



Sustained raw materials shortage set to elevate credit risk for US electric vehicle manufacturers

By [Alyssa Alexandra Harijanto](#)

- **The NUS-CRI Agg PD showcases the worsened credit profile of the US EV industry over the past year due to stunted production caused by shortages of raw materials primarily used to create EV batteries**
- **Looking ahead, the NUS-CRI Agg Forward PD of the US EV industry is set to remain elevated, due to challenges stemming from persistent short-term battery and raw materials shortage, as well as a potentially shrinking market share**

The global chip shortage over the past year has forced global automotive manufacturers [to cut production](#) and is likely to continue impacting the production of [electric vehicles](#) (EV) in the future as well, as EV production requires [double](#) the amount of chips than those needed in non-electric vehicles. Furthermore, with the recent shortages of lithium and nickel¹, two of the key materials needed to produce EV's lithium-ion batteries, further production cuts of up to [18.7mn](#)² electric cars are expected over the next decade. This especially impacts the US EV manufacturing industry (US EV industry³), which currently relies heavily on [China](#) and [Taiwan](#) for importing its supply of semiconductors and lithium-ion batteries. The NUS-CRI 1-year Aggregate (mean) Probability of Default (PD) reflects the deterioration in the credit quality of the US EV industry, in tandem with the deteriorating credit quality of the US non-EV automotive manufacturing industry (US non-EV industry) since the start of 2021, surpassing the BB- upper bound in Oct-2021 and Nov-2021 respectively when referenced to PDiR2.0⁴ bounds (See Figure 1a). Looking forward, the NUS-CRI Aggregate (mean) Forward 1-year PD (Forward PD⁵) shows the credit outlook of the US EV industry is set to worsen before stabilizing in the medium term (See Figure 1b). Despite the accelerating shift to EVs to replace combustion engines, the US EV industry is set to remain riskier than the US non-EV industry due to persisting battery shortages which hinder production in the short to medium term, and an over-reliance in overseas supply for raw materials.

¹ While the semiconductor shortage impacts both the manufacturers of EVs and internal combustion engine (ICE) vehicles, the shortages of lithium, nickel, and cobalt are expected to have a bigger impact on the EV industry compared to ICE producers, as these metals are used to make lithium-ion batteries mainly used in EVs.

² This figure is nearly 9 times the global EV production in 2020, which was [2.17mn](#) vehicles.

³ NUS-CRI's sample for the US EV industry includes 13 US-domiciled electric vehicle manufacturers, while the US non-EV industry includes 22 US-domiciled non-EV automotive manufacturers.

⁴ The Probability of Default implied Rating version 2.0 (PDiR2.0) provides a more familiar interpretation through mapping the NUS-CRI 1-year PDs to the S&P letter grades. The method targets S&P's historical credit rating migration experience exhibited by its global corporate rating pool instead of relying solely on the reported default rates.

⁵ The Forward PD estimates the credit risk of a company in a future period, which can be interpreted similar to a forward interest rate. For example, the 6-month Forward 1-year PD is the probability that the firm defaults during the period from 6 months onwards to 18 months, conditional on the firm's survival in the next 6 months.

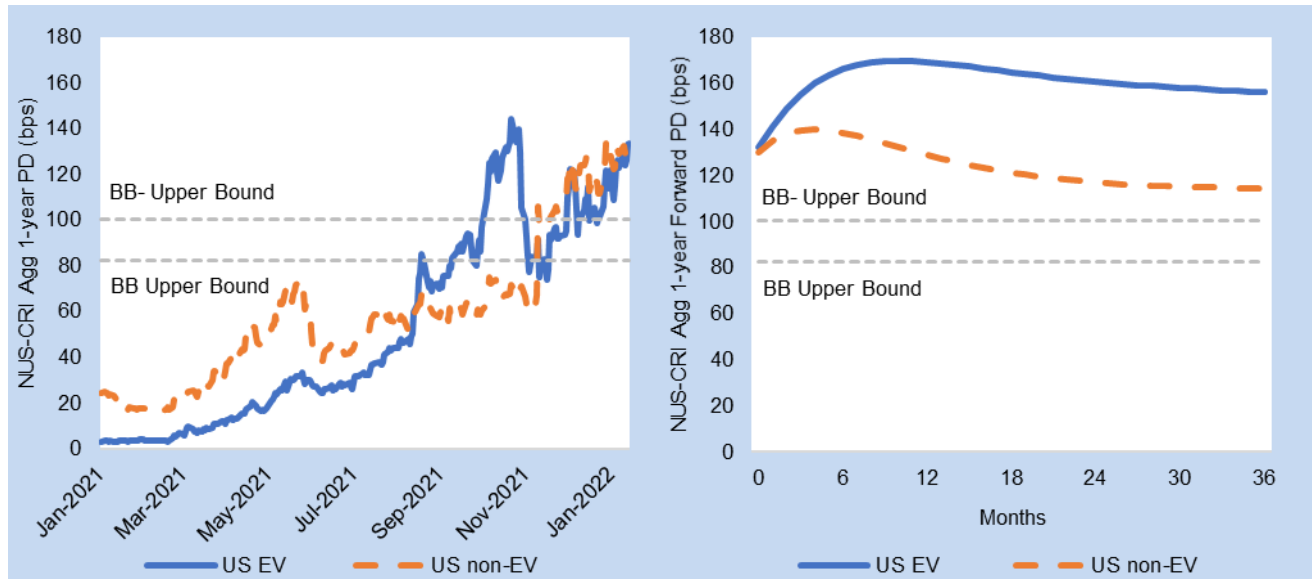


Figure 1a (LHS): NUS-CRI Agg (mean) 1-year PD for the US EV industry and US non-EV industry from Jan-2021 to Jan-2022 with reference to PDiR2.0 bounds. Figure 1b (RHS): NUS-CRI Agg (mean) Forward 1-year PD for the same sample as of Jan-2022 with reference to PDiR2.0 bounds. Source: NUS-CRI

To contextualize the impact of rising EV demand around the world on raw material shortages, global EV sales topped [5.6mn units](#) in 2021, which is nearly double the number sold in 2020. This surge in demand for EVs, coupled with pandemic-driven [disruptions](#) in supply chains, has caused a global shortage of [lithium](#), [nickel](#), and [other metals](#), consequently driving their prices up over the past year (See Figure 2a). In particular, lithium prices have risen by [280%](#) since Jan-2021, while nickel prices surged to its highest level in 10 years at [USD 22,745/tonne](#) in Jan-2022. This presents a major challenge to the global EV manufacturing industry as these materials are [critical](#) in the production of lithium-ion batteries used to build EVs. The shortage especially puts the US EV industry in a precarious position, given that the country only produces and processes [1%](#) of the global lithium supply and is [50% import-reliant](#) for each of the battery metals. Even without abnormal raw material prices, EV production is already [less profitable](#) with lower dollar margins, as their production costs are about [50% higher](#) compared to their combustion-engine counterparts. With the shortage of lithium forecasted to persist until at least the [end of 2022](#), the inflated [battery prices](#) are most likely to further impede operating cash-flow generation of the US EV industry. In tandem, the Forward PD of the US EV industry is set to increase by 40bps over the next 6 months, showcasing the worsening credit outlook that is primarily driven by such raw-material supply headwinds potentially impacting costs of production (See Figure 1b).

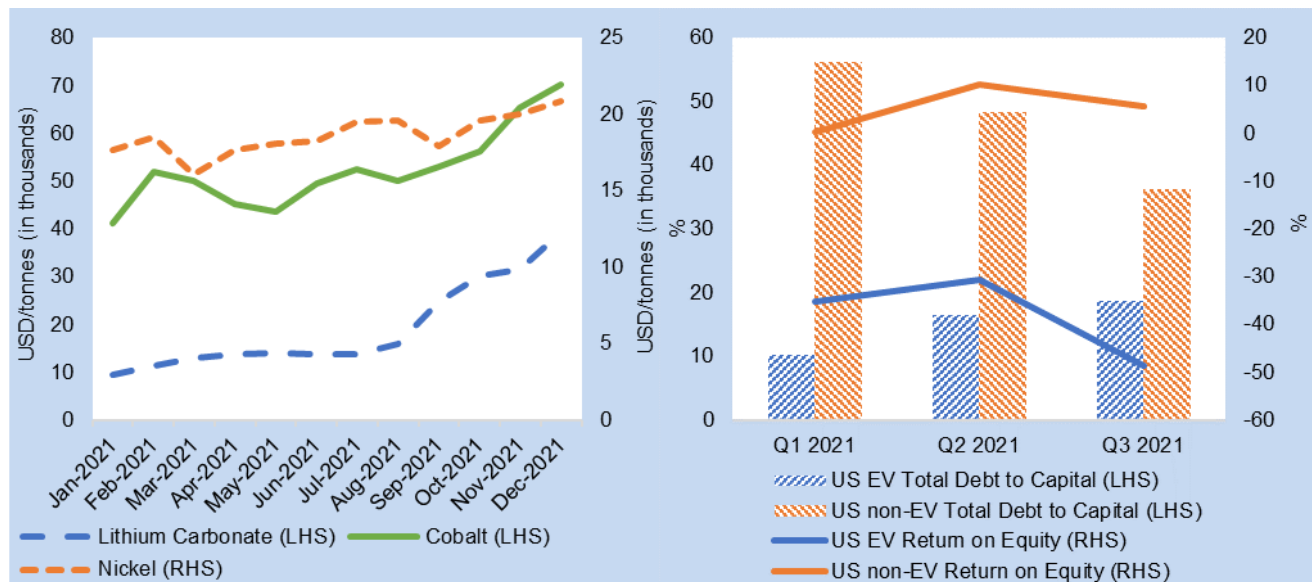


Figure 2a (LHS): Monthly spot price of Lithium Carbonate, Nickel, and Cobalt in USD/tonnes from Jan-2021 to Dec-2021. Figure 2b (RHS): Mean Total Debt to Capital and Return on Equity of the US EV industry and US non-EV industry from Q1 2021 to Q3 2021. Source: Datastream, Bloomberg

Although the US EV industry currently has less debt burden compared to the US non-EV industry, the former has been steadily increasing its leverage, while the latter has consistently reduced its debt burden from Q1 2021 to Q3 2021. At the same time, the US EV industry saw a significant decline in its profitability since the beginning of last year (See Figure 2b). With raw material prices projected to remain high until at least [the end of 2022](#), the US EV industry may need to take on more debt should the negative profitability persist in order to finance its [R&D capabilities](#), capital expenditure as well as fill the working capital needs. This elevated credit risk is reflected by the Forward PD of the US EV industry being higher than the US non-EV industry (See Figure 1b).

Furthermore, as China accounts for over [65% of global battery production](#) and [about 80%](#) of global lithium and cobalt refining, the US' dependence on raw-material supply from China could bring about increased risks to its EV industry over the long term, especially given the [geopolitical tensions](#) between the two countries. In 2020 for instance, after the US [banned equipment exports](#) to the Semiconductor Manufacturing International Corporation (SMIC⁶), China's largest semiconductor manufacturer, the company [cut off](#) its chip supply to all US-domiciled companies, further exacerbating the chip shortage faced by the US manufacturing industry. Should the supply of raw materials be restricted in the future, the production of the US EV industry could be hindered, negatively impacting their revenue-generating capabilities. Additionally, China's [dominance](#) on the supply of EV raw materials could enable the local EV industry to [ramp up](#) domestic production, with [over half](#) of the forecasted 2026 annual global EV output (12.76mn units) produced in China. In contrast, the annual production rate of US EV manufacturers is forecasted to decline from 18.89% in 2020 to [8.84% by 2026](#).

A silver lining for the US EV industry may be the fact that the industry has the support of the US government. President Biden's Build Back Better Act⁷ includes incentives to boost consumer demand for EVs to meet the administration's target that half of the vehicles sold in the US would be [EVs by 2030](#). The incentives from the bill could boost the EV adoption rate in the US⁸ which [still lags](#) compared to China and Europe, allowing domestic producers to potentially leverage on higher domestic demand to boost revenues. The expected increase in demand could mitigate the impact of the aforementioned risks and help maintain the stable credit outlook (as shown in Figure 1b) of the US EV industry over the next few years as adoption rates are set to increase.

Even though EV sales in the US are projected to increase fourfold from around 520,000 to over [2,056,000 cars](#) annually by 2025, it would be improbable for the US EV industry to capitalize on this growth should raw-material shortages persist. Even China, which controls [over half](#) of the processing of the metals needed in EV production, is likely to see its domestic EV industry face a production [shortfall of 1mn](#) vehicles in 2022 due to supply shortages. While the US currently has plans to build infrastructure to produce [lithium](#) and manufacture [EV batteries](#) and [semiconductors](#) domestically, these projects would take [years to](#) become operational and would not be able to ease the immediate shortage. Unless the US EV industry is able to ensure a steady supply of raw materials in the near future and is able to expand the domestic EV production, looking ahead the industry is set to face the full brunt of headwinds arising from persisting supply shortages and increased competition from other key markets around the world.

⁶ The US government placed SMIC on a blacklist, citing that US software and chip-making equipment exports to the company posed a risk of being diverted to "[military end-use](#)". For further details regarding this topic, please refer to an earlier [WCB](#) published in 2020.

⁷ A crucial part of the [Build Back Better Act](#) is raising the credits for consumers buying EVs from USD 7,500 up to USD 12,500 with no limit on the number of cars that would be eligible for each manufacturer. The bill also includes a major upgrade of electrical charging points across the US, which could further incentivize consumers due to fuel savings.

⁸ In 2020, only [2.3%](#) of new vehicle sales were EVs in the US, while the numbers for Europe and China were 10% and 6% respectively.

Credit News**Germany's 10-year Bund yield turns positive for first time since 2019**

Jan 19. Germany's 10-year bond yield has climbed over zero for the first time since 2019, as investors believe central banks will stop the stimulus measures to combat inflation across Europe. The yield on the 10-year Bund increased to 0.013% on Wednesday, the highest level since May-2019, from the negative 0.4% in mid-December. The rising yields worldwide reflect investors' worry that central banks will need to move fast to cool inflation. A positive 10-year yield could make the debt more attractive to investors while increasing the borrowing costs in other Eurozone member states and companies. ECB's slower bond-buying, in tandem with signs that the US and UK are moving toward tightened monetary policy, has driven German bond yields higher. ([FT](#))

Global bond funds see higher outflows on rates outlook

Jan 21. Global bond funds experienced an increasing sell-off in the seven days ending Jan-19. With oil prices increasing and hitting over a seven-year high, fears have stoked the market regarding more persistent inflation. The Fed solidified expectations about tightening monetary policy as early as March to curb rising inflation. As a result, two-year US Treasury yields, which represent short-term interest rate expectations, raised to a 23-month high this week, causing a massive sell-off in bond funds. For example, global high yield and short-and-medium term bond funds experienced net selling of USD 2.63bn and USD 0.83bn respectively, the second continuous week of outflows. Meanwhile, inflation-protected and government bond funds attracted USD 777mn and USD 528mn investment respectively. ([Reuters](#))

Chinese developer Country Garden raises USD 501mn as investor mood lifts

Jan 21. Country Garden Holdings Co., China's largest developer by contracted sales, took advantage of a pickup in investor sentiment toward the property sector to sell convertible bonds, raising USD 501mn. The bonds pay a comparatively high-interest rate and can be converted at a modest premium to the company's recent share price, showing that stronger players in the sector still need to pay up to secure backing from investors. This comes as an industry-wide rebound is being fueled by central-bank easing and hopes that regulators could give Chinese developers more access to cash payments made by customers for unfinished apartments. While the latest debt sale and other recent issuances demonstrate Country Garden's stronger-than-peer funding capability in a very volatile funding environment, developer's sales are expected to remain under pressure given their high exposure to lower-tier cities where housing demand is weaker amid the broader sector downturn. ([WSJ](#))

Hawkish central banks send leveraged loans to highest since 2007

Jan 20. Leveraged loan prices in the US have risen to their highest levels since 2008 as investors flock into assets that will provide return amidst rising interest rates. Leveraged loans pay floating interest rates, making them appealing when central banks hike interest rates. The expectation that the Fed will conduct a rate hike as soon as Mar-2022 to combat inflation has boosted demand for assets that payout as rates rise, sending the S&P/LSTA Leveraged Loan Index to its highest levels since Jul-2007. Loan funds had the highest inflows since 2013 totaling USD 1.84mn for the week ending Jan 12. After a record year in 2021, new leveraged loan issuance is expected to slow down this year. ([Reuters](#))

COVID-19 claims a big cruise-line victim, Genting Hong Kong

Jan 19. Cruise operator Genting Hong Kong Ltd. has filed a winding-up petition and applied to appoint joint provisional liquidators, becoming the industry's highest-profile financial casualty since the onset of the COVID-19 pandemic. The company said it would imminently be unable to pay its debt and that it expects to run out of cash around the end of Jan-2022. Genting Hong Kong's shipbuilding unit, MV Werften, filed for insolvency last week, which has put about USD 2.8bn of the company's debt in cross-default. Cruise operators have had to suspend many sailings during the pandemic, and the spread of Omicron has stymied their efforts to resume a fuller schedule. That has forced the companies to sustain themselves by running up larger debts, as they have burned through hundreds of millions of dollars each quarter. ([WSJ](#))

Gold set for second weekly gain as inflation risks boost appeal ([Reuters](#))

JGB curve steepens as yield follow US European peers higher ([Reuters](#))

Tech rout fueled by bond-market turn ([WSJ](#))

Regulatory Updates

UK retail bank ringfencing has not damaged sector, Treasury review finds

Jan 21. To protect ordinary customers from the banks' trading losses, ringfencing regulation in UK banks requires lenders with deposits over GBP 25bn to separate their consumer business from investment banking under legislation passed in 2013. In early 2021, the Treasury Department launched a review to assess the legislation eight years after parliamentary approval. The Treasury-led review shows that the retail banking regulatory regime has not affected the industry negatively, especially the mortgage market, but helped to improve the resilience of the UK banking sector. Meanwhile, the report also suggested that the regime may need to be simplified to avoid unintended harm to competition, as it created additional compliance costs for banks and unnecessary customer friction in the retail and investment banking sectors. ([FT](#))

ECB's Makhoul sees inflation slowing, no rate hike in 2022

Jan 22. After euro area consumer prices rose a record annual rate of 5% in Dec-2021, inflation should slow in 2022 as supply-chain blockages and energy prices recede, though it is likely to remain above 2% for the remainder of the year, according to ECB Governing Council member Gabriel Makhoul. Makhoul said he does not expect the ECB to raise interest rates in 2022, although the ECB is likely to intervene should there be any second-round effects of inflation, such as wages rising without corresponding increases in wider productivity throughout the Eurozone. ([Bloomberg](#))

Ukraine raises rate to 10% as inflation and Russia standoff weigh ([Reuters](#))

Indonesia central bank surprises with hefty RRR hikes to steady rupiah before Fed ([Reuters](#))

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Contributing Editors: [Yao Xuan](#), [Raghav Mathur](#)