The price of copper is up 13% since the turn of the new year, sparking speculation that the metal could achieve the lofty $10,000-a-ton mark for the first time in 12 months.

Three-month copper closed Wednesday at $8,580 a ton on the London Metal Exchange. On the Comex division of the New York Mercantile Exchange, copper for February delivery gained 3.35 cents, or 0.9%, to $3.9060 a pound, up 14% year to date.

With bullish bets in the futures market rising, strong Chinese imports and stocks held in London Metal Exchange warehouses at their lowest since September 2009, copper bulls certainly see some reasons for the industrial metal to be pushing higher.

Still, many remain unconvinced the red metal is deserving of such a rich price tag.

Some analysts fear the market may be setting itself up for a repeat of last year, when prices rocketed to record highs in February on expectations of higher demand and lower supply, but tumbled in the fall when the market realized that China, the world's largest buyer of the metal, wasn't coming to the party.

"In early 2011, there was a disconnect between the physical and futures markets. While at that time it did hit records, whether that happens again is very much dependent on what happens in the euro zone and how China's economy evolves," said Standard Bank analyst Leon Westgate.

Mr. Westgate said the bank isn't seeing buyers who want the physical metal; they are just trading it as a financial product. "The physical market is dead," he said.

Nevertheless, copper on the London Metal Exchange has risen on expectations of monetary easing around the globe. The bet is that easing will stimulate economic growth, a positive for the red metal, which is used widely in manufacturing and construction.
The mood of market bulls has also been buoyed by falling LME warehouse stocks and rising canceled warrants—a proxy for metal about to leave warehouses. This is often, but not always, a signal that demand will be rising.

While these indicators give the impression of a tightening market, they are likely instead just caused by the movement of metal between warehouses, some say. Companies that own the metal may move it around because they need it to be in a particular region, or have financing deals. Just because metal leaves a warehouse doesn't mean it is being consumed.

Meanwhile, the China story is also held in doubt. Copper imports into the metal-hungry country hit a record in December, topping 500,000 tons and boosting confidence in demand prospects there. But expectations are that it is just being stored.

BNP Paribas strategist Stephen Briggs said the market "has only seen a massive relocation of inventories [from LME-listed facilities] into China."

China is scheduled to report import and export figures for January on Friday, and investors will use the figures to try to gauge the evolving demand picture there. China is responsible for about 40% of the world's consumption of the metal.

Not all are as cautious on the red metal's prospects. According to Barclays Capital, even with stronger supply and a fall in demand growth, the market should still remain in a production deficit this year, meaning demand has outstripped supply.

Its forecast for an average of $9,000 a ton in 2012 certainly points to a period of higher prices, particularly after the market kicked off the year trading at just $7,600 a ton. However, if a lack of physical metal demand persists, the potential for a correction could haunt the market.

"The call in November was how low copper could go, but now that the price has risen by $1,000 since the start of the year, everyone has suddenly turned bullish," Mr. Briggs said. "Six months from now the market may be genuinely tight, but it is definitely not genuinely tight today and so I would treat calls of $10,000 a ton with a pinch of salt."

—Clementine Wallop contributed to this article.

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