

Berry Global, Inc. (NYSE:BERY)

BUY – Value

Security Description



Berry Global, Inc. is a multinational conglomerate which manufactures plastics. The company operates four segments: Consumer Packaging – North America, Consumer Packaging – International, Engineered Materials, and Health, Hygiene, and Specialties.

Investment Thesis

1. Berry Global is undervalued from the perspective of both marketplace transactions and comparable valuations.
2. Plastic sustainability has become a global economic initiative but is still young and developing. This incoming shift in demand will be best met by large entities like Berry Global – and only a few others – who procure raw material at enough quantity for pricing advantage.

Catalysts

- **Acquisitions:** The company intends to spend at least \$325 million in growth CAPEX each year, targeting health/hygiene markets and international geographies, namely China.
- **De-Leveraging:** Berry Global fell out of favor despite its industry leadership due to the high debt load. The business expanded into new geographies and segments while growing EBITDA using low-cost debt; now, it can further de-lever and expose the underlying value of the business to investors who scoff at debt load and speculative-grade credit ratings.

Buy Rating

- We prescribe a \$85.50 price target based on our discounted cash flow analysis.
- We deduce a \$88.77 price target using a 10x EBITDA multiple applied to LTM EBITDA and support our valuation with marketplace transactions and comparable analysis.
- The company grew free cash flow at a CAGR of 21% since 2013. Assuming no growth applied to our NTM free cash flow estimate, shares are still worth \$71.56 (14% upside).

Valuation	
Current Price	\$ 62.80
Price Target	\$ 85.50
Upside	36%
EBITDA Multiple Target (10x LTM)	\$ 88.77
Upside	41%
Zero Growth Price Target	\$ 71.56
Upside	14%

2020	
Enterprise Value	\$ 15,741
Book Value	\$ 2,092
EV/EBITDA	7.8x
Liabilities/Market Cap	1.71x
Liabilities to Assets	0.86x
EBITDA Margin	17.29%
Gross Margin	20.57%
EBITDA ROA	12.12%
Sales Multiple	0.73x
FCF	\$ 947
FCF Yield	14.77%
FCF Multiple	9.0x
P/E	15.25x

Overview

- **Diversified, International Portfolio:** All four segments generate cash, enjoy cash flow growth, and enjoy cost synergies from acquisitions. The end products are vast and diversified; with newfound scale and four sources of cash flow, the debt reduction plan should go forward without interruption.
- **We Anticipate a Pause in The Company's Aggressive Acquisitive Nature:** In the past, de-leveraging had been successful, but the company paused the program several times to acquire more businesses. The last major acquisition was RPC Group, Plc., which integrated nearly all international revenue (now 32% of sales). With the geographic expansion into Europe, Berry Global can reduce aggressive CAPEX programs and focus on de-leveraging the business as management has guided.
- **Recycled Plastics Market:** sustainability initiatives are developing but Berry Global is well equipped to address them. The European Union leads the world in recycling and Berry Global purchased RPC to expand into European operations. As the situation develops in Europe, Berry Global will learn and apply best practices in North America. The consolidated Berry entity retains purchasing power to procure recycled resin feedstock and invests to expand in-house recycling operations. There is only one company that matches Berry Global's scale – Amcor – which does less than a billion dollars more in business. Amcor spent \$97 million in research and development in 2020 compared to \$64 million in 2019. Berry Global spent \$79 million in 2020 compared to \$50 million in 2019.
- **Partnerships Drive Decisions:** Berry Global's capital allocation, according to management, is stringently administered on a customer basis. Anytime an expansion opportunity is undertaken, it is a deliberate investment alongside a customer. Therefore, it is likely both international CAPEX and sustainable-plastics CAPEX will be a (well educated) function of the industry.
- **Inflation is a 'Pass Through' but a Risk:** inflation of Berry Global's main raw material, resin, contractually passes onto consumers. However, only 50% of cost of goods is resin and only 70% of procured resin 'passes through' in this mechanism, equating to only 35% of total cost of goods. Moreover, the pass-through mechanism offsets price increases 45 – 90 days after costs are incurred, leading to reporting lags. In the past, resin inflation has led to uncertainty; however, the company now procures more resin (7 billion pounds a year) and consolidates freight operations acquiring RPC. The net effect of inflation is engineered to offset (70% of it); but overall, the business will suffer from excess resin inflation (pages 5 – 7 explain recent inflation). Further, inflation at the core CPI level and any subsequent short term interest rate increase will increase interest expense from the debt balance as well as freight cost.

Berry Global

Berry Global is a multi-national plastics manufacturing conglomerate. The company employs over 47 thousand workers, operates in 39 countries, and serves over 13 thousand customers. Revenue in the industry is stable but Berry is a capital-intensive business that grows via acquisition; the company completed 47 acquisitions in the past 32 years. We delineate recent and most salient acquisitions on page 3, which, together, have become the following main segments.

- **Consumer Packaging International** – Containers, dispensing systems and closures, bottles, cups, lids, canisters, plastic film, and pharmacy vials and inhalers.
- **Consumer Packaging North America** – In addition to the same products manufactured in the international segment, Berry Global offers food service plastics for hot and cold beverages used in restaurants, convenience stores, stadiums, and retail tapes.
- **Engineered Materials** – Hand and machine-wrap films used for the storage and shipping of product/product packaging, printed film for fresh food, converter film (which is film used to produce products such as branded packaging), food-bags, trashcan liners, tapes, retail bags, and agricultural film.
- **Health, Hygiene, and Specialties (HHS)** – Surgical drapes, cleaning wipes, facemasks, medical garments, diapers, and dryer sheets.

54% of business is done in North America, 33% of business is done in Europe, and 13% of business is done in emerging markets (see appendix for pictures of products).

Q1 2021

Revenue has remained resilient in the face of The Pandemic. Berry Global delivered 11.4% YoY growth in Q1 2021 while also growing EBIDTA by 25%. Berry Global forecasts 4% top line growth in 2021.

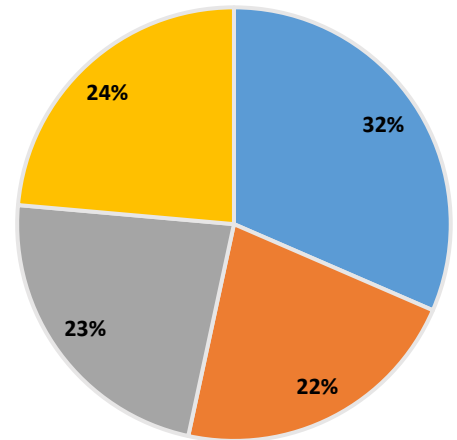
- Consumer Packaging – International delivered 6% growth; segment EBIDTA grew 28%. Berry Global forecasts low-to-mid single digit growth for the segment in 2021.
- Consumer Packaging – North America delivered 12% growth; segment EBIDTA grew 15%. Berry Global forecasts low-to-mid single digit growth for the segment in 2021.
- Engineered Materials delivered 8.6% growth; segment EBIDTA grew 7%. Berry Global forecasts low-to-mid single digit growth for the segment in 2021.
- HHS delivered 21% growth; segment EBIDTA grew 50%. Berry Global forecasts mid-to-high top line growth for the segment in 2021, citing that there is increased interest in sanitization products despite a lessening Pandemic crisis.

Guidance of 4% overall growth is prescribed considering HHS strength, reopening (current revenue reflects periods of ‘modified reopening’s’ for restaurants), and expected rebound in consumer spending.

The majority of Berry Global’s food service business (32% of total sales and 60% of Consumer Packaging – North America) is quick-service-restaurants (QSR), who are expected to rebound as The Pandemic subsides. The Pandemic forced QSRs to adapt to stay-at-home measures (drive-thru and dine out) and management disclosed this also benefitted Berry Global’s consumer packaging product mix.

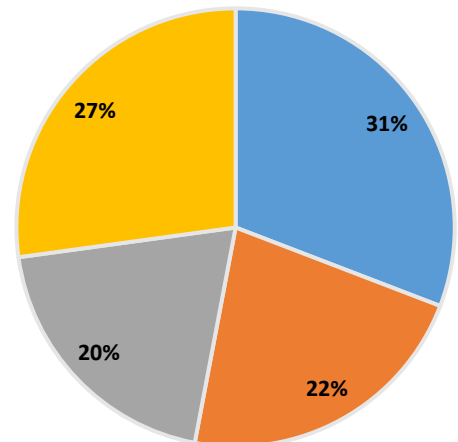
Berry Global generated \$1.9 billion in free cash flow and paid down \$2.4 billion in long term debt (net) over the last four quarters.

Segment Revenues



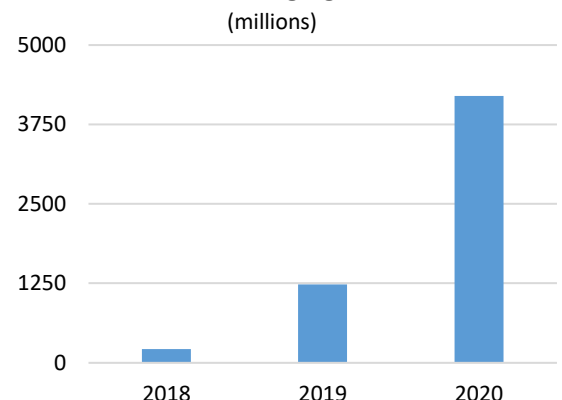
- Consumer Packaging International
- Consumer Packaging North America
- Engineered Materials
- Health, Hygiene & Specialties

Segment EBIDTA



- Consumer Packaging International
- Consumer Packaging North America
- Engineered Materials
- Health, Hygiene & Specialties

Consumer Packaging International



Berry Global is a Conglomerate Built Through Acquisitions

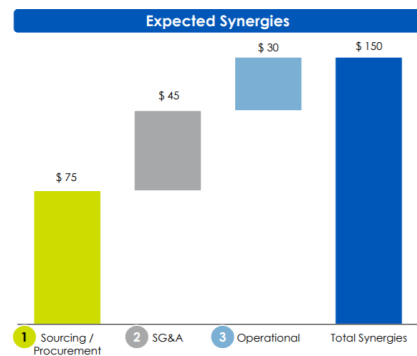
- In 2015, Berry Global acquired Avintiv, Inc. for \$2.45 billion at a price of 14x EBITDA. Avintiv had over \$1.9 billion in debt and the acquisition increased Berry Global’s net leverage from 4.4x to 5.2x. This brought in the HHS segment (HHS became 90% Avintiv) with sales of over \$2 billion.
- In 2016, Berry Global acquired AEP Industries, which became 45% of the engineered materials segment. Berry Global paid \$765 million for EBITDA of \$103 million, bringing in a \$1 billion division for a price of 7.4x EBITDA.
- In 2017, Berry Global acquired Clopay Plastic Products Company for \$475 million. Clopay generated \$461 million in sales and EBITDA of \$53 million (9x EBITDA, but 6.5x adjusted for cost synergies). Clopay served hygiene, healthcare, construction, and industrial protective apparel markets.
- In 2019, Berry Global acquired RPC Group for \$6.1 billion in equity value (and assumed \$2.2 billion in debt), pricing the transaction at approximately 13.6x EBITDA. RPC was the largest acquisition by Berry Global and most important since AEP Industries, bringing in \$4.8 billion in revenue.

Target	Date	Price	EBITDA	Revenue
Stopaq	June 2012	\$62M		\$29M
Prime Label and Screen Incorporated	October 2012	\$20M		
Graphic Plastics	September 2013	\$62M		\$100M
75% of Qingdao P&B	January 2014	\$35M		\$34M
Rexam Healthcare Containers and Closures	June 2014	\$130M		\$262M
AVINTIV	October 2015	\$2.45B	\$303M	\$2.1B
remaining 28.75% outside ownership of Providência	January 2016	\$66M		
AEP Industries Inc.	August 2016	\$735M	\$103M	\$1.1B
Adchem	June 2017	\$49M		
Clopay Plastic Products Company	November 2017	\$475M	\$53M	\$461M
Laddawn	August 2018	\$242M		\$145M
RPC Group	July 2019	\$6.1B	\$768M	\$4.8B
Seal For Life	July 2019	-\$326M		\$120M

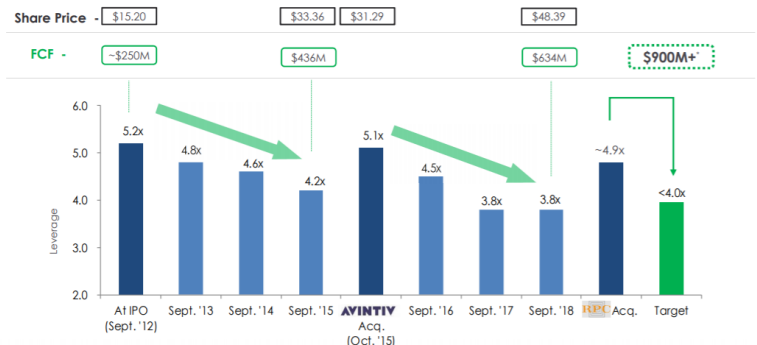
Source: Blue Tower Asset Management

- With this completed, Berry Global now plans to focus on de-leveraging the business. The company is global and the second largest (close to largest) plastics manufacturer on the planet. The deal helped the company inherit perpetual procurement synergies.
- The company should indeed continue decreasing its leverage and increase its credit rating. Investment firms will still scoff at the greater-than-four-times net leverage of the business before considering the investment. Despite our opinion that the debt is serviceable and reduces cost of capital, the equity will benefit from increased visibility to investment firms.
- Berry Global anticipates the RPC acquisition will yield \$150 million in synergies. From a competitive standpoint, procurement of raw material is the most important Berry-RPC synergy which allows for better pricing on all feedstock, including recycled feedstock for new, developing ‘sustainability’ business.

Compelling Synergy Opportunity



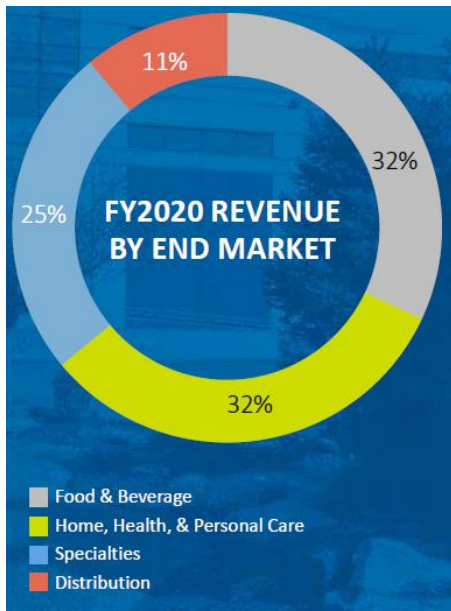
Ability to Rapidly De-lever Post Acquisition While Still Investing In the Business



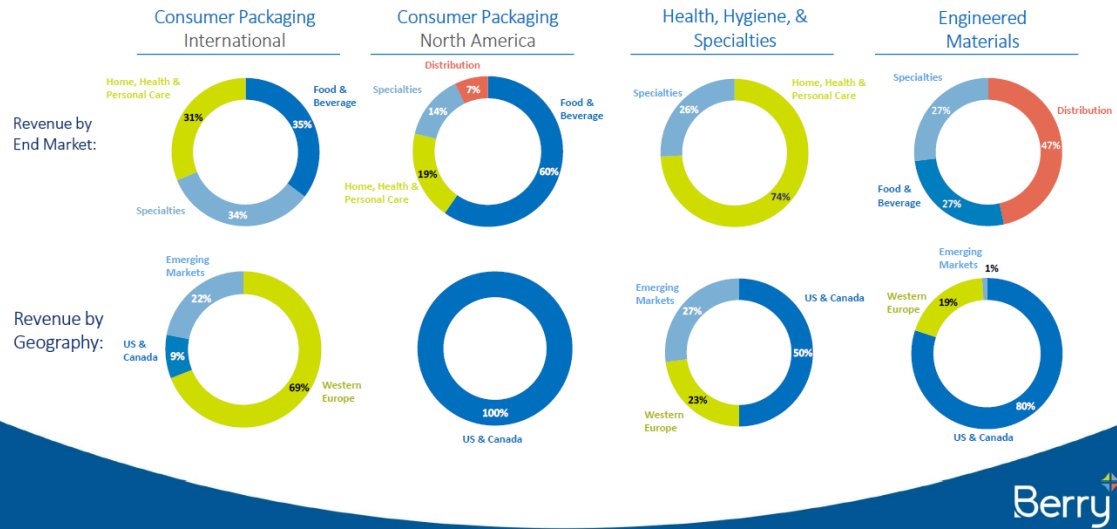
- Several of the preceding acquisitions were transformative and materially increased consolidated Berry Global scale. We analyze historic resin price fluctuations and Berry Global gross margin on pages 5 – 7.

Berry Global took on more debt to complete its major acquisitions. Management now targets net leverage to adjusted EBITDA at a range of 3 – 3.9x, currently at 4.1x (down from over 5.0x). Now that the conglomerate is a multinational entity with two major end markets, we anticipate it will finally follow through on debt paydown.





Segment Breakdown – End Market and Geography

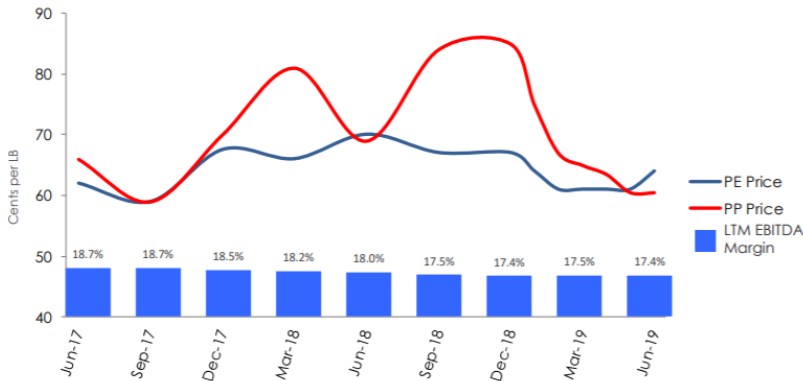


We identify the following as critical marketplace dynamics for the business:

- Raw material prices – namely resin and natural gas – which directly impact the cost of goods.
 - Plastics manufacturers negotiate contracts with customers which allow for ‘pass-through’ in inflation costs (in this case, inflation takes form in raw material prices). Berry Global maintains it has ‘very effective pass through’ at approximately 70%. If all inflation is passed onto the consumer (not true), the only risk is the lag in ‘passing through.’ Materials are purchased ahead of schedule and/or as needed, meaning inflation is not passed through immediately; but (70% of) the effect is engineered/targeted to be negligible over time (the lag/inflation offsets in 45 to 90 days for Berry Global).
 - Berry Global is the largest purchaser of resin in the world; the company purchases 7 billion pounds annually. Moreover, with the acquisitions of Avintiv and RPC in 2015 and 2019, Berry Global expanded internationally and serves diverse global markets. There is risk in hyperinflation, as with any raw material, but Berry Global retains the [resin] purchasing power other competitors do not (Amcor is a close second). Resin is 50% of Berry Global’s cost of goods sold.
 - 55% of resin feedstock procured is polyethylene.
 - 40% of resin feedstock procured is polypropylene.
- Cost of labor – wages are expected to rise and will increase expenses, likely gradually and in perpetuity.
- Customer and end-user demand for biodegradable, recyclable, and recycled plastics.
 - A growing phenomenon in the plastics industry is recyclable plastic and the reduction of plastic waste. Berry Global has in-house recycling facilities; we expect more CAPEX to be allocated to these facilities. Moreover, we delineate some of the partnerships Berry Global is involved with that incorporate recycled plastics in end products. Although this phenomenon is growing, it has its challenges.
 - Customers include large retailers including Clorox, PepsiCo, and Unilever. Berry Global manufactures private label products used in retail and e-commerce end-products. Berry handles manufacturing and labeling (digital printing, in-mold printing, and direct printing), and touches most aspects of the production of plastic packaging. Therefore, customers must consult with manufacturers when undertaking recycling initiatives.
- Resilience of demand for HHS products after the passing of The Pandemic.
 - HHS delivered the highest growth in the Berry Global portfolio. The segment grew 21% YoY in Q1. Management expects more excess growth in 2021, citing renewed interest in sanitization products. The HHS segment is also the highest margin business for Berry Global.
- Acquisitions will continue as manufacturers seek new opportunities in emerging markets. Consolidation is not unique to Berry Global.
- Sustainability in Plastics – explained in detail starting on page 8.

Berry Global Increased Inflation Resistance Through Acquisitions

Volatility in resin prices does effect Berry Global margins despite contractual pass-through. Resin is approximately 50% of COGS. Polyethylene (PE) is 55% of resin procured and 40% is Polypropylene (PP).

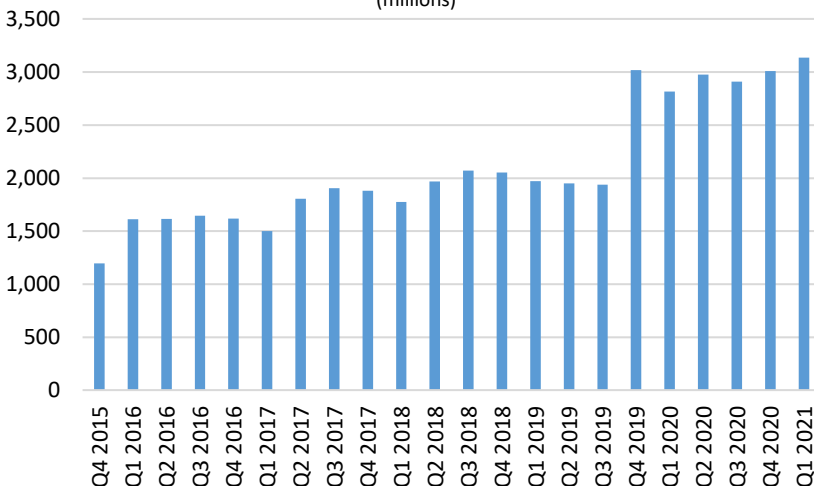


After integrating AEP, Inc. (2016), the company inherited procurement advantages. Per investment firm Rhizome Partners:

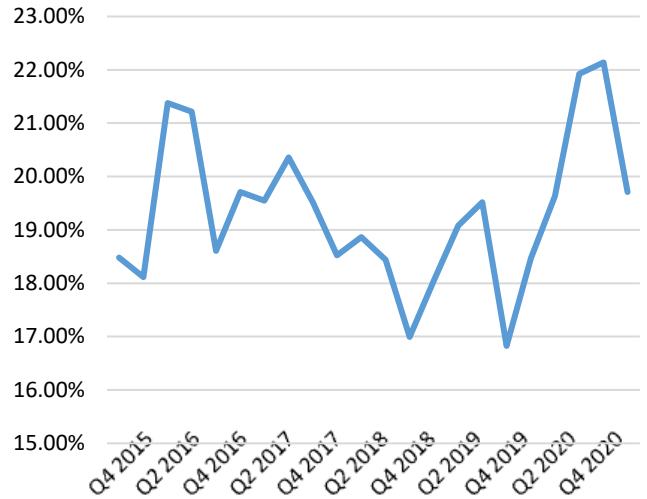
- ‘... someone of Berry’s magnitude would get around 40% off a list price for resin. Now very few people would pay the list price. Our understanding is that someone like AEP [acquired by Berry but standalone revenue of \$735 million in 2016] would pay something in the neighborhood of a 20% discount off that list price.’
- Revenue then grew 47% in 2019 after acquiring RPC. Scale will help battle inflation going forward.

Other cost of goods sold include other raw materials, coloring, and freight operations; each of these will benefit from RPC synergies and scale.

Berry Global Revenue
(millions)



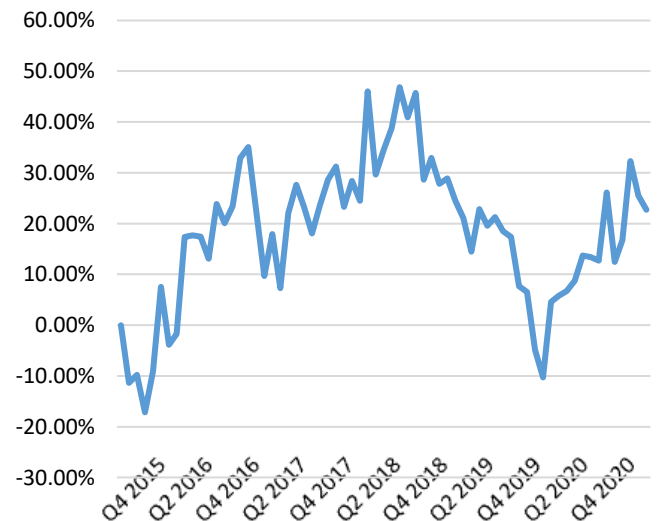
Berry Global Gross Margin



Polyethylene Futures Historical Data



Polypropylene Futures Historical Data



Resin Market

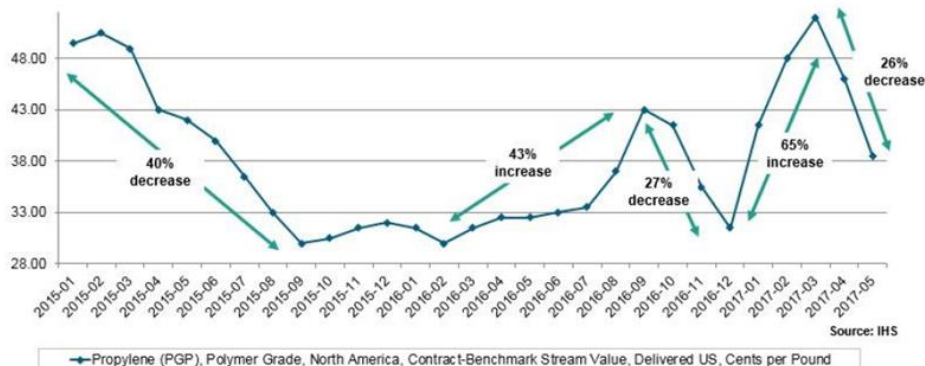
- Resins (both PP and PE) are made by chemical companies and sourced from oil; these are the largest costs for all manufacturers. According to Goldman Sachs, resin prices are 90% correlated with crude oil prices.
- In 2020, IBISWorld forecasted natural gas prices to grow 4% a year through 2025, delineating inflation risk. The pass-through mechanism in the face of rising raw materials can help manufacturers realize modest revenue growth from price increases; however, our determination is that most of the inflation – especially the inflation we observe in PE and PP, as well as inflation in non-pass-through inputs – is a negative for Berry Global. Still, Berry Global is better equipped to deal with inflation compared to peers (in terms of purchasing power and inflation pass-through). However, if the industry does indeed fall out of favor and Berry Global has not delivered satisfactorily, the equity will lose value.
- Polyethylene is estimated to account for 30% of total industry revenue (IBISWorld). It is used for plastic bags, films, bottles, and pipe systems. Demand is expected to increase, sourced by personal care products, home cleaning agents, detergents, and e-commerce packaging needs. Polyethylene is also commonly used in milk jugs, the most recycle-able plastic product.
- Polypropylene is used in food storage, textiles, and automobiles.
- Another end industry that sources these resins is construction, in which residential development requires the use of plastics. Construction is anticipated to account for 17% of demand in the plastics market (IBISWorld).
- Geographically, China accounts for 44% of global plastics revenue (Grand View Research). It is the primary geography Berry Global intends to focus CAPEX on. It is cited by the company as the primary growth opportunity (Asia), followed by the HHS segment.
- Manufacturing is anticipated to be 28% of demand for the global plastics industry; exports are anticipated to be 50% of demand (IBISWorld).
- Berry Global’s net effect for every one-cent move is approximately \$7 million in working capital, according to management. Goldman Sachs’ research affirms Berry Global is better able to absorb resin inflation compared to competitors (figure below).
- IBISWorld and Berry Global anticipate packaging will contribute to greater market share for plastics consumption due to increased consumer goods and e-commerce demand. By one estimate, the average Amazon package is dropped 17 times in route to delivery (satisfactory packaging alleviates freight issues).
- The inflation we observe presents a hurdle for sustainability initiatives. These will take a backseat when manufacturers face inflation (further explained on page 10).
- Major chemical companies supplying resins are:

- DowDuPont
- Wacker Chemie
- Hexion
- SABIC
- Chevron Phillips
- Exxon Mobil
- BASF

	AMCR	BERY	SEE
Annual Resin Purchase (lbs)	5.0bn	7.0bn	1.0bn
Contractual pass-thru %	70%	70%	40%
Lbs. on pass-thru	3.5bn	4.9bn	0.4bn
Resin price increase (per lb)	\$0.04	\$0.04	\$0.04
Lag period (months)	2	2	6
EBITDA impact	-\$23mn	-\$33mn	-\$8mn

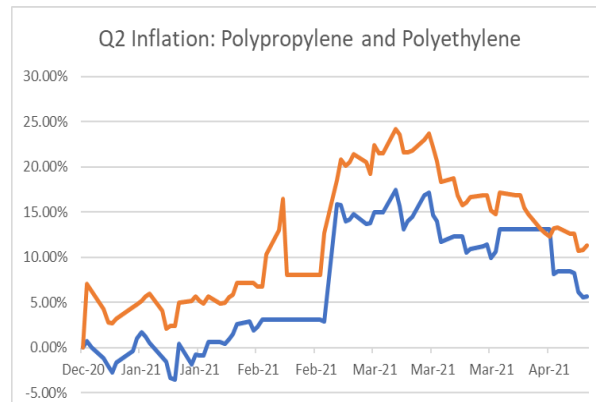
Source: Company data, Goldman Sachs Global Investment Research

Historic Volatility in Resin

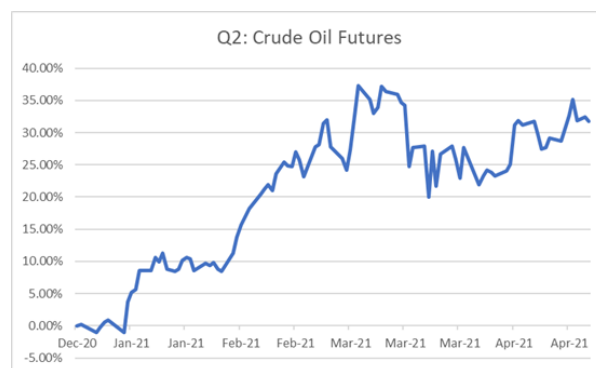


Resin Market Developments in Fiscal Q2 2021

- During fiscal Q2, inflation not only persisted, but rose dramatically. Most new inflation is attributable to an unforeseen winter storm in the U.S. Gulf Coast in February 2021. The storm caused outages and closures in refineries and petrochemical plants. Plastics Today cites that 80 – 85% of all U.S. polypropylene and polyethylene production was affected. This is very material recent event that will continue to develop in coming months. Prices are going to rise again in Q2, and possibly in Q3 (although expected to absorb the shock by then). It is also likely that price normalizes later this year, as many firms predict. The inflation is an effect of a supply shortage that should eventually come back into balance.
- IHS Markit expects prices to begin falling in April/May 2021; so far, prices have fallen only slightly. Plastics Today, on the other hand, foresees a lengthy supply/demand imbalance that may drag on for months before prices normalize.
- The effect of resin inflation, as we delineated, presents a net negative to the business and all businesses in this sector. However, Berry Global’s scale and industry-leading-procurement and contractual ‘pass-through’ allows the company to fare best against inflationary pressure in resins. Furthermore, inflation in this resilient, recession-resistant industry will not stir away demand. Demand in consumer packaging and health/hygiene end products is expected to rise for the remainder of 2021.



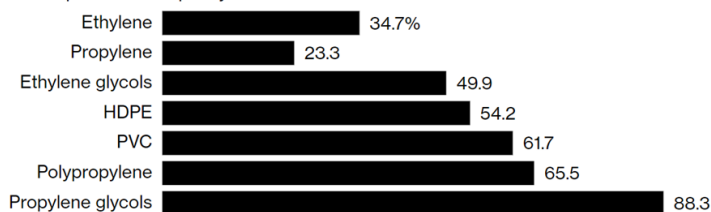
Orange – Polypropylene Blue – Polyethylene



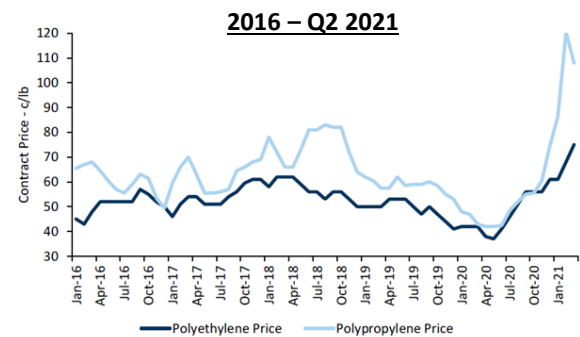
Supply Shortfall

Winter storm on Gulf Coast is having a severe effect on plastics production

■ U.S. production capacity offline



Source: ICIS



Source: IHS Chemical, Goldman Sachs Global Investment Research

Polyethylene Price Forecast



Source: IHS Chemical, Goldman Sachs Global Investment Research

Polypropylene Price Forecast



Source: IHS Chemical, Goldman Sachs Global Investment Research

International Market for Plastics

- The global market for plastics is expected to grow at a CAGR of 3.4% from 2021 to 2028, according to Grand View Research (April 2021). One of the driving factors behind global demand is the intention of automakers to reduce vehicle weight, opting for plastics over the use of metals (aluminum, steel) whenever possible. Chinese and Indian construction projects, as well as foreign investments, are cited as another driver.
 - According to Nexant, ‘there are about 30,000 parts in a vehicle, out of which 1/3 are made of plastic.’
 - Berry Global serves this market, but it is unclear how much of total revenue this makes up. The engineered materials segment itself is 23% of total revenue.
- According to Grand View Research, the global recycled plastic market is expected to grow at a CAGR of 5.0% from 2020 to 2027 (September 2020). This compares to a CAGR of 3.4% overall plastic market growth. The largest driver of recycled plastic is plastic bottles used for beverages.
- The Pandemic has affected demand for plastics in end markets, both negatively and positively, per Grand View Research. Demand has been sluggish in automotive, packaging, utility, and consumer goods industries while demand across healthcare and medical devices has been robust. Plastics packaging has been sluggish in luxury, industrial, and business to business transport industries and robust in healthcare products and e-commerce transportation.
- K-Online, the leading trade fair for plastics and rubber, estimated the plastics market in Southeast Asia to grow at a CAGR of 5.5% from 2018 – 2023 (compared to the above referenced 3.4% global CAGR for plastics). Berry Global plans to invest into China operations and more emerging markets.
- The Asia Pacific recycled plastics market is anticipated to grow at a CAGR of 6.5% from 2019 – 2025, per Grand View Research (November 2019). This compares to the 5.5% anticipated CAGR for the overall plastics market in Southeast Asia.
- A 2019 Grand View Research report predicts an 8.9% CAGR for the plastics compounding market (a smaller subset in plastics overall, but relevant to the future of manufacturing). Compounding is a chemical recycling process with promising prospects but is still developing. In compounding and re-compounding, plastic is melted with other additives and reduced into a molten state to achieve properties such as flame retardance, coloring, and structural strength. Compounding can be done more than once and many times over, a desirable circular economy trait. Properties lost in mechanical recycling can be re-instituted using compounding instead; for example, glass fiber can be added to molten plastic to achieve desired rigidity and stiffness.
- Plastics recycling and recycling capabilities are expected to grow. The immediate issue at hand – other than costs and learning-curve – is recycling of plastic, not replacement of plastic. Per the CEO of Berry Global, ‘*Plastic is not the problem. Plastic waste is the problem.*’
 - Berry Global is building recycling capabilities in-house. Currently, Berry Global can service 300 million pounds of recycled resin annually. This is only 4.3% of annual resin procurement but the company states it does not know of any competitor purchasing these levels of recycled resin feedstock. In-house recycling will be part of CAPEX going forward; the company maintains 300 million pounds is substantial but not enough to service all the demand expected. It has 300 million pounds on hand and seeks to increase this program and procure 300 million pounds annually.

Sustainability

Berry Global intends to invest in mechanical and chemical recycling, use recycled plastic in packaging, and commit to reducing plastic-based waste.

- Mechanical Recycling is the recovery of plastic waste using processes such as grinding, washing, separating, and drying. This process ‘crushes plastic and remelts it’ into raw material. This is the currently the most common method and useful for garbage bags, car parts, and non-food packaging. In this method, the reprocessed material can be mixed with virgin resin for superior plastic. According to Multidisciplinary Digital Publishing Institute (MDPI), this process is inexpensive but requires ‘substantial initial investment.’ The main critique of this recycling method is that plastic is not perpetually recyclable.
- Chemical Recycling turns plastic ‘into a synthetic crude oil that can be refined into diesel fuel, gasoline [and synthetic gas], heating oil, and waxes.’ According to MDPI, not all companies can engage in chemical recycling because it requires ‘a lot of investment and expert personnel.’ There are several methods of chemical recycling – MDPI lists 12 – but only 2 have achieved commercial maturity (called glycolysis and methanolysis, 2017).
- Both the preceding methods run into the risk of contamination of plastic from its prior life-cycle and during production/recycling. This is explicitly noted by the FDA as a concern for recycled plastic material used in food product.

Despite these processes, it is the collection of plastic waste which is most critical to Berry Global and the supply chain. Most plastic waste is not recycled. Many companies are implementing processes recycle, but the end user must also deliberately recycle for sustainability to work.

The Ellen MacArthur Foundation and United Nations Environment Program reports findings from over 500 organizations including over 250 business, 200 endorsers, and 20 governments.

- The Foundation’s Global Commitment 2020 Progress Report delineated:
 - 22% growth from 2018 – 2019 in recycled content used in plastic packaging.
 - 43% growth in the number of reported pilot programs for plastic reuse. 56% of reporting organizations had pilot programs in 2019.
 - Reusable plastics accounted for 1.9% of reported plastic weight in 2019, negligibly up from 2018.
 - Initiatives also seek to expand recycling destinations and ‘returns’ from consumers.

Berry Global itself is well aligned with all emerging initiatives and manufacturing shifts:

- Berry Global disclosed a company initiative known as Impact 2025, focused on minimizing product impact to the environment, engaging partners on key issues, and landfill reduction.
 - Berry Global seeks to optimize design by incorporating more lightweight products.
 - Berry Global seeks to have 100% of all packaging be reusable, recyclable, or compostable.
 - Berry Global seeks to source 10% of packaging from recycled content.
 - Berry Global seeks to expand recycling by expanding waste infrastructure to ‘increase, recover, and prevent loss of plastic into the environment.’
- Berry Global is in pilot programs in which the company works directly with customers to produce sustainable packaging solutions:
 - Partnership with Bhoomi to launch a 100% sugarcane-based bottle for a Bhoomi beverage product line; these bottles will replace polyethylene bottles.
 - Agreement with SABIC, a global Saudi Arabian chemical company and raw material supplier, to purchase resin derived from chemical recycling.
 - Berry Global and Mondelez, a food and beverage company, ‘announced an agreement to produce Philadelphia cream cheese packaging’ derived from SABIC sourced recycled plastic. Mondelez intends to design 100% of all plastic in its products to be ‘recyclable and labelled with recycling information’ by 2025.
- Other corporate initiatives in plastic:
 - Coca-Cola intends to reduce use of new plastic by 20% compared to its use in 2018. The company introduced 100% recycled bottles for its beverages (February 2021).
 - PepsiCo seeks to reduce virgin plastic use by 35% by 2025 (September 2019). It further seeks to increase recycled content in plastics packaging to 25% and to make 100% of its packaging recyclable, compostable, or biodegradable.
 - New plastic is ‘virgin plastic,’ which is produced directly from raw material and is non-biodegradable. In 2019, Unilever – a customer of Berry Global as well as a reporting organization to the Ellen MacArthur Foundation – pledged to reduce virgin plastic by 50%. Unilever begins with a two-step solution:
 1. Reduce amount of plastic used by modification in design.
 2. Increase portion of plastic derived from recycled sources.
 - In October 2020, Unilever disclosed that over 10% of its plastics footprint is recycled plastic. The company expects this to double by the end of 2021, well within the target of 25% by 2025.

We delineate on page 10 that the sustainability movement is, although developing, lukewarm. As the situation develops, Berry Global retains a strategic advantage by:

1. Staying at the forefront of sustainability, both within itself and through partnerships with customers. These customers will also determine much of the future sustainability initiatives.
2. Encouraging recycling and contributing to recycling and proper disposal. The major problem which must be addressed is not sustainable plastics per se, but rather the 90% of plastic that never gets recycled.
3. Operating in Europe, where sustainability is ahead of North America, and learning best practices to apply to North American operations.

The Sustainability Dilemma

Growth rates in recycled resin use, organizational and government initiatives, and corporations’ activism are driving the excess growth in the recycled plastics market. Still, the application of recycled plastics is not ubiquitous. Any time plastic is recycled or chemically engineered for sustainability, it loses some utility; recycled plastic will never retain 100% of the characteristics of virgin plastic. For consumer discretionary products, these characteristics are essential.

According to Delta Membranes, *‘membranes made from recycled materials will also have a lower safety and strength rating.’*

- In most cases, plastic must retain its impermeability.
- Plastic must retain durability, especially in transportation (shrink wrap, wrapping).
- Adaptability/versatility of plastic is sought after.
- Recycling plastic – through ‘heat and mechanical stress’ – weakens polymer chains and lessens its strength.

While recycled plastic has the added benefit of lower product weight in many cases, it must retain key virgin plastic characteristics. It is important to note that the lightweight characteristics of plastics – virgin or otherwise – make it difficult to find alternatives for plastic. Moreover, the carbon footprint of plastic is far lower than any possible alternative like glass or aluminum. Universally, there is no expectation of a move away from plastic.

Currently, the plastic industry is not at odds regarding the use of plastic; instead, the key issue at hand is plastic waste.

According to Reuters, only 9% of plastic waste is recycled in the United States, compared to 25% in Asia and 30% in Europe (December 2020). According to Chemical and Engineering News, most plastic ends up in landfills, with beverage packaging being the only ‘high-density’ polyethylene containers (milk jugs for example) that are more-regularly recycled and make chemical recycling worthwhile. Still, many times, these plastics are contaminated with food.

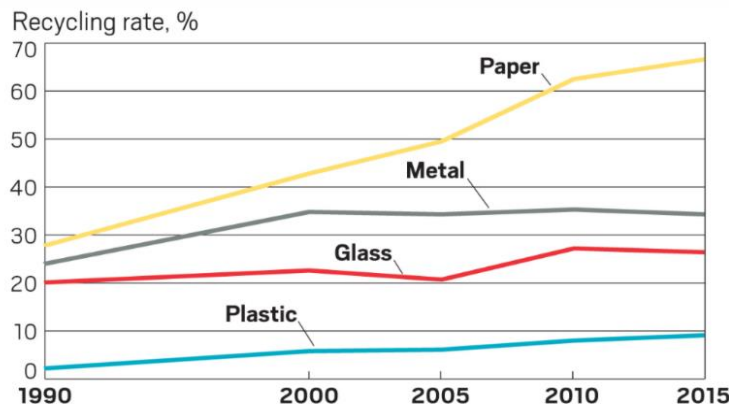
Lower oil prices – virgin plastic and resin is derived from oil – has been another drag for sustainability in plastics. According to Nina Butler, CEO of consulting firm More Recycling, *‘companies aren’t ready to pay 20% premiums for a product that is not at the same level of quality as virgin unless there is a marketplace incentive to producing a product with a lower carbon footprint (Chemical and Engineering News, October 2019).’*

According to GreenBiz and Allison Shapiro, executive director of Closed Looped Partners, an ESG and circular economy venture capital firm, *‘Companies that process or sell recycled plastics are in a tough spot. We talk to many processors, many MRFs [materials recovery facilities], many collection and hauling companies every day. . . everybody’s nervous that corporates may back out of their commitments (May 2020).’*

Of the top 5 recycling nations in the world, four are in Europe, a region well serviced by Berry Global. On top of the list is Germany, where over 50% of packaging waste is recycled; Plastics News claims 90% of plastic is recycled in Germany. Furthermore, the European Union leads North America in recycling. We anticipate a heavy CAPEX focus in Europe in relation to recycling resources and acquisitions.

Playing catch-up

Plastics are recycled less in the US than other common materials.



Sources: US Environmental Protection Agency.

EBITDA Multiple Valuation – Berry Perfectly Mimics Private Equity Operations

On page 3, we delineated Berry Global acquisitions. Several acquisitions were priced above 10x EBITDA. Most of these were small, albeit substantial, bolt-on acquisitions. Larger acquisitions Avintiv (\$2 billion in revenue, \$303 million in EBITDA) and RPC (\$4.8 billion in revenue, \$768 million in EBITDA) both closed above 10x EBITDA. Today, Berry Global generates over \$12 billion in TTM revenue and over \$2 billion in TTM EBITDA (and trades 8.3x EBITDA).

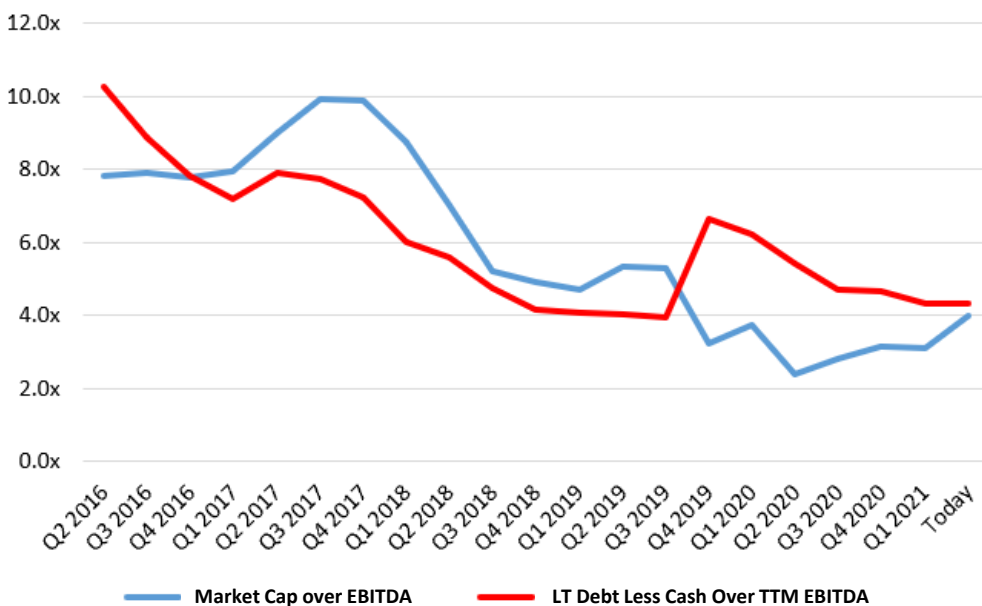
- Also of note is competitor Amcor’s acquisition of Bemis Co. in 2018-19 for an equity value of \$5.26 billion. Investment firm Grizzly Rock Capital priced this deal at 11.9x EBITDA and cited that the ‘recent flurries of transactions have driven up multiples of businesses as both strategic and financial buyers are competing for the best assets. . . The next wave of consolidation is occurring in Asia (5% - 8% CAGR) and South America (2% - 4% CAGR) as large players try and build scale in these areas where global hygiene products are driving significant growth (2018).’
- Berry Global sold a division called ‘Seal For Life’ to a private equity firm in 2019 for \$330 million. EBITDA is not disclosed but Seal For Life revenue was \$120 million. If we back out EBITDA using historic Berry Global 2019 EBITDA margin of 17.88%, we arrive at a Seal For Life exit multiple of 15x EBITDA (this assumes \$21 million in EBITDA). In a conference call, management attributed a total decrease in EBITDA of \$18 million, partially or totally (unclear) attributable to the divestiture of Seal For Life.
- In 2006, Berry, Inc. was acquired by Private Equity firms Apollo Management and Graham Partners for aggregate consideration of \$2.25 billion. At the time, Berry, Inc. generated \$1.3 billion in sales. According to Private Equity International, this was the ‘third time in ten years that company has been bought by private equity firms.’ The earliest available data is from the S-1 in 2012, when Apollo and Graham exited at over 3.6x the scale (\$4.8 billion in revenue), and EBITDA margins at this time were 14%. It is unclear what Apollo and Graham paid on a multiple basis in 2006, but we estimate Berry was acquired for at least 12x EBITDA.

Private equity buyers will pay higher than average multiples for:

- Revenue growth (which is minimal for Berry Global, but substantial if acquisitions are included).
- EBITDA and cash flow growth (which is substantial; EBITDA and FCF grew at 16% and 21% CAGR since 2013, respectively).
- Geographic consolidation (Berry Global serves 2 major global markets and a sizeable 3rd – North America, Europe, emerging markets).
- Centralized operations (Berry Global conglomerate).
- Skilled operators/centralized management team (evident in Berry Global).
- Scale (the company is larger than in 2006, larger than in 2012, larger than all acquisitions noted on this page and page 3, and the second largest – close to largest – plastics manufacturer in the world).

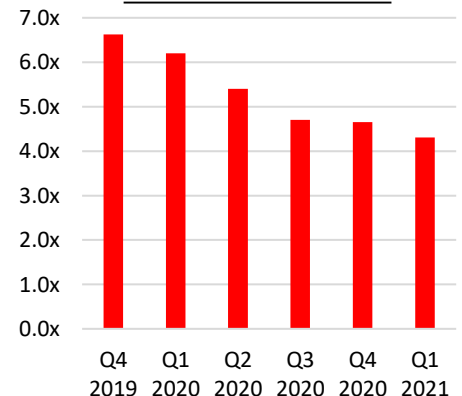
Currently, Berry Global trades for 8.3x EBITDA. We believe the company should trade at least 10x EBITDA, which implies 41% upside.

Leverage and Valuation



EBITDA Multiple Valuation	
Current Price	\$ 62.80
LTM EBITDA	\$ 2,128
Current LTM EBITDA Multiple	8.3x
Applied Multiple	10x
Applied Enterprise Value	\$ 21,280
Price Target	\$ 88.77
Upside	41%

De-Leveraging: LT Debt Less Cash Over TTM EBITDA

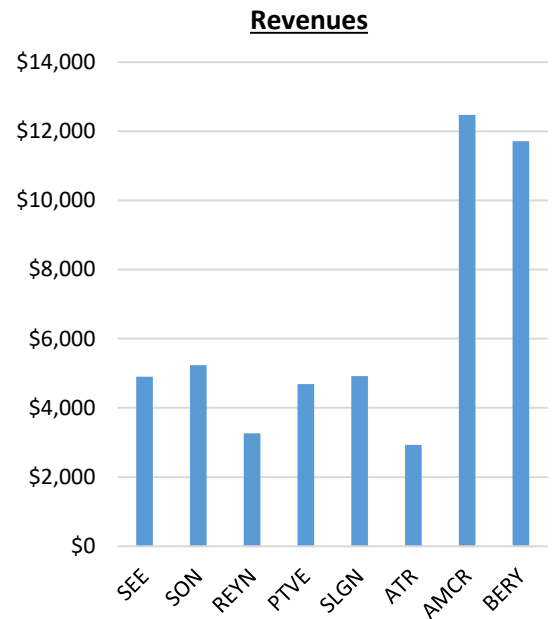


Comparables

Berry Global is the second largest plastics manufacturer in the world.

- We use the below analysis to support our EBITDA multiple target of 10x. The company trades at the lowest EBITDA multiple among its peers despite generating typical, industry-standard margins and industry-leading free cash flow.
- Amcor, the largest plastics manufacturer – by less than \$1 billion in sales – trades 11.5x EBITDA. We believe that, as debt is paid down, Berry Global should experience margin expansion.
- Berry Global has glaringly higher debt than its competitors, which in our opinion, is the only comparable weakness in the business.
- Most of these comparables trade at premiums to transactions we cover in this report (based on EBITDA multiples) and at premiums to Berry Global (across FCF, EBITDA, and P/S valuations).

2020	Revenue	EBITDA	EBITDA Margin	Gross Margin	FCF	FCF Yield	Unlevered Yield	Sales Multiple
SEE	\$ 4,903	\$ 941	19%	33%	\$ 556	8%	5%	1.5x
SON	\$ 5,237	\$ 743	14%	20%	\$ 511	8%	6%	1.2x
REYN	\$ 3,263	\$ 685	21%	30%	\$ 286	5%	4%	1.9x
PTVE	\$ 4,689	\$ 472	10%	15%	\$ 136	5%	2%	0.5x
SLGN	\$ 4,922	\$ 731	15%	18%	\$ 378	8%	6%	1.0x
ATR	\$ 2,929	\$ 586	20%	37%	\$ 318	3%	3%	3.3x
AMCR	\$ 12,468	\$ 2,104	17%	20%	\$ 985	5%	4%	1.5x
BERY	\$ 11,709	\$ 2,024	17%	21%	\$ 947	11%	5%	0.7x
Average (excl. BERY)			17%			6%	4%	1.6x



2020	Book Value	Market Cap	Total Debt	Cash	Enterprise Value	EV/EBITDA	Net Debt/EBITDA
SEE	\$ 173	\$ 7,390	\$ 3,847	\$ 549	\$ 10,688	11.4x	3.5x
SON	\$ 1,911	\$ 6,530	\$ 3,251	\$ 565	\$ 9,216	12.4x	3.6x
REYN	\$ 1,615	\$ 6,290	\$ 2,233	\$ 458	\$ 8,065	11.8x	2.6x
PTVE	\$ 1,074	\$ 2,540	\$ 3,980	\$ 312	\$ 6,208	13.2x	7.8x
SLGN	\$ 1,253	\$ 4,790	\$ 1,700	\$ 409	\$ 6,081	8.3x	1.8x
ATR	\$ 1,851	\$ 9,780	\$ 1,151	\$ 300	\$ 10,631	18.1x	1.5x
AMCR	\$ 4,848	\$ 18,670	\$ 6,235	\$ 743	\$ 24,162	11.5x	2.6x
BERY	\$ 2,092	\$ 8,522	\$ 10,081	\$ 750	\$ 17,853	8.8x	4.6x
Average (excl. BERY)						12.4x	3.3x

All financial data is FY 2020 data, except for market cap which is current (April 2021)

Averages excl. BERY

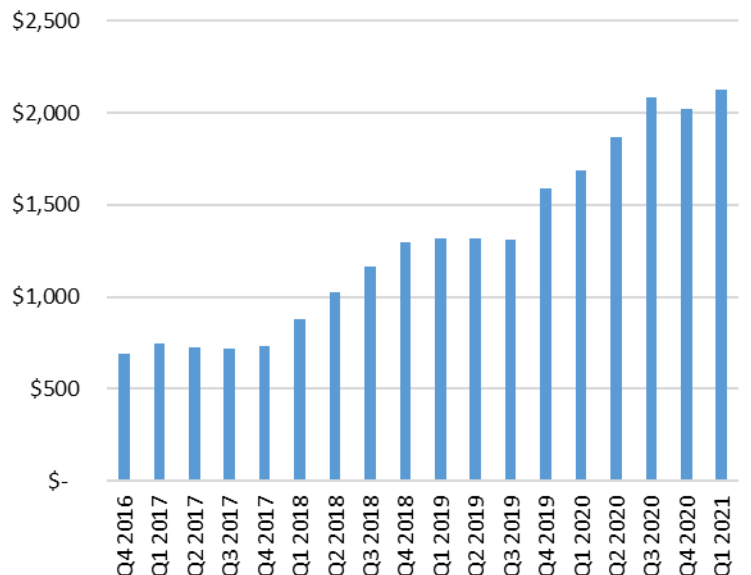
Data in thousands

Return On Invested Capital and Capital Allocation

To further support our comfort with Berry Global’s debt, we analyze return on invested capital. The company’s weighted average cost of capital is only 6.29%, and ROIC is substantially higher at 16.23%. The company generates more return on capital than the cost it incurs to run the business. With 11% cash flow yield and a history of successful acquisitions which introduce competitive, strategic, and cost synergies, the paydown of debt should prove highly accretive for the value of the equity. The company has added value over the last few years at a low cost of capital and now intends to relinquish the debt load it used to do so. The company targets to reduce debt from 4.3 – 4.6x net debt to EBITDA to a range of 3x – 3.9x.

ROIC	Q1 2021 Annualized	15.88%
	LTM	16.23%
	2020	16.26%
	WACC	6.29%

Berry Global LTM EBITDA



Discounted Cash Flow Valuation

Our model assumes

- 1.56% for the risk-free rate of return based on the 10-year U.S. Treasury yield.
- 1.20 beta to account for volatility; we adjust upward to account for the debt load and LTM volatility despite low volatility over the long term (outside of Pandemic-market volatility).
- 8% for the expected market return. We adjust the geometric mean of the S&P500 upward by 150bp to account for equities' strength in the last several years.
- We arrive at a WACC of 6.29%. The low cost of capital reflects the company's large debt balance. Berry Global's weight in debt is over 50% and the debt balance is larger than its market capitalization.
- We model a tax rate of 25%, reflecting a consensus Democrat program the United States Senate will pursue. This is higher than the current tax rate but lower than the 28% suggested by the Biden Administration. 28% would be likely be the maximum levy considered.
- We model revenue to grow at a 2.60% CAGR in the first four years of our projection. Note, revenue is coming off 24% YoY growth in the LTMs (and 4.26% QoQ growth in the most recent quarter).
- We model perpetual revenue growth of 0.50% in terminal year 5. We base this on the plastics industry. Despite expected shifts in long term demand and raw material procurement, the industry is not expected to grow in excess of GDP. We still believe 0.50% is conservative given both (1) Grand View Research's estimate of global plastics growth of 3.4% CAGR from 2021 – 2018 and (2) the anticipated perpetual cash flow within Berry Global and its anticipated growth CAPEX program.
- We model 19.68% gross margin in Y1 to account for the spike in market prices for raw material inputs (resin, natural gas) in Q2 2021, attributable to adverse weather conditions. In the latest quarter, gross margin registered at 19.71%. Historically, this margin is higher than past periods due to the RPC merger. Still, this margin is lower than the immediately preceding periods in 2020, attributable directly to LTM raw material inflation. We believe a 19.81% gross margin maximum for the horizon of our forecast is conservative, as the recent inflation is trusted to pass through in coming periods and offset. Gross margin was as high as 22.14% in Q4 2020.
- We model gradually declining SG&A as a percentage of revenue to account for synergies (7.68% in last fiscal quarter to 7.35% in year 5 of our forecast).

We arrive at a price target of \$85.50, delineating 36% upside. Our comprehensive valuation output is delineated in the appendix.

BERY	
Discounted Cash Flow Analysis	
Current Stock Price	\$ 62.80
Market Cap	\$ 8,522
Price Target	\$ 85.50
Implied Market Cap	\$ 11,602
Discount	26.55%
Upside	36.14%

Weight in Debt	54.19%
Weight in Equity	45.81%

Risk Free Rate	1.56%
1 Year S&P Return	8.00%
BERY Beta	1.20
Required Return	9.29%
Share Count (millions)	135.7
MV Equity	\$ 8,522
Total MV Equity and Debt	\$ 18,603
WACC	6.29%
ST & LT Debt	\$ 10,081
Cost of Debt	5.00%
Tax Rate	25.00%

Berry Global Annual Forecast	Actual			Forecast				
	2019	2020	LTM	Y1	Y2	Y3	Y4	Terminal
Total Revenue	\$ 8,878	\$ 11,709	\$ 12,029	\$ 12,514	\$ 12,618	\$ 12,797	\$ 12,951	\$ 13,016
Cost of Revenues	\$ 7,264	\$ 9,301	\$ 9,523	\$ 10,051	\$ 10,119	\$ 10,262	\$ 10,386	\$ 10,438
Gross Profit	\$ 1,614	\$ 2,408	\$ 2,506	\$ 2,463	\$ 2,499	\$ 2,535	\$ 2,565	\$ 2,578
Gross Margin	18.18%	20.57%	20.83%	19.68%	19.81%	19.81%	19.81%	19.81%
Selling, General & Admin	\$ 591	\$ 850	\$ 862	\$ 954	\$ 952	\$ 955	\$ 956	\$ 957
Other Operating Expense	\$ 49	\$ 379	\$ 360	\$ 291	\$ 294	\$ 298	\$ 301	\$ 303
Dep and Amm	\$ 613	\$ 845	\$ 844	\$ 858	\$ 865	\$ 877	\$ 888	\$ 892
Total Operating Expenses	\$ 640	\$ 1,229	\$ 1,222	\$ 1,245	\$ 1,246	\$ 1,253	\$ 1,258	\$ 1,260
Operating Income	\$ 974	\$ 1,179	\$ 1,284	\$ 1,217	\$ 1,254	\$ 1,281	\$ 1,307	\$ 1,318
Operating Margin	\$ 0	10.07%	10.67%	9.73%	9.93%	10.01%	10.09%	10.12%
EBITDA	\$ 1,587	\$ 2,024	\$ 2,128	\$ 2,075	\$ 2,119	\$ 2,159	\$ 2,195	\$ 2,210
EBITDA Margin	17.88%	17.29%	17.69%	16.58%	16.79%	16.87%	16.95%	16.98%
Provision for Tax Expense	\$ 86	\$ 154	\$ 185	\$ 304	\$ 313	\$ 320	\$ 327	\$ 329
NOPAT	\$ 1,501	\$ 1,870	\$ 1,943	\$ 913	\$ 940	\$ 961	\$ 980	\$ 988
Net Interest Expense	\$ 329	\$ 435	\$ 414	399	386	370	354	354
Net Income	\$ 404	\$ 559	\$ 642	\$ 469	\$ 509	\$ 545	\$ 580	\$ 588
EPS	\$ 3.07	4.21	4.83	3.46	3.75	4.02	4.28	4.33
Current Assets	\$ 3,757	\$ 3,817	\$ 3,983	\$ 3,932	\$ 3,946	\$ 3,951	\$ 3,961	4,061.00
Current Liabilities	\$ 2,039	\$ 2,183	\$ 2,295	\$ 2,185	\$ 2,161	\$ 2,221	\$ 2,231	2,306.00
Net Working Capital	\$ 1,718	\$ 1,634	\$ 1,688	\$ 1,747	\$ 1,785	\$ 1,730	\$ 1,730	1,755.00
CAPEX	\$ 912	\$ 1,413	\$ 1,427	\$ 700	\$ 700	\$ 700	\$ 700	\$ 700
Delta Net Working Capital	\$ 670	\$ (84)	\$ 54	\$ 99	\$ 38	\$ (55)	\$ -	\$ 25
Free Cash Flow	532	1,386	1,268	1,012	1,067	1,193	1,168	1,156

Constant Growth Valuation

- Berry has grown EBITDA at 16% CAGR since 2013; it also grew free cash flow at 21% CAGR in the same period. We estimate free cash flow of \$1,012 million in our NTM forecast, slightly ahead of management's guidance for 2021. In our constant growth model, if we assume constant cash flow growth of 1%, shares are then worth \$83.74 a share and still delineate 33% upside. If we test sensitivity with 0.50% constant growth, shares delineate 14% upside. At zero growth, shares delineate market price is fair value.
- Despite perpetual cost synergies and competitive advantages following the RPC acquisition, historic cash flows and revenue accretion, and LTM organic growth, it still seems investors are discounting any future growth in the cash flows. The debt paydown program should be the final hurdle for appreciation in value.

Risks

- Only 35% of costs of goods sold are 'fixed,' or will pass through. This provides good protection against raw material inflation, but freight operations and other inputs can be variable. The acquisitive nature of the business – more procurement volume, more freight volume, consolidation, and serving more customers and end markets – has provided a degree of protection.
- Furthermore, raw material inflation still effects the business (30% of the increase is not passed through to customers) and creates short lags for the business (anticipated to pass through within 45 – 90 days). Inflation is a net negative for the business.
- Declining Volumes
 - HHS revenue grew 21% YoY in Q1 driven by sanitization product demand and the company expects this trend to continue for all of FY 2021. As The Pandemic nears its tail, complications of vaccines and mutations of COVID-19 increasingly suggest management is correct. Nevertheless, a fall in growth in this segment – the company's strongest performer – will hurt the equity and cash flow. HHS is the highest margin business for Berry Global; consolidated EBITDA margin is 17.69% and HHS registered EBITDA margin of 19.05%.
 - Declining volumes across the business will affect margin and free cash flow.
 - Sustainable packaging, a young and developing market, reduces the weight of resin manufactured. Nevertheless, it is important for Berry Global to remain innovative.
- Integration issues: the company has historically delivered synergy in acquisitions, but the equity valuations reflect \$150 million in anticipated synergies from the RPC acquisition. Failure to efficiently consolidate RPC is a risk.
- Developed markets are looking for solutions to plastic waste and virgin resin consumption. Berry Global will need to prepare for increasing demand for sustainable plastics and potential shifts in policies from governments or organizations and customers.
- There is intense competition for plastics manufacturing as well as competition for target acquisitions. While Berry generates substantial cash flow and has access to capital, prices of target acquisitions can run higher.
- Berry Global must be mindful of its debt load and investors' willingness to invest in a highly-levered vehicle. The company should pay down debt and aid its credit rating to attract customers. It has promised to do so and delivered but has also delivered in the past only to re-lever for more acquisition. Investors would prefer not to go down this road once again.
- A rising interest rate environment will increase Berry Global's interest obligations and bring profit margin under scrutiny.
- The company must continually manage changing demand from customers who will drive sustainability in the plastics market. We delineated how this is an ever-changing industry.
- Competition in sustainable plastics: not only do competitors seek sustainable plastics, but they also spend in R&D. Acquisition campaigns must also consider smaller firms who specialize in sustainability technologies; competition will bid for these as well.
- Berry Global needs to stay ahead of debt obligations.
- Management must effectively manage CAPEX into new geographies. Despite out confidence in the company's track record, new geographies post different obstacles than familiar ones.
- Foreign Exchange currency risk can negatively (and positively) impact bottom line.

Disclosure

The analysis provided is based on financial information and speculation of future performance in statements associated with this company. All outside sources are perceived to be credible, and the analyst does not take fault for any changes in numerical or informational accuracy that may result. This report is for informational purposes only and is the opinion of the writer. This report has no regard for the specific investment needs or objectives of readers. Investors are encouraged to conduct their own research and come to their own conclusions before making the decision to invest in a company. Sources used in the making of this report are considered accurate.

Arham Khan is a shareholder of Berry Global.

Appendix

DCF Output

Berry Global Annual Forecast	Historic			Forecast				
	FY 2019	FY 2020	LTM	Y1	Y2	Y3	Y4	Terminal
Revenue Growth	12.82%	31.89%	23.73%	4.03%	0.83%	1.41%	1.20%	0.50%
CAGR				4.03%	2.42%	2.08%	1.86%	1.59%
Gross Margin	18.18%	20.57%	20.83%	19.68%	19.81%	19.81%	19.81%	19.81%
SG&A as % of Sales	6.66%	7.26%	7.17%	7.62%	7.54%	7.46%	7.38%	7.35%
Other Operating Expenses as % of Sales	0.55%	3.24%	2.99%	2.33%	2.33%	2.33%	2.33%	2.33%
Dep and Amm as % of Sales	6.90%	7.22%	7.02%	6.86%	6.86%	6.86%	6.86%	6.86%
Operating Exp. As % of Sales	7.21%	10.50%	10.16%	9.95%	9.87%	9.79%	9.71%	9.68%
EBITDA Margin	17.88%	17.29%	17.69%	16.58%	16.79%	16.87%	16.95%	16.98%

Four Year CAGR (Y1 - Y4) 2.60%

Berry Global Annual Forecast	Actual			Forecast				
	2019	2020	LTM	Y1	Y2	Y3	Y4	Terminal
Total Revenue	\$ 8,878	\$ 11,709	\$ 12,029	\$ 12,514	\$ 12,618	\$ 12,797	\$ 12,951	\$ 13,016
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Current Liabilities	\$ 2,039	\$ 2,183	\$ 2,295	\$ 2,185	\$ 2,161	\$ 2,221	\$ 2,231	\$ 2,306.00
Net Working Capital	\$ 1,718	\$ 1,634	\$ 1,688	\$ 1,747	\$ 1,785	\$ 1,730	\$ 1,730	\$ 1,755.00
CAPEX	\$ 912	\$ 1,413	\$ 1,427	\$ 700	\$ 700	\$ 700	\$ 700	\$ 700
Delta Net Working Capital	\$ 670	\$ (84)	\$ 54	\$ 59	\$ 38	\$ (55)	\$ -	\$ 25
Free Cash Flow	532	1,386	1,268	1,012	1,067	1,193	1,168	1,156

FCF Calculation	2019	2020	2295	Y1	Y2	Y3	Y4	Terminal
NOPAT	\$ 1,501	\$ 1,870	\$ 1,943	\$ 913	\$ 940	\$ 961	\$ 980	\$ 988
ADD: DEP & AMM	\$ 613	\$ 845	\$ 844	\$ 858	\$ 865	\$ 877	\$ 888	\$ 892
LESS: DELTA NWC	\$ 670	\$ (84)	\$ 54	\$ 59	\$ 38	\$ (55)	\$ -	\$ 25
LESS: CAPEX	\$ 912	\$ 1,413	\$ 1,427	\$ 700	\$ 700	\$ 700	\$ 700	\$ 700
Free Cash Flow	\$ 532	\$ 1,386	\$ 1,268	\$ 1,012	\$ 1,067	\$ 1,193	\$ 1,168	\$ 1,156

BERRY	
Discounted Cash Flow Analysis	
Current Stock Price	\$ 62.80
Market Cap	\$ 8,522
Price Target	\$ 85.50
Implied Market Cap	\$ 11,602
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Upside	36.14%

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Weight in Equity	45.81%

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BERRY Beta	1.20
Required Return	9.29%
Share Count (millions)	135.7
MV Equity	\$ 8,522
Total MV Equity and Debt	\$ 18,603
WACC	6.29%
ST & LT Debt	\$ 10,081
Cost of Debt	5.00%
Tax Rate	25.00%

Sum of PV FCF	\$ 4,658
FCF 2032	\$ 1,156
Terminal Value	\$ 14,722
Enterprise Value	\$ 19,380
Debt	\$ 10,081
Cash	\$ 2,303
Equity Value	\$ 11,602
Intrinsic Value	\$ 85.50

EV/EBITDA	
Market Capitalization	\$ 8,522
ADD: ST & LT Debt	\$ 10,081
LESS: Cash	\$ 847
Enterprise Value	\$ 17,756
DIVIDE: EBITDA	\$ 2,128
Current Multiple	8.3x
Applied Multiple	10x
Applied Enterprise Value	\$ 21,280
LESS: ST & LT Debt	\$ 10,081
ADD: Cash	\$ 847
DIVIDE: Shares Outstanding	135.7
Price Target	\$ 88.77

Smaller Acquisitions

- In 2017, Berry Global acquired Adchem, a 110-employee adhesive tape systems business serving automotive, construction, electronics, graphics, medical, and general tape markets, for \$49 million.
- In 2018, Berry Global acquires Laddawn, Inc., an online supplier of plastic bags and films, for \$242 million. Laddawn generated \$145 million in sales and is now part of Berry Global's engineered materials segment.

2020	
Enterprise Value	\$ 15,741
Book Value	\$ 2,092
EV/EBITDA	7.8x
Liabilities/Market Cap	1.71x
Liabilities to Assets	0.86x
EBITDA Margin	17.29%
Gross Margin	20.57%
EBITDA ROA	12.12%
Sales Multiple	0.73x
FCF	\$ 947
FCF Yield	14.77%
FCF Multiple	9.0x
P/E	15.25x

APPENDIX: Discounted Cash Flow Valuation – FCF Multiple Approach With 15% Discount Rate

- We test sensitivity of our model using a 15% discount rate applied to FCF from model delineated on the preceding page (page 13, 15), opposed to the WACC of 6.29% used on page 13 of the report (also shown on page 12, 15).
- We apply a 12x FCF multiple to our estimated terminal FCF (year 5) based on comparable valuations. Berry Global trades 9x FCF; we observe an industry standard of 18x.
- The valuation offers us 15% annual return on the stock even if purchased at \$74.15 (18% premium to market price).

Output	
Current Price	\$ 62.80
Discount Rate	15.00%
FCF 2025	\$ 1,160
Applied Multiple to Terminal FCF	12x
Terminal Value	\$ 13,923
PV Terminal Value	\$ 6,922
Sum of PV FCF (2021-2025)	\$ 3,140
SUM PV FCF and Terminal Value	\$ 10,062
DIVIDE: Share Count (millions)	\$ 136
Price Target	\$ 74.15

Constant FCF Growth Analysis

- We test several sensitivity analyses to free cash flow growth. Current stock price is \$62.80. 6/8 scenarios offer upside to the equity (only zero-growth does not, of which one zero-growth scenario delineates approx. fair value in market price; recall, FCF has grown at a CAGR of 21% since 2013).

FY 2020 FCF	\$ 947
Zero FCF Growth Valuation	\$ 53.68
Constant FCF Growth of 0.50%	\$ 63.28
Constant FCF Growth of 1%	\$ 74.68
2 Stage Growth (DCF MODEL)	\$ 85.50

NTM FCF Estimate	\$ 1,012
Zero FCF Growth Valuation	\$ 61.31
Constant FCF Growth of 0.50%	\$ 71.56
Constant FCF Growth of 1%	\$ 83.74
2 Stage Growth (DCF MODEL)	\$ 85.50

Appendix cont. - Clarifications

- The Ellen MacArthur Foundation and United Nations Environment Program
 - These 500 companies, organizations, governments came together to usher in sustainability. This includes the Unilever’s and PepsiCo’s who are now pushing for new sustainable packaging. For example, X company will make all X beverage lines from recycled material. It is relevant because not only is it the PepsiCo’s, but it is also the suppliers to the PepsiCo’s. Essentially, penetrating the entire ecosystem of manufacturers and consumer goods at a small scale will compound into larger movements. Although recycled plastic is certainly not ubiquitous, every other company seems to have a program to address it. It is part of the ‘circular economy’ theme, and it eventually will pressure everyone to get on board (and we argue that is some time away, but it has started). These are Berry Global suppliers, customers, and competitors.
 - Amcor – largest competitor to Berry – is involved. PepsiCo, Coca-Cola, Unilever, Nestle, are involved as well. They are named partners to the foundation and Berry customers.
 - This foundation’s report also shows how much work needs to be done. They have strong co-signees, but the statistics are not showing that mass adoption of sustainable plastics is near.
 - There is growth in terms of the growth in sustainable packaging and plastics. Growth is high, but the recycled market vs entire market is quite negligible (less than 2% per Ellen Macarthur foundation).
- CAPEX
 - Management: *‘About half of our capital is what I would define as maintenance. The balance is growth and cost reduction. Some of those projects -- many of the projects in that category check both boxes. So they have an element of growth as well as cost reduction, as we go to larger tooling, for example, to replace smaller cavitation. I would say, in the current environment, we’re probably a little more weighted toward growth capital, given the momentum we’re seeing in the business. So that second 50% pie, I would say, is slightly overweighted to growth at the moment. I’d say, in most years, it’s pretty balanced between growth and cost reduction, so 25%, calling each in those categories.’*
- Debt Paydown – how long will de-levering to 3.0x take?
 - 2-3 years. Long term debt was reduced by over \$2 billion in LTM. FCF is approx. \$950-\$1000 million a year. Debt will need to be reduced by \$3 billion to achieve 3x leverage. The company’s target range is 3.0x – 3.9x. Achieving this target range within a year is quite feasible but the low end of 3.0x will take longer. Debt to EBITDA came down as a function of reduced debt, but also as a function of growing EBITDA. Further EBITDA growth comes under scrutiny from uncertainty in margins (unless further accretive acquisitions are taken on). The high end of the target range, 3.9x, is within reach (can confidently say the company hits 3.9x within a year). Below this range would be wishful thinking, they reneged on previous campaigns for more acquisitions.

FIGURE 1

Signatories reporting in 2020

Breakdown, by category, of signatories reporting through the Ellen MacArthur Foundation and UN Environment Programme

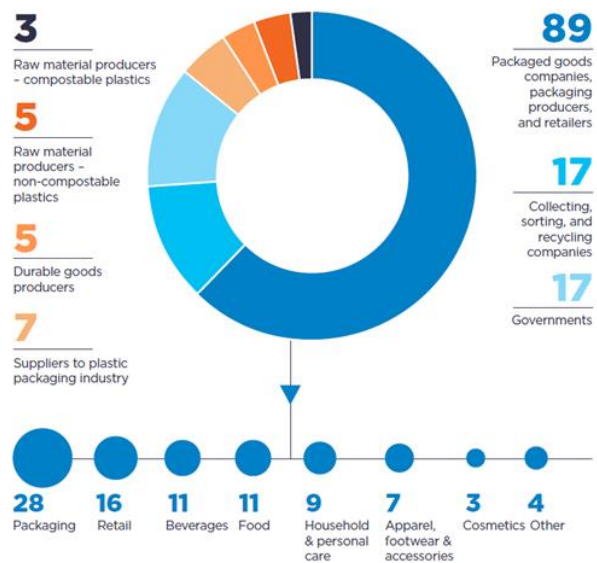
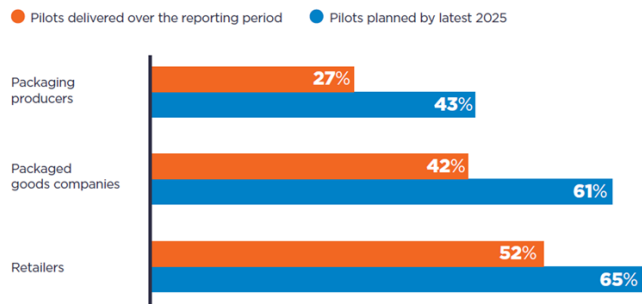


FIGURE 11

Piloting of reuse models

% of packaging producer, packaged goods, and retail signatories engaging in pilots



Appendix cont. - Clarifications

- ‘Partnerships Drive Decisions’
 - *‘And I believe we are well positioned to continue to see the long-term predictable and sustainable growth with customer-linked capital investments that target continued expansion into both faster growing segments and emerging markets.’ – management*
 - *‘all the capital investments that we make as a Company are tied and linked to specific customers -- they are customer linked. As a result, we have a lot of confidence in terms of the predictability of that demand giving us confidence in the race.’ – management*
- Inflation in prior periods
 - Mid 2020 – down as much as 20-30% after \$100 million of ‘under-recovered inflation.’
 - Management comments:
 - *‘In this year of significant inflation, where costs went up nearly \$300 million, we were able to largely offset with \$200 million of price increases.’*
 - *‘As a reminder, plastic resin represents about half of our cost and we have automatic pass-through arrangements on approximately 75% of our purchased resin, with a timing lag of about one month. These pass-through arrangements typically do not cover costs outside of resin and the majority of our recoveries this past year relate to inflation on costs other than resin, such as corrugated boxes, freight, and colorant, to name a few. While we experienced nearly \$100 million of under-recovered inflation in fiscal 2018, historically, we haven't seen back-to-back years of negative price cost spread.’*
 - Above reference pass through is 75%, no longer the case, now 70%
- Core inflation vs resin inflation
 - Inflation on other COGS is unknown (ie freight), but not all inflation came at once. We currently deal with resin inflation, not core inflation. However, inflation beyond resin inflation is not good, it is worse. Inflation on freight and other inputs take longer to absorb and offset, potentially over several quarters, if a all. Core Inflation is a material negative.
 - Resin inflation, in our opinion, is a negative but the argument can be made that price increases that pass onto customers will increase revenue. In the resilient plastics market, it may be true (only to the extent of 70% pass-through), but this is a secondary positive to organic volume growth. Inflation still leads to uncertainty in margin (short-term, expected to stabilize after passing through) and some loss of margin overall (longer-term).

Debt Schedule

Excerpts from 10-K Statements

Long-term debt consists of the following:

Facility	Maturity Date	September 26, 2020	September 28, 2019
Term loan	October 2022	\$ 1,545	\$ 1,545
Term loan	January 2024	448	489
Term loan	July 2026	4,208	4,250
Revolving line of credit	May 2024	—	—
6.00% Second Priority Senior Secured Notes	October 2022	200	400
5.125% Second Priority Senior Secured Notes	July 2023	300	700
1.00% First Priority Senior Secured Notes ^(a)	July 31, 2025	814	—
4.50% Second Priority Senior Secured Notes	February 2026	500	500
4.875% First Priority Senior Secured Notes	July 2026	1,250	1,250
5.625% Second Priority Senior Secured Notes	July 2027	500	500
1.50% First Priority Senior Secured Notes ^(a)	July 31, 2027	436	—
Debt discounts and deferred fees		(85)	(112)
Finance leases and other	Various	121	167
Retired debt	Various	—	1,676
Total long-term debt		10,237	11,365
Current portion of long-term debt		(75)	(104)
Long-term debt, less current portion		\$ 10,162	\$ 11,261

(a) Euro denominated

Payments due by period as of the end of fiscal 2020

	Total	< 1 year	1-3 years	4-5 years	> 5 years
Long-term debt, excluding capital leases	\$ 10,246	\$ 59	\$ 1,851	\$ 1,638	\$ 6,698
Capital leases	86	20	40	13	13
Fixed interest rate payments	781	140	269	257	115
Variable interest rate payments ^(a)	881	191	345	257	88
Operating leases	703	118	190	139	256
Total contractual cash obligations	\$ 12,697	\$ 528	\$ 2,695	\$ 2,304	\$ 7,170

During fiscal 2019, the Company entered into (i) a \$400 million interest rate swap transaction that swaps a one-month variable LIBOR contract for a fixed annual rate of 2.533% with an effective date of February 2019 and expiration in July 2023; (ii) a \$884 million interest rate swap transaction that swaps a one-month variable LIBOR contract for a fixed annual rate of 1.857%, with an effective date in July 2019 and expiration in June 2024, and (iii) a \$473 million interest rate swap transaction that swaps a one-month variable LIBOR contract for a fixed annual rate of 2.050%, with an effective date in July 2019 and expiration in June 2024.

Fiscal Year	Maturities
2021	\$ 75
2022	75
2023	1,811
2024	785
2025	864
Thereafter	6,712
	\$ 10,322

During fiscal 2020, the Company entered into transactions to extend and recoupon its existing interest rate swaps. As of September 26, 2020, the Company effectively had (i) a \$450 million interest rate swap transaction that swaps a one-month variable LIBOR contract for a fixed annual rate of 1.398%, with an expiration date in June 2026, (ii) a \$1 billion interest rate swap transaction that swaps a one-month variable LIBOR contract for a fixed annual rate of 1.835% with an expiration date in June 2026, (iii) a \$400 million interest rate swap transaction that swaps a one-month variable LIBOR contract for a fixed annual rate of 1.916% with an expiration date in June 2026, (iv) an \$884 million interest rate swap transaction that swaps a one-month variable LIBOR contract for a fixed annual rate of 1.857%, with an expiration in June 2024, and (v) a \$473 million interest rate swap transaction that swaps a one-month variable LIBOR contract for a fixed annual rate of 2.050%, with an expiration in June 2024.

Products

Consumer Packaging



- Flat lids
- Flavor butt
- PET, PP, or



Health and Hygiene



Engineered Materials and Industrial



Products Cont.



[Duct Tape](#)



[Foil Tape](#)



[DIY Products](#)



[Spray Adhesives](#)



[Masking Tapes](#)



[Plumbing & Electrical Tapes](#)

Diapers	Feminine Care	Adult Incont.	Surgical Products & Medical Packaging	Pharmaceutical & Rigid Medical
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Wipes	Filtration	Geosynthetics	Ag & Other	Building Wraps
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