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Asia supply chains: a potential shock to growth

Efficient interconnectedness may have left the system at risk

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Key points

- Small, open economies such as Singapore, Vietnam and Malaysia are the most exposed to final demand from the US, Europe and China. This makes them the most vulnerable to the coronavirus growth interruption. Thailand and Hong Kong have the largest exposure to tourism (as a % of GDP) and face the risk of a wipe-out of tourism revenue for some time.

- China is a main contributor to Asia's supply chains for complex products. Production shutdowns in China would therefore have a tangible economic impact on its supply-chain partners, both upstream and downstream.

- Combining the supply and demand exposures, we assess an external shock equivalent to that of the global financial crisis would subtract regional growth by 2.7 percentage points (ppt), while a worse-than-GFC shock could see Asia's growth cut by 4.2ppt, similar to the total revisions made to our growth forecast since the start of COVID-19.

- The short-lived production shutdown in China means that the supply shock for the region will be dwarfed by demand disruptions. We expect the latter to add to disinflationary pressure in Asia that allows central banks to continue to ease policies this year.

Who is vulnerable to falling external demand?

In less than five months since the outbreak was identified, the novel coronavirus has spread to more than 200 countries and territories, inflected over four million people, disrupted financial markets and left the global economy reeling. While some countries have managed the public health aspect of the crisis better than others, no one is immune from its economic fallout in today's interconnected and interdependent global economy.

Asia fits the above description well. Despite having successfully contained the virus (at least the first wave), many Asian countries are now confronting the grim reality of vanishing export orders from developed markets and disrupted supply-chains from China. These are two important risks facing Asian economies this year – we explain and quantify them in this analysis.

Tourism is hit hard by the pandemic

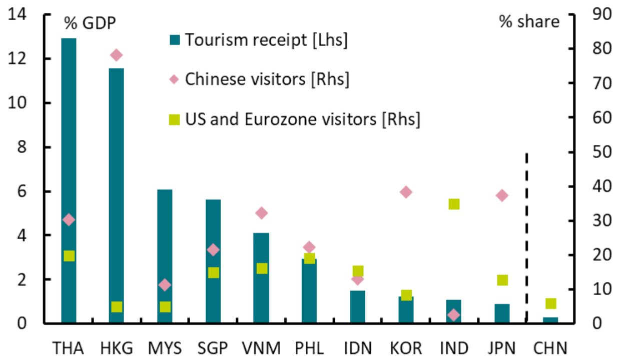
While China was the first country infected by COVID-19, the virus has now spread across the developed world. The anticipated contraction in the US, Eurozone and Chinese economies over the first half of this year is set to weigh acutely on Asia through trade of goods and services.

Trade in services is relatively easy to quantify by using tourism, which accounts for the lion's share of total services trade. Exhibit 1 shows that Thailand and Hong Kong are the most vulnerable to reduced tourism flows with annual tourism receipts accounting for 13% and 11% of GDP respectively. Malaysia, Singapore and Vietnam also have a sizeable tourism sector, worth 5-6% of GDP, while larger economies such as China, Japan and India are least exposed.

Tracing the source of tourists, Hong Kong stands out with almost 80% of its visitors from Mainland China. The latest data shows that the number of Chinese visitors plummeted by 99% year-on-year (yoy) in March, with the outlook unlikely to improve any time soon. The same goes for Japan, Korea, Thailand and Vietnam, all of which receive 30-40% of their visitors from China – a flow that is now at risk of complete wipe out as China continues its travel ban. India and Indonesia are the only countries in the region with more visitors from the US and Europe than China, but the loss of tourism revenue is likely to be equally severe for these economies in the light of the travel restrictions in those countries.

Exhibit 1: Tourism sector is sizeable for some

Tourism receipt vs. Chinese and US/Eurozone visitors



Source: World Bank, CEIC, and AXA IM Research, May 2020

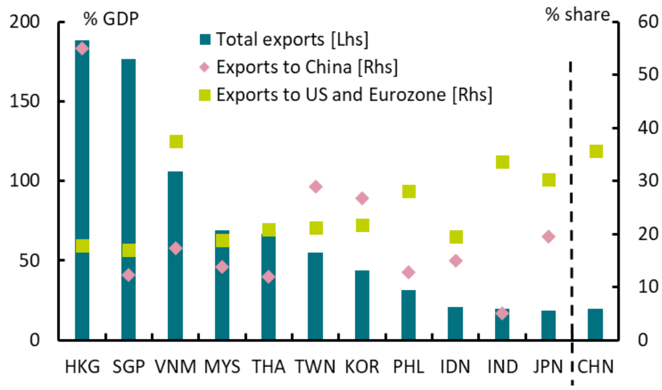
Trade in goods more important and equally vulnerable to global downturn

Compared to services, trade in goods is a more important part of the Asian economy. Small, open economies, such as Hong Kong, Singapore and Vietnam, all have gross export values worth more than 100% of nominal GDP. For Malaysia, Thailand and Taiwan, the share is over 50% of GDP.

In contrast to tourism, the US and Europe are collectively much larger buyers of Asian exports, suggesting that China's recovery beyond the first quarter (Q1) may not be sufficient to offset the marked weakness expected in developed market demand, leaving an extended scar on Asia's exports.

Exhibit 2: Trade sector is important for Asia

Asian export and share of exports to major



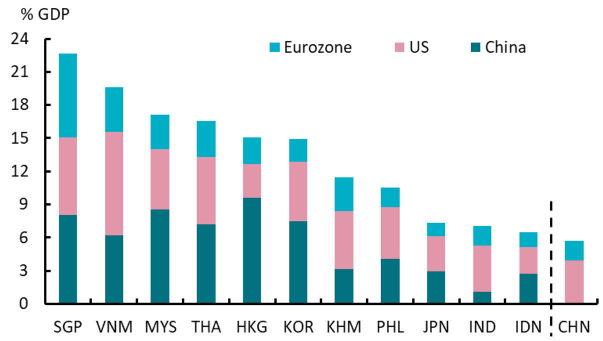
Source: World bank, CEIC, and AXA IM Research, May 2020

However, using gross exports to measure the impact (in GDP terms) of a trade shock is misleading. This is because gross exports attribute all the value embedded in final products to their immediate exporters. This is correct for goods produced from start to finish in one country. But for more complex products, manufactured by multiple countries in a supply-chain, tracing one country's exposure to another requires a careful redistribution of values to where they are originally created.

The Organisation for Economic Co-operation and Development (OECD) estimates this, producing Inter-Country Input-Output tables. Exhibit 3 shows the aggregated value-added exposure of Asian economies to final demand from the US, the Eurozone and China via both direct and indirect channels. Singapore tops the chart with its exposure to all three economies at 23% of GDP. Vietnam is a close second with US demand alone explaining 13% of its value-added output. Domestic-oriented economies, such as India and Indonesia, are less sensitive to external demand, while China's exposure to US/Eurozone has fallen over time to about 6% of GDP. We use these numbers to estimate the impact of lower developed market/China demand on the region.

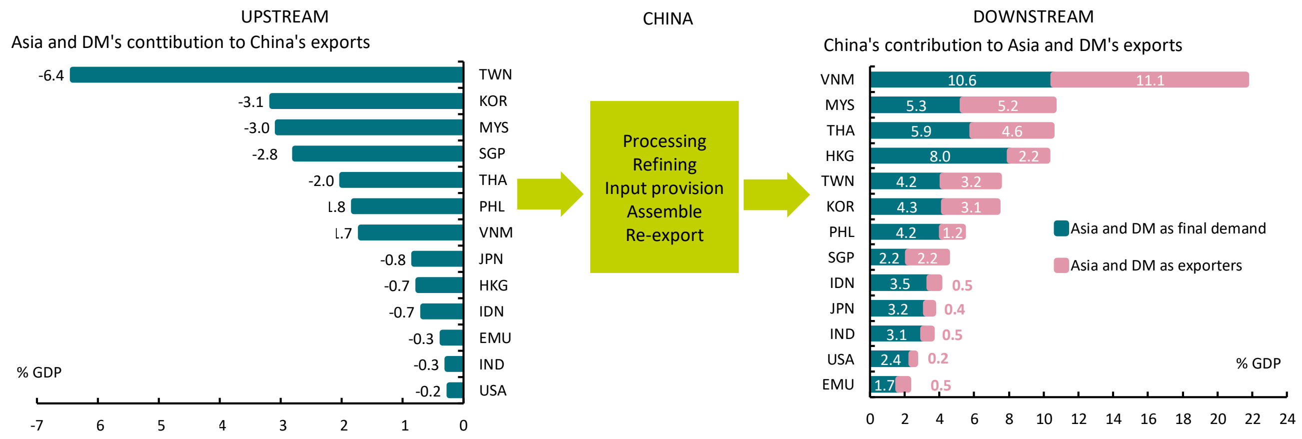
Exhibit 3: Small and open economies have high VA

Value added to Chinese, US and Eurozone final demand



Source: OECD TiVa, World Bank, and AXA IM Research, May 2020

Exhibit 4: The supply chain picture centred on China



Source: OECD TiVa, World bank, and AXA IM Research, May 2020

Who is exposed to supply-chain disruptions?

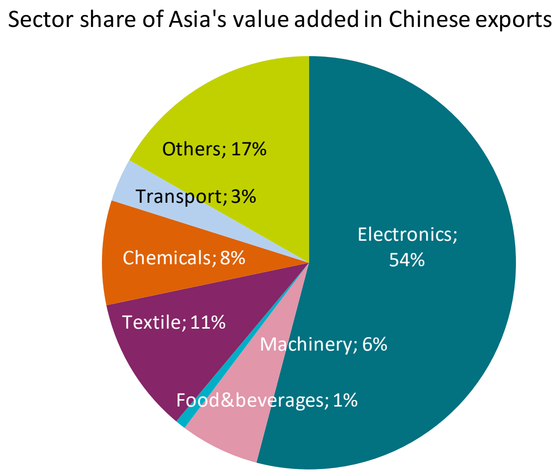
The reliance on external demand is one source of vulnerability for Asia as COVID-19 ravages the global economy. At the same time, supply-side disruptions can be equally as damaging because Asian economies are moulded together in complex supply chains for manufacturing products from electronics and automobiles to food and clothing. Despite the efficiency this creates in normal times, the collaborative process is now exposing countries to the risk of disruptions in one part of the supply-chain halting production for the entire system. The recent production shutdowns in China were a clear example of idiosyncratic shocks turning systemic for all those involved in the production process.

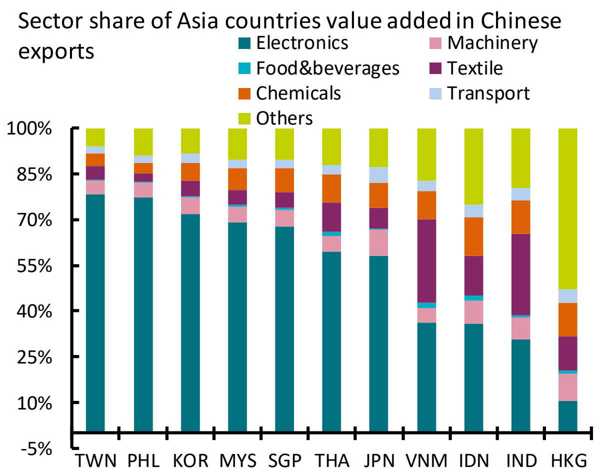
Exhibit 4 offers a rough sketch of the supply chain centred on China. To China's left are its upstream production partners. These provide inputs to its processing and assembling lines before refined products are re-exported. Within the Asian region, Taiwan, Korea and Malaysia are most exposed to this configuration, supplying 6.4%, 3.1% and 3.0% GDP worth of value-added inputs to China's production each year. Unsurprisingly, over half these values are embedded in electronic products, which dominate Asia's supply-chain production (Exhibit 5 and 6).

Downstream of China's production are countries who take China's inputs for re-exports (pink bars) or final products for domestic consumption (green bars). In dollar terms, the US and Eurozone are much larger consumers of Chinese final goods. But as a share of GDP, Vietnam is the most dependent on Chinese inputs for re-exports (worth 11% of GDP) and outputs for final consumption (at 10% of GDP). Malaysia and Thailand each attribute 10%-of-GDP worth of value-added production to China, split half and half between domestic consumption and re-exports.

In the near term, the disruption to China's supply has hindered the production and consumption of downstream economies. The extended delivery time of manufacturing output across the region (and beyond, e.g. Germany) is a

Exhibit 5 and Exhibit 6: Electronics products dominate Asia's supply-chain production





Source: OECD TiVa, and AXA IM Research, May 2020 good example of the collateral damage of this supply-chain disruption. Over the longer run, Asian countries, particularly Vietnam, still rely heavily on China's provision of intermediate goods to keep its production going. While some industries may have, and continue to, relocate production out of China due to cost pressure, a complete replacement of "Made in China" may still be years, if not decades, away, if it ever happens.

How big is the external demand shock for Asia?

With external demand set to contract faster and more deeply than it has in decades, Asian economies face a bleak outlook even if they manage to keep domestic virus conditions under control. We use two methods to quantify the impact of falling global demand on the region.

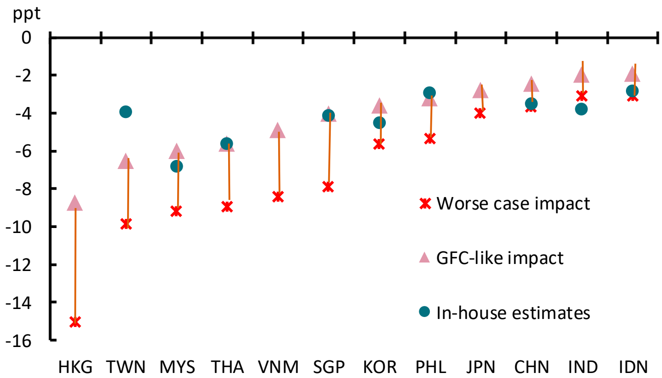
The first is based on the domestic value-added of exports, as opposed to gross exports. We assume two scenarios on the scale of export decline in 2020: the first is benchmarked against the peak of the global financial crisis, and the second is a Great Financial Crisis (GFC)-like-shock minus another 10%. The GDP impact is then calculated as the product of export value-added and the assumed decline in export growth. The result shows that a GFC-like shock will reduce Asia's growth by between 1.1-13.6ppt across the different economies, with a median impact of 3.4ppt, and Hong Kong and Malaysia the worst hit. The more negative case will see GDP decline by 2-24ppt, with a median drop of 5.8ppt.

The second approach makes use of the value-added exposure of Asian countries to final demand from US/Eurozone/China, as shown in Exhibit 3. A common proxy for final demand is GDP. However, as the dominant part of all three economies is services, which is mostly non-tradable, GDP is not the most relevant measure for our analysis. A better proxy, in our view, is imports, which focus on the part of domestic demand met by foreign supplies. Once again, we construct two scenarios: a financial-crisis-like shock, and one that brings a further decline of 10%. To make the results of this method comparable with the first we scale the calculations upward proportionally to reflect reduced demand from non-US/Eurozone/China economies. Our results show that reduced US/Eurozone/China demand will lower Asia's growth by 4.2ppt on average in a GFC-like case, and 6.4ppt in the more negative case.

The averages of the two approaches are shown in Exhibit 7, along with the revisions to our GDP forecasts from prior to COVID-19. For most Asian economies, our estimated GDP shocks are less than the worst-case scenario of value-added analysis. This suggests that our forecasts are still on the optimistic side, particularly as the current shock is believed to be worse than the 2008/2009 financial crisis. Simply moving these forecasts to the worst cases would lower our overall regional growth projection further by 0.5ppt.

Exhibit 7: Downside risks exist for the growth forecasts

Impact on Asian GDP - scenario analysis



Source: AXA IM Research, May 2020

Of course, when comparing to our GDP projections, the export value-added analysis omits the domestic shock on GDP. If the local impact of the virus-spread and economic lockdowns is considered, our forecasts will be subject to even greater downside risks. However, the analysis also omits the extensive policy support provided by central banks and governments which should offset some of the negative impacts.

The balance of the supply and demand shocks will have an implication for inflation in the region. In general, the complete lockdown period in China was short-lived, suggesting that the duration and severity of the supply impact should be limited compared to the anticipated demand shocks. As such, we continue to expect muted inflationary pressure across the region that allows central banks to continue with policy easing.

Our Research is available on line: http://www.axa-im.com/en/insights

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