

# The Chinese steel industry – domestic structures, internal challenges and global impact

*The phenomenal growth of the Chinese steel industry in recent years is driven by local economic development and a mix of central and local government control. Structural problems, however, do exist, including overcapacity, much outdated plant, transport infrastructure problems and a number of on-going anti-dumping cases.*

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China is certainly doing its best to keep the world mesmerised by the speed of its economic development. But even in this exceptional growth story, the Chinese steel industry stands out with an even more spectacular performance. For the last approximately 30 years its crude steel output has grown exponentially from about 25Mt in the late 1970s to nearly 500Mt in 2007 (see *Figure 1*). As a result of these developments China has become, by far, the largest steel nation in the world economy. In terms of crude steel production, China presently commands a share of more than one-third (2007: 36%) of the world's total output. With respect to the production of crude iron the Chinese share is even larger, approaching one half of the global total.

The claim that the rise of China's steel industry is founded in the massive expansion of economic activity in China since the early 1980s, and its World Trade Organisation (WTO) accession in 2001 in particular, is hardly in question. However, an exploding domestic market demand has certainly not been the only force at work in the creation of China's modern steel industry and its present venturing out on the global markets.

Although the era of central planning has long since come to an end, governmental agencies on various levels continue to exert a decisive influence on the developments in China's steel industry. These state interventions in the industry's overall development as well as the business activities of individual companies provide substantial growth and development impulses. At the same time they distort market processes and the competitive landscape of the domestic as well as global steel industry. Interestingly, the same policies that push China's national steel champions on the global markets create and/or conserve massive structural problems in China's own domestic industry set-up.

## A MULTI-LAYERED STATE-BUSINESS NEXUS

The Chinese state is still very much involved in the macro- as well as micro- management of the industry and its enterprises. It is not only that the top positions of China's leading (state-owned) steel corporations are filled exclusively with members of the Communist Party and that they may rank very high in China's party nomenclatura as well as government hierarchy – Mme Xie Qihua, former CEO and President of Baosteel, for example, had held the rank of a Vice-Premier of the PR China – the Chinese steel industry is, first and foremost, organised in a multi-layered system of state-business cartels and alliances.

At the national (central government) level we understand the development of the Chinese steel industry as being directed and more or less micro-managed by what may be called 'China Steel Inc'. This is made up of the National Development and Reform Commission (NDRC), the China Iron and Steel Association (CISA) – which by itself used to be the Chinese branch ministry for the steel industry – and the top management of China's leading steel enterprises.

This alliance of stakeholders may be interpreted as a politico-business cartel collaborating in the drafting of industry development strategies (as exemplified in the national masterplan communicated in the 'Iron and Steel Industry Development Policy' from July 2005 and the steel industry relevant sections of China's 11th five-year programme covering economic development in 2006 to 2010), as well as complementary regulatory measures. These include the provision of infrastructure endowments and access to (cheap) energy inputs and resources, technology standards and upgrading policies, industry consolidation initiatives and mergers and acquisition (M&A) policies, the rules of interaction with international players, be it on the export/import side, ▶

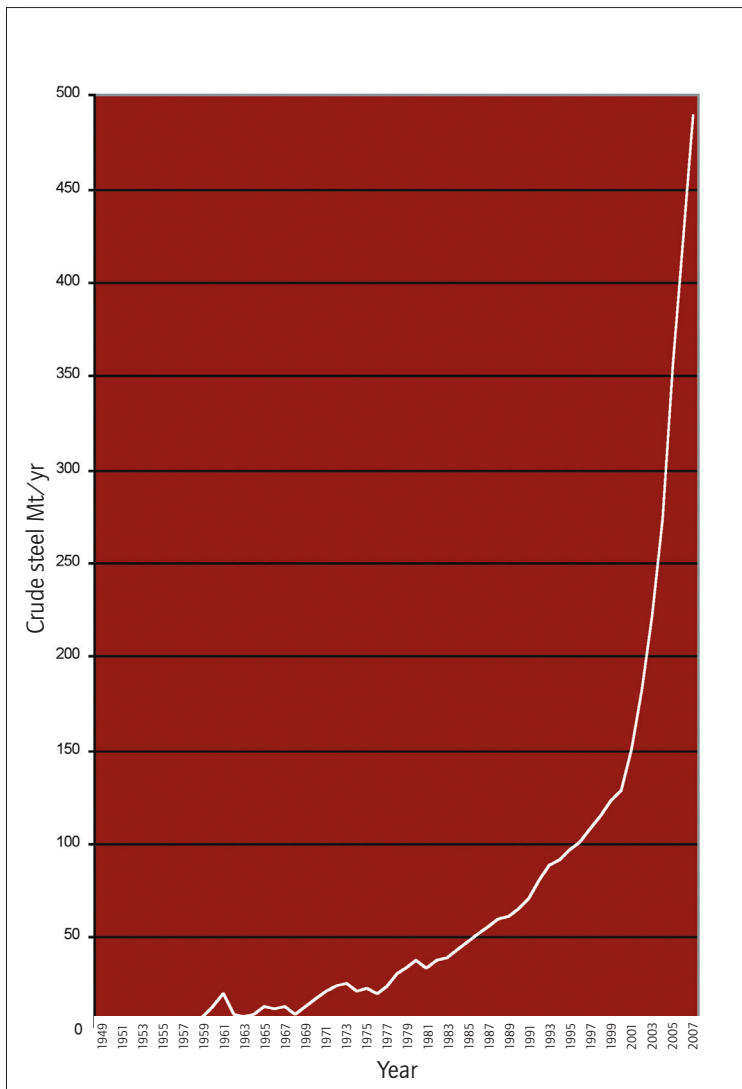


Fig 1 Development of the Chinese steel industry, 1949-2007

and regulations applying for foreign investors in China and Chinese outward investment activities.

China Steel Inc, however, is not the only form in which state organisations and business representatives of the steel industry collaborate. While China Steel Inc may be understood as an elitist club bringing the central government's top policy makers and the top managers of the leading steel conglomerates together, local governments and smaller steel enterprises often do not find their interests mirrored in the policies and business environments created by this elitist club. In response, they form their own, often very local, alliances designed to provide local steel enterprises with protection and shelter in the face of adverse (central) policies. Local governments are often more than willing to protect local steel mills from policies by which small, technologically outdated enterprises are squeezed out of the market to uphold local employment, tax-income and, not least, access to cheap steel products for the local construction industry.

A prominent example of the aspirations of China Steel Inc to micro-manage the national steel industry may be seen in its efforts to restructure and consolidate the corporate landscape by means of promoting or even enforcing M&A transactions. By limiting the right to initiate M&A transactions to companies complying with specific criteria such as turnover figures or technological capacities, the corporate landscape has been divided into 'predators': permitted to incorporate other companies, and 'prey': destined to wait for interested buyers. At the same time, however, the example of M&A activity in the Chinese steel industry provides valuable insights into the conflict of interests between central and local government organisations as well as their relative power positions.

In recent years local governments have been very successful in their efforts to react to central M&A initiatives with local counter-measures. The merger of the two major steel producers of Shandong province, Laiwu Steel and Jinan Steel, into the newly formed Shandong Iron & Steel Corp in July 2006, for example, may be understood as a defensive strategy to prevent a takeover of Laiwu Steel by the Shanghainese Baosteel. This goal has been achieved, but until today the merger exists on paper only, with Laiwu Steel and Jinan Steel still operating individually.

Due to this juxtaposition of an elitist and, in principle, very powerful China Steel Inc and a large group of local 'renegade' state-business alliances defying central policies, the Chinese steel industry as a whole is subjected to very substantial political interference while at the same time lacking an overarching regulatory framework. As a consequence, in China's present steel industry the markets are not allowed to function as they should while the political process is impeded by conflicting interests of powerful stakeholders: market failure meets policy failure.

## STRUCTURAL PROBLEMS

One result of this constellation is that while some players such as Baosteel, Anben Steel and WISCO, are upgrading their operations quite rapidly and increasingly competing with the established OECD players, the industry as a whole is riddled with a multitude of problems and lacks momentum with regard to the establishment of rational domestic market structures.

**Overcapacities and depressed price levels** After years of unabated growth and massive investment activity, the Chinese steel industry is now suffering from very substantial excess capacity estimated at 50-150Mt/yr. Inevitably, domestic steel prices are in the doldrums and hover substantially below world market prices. As China's domestic steel consumption growth has for years lagged behind capacity expansions, this phenomenon is not a surprise. However, in an environment where market forces are neutralised and political initiatives are successively losing substance on their way down from central to local government agencies, capacity expansion has been not only the dominant, but also the most feasible, strategy for all Chinese steelmakers. Ironically, it was the threat of overcapacity itself that drove companies to build new furnaces, converters and rolling mills. Aiming for economies of scale each player struggled to be ahead of the competition and be well prepared for the shake-out that should – but has yet to – come.

With the help of local government authorities – and in defiance of central policies – many small locally run mills have managed to set up technologically more advanced production facilities, upgrade product portfolios and fight their way up into the more technology intensive markets. As a consequence, weak players have not exited the market but remain active in locally protected market niches. In this context, excess capacities have gradually expanded in scope. They are no longer restricted to the lowest product segments and now can be observed in high value-added market segments as well.

**Industry fragmentation** With market clearing consolidation processes and inter-regional M&A transactions being impeded by local stakeholders, the Chinese steel industry remains highly fragmented. While the total number of steel mills is estimated to lay in the thousands, the ten largest steel producers in 2007 had a market share of no more than 35% – extremely low in comparison to other OECD markets where top-three concentration ratios run in a range of 60-85%. The prevalence of small steel mills often goes hand in hand with technologically outdated, resource-guzzling capacities that burden the environment and depress the industry's overall productivity levels. However, due to the Chinese

steel industry's complex state-business interplay neither market forces nor political measures have been able to wash out these sub-standard capacities and bring about a more rational industry structure.

## Costs to the environment and lacking sustainability

The failure to close the country's large number of technologically backward production facilities has led to serious environmental damage. Simply by closing the most inefficient and outdated production facilities China would cut its coal consumption by 50Mt/yr and save 100Mt of water. Additionally, the emission of sulphur dioxide would be reduced by 400Kt/yr. However, no decisive action has been recorded to date – and appears hard to implement given the conflicting interests of various players. On the contrary, basic inputs like electricity and water are provided to most steel enterprises at rates well below market value, thereby resulting in an excessive consumption and waste of natural resources. In a nutshell: the rise of the Chinese steel industry is built to a substantial degree on insufficient internalisation of the costs of natural resources and environmental assets in the cost calculations of China's booming steel conglomerates.

## Regional set-up and domestic transportation bottlenecks

The regional distribution of China's steel industry follows strategic considerations developed in the Maoist era which are increasingly out of touch with the needs of the country's modern economy and the capability of its frail transport logistics. The cargo rail system is no longer in a position to provide China's steel industry with competitive logistics services be it in terms of quality or scope. The supply of imported iron ore to mills located in the vast interior has become a particularly critical issue prompting the National Development and Reform Commission to encourage the construction of modern steelworks in coastal areas and near major ports. Mills located in the vast, but for the most part, poorly developed hinterland are encouraged to move to more suitable destinations along the coastline. The dismantling of Shougang's production facilities in the vicinity of Beijing and their substitution by a new plant in the coastal Caofeidian follows *inter alia* this kind of reasoning.

## WHEN CHINA IS NOT ENOUGH: GLOBAL IMPACT

The growth of the Chinese steel industry and the volatility of its supply and demand structures in particular have in recent years become an issue of global relevance. Against the background of their rapidly expanding iron and steel making capacities, Chinese companies have become a major demand factor in the global raw materials markets. In 2007, for example, China imported 383Mt of iron ore, ▶

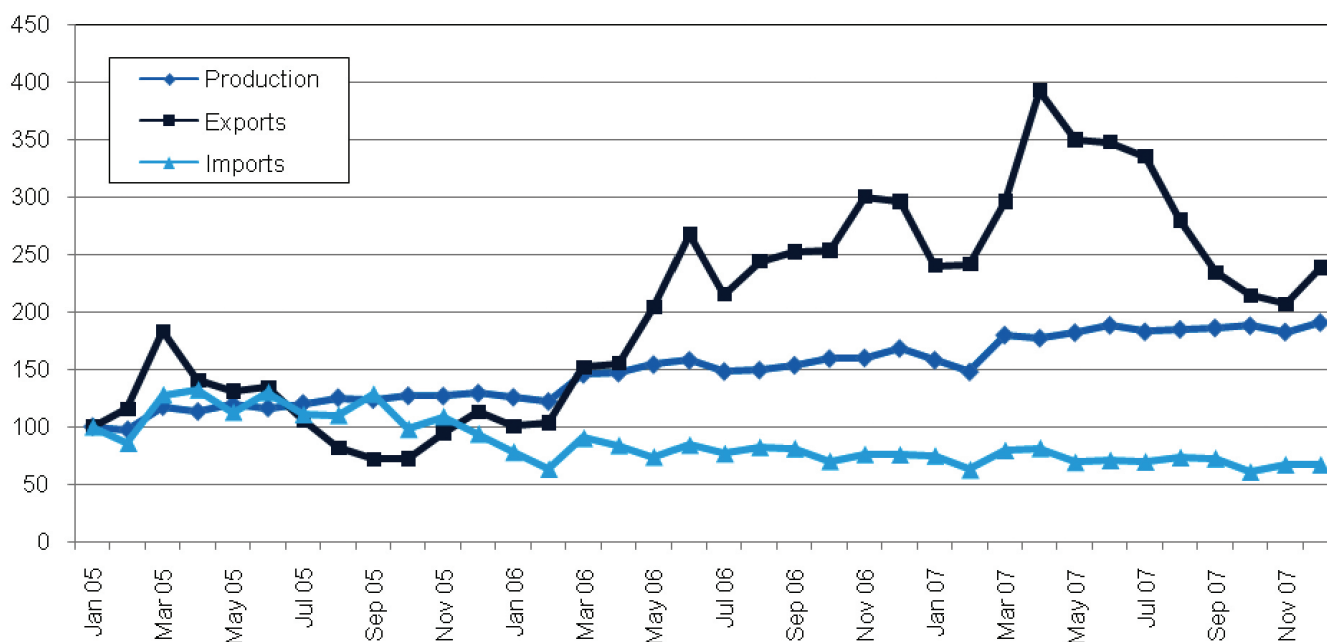


Fig 2 Index of Chinese steel product output, imports and exports (Jan 2005 = 100)

absorbing nearly half of the internationally traded iron ore – thereby straining international supplies and driving up spot market prices as well as quotations for long-term shipment contracts.

In parallel, Chinese investors have started to restructure the global raw materials landscape by acquiring mining rights and forging partnerships with foreign mine operators. This attempt to guarantee a reliable supply and stable prices for China's steel industry is supported by the Chinese government which helps by providing information, low interest loans, credit insurance and other forms of assistance. In recent years, the combination of official development assistance (ODA) by the state and foreign direct investments (FDI) by companies has become more common. By helping poor developing countries to set up or improve local infrastructure, Chinese authorities are at the same time opening the door for low-cost procurement of raw materials or even for Chinese-run mining operations in both Africa and South America. Mauritania is a recent example of the way Chinese authorities and companies can work hand in hand to assure access to iron ore deposits.

In contrast, Chinese exports of raw materials and semi-finished products have fallen in recent years as a complex

system of export taxes, quotas and licences has been put in place in order to restrict the sale of specific raw materials and steel products abroad. The export of goods that are characterised by production processes which consume large amounts of energy or cause environmental damage, like coke and zinc, are especially restricted.

By limiting the outflow of raw materials the Chinese government deliberately creates a market situation in which an oversupply of raw materials, eg, coke, greatly depresses domestic prices and permits Chinese steel producers access to low-cost inputs. At the same time, reduced export volumes cause severe distortions in the international market because the drop in deliveries from China reduces supply and lifts prices. In this way, the government's policies are lowering the costs for domestic companies while putting international competitors at a major disadvantage.

Given that China does not possess a natural competitive advantage in the production of steel it must come as a surprise that China, the world's largest iron ore importing country, which is suffering from dramatically rising import costs, has become the world's leading exporter for steel products. Yet, a six-fold increase in steel exports from 2000

to 2007, turned the country into a net exporter in 2005, and the world's largest steel exporter from 2006 onwards (see *Figure 2*). In 2007, net exports had already risen to 45Mt, but deliveries to international customers have not only increased in absolute terms, as can be measured in tonnes or \$, but also as a share of China's production output. In 2003, only 4% of Chinese steel was sold abroad, but with the rapid increase in domestic production capacities – too large to feed the domestic demand alone – China's major steelworks have moved to conquer foreign markets. While output surged, exports have risen even faster, and in 2007 14% of the total domestic production has been sold abroad.

Higher prices for steel products in many major world markets – as compared with Chinese domestic markets – provide a strong incentive for Chinese steelworks to sell ever larger shares of their products abroad. But another important reason for the vibrant export business is the technological upgrade of China's leading steel corporations. On the international market, China is no longer just a supplier of cheap, low-tech, low value-added steel. Instead it has become a major player in the field of high-end materials. Recent increases were especially strong with higher value-added finished steel products such as cold rolled sheet and metallic coated sheet.

The observed rise in exports has sparked trade conflicts with other countries that see their own domestic steel producers threatened by a rising influx of state-promoted, cheap Chinese steel. In 2006 alone, 11 countries launched 27 anti-dumping and counter-subsidy cases against Chinese steel exports. The USA, Canada and the EU have all been very active in conducting investigations into damaging Chinese exports. Since the beginning of 2007, a whole host of cases – most of them focusing on various kinds of tubes – have been initiated by the US Department of Commerce and the Canadian Border Services Agency. EU trade cases have so far targeted mainly flat products.

After reviewing complaints by the European Confederation of Iron and Steel Industries (Eurofer) on damaging imports of hot-dipped steel sheet, cold-rolled stainless steel sheet and heavy plate, the European Commission has started investigations. As far as long products are concerned, Eurofer's request to investigate the threat of Chinese imports of wire rod has not been agreed so far, while another industry association, Eurostress Information Service, has succeeded in pushing for an anti-dumping investigation into certain pre- and post-stressing wires and wire strands of non-alloy steel.

In the process of venturing out into global markets the Chinese steel industry, with its intricate web of entangled state and business interests, is facing increasing resistance from established players who see the global setting of market-based competition being increasingly undermined by a Chinese state-business cartel. In order to soften the external pressure, the Chinese steel industry will have to reform its overall set-up. However, the Chinese system of multi-layered state-business interactions and strong particularistic stakeholders stands little chance of fast reforms. Rather, it has to be expected that for the short to medium term the Chinese steel industry will experience further growth while upholding an irrational and eventually unsustainable industry set-up. Against this background international trade frictions are bound to become both more frequent and more severe.

### CONCLUSIONS

The Chinese steel industry has entered the global stage and is here to stay. But while China's leading steel conglomerates can be expected to continue (with central governmental support) to strengthen their international competitiveness and global leverage, the multitude of small, locally based players will continue to drag down the overall industry performance. Given the paradoxical constellation of very intensive political interference in corporate and industry developments coupled with a lack of macro-economic harmonisation, the Chinese steel industry can be expected to continue its path towards overall modernisation and global integration in very volatile leaps and bounds rather than by means of a steady transition.

Although the speed of capacity expansions and technological upgrading may have passed its peak, China's demand and supply positions on the global markets for steel products and raw materials will for the foreseeable future remain highly volatile. China will remain a major element of uncertainty for the global steel industry's corporate strategists. **MS**

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