

A REPORT OF THE CSIS HILLS
PROGRAM ON GOVERNANCE

China's Competitiveness

Myth, Reality, and Lessons for the United States and Japan

CASE STUDY: *China South Locomotive and Rolling Stock Corporation (CSR)*

January 2013

Author

Masashi Adachi



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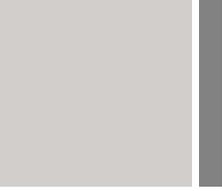
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CASE STUDY: CHINA SOUTH LOCOMOTIVE AND ROLLING STOCK CORPORATION (CSR)

By Masashi Adachi

Introduction

The growth of the Chinese economy, particularly in the last 20 years, has been staggering. Until recently, most of this growth had come from producing labor-intensive, low-value-added goods. Today, however, Chinese competitiveness is no longer confined to lower-end production. In fact, Chinese policymakers are laser focused on helping Chinese firms move up the industrial value chain. Moreover, policymakers have made explicit the goal of assisting the international expansion of Chinese firms in a desire to “go global” and have made efforts to build internationally recognizable brands commensurate with China’s growing global clout. These policy goals have at times struck decidedly nationalistic and protectionist tones, raising concerns globally in both corporate and government sectors. Government encouragement of international expansion is also driven by the desire to reduce China’s foreign exchange reserves, which have become a subject of heated domestic and international criticism.

Now, a number of Chinese companies have emerged to challenge traditionally dominant international firms. This overall study looks at the cases of five such firms, examining the factors that led to their rise, their current state of competitiveness in relation to their international peers, and the policy implications. It is not meant to be an academic discussion of the nature of competitiveness, nor an investment analysis with latest-quarter data—all these companies are growing rapidly and present moving targets. We take a relatively straightforward approach to what it means to be competitive, looking at traditional metrics of corporate performance such as sales growth, profitability, and market share trends and comparisons over the last few years. We acknowledge that individual companies may determine competitive success differently and over varying periods of time; some are more market driven and concerned with quarterly results, while others may be less concerned with the short-term traditional indicators of success.

Market involvement by the Chinese government may also result in misleading competitiveness indicators. Firms may be more concerned with initial market share gain than with near-term profitability. While this is not an atypical strategy for new market entrants, government policies can play an outsized role in encouraging this type of strategy when viewed as part of the competitive landscape. Since long-term success is a flexible concept that is difficult to measure, we are focusing on the current competitiveness of these firms. But in doing so we are also investigating the factors

that led to the rise of these companies and the likely sustainability of these competitive advantages. We also examine the influence of government policies on competitiveness and their longer-term implications. Finally, we look at the relationships these companies have with the United States and Japan to give an indication of the interconnected nature of their operations and history.

About CSR

China South Locomotive & Rolling Stock Corporation (CSR) is a state-owned enterprise (SOE) held and supervised by the State Assets Supervision Administration Commission (SASAC) through the CSR Group. It is one of China's two rolling stock producers and the world's second largest. It forms an oligopoly in the Chinese market with China North Locomotive and Rolling Stock Corporation Limited (China CNR Corporation Limited) (CNR). CSR together with its subsidiaries manufacture, sell, and repair electric locomotives, diesel locomotives, freight wagons, passenger cars, metro cars, and components thereof. Shares of CSR are listed on the Shanghai and Hong Kong Stock exchanges, but the majority of CSR's shares are owned by the SASAC. Approximately 58 percent of CSR's revenue comes from China's Ministry of Railways (MOR), while only 8 percent of revenue comes from overseas markets. CSR has 17 direct, wholly owned and controlled subsidiaries, located in 10 provinces (including municipalities directly under the central government) in Mainland China and the Hong Kong Special Administrative Region, with over 80,000 employees and RMB 92.8 billion in total assets. In 2011, CSR reported total revenue of RMB 80.0 billion and a net profit of RMB 4.7 billion.¹

CSR's Rise

CSR has its origin in the manufacturing facilities of the Qing Dynasty. In 1897, the first locomotive and rolling stock manufacturer was established in China. In October 1949, the Factory Affairs Bureau of the MOR was established.² The MOR enhanced railroad capacity by building new railways, growing from a total length of 22,000 kilometers in 1949 to 43,000 kilometers in 1978.³ Until China introduced its reform and open-door policy in 1978, China independently manufactured or imported rolling stock from the Soviet Union. At first, the factories assembled knock-down locomotives and passenger cars imported from the Soviet Union. After 1978, China imported rolling stock products and technology from Western countries as well. The role of the Factory Affairs Bureau of the MOR was subsequently taken over by the MOR Locomotive and Rolling Stock Industrial Corporation, which was established in 1986. In 1989, the MOR Locomotive

¹ CSR Annual Report 2011.

² See <http://www.csrgc.com.cn/ens/gync/gsjc/lsg/2008-06-12/610.shtml>.

³ See <http://www.asianinfo.org/asianinfo/china/transportation.htm>.

and Rolling Stock Industrial Corporation was renamed the China National Railways Locomotive and Rolling Stock Industrial Corporation.⁴

In 2000, China North Locomotive & Rolling Stock Group (CNRG) was split from the China National Railways Locomotive and Rolling Stock Industrial Corporation. Two years later, China South Locomotive & Rolling Stock Group (CSRG) was formed. This represented China's policy transition from a monopolistic system toward a more market-oriented industry. As a result of their long history together, both groups are nearly identical in size, market orientation, and activity. In July 2002, CSRG was formally established and registered with the State Administration for Industry and Commerce.⁵ Other than CSRG and CNRG, several companies were spun out of the MOR, such as the China Railway Engineering Group Co., China Railway Construction, and the China Railway Materials Commercial Co. The idea of "private management and state ownership" (民营国有) prevailed over the idea of "state management and state ownership" (国营国有). Despite their legal status, the main customer of these companies has been the MOR, which has implemented national railway network plans.

With the rapid growth of the Chinese economy, the demand for transportation grew sharply, especially for moving coal and iron ore from inland to the coastal industrial area. The railway is regarded as the most energy efficient mode of transportation for the mass transportation of both passengers and cargo. The MOR has continued building new railways, the length of which was 52,000 kilometers in 1985, rising to 90,000 kilometers in 2010.⁶ This is the second-largest railway system in the world after that of the United States. The MOR has also invested in electrification and plural tracks. In 2010, the electrification rate was 46 percent, while the plural tracks rate was 41 percent. Urban modes of transportation such as subways have also been an area of growth. Regional governments, together with the central government, have invested more and more money.

To coordinate this growth, the Chinese Government has adopted the National Railway Network Plan and has tried to enhance the national railway network. The government is pushing investments in infrastructure projects. In the 11th Five-Year Plan (2006–10), the development of rail transportation was made a priority. During this period, the MOR planned to invest RMB 1.25 trillion and purchase 1,500 locomotives, 4,000 passenger cars, 150,000 freight wagons, and 1,000 electrical units / diesel cars. As an economic stimulus package responding to the world credit crunch starting in 2007, the Chinese government has put more money toward establishing a national railway network. The government has used the package to build the high-speed railway network more rapidly.⁷

⁴ See <http://www.csrgc.com.cn/ens/gync/gsjs/lsg/2008-06-12/610.shtml>.

⁵ See <http://www.csrgc.com.cn/ens/gync/gsjs/lsg/2008-06-12/610.shtml>.

⁶ Swiss Rail Industry Association, January 2011, China Railway Market Study.

⁷ Current and Future China's Railway Development by Bureau of Development and Planning Ministry of Railways, P.R.China,

http://siteresources.worldbank.org/INTSARREGTOPTRANSPORT/6034746-1243944302638/22213053/3_Mar25_Zhang_Jianping_prsntn.pdf.

The 12th Five-Year Plan (2011–16) has continued enhancing railway projects.⁸ These governmental investments have fed CSR’s business as these railway projects have required new locomotives and passenger cars.

The National Development and Reform Commission issued the “Directory Catalogue on Readjustment of Industrial Structure,” which includes railways as one of the strategic industries.⁹

CNR and CSR cooperated in building the “China Star,” an AC propulsion EMU that manages speeds up to 270 kilometers per hour.¹⁰ The China Star was the most technically advanced passenger transportation unit based on Chinese technology. Other technologically advanced products include the “Sky Shuttle,” an AC driven electric locomotive, and the SS7E modular design passenger electric locomotive.¹¹ However, the China Star could not meet the severe requirements of high-speed rail operation. As the Chinese government hurried in building its high-speed railway network, the government instructed CSR and CNR to import foreign technology. CSR contracted with Bombardier and Kawasaki Heavy Industries, while CNR contracted with Alstom and Siemens.

In 2007, CSR reorganized its affiliates and subsidiaries. CSR renamed itself the CSRG and established the new companies CSR and BRIT as its 100-percent-owned subsidiaries. CSR group companies were restructured under CSR. There are 20 controlled subsidiaries, 15 of which were 100-percent-owned subsidiaries. Four companies are for manufacturing, selling, and repairing locomotives (Zhuzhou, Ziyang, Qindao Sifang, and Qishuyan). Four companies are for manufacturing, selling, and repairing rolling stock (Yangtze, Nanjing Puzhen, Ergi, and Meishan). Four companies are just focused on maintenance and repair, and four companies undertake the manufacturing and sale of components. There is one research-and-development (R&D) company and three investment companies. There are five jointly controlled entities (Bombardier Sifang, KHI Sifang, MELCO Zhuzhou, Siemens Zhuzhou, and Zhuzhou High-Tech).

In 2008, CSR launched an initial public offering (IPO), offering H shares on the Hong Kong Stock Exchange (Global Offering) and A shares on the Shanghai Stock Exchange to raise capital for planned investment.

With the implementation of the Chinese government’s Railway Network Plans, CSR has increased its shares of the market and become one of the world’s top five railway industries.

Shareholder Composition

As of February 29, 2012, CSR had 312,969 shareholders in total, including 310,284 holders of A shares and 2,685 registered holders of H shares. CSRG holds, directly and indirectly, an aggregate of

⁸ *People’s Daily Online*, May 09, 2011.

⁹ NDRC, “Guidance Catalogue of Industrial Structure Adjustment (2011 version)” on March 27, 2011.

¹⁰ See <http://www.chinacnr.com/Page/356/language/en-US/default.aspx>.

¹¹ CNR Datong Electric Locomotive Co., Ltd., http://www.dt.chinacnr.com/english/b/a/e/content_196.shtml.

7,880,903,700 A shares, representing approximately 57.1 percent of the enlarged total number of issued CSR shares.¹²

CSR issued A shares on the Shanghai Stock Exchange and H shares on the Hong Kong Stock Exchange in 2008. CSR procured a total of RMB 6,480 million by A shares and HK\$ 4,160 million by H shares in the IPO.¹³ As of the end of fiscal year 2011, SASAC owns 54.27 percent of the shares through CSR Group, HKSCC Nominee Limited owns 17.04 percent, the National Council for the Social Security Fund owns 2.53 percent, the Agricultural Bank of China Fund owns 1.60 percent, the China Construction Bank Fund owns 0.89 percent, and the CSRG subsidiary CSR Capital Company owns 0.79 percent.¹⁴

This IPO did not mean that CSR was going to be privatized. The IPO was used to procure funds from the market. In 2011, after the Wenzhou Accident, CSR had difficulties in procuring finance from the market. CSR launched private placement to governmental agencies. Finally, 1,963,000,000 new A shares were issued on March 15, 2012, and the MOR, E Fund Management, the National Council for the Social Security Fund, and others subscribed to them.¹⁵

Current Strategy

CSR's basic approach has been to meet all the demands required by the five-year plans and to implement the National Railway Network Plans. CSR's chairman, Zhao Xiaogang, has explained that, as an SOE, CSR's future development is tied to China's prosperity.¹⁶

"An Analysis of State-Owned Enterprises and State Capitalism in China" by the U.S.-China Economic and Security Review Commission (October 2011) observed that the state sector in China will continue to play an important role and that the government uses SOEs to facilitate structural change in the Chinese economy, to acquire technology from foreign firms, and to secure raw material sources from beyond China's borders. The Chinese government sees the railway network as fundamental infrastructure, essential to China's economic growth by improving the mobility of people and goods. It is reported that only 40 percent of the demand for the transporting of goods is satisfied. The railway network is essential to saving energy and protecting the environment. It should be noted that the railway network also has some national security aspects, especially in terms of military transportation. The "buy China" approach is justified in this aspect. The Chinese government also thinks it a good opportunity to create new industry. For all these reasons, the government has provided a huge budget for establishing an efficient railway network. Even right

¹² CSR Annual Report 2011.

¹³ CSR IPO Prospectus.

¹⁴ CSR Annual Report 2011

¹⁵ Ibid.

¹⁶ Ibid.

after the world credit crunch, the government treated the construction of the railway network as a key project in its RMB 400 billion economic stimulus package.¹⁷

During the 12th Five-Year Plan period (2011–16), CSR will put more resources into scientific research and establishing an advanced system by international standards that brings together studies of industry development, product R&D, production, and manufacturing, in a bid to becoming one of the Global 500 and a highly renowned brand worldwide. Its goal in the middle to long terms is to be an all-round provider of rolling stock solutions with a leading edge globally.

In 2012, in view of this development strategy and the production and operating needs of CSR, the company plans to invest RMB 6.642 billion in fixed assets, mainly in projects of strategic importance to its development, such as multiple units (MUs), intercity MUs, maintenance services and network construction for rapid transit vehicles, rapid transit, railway freight wagons, and projects that utilize proprietary rolling stock technologies.

CSR's export strategy is connected to China's national diplomatic strategy. China has used huge amounts of overseas development aid as a tool to solicit alliances, and new railway projects are a part of this. China has also used railway network projects to expand network connections like the old Silk Road. Economically, China's vision for the rail network is one of regional integration. At present, China does more trade with the West than it does with its own neighbors. The railway will help China bring commodities back from Southeast Asia, get its goods to far-flung markets, and accelerate the development of its relatively backward southwestern Yunnan Province. Strategically, China seeks a continental "back door" in case of any maritime blockade. In particular, a railway into Myanmar would give China access to the Indian Ocean and allow it to bring oil supplies into its southwest without going through a vulnerable choke point in the narrow Straits of Malacca.¹⁸

CSR intends to increase oversea sales to 20 percent of total revenue.¹⁹ CSR has invested substantially for last three years, so it has enough capacity for production. The domestic demand for high-speed railcars will be high enough to fill its production capacity, but that of the other products will be moderate enough to enable exports.

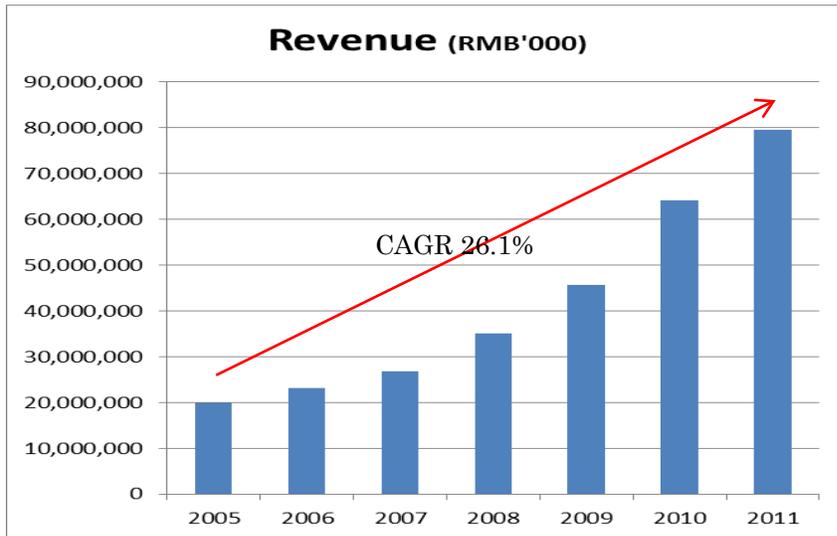
¹⁷ *China Daily*, March 20, 2009, http://www.chinadaily.com.cn/cndy/2009-03/20/content_7597900.htm.

¹⁸ NPR, June 14, 2011.

¹⁹ See http://www.china.org.cn/business/2012-04/17/content_25162790.htm.

Competitiveness Indicators

Sales

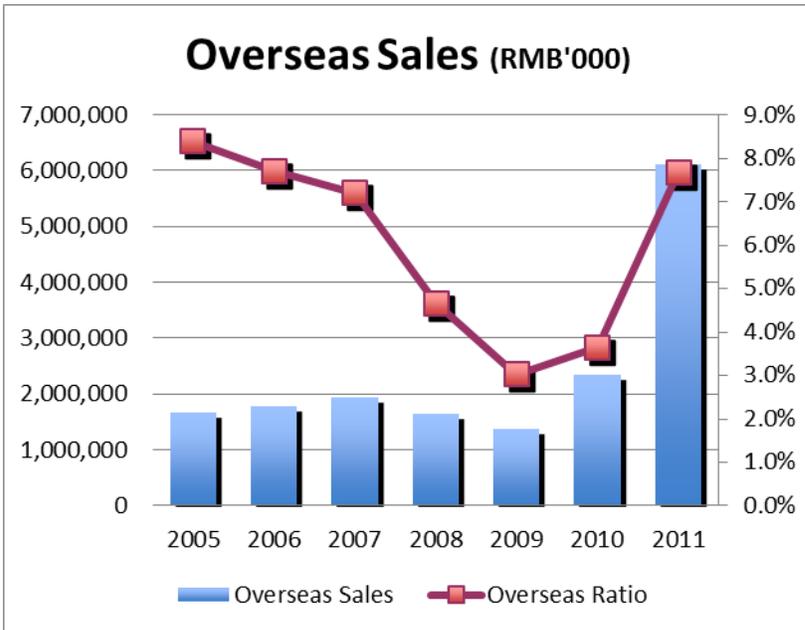


CSR has shown rapid growth but has relied heavily on contracts from the MOR.²⁰ CSR's revenue has increased by four times, from RMB 19,785 million in 2005 to RMB 79,517 million in 2011. CSR's revenue compound annual growth rate (CAGR) has been as high as 26.1 percent. The CAGR of the global railway car market between 2007 and 2015 is estimated to be 2.5 percent.²¹ And CSR's peers in other countries, such as Siemens, recorded only 5–6 percent revenue CAGR. CSR's growth has been astonishing.

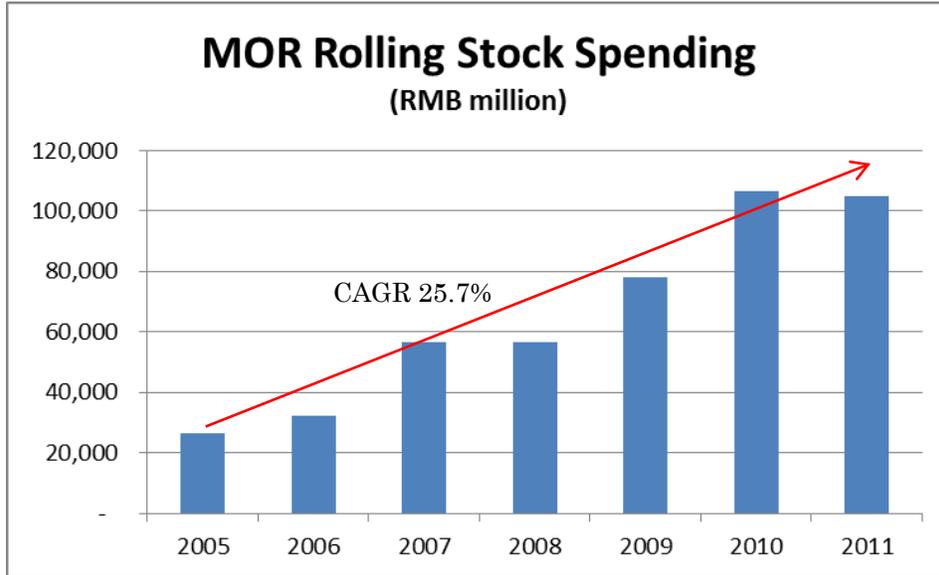
As of 2005, the “Big Three” in the rolling stock business—Bombardier, Alstom, and Siemens—made up 60 percent of total global rolling stock sales, with each of them having a share of approximately 20 percent. Japanese companies together had a 14 percent share, while Chinese companies together had 5 percent. However, as of 2009, the “Big Five” was formed by adding CSR and CNR to the Big Three. The Big Three did not report detailed segment information specifying rolling stock business and it is difficult to compare revenues among different currencies. According to annual reports, revenues for these companies in 2011 showed CNR at RMB 89,353 million or \$14 billion, CSR at RMB 79,516 million or \$12.5 billion, Bombardier Transport Section at C\$ 9.8 billion or \$9.6 billion, Siemens Mobility Section at €6,328 million or \$7.9 billion, and Alstom Rail Section at €5,168 million or \$6.51 billion. Revenue for all Japanese companies together was ¥600 billion.

²⁰ The figures in this section were obtained from CSR's Annual Report from 2008 to 2011 and CSR's Prospectus for IPO.

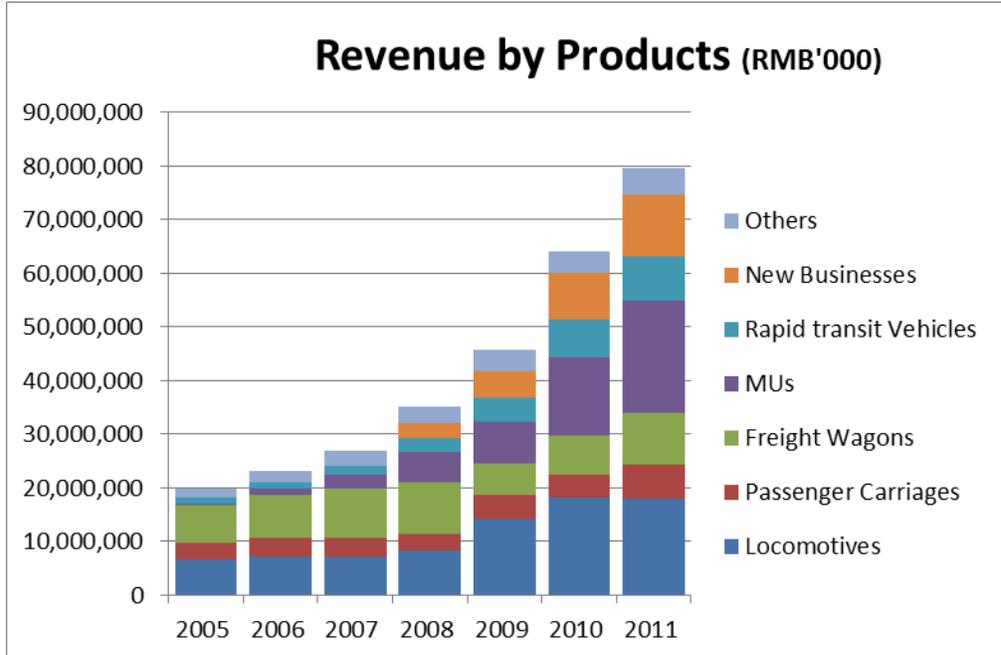
²¹ UNIFE World Rail Market Study Status Quo and Outlook 2020.



CSR's overseas sales jumped above RMB 6 billion in 2011, making up approximately 8 percent of total sales. Overseas sales in 2005 were 8.4 percent. Until 2010, CSR's overseas sales did not increase as CSR's total sales grew. CSR's overseas sales ratio decreased to 3 percent in 2009. Overseas sales in 2011 tripled in amount from those in 2010. Because the Big Three are multinational companies, it is difficult to calculate their overseas sales. However, compared with Japanese companies, which showed an overseas sales ratio of 23 percent, CSR's overseas sales have not been substantial. CNR reported an overseas sales ratio of more than 16.18 percent in 2011. CSR's overseas sales in 2005 were made up of passenger cars and freight wagons. In 2009, overseas sales dropped to 3 percent as CSR was busy with domestic sales of locomotives and MUs. Overseas sales in 2011 included locomotives and rapid transit vehicles in addition to passenger cars and freight wagons.



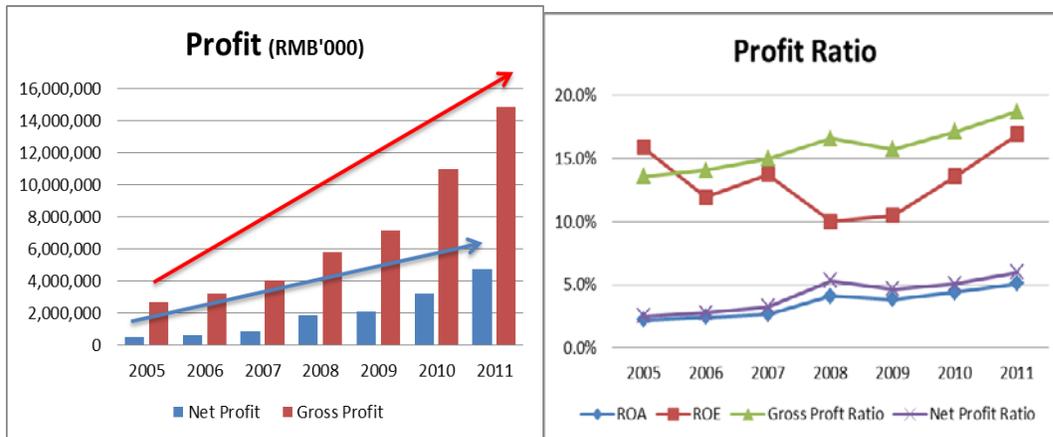
CSR's growth has relied heavily on the rapid expansion of the Chinese domestic market. Purchase of rolling stock by the China MOR increased by a CAGR of 25.7 percent from 2005 to 2011, which is nearly equal to the revenue CAGR of CSR for the same period. The share of MOR orders in CSR's revenue has decreased recently but was still 55.16 percent in 2011. Another 40 percent or less of CSR sales are to the transportation authorities of regional governments. CSR's revenue is mostly from the public sector within China. In 2005, CSR's major products were locomotives and freight wagons, while in 2011 revenue from locomotives and MUs grew as well as rapid transit vehicles and new business. CSR is shifting its production toward high-functional products.



CNR has shown growth similar to that which CSR has shown.²² CSR and CNR almost equally split the Chinese markets of each product. The Chinese market has not been opened to foreigners, so CSR and CNR have occupied the expanding market. CSR's rapid growth has been achieved through the expansion of the Chinese market created by the Chinese government and the oligopoly of the market implemented by the government.

²² CNR's Revenue and Profit were RMB 40,520 million and RMB 1,320 million in 2009, RMB 62,180 million and RMB 1,910 million in 2010 and RMB 89,356 million and RMB 2,990 million in 2011. Revenue CAGR for these three years was 48.5 percent, while Profit CAGR was 50.5 percent. These figures are much higher than CSR as CSR's Revenue CAGR was 32.0 percent and Profit CAGR was 29.7 percent. CNR's oversea sales ratio was 16.18 percent in 2011, which was almost double of CSR's.

Profitability



CSR has shown improvement in profitability but has not provided detailed information.

In 2011, CSR's gross profit had reached RMB 14,870 million and its net profit reached RMB 4,743 million. From 2005 to 2011, the CAGR of its gross profit was 33.0 percent while the CAGR of its net profit was 45.8 percent. A gross profit ratio of 18.7 percent and a net profit ratio of 6 percent (in 2011) were much beyond the industry average.²³ A 16.9 percent return on equity and a 5.1 percent return on assets (in 2011) show healthy financial standing. Between 2009 and 2011, CSR's net profit CAGR increased to 49.7 percent, while CSR's revenue CAGR was 32 percent. CSR has improved its profitability year by year.²⁴

There are several interesting points to note. Between 2005 and 2011, revenue CAGR (26.1 percent) and cost of sales CAGR (24.8 percent) were almost equivalent. As the details of costs were not disclosed, it is not clear how costs increased. However, CSR is unique among similar manufacturers. Rolling stock manufacturing is labor-intensive, but CSR's employees have been around 80,000 and have not increased as production has risen. In fact, manufacturing labor decreased. Staff costs in 2007 (wages, salaries, benefits, directors' remuneration, contributions to government pensions) were RMB 3,305 million, which was merely 14.5 percent of cost of sales. So an increase in wages might not explain enough. To increase production by four times requires a substantial investment in facilities. However, asset CAGR was 26.7 percent and property, plant and equipment CAGR was 18.1 percent. Depreciation or amortization from these assets might not explain the increase in the cost of sales. As CSR has adopted international financial reporting standards, CSR may depreciate its facility in very short terms compared to the facility's substantive use life. Another possibility is an

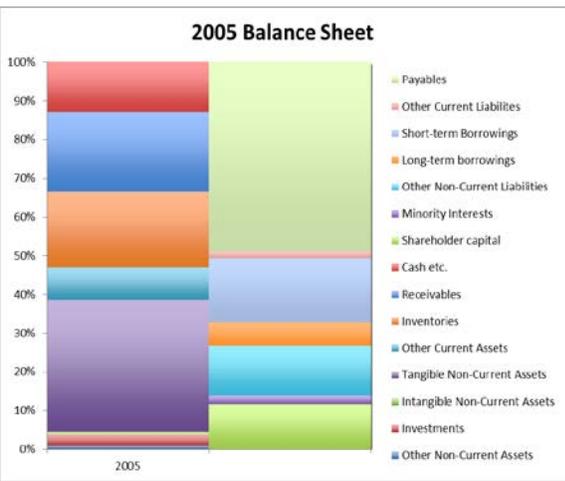
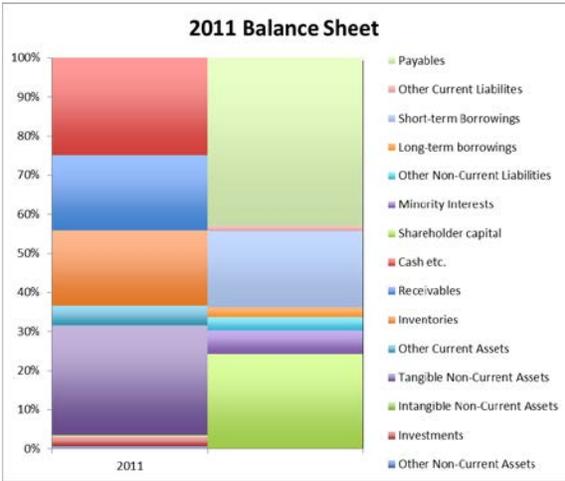
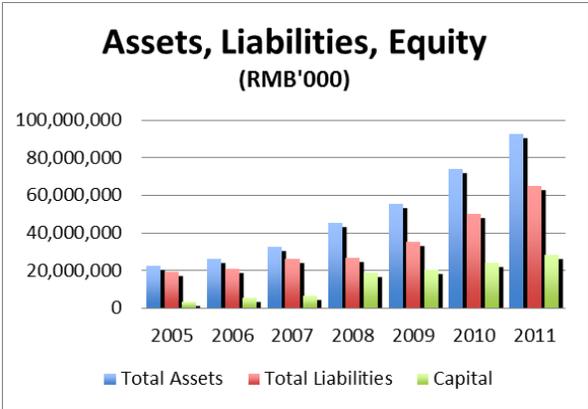
²³ Siemens set EBITDA margin of 8–12 percent as an industry benchmark but it got only 7.0 percent in 2011. CSR's EBITDA margin exceeded 25 percent, proving super high profitability.

²⁴ CNR showed 50.5 percent of net profit CAGR during the same period.

increase in material costs and an increase in outsourcing. However, rolling stock is usually made to order, and major components are ordered immediately after the conclusion of sales contracts. So an increase in material costs is not a risk to CSR. If accelerated depreciation measures are taken for fixed assets, CSR will be more competitive in the future.

Between 2009 and 2011, revenue CAGR was 49.7 percent, which is at the same level as that between 2005 and 2011 (45.8 percent). However, gross profit CAGR increased from 33.0 percent (2005–11) to 44 percent (2009–11). So, between 2005 and 2008, the cost of sales increased with revenue but indirect costs did not increase as much. Since 2009, productivity has increased in cost of sales. Revenue CAGR and net profit CAGR forCNR were almost the same during 2009 and 2011, so a decrease in cost of sales for CSR was not due to a decrease in the material cost of wages.

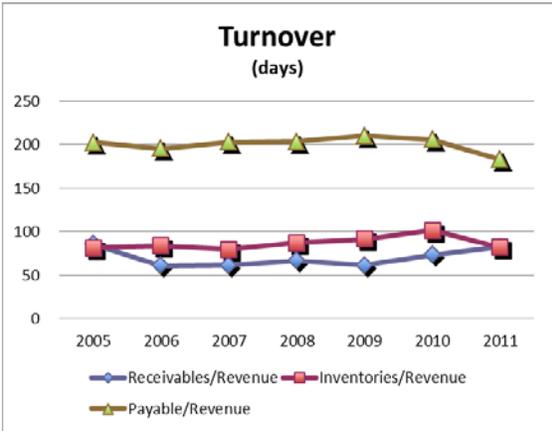
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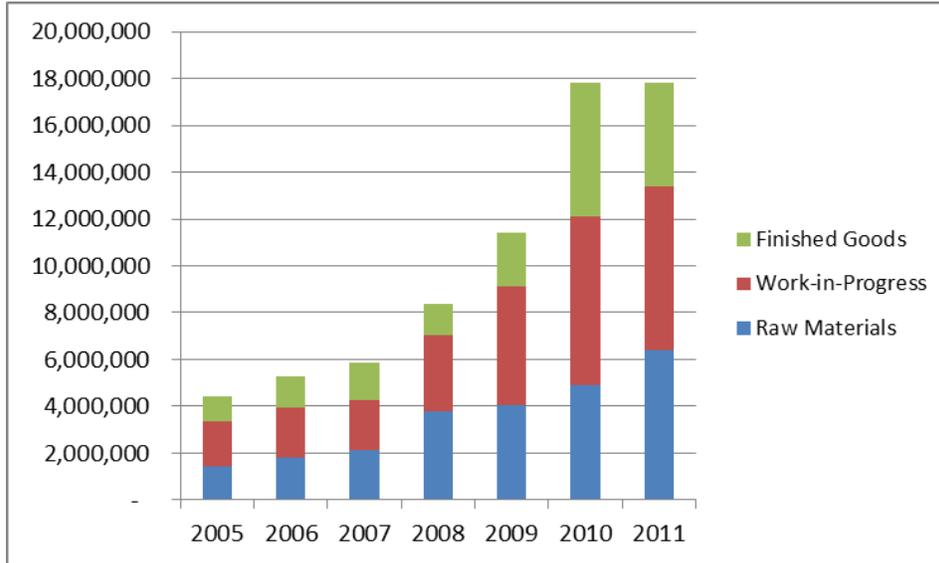
CSR’s cash position has shown some unique characteristics. CSR has been a cash-rich company but has also done a large amount of short-term borrowing. CSR might be borrowing money from banks and lending it to a third party. CSR may also be purchasing some financial products that are categorized as “cash equivalent.” Growth of inventory has become a burden to CSR’s operation, which can be optimized. CSR’s financial information would show much room for improvement if CSR were a purely private manufacturer.

CSR’s capital ratio as of the end of 2011 was 30.3 percent. Until CSR’s stock was listed on the Shanghai and Hong Kong stock exchanges in 2008, its capital ratio remained below 20 percent. However, with its capital increase, CSR has secured a strong financial base. As its balance sheet in 2011 was bigger than its real status, a 30 percent capital ratio is a very high level.

In 2011, right after the Wenzhou Accident, CSR had difficulty procuring funds from the market and was forced to procure funds through private placement with governments or government-affiliated financial institutions. CSR’s long-term bank loans were only RMB 2,325 million, but short-term bank loans were RMB 18,099 million.



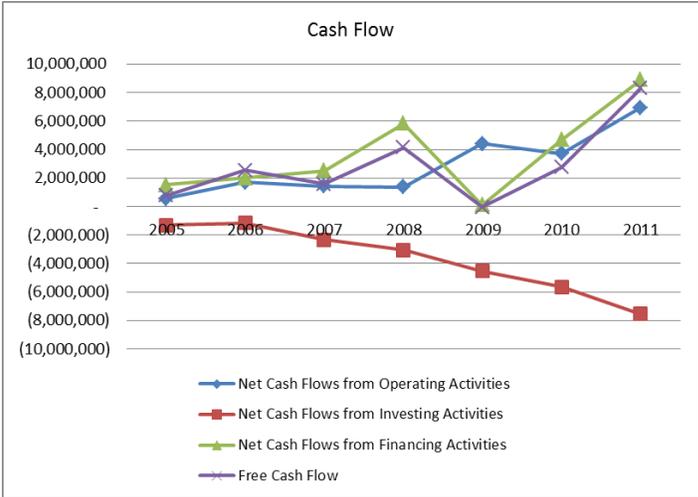
Receivables were RMB 17,890 million and payables were RMB 39,835 million in 2011. Turnover of receivables was 82 days and that of payables was 183 days. In Japan, payments within 60 days are legally required. CSR is in a strong position with its suppliers.



CSR's inventory was RMB 17,841 million in 2011, which means a turnover of 82 days. Inventory in 2011 consisted of 35.9 percent raw materials, 39.3 percent works in progress, and 24.8 percent completed products. It is worth noting that the ratio of completed products doubled in 2010 and 2011. Since rolling stock is made to order, this increase must be due to CSR's customers. With the increase of completed products, receivables had increased and the balance sheets expanded, and thus capital was frozen. Decrease of inventory will lead to a compressed balance sheet.

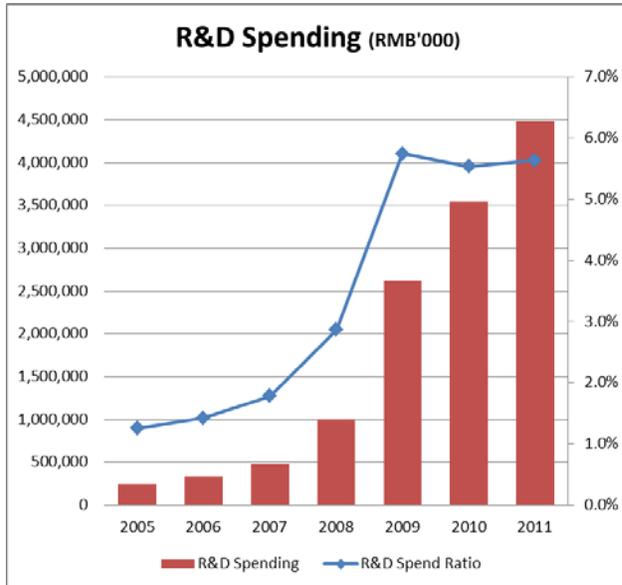
As of the end of 2011, CSR held cash and cash equivalents of RMB 23,092 million. So, the sum of cash and related liquid assets, receivables, and inventory balanced with the sum of payables and short-term bank loans. Liquidity was 107.5 percent, which is quite healthy. It is odd that CSR kept RMB 18 billion in short-term loans, paying 4–5 percent interest despite its cash-rich position. CSR explained an increase in cash and related liquid assets by RMB 9.2 billion and in short-term loans by RMB 12.2 billion as due to sudden related payments from customers at the end of the year. However, at the end of 2010, cash and related liquid assets was 5.8 billion and short-term borrowing was RMB 13.8 billion, which was large enough. CSR might be required to borrow a certain amount to keep commitment lines from financial institutions.

Free Cash Flow



CSR has enjoyed cash from finance retrieved from the difference of payment terms from customers and to suppliers. CSR’s free cash flow was RMB 8,295 million. Cash flow from operations was RMB 6,941 million, cash flow from investments was negative RMB 7,543 million, and cash flow from finance was RMB 8,897 million. The large positive cash flow from finance was produced by a difference between payables and receivables. If payment terms with suppliers become closer to that with customers, CSR’s cash flow would get worse.

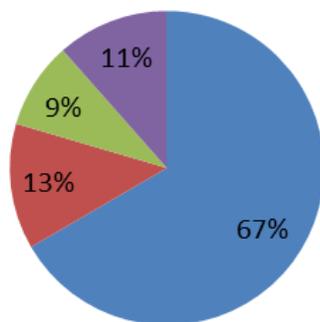
R&D Index



It is clear that CSR has spent more and more money on R&D. CSR spent RMB 4,500 million for R&D in 2011, which was 5.6 percent of its total revenue. This is a high level of spending. Siemens targeted R&D spending at 5 percent revenue but could not reach this goal. CSR has maintained more than 5.5 percent since 2009 while revenues have drastically increased. So CSR's R&D spending is a large amount.

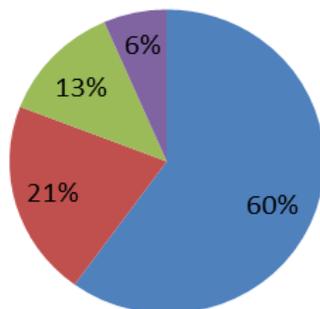
2008

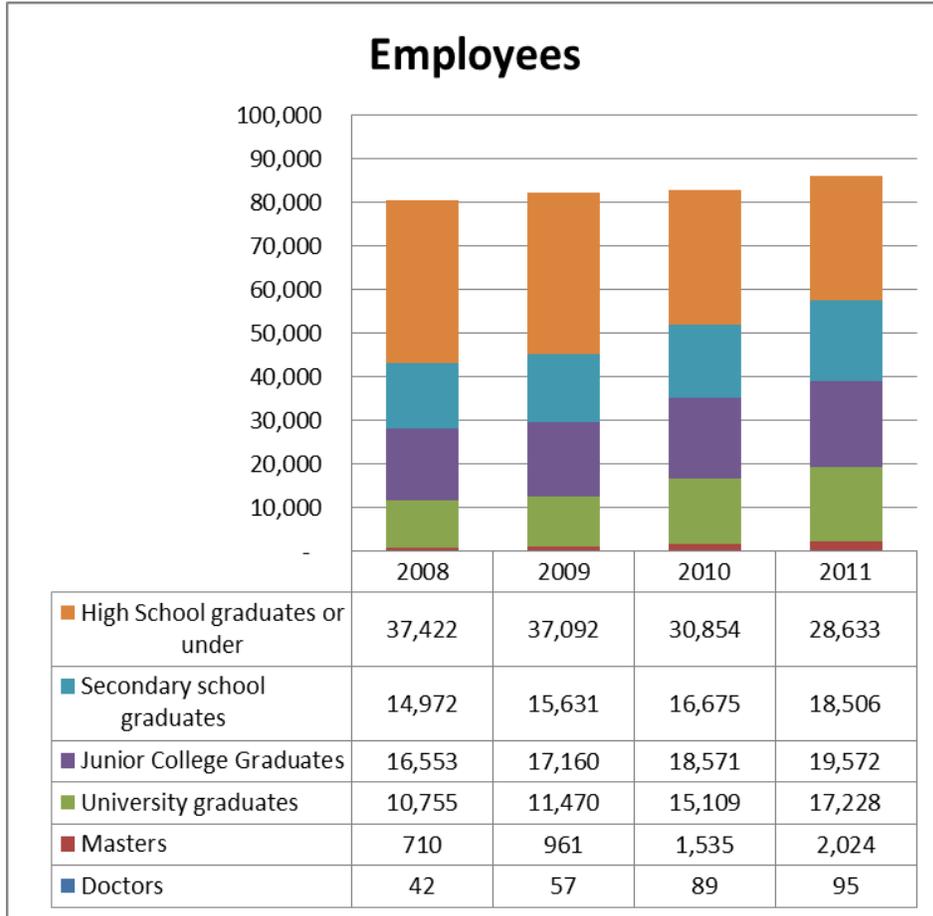
■ Production personnel ■ Engineering & Technical personnel
■ Operation & Management personnel ■ Other personnel



2011

■ Production personnel ■ Engineering & Technical personnel
■ Operation & Management personnel ■ Other personnel





Though the total number of CSR's employees has remained around 80,000 for the last four years, the number of engineers and highly educated employees has increased. The employees' quality has improved. CSR has enthusiastically worked with research institutions and universities in China. The number of CSR's patent applications has increased year by year. While it was 674 in 2008, it was 1,820 in 2011. The number of CSR's registered patents has increased from 464 to 1,308.

Competitive Advantages

China Market

CSR's growth and success has been achieved through the Chinese government's policies by which the large railway market and the oligopolistic industry were created.

China has implemented the State Railway Network Plan, whereby a huge domestic market has been suddenly created. China has implemented an industry policy, whereby domestic manufacturers have been fostered rather than imports. The railway industry is supported by broad industries such as civil, construction, heavy industries, signals, and communication systems, so China thinks it important to encourage domestic industries.

China limits the production of railway cars to CSR and CNR. China's MOR requires that 50 percent (for railway cars) to 75 percent (for electronic components) be Chinese products.²⁵ Foreign peers cannot enter into the market without surrendering their advanced technology and forming a joint venture with a Chinese company. Thus, foreign peers are, in fact, excluded from the huge Chinese market. As a result, CSR may enjoy a huge market secured by the government.

Sound development opportunities are being pursued. First, in a bid to align railway construction with the national economy and the pace of social development, the MOR will not cease to implement the "12th Five-Year Plan of China's Railway" (中國鐵路「十二五」規劃). Second, accelerating urbanization (particularly the rapid economic development in regions such as the Yangtze River Delta, the Pearl River Delta, the Bohai Bay Region, Chang-Zhu-Tan, and Cheng-Yu as well as city clusters in the central part of China, such as Wuhan Megalopolis, Guanzhong-Tianshui (關中-天水) and city clusters in the West Coast of the Straits) will bring robust growth to intracity and intercity transit systems, thereby giving fresh impetus to the rolling stock industry. Third, the state's sweeping effort to promote its energy saving and emission reduction strategies, alongside the ecofriendly features and environmental protection advantages of rail transportation and rapid transit, has reinforced the pivotal role of the industry in the national economy and will favor a sustainable and rapid expansion in the rolling stock manufacturing arena. Fourth, the state has established industry stimulus plans and a series of regional stimulus schemes, such as the Accelerating Adjustment and Stimulus Plan of the Rolling Stock Manufacturing Industry (《加快裝備製造業調整振興計劃》). Fifth, the State Council has promulgated the Decision on Accelerating the Cultivation and Development of Strategic New Industries (《關於加快培育和發展戰略性新興產業的決定》), with a view to advancing the improvement of strategic new industries at a faster pace. The principal businesses of CSR—that is, high-end rolling stock, complete wind power generating units, electricity-driven vehicles, and polymer materials—fall respectively within the seven major strategic new industries, namely, the industries of high-end equipment manufacturing, new energy, and new energy automobiles. Given an improving real economy, capacity expansion and industrial upgrades in vehicles, electricity generation, petroleum, and shipbuilding industries has led to an increase in the demand for high-quality machinery and electric products, which provides huge

²⁵ Requirements in the requests for proposals.

business potential for CSR's future development. Finally, as rolling stock industries in various countries around the world are either undergoing or will undergo a phase of renovation, the growing prominence of high-speed trains on the global stage and the improving competitiveness of increasingly advanced industrial chains in the domestic manufacturing sector will provide the rolling stock industry with a golden opportunity to "kick start" international operation."²⁶

Here it is useful to emphasize the growth potential in the Asia-Pacific region and beyond. The Trans-Asian Railway Network, already romantically dubbed the "Iron Silk Road," is the culmination of long and arduous efforts put forth by the United Nations Social and Economic Commission for Asia and the Pacific (ESCAP), a Bangkok-based UN organization. In 1959 ESCAP initiated a project to lay down a pan-Asian railway network. This is the revival of an idea to create modern infrastructure in the Eurasian region that dates back to Chinese prime minister Li Peng (1987–98), who declared during an official visit to Central Asia in 1994 that "it was important to open up a modern version of the Silk Road." Then, in September 2005 former U.S. president Bill Clinton, participating in a conference in Xinjiang, expressed his support for the Trans-Asian Railway Network to an audience of 50 CEOs of large companies. This mammoth and far-reaching project came a step closer to realization on November 10, 2006, with the signing of an agreement to implement the project by the representatives of 18 countries, evoking the trade caravans that linked Asia with Europe for almost a thousand years.

Cost Innovation

As the details of CSR's cost of sales are not disclosed, there is no measure to assess CSR's productivity. In the Chinese domestic market, there is no comparison with foreign peers in price. In the foreign market, CSR has submitted competitive, though not exceptional, prices. However, CSR executives explained that CSR's competitiveness exists not only in price but also in quick delivery. They said CSR's efficient facilities enabled much quicker delivery of products to customers, which was a large benefit to customers.

Technological Improvements

Inconsistent with the World Trade Organization's approach in the area of intellectual property, which was agreed to by the United States and China when China joined the organization, China has asked for technology transfer as an "entry ticket."²⁷ Foreign suppliers have surrendered the most modern technology with optimistic assumptions (as to speed, capability, and bargaining power). CSR could establish huge modern production capacity in a short period. This transfer of technology and know-how, together with the experience of building and operating several thousand route-kilometers of high-speed railways, will make China's one of the most advanced railway

²⁶ CSR Annual Report 2011.

²⁷ U.S.-China Bilateral Agreement 1999 Protocol Provisions.

industries in the world. This should position the country to compete internationally when other countries adopt high-speed railways.²⁸

The MOR now says “China has fully grasped the intellectual property rights of high-speed trains and possesses a world-class level of technology.”²⁹ China has applied for a total of 1,902 high-speed-railway-related patents since 2003, out of which 1,421 were approved and 481 are still being processed.³⁰ Chinese companies have also completely mastered nine critical technologies of high-speed trains such as assembly, bodies, bogies, traction transformers, and traction converters.

In support of China's high-speed train project, 25 national first-class key universities, 11 first-class research institutes, and 51 national-level laboratories and research centers have participated in R&D. A total of 63 academicians, over 500 professors, over 200 researchers, and over 10,000 technicians have participated in research, development, and production.³¹

Having transferred high-speed rail technology to state-backed groups in exchange for access to a vast market, multinationals find they have created their own low-cost competitors. The Chinese catch-up speed has been so fast that CSR has become a strong competitor. Foreign industry executives estimate that roughly 90 percent of the high-speed technology used in China is derived from partnerships or equipment developed by foreign companies.³²

Foreign companies are reluctant to go public with complaints not only because they fear being shut out of the market. They also have an eye on burgeoning opportunities to form partnerships with Chinese groups bidding on high-speed projects all over the world, from California to Russia, from Brazil to Burma. The experience of foreign rail companies in China is seen by many as ominous for industries from aviation and automobiles to information technology and green technology.³³

Government Support

CSR may receive traditional government support such as favorable tax treatment, grants, and equity. For export, the Chinese government has provided export credit to developing countries' railway projects in which CSR has participated. Some media reported that Chinese state-owned banks have provided preferable finance for Chinese SOEs' exports, but no financial terms were mentioned. Finance from China Ex-Im, China Development Bank, or the other state-owned banks are not bound by guidelines from the Organization for Economic Cooperation and Development. No “matching” case of competing Chinese finance was found. Also, as many of CSR's exports are combined in project exports, it is difficult to identify what finance is provided to rolling stock

²⁸ World Bank report, July 2010.

²⁹ *People's Daily Online*, June 30, 2011.

³⁰ *Ibid.*

³¹ *Ibid.*

³² *Financial Times*, March 16, 2010.

³³ *Financial Times*, September 23, 2010.

procurement. Foreign clients may evaluate the total cost of railway cars and finance as well as other support.

Government Procurement

Currently 95 percent of CSR's revenue comes from the domestic market. Contracts with the MOR made up 58 percent of CSR's revenue in 2010, although that share has been decreasing. The remaining revenue comes from regional transportation authorities, which are a sort of government procurement as well.³⁴ There is no competition with foreign peers and CSR may take half of the stake, sharing with CNR. Government procurement has created a large oligopolized market for CSR.

Government procurement has benefited CSR not only in terms of sales volume but also in performance. Generally, rolling stock is made to order and no inventory is kept. It is essential for a manufacturer to have orders constantly. The medium- and long-term Railway Network Plan by the MOR has given a concrete projection of future orders. CSR may have a more plausible business plan than foreign peers. CSR can invest in facilities as per the plan, synchronizing with the MOR's plan. CSR may also use accelerated depreciation for such facilities investments. The payment terms of these contracts may include down payment and milestone payments so that a manufacturer's financial burden can be mitigated. The payment terms from Chinese customers were more favorable than ordinary business, which might be a kind of financing support from the government.

CSR's Relationship with Japan and the United States

CSR has learned much from Japanese railway car and component manufacturers in areas ranging from production to engineering. CSR has also learned much from U.S. locomotive manufactures and components manufacturers. Though CSR said that it has digested such technology, some key components are still imported. Many of the parts that were coming from Japan have now been supplemented by parts made in China. However, the importing of railway products from Japan has grown rapidly, from \$100 million in 2006 to \$800 million in 2010, while no railway cars were imported.³⁵

CSR has formed joint ventures for rolling stock with Bombardier (Canada), Kawasaki Heavy Industries (Japan), and Mitsubishi Electrics. In early 2011, China argued that their high-speed railway cars were products using their own technology and applied for patents in connection with such technology in China and foreign countries. Industry executives in Japan quickly responded against this move.

³⁴ CSR Annual Report 2011.

³⁵ These statistics are from the Japan Overseas Rolling Stock Association.

Concerns

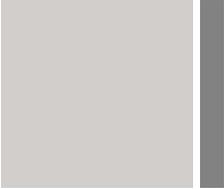
Sustainability of growth is questionable, especially for high-speed railways, due to a lack of feasibility and a restraint on spending. MOR's debt burden increased at an average rate of 42 percent between 2008 and 2010 due to massive railway construction, and has piled up to RMB 2.1 trillion (\$330 billion), 5 percent of gross domestic product and 28 percent of the central government's debt reported officially.³⁶ The debt-to-asset ratio is now at 58.5 percent. Markets have been concerned about MOR's debt-paying ability, especially after the train crash. In the past three years, revenue grew at average rate of 14 percent, far less than that of debt; profit was even more sluggish, with an average growth rate of 3.5 percent. The huge amount of existing debt, along with market concerns, has led to serious funding problems for MOR, in terms of both bank loans and bonds.

Conclusion

CSR's success shows how an SOE worked with the government to achieve competitiveness. Though the Chinese government may not control CSR's management, the government has a strong grip on CSR's operation. Government support was not in the form of traditional subsidies or tax exemptions; it was more structural and efficient.

The Chinese government has created a railway market. It is a huge public work designed to build social infrastructure and foster the Chinese economy. The government has controlled competition by allowing only CSR and CNR to do business in such a huge market. The government encouraged CSR to import the most updated technology from foreign peers. CSR could build an industry complex around it at high speed and with low risk. CSR could win large contracts constantly, as planned. Through securing planned orders, CSR could enjoy cash flow from favorable finance terms with customers and could use cash for its complex. CSR could invest in establishing huge facilities and depreciate in the short term. CSR's market risk, credit risk and inventory risk were much smaller than those of its foreign peers. The government's money is being distributed to the complex.

³⁶ See <http://ineteconomics.org/blog/china-seminar/china-ministry-railways-debt>.



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Masashi Adachi is a lawyer at Paul, Weiss, Rifkind, Wharton, and Garrison LLP in Tokyo. Before joining the firm, he worked as an executive assistant to a member of the Japanese House of Representatives. Prior to joining the representative's office, he worked for 17 years at a major Japanese trading company, including 7 years working abroad, where he had responsibility for a wide range of domestic and cross-border legal matters, including mergers and acquisitions, joint ventures, restructurings, project finance transactions, ship financings and securitization projects, as well as disputes resolved through litigation and arbitration. Mr. Adachi served as an editor of New York University's *Journal of International Law and Politics*.



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