When It’s All Over

How Covid-19 would reshape Asia’s supply chains

• It remains very hard to know just how and when the virus outbreak will be over. Hence, understandably, much of Asia is still gripped by the immediate concerns of making sure the virus does not spread further than it already has.
• Still, this too shall pass and it is never too early to think about the longer term repercussions. The crisis is already reminding manufacturers of concentration risk: the dangers of relying too much on any one country in their tightly integrated supply chains.
• In many ways, the US-China trade war since mid-2018 has already added impetus to regional production realignment. The virus would be tipping the balance even more. ASEAN policymakers and businesses should take heed.

Mr. Q, our hypothetical client, is back again in this report, with his usual incisive questions. Given the virus scare, he naturally insisted on a phone call instead.

Hello. I heard you are working from home? That must be fun!

Hello there too, Mr. Q. Yes, I have been, as we are doing split-team operation just in case. Well, apart from spending half the time figuring out where my Excel files and Python programs are – and trying not to have too many imaginary conversations with myself – it’s been okay. In any case, I understand you wanted to talk about the virus?

Yes, what else can we talk about, right? I can’t get the virus off me, figuratively speaking. Look, I know you are no epidemiologist, even if everyone seems to be one now. But, what is your sense of the outbreak? Is the worst over?

The simple answer is I have no clue. You and I are looking at the same official data. In the case of the epicentre, China, there was a false sense that the peak was coming until they revised their methodology, which has since been reversed again, so we really simply do not know. Given news about considerable outbreaks in South Korea and Italy over the weekend, it looks like the health crisis is still with us for a while more.

What does strike me as extraordinary is that some of the measures that we have seen – quarantining entire cities, shutting down borders, etc. – are things we have not seen in decades if not centuries. If those are not enough to stop the spread, at least cross-border, I don’t know what will.

Well, there are those cruise ships... But, anyway, you must have been busy shaving down growth forecasts.

Yes, essentially, we had to throw out our 2020 growth forecasts barely a month into the year. Talk about shelf life these days, thanks to the virus. You can take a look at a snapshot of our team’s key changes here. From my end, I had to shade down Malaysia’s 2020 GDP forecast from the already-
conservative 4.2% yoy to 4.0%. The Q4 2019 print was already signalling slowing momentum, so Q1 now is going to be especially challenged at just 3.5%. As for Indonesia, the impact is still expected to be relatively minimal, partly because of its domestically oriented economy plus the fact that there has not been any reported case. Even then, the outbreak has prompted Bank Indonesia to revise down its growth forecast – albeit by just 0.1ppt – and to frontload its rate cut on Feb 20th.

**But what’s this garlic price shoot-up in Indonesia that I saw in the news? Is garlic the secret recipe to it having zero case?**

Well, my mom was telling me that her friend’s neighbour’s uncle said that onion soup is the magic formula to stave off the virus. Not sure if adding garlic helps, but you are probably referring to how garlic price shot up 70% in a week in Indonesia. There were some concerns that supply from China – which covers 90% of Indonesia’s garlic demand – might be cut off.

When you think about it, it is staggering how dependent our daily lives and broader economies have become on supply chains working smoothly. In this particular case, it is reliance on China as a supplier of something as seemingly mundane as garlic. In Hong Kong’s case, it came down to the provision of toilet rolls because of, yet again, worries about China’s supply lines.

**Yes, if you had told me even 3 months ago that Hong Kong gangsters would stage a daylight robbery of toilet rolls, I would have thought it’s just a very bad sequel of Young and Dangerous.**

Indeed. At times like these, reality can seem stranger than fiction, however. And the reality now is that we can only make a fairly wild guess of when China, Inc. is going to come back online and at what rate of production.

For some sense of how things are on the ground, I take a look at traffic congestion data via TomTom the GPS provider for major Chinese cities, such as Beijing and Shanghai, for instance. Both show that traffic levels recently are only about one-third of comparable periods last year, for example, signalling that it remains a slow-start.

However, some local governments have reportedly started to relax quarantine requirements to urge companies to restart production. There is obviously an important trade-off to be made. Relaxing the fight against the virus too much to help cushion the economy runs the risk of fomenting potential clusters of viral transmission – and potentially an even longer production shutdown if that happens.

The fact that the authorities opted nonetheless to re-focus on resuming production probably tells you the degree of economic pain that is going on.
[Sighs audibly] Let’s say much of China’s production is still offline for another month or even two, which countries would be most affected?

Perhaps best to zoom in on the supply side effects here. In particular, let’s look at how dependent each country’s own production is to China’s now-compromised supply chain, through how much of their intermediate goods come from there. Think of, say, a shoe factory in Indonesia. How much of the leather that it needs to produce shoes comes from China.

In aggregate, at the per-country level, Vietnam appears to be the most dependent in the region, with nearly a third of its intermediate goods coming from China. As much as the country has been successful in marketing itself as an alternative FDI destination out of the China-US trade war saga, factories there are seemingly still very much tied to China’s fortunes. I suppose, in life, you win some, you lose some.

**Figure 1.**

<table>
<thead>
<tr>
<th>Country</th>
<th>Intermediate Goods Imports from China, % of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vietnam</td>
<td>32.5</td>
</tr>
<tr>
<td>Korea</td>
<td>27.2</td>
</tr>
<tr>
<td>Philippines</td>
<td>25.4</td>
</tr>
<tr>
<td>Indonesia</td>
<td>24.2</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>24.0</td>
</tr>
<tr>
<td>Japan</td>
<td>19.9</td>
</tr>
<tr>
<td>Malaysia</td>
<td>19.4</td>
</tr>
<tr>
<td>Thailand</td>
<td>18.3</td>
</tr>
<tr>
<td>India</td>
<td>15.4</td>
</tr>
<tr>
<td>US</td>
<td>10.2</td>
</tr>
<tr>
<td>Singapore</td>
<td>8.1</td>
</tr>
</tbody>
</table>

Source: OCBC, World Bank, CEIC, Bloomberg.

Elsewhere, manufacturing heavyweights such as Korea and Japan are also very dependent on China’s supply chains. Earlier this month, Hyundai had already announced a suspension of production in its Korean plants because supply shortages of parts from China, for instance. For car parts alone, Korea imports as much as USD1.56bn from China in 2019.

At the other end of the spectrum, we see Singapore being less dependent than its peers on China for intermediate goods, with just over 8% of total. Its top three sources are US, Switzerland and Japan, perhaps reflecting its higher-end manufacturing base.

**Sorry if I sound overly dramatic. Going by the news of sizable outbreaks outside China, in Korea etc., shouldn’t we be looking at the impact of a wider production shutdown? With everything being so inter-linked, how do we quantify it all?**

I definitely get where you are coming from. It may be analogous to the way the virus has spread. At first, the chief concern was direct links to China, and then it was about
links to those who are linked to China, followed by it can really be from anyone and it becomes simply a game of chance.

In the case of production chain links, even if a country may not be very dependent on China directly, it may well be dependent on those which are dependent on China, or even in a third-derivative, fourth-derivative way, etc.

That is why I spent some time calculating the so-called Herfindahl-Hirschman index.

_Her-what-his-what index? Speak English please._

Okay. Put the names aside. Just know they refer to these two economists who came up with a formula to calculate concentration risk. The higher the number, the more concentrated. Traditionally, it’s been used to quantify how monopolistic a particular market is. The way it’s calculated is the following. First, take the market share of each player in percentage terms, then square them up. Lastly, add these numbers all up.

_[Yawning audibly]_

_[Pretends not to hear that]. Now, for the purpose of our discussion on concentration risk of supply chain, imagine this. If a country imports from one country only, the market share will be 100%, and the Herfindahl-Hirschman index value (HHI, for short) will be the 10,000 – maximum concentration risk. Now, if another country imports from 100 countries – and each of them has an equal share of 1% – then the HHI is only 100, indicating the concentration risk is low and it is not overly dependent on any one source at all.

**Figure 2.**

<table>
<thead>
<tr>
<th>Country</th>
<th>Concentration Index for Intermediate Goods Imports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vietnam</td>
<td>1505</td>
</tr>
<tr>
<td>Korea</td>
<td>1291</td>
</tr>
<tr>
<td>Hongkong</td>
<td>1009</td>
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<tr>
<td>Philippines</td>
<td>1001</td>
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<tr>
<td>Indonesia</td>
<td>923</td>
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<td>Japan</td>
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<td>Thailand</td>
<td>803</td>
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<td>Singapore</td>
<td>747</td>
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<tr>
<td>Malaysia</td>
<td>744</td>
</tr>
<tr>
<td>US</td>
<td>632</td>
</tr>
<tr>
<td>India</td>
<td>563</td>
</tr>
</tbody>
</table>

_Source: OCBC, World Bank, CEIC, Bloomberg._

_[Stops yawnning]_

So, I went and collected the data for all potential trading partners for a number of countries, and calculated the HHI concentration risk.
All 189 or whatever trading partners for the dozen or so countries? Wow, you definitely had a lot of time at home.

Actually, not really. But the beauty of Python is that once you program it for one, the others don’t take much more time beyond.

In any case, Vietnam again comes out on top of the list of concentration risk, with a score of over 1500 or so. Looking into the details, this is not too surprising. The big China’s share aside, the second largest source, Korea, also has a large share of Vietnam’s intermediate goods imports at 15%, followed by nearly 8% from Japan. Touch wood, but if anything happens to the top 3 suppliers, half of Vietnam’s intermediate goods imports will be disrupted.

Similarly, Korea’s concentration risk is also high at HHI score of nearly 1300. Again, focusing on just the top 3 suppliers: China, Japan and US provide over 47% of Korea’s intermediate goods needs.

Near the other end of the spectrum, Malaysia and Singapore look more diversified in their production goods suppliers. In the case of Malaysia, outside of the nearly 20% dependence on China, shares of other supplying partners are all in single digits. The first half of the total is supplied by up to 6 trading partners, for instance, signalling a more well-diversified base.

Okay. I get it now. Some countries are not only dependent on China, but also rather heavily on a few others, while some have a more diversified supplier base. What’s the big deal again?

Well, in the immediate term, those which depend less on China, such as Singapore, would be less impacted directly in terms of shortage of production inputs in their factories. The impact is still going to be there, for sure, but on a relative basis, less badly so.

And, if you worry about the virus spreading beyond the shores enough to cause ructions in supply chains outside of China too, then the HHI concentration risk provides a broader indicative impact. Those countries with a lower HHI score can plausibly find more alternative suppliers, courtesy of their wider supplier base.

These are just indicative, of course. At the end of the day, it comes down to an individual factory linking up with a specific supplier in a particular factory somewhere on earth, but it’s a good starting point to think about the Covid-19’s impact on regional productions over the next few months.

How about the longer term repercussions? Wouldn’t everyone want to move out of China after this?

There will be some impact of that sort, although China’s advantage in terms of size, broad-based supply chain, and infrastructure provisions are not going to go away and will continue to anchor it as an unmissable market for most.
Still, even before Covid-19 became a part of daily life, there was already quite a bit of impetus for MNCs to seriously consider alternative production base away from China because of cost concerns, at first, and then followed by Trump’s tariffs.

Indeed, if we think of those two factors – rising China costs and US tariffs – as presenting ‘price’ incentive for supply chain relocation, we can think of the Covid-19 impact as forcing companies to think of the ‘quantity’ consideration. Meaning, higher price for production costs already caused companies to think seriously about relocating out of China, now the lack of quantity because of production shutdown would be tipping the balance even more.

**Okay, move out of China to diversify, fine, but where to?**

The classic beneficiary of the recent diversification move has been Vietnam, but as we discussed earlier, that country itself carries concentration risks of its own.

Within ASEAN, Indonesia should still naturally be up there in terms of consideration, due to its market size and commodities endowment. However, if those pluses are familiar to many by now, so are the minuses, unfortunately: from bureaucratic red tape, lacklustre infrastructure to cumbersome labour laws.

The good news is that the Jokowi administration has been busy tackling each of these issues; the first two in his first terms, while his second term could hopefully resolve the third issue of labour rigidity more forcefully.

While progress has been in fits-and-starts, the much-awaited omnibus law on jobs creation, which include sweeping reforms to reduce retrenchment costs, among other things, has been submitted to the parliament for approval lately. It will not be smooth-sailing and has already invited much consternation from labour unions, but the hope is for something to pan out into Q3 this year.

Elsewhere, Malaysia has been winning its share of FDI in a quiet but confident manner in the past year, especially into the technology cluster around the Penang area. It could have enjoyed continued resurgence in that field, but the recent political drama surrounding the two friends-then-enemies-then-friends-and-now-perhaps-enemies again could dampen things.

**Wow, intriguing, but I have no time to listen to that Malaysian drama now. In any case, any last words today?**

Yes, moving out of China is no panacea for sure, but the recent virus scare may have tipped the balance for many MNCs in terms of shifting at least some production out of the country. The global supply chain is so used to the idea of everything working smoothly in a just-in-time fashion, but will have to adapt to a new world of focusing on diversification, just in case.
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