

COVID-2019 IMPACT IN CHINA

March 10, 2020

By Dan Tracy, Ph.D., TEHCET, edited by L. Shon-Roy TEHCET Supply-Chain Impact Summary (TSIS) provides an update on the coronavirus (COVID-19) situation. Information includes trends pertaining to the spread of the virus and the impact on economic activity.

1. SUMMARY

Contacts in China state the situation is improving though companies are encountering some challenges with respect to logistics and freight delivery. No raw material supply issues impacting electronic gases and sputtering targets have been identified. Contacts in Korea and Japan have also reported no critical issues currently. However, concerns exist for the coming months. Imports of materials into Korea are also flowing, though companies may encounter higher shipping costs. In Japan it was noted that Cleanroom Mask supply/availability is expected to tighten, so fabs will need to manage its available stock.

According to the Ministry of Transport in China, as of March 1, 28 provinces resumed inter-provincial road passenger transport. A total of 126 prefecture-level cities and 192 county-level cities have resumed ground bus operations. A total of 550 cities in 31 provinces (regions, municipalities) across the country have continued to provide ground bus services. Of the 41 cities that have opened urban rail transit, 36 cities including Beijing, Shanghai, Guangzhou, and Shenzhen are operating normally.

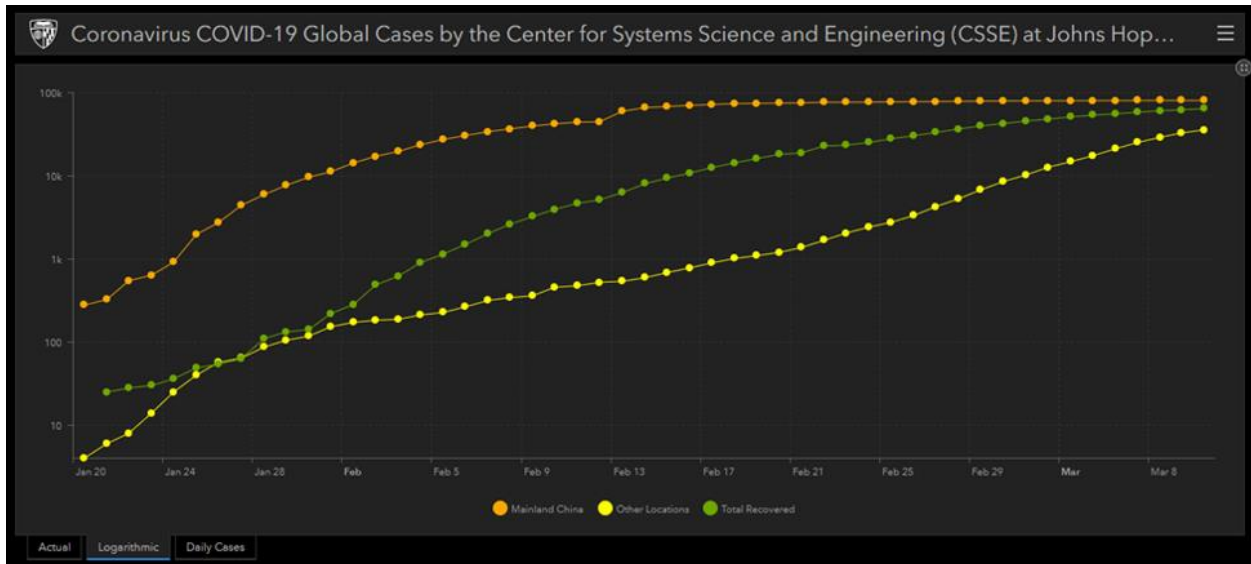
Despite improved passenger transport availability, bulk shipping indexes continue to be down slightly, as shown in the China Import Containerized Freight Index (CICFI) As shown in section X below. Logistic challenges included reduced staff of import/export officers within China, as well as limitations on truck drivers coming from infected areas. Additionally, freight ships originating from China have been delayed from docking at various ports of call due to concerns relating to the spread of Covid-19.

2. CHINA COMPARED TO GLOBAL RATE OF INFECTION

The John Hopkins University's Center for Systems Science and Engineering (CSSE) tracks COVID-19 cases globally and updates information throughout the day.

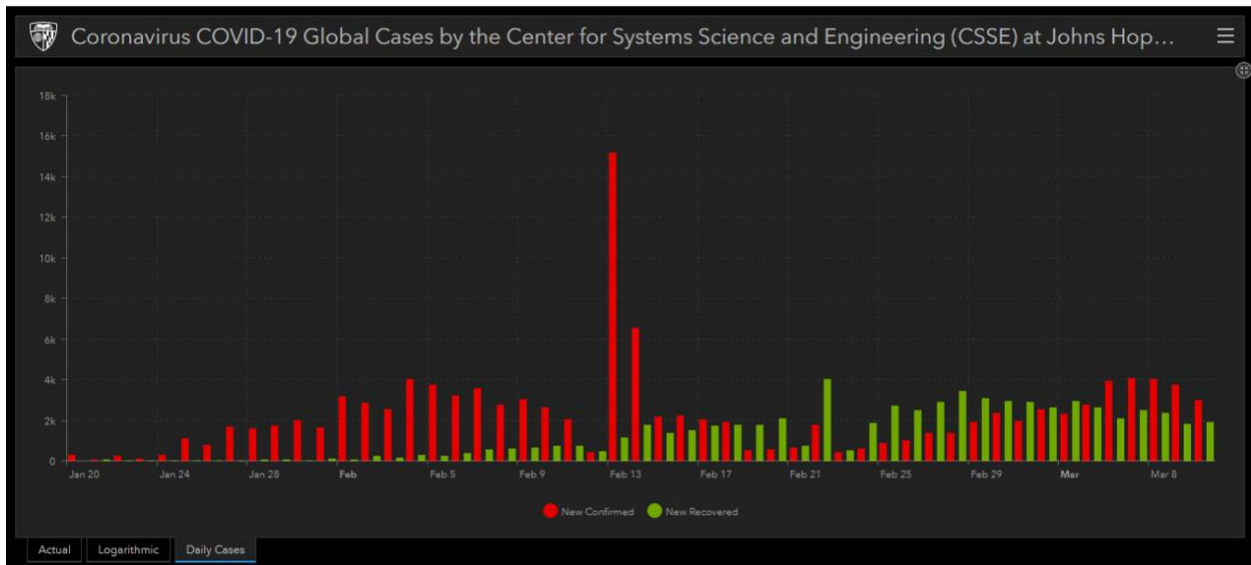
Cumulative tracking of new cases (in and outside of China) and Total Recovered cases are charted below, showing the rate of new cases within China has been slowing, though increasing elsewhere globally. The figure below highlights the reported new cases daily and it shows as of March 10th that reported new cases have declined for two consecutive days, though the confirmed new cases in Italy, France, Germany, and the U.S. are on the rise. As of March 10th, South Korea has reported a slowing of new cases though there are concerns with new cases in the capital city of Seoul.

Figure 1: Coronavirus COVID-19 Global Cases Compared to China Rate of Increase (Logarithmic Y-axis)



Source: John Hopkins University's Center for Systems Science and Engineering (CSSE).
<https://gisanddata.maps.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6>

Figure 2: Coronavirus COVID-19 Daily New Cases and Daily Reported Recovery



Source: John Hopkins University's Center for Systems Science and Engineering (CSSE).
<https://gisanddata.maps.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6>

3. CHINA ECONOMIC INDICATORS

Economic indicators such as the Purchasing Managers Index (PMI) and Bulk Commodity Index (BCI) are metrics of economic health and are tracked as an indicator of economic trend.

The Purchasing Managers Index (PMI) is a measure of the prevailing direction of economic trends in manufacturing. It is based on a monthly survey of supply chain managers across 19 industries, covering both upstream and downstream activity.

It consists of a diffusion index that summarizes whether market conditions, as viewed by purchasing managers, are expanding, staying the same, or contracting. The purpose of the PMI is to provide information about current and future business conditions to company decision makers, analysts, and investors.

The Bulk Commodity Index (BCI) is the monthly index used to monitor China's macro-economy. It is based on 100 commodities which include Oil, Energy, Petrochemicals, Textiles, Metals, and Non-ferrous metals, the BCI was calculated.

CHINA PMI AN ECONOMIC INDICATOR

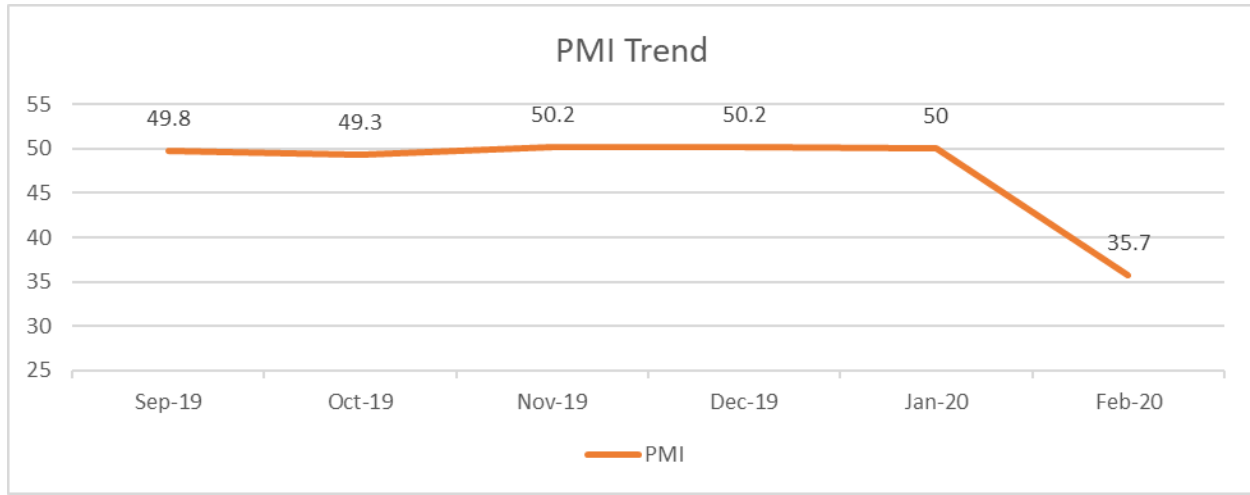
The Purchasing Managers Index (PMI) is an important indicator of economic trends and directions in the manufacturing industry. It consists of a diffusion index that summarizes whether the market conditions that purchasing managers believe are expanding, staying the same or contracting.

On February 28, the China Bureau of Statistics announced the manufacturing PMI for February 2020.

Table 1: China PMI Sept. 2019 to Feb. 2020

Month	PMI	% Growth rate
September 2019	49.8	0.80%
October 2019	49.3	-1.00%
November 2019	50.2	1.83%
December 2019	50.2	0.00%
January 2020	50.0	-0.40%
February 2020	35.7	-28.60%

Figure 3: China Economic Index, Purchasing Managers Index (PMI), Sept. 2019 to Feb. 2020 Trend Chart



Source: National Bureau of Statistics of China (updated on 02/29/2020)

Link: <http://data.stats.gov.cn/easyquery.htm?cn=A01&zb=A0B01&sj=202001>

As expected, China's economic indicators are trending downward given the lunar new year holiday exacerbated by Covid-19 related issues. The PMI, as shown above, dropped 29% from January 1 through the end of February. This is expected to recover very slowly as China's economy is highly dependent on exports and the impact of Covid-19 on other nations is still uncertain.

BULK COMMODITY INDEX

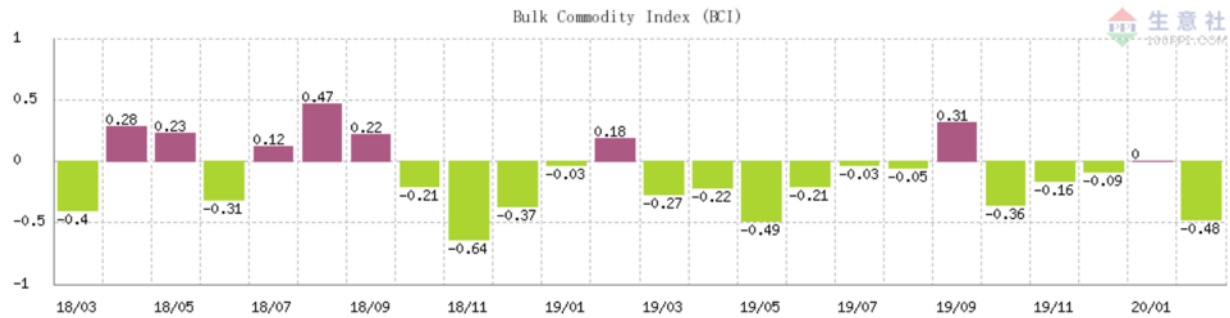
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Based on the above mechanism, the BCI can show 3 trends:

1. $BCI > 0$ indicates that China manufacturing industry economy is expanding.
2. $BCI = 0$ indicates that China's manufacturing industry economy remains steady.
3. $BCI < 0$ indicates that China's manufacturing industry economy is shrinking.

In February 2020, the Bulk Commodity Index (BCI) was -0.48, with an average increase of -3.56%, reflecting a contraction in the manufacturing economy in that month compared with the previous month and downside risk to the economy.

Figure 4: Bulk Commodity Index (BCI)



Source: SunSirs—China Commodity Data Group (updated on 02/01/2020)

Link: <http://www.sunsirs.com/uk/bci.html>

4. CHINA FREIGHT TRANSPORT TRENDS AND METRICS

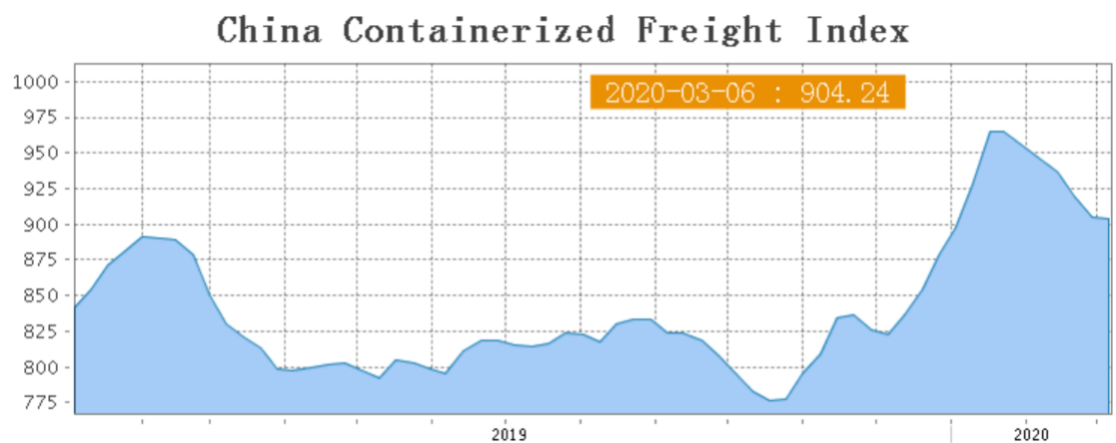
China’s shipping metrics include various indexes tracked by the Ministry of Transport of the People’s Republic of China and that are updated weekly.

The most recent indices updated by the Shanghai shipping exchange indicate shipping is improving. The rate of decline for exports is slowing, while the index for imports shows an uptick as of the first week of March.

CHINA (EXPORT) CONTAINERIZED FREIGHT INDEX (CCFI)

CCFI objectively shows the container transport market and bridges China’s shipping market to the world circle, which provides well-founded information to decision-makers of various shipping and trade enterprises as well as the governmental agency in charge of macro-economic regulation and control, thus attracting great attention of mass media and the related research and consulting institutes.

Figure 5: China Export Containerized Freight Index (CCFI) Trends Chart



Source: Shanghai Shipping Exchange (updated on 03/06/2020)

Link: <https://en.sse.net.cn/indices/ccfinew.jsp>

Figure 6: China import Containerized Freight Index (CCFI)



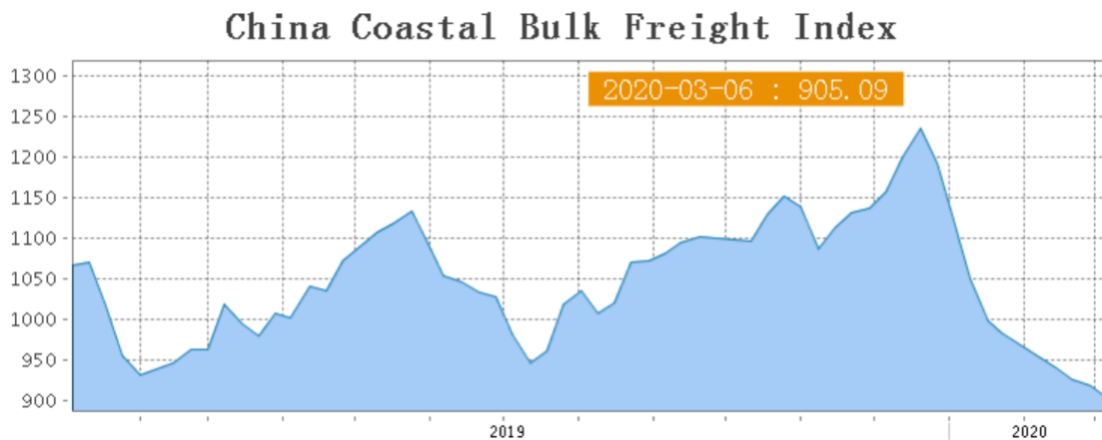
Source: Shanghai Shipping Exchange (updated on 03/04/2020)

Link: <https://www.sse.net.cn/index/singleIndex?indexType=cicfi>

CHINA COASTAL BULK FREIGHT INDEX (CBFI)

To fully reflect the fluctuation of the Chinese coastal transport market, SSE officially initiated China Coastal Bulk Freight Index (CBFI) on 28th November 2001 under the guidance of MOT. This new tool also better displays the market situation during the period of waterway transport pricing system reform and boost the sound development of the China Coastal Shipping market. This index shows a continuing decline through March 6th.

Figure 7: China Coastal Bulk Freight Index (CBFI) Trends Chart



Source: Shanghai Shipping Exchange (updated on 03/06/2020)

Link: <https://en.sse.net.cn/indices/cbfinew.jsp>

The chart above shows a declining index, representing a decline in overall containerized freight shipping in the first few months of the year. The rate of decline appears steeper in toward the end of February, in keeping with the extended lunar new year holiday in response to minimizing the spread the Covid-19, and reports of logistics challenges. Logistic challenges included reduced staff of import/export officers within China, as well as limitations on truck drivers coming from infected areas. Additionally, freight ships originating from China have been delayed from docking at various ports of call due to concerns relating to the spread of Covid-19.

For more information on changing supply-chain dynamics please contact TECHCET at cmcinfo@techcet.com .