



Chinese semiconductor firms’ improved credit health to be derailed by challenges arising from possible further US sanctions

by [Raghav Mathur](#)

- **Chinese semiconductor firms Agg PD displays a downward trend over the past few years, demonstrating improving credit quality**
- **Key challenges arising from domestic technological lag and US sanctions, however, could hinder future revenue generating capabilities**

China’s semiconductor industry has remained relatively resilient to the economic slowdown caused by the Covid-19 pandemic. The industry has shown signs of improving credit health, a testament to the quick recovery from the initial slump witnessed in the first quarter of the year. This was partly due to the sharp snapback in demand for consumer electronics as consumers engaged in “[revenge spending](#)”, especially on products linked to the “[stay-at-home](#)” economy. The industry also reaps the benefits of having high liquidity levels partly due to the government’s state-backed funding programs, allowing the sector to remain resilient during this period. However, major challenges lie ahead as the industry’s revenue generation capabilities are potentially hindered by the lack of domestic production capabilities in high-tech semiconductor manufacturing equipment and software, and the sanctions placed on key industry participants by the US government.

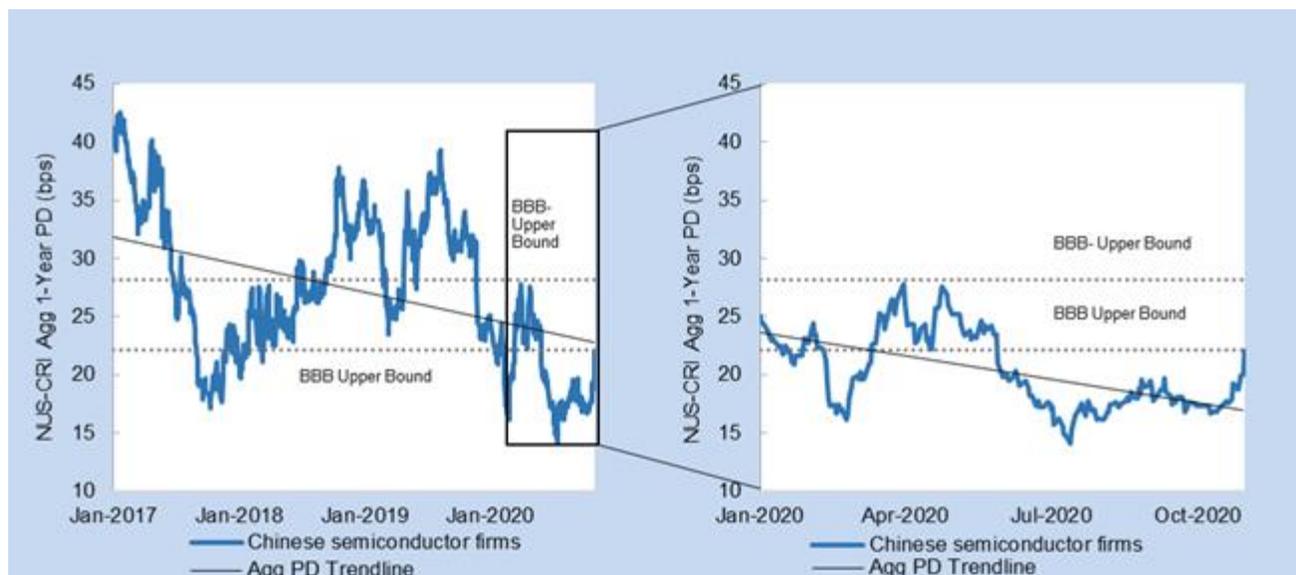


Figure 1a (LHS): NUS-CRI Aggregate 1-year PD of Chinese domiciled semiconductor firms since 2017 with reference to PDiR2.0² bounds. Figure 1b (RHS): NUS-CRI Aggregate 1-year PD of Chinese domiciled semiconductor firms from Jan-2020 to Oct-2020. *Source: NUS-CRI*

The NUS-CRI Aggregate (median) 1-year Probability of Default (Agg PD) shown in Figure 1a and 1b above illustrate that the Agg PD for Chinese semiconductor firms has shown a downward trend over the last three

¹ This term refers to the sudden increase in sales due to pent up demand arising from consumers being starved of shopping due to the pandemic.

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.

years. Despite displaying volatility during the pandemic induced economic slowdown, the current Agg PD is lower than it was in the beginning of the year. The Agg PD increased in Mar 2020, partially caused by the [downturn](#) in economic activity in China in Q1 2020, and it hovered around the PDiR2.0 Investment grade (IG) boundary during the height of the pandemic. This was then followed by a quick recovery with Agg PD levels falling from 27bps in May to 14bps in July.

The Chinese semiconductor industry has benefitted greatly from state-backed funding. Part of the ["Made in China 2025"](#) strategic plan is to increase production of domestic semiconductors to meet 40% of Chinese demand by 2020 and 70% by 2025. Investment in the Chinese semiconductor industry by both state and private players totaled [CNY 60bn](#) between Jan-Jul 2020, double the amount invested over the same period last year. Historically, China's government controlled fund known as "the Big fund" invested [USD 20bn](#) between 2016 and 2019 in financing deals and projects for the Chinese semiconductor industry. The government also created another [CNY 204bn](#) fund in 2019, which attracted further investment from local governments and state-owned enterprises. Regular state-backed investment over the past 4 years may provide some insight into the domestic industry's improving liquidity position as it faces increasing ease of accessing capital through pseudo-state enterprises. This can be reflected in Figure 2a, where the current ratio increases from 3.5 to 5.1 over the past 3 years. In addition, Chinese semiconductor firms have also witnessed their Total Debt/EBITDA decrease from 2.9 to 2.2 and an average Total Debt/Total Asset ratio of 13% over the same period.

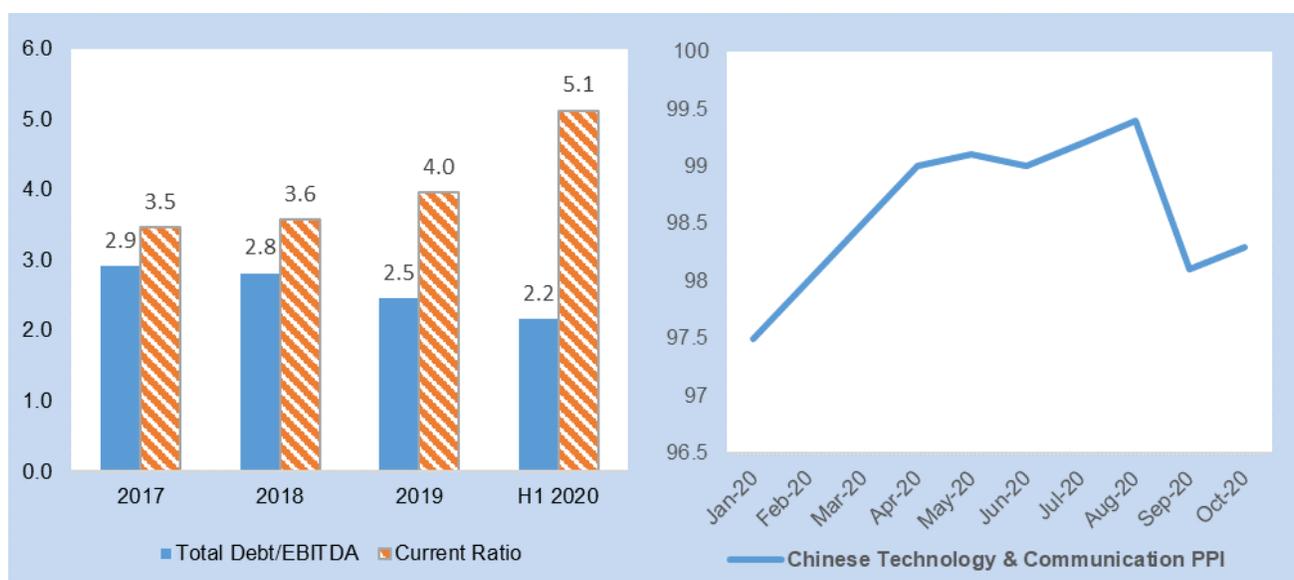


Figure 2a (LHS): Total Debt/EBITDA and current ratio for Chinese domiciled semiconductor firms. Figure 2b (RHS): China PPI: Computer, Communication & Other Electronic Equipment, Previous Year = 100. Source: Bloomberg, CEIC

Figure 2b shows that the PPI for Chinese computer, communication and other electronic equipment has remained resilient, though not as strong as 2019 levels, during the depths of the pandemic, with the PPI increasing from 97.5 in Jan 2020 to 99.4 in Aug 2020³. Though the PPI experienced a drop in September, possibly due to [worsening](#) global technology supply chain conditions, it has since shown signs of a partial rebound in October. In addition, China's PMI for the last [six months](#) has also been above 50, signalling strong recovery sentiments in the domestic manufacturing industry.

Despite the relatively strong credit profile of the industry since the start of this year, there are a plethora of challenges that lie ahead. Firstly, the impact of the existing US [sanctions](#) against *Semiconductor Manufacturing International Corporation* (SMIC) and *Huawei* and the threat of further [blanket](#) sanctions against the whole industry limit the industry's domestic technological prowess and dampen prospects of future revenue generating capabilities. China's semiconductor firms still rely heavily on US technology as the firms [import](#) large quantities of necessary equipment and software from US firms. If trade war sanctions worsen and Chinese firms are unable

³ A PPI value of below 100 signifies that the producer's price index has weakened, whereas a PPI value of above 100 signifies that the PPI has improved. In this case, the PPI benchmark of 100 is set in the previous year (i.e. 2019). Though the PPI has not completely improved to previous year's levels, we do see an improving trend since the onset of the pandemic.

to find suitable domestic or international alternatives, it would not be surprising to see repercussions on the industry's future revenue. This presents a major problem for the industry as China's firms still lag when compared to the rest of the world in terms of semiconductor technology. While the global industry is producing cutting-edge [2nm and 3nm chips](#), SMIC, which has one of China's most advanced chip making foundries, can only produce 14nm chips in 2019, lagging behind its global counterparts by more than a [decade](#). This could potentially mean that Chinese semiconductor firms would miss out on the upcoming demand trends of [5G, AI](#) technology as well as [EV vehicles](#), which require more advanced chips. The NUS-CRI Aggregate (Median) Forward 1-year Probability of Default (Forward PD⁴) in Figure 3 shows that Chinese semiconductor firms face worsening credit outlook, potentially rising into non-IG territory in the next three years.

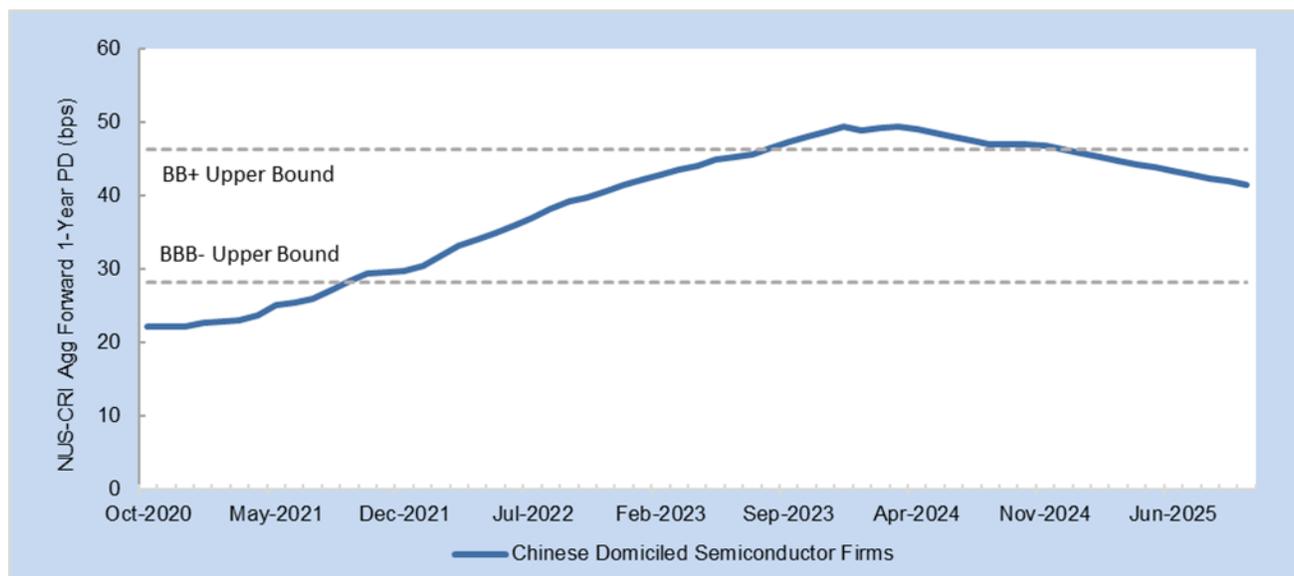


Figure 3: NUS-CRI Agg Forward 1-year PD for Chinese semiconductor firms with reference to PDiR2.0. Source: NUS-CRI.

Starting new projects [without](#) accurate risk assessment and necessary capital has led to an increasing number of [stalled projects and factory closures](#). In Eastern China, for instance, a USD 3bn government backed chip plant owned by [Tacoma Nanjing Semiconductor](#) went bankrupt after failing to attract investors. Similarly, the construction of Wuhan Hongxin Semiconductor Manufacturing's [CNY 130bn](#) new factory in Wuhan has halted due to a lack of funds. Without regulatory intervention by China's National Development and Reform Commission (NDRC) on domestic semiconductor firms, which will allow banks and financial institutions to better assess the risks associated with funding such projects, similar future projects of many of these firms may be hindered.

Attracting sufficient [foreign talent](#) with expertise to create cutting-edge chip technology as well as ensuring strong intellectual property laws that foster domestic innovation represent further challenges. Moreover, threats of future sanctions from the US against the industry apply further pressure on the industry's complex supply chains, impacting the future revenue generation capabilities of domestic semiconductor firms. To combat this, it is not surprising that the efforts of the Chinese governments are focused on [support](#) key parts of the supply chain, which have previously remained virtually untouched. Given that semiconductors are one of China's strategic industries, it would also not be surprising to see the industry benefitting from at least partial self-reliance in the future. For example, ChangXin Memory Technologies, due to the investment provided by state owned Hefei Industrial investment fund (HIIF), has already made headway in producing DRAM this year and has already grown its market share to [4%](#) of the global DRAM Market, a significant example of how China's investment in the semiconductor industry can help it achieve self-reliance.

⁴ 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 1 year plus 6 months, conditional on the firm's survival in the next 6 months.

Credit News**Evergrande feels the squeeze in key shadow financing market**

Nov 16. China Evergrande Group has seen a large drop in its main source of non-bank financing over the past 3 months as challenges mount for the developer having just narrowly escaped a full-blown cash crunch. Evergrande's trust market funding pipeline that has previously accounted for 41% of its total USD 121bn debt has all but dried up due to a regulatory crackdown. This has led to fears of a liquidity squeeze for China's most indebted developer increasing, causing the company's bonds and shares to tumble. The company is now looking to broaden its funding channels by tapping the nation's main interbank bond market. ([Bloomberg](#))

Vulture funds buy up bonds of China state-owned enterprises

Nov 15. Vulture funds are moving in to buy bonds of troubled Chinese state-owned enterprises after a sharp sell-off that was sparked by a large coal mining group, Yongcheng Coal & Electricity's default on a USD 156mn debt issue. The group's default, just weeks after fellow state-owned carmaker Brilliance Auto's default, triggered a plunge in prices of state-backed corporate debt as investors deal with the prospect of China's central government stepping back from its traditional role as a safety net for these businesses. Some investors believe that the government will not allow the situation to worsen, however many are alarmed by these 2 incidents, especially with both companies previously holding AAA ratings prior to their defaults ([FT](#))

Early vaccine could limit some ratings damage: S&P Global

Nov 14. While an early COVID-19 vaccine could limit some of the damage country and company credit ratings are facing, more progress is needed before downgrade warning levels can be lowered says S&P Global. The rating agency has made over 2000 downgrades during the pandemic, more than a third of the 4400 companies, countries and banks that it rates. Sectors that remain likely to be most under pressure during this time include commercial property, mass public transport, airlines that rely on business travel and certain parts of the leisure sector. ([Reuters](#))

Covid-19 vaccine, election results boost riskiest borrowers

Nov 13. Borrowing cost has tumbled for a host of junk-rated companies since October due to the threat of a new wave of lockdowns in the coming weeks. However, the US election and good early results for the COVID-19 vaccine have provided a double-boost to America's least-loved borrowers. Cash has poured into high-yield funds and exchange-traded funds, with fund managers now using the cash to buy bonds instead of adding to their credit exposure through derivatives as they did in the summer. Defaults have been much less than expected due to central bank support allowing companies to survive. However, in the near term, the credit markets could reverse as some states in the US began imposing more restrictions as COVID-19 cases rose. ([WSJ](#))

China corporate bond index draws interest from offshore issuers

Nov 12. China's new Bloomberg Barclays Liquid China Credit Index exclusively tracking investment-grade corporate bonds has attracted interest from exchange-traded fund providers despite continued obstacles facing foreign investors who wish to increase their allocations to China's credit bonds. The index can be used in numerous ways, including product launches, derivative contracts and traditional benchmarking. Over the years, there has been some resistance from offshore investors in investing in China credit bonds with 70% of Chinese companies not covered by global rating agencies. The Bloomberg Index attempts to circumvent some of these obstacles with bonds having to be rated investment grade by at least 1 of the 3 main global credit rating agencies. ([FT](#))

Troubled Chinese lender writes off USD 980mn of capital bonds ([Bloomberg](#))

Tianqi Lithium says no cash flow improvement as debt clock ticks ([Reuters](#))

Revlon staves off bankruptcy after clinching last-minute debt deal ([FT](#))

Regulatory Updates

German auditors fight tighter regulation after Wirecard scandal

Nov 15. Following the insolvency of Wirecard AG, the government sought to tighten financial regulations. The missing EUR 1.9bn exposed the lack of supervision and enforcement in financial reporting. This pushed Berlin to better regulate the auditing industry. Under the new plan, auditing firms are limited in tenor and the type of services sold to companies. BaFin, the designated regulator, is also endowed with more rights to investigate possible fraudulent accounts. German auditors are pushing back claiming that the new plans will not only fail to circumvent frauds but extend the liabilities and risks faced by the accounting profession. ([FT](#))

China's banking regulator signals tougher fintech antitrust laws

Nov 11. The new antitrust rules wiped out approximately USD 245bn in market value off e-commerce groups. This was an attempt by regulators to limit the seemingly unchecked advances in financial technology which can bring potential harm to cybersecurity, data protection and market competitiveness. At the front of the pack, there is the Ant Group, a company that has extended and expanded to the extent that the government sees them as a weight to the economy. Prior to Ant's IPO, China has set new lending rules and capital restrictions while Ant continues to push back on the sharing of customer loan data with the central bank. ([FT](#))

Nigeria's Buhari signs law to create credit tribunal to improve loan recovery ([Reuters](#))

Romania's central bank holds rates, cuts hard-currency reserve requirements ([Reuters](#))