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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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## The "Game of Spreads" — Part 2

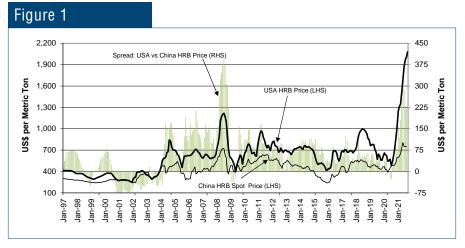
## Unusually wide gaps between various steel mill prices and their raw materials cost

During periods of highly elevated steel export and home market prices — i.e., in steel shortages — it's normal for the spreads between the prices of different steel products and steel-related raw materials to rise to extreme levels.

In a previous Strategic Insight report titled the "Game of Spreads" — Part 1, WSD examined the price spreads since 2010 for: (1) the Chinese home market steel price versus the iron ore + coking coal cost; (2) Turkey rebar export price versus Turkey HMS 1 and 2 80/20 import scrap price; and (3) the U.S. hot-rolled band (HRB) price versus the shredded steel scrap price. In this report, WSD examines three more relationships:

• Spread 1: U.S. HRB price versus Chinese steel mill ex-works HRB price (Fig. 1). While these prices don't correlate well with one another, they provide a valuable indicator of the price paid by steel users in the two countries — which is about US\$1,300/metric ton less in China at the present time. The price of U.S. HRB is currently about US\$2,100/metric ton, with the ex-works China HRB price at about US\$750/ metric ton. A spread this wide was exceeded, only briefly, in the summer of 2008 when an extreme steel shortage was in effect. In the past decade, the spread has usually varied at times from US\$100 to US\$900/ metric ton, with a typical figure at about US\$600/metric ton. (Note: In comparison, WSD's estimate of the average price to be in effect over the steel cycle, from 2023 to 2030, is US\$640/ metric ton for U.S. HRB and US\$470/metric ton for the Chinese ex-works home market HRB price - for a spread of US\$170/metric ton.)

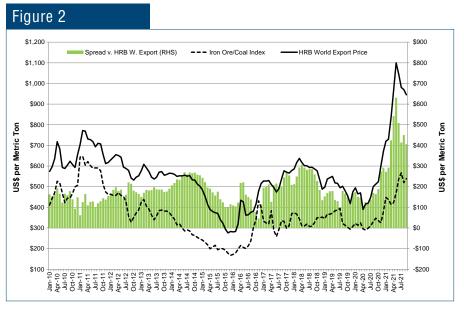
• Spread 2: The HRB export price versus the iron ore and coking coal cost per metric ton of steel product for the



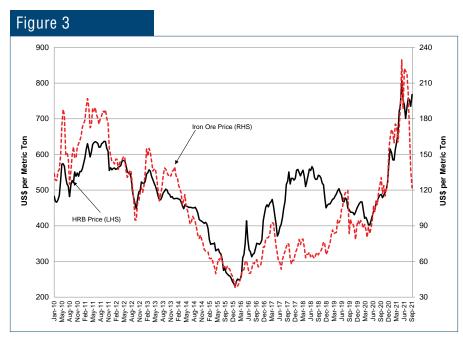
U.S. and China hot-rolled band (HRB) spot prices and spread. Sources: WSD Price Tracker and SteelBenchmarker™.

integrated steel producer (Fig. 2). This spread is a good indicator of profitability in the HRB business. Since 2010, the spread has swung widely and has averaged roughly US\$200/metric ton. In 2021, it has typically ranged from US\$400 to US\$600+ per metric ton, which helps to explain why the steel mills are enjoying a "Golden Profit Age." (Note: Based on WSD's estimates of the average prices to be in effect over the steel cycle from 2023 to 2030, the HRB export price at US\$513/metric ton, FOB the port of export, compares to the iron ore and coking coal cost for the integrated producer US\$280 per metric ton — for a spread of US\$233/metric ton.)

• Spread 3: China HRB Price versus the TSI Iron Ore Price delivered to China (Fig. 3). Since 2010, HRB in China has typically been US\$300-450/metric ton above the iron ore price. Both prices have been highly volatile and have often moved in sync with one another. As of 15 September 2021, the spread was US\$646/metric ton. (Note: Based on WSD's estimates of the average figures to be in effect over the steel cycle during 2023 to 2030, the Chinese HRB price of US\$490/metric ton compares to the iron ore price at US\$84/metric ton for a spread at US\$406/ metric ton.)



HRB world export price vs. iron ore/coal index and spread. Sources: WSD estimates, SteelBenchmarker and SBB.



China ex-works HRB price vs. TSI iron ore 62% Fe CFR China. Sources: SteelBenchmarker™ and TSI.

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