

NEW PERSPECTIVES

Commentary from New Century Advisors – February, 2021

Copper is a Green Metal, not the Red Metal

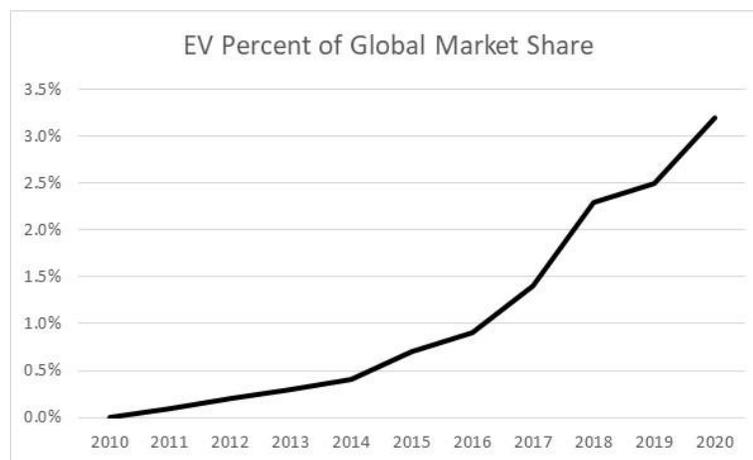
General Motors (GM) recently threw down the gauntlet to its auto rivals by announcing that the company would be producing nearly 100% electric vehicles (EVs) by 2035. The company also vowed to become carbon neutral by 2040. Ford partially matched this announcement by saying the company would double spending on EVs through 2025, about \$22 billion. Tesla may have established this once-niche EV market, but the larger auto companies have the ability to bring it to mainstream consumers. GM and Ford's messages are clear: We see where the auto market is going and we do not plan on sitting on the sidelines.

We think these pledges are a clear win for:

- The environment (this needs no explanation)
- GM and Ford shareholders. The share price for anything EV-related is getting bid up in the market lately. Ford and GM share prices are up over 25% through February 19th.
- And copper...yes, copper

Taking a step back, the public demand for products and services that help reverse climate change is unquestionably admirable, and perhaps a defining social movement for the next few decades. For corporations, there will be many challenges, especially as these green pledges come face-to-face with the realities of their supply chains.

The EV market has seen dramatic growth in the last ten years, albeit from an exceedingly small baseline:



Source: IEA.org

According to market research firm JD Power, the EV market in the US is 2% of the overall auto market. In Europe it is 10% of the overall auto market, and in China it is 5% of the overall auto market. (The oil-producing nation of Norway is currently witnessing 50% EV market share.)

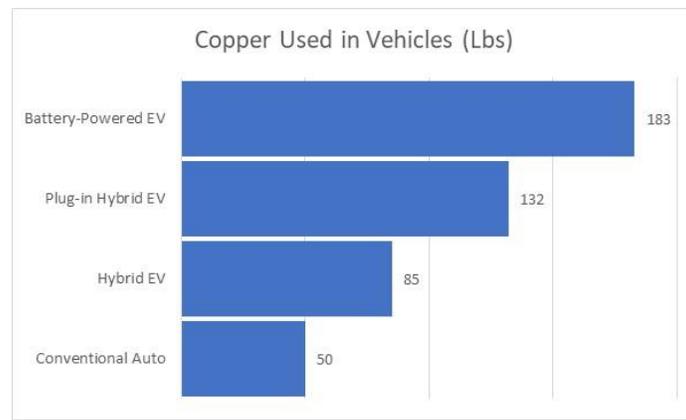
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If we accept that consumers will continue to demand more EVs in the future, this growing market will inevitably boost demand for industrial metals, especially copper.

It has been a while since we have thought about the periodic table of elements, but it is important to remember that the best conductors of electricity are silver, copper and gold. Copper is the cheapest of the three, and therefore the most often-used metal for electricity.

Simply put, autos that rely more on electricity (hybrid and full EVs) need more copper than gas-powered autos. Here is the typical amount of copper used in conventional autos as well as the different EV options:



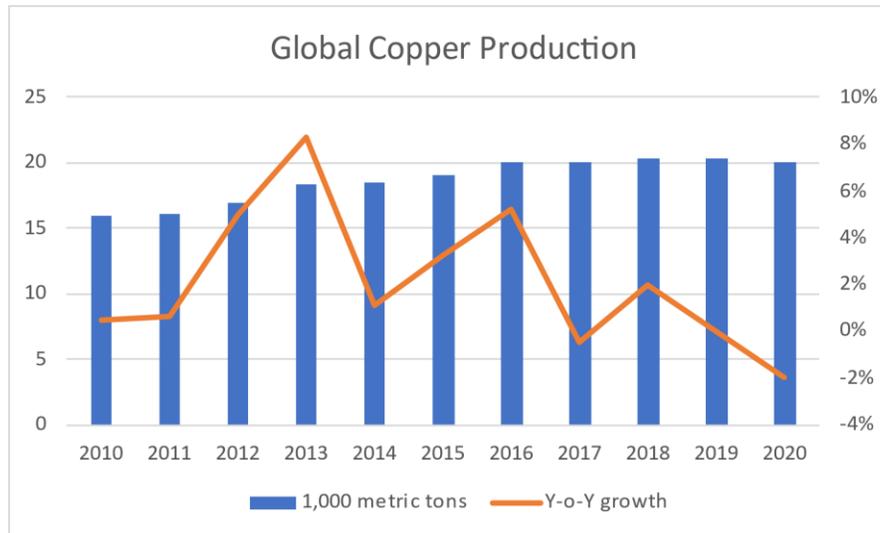
Source: Copper.org

More copper will also be needed for the increase in charging stations, as well as the necessary adjustment to electricity grids across the US to meet the surging demand for electricity. There are roughly 275 million cars on the road in the US, but we are not going to transition the nation's fleet to 100% EVs overnight. The most optimistic forecasts show at least a 15-year transition. However, each new EV that replaces a conventional car will put incremental pressure on the copper market.

In terms of copper supply, the last 10 years saw a dearth of new high-quality copper production. This lack of new supply puts more pressure on existing mines that are always struggling to contain costs to keep investor demand satiated. As one can see from the chart below, copper production has not been robust in the last ten years. (The COVID pandemic also put a dent in global production but that will likely recover in the next few quarters.)

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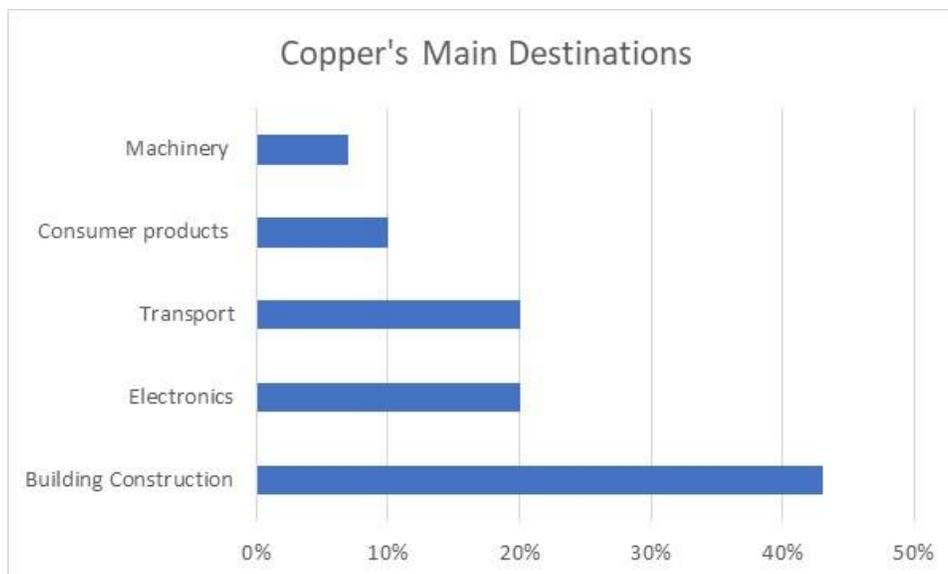
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Source: Statista.com

Fitch Solutions research expects copper production to rise by 3% for the next 10 years. But production delays are to be always expected in the mining industry. The five countries that produce the most copper are Chile, Peru, China, the Democratic Republic of Congo, and the US (mostly in the Southwest.) Unique political, labor, or weather issues could cripple production from any of these regions for a period of time.

It is also important to note that the auto industry is not the biggest destination for copper. Here are the largest markets that need this metal:



Source: Copper.org

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Furthermore, it is not just more copper that will be needed in our new battery-powered, low-emissions world. There are many other elements that are required for this transition. **Aluminum** is necessary to make vehicles lighter which makes vehicles more energy efficient. Efficiency is the utmost critical factor for EVs. **Scandium** is added to aluminum to make it stronger and lighter. **Silver** is also part of EV electrical systems.

The critical challenge for EV market growth is to make a more efficient battery. It is hard to predict what that technology will look like, but for now, it appears that a lot of metals are required to make a battery for today's EV. A Tesla battery, for example, is 35% **Nickel**, 25% **lithium**, and 5% **cobalt**.

It is obviously not just the auto industry that is being pushed to be greener. If you go back to the bar chart above showing copper's largest consumers, all these industries and sectors are being pushed to become less dependent on hydrocarbons. We all want greener homes and office buildings, we have more and more items to charge daily, and we all expect the producers of our products to have a smaller carbon footprint. Electricity is the source of energy for a lot of these changes, and this will all lead to more metal demand for the future.

The investment industry has embraced the need for ESG investing, especially the environmentally friendly aspect of this factor. However, for our society to 'go green', it means these metals, which are historically associated with negative environmental impacts, will most likely increase in price. The oft quoted cliché about "Dr. Copper" having a PhD in economics relates to the metal being a real-time reflection of global growth expectations. If the copper price is rising, that means the market is pricing in an expansion of growth in the world. And, typically, that is true of other base metals as well. But if this trend for EV continues, and if less reliance on hydrocarbons is more than a passing fad, we think the fundamentals associated with these metals will change. A rise in the copper price could mean more green-related spending. A rise in nickel could mean more demand for more EV batteries, etc. As corporations, consumers, and policy makers across the globe keep these carbon-neutral initiatives and preferences at the top of their priorities, the relationship between copper and global growth, and the narrative in the commodity markets in general, will evolve.

For more information on any of the data, trends, or trading strategies in this piece, or to discuss how New Century Advisors might help your fixed income allocation, please contact Leigh Talbot, CFA, Director of Client Relations at 240-395-0012 and ltalbot@ncallc.com

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