The Global PfR Markets
The great uncertainty over Asia

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Hannah Zhao
Senior Economist, Recovered Paper
Fastmarkets RISI
OCC prices in different regions

- Sharp drop in US and European OCC prices since 2018
- Domestically collected OCC became relatively expensive in China due to the recycled fiber shortage
- Weak OCC markets in 2019 because of the sluggish paper packaging sector, continuous decline in Chinese imports and deceleration in Asian PfR import purchases
- Price rebound in January-February 2020 thanks to release of Chinese PfR import license for 2020; temporary easing of Indonesian PfR import regulations; the outbreak of coronavirus
CHINA’S GROWING IMPACTS ON GLOBAL MARKETS

• Sars (Nov.2002-Aug.2003) Vs. Coronavirus (Jan.2020 - ?)

• Much higher shares in global market for both paper and board and PfR markets: 2002 Vs. 2019

• Both Chinese PfR demand and domestic PfR collection have been constrained because of the outbreak of Coronavirus: local supply may have and will be impacted more by the virus than demand in the very near term

• Extra demand for imports? Are there enough PfR import permits?

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2017</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAB production</td>
<td>37.8</td>
<td>115.8</td>
<td>107.3</td>
</tr>
<tr>
<td>Share</td>
<td>11%</td>
<td>27%</td>
<td>26%</td>
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<tr>
<td>PAB demand</td>
<td>43.7</td>
<td>113.7</td>
<td>106.5</td>
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<tr>
<td>Share</td>
<td>13%</td>
<td>27%</td>
<td>26%</td>
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<tr>
<td>PfR demand</td>
<td>20.2</td>
<td>81.6</td>
<td>69.4</td>
</tr>
<tr>
<td>Share</td>
<td>13%</td>
<td>33%</td>
<td>28%</td>
</tr>
<tr>
<td>PfR import</td>
<td>6.3</td>
<td>25.7</td>
<td>10.4</td>
</tr>
<tr>
<td>Share</td>
<td>22%</td>
<td>44%</td>
<td>22%</td>
</tr>
</tbody>
</table>
Chinese PfR and recycled pulp import regulations

PFR IMPORTS

- China imported about 10.4 million tonnes of PfR in 2019, down from 25.7 million tonnes in 2017 and 17.0 million tonnes in 2018
- About 3.2 million tonnes of PfR import licenses were issued for 2020 for the first four rounds, 42% less than the 5.5 million tonnes issued in the first four batches for 2019
- The ban on all PfR imports: If? When? The end of 2020?
- Will the Chinese government relax the PfR import restrictions somewhat because of the Coronavirus?
- China has a plan to waive tariffs on US RCP and recycled pulp imports

RECYCLED PULP IMPORTS

- No well-established regulations, quality standards or specifications for imported recycled pulp yet
Chinese PfR imports by sourcing region
Million tonnes

DECLINING IMPORTS FROM MOST TRADE PARTNERS

• Chinese PfR imports plunged by about 39% in 2019 after falling by nearly 35% in 2018
• Imports from N. America declined by about 28% in 2019 after plummeting by about 48% in 2018
• Imports from W. Europe fell by about 53% in 2019 after declining by about 38% in 2018
• Chinese imports from Japan increased in 2018 but declined by about 40% in 2019
• Chinese imports from Australia declined by 25% in 2019 after falling by 22% in 2018
Chinese PfR imports by grade
Million tonnes

FALLING IMPORTS FOR ALL PfR GRADES

• Zero mixed paper imports since 2018

• OCC imports declined by only 14% in 2018, less than other grades, which fell by 34% on average

• OCC imports dropped by about 39% in 2019, while ONP and high grades imports declined by 39% and 50%, respectively
China’s fiber balance: 2018

HOW TO MAKE UP THE RECYCLED FIBER GAP CAUSED BY THE SHARP DECLINE IN PFR IMPORTS

- Chinese PfR imports plunged by about 8.7 million tonnes in 2018
  - About a 7.5 million tonne recycled fiber gap
- Virgin pulp imports increased by about 700,000 tonnes
- Recycled pulp imports rose 300,000 tonnes
- Domestic collection grew 1 million tonnes
- Paper and board production fell
China’s fiber balance: 2019

HOW TO MAKE UP THE RECYCLED FIBER GAP CAUSED BY THE SHARP DECLINE IN ITS IMPORTS

• Chinese PfR imports fell by about 6.6 million tonnes in 2019
  • About a 5.6 million tonne recycled fiber gap
  • Virgin pulp imports increased more slowly
  • Recycled pulp import rose about 700,000 tonnes
  • Nonwood pulp supply and consumption was limited
  • Domestic collection improved another 1 million tonnes
  • Paper and board production continued to decline
Falling Chinese paper and board output
Million tonnes

RECYCLED FIBER SHORTAGE

• Falling production for paper and board grades relying heavily on PfR in 2018 and 2019
• Demand softness because of slowing economic growth: Increasing imports of finished paper and board products from mainly Other Asia and the USA
• Limited supply of domestic PfR
• Higher environmental standards
**IMPORTED RECYCLED PULP HAS EMERGED AS A VIABLE OPTION**

- Chinese recycled pulp imports surged in 2018 and 2019, with the US and Other Asia the major suppliers.
- About 6 million tonnes of recycled pulp capacity was announced in the US and Other Asia, but how much of this will start up as planned? Some of the announced projects are still up in the air.
- No well-established quality standard or specifications for imported recycled pulp: recycled pulp was recently asked to be reported as finished paper/board (5-6% duty) instead of raw materials (zero duty).
- Risks associated with recycled pulp investments: uncertainties surrounding regulations in China and countries/regions where recycled pulp projects are planned.

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**Chinese recycled pulp imports**

*Thousand tonnes*

2017 | 2018 | 2019
---|---|---
Other Asia | | (Red)
N.America | | (Blue)

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**Chinese domestic PfR collection**

**Million tonnes**

**SHARP DECLINE IN IMPORT SHARE**

- Improvements in domestic collection driven by growing demand and relatively high prices for domestic PfR
- Support of private sector and governments on resource recycling
- Economic transformation
  - Export driven to domestic consumption driven → increasing potential supply for PfR
- Limited room for an increase in domestic collection and recovery rate
  - Already high real paper recovery rate
China and Other Asia: PfR imports

Million tonnes

OTHER ASIA SURPASSING CHINA
**SURGE IN IMPORTS**

- Regional net imports surged from 7.2 million tonnes in 2016 to 14.2 million tonnes in 2018
- Most countries/regions in Other Asia registered a significant increase in imports in 2016-2018
- Growing PfR demand and increasing availability of low-cost PfR from the major exporting regions thanks to the decline in Chinese imports
- Regional import growth decelerated in 2019 due to slowing demand and restrictions on imports
- 2019 YTD = January-November
Other Asia: PfR import regulations and others

WILL OTHER ASIA FOLLOW CHINA?

- Taiwan started to limit imports of low-quality PfR in late 2018
- Indonesia announced stringent restrictions on PfR imports in the spring of 2019, including contaminant standards and inspection and pre-inspection measures
  - Temporarily settled at the end of 2019
  - Uncertainty remains
- Vietnam: Import quota system and tighter inspection measures
- India: Recently started to tighten mixed paper imports
- Overall Other Asia
  - Increasing quality and environmental concerns over PfR imports
  - Continuous increase in PfR imports driven by growing demand
Other Asia: PfR imports and domestic collection
Million tonnes

SHARP INCREASE IN IMPORTS

• Rapid increase in import share in total PfR consumption driven by demand

• Increasing availability of imported PfR at low cost because of the decline in Chinese imports

• Limited growth in domestic collection
  • Less-efficient recycling systems, world’s new manufacturing hub (net “exports” of packaging materials leads to less potential supply of PfR)
Other Asia’s growing containerboard output and exports
Million tonnes

INCREASE IN EXPORTS TO CHINA

• Growing domestic demand and exports to China
• Rising operating rates and new containerboard capacity
• Investments by Chinese paper companies in Other Asia
• Production growth slowed and exports declined in 2019

Output increase  Net exports


-1.0 -0.5 0.0 0.5 1.0 1.5 2.0 2.5

2017  2018  2019  2020  2021
US PfR exports by destination

Million tonnes

CONTINUOUS DECLINE IN SHIPMENTS TO CHINA AND SLOWING DEMAND FROM OTHER ASIA

• US PfR exports declined by 13% in 2019
• PfR exports to China dropped by another 30% in 2019 after plunging by 30% in 2018
• Other Asia has become the largest buyer of US PfR
• US exports to Other Asia surged by nearly 80% in 2018 but dropped by 1% in 2019
  • Slowing demand and tightening restrictions on imports
US domestic PfR consumption and exports
Million tonnes

DECLINE IN EXPORT SHARE

- Net exports accounted for about 40% of total US PfR collection before 2017, but the share fell to 38% in 2017-2018 and an estimated 36% in 2019

- Domestic consumption contracted by about 3% in 2019, and net exports declined about 11% during the same period

- Paper recycling business
  - Challenge of improving quality
  - Some PfR went to landfill because of lack of demand and low prices

- Expected decline in total PfR collection and paper recovery rate in 2019
European PfR exports
Million tonnes

CHANGING EXPORT DESTINATIONS

- Western European net exports fell by about 15% in 2018 and are expected to decline by about 20% in 2019

- W. European exports to China plummeted 49% year-over-year in the first ten months of 2019 after falling by about 38% in 2018

- Shipments to Other Asia surged 71% in 2018 but the growth slowed to only 15% Year-over-year in January-October 2019

- Exports to Turkey rose sharply by 96% year-over-year in January-October 2019

- 2019 YTD: January-October 2019
Western Europe: PfR exports and domestic consumption

Million tonnes

FALLING EXPORT SHARE IN TOTAL COLLECTION

- Falling export share in total PfR collection caused by the decline in exports: 15% in 2015 to estimated 10% in 2019
- Relatively stable domestic demand driven by growing containerboard output
  - New recycled containerboard capacity

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<th>Year</th>
<th>Domestic demand</th>
<th>Net exports</th>
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CONTINUOUS DECLINE IN SHIPMENTS TO CHINA AND STABLE DEMAND FROM OTHER ASIA

• PfR exports to China dropped by about 24% in 2019 after plunging by 30% in 2018
• Australian exports to Other Asia stabilized in 2018 and increased in 2019
  • Steady demand and tightening restrictions on imports
  • Other Asia has become the largest buyer of Australian PfR
• When will Australia start limiting PfR exports? All PfR exports to be banned by mid-2022?
• New recycled containerboard capacity to be started up in 2021 to utilize more PfR domestically
Outlook on global PfR markets

GREAT UNCERTAINTY OVER ASIA

• China: Import ban on all PfR? Regulations on recycled pulp imports?
• Other Asia: Tightening controls on PfR imports? Will there be any restriction on recycled pulp production and exports?
• Demand side
  o More PfR to be utilized domestically in the major PfR exporting regions: Paper and board and recycled pulp production
  o Chinese demand: Decline in PfR consumption and further increase in recycled pulp demand
  o Growing Other Asian demand to produce both paper and board and recycled pulp
• Supply side
  o Major PfR exporting regions: Reduction in recovery and recovery rate in the near term, challenges of improving quality, possible policies to limit PfR exports (Australia)
  o Limited growth in Chinese PfR collection
• International trade will remain an important part of the global PfR markets, with continuous change in trade patterns
Thank you!

For more information:

Global Import of China’s Recovered Paper Import Regulations
www.risi.com/china.rcp

OCC/UKP Market Analysis and Outlook
www.risi.com/OCC-UKP

The China Recovered Paper Market: A Comprehensive Analysis and Outlook
www.risi.com/ChinaRCP

World Pulp and Recovered Paper Forecast
www.risi.com/forecasts

World Recovered Paper Monitor
www.risi.com/WRPM