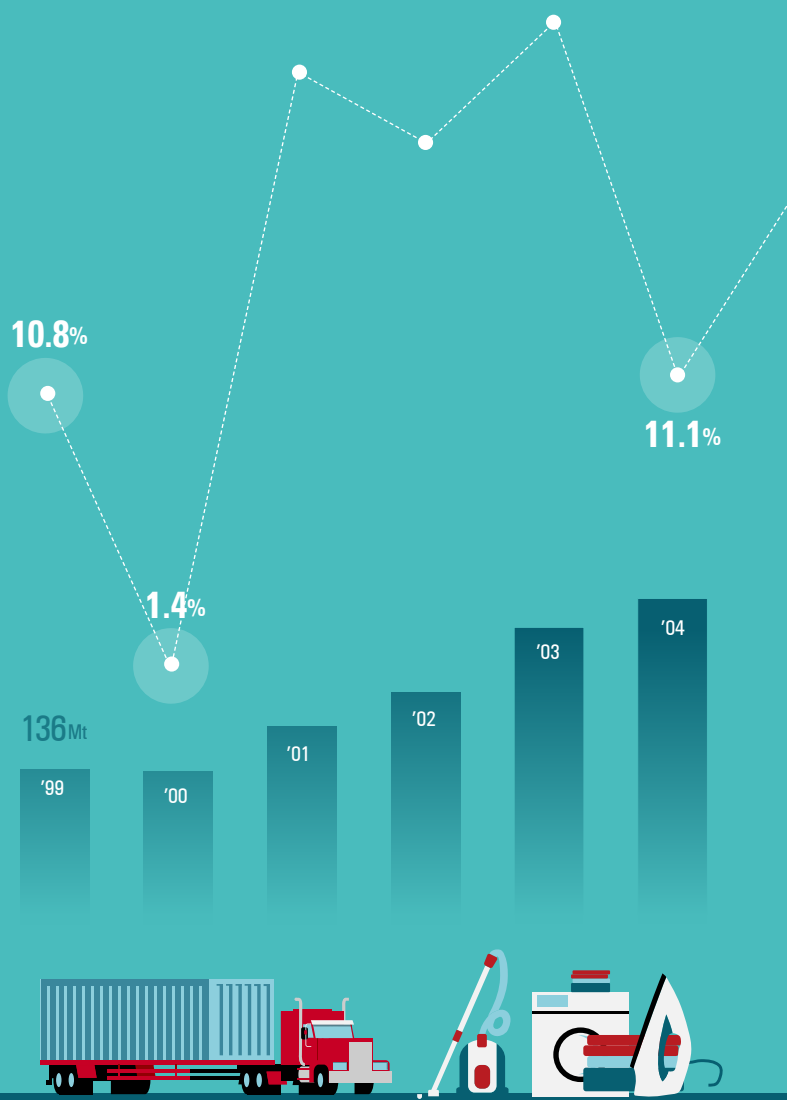


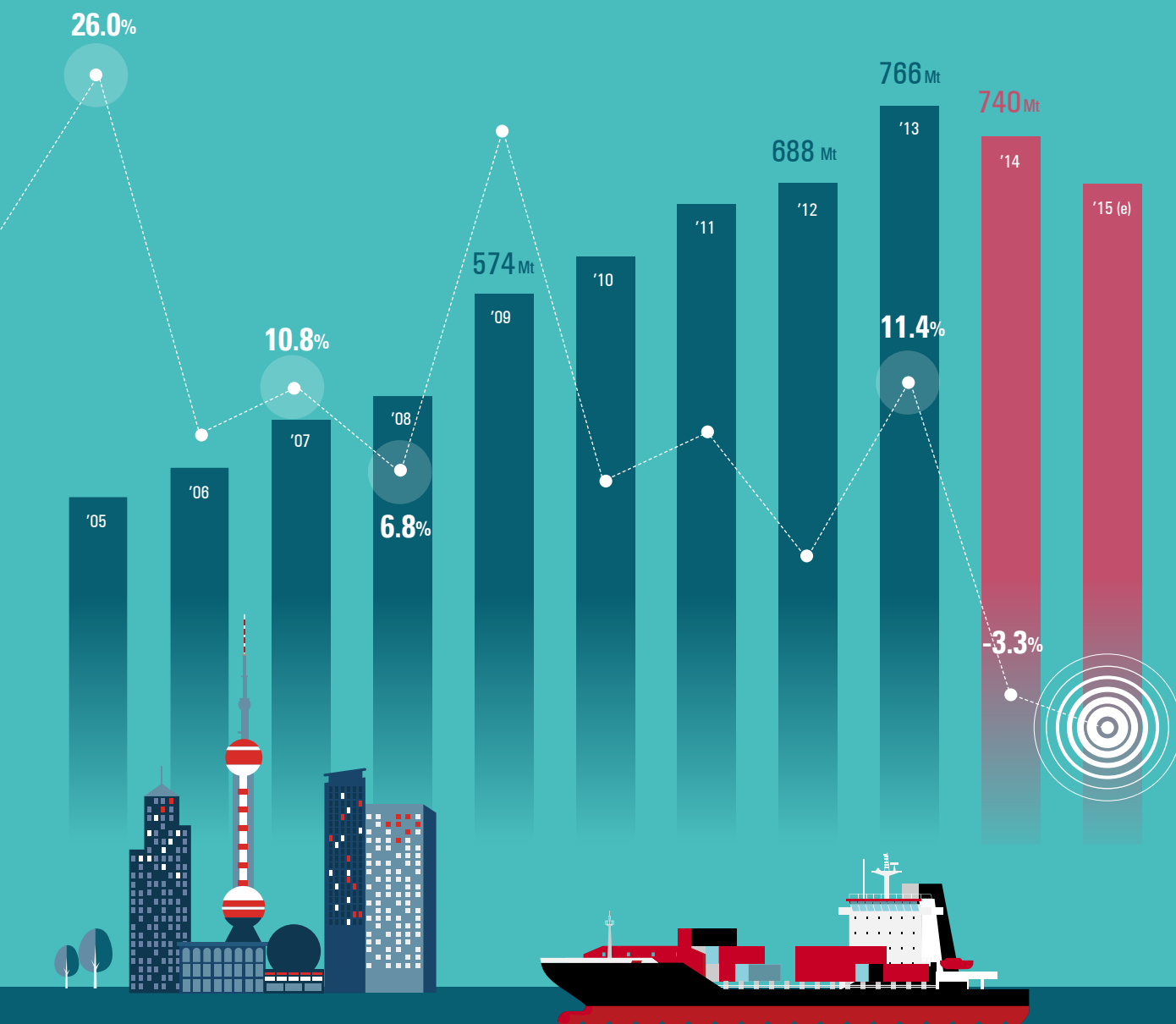
On the Cover

China's Steel Industry Meets the New Normal

Xin chang tai (新常态) is the term that most accurately characterizes China's economy today. It is a literal translation of the English term new normal, meaning "a new state of normality." After reform and opening up, China's economy maintained a double-digit annual growth rate for years, then slowed to around 7% from 2012. Chinese authorities have described this as the "new normal" state, to which they intend to adjust China's economic policy. China's new normal does not mean abandonment of growth, but rather a transition to a new way of growth. Changes in China's economic fundamentals have confronted China's steel industry with "new normal" market environment and structures. The industry has set out in search of new solutions.



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Changing China's Steel Industry in the New Normal

Xin chang tai (新常态) is the term that most accurately characterizes China's economy today. It is a literal translation of the English term *new normal*, meaning "a new state of normality." After reform and opening up, China's economy maintained a double-digit annual growth rate for years, then slowed to around 7% from 2012. Chinese authorities have described this as the "new normal" state, to which they intend to adjust China's economic policy. China's new normal does not mean abandonment of growth, but rather a transition to a new way of growth.

Changes in China's economic fundamentals have confronted China's steel industry with "new normal" market environment and structures. The industry has set out in search of new solutions.

China's economy shifts gears to medium-speed growth, the "new normal"

In December of 2014, at the Central Economic Work Conference, Chinese President Xi Jinping formally declared that China has entered an era

of *xin chang tai*, or new normal. This statement acknowledges the trend of slowing growth, and promises to replace a growth structure centered on investment and exports with one centered on innovation.

In 2014, China's GDP growth rate increased 7.4% from the previous year, the least since 1990 (3.9%). Amidst deflated investment and exports, which have been the backbone of China's economy, the Chinese government is striving in vain to promote consumption. Consumption continued to slow in 2015 and international organizations and investment banks successively lowered China's economic growth forecast for 2015.

Nevertheless, the Chinese government seems determined to risk a fall in its growth rate to address issues that have accumulated over the years. Rapid growth after reform and opening up was accompanied by myriad adverse effects, including regional and socioeconomic inequality, environmental pollution, abuse of natural resources, and overcapacity. In the "new normal" era, China will address current economic and social issues while

seeking growth through innovation.

The main points of the Xi Jinping-led “new normal” economy are as follows: ① adoption of new technologies and business models to increase utilization of private capital and diversification of investment sources, ② satisfaction of a broad spectrum of consumer demands, ③ a focus on high-tech industries in attracting foreign capital and investing overseas, ④ reinforcement of quality-based market competition structures, and ⑤ a strong emphasis on saving resources and protecting the environment.

After the central government announced its plan to focus more on the quality than the quantity of growth, local governments followed by lowering their respective growth targets. Shanghai went as far as abandoning its growth target. The message is not that the Chinese government no longer considers growth important. On the contrary, it firmly intends to continue medium-speed growth of 6-7% by creating an “innovation economy.”

In order for China to safely adjust to the new normal era, it needs to reform its economic structure to create new jobs, while enduring a falling growth rate. In particular, liquidating polluting and excessive facilities is necessary to the structural reform of industries, but reduces government income and hinders job creation by local governments.

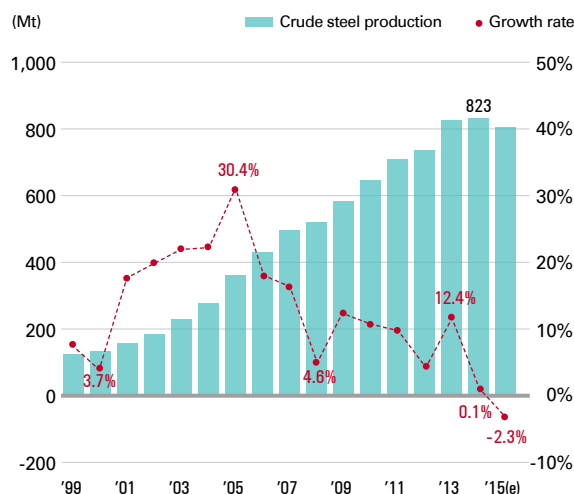
The new normal in China's steel industry, the persisting trend of “three lows”

Changes in China's economic structure and

growth engines have thrust the country's steel industry into a period of upheaval. Due to far-reaching changes in China's economic fundamentals that affect industrial structures, demand structures, and regional structures, the steel industry faces a new normal state, characterized by “three lows”: low growth of steel production and consumption; low steel prices; and low margins (moving ever closer to an era of “zero margin”).

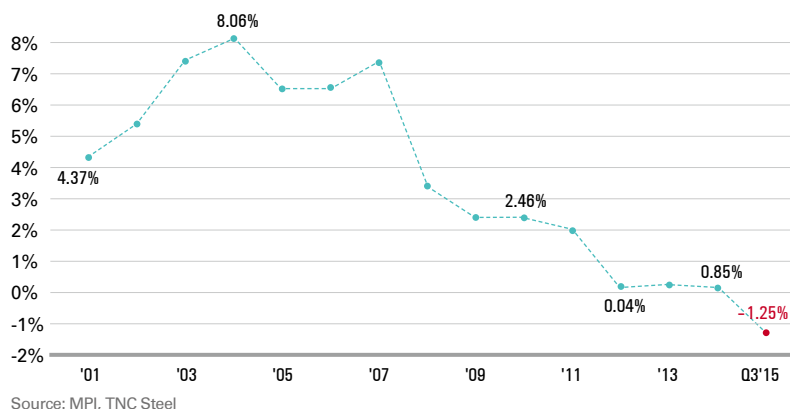
First, the view is widespread that China's steel production and consumption are facing low growth and an early peak. China's crude steel production dropped after the global financial crisis, but bounced back before long, growing at an annual average rate of 6.5% from 2010 to 2014. In spite of slowing growth, the market had faith

China's Crude Steel Production



Source: worldsteel, POSCO Research Institute, November 2015

Operating Profit of China's Steel Industry



that China's steel industry would continue to grow, judging that there was still time until the industry peaked.

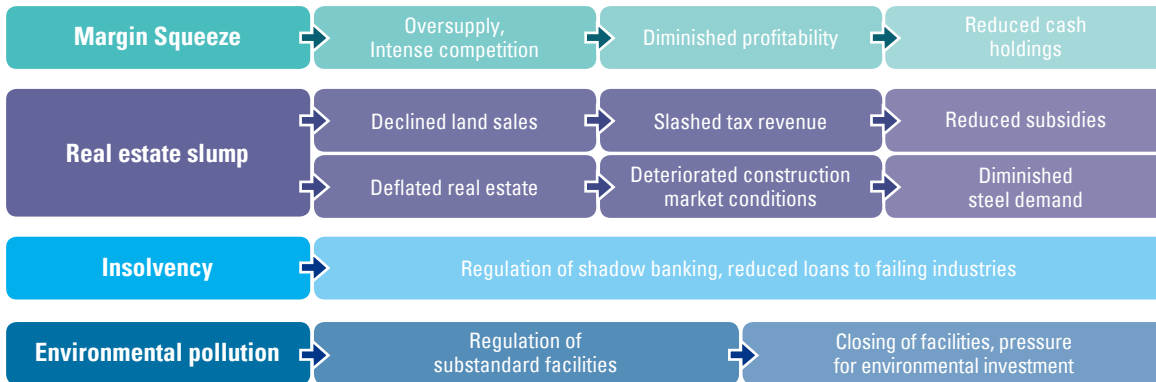
Looking at crude steel production alone, however, China's steel industry seems to have already passed its peak. The China Iron and Steel Association (CISA) estimates that China's crude steel production recorded negative growth in 2015 for the first time since 2000. Demand is also affected by structural changes, epitomized by slowing economic growth and an expanding tertiary sector. In 2015, apparent crude steel decreased for two consecutive years. Demand also seems to have peaked. Supporting this argument is the GDP elasticity of China's steel consumption, which fell consistently from 3.57 in 2000 to 0.35 in 2014.

Second, steel prices have been declining steadily, due to oversupply from overcapacity, intensified price competition, and pressures from excess supply of iron ore. China's crude steel production led the global "raw materials super cycle" in the 2000s, but its slowdown is gradually freez-

ing demand for iron ore. Last year, iron ore prices hit the lowest point after 2009. Major mining companies predicted that urbanization and industrialization of China, India, and other emerging countries would lead to a steady increase in demand, and continuously increased production capacity in order to reduce unit production prices through economies of scale, and secure high profitability. While the largest consumer of iron ore, China, is thought to have already passed its crude steel production peak in 2014 and declined thereafter, iron ore supply is expected to grow further, offering no relief from iron ore oversupply. For a while, this will apply downward pressure on steel prices within China.

Third, China's steel industry is transitioning from a period of low profit to a period of zero margin. Low growth is detrimental to Chinese companies, which have been focused heavily on expansion to catch up with China's rapid growth. The industry's pretax profit margin was as high as 8% in 2007, but the figure has barely remained above zero in recent years, recording 0.04% in

Four Troubles in the Steel Industry



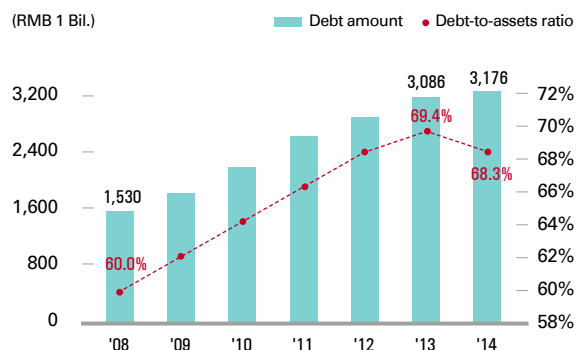
2012, 0.48% in 2013, and 0.85% in 2014. In the first nine months of 2015, it dropped to -1.25%. The industry appears to be stuck in a “zero margin” situation. If the Chinese government reduces or discontinues subsidies or other support measures, more Chinese companies will enter the zero margin zone.

Faced with four concurrent troubles—intensifying competition due to oversupply, a real estate slump, increasing financing difficulties, and strengthened environmental regulations—an increasing number of steel companies are running deficits. Of the 88 member companies of CISA, 3% were in the red in 2007. This number shot up to 15% in 2013, and 48.5% as of September 2015. Within the industry, the rich are getting richer, and the poor are getting poorer. Looming default of select companies is beckoning a complete restructuring of the steel industry in the near future. Having only ever driven on a growth highway, China’s steel companies are not prepared for an excessive margin squeeze.

Globalization, integration, non-ferrous metal businesses, and soft power: the steel industry's responses to the new normal era

Facing the new competition paradigm of the new normal era, China’s steel industry intends to overcome crises through four major strategies. First, steel companies are actively building over-

Debts of Chinese Steel Companies



Source: TNC Steel

China's steel market will likely open up further, while Chinese steel companies are expected to double their efforts to increase exports and enter overseas markets.

seas production bases and seeking export markets to relieve domestic oversupply. The sudden increase in China's steel exports, which began during 2014-15, is not a temporary phenomenon, but an aspect of the globalization of China's steel industry. China's overseas investment in steel is concentrated in long and flat products in emerging countries in Southeast Asia and Africa, in steel pipes for petroleum and gas projects in Central America and the USA, and in processing centers for automotive sheet steel in Europe and Korea.

Second, steel companies are pursuing survival through integration that transcends ownership schemes and regional borders. From 2008 to 2013, M&A's in China's steel industry were led largely by state-owned steel companies, but since 2013, the private sector has been actively engaged in M&A's. In the future, implementation of hybrid ownership schemes will result in a gradual priva-

Chinese Steel Companies' Overseas Investment

WISCO | Germany

| Acquisition: ThyssenKrupp's TWB | 2012

Anshan | Italy, UK

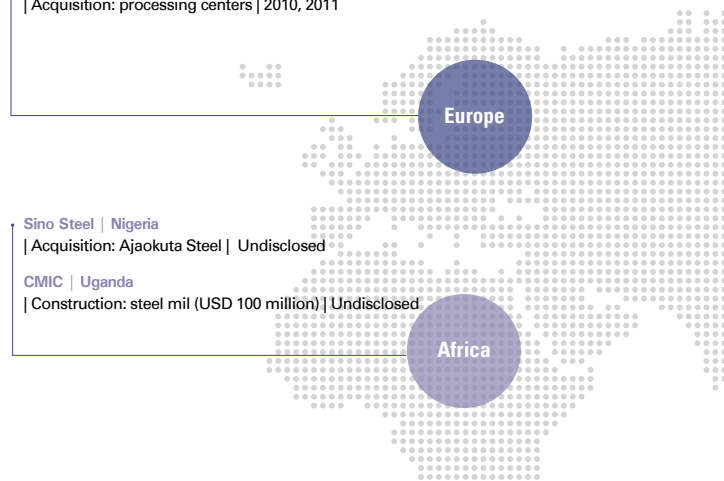
| Acquisition: processing centers | 2010, 2011

Sino Steel | Nigeria

| Acquisition: Ajaokuta Steel | Undisclosed

CMIC | Uganda

| Construction: steel mill (USD 100 million) | Undisclosed



tization of state-owned steel companies and more active M&A's in private companies and regions.

Third, companies are fostering non-steel businesses to make up for the faltering steel market. A number of steel companies are maintaining overall profit by offsetting operating deficits in the steel sector with surpluses in non-steel sectors. CISA estimates that China's steel industry derived over 90% of its gross profit from non-steel businesses in 2013 and 2014. At present, China's major steel companies are executing a so-called "1+ α " strategy, and planning to expand sales in non-steel industries.

Finally, the steel industry is improving profitability through advanced technology and improved product quality, the two most important sources of profit. Additionally, it is consolidating its soft power by increasing brand power, upgrading operation technologies, and making drastic changes to business models. Chinese steel indus-



try experts are rejecting the traditional growth method of quantitative expansion, and simple fixed cost reduction, as strategies of the past. They stress that in the new normal era, the competitiveness of the steel industry depends on advanced operation technologies, brand innovation, and IT services.

Is the global steel industry ready for China's transformation?

The upheaval in China's steel industry, which led the global steel market from the 2000s, is sure to send shockwaves through the global steel industry. A CISA representative projected massive changes in China's steel industry in five to ten years, with two major changes being increased exports and entry into overseas markets. Signs of change within China prevail, exports have soared due to depressed domestic steel market, and government

policies to move steel facilities overseas are being put into effect. These policy changes are related to the recently proposed One Belt, One Road framework, which includes the Silk Road Economic Belt and 21st Century Maritime Belt initiatives.

The Chinese government has recently opened the doors of its steel industry to foreign capital. Experts agree that this move will have a positive impact on China's steel industry. China's steel industry policy in the past sought to satisfy domestic demand and adequate levels of bilateral and multilateral trade. Today, it has been amended drastically to actively seek globalization.

All things considered, China's steel market will likely open up further, while Chinese steel companies are expected to double their efforts to increase exports and enter overseas markets. Changes in China, the country that makes up half of the global steel market, are sure to cause a massive stir in the global steel industry. 🗣️

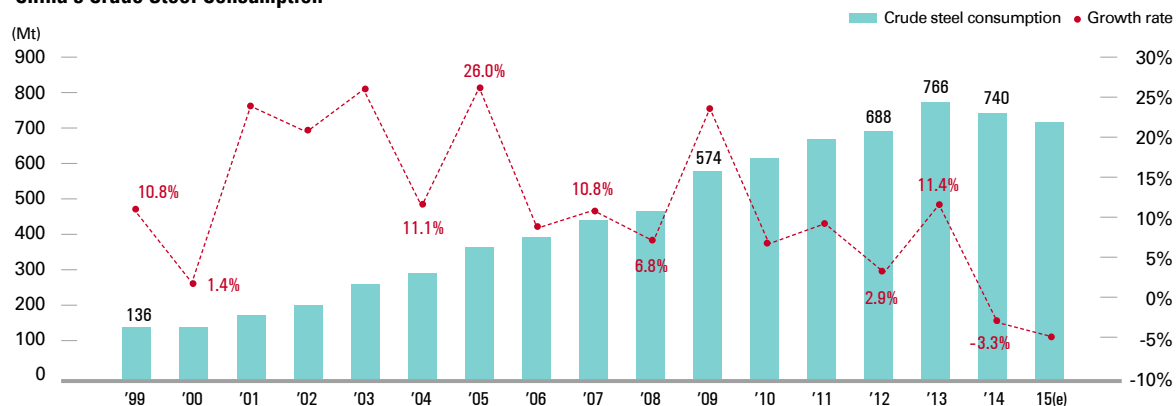


China's Steel Enters "Peak Zone": Arguments and Projections

China is in the spotlight of the global steel industry. In 2014, China's crude steel consumption turned negative for the first time since 1995. This situation sparked the discussion of whether China's steel consumption is peaking, and how its impact on the global steel industry will be. According to statistics by worldsteel, China's apparent crude steel consumption fell 3.3% to 740 million tonnes in 2014 year-on-year. Under these circumstances, the purview of

expert forecasts for China's steel industry has shifted drastically. For instance, at the end of 2014, China's steel industry think-tank Metallurgical Industrial Planning and Research Institute (MPI) projected that China's real finished steel consumption would peak in 2017, but early last year, in less than three months, they adjusted their projection to 2014. This article seeks to compare and analyze past and current projections of China's peak steel consumption

China's Crude Steel Consumption



Source: worldsteel, October 2015, POSCO Research Institute, November 2015

Previous Forecasts for China's Peak Crude Steel Consumption

	Time of projection	Peak Consumption Projection	Basis
MPI	2010	805 Mt in 2020	• Economic development and urbanization progress
TNC Steel, China	2010	1020 Mt in 2021	• Continuing industrialization and development • In the USA, Japan, Germany, and other advanced nations, completion of industrialization and peak steel consumption happened simultaneously
CRU	2010	Over 1000 Mt in 2020	• Steel consumption by region: East (1,000 kg/capita), Central (700 kg/capita), West (600 kg/capita)
Australian National University (ANU)	2010	1000 - 1100 Mt in 2024	• Per capita GDP of \$15,449 corresponds to 700-800 kg/capita
UN	2010	958 Mt in 2030	• Urbanization progress, increasing consumption of durable goods (e.g. automobiles)

Source: Compiled from various reports

and their bases, then deduce the direction of China's steel industry.

Previous projections placed China's peak steel at 0.8-1 billion tonnes between 2020 and 2030

In 2010, the majority of projections placed China's crude steel consumption peak at 0.8-1 billion tonnes between 2020 and 2030. Facts presented as bases for this claim included ► the spread of industrialization and urbanization, ► the growth potential of the midwestern region, ► the growing middle class and the resulting increase in durable goods consumption, and ► relatively low per capita steel consumption compared to advanced nations. A Chinese steel consulting firm TNC Steel explained that completion of industrialization coincided with peak crude steel consumption in other populous countries. TNC projected that China's industrialization, which was in a middle phase at the time, would be completed by around 2020. TNC estimated that crude steel consumption would peak around the same time,

at approximately 1.02 billion tonnes. Citing that per capita crude steel consumption in the USA (706 kg), Japan (802 kg), and other advanced countries peaked when their urbanization rates exceeded 70%, TNC forecasted that the high growth trend of crude steel consumption would continue in China, which had a relatively low urbanization rate of around 50%.

China Steel Development & Research Institute (CSDRI) projected that the time and size of the steel consumption peak would vary by region due to gaps in development. For the mature market eastern China, CSDRI forecasted that per capita crude steel consumption would peak at 800 kg in 5-10 years and decline gradually thereafter. Central China's consumption was projected to peak at 600 kg/capita after 2020, and western China's consumption at 500 kg/capita no sooner than ten years after central China's peak. Total crude steel consumption in China was projected to peak at 800 million tonnes around 2020.

The United Nations (UN) projected that the number of automobiles owned per 1,000 people

in China would increase from 24 units in 2005 to 300 units in 2030 and thus posited that crude steel consumption would peak at 960 million tonnes (630 kg/capita) around 2030. Rio Tinto pointed to the fact that the growth of per capita crude steel production continued for a long time after the 500 kg mark in the USA (30 years), Japan (44 years), and South Korea (27 years), and saw that the growth potential of China's per capita crude steel production, which surpassed 500 kg only in 2011, remained high.

2018 or 2025. The opinion that China's steel consumption has already peaked is based on a real estate market slowdown following government initiatives to deflate a bubble, slowing economic growth, and the growing proportion of the tertiary sector in the economy.

CISA projected that China's crude steel production will gradually decline from its peak of 823 million tonnes in 2014 to 795 million tonnes in 2017. Goldman Sachs posited a different outlook, projecting China's steel production in 2015 to decrease 1.9% to 807 million tonnes year-on-year, then rebound to reach 819 million tonnes in 2016, 827 million tonnes in 2017, and 831 million tonnes in 2018. Global mining companies, including Rio Tinto and BHPB, shared a more optimistic view, forecasting that crude steel production will continue to grow until 2025 at an average annual rate of 2.5%, reaching over 1 billion tonnes.

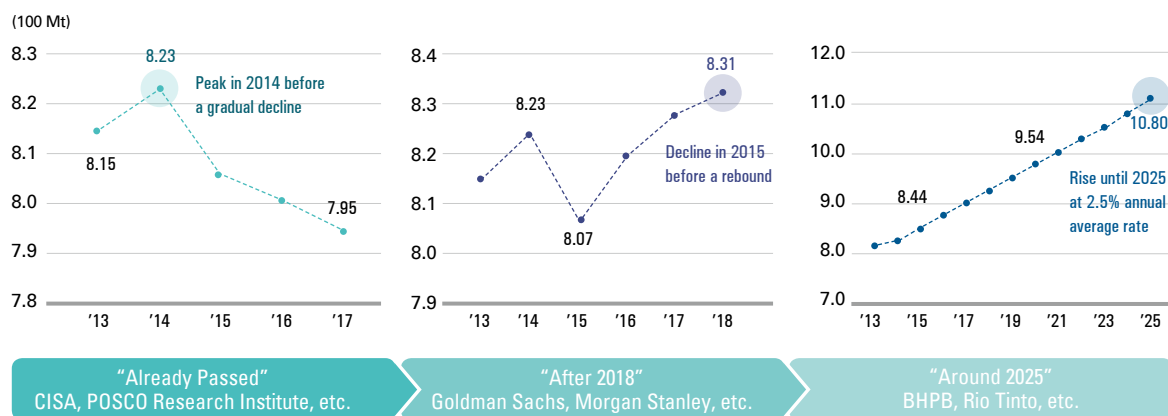
Why the majority opinion has adjusted China's peak steel to 2013-2014¹

1

For further details on China's crude steel consumption forecast by POSCO Research Institute, see the beginning of the next article, "The Impact of China's 'Peak Steel' and Scrap Generation on Steel Raw Material Prices."

Five years later, how have the projections changed? Looking at forecasts from early 2015 by institution, the majority opinion places China's peak steel in 2013-2014, while some do around

Recent forecasts for China's peak crude steel production



Note: As crude steel demand forecasts are not available in many institutions, crude steel production trends and forecasts have been used.
Source: International press

The opinion that China's steel consumption has already peaked is based on a real estate market slowdown following government initiatives to deflate a bubble, slowing economic growth, and the growing proportion of the tertiary sector in the economy.

What has caused the early peak of steel consumption in China?

Comparing the projections for China's peak steel from 2010 and 2015, the arrival of the peak steel has moved up at least five to six years. Why did this happen? To begin with the conclusion, primary reasons for the early peak of steel in China are ► a slump in real estate and construc-

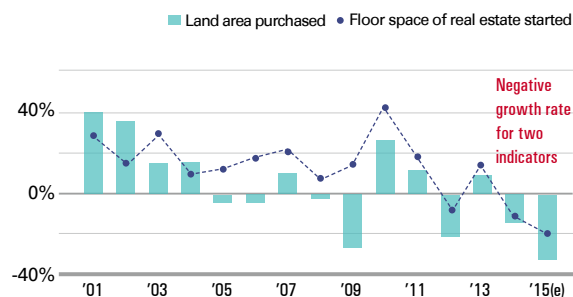
tion businesses, which account for the highest share of steel consumption, and ► the diminished elasticity of steel consumption with respect to GDP due to changes in China's economic structure, such as the expansion of consumption-led growth and tertiary industries. Share of steel consumption by major steel-consuming industries fluctuated slightly from 2000 to 2014: the share of the machinery industry rose 4%p,

Share of China's Steel Consumption by Industry

	2000	2010	2014
Construction	56%	56%	55%
Machinery	15%	18%	19%
Automotive	6%	7%	7%
Shipbuilding	1%	4%	2%
Home Appliance	3%	2%	1%
Other	19%	13%	16%

Source: MPI

Changes of Key Real Estate Indicators



Changes: 2014 → Jan.-Nov. 2015

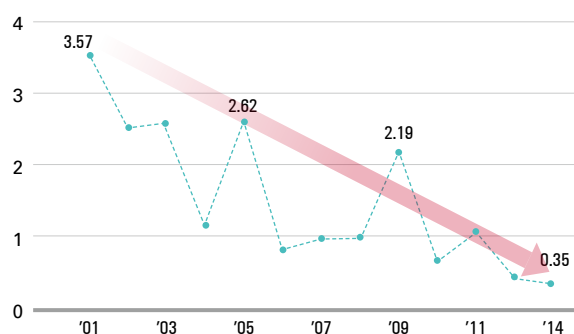
- Land area purchased (−14% → −33.1%)
- Floor space of real estate started (−10.7% → −18.4%)

China has already reached its peak steel in all likelihood, and then gradual negative growth led by structural changes is expected to continue for the long term.

and that of the household electronics industry dropped 2%p. The share of the real estate and construction industry, the largest steel-consuming industry, remained at 55-56% for the same period. This means that reduced steel demand in China can ultimately be attributed to the slow-down in real estate and construction, the industry with the highest share of steel consumption. In fact, in 2014, when apparent crude steel consumption took a downturn in China, a substantial slowdown in real estate was evidenced by negative growth rates in two real estate indicators: land area purchased (-14.0%) and floor space of real estate started (-10.7%). These rates were depressed even further in 2015.

One of the reasons that steel peaked early in China is that China's economy has slowed continuously and evolved in such a way as to reduce consumption of steel. In effect, the GDP elasticity of China's steel demand (steel demand growth rate/GDP growth rate) fell from 3.57 in 2000 to 0.35 in 2014. This is the result of China's stagnating economy and structural changes to its

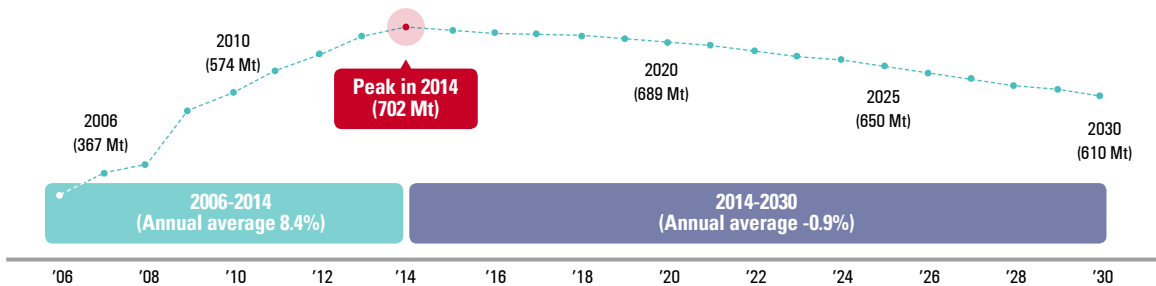
GDP Elasticity of China's Steel Consumption



Source: POSCO Research Institute, November 2015

economy. In 2013, the share of the tertiary sector in China's GDP (46.1%) surpassed that of the secondary sector (43.9%) for the first time. Comparison with Japan, Korea, and other countries confirms that China is entering into the era of decreasing steel consumption. In light of the historical pattern of advanced countries, per capita apparent crude steel consumption slowed gradually from the point when per capita GDP reached USD 10,000 (PPP based). This phenomenon can

China's Steel Product Consumption Forecast



Note : Based on real steel consumption statistics by CISA. According to worldsteel, finished steel consumption peaked at 735 million tonnes in 2013.
Source: China Metallurgical Industry Planning and Research Institute (MPI), June 2015, WSD SSS Conference, June 2015

be explained by the fact that when income levels rise, economic growth depends less on investment and more on consumption. China's per capita GDP surpassed USD 13,000 in 2014, spurring consumption-driven growth and expediting the decline of steel consumption.

A prolonged period of low growth is expected due to structural changes in China's steel industry

POSCO Research Institute (POSRI) forecasts that China's crude steel demand will decline from the peak of 766 million tonnes in 2013 to 703 million tonnes in 2015, 670 million tonnes in 2020, and 650 million tonnes in 2025. Many experts seem to agree that China's crude steel demand will continue to decline in the future. A renowned journalist from Platts Metals & Steel News also states that the palpable depression within China's steel-consuming industries, including real estate and construction, home appliances, and shipbuilding, is more severe than is

shown by government statistics. Concerns over China's economic slowdown have been mounting since China lowered its GDP growth target to 7%, from 7.5% in 2014, and the trend of decreasing steel consumption is expected to continue. However, a sudden drop in steel consumption is unlikely, because the Chinese government will not overlook the important economic and social roles that the steel industry plays in investment, tax revenue, and job creation. Li Xinchuang, Deputy Secretary General of China Iron and Steel Association (CISA), stated in SSS Conference held by WSD in June, 2015 that China's real finished steel consumption peaked in 2014 at 702 million tonnes, and projected the figure to fall gradually to 689 million tonnes in 2020, 650 million tonnes in 2025, and 610 million tonnes in 2030. This works out to an annual average decrease of -0.9%. In other words, China has already reached its peak steel in all likelihood, and then gradual negative growth led by structural changes is expected to continue for the long term. 📉



The Impact of China's Early "Peak Steel" and Scrap Generation on Steel Raw Materials Prices

Prices of steel raw materials, including iron ore and coking coal, remained low from the late 1970s to the early 2000s due to prolonged global over-supply. By 2003, prices of iron ore fines and hard coking coal had remained below USD 20/t and USD 50/t, respectively. Since then, rapidly growing steel production in China has led to a sharp rise in raw materials demand and imports. As a result, the average annual prices of iron ore fines and hard coking coal skyrocketed to USD 169/t and USD 295/t, respectively, in 2010. However, international prices of steel raw materials have begun to fall since 2012, and iron ore and coking coal prices remained in the double digits in 2015. This is due largely to the slowing growth of China, the growth engine of the global steel industry for the last decade, and competitive capacity expansion by raw materials suppliers. This article covers the direction of steel consumption and production in China, the world's largest steel raw materials consumer, comparing the estimates of major institutions. It also analyzes the impact of the early arrival of "peak steel" and increasing

scrap generation in China on international iron ore and coking coal prices.

China already reached peak steel demand

Suggestions of the early peak of China's steel consumption appeared in 2014, and have gained ground in 2015. Based on statistics of the world-steel Association, POSCO Research Institute (POSRI) predicts that China's crude steel demand will continue to decline gradually from the peak of 766 million tonnes in 2013 to 670 million tonnes in 2020, and 650 million tonnes in 2025. Despite some factors working to increase demand, including urbanization and development of Western China, China's steel demand will continue to fall modestly in the medium to long-term, mainly because of slow economic growth—particularly stagnant growth of steel-consuming industries, including construction and manufacturing. World Steel Dynamics (WSD) forecasts a rather rapid decline in crude steel demand: from

699 million tonnes in 2015, 656 million tonnes in 2020, and 643 million tonnes in 2025.

The strong correlation between China's steel production and global raw materials price

Slack demand has resulted in a decline in steel production. After surpassing 100 million tonnes in 1996, China's crude steel production increased to 823 million tonnes in 2014, thanks to robust steel demand. However, it started to fall in 2015. From January to November 2015, crude steel production stood at 738 million tonnes, a 2.2% decline year-on-year. Negative growth of 2.3% is projected for the entire year.

China's steel production has a strong correlation to global iron ore and coking coal prices. After the early to mid-2000s, when China's raw materials imports took off to satisfy soaring crude steel production, global iron ore and coking coal prices surged due to supply shortages. Since 2013, China's crude steel production growth has slowed, and major raw materials suppliers have expanded capacities competitively, causing a rapid and continuous drop in global iron ore and coking coal prices.

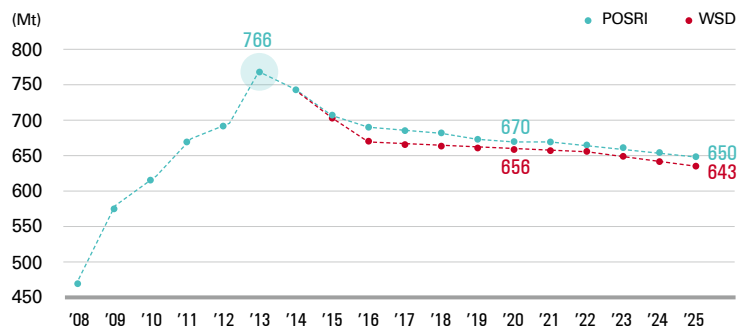
China's crude steel production during the period from 2000 to 2015 shows a correlation coefficient of 0.80 with iron ore prices and 0.58 with coking coal prices. This high correlation can be explained by the large share of China's imports in global trade of iron ore and coking coal. The share of China's imports in the global seaborne iron ore trade increased from 45.2% in 2006 to 66.1% in 2014. Due to a high share of local coking coal

production, the share of China's imports in the global seaborne coking coal trade is lower than that in the iron ore trade. This figure increased from 8.5% in 2006 to 20.6% in 2014.

Generation of massive obsolete steel scrap and changing steel production structure in China

As generation of obsolete steel scrap increases, the structure of steel production will begin to change in near future. Despite Chinese steel ex-

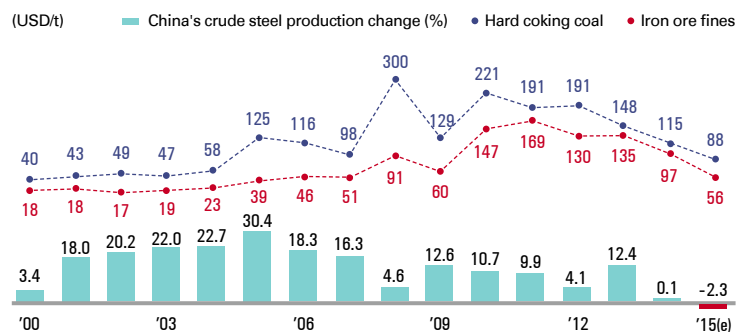
China's Steel Demand and Peak Forecast



Note: Based on crude steel

Source: POSCO Research Institute (POSRI), November 2015, WSD, June 2015

Changes in China's Crude Steel Production and Iron Ore/Coking Coal Prices



Note: Based on iron ore fines spot (Fe 62%, CFR China), hard coking coal spot (FOB Australia)

Source: China Iron and Steel Association (CISA), POSCO Research Institute, November 2015

Global Iron Ore and Coking Coal Trade and China's Import Share

		(Mt)			
		2006	2010	2014	2015(e)
Iron Ore	World Trade	714	998	1,415	1,487
	China (Share)	323 (45.2%)	619 (62.0%)	936 (66.1%)	934 (65.7%)
Coking Coal	World Trade	212	275	301	314
	China (Share)	18 (8.5%)	47 (17.0%)	62 (20.6%)	66 (21.0%)

Source: SteelHome, June 2015, AME, Wood Mackenzie, 2015

China's Steel Scrap Supply and Demand Forecast

		(Mt)			
		2014	2017	2020	2025
Supply	Obsolete Scrap	37	57	104 (128)	176 (192)
	New & Home Scrap	72	76	74	72
	Total (A)	109	133	178	248
Demand (B)		111	124	143	160
Net Export (A-B)		-2	9	35	88

Note: Parentheses denote data from SteelHome, November 2015
Source: POSCO Research Institute, November 2015

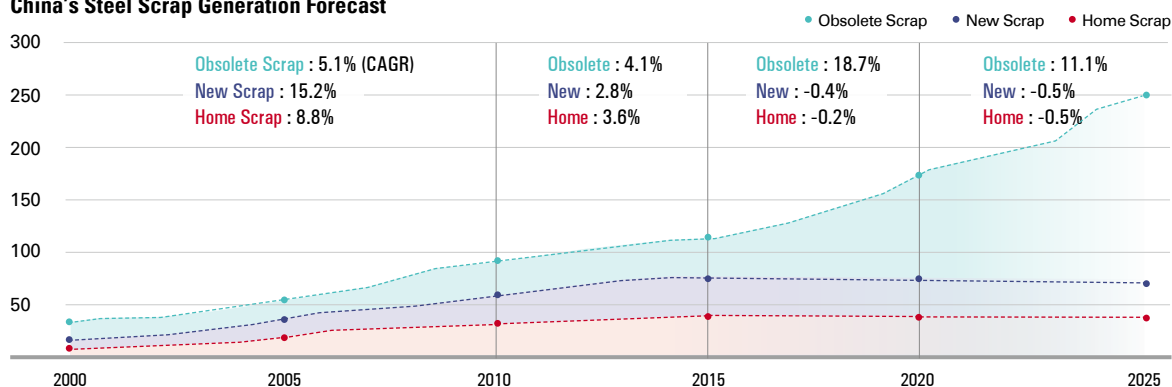
port surge, China's crude steel production will start to decline in 2015, due to the early peak of steel demand in China. POSCO Research Institute forecasts that China's crude steel production will decline from 823 million tonnes in 2014 to 780 million tonnes in 2020 and 750 million tonnes in 2025. Meanwhile, steel scrap reservoir is projected to increase by approximately 100 million tonnes every five years, leading to a rapid increase in the generation of obsolete steel scrap. This will transform the steel production structure, for example, increasing production by electric arc furnaces (EAF). China's crude steel demand has continued to rise since it passed the 100 million tonne threshold in 1993 and reached 740 million tonnes in 2014. According to SteelHome, China's steel scrap reservoir rose from 48 million tonnes in 2000 to 112 million tonnes in 2014, and will reach 213 million tonnes in 2020, and 320 million tonnes in 2025.

Based on the steel demand and production trends in China, obsolete steel scrap generation will surge dramatically over the next ten years,

while new steel scrap, generated by the automotive and other steel-consuming industries, and home steel scrap, produced during steelmaking, will see a modest decline. POSCO Research Institute projects that total steel scrap generation in China will increase significantly, from 109 million tonnes in 2014 to 178 million tonnes in 2020, and 248 million tonnes in 2025. Therefore, China is expected to become self-sufficient in steel scrap in 2017, and then turn into a net steel scrap exporter. Assuming a recovery rate of 60%, SteelHome forecasts that China's obsolete steel scrap generation will increase to 128 million tonnes in 2020, and 192 million tonnes in 2025.

In the meantime, the surge in obsolete steel scrap generation will lead to Chinese integrated steel mills using more scrap in the steelmaking process, and expanding production by the EAF steelmaking process. SteelHome predicts that the average hot metal ratio (HMR) of Chinese integrated steel mills will fall from around 90% in 2014 (steel scrap consumption per tonne of crude steel = 107kg) to 85% in 2020, and 80% in 2025,

China's Steel Scrap Generation Forecast



Source: POSCO Research Institute, November 2015

Based on the steel demand and production trends in China, obsolete steel scrap generation will surge dramatically over the next ten years, while new steel scrap and home steel scrap will see a modest decline.

as steel scrap consumption increases. However, considering overcapacity in China's upstream process, Chinese steel mills will be slow in building and expanding EAF facilities in the medium to long-term.

As total steel production declines and HMR decreases with the rise in scrap consumption, China's demand for ironmaking raw materials, including iron ore and coking coal, is expected to decline further. Due to the decrease in crude steel production and HMR, China's pig iron production is expected to fall from 712 million tonnes in 2014 to 660 million tonnes in 2020, and 628 million tonnes in 2025. Accordingly, production of crude iron ore

will fall to 1.0 billion tonnes by 2025, and considering the trend in iron ore demand, iron ore imports will decline to 888 million tonnes. Iron ore production will fall further than iron ore imports, because China's average production cost (USD 70/t) is much higher than that of major suppliers. In spite of declining steel production, China's coking coal imports climbed to 62 million tonnes in 2014, and will gradually increase to 70 million tonnes in the medium to long-term, as a result of declining domestic production under strict environmental regulations and increased imports from Australia, according to AME Group.

The downward trend in steel raw materials prices will persist, because China's steel demand and production peaked early, and major mining companies will continue to maintain their capacities.

A prolonged period of low raw materials prices anticipated

Global iron ore and coking coal prices are decided by various fundamental and non-fundamental factors. The shock from China—early “peak steel” and scrap generation—is expected to have a profound impact on prices. Iron ore prices are very likely to remain low for an extended period, because mining's big three—Vale, Rio Tinto, and BHPB—have increased market share and cost competition through mine construction and expansion, and because China's iron ore imports, which account for 66% of global trade, have begun to decline. Despite falling steel production in China, coking coal imports will likely increase, because China's imports account for only 20% of global trade and the country is under strict environmental regulations. Rising imports put relatively low downward pressure on coking coal prices, yet there is slim possibility of a rebound.

Taking into account changes in market conditions and the forecasts of major institutions, global

spot prices for iron ore fines (CFR China) are projected to be below USD 50/t in 2016. However, in the medium to long-term, they will remain low, below USD 70/t. Due to weak demand and a production increase in Australia, global spot prices for hard coking coal (FOB Australia) are also expected to be around USD 80/t in 2016, and continue to remain below the average for the past five years in the medium to long-term, even if Chinese imports remain steady and North American exports fall. For reference, the average prices of iron ore fines and hard coking coal from 2011 to 2015 were USD 117/t and USD 167/t, respectively.

The changing strategies of global steelmakers

In conclusion, overcapacity will worsen, and the downward trend in steel raw materials prices will persist, because China's steel demand and production peaked early, and major mining companies will continue to maintain their capacities. In other words, the early peak of China's steel consumption will lead to a decline in steel production, but

China's Pig Iron Production and Iron Ore Supply and Demand Forecast

(Mt)

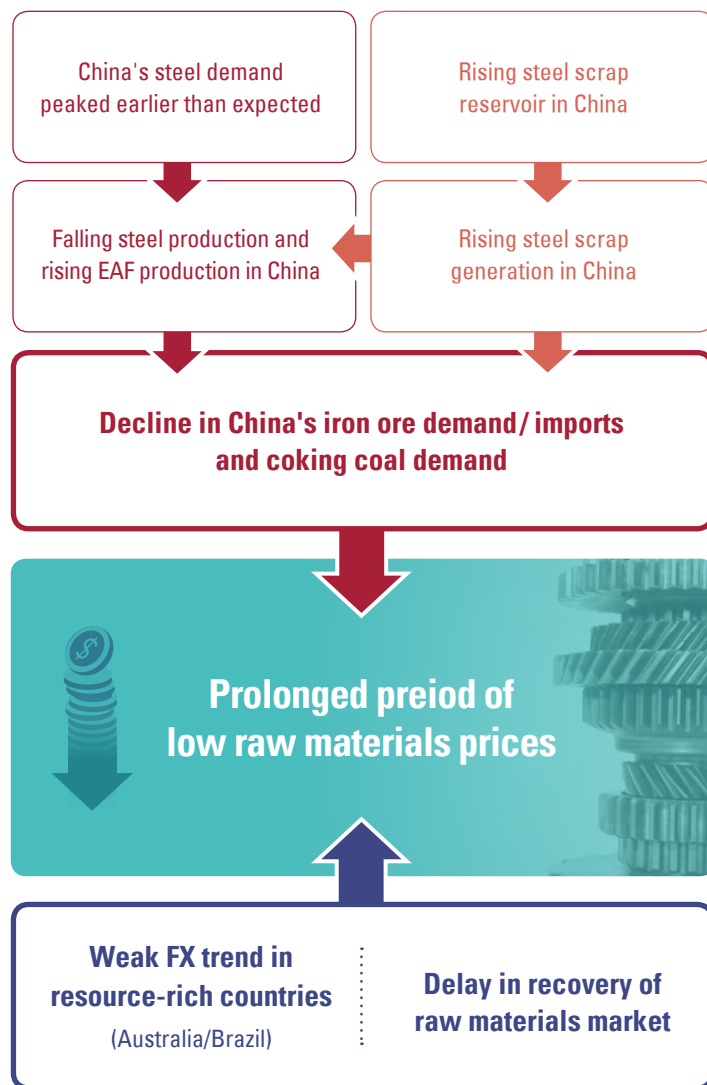
	2014	2015(e)	2020(f)	2025(f)
Pig Iron Production	712	691	660	628
Iron Ore Production	1,514	1,495	1,100	1,000
Iron Ore Imports	933	934	940	888

Source: POSCO Research Institute, November 2015, Deutsche Bank, June 2015

steel consumption over the last two decades will likely cause a sudden increase in steel scrap generation and reservoir. As a result, China will increase EAF production modestly, and the decline in HMR in Chinese integrated steel mills will drag down demand for ironmaking raw materials.

Market share and cost competition among iron ore suppliers is fierce because of the demand factor of "China shock" and the supply factor of capacity expansion by major mining companies. Therefore, weak iron ore prices are projected to persist, even after 2020. As oversupply of raw materials and prolonged low price trends reduce the burden of raw materials costs for steel production, global steelmakers will drastically change their business strategies in production, sales, use of raw materials, technology, and procurement. Due to tight supply and demand and high raw materials prices for the last ten years, steelmakers have implemented cost saving strategies, but from now they will adopt strategies to improve productivity, even if they have to use more high-quality raw materials. Moreover, steelmakers are expected to change their production strategies to utilize the most of China's enormous scrap generation in the medium to long-term. 🎧

Impact of China Shock on Global Iron Ore and Coking Coal Prices



Source: POSCO Research Institute, November 2015





China's Steel Exports, Reaching 100 Mt: What It Means to Asia and Beyond

China's steel exports expected to reach an unprecedented high

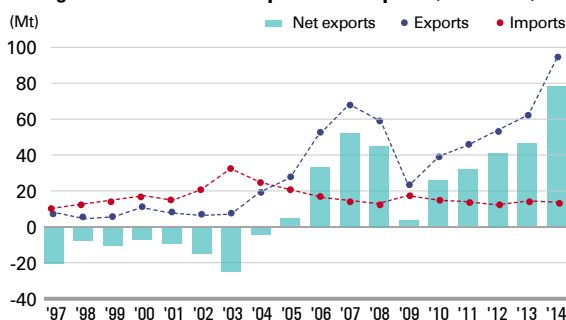
China's steel exports continue to rise sharply. They decreased for two consecutive years in 2008 and 2009 in the aftermath of the global financial crisis, then surged to 92.91 million tonnes in 2014, showing a 50.7% increase from the previous year, and breaking a record high from 2007.

The upsurge in China's steel exports continued in 2015. China's steel exports from January to November of 2015 totaled 100.17 million tonnes,

up 21.7% from the same period of 2014. At the current rate of increase, total annual exports are sure to exceed 100 million tonnes in 2015. This figure nears Japan's 2014 crude steel production (110.70 Mt), and is far above the USA's crude steel production (88.2 Mt).

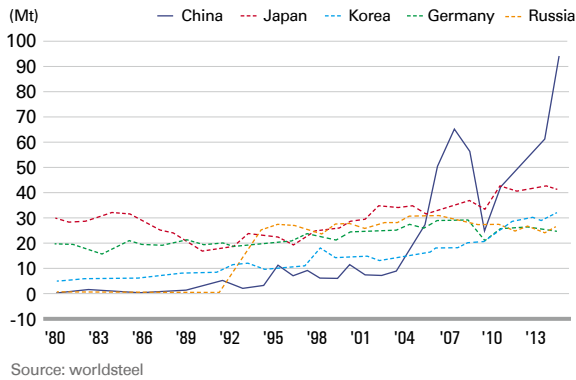
After emerging as the world's largest exporting nation in 2006, China has maintained its status as the biggest steel exporter, save for one year, in 2009. As China's export amount increases, its share in global exports continues to grow. China's share in global exports rose from around 6% in 2005 to 21% in 2014. Because China's exports are concentrated in Asia, their impact on the region is significant. In fact, global steel exports are segmented by region, and intra-regional trade is predominant. By quantity of exports in 2014, 81.9% of exports by 27 EU countries went to destinations within Europe, and 52.3% of US exports went to destinations within North America. China, Japan, and Korea export 66.6%, 81.7%, and 63.3%, respectively, within Asia, showing a very high proportion of intra-regional

Changes in China's Steel Imports and Exports (1997-2014)



Note: Includes finished and semi-finished products
Source: worldsteel

Steel Exports by Major Exporter



exports.

Let us take a moment to examine China's export structure. In 2014, China's top ten steel export destinations were all in Asia, except for the USA. China's largest export destination is South Korea, which accounted for 14% (about 13 Mt) of China's total exports. China's key export markets outside of Korea include Vietnam, Philippines, Thailand, Indonesia, Singapore, India, and the USA. By product, China's steel exports comprised 47% flat products, 41% long products, and 11% steel pipes in 2014. In order of highest quantity exported, China exported most of its flat products to the ASEAN, Korea, Central and South America, and the EU, and long products to the ASEAN, Korea, the Middle East, and Africa.

Heating rivalry among the three Northeast Asian nations

With the increase in China's exports, export competition is intensifying among the three Northeast Asian nations—China, Japan, and Korea.

World's Top 10 Steel Exporters (2014)

(1,000 tonnes)

	World	451,181
1	China	92,907
2	Japan	41,346
3	Korea	31,906
4	Russia	27,025
5	Germany	24,757
6	Ukraine	21,492
7	Italy	17,328
8	Turkey	16,241
9	France	14,944
10	Belgium	14,161

Source: worldsteel

China's Steel Export Structure by Destination (2014)

(1,000 tonnes)

	Long Products	Flat Products	Turbular Products	Total	Share
Asia	29,628	26,952	5,168	61,849	66.6%
Korea	4,514	7,934	497	12,978	14.0%
ASEAN-6	13,236	9,196	1,690	24,151	26.0%
Middle East	4,226	3,323	1,605	9,162	9.9%
Central & South America	2,535	5,538	1,389	9,468	10.2%
Africa	3,347	2,197	1,161	6,717	7.2%
EU15	1,017	4,333	443	5,829	6.3%
North America	1,064	2,283	1,008	4,383	4.7%
USA	708	2,108	444	3,284	3.5%
Other Europe	715	2,234	928	3,885	4.2%
Oceania	223	136	407	775	0.8%
Total	38,529	43,671	10,504	92,907	100%

Source: Calculated by author based on ISSB statistics

The world's top three steel exporters are key markets for one another, and have a common target market, the ASEAN.

The three countries maintain very close mutual relationships in steel trade. For example, China and Japan constitute the majority of Korea's steel imports, accounting for 60.0% and 33.0%,

Top 10 Steel Export Destinations of China, Japan, and Korea (2014)

(Mt)

CHINA				JAPAN			KOREA		
	Destination	Amounts	Share	Destination	Amounts	Share	Destination	Amounts	Share
1	Korea	13.0	14.0%	Korea	7.2	17.4%	USA	5.7	17.8%
2	Vietnam	6.6	7.1%	China	5.8	14.0%	China	4.3	13.6%
3	Philippines	4.8	5.1%	Thailand	5.5	13.3%	Japan	3.8	12.0%
4	India	3.8	4.1%	Taiwan	3.3	8.1%	India	2.3	7.1%
5	Thailand	3.7	4.0%	USA	2.5	6.1%	Thailand	1.6	5.1%
6	Indonesia	3.4	3.7%	Vietnam	2.3	5.6%	Vietnam	1.6	5.0%
7	USA	3.3	3.5%	Indonesia	2.0	4.8%	Indonesia	1.6	4.9%
8	Singapore	3.2	3.4%	Malaysia	1.6	3.9%	Mexico	1.5	4.6%
9	Taiwan	2.8	3.0%	India	1.6	3.8%	Malaysia	0.9	2.7%
10	Hong Kong	2.6	2.8%	Mexico	1.4	3.4%	Taiwan	0.7	2.1%
	Total	47.2	50.7%	Total	33.2	80.3%	Total	24.0	74.9%

Source: Calculated by author based on ISSB statistics

respectively, in 2014. In the same year, Japan and Korea were the two largest sources of China's steel imports, accounting for 42.9% and 32.0%, respectively. Similarly, Korea and China were the largest sources of Japan's steel imports, accounting for 57.9% and 23.7%, respectively. This shows how the three countries provide integral markets for one another.

At the same time, the three countries are engaged in fierce competition in the ASEAN market. Recently, a sudden rise in China's share in the ASEAN market is driving down the shares of Japan and Korea. China's market share in the ASEAN-6 nations—Indonesia, Vietnam, Thailand, Philippines, Malaysia, and Singapore—surged from 14.0% in 2009 to 46.4% in 2014. By contrast, Japan and Korea's market shares in the ASEAN-6 were 23.4% and 12.5%, respectively, in 2014. Considering that China's exports to the ASEAN from January to September of 2015 were 45% higher than those in the same period of

2014, China's ASEAN market share is expected to rise further.

With regional diversification, China's overflow impact spreads across the world

Although China's steel exports are concentrated largely in Asia, China is diversifying its export destinations, and China's influence in regions outside of Asia is growing. The share of the top 10 destinations in China's steel exports dropped from 80.0% in 2004 to 50.7% in 2014. By region, Asia's share tapered from 74.3% in 2004 to 66.6% in 2014, while the shares of Europe, Africa, and the Americas grew from 7.1%, 1.9%, and 13.9% in 2004 to 10.5%, 7.2%, and 14.9%, respectively, in 2014.

Around the world, countries are reacting sensitively to China's increasing exports. On April 20, 2015, eight steel associations of North America, South America, and Europe issued a joint statement expressing concerns about China's

steel industry policy. In the statement, they criticized the government's wide-ranging directives and its control over the steel industry. They also argued that China should reduce government intervention and allow the industry to perform according to true market forces. These associations issued another joint statement on June 16, 2015 exhorting the governments of other nations to take action against China's steel industry policy, and asserting that China should not be acknowledged prematurely as a market economy.

China expected to maintain high exports

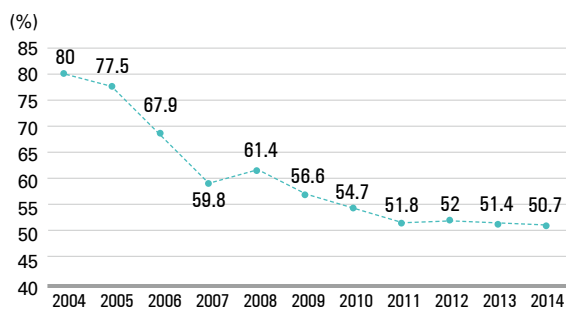
It is problematic that China is highly likely to maintain high exports in the future. Due to serious domestic oversupply and subsequent fierce price competition, steel is sold at lower prices in the Chinese market than in any other market. China's crude steel consumption decreased by 3.3% in 2014, and the first ten months of 2015 saw a 5.7% decrease from the previous year, supporting the opinion that crude steel consumption has already peaked. On the other hand, China's production capacity has not been adjusting fast enough. Crude steel production netted an increase of 0.1% in 2014, and a year-on-year decrease of 2.2% in the first eleven months of 2015, failing to catch up with the decrease in crude steel consumption. According to OECD statistics, China's production capacity will continue to grow until 2017. Therefore, China's oversupply situation does not seem to improve, and is expected to result in increased exports and price decline pressures.

Cost advantage is the fundamental rea-

son that Chinese steelmakers can continue to increase exports despite low steel prices. For Chinese steelmakers, it is estimated that costs incurred from wages and interest are significantly lower than global averages. They are also at an advantage over the global average in terms of raw materials costs and depreciation expenses. The high share of blast furnace steel production has added to China's cost advantage. As of 2014, the share of blast furnaces in steel production was 93.9%, compared to the global average of 73.7%. This is the combined result of inadequate supply of electricity, advanced large-scale blast furnace technology, and domestic shortage of scrap. The sudden drop in iron ore prices provided additional cost advantage to Chinese steelmakers, which depend largely on blast furnace production.

For Chinese steelmakers, exports have many advantages. The Chinese government removed the tax rebate on boron-added steel in 2015, but Chinese steelmakers quickly responded to this policy by replacing boron with chromium to receive rebates. In the first half of 2015, exports of boron-added steel totaled 5.97 million tonnes, down 48.5% from the first half of 2014.

Shares of the Top 10 Destinations in China's Steel Exports



Source: ISSB

Countries around the world are responding to China's rising steel exports with strengthened protection measures.

By contrast, exports of special alloy steel products, which are presumed to be composed largely of chromium-added steel, were 15.53 million tonnes, showing a 439.7% year-on-year increase. Another reason that steelmakers prefer exports is the prospect of securing high liquidity. Liang Ruodong, managing director of Sinoday Resources Co., Limited, says that Chinese steelmakers prefer exports because they can collect funds faster than domestic sales.

Within China, people seem to openly acknowledge the coming of an era of steel exports exceeding 100 million tonnes. In 2015, Wuhan Iron and Steel completed construction of a cold-rolling mill in Fangchenggang with a capacity of 2.1 million tonnes per annum. In 2015, Baosteel completed the No. 1 blast furnace of its Zhanjiang plant, which will have an annual output of

10 million tonnes. Both of these plants are in the China's southern coastal region, a geographically advantageous location for exporting to Southeast Asia and Korea. With decreasing domestic steel consumption, Chinese steelmakers are expected to concentrate efforts on entering overseas markets as a survival measure. According to Chinese mdeia, China's annual steel exports will exceed 100 million tonnes during the period of China's 13th Five-Year Plan (2016-2020).

Trade friction inevitable due to increasing Chinese steel exports

Countries around the world are responding to China's rising steel exports with strengthened protection measures. On June 17, 2015, the Indian government raised import duties on flat products and long products from 7.5% and 5% to 10% and 7.5%, respectively, in order to protect Indian steel companies from increased inflow of low-priced steel products. Moreover, in May 2015, Indonesia raised customs duties on HR, CR, and plate from the current 5% to 15%, and up to 20% on long products and galvanized steel.

Anti-dumping and countervailing duty litigation cases involving Chinese steel products are growing in number. In May of 2015, the EU imposed anti-dumping duties on imports of GO electrical steel from China, Japan, and Korea for six months. A duty rate of 28.7% was applied to Chinese steel exporters, Baosteel and Wuhan. In September 2015, the European Commission imposed definitive anti-dumping duties ranging from 24.4% to 25.3% on imports of stainless steel

Share of Blast furnace Production (2014)

Region	Share (%)	Region	Share (%)
EU	59.3	Asia	84.0
North America	38.3	China	93.9
South America	65.3	Global	73.7

Source: worldsteel

cold rolled flat products from China, and duties of 6.8% on imports of similar material from Taiwan. On June 19, 2015, Mexico imposed anti-dumping duties on imports of cold-rolled steel from China. On December 16, 2015, the U.S. Department of Commerce made a preliminary decision to impose countervailing duties of up to 227.29% on imports of cold rolled coils from China.

Whether these measures can effectively curtail China's steel exports is debatable. Since China's accession to the WTO, trade disputes involving China's steel exports have proliferated, but China's steel exports have increased continuously. According to research by Professor Wang Wuyi of Anhui University of Technology, between 1996 and 2012, a total of 147 cases of trade disputes arose involving Chinese steel products. The frequency of disputes increased after 2007, with over ten cases arising each year. This trend continued in 2015. According to Sublime China Information Group, a commodity market information service firm in Shandong, the frequency of disputes doubled to 72 in 2014 compared to the previous year, and increased by 36% to 98 in 2015. Clearly, trade friction involving Chinese steel products is not a new issue, and China's steel exports have expanded continuously in spite of unfavorable conditions.

Cooperation among nations necessary for coexistence

Now the problem is that China's influence on the global steel industry has grown enormously. China accounted for 16.3% of global steel con-

sumption and 15.1% of production in 2000, but these shares expanded to 48.4% and 49.4% in 2014. China accounted for 55.3% of the increase in global steel exports between 2010 and 2014. Consequently, China's role and responsibility in pursuing coexistence and mutual prosperity within the global steel industry are of paramount importance. China's voluntary effort to maintain an appropriate level of steel exports is prerequisite to establishing order and stability in the global steel market. In particular, regulations must be tightened on expedient replacement of boron-added steel with chromium-added steel, which takes advantage of the loophole in the export tax rebate system. China needs to reduce direct and indirect government support for state-owned steel companies, and make efforts toward promoting fair competition among countries.

In the meantime, countries must work together to create new ideas for coexistence and develop measures for cooperation in the steel industry. After the 2008 global financial crisis, countries around the world came together in G20 summits to combine efforts to bring stability to the world economy. Government officials and steel company representatives must also work together, through the OECD Steel Committee or worldsteel, for example, to seek sound measures to benefit the global steel industry. Korea, China, and Japan, in particular, might need to review measures to expand the existing Steel Dialogue, which is a bilateral forum to discuss current issues in the steel industry, to form a trilateral Steel Dialogue, so as to encourage growth and maintain order of the East Asian steel market. 🗨️



Dilemmas in Restructuring China's Steel Industry

If industries had seasons, the Chinese steel industry would be going through a frigid winter. According to the China Iron and Steel Association (CISA), major steel companies suffered a net loss of CNY 21.7 billion in the steel sector in the first half of 2015. Among the surveyed companies, 42.6% or 43 companies are running a deficit. Major steel companies entered a danger zone in 2012, when their debt ratio exceeded 200%. Will spring return to China's steel industry?

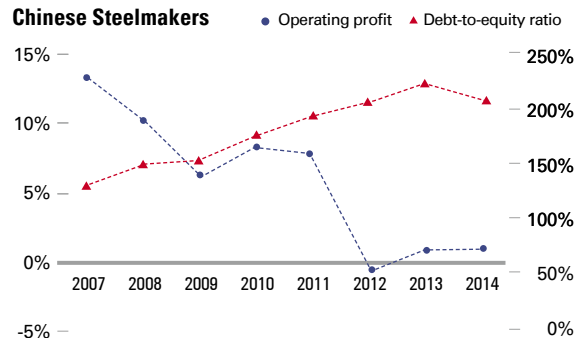
Adversity from oversupply and slowing demand

The slump in China's steel industry is fundamentally the result of worsening market conditions due to oversupply and slowing demand. According to CISA statistics, China's crude steel capacity was over 1.1 billion tonnes as of the end of 2014, with an estimated overcapacity of more than 300 million tonnes. Since the global financial crisis, the operation rate has dropped consistently, with the current level being around 70%. The nature of capital-intensive, large-scale heavy equipment

industries dictates that low operation rate equals low profitability.

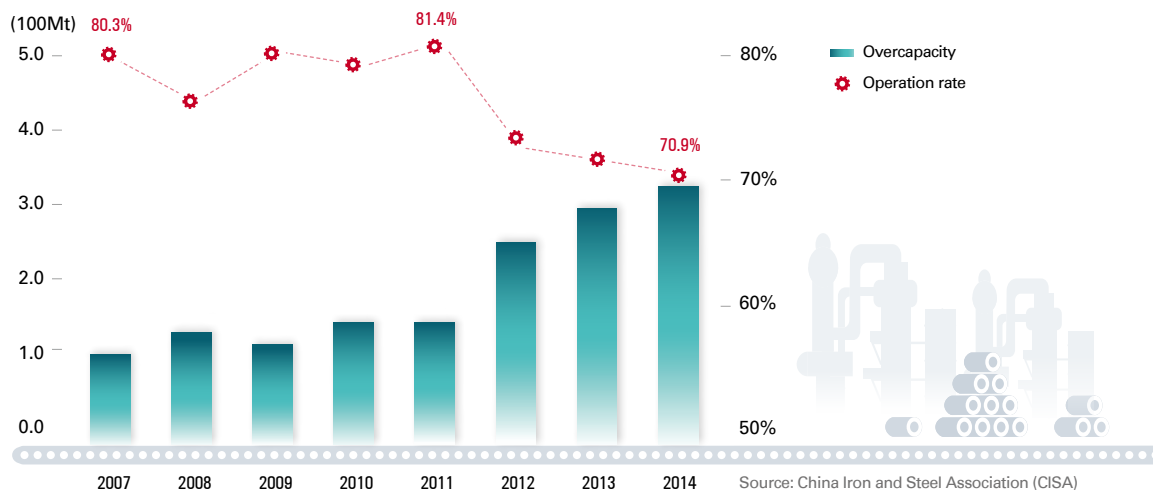
Meanwhile, apparent steel demand took a downturn in 2014, as a result of economic slow-down, diminished investment, and the stagnation of steel-consuming industries. After growing at an annual rate of over 30% during a period of rapid economic growth, investment in fixed assets recently dropped below 20%, due to changes in growth patterns under China's new leadership. To exacerbate matters, recession is worsening in major steel-consuming industries, including the

Operating Profit and Debt Ratios of Major Chinese Steelmakers



Source: China Iron and Steel Association (CISA)

Overcapacity and Operation Rate



real estate industry, which accounts for the bulk of steel demand, and the machinery, shipbuilding, electronics, and automotive industries. With increasing oversupply, steel market conditions continue to deteriorate. In the first half of 2015, the composite steel price index was down 19.7% from the same period of last year, showing a steeper decline than from the previous year.

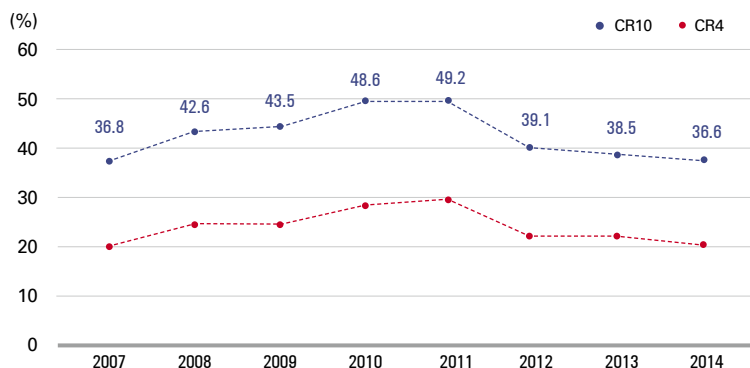
The Chinese government recognized the problem of steel oversupply early on, and began in 2004 to implement various restructuring measures to resolve the issue. The main target of China's steel industry restructuring has been the supply and demand structure. Such issues derived from the balance between production and consumption—competition structure, regional structure, and product structure—also have become the subject matters of restructuring policies. In the last decade, the Chinese government's steel industry restructuring efforts have borne some fruit, but have been largely inadequate, failing to improve the supply and demand structure and the competition structure, which are the core problems.

Improved regional balance and product quality

So far, the regional balance and product quality of China's steel industry have been much improved. After 2009, China shifted its capacity of more than 100 million tonnes from the inland regions to the Eastern Coast and other coastal regions. As of the end of 2014, the annual capacity of those coastal regions totaled 220 million tonnes. With the additional transfer of 50 million tonnes of capacity by 2020, China's coastal regions will account for more than 20% of total capacity. Regional restructuring in the steel industry, which depends on the distribution of large volumes, has contributed to the reduction of distribution costs and the improvement of urban environments.

Policy support appears to have greatly upgraded product structure. The Chinese government has extended policy support to steel companies so as to increase the proportion of locally made premium products. State-owned steel companies have been the main beneficiaries of focused support measures. A national research institute

Chinese Steel Industry Concentration



Source: China Iron and Steel Association (CISA)

for automotive steel sheet was established at Baosteel, which supplies 50% of the automotive sheet steel in the Chinese market, and a national engineering and technology research center for electrical steel sheet was established at Wuhan Iron and Steel, the largest producer of electrical steel. In 2014, Baosteel and Wuhan Iron and Steel allocated 2% (CNY 6 billion) and 3.7% (CNY 5.5 billion) of their respective sales to research and development. This is outstanding compared to the average of 1% that major global steel companies spend on R&D. As a result, China is rapidly emerging from its dependence on imports of premium steel products.

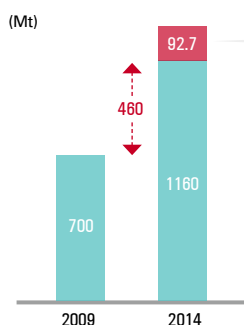
Failure to relieve oversupply and increase industrial concentration

Despite the government's adamant restructuring policy, oversupply expanded and industrial concentration diminished in China's steel industry. The steel industry's overcapacity is estimated to have more than doubled from 2010 to 2014. In

the same period, the share of the top ten companies in total production dropped from 48.6% in 2010 to 36.6% in 2014.

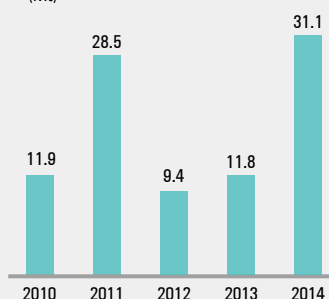
Increased oversupply is attributed to measures implemented to increase domestic demand immediately after the financial crisis, and the subsequent proliferation of unlicensed facilities. At the 2015 China Steel Planning Forum in March, Xin Renzhou, Deputy Director General of the Industrial Policy Department of the Ministry of Industry and Information Technology, disclosed that China eliminated more than 90 million tonnes of obsolete capacity from 2010 to 2014, but net capacity increase in the same period amounted to 460 million tonnes. How was this possible? China has a license system for installation of steel facilities, but to whom the licensing authority belongs is unclear. As a general rule, the central government has the authority, but local governments are responsible for working-level inspection of projects. Consequently, under local governments holding actual power on project implementation, companies

Obsolete Capacity Eliminated and Net Capacity Increase



Source: China's Ministry of Industry and Information Technology (MIIT)

• Obsolete Capacity Eliminated (Mt)



have competed to extend facilities.

The CNY 4 trillion stimulus package was launched to increase domestic demand immediately following the financial crisis, creating over 200 million tonnes of steel demand. Moreover, steel exports soared as a result of reduced export duties and increased value-added tax rebates for exports. These measures allowed private companies to recover from insolvency and expand in size. However, the Chinese government's ambitious plan to merge large state-owned steel companies fell through, and new investment stalled due to regulations. In the end, small and medium-sized private steel companies increased their capacities, while consolidation of large state-owned companies has not met the expected level yet. The result was decreased industrial concentration.

From 2010 to 2014, private steel companies accounted for 76% of newly installed capacity in China's steel industry. In the same period, small companies with annual capacities of under 1 million tonnes accounted for 80% of steel production increase. While private facilities multiplied,

strict government control kept large state-owned companies at a standstill. Among them is Baosteel's Zhanjiang project that took six years from investment proposal to approval.

For sixteen years, from 1997 to 2013, the Chinese steel industry saw 80 cases of merger and acquisition, but few were successful. Recently, Hebei Steel Group called off the merger of 12 private steel companies in the region, and Wuhan and Liuzhou chose to split up, ten years after their merger. Mergers and acquisitions led by the government came full circle, after failing to overcome the disparity in ownership schemes of state-owned and private companies, and regional conflicts of interest. This shows that voluntary integration based on market logic is prerequisite to the merger and acquisition of steel companies.

Search for relief through strengthened regulations, monetary control, and globalization

The Chinese government is changing its strategy for restructuring the steel industry, shifting the



Restructuring of China's steel industry will be a long and hard journey. The Chinese government has unwontedly pushed back its target date for restructuring by ten years, to 2025.

focus from closing obsolete facilities through administrative actions to strengthening legal regulations and weeding out failing companies through a combination of market means. The new strategy seeks to strengthen environmental and financial regulations, enforce standards, and encourage overseas expansion.

China's "new environment law" includes clauses stipulating rigorous standards and strict penalties. However, local governments are not measuring up to enforcing the law. CISA projects that CNY 200 per tonne of crude steel will be required to operate environment-friendly equipment that meets new environmental standards. Considering that this figure is more than five times the average operating profit of major steel companies in 2014, enforcing the law to the letter does not seem feasible.

On the financial front, tightened loan regulations for the steel industry are being utilized as a means of weeding out insolvent companies. This, too, is not going as planned. In response to diminished bank loans, steel companies are increas-

ingly financing businesses through private loans and nonmonetary institutions. Companies must bear the burden of increased financing fees, but they must first survive. In 2014, bank loans to steel companies decreased 1.4% from the previous year, while loans from nonmonetary institutions increased 9.2%.

In order to relieve oversupply, China is urging major steel companies to penetrate global market. However, the majority of the companies that are actually going abroad are small and medium-sized companies that can no longer depend on the domestic market for survival. How long these companies can last abroad is uncertain, considering their limited finances and experience in overseas business. The way things are at present, China is merely transferring domestic overcapacity overseas, and will face opposition from other countries.

The Chinese government is making repeated attempts to increase market function through M&A, but conditions are less than favorable. Since 2012, China's medium to large steel companies have failed to achieve an annual operating

profit ratio of less than 1%, and have lost all investment attraction. The government intends for large state-owned companies such as Baosteel, Wuhan, and Anshan to be the principal agents of M&A, but they are more interested in vertical integration to complete the value chain than in horizontal expansion. Nevertheless, even the most recent “Steel Industry Restructuring Policy” mentions “nurturing super-scale steel companies,” suggesting a disconnect between policy direction and reality.

Restructuring of China's steel industry will be a long and hard journey. The Chinese government has unwontedly pushed back its target date for restructuring by ten years, to 2025, by which time it hopes to reduce steel capacity to 1 billion tonnes and production to 800 million tonnes, and increase concentration of production by the top ten steelmakers to 60%.

Local government protectionism clouding prospects of restructuring

Since 2012, the Chinese government has published three lists, naming 305 steelmakers that meet production management standards. The government announced plans to force the closure of 200 unqualified steelmakers, including rolling mills, but there has not been one case of liquidation. Xilin, Haixin, and other steel companies that nearly went bankrupt in 2014 and were selected for forced closure are currently under receivership or undergoing reorganization proceedings led by local governments.

Across China, there are around 7,000 steel

companies, including 500 crude steel producers and 314 blast furnace mills. About 230 companies have less than 1 million tonnes of annual capacity, but only six small and medium companies stopped operation in 2014 due to insolvency. None of these six companies completed their bankruptcy proceedings, because local governments stepped in to relieve them.

The steel industry accounts for 7.6% of added value in China's economy, the highest among the seven industries with over 5% of added value relative to GDP (key industries: steel, telecommunications equipment, transportation equipment, chemical products, electric machinery, power production, and agricultural food processing). The steel industry is relatively important to the nation's employment and tax revenue, accounting for 3.7% and 2.5%, respectively. The relative importance of the steel industry is higher in local economies. Hebei Province produces 25% of China's steel, and the steel industry accounts for almost 30% of added value, and over 15% of employment and tax revenue. This is the reason that the Chinese government cannot easily take a scalpel to the steel industry.

China has made various attempts to remove the local barriers protecting the steel industry, such as adjusting evaluation standards for government officials, but regional protectionism still remains. Without an adequate bankruptcy system, the choices are either high unemployment and property loss due to the insolvency of steel companies and the burden of processing massive debts, or maintaining the status quo. Local governments are choosing the latter. 



Chinese View on the New Normal:

Q&A's with Li Xinchuang

Li Xinchuang



Li Xinchuang is the president of MPI, an expert on special government allowances of China's State Council, a professor-level senior engineer, and a licensed consulting engineer in investment. He was responsible for the design of China's national policy for the development of the steel industry from the Eighth Five-Year Plan to the Thirteenth Five-Year Plan. He has also been engaged in rejuvenation programs and industry restructuring policies to reduce overcapacity. Mr. Li has published over 70 articles about the development of the steel industry, and two monographs entitled "Sustainable Development of the Steel Industry" and "How to Transform and Upgrade China's Steel Industry."

MPI

China Metallurgical Industry Planning and Research Institute (MPI), established in 1972 with the approval of the State Council of China, is the only state-level public institute specializing in research on metallurgical industrial strategies, planning, and policies in China.

Future prospects of steel consumption in China

The downward trend in Chinese steel consumption has continued from 2014. What do you think the primary causes are?

It should be noted that real consumption of finished steel in China was about 702 million tonnes in 2014, showing a small increase rate of 1.4%. It then started to decrease in 2015, indicating that the growth of real steel consumption has been slowing in recent years. The main reasons are as

follows:

First, China's economic development has entered the "new normal" stage, which is mainly reflected by a shift in economic growth, from high speed to medium-high speed. China's GDP growth in 2014 was 7.3%, with a year-on-year decrease of 0.4%p, while that for the first half of 2015 was 7.0%, with a decrease of 0.3%p compared to the previous year. Investment has weakened significantly. The year-on-year nominal

growth rate of fixed asset investment in urban areas from January to July 2015 was only 11.2%, a decrease of 5.8%p compared to the same period of 2014. The steel industry is an important basic industry for the national economy, and growth in steel consumption is closely related to growth of the Chinese economy and fixed asset investment.

Second, steel-consuming industries are facing an economic downturn. For example, from January to July 2015, newly constructed areas totaled 817.31 million square meters, a decrease of 16.8%. According to the China Association of Automobile Manufacturers, production and sales volumes in automobiles are 13.61 million and 13.35 million units, respectively, with a year-on-year increase of 0.8% and 0.4%, respectively. The slowdown in steel-consuming industries has caused steel consumption to decline in China.

Third, in order to examine the decrease in steel consumption in China, many factors should be considered, including the improvement in steel strength, extended lifespan of steel products, improvement in metal yield, and development of a circular economy.

Do you think steel consumption in China has peaked? If so, when will the downward trend in steel consumption in China continue? What do you think about future steel consumption in the medium- to long-term?

Overall analysis shows that steel consumption in China has reached its peak. Although total consumption of steel is still high, and might rise again in certain years, we predict that it will most likely decrease. Nevertheless, steel consumption

in China will not experience a sudden fall, as it did in western countries. Rather it will realize a smooth transition from peak to stable demand.

Outlook of overcapacity and exports in the Chinese steel industry

What are China's plans to reduce overcapacity in China over the coming years?

The Chinese government and the Chinese steel industry have paid close attention to overcapacity. MPI, as the government's consulting institution, has been fully engaged in preparing national statements when the Chinese government sets measures to resolve overcapacity. MPI has also provided specialized intellectual support to local governments in implementing national policies. We believe that through the step by step implementation of the policies, we have successfully reduced steel capacity to the previously planned level. However, as we try to eliminate more capacity, we currently need to overcome various challenges so as not to fall in a dilemma. Thus, it is suggested to strengthen the execution of policies or further develop the advanced policies as follows:

First, we need to improve the mechanism of capacity reduction in the existing policies, focus on debt management as well as reorganization, and enhance the fundamentals at the government level—both central and local—and at the enterprise level. Second, we need to promote steel consumption by providing steel and steel-consuming industries with strong support to creating innovative alliances, establishing standards, and investing in R&D for better products.



Increased oversupply is attributed to measures implemented to increase domestic demand immediately after the financial crisis, and the subsequent proliferation of unlicensed facilities.

Third, we need to customize policies in several areas, including land, environmental protection, finance, and foreign investment, and coordinate them all in order to develop market competitiveness. Fourth, we also try to execute some policies more strictly to weed out companies that lack competitiveness, and strike a balance in the market.

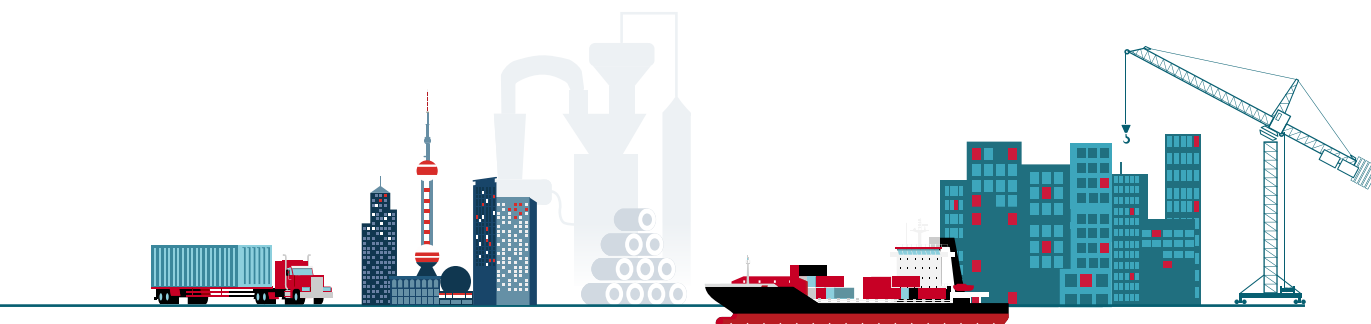
It is expected that China's steel exports will reach more than 100 million tonnes in 2015. What would be the main reason for the increase? What are your future expectations?

From January to July 2015, the accumulative export of steel was 62.13 million tonnes with an increase of 26.6% year on year, and annualized steel exports have reached more than 100 million tonnes. The main reasons for the continuous expansion in export volume of steel products are as follows:

Good quality and low production costs give Chinese steel a strong advantage in the global steel market. As the improved quality of Chinese

steel is increasingly satisfying customers' requirements, China has achieved a competitive advantage in the world. In 2014, the difference in the export (FOB) price of plate in China and Japan remained around USD 50-60 per tonne. The average price of wire rod was USD 70-80 lower per tonne in China compared to the export price of wire rod from the CIS. In 2015, the export price of steel continued to decline in China, with an average price of USD 609.1 per tonne from January to July, a decrease of 23% year on year. Due to a further decrease in export steel prices, China has a greater price advantage in the global steel market. For reference, the ex-factory price of European cold-rolled coil is EUR 463 per tonne, and that of German reinforcing bar is EUR 430-440 per tonne; on the other hand, in China, the ordinary ex-factory price of cold-rolled coil is USD 345-350 per tonne, and the ex-factory price of HRB 400 reinforcing bar is USD 295 per tonne.

Exports have eased pressure from domestic oversupply of steel when domestic steel demand was not strong. MPI expects that rapid growth of



Chinese steel exports will not last long, but the pattern of “large scale, low proportion”—which means the amount of Chinese steel exports is enormous compared to that of other countries, but its share in total Chinese steel production is low—will remain in the structure of Chinese steel exports.

The sharp rise in exports has led to increasing friction in the steel trade. What measures do you think should be taken to solve trade friction?

There is no need to worry about trade friction, because international trade disputes are a normal phenomenon in economic globalization and global integration. Anti-dumping and countervailing duties are conventional means under international trade rules. China is the biggest victim of trade protectionism, facing the most anti-dumping investigations for the 19th consecutive year, and the most countervailing investigations for the 9th consecutive year. More than 60 trade remedy investigations were launched for Chinese steel products in 2014, by eleven countries and

regions. The Chinese steel industry will never slow its pace of development. We develop towards the “diversification of export products” and “diversification of export regions,” while actively responding to trade friction. On one hand, we try to diversify export products and expand specifications of steel products, so as to avoid the risk of international trade disputes, and take action against trade protection on certain steel products. On the other hand, we try to develop new markets, such as Africa, the Middle East, South America, the ASEAN, and other developing countries, to avoid excessive concentration of exports and to realize the diversification of export markets gradually.

The possibility of long-term low prices of raw materials

The early peak in steel production and consumption has led to a sharp increase in steel reserves. A huge amount of scrap output will affect the prices of raw materials in the future. What do you

think about this?

The prices of raw materials depend on the relationship between supply and demand. The increase in scrap output and supply will have gradual but profound impacts on the steel industry in the long term. We can find these impacts not only in the raw materials structure, but also in the process, technical equipment, and industrial layout. The increase in scrap output will not seriously affect the price of iron ore within three to five years; from a long-term perspective, the increase in scrap output, reduced production capacity of crude steel, and process changes are bound to affect the price of iron ore significantly. We know that iron ore is in high demand in the international market, and that numerous factors will affect its price. Therefore, we must conduct integrated analysis of the development trend based on various factors.

Responses to the current difficulties by Chinese steel companies

What are the main reasons for Chinese steel enterprises to maintain normal production in the face of overcapacity, excess liability, and zero profit?

The steel industry, which is capital- and labor-intensive, has a long industry cycle. It has strong impacts on the economy, so if steel companies stop producing, this will cause market contraction by chain reaction. For example, market shrinkage, the loss of clients, and denied loans from banks make it difficult for companies to maintain fixed costs. At the same time, steel companies need to maintain a stable organiza-

tion structure to prevent the loss of human capital and assure proper operation of equipment. If they lose this momentum due to suspended production, steel companies, especially large state-owned companies, will bear a greater burden in resuming their operations. Therefore, suspending production is the least favorable choice for them, even in times of great difficulty. Very few enterprises stop normal production, despite profit loss or zero profit.

How do Chinese steel companies respond to the current difficulties? Could you please give us specific examples?

Chinese steel companies are sensitive to the industrial recession. Some of them have attained fruitful results in transformation and upgrading of enterprises by sophisticating their product mix, restructuring organization, improving technology, developing diversified business portfolios, and expanding overseas business operations. However, the most important thing is that major steel companies—Hebei Steel Group, Rizhao Iron & Steel, Xinxing Jihua, Shiheng Special Steel, Fangda Special Steel, and Tianjin Rochcheck Steel—have found their own business paths. In recent years, MPI has played a crucial role in helping industries and enterprises understand policies and set their strategy directions. For instance, MPI has done great work to help many of them reduce production capacity and transfer to a new development stage. All of these actions are to promote the development of the steel industry, help companies overcome business difficulties, and ultimately build a healthy

As steel companies try to overcome difficulties, and local governments support mergers and reorganization, organizational restructuring will be prevalent.

and sustainable structure.

Will Chinese steel mills engage in more mergers and reorganization in the future?

The pace of mergers and reorganization by Chinese steel companies has slowed in the “Twelfth Five-Year” period (2011-2015) compared to the “Eleventh Five-Year” period (2006-2010). Some companies have even separated their businesses in the process of reorganization. However, we acknowledge that mergers and reorganization are desirable methods of corporate restructuring.

First, as state-owned steel companies undergo reform, many of them are exploring a mixed ownership system, and large state-owned companies are even seeking a combined organization structure. Changes in the corporate system and structure will continue in the future.

Second, the Chinese government has released a series of documents, including “Instruction Opinions on Accelerating Mergers and Reorganization of Key Industrial Enterprises” and “Opinions on Sophistication of Mergers, Reorganization, and the

Market Environment.” It has focused on taxation, financial support, land policies, and personnel relocation to create a favorable market environment for mergers and reorganization. We believe that these policies will promote corporate restructuring in the Chinese steel industry through mergers and reorganization.

Third, large-scale restructuring plans for major steel provinces such as Shandong and Hebei will lead to reorganizing the overall structure of the Chinese steel industry. Thus, relevant departments and local governments have been focusing on restructuring to bring successful results.

Fourth, for the relatively short period, China’s steel industry can expect continued hardship due to poor capacity utilization and low profit margin. However, as steel companies try to overcome difficulties, and local governments support mergers and reorganization, organizational restructuring will be prevalent. For this reason, we strongly believe that mergers and reorganization will help Chinese steel enterprises enter a prosperous new stage. 📌