

CHIEF INVESTMENT OFFICE

Investment Insights

A Primer on Plastics: What Investors Need to Know

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There is probably nothing more ubiquitous and mundane as plastic. Light, durable and cheap, plastic emerged as a substitute for concrete, glass, metals and a host of other materials starting in the 1950s. Today, it can be found in virtually every product imaginable; every region of the world; every ocean, including the Arctic and Antarctica; numerous wildlife species like birds, fish and whales; and yes, even humans. Researchers recently found a variety of microplastics in stool samples of people—such is the explosive use and proliferation of plastic over the past few decades. Presently, some 350 million tons of plastic are produced each year.

Single-use plastic (for example, using a plastic bag, straw or bottle once and then discarding it) has become so prevalent that Collins, the dictionary publisher, chose “single-use” (as in “single-use” plastics) as their word of the year in 2018. In short, the world is at a tipping point when it comes to plastic, with plastic rapidly becoming as culturally stigmatizing as tobacco due to its damaging effect on the environment and a host of species. As the *Financial Times* recently noted, “plastic, an emblem of postwar consumerism, is triggering a spasm of disgust.”¹

As the global backlash to plastic builds, it’s important to understand the size and scale of the challenge. So some salient numbers to consider from data as of 2018 – 2019:

- A single-use plastic bag from a typical store has a useful life of 15 minutes but takes a staggering 500 to 1,000 years to degrade.³
- The U.S. goes through 100 billion plastic shopping bags annually.²
- Plastic diapers and sanitary pads take between 500 and 800 years to biodegrade. Styrofoam takes 5,000 years. Glass takes 1 million years.³
- In the U.S. alone, some 2.5 million plastic bottles are thrown out per hour. Each one takes 500 years to decompose, according to Recycle Across America.
- Americans throw out 40 billion soft drink cans and bottles each year—placed end to end, they would reach to the moon and back 20 times, according to Eco-Statistics.

¹ *Financial Times*, “Plastic Packaging: Bottling it”, July 15, 2019.

² United Nations.

³ National Geographic.

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- Production has grown at such a breakneck pace that virtually half the plastic ever manufactured has been made in the past 15 years.³
- Only 9% of all plastics in the U.S. are recycled. Roughly 12% of all plastic use in the U.S. is incinerated, while 79% of plastic ends up in landfills basically forever.³
- Some 8 million tons of plastic seep into our oceans each year, which is the equivalent of dumping one garbage truck in the ocean per minute.³
- There are about 46,000 pieces of plastic floating in every square mile of our oceans. In the Great Pacific Garbage patch, for every 2.2 pounds of plankton, there is 13.2 pounds of garbage.²
- According to the World Bank, there could be more plastic than fish (by tonnage) in the ocean by 2050, based on current rates of usage and recycling.
- Worldwide, people use an estimated 1 trillion plastic bags, which equates to 100 million barrels of oil.²
- Speaking of oil, by 2030, one-third of all oil demand will emanate from the petrochemical industry to produce more plastic, according to the IEA.

The Great Awakening

The bad news is that the great plastic crisis is upon us. The good news: Countries, companies and consumers are slowly waking up to the crisis and future challenges. A global backlash against disposable plastic is gaining traction, creating potential investment opportunities.

A growing list of nations, for instance, has banned plastic bags, imposing steep fines and jail time on violators, with Kenya leading the charge. By 2020, France is committed to banning plastic plates and cups. Bans on plastic microbeads in cosmetics as exfoliants are planned to take effect this year in the U.S., Canada and the U.K. Prime Minister Justin Trudeau of Canada is expected to ban “harmful” single-use plastics as early as 2021. Similar legislation has passed through the European Parliament, which voted to ban single-use plastic items including straws, food containers and cotton bud sticks to encourage sustainable alternatives.

A recently proposed law in New York City would ban the sale of single-serve bottles at parks, golf courses and other public venues. In Mumbai, India, the government has banned water being sold in small bottles; Berlin and London have adopted similar measures. At this year’s Wimbledon tennis tournament, plastic racket wrappers were banned. In Indonesia, the sprawling city of Surabaya, residents can pay their bus fare by recycling 10 plastic cups or up to 5 plastic bottles. In Estonia, citizens can now exchange plastic, glass and cans for cash or charity donations. Recycling vending machines populate Tallin, the nation’s capital, making it easier and more convenient for consumers to kick-start a consumer-driven plastic recycling process.

In Washington D.C., yet another city to ban the use of plastic straws, “straw cops” now patrol public areas like Union Station looking for fast food outlets dispensing plastic straws; violators could face fines of up to \$800.

Companies are also getting into the act. H&M, the British retailer, has halted use of plastic bags in Japan. Evian, the French bottling company, hopes to use only plastic bottles from recycled plastic by 2025, up from 30% today. Nestlé and PepsiCo are working hard in

² United Nations.

³ National Geographic.

similar efforts, with the goal of making all plastic bottles recyclable by the next decade. Coca-Cola, through the company's World Without Waste Initiative, hopes to collect and recycle the equivalent of every bottle or can the company sells globally by 2030.

Among the world's largest consumer product groups, firms like Procter & Gamble, Pepsi and Unilever plan to start selling some of their products in glass, steel and other containers designed to be returned, cleaned and refilled. Unilever estimates that a refillable steel container for its Dove stick deodorants will last eight years, which is long enough to prevent the disposal of as many as 100 traditional deodorant packages. The Danish brewery Carlsberg recently unveiled a wood fiber bottle.

China says “no thank you”

Then there is China. Long the largest importer of the world's waste, China has decided not to be the world's dumpster anymore. After accepting and importing nearly half of the world's scrap/waste over the past few decades, China suddenly put a ban on imported plastic waste and other materials in 2018. Why? Because the country wasn't making any money recycling low-quality, contaminated and toxic items like garbage bags, bubble wrap, bottles, and was only adding to its own pollution problems in the process.

The upshot: As a result of China's garbage import ban, waste is piling up in places like Japan, which produces the largest amount of plastic waste per capita, according to the United Nations Environment Program, after the U.S. Scrambling, the Japanese government has mandated that retailers charge for shopping bags and slash the use of microplastics in facial scrubs and toothpaste. In the United States, which has traditionally exported one-third of all its trash, notably to China, numerous cities are struggling to cope with the mounting levels of municipal trash. For decades, wealthier countries shipped their plastic waste to developing nations, notably China, but today, even the world's underdeveloped nations don't want other people's waste.

The bottom line

There is a mounting premium on reducing the global footprint of plastic. Countries, companies and consumers are increasingly aware of the plastic plague, putting into motion various efforts on multiple fronts. At the forefront are the following: 1) finding alternative materials to plastics; 2) greater spending on the global recycling infrastructure; 3) increased investment in potential bio-degradable plastic materials; 4) new consumer packaging/wrapping technologies; and 5) a laser-like focus on the creation of the circular economy, where the world of “take, use and dispose” is upended for one that is “reduce, reuse, recycle.” Finally, from the point of view of impact investing, we believe investors could likely reward firms that are at the forefront of finding solutions to the great global plastics crisis.

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Indexes are all based in dollars.

S&P 500 Index includes a representative sample of 500 leading companies in leading industries of the U.S. economy. Although the index focuses on the large-cap segment of the market, with approximately 75% coverage of U.S. equities, it is also an ideal proxy for the total market.

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