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TRENDS, DEVELOPMENTS AND DATA

FIRST QUARTER 2016

Briefing note: A strategic response to the crisis in the steel industry

June 2016

This briefing note describes the steel crisis and its root causes. It then outlines the implications for a strategy to support the value chain.

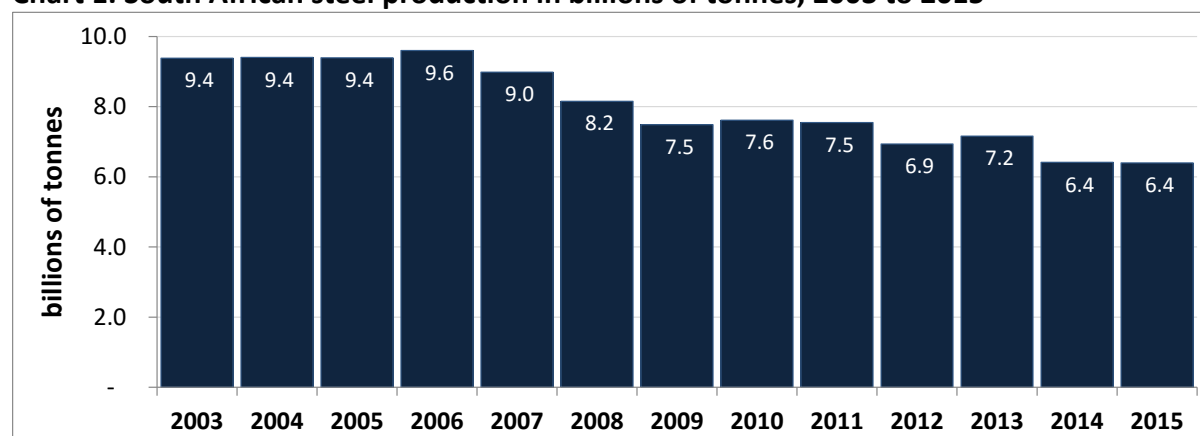
The paper considers both steel and ferro alloys producers, although they differ in some key respects – notably in the extent of exports as well as the ownership relations between mines and refineries.

1 The extent of the crisis

The crisis in the South African steel industry emerges in a number of ways.

First, as Chart 1 shows, steel production declined by 15% from 2010 to 2015, for a total fall of 33% from 2008. In dollar terms, steel exports fell by 32% from 2010 to 2015, and ferro-alloys dropped by 24%. Because of depreciation, in constant rand ferro alloys exports shrank by just 1% over the period, while steel exports dropped by 12%.¹

Chart 1. South African steel production in billions of tonnes, 2003 to 2015



Source: South African Iron and Steel Institute. Crude Steel Production. Excel Spreadsheet. Downloaded in May 2016.

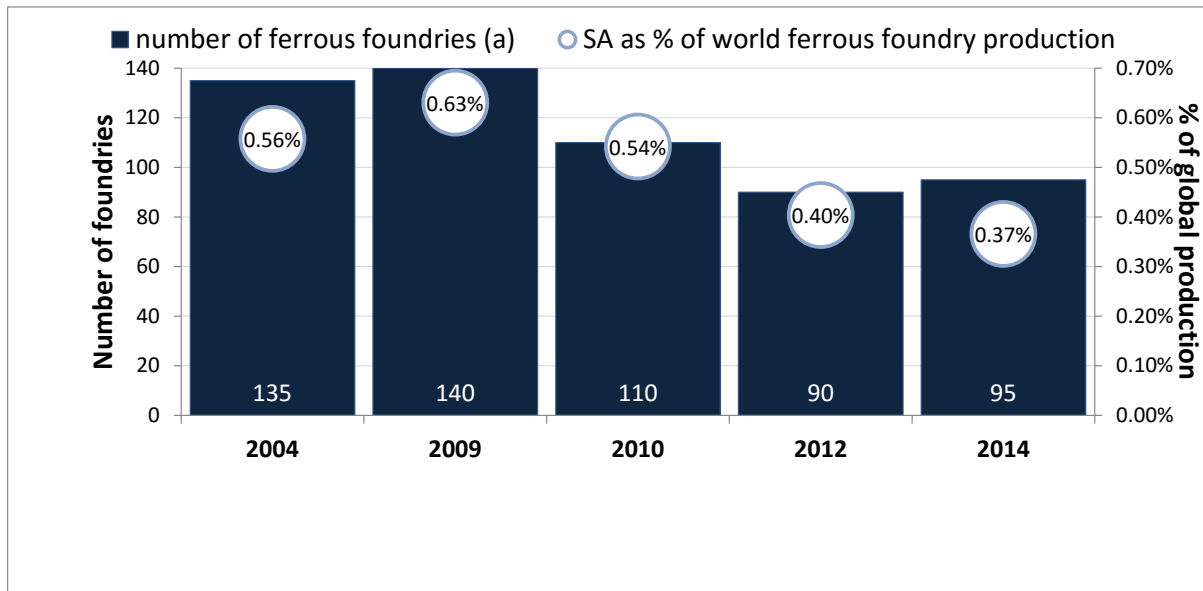
¹ Calculated from TradeMap data. Series on South African exports of iron and steel and ferro alloys in U.S. dollars and current rand. Downloaded from www.trademap.org in May 2016. Rand data deflated with PPI.

Second, outside of structural steel, profitability in the steel value chain fell sharply from 2010 to 2014. Basic iron and steel made losses for most of the past five years.²

Lower profitability in turn led to a number of closures of companies and plants.

- The number of foundries in South Africa fell from 140 in 2009 to 95 in 2014, while their output dropped 28%, from 406 000 tonnes to 310 000 (see Chart 2).

Chart 2. Number of foundries in South Africa and their share in global foundry production, 2008 to 2014



Note: (a) Figures derive from a survey of enterprises undertaken annually for the international study by the South African Association of Foundrymen. *Source:* Calculated from American Foundry Association, *Census of Global Casting Production* for relevant years. Downloaded from www.afsic.org in May 2016.

- A major ferro alloy producer, Evraz Highveld, was undergoing business rescue in mid-2016, with much of its capacity being broken up. Samancor was also looking at major downsizing.
- The pre-tax profits of the largest steel producer, AMSA, fell from R9 billion in 2008 to losses averaging R300 million a year from 2009 to 2014. In 2015, it lost R8,6 billion.

Third, employment in iron and steel refining and casting declined in line with the fall in production. It dropped from a high of 130 000 in 2011 to under 100 000 in 2015.³ Samancor, Assmang and other smaller ferro-alloy producers applied for around 3000 further retrenchments in the first quarter of 2016 alone.

² Calculated from Statistics South Africa. Annual Financial Statistics for relevant year. Disaggregated data. Series on basic iron and steel, structural steel, and other fabricated metal products. Pre-tax profits and total assets. Downloaded from www.statssa.gov.za in May 2016.

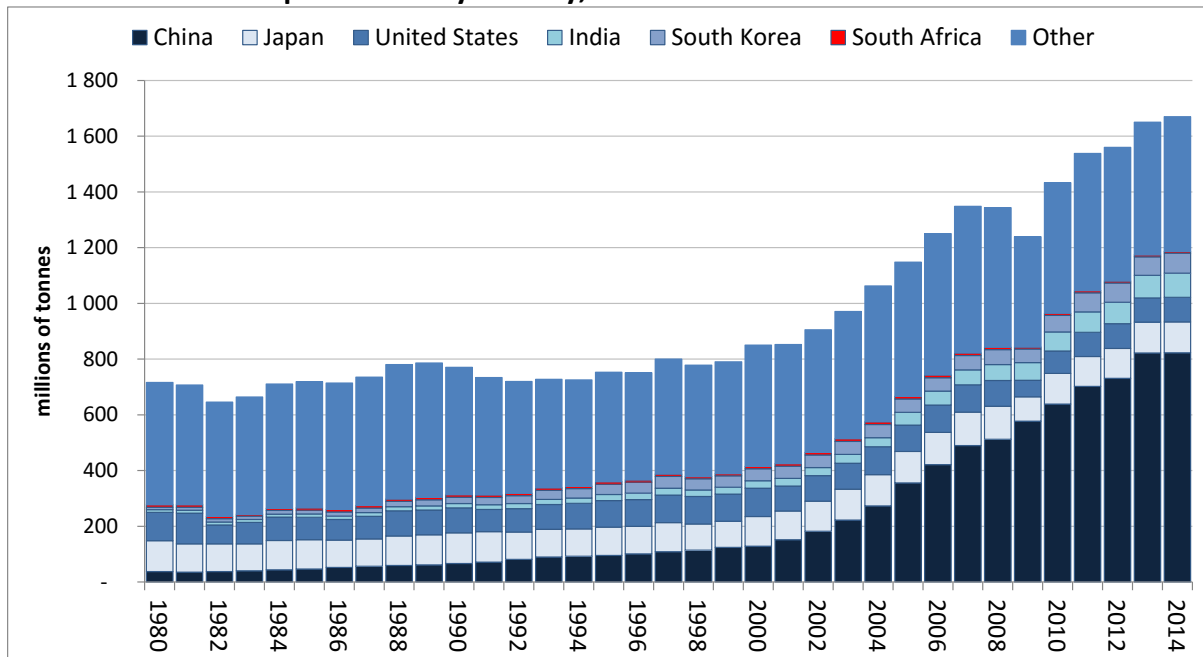
³ Calculated from annual averages of employment in basic iron and steel from the Quarterly Labour Force Survey for relevant years.

2 The global steel glut

The main cause of the South African steel crisis was a global steel glut, reflected in a rapid decline in prices from 2011. The unit price of South African exports of flat rolled steel fell from US\$680 a tonne in 2011 to US\$460 in 2015, for a drop of 32% in current dollars.⁴

As the following chart shows, global production increased rapidly from 2003, almost entirely because of increased Chinese production. China's share in global steel production climbed from 23% in 2003 to 49% in 2014. South Africa's share fell from 0,9% to 0,4%, while the share of other countries dropped from 76% to 50%.

Chart 3. Global steel production by country, 1980 to 2014



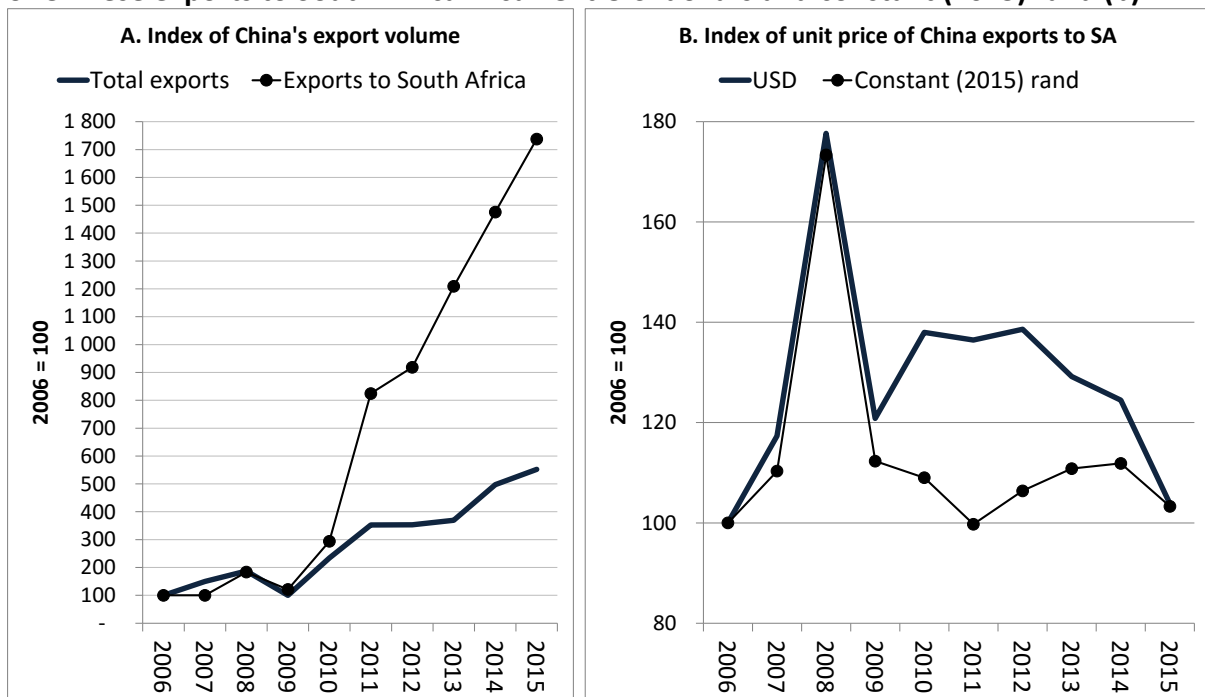
Source: WorldSteel. *Crude steel production, 1980-2014*. Downloaded from www.worldsteel.org in April 2016

Economic growth in China fell markedly in 2010, and has slowed further since then. Moreover, the Chinese government's economic priorities shifted from massive support for infrastructure investment toward encouraging demand for consumer goods and services, which are less steel intensive.

In response, Chinese steel producers, most of which are state-owned, began an export drive, with particular success in South Africa. From 2010, the price of Chinese exports of rolled steel to South Africa fell by 25% in dollar terms, although depreciation meant that in rand terms they only declined in 2015. In volume, Chinese exports of rolled steel globally climbed 2,5 times, and they multiplied six times to South Africa. Despite the fall in unit price, the value of South African imports of all iron and steel products rose from US\$206 million in 2010 to US\$474 million in 2015. The share of iron and steel products in South Africa's total imports from China climbed from 1% in 2010 to 3% in 2015. A number of countries, including South Africa, imposed safeguard and anti-dumping sanctions to protect their steel capacity.

⁴ TradeMap, series on unit price in U.S. dollars of South African exports of flat rolled, non-alloy steel. Electronic database. Downloaded from www.trademap.org in May 2016.

Chart 4. For flat rolled steel (a), indices of Chinese exports in tonnes and of the unit price of Chinese exports to South Africa in current U.S. dollars and constant (2015) rand (b)



Note: (a) HS code 7210, Flat-rolled prod of iron or non-alloy, equal to or greater than 600mm, clad, plated or coated. (b) deflated with PPI, chained from 2012 index and rebased to 2015. Source: Calculated from TradeMap, series on trade in HS 7210 in terms of volume and unit prices in U.S. dollars and ZAR. Downloaded from www.trademap.org in May 2016.

As a result of these trends, the share of imports in domestic steel consumption climbed sharply after 2010. Imports rose from 9% of the total in 2010 to 22% in 2015.

Chart 5. Imports compared to local production of crude steel

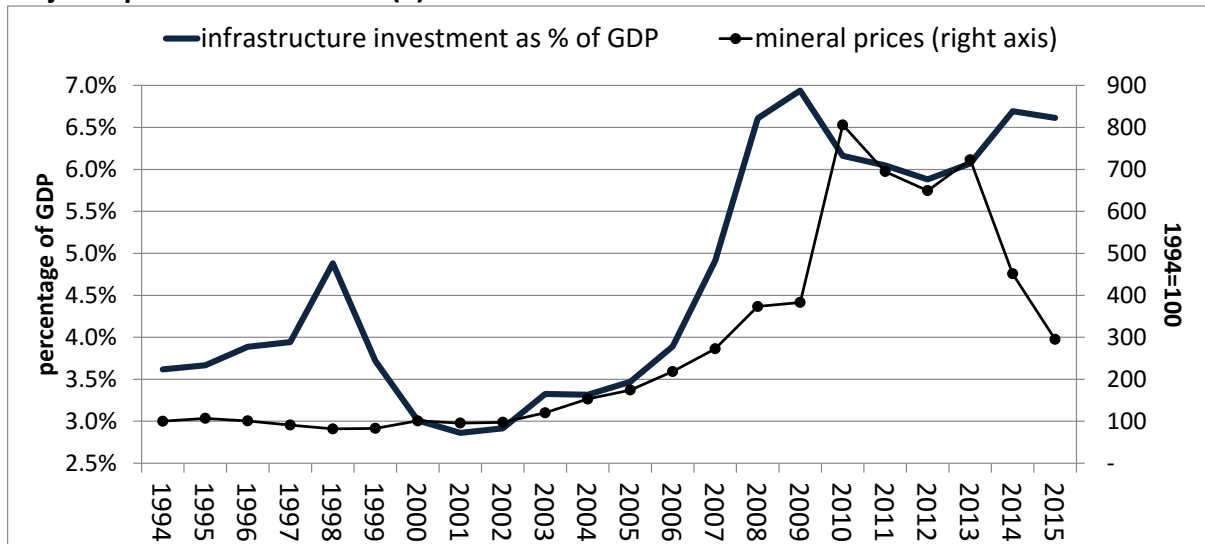


Source: Calculated from, South African Iron and Steel Institute. Crude steel production. Data in Excel format. Downloaded from www.saisi.co.za in May 2016

In the same period, South African producers of steel and steel products faced stagnant demand domestic as the commodity boom ended. On the one hand, construction and mining, which are major consumers of steel products, reduced investment as their export prices declined. On the other, the fall in commodity revenues squeezed overall economic

growth and the government budget. In response, the South African state decelerated infrastructure investment, which historically formed a major source of demand for steel. Public infrastructure investment relative to GDP tended generally to track commodity prices, as Chart 6 indicates.

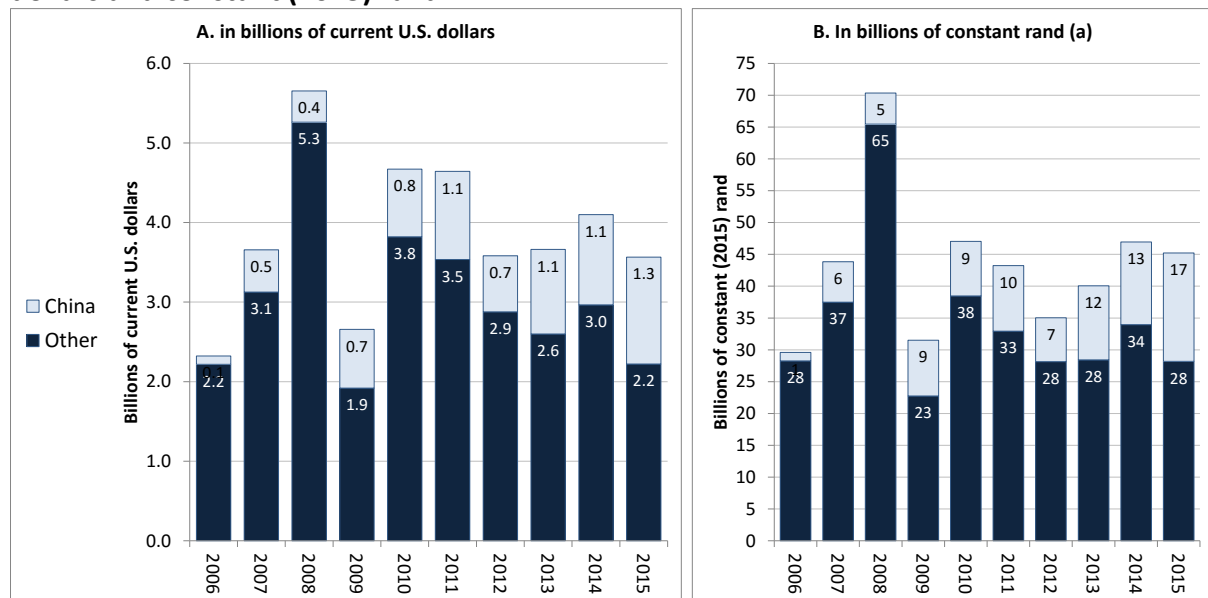
Chart 6. Infrastructure investment as percentage of GDP compared to index of price of SA major exports in U.S. dollars (a)



Note: (a) Trade-weighted average of U.S. dollar export prices for gold, platinum, coal and iron ore. Sources: Infrastructure figures calculated from South African Reserve Bank. Interactive dataset. Series on general government and SOE investment in social and economic infrastructure and on GDP. Data downloaded from www.resbank.co.za in May 2016. Price index calculated from Kitco, historical data series. Average annual prices for platinum and gold. Downloaded from www.kitco.com in May 2016. IMF. Primary Commodity Prices. Monthly data. Excel database. Series for Australian coal exports and Chinese iron ore imports. Downloaded from www.imf.org in May 2016.

The situation for ferro-alloys differed significantly from that of basic iron and steel. The bulk of South African production was exported, with South Africa accounting for around 40% of global ferrochrome exports and 11% of ferro-manganese. The main growth in the industry resulted from rising demand in China, as more established markets in the U.S., Europe and Asia stagnated following the 2008/9 Global Financial Crisis.

Chart 7. South African exports to China and other countries of ferro-alloys in current U.S. dollars and constant (2015) rand



Note: (a) Deflated with PPI, chained from 2012 index and rebased to 2015. Source: TradeMap. Series on South African trade in ferro alloys (HS 7202) in rand and U.S. dollars. Downloaded from www.trademap.org in May 2016.

Still, from 2010 the ferro-alloy producers experienced a 27% decline in U.S. dollar prices. It was partly offset by depreciation of the rand from 2011, so that in constant rand terms the unit export price for ferro alloys dropped by 8%.

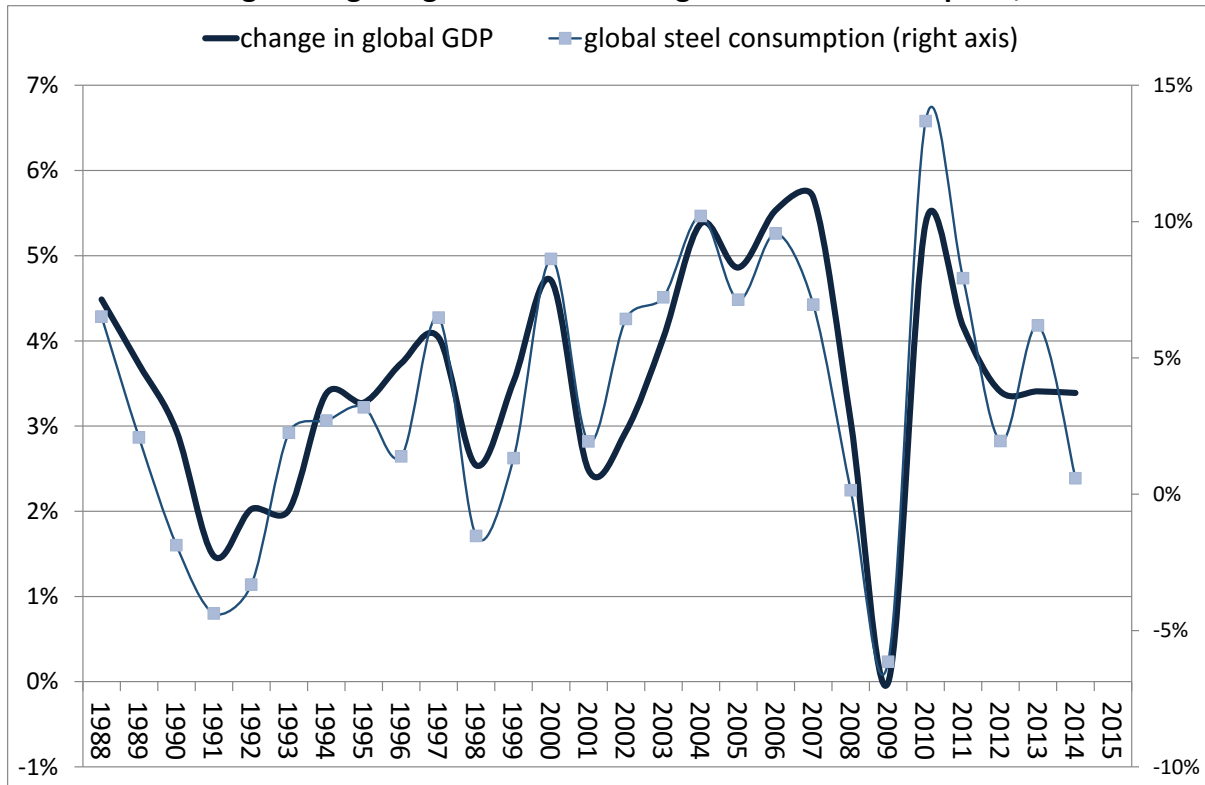
In sum, the crisis in the steel and ferro alloys industry in South Africa is primarily due to slower growth in China, which has both led to a glut of basic steel internationally and ended the commodity boom. As a result, the industry faces lower domestic and international demand and falling international prices in U.S. dollar terms. As discussed in Section **Error! Reference source not found.** below, domestic factors – notably weak investment by the steel companies during the commodity boom and the rise in electricity prices – made it harder for the industry to sustain capacity during the glut. Before addressing these issues, however, the following section explores the justification for intervening to assist the industry to weather its current downturn.

3 Should the state support the steel industry?

The South African steel value chain should be able to survive the current over-supply situation and compete internationally again when it is over. On the one hand, global demand for steel is likely to recover in five years or so. On the other, the South African steel industry has strong comparative and competitive advantages. By extension, if it can sustain its capacity during the shakeout, it should again become a valuable asset for national development.

On the demand side, the glut is likely to come to an end in the next five years or so, as global demand recovers and weaker producers go under. Global demand for steel tends to follow international growth but with significantly sharper swings, as Chart 8 shows.

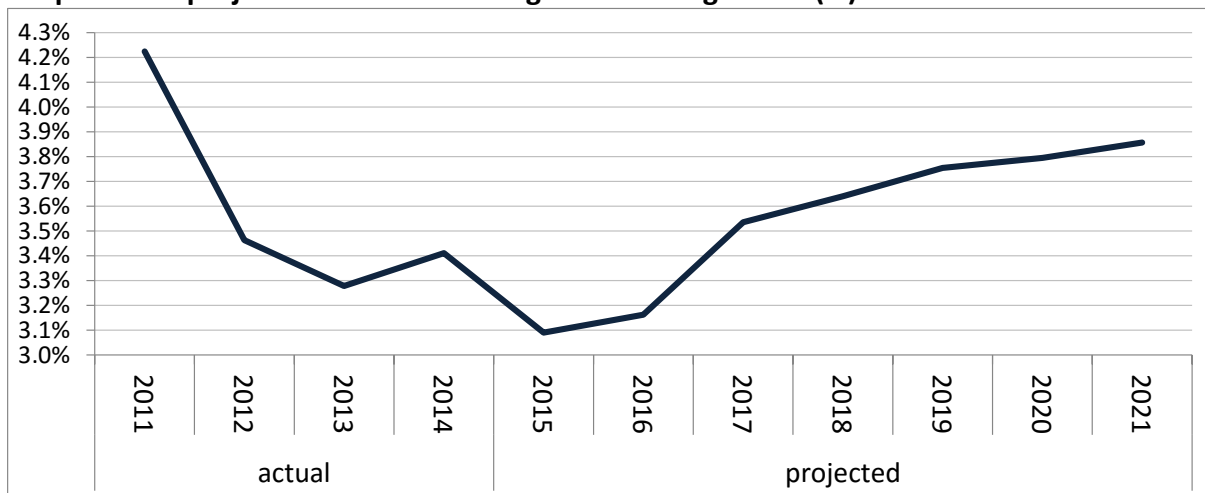
Chart 8. Percentage change in global GDP and in global steel consumption, 1988 to 2015



Source: Calculated from South African Iron and Steel Institute. Steel Cycle. Excel Spreadsheet. Downloaded from www.saisi.co.za in April 2016.

International growth slowed significantly in the past few years, but the IMF expects it to recover to almost 4% over the coming five years. While the IMF projections are often somewhat overstated, they do suggest that global steel demand will recover substantially toward the end of the decade.

Graph 1. IMF projection for world GDP growth through 2021 (%)



Source: IMF, World Economic Outlook database, April 2016. Series on GDP growth in constant prices. Downloaded from www.imf.org in April 2016.

On the supply side, the South African industry retains a number of fundamental advantages.

- South Africa has unusually high quality iron and ferroalloy ores, supported by very efficient dedicated transport networks (thanks to Transnet). Iron ore has ranked in

South Africa's top five exports since 2009. Moreover, South Africa's ferro alloy producers, especially in chrome, dominate global trade.

- There has been extensive investment in steel production capacity and skills over the past hundred years.
- South Africa boasts a number of world-class steel and ferro alloy producers and fabricators. They have been able historically to provide major inputs for mining and infrastructure as well as special steels for both domestic use and export.

Despite these advantages, the steel industry will require support to survive the current shakeout. It is worth it to for the state to intervene to address some of the challenges it faces because relinquishing capacity to produce steel would impose significant costs on South Africa. These costs can be understood by assessing the direct economic contribution of the industry, which includes the following.

1. In 2015, despite the downturn, basic iron and steel contributed 6% of total manufacturing output and 7% of exports. That made it South Africa's sixth largest export sector. In addition, iron ore generated 5% of total export revenues.
2. In 2015, the steel and fabricated metals industries directly employed around 300 000 workers. Statistics South Africa estimated their combined income at around R30 billion in 2014. That was equal to 13% of all wages and salaries paid in manufacturing.⁵
3. Based on Statistics South Africa financial data for the industry,⁶ in 2014 the steel and metal products industry paid
 - a. R2 billion in company tax, down from R6 billion in 2008 at the height of the boom,
 - b. Around R6 billion in personal income tax on wages and salaries, assuming workers paid a tax rate averaging 20%, and
 - c. Around R5 billion in VAT, assuming they paid 14% on the value add, in turn estimated as gross profits plus remuneration.
4. Less quantifiably, the steel industry has substantial technological and productive capacity embodied in its plant, skills and institutions. This capacity has spillover effects, generating knowhow, innovation and resilience for the economy as a whole.

Given the inherent strengths of the South African steel industry and its benefits for the economy, it seems worthwhile to explore measures that would sustain it during the current global downturn. The desired end-state is a steel and ferro-alloys industry that is small by global standards but competitive, with strong downstream fabrication and moderate prices for local manufacturers. To achieve this objective requires measures to address costs and bolster demand as far as possible in the short run, while supporting investments and rationalisation to modernise the industry so that it can compete when the global industry

⁵ Calculated from Statistics South Africa. Annual Financial Statistics 2014. Series on employment costs for steel, structural metal products and basic metal fabrication. Excel database downloaded from www.statssa.gov.za in May 2016.

⁶ Calculated from Statistics South Africa. Annual Financial Statistics 2014. Series on company income tax, employment costs and xx for steel, structural metal products and basic metal fabrication.. Excel database downloaded from www.statssa.gov.za in May 2016.

recovers. The following section identifies the main cost drivers in the industry as the basis for defining an effective and cost-efficient support strategy.

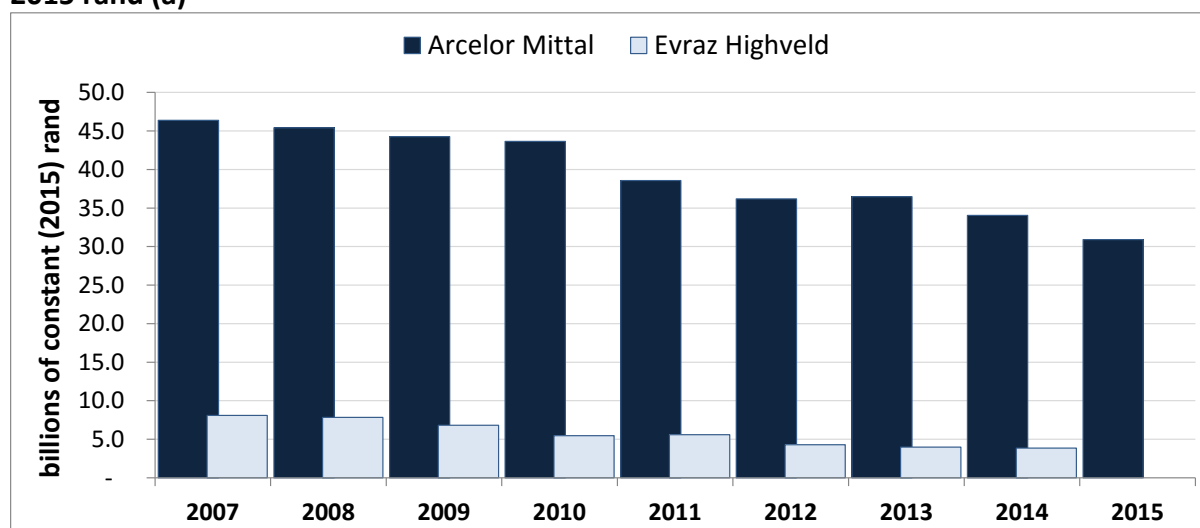
4 Cost drivers in the steel industry

An effective strategy to modernise the steel industry would have to address the key cost drivers as well as promoting appropriate investments. We here examine the key elements in turn.

4.1 Investment backlogs

During the commodity boom, companies were able to compete without investing to modernise their plant. This was particularly problematic where foreign owners saw South African subsidiaries primarily as a source of short-term profit. In constant rand (deflated with PPI), total assets in the industry shrank 13% from 2008 to 2014.⁷ As the following chart shows, the assets of AMSA and Evraz Highveld dropped by 30% from 2010 to 2015, in constant rand.

Chart 9. Assets of Arcelor Mittal and Highveld Evraz, 2007 to 2015, in billions of constant 2015 rand (a)



Notes: (a) Deflated with PPI) Deflated with PPI chained from 2007 to 2012 and rebased to 2015. Source: Assets from ArcelorMittal South Africa and Evraz Highveld, annual reports for relevant years, and Statistics South Africa, PPI data in excel format, downloaded in April 2016.

4.2 Electricity

From 2008 to 2015, the cost of electricity more than doubled in constant terms for refineries as a group.

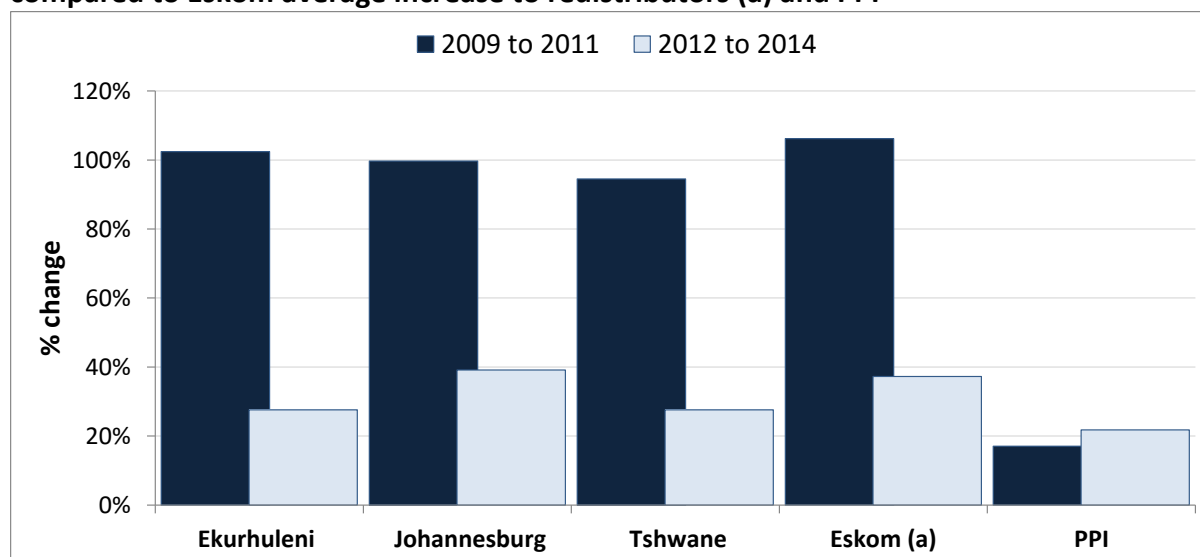
For AMSA, electricity was by far the fastest growing input into production, with the cost per tonne rising by 64% from 2007 to 2014. Its electricity payments increased in nominal terms from R700 million in 2007 to R2,1 billion in 2012, or from 3,2% of its operating costs to 6,5%.

⁷ Calculated from Statistics South Africa. Annual Financial Statistics 2014. Series on total assets for steel, structural metal products and basic metal fabrication. Excel database downloaded from www.statssa.gov.za in May 2016.

In real terms, AMSA’s electricity price increased by around 180% from 2007 to 2015. From 2013, it rose by 7% above inflation.

Downstream foundries and fabricators faced even higher increases in some cases, as some municipalities viewed the sale of electricity to industry as an important source of revenue for other activities. Over 100 foundries, constituting the vast majority, operate in Gauteng. As the following chart shows, the metros in Gauteng all increased their tariffs more or less at the same rate as Eskom, which supplied the bulk of their electricity. This rate was far above the inflation rate. As with AMSA’s direct purchases from Eskom, the rate of increase moderated from 2012, but continued to exceed inflation.

Chart 10. Budgeted tariff increases in Gauteng metros, 2009 to 2011 and 2012 to 2014, compared to Eskom average increase to redistributors (a) and PPI

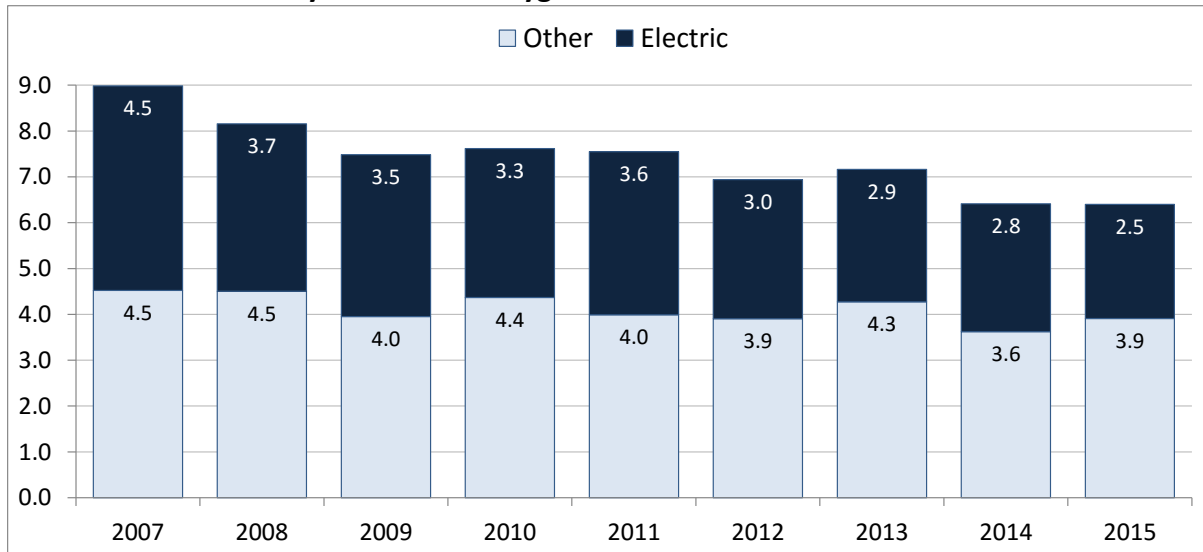


Note: (a) Eskom’s average revenue per GWh on sales to all redistributors, most of which are municipalities. *Sources:* Information on Ekurhuleni, Johannesburg and Tshwane from National Treasury. Information on municipal budgets under the MFMA. Average tariff increases for relevant years. Downloaded from www.treasury.gov.za in May 2016. Eskom data calculated from relevant Annual Reports. PPI from Statistics South Africa, PPI data in excel format, chained from 2009 to 2012. Downloaded from www.statssa.gov.za in May 2016.

In addition to soaring electricity prices, the quality of electricity supply to industry became increasingly unreliable from 2008. The major steel and ferro-alloy refineries purchased their electricity directly from Eskom. As a result, while they did not suffer from loadshedding, they were rationed to 10% below their 2008 purchases. The foundries and fabricators faced significant loadshedding in 2008 and 2015. In addition, most municipalities did not ensure consistent electricity supply, with periodic breakdowns and in some cases uneven current.

The impact of higher electricity costs and unreliable supply led to a fundamental shift in the structure of South African steel production. Overall, steel production using electric furnaces fell by 50% from 2007 to 2015, while other kinds of steel production shrank 20%. As a result, electric steel production accounted for 75% of the total fall in steel output, although it made up just 40% of the total. Amongst others, AMSA has closed down its electric-arc lines and the number of iron and steel foundries has fallen by around a third since 2008.

Chart 11. Production by electric and oxygen refineries



Source: Calculated from, South African Iron and Steel Institute. Crude steel production. Data in Excel format. Downloaded from www.saisi.co.za in May 2016

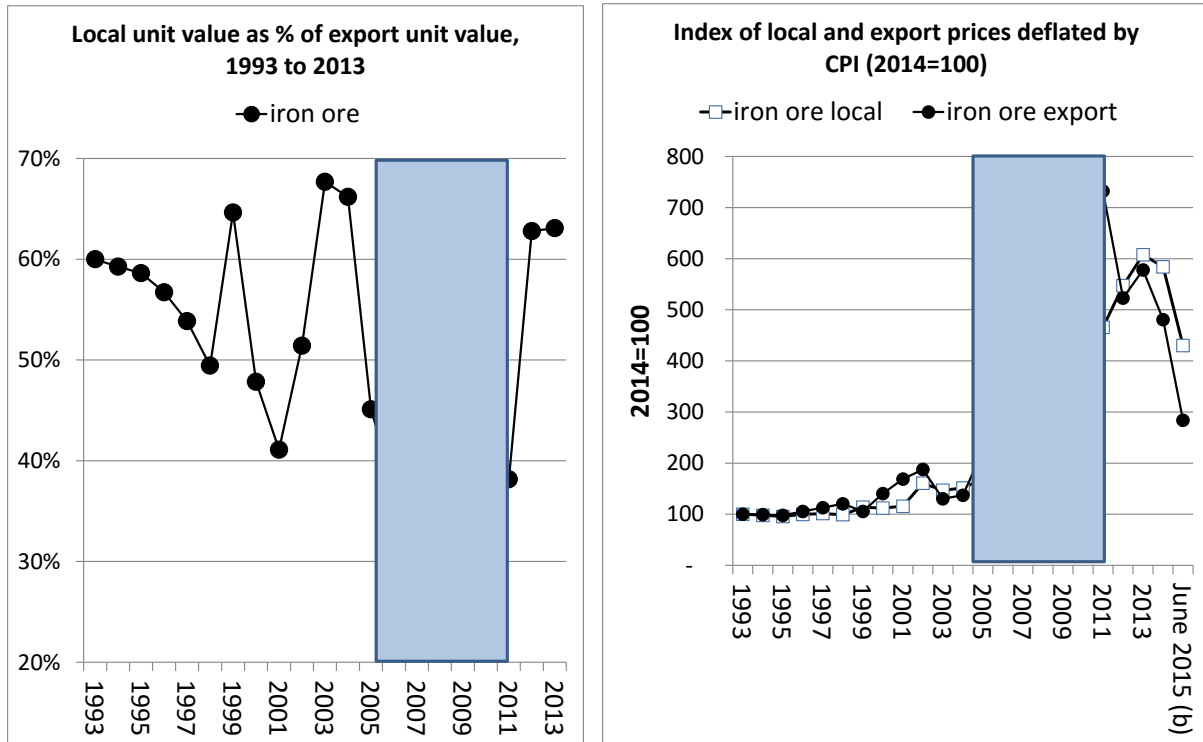
4.3 Raw materials

AMSA has to purchase iron ore from Kumba while Scaw and other major foundries depend largely on scrap. In contrast, the ferro-alloy producers generally integrate mining and refining, and can therefore balance the cost of inputs internally.

During the commodity boom, both Kumba and the metal recyclers increased exports and raised their domestic prices to match global trends. The bulk of iron ore exports went to China, while sales to India accounted for most of the growth in scrap exports.

Higher domestic iron ore prices during the boom contributed to the decline in local processing. Then, when iron ore prices fell sharply from 2011, Kumba began to see AMSA as a more profitable alternative. As the following chart shows, it proceeded to charge AMSA even more than the export cost.

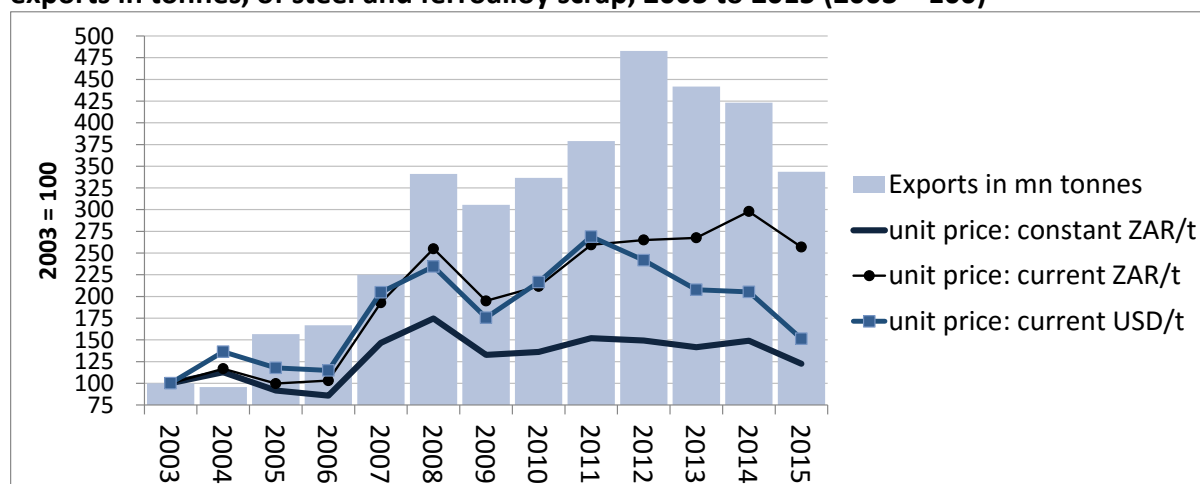
Chart 12. Iron ore domestic and export prices (a)



Note: (a) Prices (unit values) are averages calculated as the value of sales divided by the volume. (b) Figures for 2014 and the first half of June 2015 are estimated from different sources than the rest of the series, and may not be strictly comparable, although the trends are correct. *Source:* For 1993 to 2013, calculated from DMR. Tables for South Africa Mining Industry 2013 in excel format. Downloaded from www.dmr.gov.za in June 2015. Data for iron ore prices in 2014 and the first half of 2015 kindly provided by the DMR. Data for export prices were in U.S. dollars, translated using the rand/dollar exchange rate from the SARB. Data for ferro alloy prices in 2014 are extrapolated using the growth rate for the average increase in price for AMSA domestic and export sales as reported in its Annual Report for 2014.

The end of the commodity boom should have brought somewhat lower prices for steel scrap. Furthermore, ITAC regulations now require that exporters let local producers match the price of exports. Still, depreciation meant that, as long as South African scrap users had to pay export-parity prices, they did not benefit much from the fall in global commodity prices.

Chart 13. Indices of unit export price in rand, constant rand (a) and U.S. dollars, and exports in tonnes, of steel and ferroalloy scrap, 2003 to 2015 (2003 = 100)



Notes: (a) Deflated with PPI. *Source:* Calculated from TradeMap. Data on South Africa trade in ferrous waste and scrap; remelting scrap ingots or iron or steel (SIC 7204), downloaded from www.trademap.org in May 2016. Data on unit price for exports in ZAR deflated using Statistics South Africa. PPI data from 2008 and from 2012. Electronic database downloaded in May 2016. Series rebased to 2015.

4.4 Freight transport

Because of iron and steel are bulk products, freight is a major cost for producers, although it is not broken out in most accounts. Producers contended that Transnet services were both unreliable and costly for internal steel transport, for exports of steel products in containers, and for domestic iron ore lines than for export. As a result,

- Most steel foundries and fabricators ended up relying on road transport, which was relatively expensive both for them and for society (through the impact on roads and the environment), and
- Iron ore shipments to AMSA refineries and the export of refined steel products from Saldanha cost more than iron ore shipments from Kumba to the coast for export.

4.5 The regulatory framework

The regulatory framework for the steel industry changed rapidly over the past ten years. In the process,

- Various departments and agencies initiated regulations with significant anticipated and unanticipated costs to the industry, but government did not undertake an assessment of the aggregate impacts.
- A number of unanticipated costs emerged from some measures and programmes, but there was no fast-track mechanism to remedy them.

Before the global steel glut emerged, the industry could manage the costs resulting from poor alignment of policies around national priorities. In the current crisis, these costs have become a significant threat to the national steel capacity.

The main regulatory issues arose around competition fines, environmental protection, payment for back taxes and local procurement.

Competition: The Competition Commission found AMSA had abused its market power on a large scale. AMSA put aside R1,5 billion for an anticipated settlement in 2015 – a figure equal to 5% of its total revenues in that year. The settlement was however not finalised as of mid-2016, adding to uncertainty during the downturn.

Environmental protection: Steel companies faced significant costs for improved environmental protection. Steel production and fabrication use considerable electricity as well as generating greenhouse gases directly. AMSA also had to pay to clean up old Iscor sites.

Concerns raised by the industry included:

- Repeated changes in regulated standards for air and water pollution and for waste utilisation and disposal, which often ended up with unintended consequences leading to prolonged uncertainty and negotiations,
- Long delays in approvals for investments in heavy industry, which could also pose a hurdle for modernisation and internal power generation, and
- The potential cost of the carbon tax after 2019, which generated uncertainty about medium-term costs.

Back taxes: A further challenge arose around back taxes. SARS began in 2015 to charge back taxes, often in the billions of rand, for transfer pricing during the commodity boom. It assessed Evraz Highveld for close to R1 billion, and Kumba for around R5 billion. It is continuing to identify further cases of failure to pay tax during the boom.

For the companies, the challenge was that the funds had already been transferred overseas and they were barely breaking even when the tax bill arrived.

Local procurement: In terms of local procurement by the state, capital equipment has generally been designated for local fabrication. Imported steel was however deemed to be local. This deeming is currently being reversed.

Experience suggests that even where infrastructure inputs were designated for local procurement, departments and SOEs continued to import a significant proportion. That in turn points to the need to review procurement procedures to give local producers

- More time to develop capacity for the required products and
- The chance to match the prices of imports.

5 Toward a steel strategy

The crisis in the steel industry results from the global glut, but it has been aggravated by domestic supply-side factors. By extension, the steel industry should not get a simple bailout. Rather, support measures have to be leveraged consistently:

- to ensure that the industry modernises so that it can take advantage of eventual upturn, and
- To provide genuine support for industrialisation, so that resource rents and subsidies in the industry promote domestic use of steel and ultimately more competitive manufacturing and construction.

The core elements of the strategy would be:

1. Establishment of a Steel Fund, managed by the IDC, to support modernisation and rationalisation in the industry so as to ensure long-term competitiveness. Ideally, the fund would get some initial resources from the AMSA fee to the Competition Commission, but it would also have to mobilise additional resources for instance from the PIC and/or the UIF as well as the private sector.
2. Measures to address short-term costs as far as possible. The available evidence points to potential for:
 - a. Transnet to reduce the cost of internal transport of iron ore and steel, as well as for export containers for steel products, and possibly improved services for the foundries and producers of basic steel products.
 - b. Measures to moderate the cost of electricity by fast-tracking efforts by producers to generate their own power and by engaging with municipalities on their mark-up and on the reliability of service to steel producers and fabricators.
 - c. Engagements with Kumba, or possibly use of the new amendments to the MPRDA, to moderate the cost of iron ore for AMSA, as well as further regulation or taxation of scrap exports.
 - d. A consolidated review with DEA of new and proposed environmental regulations to ensure that any unanticipated consequences are dealt with promptly.