

COPPER

Copper Outlook

Copper prices have declined sharply from Q1 2012 levels on weaker-than-expected economic growth indicators especially from the Euro-zone and China.

Sentiment in base metals markets has also taken a hit on renewed concerns about a deeper European growth slump, as the sovereign debt crisis got reignited especially from Greece and Spain.

However, on the macro economic front, with China's new leadership focusing on pro-growth policies and the improving economic scenario in the US and euro zone, prices are expected to get some support from the demand side by the end of Q4 2012.

In terms of demand/ supply fundamentals –

Demand for the red metal is expected to be robust by the year end; China being a dominant driver, as monetary stimulus measures by the government and the country's shift to consumption based model are likely to boost copper demand. This may provide a fresh impetus to copper prices.

Global supply is expected to remain fairly tight as labor unrest and falling ore grades may lead to anemic mine production.

Hence, overall copper market is expected to remain in deficit till H1 2013.

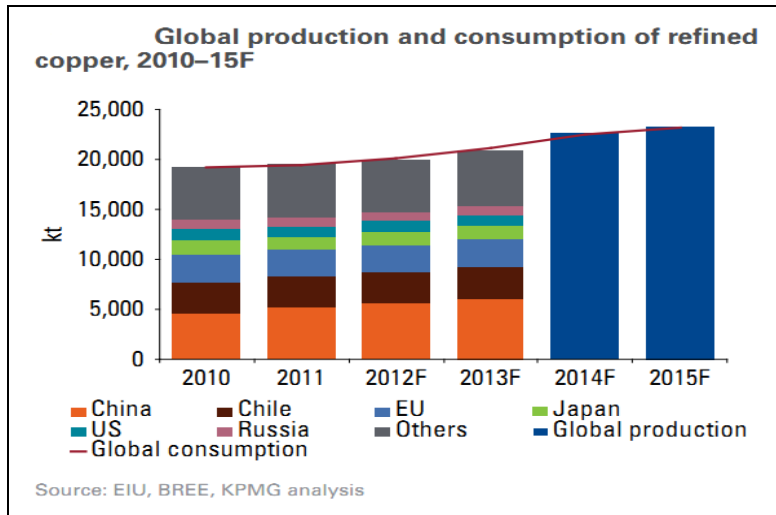
Copper prices on LME are expected to trade between \$7500-\$8500 per tonne for the balance of this year, while next year, we could see a \$7200-\$8800 per tonne trading range in place, with an average price of \$8000 per tonne.

Quick Facts About the Global Copper Industry

- The average US household uses about four hundred pounds of copper for various purposes – wiring, cooking, and even for automobile parts.
- Copper is one of the world's most versatile elements. It is recyclable and malleable, and is used in the creation of brass and bronze.
- The Statue of Liberty is perhaps the best example of a structure that uses a great amount of copper. Nearly eighty tons were used to build it.
- According to Geology.com, there could be as much as 300 million tons of copper not yet discovered in the United States alone.
- On average, about 85 million metric tons may be mined annually around the world.

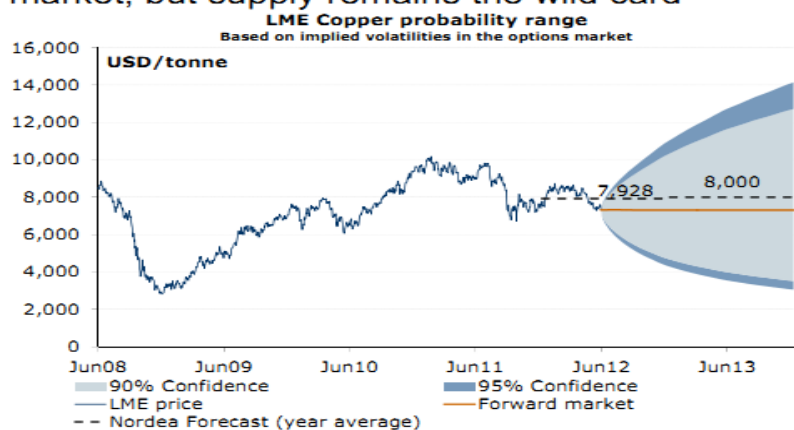
(Source: Arizona Mining Association)

Copper Market Balance



- In the first seven months of 2012, world mine production increased by 2.5% compared with production in the same period of 2011.
- According to preliminary International Copper Study Group (ICSG) data, the refined copper market balance for July 2012 showed a production deficit of 23,000 metric tonnes.
- The refined copper balance for the first seven month of 2012 indicates a production deficit of 524,000 tonnes. This compares with a production deficit of 73,000 tonnes in the same period of 2011
- According to ICSG projections for 2012, world demand for refined copper is expected to exceed production of refined copper by about 400,000 metric tonnes, as supply will continue to lag behind the growth in demand.
- This would be the third consecutive year of production deficit.
- In 2013, however, increased output from new and existing mines could reverse the 3-year trend, and refined copper production could exceed demand by an amount about equal to the 2012 shortfall.
- The global refined copper consumption has been forecast to grow at 3 percent, mostly due to the increased consumption in China and other emerging Asian markets.
- A resilient US market, especially the automotive sector, is expected to support demand. The demand is expected to grow at 5 percent in 2013, with the recovery in eurozone and the US supporting demand driven by China and other emerging Asian markets.

Copper prices to reflect more balanced market, but supply remains the wild card



Source: Bloomberg, Nordea Markets

Refined Copper Supply/Demand Annual Balance (000 MT)

	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>Year-to-date to July 2012</u>	<u>2012F</u>	<u>2013F</u>
Consumption	18,138	18,178	19,334	19,617	11,937	20,700	21,300
Yr-Over-Yr Ch		0.22%	6.36%	1.46%		5.52%	2.90%
China Consumption	5,149	7,086	7,385	7,915	5,092	8,650	9,250
Yr-Over-Yr Ch		37.62%	4.23%	7.17%		9.29%	7%
Mine Production	15,695	15,882	16,140	16,280	9,597	16,452	16,700
Yr-Over-Yr Ch		1.19%	1.62%	0.87%		1.05%	1.51%
Refined Production*	18,501	18,630	19,213	19,899	11,658	20,400	21,200
Yr-Over-Yr Ch		0.70%	3.13%	3.57%		2.52%	3.92%
China Refined Production	3,795	4,051	4,540	5,197	3,224	5,600	6,100
Yr-Over-Yr Ch		6.76%	12.07%	14.46%		7.76%	8.93%
Apparent Balance	364	452	-121	282	-279	-300	-100
Total Stocks**	845	1,125	1,017	1,012	894	850	800
Of Which Held By..							
Producers	288	287	319	326	321		
Merchants	26	27	21	21	22		
Consumers	142	123	109	120	103		
Exchange	390	688	569	545	449		
Weeks Use	2.4	3.2	2.7	2.68	2.37	2.1	2.0

* Includes Secondary

** Does not include govt stockpiles

Source: WBM/ILZSG

F: INTL FC STONE

Supply Constraints

The outlook for supply may appear better theoretically, but in real terms disruptions and delays are expected for miners, increasing lead times and cost overruns.

Following are some of the identified operational and financial constraints on copper supply:

- Falling ore grades in developed copper areas such as USA and China
- Cost of capital is a significant factor – High interest rates may reduce supply considerably
- Labour strikes tend to increase when refined prices and GDP is growing faster
- Rate differential between imported and domestic input costs affected by the currency strength of the producer
- Market concentration risks have moved to the import demand side against supply side in recent years.

Demand Drivers

Despite an economic slowdown worldwide, a round of central bank easing globally and hence policies reforms stimulating economic growth, a larger rebound in global copper demand including Chinese demand may be witnessed as a result of:

- Large investments in power transmission networks and smart grids
- Social housing investments
- Continued urbanization and consumption of metals-intensive durable goods etc.

Emergence of China as a Dominant Global Consumer and Producer of Copper

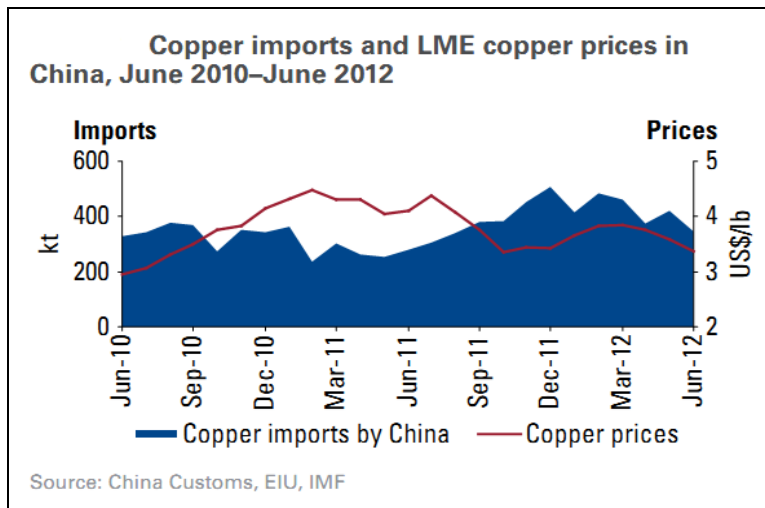
China's Copper Consumption

- China's copper consumption expanded markedly over the past decade. Between 2001 and 2011, China's copper usage increased by 5.1 million tonnes, or 215%.
- By 2002, China surpassed the United States to become the world's largest copper consumer.
- In 2011, China consumed 7.9 million tonnes of refined copper products, accounting for 40% of the global demand.

China's Copper Production

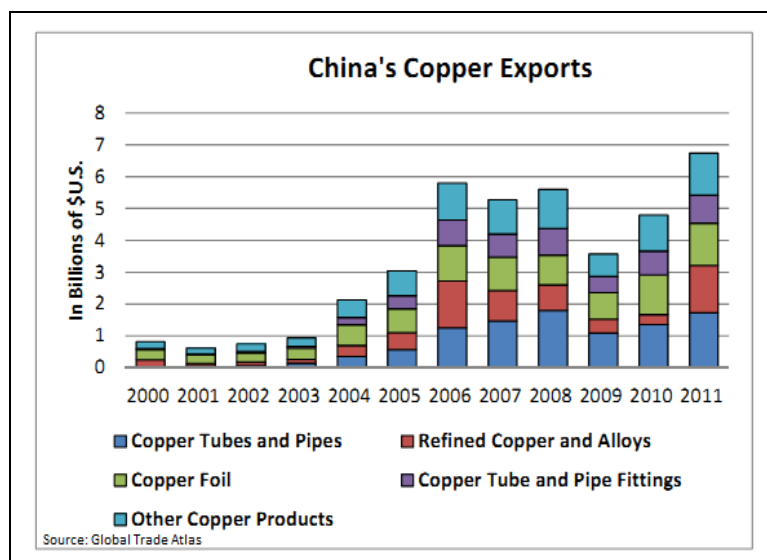
- China is the largest global producer of copper, even though it mines a limited supply of copper ores.
- China's copper-processing capacity has grown rapidly in recent years. Its smelter production grew from 0.4 million tonnes in 1990 to 3.5 million tonnes in 2009, while its refinery production grew from 0.6 million tonnes to 4.2 million tonnes over the same period.
- In 2009, China accounted for nearly a quarter of the world's copper refinery production

China's Copper Imports



- According to China's customs data, imports declined by 16 percent in the second quarter of 2012, over the first quarter
- However, imports have increased 47 percent in the first half of the year, from a year earlier, to 2.50 million tonnes
- Refined copper imports stood at 302kt in May 2012, which shows that the power, construction and transportation sectors are still strong.
- Economist Intelligence Unit (EIU) expects the Chinese copper import growth to be 6 percent in 2012.
- With further improvement in the economic environment in 2013, the growth rate is expected to touch 8 percent.

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
- The majority of China's copper exports have been directed to Asian countries.

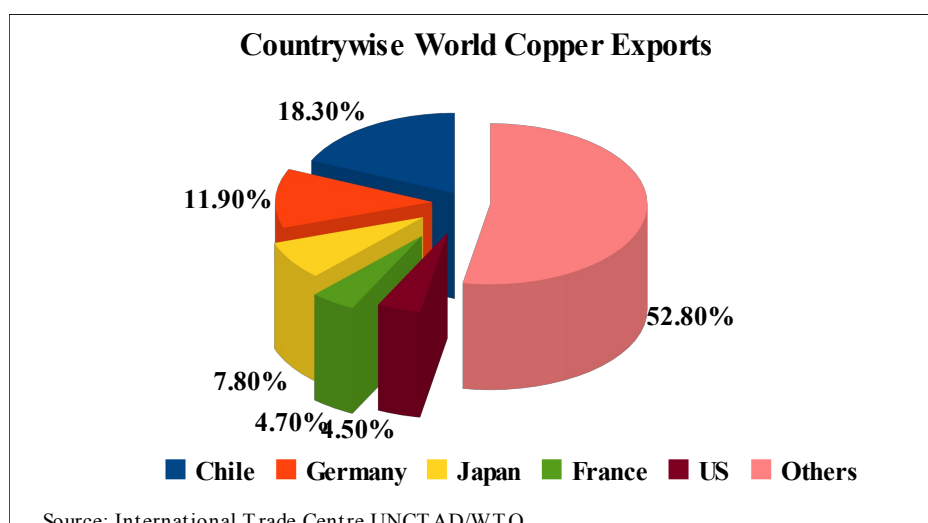
India Perspective

- The size of Indian Copper Industry (consumption of refined copper per annum) is around five lakh tonnes, which as percentage of world copper market is only three percent.
- Sterlite Industries, Hindalco and Hindustan Copper (HCL) are major producers of refined copper in India. India has emerged as net exporter of copper from the status of net importer on account of rise in production.
- The production of Copper Metal (Cathode) by HCL including production through job work during the same period of 2010-11 was 1669 tonnes: an increase by about 26.60%.
- On a cumulative basis, production of Copper Metal (Cathode) by HCL up to period March'12 of financial year 2011-12 is 28264 tonnes against a production of 24001 tonnes during the corresponding period of 2010-11: an increase by about 17.76%.

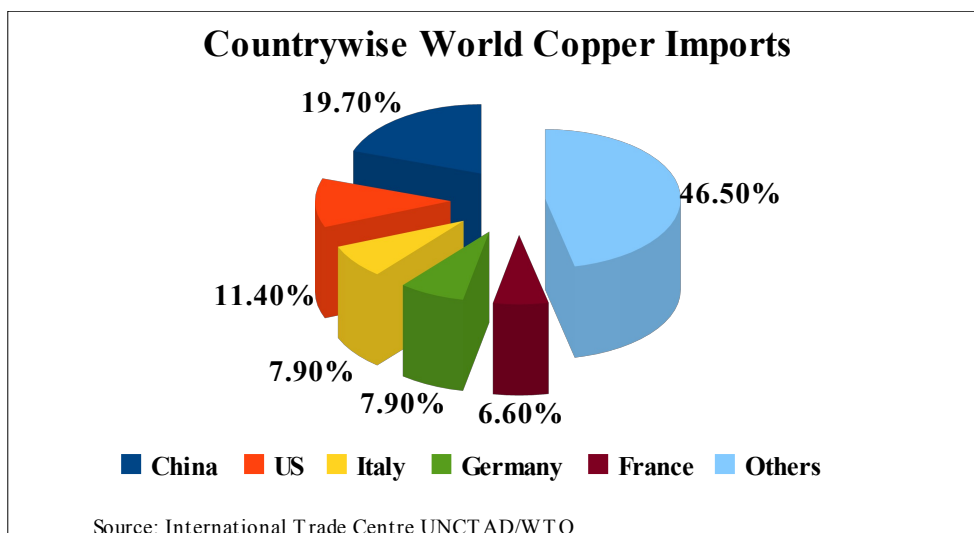
Factors Influencing Indian Copper Market:

- Copper prices in India are fixed on the basis of the rates that rule on LME and Rupee & US Dollar exchange rate.
- Economic growth of the major consuming countries such as China, USA, Japan, Germany, India etc.
- Growth and development in the Infrastructure, Real-estate, Telecom and Electrical Industry.

Global Copper Trade

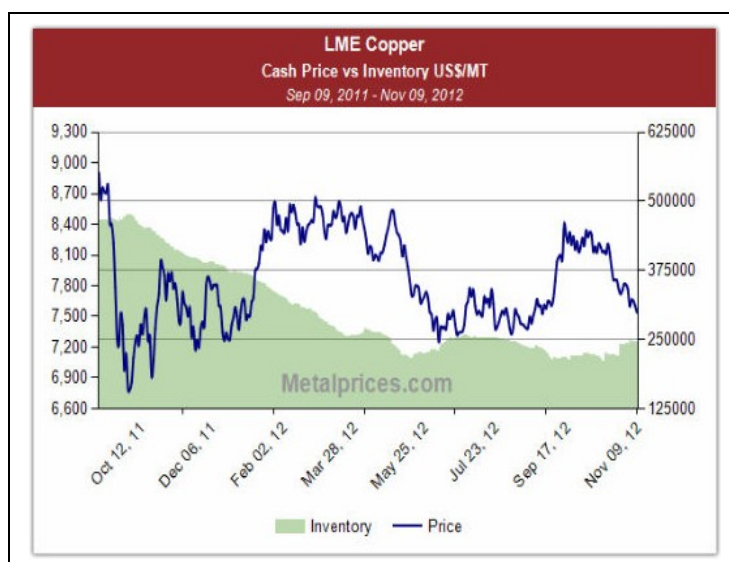


- As observed from the above chart, Chile leads the race of world's top copper exporters, constituting around 18% of the total world copper exports followed by Germany, Japan, France and US, comprising about 12%, 8%, 5% and 4.5% respectively.
- In absolute terms, value of Chile's exports amount to around \$ 5001.60 million, followed by Germany, Japan and France, which stands around \$ 3233.77 million, \$2124.16 million and \$ 1272.06 million respectively.
- While US exports value stood at about \$ 1238.88 million.



- China's growing fetish for copper, makes it the world's leading copper importer, constituting around 20% of the total world copper imports followed by US, Italy, Germany and France comprising around 11%, 8%, 8% and 7% respectively.
- In absolute terms, value of China's imports amount to around \$ 5601.60 million, followed by US, Italy, Germany and France which stands around \$ 3235.32 million, \$ 2247.24 million, \$ 2239.96 million and \$ 1884.21 million respectively.

Copper Inventory Levels



- China's copper mountain continues to build. Over the past month Chinese bonded and Shanghai Futures Exchange (ShFE) copper inventories have risen to record high levels
- Copper inventories in warehouses monitored by the ShFE hit a six-month high of 204,995 tonnes this month as steady imports eclipsed slowing demand growth for the metal.
- ShFE copper stocks rose 3.6 percent to 204,995 tonnes from the week ended 10th November 2012, the highest since April and nearing March's inventory peak of 227,276 tonnes.
- China's copper stocks have climbed for most of this year as traders import high volumes of

metal for financing, mainly to fund higher yielding returns often in real estate, while consumption has been hurt by faltering Western demand for China's exports

- In October 2012, Chinese bonded and ShFE copper inventories have risen to record high levels with global exchange and bonded inventories up to 1.2 million tonnes from 950,000 tonnes at end July, and from 900,000 tonnes at the end of 2011

(Source: Goldman Sach's Research Note)

Regulatory Updates

In the second quarter of 2012, following were regulations introduced in the copper sector which focused on protecting domestic mining assets and increasing revenue for the government.

List of recent regulations in copper industry

Country	Regulations	Description
Indonesia	Export duty	Indonesia has imposed a 20 percent export duty on 21 metal ores, including copper.
Mongolia	Foreign Investment Rules	The investment rules in Mongolia have changed, providing the country the right to review takeover bids by foreign investors.
Zambia	Lift of suspension on mining licenses	The government has lifted suspension on processing of mineral exploration and mining licenses; the suspension was imposed in 2011 to control speculation and corruption.
Zambia	Regulation on taxation of mining companies	Zambia has tightened regulations to boost compliance to policies and revenue collection from the mining sector.

Future Developments in the Global Copper Market

- As the global copper market adapts to regional shifts on the demand and supply side, the future of the global copper industry will look very different, allowing for growth opportunities.
- In emerging and mature markets, changing attitudes towards climate change, together with recent developments in antimicrobial technology, has provide new sources of demand growth.
- In Asia, traditional copper applications dominate growth although the dominance of this region promises to affect significant changes in the global demand structure, providing interesting opportunities for scrap metal players.
- The areas of application for copper are likely to be more varied: due to its good electrical conductivity, copper is ideal for applications in electrical engineering, electronics and telecommunications.
- The increasing interconnectedness worldover, the rising demands on telecommunications as also the high safety and comfort standards in car designs today ensure that copper demand is constantly on the increase. Nowadays, some 25 kg of copper are used on average in each car and in luxury models it can be more than twice this amount.
- Our modern lifestyle would not be possible without copper.