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Higher raw material prices impacting automotive industry

Abstract from *Sector Flash*

UniCredit Research

Russia is a major supplier of industrial metals. As the conflict in Ukraine and the resulting sanctions are expected to lead to reduced supply of raw materials, prices have increased. In the year to date, the average **price of aluminum, palladium and nickel have increased by between 13% and 18%** compared to the average price in 4Q21. Aluminum, copper and nickel are considered to be key metals for electric vehicles, e.g. **lithium-ion car batteries accounted for about 10% of nickel demand in 2021.** Russia is the third largest nickel miner in the world, accounting for around 9% of global production in 2021, after Indonesia (37%) and the Philippines (14%).

Russia's mining of palladium represented around 37% of global production, just after South Africa with 40%. Around 45-90% of palladium and platinum demand comes from the automotive industry. Vehicle exhaust systems are fitted with catalytic converters, which use platinum, palladium, and rhodium to neutralize harmful emissions. **Aluminum is used in the vehicle frame and body, as well as many other parts, and accounts for around 10% of the average weight of a car.** Russia accounted for around 5% of global aluminum smelter production in 2021. The average quarterly **steel price increased significantly in 1H21, but less so in 2H21 and so far this year.** Nevertheless, steel and iron are estimated to account for around 65% of the weight of a car. Russia is only responsible for around 4% of global raw steel production, although it is the fifth-largest producer of steel.

PRICE CHANGES OF SELECTED COMMODITIES IN 2021/22

Change of average quarterly price qoq	North Europe Steel HRC	North America Steel HRC	Aluminum	Copper	Palladium	Platinum	Nickel	Crude Oil Brent	Netherlands TTF Natural Gas Fwd Month 1	Polyethylene	Polypropylene	Rubber
YTD22	-6%	-28%	13%	2%	16%	3%	18%	16%	-3%	2%	0%	2%
4Q21	-15%	16%	-2%	0%	6%	5%	-5%	1%	96%	3%	5%	-2%
3Q21	14%	5%	18%	1%	-34%	-19%	19%	14%	96%	10%	-1%	6%
2Q21	44%	29%	15%	14%	16%	2%	-1%	13%	35%			3%
1Q21	37%	56%	9%	18%	2%	23%	10%	35%	24%			5%

Source: Bloomberg, UniCredit Research