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ALLIANZ RESEARCH

WRAPPING UP?

HOW PAPER AND BOARD ARE BACK ON TRACK

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EULER HERMES

Allianz

EXECUTIVE SUMMARY

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- **Global paper output is expected at 416mn tons in 2022, still 4mn tons short of its 2018 level.** The global paper sector withstood the slump of 2020 a little better mainly due to the increase in demand from e-commerce but has since then recovered slower than the global growth rate. The good news is that the trend should normalize on the upside next year. However, while Asia will have more than caught up on its output lag, with a change of +7mn tons of additional production of paper and board in 2022 compared to 2020, Europe is poised to lag behind as its paper and board output should gain only around 40% of volumes lost during the pandemic.

- **Paperboard is the big winner.** Paperboard should account for two-thirds of global paper output by end-2022 (from 50% before the Covid-19 pandemic), thanks to the booming e-commerce sales. In this context, we find that China's paperboard exports have gained market share over competitors from either Canada or Finland. In addition, the recent surge of oil prices should favor paperboard over plastics, eventually giving an edge to paperboard, which has been plateauing at 41% of global packaging sales for a decade, even as the share of plastics has surged by +5pp to 37% in the same period.

- **Will rising input costs spoil the party?** Though paperboard sales are expected to rise by +5% in 2021 compared to 2020, they cannot keep up with the 1.5 fold hike in (European) pulp price YTD. The downstream sector is the hardest hit: We estimate a USD7bn cutback on operating margin for downstream papermakers in 2021 (or -3pp) as they are unable to pass through the surge in input costs, though pulp and wood prices should moderate in 2022. On the bright side, the recent surge in energy prices should not hit the paper sector too heavily: Papermakers have clearly improved their energy-consumption footprint by considerably increasing their reliance on renewable biomass for 20 years (from 40% to 55%) over power and fossil fuels. Looking ahead, a large debt capacity will allow the sector to keep investing in environmental friendly plants: significant investments in water recycling systems – each of them estimated at a cost ranging from USD9mn to USD12mn - are still needed.

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416mn tons

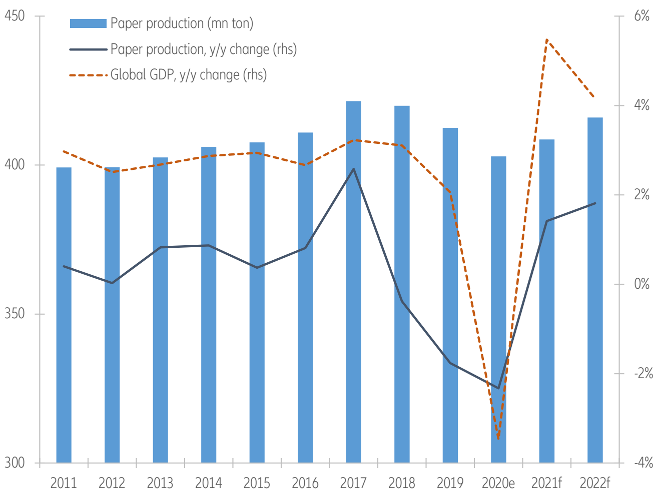
Our forecast for global paper output in 2022.

PAPERBOARD: THE BIG WINNER OF THE PANDEMIC

Global paper output should continue to recover in 2022 to 416mn tons, but remain more than 4mn tons short of its 2017 peak. The production of paper and board is an industrial sector that usually lags behind global GDP growth (figure 1). It withstood the slump of 2020 a little better mainly due to the increase in demand from e-commerce but has since then recovered less quick than the global growth rate. The good news is that the trend should normalize on the upside next year.

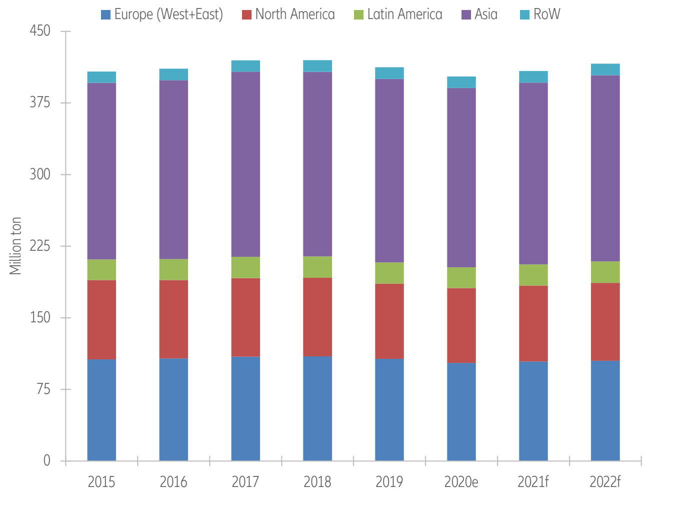
Asia should be the winner in 2022: it will have more than caught up on its output lag, with a change of +7mn tons of additional production of paper and board since 2020, ahead of North America. Europe is poised to lag behind as its paper and board output should gain only around 40% of volumes lost during the pandemic. The production of paper and board worldwide has been more or less evolving around 415mn of tons since 2015 (Figure 2). The drop in global paper output by -1.8% in 2019 and by -2.3% in 2020 was the result of production outages and lockdowns, first across China and then worldwide, in response to the Covid-19 outbreak. We expect global paper and board output to recover in 2021 by +1.4% vs. 2020 at 408.6mn tons, still below the 2018 level of 420mn tons. Between 2018 and 2020, Europe suffered the most in terms of lost volumes, followed by Asia and North America: -7mn tons, -5mn tons and -3mn tons, respectively. Our output estimations for 2022 compared to 2020 show that the Asia region should be the winner of the game: it will have more than caught up on its output lag, with a change of +7mn tons in 2022 compared to 2020, ahead of North America, which will recover its pre-crisis output with +3mn tons. Europe is poised to lag behind as its paper and board output should gain only around 40% of volumes lost during the pandemic.

Figure 1: Global GDP and paper output (volumes, y/y change)



Sources: Copacel, Cyclope, Euler Hermes, Allianz Research estimations

Figure 2: Global paper and board output by region (mn tons)



Sources: Copacel, Cepi, Bloomberg, Euler Hermes, Allianz Research estimations

The Covid-19 crisis has accelerated the diverging trend between sub-sectors, with paperboard racing ahead of printing and writing papers: We expect paperboard to account for two-thirds of global paper output by end-2022 (from 50% before the Covid-19 pandemic). While tissue papers (other papers incl.) maintained a stable market share of 16% in terms of output between 2015 and 2019, all kinds of paperboard (i.e. corrugated board and cardboard) saw their market share rising from 53% in 2015 to 57% in 2019 amid increased demand for packaging to meet surging online orders. On the other hand, all kinds of printing and writing papers (newspapers incl.) have seen their worldwide output market share declining from 31% in 2015 to 26% in 2019.

The widespread shift towards remote work and online classes amid the Covid -19 crisis ramped up the undergoing trend of declining printing and writing papers output. In the five years (2015 to 2019) before the Covid-19 crisis, paperboard output as a whole took 4pp of additional market share. In the two years of the pandemic (2020 and 2021), the same segment has now claimed 5pp of further market share. We expect the trend to continue in 2022 , with an additional 1pp to 63% of market share, compared with the 17% for tissue and hygiene papers and 20% for printing and writing papers.

With the recent surge of oil prices, paperboard stands to gain the upper hand over plastics after a decade of plateauing sales. Global packaging demand (Figure 4) grew from USD810bn in 2015 to USD930bn in 2020 while global packaging made out of paperboard and plastics grew from USD333bn (USD278bn) in 2015 to USD385bn (USD340bn), respectively. By breaking this down by type of packaging (paperboard, plastics, metal, glass or other types of raw material), we see that paperboard has been plateauing at 41% of global packaging sales for 10 years while the share of plastics has surged by +5pp to 37% in the same period.

What explains this rise?

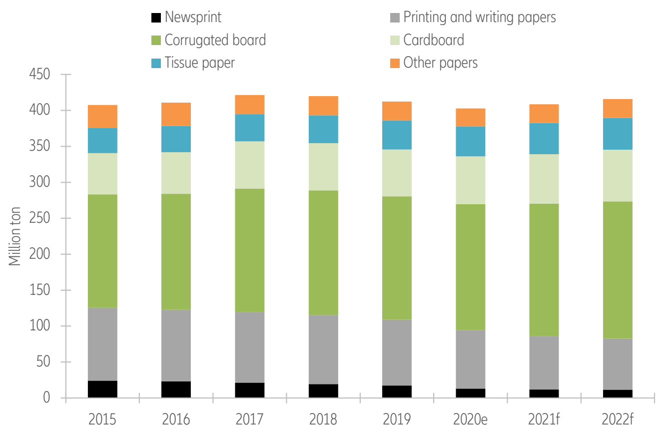
(i) Cheap US shale gas prices: Shale gas is used for producing ethylene, the main raw material for plastics.

(ii) Agrifood manufacturers' preference for plastics packaging instead of paperboard for their food products to protect against moisture, dirt and grease.

However, if gas prices stay high[1], paper packaging could gain the upper hand in the short run.

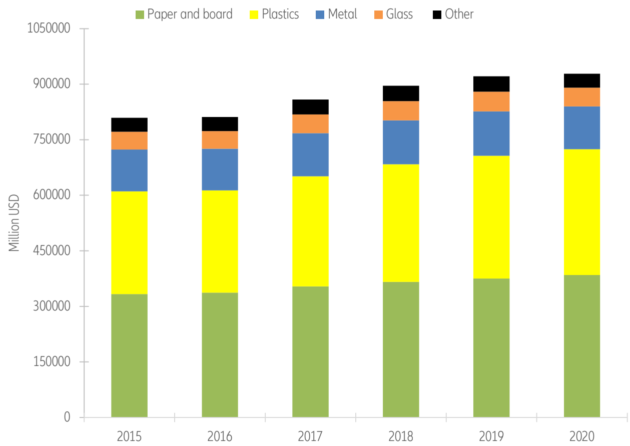
China's paperboard exports have gained market share over competitors from Canada or Finland. The stability of the paperboard market share amid the growing packaging market results more from the wrapping of durable goods (household equipment, industrials and leisure goods) than that of food and beverage products, for which plastics are preferred for practical reasons. As durable goods are manufactured massively in China, it is interesting to look into how China's paperboard exports evolved before and after the pandemic. It appears that China's paperboard exports have gained market share over competitors from either Canada or Finland. Exports of Chinese paperboard makers to the US confirm this uptrend. Compared to 2019, Chinese global paperboard exports have grown by USD1.4bn (and to USD330mn specifically to the US) between April 2020 and April 2021.

Figure 3: Global paper and board production by type (mn tons)



Sources: Copacel, Cepi, Euler Hermes, Allianz Research estimations

Figure 4: Global packaging consumption, by type of material (mn USD)



Sources: Smithers Pira, Bloomberg, Euler Hermes, Allianz Research

[1] See our report [Energy prices in Europe: (A costly) winter ahead]

WILL RISING INPUT COSTS SPOIL THE PARTY?

Despite paperboard sales growing by +5% in 2021 vs. 2020, the sector cannot keep up with the rise of the (European) pulp price, which has seen a 1.5 fold hike YTD. We see the surge in pulp prices since the beginning of the year as the biggest risk for the overall paper industry (Figure 5). As of the end of September, the European pulp price went up by +53%, while the Asian pulp price rose by +47% y/y. Unlike the upstream players that are able to pass on rising wood prices to their selling prices, the downstream paper sector has been hit hard by the surge in pulp prices. The good news is that the paper sector has not suffered from any labor shortages since Q4 2019. Though other shortages (i.e. equipment and space shortages) persist, the paper sector is ranked 11th out of the 24 industrial sectors in our panel hit the hardest by equipment shortages.

Upstream and downstream papermakers are very different in terms of profitability (Figure 6). The good news is that papermakers as a whole have seen their operating margin rate increase on average since the beginning of last decade. Moreover, downstream paper manufacturers are usually somewhat more profitable than their upstream counterparts because of their more added-value processing activity. However, they have struggled to manage their margin levels when pulp prices suddenly rise, as last seen in 2018. The printing and writing paper segment along with that of newsprint are the most exposed because they can hardly pass on any pulp cost rises down to customers in a context of declining demand. Sanitary papers also face big hurdles to pass on input-cost rises downstream because they face customers with very strong bargaining power, especially mass retailers.

As a result, in 2021, we expect a USD7bn hit to operating margins for downstream papermakers, notably those focused on printing, writing and newsprint papers (or -3pp). However, 2022 should be brighter as pulp and wood prices are likely to moderate.

In contrast, upstream paper companies should see a significant rise in their operating margin rate in 2021 and enjoy a gearing ratio – i.e. a measure of financial leverage that shows how strong a company's operations are

Figure 5: NBSK pulp price by region (USD/ton)

Sources: Norexco, SHFE, Refinitiv, Euler Hermes, Allianz Research

Figure 6: Global average operating margin rate of paper sector's players (Euler Hermes's panel of companies)

Sources: Bloomberg, consensus estimates, Euler Hermes, Allianz Research are financed by equity in comparison to creditors' funds - below 100% unlike their downstream counterparts (Figure 7).

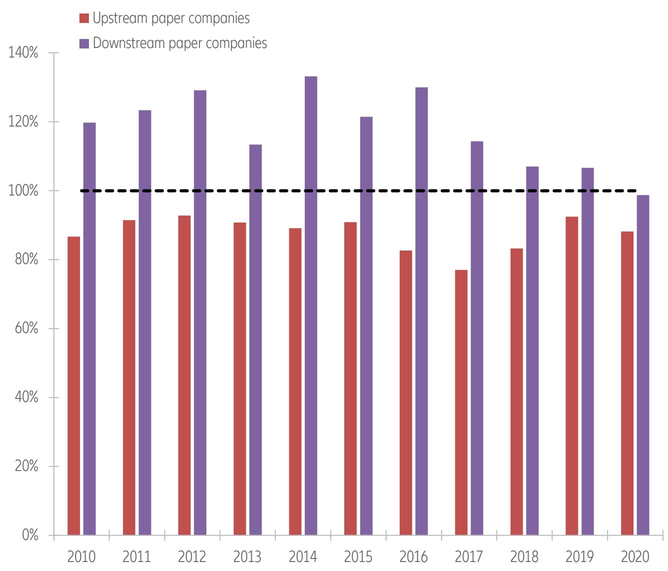
The good news is that downstream papermakers have succeeded in cutting their indebtedness level and gearing ratio as a result to a bit less than 100% by maintaining a high level of free cash flow (amounting to USD10.6bn at the end of last year). That gives them enough leeway to invest in getting higher added-value products bolstered by a strong brand while manufacturing them in a more environmentally friendly way.

The increased usage of renewable biomass to 55% makes the paper sector more ESG compliant, but massive investments in water reprocessing plants are needed. Each of them is estimated at a cost between USD9mn and USD12mn. For context: There are near 900 working paper mills across Europe and the free cash flow of all paper players worldwide amounted to USD18bn last year. The point is that paper players might find such investments barely sustainable in case their turnovers go down.

On the bright side, the recent surge in energy prices should not hit the paper sector too heavily: Papermakers have clearly improved their energy-consumption footprint by considerably increasing their reliance on renewable biomass for 20 years (from 40% to 55%) over power and fossil fuels (Figure 8).

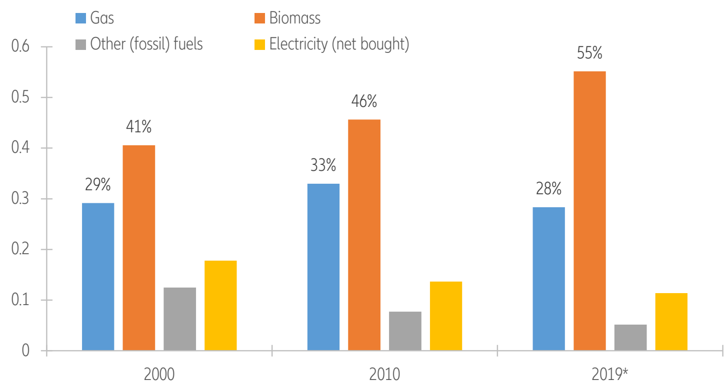
The example of paper recycling in Europe is also very instructive (Figure 9) as the recycling rate of papers in Europe grew from 39% in 1990 to 75% in 2020. However, the recycling market in the West has been leveling off for three years, a trend that stems from the Chinese government's ban on imports of mixed paper for recycling since 2018. This led to a collapse in paper volumes imported by China and to a big slump in the supply chain for paper for recycling as a result. Falling Chinese imports of paper for recycling have sent the European and US markets into a deep crisis marked by very poor prices across the Atlantic. These extremely low prices jeopardize the value chain of recycling, which cannot fund appropriate collection schemes any longer.

Figure 7: Global average gearing ratio of paper players (EH's panel of companies)



Sources: Bloomberg, consensus estimates, Euler Hermes, Allianz Research

Figure 8: Breakdown of energy consumption by source (European paper sector, in Terajoules)



**Data for the 2020 year will be available as of next January.*

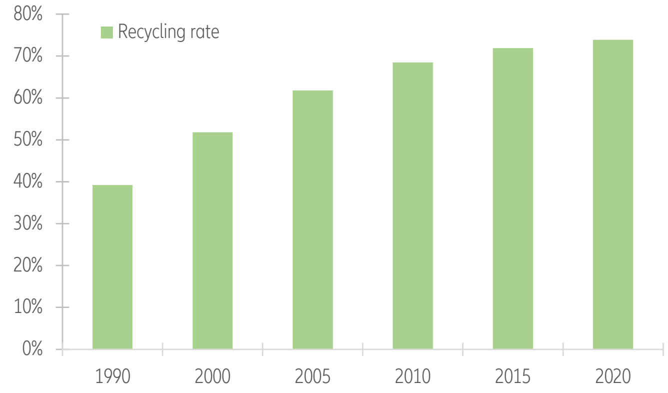
Sources: Cepi, Euler Hermes, Allianz Research

Euler Hermes's panel of companies

Upstream paper companies: Suzano, Stora Enso, UPM Kymenee, Sappi, SCA, Nippon Paper, Shanying, Resolute Forest, Domtar, Daio Paper, Navigator, Greif, Stella Jones, CPMC, West Fraser, Semapa, YFY, OJI, Holmen, Shandong Chenming and Canfor.

Downstream paper companies: International Paper, Essity, Nine Dragon Paper, Kimberly Clark, Shenzhen Yuto, Billerud Korsnas, Cascades, Packaging Corp, Smurfit Kappa, DS Smith, Lee Man Paper, Cheng Long, WestRock, Graphic Packaging, Rengo, Mayr and Metsa.

Figure 9: Recycling rate of papers in Europe



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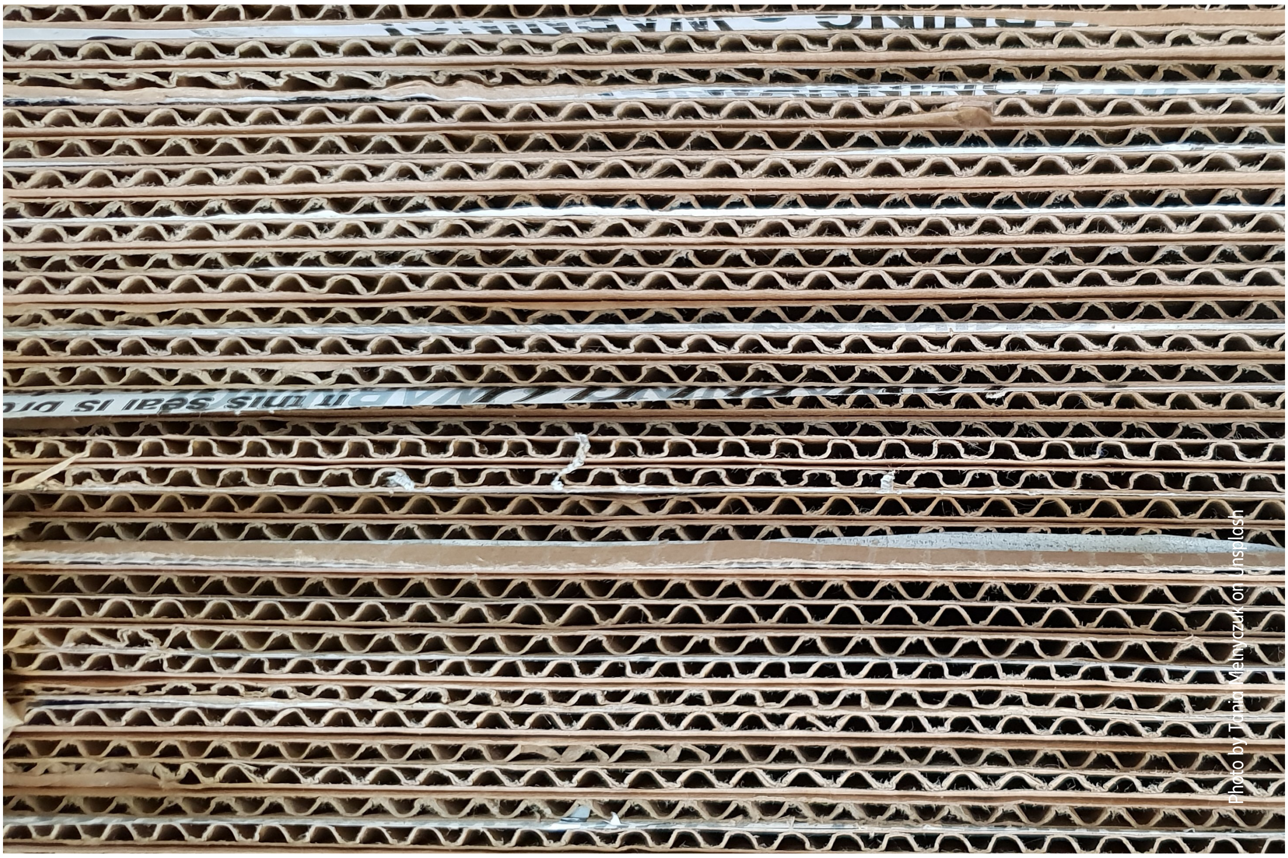

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