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Title

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Permalink

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Journal

SITC Research Briefs, 2013(Research Brief 2013-8)

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Publication Date

2013



Research Brief 2013-8

January 2013

China's Ordnance Industry: More Butter than Guns

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Summary

The Chinese ordnance industry, comprising China North Industries Group Corporation (CNGC) and China South Industries Group Corporation (CSGC), is officially tasked with supplying the Chinese ground forces with weapons and equipment. As these corporations have become more profitable over the past decade, their civilian-sector activities have significantly expanded and now account for at least 90 percent of annual revenue. This commercial success has driven the two conglomerates to be major car manufacturers and oil importers, but CNGC is still principally responsible for researching, developing, and manufacturing weapons. To date, no radical innovation has been observed in these weapons, but a series of recent reforms, including major organizational restructuring, is aimed at changing this status quo. It remains to be seen whether the ordnance industry can genuinely reshape its weapons production while also maintaining rapid growth in its largely unrelated civilian-sector activities.

The Study of Innovation and Technology in China (SITC) is a project of the University of California Institute on Global Conflict and Cooperation. SITC Research Briefs provide analysis and recommendations based on the work of project participants. This material is based upon work supported by, or in part by, the U.S. Army Research Laboratory and the U.S. Army Research Office through the Minerva Initiative under grant #W911NF-09-1-0081. Any opinions, findings, and conclusions or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views of the U.S. Army Research Laboratory or the U.S. Army Research Office.

BACKGROUND

China's ordnance industry over the last 65 years has undergone numerous reorganizations. The current organizational structure took shape in July 1999 when the China Ordnance Industry Corporation (中国兵器工业总公司) was divided into two parts, China North Industries Group Corporation (中国兵器工业集团公司) and China South Industries Group Corporation (中国兵器装备集团公司). Both headquartered in Beijing, these two conglomerates have etched out distinct niches in domestic and global civilian markets while collaborating to produce weaponry for the People's Liberation Army (PLA) and export markets.

The ordnance industry's naming conventions merit brief discussion, as both conglomerates are recognized by multiple names. China North Industries Group Corporation is also known as Norinco (G) or Norinco Group. Adding complexity to this name is the fact that Norinco (G) must be differentiated from Norinco, which is the most common name for China North Industries Corporation (中国北方工业公司), a subsidiary company jointly owned by CNGC and CSGC. Another affiliated entity is the publicly traded subsidiary Norinco International Co. (北方国际合作股份有限公司).

English language sources occasionally translate each group's name literally, rendering them as China Ordnance Industries Group Corporation and China Ordnance Equipment Group Corporation respectively. This in turn leads to the acronyms COIG and COEG. For this policy brief, the acronyms CNGC and CSGC will be used.

SPRAWLING SUCCESS

Following its formation in 1999, CNGC became the ordnance industry's primary weapons manufacturer, and, in doing so, shouldered the majority of the ordnance industry's responsibility for the research, development, and manufacturing of military equipment for the PLA's ground forces. This equipment covers areas ranging from traditional tanks and artillery to advanced guided munitions and communication technology. As China's self-proclaimed largest weapons manufacturer, CNGC's contribution to the defense industry also includes participation in research and develop-

ment (R&D) of weapons for the PLA Navy, PLA Air Force, and Second Artillery, in addition to the People's Armed Police.

But beyond its key role in China's defense industry, CNGC now receives the vast majority of its revenue and profit from the civilian sector. In 2011, 90 percent of the group's revenue and 70 percent of its profit was generated from civilian industries. This represents a steep pattern of increased financial reliance on the civilian sector, as in 2008 it was reported that just 70 percent of the group's revenues and roughly 50 percent of its profits were derived from civilian sector participation. Today, the group's principal civilian sector interests include oil and mineral extraction, fine chemical processing, heavy machinery manufacturing, and the research and manufacturing of optical products. CNGC's extensive activities abroad include active participation in weapons exports, oil and mineral extraction, and engineering projects.

CSGC has played a smaller role in China's weapons manufacturing, focusing more attention on its civilian-sector efforts. It is widely recognized as one of China's largest manufacturers of cars, trucks, and motorcycles, and has also established itself as a key player in clean energy research, while contributing to China's traditional energy sector as a formidable competitor in the Chinese power transformer market. The group's footprint in the ordnance industry's weapons manufacturing is primarily focused on its role as China's leading researcher and manufacturer of small arms, but the group does manufacture at least one model of anti-aircraft vehicle. Over the last five years, little information has been released on CSGC's defense R&D. This lack of information likely stems from the small scale of the group's defense R&D infrastructure, but as an active participant in the global automotive industry CSGC is likely intentionally distancing itself from its defense-related functions.

Domestically, these two conglomerates rank among China's largest manufacturers, and in 2011 they were at the top of the Chinese defense industry, posting the highest revenues and profit of any firms. Each conglomerate is also ranked by *Fortune Magazine* as one of the 250 largest cor-

porations in the world, and, if combined, they would rank ninety-first. Nevertheless, their profit rates were extremely low, averaging around two percent of the total revenue for each corporation.

WEAPONS RESEARCH AND MANUFACTURING

Despite the ordnance industry's financial dependence on civilian products, its professed core focus continues to be the R&D of military-use weapons and equipment. In 2009, CNGC reported that 82 percent of its total R&D budget went toward military-use research, yet by 2011 the group's revenues derived from these products were only 10 percent of total revenues. Although a seemingly untenable financial imbalance, this emphasis aligns with CNGC's stated mission to "grasp everything to present to the Party" as it "carries out the major national project of being the core supplier to ground forces." CSGC's percentage of military expenditures is not available, but as the junior partner in terms of military equipment manufacturing, it is likely that its military sales as a percentage of profit and revenue are even smaller, and its emphasis on auto manufacturing likely means it places a higher percentage of its R&D budget toward civilian ends.

China's celebration of its sixtieth anniversary in 2009 provided a revealing look at how the ordnance industry is organized and what its flagship ground force components include. Although all of the equipment displayed was touted to be "indigenously innovated," these platforms largely appear to be derived from earlier Russian designs with the possibility of only limited incremental innovation. That said, it is difficult to assess whether the subcomponents within these platforms, such as radar, fire-control systems, and communications equipment have undergone more radical innovation. The ordnance industry appears to have placed a priority on improving these subsystems through innovation, but there is scant evidence to prove or refute this possibility. Considering the industry's budgetary priority on defense R&D, it is likely that these subsystems will continue to steadily improve in the near to mid-term.

With only one exception, CNGC maintained a monopoly on the major ground force equipment displayed, which included tanks, self-propelled

artillery, amphibious assault vehicles, rocket artillery, and armored vehicles. Within the parade nearly half of all land-based displays were manufactured by the ordnance industry, including 14 of the 30 types of equipment displayed, in addition to providing the chassis and lead vehicles for five additional formations that appeared to be manufactured by the defense industry's aerospace conglomerates. Among the 14 pieces of equipment represented, only one, the 25-mm tracked anti-aircraft vehicle, was manufactured by CSGC, with the remaining 13 apparently solely designed and manufactured by CNGC.

REORGANIZATION AND REFORM

Since 1949, the ordnance industry has undertaken no less than nine major reorganizations. CNGC has recently completed a major internal reform that could increase the group's innovative potential. This restructuring saw its roughly 110 subordinate organizations merge and combine into 35 subsidiaries and nine directly controlled subordinate companies. This process was announced in 2009 and was planned to take 3 to 5 years, but was accomplished in only 18 months. CNGC CEO Zhang Guoqing has stated that in undertaking this reorganization it went "without saying" that there was "gigantic pressure" from the "traditional defense industry." This is likely referring to significant pushback from local vested interests and the leaders of the organizations being consolidated.

Within the ordnance industry, S&T R&D is primarily undertaken by its legacy research institutes, which were also significantly impacted by this reorganization. Many of these previously isolated institutes were placed under combined leadership with manufacturers during the broader reorganization outlined above. Little information is available on how these institutes will be managed and operated now that they are paired with manufacturers, but their thousands of employees are the primary driver of defense R&D within the ordnance industry, and their success or failure will be a major determinant of the broader industry's potential for increased defense innovation.

Another reform item in all state-owned enterprise (SOEs) (ordnance sector included) was the implementation of the economic value added (EVA) measure, a financial accounting technique

aimed at maximizing return on investment. All SOEs were encouraged to adopt the EVA measure in 2007, but beginning in 2010 it was formalized as a mandatory policy. CNGC is listed as one organization that has actively and enthusiastically implemented this management reform. Some argue that EVA is a revolution for China's business management. It is reported that many decades-old problems in management, such as prioritizing investment while ignoring output, emphasizing scale while ignoring efficiency, as well as emphasizing speed while ignoring quality, can be addressed, and in the long term, previous blind investment can be contained while professionalism can be improved and enhanced.

CONCLUSION

Despite the fact that the role of ground forces has diminished in the context of fighting a local war under informatized conditions, China's leadership has provided tremendous support to the ordnance sector, and the amount and extent of this support is not fully reflected in China's defense budget. But as reforms continue, it remains unclear the extent to which end users, mainly the PLA ground force, can exert control over the ordnance industry, pulling the industry towards more innovative R&D that would in turn lead to better military equipment and deliver arms to meet the military's needs. Historically, PLA end users appear to have had little ability to influence the R&D process for the equipment they acquired. However, with the creation of the General Armament Department in 1998, as well as a series of reforms in the subsequent decade, it is possible that the PLA will increase its influence over the ordnance industry's R&D activities. Recent research has demonstrated that numerous regulations have been enacted aiming to increase the PLA's oversight of suppliers, but it is difficult to determine whether these policies can genuinely reshape the relationship that has developed over decades between the PLA and the ordnance industry.

Now that its financial house is in order, there are indications that the industry may be capable of producing significantly improved defense equipment. First, the state has continued to provide unwavering financial support to the industry. Also,

in the field of business management, progress appears to be afoot under the push of the Chinese state, as leaders continue to promote EVA reform. But the transition into a new generation of decision-makers has not been completed, and almost all of the current decision-makers grew up and were promoted in a socialist economic setting. As their industry continues to face difficult financial decisions, it is difficult to determine how well prepared they are to genuinely reform the ordnance industry's approach to defense innovation.

China's ordnance sector has made impressive financial progress in recent years, putting it on a stable financial setting for the first time in decades. Its total revenue and profit have substantially increased, it has expanded to oil exploration and optical sectors while its employment size has scaled down, and it has undertaken organizational restructuring. But despite these apparent external successes, it is difficult to assess whether the industry has overcome its bloated, stove-piped internal workings in order to undertake genuinely innovative defense R&D. At present, there are few external markers, such as a radically innovative piece of equipment, to demonstrate that the industry is moving toward a more innovative future. The ordnance sector has so far generally copied arms with only incremental improvements. During a period of rapid global expansion and growing civilian sector success, it remains to be seen whether the ordnance industry can move beyond its incremental imitation activities to pursue genuine innovation.

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