorporating intelligent manufacturing, refining quality and branding, promoting military-commercial shipbuilding cooperation, and expanding global investments and partnerships.[72]

The Boosting Capabilities of Marine Equipment Plan (2015-2020) adheres to similar principles, narrowed down to the marine equipment industry.[73] The Plan aimed that, by 2020, 80% of the equipment used in Chinese newbuild bulk carriers, oil tankers, and container ships and 60% of the marine equipment deployed in Chinese newbuild high-tech ships would be produced by Chinese manufacturers. By 2025, the average target for Chinese marine equipment is set at 85%. To achieve these objectives, the Plan proposed to implement fiscal and financial support policies, to increase support for R&D, and to establish domestic and international networks.

Coupled with this Plan is the Catalogue of High-Quality Ship-Supporting Products (2017).[74] This Catalogue lists recommended marine equipment suppliers of high-speed diesel engines and marine cranes. In line with the objectives of the different policy documents, the Marine Design and Research Institute of China (MARIC), a CSSC research unit, for instance already indicated that it has accelerated the pace of industrialisation of high-end marine equipment such as water jet propulsion[75] or electric propulsion technology[76]. In summary, as considered by Professor J. Holslag, China's industrial sectoral shipbuilding plans are targeting "fewer, but bigger and more innovative, shipyards supplied by advanced domestic component producers."[77] This policy for shipbuilding also seems to align with a broader Chinese strategy to enlarge the role of its state-owned sector.

Integrated policy-making

The shipbuilding and marine equipment industries are part of a larger maritime cluster. The State Council's Opinions on Promoting the Healthy Development of the Maritime Industry (2014)[78] for instance indicate that the Chinese shipbuilding sector is strongly interconnected with other maritime sectors. The Opinions posit that China needs to address some structural deficiencies in its maritime industry first before it can increase its international competitiveness. Some of the remaining challenges included optimising its merchant fleet, improving its global shipping network, and promoting the transformation and upgrading of its shipping companies.

Like other ocean economies, China equally set the goal to expand its ocean economy space.[79] It has for instance already intensified the construction of manned submersibles for deep-sea explorations[80], the manufacturing of unmanned and smart ships[81], the building of research vessels[82], and the construction of deep-sea intelligent breeding equipment (aquaculture)[83]. The Ministry of Natural Resources is in charge for setting out the strategic guidelines and for drafting laws related to the ocean economy. The Ministry recently integrated its predecessor, i.e. the State Ocean Administration (SOA), into its administrative structure.[84] NDRC and SOA issued a document in 2016 to implement the 13th Five-Year Plan for the ocean economy.[85] This plan reaffirmed the strategic status of the shipbuilding industry, maritime engineering, maritime services and maritime finance for the development of the Chinese ocean economy,

which could result into a preferential position of these industries in terms of government support.[86] A recent study from the Center for Strategic and International Studies shows that China is rapidly upscaling its marine research in the Indo-Pacific area.[87] Indeed, the China Ship Scientific Research Center (CSSRC) serves as China's largest ship and ocean engineering institute and was already involved in projects on the hydrodynamic performance of ships, propulsion systems, high performance ships, underwater engineering and marine and offshore structures.[88] Also, the joint science marine research between China and Myanmar that will be conducted by China's research vessel Xiangyanghong 06 is one example of international cooperation in the ocean industries (cfr. ''going out'' strategy).[89] A final example is the establishment of the China-Korea Joint Ocean Research Center.[90]

The OECD report on the ocean economy (2016) includes estimations by other authors about the size of the Chinese ocean economy, ranging from 4.3% to 13.8% of GDP.[91] According to Xinhuanet, China's ocean economy is estimated to account for 9.3% of GDP in 2018.[92] In pursuit of the ocean economy's potential, China declared to speed up its presence in the oceans. The financial package that endorses this goal is presented in the Guiding Opinions on Improving and Strengthening Financial Services for Marine Economic Development (2018). These Guiding Opinions amongst others encourage Chinese financial institutions "to set up specific maritime finance divisions, financial service centres and special authorised institutions aimed at improving professional services (1), […] to support highly competitive ship and marine engineering equipment manufacturing enterprises listed in the "White List"[93] (4), […] to encourage localities to subsidise marine fishery insurance (9), […] to support the establishment of financial leasing companies (11), […] to develop and strengthen the China Oceanic Development Foundation and actively play a role in supporting the development of the marine economy (14), […] to guide financial institutions to increase credit support to the marine sector and guide the financial institutions to enhance their risk pricing capabilities and increase the flexibility of loan interest rates for marine economic enterprises (17), […] and to strengthen the coordination of financial and industrial policies (19)".[94] The establishment of the Blue Ocean Information Network is related to the Chinese plans to develop its ocean economy.

To underpin the ocean economy agenda, some Chinese conglomerates have already announced to increase their participation in several areas of the ocean economy. For instance, China Merchants Industry Holding (CMIH) describes itself on its website as "taking the development of the ocean economy as its duty" and is already involved in shipbuilding and ship repair (including cruises), marine engineering, container trafficking, offshore facilities, port infrastructure, and deep-sea research.[95]

In 2019, the CPC Central Committee and the State Council issued the Outline of Building a Powerful Country for Transportation. The Outline presents the objectives to coordinate and promote the construction of a strong transport network in China. On the side of the shipbuilding sector, it mentions "strengthening the capacity of independent design and construction of medium-sized and large cruise ships, large-scale LNG ships, polar sailing ships, intelligent ships, and ships alimented with new energy sources".[96] In the wake of this document, the NDRC also updated its Guide Catalogue of Industrial Structure Adjustment in 2019.[97] Revolved around shipbuilding, this document urges for the optimisation, upgrading and construction of various types of ships and marine equipment in accordance with international shipbuilding regulations and standards.

3.1.2. Made in China 2025

The Made in China 2025 plan was launched in 2015[98] and is part of China's overarching ambition to become a global technological leader by 2049. The objectives of the Made in China 2025 plan also appear to align with the overall goal of China to integrate technologies and industries more deeply[99]. The year 2049 symbolises momentous significance as it will usher in the 100th anniversary of the People's Republic of China. The blueprint is subdivided into three stages (2015 to 2025; 2026 to 2035 and 2036 to 2049). During each of the stages, China aims to move up a step in the value chain so it can gradually increase its global prominence and reduce its dependence on foreign technologies (''from big to strong'').[100] The

Made in China 2025 plan focuses on ten core industries to achieve the ''Chinese dream'' of becoming a global manufacturing power[101] and sets different priorities amid these core industries. In the shipbuilding sector, maritime engineering equipment and high-tech ships are targeted as key industries. Compared to other core industries of the Made in China 2025 strategy, high-tech marine equipment and vessels merely hold an intermediate priority.[102] The Chinese government declared to support the Made in China 2025 policy through fiscal and taxation policies.[103] All regions and government departments are encouraged to implement the Made in China 2025 strategy at their respective level.[104] Indeed, the visit by the Jiangsu Taxation Bureau of one of China Merchant Industry Holding's shipyards suggests that shipbuilding companies receive preferential tax rates if they align with Chinese strategic policies.[105]

The 13th Five-Year Plan includes several proposals to implement the Made in China 2025 plan.[106] The concrete objectives for the maritime sector are fleshed out in the ''Interpretation of Made in China 2025: Promoting the Development of Marine Engineering and High-tech Ships''.[107] This Interpretation is aimed at transforming China to a global maritime power by 2025. To attain this goal, the Made in China 2025 Implementation Plan incites the Chinese development of a number of strategic high-value maritime sectors, such as equipment for the exploration of ocean resources (e.g. deep sea detection equipment, equipment for offshore oil and gas drilling, and support equipment for offshore operations), high-tech shipbuilding (e.g. LNG carriers, LPG carriers, icebreaking cargo ships, car carriers, fishing vessels, and luxury cruise ships), and green ships. The current Chinese shipbuilding industry is namely highly dependent on foreign nations for its core technologies and marine equipment. China intends to provide for domestic alternatives so it can move up the value chain.[108] Building on the strategic role for China's technological ambitions, a 2017 statement by the Chinese Ministry of Industry and Information Technology (MIIT) for instance indicated that China plans to grasp 40% of the global high-end equipment market by 2020.[109] Next, China aims to accommodate more than five internationally renowned high-tech manufacturing companies for marine equipment and shipbuilding and to supply 50% of high-tech ship design and manufacturing equipment by 2025.[110] In addition, China intends to update the management skills of its companies to increase coordination of the shipbuilding supply chain.

The Made in China 2025 Implementation Plan mentions the Chinese plans to increase spending in smart shipbuilding to improve productivity and to invest in green technologies (see 3.2.6.). The MIIT's Action Plan to Promote Smart Transformation Shipyards and Shipbuilding (2019-2021)[111] and the Intelligent Ship Development Action Plan for 2019 — 2021[112] feed into these objectives of promoting smart shipping. The main outline and principles of the Intelligent Ship Development Plan 2019-2020 are described in annex II.

Additionally, several Chinese provinces have drafted their own implementation guidelines (e.g. the Shanghai Industrial Transformation and Upgrading Special Programme and the Hubei Provincial Ocean Engineering Equipment and High-Tech Industry Development Action Plan)[113].

There are various routes to achieve China's knowledge intensive technological aspirations. These routes for instance include target quota for the deployment of smart equipment, providing direct subsidies, activating state-owned and private business partners to align their policies with national targets, foreign technology transfers and strategic outbound investments.[114]

The Made in China 2025 policy has raised concerns in other countries.[115] China justifies this policy by putting forward the ageing of its population and the increase of local governments' and corporate debt levels, which may result in a China that is caught in the so-called ''middle-income trap''. China therefore wants to make rapid use of its current window of opportunity to innovate.[116]

Recently, China seems to have rescinded any explicit reference to the Made in China 2025 plan.[117] Some experts nonetheless state that this recent tendency does not revoke the plan's underlying aspirations.[118] For the sake of clarity and consistency, this report will continue to use the terminology "Made in China 2025", since the plan was not officially revoked (yet).

3.1.3. Historic overview of policies in the 1990s and 2000s

It is not the first time in history that China has taken a prominent place in the shipbuilding market. Both during the Song Dynasty (960-1279) and the early Ming Dynasty (1368-1476), China's shipbuilders for instance enjoyed a widespread international reputation. Given that this report follows-up on the earlier OECD reports about shipbuilding in China (2008 [119] and 2011 [120]), the historical overview will predominantly focus on the period from the year 2011 onwards.

In 1996, the Chinese State Oceanic Administration (SOA) enacted the Ocean Agenda.[121] This initiative has to be read against the backdrop of the UN Agenda 21 (1992), urging countries to develop sustainable development strategies about the oceans. The Ocean Agenda called for a sustainable exploitation and development of the oceans and the Chinese maritime economy, and already highlighted the importance of technology and innovation as driving factors. At the time of the Ocean Agenda's drafting, the total value of the Chinese maritime sector accounted for CNY 140 billion (USD 21 billion).

In 1999, the Chinese government split the China State Shipbuilding Corporation (CSSC) into the China State Shipbuilding Corporation (CSSC) and the China Shipbuilding Industry Corporation (CSIC). CSIC is based in the north and east of China, while CSSC is located along the southern side of the Yangtze River. The purpose of this dismantling process was to increase productivity through competition and to facilitate partnerships and joint-ventures with foreign enterprises to attract foreign investments, expertise and skills. These changes took place in the context of China's accession to the WTO in 2001.[122] Thereafter, the Chinese government expressed its ambition in its 10th Five-Year Economic Plan (2001-2005) to develop its shipbuilding industry into a major world-leading industry. The two large state-owned conglomerates CSIC and CSSC sharply expanded their business activities in the subsequent period of time, with the support of the Chinese central and local governments.

In 2003, the State Council published its plan to promote the economic development of the Chinese maritime industry. In the Outline for the Maritime Economy Development[123] different strategic objectives are set out for the period 2003-2010. The Outline put a target for the total production value of the maritime sector to represent at least 5% of overall Chinese GDP by 2010, and at least 10% of Chinese coastal provinces' GDP. To attain this goal, structural transformations were encouraged in several key maritime economic sectors, including the ocean fishery industry, shipbuilding, and offshore oil and gas. Regarding the shipbuilding sector, the document specifically highlight the importance of the Bohai Rim Shipbuilding Industry Belt, the East China Sea Shipbuilding Industry (Shanghai), and the South China Sea Shipbuilding Industry (Guangzhou) for the development of high-tech ships such as LNG carriers and ro-ro ships, and the promotion of the marine equipment industry, notably drilling platforms and offshore platforms.

The Ocean Agenda and the Outline for the Maritime Economy Development illustrated that China deployed a holistic strategy as regards its maritime industry. Through interconnections between the different segments of the maritime industry, the sharing of technologies and expertise was expected to create network effects between the actors involved. In addition, the maritime sector was envisioned to play an important role for the development of new jobs, the export sector and the security and defence sector. From the start, the shipbuilding and marine equipment sector have been considered as key pillars to induce structural reforms of China's maritime industry. Secondly, these policy documents emphasise the importance of science, technology and innovation to upgrade the value of China's maritime sector. These highlights have continued to play a role in China's future sector-specific strategic policy documents.

The Medium and Long-Term Development Plan for the Shipbuilding Industry (2006-2015) by the NDRC[124] for instance specified that the reform plans for the shipbuilding sector needed to be accelerated. The Plan mentions that while the Chinese shipbuilding industry accounted for CNY 150 billion (USD 18.7 billion) in 2012, this number had already increased to CNY 180 billion (USD 22.4 billion) in 2015. China continued increasing its efforts to become an internationally competitive player in the shipbuilding

sector. More specifically, the Chinese shipbuilding sector insisted at becoming more innovative and more efficient. The restructuring of shipyards through mergers and acquisitions, the integration of industrial resources, the focus on specific areas to develop large-scale shipbuilding bases (e.g. Bohai Bay, Yangtze and Pearl River), the development of independent technologies leading to the increase of the annual production of medium and low speed diesel engines, and the establishment of large enterprise groups with strong product development, marketing and management skills were some of the elements in the Chinese tool-box to achieve these objectives.

The paragraphs 40 to 50 of the Development Plan specified the policy measures that should substantiate all of the different elements that were needed to build an internationally competitive shipbuilding sector. These policy instruments ranged from upscaling the financial methods to attract ship financing (e.g. corporate bonds, financial leasing or investment funds[125]), to encourage partnerships between different shipbuilding groups, improving the ship export financing system (i.e. export credit and export insurance), and providing support to domestic companies to invest more in research and development of marine equipment and high-tech vessels. The Medium and Long-Term Development Plan for the Shipbuilding Industry (2006-2015) aligned with the 11th Five-Year Economic Plan (2006-2010).

Under the auspices of this policy, the COSCO's Dalian branch was established through a joint venture with the COSCO group and Kawasaki Heavy Industries in 2007. Yangzijiang Shipbuilding, China's largest private shipyard, was listed on the Singapore Stock Exchange in 2007. CSIC founded its subsidiary CSIC Limited, which was listed on the Shanghai Stock Exchange in 2008.

In the wake of the financial crisis in 2008, China's shipbuilding industry was confronted with a sharp drop in demand and accumulating excess capacity. In response, there were several initiatives taken to shape the future of the Chinese shipbuilding industry. These initiatives coupled with the Twelfth Five-Year Plan (2011-2015) and aimed to accelerate some of its objectives. In 2009, the State Council issued its Restructuring and Revitalization Plan for the Shipbuilding Industry.[126] The plan proposed a package with policy measures for the shipbuilding sector to respond to the global financial crisis, which intended to sustain growth, expand domestic demand for ships and restructure the shipbuilding sector. Despite the market circumstances, the Chinese shipbuilding industry remained relatively resilient to absorb the negative external shock caused by the financial crisis. After the financial crisis of 2008, China seemed to have pivoted its strategy from increasing production levels to accelerating its plans to move up the value chain by targeting high-tech industries.

The State Council's Plan for Strategic Industries (2010)[127] provided an overview of the development and acquiring of strategic emerging industries (SEIs), which was substantiated by fiscal, taxation and financial lending policies. These industries mainly targeted innovative, high-tech market segments. It further stated that the targeted share of all emerging strategic industries should account for 8% of GDP by 2015 and 15% of GDP by 2020. The Plan briefly mentioned the maritime sector, in which high-end maritime engineering equipment and marine biotechnology were considered vital industries. The SEIs were interlinked with research projects on key technologies. The development of these key technologies aimed at strengthening the independent innovation capabilities of China. The State Council's 2010 document called for accompanying financial and fiscal support to sustain the development of the SEIs. The SEIs also coupled with other important policy documents such as the Five-Year Plans (e.g. 13th Five-Year Plan - Chapter 23) and Made in China 2025.

The NDRC's Innovation Development Strategy for the Maritime Engineering Equipment Sector (2011-2020)[128] built on the SEIs and aimed to ramp up China's position in the strategic emerging industries of high-tech marine engineering and marine equipment. By 2015, China intended to grasp the key elements of key supporting equipment systems and their design and manufacturing. By 2020, China aimed to establish a complete supply chain for a number of internationally-recognised Chinese marine equipment products, including the research and development, design as well as the manufacturing and the after-sales technical service. Specific attention was given to the development of offshore engineering equipment

(e.g. LNG-FPSO), marine engineering equipment (e.g. mining equipment), and key technologies and equipment (e.g. deep sea technology and underwater equipment).

MIIT's 12th Five-Year Implementation Plan for the Shipbuilding Industry (2011-2015)[129] provided the sectoral implementation of China's 12th Five-Year Plan. The Plan promoted the development of China to become a global shipbuilding power, which included the formation of more than 50 well-known international brands and the creation of at least five marine equipment suppliers. More specifically, it emphasized the upscaling of Chinese innovation in the shipbuilding industry (e.g. large shipbuilding companies should at least invest 2% of their sales revenue on research and development, speeding up the construction of ultra-large container ships, LPG ships, LNG ships), the increase of the industrial structure and productivity of the Chinese shipbuilding industry (e.g. the 10 largest Chinese shipbuilding companies should gain a domestic market share of at least 70% and Chinese marine equipment suppliers should capture at least 20% of the international market share, implement lean shipbuilding production processes), and the upgrading of the Chinese local supply chain and the support industries (e.g. cultivating large-scale key shipbuilding enterprise groups and spur small and medium-sized enterprises to specialise in the manufacturing of intermediate products that can be integrated in key shipbuilding companies). The Chinese State was assigned an important policy role to shape these objectives. The Plan for instance mentioned its role to actively implement research and development policies (including the establishment of a Scientific Research Fund to support key enterprises); to improve fiscal, tax and financial policies (e.g. export tax rebate, equipment insurance, ship mortgage financing); to attract highly-skilled talent (e.g. disciplining leadership and promoting training centres); to promote cooperation with international players; and to encourage improved management systems in shipbuilding.

The State Council's 2013 Notice to Accelerate the Implementation of Structural Adjustment Programs to Promote the Transformation and Upgrading of the Shipbuilding Industry[130] linked with MIIT's Five-Year Implementation Plan. At the time, China respectively accounted for 25% and 20% of the international market share for high-tech ships and marine equipment. At the same time, the Chinese shipbuilding sector was suffering from a decline in new orders. To sustain the development of its shipbuilding sector, the Notice therefore highlighted the importance of accelerating the efforts in innovation. It further mentioned several framework conditions to alleviate the structural transformation of China's shipbuilding into an industry that focuses on innovation, high-end products and strong shipbuilding support industries. These guiding principles included the strengthening of demand for green and high-tech vessels (e.g. ocean-going fishing vessels, luxury yachts) as well as for corresponding marine equipment (e.g. ballast water treatment systems and LNG ship propulsion systems) by encouraging the early scrapping of old ships, promoting technological innovation to compete internationally, improving the policy framework and encouraging financial support (e.g. export buyer credit and credit insurance, develop loan securitisation of key shipping companies, support key shipping companies to issue non-financial corporate debt financing and corporate bonds).

3.2. Implementation of strategic policy instruments

This subsection will appraise the implementation of the strategic policy instruments mentioned in subsection 3.1 through the deployment of support measures, financing tools and involvement of strategic SOEs ('national champions'). Policy documents, academic articles, and practical observations suggest that strategic SOEs are able to set a lower price for some of their ships - perhaps in some cases even below production cost - than their competitors because they benefit from cheaper financing and a wide range of government support measures. These practices would have had an influence on the global oversupply in the shipbuilding sector. Because of the strategic importance of the shipbuilding sector, lower priced ships and shipbuilding SOEs with a lower profitability rate in the short-term can nonetheless contribute to the long-term objectives of China to become a dominant player in the international maritime industry. While it has to be noted that the Chinese subsidies and privileges are attributed on the basis of a broader set of criteria than ownership per se - and are therefore not limited to SOEs -[131], the market distortive effect

seems more apparent in the case of SOEs, as elaborated in the SOE section of this report and in the latest WP6 report on SOEs[132]. Reference can be made to the OECD Guidelines on Corporate Governance of State-Owned Enterprises, which recommend SOEs to compete on a level playing field and in fair competition in the marketplace when they undertake economic activities, and to ensure a strict separation of ownership, regulatory and policy functions within government to avoid conflicts of interest if SOEs are used as a delivery vehicle for specific public policy goals, such as industrial policy.[133]

The subsequent sections illustrate that the allocation of funds to strategic SOEs, in combination with a bank-centric system and administrative policies to resort to SOEs for strategic purposes, have shaped the Chinese growth model, but may also have resulted into a policy framework that not necessarily rewards the most competitive companies.[134]

3.2.1. Overcapacity

At the JECKU meeting of 24 October 2019, the participating shipbuilders from Japan, Europe, China, Korea and the U.S. endorsed the following joint statement:

"Overcapacity and low profitability haunt the shipbuilding industry. We call for a joint effort by all parties involved to address these core problems and thereby create framework conditions that allow industry to forcefully tackle maritime sustainability."[135]

Indeed, the global shipbuilding sector is characterised by overcapacity[136]. This contributes to a weakening of the shipbuilding sector's financial health and results into lower ship prices. A recent OECD report examining data between 1995 and 2015 highlights the massive excess supply of vessels in the global shipbuilding industry. Between 2005 and 2015, the cumulated oversupply reached 297 million gross tonnes in total and the oversupply accounted for 23% of the world fleet in 2015. This situation is particularly severe for most large vessel categories such as tankers, bulkers and containers. Future vessel requirements are expected to only equal in 2030 the peak of completions that was reached in 2011.[137] Indeed, TradeWinds already reported that the year 2019 marked the lowest amount of newbuilds in 15 years' time. As a consequence, the total number of active shipbuilders has even decreased by 60%, to less than 130 worldwide.[138]

Overcapacity in the shipbuilding sector is notably severe in China[139]. The impact of overcapacity on the financial health of shipbuilders is exacerbated by rising input prices[140] and a stronger Chinese currency.[141] However, it does not seem that China has taken extensive measures in the past to cut its shipbuilding overcapacity. Instead, the State Council's Shipbuilding Industry Adjustment and Revitalisation Plan (2009) called to increase demands for ships, to maintain shipbuilding output, to accelerate the elimination of old ships, to consolidate shipyards, and to embark on the construction of new vessel types, ship repair, and marine equipment. In addition, banks and ECAs are instructed to continue their financial support to the Chinese shipbuilding industry.[142] This policy illustrates that China aimed to stabilise its shipbuilding capacity rather than reducing it.

Overcapacity has been argued to be a key factor explaining the high share of 'zombie firms' (i.e. companies that are being artificially kept alive by public money and beneficial credit schemes)[143] and hence an increased risk of non-performing loans and solvency problems; severe cost cutting by the shipyards to sustain profitability levels; lower budgets for research and development (R&D); and growing trade tensions with third countries.[144] In its 2018 trade review of China, the WTO equally described the negative implications of overcapacity for medium-term growth, the environment and financial stability.[145]

The China Shipbuilding Industry Association (CANSI), by contrast, announced that China's Shipbuilding Capacity Utilisation Monitoring Index (CCI) increased by 8.2% (i.e. from 607 to 657 points) in 2019 year-on-year.[146] This implies that the Chinese rate of excess capacity would have decreased in 2019.

Possible causes of overcapacity

According to the European Chamber of Commerce in China, the overcapacity in China's shipbuilding sector is the result of:

- Easy access to finance;
- Strong policy support for the expansion of China's shipbuilding sector;
- Huge modifications in industry dynamics and long-term demand for vessels.[147]

W. E. Kovacic equally describes the current industrial overcapacity as a direct result of China's industrial policies – amongst others:

"*Most industries currently suffering from severe excess capacity, as well as most insolvent 'zombie' SOEs, are in the regulated industries targeted by industrial policy in China. This gives the false impression of excessive competition, but excess capacity that creates this impression arises from, and is sustained by, non-market determined interventions – by vertical policy actions, by the exercise of administrative monopoly, or preferential support for SOEs against private or foreign owned enterprises."*[148]

D. Xu and Y. Liu argue that "excessive government intervention" has precipitated overinvestment and overcapacity. They present five possible reasons for China's overcapacity in the shipbuilding sector. First, the lack of economic pressure and crisis awareness in China's state-owned enterprises. Second, the mentality of managers in shipbuilding companies to "*blindly follow orders of higher authorities, set unrealistic targets, and [a] lack [off] sensitivity to market changes. (…)''*. Third, the strong focus by certain local governments to boost local GDP and employment by virtue of an elevated shipbuilding capacity. Fourth, monetary policies that inordinately stimulated lending by state-owned banks and policy banks. Fifth, a (perceived) lack of understanding of international shipbuilding markets.[149]

Indeed, research by P.J. Barwick, M. Kalouptsidi and N.B. Zahur indicated that part of the overcapacity generated between 2006 and 2013, notably for bulkers, is a direct result of Chinese industrial subsidies, particularly subsidies for establishing new shipyards.[150]

Another cause of overcapacity may be the ambitious production targets that shipyards and local governments have to meet. Jiangnan shipyard (part of CSSC) for instance had an annual sales target of CNY 5.5 billion (USD 781.5 million), which it exceeded with twice the amount. Each year the annual sales target of Jiangnan is enlarged with another CNY 1 billion.[151] A 2015 survey provided an illustration of the regional effects of overcapacity problems in various sectors, including the steel and shipbuilding sector. The survey processed the answers of 696 industrial enterprises that were active in the province of Jiangsu. The main observations suggested that a misalignment between the strategic policy documents of the central Chinese government and the implementation at the local level existed.[152] The reasons for this mismatch remained uncertain. They possibly could have included limited coordination and communication at the central level, different interests between the central and local level, or a lack of enforcement measures.

Proposed solutions to tackle overcapacity

The current overcapacity in the shipbuilding sector is not sustainable and may hinder the sector from making important investments. Moreover, it is hurting domestic and foreign competitors that do not benefit from as much government support. Several initiatives were already taken to lower the impact of overcapacity. China's 13th Five-Year Plan for instance aims to address the problem of overcapacity in China's industrial sectors and presents a blueprint to reduce overcapacity. This includes the set-up of a *"fund to provide rewards and subsidies for structural adjustments in industrial enterprises (…)"*.[153] Indeed, China earmarked CNY 100 billion in 2016 to support local governments dealing with the impact

of capacity reductions on employability.[154] The report on the budgetary expenses for 2019 and the draft budget for 2020 by the Ministry of Finance announced that it had provided CNY 2 billion (USD 300 million) in rewards and subsidies in 2019 to cut overcapacity in key industries, which is however a relatively low number compared to other budgetary expenses.[155] Subsequently, Party Committee members of central SOEs are encouraged to implement the party's ideology about dwindling excess capacity and zombie firms.[156]

China develops policies to direct its shipbuilding activities to new high-value added markets such as the marine equipment market or polar vessels. This type of policies could reduce China's overcapacity in the current segments of the shipbuilding sector but could also lead to overcapacity in other segments[157]. Other policy measures like China's scrap and build subsidy aimed to support ship demand and subsequently increase ship production and reduce excess capacity. This measure, which artificially supported demand, could, however, have had other negative effects such as the distortion of markets by favouring Chinese producers - especially SOEs - vis-à-vis foreign competitors[158].

According to the IMF, many SOEs with activities in overcapacity sectors contain high levels of debt.[159] This may raise questions as to the effectiveness of the corporate decision-making process. China has been promoting consolidation as one of the tools to tackle the problem of overcapacity.[160] The Supply-Side Structural Reform (2015) policy and the Guiding Opinions of the General Office of the State Council on Promoting the Structural Adjustment and Reorganisation of Central Enterprises (2016) should be interpreted against this backdrop. The Guiding Opinions for instance clarify that the further centralisation of prominent SOEs and a stricter control on its investment decisions should facilitate the reduction of overcapacity.[161] By the same token, it is stated that Chinese credit policies intended to limit credit lines to shipyards suffering from overcapacity so the consolidation of shipbuilding companies could be facilitated.[162] In that regard, China Merchant Bank's annual report of 2018 for instance noted that *"For the 16 industries that we have reduced or withdrawn from such as coal, iron and steel, shipbuilding, photovoltaic and coal chemicals (...), the Company (...) focused on supporting leading enterprises in industries and regional quality enterprises with competitive advantages in the industry, (...), devoted to reducing and withdrawing from customers associated with significant risks and low-end overcapacity, especially for customers in the process of reducing production capacity, deleveraging, and those meeting the "zombie enterprise" standards."*[163]

CEXIM equally prompted that ''*The Bank also adopted differentiated credit policies for five industries with excess capacity, including steelmaking, shipbuilding, aluminium smelting, cement and glassmaking, and exercised strict control over new loans to such industries.''*[164]

In light of the consolidation objective, the number of active shipyards (with at least one vessel over 1 000 GT on order) decreased in China from 379 in 2010 to 117 at the end of 2019 (Figure 2). The large yards, especially those operated by SOEs, account for more than half of the capacity, while smaller yards and non-SOE yards are mostly suffering from overcapacity.[165] Therefore, one may wonder if the mere consolidation of SOE shipyards, including the recent merger between CSIC and CSSC, will sufficiently contribute to mitigating the overcapacity problem.

Despite China's statements, overcapacity in the shipbuilding sector does not seem to be significantly reduced. Prior research by the OECD illustrates that Chinese policies to reduce capacity in the shipbuilding sector in fact only had a marginal effect.[166] It has to be reiterated that China's state-owned enterprises hold a significantly large share of the shipbuilding market and that state-owned enterprises are often used as vehicles to implement policies. While acknowledging the complexity of the overcapacity problem, and the interaction of different factors that may contribute to it, one may nonetheless pose the open question if China is taking sufficient measures to cut its overcapacity in the shipbuilding sector. In 2013, the State Council for instance requested that "key enterprises shall keep stable production and operation"[167], even though overcapacity was severe at that point in time.[168] Data from the Chinese Statistical Yearbook 2015 demonstrate that the Chinese net weight capacity of civil ships rose by 20.11%

in 2009, 26.69% in 2010, 19.89% in 2011, 7.99% in 2012, 7.10% in 2013 and 5.58% in 2014. In 2013, the capacity utilisation rate was about 71% for China's top 10 shipyards, while the capacity utilization rate of the entire sector between 2013 and 2015 was around 50%.[169]

It appears that China is willing to accept overcapacity in the short term if this contributes to the overall industrial objectives of its shipbuilding sector in the longer term. In practice, the pledged reduction of overcapacity rather seems to take the form of reducing investments in those segments that are haunted by overcapacity (e.g. bulkers), while redirecting government support to higher value-added segments of the shipbuilding sector where there is less overcapacity at present.[170] Therefore, the state of industrial development might be a more effective indicator to understand capacity levels in China than government statements pledging to reduce overcapacity. Moreover, the strategy to redirect funding to high value-added segments of the shipbuilding sector does not seem to resolve the structural overcapacity of the sector in the longer term as extensive support to segments with lower overcapacity levels at present may contribute to the creation of overcapacity in these segments in the future. For this reason, it is recommended to structurally diminish capacity levels and to phase-out corresponding policies (e.g. tax incentives) in the shipbuilding sector in order to accrue firms' production levels, let inefficient zombie firms exit the market and to root ship prices on features of quality and supply-demand interactions. In suit of D. Xu and Y. Liu's observations, the Chinese government could also consider further strengthening its institutions, its rule of law and its rules on corporate governance. These alterations should fortify the regulatory framework in which the markets can autocorrect the current overcapacity problem.[171]

3.2.2. Support measures

Subsidies as part of wider government support measures

Subsidies are a commonly used feature of the shipbuilding industry, notably in the start-up phase of an infant industry.[172] P.J. Barwick, M. Kalouptsidi and N.B. Zahur illustrate that China's industrial subsidy programme in the shipbuilding sector, estimated at CNY 540 billion (approximatively USD 90 billion) between 2006 and 2013, increased China's world market share by 40% within that same timeframe. Given that the domestic size of the Chinese shipbuilding revenue was estimated to be CNY 1 700 billion, the overall subsidy stimulation programme consequently corresponded to nearly one third of the domestic industry's revenue. The subsidies that were deployed can be subdivided into three types. The first type lowers a ship's production costs and therefore is called a production subsidy. Between 2006 and 2013, Chinese production subsidies are estimated to amount to CNY 159 billion. Some examples of production subsidies are subsidised input materials such as cheap steel, export credit or buyer financing in the form of collateral loans. A second form of subsidy are investment subsidies, amounting to CNY 51 billion between 2006 and 2013. They can be provided as favourable loans or preferential tax policies. A last category of subsidy relates to entry subsidies, accounting for CNY 330 billion between 2006 and 2013, such as subsidised land or simplified licensing procedures.[173] A more recent study by the Center for Strategic and International Studies contends that Chinese shipping and port management firms received USD 3.4 billion in direct subsidies between 2007 and 2019, of which USD 2.1 billion was attributed to the shipbuilding sector. These direct subsidies encompass cash payments and rebates for taxes and levies[174], which are more confined in scope than the study conducted by P.J. Barwick, M. Kalouptsidi and N.B. Zahur.

While providing subsidies one will have to limit - to the maximum extent possible - the potential distortive effects on societies, trade and competition. Thereby, the nature and scale of the support will serve as an important determinant, especially in a context where state-owned enterprises both act as providers as well as recipients of subsidies.[175]

On the one hand, industrial subsidies significantly increased China's market share in the shipbuilding sector, especially if they were targeted towards the most productive firms and if they were implemented in times where the global shipbuilding markets were facing a drop in orders.[176] However, this is not a plea

for more industrial subsidies, as the mere fact that China's shipbuilding market share has increased does not imply that its industrial subsidies were allocated effectively from an economic point of view. On the other hand, these subsidies resulted into lower overall prices for ships, also benefitting foreign ship-owners for CNY 230 billion (between 2006 and 2013); lower profitability levels for shipyards; a significant misallocation of subsidies to less efficient shipyards; and a lack of coordination of the subsidy policies, which resulted into lower rates of return for China as well as in a higher distortive effect of the subsidies vis-à-vis third countries.[177] A large part of the direct subsidies seem to have been dismantled since 2017, although tax exemptions remain prevalent.

Government support is not limited to subsidies. China's shipbuilding policies for instance also aim at creating a favourable regulatory framework and ecosystem that supports its key enterprises. Strategic state-owned enterprises (SOEs) are an important vehicle for the implementation of industrial policies. There are strong indications that governmental strategies, support measures (including financial incentives) and SOEs are intertwined. For this reason, some of the (indirect) support measures or policies will be touched upon in other sections of this report. Against this backdrop, the caveat has to be made that indirect forms of support measures are harder to detect than direct forms of support. Due to limited accessibility to data from unlisted companies and the restriction to primarily base the research on public sources, the report does not include data from unlisted companies or support measures that are harder to identify such as below-market loans[178, 179], below-market equity injections or non-market based advantages. Also, the observations are limited to the shipbuilding sector. Even though, the impact of subsidies to the shipbuilding sector needs to be approached from the entire global value chain, methodological and time constraints urged the Secretariat to largely exclude analyses about subsidies to the shipping sector, the port sector, or the upstream sectors (e.g. steel) from the report so their cumulative effect cannot be estimated. Therefore, the support measures mentioned in this report may still constitute a rather conservative mapping of China's overall government support to the shipbuilding industry and the distortive effects that may result from them.

The current section describes some examples of specific Chinese support measures in the shipbuilding industry, although references may be made to horizontal support measures as well. According to M. Kalouptsidi, China's subsidies to the shipbuilding sector lowered the production costs of Chinese shipyards by 13 to 20% between 2006 and 2012.[180] Similar estimates with a similar scope are not publicly available for the period after 2012. This report mainly focuses on providing some examples of potentially distortive support measures but does not claim to be exhaustive. It excludes any taxonomy based on the WTO's Agreement on Subsidies and Countervailing Measures (ASCM)[181] and it refrains from making any judgments on the legality of the support measure.

The Secretariat has based its analysis on international and domestic sources and on its independent assessment as conducted in the non-WP6 members Inventory. As data on specific business deals are often missing, it is difficult to identify if these deals were concluded at terms more favourable than those offered by market conditions. Consequently, it will always depend on the specific characteristics of a measure to envisage its supportive nature. To conduct more effective research in the future, a call is made for enhanced transparency on government support, notably on the ownership structure of shipbuilding companies and on the policy reasons to provide support.

Insurance Premium Compensation

In 2015, the MIIT published the Directory for the Promotion and Application for the First Set of Major Technical Equipment (''the Directory'') to facilitate the development of some categories of major Chinese technical equipment. The MIIT planned on modifying the Directory every 2-3 years bearing into account the development of these major technical equipment categories in Chinese industries. Narrowed down to the shipbuilding and marine equipment industries, the Directory comprises projects such as the

dynamic position of ships, high-speed diesel engines, large vehicle carriers, large cutter suction dredgers, C-type LNG carriers and a crane for a deep-water pipe laying vessel.[182]

The equipment listed in the Directory has to meet at least one of the following three criteria:

1. Contributing to the development of new strategic industries and the upgrading of traditional industries. The equipment is urgently needed for the national economic construction and major national projects.

2. Consisting of outstanding energy-saving, material-saving or environmentally friendly features. The equipment must also entail economic and social benefits.

3. Being a new type of major technical equipment that has just gained market access.[183]

To promote the equipment included by the Directory, MIIT, MOF, and the China Insurance Regulatory Commission jointly issued a policy to Implement an Insurance Compensation Mechanism for the First Set of Major Technical Equipment. In light of this policy, the China Insurance Regulatory Commission and the Insurance Association of China instigate Chinese insurance groups to insure the equipment encompassed by the Directory. The firms that manufacture the equipment listed on the Directory are deemed to insure themselves, whereas the Chinese government - under certain conditions - subsidises the corresponding insurance premiums.[184]

Loans and grants

There are various initiatives at the central and the local level to support the shipbuilding sector. Article 15 of the Chinese General Rules for Loans (1996) for instance explicitly provides for the possibility to grant interest discounts:

"To promote the development of certain industries and regional economies, relevant departments may grant interest discounts for loans pursuant to state policies."[185]

This subsection both covers loans and grants. It has to be reiterated that the mere fact that a loan/grant is mentioned in this section of the report does not necessarily imply that it provides some form of government support. The extent of the government support would depend on the conditions at which the loan/grant is provided, i.e. at terms more favourable that what would have been provided by the market.

Some authors have contended that the financing costs for listed SOEs in China tend to be 40-50 basis points below the benchmark interest rate.[186] This statement aligns with prior OECD research on measuring distortions in the international aluminium market.[187] In addition, loans can be restructured after they were issued by extending its tenor or lowering its rate, or even waiving lending interest.[188] Indeed, over the past years there seems to be a declining trend in direct subsidies to state-owned enterprises in the shipbuilding sector. It is not unlikely that a shift took place in the type of support measure (e.g. an increase in indirect forms of domestic market protection through government procurement procedures or through informal networks of state-owned companies).

There are no sufficient data to confirm with certainty that certain financial instruments - some of which happen to be provided in the spirit of China's industrial policies - would predominantly have been granted against more favourable conditions than what a company would have secured on the private market. Though, in some circumstances the overall framework against which the loan/grant is provided (e.g. strong interconnection between state-owned institutions or loans/grants provided to companies with a low profitability ratio), in combination with precedents[189], may raise assumptions that the loan was indeed provided at terms more favourable than market conditions.

Indeed, if a central, highly leveraged, and low profitable SOE, whose top executives enjoy ties with the Chinese Communist Party, declares to subscribe to China's industrial ambitions and subsequently

receives a high amount of credit by Chinese state-owned banks, while bearing in mind that Chinese policy banks and state-owned banks align with China's industrial ambitions (see section 3.2.3.) and that these banks are legally entitled to provide more favourable loans, one may in fact argue that there could be a (refutable) presumption of a credit granted at more favourable terms.

According to the European Chamber of Commerce, Chinese leasing and financing companies develop their activities in line with the industrial ambitions of the Chinese government (see also section 3.2.3.). Such lending practices correlate with the accrued overcapacity in the shipbuilding sector.[190]

The leasing company of China's Development Bank constitutes a case study where a bank seemed to have access to favourable government incentives. In its annual report of 2018, CDB Leasing for instance declared that it would be rewarded a municipal grant from Shenzhen, corresponding with around 30% of the land usage price. However, the annual report only mentions a great likelihood to receive the grant. There were no data to verify if the grant was provided in the end. The annual report does, by contrast, state that the company already received a similar grant in 2011 for the amount of CNY 144,3 million, and that the company group received a grant from the Shenzhen government of CNY 800 000 and CNY 13 million in 2017 and 2018 respectively for ''encouraging the development of the financial industry''. [191]

According to its annual report of 2019, CSSC Offshore and Marine Engineering (COMEC) received CNY 338.37 million (USD 49.5 million) in government grants (including grants, tax benefits and direct subsidies) by 2019.[192] In the first quarter of 2020, the company received for CNY 8.26 million (USD 1.2 million) in government grants.[193]

Another example are the credit lines that the state-owned company China Communications Construction Company (CCCC), whose activities include dredging, received from Chinese banks. J. Holslag claims that, in 2017, CCCC received USD 30 billion from the China Development Bank and USD 30 billion from the Postal Saving Bank of China. Between 2014 and 2017, the China Harbour Engineering Company (i.e. a daughter company of CCCC) would in addition have obtained a combined amount of USD 17 billion from China Guangfa Bank, CDB Tianjin branch, the Postal Saving Bank of China, Bank of China Tianjin and China Merchants Bank. The author contends that these loans intend to bolster China's industrial ambitions to expand its dredging companies overseas.[194] The company's annual report of 2018 would indeed correspond to such an interpretation:

"The Company responded actively [to] the national strategic deployment of "Going Global", participated extensively in cooperation and competition for foreign economic aid programs and international contracting projects, and acted as a leader in implementing the initiative of "the Belt and Road".

(...) and shouldered the responsibility as a pillar of a great power in respect of developing China into a transport power as well as a maritime power, and building a green China.

(...)

The Company was committed to promoting reform precisely and delicately, promoting the construction of the "Belt and Road" in both substance and depth, driving high-dimensional development through high-end connection and high-end operation, and proposed "China's Plans" and made "China's Voice" at major diplomatic and business events of the State, such as the Beijing summit meeting of Sino-African Cooperation Forum and the First China International Import Expo (CIIE).''[195]

A subsequent illustration of alleged state support is the combined credit line of almost USD 82 billion between 2013-2016 to China's state-owned shipping and shipbuilding company COSCO. J. Holslag argues that, despite making significant losses, this company received USD 8 billion from China Merchants Bank, USD 14.4 billion from the Bank of China, USD 1.75 billion from the Chinese Exim Bank, USD 13 billion from ICBC, and USD 26 billion from the China Development Bank to support the Belt and Road Initiative. The author furthermore refers to a statement of COSCO itself, wherein it

accentuated its strategic importance to *"[p]romote the stable development of Chinese global supply chains and national industrial development"*.[196] The later financial reports of COSCO equally indicate continuous state support. In 2018, COSCO reported for USD 230 million in state support, whereas the net income of the company accounted to USD 251 million. In 2019, COSCO declared CNY 907.06 million (USD 129.31 million) as government subsidy and reported for CNY 944.46 million (USD 6.34 million) as deferred income tax and CNY 2.34 billion (USD 333.59 million) in deferred tax liability. It has to be remarked that the lower direct subsidies for 2019 are a result of the discontinuation of the scrap-and-build subsidies. For the first quarter of 2020, the company declared CNY 42 million (USD 5.99 million) in subsidies. The financial statement however explains that these subsidies are ''exclusive of government subsidies which are closely related to normal operating business of the Company and are entitled continuously pursuant to unified standard quota or amount under the State government policy.'' The deferred income tax was estimated at CNY 64.14 million for long-term deferred expenses and CNY 776.83 million for deferred income tax.[197]

CSSC and CSIC would also at least have received USD 44 billion in credit from China's state-owned banks and other state-owned enterprises between 2009 and 2019.[198] The annual reports of the companies indicate that CSIC received CNY 302.77 million as ''non-operating income'' for 2017, while CSSC obtained CNY 334.84 million for the same year.[199] While not all forms of non-operating income are subsidies per se, some of it might be. However, the Secretariat lacks the specific data to confirm this hypothesis.

In light of this remark and as indicated at the beginning of this section, it needs to be reiterated that the mere fact that large amounts of credit or grants are provided to a company does not provide by itself any evidence of a subsidy. The degree of the subsidy would depend on the extent to which loans or grants are offered at terms more favourable than the terms that would have been provided by the private market. However, the surrounding circumstances may raise the presumption that certain loans or grants were indeed part of a larger framework to support the Chinese domestic industry. More extensive research is needed to confirm this hypothesis.

Debt-equity swaps

Highly-leveraged companies that operate in sectors characterised by overcapacity, such as shipbuilding, may face financial difficulties to repay their debt.[200] In light of its supply side reforms, China re-introduced its debt-to-equity swap programme in 2016[201], after it was first introduced in 2000[202]. Debt-to-equity swaps are a financial instrument to provide equity (e.g. shares or some types of convertible bonds) in exchange for debt relief. In its 2019 Economic Survey of China, the OECD acknowledged that debt-to-equity swaps can play an important role in tackling the high levels of debt in Chinese SOEs.[203] In fact, equity financing does not raise concerns if it stems from the normal operation of market forces. However, equity financing may become more controversial when governments or state-owned enterprises inject equity in companies that the markets would not deem equity- or credit-worthy, if there are no restructuring plans attached to the injection, if the capital injection does not value the debt at market conditions, or if there is no clear exit strategy, as such circumstances could provide for advantages to some firms that are not available to others.[204]

In 2019, China implemented debt-to-equity swaps in various sectors for an amount of USD 203 billion in total.[205] In 2020, the China Banking and Insurance Regulatory Commission announced to encourage further expansion of investments in debt-to-equity swaps.[206] However, the debt-to-equity swap programme has been criticised as the amount of money involved would be insufficient to tackle China's debt problem and because of a perceived lack of a fair pricing mechanism of the swaps.[207] The current section discusses the case study of China's biggest shipbuilders' debt-equity swaps, i.e. CSIC and CSSC.

In the case of CSIC, eight investors injected CNY 21.9 billion (USD 3.27 billion) in 2017 in two of CSIC's subsidiaries (CNY 16.5 bn. for Dalian Shipbuilding Industry and CNY 5.4 bn. for Wuchang

Shipbuilding Industry Group). In exchange, investors received shares of the parent company (i.e. CSIC Ltd.). By virtue of this financial construction, CSIC Ltd. could eventually acquire Dalian Shipbuilding Industry and Wuchan Shipbuilding Industry Corp. The China Cinda Asset Management Co. and China Orient Asset Management, both controlled by the Ministry of Finance, ventured CNY 7 billion (USD 1 billion) in return for equity. The other six investors, including state-owned enterprises Venture Capital Investment Fund Co Ltd[208], Enterprises Structural Reform Fund Co Ltd[209], and China Life Insurance Group Co, invested for CNY 14.8 billion (USD 2.2 billion) in cash-for-equity deals.[210] While the specific terms and conditions of the debt-to-equity swap are not known, it seems likely that the investors required a restructuring plan in exchange for their capital investments. Indeed, in the following years CSIC further focused on internal restructurings (e.g. Dalian Shipbuilding acquired Bohai Shipbuilding) to reduce its costs and to increase its efficiency.[211]

CSSC equally engaged in debt-to-equity swaps, gauged at CYN 16.9 billion (USD 2.5 billion) since 2018. CSSC Holdings Ltd. swapped the shipbuilding assets of Huangpu Wenchong Shipbuilding and Guangzhou Shipyard International from its subsidiary CSSC Offshore & Marine Engineering Company Ltd. (COMEC) in exchange for the marine propulsion assets of Hudong Heavy Machineries. In addition, CSSC Offshore & Marine Engineering Company Ltd. (COMEC) acquired the marine propulsion assets from CSSC Marine Power, CSSC Propulsion Research Institute and CSSC-MES Diesel. Finally, CSSC Holdings Ltd. acquired Jiangnan Shipbuilding from China State Shipbuilding Corp. (i.e. the parent company).[212] The financing for the debt-to- equity swaps in 2017 amounted for CNY 7.5 billion (USD 1.1 billion) and came from the China Construction Bank Corporation and the China Life Insurance Group.[213]

After the restructurings, CSIC would mainly focus on shipbuilding (i.e. China Shipbuilding Industry Co. Ltd), power equipment manufacturing (i.e. China Shipbuilding Industry Group Power Co. Ltd.), and information technology (i.e. CEC CoreCast Corp.). CSSC would further specialise in shipbuilding (i.e. CSSC Holdings Ltd.), marine propulsion (i.e. CSSC Offshore & Marine Engineering Company Ltd.), and steel structures and mechanical engineering (i.e. CSSC Science and Technology Co.).[214]

Following the sequencing of the debt-to-equity swaps, the internal restructurings, the subsequent merger of CSIC and CSSC - and the similar sequencing pursued in other sectors characterised by overcapacity[215]- it seems that these decisions were inspired by wider governmental policies. For this reason and the fact that several state-entities are involved in the debt-equity swap transactions, the suspicion is raised that the terms and conditions of the debt-to-equity swaps took place at conditions more favourable than what would have been offered by the private market. However, the Secretariat lacks the data to confirm this hypothesis.

While the restructuring of debt through debt-equity swaps may reduce the debt burden of a company, one may pose the question as to its long-term effect. In line with prior research by W. R. Lam, A. Schipke, Y. Tan, and Z. Tan, the OECD Secretariat suggests that the deleveraging of firms will have to be accommodated by the restructuring of zombie-firms and SOEs, for instance by focusing on core activities, diminishing subsidies and reducing implicit support.[216]

Guarantees

One example of a 'guarantee'[217] in the shipbuilding sector is the irrevocable and standby letter of credit provided by the Bank of China for the issuance of EUR 500 million in credit enhanced bonds by CSSC in 2015. The credit rating agency Moody's explicitly mentions the letter of credit as one of the main reasons to grant the bond 'A1' status (i.e. upper medium grade with low credit risk).[218] This suggests that the guarantees provided by the Chinese state-owned banks improve the creditworthiness and hence the financing and capital conditions of a company. It is, however, not clear at which particular conditions the letter of credit was issued.

Apart from explicit guarantees, other support measures with a similar effect also need to be taken into account. Research illustrates that industrial subsidies in China for instance had increased the cash position of businesses so they could lend more and at more favourable terms, notably in cases where companies were facing an internal financing gap.[219] Some companies moreover enjoy a reputation of being closely connected to the Chinese government. Because of this status, certain credit providers believe that the company will be backed-up and bailed-out by the state (i.e. implicit guarantee).[220] For this reason, the company can benefit from more favourable access to credit, credit at more favourable terms, and higher levels of debt, compared to most private counterparts. State-owned enterprises and local government investment vehicles[221] are the main actors of this privileged category. These implicit guarantees, however, lead to a situation where credit is granted on the basis of a company's perceived reputation rather than on the project's economic viability. This may lead to a misallocation of funds.[222]

Taxes

The Chinese central and local governments have launched a series of initiatives to attract foreign expertise in high value-added sectors and to stimulate the domestic shipbuilding sector. It is beyond the scope of the current report to discuss all of these incentives in detail. By way of example the present report will refer to some illustrations of tax incentives in the shipbuilding and marine equipment industries. Moreover, one has to bear in mind that specific tax regimes may apply in certain types of industrial zones (e.g. Free Trade Zones) and that local governments may reduce a company's tax burden on a case-by-case basis.[223]

Since 2017, China provided VAT support - in the form of refunds for excess input VAT credit - for innovative firms that were active in the 10 key areas of the Made in China 2025 policy, including marine engineering equipment and high-tech marine vessels.[224] In similar vein, since 2009 China enacts the Catalogue of State-supported Key Technical Equipment and Products[225] and the Catalogue of Imported Key Components and Raw Materials of Key Technical Equipment and Products[226], which are both updated regularly. Products covered by the latter catalogue can benefit from customs duty and import VAT relief if they are deployed to manufacture the products that are included in the former catalogue.[227] Manufacturing companies not only benefit from lower VAT rates and customs duties, but also from lower fees or other types of taxes. According to the China Daily the overall reductions for the sector was estimated at CNY 1.65 trillion (USD 240 billion) in 2019, and could be further reduced in the future. The freed resources can be used by companies to invest in research and development. The exact amount that was received by the shipbuilding sector is unknown and is hard to measure given that large conglomerates may be active in several manufacturing industries. The article, however, makes clear that the shipbuilding sector equally falls under these beneficial rules. A representative from Dalian Huarui Heavy Industry records the following statement:

"Besides factories, we have also benefited from reduced charges on roads, railways and ports, and regulate charges for banking and intermediary services. As an equipment and machinery exporter, these moves have effectively reduced the burden on our operations in the domestic and export market,".[228]

The financial statements from COMEC (part of CSSC) equally suggest that the company benefited from preferential taxation, including reductions in VAT, enterprise income tax, property tax, and land use tax.[229]

Subsequently, the Chinese Circular on the Following Administrative Work of Fixed Assets Depreciation's Examination and Approval after the Related Power Delegated to Lower Levels (2003), provides for accelerated depreciation of certain types of machinery and equipment used by shipbuilding enterprises under Chinese tax laws.[230]

Also, there are various instruments to promote financial leasing activities in the shipping sector, both at the central and the provincial level. According to the Circular on the Stamp Tax Policies relating to Financial Leasing Contracts[231] , leasing contracts are taxed at 0.5% of the loan contract. Stamp duties are

even exempted in certain sale and lease back contracts. Secondly, Tianjin has issued a one-year export tax rebate (VAT exemption) to promote the financial leasing of ships. It is not clear if this tax rebate was extended.[232]

Vessel demolition (scrap and build subsidy)

The scrap and build subsidy[233] promoted the demolition of Chinese owned vessels that had not reached the statutory service life and encouraged new orders of vessels. The scheme aimed to mitigate the problem of excess supply in the shipbuilding industry and promoted a technical upgrade of China's national fleet. In addition, the subsidy was likely to sustain activities in some of the yards that were most grievously hit by the global market slump in 2008 by reconverting them into scrapping activities. The first scheme started in 2009 but has been officially promulgated in June 2010 and the government extended it to 2013, 2015 and 2017.[234] The scrapping scheme combined a mandatory scrapping age for ships with a subsidy for ships navigating under Chinese flag that were scrapped before that time.[235]

In practice, the scrap and build subsidy nudged Chinese ship-owners to place newbuild orders at Chinese shipyards. According to Danish Ship Finance, this policy contributed to a growing Chinese domestic shipbuilding market share from 28% in 2013 to 51% in 2015. Moreover, one may observe that Chinese state-owned yards have attracted 94% of orders (CGT) placed by Chinese ship-owners in practice.[236]

China has never publicly released any data on the total amount of money that was spent on the scrap and build subsidy. Given that non-publicly listed companies have no duty to publicly declare this kind of information, it is hard to make any assessment. Therefore, this report is limited to an enumeration of some examples. The Cosco Group for instance received a high amount of the scrapping subsidy. In 2015, the Cosco Group reported that it received USD 637.8 million in scrapping subsidies. It remains unclear over which period this amount was due or how much accumulated support the company would receive in the following years. The subsidy is often reported in the companies' financial statements as 'non-operating income'.[237] A more recent report by the International Transport Forum specifies that COSCO received USD 230 million in subsidies in 2018, of which USD 122 million were granted in effect to the vessel demolition scheme and USD 107 million in subsidies were received on other terms.[238]

Other Chinese shipping groups equally benefited from the scrapping subsidies. Sinotrans shipping (part of China Merchant Group) stated in its financial statement of 2018 that the scrapping subsidy was applied in accordance with the Implementation Plan for Early Retirement and Replacement of Obsolete and Worn-out Transportation Vessels And Single-hull Oil Tankers (2013)[239] and the Administrative Measure For The Special Subsidies Given By The Central Finance To Encourage Retirement And Replacement Of Obsolete and Worn-out Transportation Vessels And Single-hull Oil Tankers (2014)''[240].[241] These rules aimed to regulate the arranged funds to subsidise the early scrapping and renewal of obsolete ships. Lastly, China Merchant Energy Shipping (CMES) received for USD 116 million in scrapping subsidies (i.e. part of ''non-operating income'') in 2016.[242]

Research, Development and Innovation

China has significantly increased its spending in research, development and innovation. Cross-sectoral figures from the OECD show that Chinese investment on research and development, relative to GDP, has risen from 0.89% in 2010 to 2.19% in 2018, although big differences may remain between the different provinces. Meanwhile, China has almost closed its gap with the OECD average, i.e. 2.4%.[243]

Unfortunately, there are no industry specific figures on the total amount of money that China spends in the form of R&D support to its shipbuilding industry. Generally speaking, governmental policies such as the State Council's Notice to Accelerate the Transformation and Upgrading of the Shipbuilding Industry (2013), MIIT's Five-Year Plan for the Shipbuilding Industry (2013) and MIIT's Interpretation on Made in China 2025: Promoting the Development of Marine Engineering Equipment and High-Tech Ships (2016) seem to encourage the independent development of marine and high-tech vessel technologies. The

increased investments in R&D funds and research centres[244] is one way to contribute to this goal. Opening up collaborations with foreign players in the short-term is another way to attain this longer term objective.

In the wake of the financial crisis of 2008 and in line with the corresponding Shipbuilding Industry Adjustment and Revitalisation Plan (2009)[245], the Medium and Long Term Development Plan of Marine Engineering Equipment Manufacturing[246], the National Strategic Emerging Industry Development Plan[247], and the Ocean Engineering Equipment Engineering Implementation Plan, MIIT unveiled guidelines to speed up the research and development in the marine engineering industry, notably in the field of offshore and deep-sea oil and gas. More specifically, China supported projects on the construction of mobile drilling platforms, floating production units, offshore engineering and auxiliary ships. The guidelines also articulated the wish to sustain concrete projects in 2012, 2013, and 2014.[248]

The Chinese Ministry of Science and Technology initiated its State High-Tech R&D Program (''863 Plan'') to incite the development of high-tech sectors. This program couples with the 11th and 12th Five-Year Plans as well as with the National Medium and Long Term Scientific and Technological Development Plan Outline. These plans are horizontal in nature. Narrowed-down to the marine technology sector, the plans want to upgrade China's integrated transport system by virtue of developing independent, cutting-edge technologies.[249] To be eligible for the funding, the applying institution must be registered in Mainland China for at least one year and should cooperate with a Chinese partner.[250]

Additionally, some projects couple with MIIT's high-tech shipbuilding R&D plan (2014)[251], and the Plan to accelerate the implementation of structural adjustment programs to promote the transformation and upgrading of the shipbuilding industry (2013-2015). The aim of these plans is to encourage the technical development of the shipbuilding industry, improve China's own independent innovation capacity and improve the Chinese shipbuilding industry's global competitiveness.

A non-exhaustive list including some examples of national Chinese initiatives that aim to encourage R&D investments in the shipbuilding and marine equipment sector can be found in Annex III. These national initiatives may be supplemented by local initiatives. The province of Guangdong has for instance launched a subsidy programme to support R&D in projects regarding deep-sea autonomous underwater vehicles or intelligent equipment for damage detection and repair of large marine structures.[252]

While there are good economic arguments to provide R&D support – such as correcting market failures and fostering innovation – care should be given to its design. Emphasis should preferably be placed on transparent and non-discriminatory policies that benefit firms that face financial constraints or on pre-competitive research that undertakes fundamental R&D, which might be undersupplied by the private sector.[253] The European Chamber of Commerce has for instance already expressed its concerns as to the practical feasibility for foreign firms to access Chinese R&D funds.[254]

3.2.3. Financing

The impact of China's industrial policies extends beyond the field of industrial subsidies. Industrial policies also largely interact with a variety of economic and financial tools, ranging from direct funding through investment vehicles[255] to the deepening of capital markets. A substantial part of the financing is provided with the assistance of policy banks and state-owned banks. These banks tend to be constrained by the Chinese rules on financial repression[256] and are claimed to contribute to China's industrial policies[257] such as the revamping of China's domestic shipbuilding industry.[258] Indeed, DSIC's (part of CSSC) website for instance mentions that its achievements were ''inseparable from the support of CCB [China Construction Bank] Dalian Branch in [the] financial field''.[259]

Lloyd's List announced that Cexim had signed a strategic cooperation agreement with CSSC in 2019. According to the news article, the recent merger of CSSC with CSIC elicits important policy and financial considerations: "*Now CSSC has been merged by Beijing with its northern cousin, China Shipbuilding Industry Corp and reincarnated into a new and larger CSSC, it means the combined group will receive*

more consolidated support from the state lender." Also, it is argued that Cexim would be one of the most important financial institutions to back-up the USD 4 billion newbuilding orders that CSSC had signed at the end of 2019 (i.e. at Marintec).[260] Additionally, CSSC mentioned in a statement that it has signed loan agreements with the China Development Bank, China CITIC Bank, Bank of Communications and China Everbright Bank. Moreover the statement posits that CSSC has issued for USD 485 million (2018), EUR 300 million (2018) USD 800 million (2013) and EUR 500 million (2015) in corporate bonds.[261]

Financial policies are of particular importance in the shipbuilding sector as cheap financing is one of the key factors for concluding an order. Cheap financing may be associated with an indirect form of domestic market protection, notably if it is provided to companies with low profitability levels and high levels of debt. A Korean newspaper mentions that foreign ship-owners receive favourable shipping finance from the Chinese government in exchange for the commissioning of new orders at Chinese yards.[262] A recent large order for LNG carriers by Qatar is equally alleged to benefit from favourable government funding.[263]

In addition, there are many examples of large orders made at Chinese state-owned yards that are commissioned by other Chinese state-owned enterprises, and that are financed by state-owned financial institutions such as export credit agencies and/or financial leasing houses. Some examples in 2019 were the newbuild orders at Marintec for the China State Shipbuilding Corporation (merger between CSIC and CSSC), accounting for USD 4 billion; the CSIC deal for 24 newbuilds and other projects, accounting for USD 2.8 billion; the order of 36 newbuild vessels by CSSC, corresponding to more than USD 1.5 billion; and the commissioning of 12 oil tankers for USD 650 million by the Bank of Communications Financial Leasing at Guangzhou and Shanghai Waigaoqiao shipyards.[264]

Some elements to take into consideration while assessing the protective nature of a deal relate to the terms of financing, the profile of the companies involved, the extent to which the deal aligns with industrial policies, the procedure for ordering the vessels (e.g. government procurement), the size of the deal, and the overall investment and trade climate.

Monetary and financial policies

The People's Bank of China (PBOC) appears to support China's industrial policies via its monetary policies. Firstly, the PBOC used to put a maximum cap on deposit interest rates. It has been argued that deposit interest rates were kept artificially low to transfer money from Chinese households as an indirect form of cheap credit to the Chinese corporate sector, notably to SOEs.[265] While the interest rate ceiling policy was officially abandoned in 2015, some scholars argue that in practice commercial banks perpetuate aligning their interest rates with the official benchmark rates set by the PBOC.[266] According to L. Zheng, P. Wang and Z. Xu, the liberalisation of the interest rates accelerated the flow from deposit savings to SOEs as these firms enjoy more favourable access to finance, in addition to the incentive to boost production sales. This would exacerbate capital misallocation to SOEs across sectors.[267] Figures show that the share of state-owned corporate loan borrowings in China have continued to increase between 2010 and 2016, from respectively 36% to 83%, while the private sector respectively represented 48% in 2010 and 11% in 2016.[268]

Secondly, the PBOC already noted in its Quarterly Report of 2017 that *"sound financial services will be delivered on a continuous basis for infrastructure construction and the upgrading and transformation of key areas and industries, such as railways and shipbuilding.*"[269] This engagement feeds into the 2019 Report on the Execution of the Central and Local Budgets by the Chinese Ministry of Finance to "*give full play to the leveraging role of government funds in guiding capital and resources toward key areas of strategic importance, to help shore up weaknesses in major equipment manufacturing and create new service platforms in key industries, and promote innovations and breakthroughs in key strategic areas."*[270] Read against the backdrop of broader Chinese policy documents, this preceding paragraph by the PBOC may consequently suggest that the PBOC intends to promote the Chinese industrial objectives in the shipbuilding sector through its monetary and financial policies.

According to the Financial Stability Board, the stricter banking policies in China in combination with a strong demand for credit, the search for higher yield and the implicit guarantees may have contributed to the rapidly evolving shadow banking industry.[271,272] There is a strong interaction between the banking and the non-banking sector in China. Larger companies (private and SOE) can for instance receive more attractive funding from commercial banks and deploy their creditworthy position to grant entrusted loans [273] to other, usually smaller and medium-sized SOEs or private companies. Yangzijiang Shipbuilding, a private company, for instance already provided direct loans to other businesses through the intermediation of its financial subsidiaries.[274] Beijing has issued several policies to regulate shadow banking more strictly, as reinforced by the Financial Stability Report of the PBOC (2018).[275] The impact of these policies on lending practices in the shipbuilding sector yet remains to be seen.

In addition to China's domestic financial policies, China seems to be eager to export some of its financial norms abroad. The scholars T. Kenderine and H. Ling argue that China's policy of International Capacity Cooperation (ICC) [276], while aimed at "promoting foreign cooperation in competitive production capacity", essentially must be understood in such a way as exporting China's policies and industrial capacity abroad (cfr. Belt and Road Initiative). The authors furthermore indicate that the Chinese banks financing these operations subscribe to Beijing's industrial strategies and policies (cfr. Made in China 2025). More concretely, the People's Bank of China, State Administration of Foreign Exchange, and China Investment Corporation are suspected to channel funding through Chinese policy banks and the big four commercial banks to investment funds such as the Silk Road Fund. The Chinese regulatory framework[277] seems to confirm this assertion. These investment funds then venture - often through SOEs - industrial plants abroad. The implementation of the projects is managed at the provincial level.[278] The authors notice that the Chinese International Capacity Cooperation system could create a parallel trade and investment architecture and that the export of local Chinese government debt may export a debt-deflation model to other countries, thereby causing a systemic risk to global capital transfers.[279]

Financial leasing

In the aftermath of the financial crisis in 2008, Chinese leasing companies have been building a prominent position in the international financing of ships and continued to expand their influence.[280] This rise of the Chinese leasing industry has been supported by several regulatory initiatives issued by the State Council, the China Banking Regulatory Commission (CBRC) and MOFCOM, such as the Guiding Opinion on Accelerating the Development of Financial Leasing Industry (2015)[281], the Interim Provisions on the Administration of Specialised Subsidiaries of Financial Leasing Companies (2014) [282] and the Administrative Measures for Financial Leasing Companies (2014)[283]. According to estimations by the Center for Strategic and International Studies, Chinese bank lending and leasing to shipping companies accumulated to - at least - USD 127 billion over a time period between 2010 and 2018.[284] The fast growth of the Chinese leasing companies was facilitated by i.e. fiscal and taxation policies, government procurement policies, the targeting of specific sectors such as ships or marine equipment, and an increase in export credits.[285]

The share of Chinese leasing companies in the global portfolio increased sharply between 2010 and 2019 to represent almost 20% of the world total in 2019 (approximately USD 64 billion).

There are several types of financial leasing companies that operate in China such as foreign-funded enterprises, non-banking financial leasing companies, domestic-capital financial leasing pilot enterprises, and financial leasing entities pertaining to conglomerates.[286] Some renowned companies active in the Chinese ship finance market are AVIC International Leasing[287], China's Merchant Bank (CMB), the Bank of Communications (BoCom), the Industrial and Commercial Bank of China (ICBC), and Minsheng Leasing. These leasing companies, owned by banks, are the main drivers of the Chinese ship leasing market.[288] Large Chinese shipbuilding conglomerates such as CSSC, CSIC or COSCO also have their own financial leasing subsidiary. [289] While their leasing activities are significantly lower than their

banking counterparts, it has to be noted that these conglomerates also hold shares in leasing companies of big Chinese banks.[290]

A ranking publised by Tradewinds[291] provides an overview of Chinese lease financing and shows that five Chinese leasing companies managed each more than USD 5 billion of shipping assets at the end of 2018. According to some press articles, the assets of Chinese lessors are often an underestimation as a large share of the deals remains unreported.[292] Also, Chinese leasing companies are likely to restructure in the future (e.g. public listing) to pursue higher financial gains.[293]

Chinese leasing companies tend to favour domestic shipbuilding companies[294] and Chinese policy banks may even require a 'Chinese element' when selecting potential project partners. Chinese leasing companies were for instance already involved in the construction of cruise ships[295], the sale-and-lease-back of 200 LNG-fuelled vessels[296], the ordering up to 10 VLOCs[297], and the construction of eight ultramax ships.[298] The sale-and-lease-back formula remains the dominant form of leasing and is a way to provide liquidity to shipping companies.[299] Examples show that some Chinese leasing deals are conducted on more competitive terms than traditional banking.[300] Additionally, other forms of ship finance provided by private entities are increasingly difficult to access.[301] This could explain the rising popularity of leasing as the preferred form of ship finance.

Lloyd's List reports that MIIT, upon complaints from CSIC and CSSC, would have requested Chinese leasing houses in 2017 to no longer finance newbuilding projects at foreign shipyards. However, given that Chinese leasing institutions are supervised by the China Banking Regulatory Commission (CBRC), it is unclear which impact MIIT's request has in practice.[302] The Secretariat did not find any explicit law or abstract prescription for policy banks to adhere to such constraints. Therefore, each case needs to be assessed individually. The annual report of China's Development Bank (CDB), a policy bank, for instance appears to indicate that the China Development Bank supports the Chinese party line. Some of the statements in this annual report include *"in an effort to implement the overall plan for Party building in a new era, we made sure that the Party's leadership is present throughout our corporate governance and management", "as a lead financial institution for economic growth, we supported priority areas and major programmes and projects, issuing (...) CNY 1.3 trillion loans to priority areas such as the Yangtze Economic Belt (...)"*, and *"looking ahead, CDB will keep to the Xi Jingping Thought on Socialism with Chinese Characteristics for a New Era, implement the strategies and plans of the CPC Central Committee and the State Council, and move forward steadily"*.[303] Commercial banks, by contrast, seem to have abandoned any compulsory prerequisite of a 'Chinese element'.[304]

Provided that Chinese leasing institutions have gained a large share of the ship financing market and assuming that foreign shipbuilders have in fact no access to cheap financing by Chinese policy banks and commercial banks, foreign shipbuilders may in practice be forced to finance their transactions with internal funds or with external funding against more stringent conditions. Given the current situation of overcapacity and the resulting low profit margins, it may, however, be difficult to aggregate internal funds for the financing of new shipbuilding projects.

Export credit agencies

Export credit is one tool[305] to promote exports. The China Export and Credit Insurance Corporation (Sinosure) and the Chinese Export-Import Bank (Cexim) are the two most common providers of ship finance in China. In addition, the China Development Bank offers financial packages that closely resemble official export credits. These institutions already pledged to support China's Belt and Road policies and the Made in China 2025 programme.[306] While many large economies provide export credits, China awarded in 2014 for USD 58 billion in export credits, which is four times higher than the financing by any other state, and which is more than the export credits by all of the G7 members combined. In addition, scholars have argued that China's export credits may serve as an indirect form of state support or tied aid given that the credit is offered at terms outside the scope or at more favourable terms than the

provisions of the OECD Arrangement on Officially Supported Export Credits.[307] A recent document from the State Council indicates that China is planning to further expand its export credits to tackle the negative impact of the COVID-19 crisis. This includes the possibility to change the payment term of short-term export credit insurance or to extend the grace period.[308]

China's Export Credit Agencies (ECAs)[309] prioritise lending to companies intending to construct their ships at Chinese shipyards and may combine forces with Chinese leasing houses.[310] Cexim acts as a policy bank and supports the plan of the Chinese government to move up the value chain in shipbuilding. It provides export credit insurance, shipbuilding credits, loans and shipbuilding guarantees.[311] According to its website, Cexim has provided for more than CNY 300 billion in export credit to the shipbuilding industry since 2013.[312] Cexim has already pledged to guarantee shipbuilding orders and to support the production of high-value ships, notably LNG carriers and stainless steel chemical tankers.[313] Moreover, its financing is often provided at attractive terms, which may persuade ship owners to commission vessels at Chinese yards.[314] Lloyd's List reports that Cexim issued more than USD 15.1 billion in ship loans between 2016 and 2017, which led to the construction of 688 vessels and offshore projects in China.[315] In 2017, Cexim for instance financed a USD 1.5 billion project for nine newbuilds for CMA-CMG and granted USD 4 billion in loans for an order of 50 new vessels for COSCO Shipping. In 2018, Cexim funded six dry bulkers (USD 94 million) for a Bulgarian ship owner and three lake bulkers (USD 34.2 million) for a Polish ship owner. All new vessels would be built in China.[316]

Sinosure equally provides export credit guarantees. One illustration relates to the retrofitting of ships to install a scrubber in light of the IMO 2020 sulphur regulations. The shipping company MSC for instance installed scrubbers on 86 of its vessels. The retrofitting would be carried out by Chinese shipyards (incl. state-owned companies CSIC and COSCO), while the financial loans were backed-up by export credit guarantees of Sinosure.[317] Sinosure has also expressed its intention already to support the further development of the China Merchant Industry Holdings into a global shipbuilder.[318]

3.2.4. State-Owned Enterprises

Chinese state-owned enterprises (SOEs) have been discussed extensively in the literature. SOEs may enjoy various forms of preferential treatment such as privileged access to government contacts and contracts, smoother licensing procedures, higher levels of debt, or favourable financing. A significant portion of the literature focuses on subsidies to and by SOEs. However, to capture the actual impact of SOEs on trade and competition, the broader regulatory and policy framework by which Chinese SOEs are governed will equally be examined. In that respect, George Magnus (Oxford and SOAS University) for instance notes that *"[i]t is not only subsidies to state-owned enterprises (SOEs), it is also the principle of the state extending privileges and advantages to local companies, including SOEs, in vital sectors (…)."*[319]

In light of this remark, it may be difficult to draw a strict line between SOEs and private companies in practice (i.e. privatised companies may still hold important government contacts). Research by several scholars suggests that the degree of party-building is more important in assessing the political influence of a firm than its mere type of legal ownership (i.e. public or private).[320] Private listed firms for instance received one third of China's subsidies in 2018.[321] Therefore, the current section can only offer a tentative framework. The exact level of political interference and alignment of a company with China's industrial policies will need to be assessed on a case-by-case basis.

SOEs are divided into central SOEs and local SOEs. Central SOEs[322] usually operate in strategically important sectors such as shipbuilding. In practical terms, this strategic nature of a central SOE entails easier access to government officials but also leads to a more direct or indirect (e.g. investment vehicles) form of state control.[323] One of the central SOEs in China, COSCO, for instance already stated that *"we should respond to SASAC's call to central enterprises to hold each other warm in difficult times"* and *"we seek to use our assets overseas to support domestic industries, to help domestic companies to go out*

and to support the export of goods and services."[324] By the same token, China's Law on State-Owned Assets of Enterprises mentions that state owned capital should be directed to important industries.[325] Local SOEs, by contrast, seem to be much smaller in size and influence and are more active in industries or operations of commercial significance. In that sense, it becomes a thin line between local SOEs and private firms that are well-connected politically.

The findings in this section are mainly confined to strategic and central SOEs. For this reason, not all conclusions can be automatically transferred to other types of SOEs.

Organisational structure

Chinese central SOEs are often structured as conglomerates. This structure appears to be encouraged by Chinese policies. MIIT's Twelfth Five-Year Implementation Plan (2011-2015)[326] for instance promotes the cultivation of large-scale enterprise groups, including the establishment of cross-regional, cross-sectoral and cross-ownership structures. Within the conglomerate, a pyramid shaped composition normally unfolds in a holding company, one or more publicly traded subsidiaries, one or more financial company(ies) and one or more research institute(s). Some of the conglomerate's subsidiaries on their turn focus on specific segments of the shipbuilding industry[327], ship trading services such as chartering or ship broking or insurance brokerage.[328] The State-Owned Assets Supervision (SASAC) usually acts as the controlling shareholder of the holding company. The degree of SASAC's control depends on the classification of the SOE.[329] Central SOEs that are fully owned and funded by SASAC encounter the highest degree of political interference.[330] SASAC's main competences (sometimes in cooperation with other ministries such as MIIT) relate to the appointment, rotation, remuneration (i.e. fixed, fringe benefits and bonuses)[331] and evaluation of top managers; administering state assets; and restructuring of SOEs. SASAC on its turn falls under the supervision of the State Council.[332]

SOEs are instigated to collaborate with foreign partners (e.g. joint venture or strategic alliance[333]) and to set-up domestic networks[334]. These networks materialise at the institutional level (e.g. between steel companies, shipping companies and shipbuilding companies and/or between central and local SOEs[335]) as well as at the personal level (e.g. rotation of management between SASAC or other government bodies and central SOEs[336], or cooperation between top management of SOEs[337]). Therefore, a Chinese conglomerate can be labelled as a "networked hierarchy".[338]

The appointment of top executives of the China State Shipbuilding Corporation (CSSC) or the China Shipbuilding Industry Corporation (CSIC) requires political endorsement. By exercising control and influence over the top management of SOEs, China could deploy strategic SOEs as vehicles for the implementation of its industrial policies.[339] Therefore, it appears that strategic SOEs in China are both driven by political and economic forces. The degree of political interference, however, needs to be nuanced as the SOE decision-making process may be fragmented in practice.[340] Besides, the level of political interference also depends on whether the SOE is a "national champion", i.e. a strategic and large conglomerate.[341]

As stated by Ch. Zhang, all SOEs in China represent about 23%-28% of China's GDP and between 5% and 16% of China's total employment.[342] Chinese SOEs in strategic sectors nonetheless hold domestic market shares of around 80%.[343] As mentioned above, the shipbuilding sector is one of China's strategic sectors. Some important SOEs in the shipbuilding and marine equipment sector are China Shipbuilding Industry Corporation (CSIC), China State Shipbuilding Corporation (CSSC), Dalian Shipbuilding Industry Corporation (part of CSIC), COMEC/GSI (part of CSSC), Hudong-Zhonghua Shipyard (part of CSSC), Shanghai Waigaoqiao Shipbuilding Co. (part of CSSC), China Merchants Industry Holdings, and China COSCO Shipping Corporation[344]. Certain academic researchers rank China's central SOEs into 'core companies' and 'secondary companies'. The first type, also known as "important backbone state-owned enterprises", are at the forefront of China's industrial policies and possess vice-ministerial status. The second type enjoy the same hierarchical level as departments.[345] CSSC, CSIC (and all their

subsidiaries) resort under the first category. The other SOEs of the abovementioned list fall under the second category.[346]

In addition, the direct investments that were made by Chinese government funds in some of China's largest SOEs gives the Chinese state a bigger influence over corporate decisions.[347]

The COSCO Shipping Investment Fund of CNY 1 billion (USD 150 million), which was initiated in 2018, provides a good illustration of a central SOE collaborating with the Chinese Ministry of Finance and a state-owned financial institution (Cinda) to nourish investments in shipping.[348] Policies by the central government can be supplemented by local initiatives. The government of Shenzhen for instance set up a CNY 3 billion Shipping Fund in 2019 to promote smart and green shipping.[349]

The mere exertion of some degree of political control over the top management of SOEs will not necessarily be a reason for concern. One would have to examine the extent of the political influence (cfr. corporate governance)[350] and the concrete circumstances, such as the degree of transparency, to assess the practical consequences of political influence on fair competition and trade.

Against this backdrop, one has to assess the broader policy framework. As recorded by the WTO's Trade Review, Beijing, affirms that its "state trading enterprises operate following market mechanisms, with no government intervention".[351] At the 13th National People's Congress, China's Premier mentioned in his report that ''rents for state-owned premises will be lowered or exempted, and all other types of property owners are encouraged to also reduce, waive, or defer payments, and they will receive policy support from the government in doing so. We will take firm steps to stop the unauthorized levy of fees on enterprises.''[352] Some scholars have nonetheless claimed that Chinese administrative rules offer SOEs more favourable conditions, notably with respect to capital and land use, at the expense of the private counterparts. Central SOEs acting as large conglomerates would in addition also reap the financial gains from monopoly rents and lower dividends to the state.[353] In similar vein, the IMF already expressed its concern about central SOEs tending to receive implicit support on matters such as land endowment, favourable credit or cheap natural resources.[354]

Indeed, central SOEs play a salient role in the Chinese economy and industrial development. Their strategic importance is incorporated in Chinese regulations. Article 7 of the Chinese Constitution stipulates that *"the state-owned economy, (…), is the leading force in the national economy. The state ensures the consolidation and development of the state-owned economy."*[355] Subsequently, in the context of competition policies, article 7 of China's Anti-Monopoly Law (2007) reinforces the importance of central SOEs.[356] Next, it is noted that SASAC, in coordination with the Party Committee or Party Organization and/or the board of directors, often compels central SOEs for its regulatory approval before 'critical and important' decisions may be implemented.[357] These contain politically important decisions such as Party-level policies, the appointment or removal of high-level executives, decisions that have crucial implications for the operations of a company such as mergers or external investments, and expenses that were not allocated under the annual budget.[358,359]

Taken into account the broader policy framework, it seems hard to believe that Chinese shipping and shipbuilding SOEs would not be influenced by any political considerations at all. One may observe that there are various examples of Chinese, state-owned shipping companies commissioning vessels at Chinese, state-owned, shipyards, at a time where the ordering of new vessels does not seem to be sustained by market-led indicators. After the COVID-19 outbreak, Chinese state-affiliated shipbuilders for instance attracted a significantly higher number of new orders, despite the global drop in demand and in clear contrast to Korean and Japanese shipbuilders.[360] This seems at odds with the market tendencies, notably taking into account that Chinese shipbuilding SOEs are highly leveraged and significantly less profitable than their private counterparts (see OECD, State-Owned Enterprises in the shipbuilding sector[361]). Additionally, a Chinese market study by China Shipbuilding and Offshore International (CSOC), part of

CSIC, mentions that China's newbuild orders (DWT) were stagnating, a situation that the market study did not foresee to change any time soon.[362]

At the same time, one needs to take into account that Chinese SOEs usually take more extensive roles in society than may be the case in more advanced economies. This includes employing a larger labour force than necessary to meet the SOE's production targets and to meet social-welfare targets. In exchange the Chinese government may accept softer budgets (e.g. higher debt ratios) for its strategic SOEs.[363] These higher level of debts can contain a risk if loans can no longer be repaid. S. Chan argues that the debt issue in Chinese SOEs can only be tackled by structural reforms, including SOE reform policies that cut excess capacity and improve SOEs' efficiency and productivity rate. Coupled with the reform of SOEs are the redesigning of the state and the banking sector as well as corporate governance mechanisms.[364] While acknowledging S. Chan's statement, higher debt levels may be qualified in the sense that Chinese SOEs are – in some circumstances - ought to fulfil wider objectives than purely commercial gains. [365]

Market consolidation

The Chinese entry subsidies have attracted inefficient firms and led to market fragmentation and excess capacity (see 3.2.1.). The initiation of production and investment subsidies in combination with suboptimal exit policies for inefficient firms (e.g. zombie firms) only exacerbated these trends. In the wake of the global financial crisis in 2008 and the resulting drop of ship prices, China adopted several consolidation policies to create Chinese big state-owned enterprises that were able to compete globally (*yangqi*). Moreover, the consolidation policies were assumed to curb excess capacity, limit competition between China's SOEs and introduce economies of scale.[366] In 2015, Sinotrans and Changjiang Shipping Co. (CSC) were acquired by the China Merchants Group, thereby creating the world's largest ports and logistics company. In 2019, China Merchants Industry Holdings signed an agreement to take over the two remaining shipbuilding facilities from Sinotrans-CSC, namely Nanjing Jinling Shipyard and Wuhu Jiandong Shipyard. In parallel, China Merchants Industry Investment bought a majority stake in the shipbuilding unit from AVIC International Holdings, namely AVIC International Maritime Holdings (i.e. the holding company of AVIC Dingheng Shipbuilding and AVIC Weihai Shipyard).[367] One source contends that China Merchants Group is anticipating further integration to form China's third largest shipbuilding conglomerate, focusing on the integration of high value-added segments such as the offshore and marine engineering industry.[368] In 2016, China created the world's fourth's largest container operator through the merger of COSCO and China Shipping. The company was renamed to COSCO Shipping and established the shipbuilder COSCO Shipping Heavy Industries (i.e. merging COSCO Shipyard, COSCO Shipbuilding Industry Company and China Shipping Industry Co.).[369] In 2018, COSCO Shipping Holdings acquired Orient Overseas International (OOIL), i.e. the parent company of Orient Overseas Container Line (OOCL).[370]

The consolidation policies seem to have been facilitated by the overall regulatory framework. The Plan on Restructuring and Revitalising the Shipbuilding Industry (2009)[371] discouraged the entry of new shipbuilding firms but also spurred existing firms to increase their investments. Subsequently, the Shipbuilding Industry Standard and Conditions (2013) policy introduced the 'White List' of Chinese shipyards. This List encapsulated a list of Chinese shipyards that were eligible for enhanced policy support such as preferential access to subsidies or bank financing. These policies encouraged Chinese shipyards to upscale their production and investment levels. This stands in clear contrast with the evolution in global markets, which were hit by stagnating ship prices between 2009 and 2013.[372]

It is observed that China's Law on State-Owned Assets of Enterprises compels SOEs to seek approval by the government for any strategically important decision that affects their rights or interests.[373] The two biggest Chinese shipbuilding companies, China State Shipbuilding Corporation (CSSC) and China Shipbuilding Industry Corporation (CSIC), announced their merger plans in 2019. As the overcapacity in the sector has equally affected Chinese shipbuilders, mergers are one of the possible options to prevent

companies from going bankrupt. To quote Mr. Ka Sam-hyun (Hyundai Heavy Industries): the shipbuilding industry is ''consolidating to survive''.[374] In addition, mergers may mitigate the disruptive social unrest associated with bankruptcies.[375]

Finally, the news agency Caixin posits that the debt-to-equity swaps and subsequent internal restructurings of these two companies preceding the merger are part of a wider strategy to transform the shipbuilders' assets from a region-based approach to a strategy of specialisation.[376] The merger for instance intends to create synergies and economies of scale so China remains competitive vis-à-vis its international rivals, notably on high-end vessels such as LNG carriers, luxury cruise liners, icebreakers or offshore engineering equipment.[377] In addition to creating niche-based shipyards, this strategy seems to induce spill-over effects, such as knowledge sharing, within the same company and/or with other companies.

While consolidation may be effective to gain a higher market share in the short term, one may question its added value in the longer term if consolidation is not accompanied with increased competitiveness and efficiency gains.[378] In addition, it will be interesting to assess the impact of these big mergers on competition, notably with regard to the degree of accumulated control through intra-company technology sharing, economies of scale, as well as the extent of aggregated control over the global value chains. These concerns seem justified as the China Daily highlights the strategic nature of the merger between CSIC and CSSC. Quoting the new chairman of the shipbuilding group, the China Daily records the following:

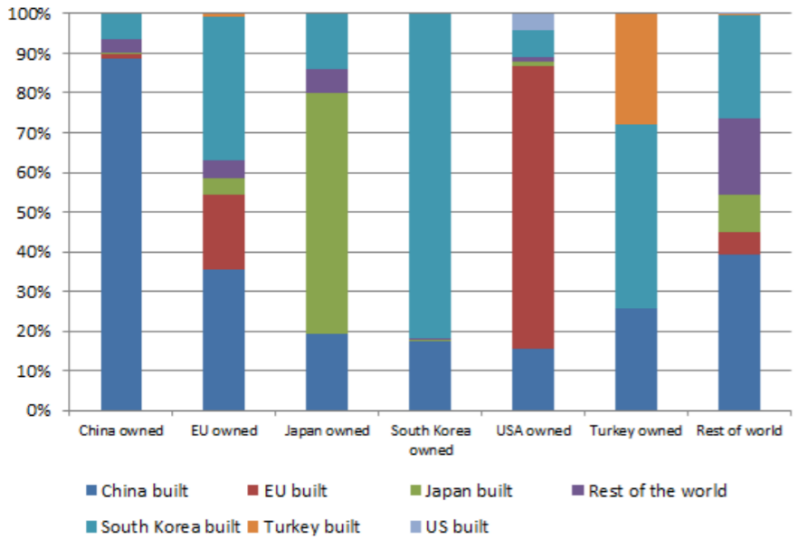
"The strategic merger was guided by the CPC Central Committee and State Council and is very meaningful to improving the competitiveness of our nation's marine and manufacturing sectors and fostering our science and technology."[379]

It is observed that a Korean newspaper already expressed its concern about the impact that the Chinese mergers may have on small and medium-sized Korean shipbuilders.[380]

3.2.5. Market access

The shipping and the shipbuilding sectors are intertwined. Certain subsidies aim to stimulate domestic ship-owners to replace their fleet at domestic shipyards. The scrapping subsidy (3.2.2.) is one example of such a policy. It is observed that almost 90% of Chinese ships were ordered at Chinese shipyards in 2018.[381] This leads to the following worldwide figure:

Figure 10. Orderbook by ownership and building areas, 2018



Source: Data provided by SEA Europe based on IHS Fairplay

Source: Figure taken from ITF, ''Maritime Subsidies. Do They Provide Value for Money?'', 2019, https://www.itf-oecd.org/sites/default/files/docs/maritime-subsidies-value-for-money.pdf, 44.

Domestic orders by ship-owners are not uncommon and Chinese ship-owners may prefer the local Chinese eco-system of shipbuilders and suppliers because of commercial reasons. Chinese shipyards have namely built a steady international reputation. Additionally, some Chinese financial and fiscal policies seem to have stimulated the commissioning of new vessels at local shipyards. The significant high percentage of domestic orders in China, however, may raise questions as to the market access of foreign companies to the Chinese domestic market, in addition to a more privileged treatment for Chinese companies (see previous sections 3.2.3. on finance and 3.2.4. on SOEs).

This subsection confines its research to identifying barriers or constraints for foreign entities to establish itself or to provide services in the Chinese market. To what extent the lifting of these barriers or constraints would result in a higher degree of orders by Chinese ship-owners with foreign shipbuilders or marine equipment suppliers is hard to gauge. Also, this subsection does not discuss any constraints that foreign entities may face once market access was granted. Finally, it will be important to draw connections between the issue of market access and other policy domains such as competition and trade, as a lack of reciprocal market access may facilitate the creation of behemoths that on their turn distort international competition and/or trade.

The degree of foreign market access to the Chinese market will depend on the products and services that the foreign entity provides as well as on the geographic region. In some cases China seems to monitor its market access according to the degree to which it has developed a domestic alternative.

The Medium and Long-Term Development Plan (2006-2015) states in paragraph 37 that Chinese companies shall hold at least 51% of the shares in companies that include foreign investors (i.e. foreign-invested joint ventures, domestic wholly-owned foreign companies and foreign enterprises) and that focus on low and medium speed diesel engines and crankshaft, i.e. the type of diesel engines in which China has built domestic expertise. For other types of marine equipment and cooperation on research and development, by contrast, the ownership restrictions did not apply. To implement these policies, China has drafted negative lists[382] to indicate the sectors that are prohibited or restricted to foreign entities. While in 2007, several shipbuilding activities were restricted, China has gradually opened its shipbuilding market for foreign entities[383], notably in Free Trade Zones[384]. At present, most of the historic restrictions

in the shipbuilding sector have been lifted. Some Free Trade Zones that are active in the shipbuilding and marine equipment sector are the Shandong Pilot Free Trading Zone, Shanghai Pilot Free Trade Zone, the Tianjin Pilot Free Zone and the Zhejian Pilot Free Trade Zone. By way of exception, an FTZ may allow foreign investors to establish foreign-owned companies. Companies that are established in an FTZ can also benefit from preferential tax and trade policies. A European marine equipment supplier has for instance set up a plant in the Shanghai Pilot Free Trade Zone and a European classification society has gained approval to conduct services in China's Free Trade Zones.[385] The 2019 version of the Negative List for a Pilot Foreign Trade Zone further opened market access for fishing and aquatic products.[386] Limited access for foreign investments in other marine sectors that persist at present are the prohibition to invest in marine mapping, restrictions for domestic water transport or restrictions to engage in fishing activities.[387]

While some shipbuilding activities were restricted or prohibited, others are particularly encouraged. The Catalogue of Encouraged Industries for Foreign Investment[388] includes a list per industry and type of activities in which partnerships with foreign entities are promoted. The activities mainly relate to high value-added or niche segments (e.g. exploration and development of seabed combustible ice (methane hydrates)[389]; ship communication and navigation equipment). The identification of these segments corresponds with China's desire to move up the value chain (cfr. section 3.1.). However, the exclusion of the production of marine equipment components from the list has raised concerns with foreign trading partners as this could be perceived as a way to only attract the foreign know-how while entirely leaving the production and selling of marine equipment components to Chinese firms.[390]

The Chinese laws on market access have been criticised by foreign companies and trading partners. They for instance contend that Chinese companies enjoy easier access to foreign markets than vice-versa.[391] Another point of criticism by foreign players is that – in certain cases – market access is made conditional upon the transfer of technology, which combined with a perceived lack of protection of intellectual property rights may cause concern.[392] In a paper about the involuntary transfer of technologies, the OECD Secretariat points out that there are various degrees of technology transfers, which depending on the different degrees of compulsion, different effects on the control of technologies, and the wider policy framework commensurately give raise to different degrees of apprehension. The paper also includes the results of interviews that were conducted with private companies, which tend to second some of the issues associated with involuntary transfers of technology through joint ventures, data localisation requirements and the sharing of sensitive business information in the course of certification and licensing procedures.[393]

To meet some of the concerns, Beijing adopted a new Foreign Investment Law in March 2019. The law took effect together with its Implementing Regulations on 1 January 2020.[394] The Foreign Investment Law serves as a basic law, prescribing the central principles of foreign investment in China, and replaces three previous laws governing foreign-invested enterprises. The law aims at promoting China's investment climate for foreign enterprises. In addition, it accommodates prior concerns by foreign investors on forced technology transfers, the protection of intellectual property rights, and the recalibration of a level-playing field between foreign and domestic firms.

More specifically, the 42-article Foreign Investment Law introduces a set of principles to promote foreign investment, including equal access to government funds, land supply, tax exemptions, and licensing; equal treatment in government procurement; as well as strengthened regulations to protect foreign investment, such as prohibiting forced technology transfers; guaranteed overseas remittances of profits; and more effective measures to protect the trade secrets of foreign investors. The Foreign Investment Law also introduces a foreign investment information reporting system, and a centralised complaint mechanism for foreign-invested enterprises. However, the new Foreign Investment Law remains rather vague on how many of these provisions will be implemented.

The recent laws seem to illustrate that China is willing to gradually open up its markets for foreign investors. While welcoming this process, additional steps will be needed for foreign investors to enjoy

the same level of treatment as their Chinese counterparts. One will for instance need to look at the entire Chinese regulatory system to assess if foreign investors are able to compete fairly with their Chinese counterparts. This includes a non-discriminatory treatment of businesses, transparency about licences and administrative documents, establishment requirements for foreign firms, local content requirements[395], subsidies, or access to government procurement contracts. The European Chamber of Commerce in China has listed some indirect forms of market protection in the Chinese shipbuilding sector. Examples refer to the lack of reciprocity regarding marine equipment certification procedures or the structural prioritisation of Chinese equipment manufacturers in Chinese shipbuilding projects, notably in the commissioning of new vessels by Chinese ship-owners.[396] In addition, some of China's trading partners have raised concerns about obstacles for foreign companies to provide certain maritime services (e.g. life-saving equipment, firefighting systems or navigation safety equipment) to China flagged vessels in the ports and waters of China such as high customs duties for imported foreign marine equipment or the prohibition of the establishment of foreign-owned subsidiaries or local offices in China.[397] Conversely, the restrictions do not seem to apply to foreign maritime service providers that only conduct services on foreign flagged vessels.[398]

Finally, one may raise the question what the impact of the corporate credit system will be on market access for foreign entities.[399] The Opinions of the State Council on Implementing the Negative List System for Market Access for instance already highlighted that ''Market players should be divided into groups and treated differently according to their credit records (…)'', and that ''Market players should be blacklisted if they seriously breach competition norms, disturb market order, or infringe upon the legitimate rights of consumers, workers and other business operators. If the case is extremely serious, the guilty market player should be prohibited from entering the market in accordance with the law.''[400]

3.2.6. Green technologies and smart shipbuilding

At the Marine Technology and Equipment Forum of 2018, several Chinese shipbuilding industry leaders expressed their strategies on how China can develop a ''new era'' in shipbuilding and marine engineering. In addition to the endorsement for the Belt and Road Initiative, the Forum highlighted the vital importance of further developing the Chinese marine engineering industry.[401] The tendencies discussed at this Forum serve as an illustration for the overall strategic goal of China to move up the value chain.

Driven by the Action Plan to Promote the Smart Transformation of Shipyards and Shipbuilding (2019-2020)[402] and the Intelligent Ship Development Action Plan for 2019-2021[403], Chinese shipbuilders have already announced to accelerate investments in smart shipbuilding.[404] According to these plans, China aims to integrate several technologies to become a global innovation centre for smart shipbuilding. In 2015, the Chinese Classification Society (CCS) issued the ''Smart Ship Specifications'', which were revised in 2020.[405] These specifications set out the various components and functions of smart ships. Three years later, the same institute released its ''Unmanned Surface Boat Inspection Guide'', which contains rules on the conception, construction, maintenance and use of unmanned surface boats' key components such as the communication system or navigation equipment.[406] Dalian Shipbuilding (part of CSIC) is focusing on high value- added ships and already manufactured the world's first intelligent VLCCs (i.e. the *New Journey* and the *New Vision*[407]).[408] Some of the vessels' features include smart liquid cargo management and integrated energy efficiency management. Due to their collection of navigation data, the vessels can enable future smart shipbuilding projects such as partially automated sailing. The smart vessels were designed under the aegis of a state-sponsored intelligent ship design programme.[409] Another example of a smart ship is the Great Smart, which was constructed by Huangpu Wenchong Shipbuilding (part of CSSC). These projects are often conducted in close collaboration with Chinese universities and research centres of Chinese SOEs (e.g. CSIC – 702 Research Institute and CSIC 707 – Research Institute, and CSSC - Shanghai Merchant Ship Design, CSSC – Guangzhou Marine Engineering Corporation).[410]

In addition, China has targeted autonomous shipping[411]. Some proclaim that the country might develop into a global leader in autonomous shipping by 2025, although competition from other maritime nations remains fierce.[412] A consultancy firm contends that 96% of the global 3 000 patents[413] relating to autonomous shipping, were registered in China. It is assumed that a large part of the R&D funding for these projects was assigned by the Chinese government.[414] In 2019, China's first autonomous commercial vessel successfully completed its voyage in Guangdong.[415] Next, The Dalian Maritime University is considering to set up a partnership with Dalian Shipbuilding (part of CSIC) to establish an expertise centre on autonomous ships.[416] Finally, ICBC Leasing already declared that it ''would be willing to provide extra incentives to autonomous shipping projects, such as higher loan ratios''.[417]

China is also promoting green policies in the shipbuilding sector. The Chinese Ministry of Transport for instance included a target of 15% for government newbuilds to be LNG powered by 2025. China already constructed an LNG fuelled passenger ship[418] and is building an LNG fuelled containership.[419] In addition, China is investing in LNG refuelling stations and LNG use in ports.[420] Consequently, it is expected that the Chinese demand for LNG will grow significantly[421]. In line with this objective, China is targeting the construction of LNG carriers. As articulated by the Chief Engineer of Jiangnan Shipbuilding, China's efforts to increase its share in LNG carriers will require intense cooperation between shipbuilders, ship owners and classification societies:

"(...) China also needs its own design for large LNG carriers. It is too expensive to obtain patent rights from Korea, and the verification process involves some risk for the shipyard." To achieve this, he concluded, the classification societies and the shipowners will need to work together to overcome technical barriers. "We all need to work together to reduce risk, improve the building process and lower costs."[422]

The importance of cooperation is also illustrated by the conclusion of several strategic cooperation agreements between China LNG and nine Chinese shipyards for the promotion and construction of LNG vessels and accommodating infrastructure. By the same token, CLNG Finance (part of China LNG) and Maifutong already concluded a sale and lease back agreement with LNG Power Shipping for 200 LNG fuelled vessels to be used in China's inland waterways. The vessels were mainly built by Hongua Offshore.[423]

To alleviate the transformation of China's shipbuilding industry to the manufacturing of more environmentally-friendly vessels, it will be pivotal to acknowledge the underlying prerequisites that are needed to make such transformation possible. To enable a shift to green shipping, shipbuilding prices need to be sustainable as well. The JECKU Chairman's note of 24 October 2019 for instance contained the following statement about the interaction between ship prices and investments in green shipping:

''Huge investments are needed to develop adequate technology and implement sustainable shipping.

To this end, profitability of all players involved has to improve significantly.'' [424]

Moreover, the shift to the production of more sustainable vessels will affect the entire shipping and shipbuilding eco-system including notably shipbuilders, marine equipment suppliers, shipowners and classification societies.

3.3. Transparency

China's shipbuilding industry has developed itself rapidly. It grew from a rather small-scale player in the early 2000s to a world leader in the 2010s. One may pose the question what main drivers have contributed to this expansion. Is it a matter of yard efficiency, easier access to capital, superior technology, cheaper labour, or other factors? The shipbuilding industry is labelled as a strategic sector in China and the numerous industrial policy documents on for instance merger consolidation, the Belt and Road Initiative, Made in China 2025 and supply-demand reforms seem to have been underscored by multiple shipbuilding

SOEs. The exact extent to which central SOEs and state-owned financial institutions substantiate China's industrial policies and the exact role of networks to channel knowledge-sharing, however, remains opaque. In similar vein, increased clarity about the different socio-economic purposes of shipbuilding SOEs may enable the understanding of their decision-making process (e.g. excessive employment may result in lower profitability rates but may equally meet a social security purpose).

Two of China's biggest SOEs, China State Shipbuilding Corporation (CSSC) and China Shipbuilding Industry Company (CSIC), have merged in 2019 to form the China State Shipbuilding Group Corporation (CSGC). This new company created the biggest shipbuilding company in the world. Therefore, the actions undertaken by the CSGC will have important consequences for other shipbuilding companies and nations. It does not seem unreasonable in these circumstances to call for enhanced transparency on for instance the corporate governance structure of CSGC, the total amount of subsidies that the company has received, and the extent to which CSGC may benefit from government-backed policies such as implicit guarantees or the commissioning of domestic orders.

Another example of opacity is the recent expansion of LNG carrier orders by Hudong-Zhonghua Shipbuilding (part of CSSC). This company declared in 2019 that it wanted to double its LNG carrier output by 2025 from 4-6 ships per year to 12 ships per year. In 2020, this shipyard already secured a deal for eight large LNG carriers (with an option for eight more) by Qatar, two mid-sized LNG carriers by Petronas, as well as a deal for three large LNG carriers by COSCO and PetroChina. These deals were concluded against the backdrop of falling LNG market prices as a result of the COVID-19 outbreak and low oil prices, which lowered the short-term demand for LNG.[425] As Korean LNG shipbuilders are still seen as more efficient in the construction of LNG carriers, questions have been raised about the competitive pricing set by Hudong-Zhonghua. A Korean newspaper reported that "This agreement was reportedly reached on the condition that China buys natural gas from Qatar. In other words, Hudong-Zhonghua did not beat the Korean companies in the actual tender (…)".[426] Whilst it is hard to verify this statement, one can only observe that Chinese shipbuilders dovetail the deal with Qatar as part of the Made in China 2025 strategy and the Belt and Road Initiative.[427] As stated above, projects falling under this strategy often receive government support. Another article in a Korean newspaper equally mentions that ''Chinese shipbuilders beat technologically superior Korean competitors with advanced technology on the back of the Chinese government's policy financing'' and that ''Hapag-Lloyd intends to place an order with a Chinese shipyard to receive shipping financing from the Chinese government''[428]. In similar vein, it has been observed that an earlier LNG fuelled containership received financial aid.[429] To ensure a level-playing field, more transparency is consequently needed on the role of the government and state-backed sector (including investment funds and trusts) in concluding these deals.

Enhanced transparency should reduce information asymmetries and should instigate an open debate on how the shipbuilding industry can ensure a level-playing field on government support. In addition, increased transparency on subsidies also informs the general public how public money is spent. Finally, more transparency about government support may help other countries to learn from each other's policies and to establish best practices.[430]

In that spirit, the COVID-19 outbreak may have increased the urge to learn from best practices and to provide clarity about government support. Provided that several national governments have introduced several forms of monetary, financial, fiscal, and budgetary support, one may like to ask the question which measure is deemed most effective in which context. This question concerns all nations, as they share a common purpose to tackle the COVID-19 crisis as fast as possible. Therefore, increased transparency about government support also contributes to an effective allocation of government resources and hence to the accountability of politicians to their citizens.

In total, section 3 shows a compelling interconnection between government support, state-owned enterprises and innovative forms of financing. These strong links have implications in terms of market access for private domestic or foreign enterprises.

4. Conclusion

Since 2010, China has become the world's largest shipbuilding economy. China's global market share calculated by CGT has accounted for more than 30% of new orders and ship deliveries. While China may be the largest shipbuilding nation, it still holds a relatively low global market share in high value-added ships. China's main products still consist of bulk and ore carriers, which are less technologically-advanced than VLCC, large container ships, LNG carriers and cruise ships. For the three years 2017-2019, bulk carriers accounted for 48% of new Chinese shipbuilding contracts, whereas gas carriers, which are classified as high value-added and technology-intensive vessels, only accounted for 5%. Nevertheless, China's yards gradually entered high tech/niche segments (e.g. ferries).

China's policies aim to increase China's global competitiveness by targeting higher value added industries. The blueprint of this ambition has been set out in the Five-Year Plans, the Belt and Road Initiative and the Made in China 2025 policy to be realised with a holistic and cross-sectoral strategy. In order to fully grasp the Chinese system, the report adopted a systemic approach, whereby the specific shipbuilding policies are interpreted against this broader background. Furthermore, the report attempted to interpret China's policies in line with China's specific political system, i.e. a "social market-led approach with Chinese Characteristics for a New Era".[431] While it seems that the scope of these "Chinese characteristics" is still debated and even subjected to consistent monitoring, the report aims to highlight some of its cardinal features. These features include the creation of an eco-system, whereby key state-enterprises are part of a network to implement industrial policies.

On the maritime front, China already expressed the ambition to become a "great maritime power". Correlated sectors of the maritime industry that induce spill-over effects may include shipping and container line transport, steel and aluminium, or other modes of integrative transport networks such as railways. To promote the development of these industries, China has a set of policy measures at its disposal. Previous research indicated that China's industrial policies to develop its maritime industry were effective for China, even if misallocation of capital was prevalent. The long-term and holistic approach of China's policies seem to have contributed to the rapid growth of its shipbuilding sector. Some of the instruments to achieve China's ambitions remain, however, more controversial.

First of all, there appears to be a preference to funnel government support to those key state-owned shipbuilding enterprises that act as vehicles to implement strategic industrial policies. Chinese monetary, financial and fiscal policies have created a system which enables state-owned enterprises to provide large sums to other key state-owned shipbuilding enterprises. These funds can be provided by state-owned leasing houses, export credit agencies, state-owned banks or state-owned investment vehicles, and are often backed-up by implicit guarantees by the Chinese government. It will be important to assess at which conditions and under which form (e.g. debt or equity) these funds were installed. While this question has to be ascertained on a case-by-case basis, the wider policy framework clearly suggests that funding to key state-owned shipbuilding enterprises is often provided at terms more favourable than market conditions. It is for instance observed that key state-owned shipbuilding enterprises were able to attract large amounts of funds and that they hold high market shares, despite the fact that they are highly leveraged and that they bear relatively low profitability rates. Other types of enterprises, by contrast, often have to seek financing through the shadow banking system. Favourable financial terms for newbuilds, notably in the form of financial leasing, in combination with other forms of government support may also have convinced foreign enterprises to order their vessels at Chinese yards.

Second, the key state-owned enterprises that provide and receive funding are part of a wider network of people and companies, which are under strategic oversight of the Chinese Communist Party (e.g. via Party Committees and SASAC). There seems to be a preference by partners of the network to conclude deals with other partners that belong to the network (cfr. strategic partnerships). One classic example refers to a Chinese financial lease company that provides cheap credit from Chinese state-owned banks in order

for Chinese shipping companies to place orders at Chinese shipyards.[432] Indeed, Chinese shipping companies, mostly SOEs, have expressed their support for Chinese shipbuilders through the commissioning of domestic shipbuilding orders. For the three years 2017-2019, about 90% of Chinese ship-owners' orders were assigned to Chinese shipbuilders. Amid depressed market conditions, Chinese ship-owners continued ordering vessels at Chinese yards. This is partly attributable to the Chinese government's policy direction to transport Chinese cargo on vessels made in China. At the same time, China has been successful in attracting a lot of orders from foreign shipowners through policy and financing tools, as illustrated in this report.

Third, these network effects of SOEs are intensified by policies on mergers and acquisitions. In 2019, the Chinese government for instance approved the re-merger of CSSC and the CSIC, two giant SOEs accounting for 36% of all CGT delivered in China. While large key state-owned shipbuilders may facilitate the sharing of know-how between the companies that are part of the network, their size poses questions as to the effect on market concentration, trade and competition.

Fourth, given that government support may be provided at the central and the local levels as well as at different segments of the value chain, and taken into account the network effects of key state-owned enterprises, the impact of the government support may be amplified. However, this report was unable to calculate the exact effect of this impact on the shipbuilding industry due to a lack of data. Therefore, more transparency is needed to promote a level playing field on government support.

Considering China's broader regulatory framework and the economic data set out in section 2 of this report, it can be assumed that China's industrial policies have contributed to global overcapacity in the shipbuilding sector. This is related to the competition between different governments and state-owned enterprises to meet China's soft targets of industrial development, the large amount of funding directed to the shipbuilding sector, the fact that overcapacity is more apparent in the segments of the shipbuilding market where China holds a strong position, and illustrations of countercyclical investments by state-owned companies at domestic shipyards. To tackle the issue of overcapacity, it is – amongst other reasons - recommended to structurally diminish capacity levels and to phase-out corresponding policies (e.g. tax incentives) in the shipbuilding sector in order to accrue firms' production levels, let inefficient zombie firms exit the market and to root ship prices on features of quality and supply-demand interactions.

Given the complexity of measuring overcapacity and the interaction of various causes of overcapacity, the exact degree to which China contributed to overcapacity in the shipbuilding sector, however, remains hard to measure. The global situation of overcapacity has forced China to respond. By way of reaction, China redirected part of its funding to other industries, consolidated state-owned shipyards, exported part of its excess capacity and targeted higher value-added segments of the shipbuilding sector.

Indeed, the weak demand in the global shipbuilding market after the global financial crisis, in connection with the excess capacity that characterises the shipbuilding market, which was partially driven by the expansion of the Chinese shipbuilding industry, triggered a restructuring of the Chinese shipbuilding industry. The number of active shipyards in China sharply declined from 379 in 2010 to 117 at the end of 2019. This can be explained by market consolidation and a large number of small private shipyards exiting the market. Approximately 200 of the yards that were closed were in fact opened only 10 to 15 years before, raising the question why these shipyards were opened in the first place and suggesting the corresponding capacity expansion was not required by the market.

Exporting part of the domestic overcapacity, notably where supported by export credit and favourable financing by Chinese leasing houses, enabled China to interact with global players and taps into the broader Chinese policy of 'going out'. This international experience and exchange of know-how also makes Chinese shipbuilders more internationally competitive and offers China a platform to export its norms abroad.

The targeting of the high-tech shipbuilding and marine equipment industry by virtue of intelligent manufacturing is not only a way to deal with overcapacity but should also contribute to the Chinese objective to move up the value chain and to become less dependent on foreign technology (i.e. moving from a 'large to a strong shipbuilding industry'). This couples with the Made in China 2025 strategy and is needed due to higher labour costs combined with the low ship prices in the segments of the shipbuilding market wherein China operates. A strong shipbuilding industry also acts as one of the pillars to develop China's maritime and ocean economy.

To assess the impact of China's policies on the shipbuilding market and to evaluate their potential distortive effect, one needs to analyse their practical impact. It is for instance observed that some of China's strategic industrial policies face implementation difficulties and have not necessarily resulted in higher profitability rates of key state-owned enterprises. Some examples relate to the misallocation of funds, the consolidation of less efficient firms, limited spill-over effects from the shipbuilding sector to other maritime sectors, and the different policy priorities by the central and local governments. In addition, China has promulgated a variety of strategic policies about shipbuilding at different levels and by different departments, supplemented by secondary policy documents to implement or to articulate the main principles in more detail. It is not always clear how these different policies, and their underlying objectives, interact. Admittedly, different and sometimes even conflicting objectives pursued by different governmental departments are not unique to China and should not pose a problem per se. The large amount of policies that are enacted in China and their detailed implementation policies, however, requires more extensive control mechanisms to ensure their effectiveness.

China is of course not the only country to set-up industrial policies and some of the individual policy measures are also included in other countries' industrial policies. In fact, one could even argue that foreign companies, notably while operating from Free Trade Zones, as well as consumers benefited from low-cost ships or the cheap transport of goods. The difference is that China's policies seem to take place in a different political eco-system and that these policies are supported with large funds, so all of the individual measures combined may inflict significant harm upon other countries' shipbuilding (and related) industry(ies) as well as upon some of the (mostly smaller and/or private) shipyards in China. This impact may be exacerbated by the network effects of certain policies such as the combined impact of policies on upstream, downstream and cross-sectoral SOEs, state-owned banks, government support and the 'going out' policies. Therefore, there appears to be a tension between China's objective of economic development to create welfare for its citizens and the (potential) detrimental impact of some of its policies and practices on third countries.

While there seems to have been more leniency at a time when China was still developing its shipbuilding industry as an infant industry, the nature and scale of its government support appears harder to defend the moment China's shipbuilding industry gradually started to mature. Admittedly, China has not yet achieved the same level of technological innovation of its competitors in the high value-added shipbuilding and marine engineering industry. However, one cannot deny that China holds a strong position in the shipbuilding industry. Therefore, there is a growing pressure to reconsider the delicate equilibrium between China's own economic development and the impact of its policies and practices on third countries. This question seems even more urgent in a global context where the economic impact of the COVID-19 pandemic on the shipbuilding sector will require governments to respond rapidly and effectively. In order to foster this debate, increased transparency about some of China's policies such as subsidies, consolidation policies, or investment decisions of SOEs would be highly commended.

The Secretariat has invited the Chinese authorities to cooperate on this peer review of the Chinese shipbuilding industry and to provide comments on the current report in order to offer the Chinese authorities the opportunity to clarify some of the current uncertainties and to fill some of the current data gaps. Until now, the Secretariat has not received a response from China. The standing invitation to join

future WP6 meetings however remains for China to participate in the debate on shaping global policies that improve the level-playing field in the shipbuilding sector.

Existing data gaps and the lack of transparency on some Chinese government policies may compel the WP6 to study alternative ways for assessing the impact of China's shipbuilding policies on third nations. In that regard, the Secretariat refers to other OECD work that estimates the impact of below-market debt and below-market equity on specific industries.[433] A similar methodology could be applied to estimate the size and impact of some of China's industrial policies on the shipbuilding sector. In addition, more research is recommended about the role of state-owned investment funds and cross-equity participations by different SOEs.

ANNEX I: The Maritime Silk Road and the Belt and Road Initiative

The Maritime Silk Road constitutes a network of maritime trade routes connecting Asia and Europe through trade, investment, finance, the exchange of technology[434] and expertise in port development.[435] It is part of China's One Belt, One Road Strategy (2013), rebranded in 2016 to the Belt and Road Initiative[436], and Beijing's blueprint to increase its global outreach. The 13th Five-Year Plan also explicitly mentions an amplified effort to promote the Belt and Road Initiative.[437] It is observed that in ten years' time, China already invested around USD 11 billion into overseas ports.[438] Another example of a project falling under the Belt and Road Initiative is the development of the Special Chinese Economic Zone in southern Bangladesh. This zone will focus on a range of industries, including shipbuilding.[439]

Opinions differ on the actual purpose of the Belt and Road Initiative and whether it solely aims to foster China's economic development[440] or if it must be approached from a more geopolitical angle.[441] Perhaps the answer to this question will depend on the particularities of each individual project. To assess the actual purpose of individual projects under the Belt and Road Initiative, the Center for Strategic and International Studies came up with three distinguishing features: (1) proximity to major shipping lanes; (2) proximity to existing ports; and (3) hinterland connectivity. On the basis of these three criteria, one can endeavour to ascertain the economic viability of a project. The less economically viable a project appears, the more likely it becomes that different interests are at stake.[442] In addition, one needs to evaluate the theoretical framework of the Belt and Road Initiative against its practical implementation. On that front, scholars have for instance emphasised the fragmented implementation and interpretation of the Initiative and the trade-off at the local policy level between economic viability and political desirability of projects to nuance the narrative of the Belt and Road Initiative as a coherent and centralised foreign strategy.[443]

While the financial viability of Belt and Road projects is often criticised (cfr. ''debt trap''), research by the Rhodium Group in 2019 points out that most of the loan renegotiations (USD 50 bn. between 2007-2019[444]) do not result in asset seizures but in write-offs of relatively small amounts, followed by deferments and refinancing, term renegotiations and denials of additional financing.[445] This equally nuances the perception that all Belt and Road projects are part of a clearly defined geopolitical strategy to exert China's power internationally.

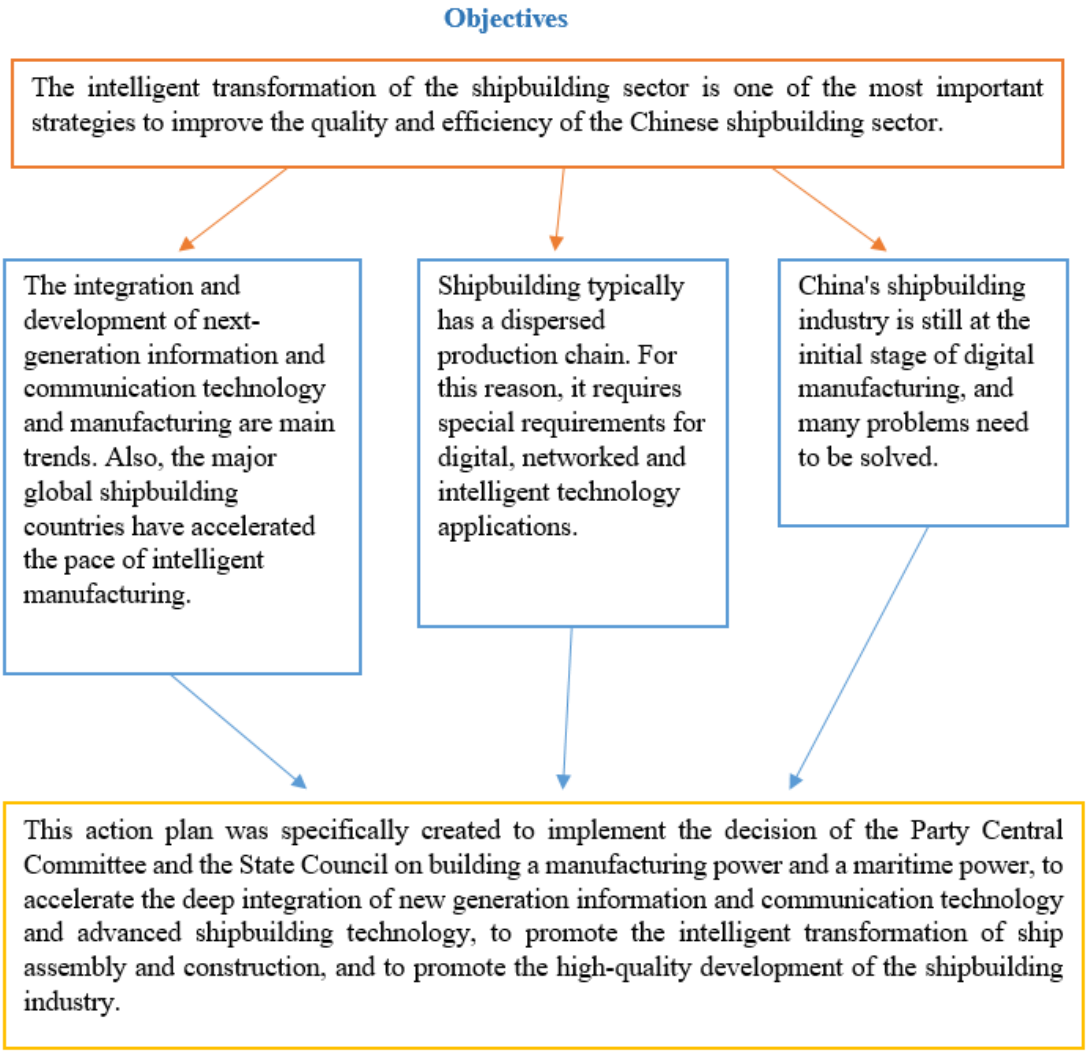
The Belt and Road Initiative indeed accounts for a significant part of China's outbound investments (between 8.5 and 13.6% for the period 2016-2019)[446], notably by SOEs. Given the haziness about its scope and lack of coordination by one specific government agency, it remains opaque how much money is earmarked to the Belt and Road Initiative exactly. According to estimations by Chinese Investment Research, President Xi Jinping would already have pledged to attribute USD 127 bn. to roll out the Belt and Road Initiative. Most of the loans are provided through Chinese policy banks (the China Development Bank and the China EXIM Bank)[447] and state-owned banks (the Bank of China, the China Construction Bank, the Industrial and Commercial Bank of China[448] and the Agricultural Bank of China). To a lesser extent, other international banks such as the Asian Infrastructure Investment Bank and the New Development Bank are involved as well. In addition, the Silk Road Fund[449] was established in 2014 to specifically venture investments in the Belt and Road Initiative.[450] China Investment Research noted that from 2018 a shifting trend could be observed from financing through bilateral loans to public market funding.[451]

In 2017, the Maritime Silk Road was complemented by the establishment of three "blue passages" (China to Africa and the Mediterranean; China to Oceania and the South Pacific and China to Europe). These

blue passages aim to increase international cooperation in the ocean economy (cfr. 2015 Vision and Actions on Jointly Building Silk Road Economic Belt and 21st Century Maritime Silk Road[452] and 2017 Vision for Maritime Cooperation[453]).[454] The China to Europe Blue Passage or Northern Sea Route[455] entangles with the Polar Silk Road initiative[456] and is meant to become the "third arch of the Belt and Road Initiative".[457] Indeed, China seems to slowly but gradually increase its presence in the Arctic. This is illustrated by the construction of China's first domestically built icebreaker (R/V Xuelong 2[458]) in 2018 and the new icebreaker model revealed at the Marintec fair in 2019[459], the construction of the world's first polar condensate oil tanker (*Boris Sokolov*)[460], China's augmented efforts in Arctic scientific research (e.g. China-Nordic Arctic Research Center[461], the Polar Research Institute of China[462] and the joint China-Russian Federation (Russia) joint polar laboratory[463]), China's port and mining investments in the Arctic region (e.g. the Kirkenes port in Norway, the Arkhangelsk port in Russia, the Yamal LNG plant in Russia and the Nunavik Nickel Mine in Canada), and the establishment of a polar satellite programme.[464]

In parallel to expanding its international outreach and in pursuit of China's plans to ensure the intra-connectivity of its provinces, China continues to develop its internal waterways.[465] The Yangtze River Economic Belt (2016)[466] serves as an illustration of this objective. It unites nine provinces and two municipalities between the west and east of China and couples the Yangtze River with international ocean flows. The area covers about 40% of China's population and GDP. Some scholars have proclaimed that "the Yangtze River Economic Belt'' plays a crucial role to drive the global cooperation on the Belt and Road Initiative".[467]

ANNEX II: The Intelligent Ship Development Action Plan for 2019 - 2020



Guiding ideology

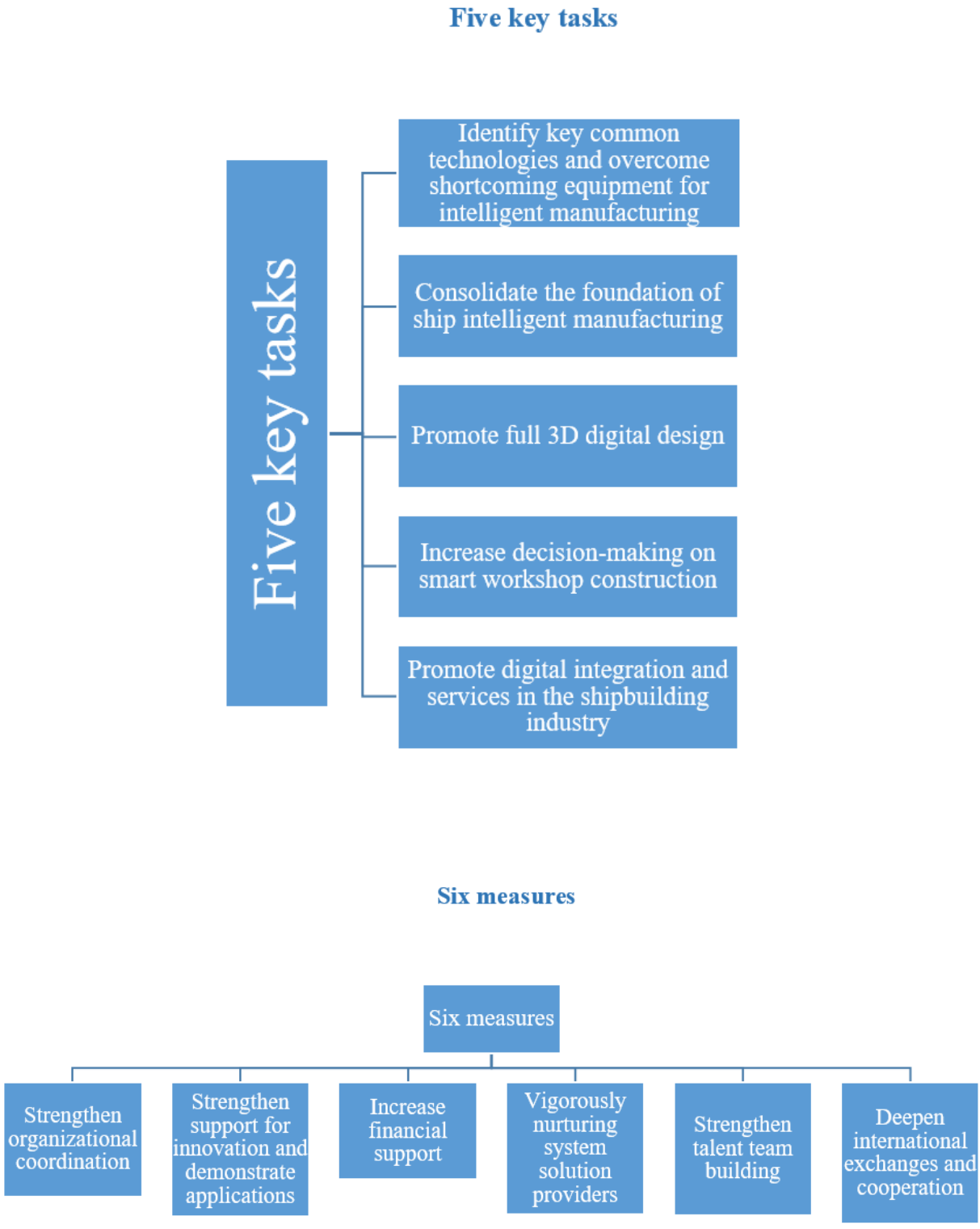
Guided by Xi Jinping's thoughts on ''socialism with Chinese characteristics in the new era'', fully implement the spirit of the 19th National Congress of the Communist Party of China and the 2nd and 3rd Plenary Sessions of the 19th CPC Central Committee, adhere to the new development concept, and closely focus on the strategic goals of building a strong country and a marine power to improve the quality of shipbuilding, efficiency and effectiveness are at the core, focusing on comprehensively advancing digital shipbuilding, and taking the intelligent transformation of key links as the starting point to promote innovation, make up for shortcomings, strengthen the foundation, and promote demonstration to promote the digital network of ship design, construction, management, and services integrated, accelerate the upgrading of shipbuilding technology, increase international competitiveness, and support the transformation of China's shipbuilding industry from large to strong.

The basic principles

- Consolidate the foundation and make up for the shortcomings
- Key breakthroughs and promotion of good work in all areas
- Collaborative innovation, openness and cooperation
- Far and near integration and implementation of different strategies

Development goals

- Preliminary establishment of a ship intelligent manufacturing technology innovation system
- The labour intensity of cutting, forming, welding and painting is heavily reduced, and the number of operators is significantly reduced.
- The refinement of shipbuilding enterprise management and sales have significantly improved
- 2-3 benchmarking companies are the first to build a number of internationally advanced intelligence units, an intelligent production line and intelligent workshops
- Backbone enterprises have realized digital shipbuilding and achieved a reduction in total man-hour consumption of more than 20%, and a reduction in comprehensive energy consumption per unit of gross tonnage by 10%.



Source: *figures based on* http://www.miit.gov.cn/n1146295/n1652858/n1653018/c6566921/content.html

ANNEX III: Overview of research, development and innovation projects impacting the Chinese shipbuilding industry

R&D support measures	Department in charge	Short description of the project	Amount of money	Time period
State High-Tech R&D Program (the ''863 Plan'')	The Ministry of Science and Technology (MOST)	Key technologies and equipment for deep-water oil and gas exploration and development in South China Sea[468]	• CNY 243 million (2006-2012) • CNY 450 million (2012-2015)	2006-2015
		High frequency ground wave radar[469]	• CNY 1 million between 2007-2010 • In 2012, the "863 Plan" mentions to provide additional resources.	• 2007-2010 • 2012 – not specified [Remark: MOST announced that it acquired the high-frequency ground wave radar by 2017]

			Yet, the exact amount of government support could not be verified.	
		Deep-water terminal[470]	CNY 3 million	2007-2010
		Underwater self-reconfigurable robot[471]	CNY 3 million	2007-2010
		Integrated monitoring and control system on ships[472]	CNY 60 million	January 2011 – December 2013
		Over-300-foot jack-up drilling rig[473]	CNY 30 million	March 2011 – December 2013
		Universal connector for deep water production system	CNY 20 million	2013-2016
		Autonomous wave glider observation system[474]	CNY 12 million	2014-2017
		Monitoring system for a hybrid fast unmanned boat[475]	CNY 10 million	2014-2017
		Ocean monitoring and detecting sensor[476]	CNY 1.5 million	2014-2017
		Dynamic positioning of ships (DP3 technology), notably important in the context of specialized ships and offshore platforms [477]	Not specified	The DP3 project was launched in November 2011. The DP3 technology was eventually acquired, tested and used for the first time in 2018
Guidelines for marine engineering scientific research	Ministry of Industry and Information Technology (MIIT)	Drilling ship for oil and gas exploration(> 3000 m depth)[478]	Not specified	2009 - not specified
		Pipe-laying crane ship (> 3000 m)[479]	Not specified	2009 – not specified
		Key components for deep-water pipe systems of offshore drilling platforms[480]	Not specified	2012 – not specified
		Technology for a deep-water winch system of a large pipe-laying vessel[481]	Not specified	2013 – not specified
		Deep-water drilling compensation system[482]	Not specified	2014 – not specified
High-tech shipbuilding R&D plan	Ministry of Industry and Information Technology (MIIT)	Design technology for small C-type LNG carrier[483]	Not specified	2012 – not specified
		Research on applicable technology of marine corrosion-resistant steel, based on the IMO standard[484]	Not specified	2012 – not specified

		Key technologies of emission control for premixed combustion high-speed diesel engine for ships[485]	Not specified	2012 – not specified
		Double-fuel engines[486]	Not specified	2012 – not specified
		Green and safe design technology for a 80 000 DWT Chemical tanker[487]	Not specified	2012 – not specified
		Energy-saving bow and hull design[488]	Not specified	2013 – not specified
		Large (+ 1000) vehicle-carrier[489]	Not specified	2013 – not specified
		Environmental river-sea container ship[490]	Not specified	2014 – not specified
		Sail-propulsion[491]	Not specified	2014 – not specified
		Key technology for a large multi-functional hospital ship[492]	Not specified	2014 – not specified
		Development of high-efficiency hybrid counter rotating propulsion system and energy-saving equipment[493]	Not specified	2014 – not specified
Exemption from import custom taxes and import VAT taxes on a list of foreign high-tech key equipment and technologies.[494]	Ministry of Finance, in collaboration with the NDRC, MIIT, General Administration of Customs, State Administration of Taxation, and the National Energy Administration	Jack-up drilling rig (> 300 foot)[495]	Not Specified	2012-2014
		Scientific research ship[496]	Not specified	2012-2014
		Train ferry[497]	Not specified	2012-2014
		Floating crane vessel (loading capacity > 1200 tons; elevation height above deck > 85 m; installing power > 3500 Kw)[498]	Not specified	2012-2014
		Marine and intertidal wind turbine installation vessel (lifting capacity > 500 tons; offshore wind turbine capacity > 5 Mw)[499]	Not specified	2012-2014
		Floating production storage and offloading unit (FPSO) (> 1 million barrels storage capacity)[500]	Not Specified	2012-2014
		Multi-cable high-performance deep-water geophysical exploration ship[501]	Not specified	2014-2015
		Deep-water pipe laying vessel (water depth > 200m; tensioner capacity > 75 tons; hose-reeling unity capacity > 75 tons)[502]	Not specified	2012-2016

		Large drag suction dredger (mud hopper capacity > 10 000 m^3)[503]	Not specified	2012-2019
		Large cutter suction dredger (production rate > 3500 m^3)[504]	Not specified	2012-2020
		Large vehicle carrier (> 5000 cars)[505]	Not specified	2013-2014
		Semi-submersible drilling rig (> 500 m sea depth)[506]	Not Specified	2014-2020
		C-type LNG carrier (storage capacity > 1000 m^3 for projects between 2014-2017 and > 20 000 m^3 for projects between 2017-2020)[507]	Not specified	2014-2020
		Natural gas and double-fuel engine[508]	Not specified	2017-2020
		Deep-water sea integrated research ship[509]	Not specified	2017-2020
		Arctic research icebreaker[510]	Not specified	2017-2020
		Natural gas and double engine (> 1000 kW; bore size > 200 mm)[511]	Not specified	2017-2022

Endnotes

[1] For the 2008 report, see https://www.oecd.org/china/42033311.pdf; for the 2011 report, see https://www.oecd-ilibrary.org/economics/the-shipbuilding-industry-in-china_gen_papers-2010-5kg6z7tg5w5l

[2] ''*Basic principles: (...) Insist on deepening integration: vigorously develop dual-use technology; promote the two-way transfer and transformation of military and civilian technology; strengthen the sharing of military and civilian resources; comprehensively promote the integration of the military and civilian in ship research and development, ship design and manufacturing and services; in line with the direction of digital networked intelligence manufacturing, vigorously promote the intelligent manufacturing of intermediate products of ships and accelerate the deep integration of ship and offshore engineering equipment, manufacturing technology and information technology'',* MIIT, NDRC, Ministry of Finance, People's Bank, China Banking Regulatory Commission, National Defence Science, and Industry Council, ''The Action Plan for Deepening the Structural Adjustment and Accelerating the Transformation and Upgrading of the Shipbuilding Industry (2016-2020)'', 2017, http://www.miit.gov.cn/n1146295/n1652858/n1652930/n3757018/c5459940/content.html and https://www.ndrc.gov.cn/fggz/fzzlgh/gjjzxgh/201707/t20170707_1196828.html;

''(5) Promote the development of in-depth civil-military integration: 13. Promote collaborative innovation between the military and civilian sector. Promote the construction and science and technology collaborative innovation platforms for the integration of the military and the civil. Further strengthen the military-to-civilian and dual-use technology scientific research of ships, and support the two-way transfer and transformation of military and civilian technologies.'', MIIT and National Defence Science and Industry Bureau, ''Notice on Action Plan for Promoting the Intelligent Transformation of Ship Assembly and Construction (2019-2021), 2018, no. 287, https://www.miit.gov.cn/zwgk/zcwj/wjfb/zbgy/art/2020/art_defb12f96bad4b6c8220d49e8c516a08.html and https://www.miit.gov.cn/cms_files/filemanager/oldfile/miit/n1146295/n1652858/n1652930/n3757018/c6567267/part/6567282.pdf

[3] See T. R. Heath (RAND), ''China's Pursuit of Overseas Security'', 2018, https://www.rand.org/content/dam/rand/pubs/research_reports/RR2200/RR2271/RAND_RR2271.pdf, 30; N. Tian and F. Su, ''Estimating the Arms Sales of Chinese Companies'', Stockholm International Peace Research Institute, 2020, https://www.sipri.org/sites/default/files/2020-01/sipriinsight2002_0_0.pdf.

CSSC is an example of a company with a dual-use strategy, see http://www.cssc.net.cn/n5/n18/c17354/content.html

[4] H. Legarda and M. Nouwens, ''China's Pursuit of Advanced Dual-Use Technologies'', IISS Research Paper 2018, https://www.iiss.org/blogs/research-paper/2018/12/emerging-technology-dominance

[5] OECD calculation based on *the world development indicators* of the World Bank Open Data.

[6] http://www.cansi.org.cn/ifor/shownews.php?lang=cn&id=12707

[7] For more information on the global value chain of shipbuilding, see OECD, ''Global Value Chains and the Shipbuilding Industry'', 2019, https://www.oecd-ilibrary.org/docserver/7e94709a-en.pdf?expires=1594202346&id=id&accname=guest&checksum=C3DEDEBF785B41525B8124BFABF449B1

[8] Ludwig, T. and Tholen J. (2006), "Shipbuilding in China and its impacts on European shipbuilding industry", University of Bremen. http://www.iaw.uni-bremen.de/downloads/ShipbuildingChina2006.pdf

[9] P.J. Barwick, M. Kalouptsidi and N.B. Zahur, ''China's Industrial Policy: An Empirical Evaluation'', NBER Working Paper, 2019, 29.

[10] https://www.rivieramm.com/news-content-hub/exclusive-new-business-model-boosts-chinese-yards-cruise-and-ferry-construction-27596; https://www.rivieramm.com/news-content-hub/news-content-hub/chinese-yards-boost-ferry-and-cruise-business-56489

[11] The objective of the White List was to differentiate high- and low-efficiency firms so as to send a positive signal to the market for efficient shipbuilding firms and negative signal for inefficient ones. Also see OECD, ''Imbalances in the Shipbuilding Industry and Assessment of Policy Responses'', 2017, https://www.oecd.org/industry/ind/Imbalances_Shipbuilding_Industry.pdf, 43.

[12] https://www.caixinglobal.com/2019-10-29/cx-daily-what-to-know-about-the-rise-of-chinas-joint-lending-market-101476277.html; https://www.chinadailyhk.com/articles/139/67/176/1574827563456.html?newsId=113898

[13] See Notice of the Ministry of Transport on Printing and Distributing the Outline for the Development of Inland Waterway Navigation, 2020, no. 54, http://www.gov.cn/zhengce/zhengceku/2020-06/04/content_5517185.htm

[14] https://markets.businessinsider.com/news/stocks/global-marine-diesel-engine-industry-report-2018-with-focus-on-china-with-profiles-of-7-global-and-17-chinese-marine-diesel-engine-companies-1027480781/

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[16] E.g. FPSO, http://stcsm.sh.gov.cn/xwzx/kjzl/20200310/0016-163576.html

[17] See also the joint venture between Guangdong Province Navigation Group (GNG) and Brodnene AA for the construction of high-speed passenger ships, http://subsites.chinadaily.com.cn/guangzhou/2017-09/25/c_105558.htm

For another example, see the passenger ships developed by COSCO, http://chi.coscoshipping.com/art/2020/3/24/art_7982_152750.html

[18] For an example, see http://stcsm.sh.gov.cn/xwzx/kjzl/20180409/0016-24181.html

[19] For examples, see https://www.marinelink.com/news/dualfuel-ropax-ferry-mv-visborg-delivered-460850; https://www.worldmaritimeaffairs.com/worlds-fastest-eco-friendly-ro-ro-passenger-ship-named-visborg/; http://www.eguangzhou.gov.cn/2018-01/29/c_132097.htm;

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[251] See http://www.miit.gov.cn/n1146295/n1652858/n1652930/n3757018/c3763285/content.html

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[259] http://www.dsic.cn/home/xwzxen/jtxwen/322837.htm

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[261] https://www.ise.ie/debt_documents/ListingParticulars_1fcc50ba-fee9-40f7-b101-5e139bab0c29.PDF, 96.

[262] http://www.businesskorea.co.kr/news/articleView.html?idxno=43893

[263] "*In other words, Chinese shipyards' large orders for LNG carriers are not the result of their technology, but rather a substantial domestic order by financing support from the government and Chinese banks.",* https://www.rivieramm.com/news-content-hub/news-content-hub/chinese-financing-backs-massive-qatar-lng-carrier-order-says-analyst-59605

[264] https://www.tradewindsnews.com/shipyards/china-s-new-shipyard-giant-poised-for-4bn-newbuilding-order-spree/2-1-713844; https://www.tradewindsnews.com/tankers/china-showcases-its-shipbuilding-power-at-marintec/2-1-720097; https://www.seatrade-maritime.com/asia/csic-inks-208bn-new-contracts; https://lloydslist.maritimeintelligence.informa.com/LL1126033/CSSC-to-finance-36-newbuilds; https://connect.ihsmarkit.com/upstream-insight/article/phoenix/1540919/cssc-announces-new-orders-for-offshore-vessels; https://lloydslist.maritimeintelligence.informa.com/LL1123831/China-to-back-LNG-as-a-marine-fuel ; https://lloydslist.maritimeintelligence.informa.com/LL1124156/Yard-Talk--Chinese-yards-breathe-easier.

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326 http://www.miit.gov.cn/n1146295/n1652858/n1652930/n3757018/c3757369/content.html, para. 4.(2).1.

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369 https://www.seatrade-maritime.com/asia/cosco-shipping-guide-merger-cosco-and-china-shipping; https://de.reuters.com/article/china-shipping-cosco/update-2-china-launches-new-shipping-giant-to-battle-downturn-idUKL3N15X22N; https://www.wsj.com/articles/cosco-china-shipping-to-merge-shipbuilding-arms-1475688293; https://www.maritime-executive.com/article/chinese-cabinet-approves-cosco-cscl-merger; https://www.wsj.com/articles/china-cosco-shipping-merger-expected-to-kick-off-further-consolidation-in-industry-1454598139; http://www.chinadaily.com.cn/business/2015-12/11/content_22686563.htm.

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EXHIBIT 19

The two departments jointly released the "Medium and Long-term Development Plan for the Shipbuilding Industry"

Central Government Portal www.gov.cn September 18, 2006 Source: Commission of Science, Technology and Industry for National Defense

The "Medium and Long-term Development Plan for the Marine Industry (2006-2015)" has been approved by the State Council and officially released today by the National Development and Reform Commission and the Commission of Science, Technology and Industry for National Defense.

The main content of the "Plan" involves the industrial development guidelines and goals of the shipbuilding industry, technological development, product development, modernization of production organizations, foreign cooperation, major project planning, investment management and development policies, etc.

In the "Notice of the National Development and Reform Commission and the Commission of Science, Technology and Industry for National Defense on Issuing the Mid- and Long-term Development Plan for the Shipbuilding Industry", it was emphasized that in the process of implementing the "Plan", all relevant regions and departments must focus on the following aspects: First, Deepen reform, promote institutional innovation and management upgrading, and improve production efficiency; second, further optimize the organizational structure of the shipbuilding industry, integrate industrial resources, and improve operational efficiency; third, vigorously carry out technological innovation, improve independent research and development capabilities and marine equipment supporting capabilities; fourth, Adhere to both bringing in and going out, and encourage enterprises to vigorously explore international markets; fifth, strengthen the construction of talent

teams in the shipbuilding industry; sixth, strictly follow the planned layout, and do not blindly compare and build blindly.

The notice requires that local governments and departments at all levels must strictly implement the management of investment projects in accordance with the relevant provisions of the "State Council's Decision on Investment System Reform" and the requirements of the "Plan".

Related Links

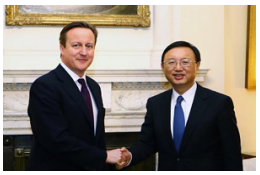
- China Shipbuilding Industry Corporation Longxue Shipbuilding Base Ship Repair Project Starts
- The Commission of Science, Technology and Industry for National Defense released an analysis report on the economic operation of the shipbuilding industry in the first quarter.

Picture chart

Li Yuanchao attended and delivered a speech to commemorate the International Women's Day and the National March 8th Red Flag Bearer Commendation Conference

To commemorate the "March 8" International Women's Day and the National March 8th Red Flag Bearers (collective) Commendation Conference was held

Yang Jiechi meets with British Secretary of State for International Development



Column recommendations

leadership activities	Personnel appointment and dismissal	Online live broadcast	Online interview	Government news	Law enforcement and supervision
Latest documents	laws and regulations	Central SOEs Online	Press Releases	emergency management	Service Information

(Editor in charge: Shi Hailong) [Error Correction] Print this page and close the window

两部门联合对外发布《船舶工业中长期发展规划》

中央政府门户网站 www.gov.cn 2006年09月18日 来源：国防科工委

船工业中长期发展规划（2006-2015）》业经国务院同意，今日，由国家发展改革委、国防科工委联合正式对外发布。

《规划》主要内容涉及船舶工业的产业发展方针和目标、技术发展、产品发展、生产组织现代化、对外合作、重大项目规划、投资管理和发展政策等。

在《国家发展改革委、国防科工委关于印发船舶工业中长期发展规划的通知》中强调，各关地区及部门在实施该《规划》的过程中，要着力抓好以下几方面：一是深化改革，促进体制创新和管理升级，提高生产效率；二是进一步优化船舶工业组织结构，整合产业资源，提高运行效益；三是大力开展技术创新，提高自主研发能力和船用设备配套能力；四是坚持引进来和走出去并举，鼓励企业大力开拓国际市场；五是加强船舶工业人才队伍建设；六是严格按规划布局，不要盲目攀比，盲目建设。

通知要求，地方各级政府及部门要严格按照《国务院关于投资体制改革的决定》的有关规定及《规划》要求，实施对投资项目的管理。

相关链接

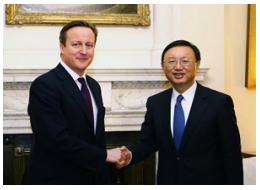
· 中国船舶工业集团公司龙穴造船基地修船项目开工
· 国防科工委发布一季度船舶工业经济运行分析报告

图片图表

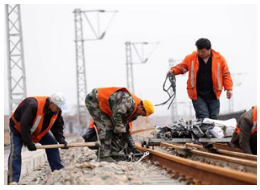
李源潮出席纪念“三八”国际妇女节暨全国三八红旗手表彰大会并讲话

纪念"三八"国际妇女节暨全国三八红旗手(集体)表彰大会举行

杨洁篪会见英国国际开发大臣



英国首相卡梅伦会见杨洁篪



黄韩侯铁路侯西段电气化复线施工进展顺利

贵阳：开春招聘忙

栏目推荐

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最新文件 法律法规 央企在线 新闻发布 应急管理 服务信息

（责任编辑： 石海龙 ） 【纠错】 打印本页 关闭窗口

EXHIBIT 20

Notice of the Commission of Science, Technology and Industry for National Defense on Issuing the Action Plan for Comprehensively Establishing a Modern Shipbuilding Model (2006-2010)

【Issuing Department】 Commission of Science, Technology and Industry for National Defense

【Issuing text size】 Font size

【Release date】 2007-07-01

【Implementation date】 2007-07-01

[Timeliness] Currently valid

[Effectiveness level] Department regulations

【Regulation Category】

Notice of the Commission of Science, Technology and Industry for National Defense on Issuing the Action Plan for Comprehensively Establishing a Modern Shipbuilding Model (2006-2010)

The shipping industry management departments of all relevant provinces, autonomous regions, and municipalities directly under the Central Government, China State Shipbuilding Corporation, China Shipbuilding Industry Corporation, and affiliated universities: The "Action Outline for Comprehensively Establishing a Modern Shipbuilding Model (2006-2010)" is hereby issued to you, Please implement it conscientiously based on the actual conditions of your region (unit).

July 2007

Action Plan for Comprehensively Establishing a Modern Shipbuilding Model (2006-2010)

Preface

Accelerating the establishment of a modern shipbuilding model is an important strategic measure for my country's shipbuilding industry to achieve the goal of becoming bigger and stronger. Since the release of the "Guiding Opinions of the Commission of Science, Technology and Industry for National Defense on Accelerating the Establishment of Modern Shipbuilding Model" in 2004, my country's shipbuilding industry has achieved remarkable results in establishing a modern shipbuilding model and has entered a new stage of comprehensive advancement in depth and breadth. However, compared with the advanced shipbuilding models in countries such as Japan and South Korea, my country still has a large gap, which is mainly reflected in the low degree of final assembly and the incomplete professional supporting system; extensive production management, and has not yet completely got rid of experience-based and dispatch-based production. Management methods; basic management is weak and the degree of informatization is not high. In order to fully implement the "Eleventh Five-Year

Plan for the Development of the Shipbuilding Industry", strive to solve the weak links that hinder the establishment of a modern shipbuilding model in our country, improve the manufacturing technology level and production efficiency of our country's shipbuilding industry as soon as possible, and effectively transform the economic development model, this document is formulated Outline.

1. The guiding ideology

is guided by Deng Xiaoping Theory and the important thought of "Three Represents", adheres to the scientific outlook on development, and takes the starting point of improving the manufacturing technology level of the shipbuilding industry as soon as possible and breaking the major bottlenecks that restrict the development of the shipbuilding industry, pioneering and innovative, seeking truth and being pragmatic, Accelerate the establishment of a modern shipbuilding model in the entire industry and significantly improve the level of modern management to provide strong support for effectively improving the economic operation quality of China's shipbuilding industry and ensuring the sustained, rapid and healthy development of the shipbuilding industry.

国防科工委关于印发全面建立现代造船模式行动纲要（2006-2010年）的通知

【发布部门】国防科学技术工业委员会 【发文字号】字号

【发布日期】2007-07-01 【实施日期】2007-07-01

【时效性】现行有效 【效力级别】部门规章

【法规类别】

国防科工委关于印发全面建立现代造船模式行动纲要（2006-2010年）的通知

各有关省、自治区、直辖市船舶行业管理部门，中国船舶工业集团公司、中国船舶重工集团公司，委属各高校：

现将《全面建立现代造船模式行动纲要(2006-2010年)》印发给你们，请结合本地区(单位)实际，认真贯彻执行。

二○○七年七月

全面建立现代造船模式行动纲要(2006-2010年)

前 言

加快建立现代造船模式是我国船舶工业实现做大做强目标的重要战略举措。自2004年《国防科工委关于加快建立现代造船模式的指导意见》发布以来，我国船舶工业建立现代造船模式工作取得显著成效，进入了向深度和广度全面推进的新阶段。但是，与日韩等国家的先进造船模式相比，我国仍存在较大差距，主要表现在总装化程度低，专业化配套体系不健全；生产管理粗放，尚未完全摆脱经验型、调度式的生产管理方式；基础管理薄弱，信息化程度不高。为全面贯彻落实《船舶工业发展“十一五”规划纲要》，努力解决阻碍我国建立现代造船模式的薄弱环节，尽快提高我国船舶工业制造技术水平和生产效率，切实转变经济发展方式，特制定本纲要。

一、指导思想

以邓小平理论和“三个代表”重要思想为指导，坚持科学发展观，以尽快提高船舶工业制造技术水平，打破制约船舶工业发展的重大瓶颈为出发点，开拓创新，求真务实，加快推进全行业建立现代造船模式，大幅度提升现代化管理水平，为切实提高我国船舶工业经济运行质量，确保船舶工业的持续、快速、健康发展提供强大的支撑。

Action Outline for Establishing a Modern Shipbuilding Model in An All-Around Way (2006-2010)

Preface

Accelerating the establishment of a modern shipbuilding model is an important strategic measure for my country's shipbuilding industry to achieve the goal of becoming bigger and stronger. Since the publication of the "Guiding Opinions of the Commission of Science, Technology and Industry for National Defense on Accelerating the Establishment of a Modern Shipbuilding Model" in 2004, China's shipbuilding industry has achieved remarkable results in establishing a modern shipbuilding model, and has entered a new stage of comprehensive advancement in depth and breadth. However, compared with the advanced shipbuilding models of Japan, South Korea and other countries, my country still has a big gap, mainly in the low degree of final assembly and the unsound professional supporting system; the extensive production management has not yet completely got rid of experience-based and dispatch-based production management methods; basic management is weak, and the degree of informatization is not high. In order to fully implement the "Eleventh Five-Year Plan for the Development of the Shipbuilding Industry", strive to solve the weak links that hinder China's establishment of a modern shipbuilding model, improve the manufacturing technology level and production efficiency of China's shipbuilding industry as soon as possible, and effectively transform the economic development mode, this document is hereby formulated.

1. Guiding Ideology

Rely on Deng Xiaoping Theory and the important thought of "Three Represents" as guidance, adhere to the scientific outlook on development, start from improving the manufacturing technology level of the shipbuilding industry as soon as possible, and break the major bottleneck restricting the development of the shipbuilding industry. Establish a modern shipbuilding model, greatly improve the modern management level, and provide strong support for effectively improving the economic operation quality of China's shipbuilding industry and ensuring the continuous, rapid and healthy development of the shipbuilding industry.

2. Work Objectives

By 2010, key shipbuilding enterprises will basically establish a general assembly model characterized by the organization and production of intermediate products, and the intermediate products will be finished products and specialized production. The level of management refinement and information integration has been significantly improved, forming a continuous, balanced and rhythmic flow production. The production efficiency reaches 25 working hours per corrected gross tonnage, the shipbuilding cycle of the three major ship types is shortened to less than 10 months, the energy consumption per unit of GDP is reduced by 25%, the comprehensive index of industrial economic benefits is increased by more than 60 points, and the per capita annual sales income reaches 100 ten thousand yuan. Small and medium-sized shipbuilding enterprises have preliminarily realized the transformation from the traditional shipbuilding model to the modern shipbuilding model, and basically formed a management model that organizes design and production according to intermediate products. The gap between the production efficiency of the whole industry and Japan and South Korea has narrowed to ¼.

3. Work Focus

(1) Optimize the main process of shipbuilding operations and further improve the level of final assembly

1. Deepen the transformation of the shipbuilding production system with a high degree of assembly as the core. A high degree of final assembly is an important direction for the development of modern shipbuilding models. Its main feature is to give full play to the role of core resources in shipyards and to separate ship intermediate products from the main process of shipbuilding operations as much as possible, so that enterprises can concentrate their efforts on final assembly production. Improve the production scale and specialization level of final assembly shipbuilding. In view of the unreasonable situation that the main process of general assembly is not clear enough, the self-made rate of intermediate products is high, and the process is complicated in the current shipbuilding enterprises in our country, it is necessary to promote process reengineering, rationally allocate resources, and develop the specialization and socialization of intermediate products in accordance with the basic requirements of final assembly and shipbuilding. Produce, construct and improve the final assembly shipbuilding production system.

2. Optimizing the production process based on intermediate products. Promote the operation forward, implement the outfitting first, improve the integrity of the sections, and realize the production mode of finished production and installation of intermediate products. Carry out capacity assessment to ensure the balance between production capacity and production load, and eliminate bottlenecks in the production process; try to compress the logistics line as much as possible, reduce circuit detours, and form an efficient, balanced, and rhythmic flow production oriented towards intermediate products. The production management system should be consistent with the assembly manufacturing to adapt to the ship operation process, the setting of the production organization should correspond to the production of intermediate products, and establish an intermediate product-oriented cost management and control system to ensure the effective operation of the final assembly shipbuilding operation process.

3. Plan and build new shipbuilding enterprises based on the requirements of final assembly development. All shipbuilding groups and shipbuilding enterprises must strengthen the guidance and review of the planning of new shipbuilding enterprises, incorporate the demonstration and evaluation of modern shipbuilding models into their planning review mechanisms, fully consider the needs of final assembly shipbuilding, and prepare for the implementation of advanced final assembly shipbuilding methods. Equipped with necessary venues and facilities.

(2) Accelerate the construction of a specialized supporting system for ship intermediate products

1. Establish a professional manufacturer of ship intermediate products with a reasonable layout. It is necessary to give overall consideration to the planning and development of the general assembly shipbuilding enterprises and the supporting professional cooperative enterprises, and accelerate the construction of steel processing centers, segmental manufacturing centers, pipe processing centers, superstructure processing centers, unit module processing centers, and large-scale casting and forging processing centers., Shafting processing centers and other types of outfitting parts processing and manufacturing enterprises. Whether it is the construction of a new plant or the transformation of an old plant, it is necessary to ensure the synchronous and coordinated development of specialized intermediate product manufacturers and final assembly

shipbuilders in terms of facility layout, process design, and resource allocation.

2. Make full use of social collaboration networks to develop specialized production of intermediate products. Key shipbuilding companies must strengthen communication and cooperation with local segment manufacturing companies and supporting companies to form smooth supply and demand channels. The industry authorities in each region must play a government guiding role, especially in areas where shipbuilding companies are relatively concentrated. They must make full use of regional advantages and actively guide various social resources to establish various forms of specialized processing centers for intermediate products to build and improve socialization. Collaborative network and supporting system for final assembly and shipbuilding.

(3) Effectively strengthen basic management and promote information integration

1. Establish a standardized basic data management system. Improve the daily reporting system of working hours and quantities, strengthen and standardize the collection, analysis and processing of basic data on design, production and management, accelerate the construction of resource databases and product databases, establish effective communication and feedback mechanisms, ensure timely and accurate data, and gradually form Systematic, scientific and standardized data management chain.

2. Further strengthen the standardization work and accelerate the unification of the information coding and standard framework of the shipbuilding industry. On the basis of establishing a design, production and management system compatible with general assembly and shipbuilding, establish and improve the corresponding standard system, gradually form normative and detailed management standards, technical standards and operating standards, and promote the systematization and improvement of the overall business process of the enterprise. standardization. At the same time, organize the formulation of a unified and standardized standard system and management methods for the entire industry, promote the information sharing between enterprises, and gradually realize the rapid communication and information sharing in the entire industry.

3. Vigorously strengthen the construction of information engineering in shipbuilding enterprises. The focus is to improve the degree of information integration, with comprehensive optimization as the goal, with CIMS system, ERP and other integrated platforms as the core, to establish an enterprise sharing information platform, and strive to

realize the integration of ship design, manufacturing, and management, as well as the integration of information flow, logistics, and capital flow. Strengthen the management of information resources, improve the authenticity and reliability of information resources, and build a complete, scientific and reasonable information system structure.

(4) Strengthen project management methods and means

1. Strengthen pre-planning. Standardize the preparation of production technology, establish an effective pre-planning mechanism, improve the pre-planning method, make full use of the "Ship Product Construction Policy" and "Comprehensive Schedule Plan" and other means to strengthen the early communication and coordination among design, production and management to ensure smooth progress of production. Continuously improve the level of pre-planning by strengthening the completion summary and feedback.

2. Establish a complete and scientific modern shipbuilding project planning management system. In accordance with the engineering decomposition and project management methods of intermediate product-oriented final assembly shipbuilding, a modern shipbuilding engineering planning management system is established. Take necessary measures to solve unreasonable management system obstacles, strengthen overall coordination, promote quantitative management, enhance planning accuracy and reliability, improve refined management level, and realize effective control of production planning, quality, cost and safety.

3. Full implementation of on-site management. In accordance with the requirements of fixed location management, thoroughly clean up unnecessary items in the workplace, and mark and position useful items in accordance with the requirements of safety, convenience, improvement of production efficiency, and assurance of production quality. Do a good job of cleaning and tidying up the workplace, so that every day is cleared, and it is cleared as it is produced. Continuously improve operating standards and improve the operating environment.

(5) Strengthen the research and application of shipbuilding methods for final assembly

1. Strengthen the research on shipbuilding methods for final assembly. Focusing on improving production efficiency and shortening the shipbuilding cycle, it is not only necessary to develop and apply new shipbuilding processes, new methods, and new tooling,

but also to strengthen research on production organization and management technologies, process transformation and optimization, and other related technologies.

2. Fully implement the construction method of segmented general group. It is necessary to combine the optimization of the main process of general assembly shipbuilding operations, integrate the production resources of the enterprise, minimize the number of sub-section general groups, increase the weight of sub-section general groups, and selectively develop the construction of giant general sections, rapid loading of docks, and shipbuilding on flat ground in combination with the actual situation of the enterprise., Floating dock shipbuilding and other new technologies reduce the workload of the dock (unit) and maximize the ability of the core production resources of the dock (unit).

3. Vigorously promote precision shipbuilding, advanced outfitting and advanced painting technologies. Application of shipbuilding precision management and control technology, replacement of margin with compensation amount, to realize assembly of components and sections without margin, and loading of docks (tables) without margin. Vigorously promote the technology of outfitting units and functional modules, and expand the range of intermediate products. In accordance with the principle of moving the process forward, vigorously promote advanced outfitting technologies such as pre-installation of sections, pre-assembly of general sections, outfitting of engine room basins, and overall hoisting of superstructures, so as to improve the level of pre-outfitting and the integrity of ship launching. Focusing on the new international painting norms and standards, actively carry out advanced painting technology research.

4. Safeguard Measures

(1) Improve the working mechanism

The National Defense Science, Technology and Industry Commission established the "Leading Group for Promoting the Establishment of Modern Shipbuilding Models " to comprehensively lead the shipbuilding industry in establishing modern shipbuilding models; the China Shipbuilding Industry Association established the "Expert Group for Establishing Modern Shipbuilding Models" to provide technology for the entire industry to promote the establishment of modern shipbuilding models Consultation and guidance; each group company and each enterprise should set up a corresponding modern shipbuilding model promotion leading group and working team, combined with their own specific conditions, to

do a good job in the implementation of the establishment of a modern shipbuilding model in their units. The whole industry should establish a three-level organizational system that is guided by the National Defense Science and Industry Committee, promoted by the shipbuilding industry association, and implemented by grassroots enterprises, forming a working mechanism of "top-level decision-making, strong implementation, and continuous advancement".

(2) Strengthen monitoring, evaluation and assessment

In order to better understand and grasp the effectiveness and gaps of shipbuilding enterprises in promoting the establishment of modern shipbuilding models, it is necessary to strengthen evaluation and assessment. Establish a unified" shipbuilding technology level evaluation index system" for the whole industry as soon as possible. On this basis, rely on the modeling expert group of the industry association to regularly evaluate and assess the work of shipbuilding enterprises to establish a modern shipbuilding model, and put forward corresponding countermeasures in a timely manner according to the assessment results and suggestions.

(3) Increase funding

Increase support for the research and application of modern shipbuilding technology. In the high-tech ship scientific research plan, modern shipbuilding technology should be regarded as one of the strategic priorities for the development of ship science and technology and given key support. All groups and enterprises should promote the establishment of a modern shipbuilding model as an important part of the scientific and technological innovation work. Raise and implement the necessary implementation funds to ensure the smooth progress of the promotion work.

(4) Innovating systems and mechanisms

Eliminate institutional and institutional obstacles that hinder the establishment of a modern shipbuilding model. In the setting of organizational structure, management range, and leadership authority, innovations and reforms have been carried out in the aspects of working hours quota system, distribution system, outsourced labor employment system, etc., and an incentive and restraint mechanism and flat decision-making that are compatible with the modern shipbuilding model have been gradually established. mechanism to create conditions for accelerating the establishment of a modern shipbuilding model.

国防科工委关于印发全面建立现代造船模式行动纲要（2006 - 2010年）的通知

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国防科工委关于印发全面建立现代造船模式行动纲要（2006 - 2010年）的通知

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国防科工委关于印发全面建立现代造船模式行动纲要（2006 - 2010年）的通知

各有关省、自治区、直辖市船舶行业管理部门，中国船舶工业集团公司、中国船舶重工集团公司，委属各高校：

现将《全面建立现代造船模式行动纲要（2006-2010年）》印发给你们，请结合本地区（单位）实际，认真贯彻执行。

二○○七年七月

附件：

全面建立现代造船模式行动纲要（2006-2010年）

前 言

加快建立现代造船模式是我国船舶工业实现做大做强目标的重要战略举措。自2004年《国防科工委关于加快建立现代造船模式的指导意见》发布以来，我国船舶工业建立现代造船模式工作取得显著成效，进入了向深度和广度全面推进的新阶段。但是，与日韩等国家的先进造船模式相比，我国仍存在较大差距，主要表现在总装化程度低，专业化配套体系不健全；生产管理粗放，尚未完全摆脱经验型、调度式的生产管理方式；基础管理薄弱，信息化程度不高。为全面贯彻落实《船舶工业发展"十一五"规划纲要》，努力解决阻碍我国建立现代造船模式的薄弱环节，尽快提高我国船舶工业制造技术水平和生产效率，切实转变经济发展方式，特制定本纲要。

一、指导思想

以邓小平理论和"三个代表"重要思想为指导，坚持科学发展观，以尽快提高船舶工业制造技术水平，打破制约船舶工业发展的重大瓶颈为出发点，开拓创新，求真务实，加快推进全行业建立现代造船模式，大幅度提升现代化管理水平，为切实提高我国船舶工业经济运行质量，确保船舶工业的持续、快速、健康发展提供强大的支撑。

二、工作目标

到2010年，骨干造船企业基本建成以中间产品组织生产为主要特征的总装模式，中间产品实现成品化、专业化生产。管理精细化和信息集成化水平明显提高，形成连续、均衡、有节拍的流水式生产。生产效率达到25工时/修正总吨，三大主流船型造船周期缩短到10个月以内，单位国内生产总值能耗降低25%，工业经济效益综合指数提高60点以上，人均年销售收入达到100万元。中小型造船企业初步实现由传统造船模式向现代造船模式的转换，基本形成按中间产品组织设计、生产的管理模式，全行业生产效率与日、韩的差距缩小到1/4。

三、工作重点

（一）优化造船作业主流程，进一步提高总装化水平

1、以高度总装化为核心深化造船生产体系改造。高度总装化是现代造船模式发展的一个重要方向，其主要特征是充分发挥船厂核心资源的作用，尽可能地将船舶中间产品从造船作业主流程中分离出去，使企业集中力量从事总装生产，以提高总装造船生产规模和专业化水平。针对当前我国造船企业普遍存在总装主流程不够清晰、中间产品自制率高、流程复杂的不合理状况，要按照总装造船的基本要求，推进流程再造，合理配置资源，发展中间产品专业化、社会化生产，构建和完善总装造船生产体系。

2、以中间产品为导向优化生产作业流程。推行作业前移，实施先行舾装，提高分段完整性，实现中间产品成品化制作与安装的生产模式。开展能力测评，确保生产能力与生产负荷平衡，消除生产工艺流程上的瓶颈；要尽量压缩物流线，减少线路迂回，形成以中间产品为导向的高效、均衡、有节拍的流水生产。生产管理体制要与总装造

相关分类

法律	行政法规
司法解释	部门规章
中央规范性文件	行业规定
团体规定	军事法规规章
地方性法规	地方规章
地方司法文件	地方规范性文件
单行条例和自治条	立法动态

船作业流程相适应，生产组织的设置要与中间产品的生产相对应，建立以中间产品为导向的成本管理与控制体系，保障总装造船作业流程的有效运行。

3、以总装化发展的要求规划和建设新造船企业。各造船集团和造船企业要加强对新建造船企业规划的指导与审查，要将现代造船模式的论证评估工作纳入其规划评审机制中，要充分考虑总装化造船的需求，为实施先进总装化造船方法配备必要的场地和设施。

（二）加快推进船舶中间产品专业化配套体系的建设

1、建立布局合理的船舶中间产品专业化生产企业。要统筹考虑总装造船企业以及与之配套的专业化协作企业的规划与发展，加快建设钢材加工中心、分段制造中心、管子加工中心、上层建筑加工中心、单元模块加工中心、大型铸锻件加工中心、轴系加工中心以及其他各类舾装件加工制造企业。无论是新厂建设还是老厂改造，都要在设施布局、流程设计、资源配置等方面确保中间产品专业化生产企业与总装造船企业同步、协调发展。

2、充分利用社会化协作网络，发展中间产品专业化生产。骨干造船企业要加强与地方分段制造企业及配套企业之间的沟通与合作，形成顺畅的供需渠道。各地区行业主管部门要发挥政府引导作用，尤其是在造船企业相对集中的地区，要充分利用地区优势，积极引导各种社会资源组建多种形式的中间产品专业化加工中心，构建和完善社会化协作网络和总装造船配套体系。

（三）切实加强基础管理，推进信息集成化

1、建立规范的基础数据管理体系。完善工时与物量的日报制度，加强和规范对设计、生产、管理基础数据的采集、分析和处理，加快资源数据库和产品数据库建设，建立有效的沟通和反馈机制，确保数据及时、准确，逐步形成系统、科学、规范的数据管理链。

2、进一步加强标准化工作，加快统一造船行业的信息编码和标准框架。在建立与总装造船相适应的设计、生产、管理体系的基础上，建立与完善相应的标准体系，逐步形成规范、详细的管理标准、技术标准和作业标准，促进企业整体业务流程的系统化、标准化。与此同时，组织制订全行业统一规范的标准体系和管理办法，促进企业之间信息的交流，逐步实现全行业的信息快速沟通和共享。

3、大力加强造船企业信息化工程的建设。重点是提高信息集成程度，以综合优化为目标，以CIMS系统、ERP等集成平台为核心，建立企业共享信息平台，努力实现船舶设计、制造、管理一体化和信息流、物流、资金流一体化。加强对信息资源的管理，提高信息资源的真实性和可靠性，构建完整、科学、合理的信息体系结构。

（四）强化工程管理方式与手段

1、加强前期策划。规范生产技术准备工作，建立有效的前期策划机制，完善前期策划方法，充分利用《船舶产品建造方针》、《综合日程计划》等手段，加强设计、生产、管理之间的前期沟通和协调，确保生产的顺畅推进。通过强化完工总结与反馈，不断提高前期策划的水平。

2、建立完整、科学的现代造船工程计划管理体系。按照以中间产品为导向总装造船的工程分解方式和项目管理方式，建立现代化的造船工程计划管理体系。采取必要措施，解决不合理的管理体制障碍，加强统筹协调，推进量化管理，增强计划精确性和可靠性，提高精细化管理水平，实现对生产计划、质量、成本、安全的有效控制。

3、全面推行现场管理。按照定置管理要求，彻底清理作业场所不必要物品，并将有用物品按照安全、方便、有利于提高生产效率、保证生产质量的要求，做好标识，定位摆放。做好工作场所的清扫和整理，做到日产日清，随产随清。持续改进作业标准、改善作业环境。

（五）加强总装造船工法研究与应用

1、加强总装造船工法的研究。围绕提高生产效率，缩短造船周期，不仅要开发和应用造船新工艺、新方法、新工装，更要加强对生产组织管理技术以及流程改造与优化等相关技术的研究。

2、全面推行分段总组建造法。要结合总装造船作业主流程的优化，整合企业生产资源，尽量减少分段总组的数量，增加分段总组的重量，结合企业实际有选择地发展巨型总段建造、船坞快速搭载、平地造船、浮船坞造船等新技术，减少船坞（台）工作量，最大限度地发挥船坞（台）核心生产资源的能力。

3、大力推广精度造船、先进舾装和先进涂装技术。应用造船精度管理与控制技术，以补偿量代替余量，实现部件和分段无余量装配、船坞（台）无余量搭载。大力推行舾装单元和功能模块技术，扩展中间产品范围。按照工序前移的原则，大力推广分段预装、总段预装、机舱盆舾装、上层建筑整体吊装等先进舾装技术，提高预舾装水平和船舶下水完整性。围绕新的国际涂装规范和标准，积极开展先进涂装技术研究。

四、保障措施

（一）完善工作机制

国防科工委成立"推进建立现代造船模式领导小组"，全面领导船舶行业建立现代造船模式工作；中国船舶工业行业协会成立"建立现代造船模式专家组"，为全行业推进建立现代造船模式提供技术咨询和指导；各集团公司、各企业应成立相应的现代造船模式推进领导小组及工作班子，结合各自具体情况，抓好本单位建立现代造船模式的落实工作。全行业要建立起由国防科工委抓导向、船舶行业协会抓推进、基层企业抓落实的三级组织体系，形成"顶层决策、实施有力、持续推进"的工作机制。

（二）加强监测评估与考核

为更好地了解和掌握造船企业推进建立现代造船模式工作的成效和差距，要强化评估与考核。尽快制订全行业统一的"船舶建造技术水平评估指标体系"，在此基础上，依托行业协会建模专家组对造船企业建立现代造船模式工作定期进行评估与考核，并根据测评结果及时提出相应对策和建议。

（三）加大经费投入

加大对现代造船技术研究与应用的支持力度，在高技术船舶科研计划中，要将现代造船技术作为船舶科技发展的战略重点之一，予以重点支持。各集团和企业要把推进建立现代造船模式工作作为科技创新工作的重要内容，统

筹和落实必要的实施经费，确保推进工作的顺利进行。

（四）创新体制机制

消除阻碍建立现代造船模式的体制、机制性障碍。在组织机构、管理幅度、领导权限的设置上，在工时定额制度、分配制度、外包工用工制度等方面进行创新改革，逐步建立与现代造船模式相适应的激励、约束机制和扁平化的决策机制，为加快推进建立现代造船模式创造条件。

鲜花 握手 雷人 路过 鸡蛋

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