

AUGUST 2024

Geopolitical Risks

*The Landscape ...
Some Lessons Learned ...
Our Latest Thinking.*

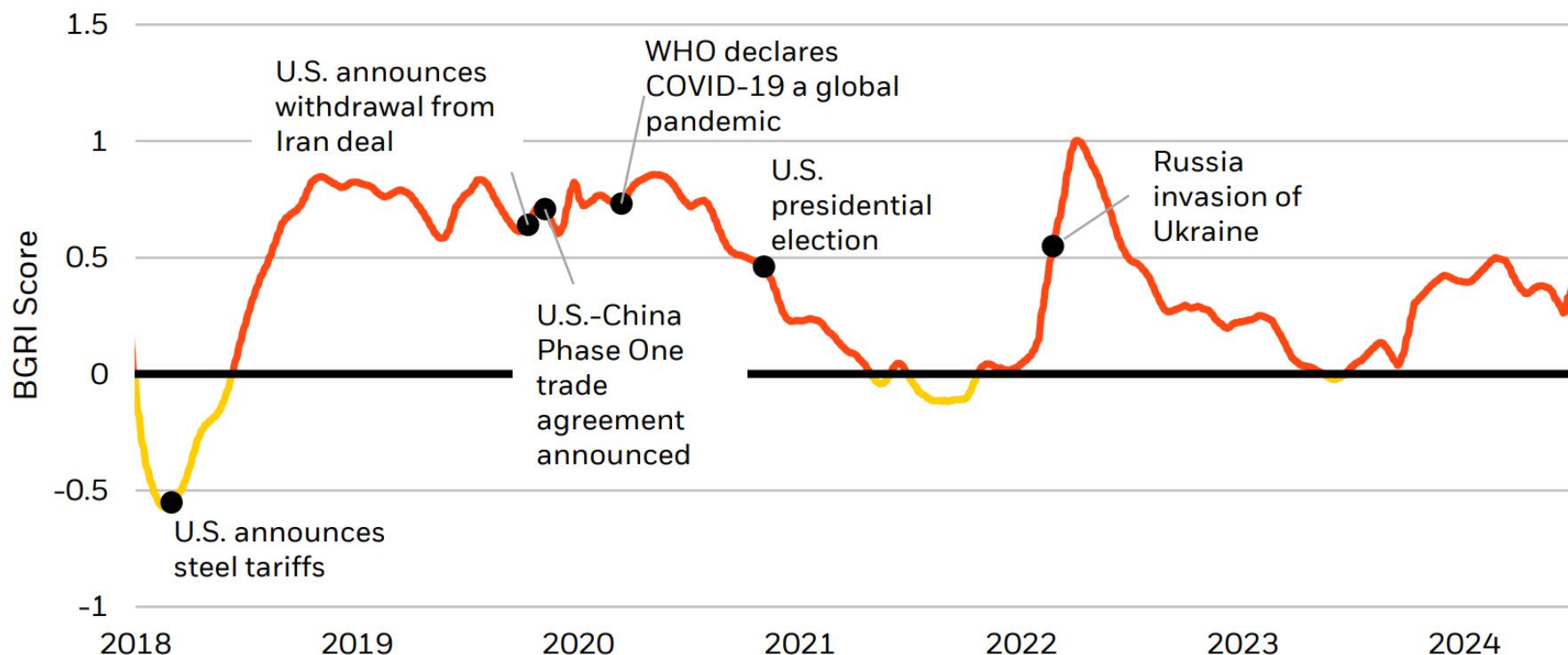
LANDSCAPE

BlackRock Geopolitical Risk Indicator (BGRI)

BlackRock Geopolitical Risk Indicator (BGRI)

- The BGRI aims to capture overall market attention to geopolitical risks. The indicator is a simple average of our top 10 individual risks (as decided by the BlackRock Geopolitical Risk Committee led by Tom Donilon).
- Large Language Model enabled measure, fine tuned specifically for uncertainty surrounding geopolitical news.

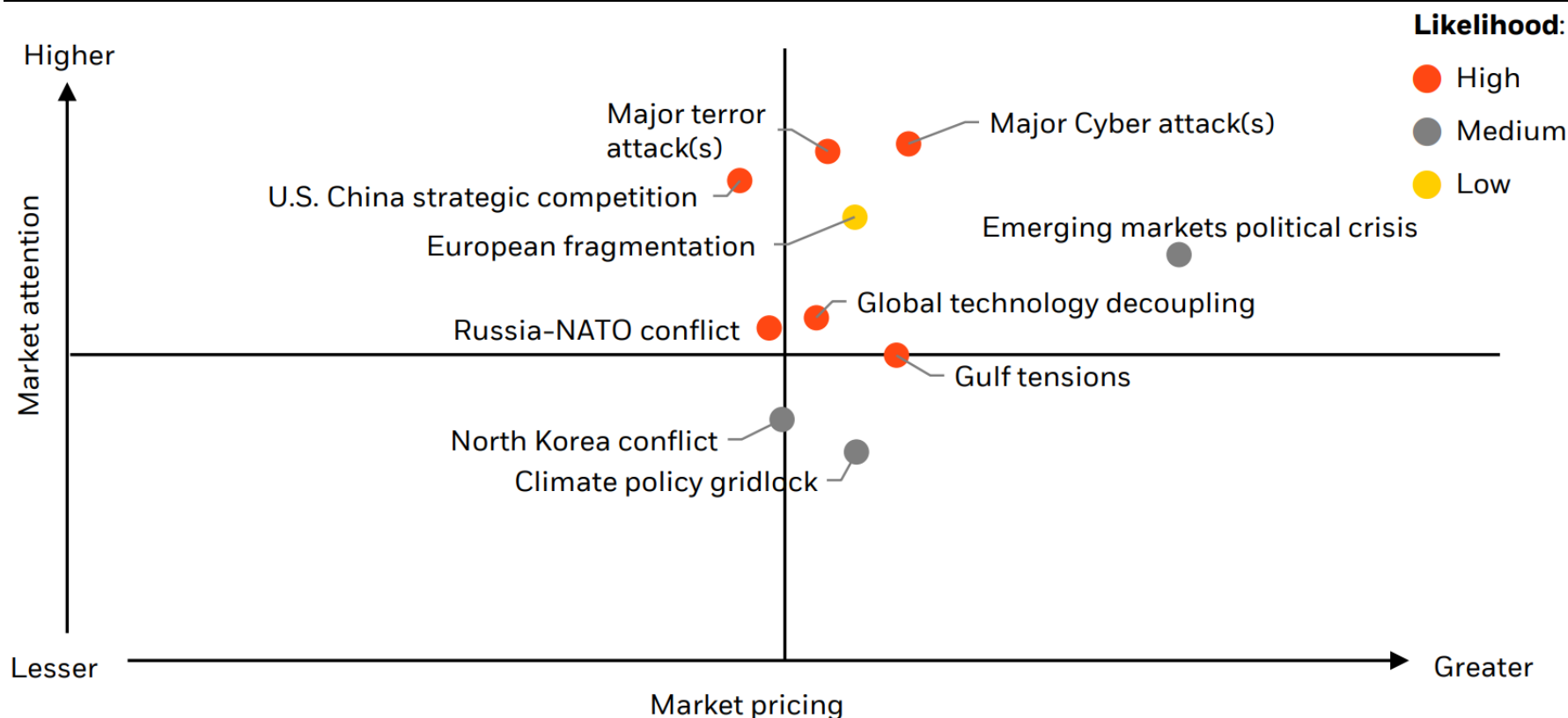
Global Indicator



FORWARD-LOOKING ESTIMATES MAY NOT COME TO PASS. Source: BlackRock Investment Institute, July 2024. Notes: The BlackRock Geopolitical Risk Indicator (BGRI) tracks the relative frequency of brokerage reports (via Refinitiv) and financial news stories (Dow Jones News) associated with specific geopolitical risks. We adjust for whether the sentiment in the text of articles is positive or negative, and then assign a score. This score reflects the level of market attention to each risk versus a five-year history. We assign a heavier weight to brokerage reports than other media sources since we want to measure market attention to any particular risk, not public.

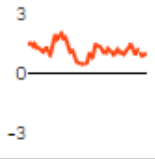
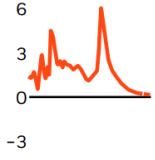
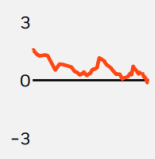
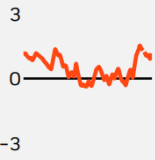
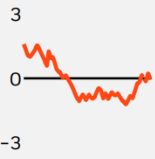
Risk map

BlackRock Geopolitical market attention, market movement and likelihood



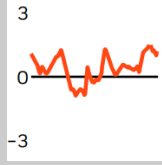
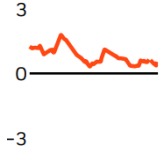
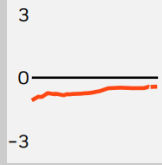
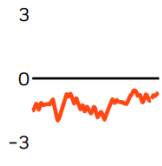
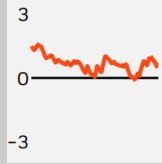
Source: BlackRock Investment Institute, July 2024. FORWARD LOOKING ESTIMATES MAY NOT COME TO PASS Notes: The vertical axis depicts the market attention to each of our top-10 risks, as reflected in brokerage reports and financial media and measured by the BlackRock Geopolitical Risk Index (BGRI). The horizontal axis shows our estimate of the degree to which asset prices have moved in accordance with our risk scenarios (horizontal axis). See the "How it works" tab for details. The color of the dots indicates our fundamental assessment of the relative likelihood of the risk – low, medium or high, as per the legend. Some of the scenarios we envision do not have precedents – or only imperfect ones. The scenarios are for illustrative purposes only and do not reflect all possible outcomes as geopolitical risks are ever-evolving. The chart is meant for illustrative purposes only. This material represents an assessment of the market environment at a specific time and is not intended to be a forecast of future events or a guarantee of future results. This information should not be relied upon by the reader as research or investment advice regarding any funds, strategy or security in particular.

Top 10 risks by likelihood

Risk	Scenario description	Market attention since 2019	Likelihood
U.S. China strategic competition	Tensions escalate meaningfully over Taiwan or in the South China Sea.		High
Russia-NATO conflict	The war in Ukraine becomes protracted, raising the risk of escalation beyond Ukraine.		High
Global technology decoupling	Technology decoupling between the U.S. and China significantly accelerates in scale and scope.		High
Major cyberattack(s)	Cyberattacks cause sustained disruption to critical physical and digital infrastructure.		High
Gulf tensions	Regional conflict escalates, threatening energy infrastructure and increasing volatility.		High

Sources: BlackRock Investment Institute, with data from Refinitiv. Data as of April 2023. Notes: The “risks” column lists the 10 key geopolitical risks that we track. The “description” column defines each risk. “Market attention” is a graphical snapshot of recent movement in the BlackRock Geopolitical Risk Indicator (BGRI) for each risk. The table is sorted by the “Likelihood” column which represents our fundamental assessment, based on BlackRock’s subject matter experts, of the probability that each risk will be realized – either low, medium or high – in the near term. This information should not be relied upon by the reader as research or investment advice regarding any funds or security in particular. Individual portfolio managers for BlackRock may have opinions and/or make investment decisions that may, in certain respects, not be consistent with the information contained herein.

Top 10 risks by likelihood

Risk	Scenario description	Market attention since 2019	Likelihood
Major terror attack(s)	A terror attack leads to significant loss of life and commercial disruption.		High
Emerging markets political crisis	Ripple effects from the Ukraine crisis severely stress EM political systems and institutions.		Medium
North Korea conflict	North Korea pushes ahead with its nuclear buildup and takes provocative actions such as missile launches.		Medium
Climate policy gridlock	Developed economies fail to increase public investment or take action to achieve net-zero emission targets.		Medium
European fragmentation	Subdued economic growth and persistent inflationary pressures amid fragile energy security lead to a populist Resurgence.		Low

Sources: BlackRock Investment Institute, with data from Refinitiv. Data as of April 2023. Notes: The “risks” column lists the 10 key geopolitical risks that we track. The “description” column defines each risk. “Market attention” is a graphical snapshot of recent movement in the BlackRock Geopolitical Risk Indicator (BGRI) for each risk. The table is sorted by the “Likelihood” column which represents our fundamental assessment, based on BlackRock’s subject matter experts, of the probability that each risk will be realized – either low, medium or high – in the near term. This information should not be relied upon by the reader as research or investment advice regarding any funds or security in particular. Individual portfolio managers for BlackRock may have opinions and/or make investment decisions that may, in certain respects, not be consistent with the information contained herein.

LESSONS LEARNED

SAE research on direct exposure to political risks

Summary

- BLK Systematic research has a long history of evaluating data on geopolitical risk by country and how it relates to local financial market outcomes.
- Work has mainly focused on relative emerging market (EM) equity market returns
 - The frequency, salience, and typically “contained” nature of financial market impacts make EMs a useful empirical testing grounds; survivorship bias makes EMs more challenging.
 - Directional asset class returns – and even EM vs. DM equity returns – arguably influenced by too many other factors to accurately isolate the impact of geopolitical risks.
- Past findings re: how local equity markets respond to heightened political risks point to the presence of an associated risk premium ... at least historically.
- Current SAE research is focused on:
 - Measure + control portfolio exposures to the more nuanced ways that the most globally-relevant geopolitical risks impact markets (per next section).
 - Ability to incorporate geopolitical risks + events into our multi-factor equity risk models.

Past research findings

- Question: *how do local equity markets respond to heightened political risks?*
- Historically, there was evidence of a risk premia associated with heightened political risk / uncertainty: investors were compensated for bearing these risks. Two related examples:
 - Using qualitative risk assessment indices, we found that it was profitable on average to *overweight* EM equity markets with higher levels of perceived political risk, and vice versa.
 - Using real-time measures of changes in political risks + news sentiment, we found *contemporaneous underperformance* of local equity markets to increases in country-specific political risks, but on average, *subsequent reversal* of those immediate reactions.
 - Past 5-10yr performance of these strategies an apparent regime shift in persistence of these risks + related investor sentiment.
- An undesirable risk / reward trade-off – i.e. the “picking up pennies in front of a steamroller” payoff profile – has discouraged active use of these insights in our portfolios.

Cumulative excess returns: EM political risk level tilt



Cumulative excess returns: risk sentiment reversal



Source: BlackRock; PRS Group International Country Risk Guide (ICRG); GeoQuant.

LATEST THINKING

Implications of US-China strategic competition for firms outside China

China exposure of non-China firms in MSCI ACWI

- In this section, we shift from considering the impact of political risk in a country on the relative performance of that country's local market and explore the *relative exposure of different firms to one of the BlackRock Geopolitical Risk Committee's top risks: US-China strategic competition*.
- This geopolitical risk involves the two largest economies in the world, and thus arguably has the most profound ramifications for the current – and expected future – fundamentals of large cap firms globally and is among the most complex to measure.
- We ask the question: “*What firms outside of China have the most direct business exposure to China and would likely be adversely impacted by a material deterioration in bilateral relations between China and their home market?*”
- In short, three different perspectives yield three different (and additive!) answers:
 1. Revenue exposure to *customers* in China
 2. Reliance on *suppliers* in China
 3. Presence / ownership of *physical “points-of-interest”* (POIs) within China
- Lastly, we briefly touch on one aspect of how trade dynamics have shifted in an environment of higher tariffs and limitations on bilateral China-US trade in some industries ... or have they actually shifted??

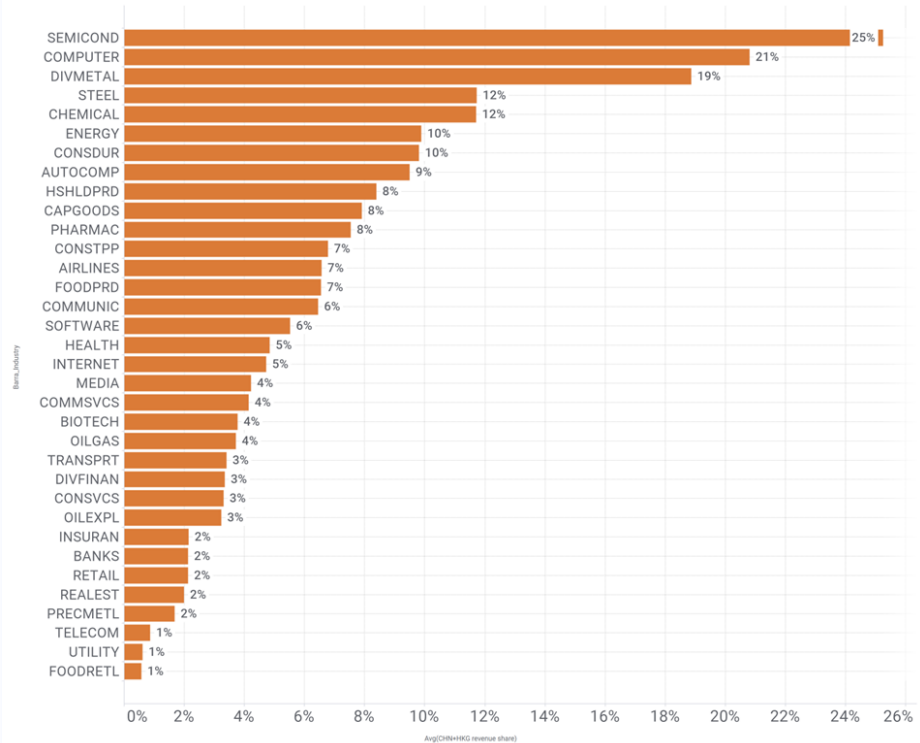
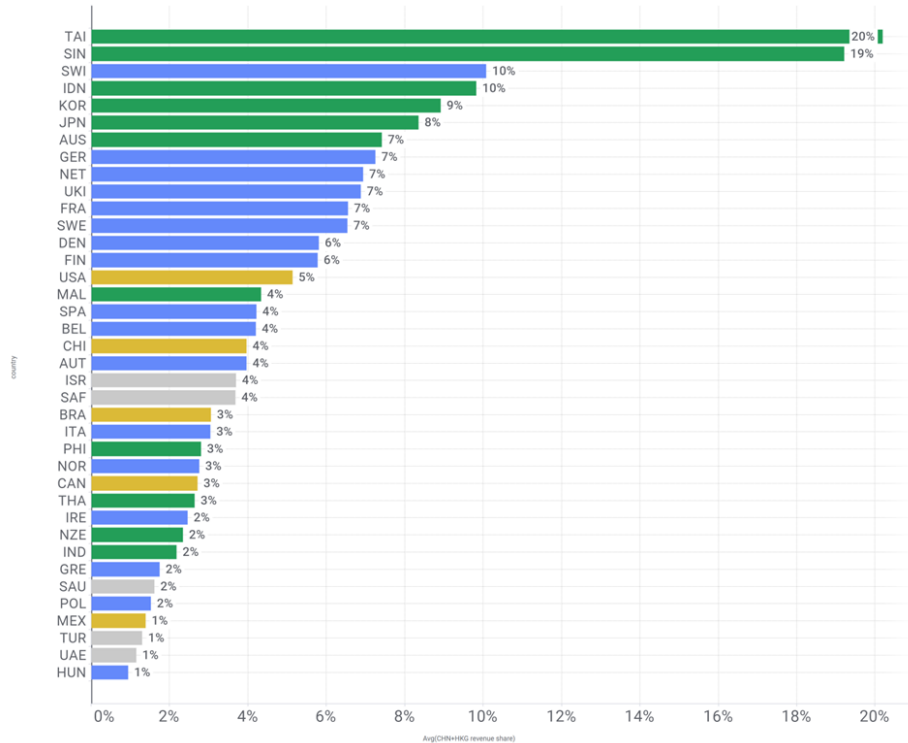
REVENUE EXPOSURE

China revenue exposures: summary

- There are limitations to this data:
 - It is not a required item, so comprehensiveness and accuracy – especially historically – is imperfect.
 - Reporting across firms is inconsistent: some report at the country level (typically on a subset of markets), some report regionally, etc.
- China revenues (as a % of total revenue) of global firms has risen fairly steadily over the past 25 years to a current equal-weighted average of 6.5% across MSCI ACWI ex-China/HK firms.
- While the growth of China revenues as % of total has slowed in recent years, there is little evidence of a material reversal in this trend.
- By industry, technology firms – especially semiconductors and computer hardware – commodity-intensive businesses, and consumer facing firms tend to have the most exposure.
- Across countries, regional neighbors within APAC stand out as most exposed (Taiwan, Singapore, Japan, Korea, Australia, etc.).

Revenue exposures: current snapshot

China revenues as % of total revenue: average across firms by country + BARRA industry

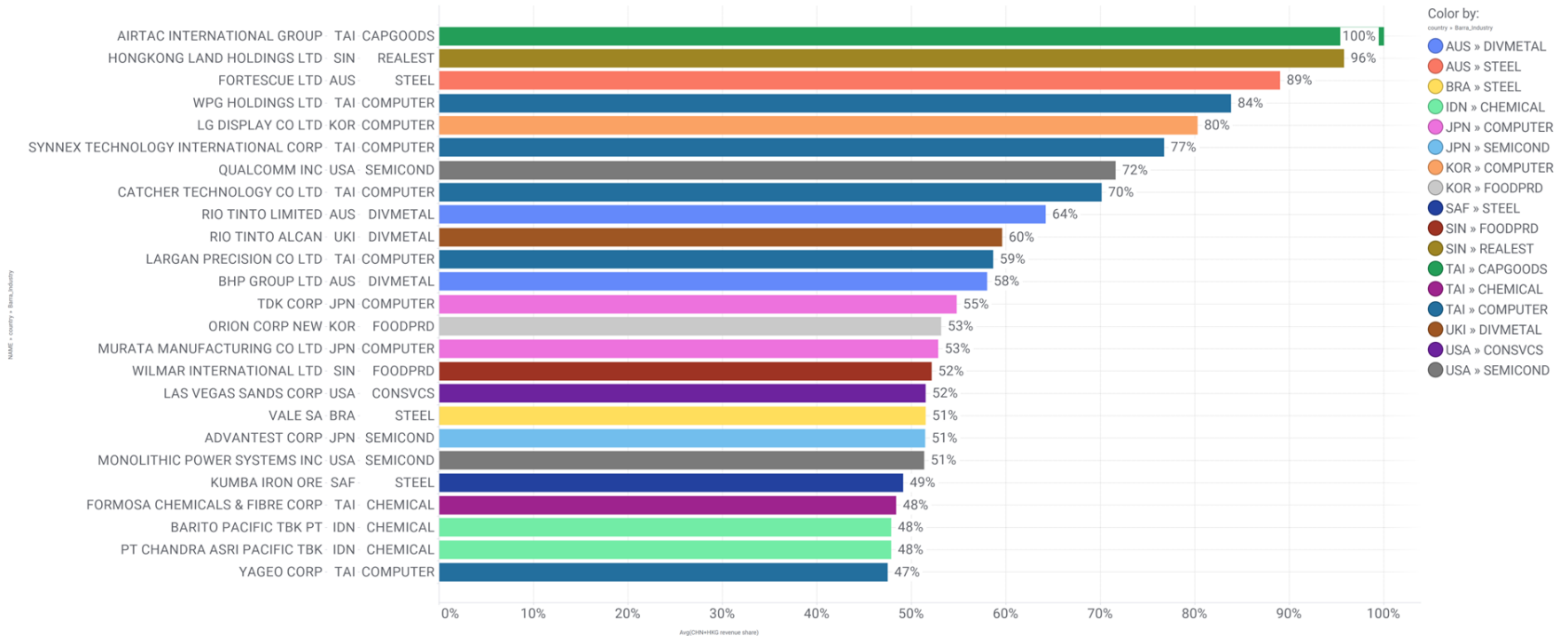


- Generally, firms domiciled in APAC – Taiwan, Singapore, Indonesia, Korea, Japan, Australia – have a higher average percent of revenues deriving from China; India is a notable exception.
- By industry, firms in the technology-related (semiconductors, computer hardware); commodity-related (diversified metals, steel, chemicals, energy equipment & services); and consumer-related (consumer durables, autos & components, household products) groups have the highest China revenue exposures.

Source: BlackRock; Worldscope. Colombia, Czech Republic, Egypt, Kuwait, Portugal, and Qatar not pictured given ~0% current China/HK revenue exposure.

Revenue exposures: current snapshot

Top 25 firms in MSCI ACWI ex-China/HK by China revenue as % of total

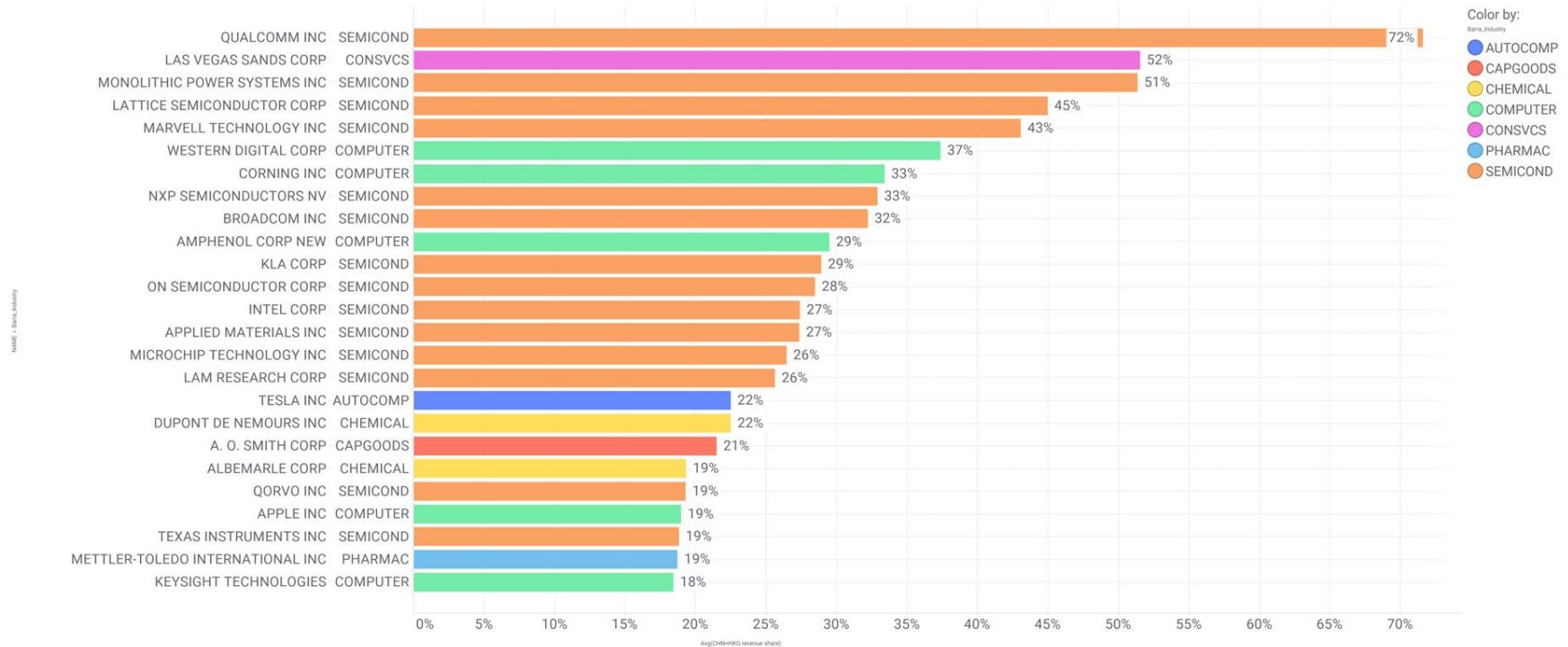


- Top 25 firms by China revenue exposure in this universe largely span the countries and industries highlighted in the previous slide.
- China revenue as % of total for these firms generally ranges between 50-100%.

Source: BlackRock; Worldscope.

Revenue exposures: current snapshot

Top 25 U.S. firms in MSCI ACWI by China revenue as % of total

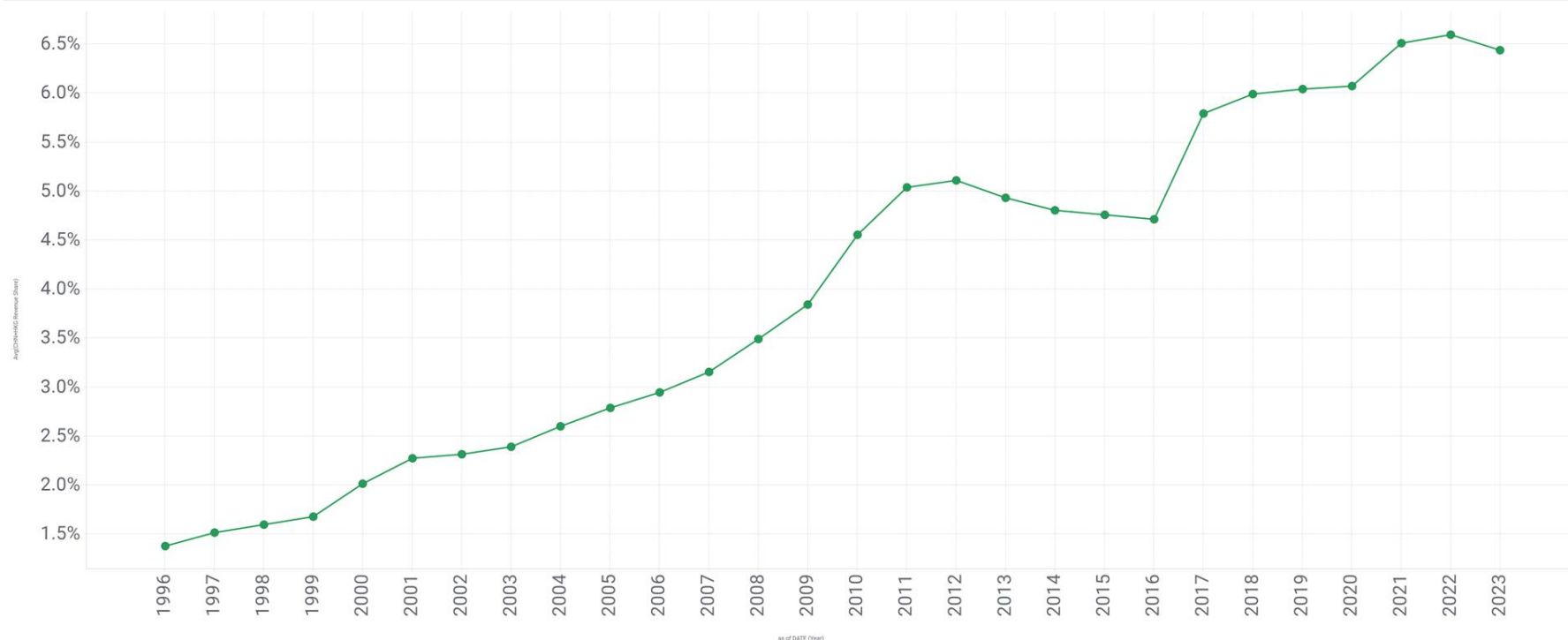


- Focusing in on the U.S., the top 25 firms by China revenue exposure remains heavily tilted towards technology (particularly semiconductors).
- These “top 25” firms derive between ~15–75% of their revenues from China.
- Most non-technology examples are intuitive: Las Vegas Sands (Macao-based casino/hotel business); Tesla; and a few industrial manufacturing firms.

Source: BlackRock; Worldscope.

Revenue exposures: time-series

MSCI ACWI ex-China/HK: equal-weighted average China revenue as % of total

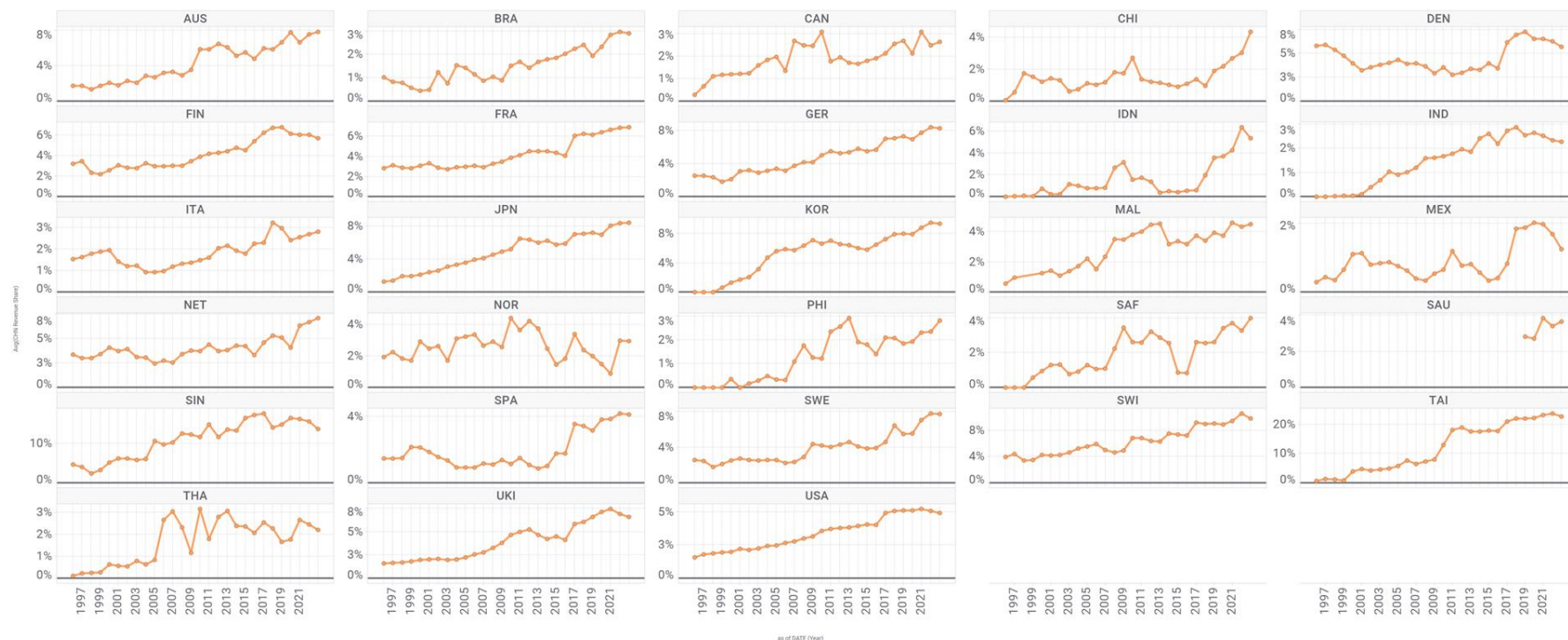


- Over the past 25+ years, there has been a generally steady increase in the average percent of revenues being derived from China among ACWI ex-China constituents (at least based on company financial reports).
- Following China's inclusion in WTO, this measure approximately doubled over the subsequent ~10 years and has increased further since.
- While more uneven, it is interesting to note that neither the slowing of China GDP growth – both absolute and relative – nor COVID era reshoring efforts have had an obvious impact on this measure in more recent years.

Source: BlackRock; Worldscope.

Revenue exposures: time-series by country

MSCI ACWI ex-China: equal-weighted average China revenue as % of total *by country* (country-specific y-axis)



- The pattern of steady increases in average China revenue share at the overall ACWI ex-China level is also a generally consistent phenomenon across the markets with larger absolute exposures.
- No dramatic change in the trajectory of average China revenue share in markets where bilateral relations with China have been more publicly strained (e.g. Taiwan and U.S.); clearly growth has flattened, but difficult to attribute between trade frictions vs. weak economic growth / demand in China vs. rest-of-world.

Source: BlackRock; Worldscope. Argentina, Austria, Belgium, Colombia, Czech Republic, Egypt, Greece, Hungary, Ireland, Israel, Kuwait, New Zealand, Pakistan, Peru, Poland, Portugal, Qatar, Turkey and UAE not pictured given relatively low China/HK revenue exposure.

Revenue exposures: time-series by industry

MSCI ACWI ex-China: equal-weighted average China revenue as % of total *by industry* (industry-specific y-axis)



- In most industry cases where China revenue share is currently a larger fraction of total, the path to that outcome is more consistent through time than not.
- China revenue exposure among more “competitively sensitive” groups like semiconductors and biotech shows more evidence of flattening / declining, but the changes are generally modest vs. headlines.

Source: BlackRock; Worldscope.

SUPPLIERS

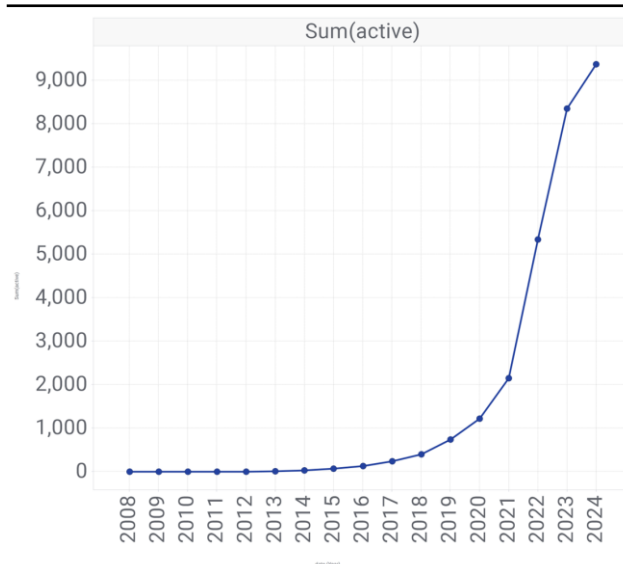
China suppliers to non-China firms: summary

- Similar to the revenue share data, data on supplier relationships are very likely incomplete, especially the further back-in-time we look. In most cases, we only have a record of the supplier relationship existing – i.e. no detail on the magnitude / scope of the relationship.
- By *country*, firms in the U.S. and developed Europe appear to have the largest reliance on Chinese suppliers. By *industry*, manufacturing industries – primarily autos & components – but also capital goods, computer hardware, and consumer durables, are most reliant.

- Some combination of (a) the vendor improving coverage of these customer-supplier linkages through time as they enhanced the dataset + (b) terminated links likely being under-reported leads to a potentially inflated measure of increasing China supplier to non-China firm relationships (per chart to the right).
- Hence in this section, we focus on the most recently-available data to measure the scope of China supplier relationships with non-China/HK firms in ACWI rather than on any time-series dynamics.



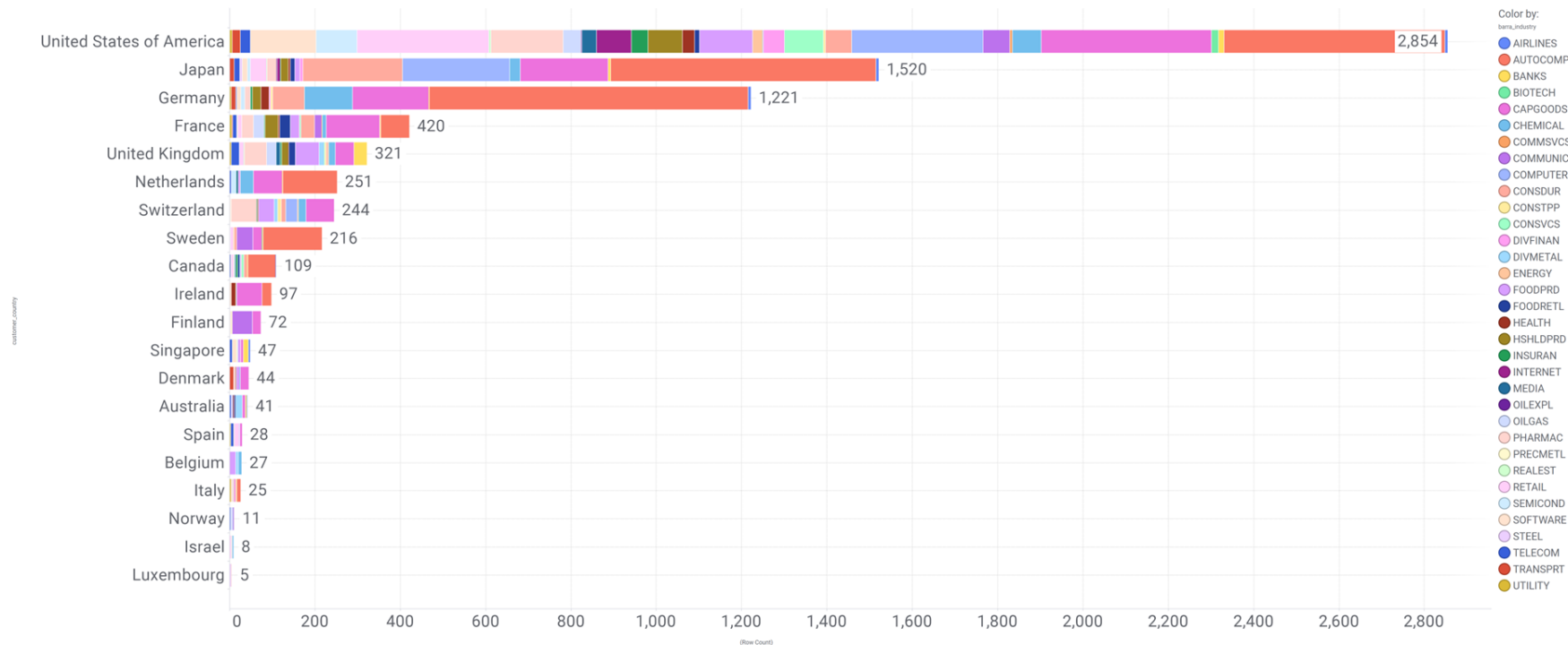
Total # of active China supplier links
(current ACWI ex-China/HK constituents)



Source: BlackRock; Revere.

China suppliers to non-China firms: DM markets

MSCI ACWI DM (ex-HK): number of currently active China supplier linkages by country + BARRA industry

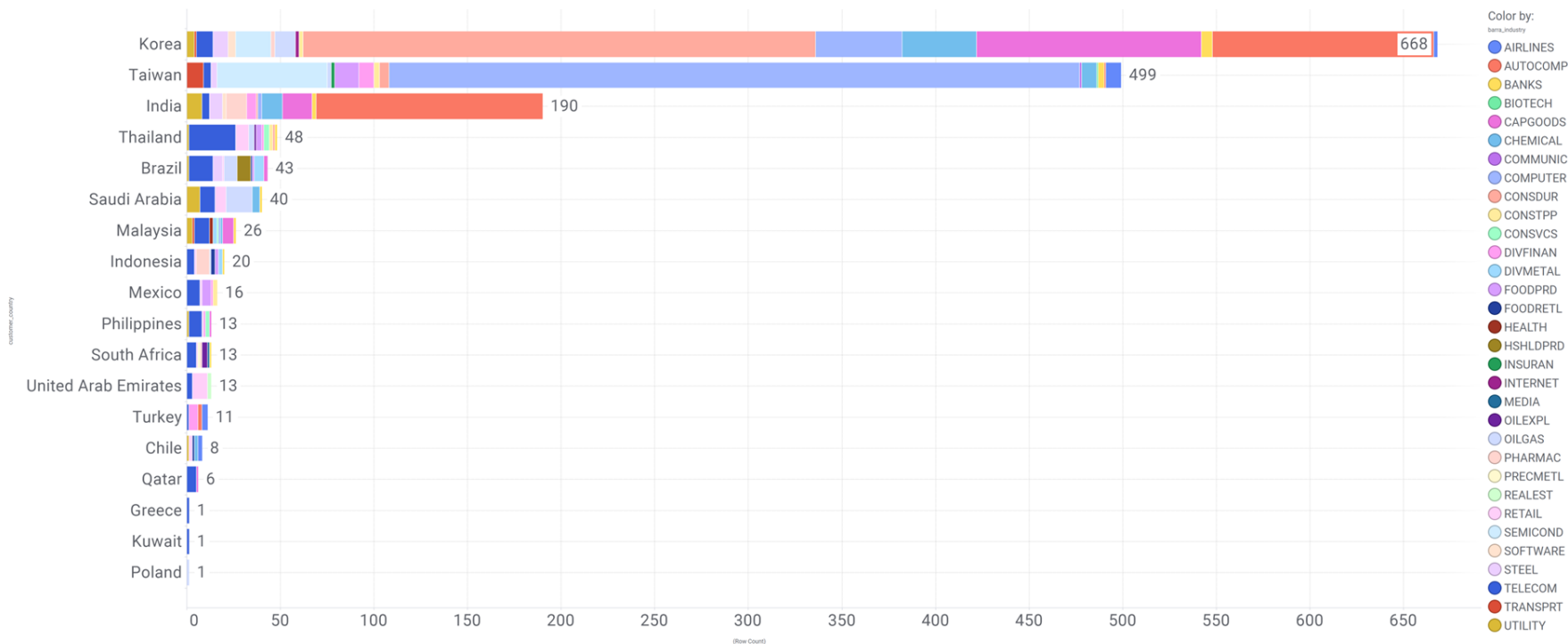


- On a relative basis, firms in the U.S. + developed Europe appear to have relatively more supplier linkages versus their revenue exposures.
- The impact of the auto & components industries in the U.S., Japan, and Germany is most obvious though supplier linkages are notably diversified within the U.S.

Source: BlackRock; Revere.

China suppliers to non-China firms: EM markets

MSCI ACWI EM (ex-China): number of currently active China supplier linkages by country + BARRA industry

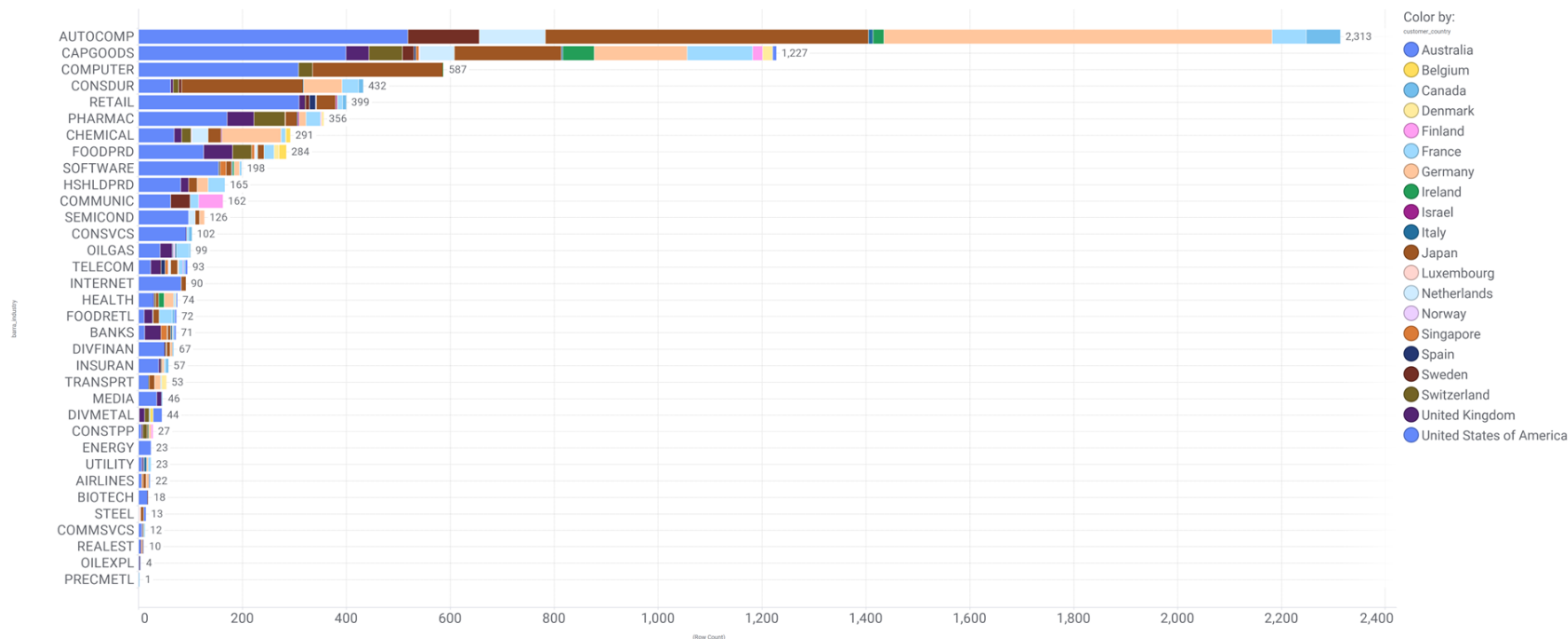


- In the EM markets that have a significant auto industry presence (Korea & India), the auto & components industry in these markets also appears relatively reliant on Chinese suppliers.
- Comparing the absolute number of supplier linkages across Taiwan-Korea to the linkages across the U.S. and developed Europe, it seems clear that the larger DM economies are more reliant on China production partners, that the DM linkages are more diversified across industries, and that there is more of a balance between customers (revenue share) vs. suppliers on the EM side.

Source: BlackRock; Revere.

China suppliers to non-China firms: DM industries

MSCI ACWI DM (ex-HK): number of currently active China supplier linkages by BARRA industry + country

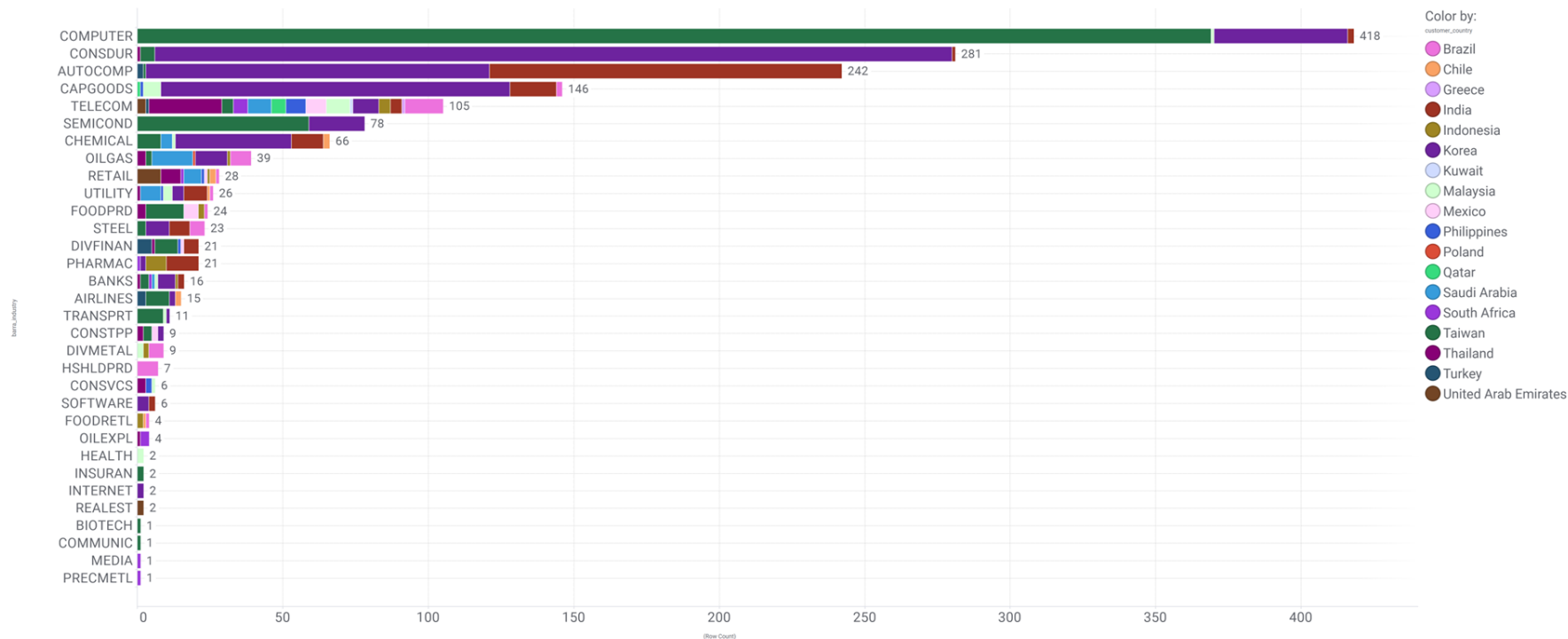


- The DM auto & components industry is by far most reliant on Chinese suppliers; intuitively, it is other manufacturing industries – capital goods, computer hardware, consumer durables, and outsourcing the production of branded goods for (U.S.) retailers – that are also among those with the most China-based suppliers.
- This provides an indication of the breadth and depth of large cap U.S. company reliance on Chinese suppliers; these supply chain linkages appear to outweigh the importance of China-based customers contributing to current revenues.

Source: BlackRock; Revere.

China suppliers to non-China firms: EM industries

MSCI ACWI EM (ex-China): number of currently active China supplier linkages by BARRA industry + country

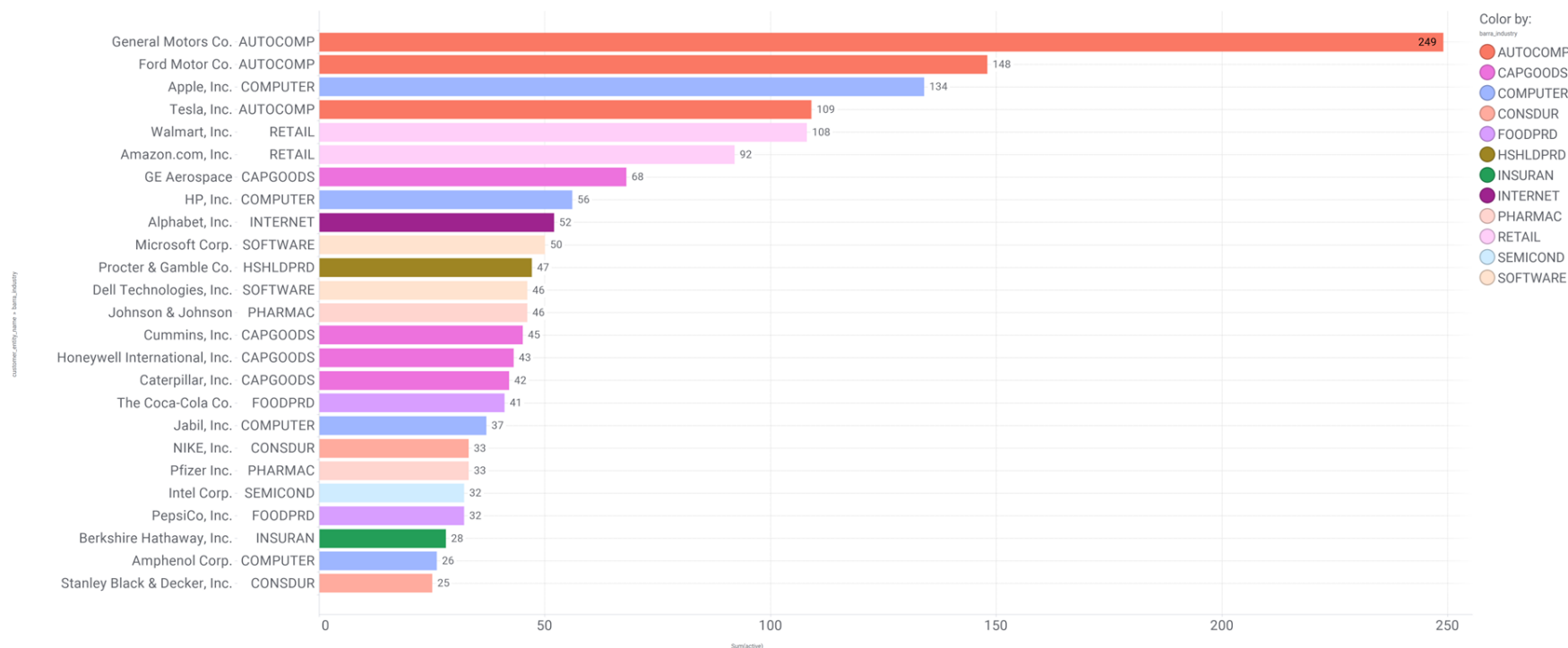


- The industry footprint of China supplier relationships across EM ACWI firms is similar to the DM picture with relatively more emphasis on computer hardware (mainly Taiwan) and consumer durables (mainly Korea) among the other manufacturing-heavy groups.
- Among industries with more diversified exposure across countries, telecoms stand out – i.e. it appears that telecom operators across emerging markets globally rely on Chinese equipment (something that was also evident in the DM plot but lower in the rankings).

Source: BlackRock; Revere.

U.S. firms with highest number of Chinese suppliers

25 U.S. firms with the largest number of Chinese suppliers



Four groups of firms are at the top of this “leaderboard”:

1. Auto manufacturers who source parts from Chinese firms (GM, Ford, Tesla). This is also a feature of the Japan (Toyota, Nissan, Honda, Mazda, etc.) & European (VW, BMW, Mercedes Benz, etc.) data reported in the appendix.
2. Computer + consumer electronics firms who outsource manufacturing and source components from China (Apple, HP). Again, we see this in the Japan data as well (Panasonic, Sony).
3. Heavy capital goods and equipment manufacturers (GE Aerospace, Cummins, Honeywell, Caterpillar).
4. Large U.S. retailers who sell branded products manufactured in China (Walmart, Amazon).

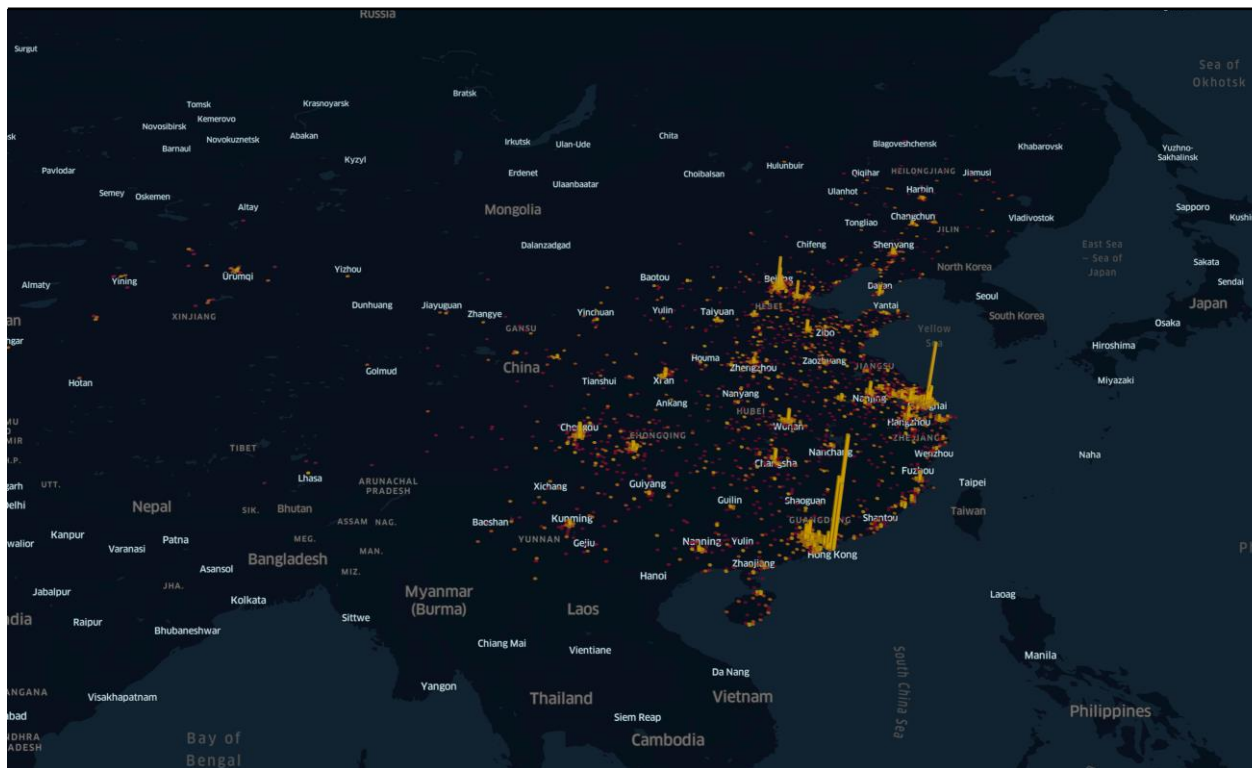
Source: BlackRock; Revere.

PHYSICAL “POINTS-OF-INTEREST” (POIs)

China located POIs of non-China firms

- The same caveats apply to these data as the others, as this is very likely an incomplete picture, especially the further back-in-time we look.
- Like the supplier linkages, we limit the visualizations here to current period snapshots to avoid the appearance of time-series trends that are likely to be more a function of data limitations vs. reality.

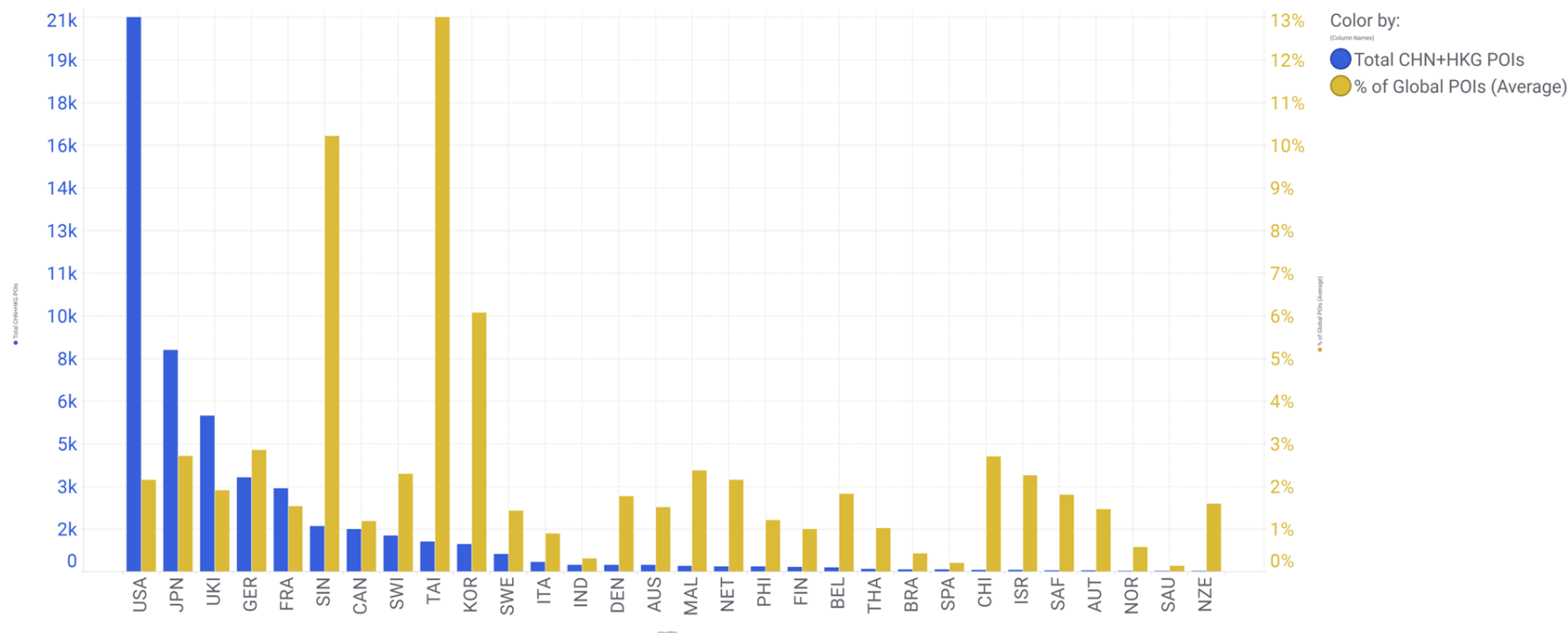
Recent picture of all non-China listed firm POIs within China



Source: BlackRock; Precisely.

China POIs of non-China ACWI firms by country

China POIs of non-China ACWI firms: total number and percent of total global firm POIs by country

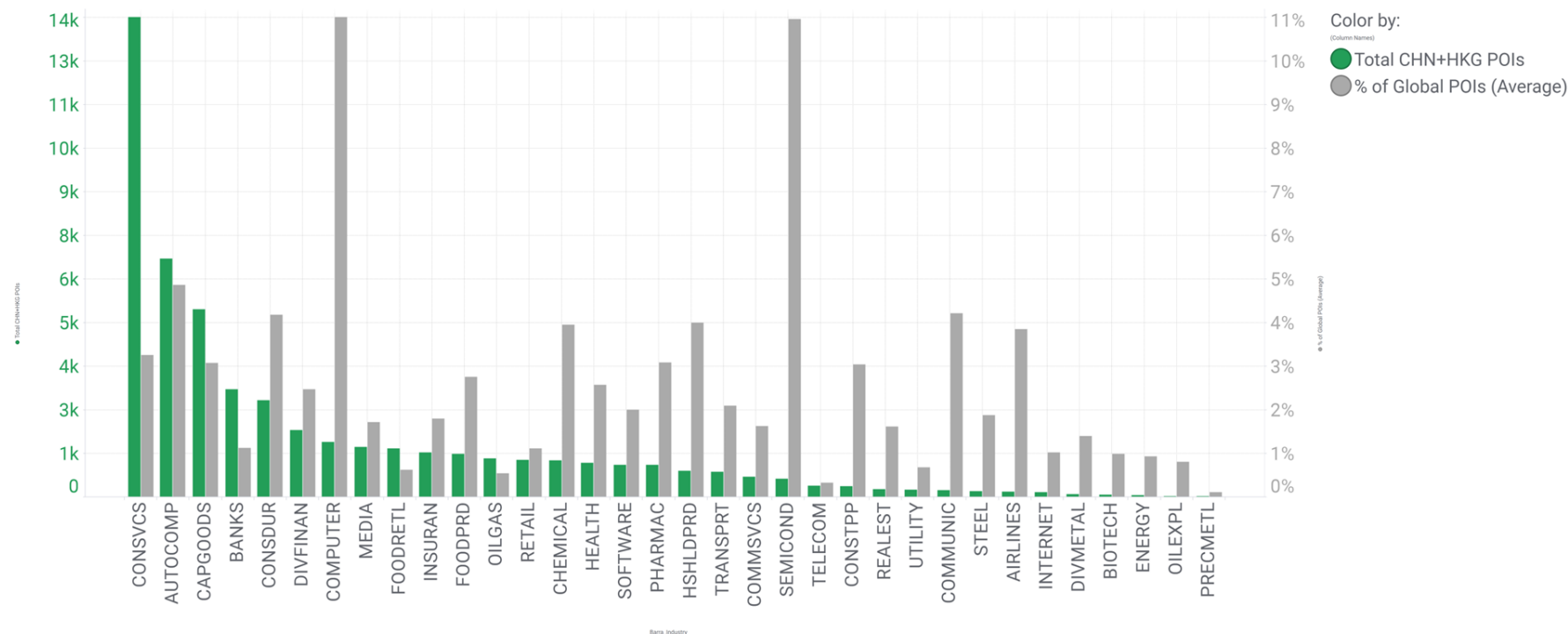


- Intuitively and generally consistent with conclusions from the supplier + revenue share perspectives, we find that:
 - ACWI firms domiciled in the largest developed markets / economies (e.g. U.S., Japan, UK, Germany, France) have the largest *number* of China/HK-based points-of-interest (blue).
 - The China *share* of total global POIs (gold) is highest for firms domiciled in China's smaller Asian neighbors (Taiwan, Singapore, Korea).

Source: BlackRock; Precisely. Excluded multiple smaller ACWI markets with <1% of total global POIs located in China.

China POIs of non-China ACWI firms by industry

China POIs of non-China ACWI firms: total number and percent of total global firm POIs by BARRA industry

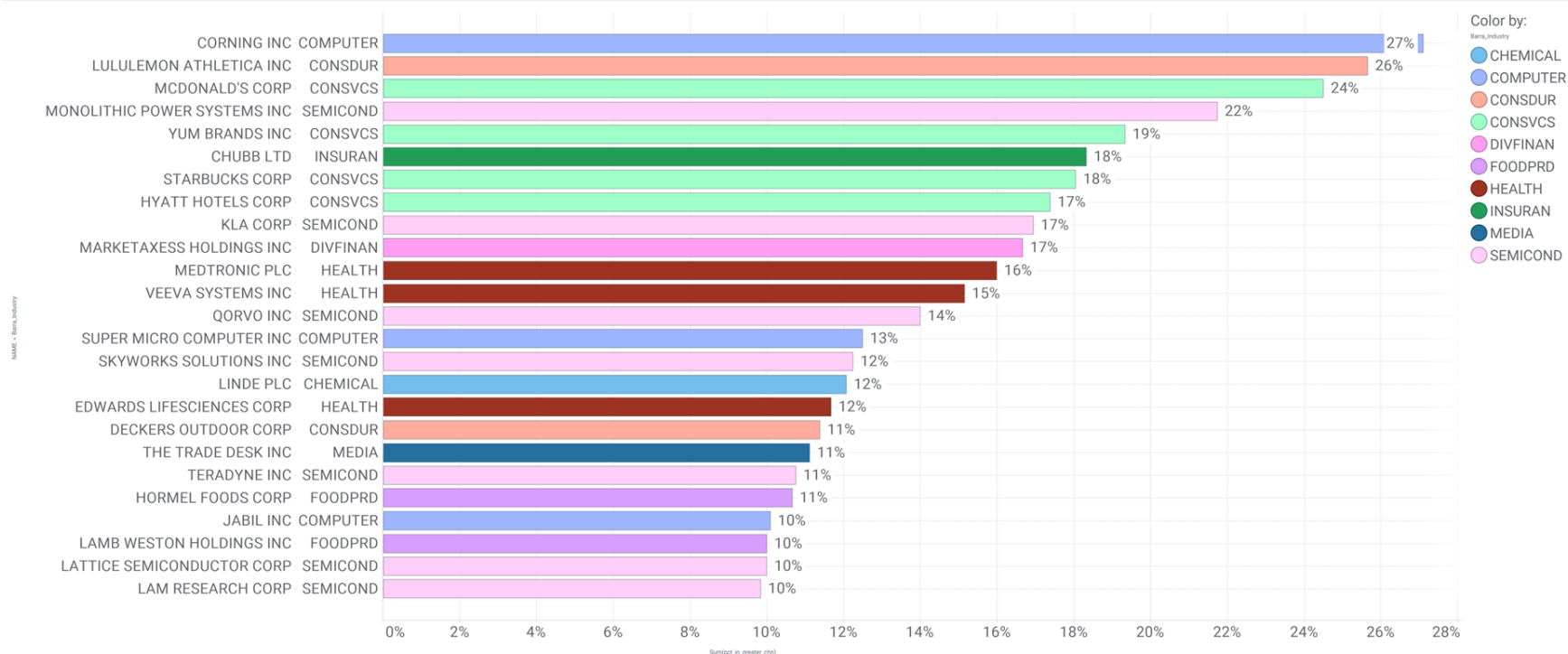


- The POI data at the industry-level paint a similarly intuitive picture:
 - Many of the industries reliant on Chinese suppliers – e.g. autos, capital goods, consumer durables, etc. – also appear to have onshore manufacturing and thus have onshore POIs.
 - Consumer services (restaurants, hotels, etc.) and banks that often require a local physical presence unsurprisingly have a relatively large number of onshore locations.
 - While the number of tech-related POIs are relatively small, the computer hardware and semiconductor industries stand out as highest amongst an otherwise more evenly distributed measure of % share of total firm POIs.

Source: BlackRock; Precisely.

China POIs of non-China ACWI firms (U.S.)

25 U.S. firms with highest % of POIs in China + HK



- Intuitively, the more unique exposures – relative to suppliers and/or revenues – using the China % of global POIs as the primary metric are consumer services firms such as McDonald's, Yum Brands, Starbucks, and Hyatt Hotels. For these firms, approximately 20% of their total global POIs are located within China + Hong Kong.
- The same charts for Japan and Germany / France in the Appendix reveal a similar combination of: manufacturing firms likely with onshore production facilities (e.g. autos, computers, etc.); consumer products and services (Fast Retailing, LVMH, L'Oreal) with brick-and-mortar POIs; and a notable presence of some more Health Care products & services + Pharmaceutical firm local exposures (vs. supplier and revenue data).

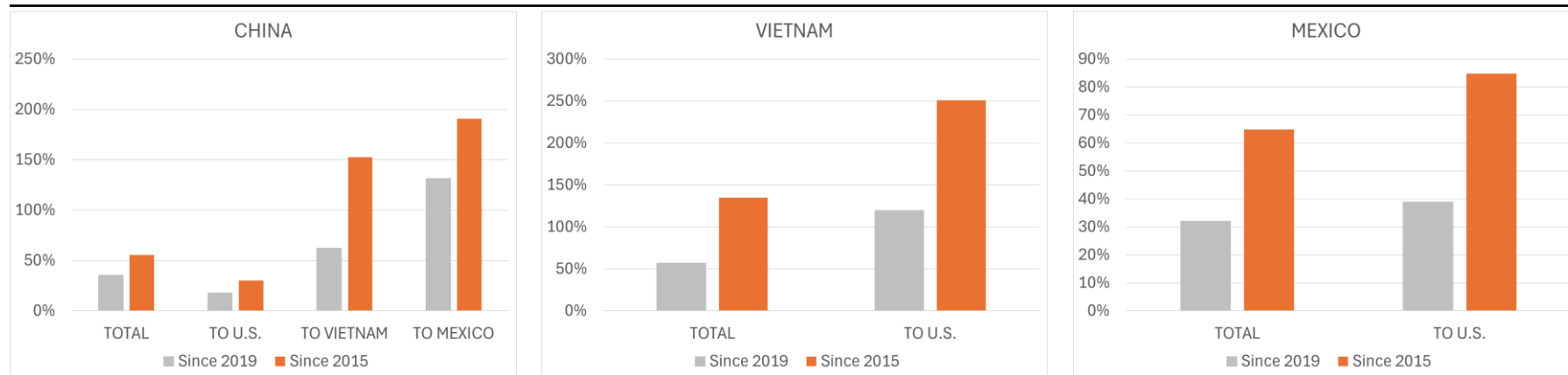
Source: BlackRock; Precisely.

TRADE DYNAMICS

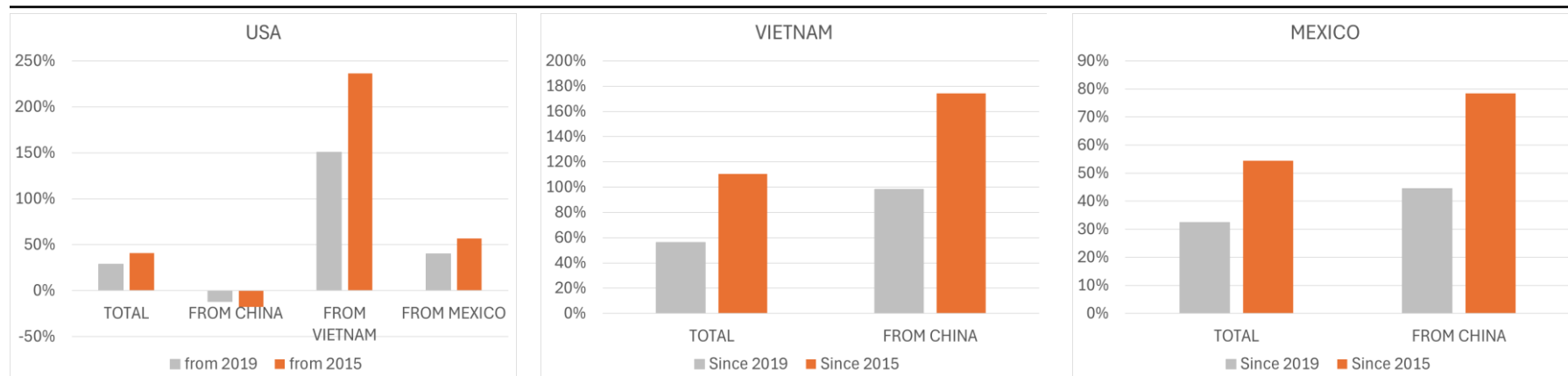
Note on the impact of tariffs / trade restrictions

China exports to the U.S. have softened since the imposition of higher tariffs + sensitive industry trade barriers post-Covid ... but sharp increases in (1) China exports to Vietnam & Mexico + (2) exports from Vietnam & Mexico into the U.S. suggestive of re-exporting activity.

Changes in China export growth sources in recent years



Changes in U.S. import growth sources in recent years



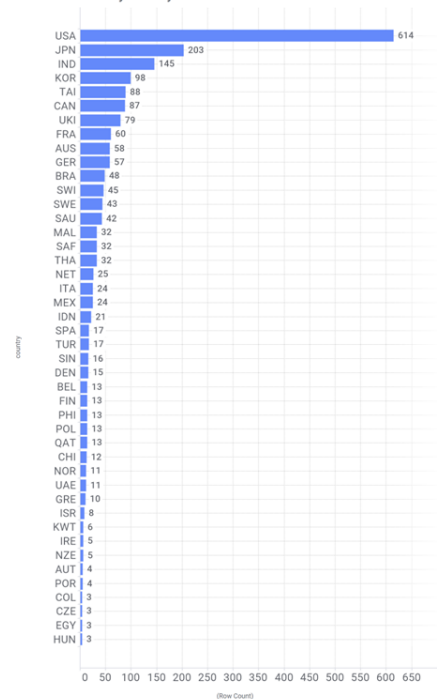
Source: BlackRock; Refinitiv/Datastream

APPENDIX

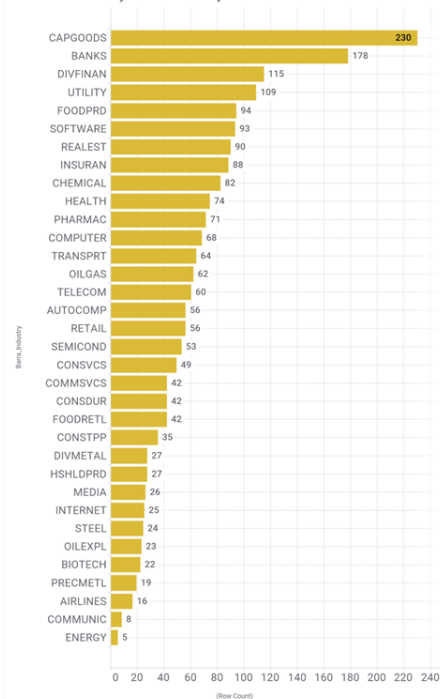
MSCI ACWI ex-China/HK universe

Review of current MSCI ACWI ex-China/HK universe: number of firms and market cap by country & industry

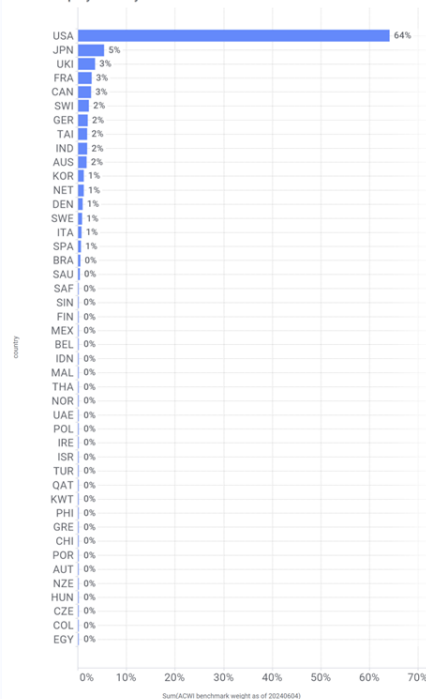
Number of firms by country



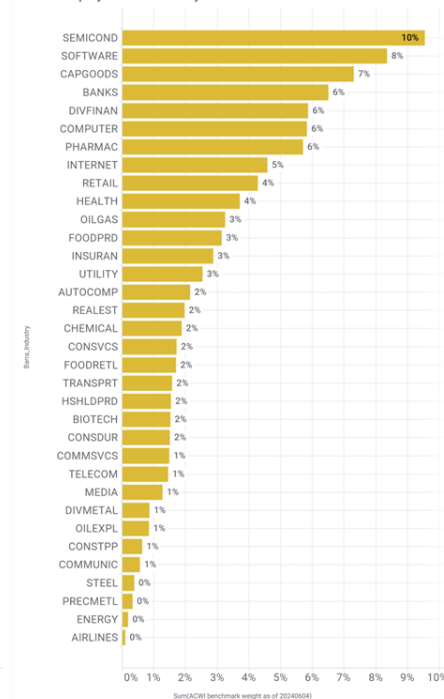
Number of firms by BARRA industry



Market cap by country



Market cap by BARRA industry

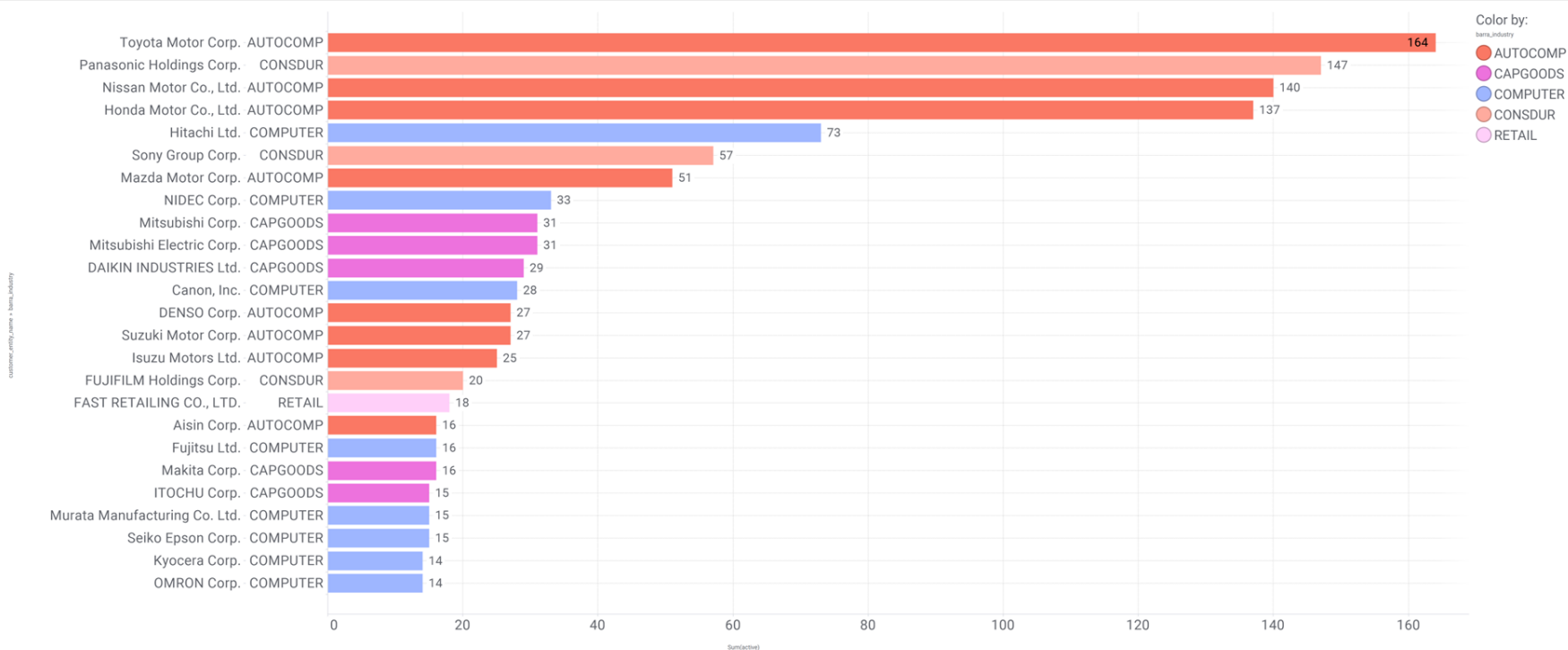


- Charts above summarize the current MSCI ACWI ex-China & Hong Kong universe of firms that we are reporting the China exposures of in this deck.
- Market cap and (to a somewhat lesser extent) number of firms by country dominated by U.S.; there is a more even distribution of both across BARRA industries.

Source: BlackRock; MSCI.

Japanese firms with highest number of Chinese suppliers

25 Japanese firms with the largest number of Chinese suppliers

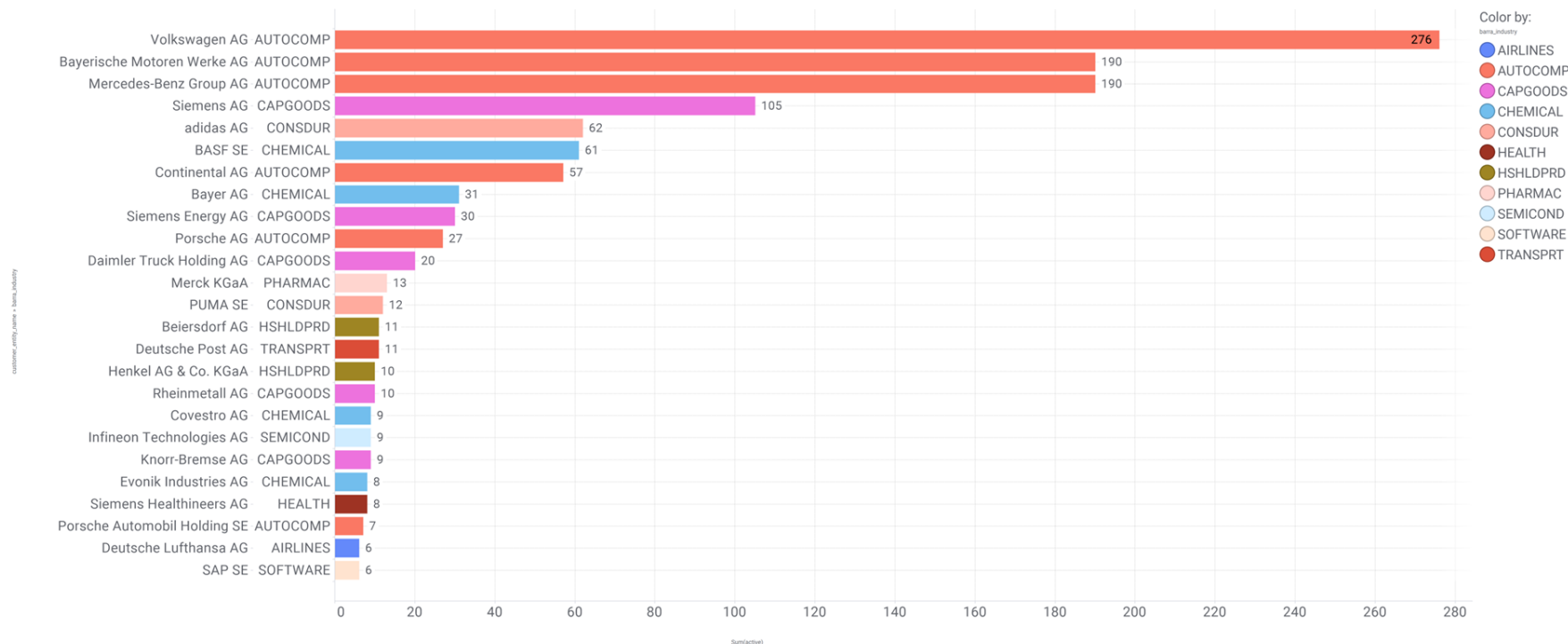


- Given the larger number of Japanese car makers in ACWI vs. other markets – and apparent global reliance within the industry on Chinese parts suppliers – it is not a surprise to see many of these firms in the Japan “top 25”.
- Again, like the U.S., computer hardware and consumer electronics manufacturers – as well as capital goods manufacturers – in Japan also appear heavily reliant on Chinese suppliers.

Source: BlackRock; Revere.

German firms with highest number of Chinese suppliers

25 German firms with the largest number of Chinese suppliers

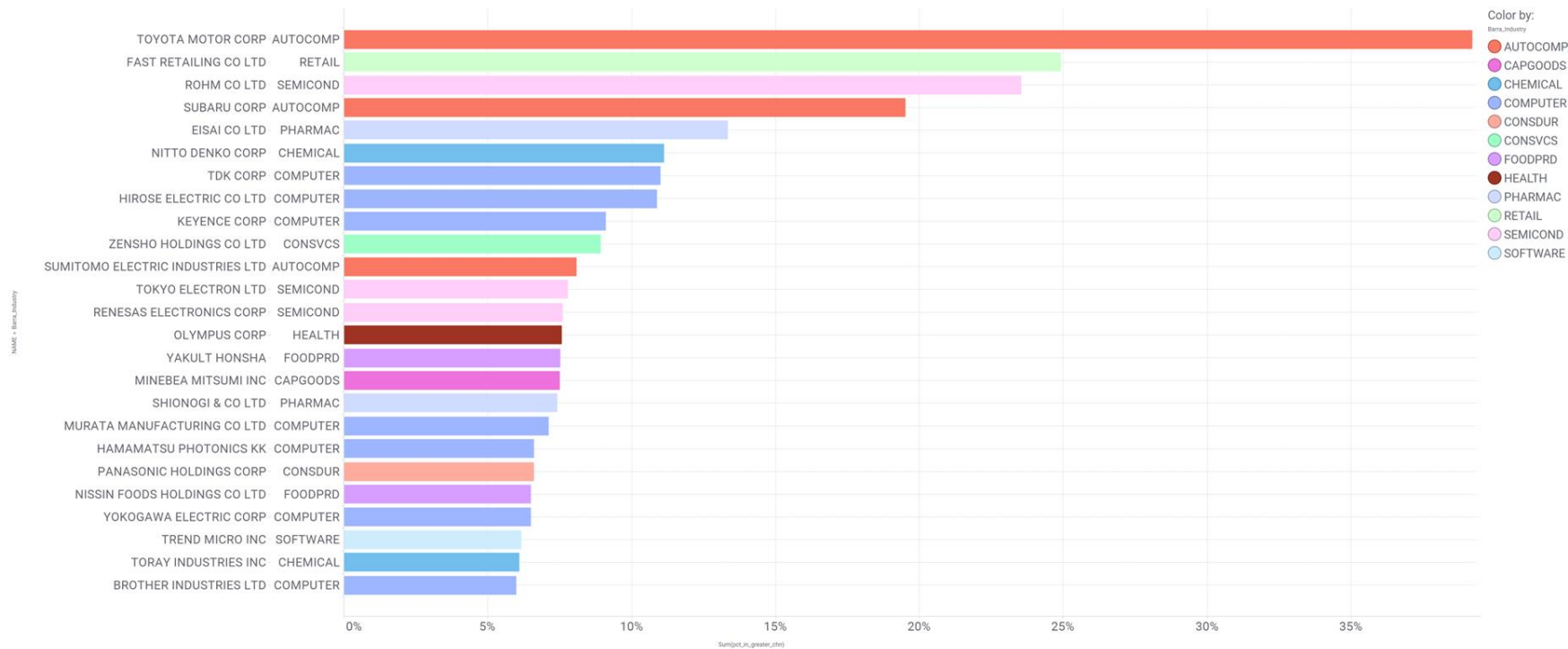


- Unsurprising to see the large German auto makers also reliant on a large number of Chinese suppliers.
- The remainder of the list is a somewhat more diversified list (vs. the U.S. and Japan) of manufacturing industries, albeit with a smaller average number of Chinese suppliers per firm.

Source: BlackRock; Revere.

China POIs of non-China ACWI firms (Japan)

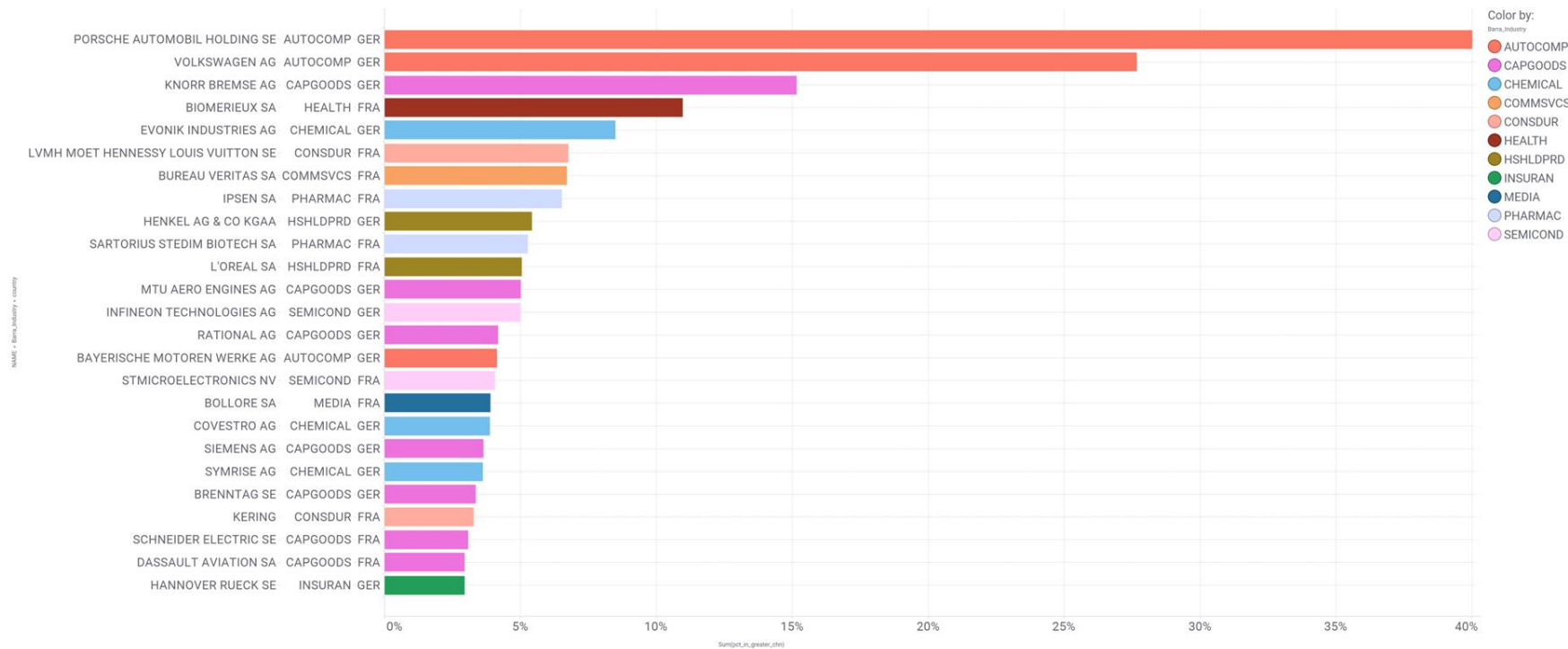
25 Japanese firms with highest % of POIs in China + HK



Source: BlackRock; Precisely.

China POIs of non-China ACWI firms (Germany & France)

25 German & French firms with highest % of POIs in China + HK



Source: BlackRock; Precisely.