

A REPORT OF THE CSIS HILLS
PROGRAM ON GOVERNANCE

China's Competitiveness

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

ANALYSIS AND POLICY IMPLICATIONS

January 2013

Author

Kiyooki Aburaki



50 | CHARTING
YEARS | OUR FUTURE

CSIS

CENTER FOR STRATEGIC &
INTERNATIONAL STUDIES

A REPORT OF THE CSIS HILLS
PROGRAM ON GOVERNANCE

China's Competitiveness

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

ANALYSIS AND POLICY IMPLICATIONS

January 2013

Author

Kiyooki Aburaki



50 | CHARTING
YEARS | OUR FUTURE

CSIS | CENTER FOR STRATEGIC &
INTERNATIONAL STUDIES

About CSIS—50th Anniversary Year

For 50 years, the Center for Strategic and International Studies (CSIS) has developed solutions to the world's greatest policy challenges. As we celebrate this milestone, CSIS scholars are developing strategic insights and bipartisan policy solutions to help decisionmakers chart a course toward a better world.

CSIS is a nonprofit organization headquartered in Washington, D.C. The Center's 220 full-time staff and large network of affiliated scholars conduct research and analysis and develop policy initiatives that look into the future and anticipate change.

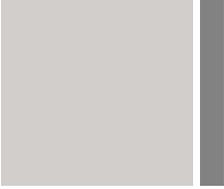
Founded at the height of the Cold War by David M. Abshire and Admiral Arleigh Burke, CSIS was dedicated to finding ways to sustain American prominence and prosperity as a force for good in the world. Since 1962, CSIS has become one of the world's preeminent international institutions focused on defense and security; regional stability; and transnational challenges ranging from energy and climate to global health and economic integration.

Former U.S. senator Sam Nunn has chaired the CSIS Board of Trustees since 1999. Former deputy secretary of defense John J. Hamre became the Center's president and chief executive officer in April 2000.

CSIS does not take specific policy positions; accordingly, all views expressed herein should be understood to be solely those of the author(s).

© 2013 by the Center for Strategic and International Studies. All rights reserved.

Center for Strategic and International Studies
1800 K Street, NW, Washington, DC 20006
Tel: (202) 887-0200
Fax: (202) 775-3199
Web: www.csis.org



ACKNOWLEDGMENTS

This paper is part of larger project entitled *China's Competitiveness: Myths, Realities, and Lessons for the United States and Japan*. This paper and related case studies include insights and recommendations gathered from working discussions held on February 7, 2012, at the Center for Strategic and International Studies in Washington, D.C., and on March 30, 2012, at the 21st Century Public Policy Institute in Tokyo. The project was jointly led by Kiyoo Aburaki of the 21st Century Public Policy Institute and Nathaniel Ahrens of the Center for Strategic and International Studies. Case studies and papers were presented by the authors and commented on and discussed by participants. The project directors wish to thank the following commissioners for their intellectual leadership, guidance, and active participation:

Masashi Adachi

21st Century Public Policy Institute

Nate Dalton

Affiliated Managers Group

Charles Freeman

Pepsico

Michael Green

Center for Strategic and International Studies

Kazumasa Kusaka

University of Tokyo

James Lewis

Center for Strategic and International Studies

Tomoo Marukawa

University of Tokyo

Ryoji Nakagawa

Ritsumeikan University

Daniel Rosen

Rhodium Group and Peterson Institute for International Economics

We would like to thank the Sasakawa Peace Foundation, whose generous support made this project possible. Thanks are also due to the 21st Century Public Policy Institute for hosting our discussions in Tokyo.

Special thanks are due to Charles Freeman, whose inspiration, ideas, and leadership led to the creation of this project. The authors would also like to thank a number of excellent research interns and support staff who provided invaluable input and help with the work and events over the course of this project: Paul Wozniak, Yangfan Sun, James Pearse, Nathan Harpainter, Adam Channer, and Maurice Robinson. Eri Hirano and Will Colson also provided a great deal of valuable support and guidance. James Dunton and Alison Bours were especially helpful in the editing and layout process. Andrew Gossett and Crystal Peavy were helpful on administration and management. Thanks are also due to the many interviewees in China, Japan, and the United States who provided helpful input and feedback.



ANALYSIS AND POLICY IMPLICATIONS

By Kiyooki Aburaki

Introduction

Over the past few decades, China's rapid economic transformation into a global manufacturing hub has attracted billions of dollars in foreign direct investment and lifted hundreds of millions of Chinese citizens out of poverty. The growth of the Chinese economy has been tremendous. In 2000, China's GDP was just a quarter of Japan's, but in 2010 China became the second-largest economy in the world. China's GDP was a little more than 10 percent of U.S. GDP in 2000 but reached 40 percent in 2010. A recent report of the U.S. National Intelligence Council projects that by 2030 China will replace the United States to become the largest economy in the world.¹

Starting with the production of low-value, labor-intensive goods, Chinese companies have gradually progressed up the value-added ladder. China has successfully utilized foreign technologies and become a strong competitor to many industries in developed countries. For example, Huawei is one of the most innovative telecommunications technology companies in the world, measured in terms of numbers of patents filed. And Lenovo is a world-leading Chinese PC company that successfully utilizes global research-and-development (R&D) networks. China's leadership is trying to upgrade Chinese capabilities for innovation; Beijing has set clear objectives to promote indigenous innovation with the recently approved 12th Five-Year Plan (2011–2015), which calls for bolder steps in reform and innovation.

The rise of China and the perceived relative decline of the U.S. and Japan cause a risk of strategic political miscalculation in Beijing, Washington, and Tokyo. Self-aggrandized competitiveness and future prospects of economic growth as well as strong nationalism serve as a basis of Chinese sentiments, policies, and actions. Based on this sentiment, the Chinese government sometimes makes unreasonable demands to the U.S. and Japan. One example is requirement for foreign information technology equipment manufacturers to disclose software source codes. This requirement is a condition to sell certain

¹ See <http://gt2030.com/>.

telecommunication products to Chinese government agencies and might lead to unintended leakages of proprietary intellectual property.

Conversely, the U.S. and Japan might overestimate Chinese strength and develop excessive fears of their own decline. According to a Pew Research Center opinion poll in 2011, more people in the U.S. (53 percent) see Chinese economic growth as a bad thing, while only 37 percent see it as a good one.² Another Pew survey, conducted in 2012, shows that 52 percent of Americans see the rise of China as a major threat to the U.S.³ In Japan, an *Asahi Shimbun* opinion poll conducted in September 2012 found that 54 percent of Japanese respondents say Chinese companies will have more influence, while only 40 percent say Japanese companies will.⁴

In the late 1980s, an era of U.S./Japan trade friction, an opinion poll in the U.S. showed that Japanese economic strength was a greater threat to the U.S. than Soviet military strength. The tensions between the U.S. and Japan, however, were manageable because these countries have alliance relations. But the U.S. and Japan do not have such relations with China. Political miscalculations between the three are likely to produce serious obstacles to the development of sound relationships.

Today, there is no need to explain how China is important to the U.S. and Japanese economies. At the same time, Chinese economic development, which is key to domestic political stability, is critically dependent upon relations with the U.S. and Japan. Chinese companies still rely on U.S. and Japanese companies for much of their innovative capabilities. Given India's rapid economic development, the future decline of the working-age population in China, and increasing Chinese domestic attention to the environment, there are many reasons for Chinese companies to strengthen their ties with U.S. and Japanese companies.

Today, the territorial dispute between Japan and China over the Senkaku/Diaoyu Islands has created tensions between China, Japan, and the United States. There is a huge risk that people might forget the win-win nature of U.S.-Japan-China relations when faced with tensions backed by strong nationalism. Disputes like this carry with them the risk that policymakers may lose sight of the mutual benefits of U.S.-Japan-China economic relations in the face of public sentiment.

² See <http://www.pewglobal.org/2011/07/13/china-seen-overtaking-us-as-global-superpower/>.

³ See <http://www.pewglobal.org/2012/09/18/u-s-public-experts-differ-on-china-policies/>.

⁴ "Nicchuu Kankei Fukamaru Mizo," *Asahi Shimbun*, September 24, 2012.

On one hand, it is imperative that the U.S. and Japan establish a better understanding of the true nature and scope of China's competitiveness in key technology areas, as well as the current state of China's economic competitiveness policies. On the other hand, China also needs to appropriately understand its reliance on U.S. and Japanese capabilities (e.g., foreign direct investment, technology and service trade, global business operation networks). These efforts could help the development of sound trilateral relations by promoting reasonable and pragmatic mutual understandings of others' technological competitiveness and could reduce the risk of political miscalculations among the three countries. Moreover, identifying relevant U.S. and Japanese policies or strategies to encourage China to integrate into liberal and open market economies could easily enlarge economic and trade opportunities for both China and the world.

From these points of view, U.S. and Japanese experts convened for roundtable discussions in Washington in February 2012, and in Tokyo in March 2012, under the auspices of the Center for Strategic and International Studies and the 21st Century Public Policy Institute. Our discussions covered (1) detailed case studies of the competitiveness of the major Chinese companies Huawei, Lenovo, Suntech Power, China South Locomotive and Rolling Stock, and Shanghai Automotive Industry; (2) an assessment of China's competitiveness policies; and (3) an examination of the Chinese policymaking process, which is extremely fragmented and includes many competing actors and groups.

This working paper represents the author's views and analyses, reacting to these discussions and relevant research. This paper also depends on the other working papers of this project, which include detailed explanations of how these major Chinese firms have developed and how government institutions have helped them to be innovative. This is not a summary of those findings, but rather a reaction to them. See the individual case studies for company-specific findings.

Sources of Chinese Industrial Success

The tremendous successes of Chinese industrial development can be described and analyzed by looking at the development of markets, technology, and trust in the reputation of Chinese manufacturing. Additionally, access to financial capital has served as a critical factor common to the three areas.

The Market

Robust demand in both the Chinese domestic market and in foreign markets has helped the development of Chinese industries. The Chinese domestic market has been protected for Chinese companies by various measures at various times, although foreign companies have gained substantial profits as openness has increased. At the same time, foreign markets and the multilateral trade system are also indispensable for

Chinese economic development. It is the markets in the U.S., Japan and Europe that have allowed China to become the “factory of the world.”

The domestic market. The Chinese domestic market is a big and rapidly growing *mass* market. This market has helped the development of all Chinese industries because the *mass* domestic market does not necessarily need state-of-the-art technologies and also because affordability is a key to be competitive there. For example, in its early days, Lenovo expanded its sales in China by focusing on low- or mid-range products. Even today the PC manufacturer’s strategic products for the Chinese market are mid-range products, which meet the demands of emerging Chinese middle-class consumers. Chinese brands of automobiles sold in China, which have around 40 percent of market share,⁵ are competitively priced although they largely lag behind world-leading auto brands in terms of quality, reliability, and efficiency.

Central and local government policies and actions have secured domestic markets for Chinese companies. For example, the world’s largest rolling stock market, which amounted to RMB 126 billion in 2011, has been created by the Chinese government.⁶ This market is divided between only two companies, China South Locomotive & Rolling Stock Corporation (CSR) and its counterpart in Northern China. In the case of Lenovo, one of the largest PC manufacturers in the world, 46 percent of its total sales depend on the Chinese market.⁷ The huge size of its sales is sustained largely by its vast sales networks, which were originally developed with protective government policy support.

Foreign markets. China has achieved its rapid economic growth by successfully catering to foreign demand. This export-led growth has been possible only when foreign countries welcome China-made products under the multilateral free trade system and foreign-affiliated companies use their facilities in China as export bases. More than half of Chinese exports are by foreign firms.⁸

Today Chinese exports account for nearly 40 percent of China’s total GDP.⁹ This level of reliance is much higher than that of the U.S. (13.8 percent)¹⁰ and Japan (15.19 percent).¹¹ An obvious example of Chinese

⁵ “BBVA Automobile Market Outlook,”

http://www.bbva-research.com/KETD/fbin/mult/120619_China_Automobile_Outlook_EN_Edi_tcm348-334127.pdf?ts=7122012.

⁶ See <http://www.researchinchina.com/Htmls/Report/2011/6112.html>.

⁷ See http://www.lenovo.com/ww/lenovo/pdf/report/E_099220120531d.pdf.

⁸ See <http://www.recordchina.co.jp/group.php?groupid=67286>.

⁹ See <http://www.tradingeconomics.com/china/exports>.

reliance on foreign markets is the solar panel industry. The rapid rise of Suntech Power and other Chinese solar panel manufacturers can be attributed wholly to foreign demand, mainly in Europe, while the Chinese domestic market has been negligible.

Recently, Chinese foreign policy toward developing and emerging market countries has served as an important tool for expanding Chinese businesses there. For example, Chinese official development assistance to develop telecommunication infrastructure helped establish and secure Huawei's markets in Asia, Africa, and the Middle East.¹² While North America only accounts for 4 percent of its total sales,¹³ Huawei's heavy dependence on domestic and developing countries' markets has significantly contributed to the expansion of its global sales and has enabled it to surpass Ericsson, the Swedish telecom giant.

Technology

Technology is a source of economic development. The history of China's successful economic development can be summarized vis-à-vis its effective strategies to facilitate technology transfer from foreign firms. In the post-World War II era, technology transfer to China was initiated by the Soviet Union, which aimed to strengthen bilateral ties during the Cold War. However, it was the West, not the East, that brought the technologies and investments that made Chinese economic development possible.

Requirements to do business in China. Until the beginning of the 1990s, when China became recognized as an economic giant, Western companies generously provided technological assistance. With China's growing importance, however, CEOs of top Japanese companies recognized their need to contribute to the modernization of Chinese society. For example, immediately after the normalization of bilateral relations in 1972, Yoshihiro Inayama of Nippon Steel initiated technological assistance to Wuhan Iron and Steel. He also exercised his leadership to provide assistance for the establishment of Baosteel in Shanghai. Konosuke Matsushita, a founder of Panasonic, reached an agreement with Deng Xiaoping in 1978 to create the TV tube manufacturing business in China.

By the beginning of the 1990s, many foreign companies had come to recognize the potential of the Chinese market. The Chinese government required foreign investors in various industries to create joint

¹⁰ See <http://trade.gov/press/press-releases/2012/export-factsheet-february2012-021012.pdf>.

¹¹ See <http://www.tradingeconomics.com/japan/exports-of-goods-and-services-percent-of-gdp-wb-data.html>.

¹² See http://www.uscc.gov/researchpapers/2011/9_1_percent202011_ChinasForeignAssistanceinReview.pdf.

¹³ See <http://www.nikkei.com/article/DGKDZO47304260W2A011C1FF2000/>.

ventures (JVs) with Chinese domestic companies or to make green field investments if they wanted to sell their products in China.

These kinds of restrictions are popular among developing countries, but no other country has been as successful as China in implementing them. For example, almost all world-leading auto companies from the U.S., Japan, and the European Union have JVs with their Chinese partners. In 2011, Chinese production of cars and trucks exceeded 18 million,¹⁴ 2.1 times U.S. domestic production and 2.2 times that of Japan. By utilizing Shinkansen (Bullet Train) technologies from Japan, CSR has developed its own high-speed railways. Although the exterior design of the Chinese bullet trains is identical to Japanese models, a Chinese engineer from CSR Sifang's Technology Development Center says that the company adapted all the Japanese technologies and that the interiors of the trains are "completely different." According to the Chinese account, Kawasaki Heavy Industries sold 60 eight-car train sets to China and received RMB 140 billion (\$1.6 billion). This exchange provided an opportunity for CSR to adapt all the technologies required to manufacture bullet trains.¹⁵

Acquisitions of foreign capital equipment and companies. Technology transfer is not the only way for China to access foreign advanced technologies. For instance, purchasing foreign capital equipment, in which advanced manufacturing technologies are embedded, helped Suntech Power become the world's largest solar panel manufacturer. Machine tools are the key to manufacturing the semiconductors—especially ones that are to some extent advance—used in solar modules.

Acquiring such capital equipment required huge amounts of money from Chinese solar panel manufacturers. In 2010, they purchased machine tools from U.S. "turnkey" business companies, such as Applied Materials. This investment, which was large enough to cause a \$240 million Chinese deficit in solar-panel-related trade with the U.S.,¹⁶ was rather reasonable because Chinese solar panel manufacturers obtained an overwhelming global market share as a result.

Another way in which Suntech Power accesses advanced technologies is through the acquisition of foreign companies. A Japanese company, MSK Corporation, was the first foreign company purchased by Suntech; it spent \$107 million in 2006 to acquire one-third of MSK's shares. The remaining shares were acquired through the issuance of Suntech's shares as consideration. MSK helped Suntech build integrated

¹⁴ See <http://oica.net/category/production-statistics/>.

¹⁵ See <http://www.ft.com/intl/cms/s/0/60da2222-8ab5-11df-8e17-00144feab49a.html#axzz2DF5htZ1J>.

¹⁶ See <http://www.seia.org/research-resources/us-solar-energy-trade-assessment-2011>.

photovoltaic (BIPV) system technologies. Suntech Power CEO Zhengrong Shi stated that “since we acquired MSK in August 2006, we have quickly moved to capture the nascent demand for BIPV systems.” With growing governmental subsidies, mainly in France, Germany, and Italy, “we are gaining significant traction and building a strong pipeline of project[s],” including a 4.5 megawatt roof-integrated solar system project in Alsace, France.¹⁷

Mergers and acquisitions is a strategic tool for Lenovo, too. It is unlikely that the PC manufacturer could have obtained its current position in the world market without the successful \$1.25 billion purchase of IBM’s PC division in 2004. Today, Lenovo utilizes a global triad of R&D facilities in Research Triangle, North Carolina, at Yamato in the Tokyo area, and in Beijing to develop new products. There are clear divisions of labor among the three. Based on IBM’s legacy of ThinkPad development, the R&D center in the U.S. focuses on computer architecture research and the Japanese center does advanced designs for new electric devices while downstream R&D is conducted at the firm’s Beijing R&D center.¹⁸

Reputation and Trust

Generally speaking, consumers in developed countries once viewed made-in-China products as cheap and of low quality, but this view is fading. Two factors have helped change this perception. The first is that strong brands from world-famous companies, such as Apple and Sony, use China to manufacture and assemble their products for the world market. A supply chain base that can support global technology leaders benefits Chinese brands as they take advantage of the technology and human capital that have been developed. The second factor is the improved capacities of Chinese companies themselves, which have successfully internalized foreign technological competences.

High quality and high technology. Consumers around the globe understand that personal computers (PCs) made in China are high-quality and high-performance products as long as they have world-famous companies’ logos and high-spec components inside. Many feel that made-in-China products with Apple logos, such as iPads or iPhones, are advanced and filled with attractiveness.

Certainly the globalization of business activities, a norm in the twenty-first century, has significantly contributed to the image of made-in-China products. Unlike the trust in the quality of made-In-Japan products, which was gained by the Japanese in the late 1970s and early 1980s, Chinese domestic efforts alone might not have been able to make such great advances in a short period.

¹⁷ See <http://ir.suntech-power.com/phoenix.zhtml?c=192654&p=irol-newsArticle&ID=1165274&highlight=>.

¹⁸ Author’s interview, July 2012.

Having said this, Chinese companies have been steadily obtaining the trust of worldwide markets. One important strategy shared by these Chinese firms is that they all promote their reliance on external technology and expertise. As stated above, Lenovo's PC business is based on the IBM ThinkPad's solid credibility and Japanese expertise in designing electric components.

For Huawei, interactions with U.S. and Japanese firms and researchers are numerous and continue to be important for keeping and upgrading its position in high-technology competition. The evidence for this is its history of R&D activities in Silicon Valley, starting in 2002.¹⁹ Huawei's research facility there is now larger than many Japanese electronics companies' facilities there.

Low costs. According to a report published by Morgan Stanley in July 2012, the profitability of Chinese companies exporting to the U.S. has decreased about 5 percent annually since 2004.²⁰ The report concludes that this phenomenon is a result of rising personnel expenditures, which are higher than productivity growth, and the recent appreciation of the Chinese renminbi (RMB).

Chinese price competitiveness, however, seems to have begun an evolution from unskilled to skilled laborers. Huawei uses low-cost Chinese engineers to customize its products, which distinguishes its products and services from those of its U.S. and Japanese competitors. Lenovo uses these engineers for downstream R&D, while research on PC architecture and component design is conducted in the U.S. and Japan. CSR could show competitive price tags on its bullet trains because Chinese engineers can utilize Japanese Shinkansen technologies.

This evolution of price competitiveness is required for Chinese industries to stay competitive in the global economy because future rises in personnel expenditures and currency values will inevitably reduce traditional Chinese price competitiveness and because other emerging market and developing countries are trying to follow the successful path taken by China.

Chinese companies, therefore, need to develop strategically and utilize global networks of business operations in order to improve their price competitiveness. Some companies have reacted to these needs. Huawei has set up R&D centers in 23 locations globally, including in Helsinki, just down the road from

¹⁹ See http://www.huawei.com/us/about-huawei/newsroom/press-release/hw-u_103584.htm.

²⁰ See http://www.morganstanleymufg.com/economicforum/gma/docs/gma_120730.pdf.

Nokia. CSR also has plans to set up overseas production facilities in Malaysia, which will enable the company to expand business there.²¹

Access to Financial Capital

It is safe to say that, from the perspective of U.S. and Japanese companies, one of the most important features of Chinese “state capitalism” is access to financial capital. What really made it possible for Suntech Power to suddenly become the world’s largest solar panel manufacturer was its access to financial capital so that it could purchase advanced machine tools from abroad. And its ability to rapidly scale up the production of relatively commoditized silicon modules was largely backed by Chinese central and local governments.²²

In addition to R&D subsidies and procurement from the government, the extensive buyer credits provided by Chinese banks have made a huge difference for Huawei. In 1998, 45 percent of the credit extended by the China Construction Bank (CCB) was for Huawei’s buyers’ credit. Recently, the China Development Bank (CDB) provided a \$30 billion credit line for Tele Norte in Brazil. The size of these governmental buyers’ credits goes far beyond similar assistance given by in the U.S. and Japan.²³

Suntech Power and Huawei are not exceptions. Chinese companies generally enjoy unparalleled access to capital. The aforementioned RMB 140 billion (\$1.6 billion) deal for Kawasaki Heavy Industries, which was financed by the Chinese government, provided CSR with what it needed to learn and digest Shinkan technologies. Huge investments to meet the rapidly rising demands in the Chinese automobile market would have never been possible without equally huge financial commitments from central and local governments in China.

Lenovo seems to be unique in this sense. The company had a syndicated loan led by BNP Paribas to purchase IBM’s PC division. Although the firm’s shares are owned by the Chinese government, Beijing did not agree to provide financial resources to purchase a part of the American company.²⁴ Lenovo was forced to find private investors to complete the purchase. Fortunately, its Hong Kong operation found financial institutions that were willing to put together the syndicated loan. They acknowledged the

²¹ See http://www.chinadaily.com.cn/bizchina/2012-07/19/content_15600988.htm.

²² For the details, see the Suntech Power Case Study.

²³ For details, see the Huawei Case Study.

²⁴ Author’s interview with Lenovo executives, July 2012.

potential for the Chinese firm to make profitable the IBM PC division, which had produced a \$100 million loss in 2003.

Risks for Chinese Economic Development

Strengths and weakness can coexist, as the history of the semiconductor industry illustrates. The rise and fall of the U.S. semiconductor industry in the 1980s tells us that strength of innovation and the dynamism of high-technology start-ups will not necessarily lead to strong manufacturing technologies. Japanese institutions, such as the tradition of close manufacturer-supplier relations, boosted the level of manufacturing technologies in the late 1980s. The Japanese competitiveness in the semiconductor industry, however, were largely lost in the mid-1990s, when Japanese equipment manufacturers successfully incorporated state-of-the-art processing capabilities into their products and made them available to South Korean and Taiwanese companies—even though Japanese semiconductor manufacturers are leading the development of processing capabilities in the industry.

In the case of Chinese industries, strength and weakness coexist like two sides of the same coin. We can find risks to Chinese technological competitiveness and economic development just behind Chinese industrial successes.

Strengths of the Chinese Innovation System

National innovation systems. The national innovation systems represent the general character of technological strengths and weaknesses produced by the interaction between domestic players in innovation, such as companies, universities, government agencies, and consumers. In the twenty-first century globalized economy, national innovation systems certainly exist and are more influential in giving direction to innovations taking place within national borders.

The United States' innovation capability includes unrivaled strength in science-based technological competitiveness, for example, in the pharmaceutical industry. Also, the success and dynamism of Silicon Valley and Route 128 are not found anywhere else in the world. On the other hand, Japanese innovation is well characterized by its dedication to manufacturing. This has only been possible with close collaboration among assemblers, suppliers, and even customers. Japan's history of successfully commercializing new technologies, such as hybrid engines and home video equipment, is a product of the Japanese innovation system.

For many U.S. and Japanese firms, their global strategies are based on the comparative advantages produced by their national innovation systems. The less evident national economic borders are, the more

important nations' comparative advantages become. Chinese companies and the Chinese national economy are no exceptions.

The nature of the Chinese national innovation system. The sources of Chinese industrial success, which have been described above, can be viewed as the strengths of the Chinese innovation system and can be analyzed in terms of three factors: the market, technology, and competition.

The domestic market has the power to set directions for innovation and serves as a basis for domestic companies' comparative advantages. In China, big and rapidly-growing *mass* domestic markets play this role, and successful Chinese companies target *mass* markets both within and outside their national borders. Lenovo and Huawei emphasize innovation for mid- and lower-range products and achieve successful results globally. In the case of Suntech Power, its competitively priced, mid-range products took the largest market share in Europe. SAIC cars sold in China are categorized as mid-range and do not directly compete with European, American and Japanese luxury brands.

CSR could be an exception, because the firm supplies "high-end" bullet trains for Chinese domestic market. Yet the majority of its revenue in 2011 came from sales of its traditional products, such as locomotives and freight wagons. Sales of high-speed vehicles represented only 10 percent of its revenue.

The Chinese innovation system is equipped with "machines" that encourage foreign companies to transfer their technological information. A financial incentive is a tool to this end. The transfer of Shinkansen technologies to CSR is a good example. Also, the huge amount of capital available to Suntech Power enables the firm to use the advanced manufacturing technologies of foreign companies.

Access to Chinese markets certainly serves as another incentive for foreign firms to transfer technologies. JV requirements in the automobile industry guarantee that Chinese companies have opportunities to learn many things from world-leading automakers. Although the Chinese automobile industry is not in a position to compete directly with its U.S., Japanese, and European counterparts, its production and sales are already of world-class size. In this sense, the JV restrictions have been a great success in creating a large automobile manufacturing infrastructure, which could serve as a base for future industrial competitiveness.

The Chinese innovation system also has mechanisms for technological diffusion. The labor market has key functions for this. Technologies can be disseminated by Chinese engineers who switch jobs during their careers from foreign firms' subsidiaries in China to Chinese firms. Though this may lead to litigation between Chinese personnel and foreign firms, the liquidity serves as a base for dynamism in Chinese

entrepreneurship. Also, Chinese companies are eager to invite competent researchers and engineers from outside the country. Huawei's expanding R&D facility in Silicon Valley is a good example. Huawei's subsidiary in Japan, which was established in 2005, has R&D functions, and ex-Hitachi and NEC researchers and engineers have played important roles there. A senior executive of a Japanese telecom company stated, "Huawei is successfully catching up with Japanese firms by using newly hired competent Japanese engineers."²⁵

In terms of competition, the Chinese innovation system has two faces; one is an openness to invite investments and technologies from abroad, and the other is opacity, which enables central and local governments to protect indigenous industrial development. Fierce and managed competition coexists in one industry. For example, Chinese auto manufacturers compete with each other for a larger share of the biggest auto market in the world. At the same time, their rivalries with foreign auto manufacturers are completely managed because of JV restrictions.

Chinese central and local governments pay close attention to Chinese companies' positions in their competition against foreign investors. Some foreign firms have complained that the Chinese authorities have modified relevant laws and regulations without sufficient notice. Foreign firms claim that these modifications are intended to create advantageous situations for Chinese companies when foreign companies' sales in the Chinese market grow beyond a certain level.²⁶

Risks of the Chinese Innovation System

Overcapacity. The Chinese innovation system contains a risk of possibly causing overcapacity. The risk could be actualized in three types of circumstances. First, if strong political assistance to industries, including unparalleled access to financial capital, could not flexibly adjust to economic reality, Chinese industries could face overcapacity. For example, the Chinese automobile industry is now facing the risk of overcapacity. According to an Alix Partners' report published in September 2012, the average operating ratio of automobile companies in China decreased from 85 percent in 2010 to 70 percent today.²⁷ The risk of overcapacity is more serious for independent Chinese national companies than for large JV companies. The operating ratios of 16 of 30 national companies are below 75 or 80 percent, the industrial breakeven point. On the other hand, only one of 19 JV companies has such a low operating ratio. Considering the stable growth of new car sales in China, which increased by 3.6 percent from January to October 2012 as

²⁵ See http://www.nikkei.com/article/DGXNASDD200FK_Q2A920C1TJ0000/.

²⁶ Author's interviews, July 2012.

²⁷ Appeared in *People's Daily*, September 11, 2012, <http://www.recordchina.co.jp/group.php?groupid=64572>.

compared with the same period the previous year, the report suggests that the overcapacity of Chinese industry is more serious than it looks.

Because of the automobile industry's strategic importance for economic development, the Chinese state governments have provided various measures, including financial assistance. Given their rivalry over regional economic growth, an adjustment of production capacities could not be their primary concern.

Second, Chinese industries could face overcapacity if the Chinese government were to give its social goals priority over companies' management conditions. CSR might be an example of this. After the world financial crisis in 2008, CSR expanded its production capacity using government money. Today, CSR can produce 2,000 cars annually for high-speed railways. It would need only five years to reach the total number of cars produced by Japanese manufacturers for Shinkansen since 1964. More interestingly, the dramatic increase in production resulted in more excess stock. In 2010, CSR's excess stock amounted to RMB 18 billion, an RMB 6 billion increase from 2009. In China, an RMB 4 trillion economic stimulus package was executed to alleviate the difficulties associated with the 2008 world financial crisis. Public works spending, especially railway development, was the major policy used to revive the Chinese economy. Huge increases in CSR's production and capacity, therefore, could be explained as the result of the governmental economic stimulus measure, not of increased domestic demand for CSR products.

Third, Chinese industries could face overcapacity if one of the most important premises of the Chinese innovation system is found to be unsound: that markets will continue to grow rapidly. The solar panel industry is a good example of this. Despite recent governmental efforts, its domestic market is still negligible. Therefore, when the recent European credit crisis deprived countries like Spain and Italy of the financial capabilities to provide subsidies for laying solar panels, Chinese firms faced a very serious problem of overcapacity. Though the Chinese industry expanded its exports to other countries—such as the U.S., where Chinese companies became subject to antidumping lawsuits—so far this has not been a solution. In the case of Suntech Power, it faces a difficult situation to repay a convertible bond of over \$500 million by March 2013.

For Huawei, overcapacity has not been a serious problem, but it may become one in the future because its overseas sales expansion might have a glass ceiling. Huawei's operational profit in the first half of 2012 was RMB 8.8 billion, a 22 percent decrease compared with the same period the previous year. This result mirrors structural problems that the Chinese telecom industry faces; dropping demand in foreign countries, especially in emerging market economies; and friction with the U.S. and other developed countries that disqualifies Chinese firms from government-sponsored telecommunication infrastructure projects in these countries.

In the U.S., security concerns have been raised about Huawei, claiming that, because Ren Zhengfei, the founder of the company, was an engineer for the People's Liberation Army, unauthorized access by the Chinese government and the People's Liberation Army could be possible through Huawei-made telecommunication equipment. It is said that there may be links to China's intelligence agencies. In October 2012, a report of the U.S. House Intelligence Committee panel designated Huawei as a "national security threat" and proposed that the company be excluded from doing business with the U.S. government.²⁸ Similar concerns have also been raised in Canada and Australia.

The Japanese are friendlier to Huawei, and no security concerns about Chinese-made telecom equipment have received political attention in Japan. Rather, Huawei's sales there will show a 60 percent increase in 2012 from the previous year and reach \$10 billion. Huawei launched cloud data services for Japanese companies in 2011.²⁹ Some Japanese businesses have provided guarantees for Huawei's products. NTT DoCoMo, the largest wireless company in Japan, has added Huawei-made smartphones to its lineup. No strong public concerns have been reported.

Lenovo seems to be in an exceptional position regarding overcapacity. Despite the rise of tablets and smartphones, a major cause of HP's recent deficit, Lenovo's net profit increased 13 percent in the third quarter of 2012. Its sales in China expanded 20 percent, while its sales in Europe, the Middle East, and Africa also expanded 10 percent in each of these markets. Half of Lenovo's sales come from China and the other half from other countries. This structure, which is different from the sales structures of the other Chinese companies covered in our case studies, keeps Lenovo from worrying about overcapacity.

Less incentive to be innovative. As previously mentioned, Chinese innovation has several "machines" that can help technological advancement. These government supports may have side effects as well.

In the case of SAIC, which is quite successful in terms of scale, the company is less successful in terms of internalizing technologies and developing its own brands. Although JV restrictions on the auto industry secure technology transfers from foreign investors, internalizing transferred technologies is not easy. Large amounts of human capital and other intangibles are necessary for understanding advanced technologies and utilizing them to create one's own innovations. (For this reason, many do not believe that CSR developed high-speed railways that are "totally different" from the Japanese Shinkansen.)

²⁸ See http://www.nytimes.com/2012/10/09/us/us-panel-calls-huawei-and-zte-national-security-threat.html?_r=0.

²⁹ See http://www.nikkei.com/article/DGXNASDD200MO_Q2A920C1TJ0000/.

For SAIC, a real hurdle to developing its own innovation is not a restriction associated with intellectual property to prevent technological copying, but an absence of the pressing need to develop such innovation. This trap of technology transfers is frequently used to explain the Japanese defense industry's inability to compete on a global level. Although Japanese defense companies have, since the 1950s, learned key know-how from U.S. defense industries by licensing defense equipment, these companies could not learn the "know-why," which was indispensable to developing their own defense technologies. Only independent trial-and-error efforts could help them develop an understanding of "know-why."

Are SAIC and the other JV companies caught in this trap? One indicator of the answer to this question is their R&D investment level. SAIC's R&D investment level is drastically lower than that of major foreign automobile companies. In 2011, SAIC spent 0.1 percent of its revenues on R&D, compared with Toyota's 3.8 percent and Ford's 3.9 percent. SAIC has likely realized that technology transfer via JV frameworks is not leading to sufficient internal capabilities. Its new strategy of technology acquisition (MG and Rover platforms) is also unlikely to propel it into direct competition with foreign brands. While this will allow SAIC to catch up to its current capabilities in some aspects, other major auto companies are looking 20 years ahead.

Having said this, SAIC's R&D strategies could be seen as a reasonable strategy for maximizing its profits. In the world's largest and fastest-growing automobile market, which SAIC must protect from its foreign and domestic rivals, the company might prioritize the speedy introduction of new but borrowed technologies and new products rather than developing innovations. Although SAIC's level of R&D is lower than the industrial standard, and despite SAIC's less-than-cutting-edge technological acquisition, SAIC is efficient enough to attract the Chinese customer.

This could also be true of globally successful Chinese companies like Lenovo and Huawei. In their industries, where modularization is highly advanced, important innovations are taking place somewhere in the world and, for anybody, strategic reliance on others' innovation is a key to being competitive. Therefore, the Chinese companies and their foreign rivals are searching for external sources of competitiveness. Lenovo and Huawei do not need to be sources of truly innovative technologies, but they must be better at strategically utilizing others' technological capabilities. In other words, if these Chinese companies spend their huge financial and human resources to produce truly innovative and indigenous technologies, this corporate decision could show sharp contradictions with the clear needs of the rapidly-growing *mass* markets in China.

Insufficient trust in Chinese corporate governance. As stated above, openness and opacity coexist in the Chinese market. If this balance breaks down, the landscape of the Chinese economy could be greatly transformed.

Recently, a *Nikkei Shimbun* article concluded that a major cause of emerging friction between Chinese companies and U.S. and European governments lies in Chinese companies' unique corporate governance.³⁰ Citing a statement from a top executive of the China National Offshore Oil Corporation (CNOOC), which prioritizes the Communist Party of China (CPC) among various stakeholders of the firm, the article concludes that the party's control over business entities creates a "black box" of corporate decisionmaking and causes serious concerns about the expansion of Chinese business. "Governments in the U.S. and Europe fear that Chinese business activities in their countries will be replaced with the CPC's strategic activities."

This is a problem not only for CNOOC but also for most Chinese businesses because 96 percent of the Chinese companies that have annual sales of RMB 20 million and more have internal CPC branches. Also, concerns over Chinese corporate governance may have to do with Beijing's ability to manipulate financing and senior company leadership.

The risks associated with Chinese state capitalism might become real if China were to fail to improve foreign trust in Chinese corporate governance. The possible losses to China due to its reputational problems are getting higher as its companies try to move up the value chain into more advanced goods. Under the current situation, any proof of government meddling found by the media, regardless of the level of credibility, might damage the reputations and business activities of Chinese companies. For example, the Wenzhou train collision, which took place on July 23, 2011, the subsequent burial of the destroyed cars, and government restrictions on media coverage created distrust of Chinese high-speed railways and the opaque relations between the government and companies. This has created unavoidable negative images, especially when CSR tries to export its high-speed railway system to overseas markets.

³⁰ See http://www.nikkei.com/article/DGXDasGM2703V_X21C12A1EA1000/.

For a Better Future

China Will Face New Competition

Foreign markets will be more critical for China when it becomes the world's largest economy. As mentioned above, Chinese exports today make up almost 40 percent of the country's total GDP. Foreign firms' subsidiaries in China have made great contributions to Chinese exports, especially to developed countries, and are a major source of Chinese profits. Our detailed case studies suggest that, despite the world-class sizes of their businesses, many Chinese companies rely on domestic demand but are not ready to exploit foreign markets, especially in the developed world. Moreover, they face the risk of overcapacity in the Chinese market. This risk will be more serious because the pace of domestic economic expansion will inevitably slow down to some extent as the Chinese economy develops and matures. Even today, Chinese GDP growth shows a moderate rate of expansion compared with the early 2000s.

The future growth of the Chinese economy will be accompanied by already-present trends of rising personnel expenditures and the appreciation of the renminbi. Therefore, China might lose its price competitiveness vis-à-vis other emerging market and developing countries in Asia, South America, and Africa. This would suggest that the traditional Chinese development strategy of serving as the "factory of the world" will lose its effectiveness. Foreign firms' subsidiaries in China might focus on the Chinese domestic market and hand over their current function as exporting bases to other assembly plants in more cost-effective countries. Japanese companies already seem to be moving in this direction. A Nikkei survey conducted in December 2012 shows that 84 percent of companies designated Southeast Asia as a priority area for future investments while only 40 percent designated China.³¹

Also, macroeconomic changes will force Chinese companies to become more innovative to meet more direct competition from U.S. and Japanese companies in prices, technologies, and the quality of goods and services. Chinese companies will also need to accept challenges from other cost-effective emerging market countries, which will try to follow the Chinese path to rapid economic development. The location of assembly plants does not have a significant impact on the quality of products in high-technology industries, where modularization is highly advanced. China needs to clear these hurdles to keep its economic dynamism. Fortunately, China's public policies and institutional transformation can help its

³¹ "Guro-baru tenkai yurumezu," *Nikkei Shimbun*, December 24, 2012, http://www.nikkei.com/article/DGXDasDD210HO_T21C12A2TJC000/.

companies improve their technological competitiveness and prevent overcapacity from becoming a more serious issue for China.

Innovative China

Liberalization of domestic markets. Despite several decades of assistance, the Chinese automobile industry cannot yet compete with the world's leading auto manufacturers. The real potential of the Chinese auto industry, however, can be recognized if we take a closer look at it.

The automobile industry is equipped with a JV restriction. As mentioned above, the automatic technological borrowing process has prevented Chinese auto companies from aggressively promoting R&D activities, which is the norm for U.S. and Japanese car manufacturers. As stated earlier in this paper, SAIC spent only 0.1 percent of its revenues on R&D in 2011 while Toyota and Ford spent, respectively, 3.8 percent and 3.9 percent. If this significant difference continues, it is unthinkable that Chinese brands are going to achieve the worldwide attractiveness of cars like Lexus and Lincoln.

Liberalization, however, could change the fortune of the Chinese automobile industry because the industry seems to already have reached the critical conditions that can enable it to obtain world-class competitiveness. First of all, the industry has the largest domestic market in the world and already has the industrial capacity to meet domestic demand. In many countries, domestic brands are appealing to domestic consumers. In the U.S., for example, the Detroit Three's share of new car sales in November 2012 was 42.5 percent, while Toyota, Honda, and Nissan combined had a share of 32.7 percent.³² The market share of American manufacturers is quite stable. In 2009, when General Motors was bankrupt, the Detroit Three had a 43.7 percent share of total annual new car sales.³³

The Chinese loyalty to domestic brands, backed by consumers' demand for mid-range products, is obvious. Domestic brands' share of new car sales in China was 37 percent in August 2012. This means that Chinese brands have a bigger market than Japanese annual new car sales. In September 2011, BYD's F3 was the best-selling car in China, exceeding the Toyota Corolla and other rivals.³⁴ If substantial liberalization measures are gradually taken, including the removal of the JV restriction, this could provide appropriate incentives for Chinese manufacturers to invest more in R&D activities and improve the

³² See http://online.wsj.com/mdc/public/page/2_3022-autosales.html.

³³ See http://cars.lovetoknow.com/Car_Sales_Statistics_in_USA.

³⁴ See <http://www.businessweek.com/articles/2012-08-30/chinas-plans-for-its-own-car-brands-stall>.

quality of their products. Then the Chinese automobile industry could come to the starting line for world-class competitiveness.

In the 1960s, no one in Japan could envision that Japanese auto companies could achieve worldwide competitiveness. The industry was one of the strongest advocates of anti-import liberalization at the time. Liberalization, however, led to the rise of Japanese compact cars—especially in the U.S. market, after the oil crises in the 1970s—through accelerated trial-and-error technological developments. Now it is the Chinese automobile industry's turn, because the liberalization of the domestic market could encourage Chinese auto manufacturers to fully utilize their advantages.

For any industry in any country, effective competition in its home market is indispensable for attracting customers in foreign markets.

Stronger incentives for innovation. To help Chinese companies become innovative, the Chinese government could do two more things. The first is a challenge to advance Chinese capabilities by making more government investments in R&D. This indigenous effort, of which the Beijing government is fully aware, is common to the U.S. and Japan. On the other hand, the second thing is a challenge to remedy a Chinese structural disadvantage: less incentive to be innovative. As we have seen, rapidly expanding *mass* markets, which have been critical for industrial successes in China, cannot effectively provide incentives to enable Chinese firms to become innovative enough to compete with U.S. and Japanese companies.

Of course, the Chinese government can try to change the nature of the Chinese innovation system. For example, the government might identify new standards for advanced telecom services that no one has ever seen and encourage Chinese firms to provide new mobile terminals equipped with new technologies. Or the government might set new and challenging requirements for next-generation vehicles subject to government procurement.

These policies will not necessarily produce constructive results for Chinese industries because the “visible” hand loses its effectiveness when it tries to promote innovation rather than catch up. The visible hand might mislead corporate investment, causing firms to incur huge opportunity costs. This was demonstrated by the Japanese experience with industrial targeting policies after the 1980s. For example, the Japanese government tried to develop computers with artificial intelligence, which would enable them to think and speak like a human being. The goal of this project, launched in the early 1980s, was to surpass IBM. But when the project was completed in the early 1990s, the government and company executives found that the unique hardware equipped with the peculiar software that had been developed was totally

outdated in the new era of computing, which was characterized by open architectures and personal computers.³⁵

A successful strategy for encouraging Chinese firms to become innovative is to expand their interactions with the key actors of the U.S. and Japanese innovation systems—such as customers, suppliers, competitors, and research institutions—and thus to gain clues about technological advancements and the business rationale for investing more resources in innovation. In fact, this is what Huawei and Lenovo are doing. Without their numerous interactions with key actors in the U.S. and Japan, these companies could not have attained the position they have today.

China would be better off creating a business-friendly environment from the Western point of view, including appropriate protection for intellectual property, rather than requiring foreign companies to transfer their technologies, because that long-established strategy cannot boost Chinese competitiveness to world-class levels. If the current situation of the automobile industry is compared with Lenovo's position in the world market, it is clear what is needed.

A Level Playing Field

The Chinese economy, as well as other emerging market economies, would look totally different from how it does today if business activities had not been globalized. It is obvious that globalization and the multilateral free trade system have played an essential role in Chinese economic development. However, China's significant economic growth is ironically posing a risk to the same system that made China an economic giant.

The U.S. population sees the rise of China with mixed feelings. The Pew Research Center surveys mentioned above show that more than half the American people see Chinese economic growth as a bad thing and see the rise of China as a major threat to the U.S., while a minority of Americans have a positive understanding of China's rise. Such a mixed reaction could be shared by the Japanese, too. Moreover, power relations between developed and developing countries have been significantly transformed in the last decade or two. China, India, and Brazil are rather strong in international negotiations, especially when they join together to achieve their common interests. This is aptly shown by the deadlock of the World Trade Organization's Doha Round and the stalemate of the United Nation's Framework Convention on Climate Change.

³⁵ See Kiyooki Aburaki, "Gijutsu Rikkoku Futatabi" (Institutions that can help innovation), NTT, 2001.

Though state-sponsored capitalism is not a new idea, the situation today is structurally different from past circumstances. First, no state capitalist country in the past had an economy on such a large scale as China has today. Japan, which could be categorized as a state capitalist country in the 1950s, successfully achieved its economic growth through liberalization. Second, there were no big state-owned-enterprises (SOEs) that could lead domestically and globally. The China National Petroleum Corporation (CNPC), for example, is the largest energy company in China and has aggressively tried to obtain oil resources globally. CNPC is also the parent of PetroChina, one of the largest companies listed on the New York Stock Exchange.

More policymakers in the U.S. and Japan will probably raise big questions about fairness in response to the rise of China and its followers, which politically utilize their domestic markets to achieve economic growth. Mounting frustrations would lead politicians in the U.S. and Japan to criticize apparent and hidden subsidies and the insufficient appreciation of the Chinese currency. The Chinese government would certainly react to such blame. Anger about unfairness could take the disguised shape of protectionism. If many people were to forget the real benefits of globalization in the face of a trade war, the U.S. and Japanese national economies would lose important opportunities. The Chinese economy would also lose significant opportunities to expand interactions with key actors of the U.S. and Japanese innovation systems as well as the profits obtained from the two countries.

Therefore, the U.S., Japan, and China should make efforts independently and collectively to establish a sense of fairness in twenty-first-century economic activities. Mini-lateral and regional free trade initiatives, which China and the U.S. and/or Japan could join, could serve as confidence-building measures to this end. In addition to such government-government talks, trilateral track 1.5 talks, with experts from both the private and public sectors, could be another vehicle for promoting mutual understanding and producing solutions for more prosperous U.S.-Japan-China economic relations. Also, the U.S. and Japan, in cooperation with other like-minded countries, could promote discussions on appropriate standards for twenty-first-century business. The fruits of these discussions could be used as benchmarks for China and other countries alike.

One area to be addressed when the three countries try to establish a sense of fairness is access to capital, which is one of the greatest contributors to the Chinese industrial successes shown in our case studies. When a company can access virtually unlimited funds, such access is much more important than the actual rates. Though Chinese rate subsidies (the London Interbank Offered Rate, LIBOR, plus 2 percent vs. LIBOR plus 2.5 percent) have been discussed, the real issue is access to capital. When SOEs set up investments and acquire U.S. or Japanese companies, these business decisions could be understood as fair

or unfair. Not only the U.S. and Japan, but also China, are responsible for presenting constructive solutions to this difficult question.

At the same time, the U.S. and Japan should try to enable capital to flow from China as freely as possible. Then, when the two governments judge whether or not Chinese direct investments pose a threat to national security, public order, and public safety, such processes should be effective, reasonable, and accountable to their nations as well as to investors.

In this sense, a relevant Japanese system should be modified to follow the U.S. model. In the U.S., the Committee on Foreign Investments in the U.S. can negotiate a revision of a proposed acquisition plan or call an ex post facto halt to the acquisition itself if needed. On the other hand, the Japanese government designates technologies, products, and businesses that affect security ex ante. The Japanese ex ante system cannot provide a sense of security to its nation because it hardly meets the complexities of today's business and technology developments. In this case, the Japanese system is not effective, reasonable, or accountable.

The U.S. and Japan also need to avoid unnecessary economic friction. Since it is a common occurrence for an uncompetitive industry to use a foreign competitive industry as a scapegoat for its own problems, active commitments to growth policies and structural reforms that contribute to competitiveness are good prophylactics. In particular, further enhancements of one's own technological advantages—for example, science-based technologies for the U.S. and processing capabilities for Japan—will have a positive impact on trilateral economic relations because the three countries have mutual technological complementarities.

The Benefits of Transformed Corporate Governance

Corporate governance is the system “by which companies are directed and controlled.”³⁶ The establishment of a sense of fairness should increase U.S. and Japanese confidence in Chinese corporate governance because its opacity could be a source of various concerns. For example, some might make a shrewd guess that Chinese business expansion has some relation to Beijing's political or military intentions. Others may think that government clout unethically gives Chinese companies advantages.

If China transforms its companies' corporate governance and government-business relations, additional benefits are also available. The change will contribute to the dynamism of the Chinese economy and China's technological competitiveness.

³⁶ See <http://www.ecgi.org/codes/documents/cadbury.pdf>.

SOEs have a great presence in the Chinese economy. SOEs have an 80 percent share of the value of the Chinese stock market.³⁷ Profit attained by China Mobile, for example, is huge because of its 600 million customers and monopoly status. Moreover, SOEs have a very favorable business environment, even compared with private Chinese companies. For example, loans at the low interest rate of 1.6 percent are available to SOEs from state banks, while private banks offer loans at 4.7 percent interest. Almost all Chinese official outstanding loans are from SOEs, and the share of loans from private companies is only 2.9 percent.³⁸ SOEs, however, are less productive than private companies. According to a report published by the Unirule Institute of Economics, the average real return on SOE equity from 2001 to 2009 was -1.47 percent, even if the SOEs received various types of support from the government.³⁹

The data given above suggest that SOEs are prosperous at the expense of the overall Chinese economy. In other words, the Chinese economy and industries would flourish more if SOEs could react to market mechanisms more effectively—and also if private companies could be given more opportunities for business by reducing the monopolistic areas reserved for SOEs, and if private companies had access to more resources for business expansion. Therefore, the Chinese government needs to consider loosening its controls over SOEs because government officials tend to use SOEs as vehicles to achieve their political and social goals. Also, the government should secure larger areas of business for private companies. Coupled with a modernization of corporate governance, which would contribute to the establishment of a sense of fairness and a solid base for Chinese interactions with U.S. and Japanese innovation players, securing more room for private companies could contribute to Chinese technological competitiveness.

Lenovo's success story should make many in China confident of the possibilities that transformed corporate governance could bring. In fact, Lenovo was founded with governmental assets. The Chinese Academy of Science provided the (admittedly minimal) seed money and transfer of intellectual property. Also, government protection was provided when the company developed its domestic sales networks. But, as mentioned above, Lenovo succeeded even though many other domestic competitors had much stronger and more direct state support. Also, the Chinese government did nothing for Lenovo when it decided to make a \$1.25 billion purchase of IBM's PC division. More important, the government played no role in the postmerger integration, which was indispensable for obtaining the trust and respect of employees outside China and for creating a fusion of the technological capabilities of IBM and Lenovo. For the successful postmerger integration, the Chinese management was committed to communication

³⁷ "The Visible Hand," *The Economist*, January 21, 2012.

³⁸ *Ibid.*

³⁹ See <http://www.unirule.org.cn/xiazai/2011/20110412.pdf>; "Visible Hand."

with ex-IBM people and to inviting foreigners onto its board. Of course, the Chinese management needed to learn the ways of IBM's corporate governance, because this was a base from which to promote trust vis-à-vis Americans. As has been mentioned, two important ex-IBM research centers, one in North Carolina and the other in the Tokyo region, effectively constitute Lenovo's research triad, along with a facility in Beijing. This is proof of Lenovo's success in postmerger integration.

The modernization of Chinese corporate governance does not mean that China will copy American or Japanese governance because the shape and philosophy of corporate governance varies based on the norms of each society. Having said this, there should be steps for China to obtain sufficient trust from the West in its corporate governance. This transformation, which could contribute to economic dynamism and technological competitiveness, is an agenda that China should actively tackle.

Conclusion

China may soon become the world's largest economy. Even when this happens, the rise of other emerging market economies, such as India, will continue and developed countries will possibly show steady economic growth. Many of the most advanced technologies will be found in the U.S., Japan, and Europe. Therefore, China will not have a dominant position in the world economy, like the U.S. had in the 1960s.

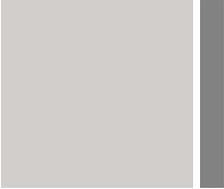
Rather, China will recognize that it will need to further develop interdependence with other countries in order to achieve economic growth and keep its economic dynamism. Enhanced Chinese interactions with the key actors of the U.S. and Japanese innovation systems—such as customers, suppliers, competitors, and research institutions—thus are critical for upgrading the innovative capabilities of Chinese companies when China faces new competitive challenges from its followers in the developing world. Markets provided by developed countries will be more important for Chinese national companies. Therefore, without sound relations with the U.S. and Japan, the prospects for Chinese economic growth could be blurred. Of course, this is also true for the U.S. and Japan.

Therefore, the U.S., Japan, and China should make sincere efforts to achieve sounder, more prosperous, and more trustful relations between themselves.

Recommendations

1. Considering further macroeconomic changes such as rising personnel expenditures and the appreciation of the renminbi and the enhanced need to avoid future risks of overcapacity, Chinese national companies should improve their technological capabilities and strengthen their competitiveness in foreign markets, especially in developed countries.
2. To be innovative, Chinese companies should accelerate the trial-and-error process of technological developments in a competitive environment. The Chinese government can help such efforts through the liberalization of domestic markets. The fortunes of the Chinese automobile industry, which already has a world-class production capacity but not competitiveness, could be transformed by liberalization.
3. To become innovative, Chinese companies should expand their interactions with the key actors of the U.S. and Japanese innovation systems—such as customers, suppliers, competitors, and research institutions—and thus gain clues about technological advancement and the business rationale for investing more resources in innovation. The successful global companies in China follow this strategy.
4. The Chinese government should help its companies to further expand such interactions. To this end, China should create a business-friendly environment from the Western point of view. First of all, China should secure appropriate protections for intellectual property. Also, China should ensure the rule of law. These are indispensable measures for expanding beneficial interactions with the key actors of the U.S. and Japanese innovation systems.
5. Conversely, China's traditional strategy of imposing various requirements on foreign companies that want to do business in China is not appropriate because it does not result in free and open-minded interactions. As shown by Japanese experiences, the "visible" hand does not work well to innovate, but only to catch up.
6. The establishment of a sense of fairness is important for the future sound development of U.S.-Japan-China economic relations. Though state-sponsored capitalism is not a new idea, no past state capitalist country had an economy on such a large scale as China has today. Also, no state-owned enterprises played leading roles domestically and globally, as Chinese ones do. A failure to establish and share a sense of fairness might produce serious trade friction and make many forget the win-win nature of trilateral economic relations.
7. Mini-lateral and regional free trade initiatives, with Chinese and U.S. and/or Japanese participation, could serve as confidence-building measures to this end. Ongoing initiatives—such as the Regional Comprehensive Economic Partnership, in which China, Japan, South Korea, and the members of the Association of Southeast Asian Nations participate—should be promoted.

8. The U.S. and Japan, bilaterally and in cooperation with other like-minded countries, should discuss appropriate standards for twenty-first-century business. The outcomes of these discussions should play a guiding role for China and other countries. The Trans-Pacific Partnership, which aims to develop twenty-first-century rules for international trade and investment, could be a vehicle to this end, if Japanese participation is realized.
9. U.S.-Japan-China trilateral talks, with the participation of both private- and public-sector experts, could promote mutual understanding and produce solutions for more prosperous U.S.-Japan-China economic relations.
10. Access to capital is one of the most important issues when the U.S., Japan, and China try to establish a sense of fairness. It poses a difficult question, especially when SOEs set up investments and acquire U.S. or Japanese companies. Not only the U.S. and Japan, but also China, are responsible for presenting constructive solutions for this difficult problem.
11. At same time, the U.S. and Japan should not distort capital flows from China for any political reason. In this sense, Washington and Tokyo should use effective, reasonable, and accountable processes when they judge whether or not Beijing's direct investments pose a threat to national security, public order, and public safety.
12. The current Japanese system for reviewing foreign direct investment—which ex ante designates technologies, products, and businesses that affect security—should be modified to be more like the U.S. model, which can call an ex post facto halt to the acquisition itself if needed, because the Japanese ex ante system cannot meet the complexities of current business and technology developments.
13. To avoid unnecessary economic friction with China, the U.S. and Japan should promote competitiveness strategies and economic structural reforms because it is a common occurrence for an uncompetitive industry to use a foreign competitive industry as a scapegoat for its own problems. Further enhancements of U.S. and Japanese technological advantages will have a positive impact on trilateral economic relations because the three countries have mutual technological complementarities.
14. China should constructively transform the corporate governance of SOEs and private companies in order to expand interactions with American and Japanese innovation leaders and to secure Chinese opportunities in other countries. Lenovo's success story is a good example of how Chinese companies can learn to deal with the modernization of corporate governance.
15. The Chinese government should loosen control over SOEs in order to encourage the companies to be more productive and competitive. At the same time, China should expand the business areas available to private companies. Coupled with the modernization of corporate governance, these changes would contribute to the dynamism of the Chinese economy and Chinese technological competitiveness.



ABOUT THE AUTHOR

Kiyo Aburaki is currently serving in the chairman's office of Keidanren Headquarters in Tokyo. Previously, he was the U.S. representative of Keidanren and the 21st Century Public Policy Institute (21PPI), a think tank affiliated with Keidanren, and a visiting fellow at the Center for Strategic and International Studies (CSIS). Mr. Aburaki obtained a M.S. in political science from the Massachusetts Institute of Technology (MIT) in 1998 and a B.A. in economics from Keio University in 1989.



1800 K Street, NW | Washington, DC 20006
Tel: (202) 887-0200 | Fax: (202) 775-3199
E-mail: books@csis.org | Web: www.csis.org