

Agenda

- Global overview
- Containerboard and boxboard:
 Regional demand and supply outlook
- Recovered paper outlook
- Risks



Key factors driving global developments



Economic headwinds and rising uncertainty

The global economies entered 2019 in a less optimistic position and the first half saw slowing. Will conditions improve? Trade war developments?

New RCP policies

China's changing RCP policies are having a dramatic effect on the global packaging and RCP markets, especially on trade flows and investment decisions.

E-commerce

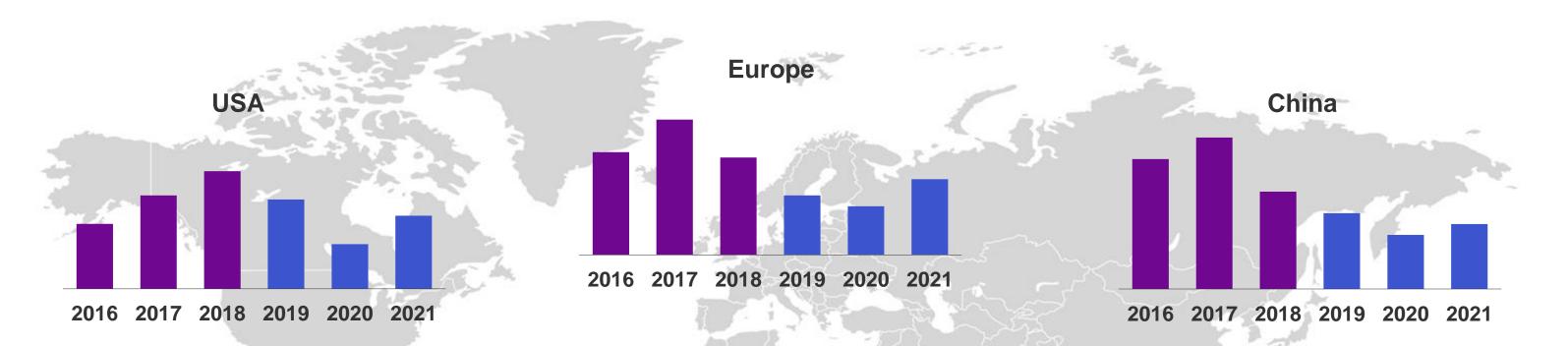
E-commerce has been an important factor propelling demand in recent years, but its influence may be moderating, especially in the larger markets.

Environmental concerns: Paper vs. plastics

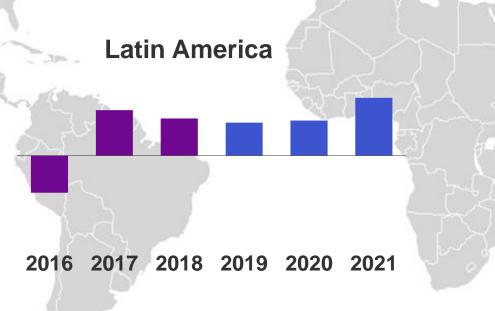
We are starting to see an endorsement in some regions for a reduction in overpackaging and some push away from plastics because of their longevity and impact on the environment.

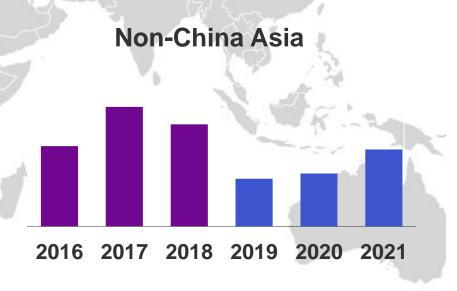
Global economy bottoms in 2020, risks heightened











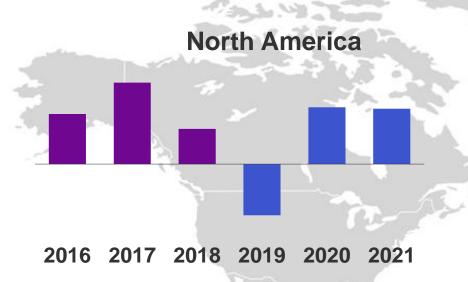


Annual real GDP growth

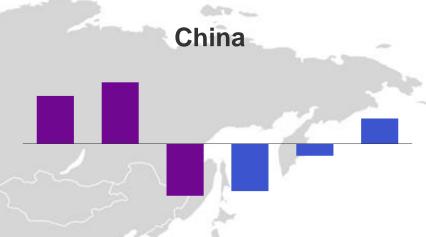
Global packaging demand is growing unevenly and economic risks are heightened



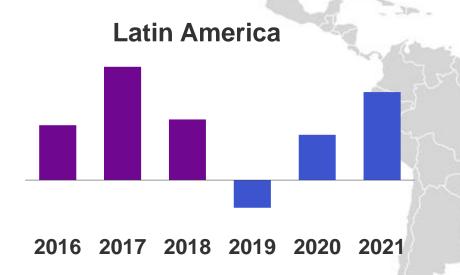
Annual apparent consumption growth

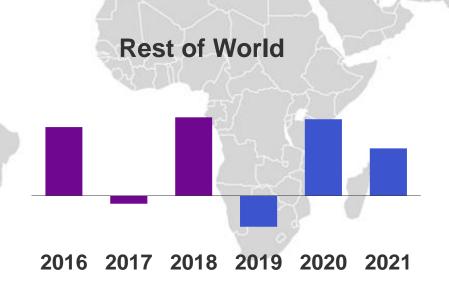


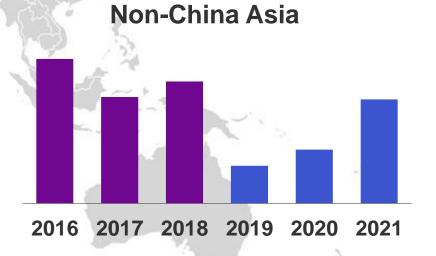














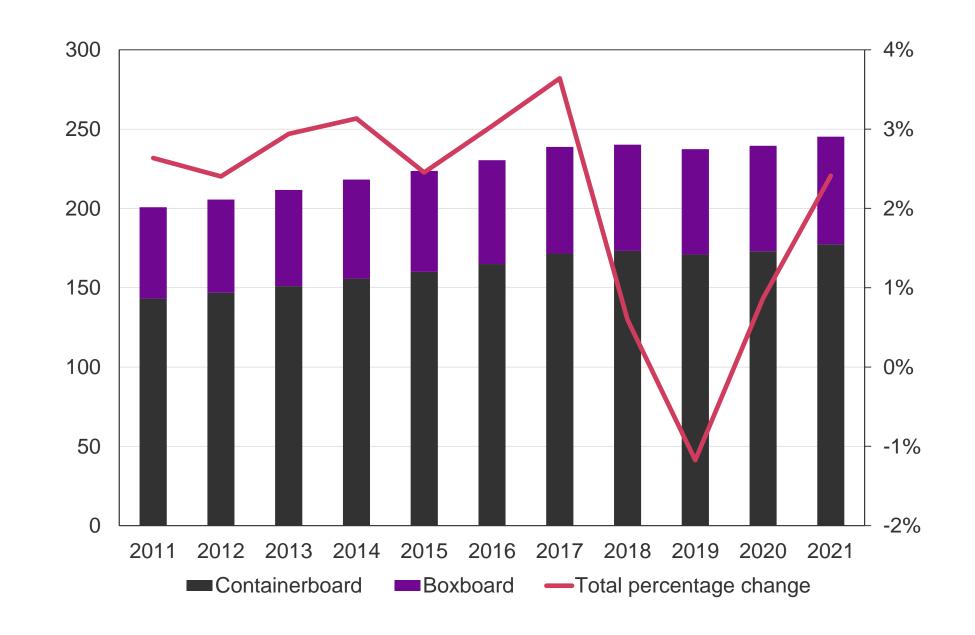


2018 DRIVEN BY ASIA AND ESPECIALLY CHINA

- Chinese demand fell 4%
- Rest of Asia was healthy
- Growth in other major regions slowed

GROWTH IN 2019 HAS TURNED NEGATIVE, LED BY DECLINES IN ASIA AND NORTH AMERICA

- China still soft and so is rest of Asia
- North America working through manufacturing inventory cycle and decelerating economic growth



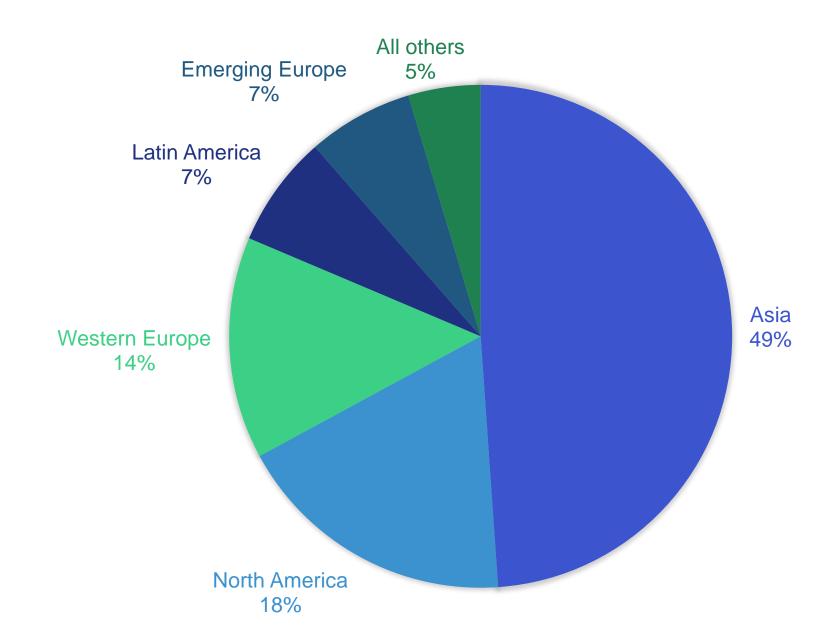
Global packaging paper demand dominated by Asia



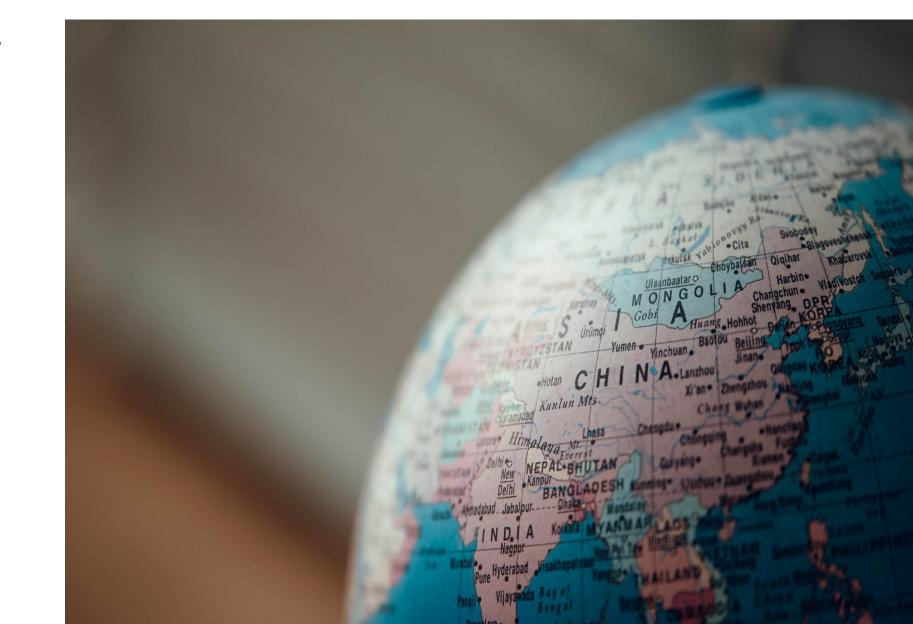
GLOBAL DEMAND REACHED 240 MILLION TONNES IN 2018 WITH ASIA ACCOUNTING FOR 117 MILLION TONNES

Containerboard: 173 million tonnes

Boxboard: 67 million tonnes



Asian packaging paper outlook



Snapshot of 2019 Asian packaging demand and supply



Chinese demand falling an estimated 3% following 4% drop in 2018

- Deceleration in economic growth
- Shift of low-wage manufacturing offshore
- E-commerce working to reduce its packaging footprint
- Significant uncertainty in the level of decline

Rest of Asia slowing to 1% growth compared to fairly steady average annual rate of 3.8% in 2016-2018

Slowing economic growth due to US-China trade war; India affected by slower consumer spending

Chinese output declines, while net imports rise

- Chinese containerboard production fell 5% or 2.5 million tonnes in 2018 and is slated to drop 3-4% or 1.7 million tonnes in 2019; boxboard worse with 6.8% drop in 2018 and 3.2% in 2019
- Chinese containerboard net imports jumped 1.1 million tonnes in 2018, but just 200,000 tonnes in 2019
- Rest of Asia supplied much of the growth in 2018, with net imports climbing 800,000 tonnes, but will
 not be as strong in 2019



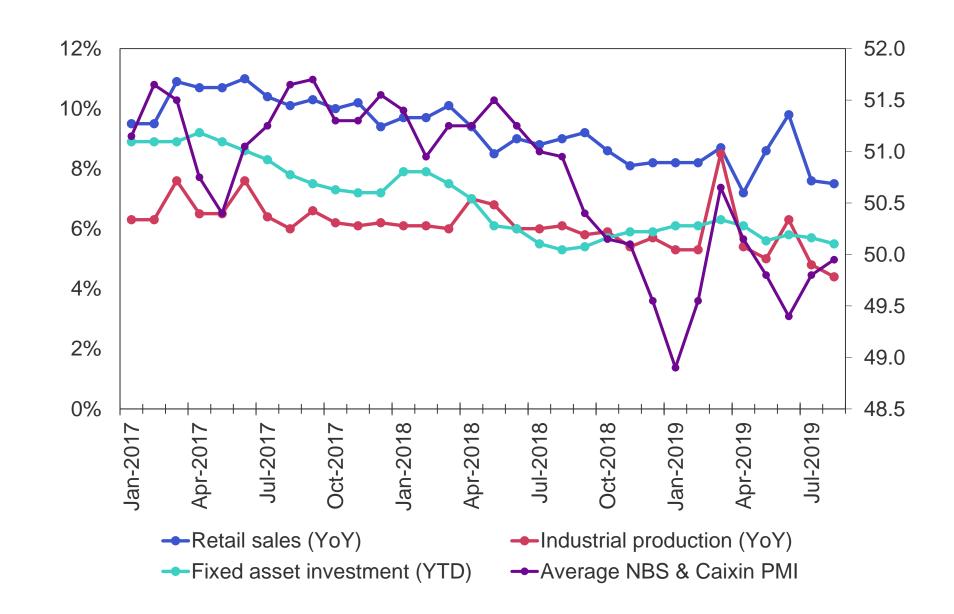
China's economy continued to decelerate in first half of 2019



ECONOMIC GROWTH BEING AFFECTED BY:

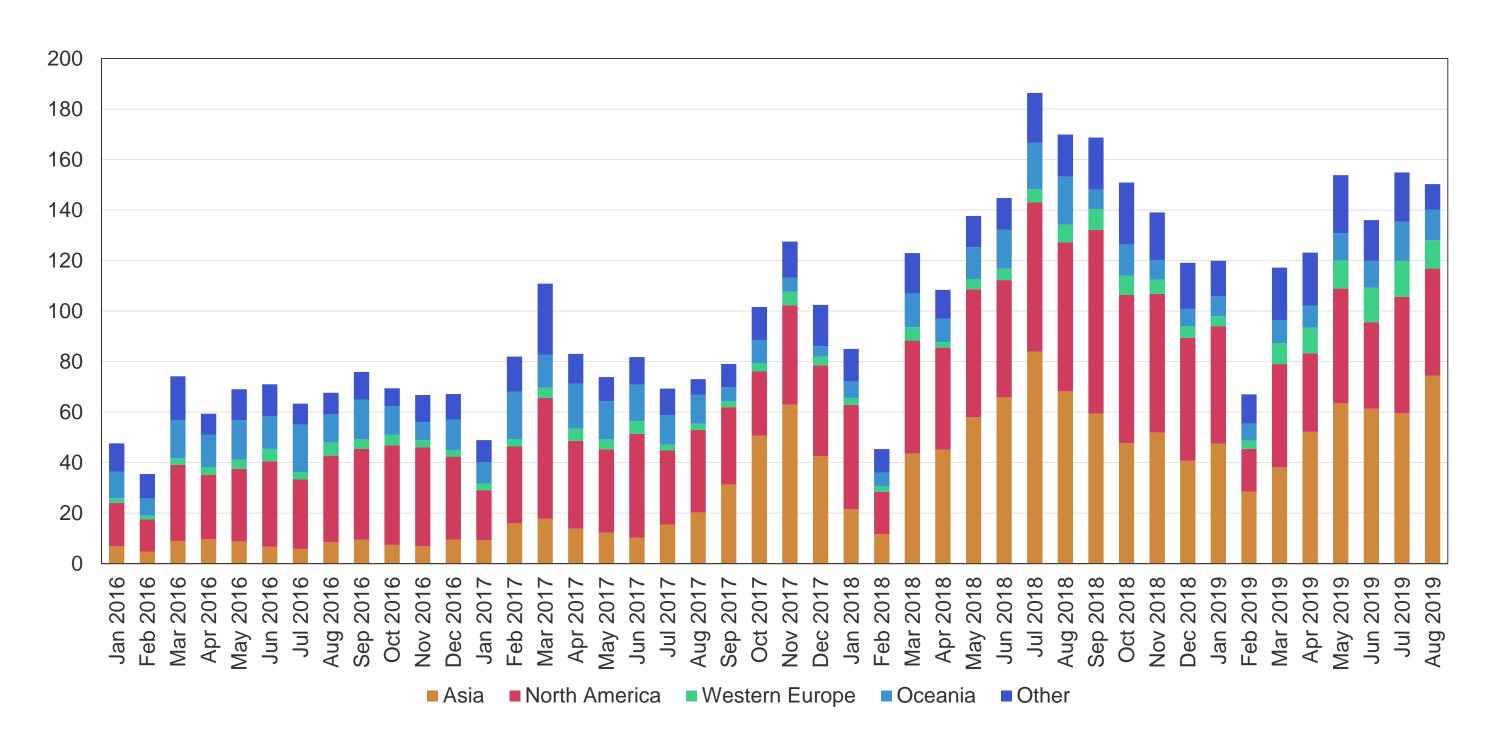
- Government efforts to address high debt levels
- Trade war with USA
- Less wage growth and reduced consumer confidence

GOVERNMENT TAKING MODEST ACTION BUT NO MAJOR STIMULUS EXPECTED



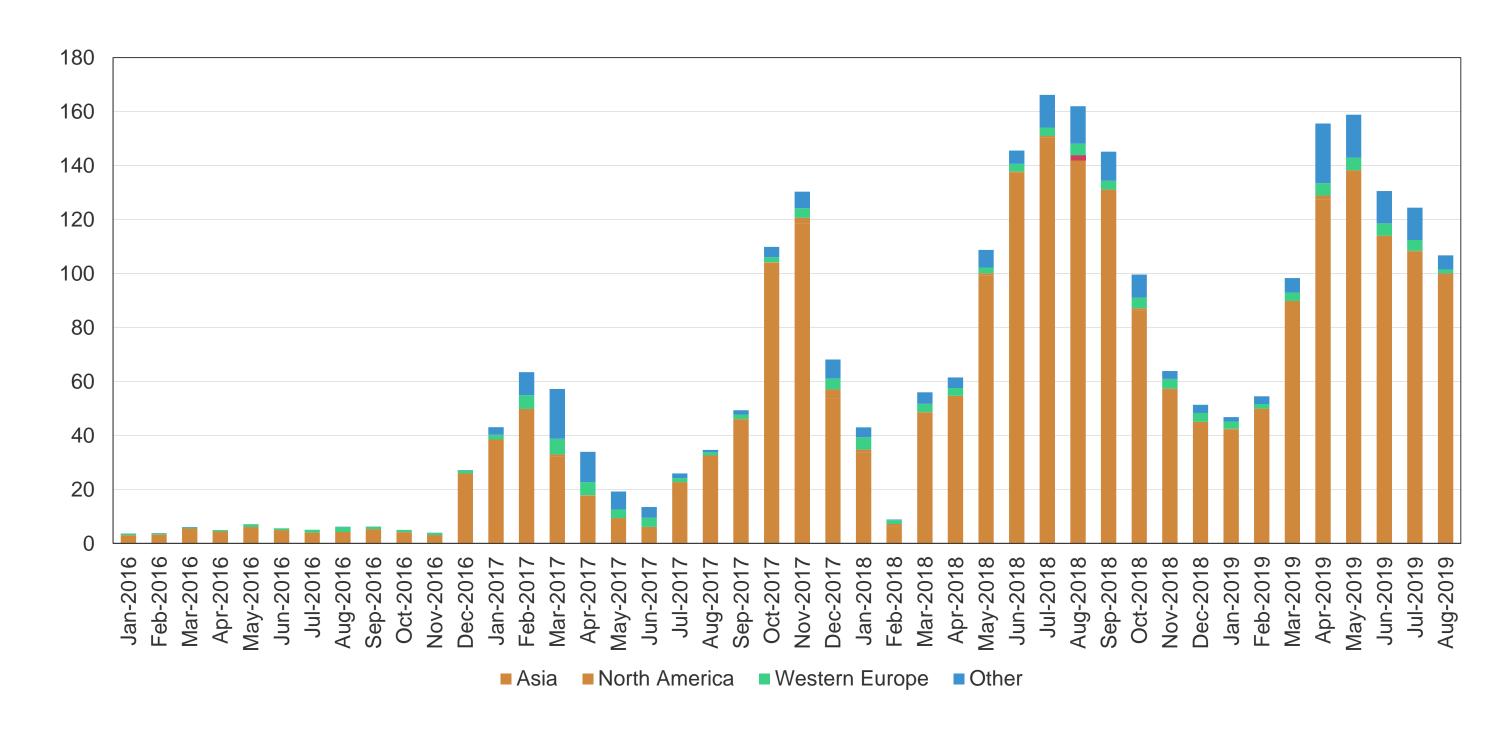
Chinese linerboard imports leveling off in 2019





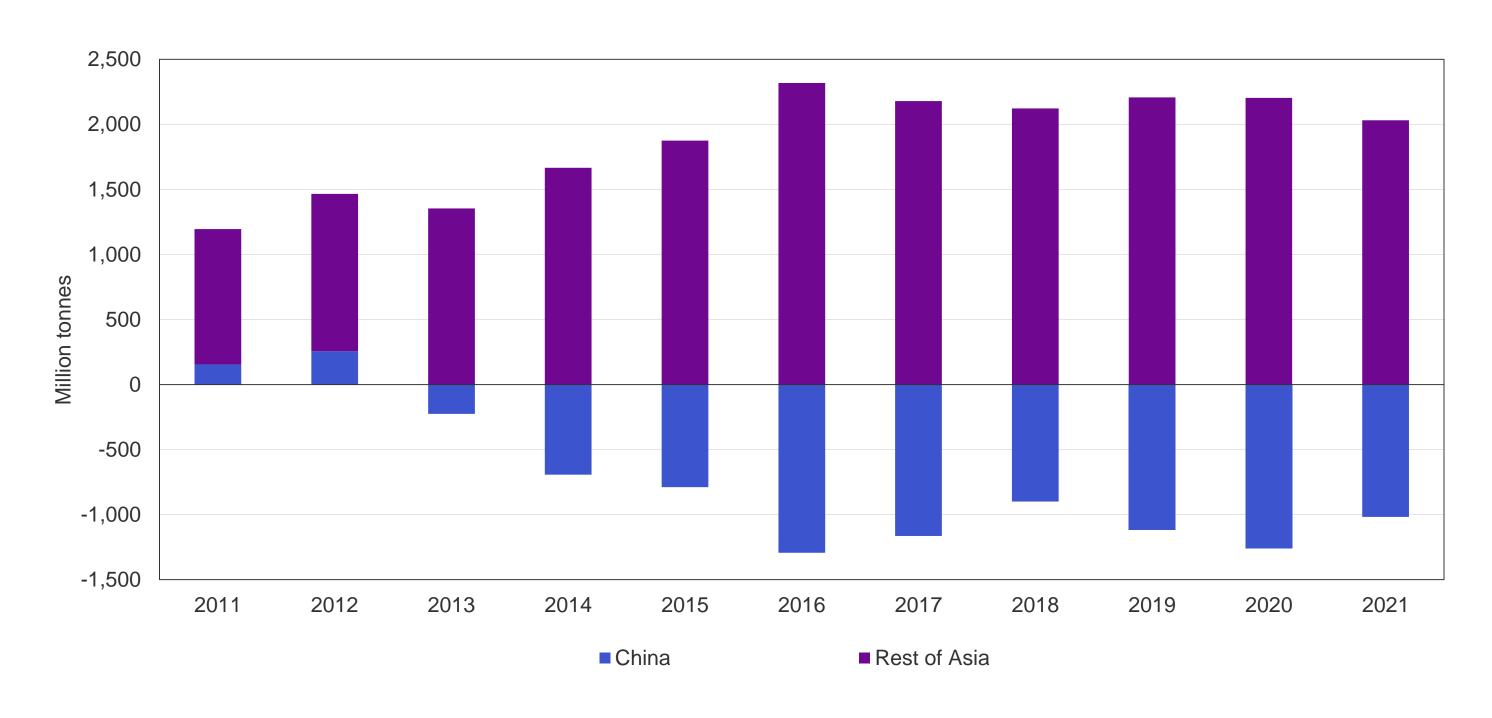
Chinese corrugating medium imports up modestly





China is a significant supplier of boxboard to other parts of Asia









DEMAND WILL DROP AGAIN IN 2020 AND THEN MOVE UP IN 2021

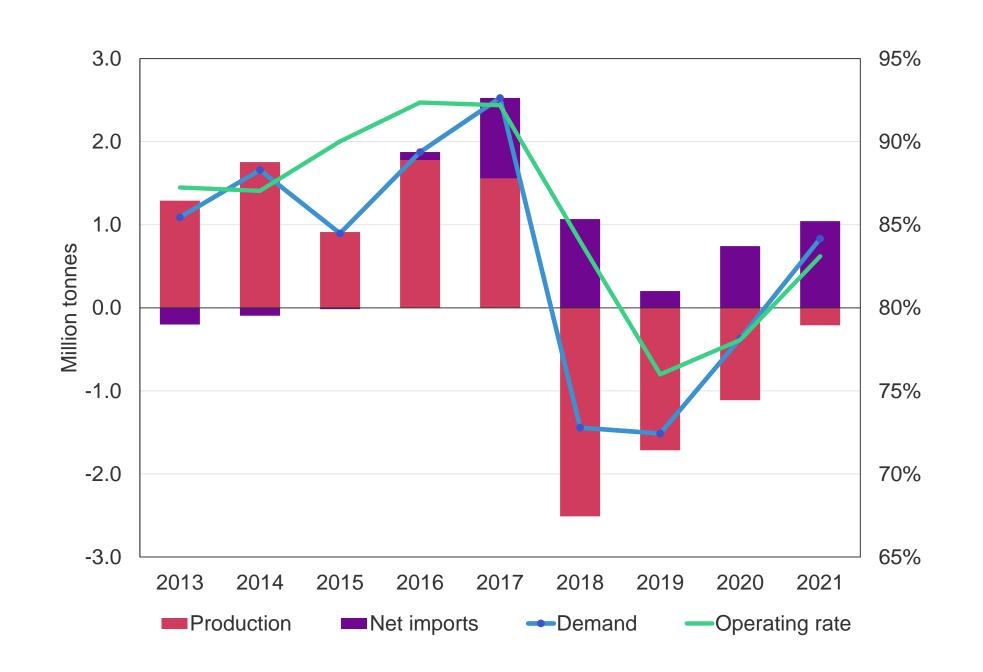
Weak economy

PRODUCTION WILL FALL AND NET IMPORTS WILL CLIMB

- Output constrained by fiber
- Market attractive to other Asian suppliers

OPERATING RATES ARE DOWN

Level dependent on capacity assumptions







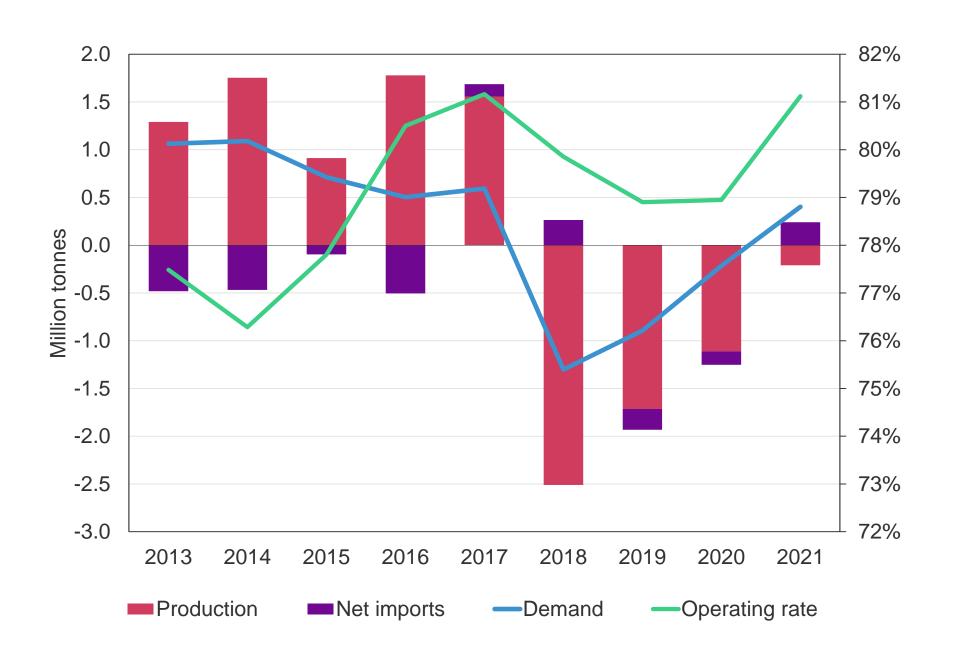
HURT BY POOR DEMAND CONDITIONS

- Weakening economy
- Conditions for recycled grades worse than for virgin-fiber grades

PRODUCTION PERFORMANCE ALSO VARIES BY GRADE

- Recycled output constrained by fiber and capacity closures
- Ivoryboard capacity rising in already oversupplied markets driving some growth in ivoryboard exports









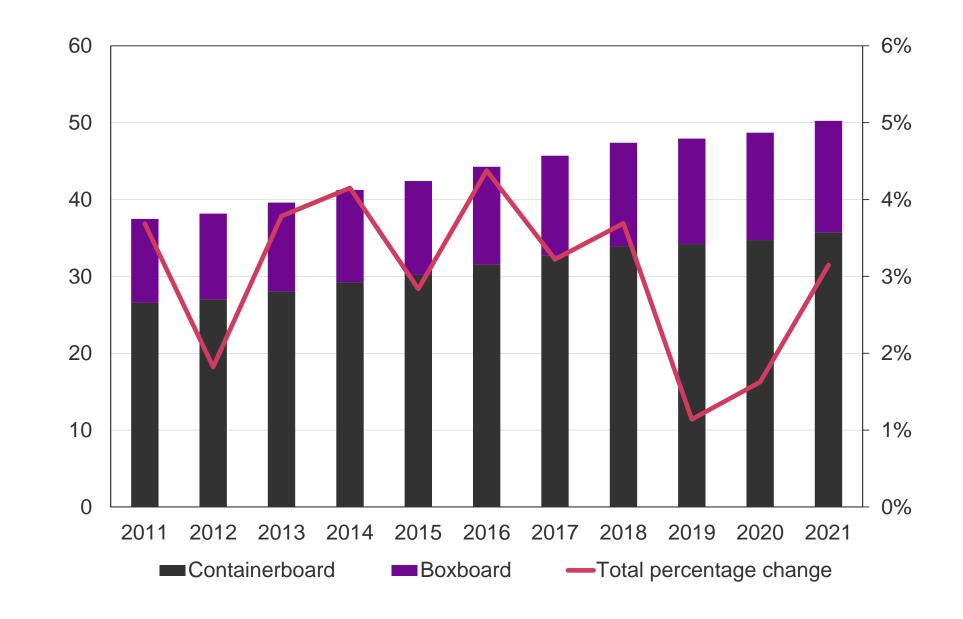
GROWTH IN 2019-2020

 Growth will be negatively affected by weaker regional growth, with export-oriented economies hurt by slower global performance

BOXBOARD AND CONTAINERBOARD WILL BOTH SEE AVERAGE GROWTH OF 2% PER YEAR IN 2019-2021

Led by India and Southeast Asia









Constrained fiber supplies driving up imports and reducing production

RCP imports fell from 25.7 million tonnes in 2017 to 17.0 million tonnes in 2018.

Large companies are making investments in light of the new policies

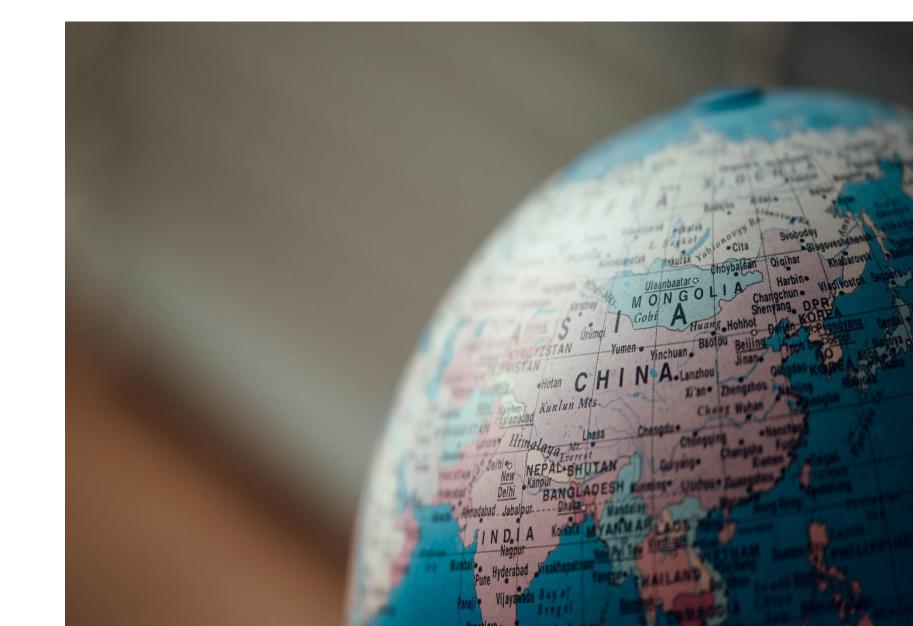
- Numerous packaging paper projects in the works in Vietnam, Malaysia, Laos and India
- Announced RCP pulp projects in India, Laos, Malaysia, Myanmar and the USA

Previously planned projects apparently being delayed

Due to economic weakness and effects of lingering US-China trade war



Asian recovered paper outlook

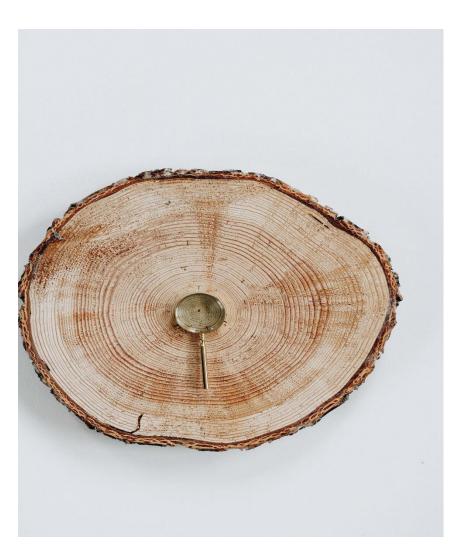


Chinese RCP import regulations



2017-2019 YTD

- Mixed paper ban
 - Announced in July 2017, took effect at the end of 2017
- New 0.5% contaminant standard
 - Took effect at the beginning of 2018
- Trade dispute between China and the USA
 - Duty on US RCP (25-30%) and US recycled pulp (20%)
- China imported 17 million tonnes of RCP in 2018, down from 28.5 million tonnes in 2016 and 25.7 million tonnes in 2017.
- 10.3 million tonnes of import licenses had been issued for 2019 by the end of September, compared to 15.5 million tonnes in 2018
- The ban on all RCP: Will it happen and when? The end of 2020?



Other Asia: RCP import regulations and others



WILL OTHER ASIA FOLLOW CHINA?

- Taiwan
 - Started to limit imports of low-quality RCP in late 2018
- Indonesia
 - · Announced stringent restrictions on RCP imports this spring
 - Contaminant standard and inspection and pre-inspection measures
 - Still waiting for the final regulations
 - Possible reduction of the impurity content over several years to a targeted 0.5%
- Vietnam
 - Import quota system and tighter inspection measures
- Overall Other Asia
 - Increasing quality and environmental concerns about RCP imports
 - · Concerns over the impact of rising imports on domestic RCP collection
 - But still steady increase in RCP imports driven by growing demand?

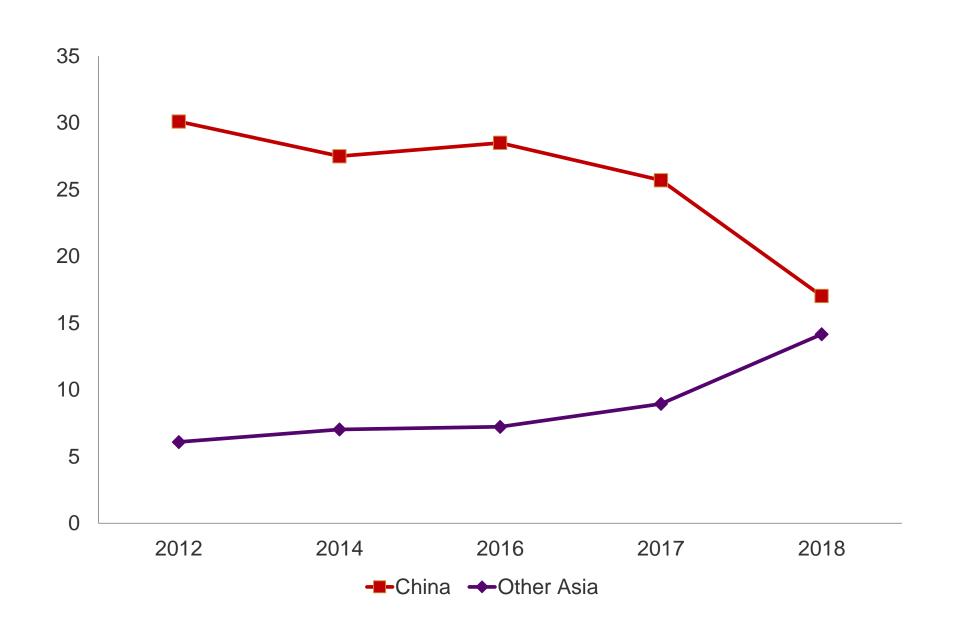


Changing RCP trade flows Million tonnes



OTHER ASIA CATCHING UP WITH AND SURPASSING CHINA IN RCP IMPORTS



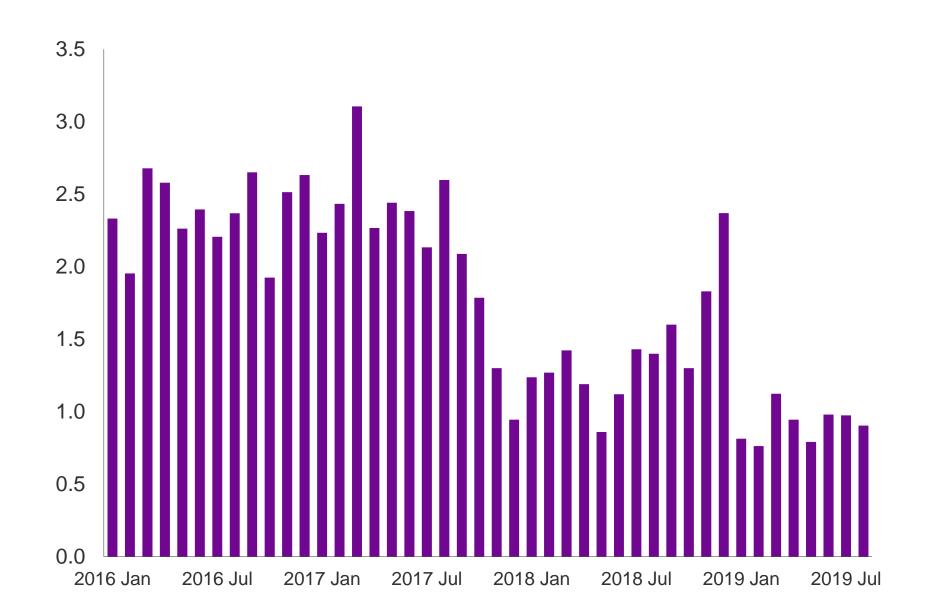


Chinese RCP imports Million tonnes



SHARP DROP IN 2018 AND 2019

 Chinese imports continued to fall, by 26% year-over-year in the first eight months of 2019 after plunging by 34% in 2018

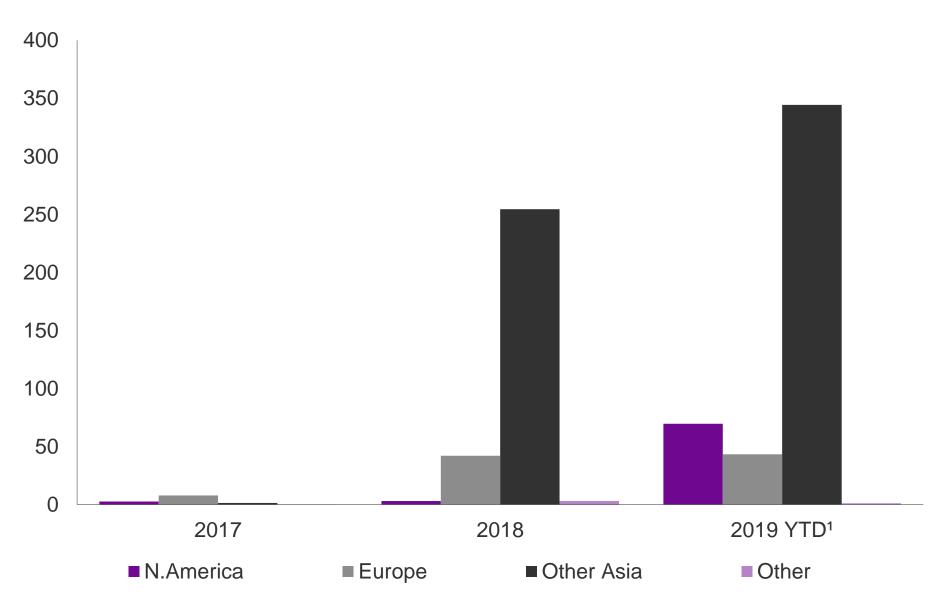


Chinese recycled pulp imports Million tonnes



IMPORTS OF RECYCLED PULP HAVE EMERGED AS A VIABLE OPTION

- Chinese recycled pulp imports surged in 2018 and so far 2019
- About 5 million tonnes of recycled pulp capacity was announced in the USA and Other Asia, but how much of this will start up as planned? Many of the announced projects are still up in the air
- No well-established quality standard or specifications for imported recycled pulp
- Risks associated with recycled pulp investments

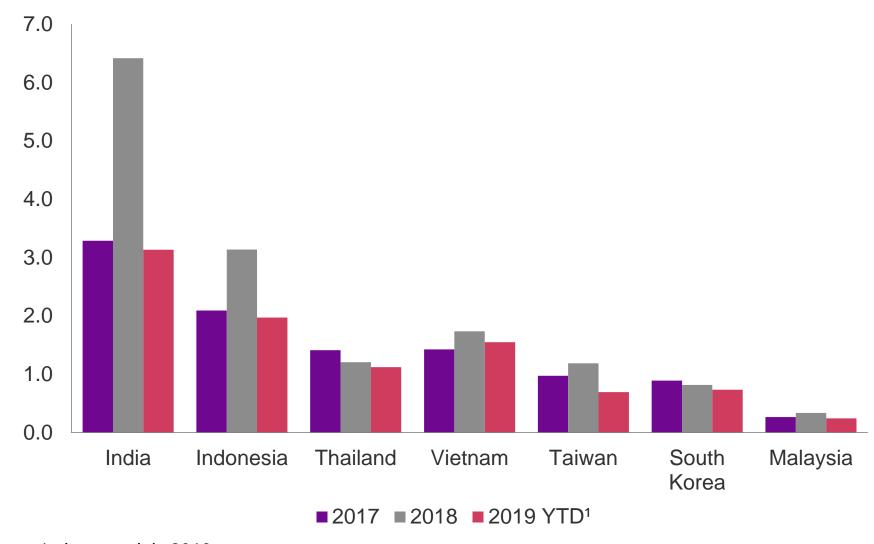


1. January-August 2019.

Other Asian RCP net imports Million tonnes

SURGE IN IMPORTS

- The region's 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
- There is growing RCP demand and increasing availability of low-cost RCP from the major exporting regions thanks to the decline in Chinese imports
- Other Asian import growth decelerated in the first seven months of 2019 due to slowing demand and import restrictions



1. January-July 2019.

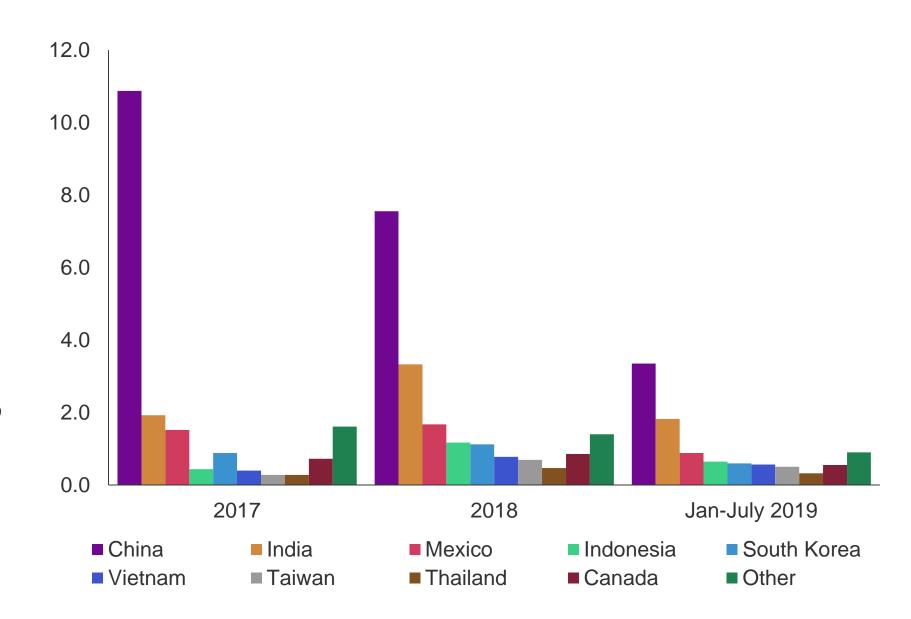
US RCP exports

Million tonnes



CHANGING EXPORT DESTINATIONS

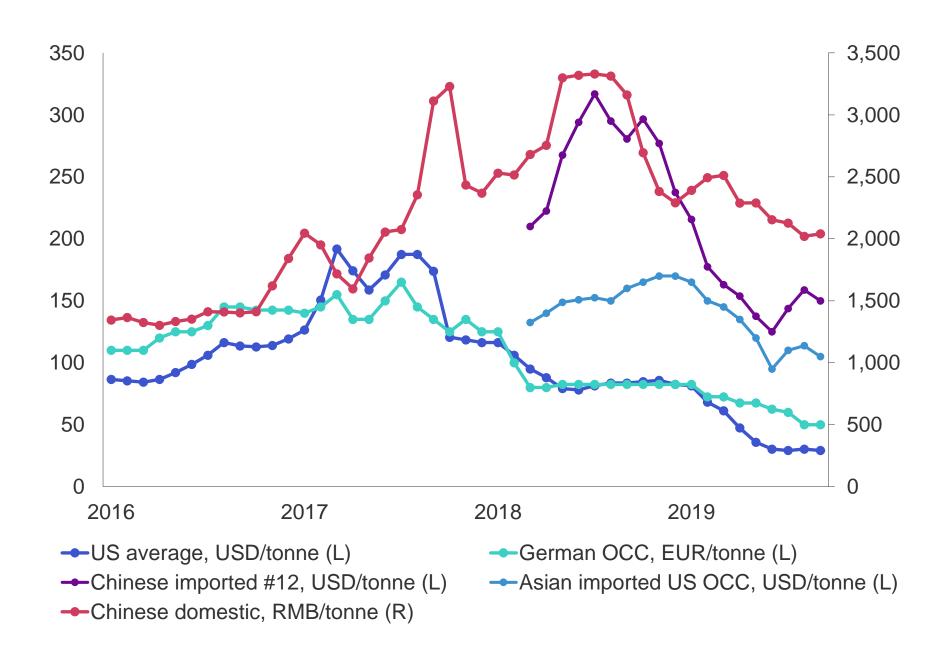
- Exports to China dropped 31% in 2018
 - The Chinese share of US exports declined from 60% in 2017 to 40% in 2018
- Shipments to Other Asia soared 80% in 2018
 - The share of Other Asia in US exports jumped from 23% in 2017 to 40% in 2018
- January-July 2019: US exports dropped by 4% year-over-year
 - Exports to China fell by 21%, while shipments to Other Asia increased by about 7%
 - The share of Other Asia in US exports rose to 46% in 2019 (ytd) and China's share fell to 33%



OCC prices in different regions



- Sharp drop in US and European OCC prices since 2018
- Low OCC import prices in Southeast Asia
- Domestically collected OCC became quite expensive in China due to the overall recycled fiber shortage issue in 2018
- Recent decline in OCC prices globally because of weak paper packaging markets and the reduction in Asian RCP purchases

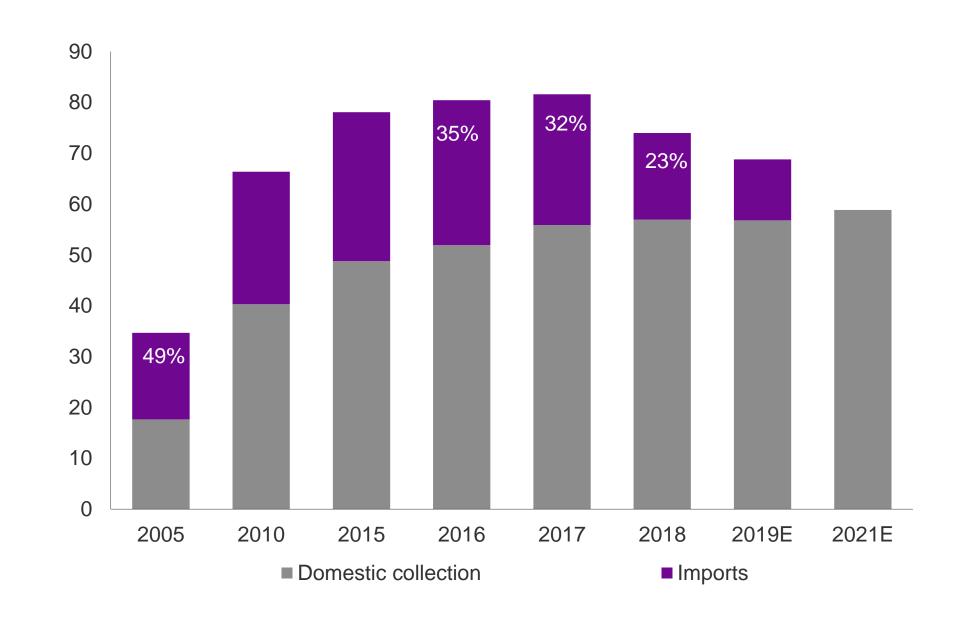


China: RCP imports and domestic collection



SHARP DECLINE IN IMPORT SHARE

- Improvements in domestic collection driven by growing demand and high prices for domestic RCP
- Further growth in a domestic-consumptiondriven economy: More paper packaging materials will stay and be collected within China
- Supports from the private sector and governments on paper recycling
- Overall, there is still some room for more domestic RCP collection but limited room for a higher recovery rate
- Recycled pulp imports will be another way for China to obtain recycled fiber

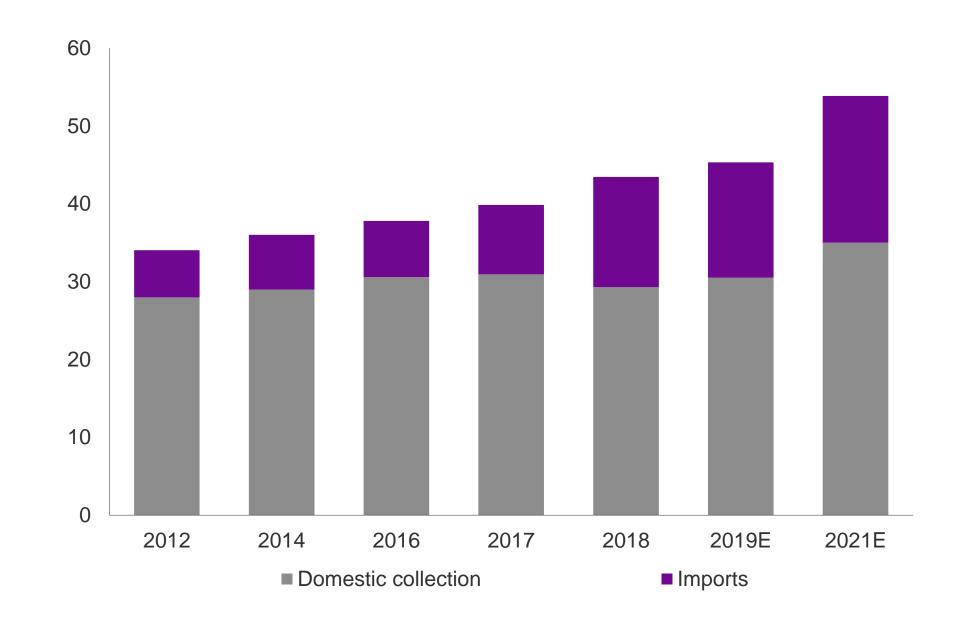


Other Asia: RCP demand and net imports Million tonnes



IMPORT INCREASE

- Net import accounts for about one-third of the region's total RCP demand
- Other Asian net imports increased by about 60% in 2018, but the increase in imports slowed in the first three quarters of 2019
- Future demand from both paper and board production and recycled pulp operation
- Will we see further restrictions on RCP imports?



Impact of Chinese regulations on global markets



- Change of global RCP trade pattern
 - Sharp decline in Chinese imports and surge of imports from Other Asia
 - Decline of exports for most RCP exporting countries/regions
- RCP cost and availability
 - China: Relatively high RCP costs and recycled fiber shortage
 - Outside of China: Increasing RCP availability and low RCP costs
- Impacts on overall pulp and paper industry
 - China: Declining finished paper and board (PAB) output and rising PAB imports
 - Outside of China: Opportunities for new recycled pulp and PAB projects?

Conclusions and what to watch



- GLOBAL PACKAGING DEMAND GROWTH WILL REMAIN SUBDUED IN 2020 BEFORE ACCELERATING IN 2021
- ONGOING CHANGES TO RCP POLICIES
- Will other Asian countries also implement stricter import policies?
- Will more severe fiber shortages surface in China in 2020?
- GLOBAL ECONOMIC PERFORMANCE
- Will the Chinese government successfully maintain growth?
- US-China trade war resolution?
- TIMING/CHANGES TO ANNOUNCED CAPACITY INVESTMENTS



Thank you





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