



Amidst demand decline, US and Chinese semiconductor industries' credit outlook worsens the most amongst global peers

By [Amrita Parab](#)

- **NUS-CRI Forward 1-year PD suggests a deterioration in credit health of the global semiconductor industry driven by demand declines and aggressive capacity expansions potentially impacting semiconductor firms' margins**
- **NUS-CRI Forward 1-year PD of the US and Chinese semiconductor industries shows a relatively worse credit risk outlook compared to its peers as the economies contend with elevated geopolitical and macroeconomic risk**

At a time when economies around the world compete to improve their semiconductor manufacturing capabilities and [expand](#) capacity, the global semiconductor industry, which has enjoyed robust sales growth during the COVID-19 pandemic, faces an inflation-driven slowdown in demand. Global chip sales growth registered a slowdown for the [sixth consecutive month](#) as surging inflation, a tightening interest rate environment, and recession fears reduce demand for consumer products which use semiconductors as a key component. The NUS-CRI Aggregate (median) 1-year Probability of Default (Agg PD) increases consequent to an acceleration in inflation, fueled by geopolitical tensions and global supply chain issues. The NUS-CRI Agg (median) Forward 1-year PD (Forward PD¹) suggests a worse deterioration in its credit risk outlook as a [looming demand slowdown](#) concurrent with [capacity expansion](#) weighs on the industry's margins, with vulnerable firms potentially facing a more rapid deterioration in credit health.

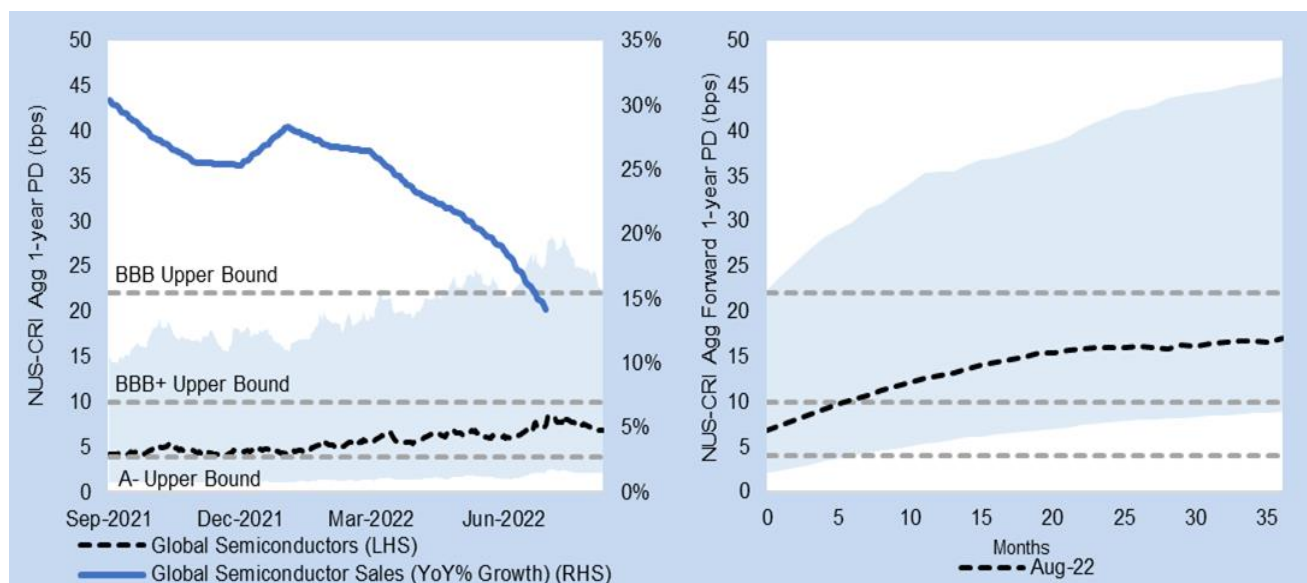


Figure 1 (LHS): NUS-CRI Agg (median) 1-year PD for Global Semiconductor industry from Sep-2021 to Aug-2022 and its interquartile range with reference to PDiR2.0² bounds; Global Semiconductor sales (YoY % growth) until latest available figure of Jun-2022. Figure 1b (RHS): NUS-CRI Agg (median) Forward 1-year PD for Global Semiconductor industry as of Aug-2022 and its interquartile range with reference to PDiR2.0 bounds. *Source: NUS-CRI, Bloomberg*

[Record inflation](#) in major economies around the globe has squeezed consumers' disposable income, consequently [hampering demand](#) for consumer electronics and other discretionary products. As a result, the global chip shortage, which helped boost the semiconductor industry's bottom line over the past few years, is

¹ The Forward PD estimates the credit risk of a company in a future period, which can be interpreted similarly 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 – this is conditional on the firm's survival in the next 6 months.

² 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.

finally starting to [ease](#). Personal computer and smartphone segments, which are amongst major contributors to semiconductor demand, have experienced a [decline](#) in the first half of 2022. The industry has already begun to contend with the consequences of declining demand as major players in the industry such as [Micron](#) and [SMIC](#) warn of a potential negative impact on earnings in the upcoming quarters. The implications of the slowdown are potentially worse for the more vulnerable firms in the industry (See Forward PD in Figure 1b) which may lack the scale of bigger players and are [more](#) vulnerable to fluctuations in demand. Adding to the incumbent pressure on margins, heightened measures by governments around the world during the initial fallout of the pandemic focused on increasing the global production capacity. Aggressive capacity expansion undertaken during the past few years, in conjunction with a potentially prolonged demand downturn, could translate to a build-up in inventory over the next few years, initial signs of which are already being witnessed in [Q2 2022](#). As such, with the prospects of an economic downturn rising in the near future, the impact on margins witnessed by the whole industry moving forward [may be hindered](#), with the industry-wide build-up in inventory affecting prices and turnover in all major products dependent on chips.

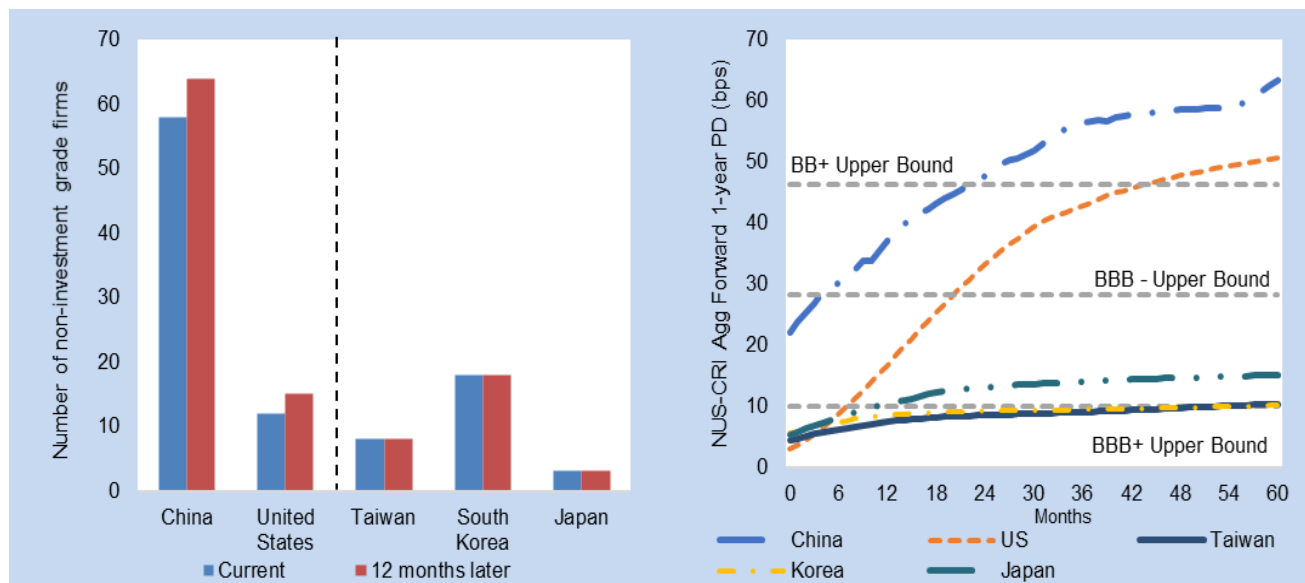


Figure 2a (LHS): Present and forecasted number of firms rated as non-investment grade according to PDiR 2.0. Figure 2b (RHS): NUS-CRI Agg (median) Forward 1-year PD for China, US, Taiwan, Korea, and Japan Semiconductor industry as of Aug-2022 with reference to PDiR2.0 bounds. Source: CriAT, NUS-CRI

A closer look at the regional dynamics of the semiconductor industry shows that the credit-risk outlook for semiconductor industries in Taiwan, Korea, and Japan is more stable compared to that in the US and China (See Figure 2b). As geopolitical tensions among them rise, the US and China have been actively investing to bring on additional capacity, with the US senate recently approving the [CHIPS act](#) which includes a [USD 52bn](#) investment package. In spite of the huge investment that the CHIPS Act brings, the timeline for new capacity additions for the industry is [long](#) and may only bear fruit in the longer term. Additionally, the capacity expansion plan of the US semiconductor industry may still face bumps in the form of labor [shortages and higher labor costs](#) as compared to its Asian counterparts, which in turn may hamper their margins compared to their global counterparts. On the other hand, the Chinese semiconductor industry is currently facing multiple headwinds as [production disruptions due to covid restrictions](#), [contraction of factory activity](#) in July, and an erosion of consumer [demand](#) for downstream tech-related products affect the demand for semiconductors. Consequently, prices for some chips have fallen by close to [90%](#). US sanctions have increasingly hindered the Chinese semiconductor industry's [ability](#) to achieve rapid technological advancement and become self-sufficient in terms of chip demand. China's semiconductor industry technology [lags four years](#) behind its more advanced Taiwanese and Korean peers. The CHIPS act recently approved by the US adds to the headwinds faced as it prohibits investments and development of [cutting-edge chip manufacturing facilities](#) in China by those companies subscribing to US subsidies. To add to its woes, since Jul-2022, the Chinese semiconductor industry has also been subjected to probes by the government as it is being investigated for the [lack of progress](#) and [possible misappropriation of funds](#). Although both the US and Chinese semiconductor industries are supported by low leverage levels³, increasing geopolitical risk and regulatory risk amidst an environment of overcapacity and demand declines weighs on their credit risk outlook, as suggested by the increase in the Forward PD. As the Chinese and US

³ Total debt to capital ratios (median) for the semiconductor industry; US - 16.53%, China - 10.42%; Profit margin (median) for the semiconductor industry; US - 11.5%, China - 11.67% Source: Bloomberg

semiconductor industries try to navigate geopolitical turmoil amidst a demand slowdown, using CriAT's iRAP⁴ tool, it is seen that there is an increase in the number of non-investment grade semiconductor firms within the two economies over the next 12 months (See Figure 2a). In contrast, semiconductor industries in Taiwan, Korea, and Japan, which form a [major portion](#) of the semiconductor market, continue to be supported by their long-established positions in the [semiconductor value chain](#) which potentially lend support to their stable credit outlook even in the face of demand declines.

Going forward, the challenging macroeconomic environment, overcapacity, and expectations of a recession may potentially push the cyclical semiconductor industry into a further [slowdown](#) over the coming months. With major governments across the world undertaking large investments in the industry as they work towards building their domestic production capacity, margins for large industry participants may face further downward pressure. On the demand front, though global demand for consumer products is reducing as a whole, a potential silver lining that may buoy the bottom line for the industry may be the [sustained demand](#) for semiconductors from the global automotive industry and data centers. Nevertheless, apart from the above-mentioned headwinds faced by the US and China-domiciled semiconductor companies, the robust financial profile and relatively low leverage of the global industry aids their credit risk outlook, as suggested by the Forward PD in figure 1b.

⁴ iRAP (intelligent Risk Analysis Platform) is a software developed by CriAT (<https://www.criat.sg/>) for conducting both firm-level and portfolio level credit analysis. iRAP utilizes the NUS-CRI Probability of Default (PD) model and links it to the live NUS-CRI database offering PDs on almost 80,000 exchange-listed corporates globally.

Credit News
<p>Ukraine cut to default by S&P after creditors OK debt-payment delay</p> <p>Aug 12. Both S&P Global Ratings & Fitch Ratings have downgraded Ukraine to default scores as the country's bondholders agreed to defer debt payments for 2 years. The downgrade follows the approval of a debt restricting plan that could potentially save the nation about USD 5.8bn. The process was backed by the International Monetary Fund and the US as the nation requires cash to pay pensions and defend against a larger and more well-endowed aggressor. (Bloomberg)</p>
<p>Debt issuers wonder if ESG label is worth it as skepticism spreads</p> <p>Aug 10. The regulatory landscape and standards surrounding ESG debt issuances are evolving rapidly to provide firms with more definite guidelines and clearer expectations. As such, issuers acknowledge the increasing risk of regulatory scrutiny and reputational risk it entails and contends whether the lower financing costs on such issuances are sufficient to compensate for such risks. To limit exposure, firms opt to issue ESG debt with shorter tenors. Similarly, asset managers are also becoming more selective and critical of the ESG debt pitches they receive. The additional caution exercised by both the issuers and asset managers could help in avoiding any misstatement in ESG metrics prospectively, should the thresholds tighten. (Bloomberg)</p>
<p>Bond market braces for showdown with traders split over Fed path</p> <p>Aug 14. The ease in US weekly inflation rate has bought down expectations of the Fed's next interest rate hike decision to be announced at the end of Sep-2022. As the country experiences a strong hiring and wage growth rate, traders are evenly split with expectations of either a 50bps or 75bps rate hike. The market still expects the Fed funds rate to peak around 3.5% in early 2022 before declining. Retail sales data and the annual Fed confab results over the next few weeks would give better clarity regarding the Fed's next policy decision. Nevertheless, the ease in inflation has brought expectations of stability, especially in the face of record high inflation over the last few months and the Fed's aggressive countermeasures. (Bloomberg)</p>
<p>Morgan Stanley bets on EM debt, JPMorgan says rally unsustainable</p> <p>Aug 11. Yield spreads of emerging-market sovereign debt over US treasuries have narrowed since the US reported a lower-than-expected inflation level. As such, Morgan Stanley analysts are banking on expectations of inflows to these riskier asset classes such as high-yield sovereign securities of Egypt, Ukraine, and Colombia. On the other hand, Goldman Sachs Group and JPMorgan analysts continue to hold a defensive position on the asset class as they expect tighter monetary conditions and recessionary pressures to continue to pose headwinds on the asset class. (Bloomberg)</p>
<p>UK credit deemed cheap by investors who say worst is priced in</p> <p>Aug 10. Looking to Bloomberg Indices, yields on sterling-denominated investment grade corporate bonds had risen almost 250 bps in 2022. This was driven by surging inflation raising the probability of the nation going into a prolonged recession. The street now is of the view that current valuations are decent for default risk. Money managers have picked up everything from battered junior debt to corporate bonds at rates above comparable to other western counterparts – US & EU. (Bloomberg)</p>
<p>Mexican leasing firm Unifin to miss debt payments, seek restructuring deal (Reuters)</p> <p>Avaya's collapsing debt deal hits clients of Goldman, JPMorgan (WSJ)</p> <p>Cineworld's debt crunch leaves spurned merger partner in lurch (Bloomberg)</p>
Regulatory Updates

China's belt and road lending under more scrutiny after IMF tightens debt limits, experts say

Aug 11. Following Sri Lanka's default, the growing concern about possibly similar sovereign debt crises prompted the IMF to enforce stringent transparency and tighter monitoring requirements, especially for low-income countries seeking funding assistance. This policy will likely affect loan agreements with China, the largest single creditor to developing nations after the World Bank. China's lending practices under its belt and road initiative had previously been criticized for lack of transparency and aimed at securing political leverage, which could have contributed to some developing nations' debt trap. The IMF had implemented the policy in its preliminary agreement with Pakistan wherein a full disclosure of external and internal debts, including terms and conditions that might complicate debt restructuring processes, was required. ([SCMP](#))

Wall Street revives Russian bond trading after US go-ahead

Aug 15. Since Jul-2022, trading in Russian debt has slowly resumed as the US money managers have eased regulations to aid investors who were not able to dispose of these Russian assets due to the sanctions arising from the Russian invasion of Ukraine. While some banks have offered to trade Russian corporate and sovereign bonds, some have strictly limited trades to asset disposals of Russian securities only. Consequently, the resumed trading has driven up prices of some Russian bonds to the highest level since Feb-2022. ([Reuters](#))

Bank of Canada's 'soft landing' scenario hits the rocks in bond market ([Reuters](#))

Argentina raises key interest rate to 69.5% in biggest hike since 2019 ([Bloomberg](#))

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