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The Chinese Defense Economy in the Early 2010s

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Summary

China's defense economy is enjoying the best period of performance in its history with stellar profits and the output of an impressive array of military and high-technology products. Revenues from the ten leading state-owned defense corporations have increased by around 20 percent annually since the mid-2000s, which is a remarkable turnaround for an industry that was bleeding huge losses before the early 2000s. But while the defense economy has taken important strides in transforming itself into a technology champion over the past decade, much of it remains mired in the straitjacket of its socialist central planning past. Entrenched monopolistic practices, bureaucratic fragmentation, and compartmentalization are some of the ailments that inflict the defense industry. If the Chinese defense industry is to meet its goal of catching up to the global technology frontier by the early 2020s, it will need to make bolder reforms to replace its Maoist legacy and become a market-oriented, rules-based system. The signs for now, however, are that the leadership prefers a more cautious, consensus-based approach, especially as the defense economy has been performing so well recently.

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INTRODUCTION

China's defense economy is enjoying the most productive and profitable run in its history fuelled by generous state funding, pent-up domestic demand, and access to critical foreign technologies and know-how. The military aviation industry is leading the way with the development of more advanced fighter aircraft programs than any other country in the world. They include fifth-generation (called fourth-generation by the Chinese) J-20 and J-31 fighter aircraft and the J-15 carrier-borne fighter, which is derived from Russian/Ukrainian technologies. The shipbuilding, space and missile, and defense electronics sectors have also scored major technological successes.

Senior leaders in charge of the Chinese defense economy met at the end of 2011 to review progress in the revamp of the country's military technological capabilities. With a proliferation of new weapons coming out of research facilities and factories, the All-Army Armament Work Conference declared that "new historical achievements" have been reached in the "strengthening of the People's Liberation Army (PLA) deterrent and combat capabilities." The meeting also set out priorities for the Twelfth Five-Year Defense Plan (2011–2015), with calls to accelerate the pace of modernization and close the still-wide technological gap with the global frontier.

At the same time, fundamental structural, operational, and governance problems stand in the way. They range from entrenched corporate monopolies to the absence of a rules-based acquisition system. Along with slowing economic growth, these difficulties could threaten to derail the defense economy's long-term catch-up efforts.

BY THE NUMBERS: THE FINANCIAL HEALTH OF THE DEFENSE ECONOMY

Double-digit growth in annual defense outlays for the past 20 years is a principal source of the dynamism of the defense economy. Officially published figures show average annual defense budget increases of 11.8 percent between 2000 and 2011 in inflation-adjusted terms. This growth rate was maintained in 2012 with an 11.2 percent hike to RMB 670 billion (US \$106 billion).

The economic performance of the defense industry has been even stronger. Average annual revenues from the ten leading state-owned defense corporations since the mid-2000s have expanded by around 20 percent. Total reported revenues from these firms came to an estimated RMB 1.477 trillion (US \$233 billion) in 2011. (See chart on page 8.)

Approximately one-third of defense budget goes to covering equipment expenses, according to Chinese official explanations. This includes research and development (R&D), experimentation, procurement, and maintenance activities. This would mean that the 2012 equipment budget would be in the region of RMB 220 billion.

Financial data from defense corporations suggest, however, that the scale of the PLA's acquisitions maybe significantly larger than these disclosed figures. It is likely that around one-quarter of the income of the ten defense corporations, or RMB 370 billion (US \$58 billion), would be defense-related business and the rest would be civilian output. Even accounting for modest levels of foreign arms exports, which is estimated to be US\$1–1.4 billion annually, these figures suggest that Chinese military research, development, and acquisition (RDA) spending is at least 50 percent higher than the official figures would imply.

While the PLA is by far the defense industry's largest customer, there are other important domestic clients. The State Administration for Science, Technology, and Industry for National Defense (SASTIND) is another major source of funding for the defense industry. As the central government's defense industrial regulatory agency, SAS-TIND provides substantial funds for R&D as well as for industrial support.

THE ECONOMIC PERFORMANCE OF THE DEFENSE CORPORATIONS

The country's ten state-owned defense corporations are the principal engines powering the Chinese defense economy's transformation. An important indicator of improving efficiency is the profitability of the defense corporations, which have recorded strong growth over the past decade. Total industry earnings reached an estimated RMB 80 billion in 2011 or an increase of RMB 10 billion over the previous year. This is a remark-

able turnaround for an industry that was a chronic money loser before the early 2000s.

There is no breakdown to show how much of the profit flows from civilian versus military sales, but contractors have long complained that they struggle to make any profits on their defense operations because of regulations dating from the central planning era that limit profit margins on military contracts to a fixed 5 percent on top of actual costs. There is little incentive for contractors to invest heavily in new industrial capabilities because of these low rates of return.

Of the six sectors that constitute the Chinese defense industrial base, the largest in terms of revenue and workforce size is the ordnance industry. The two dominant companies in this sector, China Ordnance Equipment Group (COEG) and China Ordnance Industry Group (more widely known as Norinco), accounted for 40 percent of total defense industry revenue for 2011. The overwhelming share of this output is in commercial, non-defense goods. Norinco reported that 90 percent of its revenues in 2011 were from civilian-related activities, and the figure is likely to be even higher for COEG, which is largely engaged in civilian commerce (see Policy Brief 8).

The aviation and shipbuilding industries are the next largest defense industrial sectors, with revenue in 2011 of more than RMB 250 billion (\$39.4 billion) each. They are followed by the space and missile (RMB 210 billion), nuclear (RMB 100 billion), and defense electronics and information technology sectors (RMB 70 billion) respectively.

For R&D and innovation-related activities, the sectoral line-up is different. A 2010 survey of the innovation capabilities of major Chinese state-owned corporations showed that the space and missile industry spent the highest amount on R&D of all the defense sectors by a large margin. R&D expenditures of the two key space and missiles companies, China Aerospace Science and Technology Corporation (CASTC) and China Aerospace Industry Corporation (CASIC), totaled RMB 21.5 billion (\$3.4 billion) in 2010, or around 10 percent of their revenues. CASTC accounted for nearly two-thirds of this expenditure and was the third largest R&D spender among all of the country's state-owned corporations.

In second place was the shipbuilding industry, with the combined R&D of its two major corporations reaching RMB 12.4 billion (\$1.96 billion) in 2010, which is equivalent to 5 percent of its revenues. The ordnance sector was third, with both of its corporations spending RMB 11.1 billion (\$1.75 billion) on R&D, which was 1.85 percent of total revenues. According to information from another survey of China's largest 500 enterprises, R&D expenditures for Aviation Industry of China Corporation (AVIC) in 2009 were RMB 16.8 billion (\$2.65 billion), which was equivalent to 6.7 percent of revenue.

China National Nuclear Corporation's R&D spending in 2009 was RMB 322 million, although this jumped to RMB 1.87 billion in 2010. Although data is lacking for the defense electronics sector, it is likely its R&D spending as a percentage of annual revenues would be comparable to the levels of the aviation or shipbuilding industries, which would offer an estimate of RMB 3.5 billion. Total estimated R&D corporate spending by the defense industry in 2010 would likely be around RMB 66–68 billion (\$10.4–10.7 billion).

The military authorities have set a target for all defense corporations to spend at least 3 percent of their annual revenues on R&D by 2020. Besides the R&D spending by corporations, the PLA and SASTIND also have sizeable R&D budgets, although the actual amounts are not published. In addition, defense-related R&D funding can be found in other parts of the state budget, including funding for science and technology development programs such as the 863 and 973 Programs.

OBSTACLES TO FUTURE PROGRESS

While the Chinese defense industry has taken important strides in transforming itself from a third-rate military technological and industrial laggard and is now beginning to knock on the door of the global top-tier elite, it still faces tough challenges that could impede continued progress. The fundamental problem is that large portions of the defense industry continue to operate according to the norms, operating principles, routines, and habits of the socialist central planning economy. This is not surprising, as the defense industry did

not seriously begin to undertake market-oriented reforms until the late 1990s.

One major problem is the lack of competitive mechanisms for awarding contracts for major weapons systems and defense equipment because of the monopolistic structure of the defense industry. Contracts continue to be awarded through single sourcing mechanisms to the big ten state-owned defense corporations. Competitive bidding and tendering only takes place for non-combat support equipment, such as logistics supplies. An effort at the end of the 1990s to inject more competition by splitting each company that was in charge of a defense sub-sector into two did little to curb monopolistic practices. Some PLA acquisition experts view this monopoly structure as the biggest single obstacle in its long-term reform.

Bureaucratic fragmentation is another serious problem and affects a number of critical coordination and command mechanisms within the PLA and RDA systems. One gap at the top of the military RDA management pyramid is the truncated role of the PLA General Armament Department (GAD), which is only responsible for managing the armament needs of the ground forces, People's Armed Police, and militia. The navy, air force, and Second Artillery have their own armament bureaucracies, and competition is fierce for budget resources to support projects favored by each of these services. This compartmentalized structure serves to intensify parochial interests and undermines efforts to promote joint undertakings.

The RDA process is also plagued by compartmentalization. Responsibilities for R&D, testing, procurement, production, and maintenance

are in the hands of different units, and under-institutionalization has meant that linkages among these entities tend to be ad hoc, with major gaps in oversight, reporting, and information sharing. The fragmented nature of the RDA process may have been a major factor in why Hu Jintao was apparently caught by surprise by the first publicized test flight of the J-20 fighter aircraft that took place while U.S. Defense Secretary Robert Gates was in Beijing in January 2011.

If the Chinese defense industry is to meet its goal of catching up to the global technology frontier by the 2020s, it will need to make a successful transition to become a market-oriented, rules-based system. For this to happen, the defense industry will need to make a decisive break from its central planning legacy. This will require replacing the incremental, consensus-based process that is driving the reform agenda with a far bolder approach to aggressively tackle the root causes of the defense industry's underlying weaknesses. The defense leadership appears satisfied for the time being to continue to take a gradualist approach to reform and modernization, although in select high-priority areas such as space and missiles there is a willingness to pursue more intensive and bolder development strategies.

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