ANALYSIS

Packaging Industry

Packaging Reset
Shifting Focus Towards Sustainability

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The Global Packaging industry is undergoing significant transformation and has grown rapidly over the past decade. Most of this growth has come from less developed markets, as more consumers move to urban locations and subsequently adopting westernised lifestyles. This has boosted a demand for packaged goods, which worldwide has been accelerated by the growing e-commerce industry.

Concern over the environmental impact of products is an established phenomena, but over the last few years there has been a revived interest on sustainability focussed specifically in packaging. This is reflected in central government and municipal regulations, consumer attitudes and brand owner values communicated via packaging.

The EU has pioneered this area with its drive towards circular economy principles. A number of strategies are advancing to address this, including alternative materials, investing in the development of bio-based plastics, designing packs to make them easier to process in recycling, and improving recycling and processing of packaging waste.

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1 Introduction

Market Introduction

Global megatrends such as urbanisation and population growth are increasing the need for packaging. Food-on-the-go and e-commerce are here to stay. Further, consumers require sustainability and safety from the packaging of their favourite brands. Packaging is required for both consumer and industrial applications, to protect, market, and distribute a vast array of products. The main types of packaging solutions include:

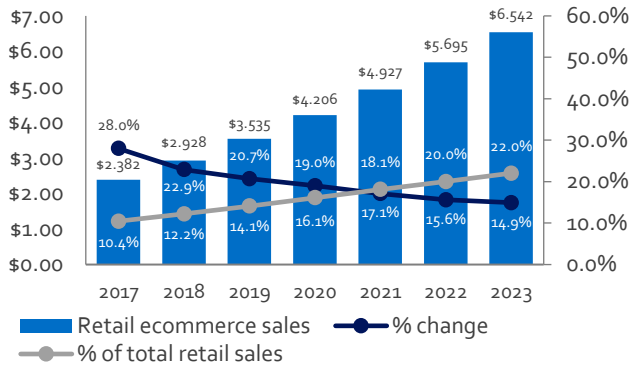
1. Flexible Plastic Packaging
2. Rigid Plastic Packaging
3. Board Packaging
4. Glass Packaging
5. Metal Packaging

2 Industry Trends and Growth Drivers

E-Commerce Momentum Driving Packaging Growth

E-commerce packaging has become more important within the packaging industry as online shopping grows rapidly. Rigid packaging, such as corrugated packaging is expected to dominate the sector with its stable structure and sustainable qualities. Corrugated packaging provider DS Smith expects to see significant changes across the packaging spectrum, whether for e-commerce, FMCG or point of sale materials. The focus on sustainability and plastic replacement is increasingly at the forefront of packaging strategy for leading brands.

Retail Ecommerce Sales Worldwide, 2017-2023
Trillions, % change and % total retail sales



Source: eMarketer.com

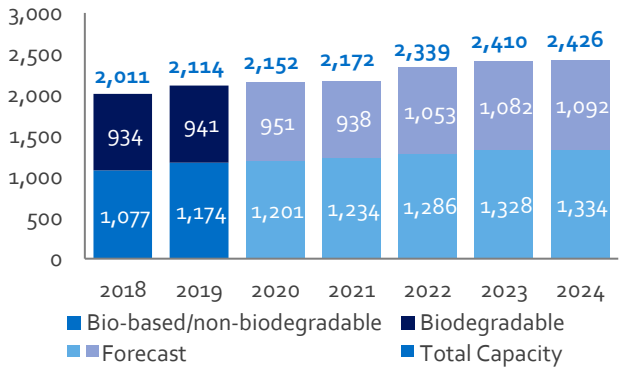
> *Replacing single-use plastic with widely recycled material – such as corrugated – will go a long way to enabling the UK to meet its recycling targets and reduce the amount of waste produced. In addition, innovations such as reusable printed sleeves that sit over multiple-use corrugated boxes will trend and help ensure that brands can meet consumer demands for sustainable and more environmentally friendly packaging solutions.*
>
> ***- Teresa Del Re,*** *Head of Marketing and Innovation, DS Smith*

Alternative Materials On The Rise

Bioplastic alternatives are now available for almost every conventional plastic material and corresponding application. Bioplastics have the same properties as conventional plastics and offer additional advantages, such as a reduced carbon footprint or additional waste management options, such as composting.

Bioplastics are used in an increasing number of markets, from packaging, catering products, consumer electronics, automotive, agriculture/horticulture, and toys to textiles and a number of other segments.

Global production capacities of bioplastics

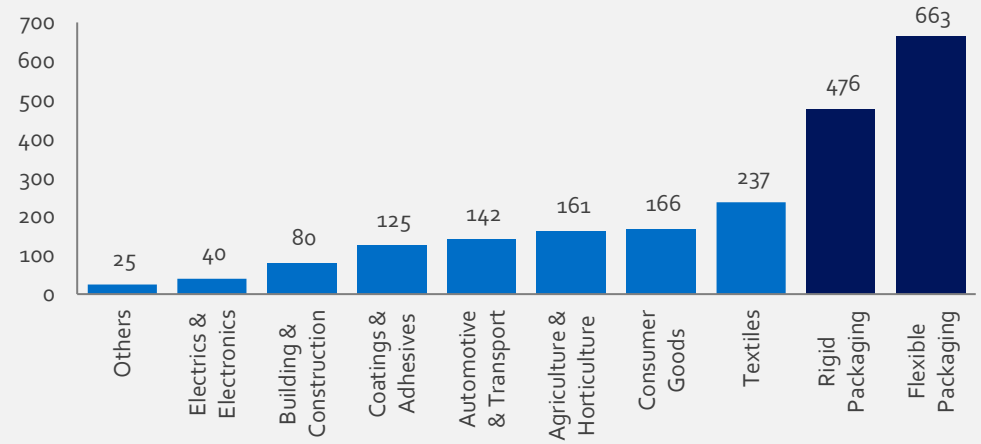


Source: European Bioplastics e.V.

The increase in the use of bioplastics in all market segments is driven by the continuously increasing demand for sustainable products by consumers and brands alike, due to a growing awareness of the impact on the environment.

Bioplastics also continue to see innovations to improve upon the existing materials. For instance, recently the focus has shifted to the development of PEF (polyethylene furanoate), a new polymer that is expected to enter the market in 2023. PEF is comparable to PET (polyethylene terephthalate) but 100% bio-based. Besides, it is said to feature additional barrier and thermal properties, making it an ideal material for the packaging of drinks, food and non-food products. Hence, PEF will eventually have the potential to substitute increasing shares of PET.

Global production capacities of bioplastics 2019 (by market segment)



Source: European Bioplastics

Packaging remains the largest field of application for bioplastics with more than 53% (1.14 million tonnes) of the total bioplastics market in 2019

Legislative Focus on Reduction, Re-use, Recycling and Recovery

Currently a debate is raging about the best ways to combine reduction, re-use, recycling and recovery of packaging.

In March 2020, the European Commission adopted a new Circular Economy Action Plan - one of the main blocks of the European Green Deal, Europe's new agenda for sustainable growth.

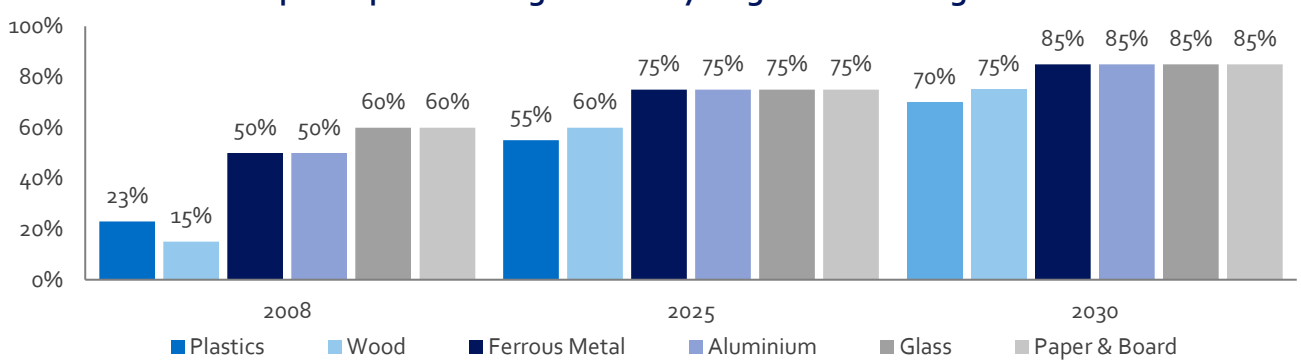
At least EUR 1tn is expected to be spent over the next decade, with the biggest share, EUR 503bn, to come from the EU budget, while a further EUR 114bn from national governments. The next EUR 279bn would come mostly from the private sector - the idea is that companies would be encouraged to make risky green investments by loan guarantees from the European Investment Bank

EU's New Circular Economy Action Plan's Impact on Packaging

Packaging – new mandatory requirements on what is allowed on the EU market, including the reduction of (over)packaging

Food – new legislative initiative on reuse to substitute single-use packaging, tableware and cutlery by reusable products in food services

Proposed possible targets for recycling in draft EU legislation %

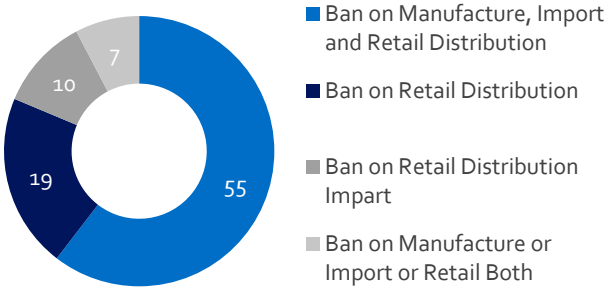


Source: DS Smith

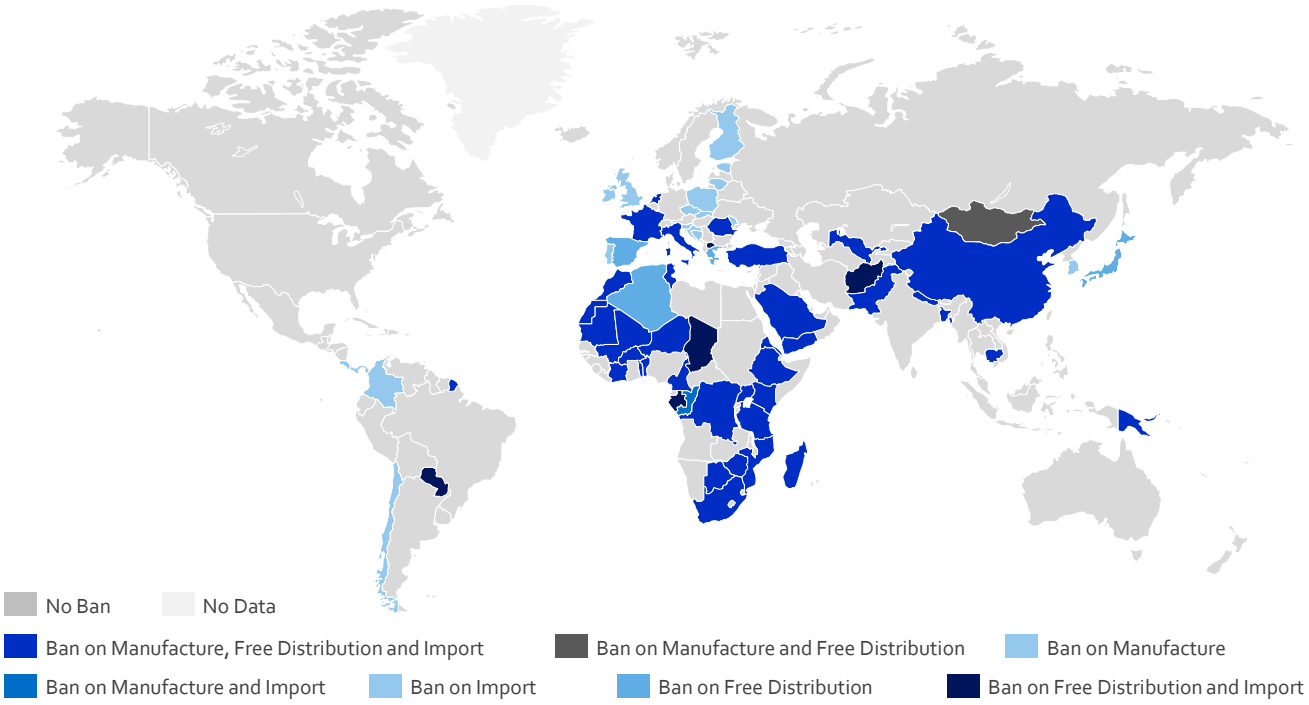
Social Pressure for Zero Packaging

Across the world, plastic bags are being banned or being charged for. Consumer campaigns are pressuring retailers into reducing packaging. The developing world, with less efficient waste disposal infrastructure, may lead the way in this. Meanwhile e-commerce is making transit packaging more visible in people's homes and sensitising them to concepts such as voids in boxes.

Types of National Restrictions or Bans



Total and Partial Bans on the Manufacture, Free Distribution, and Importation of Plastic Bags



Source: UN Environment Programme

Planning for 2030: Packaging Reset

'Sustainable' packaging will be supplanted by 'responsible' packaging - a practical approach brands can promote and defend, and consumers can understand and act on.

- The next decade will usher in an era of conscious, rather than conspicuous consumption. While competition to develop and commercialise responsible packaging technologies will reach a fever pitch, responsible approaches, collaboration, and the sharing of intellectual property for the greater good will reign.
- The companies that will 'win' over the next 10 years will be those that fuel this new era of conscious consumption. Tomorrow's consumers will actively seek out environmentally responsible packaging and aggressively reward brands that help them understand what is actually better, rather than what is 'less bad'.
- Successful brands, package manufacturers, and retailers will be those that develop, commercialise, and put to use environmentally responsible packaging based on science and facts rather than social media fiction and fear.

Impact of COVID-19 on Packaging Industry

The novel coronavirus (COVID-19) has led to disruption of various economies across the globe and will have serious impact on all industries in long-run. However, various industries including packaging, food and beverage, telecom and media, utilities, and pharmaceuticals are expected to have low or moderate impact provided they have classified as essentials in almost all major countries. Packaging products were also exempted in countries with stricter lockdowns including China and India to reduce impact of disruptions for critical items including food, pharmaceuticals, and other consumer goods.

Globally, manufacturers are facing peculiar challenges due to the pandemic, and packaging producers are no exception to it. The pandemic will affect both demand and operational dynamics with heavy requirement of opting for contingency plans by manufacturers.

Major concern areas

Crisis Management

Heavy fluctuations in demand with inclinations towards designs that address issues related to hygiene and safety

Workforce

Unavailability of option to work remotely will require manufacturers to ascertain healthy, productive workforce by tweaking their existing processes

Operations and Supply Chain

Uncertain situations will weaken up supply chain, as some of participants will find it difficult to cope up with operational and financial challenges

Finance and Liquidity

Rising concerns over the economical impact of the crisis have triggered restructuring actions, recoverability of receivables and liquidity issues

Strategy and Brands

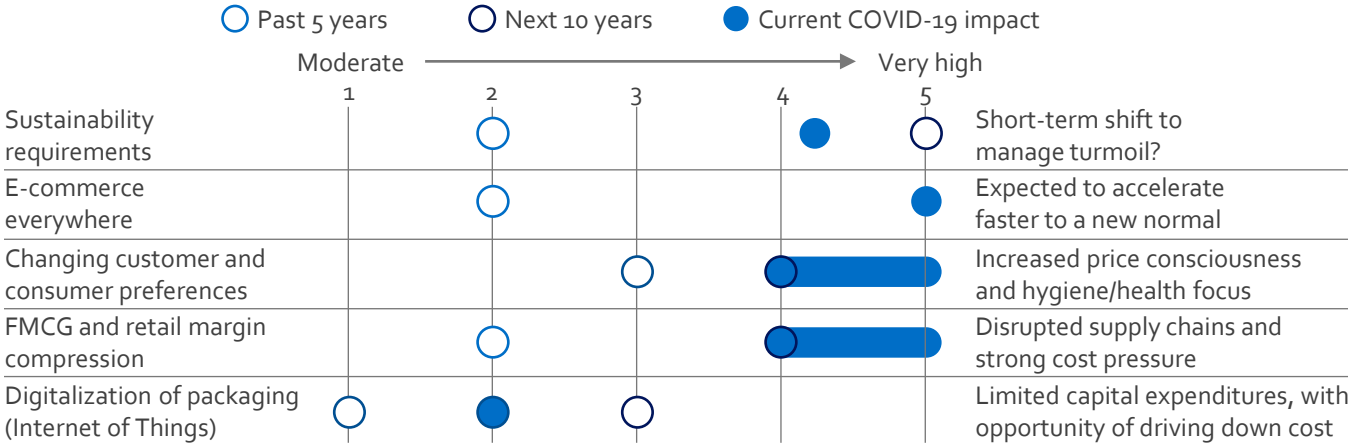
Companies with stronger balance sheet are more likely to take strategic actions leading to consolidation of market making it difficult for smaller players to survive

How the ongoing trends will impact Packaging Industry

The pandemic has led to shifting of consumers' inclination to look for new channels to make purchases, demonstrated by strong accelerations in e-commerce shipments and remote-delivery services. Globally, consumers are increasing their spending at online stores. In US consumers are expected to increase their spending by 2 times on products through online-grocery stores. China has also observed an spike of 200% in sale of fresh food through online channels in a 10-day period in January 2020 compared to 2019, the sales of meat and vegetables saw a bump of over 400% through online stores.

Strong pressure from consumers is expected related to the hygiene and safety standards. Adding to that, consumers are becoming more sensitive to the price. This will lead to heavy shift towards attaining scales to survive in the competitive market.

Observed and expected impact of trends on packaging industry, scale 1-5



Source: McKinsey, PwC, and other secondary sources

Packaging trends are expected to evolve in response to the COVID-19 crisis

Redefined sustainability: Before the COVID-19 crisis, sustainability was top of mind for the packaging value chain, particularly in relation to regulatory and public concerns regarding single-use packaging waste. Regulators in many countries were moving rapidly on the issue, and fast-moving consumer goods (FMCG) companies and retailers were making bold commitments to both improve the sustainability of packaging and rethink their packaging systems.

E-commerce demands: During the crisis, consumer spending on groceries—particularly food—has dramatically increased, and demand for grocery e-commerce too is expected to remain high post-COVID-19 as well. This pattern is already playing out in Asia—particularly in China—the first country to confront the pandemic. Some industry forecasts predict that US online grocery sales will settle at or above 10 percent already by the end of 2020, compared with 2 to 3 percent before the crisis.

Shifting consumer preferences: Post-COVID-19, consumers are expected to continue to be price sensitive, oriented toward price and value brands; to maintain, even accelerate, engagement with online shopping; and to focus even more on health and hygiene. Changing consumer preferences will result in further product-mix changes at FMCG and retail customers.

Fast-moving cost pressures and more regional supply needs: Consumers are pessimistic or unsure about the pandemic's lasting effects. In addition, cost pressures in the packaging industry are expected to increase across regions as customers decrease their packaging budgets. Further, packaging customers are also revisiting and adapting their supply chains in the COVID-19 crisis. In particular, customers that currently rely on global supply are now considering making their footprints more regional, by either adding regional suppliers or replacing current cross-regional ones.

Speedier digitization of the value chain: A further consequence of the pandemic is an expectation that all parts of the value chain will become more digitized, to reduce supply-chain and production risk. With real-time reporting and analytics, customers will aim to track supply chains far more closely than before, perhaps shifting from annual or quarterly to weekly monitoring.

Source: McKinsey

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3 Flexible Plastic Packaging

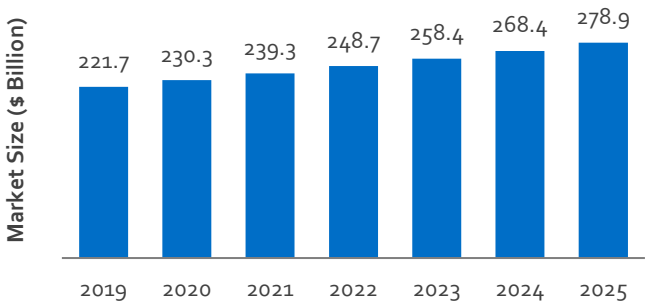
Market Overview

The global flexible packaging market is valued at USD 221.7 Billion in 2019, and it is projected to be worth USD 278.9 Billion by 2025, registering a CAGR of 3.9%. The growing market demand for customer-friendly packages and heightened product protection is expected to drive the flexible packaging industry. E-commerce, digital printing, and sustainability are driving market development and growth. Flexible packaging is mainly used for food, which contributes to more than 60% of the total market.

The global flexible packaging market is expected to grow at a CAGR of 3.9% during 2020 – 2025.

Regional Overview

Flexible Plastic Packaging Market Size (2019-2025)



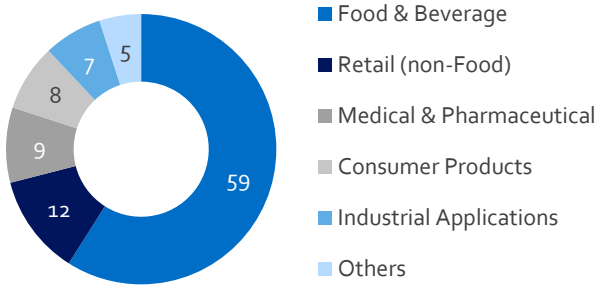
Source: Mordor Intelligence

- The regional paradigm of Flexible Packaging market was dominated by **APAC** by capturing a majority of revenue share
- APAC is also anticipated to be the fastest growing regional market over the forecast period due to the boom in the F&B industry, particularly in China and India
- Flexible Packaging is the second largest packaging segment in the US, totaling ~19% of the USD 170.0bn US packaging market
- Europe's flexible packaging market was predicted to achieve a CAGR of 2% through 2023 to reach ~USD 18.3bn

Product Overview

- Wraps and Films segment contributed approximately over 19.9% to the total market share in 2019 as the said product is being extensively used for food packaging applications on account of their enhanced chemical resistance properties
- Flexible package or containers are made up of paper, plastic film, aluminum foil or a combination of these
- Plastic is the leading material type progressing with an application CAGR of 4.0% going through 2025
- In US packaging industry, 45% of share was captured by films such as polyethylene, polypropylene, polystyrene, polyester and nylon in 2018

Flexible Plastic Packaging by End Market (as percentage, 2019)



Source: Flexible Packaging Association

Product Categories

By Material Type
Plastic, Aluminum, Paper, Polymers, Bioplastics, Recycled Fiber

By Application Type
Food And Beverages, Tobacco, Oil Products, Pharmaceuticals, Industrial, Household, Chemical

By Product Type
Pouches, Tubes, Sacks, Bags, Liners, Wraps, Sachets, Labels, Stick Packs

Select Players

- Global packaging market is fairly fragmented with presence of large number of regional and international players and most of them offers flexible packaging solutions
- Players focus on strengthening their position in the market and expanding their global standing through acquisitions
  - For instance, in February 2019, Sealed Air Corporation acquired MGM's flexible packaging business, to expand its printing and lamination capabilities, to cater to the APAC region

COVID-19 Impact

- The coronavirus crisis has already led to some of the sharpest declines in recent times in demand for certain types of packaging while accelerating growth for others—such as packaging for e-commerce shipments
- Demand for flexible packaging in medical supplies has seen a growth of over 10% since the start of March'2020
- It is anticipated that, there will be a positive impact on demand of packaging materials used for groceries, at-home entertainment, healthcare packaging and household supplies
- US demand for consumer flexible packaging is expected to increase by up to 10% in 2020 vs. 3% in 2019
- In Europe, demand growth was less than 1.5% in 2019 but has potential to climb up to 5% in 2020
- The limits regarding how people consume food has forced huge volumes of consumption away from restaurants and cafes, and towards the retail sector instead

Industry Opinion

> *We have a positive outlook on what is possible with regards to sustainability through innovation and, through our own targets, are continuing to work towards a more positive result. The packaging industry needs to change, Constantia Flexibles is proving that it can. Moreover, sustainable innovation provides an opportunity for businesses to make their mark in a new and positive manner; we are taking steps to do just that.*
>
> **- Alexander Baumgartner,** *CEO, Constantia Flexibles*

> *Sustainable packaging will be a much bigger focus for the North American marketplace moving forward. In our world, that means reducing the packaging material content. ProAmpac has numerous examples to date of moving our customers from a rigid plastic, glass or metal format to a flexible packaging format that is 100 percent recyclable.*
>
> **- Greg Tucker,** *CEO, ProAmpac*

> *While good demand for food packaging continued, the outbreak of COVID-19 quickly transformed the overall business context. The lockdown in China and consequent drop in demand was followed in March by further impact in the rest of the world as the COVID-19 crisis proceeded to spread globally. This change was visible in our Foodservice segment, while demand in our other segments increased.*
>
> **- Charles Héaulmé,** *President and CEO, Huhtamaki*

Outlook

- Local regulatory constraints on the use of plastics is a major challenge for flexible packaging
- Going forward, suppliers look to find eco-friendly alternatives, while educating consumers on the many benefits of this growing packaging segment
- The next decade may be marked by rapid increase in number of both converters and material suppliers and further consolidation will be less likely

Consumer pushback on single-use plastics and plastic packaging is almost assured to grow in 2020

4 Rigid Plastic Packaging

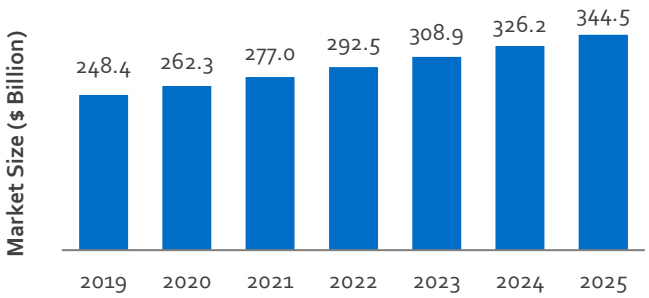
Market Overview

The global rigid plastic packaging market was valued at USD 248.4bn in 2019 and it is projected to reach USD 344.5bn by 2025. Growing demand from the food & beverage packaging industry, a shift in consumer habits towards packaged food, and rise in the demand from the e-commerce industry are driving the global rigid plastic packaging market. Stringent government regulations, fluctuating raw material prices, and environmental concerns are some of the major factors that may hinder the overall growth at a global level.

The global rigid plastic packaging market is expected to grow at a CAGR of 5.6% during 2020 – 2025

Regional Overview

Rigid Plastic Packaging Market Size (2019-2025)



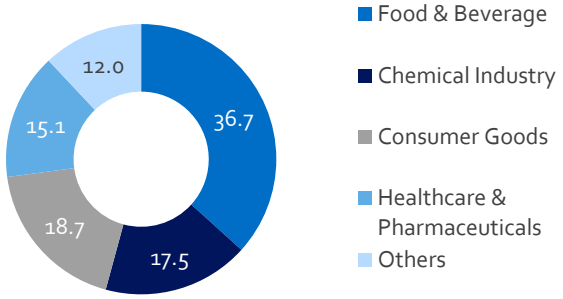
Source: Verified Market Research

- APAC accounted for the largest regional market, valued at USD 104.5bn in 2019 due to growth in end-use industries in China, India and South Korea
- In the US, since the plastics industry is a mature industry, its growth is expected to track the GDP, which is expected to remain stable in the long run despite negative shocks due to the pandemic
- In March 2020, Europe announced its plan that all plastic packaging is to be recyclable by 2030, as a result, many brand owners have announced their plans to curtail the use of rigid plastic packaging

End Market Overview

- Rigid plastic packaging is projected to grow on account of growing applications in industrial packaging solutions and also benefits from the growing popularity of single-serve packaging in the food and beverage segment
- Food and beverages emerged as the largest segment in 2019 on account of rising popularity of nutritional enrichment food products
- Medicine, food, and beverage industries are now turning towards efficient packaging systems to ensure safety and long-term storage making them biggest users of rigid plastic packaging

Rigid Plastic Packaging by End Market (as percentage, 2019)



Source: Coherent Market Insights

Product Categories

By Material Type
Polyethylene Terephthalate (PET), Polypropylene (PP) and High-Density Polyethylene (HDPE)

By Application Type
Food & Beverages, Personal Care, Household and Healthcare

By Product Type
Bottles, Buckets, Hinged & Lidded Containers, Trays & Bowls, In-Mold Labeled Containers, Blister Packaging

Key Players

- The plastic packaging market represents a highly competitive landscape
- Select large industry players dominate the market space and focus on various strategic initiatives including M&A, product innovation and portfolio expansion
  - For instance, in September 2019, Amcor launched a new packaging innovation center in Albany, US
  - Similarly, in August 2019, Amcor developed new range of polyethylene terephthalate (PET) bottles for the Age's Salzburg craft beer brand in Brazil

COVID-19 Impact

- Demand for overall rigid packaging products is expected to decrease by 10-20% owing to the impact of COVID-19
- However, demand for essential services such as personal and healthcare products is witnessing a spike which can impact rigid packaging products, especially HDPE containers, pumps and pharmaceutical bottles
- According to Euromonitor International, growth is expected for most of the key goods categories that use rigid packaging in 2020, despite the impact of COVID-19
- Retail beverage packaging will be in high demand, especially bottled water in PET containers. Also, increases in volumes for rigid plastic packaging trays and bowls are expected in 2020 as a result of expanded eat-at-home opportunities during the COVID-19 pandemic.

Industry Opinion

> *During this period of unprecedented challenge, the vital role that primary packaging plays in the supply of essential food, beverage and healthcare products has never been clearer. Right now, consumers are especially focused on product safety, hygiene, shelf life and convenience, and Amcor is helping meet those needs around the world with packaging for consumer staples*
>
> ***- Ron Delia,*** *CEO, Amcor*

> *Although there is significant near-term uncertainty, we expect the coming quarter to mark the worst of the expected COVID-19 impacts on our business and we anticipate a gradual recovery in the second half of the year.*
>
> ***- Stephen Tanda,*** *CEO, Aptar*

> *Results from our diverse portfolio of Consumer- and Industrial-related businesses mirrored the current divergent macroeconomic environment. Our Consumer Packaging segment produced record results during the quarter due to strong demand for food packaging driven by consumers' stay-at-home eating habits.*
>
> ***- Howard Coker,*** *President and CEO, Sonoco*

Outlook

- Rigid plastic packaging will continue to benefit from the drive to replace materials like glass and metal with lightweight, cost-effective, and high-performance plastic materials in various markets
- The rigid plastic packaging industry is experiencing competition from flexible and sustainable packaging designs, but is still expected to maintain steady growth in developing economies
- Stakeholders are expected to focus on product innovation and customization to gain advantage over competing packaging materials

Global consumption of rigid plastic packaging is projected at 58.6 MT in 2019 and is forecast to grow at a CAGR of 3.5% to 69.8 MT

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5 Paper and Paperboard Packaging

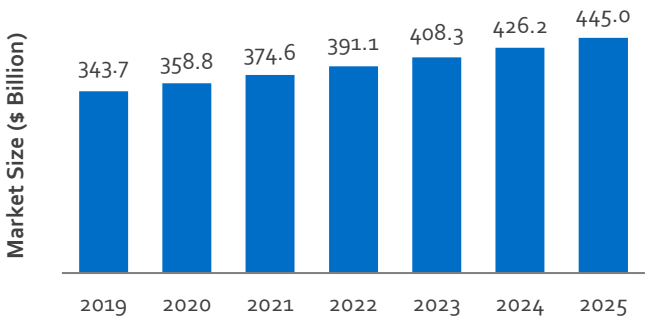
Market Overview

The global paper and paperboard packaging market size was valued at $ 343.7Bn in 2019 and is estimated to have a CAGR of 4.4% over the next 5 years to reach an estimated market size of $445.0Bn in 2025. One key trend driving growth is an increase in environmental consciousness among consumers, which bodes well for paperboard packaging, which is, on average, 88% composed of recycled materials.

The global paper and paperboard packaging market is expected to grow at a CAGR of 4.4% during 2020 – 2025

Regional Overview

Paper and Paperboard Packaging Market Size (2019-2025)



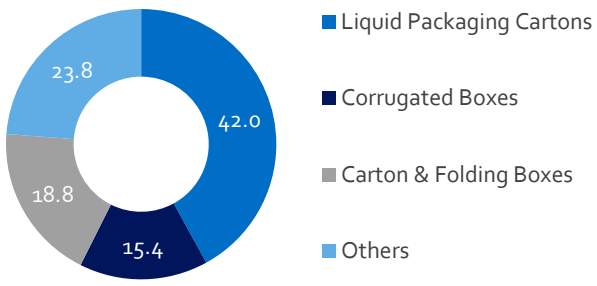
Source: Coherent Market Insights

- Asia-pacific dominated the global paper packaging market in 2019, reporting 37% market share in terms of revenue, followed by North America and Europe with a market share of 28.0% and 23.6%, respectively
- In 2019, the US paperboard industry shipped 392 billion sq. ft. of product, almost identical to shipments in 2018, since 2014, the industry has experienced modest growth of 1–2.5% annually
- The slowing down of the EU's economy in 2019 — from 1.9% in 2018 to 1.1% in 2019 — combined with global instability and trade tensions, impacted the European paper and board consumption, which recorded a 4% decline, however the industry is expected to pick pace in 2021

Product Overview

- The growing trend of liquid packaging cartons such as tetra packs and pouches is expected to foster the market growth of the paper-based packaging
- While, corrugated paperboard packaging offers a versatile and cost-efficient method to protect, preserve, and transport a wide range of products
- Key industries served include processed foods, fresh food and produce, beverages, electrical products across all geographies
- Processed food segment is expected to occupy significant market share as the demand for convenience foods rises with shifting consumer preferences

Paper and Paperboard Packaging by Product (as percentage, 2019)



Source: Coherent Market Insights

Product Categories

By Type
Corrugated, Folding Carton Stock, Liquid Paperboard and Flexible Paper

By Grade
Solid Bleached Sulfate (SBS), Coated Unbleached Kraft Paperboard (CUK), Folding Box Board (FBB), White Line Chipboard (WLC), Glassine & Greaseproof Paper, Label Paper and Others (Liquid Packaging, parchment paper)

Key Players

- The market for paper and paperboard packaging market is marked with intense competition due to the presence of a large number of players because of low barriers of entry to enter the market
- Companies are constantly innovating to promote sustainable packaging and are providing environment-friendly packaging products to cater to changing consumer demands
  - For instance, in February 2020 - Mondi Group partnered with Cartro, a Mexican corrugated packaging company, to deliver sustainable packaging solutions for fresh produce

Key Market Trends

- Papers continue to dominate some packaging applications, such as flour, sugar and some soft cheeses. Paper packaging is still used widely in medical packaging; fast food wrap and metallised paper cigarette bundle wrap – as well as in informal retail sectors in developing countries
- The corrugated board packaging has benefitted mainly from its biodegradable properties, and vendors who have shifted to other packaging solutions have faced a lot of backlash from the consumers
- The increased usage of e-commerce to buy the essentials, especially in developing countries such as India, is having a positive impact on the market, additionally, due to the COVID-19 pandemic consumers are further driven towards e-commerce

In 2019, Amazon faced severe backlash from its consumers, when they moved from corrugated boards to bubble wraps.

Industry Opinion

> *Sustainable packaging continues to be a long-term priority for our customers and wider society. As a leading producer of both paper and flexible plastic-based packaging, we are in a unique position to support our customers' environmental goals with packaging that is sustainable by design adhering to our principle of "paper where possible, plastic when useful"... We are confident that the Group will continue to demonstrate its resilience in the event of a prolonged macro-economic downturn, while remaining well-positioned when the recovery takes place.*
>
> **- Andrew King,** *Group CEO, Mondi Group*

> *In the Packaging segment, our mills supplied the necessary containerboard to achieve a second quarter record for box shipments per day ... During these unprecedented times, corrugated products demand has performed quite well so far in H1'2020, and we expect the Q3'2020 to be even stronger.*
>
> **- Mark W. Kowlzan,** *CEO, Packaging Corporation of America*

> *With our volumes, whilst our FMCG has continued to do very well, we have seen this decline in the industrial sector ... There are still the structural growth drivers of our business, which are still absolutely intact. In fact, a number of them we believe will be accelerated as a result of the COVID crisis, in particular ecommerce .*
>
> **- Miles Roberts,** *Group CEO, DS Smith*

Outlook

- The growing awareness among consumers regarding the usage of environment-friendly products is expected to drive the demand for the paper and paperboard packaging market over the next few years
- The growing demand for paper packaging to provide an aesthetic look to the packaged product is also expected to augment the market growth of paper-based packaging. Rising demand for corrugated cases for shipping, especially with the rapid growth in ecommerce is expected to continue to drive the market growth
- Additionally, imposition of bans on the use of plastic by the various governments is expected to open new avenues to the market of paper-based packaging
- For instance, in North America, government initiatives for stimulating eco-friendly packaging materials, coupled with the efforts from CPA (The Corrugated Packaging Alliance), a corrugated industry initiative, with an aim to encourage corrugated packaging are providing an added impetus to the growth of this market
- Similar efforts have been undertaken in Europe under its New Circular Economy Action Plan. These efforts are expected to further drive the paper and paperboard packaging market.

6 Glass Packaging

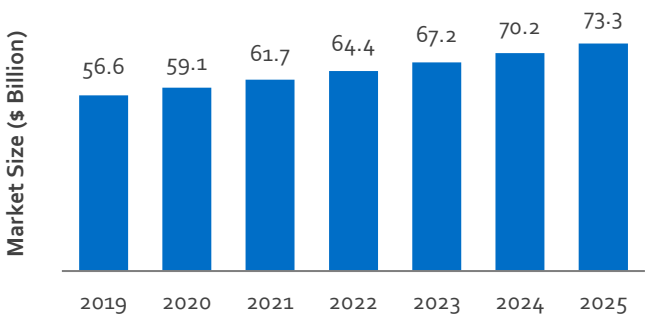
Market Overview

The global glass packaging market stood at $ 56.6 Billion in 2019 and is expected to grow at a CAGR of 4.4% to reach $ 73.3 Billion by 2025. Glass packaging, is considered premium, is also considered as one of the most trusted forms of packaging for health, taste, and environmental safety. These qualities are expected to ensure its continuous usage, worldwide, across a range of end-user industries, despite the heavy competition from plastic packaging.

The global glass packaging market is expected to grow at a CAGR of 4.0% during 2020 – 2025

Regional Overview

Global Glass Packaging Market Size (2019-2025)



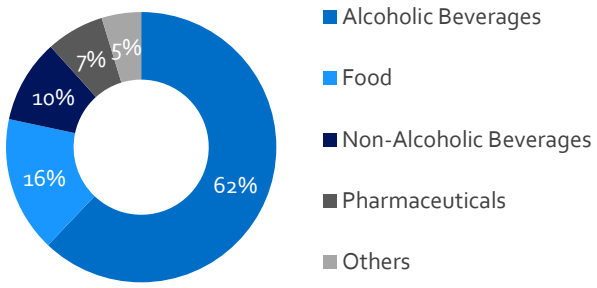
Source: Mordor Intelligence

- The APAC region is the largest market accounting for 44% of the market in 2019, where China accounts for two-third of the market
- The growth can be attributed to the well established alcoholic beverage industry in the region and supplemented by pharmaceutical and food industries
- Europe has 160 glass manufacturing plants producing 80 billion bottles, jars and flacons each year, to meet the strong demand from European consumers to meet the goals of EU's circular economy action plan
- In North America, glass packaging growth is driven by the beverage industry, followed by pharmaceutical industry which is driven by the growing ageing population and rising number of chronic diseases

End Market Overview

- The key trend driving growth of the global glass packaging industry is the beverages industry
- The alcoholic beverages industry is responsible for majority of the glass packaging market, with a 62.1% market share
- Additionally, increasing demand for pharmaceutical packaging is expected to propel the glass packaging market
- Also, the increasing demand for sterile medical packaging products from the pharmaceutical and biological industries will further drive the growth

Global Glass Packaging Market Share (2019)



Source: Fortune Business Insights

Product Categories

By Product Type

Glass Jars: Round, Paragon, French Square, Hexagonal, Mason, Straight-sided Round
Glass Bottles: Boston Round, Long Necked, Wine, Liquor, Standard Wide Mouth

By End Market

Food, Beverage, Personal care, Healthcare, Household care and Others

Key Players

- The global glass packaging market is highly competitive, due to the strong presence of major players worldwide
- The competition is also intense due to the presence of substitutes, as many companies in the industry are trying to consistently innovate, in order to retain the market share.
  - In April 2019 - Owens Illinois entered into a definitive agreement to acquire Nueva Fanal, which is located near Mexico City, and is a container glass manufacturing facility from Grupo Modelo
  - Lightweight glass has been the major innovation in recent times, offering the same resistance as the older glass materials and higher stability, while reducing the volume of the raw materials used

Key Market Trends

- The market for glass packaging, in the alcoholic beverage industry, is facing intense competition from the metal packaging segment, in the form of cans, however, it is expected to maintain its share due to its usage in premium products
- Among alcoholic beverages, beer witnessed tremendous growth. The majority of beer volume is sold in glass bottles and is driving the need for increased production rates in the glass packaging industry
- Developing nations, like India, are also showing much higher quality perception for beer
- Returnable glass bottles are a cost-effective option for companies to deliver their products. Currently, about 70% of the bottles used for natural mineral water are made of plastic, but with increasing demand for sustainable packaging that could change.

Rising consumer demand for safe and healthier packaging is helping glass packaging grow in different categories.

Industry Opinion

> *Many governments have implemented new rules and guidelines to combat the virus that restrict business activity. Fortunately, the manufacture of glass containers has been largely viewed as essential to the important food and beverage value chain in the countries in which we operate ... The company has temporarily curtailed some capacity to adapt to revised customer demand and comply with governmental public health decrees in certain countries. Shipments have been unfavourably impacted in April [of 2020] primarily driven by government restrictions but should improve as markets reopen.*
>
> **- Andres Lopez,** *CEO, Owens-Illinois*

> *During the three months ended June 30, 2020, our Glass business, in particular, was affected, and experienced reductions in customer demand and therefore revenue as a direct consequence of the various global lockdowns and the related impact to "on-premise" sales. The aforementioned reduction in customer demand caused loss of margin in addition to excess capacity costs as a result of lower production volumes.*
>
> **- Paul Coulson,** *Chairman & CEO, Ardagh Group*

> *We are ramping up our vials (type 1 / moulded vials) production in anticipation of the demand for COVID-19 vaccine supply. We have been committed through-out the pandemic outbreak, in supplying essential Pharma packaging products across the globe to our customers. Going forward, if required, Piramal Glass is also equipped to add more production capacity to meet the new market demand.*
>
> **- Vijay Shah,** *Vice Chairman, Piramal Glass*

Outlook

- Rising consumer demand for safe and healthier packaging is helping glass packaging grow in different categories. Also, innovative technologies for embossing, shaping and adding artistic finishes to glass are making glass packaging more desirable among end-users.
- Also, the recyclable nature of glass makes it environmentally the most desired packaging type. The lightweight glass has been the significant innovation in recent times, offering the same resistance as the older glass materials and higher stability, reducing the volume of raw materials used and CO_2 emitted.
- From a regional point of view, emerging markets, like India and China, are witnessing high demand for beer, soft drinks, and ciders, due to the increasing per capita spending of the consumers and changing lifestyles. However, the increasing operational costs and growing usage of substitute products, such as plastics and tin, are restraining the market growth.

Factors such as the increasing demand for eco-friendly products, and the rising demand from the food and beverage market will stimulate the growth of the market.

7

Metal Packaging

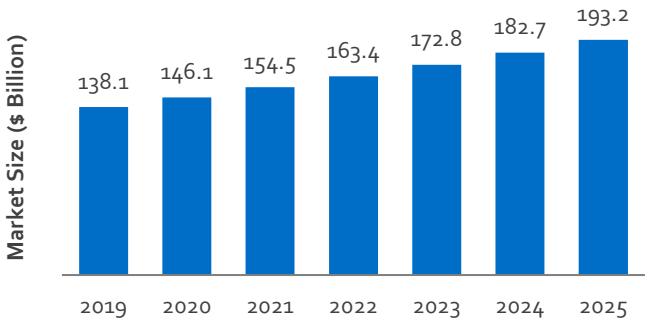
Market Overview

In 2019, the global market size for metal packaging was valued at $138.1 Billion. It is expected to grow at a CAGR of 5.8% between 2020-2025, to reach a market size of $193.2 Billion in 2025. Metal packaging is a long time packing industry staple, with aluminium and tin being used to make cans, foil, and other packing products to store food, beverages, industrial products, personal care products, and more. They are popular for their low cost, easy availability, and their long history of use.

The global metal packaging market is expected to grow at a CAGR of 5.8% during 2020 – 2025

Regional Overview

Global Metal Packaging Market Size (2019-2025)



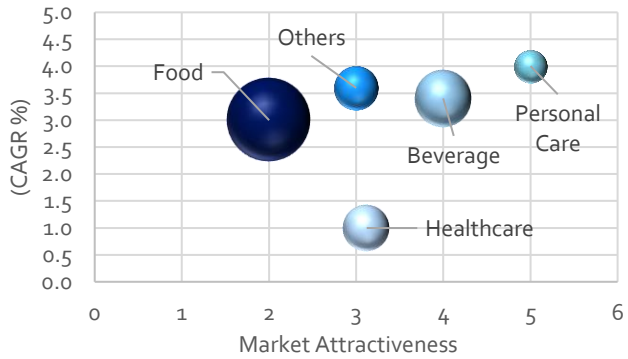
Source: Mordor Intelligence

- North America is expected to hold a major market share in the metal packaging market, mainly owing to the presence of strong food and beverage industries
- About 95% of all beer and soft drink cans in the US are made of aluminium. US manufacturers produce about 100 billion aluminium beverage cans a year, which is equivalent to one can per American per day
- Europe is the second largest market with 98 billion units produced each year, which implies, on average, every EU citizen consumes 4 units per week
- APAC is the third largest market with demand growth driven by the rapid urbanization especially in India and China

End Market Overview

- The metal packaging market dominates the canned food market which is growing steadily with shift towards processed, frozen and pre-prepared foods
- The beverage sector is dominated by the use of aluminium and steel cans
- Aluminium packaging for beer, carbonated soft drinks, and energy drinks is increasing its dominance in the other product segments, such as sparkling wines, iced teas, and coffee-based refreshments
- Also, aerosol cans are witnessing increased adoption in the automotive, cosmetics, industrial, and household care sectors

Metal Packaging Market Attractiveness



Source: Fortune Business Insights

Product Categories

By Product Type
Aerosols, Beverage Cans & Bottles, Closures & Crown Corks, Drums, Food Cans, General Line (Paint Cans), Specialty

By End Market
Food, Beverage, Health & Beauty, Household & Industrial

Key Players

- The metal packaging market is highly competitive and consists of several major players. Many companies are increasing their market presence by introducing new products, expanding their operations, or by entering into strategic mergers and acquisitions.
  - In June 2020 - German packaging steel manufacturer Thyssenkrupp Rasselstein, jointly Working with Swiss company Hoffmann Neopac, produced a food can made 100% from used cans, crown corks and twist-off closures
  - In April 2019 - Ardagh Group expanded its production at Jacareí and Manaus facilities, respectively. These projects aim to meet the growing demand of its customers for infinitely-recyclable and sustainable aluminium packaging

Key Market Trends

- Reuse is a major trend in metal packaging because of the increased pressure to prolong the lifecycle of finite resources through the re-use of containers
- Industrial metal packaging markets benefit from a highly effective and well-established infrastructure for products, such as reconditioned drums to maximize repeat use
- Aluminum cans have a higher recycling rate and more recycled content than competing package types.
- Also, aluminum cans are recycled over and over again in a true "closed loop" recycling process. Glass and plastic are typically "down-cycled" into products like carpet fiber or landfill liner.

Aluminum cans contain on average 73% recycled content - more than 3 times the amount in a glass or plastic bottle.

Industry Opinion

The Company's global beverage can business continues to be a major strategic focus for organic growth. For several years, global industry demand for beverage cans has been growing. After many years of relatively flat volumes, beverage can growth in North America has accelerated mainly due to the outsized portion of new beverage products being introduced in cans versus other packaging formats. While the Company expects beverage can demand to continue to grow in the coming years, the impact of the coronavirus pandemic is expected to weaken demand in the near term in certain areas such as Brazil, Mexico and Southeast Asia.

- Timothy J. Donahue, *CEO, Crown Holdings*

During this period of unprecedented challenge, the vital role that primary packaging plays in the supply of essential food, beverage and healthcare products has never been clearer. Right now, consumers are especially focused on product safety, hygiene, shelf life and convenience.

- Ron Delia, *CEO, Amcor*

Customer and consumer demand for aluminum packaging solutions continuing to outpace existing supply in North America. Our global business is resilient and, though certain regions may be impacted more significantly during the second quarter due to the socioeconomic dynamics associated with the pandemic, the long-term demand for our products continues to be strong and our strategy remains intact.

- John A. Hayes, *CEO, Ball Corporation*

Outlook

- Rising demand for reusable materials is a major trend in packaging industry and recyclability of metals such as aluminium and steel is likely to increase the adoption of metal packaging in end use industries
- Properties of aluminium material such as light weight, 100% recyclability, less corrosive and durability make aluminium more acceptable in end use industries and would drive the growth of the market
- According to metal packaging manufacturers association, seven out of 10 beverage cans sold in the UK are recycled and 75% of all aluminium ever produced is still in use, and this trend is expected to continue to improve
- Further, increasing urbanization, rise in packaged food sales, increasing demand for aerosol products, rising demand for metal packaging in alcohol industry, increasing consumption of canned vegetables & foods and improved standard of living are expected to be the driving factors for metal packaging market.

It takes just 8 percent of the energy to produce aluminum from recycled material versus producing new aluminum, high recycled content is a good indicator of the can's environmental footprint

8 Trading Comparables

Company	Country	Market Cap (USD mn)	Enterprise Value (USD mn)	Revenue (USD mn)		EBITDA Margin (%)		EV/Revenue		EV/EBITDA		EV/EBIT		P/E	
				2020E	2021E	2020E	2021E	2020E	2021E	2020E	2021E	2020E	2021E	2020E	2021E
Flexible and Rigid Packaging															
Amcor	UK	16,971	23,074	12,564	12,743	15.7%	16.2%	1.8x	1.8x	11.7x	11.2x	24.9x	14.4x	32.3x	16.0x
Aptargroup	US	7,228	8,322	2,811	3,010	20.2%	20.8%	3.0x	2.8x	14.6x	13.3x	21.8x	21.0x	29.8x	28.2x
CCL Industries	Canada	6,633	7,998	3,824	3,996	20.0%	20.3%	2.1x	2.0x	10.5x	9.8x	15.0x	14.1x	18.4x	17.8x
Berry Global	US	6,289	16,722	11,727	12,014	18.1%	18.3%	1.4x	1.4x	7.9x	7.6x	20.3x	12.4x	17.3x	8.9x
Sealed Air	US	5,892	9,482	4,766	4,889	21.5%	21.5%	2.0x	1.9x	9.3x	9.0x	16.6x	11.3x	20.1x	12.3x
Huhtamaki	Finland	5,111	6,242	3,885	4,135	13.9%	14.3%	1.6x	1.5x	11.5x	10.5x	19.5x	16.2x	24.0x	19.5x
Sonoco	US	5,047	6,768	5,143	5,221	14.9%	15.0%	1.3x	1.3x	8.8x	8.6x	15.1x	12.8x	17.3x	14.4x
Silgan Holding	US	4,057	7,364	4,840	4,992	15.4%	15.5%	1.5x	1.5x	9.9x	9.5x	20.6x	13.7x	20.9x	12.5x
Winpak	Canada	2,183	1,759	858	882	22.0%	22.5%	2.1x	2.0x	9.3x	8.9x	11.0x	11.6x	19.0x	19.1x
Transcontinental	Canada	1,064	1,790	1,916	1,898	18.3%	17.5%	0.9x	0.9x	5.1x	5.4x	8.0x	9.6x	9.3x	10.4x
IPL Plastics	Canada	405	700	576	610	14.4%	14.8%	1.2x	1.1x	8.5x	7.8x	19.8x	17.5x	29.2x	20.0x
Average						**17.7%**	**17.9%**	**1.7x**	**1.7x**	**9.7x**	**9.3x**	**17.5x**	**14.1x**	**21.6x**	**16.3x**
Median						**18.1%**	**17.5%**	**1.6x**	**1.5x**	**9.3x**	**9.0x**	**19.5x**	**13.7x**	**20.1x**	**16.0x**
Paper and Paperboard Packaging															
International Paper	US	16,180	31,538	20,333	20,420	14.1%	13.7%	1.6x	1.5x	11.0x	11.3x	13.7x	20.9x	13.2x	16.6x
Packaging Corporation of America	US	10,379	12,172	6,495	6,575	18.1%	18.0%	1.9x	1.9x	10.4x	10.3x	11.6x	15.4x	15.0x	20.1x
Mondi	UK	9,608	12,329	7,719	8,009	19.8%	20.5%	1.6x	1.5x	8.1x	7.5x	9.2x	10.9x	10.6x	12.6x
WestRock	US	9,298	19,782	17,391	17,285	15.8%	15.6%	1.1x	1.1x	7.2x	7.3x	12.7x	16.5x	10.8x	14.1x
Smurfit Kappa	Ireland	8,784	12,457	9,616	9,928	16.8%	17.5%	1.3x	1.3x	7.7x	7.2x	13.2x	11.6x	16.5x	12.9x
Sonoco	US	5,047	6,768	5,143	5,221	14.9%	15.0%	1.3x	1.3x	8.8x	8.6x	15.1x	12.8x	17.3x	14.4x
DS Smith	UK	4,848	7,559	7,394	7,431	14.8%	15.2%	1.0x	1.0x	6.9x	6.7x	12.8x	11.3x	12.7x	10.5x
Graphic Packaging	US	3,856	7,844	6,416	6,505	16.7%	16.8%	1.2x	1.2x	7.3x	7.2x	15.9x	12.5x	18.6x	12.2x
Mayr-Melnhof Karton	Austria	3,462	3,719	2,931	3,040	15.6%	15.8%	1.3x	1.2x	8.1x	7.7x	12.8x	11.8x	16.3x	14.8x
Greif	US	1,827	5,078	4,504	4,530	14.2%	14.5%	1.1x	1.1x	8.0x	7.7x	13.2x	12.0x	10.6x	8.8x
Cascades	Canada	1,062	2,733	3,825	3,895	12.9%	12.4%	0.7x	0.7x	5.5x	5.7x	17.3x	8.8x	20.4x	6.9x
Average						**15.8%**	**15.9%**	**1.3x**	**1.3x**	**8.1x**	**7.9x**	**13.4x**	**13.1x**	**14.7x**	**13.1x**
Median						**15.6%**	**15.6%**	**1.3x**	**1.2x**	**8.0x**	**7.5x**	**13.2x**	**12.0x**	**15.0x**	**12.9x**
Glass and Metal Packaging															
Ball Corporation	US	26,605	33,942	11,447	12,134	16.6%	17.0%	3.0x	2.8x	17.8x	16.5x	36.2x	22.4x	47.0x	26.4x
Crown Holding	US	10,082	18,473	11,293	11,816	14.5%	14.9%	1.6x	1.6x	11.3x	10.5x	15.9x	12.9x	19.8x	13.2x
CCL Industries	Canada	6,633	7,998	3,824	3,996	20.0%	20.3%	2.1x	2.0x	10.5x	9.8x	15.0x	14.1x	18.4x	17.8x
Silgan Holding	US	4,057	7,364	4,840	4,992	15.4%	15.5%	1.5x	1.5x	9.9x	9.5x	20.6x	13.7x	20.9x	12.5x
Greif	US	1,827	5,078	4,504	4,530	14.2%	14.5%	1.1x	1.1x	8.0x	7.7x	13.2x	12.0x	10.6x	8.8x
O-I Glas	US	1,582	7,113	5,932	5,871	16.1%	17.4%	1.2x	1.2x	7.4x	7.0x	142.3x	12.4x	nm	6.6x
Ardagh Group	Luxembourg	256	5,982	6,529	6,719	17.1%	17.5%	0.9x	0.9x	5.4x	5.1x	33.8x	10.0x	nm	0.7x
Nampak	South Africa	25	332	na	na	na	na	na	na	na	na	nm	na	nm	na
Average						**16.3%**	**16.7%**	**1.6x**	**1.6x**	**10.0x**	**9.4x**	**39.6x**	**13.9x**	**23.3x**	**12.3x**
Median						**16.1%**	**17.0%**	**1.5x**	**1.5x**	**9.9x**	**9.5x**	**20.6x**	**12.9x**	**19.8x**	**12.5x**

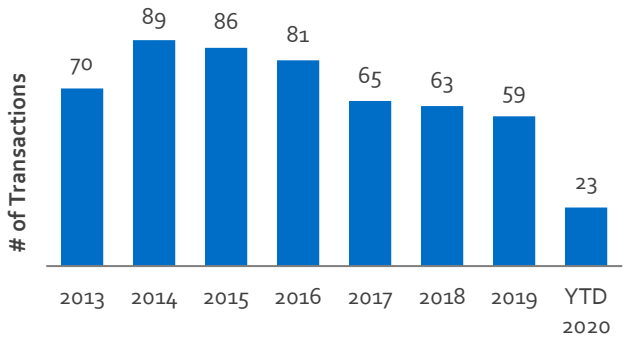
Source: FactSet as of 25-Sep-2020
Note: Financials calendarised to December

9 Transaction Activity

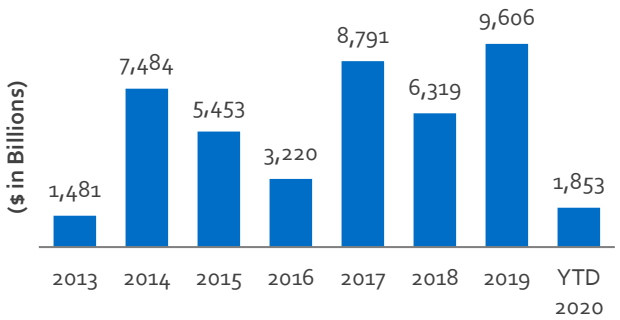
Plastic Packaging

The deal count in the industry has gone down by 30% during YTD Aug'2020 as compared to the same period in 2019, from 33 deals in YTD Aug'19 to 23 deals in 2020. In terms of deal value, the M&A activity witnessed a decline of 80%, from $ 9,386mn to $1,853mn, during the same period, primarily as the decline is compared to the record $ 6.1Bn acquisition of RPC Group by Berry Global in March 2019.

Number of Transactions



Disclosed Deal Value of Transactions



Select Precedent Transactions

Date	Target	Buyers	Deal Value (USD mn)	Implied EV (USD mn)	EV/Revenue (x)	EV/EBITDA (x)
25-Aug-20	Tredegar Corporation (Personal Care Films Business)	Fitesa S.A.	61	61	0.5x	-
29-Jul-20	IPL Plastics Inc. (TSX:IPLP)	Madison Dearborn Partners, LLC	807	723	1.2x	7.8x
07-May-20	Schoeneck Containers, Inc.	Mason Wells, Inc.	85	85	-	-
27-Jan-20	Dispensing Business of Albea Services S.A.S.	Silgan International Holdings B.V.	900	900	2.3x	11.7x
23-Dec-19	Laminor S.A.	Huhtamäki Oyj (HLSE:HUH1V)	33	67	2.4x	-
18-Nov-19	Plastique; Thermoform Engineered Quality LLC	Sonoco Products Company	187	187	-	-
30-Aug-19	Visy Packaging (Thailand)	SCGP Rigid Plastics Company	142	177	3.1x	-
24-Jul-19	Kureha Corporation, Blow Bottle Business	Kyodo Printing Co., Ltd. (TSE:7914)	16	16	0.9x	-
22-Jul-19	Clariant AG (Healthcare Packaging business)	Arsenal Capital Partners, L.P.	314	314	2.3x	13.2x
06-Jul-19	Huangshan Novel Co.,Ltd	ORG Technology Co.,Ltd.	55	488	1.4x	10.0x
02-Jul-19	Lameplast SpA	Tekni-Plex, Inc.	99	99	3.4x	11.3x
05-Jun-19	Pregis Corporation	Warburg Pincus LLC	1,300	1,300	-	-
30-Apr-19	TAPLAST S.p.a.	TriMas Corporation	45	45	1.4x	-
22-Apr-19	Essel Propack Limited (51% stake)	The Blackstone Group	288	659	1.8x	9.4x
22-Apr-19	Essel Propack (26% stake)	The Blackstone Group	164	703	1.8x	9.5x
22-Apr-19	Three Manufacturing Facilities of Amcor Limited	Tekni-Plex, Inc.	215	-	-	-

Transaction Comparables

Date	Target	Buyers	Deal Value (USD mn)	Implied EV (USD mn)	EV/Revenue (x)	EV/EBITDA (x)
08-Mar-19	RPC Group Limited	Berry Global Group, Inc.	6,116	5,865	1.2x	8.1x
06-Mar-19	DS Smith Plc (plastic packaging business)	Liqui-Box Corporation	585	585	-	9.9x
11-Feb-19	Daibochi Berhad	Scientex Berhad (KLSE:SCIENTX)	47	147	1.4x	13.9x
14-Nov-18	Daibochi Berhad	Scientex Berhad (KLSE:SCIENTX)	52	145	1.4x	13.2x
13-Oct-18	Zhuhai Zhongfu Enterprise	Shenzhen Guoqing Technology Co.,	68	773	3.3x	22.8x
11-Oct-18	Manjushree Technopack	Advent International Corporation	67	-	-	-
10-Sep-18	BeWi Produkter AS ; BEWi Polar AS	BEWiSynbra Group AB	81	81	-	-
29-Jun-18	CGL Pack Annecy S.A.S.	Færch Plast A/S	95	95	1.7x	-
19-Jun-18	Comar, LLC	Metalmark Capital LLC	347	347	-	-
23-May-18	Pibiplast S.p.A.	L Catterton Management Limited; Ambienta Sgr SpA	152	-	-	-
04-May-18	The Waddington Group Inc.	Novolex Holdings, Inc.	2,300	2,300	2.5x	-
30-Apr-18	Coveris Rigid Deutschland/ Coveris International Holdings/Coveris Rigid (Ravensburg) Deutschland	PACCOR Packaging GmbH	845	845	1.3x	-
16-Apr-18	Guala Closures S.p.A.	Guala Closures S.p.A. (BIT:GCL)	179	623	0.9x	4.6x
02-Apr-18	Coveris Holdings S.A. (North American packaging business)	Transcontinental Inc.	1,320	1,320	1.4x	10.3x
22-Mar-18	Highland Packaging Solutions,	Sonoco Products Company	150	150	1.7x	-
07-Feb-18	Command Packaging Inc.	Delta Plastics	215	215	-	-
05-Jan-18	Schoeller Allibert Group B.V.	Brookfield Business Partners L.P.	448	531	0.8x	7.6x
14-Dec-17	Chipmore (China)	Beijing Singularity Power Investment Fund	112	260	-	-
07-Dec-17	Tray-Pak Corporation	Graham Partners, Inc.	35	35	-	-
16-Nov-17	Clopay Plastics Products	Berry Global Group, Inc	475	475	1.0x	9.0x
14-Nov-17	Closure Systems International, Inc. and Graham Packaging Company Inc. (Asian packaging operations excluding Japan)	Pact Group Holdings Ltd	108	108	-	-
14-Nov-17	Sunrise Containers Ltd.	Thai Plaspac Public Company	88	88	1.7x	8.7x
08-Sep-17	Changzhou Ruijie New Materials Technology Co.,Ltd.	Suzhou Hycan Holdings Co., Ltd. (SZSE:002787)	49	47	0.8x	7.9x
01-Aug-17	GEKOPLAST S.A.	K-Holding S.p.A.	30	30	1.1x	9.5x
29-Jul-17	Globalpack Indústria e Comércio Ltda	Deckel Comercio de Equipamentos	89	89	-	-
17-Jul-17	Constantia Labels GmbH	Multi-Color Corporation	1,300	1,300	1.9x	11.3x
03-Jul-17	Apeldoorn Flexible Packaging	Jindal Poly Films Limited	103	103	0.8x	7.6x
29-Jun-17	Spartech LLC	Arsenal Capital Partners, L.P.	115	115	0.3x	6.2x
02-Jun-17	Faerch Plast A/S	Advent International Corporation	982	982	4.7x	22.5x
19-May-17	Macro Plastics, Inc.	IPL, inc.	150	150	-	-
11-Apr-17	Altium Packaging, LLC (Consolidated Container Co.)	Loews Corporation (NYSE:L)	1,200	1,200	1.5x	-
07-Apr-17	LINPAC Senior Holdings	Kloeckner Pentaplast Gmb	559	559	0.9x	14.3x
07-Feb-17	Mauser Group B.V.	Mauser Packaging Solutions	2,300	2,300	1.5x	10.6x
01-Feb-17	Plas-Pak Industries, Inc.	Nordson Corporation	71	71	-	-
23-Jan-17	WestRock Company (Specialty closures and dispensing systems business)	Silgan Holdings Inc.	1,025	1,025	1.8x	-
Average					**1.5x**	**9.9x**
Median					**1.3x**	**9.4x**

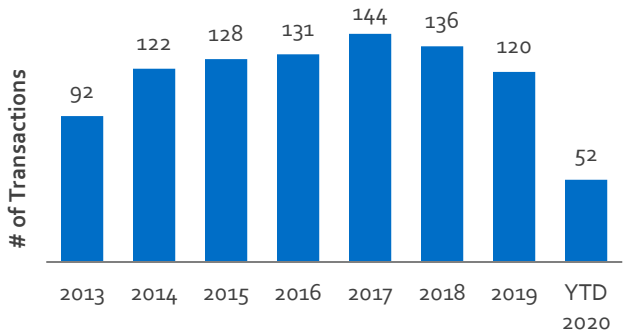
Featured Transactions

March 2019 – Berry Global Group, a US based and listed manufacturer and marketer of plastic packaging products, announced that is considering a possible offer in cash for RPC Group, a UK based and listed design and engineering company of plastic products for both packaging and selected non-packaging markets. Scale of RPC's operations in plastic packaging highly complementary to Berry's existing businesses. The acquisition will allow Berry Global to take advantage of the highly fragmented global market for plastic packaging, particularly in Europe.

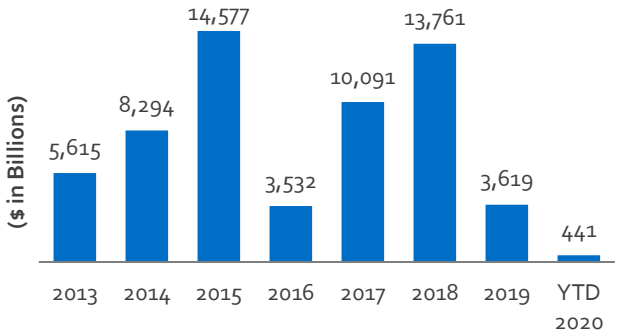
Paper & Paperboard Packaging

The deal count in the industry has gone down by 23% during YTD Aug'2020 as compared to the same period in 2019, from 68 deals in YTD Aug'19 to 52 deals in 2020. In terms of deal value, the M&A activity witnessed a decline of 77%, from $ 1,914mn to $ 441mn, during the same period.

Number of Transactions



Disclosed Deal Value of Transactions



Select Precedent Transactions

Date	Target	Buyers	Deal Value (USD mn)	Implied EV (USD mn)	EV/Revenue (x)	EV/EBITDA (x)
29-Mar-20	Brazilian Corrugated Packaging Business of International Paper	Klabin S.A. (BOVESPA:KLBN4)	65	65	-	-
20-Mar-20	seha corporation	Hankuk Paper Mfg. Co., Ltd; Haesung Industrial Co., Ltd.	125	135	1.0x	8.3x
27-Feb-20	Greenpac Mill, LLC	Cascades Inc. (TSX:CAS)	91	448	-	-
27-Feb-20	Consumer Packaging Group Business of Greif, Inc.	Graphic Packaging International, LLC	85	85	-	-
27-Feb-20	Pure Trade - France	Sparring Capital	22	-	-	-
29-Jan-20	Mohan Fibre Products Limited	Brødrene Hartmann A/S	18	18	-	-
23-Jan-20	AR Packaging Poznan S.A.	A&R Carton AB; COLORPACK	36	-	-	-
27-Nov-19	Paper and Woven Polypropylene Packaging Operations of Transcontinental	Hood Packaging Corporation	180	180	0.8x	-
12-Nov-19	Wonchang Packaging Industry	Haesung Optics Co., Ltd.	29	86	-	-
06-Nov-19	Visy Cartons Pty Ltd	SIG Combibloc Group AG	48	48	0.8x	-
15-Oct-19	Tailim Packaging Co., Ltd.	SeAH Trading Co., Ltd.	180	-	-	-
10-Oct-19	Australasian Fibre Business of Orora	Paper Australia Pty Ltd	1,163	-	-	-
09-Sep-19	NEKICESA Packaging S.L.	Essentra plc (LSE:ESNT)	33	33	-	-
09-Aug-19	TRICOR Packaging & Logistics	Tri-Wall Germany GmbH	301	301	1.5x	-
27-Jul-19	Shenzhen Prince New Materials Co., Ltd. (SZSE:002735)	Jiangsu Manjiang Bitou Technology Development Co., Ltd	21	306	1.9x	19.9x
23-Jul-19	Substantially All the Assets of Artistic Carton Company	Graphic Packaging Holding Company (NYSE:GPK)	53	53	0.8x	-
20-Jul-19	Zhejiang Great Southeast Corp.	Zhuji Water Resources Group	174	598	2.7x	26.5x
25-Jun-19	Three Flexible Packaging Plants in the United Kingdom and Ireland of Amcor plc	Nelipak Corporation	394	394	2.3x	-
10-May-19	PT Fajar Surya Wisesa Tbk	SCGP Solutions (Singapore)	941	1,477	2.2x	7.7x
03-May-19	Mega Printing & Packaging	Daibochi Berhad (KLSE:DAIBOCI)	30	30	0.9x	-

Transaction Comparables

Date	Target	Buyers	Deal Value (USD mn)	Implied EV (USD mn)	EV/Revenue (x)	EV/EBITDA (x)
17-Apr-19	DS Smith Packaging Normandie (Packaging businesses in Saint-Amand and Cabourg (France)); DS Smith Plc (Packaging business in Ovar, Portugal)	International Paper Company	71	71		
27-Dec-18	Zhongshan Huali Packaging	Shenzhen Zhijie Investment Company Limited; Shenzhen Quande Investment Company	22	22	-	-
20-Dec-18	Caraustar Industries, Inc.	Greif Packaging LLC	1,800	1,800	1.3x	10.3x
13-Dec-18	Ranpak Corp.	Ranpak Holdings Corp.	960	960	-	-
06-Dec-18	Urban Forest Products, LLC/Clarion Packaging, Llc/Falcon Packaging, Llc	Cascades Inc. (TSX:CAS)	37	-	-	-
23-Nov-18	Jia Yao Holdings Limited	Undisclosed Investors	68	59.3x	0.7x	9.2x
07-Nov-18	Master Plastics Limited	Metier Investment & Advisory Services (Pty) Limited	20	22	0.6x	5.0x
15-Oct-18	BioPak Pty Limited	Duni AB (publ) (OM:DUNI)	46	61	-	-
21-Sep-18	Evropak, LLC	JSC Arkhangelsk Pulp and Paper Mill	61	61	-	-
31-Aug-18	Bronco Packaging Corporation	Orora Limited (ASX:ORA)	24	24	-	-
28-Aug-18	RPC Letica Corporation (Foodservice business)	Graphic Packaging Holding Company	95	95		
24-Aug-18	Laddawn, Inc.	Berry Global Group, Inc.	242	242	1.7x	-
06-Aug-18	Bemis Company, Inc.	Amcor plc (ASX:AMC)	6,829	6,778	1.7x	11.8x
02-Aug-18	Austin Foam Plastics, Inc.	Sealed Air Corporation (NYSE:SEE)	71	71	0.6x	-
02-Aug-18	Champion Alliance International Holdings Limited	Undisclosed Investors	79	100	2.8x	52.8x
26-Jul-18	CSP Technologies, Inc.	AptarGroup, Inc. (NYSE:ATR)	553	529	3.8x	13.0x
18-Jul-18	Polyair Inter Pack Inc.	Intertape Polymer Group Inc.	146	146	-	-
17-Jul-18	Richwood P&P Co., Ltd.	Ottogi Corporation (KOSE:A007310)	26	12	0.2x	2.2x
02-Jul-18	Perfection Packaging	Integrated Packaging Group Pty Ltd	36	36	-	-
30-Jun-18	Shenzhen Jinshengcai Packaging Materials	Shenzhen Kecai Printing Co., Ltd.	20	20	0.5x	-
14-Jun-18	Barcelona Cartonboard, S.A.U.	Reno De Medici S.p.A. (BIT:RM)	54	54	0.4x	9.1x
04-Jun-18	Papeles y Cartones de Europa	DS Smith Plc (LSE:SMDS)	2,202	2,101	2.0x	10.3x
31-May-18	CupPrint Ltd.	Huhtamäki Oyj (HLSE:HUH1V)	26	37	2.2x	-
29-May-18	Conitex Sonoco (BVI), Ltd.	Sonoco International (BVI), Inc.	135	190	0.8x	-
30-Apr-18	National Company for Paper Products and Import & Export	Mondi plc (LSE:MNDI)	29	29	0.9x	4.8x
04-Apr-18	Sunway Kordis Holding	Hengan Mega Jumbo Investments	23	23	-	-
16-Mar-18	ShenZhen YUTO Packaging Technology Co., Ltd.	Undisclosed Investors	32	3,245	3.0x	15.7x
13-Mar-18	NORDFOLIEN GmbH	RPC Group Limited	93	93	-	-
10-Jan-18	Shenzhen Oceania Printing	Undisclosed Investors	33	33	-	-
Average					**1.5x**	**13.8x**
Median					**1.1x**	**10.3x**

Featured Transactions

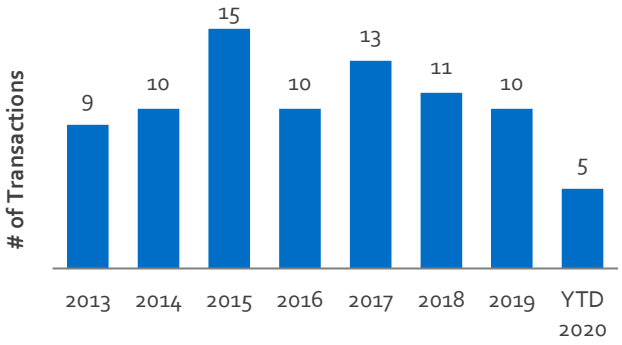
October 2019 – Nippon Paper Industries, a listed Japan-based company engaged in manufacturing and selling paper and paper products, agreed to acquire the Australasian Fibre Business of Orora Limited. The assets acquired include, Orora's B9 Paper Mill, fiber converting, specialty packaging, cartons, bags, functional coatings and Orora WRS packaging distribution. The acquisition will enable Nippon Paper to enter the integrated corrugated paperboard manufacturing business in the Oceania region.

May 2019 – The Siam Cement Public Company Limited, through its 99.04% owned paper and packaging products subsidiary named SCG Packaging Solutions, acquired a 55% stake in PT Fajar Surya Wisesa Tbk from an investor group including PT Intercipta Sempana. The transaction will allow SCPCL to enhance its ASEAN growth platform, especially in Indonesia that provides future growth opportunity.

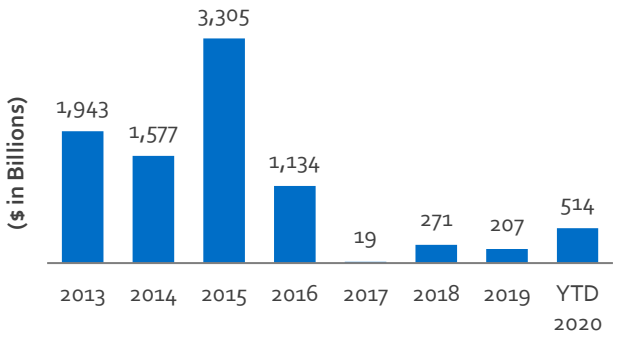
Glass Packaging

M&A deal activity in the Glass Packaging industry declined to 10 transactions in 2019, from 13 in 2017. During YTD Aug'2020, the deal count stands at 5 but the deal value has almost doubled compared to the full year of 2019. However, the increased deal value is on the back of a single large deal in Australia, incidentally the largest deal in the glass packaging industry in Australia.

Number of Transactions



Disclosed Deal Value of Transactions



Select Precedent Transactions

Date	Target	Buyers	Deal Value (USD mn)	Implied EV (USD mn)	EV/Revenue (x)	EV/EBITDA (x)
15-Jul-20	ACI Packaging Services	Visy Glass (Australasia)	514	514	1.0x	5.9x
13-Nov-19	Shandong Huapeng Glass	Shunhe Capital Management	31	441	4.0x	32.0x
27-Sep-19	Nampak Glass (Pty) Ltd.	Isanti Glass 1 Proprietary Limited	99	99	-	-
12-Sep-19	SAN Miguel Yamamura Asia	San Miguel Corporation (PSE:SMC)	6	6	-	-
28-Feb-19	Glass Business of Nampak Limited	Kwande Capital (60%) and SABSA Holdings (40%)	71	71	-	-
12-Nov-18	Grupo Vidriero CentroAmericano SA	O-I Glass, Inc. (NYSE:OI)	119	239	-	-
09-Jul-18	Middle East Glass Manufacturing Company	Unknown Investors	140	181	2.3x	7.8x
02-Apr-18	Frigoglass Jebel Ali FZCO	ATG Investments Limited	13	13	-	-
26-Jun-17	Salbro Bottle Inc.	TricorBraun, Inc.	2	2	-	-
05-Apr-17	J.G Finneran Associates, Inc.	Porvair plc (LSE:PRV)	14	14	-	-
31-Mar-17	Glass Container Company S.A.	IM Vinaria Purcari SRL	2	4	-	-
09-Feb-17	Drujba Glassworks SA	BA Glass I - Serviços de Gestão e Investimentos, SA	1	226	1.6x	5.9x
02-Nov-16	Anchor Glass Container	CVC Capital Partners; BA Glass B.V.	1,000	1,000	-	-
12-Sep-16	Kimble Chase Life Science and Research Products LLC	DWK Life Sciences GmbH	131	131	1.2x	
23-Jun-16	HNG Global GmbH	BA Glass I - Serviços de Gestão e Investimentos, SA	3	3	0.1x	-
08-Jun-15	Verallia SA	Apollo Global Management; Bpifrance Investissement SAS	3,301	3,301	1.2x	7.4x
22-May-15	Frigoglass Jebel Ali FZCO	Frigoglass S.A.I.C. (ATSE:FRIGO)	4	21	-	-
Average					**1.6x**	**11.8x**
Median					**1.2x**	**7.4x**

Featured Transactions

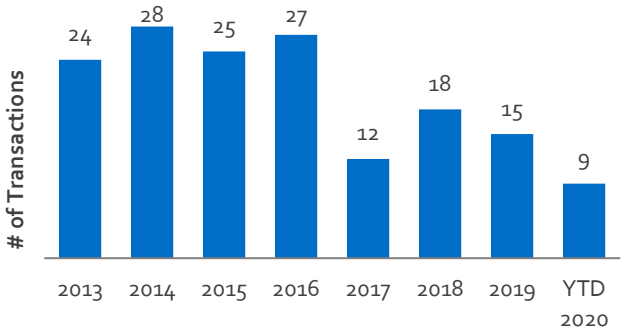
July 2020 – Visy entered into a definitive agreement to acquire the Australian and New Zealand glass manufacturing business of Owens Illinois (O-I) in a deal worth almost A$1 billion. Visy's main operations are in cardboard and plastic manufacturing but it has a modest glass manufacturing business, which will be significantly bolstered by the acquisition. Owens-Illinois' local division is the largest manufacturer of glass bottles and containers in Australia and New Zealand, supplying 850,000 tonnes of glass products during 2019

September 2019 – Kwande Group and South African Breweries Limited, a South Africa-based company engaged in manufacturing bottles, distributes beer and soft drinks, acquired Nampak Glass, a South Africa based glass manufacturing company, from Nampak Ltd. The acquisition is in line with Nampak's active portfolio optimization strategy that will allow Nampak to focus on its portfolio and to reduce its interest-bearing debt.

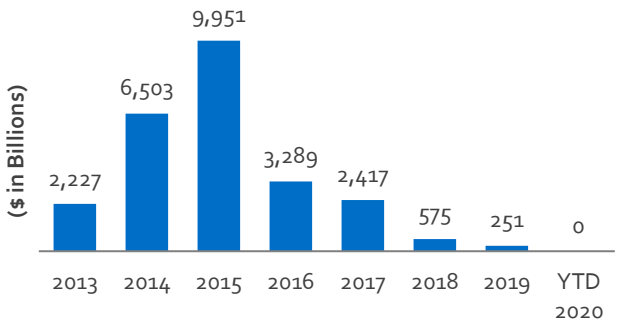
Metal Packaging

M&A deal activity in the Metal Packaging industry declined to 15 transactions in 2019, after experiencing elevated activity from 2013 to 2016. The recent challenges from COVID-19 are expected to create new M&A opportunities in the metal packaging market as private players seek additional liquidity and public players look to divest struggling or non-core assets.

Number of Transactions



Disclosed Deal Value of Transactions



Select Precedent Transactions

Date	Target	Buyers	Deal Value (USD mn)	Implied EV (USD mn)	EV/Revenue (x)	EV/EBITDA (x)
03-Aug-20	Can Packaging SAS	Sonoco Products Company	49	49	-	-
16-Apr-20	Guala Closures S.p.A.	Special Packaging Solutions Investments S.à r.l.	18	1,046	1.5x	8.2x
11-Mar-20	Tubex Industria E Comercio De Embalagens Ltda	Ball Corporation	80	80	-	-
23-Jul-19	Samkwang Can Co.,Ltd.	Hanil Can Company Ltd.	47	47	-	-
17-Jul-19	Alucon Public Company	TAKEUCHI PRESS INDUSTRIES	9	215	1.1x	4.8x
16-Jul-19	Packaging Progressions, Inc.	The Middleby Corporation	74	74	2.5x	-
14-Mar-19	ORG Technology Co.,Ltd.	Zhongtai Securities (Shanghai) Asset Management Co.,Ltd.	87	2,290	1.9x	10.0x
14-Mar-19	Harvest Epoch Packaging	CPMC Investment Co., Ltd.	12	83	4.2x	-
29-Jan-19	Binzhou Hongbo Aluminum Technology Co., Ltd.	Shandong Hongchuang Aluminum Industry Holding	22	22	1.0x	-
13-Dec-18	Kian Joo Can Factory Berhad	Can-One Berhad (KLSE:CANONE)	2	503	1.2x	13.2x
13-Dec-18	Ball Corporation (metal beverage packaging facilities)	ORG Technology Co., Ltd.	225	225	-	-
11-Oct-18	Lotte Aluminium	Hotel Lotte Co., Ltd.	106	1,116	1.3x	50.8x
21-Jun-18	Ball Metalpack (51% Stake)	Platinum Equity, LLC	600		-	-
14-Jun-18	Industrial Container Services	Mauser Packaging Solutions	1,000	1,000	-	-
02-May-18	Reboul SAS	AptarGroup, Inc. (NYSE:ATR)	28	28	2.3x	-
02-Mar-18	United Canister Corporation	Everpine Capital Ltd.	5	22	-	-
Average					**1.9x**	**6.5x**
Median					**1.5x**	**4.8x**

Featured Transactions

July 2019 – Hanil Can Company, the South Korea-based packaging products maker, has agreed to acquire steel can manufacturing business from Sam Kwang Glass Co., Ltd., the listed South Korea-based glass bottle and storage container manufacturer, for a consideration of KRW 51bn (USD 43.37mn). The transaction is in line with Sam Kwang Glass's strategy to improve management efficiency

July 2019 – The Middleby Corporation, the listed US-based company engaged in designing, manufacturing, marketing, distributing and servicing an array of cooking equipment and related products, has acquired Packaging Progressions, Inc. (trading as Pacproinc), the US-based company engaged in automated packaging technologies. The Pacproinc solutions are highly balancing to Middleby's existing processing technologies and will enable Middleby to supply a more complete system to customers and further extend its offerings in different categories.

10

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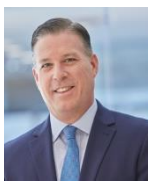

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