Developmental pricing of steel and iron ore

Examining the evidence

Robert Stillman, March 2011

CRA Charles River Associates

The DTI view on developmental pricing

DTI believes that high steel prices have retarded the growth of downstream manufacturing that uses steel

DTI believes that having Sishen iron ore available to domestic steel producers at below-market “cost plus” prices is also an important part of the growth equation:

- By supporting lower prices of steel in SA, which will help downstream manufacturing
- By supporting the development of the local steel industry

The goal of today’s presentation is to examine whether the evidence supports these beliefs

Proposed agenda

Background on the iron ore and steel industries in South Africa

Analysis of the DTI's views on developmental pricing

Q & A

Developmental pricing – preview of main points

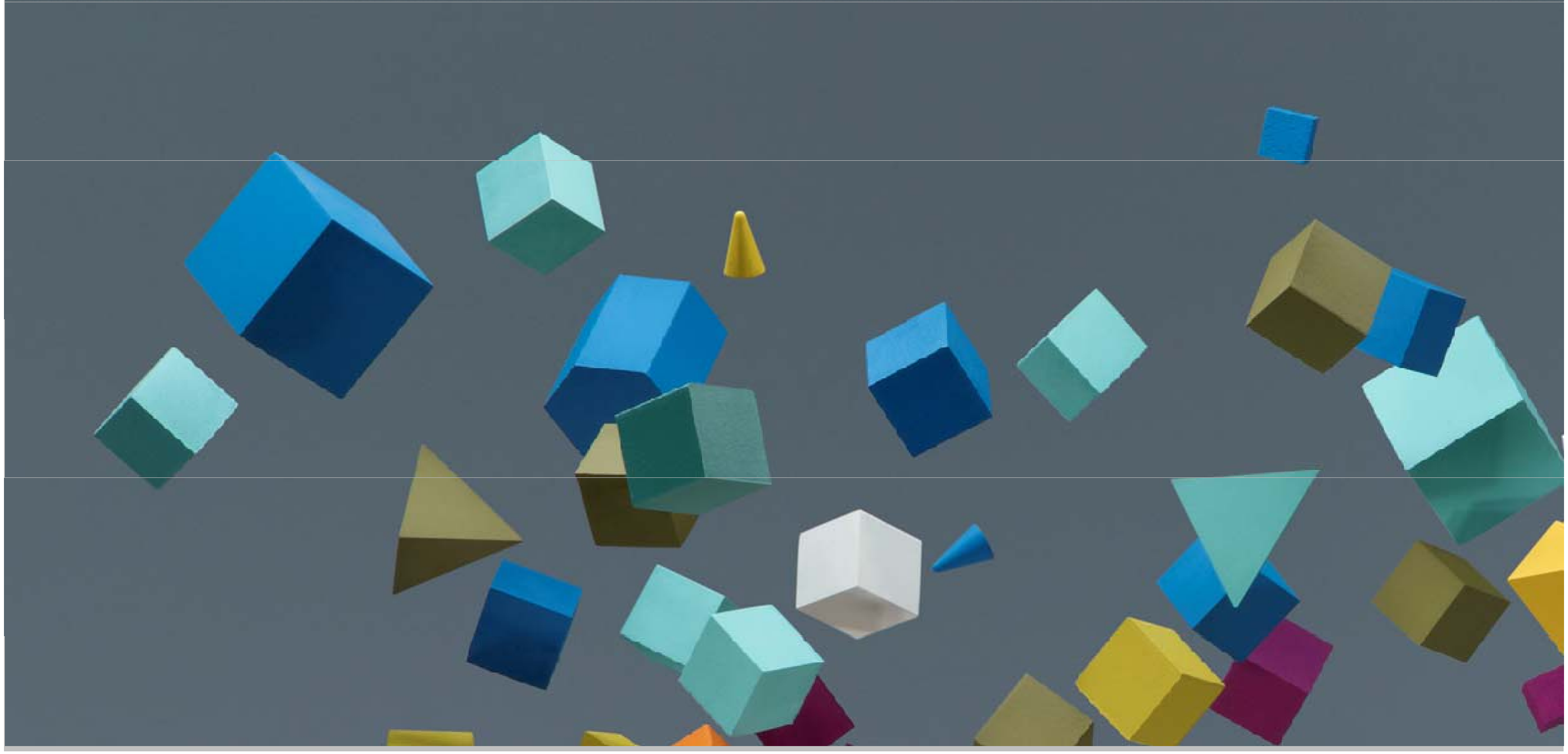
Lower steel prices will not have a significant effect on downstream manufacturing output – steel accounts for a small share of the costs of most downstream manufacturers

The price of Sishen iron ore has had, and will have, no effect on domestic steel prices

AMSA would be the only steel producer that would benefit materially from below-market "cost plus" prices of Sishen iron ore. For the other steel producers who use little if any Sishen ore, lower steel prices will squeeze their already thin margins

Even with "cost plus" prices for Sishen iron ore, AMSA's growth opportunities are limited. SA steel producers cannot compete effectively on international markets because of SA's locational disadvantage

Background on the iron ore and steel industries in South Africa



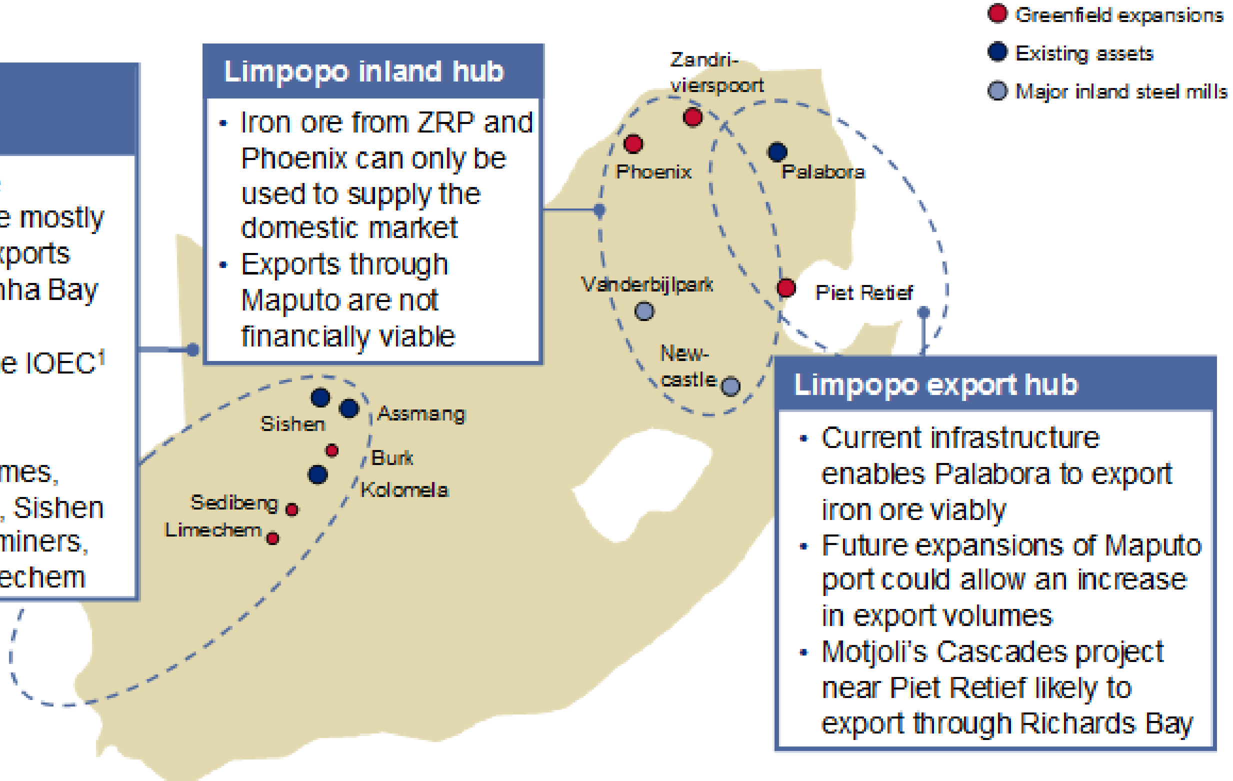
Iron ore – current production and future growth opportunities

Northern Cape export hub

- Northern Cape products will be mostly focussed on exports through Saldanha Bay port
- Upgrades of the IOEC[1] needed to accommodate additional volumes, from Assmang, Sishen and new BEE miners, e.g., Burk, Limechem

Limpopo inland hub

- Iron ore from ZRP and Phoenix can only be used to supply the domestic market
- Exports through Maputo are not financially viable



Limpopo export hub

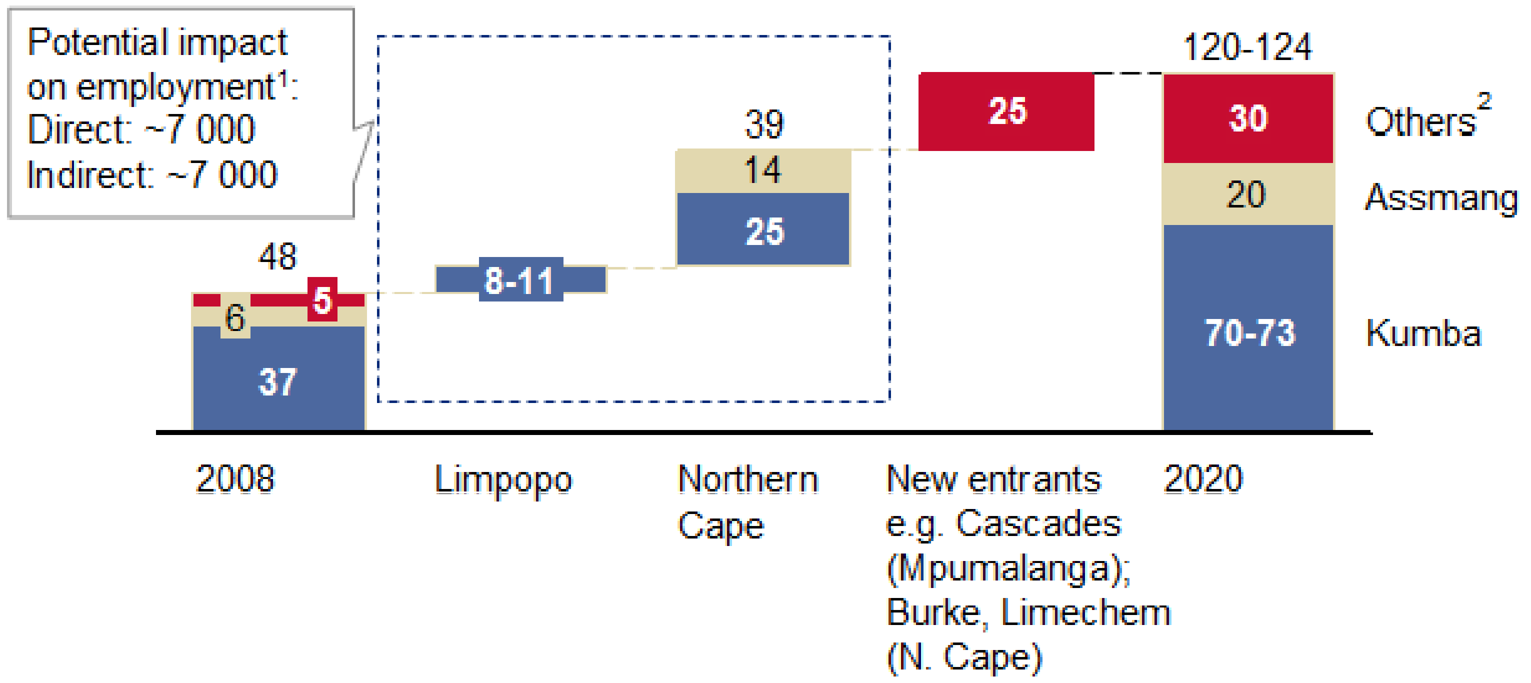
- Current infrastructure enables Palabora to export iron ore viably
- Future expansions of Maputo port could allow an increase in export volumes
- Motjoli's Cascades project near Piet Retief likely to export through Richards Bay

1 Iron Ore Export Corridor

SOURCE: Kumba, Hatch, expert interviews

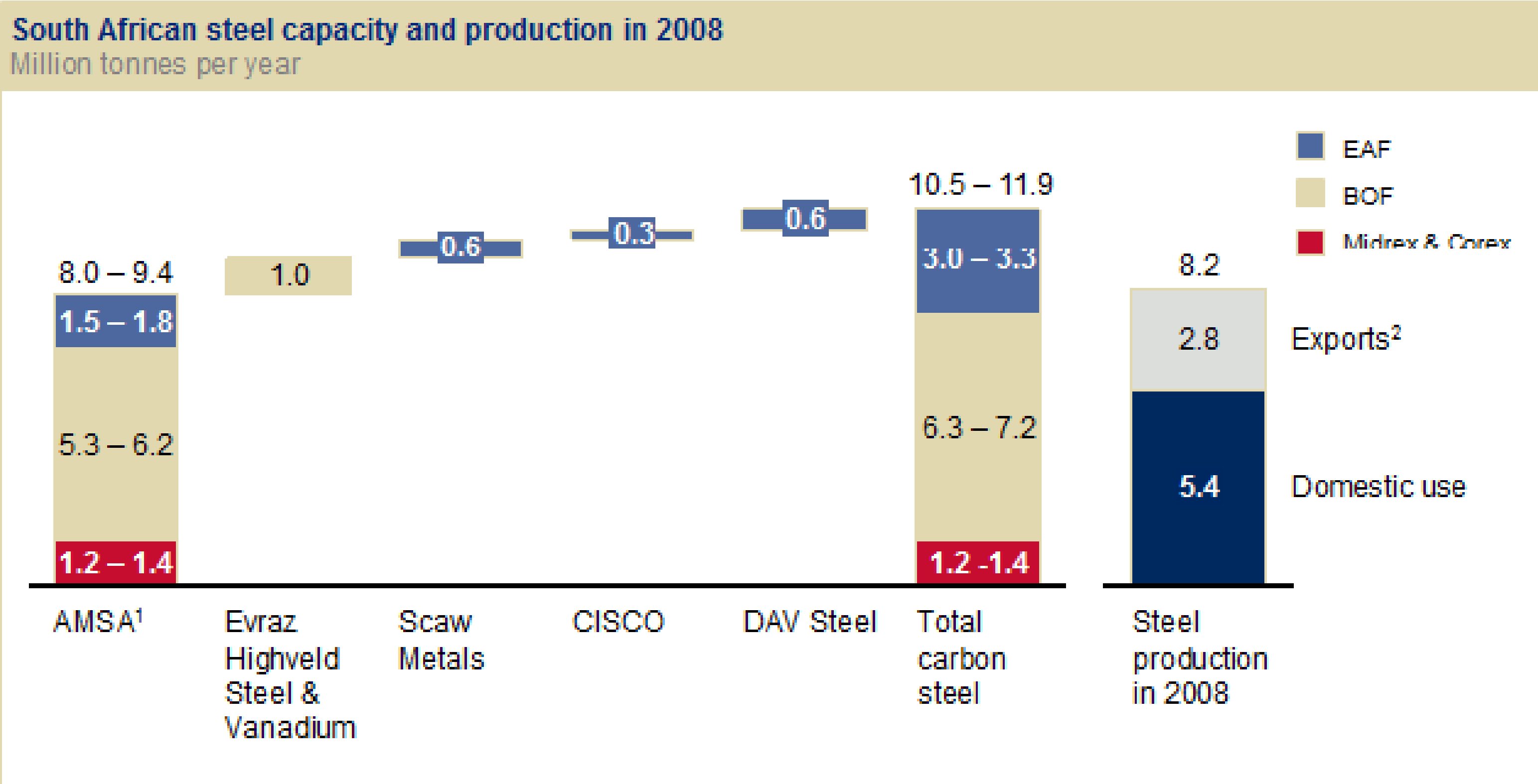
Magnitude of the growth opportunities in iron ore

Growth prospects in the iron ore mining industry in South Africa
Million tonnes of iron ore per annum



1 A large number of these jobs arise from mining beneficiation
2 Potential employment from new entrants has not been quantified
SOURCE: Kumba; Assmang; Chamber of Mines

Steel production, capacity and exports



1 AMSA reported 8.0Mt capacity. VdEH listed 9.4mt nameplate capacity. Capacity can be adjusted through debottlenecking programs
2 South Africa exported 3 mt on average between 2003 and 2008
SOURCE: Annual reports; SAISI; JF King; VdEH plant facts; AMSA; Kumba

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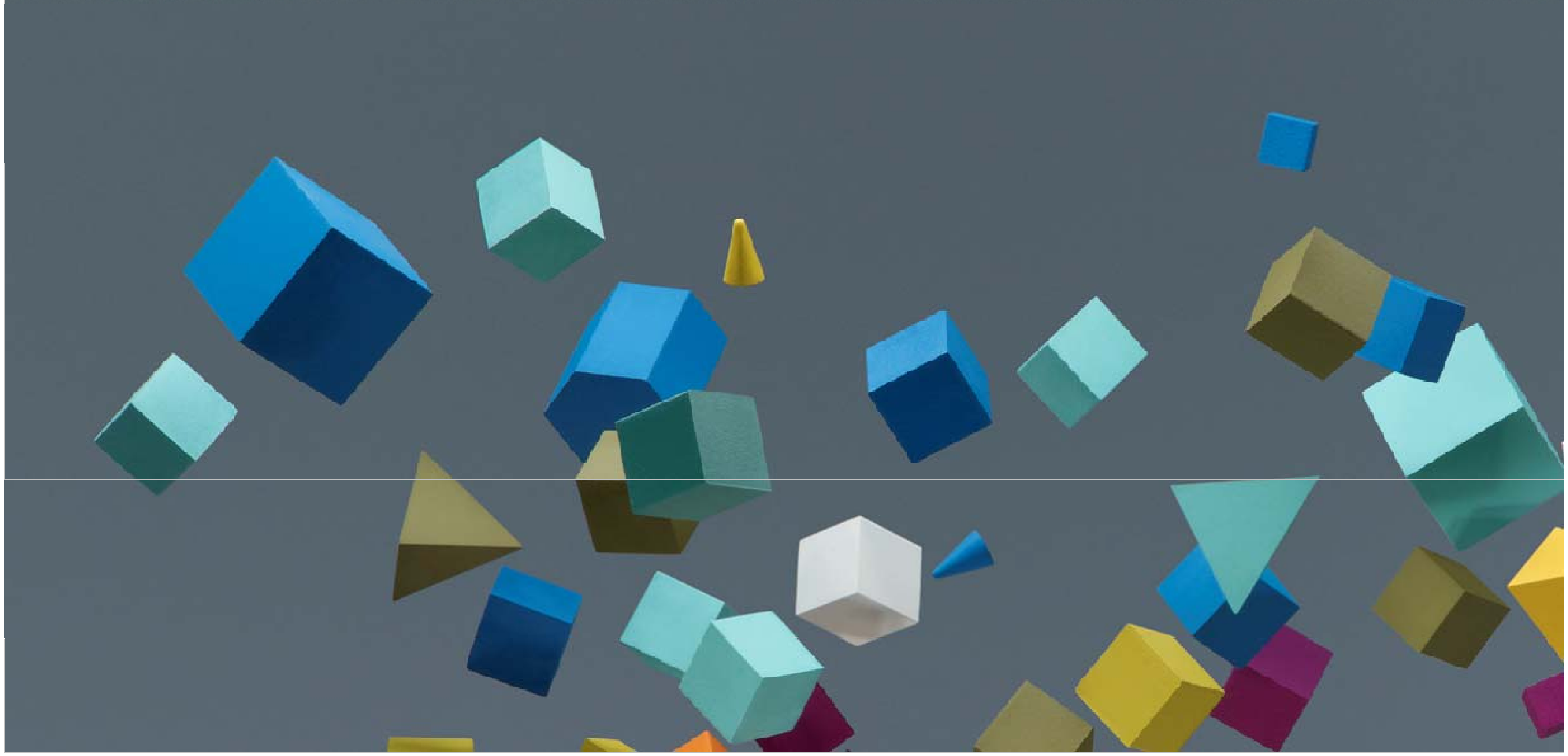

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- By supporting lower prices of steel in SA, which will help downstream beneficiation
- By supporting the development of the local steel industry

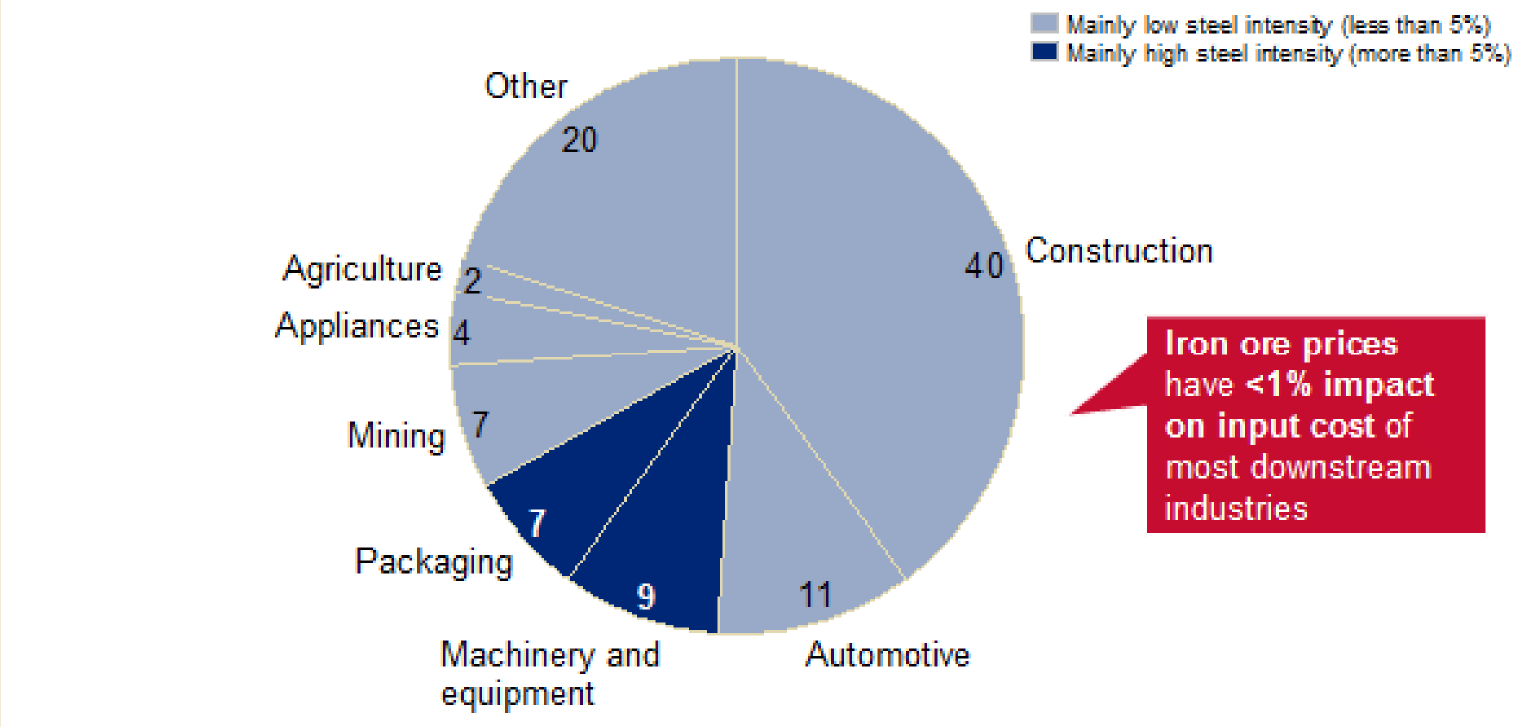
Have high steel prices retarded the growth of downstream manufacturing?

Because steel accounts for a modest share of the costs of most downstream users, a reduction in the price of steel would not result in significant increases in downstream manufacturing output

- International evidence suggests that the elasticity of demand for steel is about -0.2 to -0.3
- This means that a 10% reduction in price would increase the downstream use of steel (and hence downstream output) by only about 2% - 3%

Understanding why the demand elasticity is so low – evidence on cost shares

Percent of available steel going to different downstream uses



SOURCE: SAISI; Stats SA, University of Maryland

DTI's views on "cost plus" pricing of Sishen iron ore – some initial observations

AMSA has been able to charge steel import parity prices (IPP) because it has market power. IPP is basically as high as domestic steel prices can go

- Note that AMSA has charged IPP notwithstanding access to iron ore at cost plus 3%.

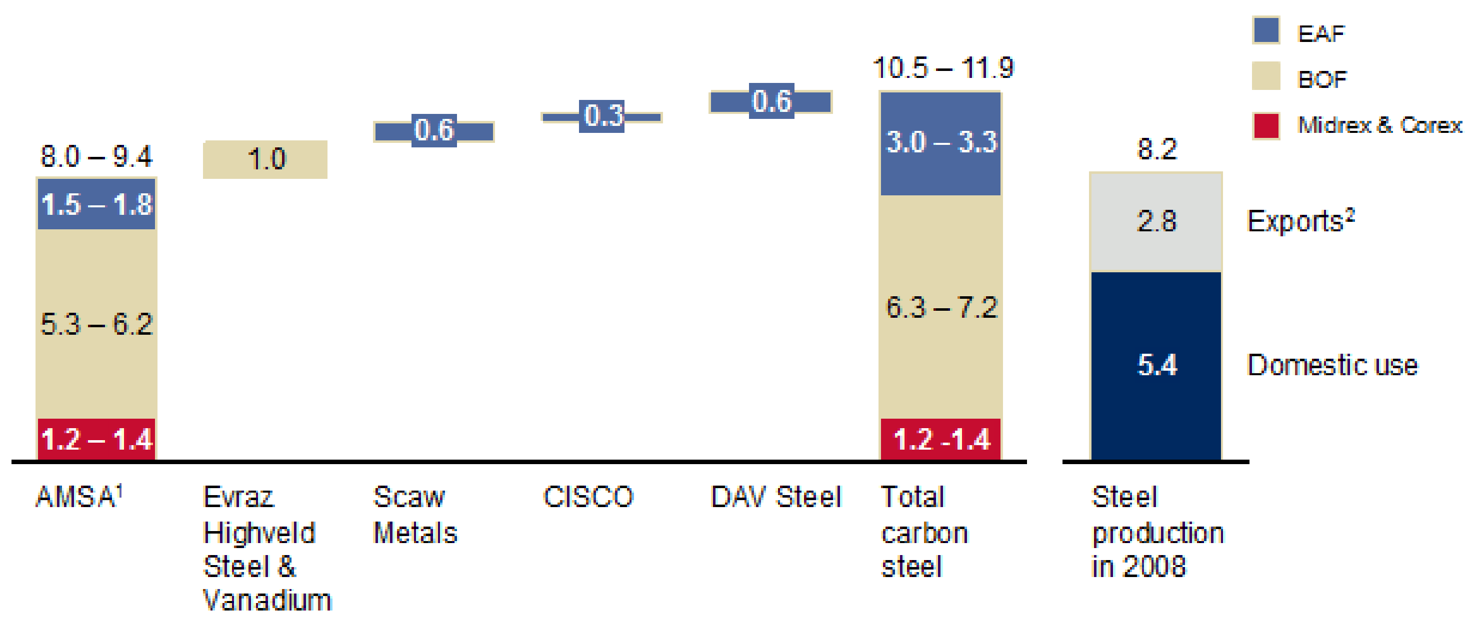
If AMSA faced more competition, domestic steel prices would be forced down in the direction of export parity (EPP). EPP is as low as domestic steel prices could go in a competitive market.

- If AMSA were prepared to offer steel domestically at EPP, DTI presumably would be delighted. EPP is the perfectly competitive price

Iron ore export parity is the price at which Kumba proposes selling Sishen ore to domestic steel producers. Yet, even though EPP is the perfectly competitive price, DTI objects

AMSA is the only steel producer that would benefit materially from “cost plus” pricing of Sishen ore

South African steel capacity and production in 2008
Million tonnes per year



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SOURCE: Annual reports; SAISI; JF King; VdEH plant facts; AMSA; Kumba

Would below-market prices for Sishen ore nevertheless support lower steel prices to downstream manufacturers?

Below-market prices for Sishen ore would have no effect on domestic steel prices and hence no effect on growth of downstream beneficiation

- Steel EPP is the floor for domestic steel prices
- Steel IPP is the ceiling
- Where steel prices end up within this range depends on the level of competition in the domestic steel industry and any decision by government to intervene
- None of these variables (i.e. the floor, the ceiling, or where prices end up within this range) are affected by the price of Sishen ore

Would below-market prices for Sishen ore support growth of the local steel industry?

AMSA is the only steel producer that buys Sishen ore in any significant volume. AMSA is therefore the only steel producer whose ability to grow could be affected *even theoretically* by the price of Sishen iron ore

Even when AMSA paid “cost plus” prices for Sishen ore, however, its growth opportunities were limited. AMSA (and other SA steel producers) cannot compete effectively on international markets because of SA’s locational disadvantage

Developmental pricing – summary of main points

Lower steel prices will not have a significant effect on downstream manufacturing output – steel accounts for a small share of the costs of most downstream manufacturers

The price of Sishen iron ore has had, and will have, no effect on domestic steel prices

AMSA would be the only steel producer that would benefit materially from below-market "cost plus" prices of Sishen iron ore. For the other steel producers who use little if any Sishen ore, lower steel prices will squeeze their already thin margins

Even with "cost plus" prices for Sishen iron ore, AMSA's growth opportunities are limited. SA steel producers cannot compete effectively on international markets because of SA's locational disadvantage

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