Robert Dunn **Michael Wolleben**

Hidden Opportunities

Valuing possible breakups by providing sum-of-the-parts analysis.

- ✓ O-I Glass, Inc. (NYSE: OI), a manufacturer of glass packaging products, operates three segments serving distinct geographic markets: (1) Americas (54.5% of 2019 consolidated sales and ~59% of adj. EBITDA); (2) Europe (~36% of sales and 34% of adj. EBITDA); and (3) Asia Pacific (9.5% of sales and 7% of adj. EBITDA).

- ✓ In our view, with the shares trading at less than 5.5x EV/EBITDA and a free cash flow yield of ~25%, OI is undervalued relative to the sum value of its parts (as well as the replacement value of its assets). OI has initiated a tactical divestiture program, which we discern primarily targets smaller non-core assets, including the Australia and New Zealand portions of its Asia Pacific business, as well as JV interests and property. That said, the company is also conducting a wider strategic review, which we think is, in part, the result of pressure from activist shareholder Atlantic Investment. Atlantic, a longtime holder with a current ~5% stake, filed a 13D in September 2018 (and again in October 2019) calling for, among other things, a wider break-up of the company, including the sale of the European operations, which it estimates would unlock significant value. (Atlantic also pushed the initiation of a dividend and a more robust buyback program, both of which were implemented in late 2018.) In addition to multiple avenues of transactional optionality, we see longer-term potential catalysts from the resolution of OI's legacy asbestos liabilities (as well as the successful deployment of its MAGMA technology initiative). Risks include management execution, competition/substitution, leverage, cost inflation, currency fluctuations, and/or economic disruptions/recession.

- ✓ Considering financial commentary as well as peer and M&A valuations, value of $32 per share, $16 per share, and $3 per share can be assigned to OI's Americas, Europe, and Asia Pacific businesses, respectively. Accounting for corporate costs and projected net debt of ~$41 per share yields a sum-of-the-parts value of $10.50 per share.

O-I Glass, Inc.

(NYSE: OI)

Date (3/12/20)

Price $5.80/share

Market capitalization ~$900M

Americas: $32/share

Europe: $16/share

Asia Pacific: $3/share

Corporate/Net Debt & Other: ($41/share)

SOTP: $10.50 per share*

***SOTP may not add due to rounding**

NOTE: This publication could be considered as advocating for corporate restructurings. Authors select companies for this report based on the potential for a future value-unlocking transaction. In many cases, these companies have or could come under activist investor pressure, media scrutiny, or general market speculation that a spin-off or asset sale is possible.

IRG Institutional Research Group

PCS Research Services
100 Wall Street, 20th Floor
New York, NY 10005
(212) 233-0100
www.pcsresearchservices.com

HIDDEN OPPORTUNITIES

"Valuing possible breakups by providing sum-of-the-parts analysis."

The Background

O-I Glass, Inc. (NYSE: OI), based in Perrysburg, OH, has origins dating back to the 1903 founding by Michael Owens of the Owens Bottle Machine Co., which produced the first automated bottle-making machine. The company was first listed on the New York Stock Exchange (NYSE) in 1916. In 1929, the company merged with Illinois Bottle Co. and formed Owens-Illinois, Inc. During its long history of acquisitions and divestitures, notable transactions include its leveraged buyout by Kohlberg Kravis Roberts in 1987 and its return to the public market in 1991, as well as the sale of its plastic packaging operations to Rexam PLC (private) in July 2007. More recently, in December 2019, the company monetized a 25% interest in a soda ash venture with Tata Chemicals for $195 million. While the company had been doing business as O-I Glass since 2005, the current corporate moniker was formally adopted in December 2019 in conjunction with its reorganization into a holding company, which, among other things, facilitated the isolation of legacy asbestos-related liabilities within a subsidiary that was subsequently put into bankruptcy with the goal of ultimately resolving all current and future claims via the funding of a 524(g) trust. Currently, OI operates three segments based on distinct geographic exposures (see Background #1): (1) Americas (54.5% of 2019 sales and 59% of adjusted EBITDA), which was merged into a single entity in January 2018 and operates 36 glass manufacturing plants in North and Latin America; (2) Europe (36% of 2019 sales and 34% of adjusted EBITDA), which operates 34 plants in 10 European countries; and (3) Asia Pacific (9.5% of 2019 sales and ~7% of adjusted EBITDA), which has 8 plants in Australia, China, Indonesia, and New Zealand.

Background #1 O-I Glass, Inc.: Selected Financial Items, 2015–2021E

($ in millions)

	2015	2016	2017	2018	2019	2020E	2021E
Revenue:							
Americas	$3,103	$3,652	$3,711	$3,638	$3,622	$3,571	$3,607
Europe	$2,324	$2,300	$2,375	$2,489	$2,387	$2,242	$2,261
Asia Pacific	$671	$684	$714	$675	$634	$615	$619
Other	$58	$66	$69	$75	$48	$50	$50
Net sales	**$6,156**	**$6,702**	**$6,869**	**$6,877**	**$6,691**	**$6,478**	**$6,537**
Operating profit:							
Americas	$448	$568	$614	$585	$495	$445	$487
Europe	$209	$237	$263	$316	$317	$269	$305
Asia Pacific	$83	$77	$65	$44	$29	$25	$28
Segment total	**$740**	**$882**	**$942**	**$945**	**$841**	**$738**	**$820**
Corporate costs	($70)	($98)	($104)	($106)	($97)	($105)	($105)
Total	**$670**	**$784**	**$838**	**$839**	**$744**	**$633**	**$715**
EBITDA:							
Americas	$683	$880	$924	$878	$787	$730	$776
Europe	$329	$355	$388	$452	$453	$392	$430
Asia Pacific	$123	$114	$108	$99	$89	$83	$87
Corporate	($56)	($87)	($94)	($96)	($86)	($94)	($94)
Total	**$1,079**	**$1,262**	**$1,326**	**$1,333**	**$1,243**	**$1,112**	**$1,198**

Source: Company reports, Bloomberg, and Institutional Research Group estimates.

For some context on the following discussion, in early February 2020, OI provided a degree of financial guidance for full year 2020, which calls for EPS of $2.10-$2.25 (implying ~3%-10% year-over-year growth on an apples-to-apples basis), assuming higher selling prices (net of cost inflation) and total sales volumes that are flat to up 2%. Additionally, the company projected operating cash flow of $650-$675 million, with capital expenditures of $300-$375 million, resulting in free cash flow (FCF) of $300 million or higher (see Background #2). In terms of first quarter commentary, OI indicated the expectation that total sales volume would be flat to up 2%, with adjusted EPS of $0.40-$0.45 (which is roughly flat with 1Q 2019, excluding divestitures and an Italian tax credit).

Background #2 O-I Glass, Inc.: Initial 2020E Consolidated Guidance

	1Q 2020E	Full-Year 2020E
Total sales volume	Flat to up 2%	Flat to up 2%
Adjusted EPS	**$0.40-$0.45**	**$2.10 - $2.25**
Yr.-o-Yr. growth (apples to apples)	*Roughly flat*	*3% - 10%*
Operating cash flow	-	$650 - $675 million
Capital expenditures	-	$300 - $375 million
Adjusted FCF	**-**	**> $300 million**
Tax rate	-	23% -25%

Source: Company reports.

On March 11th, after the market close, in lieu of an upcoming appearance at an investor conference that was cancelled by the organizer (due to COVID-19 concerns), OI provided a business update indicating that operating performance had been solid to date and that 1Q 2020 results were trending in line with its previously articulated earnings guidance. Overall sales volumes have been flat year-over-year, with higher shipments in the Asia Pacific region (including China) and the Nueva Fanal acquisition (July 2019) offsetting the expected ongoing trend of lower beer demand in North America. Despite the recent COVID-19 outbreak, OI indicates that its business continues to operate without interruption and that demand trends in early March have remained "stable." (That said, the company will continue to heed guidance from global health officials as the situation evolves.) The company indicated that its strategic review is "advancing" and that the balance sheet remains "sound," with ~$2 billion of liquidity and no near-term bond maturities. Additionally, OI indicated that year-to-date cash flow is up versus the prior year (on better working capital management and lower capital spending).

Despite this reassuring commentary, we think it is prudent to maintain a cautious approach amid the ongoing health crisis; to that end, our forecasts, which will be detailed in the following pages, call for adjusted EBITDA of $1.112 billion in 2020E and almost $1.2 billion in 2021E (compared with current consensus estimates of $1.225 billion and $1.257 billion, respectively). (Note: By our calculation, adjusted EBITDA would have to fall below $1 billion, assuming no incremental leverage reduction from potential asset sales, for OI's debt covenants to come into play.) On an adjusted EPS basis, our 2020E and 2021E forecasts imply earnings of ~$1.75 and ~$2.10, respectively (compared with current consensus of $2.13 and $2.26).

Americas *(merged in 2018 from the previously separate North America and Latin America segments)*

The Americas segment, which was merged into a single reporting segment in January 2018 and accounted for 54.5% of consolidated sales and 59% of adjusted EBITDA in 2019, is primarily comprised of OI's 36 glass container manufacturing plants (and three joint-venture interests) in North America, specifically in the U.S. (16) and Canada (2), as well as in Latin America, including Argentina (1), Bolivia (1), Brazil (4), Colombia (3), Ecuador (1), Mexico (6), and Peru (2). Notably, with glass products having a typical shipping radius of roughly 300 miles (given weight and breakability), OI's facility network presents a durable barrier to entry and results in a global glass market that is essentially a collection of regional oligopolies. OI is the largest player in both regions of the Americas, ahead of Ardagh Group (NYSE: ARD) and Anchor (private) in North America and Verallia (VRLA FP) in South America. (That said, the glass industry also competes with other rigid packaging products, such as aluminum and plastic.)

Given the company's production of primarily glass containers for alcoholic (i.e., beer, wine, spirits) and non-alcoholic (i.e., soda, teas, juices) beverages, as well as other food (and pharmaceutical/cosmetic) products (see Background #3), major customers, unsurprisingly, include AB InBev (ABI BB), Brown Forman (NYSE: BF.B), Coca-Cola (NYSE: KO), Constellation Brands (NYSE: STZ), and Molson Coors (NYSE: TAP), although no customer comprises more than 10% of consolidated sales. Contract terms are generally multi-year in the U.S. and annual in South America, with some costs, such as energy, which generally comprise 10%-20% of the cost of production, being passed through on a monthly/quarterly basis, while others generally experience an about one-year lag. Among its employee base, more than 75% of OI's workers in the U.S. and Canada earn an hourly wage (but are covered by a collective bargaining agreement that expires March 2022).

Background #3 O-I Glass, Inc.: Segment End-Market Exposure, 2019
(by tons sold)

	Americas	Europe	Asia Pacific
Beer	40%	26%	43%
Non-Alcoholic	18%	10%	13%
Food	17%	15%	12%
Spirits	13%	13%	1%
Wine	9%	34%	26%
Other	3%	2%	5%

Source: Company reports.

In 2018, Americas segment sales declined ~2% to $3.64 billion as total glass shipments in the region fell ~3%, with growth in shipments to food customers as well as strength in Latin America more than offset by declines in alcoholic beverage shipments, particularly in the U.S. (Note: The decline in alcoholic beverage shipments reflects an ongoing industry trend, primarily in the U.S. beer market, which has seen a steady shift, primarily among the less-premium brands, toward the use of more aluminum packaging. Consequently, OI has significantly reconfigured its asset footprint in recent years; in fact, since 2015, the company has reduced its North American beer capacity by ~35%, and U.S. beer shipments now comprise just 9% of total legacy volumes.) Segment operating profit and EBITDA declined about 5% in 2018 to $585 million and $878 million, respectively, as increased selling prices were more than offset by cost inflation (most notably freight rates), the impact of a transportation strike in Brazil, and an outage at a raw material supplier in Mexico. (See Background #4.)

Background #4 O-I Glass, Inc.: Americas Segment, Selected Financial Items (2015-2021E)
($ in millions)

	2015	2016	2017	2018	2019	2020E	2021E
Net sales	**$3,103**	**$3,652**	**$3,711**	**$3,638**	**$3,622**	**$3,571**	**$3,607**
Alcoholic beverages	-	-	-	$2,281	$2,301	$2,266	$2,289
Food & other	-	-	-	$780	$760	$752	$760
Non-alcoholic beverages	-	-	-	$577	$561	$553	$558
North America	*$2,039*	*$2,220*	*$2,160*	-	-	-	-
Latin America	*$1,064*	*$1,432*	*$1,551*	-	-	-	-
Operating profit	**$448**	**$568**	**$614**	**$585**	**$495**	**$445**	**$487**
North America	*$265*	*$299*	*$318*	-	-	-	-
Latin America	*$183*	*$269*	*$296*	-	-	-	-
Depreciation & amortization	$235	$312	$310	$293	$292	$286	$289
EBITDA	**$683**	**$880**	**$924**	**$878**	**$787**	**$730**	**$776**
Operating margin	14.4%	15.6%	16.5%	16.1%	13.7%	12.5%	13.5%
North America	*13.0%*	*13.5%*	*14.7%*	-	-	-	-
Latin America	*17.2%*	*18.8%*	*19.1%*	-	-	-	-
EBITDA margin	22.0%	24.1%	24.9%	24.1%	21.7%	20.5%	21.5%
Capital expenditures	$186	$231	$233	$255	$178	$159	$162

Source: Company reports, Bloomberg, and Institutional Research Group estimates.

In 2019, segment sales were down less than 0.5% to $3.62 billion, as total regional shipments rose slightly. That said, shipments were down ~2% excluding the $188 million acquisition of the Nueva Fanal production facility near Mexico City from InBev subsidiary Grupo Modelo in July 2019, from which OI expects to generate ~$140 million of annual sales and ~$40 million of adjusted EBITDA. The organic decline primarily reflected weakness in the U.S. beer market, which contracted ~14% in 2019 (but now represents just ~9% of OI's total legacy volume), offset by strength in Latin America, specifically Brazil and Colombia. Segment operating profit fell 15% to $495 million, as lower incentive compensation and higher selling prices did not fully offset cost inflation, including the cost to add capacity in Latin America and reduce it in North

America, as well as weather-related downtime and unfavorable currency fluctuations (see Background #4).

For 2020, management expects the Nueva Fanal acquisition to contribute roughly 1% to total shipment growth, while it can be extrapolated from management's broader commentary that organic pressure on U.S. beer-related shipments, which are expected to post double-digit declines, will drive a mid-single-digit overall decline in North America, while volumes in Central and South America are expected to grow in the mid-single-digit and low-single-digit range, respectively. The price environment is expected to remain positive amid roughly stable cost inflation (although the company will continue investments in the ongoing adjustment of its capacity footprint). In terms of its longer-term market outlook, OI expects that overall volumes in the Americas market will be roughly flat (plus or minus 0.5%) through 2022, as mid-single-digit declines in North America are offset by low-single-digit gains in Latin America. Assuming a cautious outlook for 2020E with a return to modest growth in the out-year, we think 2021E sales and adjusted EBITDA of ~$3.6 billion and $776 million can be reasonably projected (see Background #4).

Europe

The Europe segment, which accounted for 36% of consolidated revenue and 34% of adjusted EBITDA in 2019, operates 34 glass container manufacturing plants (as well as two joint venture interests) in 10 European countries, specifically the Czech Republic (2), Estonia (1), France (9), Germany (3), Hungary (1), Italy (10), the Netherlands (2), Poland (2), Spain (2) and the U.K. (2). [Note: 5 of OI's 10 Italian locations are located in the northern part of the country, while the remaining 5 are spread throughout the middle, southern, and Sicilian portions. That said, the company indicated on March 11 that its business continues to operate without disruption despite the COVID-19 outbreak.] Regarding the competitive dynamic, OI, with an estimated ~20% share of the market, is roughly even with Verallia but ahead of smaller players Ardagh Group, Vetropack (VET SW), Vidrala (VID SM), and privately held BA Vidro. Major customers in the European market, which is more heavily weighted toward wine than beer compared to the U.S. (see Breakdown #3 on page 4), include Diageo (NYSE: DEO), Carlsberg (CARLB DC), Heineken (HEIA NA), and Nestle (NESN SW).

In 2018, Europe segment sales increased almost 5% to $2.49 billion, as the impact of a strengthening euro (in relation to the U.S. dollar) more than offset a less than 1% decline in the region's total glass shipments, which was partially driven by constraints in production capacity. Segment operating profit rose 20% to $316 million, driven by higher selling prices and the aforementioned currency impact as well as by cost savings associated with OI's prior-year restructuring efforts. Segment adjusted EBITDA advanced ~16.5% to $452 million. In 2019, segment sales declined ~4% to $2.39 billion, driven by a weakening euro and a ~2% decline in total shipments, which reflected capacity constraints and weather-related disruptions as well as a "generally soft" demand environment (reportedly the result of heightened "macro uncertainty"). Segment operating profit and EBITDA rose slightly in 2019 to $317 million and

$453 million, respectively, as higher selling prices offset currency headwinds and cost inflation. (See Background #5.)

Background #5 O-I Glass, Inc.: Europe Segment, Selected Financial Items (2015-2021E)
($ in millions)

	2015	2016	2017	2018	2019	2020E	2021E
Net sales	**$2,324**	**$2,300**	**$2,375**	**$2,489**	**$2,387**	**$2,242**	**$2,261**
Alcoholic beverages	-	-	-	$1,780	$1,715	$1,586	$1,602
Food & other	-	-	-	$461	$433	$422	$424
Non-alcoholic beverages	-	-	-	$248	$239	$233	$234
Operating profit	**$209**	**$237**	**$263**	**$316**	**$317**	**$269**	**$305**
Depreciation & amortization	$120	$118	$125	$136	$136	$123	$124
EBITDA	**$329**	**$355**	**$388**	**$452**	**$453**	**$392**	**$430**
Operating margin	9.0%	10.3%	11.1%	12.7%	13.3%	12.0%	13.5%
EBITDA margin	14.2%	15.4%	16.3%	18.2%	19.0%	17.5%	19.0%
Capital expenditures	$164	$163	$152	$187	$177	$156	$158

Source: Company reports, Bloomberg, and Institutional Research Group estimates.

Looking into 2020, OI expects its European volumes to be flat to up 1%, in part driven by new beer capacity and mid-single-digit growth in spirits shipments, offset by weakness in French wine shipments. As in the Americas, OI expects a positive price environment, with stability in cost inflation (albeit with the need to continue investing in new capacity). In terms of its longer-term market outlook, OI expects Europe to grow at a low-single-digit compound annual rate through 2022, in part driven by the ongoing benefits of "premiumization." For our part, assuming a conservative outlook for 2020E with a return to modest growth in 2021E, we think it can be reasonably projected that sales and adjusted EBITDA could reach $2.26 billion and $430 million, respectively, in 2021E (see Background #5).

Asia Pacific

The Asia Pacific segment, which accounted for 9.5% of consolidated sales and 7% of adjusted EBITDA in 2019, operates 8 manufacturing plants, in Australia (4), China (2), Indonesia (1), and New Zealand (1), along with joint venture interests in China, Malaysia, and Vietnam. While OI is the dominant player in Australia and New Zealand (i.e., north of 50% market share), along with its main regional competitor, Orora Limited (ORA AU), the competitive landscape in Asia is decidedly more fragmented, particularly in China. Major customers in the Asia Pacific market, which is heavily weighted toward beer and wine (see Background #3 on page 4), include AB InBev (including Foster's and Abi Sab), Asahi (2502 JP), Bundaberg (private), Heineken (HEIA NA), and Lion (LION SL).

Background #6 O-I Glass, Inc.: Asia Pacific Segment, Selected Financial Items (2015-2021E)
($ in millions)

	2015	2016	2017	2018	2019	2020E	2021E
Net sales	**$671**	**$684**	**$714**	**$675**	**$634**	**$615**	**$619**
Alcoholic beverages	-	-	-	$493	$443	$432	$434
Food & other	-	-	-	$101	$114	$108	$109
Non-alcoholic beverages	-	-	-	$81	$77	$75	$75
Operating profit	**$83**	**$77**	**$65**	**$44**	**$29**	**$25**	**$28**
Depreciation & amortization	$40	$37	$43	$55	$60	$58	$59
EBITDA	**$123**	**$114**	**$108**	**$99**	**$89**	**$83**	**$87**
Operating margin	12.4%	11.3%	9.1%	6.5%	4.6%	4.0%	4.5%
EBITDA margin	18.3%	16.7%	15.1%	14.7%	14.0%	13.5%	14.0%
Capital expenditures	$50	$59	$55	$92	$66	$46	$46

Source: Company reports, Bloomberg, and Institutional Research Group estimates.

In 2018, Asia Pacific segment sales decreased 5.5% to $675 million, as total shipments were down ~3%, primarily driven by declines among alcohol customers in Australia and the weakening of the Aussie and Kiwi dollars against the U.S. dollar. Segment operating profit declined more than 30% to $44 million, as higher selling prices did not fully offset the impact of currency, cost inflation, and investments in so-called asset improvement projects, which are aimed at long-term improvements in production volume and the region's cost structure. Segment adjusted EBITDA declined ~8% to $99 million. In 2019, segment sales declined an additional 6% to $634 million, primarily driven by currency, as total shipment volumes were only slightly lower year-over-year. Segment operating profit fell nearly 35% to $29 million, as a modest decline in selling prices, cost inflation, and efforts to balance supply in the face of weakening demand in China offset cost savings from the company's asset improvement efforts. Segment adjusted EBITDA declined ~10% to $89 million (see Background #6).

Looking into 2020, OI expects Asia Pacific shipment volumes to be roughly flat (with the growth potential in Asia likely being stymied in the current uncertain environment associated with the COVID-19 outbreak). The pricing and cost inflation environments are expected to remain relatively stable. In terms of the longer-term market outlook, OI expects Asia Pacific shipment volumes to remain relatively flat (plus or minus 0.5%) amid relative stability in Australia and New Zealand and low- to mid-single-digit compound annual growth in Asia. Assuming sales decline at a compound annual rate of ~1% and the margin profile remains roughly stable, we think 2021E sales and adjusted EBITDA of ~$619 million and $87 million can be reasonably projected (see Background #6).

Balance Sheet and Cash Flow

At the end of 2019, OI had net debt of ~$5 billion (see Background #7), including ~$551 million of cash and debt of $5.56 billion, with a net leverage ratio of ~4.0x (compared with the 5.0x covenant contained in its credit agreement, which steps down to 4.75x in June 2021 and 4.5x in December 2021). At year-end, the company had ~$1.5 billion of unused capacity on its credit facility, which is primarily comprised of a $300 million revolver, a $1.2 billion multi-currency revolver, and a $1.5 billion term loan, all of which mature in June 2024 and carry a weighted average interest rate of 3.41%. (Annual maturities on long-term debt over the next few years include $49 million in 2020, $537 million in 2021, and $583 million in 2022.)

Background #7 O-I Glass, Inc.: Balance Sheet Snapshot
($ in millions)

	2016	2017	2018	2019
Cash	**$492**	**$492**	**$512**	**$551**
Long-term debt	$5,133	$5,121	$5,181	$5,435
Short-term debt	$195	$162	$160	$124
Total	**$5,328**	**$5,283**	**$5,341**	**$5,559**
Net	**$4,836**	**$4,791**	**$4,829**	**$5,008**
Leverage ratio	4.2x	4.0x	4.0x	4.5x
Leverage ratio, net	3.8x	3.6x	3.6x	4.0x
Asbestos liabilities	**$577**	**$482**	**$442**	**$486**
Underfunded pension	**$526**	**$429**	**$498**	**$493**

Source: Company reports and Bloomberg.

At year-end 2019, OI had nearly $500 million of outstanding liabilities related to potential settlements of ~850 asbestos-related legal claims (see Background #7 & #8), which stem from a former business unit that produced insulation material (and pipe) containing asbestos in the years 1948-1958. (For context, since the initial $975 million liability was recognized in 1993, the company has accrued liabilities, before insurance recoveries, of ~$5 billion.)

Background #8 O-I Glass, Inc.: Pending Asbestos-Related Litigation Overview
($ in millions)

	2016	2017	2018	2019
Pending at beginning of year	2,080	1,400	1,330	1,070
Disposed	1,750	1,320	1,220	1,170
Filed	1,070	1,250	960	950
Pending at end of year	1,400	1,330	1,070	850

Source: Company reports.

As mentioned previously, in conjunction with the December 2019 corporate reorganization, OI isolated all of its legacy asbestos liabilities in a subsidiary, Paddock Enterprises, LLC, which then voluntarily filed for Chapter 11 reorganization in January 2020 with the goal of ultimately settling all current (and future) asbestos-related claims via the funding of a 524(g) trust. We would note that Saint-Gobain (SGO FP), a global construction materials provider, is currently pursuing the same legal strategy, which closely resembles the one successfully deployed by EnPro Industries (NYSE: NPO), the subject of a previous *Hidden Opportunities* report. (For additional information on NPO and the success of its legal strategy, please see the *Hidden Opportunities* report dated April 28, 2017, and the subsequent updates.) Although the bankruptcy/settlement process is likely to play out over the next several years (for comparison, NPO's liability was ultimately resolved in July 2017, roughly seven years after its initial bankruptcy filing in June 2010), we think the potential permanent resolution of this legal overhang would be a substantial long-term positive. [Note: In an effort to err on the side of conservatism, in our various valuation scenarios we incorporate a roughly $625 million hit to OI's enterprise value related to its asbestos-related liabilities (see Breakdown #7 on page 17).]

Background #9 O-I Glass, Inc.: Sources and Uses of Cash Flow

($ in millions, except per share amounts)

	2016	2017	2018	2019	2020E	2021E
Net earnings	$230	$202	$282	($382)	$126	$206
Depreciation & amortization	$478	$488	$494	$499	$478	$483
Other	$50	$34	$17	$291	($10)	($25)
Cash from operating activates	**$758**	**$724**	**$793**	**$408**	**$595**	**$664**
Capital expenditures	($454)	($441)	($536)	($426)	($366)	($372)
Free cash flow	**$304**	**$283**	**$257**	**($18)**	**$229**	**$292**
Adj. FCF (ex-asbestos related payments)	$429	$393	$362	$133	$229	$292
Acquisitions, net	($56)	($39)	($123)	($190)	-	-
Asbestos payment	($125)	($110)	($105)	($151)	-	-
Payments to non-controlling interests	($9)	($17)	($22)	($17)	($25)	($25)
Issuance of common stock	$5	($5)	$5	($5)	-	-
Dividends	-	-	-	($31)	($31)	($31)
Repurchases	-	-	($163)	($38)	-	-

Source: Company reports, Bloomberg, and Institutional Research Group estimates.

In the short run, payments on asbestos-related claims will be suspended, which will free up ~$100 million of annual free cash flow (see Background #9). To that end, management indicates funds will be redeployed to reduce debt, and the company is targeting a reduction in its leverage ratio to 3.0x by 2021. Debt reduction has been described as OI's "top-priority" (relative to acquisitions or further execution on its ~$400 million share repurchase authorization) over the next several years. On the free cash flow front, OI is projecting 2020E free cash flow of at least $300 million based on expected cash flow from operations of $650-$675 million and a capital spending budget of $300-$375 million (see Background #9). Maintenance capex is estimated to be ~$300 million annually, while the main focus of OI's strategic capital spending is the ongoing development and introduction of its self-described "breakthrough" technology dubbed MAGMA (an acronym for Modular Advanced Glass Manufacturing Asset), which is expected to revolutionize the glass manufacturing process in terms of flexibility and capital intensity (but for which we currently incorporate little credit).

Corporate Governance, Management, Ownership, and Recent Developments

OI's Board of Directors is comprised of 12 annually elected members, of which all are deemed independent except OI's chief executive officer (CEO), Andres Lopez. Independent directors comprise (and chair) the audit, compensation, and governance committees (while Mr. Lopez sits on the risk oversight committee). Seven (of the 12) members have been "refreshed" over the last six years, and with the pending nomination of Catherine Slater (at the 2020 annual meeting), one-quarter of the members will be female. All directors and executive officers, as a group, own less than 1% of the outstanding shares (see Background #10).

Background #10 O-I Glass, Inc.: Current Insider and Institutional Ownership of OI

	Shares held	% ownership
Holders:		
Vanguard Group	14.8	9.5%
BlackRock	13.8	8.9%
Frank Russell	13.6	8.7%
First Pacific	10.0	6.4%
Atlantic Investment Management	**7.9**	**5.1%**
Power Corp. of Canada	7.0	4.5%
LSV Asset Management	5.6	3.6%
Lyrical Asset Management	5.5	3.5%
Abrams Capital Management	4.9	3.1%
Dimensional Fund Advisors	3.9	2.5%
State Street Corp.	3.8	2.4%
Private Management Group	2.7	1.7%
Contraius Investment Mgmt.	2.5	1.6%
Bank of New York Mellon	2.3	1.5%
Goldman Sachs	2.3	1.5%
Total	**100.4**	**64.5%**
Insiders:		
All executives & directors (22)	**1.4**	**0.9%**

Source: Company reports and Bloomberg.

In September 2018, longtime shareholder Atlantic Investment Management, currently a 5.1% holder (see Background #10), filed a 13D suggesting, among other things, that the company explore options, including a sale of its European business, which it estimated could unlock $3.2-$3.8 billion of value while reducing currency (FX) volatility and strengthening the balance sheet. On the latter point, Atlantic suggested that OI reduce debt, increase share repurchases, and initiate a dividend. All told, Atlantic estimated its suggestions could cause the share price to move up into the low-$30-$40 range (from the high-teens level at the time). Subsequently, in October 2019, Atlantic filed a follow-up letter, applauding OI's efforts to right-size its U.S. manufacturing footprint as well as the initiation of a dividend and the sale of non-core assets. Still, the investor suggested that additional actions, including the full monetization of OI's Asia Pacific and European businesses, could unlock value and drive the stock price to near ~$30 per share (from its ~$8.50 level at that time). Additionally, we would note that the investor has publicly asserted that the replacement value of OI's asset base exceeds ~$12 billion.

The Breakdown

Based on the guidance, commentary, and forecasts discussed throughout this report, it can be reasonably projected that OI could generate adjusted EBITDA of ~$1.112 billion in 2020E and ~$1.2 billion in 2021E (see Breakdown #1). For context, current consensus forecasts for 2020 and 2021 are $1.225 billion and $1.257 billion respectively.

Breakdown #1 O-I Glass, Inc.: Adjusted 2015-2019 Results and 2020E-2021E Forecasts
($ in millions)

	2015	2016	2017	2018	2019	2020E	2021E
Revenue:							
Americas	$3,103	$3,652	$3,711	$3,638	$3,622	$3,571	$3,607
Europe	$2,324	$2,300	$2,375	$2,489	$2,387	$2,242	$2,261
Asia Pacific	$671	$684	$714	$675	$634	$615	$619
Other	$58	$66	$69	$75	$48	$50	$50
Net sales	**$6,156**	**$6,702**	**$6,869**	**$6,877**	**$6,691**	**$6,478**	**$6,537**
Operating profit:							
Americas	$448	$568	$614	$585	$495	$445	$487
Europe	$209	$237	$263	$316	$317	$269	$305
Asia Pacific	$83	$77	$65	$44	$29	$25	$28
Segment total	**$740**	**$882**	**$942**	**$945**	**$841**	**$738**	**$820**
Corporate costs	($70)	($98)	($104)	($106)	($97)	($105)	($105)
Total	**$670**	**$784**	**$838**	**$839**	**$744**	**$633**	**$715**
EBITDA:							
Americas	$683	$880	$924	$878	$787	$730	$776
Europe	$329	$355	$388	$452	$453	$392	$430
Asia Pacific	$123	$114	$108	$99	$89	$83	$87
Corporate	($56)	($87)	($94)	($96)	($86)	($94)	($94)
Total	**$1,079**	**$1,262**	**$1,326**	**$1,333**	**$1,243**	**$1,112**	**$1,198**
Capital expenditures:							
Americas	$186	$231	$233	$255	$178	$159	$162
Europe	$164	$163	$152	$187	$177	$156	$158
Asia Pacific	$50	$59	$55	$92	$66	$46	$46
Corporate	$2	$1	$1	$2	$5	$5	$5
Total	**$402**	**$454**	**$441**	**$536**	**$426**	**$366**	**$372**
Operating margins:							
Americas	14.4%	15.6%	16.5%	16.1%	13.7%	12.5%	13.5%
Europe	9.0%	10.3%	11.1%	12.7%	13.3%	12.0%	13.5%
Asia Pacific	12.4%	11.3%	9.1%	6.5%	4.6%	4.0%	4.5%

Source: Company reports, Bloomberg, and Institutional Research Group estimates.

Breakdown #2 O-I Glass, Inc.: Public Comparables

(currency in millions, except per share amounts)

		Glass Packaging					Other Packaging			
	O-I Glass Inc	Ardagh Group SA	Orora Ltd	Verallia SASU	Vetropack Holding AG	Vidrala SA	Ball Corp	Crown Holdings Inc	Silgan Holdings Inc	Amcor PLC
Ticker	OI	ARD	ORA AU	VRLA FP	VET SE	VID SM	BLL	CCK	SLGN	AMCR
Price (as of 3/11/20 close)	**$5.80**	**14.49**	**2.43**	**25.90**	**2,275.00**	**80.70**	**69.76**	**61.47**	**27.55**	**7.99**
Market Capitalization	904.3	3,424.8	2,932.2	3,066.4	902.0	2,206.0	22,726.0	8,344.8	3,052.0	12,816.3
Net Debt (Cash)	5,308.0	5,297.0	1,297.1	1,624.1	(60.1)	334.9	6,328.0	7,947.0	2,253.2	6,175.8
EV	**6,212.3**	**8,721.8**	**4,229.3**	**4,690.5**	**841.9**	**2,540.9**	**29,054.0**	**16,291.8**	**5,305.2**	**18,992.1**
Revenue 2019A	6,691.0	7,952.9	4,768.4	2,578.2	716.0	1,000.1	11,627.4	11,600.2	4,476.1	9,508.6
Revenue 2020E	6,478.3	6,743.1	4,284.7	2,687.6	741.3	1,020.7	12,035.1	11,889.8	4,525.5	12,841.0
Revenue 2021E	6,536.8	6,874.3	4,054.4	2,789.0	768.5	1,044.4	12,715.1	12,164.8	4,626.7	13,033.0
EV/Sales 2019A	0.9x	1.1x	0.9x	1.8x	1.2x	2.5x	2.5x	1.4x	1.2x	2.0x
EV/Sales 2020E	1.0x	1.3x	1.0x	1.7x	1.1x	2.5x	2.4x	1.4x	1.2x	1.5x
Average, ex. OI		1.6x					1.6x			
EV/Sales 2021E	1.0x	1.3x	1.0x	1.7x	1.1x	2.4x	2.3x	1.3x	1.1x	1.5x
Average, ex. OI		**1.5x**					**1.6x**			
2019A Net Income	315.0	326.6	221.5	120.0	69.0	137.9	850.1	676.7	239.5	680.0
2020E Net Income	273.7	383.0	174.4	214.7	71.9	145.9	961.7	749.3	257.9	993.6
2019E Net Income	328.8	422.0	176.1	252.6	74.0	152.8	1,077.3	800.7	271.9	1,066.0
2019A Net Income Margin	4.7%	4.1%	4.6%	4.7%	9.6%	13.8%	7.3%	5.8%	5.4%	7.2%
2020E Net Income Margin	4.2%	5.7%	4.1%	8.0%	9.7%	14.3%	8.0%	6.3%	5.7%	7.7%
2021E Net Income Margin	5.0%	6.1%	4.3%	9.1%	9.6%	14.6%	8.5%	6.6%	5.9%	8.2%
2019A EBITDA	1,243.0	1,363.3	482.1	615.2	168.8	267.9	1,870.4	1,691.7	626.7	1,454.7
2020E EBITDA	1,111.7	1,211.0	409.8	660.3	178.0	278.8	1,984.8	1,760.2	655.1	1,928.4
2021E EBITDA	1,197.7	1,257.4	413.4	705.2	186.8	288.2	2,114.5	1,830.5	675.1	2,027.9
2019A EBITDA Margin	18.6%	17.1%	10.1%	23.9%	23.6%	26.8%	16.1%	14.6%	14.0%	15.3%
2020E EBITDA Margin	17.2%	18.0%	9.6%	24.6%	24.0%	27.3%	16.5%	14.8%	14.5%	15.0%
2021E EBITDA Margin	18.3%	18.3%	10.2%	25.3%	24.3%	27.6%	16.6%	15.0%	14.6%	15.6%
2019A EV/EBITDA	5.0x	6.4x	8.8x	7.6x	5.0x	9.5x	15.5x	9.6x	8.5x	13.1x
2020E EV/EBITDA	5.6x	7.2x	10.3x	7.1x	4.7x	9.1x	14.6x	9.3x	8.1x	9.8x
Average, ex. OI		*7.7x*					*10.5x*			
2021E EV/EBITDA	5.2x	6.9x	10.2x	6.7x	4.5x	8.8x	13.7x	8.9x	7.9x	9.4x
Average, ex. OI		***7.4x***					***10.0x***			
2019A EPS	$2.20	$1.45	$0.18	$1.06	$176.11	$5.16	$2.50	$5.02	$2.15	$0.60
2020E EPS	$1.74	$1.62	$0.15	$2.00	$185.81	$5.41	$2.93	$5.50	$2.32	$0.63
2021E EPS	$2.09	$1.79	$0.17	$2.24	$193.74	$5.67	$3.38	$5.94	$2.46	$0.68
P/E 2019A	2.6x	10.0x	13.5x	24.5x	12.9x	15.7x	28.0x	12.2x	12.8x	13.4x
P/E 2020E	3.3x	8.9x	16.6x	13.0x	12.2x	14.9x	23.8x	11.2x	11.9x	12.8x
Average, ex. OI		*13.1x*					*14.9x*			
P/E 2021E	2.8x	8.1x	14.1x	11.5x	11.7x	14.2x	20.7x	10.3x	11.2x	11.8x
Average, ex. OI		***11.9x***					***13.5x***			
2020E FCF Yield	25.1%	8.3%	-	-	-	-	2.9%	7.6%	9.4%	8.2%
2021E FCF Yield	32.0%	12.5%	-	-	-	-	3.8%	8.8%	10.2%	8.3%
2020E FCF Per Share	$1.46	$1.21	-	-	-	-	$2.02	$4.65	$2.60	$0.65
2020E P/FCF	4.0x	12.0x	-	-	-	-	34.5x	13.2x	10.6x	12.2x
2021E FCF Per Share	$1.86	$1.81	-	-	-	-	$2.65	$5.38	$2.82	$0.66
2021E P/FCF	3.1x	8.0x	-	-	-	-	26.3x	11.4x	9.8x	12.0x
EV / Assets	0.6x	1.0x	1.0x	1.5x	1.0x	1.8x	1.7x	1.1x	1.1x	1.1x
Leverage ratio, net	4.0x	4.2x	3.1x	2.3x	-0.3x	1.2x	3.0x	4.3x	3.3x	3.0x

Source: Company reports, Bloomberg, and Institutional Research Group estimates.

OI's global glass operations can be compared with competitors including Ardagh Group (NYSE: ARD), Orora Ltd. (ORA AU), Verallia (VRLA FP), Vetropack Holding (VET SW, and Vidrala (VID SM), which trade at almost 7.5x 2021E EV/EBITDA (although ARD and VRLA FP are likely the most apt comparables). For additional context, a broader range of packaging competitors, including aluminum and plastic providers such as Ball Corp. (NYSE: BLL), Crown Holdings (NYSE: CCK), Silgan Holdings (NYSE: SLGN), and Amcor PLC (NASDAQ: AMCR), trade at ~10x 2021E EV/EBITDA (see Breakdown #2). As well, recent M&A activity in the packaging sector has averaged almost 9x forward EV/EBITDA (see Breakdown #3).

Breakdown #3 O-I Glass, Inc.: Recent Industry M&A Activity, Selected Items
($ in millions)

Announced	Closed	Acquirer	Target	EV	Revenue	Trailing EBITDA	Forward EBITDA	EV/Sales	Trailing EV/EBITDA	Forward EV/EBITDA
Mar-19	Jul-19	Berry Global	RPC Group	$4,430.0	$3,799.8	$583.9	$614.3	1.2x	7.6x	7.2x
Aug-18	Jun-19	Amcor	Bemis	$6,230.6	$4,081.7	$604.6	$598.3	1.5x	10.3x	10.4x
Apr-18	Aug-18	Lindsay Goldberg	Coveris Rigid	$816.9	$651.0	-	-	1.3x	~10.0x	-
Apr-17	May-17	Loews Corp.	CCC	$1,200.0	-	-	-	-	~8.1x	-
Nov-16	Nov-16	CVC	Anchor Glass	~$1,000.0	-	-	-	-	-	-
Jun-15	Jun-15	Apollo	Verallia	$3,270.0	-	-	-	-	7.4x	-
Avg.								**1.3x**	**8.4x**	**8.8x**

Source: Company reports and Bloomberg, and Institutional Research Group estimates.

Americas Segment

Applying a discounted multiple of 6.5x, which broadly reflects a 7.0x multiple on OI's attractive Latin American business and a 6.0x multiple on its North America operation, to 2021E Americas segment EBITDA of ~$776 million yields a segment value of roughly $5 billion, or ~$32 per share (see Breakdown #4).

Breakdown #4 O-I Glass, Inc.: Estimated Value of Americas Segment Based on 2021E EBITDA
($ in millions, except per share amounts; shares in millions)

		Americas	
2020E Revenue		$3,571	
Revenue growth est.		1.0%	
2021E Revenue		**$3,607**	
Operating margin		13.5%	
Operating income		**$487**	
EBITDA margin		21.5%	
2021E EBITDA		**$776**	
Applied multiple	5.5x	**6.5x**	7.5x
Enterprise value	$4,265	**$5,041**	$5,817
Diluted shares	157.3	157.3	157.3
Per share basis	$27.11	**$32.04**	$36.97

Source: Company reports, Bloomberg, and Institutional Research Group estimates.

Europe Segment

Applying a discounted multiple of 6.0x to the Europe segment's 2021E EBITDA of ~$430 million yields a segment value of almost $2.6 billion, or roughly $16 per share (see Breakdown #5). For context, Atlantic's initial 13D filing, from 2018, suggested OI's European business could be worth $3.2-$3.8 billion.

Breakdown #5 O-I Glass, Inc.: Estimated Value of Europe Segment Based on 2021E EBITDA
($ in millions, except per share amounts; shares in millions)

		Europe	
2020E Revenue		$2,242	
Revenue growth est.		0.9%	
2021E Revenue		**$2,261**	
Operating margin		13.5%	
Operating income		**$305**	
EBITDA margin		19.0%	
2021E EBITDA		**$430**	
Applied multiple	5.0x	**6.0x**	7.0x
Enterprise value	$2,148	**$2,577**	$3,007
Diluted shares	157.3	157.3	157.3
Per share basis	$13.65	**$16.38**	$19.11

Source: Company reports, Bloomberg, and Institutional Research Group estimates.

Asia Pacific Segment

Applying a discounted peer multiple of 5.0x to 2021E Asia Pacific segment EBITDA of ~$87 million yields a segment value of $433 million, or roughly $3 per share (see Breakdown #6).

Breakdown #6 O-I Glass, Inc.: Estimated Value of Asia Pacific Segment Based on 2021E EBITDA
($ in millions, except per share amounts; shares in millions)

		Asia Pacific	
2020E Revenue		$615	
Revenue growth est.		0.6%	
2021E Revenue		**$619**	
Operating margin		4.5%	
Operating income		**$28**	
EBITDA margin		14.0%	
2021E EBITDA		**$87**	
Applied multiple	4.0x	**5.0x**	6.0x
Enterprise value	$347	**$433**	$520
Diluted shares	157.3	157.3	157.3
Per share basis	$2.20	**$2.75**	$3.30

Source: Company reports, Bloomberg, and Institutional Research Group estimates.

Accounting for corporate costs capitalized at ~6x, or the weighted average segment multiple, as well as projected net debt of ~$5.8 billion, including $625 million of asbestos liabilities, minority interest, and unfunded pension liabilities, yields a sum-of-the-parts valuation of ~$1.65 billion, or $10.50 per share (Breakdown #7).

Breakdown #7 O-I Glass, Inc.: Sum-of-the-Parts Fair Value Estimate

($ in millions, except per share amounts; shares in millions)

	Americas	Europe	Asia Pacific	Corporate	Enterprise Value	Net Debt	Market Cap
2021E Revenue	**$3,607**	**$2,261**	**$619**				
Operating margin	13.5%	13.5%	4.5%				
Operating income	**$487**	**$305**	**$28**				
EBITDA margin	21.5%	19.0%	14.0%				
2021E EBITDA	**$776**	**$430**	**$87**	**($94)**		**($5,814)**	
Applied multiple	**6.5x**	**6.0x**	**5.0x**	**6.2x**		**1.0x**	
Enterprise value	**$5,041**	**$2,577**	**$433**	**($586)**	**$7,466**	**($5,814)**	**$1,652**
Diluted shares	157.3	157.3	157.3	157.3		157.3	157.3
Per share basis	**$32.04**	**$16.38**	**$2.75**	**($3.72)**		**($36.95)**	**$10.50**
Bull (~7x)	$36.97	$19.11	$3.30	($4.32)		($36.95)	$18.11
Base (~6x)	$32.04	$16.38	$2.75	($3.72)		($36.95)	$10.50
Bear (~5x)	$27.11	$13.65	$2.20	($3.13)		($36.95)	$2.89

Source: Company reports, Bloomberg, and Institutional Research Group estimates.

The Wrap-Up

In our view, with the shares trading at less than 5.5x EV/EBITDA, and with a free cash flow yield of ~25%, OI is undervalued relative to the sum value of its parts (as well as the replacement value of its assets). OI has initiated a tactical divestiture program, which we discern primarily targets smaller non-core assets, including the Australia and New Zealand portions of its Asia Pacific business as well as joint venture (JV) interests and property. That said, the company is also conducting a wider strategic review, which we think is, in part, the result of pressure from activist shareholder Atlantic Investment. Atlantic, a longtime holder with a current ~5% stake, filed a 13D in September 2018 (and again in October 2019) calling for, among other things, a wider break-up of the company, including the sale of the European operations, which it estimates would unlock significant value. (Atlantic also pushed the initiation of a dividend and a more robust buyback program, both of which were implemented in late 2018.) In addition to avenues of transactional optionality, we see longer-term potential catalysts from the resolution of OI's legacy asbestos liabilities (as well as the successful deployment of its MAGMA technology initiative). Risks include management execution, competition/substitution, leverage, cost inflation, currency fluctuations, and/or economic disruptions/recession.

Considering financial commentary as well as peer and M&A valuations, value of $32 per share, $16 per share, and $3 per share can be assigned to OI's Americas, Europe, and Asia Pacific businesses, respectively. Accounting for corporate costs and projected net debt of ~$41 per share yields a sum-of-the-parts value of $10.50 per share.