

## CHINA'S DOMINANCE AS A GLOBAL CONSUMER AND PRODUCER OF COPPER

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China is now the world's largest consumer and producer of copper. Its demand for the commodity has soared in tandem with the country's industrialization process, given copper's extensive use in infrastructure (e.g., plumbing, telecommunication wiring, and building materials) and manufacturing equipment (e.g., electric power generation and transmission equipment). To meet its growing copper demand over the last decade, China has imported increasing amounts of copper ores (mostly from Latin America) and copper waste/scrap (mostly from the United States) for domestic processing, which is either locally consumed or re-exported. Given China's dominance as both a global consumer and supplier of copper, changes in China's domestic market conditions can markedly influence copper's world price – as evidenced by the commodity's recent price decreases that were triggered by deteriorating Chinese property market conditions. Understanding China's role on global copper markets is relevant for U.S. firms, since the United States is the world's largest supplier of copper waste/scrap, and copper waste/scrap now represents the United States' third-largest export to China.

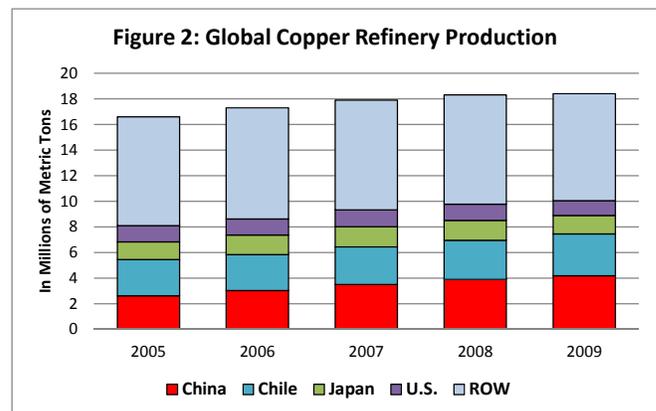
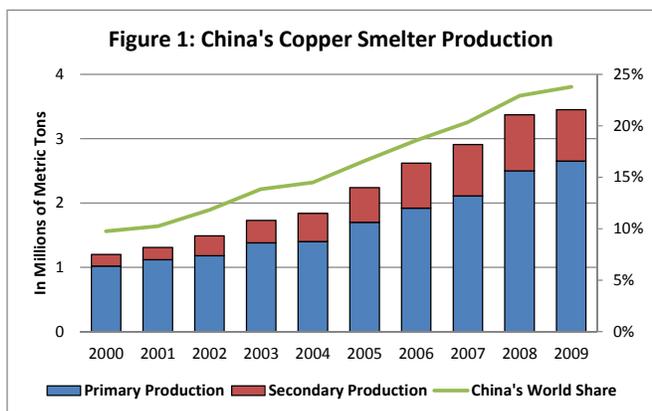
### China's Copper Consumption

China's copper consumption expanded markedly over the past decade. Between 2001 and 2011, China's copper usage increased by 5.1 million metric tons (million mt), or 215%.<sup>2</sup> By 2002, China surpassed the United States to become the world's largest copper consumer. In 2011, China consumed 7.9 million mt of refined copper products, accounting for 40% of the global demand. China's copper consumption is projected to rise to 9.7 million mt in 2014, accounting for 84% of global copper demand growth between 2011 and 2014.<sup>3</sup>

China's rapid industrialization has contributed to its high demand for copper. According to the intergovernmental International Copper Study Group (ICSG), about 56% of China's refined copper was used for infrastructure development and construction. Refined copper has also been widely used as an input into consumer goods (27%), industrial equipment (6%), transportation (6%), and other sectors (5%).<sup>4</sup>

### China's Copper Production

China is the largest global producer of copper, even though it mines a limited supply of copper ores. This is explained by the fact that China imports significant quantities of copper ores and waste/scrap for smelting and refining into pure forms of copper to sell on domestic and international markets. China's copper-processing capacity has grown rapidly in recent years. Its smelter production grew from 0.4 million mt in 1990 to 3.5 million mt in 2009 (Figure 1), while its refinery production grew from 0.6 million mt to 4.2 million mt over the same period.<sup>5</sup> In 2009, China accounted for nearly a quarter of the world's copper refinery production (Figure 2).



Source: U. S. Geological Survey, 2009 Minerals Yearbook: Copper, 2009.

Notes: (1) ROW = Rest of the World. (2) Primary production refers to the processing of copper ores/concentrates, while secondary production refers to the processing of copper waste/scrap.

<sup>1</sup> The authors gratefully acknowledge the insight provided by Mr. Karl Tsuji on this subject.

<sup>2</sup> International Copper Study Group (ICSG), "Release of ICSG 2011 Statistical Yearbook," press release, September 7, 2011.

<sup>3</sup> Standard Bank, "An Analysis of China's Copper Demand," February 21, 2012.

<sup>4</sup> Wang Ye and Li Lang, "China's Refined Copper Usage," Lisbon: ICSG, 2008.

<sup>5</sup> U.S. Geological Survey (USGS), 2009 Minerals Yearbook: Copper, 2011.

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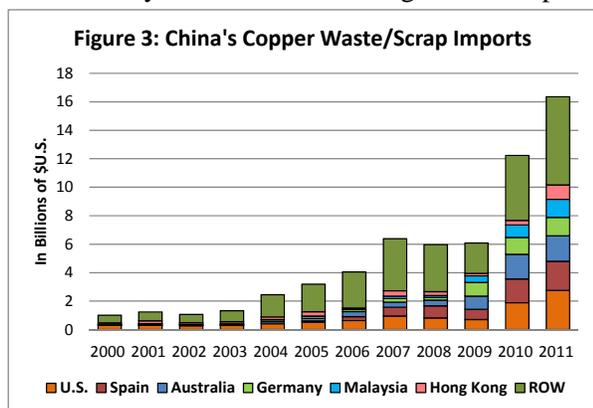
### China's Increasing Reliance on Imported Copper

Currently, imports account for about two thirds of the raw materials used in China's copper industry. From 2000-2011, China's copper ore imports grew by over 350% (from 1.8 million mt in 2000 to 6.4 million mt in 2011); with 49% imported by Chinese state-owned enterprises (SOEs). Chile (24%), Peru (16%), Australia (11%), Mexico (9%), and Mongolia (7%) were the top single-country suppliers to China in 2011. As the largest regional source, Latin America supplies nearly one-half of China's copper ore imports. Chinese firms (many of which are SOEs) have been investing or have formed partnerships with large mining and infrastructure projects in Latin America, which have helped facilitate shipments of copper ores and refined copper back to China.

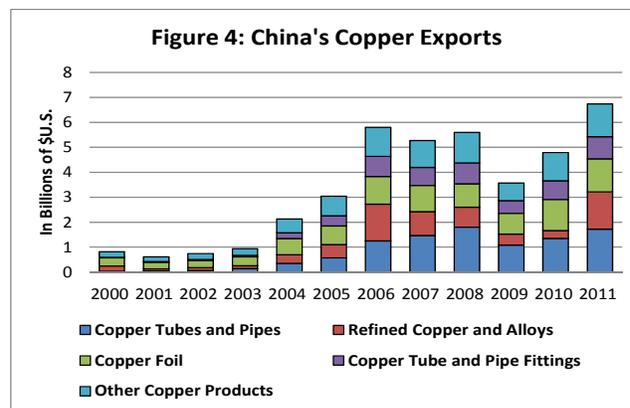
China's imports of copper mill products (e.g., wires, tubes, and sheets) grew sharply over the same period, from 1.6 million mt (\$3.7 billion) in 2000 to 4.2 million mt (\$37.9 billion) in 2011. Chile is the largest exporter of copper mill products (supplying 40%) to China. In 2010, copper mill products were imported by a variety of Chinese firms, including SOEs (28%), foreign-invested enterprises (27%), and private firms (25%). All three firm types have bought more refined copper, given stricter Chinese regulations on pollution and energy usage from copper processing.

### China's Copper Waste/Scrap Imports and the Connection with the United States

China has increasingly depended on copper waste/scrap as an alternative to copper ores. In 2011, China imported nearly twice as much copper waste/scrap by volume than in 2000; the value was 15 times as much, owing to dramatic price increases during that time interval. U.S. copper waste/scrap exporters are among the beneficiaries of China's rising demand for this commodity. Between 2000 and 2011, the value of U.S. copper waste/scrap exports to China grew nine-fold, from \$304 million to \$2.8 billion, making it China's largest copper waste/scrap supplier (Figure 3). In 2011, China represented the largest (37%) market for U.S. copper waste/scrap exports, and this commodity became the third-largest U.S. export to China.



Source: Global Trade Atlas



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### China's Copper Exports

The rising price of copper in global commodity markets over the past decade has provided incentives for Chinese copper-processing enterprises to expand production and export their refined products. China's exports of copper foils, tubes, pipes, and other refined copper products grew from \$829 million in 2000 to \$6.75 billion in 2011 (Figure 4). The majority of China's copper exports have been directed to Asian countries, such as Hong Kong (19%), South Korea (14%), Japan (8%), Singapore (6%), and Taiwan (5%). There, these exports are likely to be imbedded into electrical components that are ultimately sent back to China for final assembly into other products.

### Outlook

According to ICSG's latest forecast, China's demand for copper will continue to grow (by 4% in 2012 and 5% in 2013).<sup>6</sup> These trends could affect mined copper-exporting countries such as Chile and Peru, as well as U.S. copper waste/scrap exporters. Recent Chinese investments aimed at securing supplies and prices of copper ores suggest that Chinese firms may seek to mitigate price volatility for commodities they anticipate to remain in high domestic demand. China's recently deteriorating property market conditions, however, may influence underlying assumptions about the long-term domestic demand prospects of its copper market.

Sources: ICSG, International Institute for Sustainable Development, U.S. Geological Survey, U.S. International Trade Commission, World Bank.

<sup>6</sup> ICSG, "Copper Market Forecast 2012-2013," April 30, 2012.

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