World Steel Dynamics (WSD) is a leading steel information service in Englewood Cliffs, N.J.

WORLD **STEEL** DYNAMICS

WSD's steel experience, steel database and availability of steel statistics are the principles for performing steel forecasts, studies and analysis for international clients. WSD seeks to understand how the "pricing power" of steel companies the world over will be impacted by changes in the steel industry's structure.

The views and opinions expressed in this article are solely those of World Steel Dynamics and not necessarily those of AIST.

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Inventory changes are a big factor in the global steel business. Buyers' inventories often swing the most.

On a global basis, WSD estimates, by quarter, the inventory change at steel mills and the steel buying community (middleman companies and end users). While the actual figures in inventory changes are never published, WSD thinks that estimates of what has happened provide deep insights into the factors driving the evolution of steel production and shifts in the steel mills' "pricing power."

For example, in the second half of 2008 and the first quarter of 2009, both steel mills and users pared their inventories. The mills needed cash because production had plummeted so severely, while steel middleman companies and users had excessive inventories to begin with — just coming out of a steel shortage period — and they perceived that holding on to inventory was a losing proposition because prices were falling.

In 2013, after adjusting for inventory changes, WSD estimates that real global steel consumption may rise only 0.5–1.0%, which compares to a 2.0% rise in steel production (Figure 1). In 2014, WSD estimates that global real steel consumption may rise by 2–3%, which would be about in line with the increase in steel production.

Battle Metallica: welcome to a new era of reduced pricing.

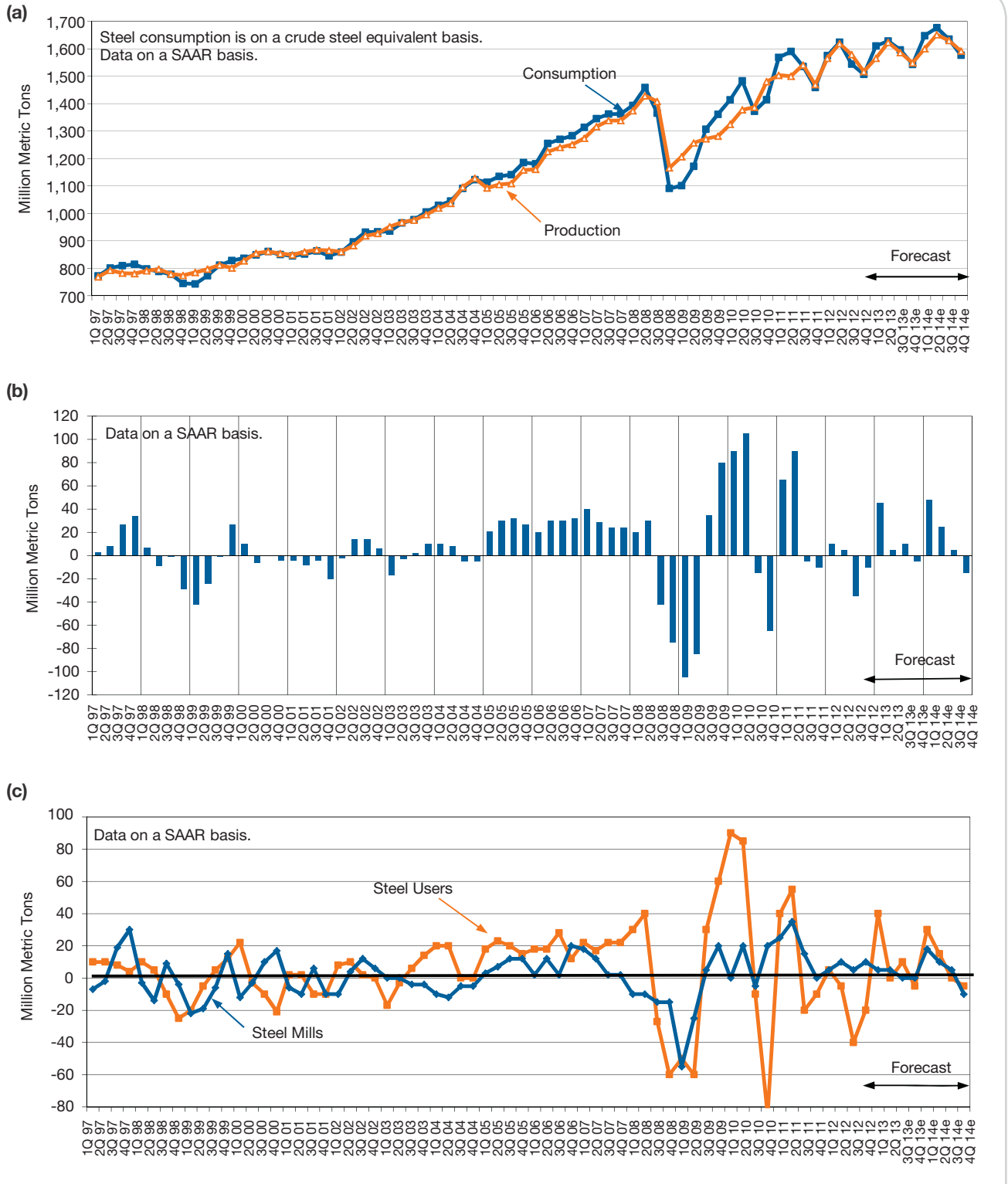
The new era, dubbed "Battle Metallica" by WSD, is symbolic of the environment of increased competition among the various steelmakers' metallics and raw materials that leads to an overall decline in pricing for these items — i.e., a reduction in the pricing "water level" of the global metallics "bathtub."

For an extended period in 2007, 2008 (up through the global financial crisis in September), 2010 and 2011, raw material pricing was sustained at historically high levels. On average, WSD forecasts steelmaking raw materials and metallics prices to be roughly 22% below the average price during the peak years of the Age of Metallics.

WSD has long theorized that all key steelmakers' raw materials reside in a "global metallics bathtub," whereby developments in supply-demand dynamics of a given metallic may impact prices of the other metallics.

For example, should lower prices of iron ore and coking coal drive down an integrated mill's cost to produce pig iron, WSD expects that this mill would reduce the proportion of steel scrap charged in its BOF steelmaking furnace. A resulting shift in demand toward a greater proportion of pig iron as a ratio of the total metallics charge

Figure 1



WSD outlook for global steel production and consumption (a), steel production minus steel consumption (b) and inventory changes (c). Source: WSD Estimates.

would likely weaken demand for steel scrap and eventually lead to a downward price adjustment for that metallic.

During steel's Age of Metallics, robust global steel production growth tightened the markets for key steelmaking raw materials and metallics. As global demand for steelmaking metallics grew at an unprecedented pace, global supply of iron ore and coking coal, and the availability of steel scrap, merchant pig iron and merchant steel scrap substitutes (mainly DRI/HBI) were forced to keep pace. The end result was an elevated price floor for all key steelmaking raw materials that provided the impetus for record-high metallics prices in early 2008 and early 2011.

WSD forecasts global crude steel production for 2013 to grow by about 2.1% to 1,595 million metric tons (Table 1). The global metallics balance system calculates that the requirement for metallics for steelmaking and foundry production will be 1,975 million metric tons, of which:

- Pig iron will account for 1,159 million metric tons.
- Steel scrap will account for 741 million metric tons.
- Steel scrap substitutes will account for 75 million metric tons.

WSD's long-term forecast for crude steel production and metallics demand is for slow global growth, as China no longer drives global output and no other developing country is likely to replicate Chinese growth. Crude steel output is forecast to grow about 1.5% per annum to 1,898 million metric tons in 2025.

During this period, global demand for metallics for steelmaking and foundry production is forecast to grow 378 million metric tons to 2,353 million metric tons, of which:

- Pig iron demand accounts for 1,335 million metric tons (1.1% per annum growth).
- Steel scrap demand accounts for 881 million metric tons (4.9% per annum growth).
- Steel scrap substitute demand accounts for 138 million metric tons (1.3% per annum growth). ✦

Table 1

Global Metallics Balance Summary: 2013 Forecast (million metric tons)

	Total metallics required	Pig iron	DRI/HBI	Total scrap required	Obsolete scrap	Iron ore required
Advanced countries	**556**	**268**	**5.9**	**282**	**175**	**401**
Japan	130	83	0.1	47	26	137
Western Europe	168	77	2.1	89	55	109
U.S.	112	35	2.3	75	51	45
Small capacity advanced countries	145	73	1.4	70	42	110
China	**966**	**716**	**1.7**	**248**	**69**	**1,139**
Developing world ex-China	**453**	**175**	**67.0**	**211**	**110**	**411**
Africa	8	4	1.2	3	1	10
Brazil	42	21	0.2	21	13	33
C.I.S.	134	73	3.1	58	33	144
Eastern Europe	16	6	0.0	10	6	9
Developing Asia	27	2	3.2	22	11	8
India	103	46	22.3	35	11	109
Latin America	39	9	10.6	19	10	34
Turkey	41	11	0.3	30	22	16
Middle East and North Africa	43	3	26.0	13	3	48
World total	**1,975**	**1,159**	**74.6**	**741**	**355**	**1,952**

Source: WSD global metallics balance system