Enabling Consumer-Preferred Innovation

Ingredion

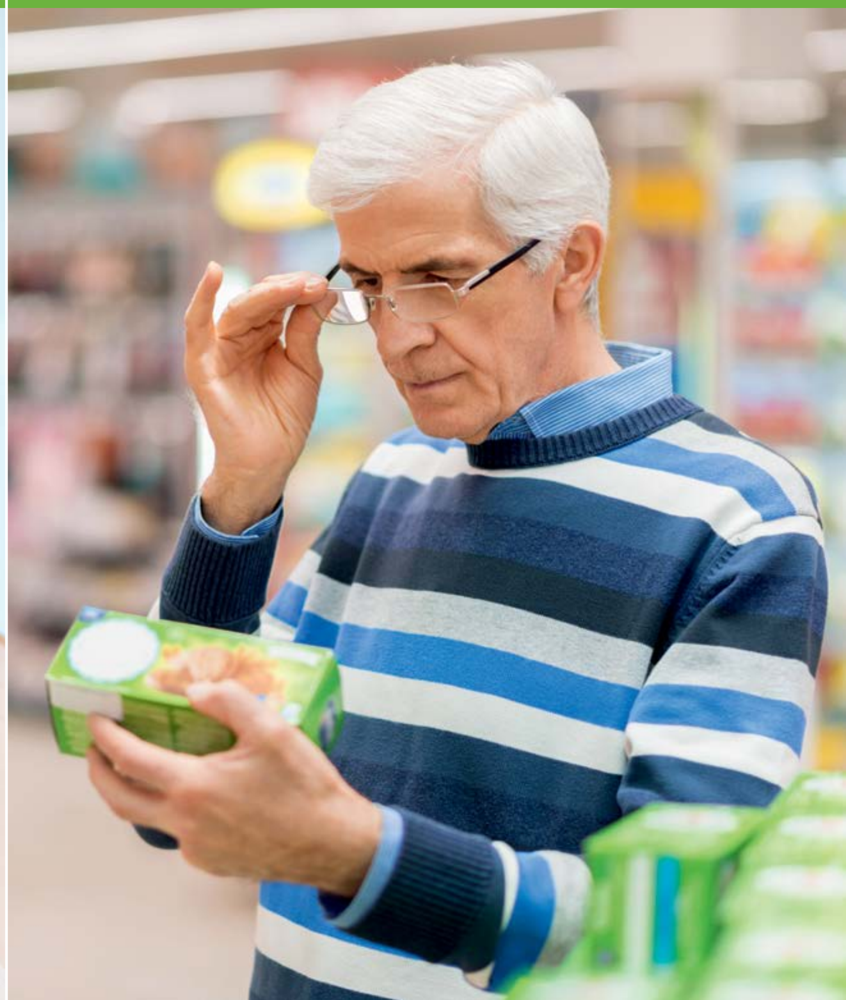
2019 Annual Report

PERFECTING TEXTURE

REDUCING SUGAR

FORTIFYING WITH PROTEINS

SIMPLIFYING CLEAN LABELS



A Customer-Preferred Partner

For Ingredion, 2019 was a year of solid progress executing our Driving Growth Roadmap, designed to deliver shareholder value by accelerating customer co-creation and enabling consumer-preferred innovation.

We continued to invest to capitalize on the trends shaping the food industry and expand our ability to provide ingredient solutions that enable our customers' products to win in the marketplace.

STRATEGIC INITIATIVES TO FORGE GROWTH

Specialties Strategy

Build on our global innovation strengths aligning with current and future consumer trends and a changing customer landscape

Cost Smart

Focus and simplify to better anticipate, execute and operate with agility to improve productivity and smartly lower our costs

Commercial Excellence

Accelerate and deliver value through customer co-creation and differentiated go-to-market capabilities

Purpose/Culture/Values/Talent

Unleash the potential of our people by embracing an inclusive culture supported by contemporary values and an inspiring core purpose

About Ingredion Ingredion Incorporated (NYSE: INGR), headquartered in the suburbs of Chicago, is a leading global ingredient solutions provider serving customers in more than 120 countries. With annual net sales of more than $6 billion, the Company turns grains, fruits, vegetables and other plant-based materials into value-added ingredient solutions for the food, beverage, animal nutrition, brewing and industrial markets. With Ingredion Idea Labs® innovation centers around the world and more than 11,000 employees, the Company co-creates with customers and fulfills its purpose of bringing the potential of people, nature and technology together to make life better. Visit ingredion.com for more information and the latest Company news.

Dear Valued Shareholders

In 2019, we continued to make excellent progress executing our growth strategy, expanding our portfolio of on-trend specialty ingredients and differentiated capabilities to enhance our ability to co-create with customers to deliver consumer-preferred innovation. Our bold moves are enabling greater operational efficiency and agility within a more streamlined organization.

Ingredion's Driving Growth Roadmap guided our delivery of value creation for shareholders and customers. Strong consumer demand across our on-trend growth platforms—starch-based texturizers, clean and simple ingredients, plant-based proteins, sugar reduction and specialty sweeteners, and food systems—enabled us to deliver net sales growth for our specialty ingredient portfolio throughout the year.

Moving Forward in a Changing Global Market

The global food industry is experiencing unprecedented change in consumer preferences and eating habits, new labeling requirements and customer channel shifts. These market pressures are felt throughout supply chains and are bringing both change and opportunity for ingredient suppliers. Our global footprint, deep customer relationships, and the relevance and breadth of our ingredient portfolio differentiate our company and position us extremely well to adapt and pursue new growth opportunities.

For the full year, global net sales were $6.2 billion, slightly down compared to the prior year. Absent $292 million of negative foreign exchange impacts, net sales were up 4 percent from the prior year. Reported and adjusted earnings per share[1] were $6.13 and $6.65, respectively. We continued to invest in our future, building Ingredion's capabilities where global consumer demand is increasing, including plant-based proteins, sugar reduction and starch-based texturizers. We are pleased that our specialty portfolio grew to $1.9 billion or 30 percent of total net sales in 2019.

Specialty Ingredients: Investing to Enhance Our Ability to Co-Create with Customers

By helping our customers respond to consumer trends, get to market faster and win in the highly competitive food and beverage industry, we are becoming a more valued partner. Our strategic investments make us more competitive and expand our higher-value specialty ingredient portfolio and capabilities.

- Our acquisition of Western Polymer expands our specialty potato starch manufacturing network and broadens our customer base, which is at the heart of our growth strategy in North America.
- Our investment with Verdient Foods further expands manufacturing and production capabilities and broadens our product portfolio in plant-based proteins, an area experiencing significant growth.
- We opened our first Allulose plant in Mexico, advancing our specialty ingredients strategy in sugar reduction—one of the most important trends shaping the food and beverage industry.

> *"At Ingredion, we bring the potential of people, nature and technology together to make life better."*

Cost Smart: Delivering Value Through Cost Reduction and Transformation

Our team did an exceptional job generating new operational efficiencies by executing our Cost Smart initiative. Our efforts to effectively and strategically manage costs resulted in nearly $75 million in run-rate savings, surpassing our $30 million–$40 million Cost Smart savings target for 2019. We have broadened and accelerated our program to achieve a cumulative savings target of $150 million by 2021. Through Cost Smart, we are transforming the way we work and delivering sustainable cost reduction while simplifying our organization to enable growth and differentiation. With greater agility, we are strengthening our culture of innovation and customer focus as we strive to be an increasingly valued partner to our customers.

Sustainability: Environmental, Social and Governance (ESG) Momentum

In 2019, we accelerated our focus on ESG issues to communicate how we are driving long-term value and our ability to support customer success both profitably and responsibly. We will celebrate Earth Day 2020 with the publication of our ninth annual sustainability report, where we will showcase how sustainability is integrated within our business and our operations to "*make ALL LIFE better.*"

Our People: Ingredion's Greatest Strength

Ingredion demonstrated strength and resiliency despite global macroeconomic challenges in 2019. This is a testament to the talent and dedication of our global employees. It was a tribute to our people that Ingredion was recognized as one of the World's Most Admired Companies by *Fortune* magazine for the 11th consecutive year. We are also proud to be included in Bloomberg's Gender-Equality Index for the third consecutive year and finally, Ingredion was named one of the World's Most Ethical Companies by Ethisphere for the seventh consecutive year.

Our success would not be possible without the hard work and contributions of our employees in 2019. I would also like to express my gratitude to our directors for their guidance and support. We strengthened our board with the addition of Stephan Tanda, who brings deep specialty food ingredient experience and a global perspective.

A Bright Future for Ingredion

We have met the challenges of 2019 and are well positioned for the year ahead. As we look to the future, we expect to deliver on our growth strategy and improve operational and financial performance as a stronger organization for our shareholders, customers and employees. Our management team and board are strongly aligned in our commitment to create long-term shareholder value. I remain confident that we are executing our strategic plan to drive growth, and I look forward to building on our success.

Sincerely,

James P. Zallie
President and CEO
April 8, 2020

(1) Adjusted earnings per share is a non-GAAP financial measure. See page 73 of the accompanying Annual Report in Form 10-K for a reconciliation of adjusted earnings per share to earnings per share calculated on a GAAP basis

COST SMART
is simplifying our business to accelerate our transformation.

2023 PROFIT GROWTH OUTLOOK*

We remain focused on meeting the following measures of value for our shareholders by 2023:

By 2023

~34–36%**	>$2.3B
SPECIALTY SALES	SPECIALTY SALES

+1pt***	EPS ↑	>12%
MARGIN EXPANSION	HIGH SINGLE-DIGIT GROWTH (CAGR)	TARGET ADJUSTED RETURN ON INVESTED CAPITAL

* The Company's long-term objectives are based on non-GAAP financial measures
** Specialty sales as a percent of total sales
*** Represents real margin absolute dollar growth; actual margins vary due to pass-through of changes in raw material costs and FX

Expanding

In 2019, we continued our investments to expand our specialty ingredient capabilities, bolstering our ability to enable on-trend, consumer-preferred innovation.

Customer and Investor Value Creation

through ingredient solutions that make life better

VALUE CREATION

Customer co-creation and consumer-preferred innovation

INVEST IN OUR SPECIALTY GROWTH PLATFORMS

Starch-Based Texturizers

Clean and Simple Ingredients

Plant-Based Proteins

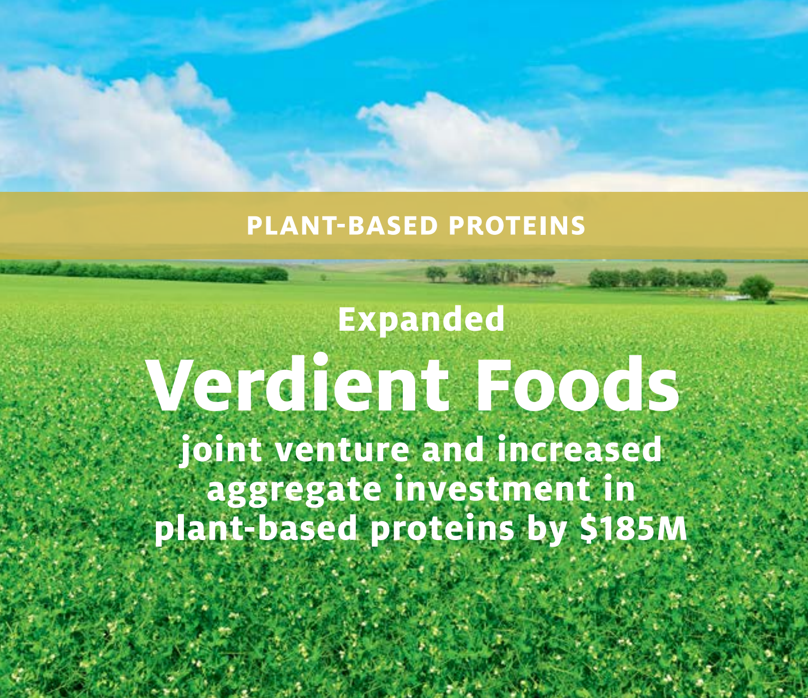
Sugar Reduction and Specialty Sweeteners

Food Systems

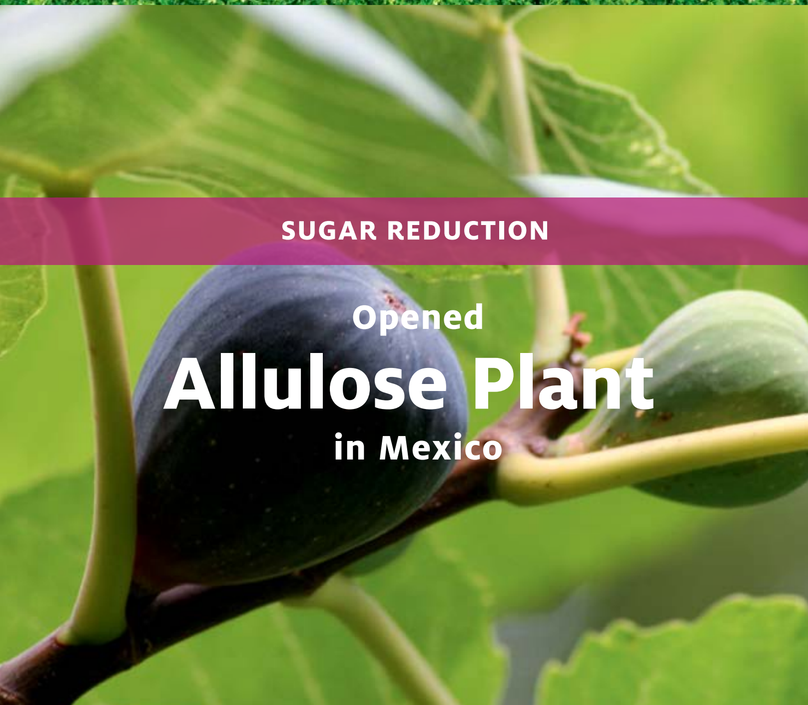
LEVERAGE AND ENHANCE OUR STRENGTHS

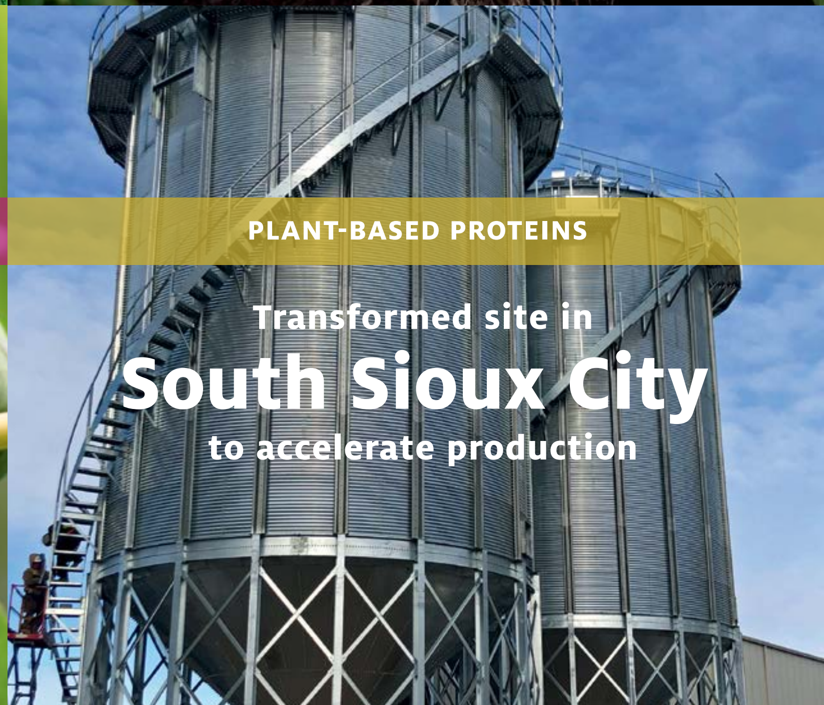
- Core Food and Industrial Ingredients
- Supply Chain and Operational Excellence
- Sustainable and Trusted Sourcing
- Purpose and Performance-Driven Culture

VALUE CREATION


PLANT-BASED PROTEINS
Expanded
Verdient Foods
joint venture and increased aggregate investment in plant-based proteins by $185M

STARCH-BASED TEXTURIZERS
Acquired starch innovator
Western Polymer
and expanded capacity for specialty ingredients


SUGAR REDUCTION
Opened
Allulose Plant
in Mexico


PLANT-BASED PROTEINS
Transformed site in
South Sioux City
to accelerate production

ANIMAL-FREE PROTEINS
Led investment in
Clara Foods
for animal-free protein development

FOOD SYSTEMS
Joined Bay Area food innovation platform
MISTA
an ecosystem focused on transforming the global food system to meet the needs of the future

Co-Creating

We expanded our specialty ingredient portfolio in 2019, enabling rapid, efficient customer co-creation to develop new food and beverages that make life better.

SPECIALTY INGREDIENT MARKET POTENTIAL

CLEAN AND SIMPLE INGREDIENTS

$50B+

Projected Global Market Size, 2024

Source: Mordor Intelligence

GLOBAL ALTERNATIVE PROTEIN INGREDIENTS

$13.4B

Projected Global Alternative Protein Ingredients Market Size, 2024

Source: Persistence Market Research

REDUCED SUGAR INGREDIENTS

$4B

Projected Global Market Size, 2024

Source: Bain & Company

STARCH-BASED TEXTURIZERS

5.2B

Anticipated Global Middle Class, 2028

Source: Brookings 2017

Co-Creation is a service we offer our customers that accelerates the time-to-market of tomorrow's innovative, consumer-preferred food and beverage products. To meet these challenges, we

- combine market insights enabling the rapid ideation and development of prototypes, including culinology, packaging, testing and scale-up manufacturing;
- employ an iterative cycle to rapidly test food and beverage products with end consumers in weeks, not months, significantly reducing the risk and cost of innovation; and
- utilize a flexible approach to partnering with consumer-preferred offerings that are validated.

PULSE PROTEIN INNOVATION IN ACTION

The perfect (plant-based) burger

We worked with a food company to co-create a high-quality vegan patty in just six months. Our technical service, global applications and culinology teams combined product formulation expertise and key consumer insights to develop a solution—including **VITESSENCE® Pulse Proteins**, hydrocolloids for texture and beet juice concentrate for color—delivering a burger that's delicious, nutritious and sustainable.

CO-CREATING WITH A COFFEE MANUFACTURER

The perfect texture for a bold portable cold brew

We collaborated with a leading ready-to-drink manufacturer to reduce sugar by 10 percent. Ingredion provided not only the solution, but also the technical expertise, such as prototype samples and sensory test results to shorten our customer's R&D cycle. Our customer completed the project successfully with the **SWEETIS™** sweetener system, which delivers a taste profile with the mouthfeel of sugar that satisfies consumers.

INGREDION IDEA LABS® TO GROCERY STORES IN SIX MONTHS

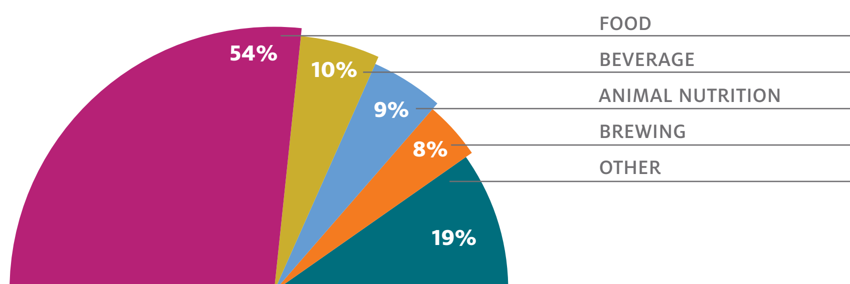
A new dairy-free yogurt, fast

The alternative dairy space is exploding, and a leading yogurt manufacturer wanted to enter the market quickly with a winning product. Our team provided updated consumer insights and technical support to deliver stability, texture, nutrition enhancement and the eating experience for a great-tasting, creamy product. **VITESSENCE® Pulse 1803** and **VITESSENCE® Pulse 3602**—our pea and fava bean proteins—were selected to enhance the nutritional value of the product, and **HOMECRAFT® Create 315** tapioca flour was incorporated for its extended stability and creamy mouthfeel.

Financial Highlights

Dollars in millions, except per share amounts; years ended December 31	2019	% Change	2018	% Change	2017
Reported Income Statement Data					
Net sales	$6,209	(1)%	$6,289	1%	$6,244
Operating income	664	(6)	703	(16)	836
Diluted earnings per share	6.13	(1)	6.17	(13)	7.06
Balance Sheet and Other Data					
Cash and cash equivalents	264		327		595
Total assets	6,040		5,728		6,080
Total debt	1,848		2,100		1,864
Total equity (including redeemable equity)	2,772		2,445		2,953
Annual dividends declared per common share	2.51		2.45		2.20
Net debt to capitalization percentage[1]	34.7%		40.1%		28.6%
Net debt to adjusted EBITDA ratio[1]	1.7		1.8		1.2
Cash provided by operations	680		703		769
Mechanical stores expense	57		57		57
Depreciation and amortization	220		247		209
Capital expenditures and mechanical stores purchases	328		350		314

SALES (BASED ON 2019 NET SALES)



+13%
10-YEAR ADJUSTED EPS COMPOUND ANNUAL GROWTH RATE[1]

+12.1%
RETURN ON INVESTED CAPITAL[1]

NET SALES
(in millions)

'19	$6,209
'18	$6,289
'17	$6,244

OPERATING INCOME
(in millions)

'19	$664
'18	$703
'17	$836

REPORTED DILUTED EARNINGS PER SHARE
(in dollars)

'19	$6.13
'18	$6.17
'17	$7.06

ADJUSTED DILUTED EARNINGS PER SHARE[1]
(in dollars)

'19	$6.65
'18	$6.92
'17	$7.70

RETURN ON INVESTED CAPITAL[1]
(percentage)

'19	12.1%
'18	13.5%
'17	15.1%

MARKET CAPITALIZATION
(in billions)

'19	$6.3
'18	$6.1
'17	$10.1

[1] See Financial Performance Metrics beginning on page 73 of this Annual Report for a reconciliation of these metrics, which are not calculated in accordance with Generally Accepted Accounting Principles (GAAP), to the most comparable GAAP measures

UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

(Mark One)

☒ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2019

or

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from to

Commission file number 1-13397

Ingredion

INGREDION INCORPORATED

(Exact name of registrant as specified in its charter)

Delaware	**22-3514823**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

5 Westbrook Corporate Center, Westchester, Illinois 60154

(Address of Principal Executive Offices) (Zip Code)

Registrant's telephone number, including area code **(708) 551-2600**

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.01 per share	**INGR**	**New York Stock Exchange**

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☒ Accelerated filer ☐ Non-accelerated filer ☐ Smaller reporting company ☐ Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

The aggregate market value of the registrant's voting stock held by non-affiliates of the registrant (based upon the per share closing price of $82.49 on the New York Stock Exchange on June 30, 2019, and, for the purpose of this calculation only, the assumption that all of the registrant's directors and executive officers are affiliates) was approximately $5,477,000,000.

The number of shares outstanding of the registrant's common stock, par value $0.01 per share, as of February 1, 2020, was 66,881,850.

Documents Incorporated by Reference:

Information required by Part III (Items 10, 11, 12, 13 and 14) of this document is incorporated by reference to certain portions of the registrant's definitive Proxy Statement to be distributed in connection with its 2020 Annual Meeting of Stockholders, which will be filed with the Securities and Exchange Commission within 120 days after December 31, 2019.

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Item 1. Business

Our Company

Ingredion Incorporated ("Ingredion") is a leading global ingredients solutions provider. We turn corn, tapioca, potatoes, grains, fruits, and vegetables into value-added ingredients and biomaterials for the food, beverage, brewing and other industries. Ingredion was incorporated as a Delaware corporation in 1997 and its common stock is traded on the New York Stock Exchange under the ticker symbol "INGR."

For purposes of this report, unless the context otherwise requires, all references herein to the "Company," "Ingredion," "we," "us," and "our" shall mean Ingredion Incorporated and its consolidated subsidiaries.

We are principally engaged in the production and sale of starches and sweeteners for a wide range of industries, and are managed geographically on a regional basis. Our operations are classified into four reportable business segments: North America, South America, Asia-Pacific and Europe, Middle East, and Africa ("EMEA"). Our North America segment includes businesses in the U.S., Mexico, and Canada. Our South America segment includes businesses in Brazil, the Southern Cone of South America (which includes Argentina, Peru, Chile, and Uruguay), Colombia, and Ecuador. Our Asia-Pacific segment includes businesses in South Korea, Thailand, China, Australia, Japan, New Zealand, Indonesia, Singapore, the Philippines, Malaysia, India, and Vietnam. Our EMEA segment includes businesses in Pakistan, Germany, the United Kingdom and South Africa.

We supply a broad range of customers in many diverse industries around the world, including the food, beverage, brewing and other industries, as well as the global animal feed markets.

Our product lines include starches and sweeteners, animal feed products and edible corn oil. Our starch-based products include both food-grade and industrial starches, and biomaterials. Our sweetener products include glucose syrups, high maltose syrups, high fructose corn syrup, caramel color, dextrose, polyols, maltodextrins, and glucose and syrup solids. Our products are derived primarily from the processing of corn and other starch-based materials, such as tapioca, potato, and rice. We are in the process of expanding our plant-based protein product lines, including pulse-based concentrates, flours and isolates, with $185 million of investments through 2020.

Our manufacturing process is based on a capital-intensive, two-step process that involves the wet-milling and processing of starch-based materials, primarily corn. During the front-end process, the starch-based materials are steeped in a water-based solution and separated into starch and co-products such as animal feed and corn oil. The starch is then either dried for sale or further processed to make starches, sweeteners and other ingredients that serve the particular needs of various industries.

We believe our approach to production and service, which focuses on local management and production improvements of our worldwide operations, provides us with a unique understanding of the cultures and product requirements in each of the geographic markets in which we operate, bringing added value to our customers through innovative solutions. At the same time, we believe that our corporate functions allow us to identify synergies and maximize the benefits of our global presence.

Geographic Scope and Operations

Our North America segment consists of operations in the U.S., Mexico, and Canada. The region's facilities include 22 plants producing a wide range of starches, sweeteners, gum acacia, and fruit and vegetable concentrates.

Our South America segment includes operations in Brazil, Colombia, the Southern Cone of South America, and Ecuador. The segment includes nine plants that produce regular, modified, waxy, and tapioca starches, high fructose and high maltose syrups and syrup solids, dextrins and maltodextrins, dextrose, specialty starches, caramel color, sorbitol, and vegetable adhesives.

Our Asia-Pacific segment manufactures corn-based products in South Korea, China, and Australia. Also, we manufacture tapioca-based products in Thailand, from which we supply not only our Asia-Pacific segment but the rest of our global network. The region's facilities include eight plants that produce modified, specialty, regular, waxy, tapioca and rice starches, dextrins, glucose, high maltose syrup, dextrose, high fructose corn syrup, and caramel color.

Our EMEA segment includes five plants that produce modified and specialty starches, glucose and dextrose in Pakistan, Germany, and the United Kingdom.

Additionally, we utilize a network of tolling manufacturers in various regions in the production cycle of certain specialty starches. In general, these tolling manufacturers produce certain basic starches for us, and we in turn complete the manufacturing process of starches through our finishing channels.

We utilize our global network of manufacturing facilities to support key global product lines.

In general, demand for our products is balanced throughout the year. However, demand for sweeteners in South America is greater in the first and fourth quarters (its summer season) while demand for sweeteners in North America is greater in the second and third quarters. Due to the offsetting impact of these demand trends, we do not experience material seasonal fluctuations in our net sales on a consolidated basis.

Products

Our portfolio of products is generally classified into the following categories: Starch Products, Sweetener Products, and Co-products and others. Within these categories, a portion of our products are considered Specialty Ingredients. We describe these three general product categories in more detail below, along with a broader discussion of specialty ingredients within the product portfolio.

Starch Products: Our starch products represented approximately 46 percent, 46 percent, and 44 percent of our net sales for 2019, 2018 and 2017, respectively. Starches are an important component in a wide range of processed foods, where they are used for adhesion, clouding, dusting, expansion, fat replacement, freshness, gelling, glazing, mouthfeel, stabilization, and texture. Cornstarch is sold to cornstarch packers for sale to consumers. Starches are also used in paper production to create a smooth surface for printed communications and to improve strength in recycled papers. Specialty starches are used for enhanced drainage, fiber retention, oil and grease resistance, improved printability, and biochemical oxygen demand control. The textile industry uses starches and specialty starches for sizing (abrasion resistance) to provide size and finishes for manufactured products. Industrial starches are used in the production of construction materials, textiles, adhesives, pharmaceuticals, and cosmetics, as well as in mining, water filtration, and oil and gas drilling. Specialty starches are used for biomaterial applications including biodegradable plastics, fabric softeners and detergents, hair and skin care applications, dusting powders for surgical gloves, and in the production of glass fiber and insulation.

Sweetener Products: Our sweetener products represented approximately 36 percent, 36 percent, and 38 percent of our net sales for 2019, 2018 and 2017, respectively. Sweeteners include products such as glucose syrups, high maltose syrup, high fructose corn syrup, dextrose, polyols, maltrodextrin, glucose syrup solids, and non-GMO (genetically modified organism) syrups. Our sweeteners are used in a wide variety of food and beverage products, such as baked goods, snack foods, canned fruits, condiments, candy and other sweets, dairy products, ice cream, jams and jellies, prepared mixes, table syrups, soft drinks, fruit-flavored drinks, beer, and many others. These sweetener products also offer functionality in addition to sweetness, such as texture, body and viscosity; help control freezing points, crystallization, and browning; add humectancy (ability to add moisture) and flavor; and act as binders. Our high maltose syrups speed the fermentation process, allowing brewers to increase capacity without adding capital. Dextrose has a wide range of applications in the food and confection industries, in solutions for intravenous ("IV") and other pharmaceutical applications, and numerous industrial applications like wallboard, biodegradable surface agents, and moisture control agents. Our specialty sweeteners provide affordable, natural, reduced calorie and sugar-free solutions for our customers.

Co-products and others: Co-products and others accounted for approximately 18 percent of our net sales for each of 2019, 2018 and 2017. Refined corn oil (from germ) is sold to packers of cooking oil and to producers of margarine, salad dressings, shortening, mayonnaise, and other foods. Corn gluten feed is sold as animal feed. Corn gluten meal is sold as high-protein feed for chickens, pet food, and aquaculture. Our other products include fruit and vegetable products, such as concentrates, purees, and essences, as well as pulse proteins and hydrocolloids systems and blends.

Specialty Ingredients within the product portfolio: We consider certain of our products to be specialty ingredients. Specialty ingredients comprised approximately 30 percent of our net sales for 2019, up from 29 percent and 28 percent in 2018 and 2017, respectively. These ingredients deliver more functionality than our other products and add additional customer value. Our specialty ingredients are aligned with growing market and consumer trends such as health and wellness, clean-label, simple ingredients, affordability, indulgence, and sustainability.

We drive growth for our specialty ingredients portfolio by leveraging the following five growth platforms: Starch-based Texturizers, Clean and Simple Ingredients, Sugar Reduction and Specialty Sweeteners, Food Systems, and Plant-based Proteins.

- *Starch-based Texturizers:* Ingredients that support the structure and texture behind great eating experiences. Products are made from corn, potato, rice, tapioca and offer a multitude of textures, functionalities, and stability during processing and shelf life to a broad range of food products.
- *Clean and Simple Ingredients:* Functional ingredients that address the clean label trend for finished products made with shorter lists of highly consumer-accepted food ingredients. From food and beverages to pet food and personal care, consumers are looking for clean, simple, natural, and authentic products that they can identify and trust. The broad portfolio of clean label ingredients includes: starches, sweeteners, flours, nutrition ingredients, emulsifiers and fruit and vegetable concentrates.
- *Sugar Reduction and Specialty Sweeteners:* Solutions that provide sweetness and functional replacement for sugar in reduced-calorie and sugar-free foods and beverages without sacrificing quality and consistency. These specialty ingredients are made from a variety of GMO and non-GMO raw material bases and include ingredients, such as naturally based stevia sweeteners, polyols, dextrose and allulose, a rare sugar.

- *Food Systems:* Deliver proven ingredient combinations to accelerate product development enabling customers to get to market faster. A Food System can address a world of functional challenges, including: mouthfeel/texture for dairy and alternative dairy products, thickening of sauces, stabilization in high-protein drinks, gelling for fruit fillings, film formers for candy shells, foaming and frothing, adding soluble fibers and nutritional ingredients, adhering particles to breads and emulsification of flavors.
- *Plant-based Proteins:* Specialty pulse-based protein ingredients that bring solutions to the world made from lentils, chickpeas, fava beans and peas. They add protein, dietary fiber, micronutrients and texture to food and beverages.

Competition

The starch and sweetener industry is highly competitive. Many of our products are viewed as basic ingredients that compete with virtually identical products and derivatives manufactured by other companies in the industry. The U.S. is a highly competitive market with operations by other starch processors, several of which are divisions of larger enterprises. Some of these competitors, unlike us, have vertically integrated their starch processing and other operations. Competitors include ADM Corn Processing Division ("ADM," a division of Archer-Daniels-Midland Company), Cargill, Inc. ("Cargill"), Tate & Lyle Ingredients Americas, Inc. ("Tate & Lyle"), and several others. Our operations in Mexico and Canada face competition from U.S. imports and local producers including ALMEX, a Mexican joint venture between ADM and Tate & Lyle. In South America, Cargill has starch processing operations in Brazil and Argentina. We also face competition from Roquette Frères S.A. ("Roquette") primarily in our North America region.

Many smaller local corn and tapioca refiners also operate in many of our markets. Competition within our markets is largely based on price, quality, and product availability.

Several of our products also compete with products made from raw materials other than corn. High fructose corn syrup and monohydrate dextrose compete principally with cane and beet sugar products. Co-products such as corn oil and gluten meal compete with products of the corn dry milling industry and with soybean oil, soybean meal, and other products. Fluctuations in prices of these competing products may affect prices of, and profits derived from, our products.

Customers

We supply a broad range of customers in over 60 industries worldwide. The following table provides the approximate percentage of total net sales by industry for each of our industries served in 2019:

Industries Served	Total Company	North America	South America	Asia Pacific	EMEA
Food	54%	50%	47%	66%	69%
Beverage	10	14	7	6	1
Brewing	8	8	16	3	—
Food and Beverage Ingredients	72	72	70	75	70
Animal Nutrition	9	10	14	5	8
Other	19	18	16	20	22
Total Net sales	100%	100%	100%	100%	100%

No customer accounted for 10 percent or more of our net sales in 2019, 2018, or 2017.

Raw Materials

Corn (primarily yellow dent) is the primary basic raw material we use to produce starches and sweeteners. The supply of corn in the U.S. has been, and is anticipated to continue to be, adequate for our domestic needs. The price of corn, which is determined by reference to prices on the Chicago Board of Trade, fluctuates as a result of various factors including: farmers' planting decisions, climate, domestic and foreign government policies (including those related to the production of ethanol), livestock feeding, shortages or surpluses of world grain supplies, and trade agreements. We use starch from potato processors as the primary raw material to manufacture ingredients derived from potato-based starches. We also use tapioca, gum, rice, and sugar as raw materials.

Corn is also grown in other areas of the world, including China, Brazil, Europe, Argentina, Mexico, South Africa, Canada, Pakistan, and Australia. Our subsidiaries outside the U.S. utilize both local supplies of corn and corn imported from other geographic areas, including the U.S. The supply of corn for these subsidiaries is also generally expected to be adequate for our needs. Corn prices for our non-U.S. affiliates generally fluctuate as a result of the same factors that affect U.S. corn prices.

We also utilize specialty grains such as waxy and high amylose corn in our operations. In general, the planning cycle for our specialty grain sourcing begins three years in advance of the anticipated delivery of the specialty corn since the necessary seed must be grown in the season prior to grain contracting. In order to secure these specialty grains at the time of our anticipated needs, we contract with certain farmers to grow the specialty corn approximately two years in advance of delivery. These specialty grains have a higher cost due to their more limited supply and require longer planning cycles to mitigate the risk of supply shortages.

Due to the competitive nature of our industry and the availability of substitute products not produced from corn, such as sugar from cane or beets, end-product prices may not necessarily fluctuate in a manner that correlates to raw material costs of corn.

We follow a policy of hedging our exposure to commodity price fluctuations with commodities futures and options contracts primarily for certain of our North American corn purchases. We use derivative hedging contracts to protect the gross margin of our firm-priced business in North America. Other business may or may not be hedged at any given time based on management's judgment as to the need to fix the costs of our raw materials to protect our profitability. Outside of North America, we generally enter into short-term commercial sales contracts and adjust our selling prices based upon the local raw material costs. See Item 7A. Quantitative and Qualitative Disclosures about Market Risk, in the section entitled "Commodity Costs" for additional information.

Other raw materials used in our manufacturing processes include starch from potato processors as the primary raw material to manufacture ingredients derived from potato-based starches. In addition, we use tapioca, particularly in certain of our production processes in the Asia-Pacific region. While the price of tapioca fluctuates from time-to-time as a result of growing conditions, the supply of tapioca has been, and is anticipated to continue to be, adequate for our production needs in the various markets in which we operate. In addition to corn, potato, and tapioca, we use pulses, gum, rice, and sugar as raw materials, among others.

Research and Development

We have a global network of more than 400 scientists working in 30 Ingredion Idea Labs® innovation centers with headquarters in Bridgewater, New Jersey. Activities at Bridgewater include plant science and physical, chemical and biochemical modifications to food formulations, food sensory evaluation, and development of non-food applications such as starch-based biopolymers. In addition, we have product application technology centers that direct our product development teams worldwide to create product application solutions to better serve the ingredient needs of our customers. Product development activity is focused on developing product applications for identified customer and market needs. Through this approach, we have developed value-added products for use by customers in various industries. We usually collaborate with customers to develop the desired product application either in the customers' facilities, our technical service laboratories, or on a contract basis. These efforts are supported by our marketing, product technology, and technology support staff. R&D expense was approximately $44 million in 2019, $46 million in 2018, and $43 million in 2017. Our R&D expense represents investment in new product development and innovation. Our R&D is further supplemented by technical support services to assist our customers with application development and co-creation.

Sales and Distribution

Our salaried sales personnel, who are generally dedicated to customers in a geographic region, sell our products directly to manufacturers and distributors. In addition, we have staff that provide technical support to our sales personnel on an industry basis. We generally contract with trucking companies to deliver our bulk products to customer destinations. In North America, we generally use trucks to ship to nearby customers. For those customers located considerable distances from our plants, we use either rail or a combination of railcars and trucks to deliver our products. We generally lease railcars for terms of three to ten years.

Patents, Trademarks, and Technical License Agreements

We own more than 750 patents and patents pending, which relate to a variety of products and processes, and a number of established trademarks under which we market our products. We also have the right to use other patents and trademarks pursuant to patent and trademark licenses. We do not believe that any individual patent or trademark is material to our business. There is no currently pending challenge to the use or registration of any of our patents or trademarks that would have a material adverse impact on us or our results of operations if decided against us.

Employees

As of December 31, 2019, we had approximately 11,000 employees, of whom approximately 2,600 were located in the U.S. Approximately 31 percent of our U.S. employees and 36 percent of our non-U.S. employees are unionized.

Government Regulation and Environmental Matters

As a manufacturer and marketer of food items and items for use in the pharmaceutical industry, our operations and the use of many of our products are subject to various federal, state, foreign and local statutes and regulations, including the Federal Food, Drug and Cosmetic Act and the Occupational Safety and Health Act. We and many of our products are also subject to regulation by various government agencies, including the U.S. Food and Drug Administration. Among other things, applicable regulations prescribe requirements and establish standards for product quality, purity, and labeling. Failure to comply with one or more regulatory requirements can result in a variety of sanctions, including monetary fines. No such fines of a material nature were imposed on us in 2019. We may also be required to comply with federal, state, foreign, and local laws regulating food handling and storage. We believe these laws and regulations have not negatively affected our competitive position.

Our operations are also subject to various federal, state, foreign, and local laws and regulations with respect to environmental matters, including air and water quality, and other regulations intended to protect public health and the environment. We operate industrial boilers that fire natural gas, coal, or biofuels to operate our manufacturing facilities and they, along with product dryers, are our primary source of greenhouse gas emissions. In Argentina, we are in discussions with local regulators addressing our possible undertaking to conduct studies of possible environmental remediation programs at our Chacabuco plant. We are unable to predict the outcome of these discussions, but do not believe that the ultimate cost of remediation will be material. Based on current laws and regulations and the enforcement and interpretations thereof, we do not expect that the costs of future environmental compliance will be a material expense, although there can be no assurance that we will remain in compliance or that the costs of remaining in compliance will not have a material adverse effect on our future financial condition and results of operations.

During 2019, we spent approximately $12 million for environmental control and wastewater treatment equipment to be incorporated into existing facilities and in planned construction projects. We currently anticipate that we will invest approximately $10 million for environmental facilities and programs in each of 2020 and 2021.

Other

Our Internet address is www.ingredion.com. We make available, free of charge through our Internet website, our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended. These reports are made available as soon as reasonably practicable after they are electronically filed with or furnished to the Securities and Exchange Commission. Our corporate governance guidelines, board committee charters and code of ethics are posted on our website, the address of which is www.ingredion.com, and each is available in print to any shareholder upon request in writing to Ingredion Incorporated, 5 Westbrook Corporate Center, Westchester, Illinois 60154, Attention: Corporate Secretary. The contents of our website are not incorporated by reference into this report.

Information About Our Executive Officers

Set forth below, as of January 31, 2020, are the names and ages of all of our executive officers, indicating their positions and offices with the Company and other business experience. Our executive officers are elected annually by the Board to serve until the next annual election of officers and until their respective successors have been elected and have qualified, or until their earlier resignation or removal by the Board.

James P. Zallie – 58

President and Chief Executive Officer since January 1, 2018. Prior to assuming his current position, Mr. Zallie served as Executive Vice President, Global Specialties and President, Americas from January 1, 2016 to December 31, 2017. Mr. Zallie previously served as Executive Vice President, Global Specialties and President, North America and EMEA from January 6, 2014 to December 31, 2015; Executive Vice President, Global Specialties and President, EMEA and Asia-Pacific from February 1, 2012 to January 5, 2014; and Executive Vice President and President, Global Ingredient Solutions from October 1, 2010 to January 31, 2012. Mr. Zallie previously served as President and Chief Executive Officer of the National Starch business from January 2007 to September 30, 2010 when it was acquired by Ingredion. Mr. Zallie worked for National Starch for more than 27 years in various positions of increasing responsibility, first in technical, then marketing and then international business management positions. Mr. Zallie serves as a director of Northwestern Medicine Lake Forest Hospital, a not-for-profit organization. Mr. Zallie earned a bachelor's degree in food science from Pennsylvania State University, and both a master's degree in food science and technology and a master's degree in finance from Rutgers University.

Elizabeth Adefioye – 51

Senior Vice President and Chief Human Resources Officer since March 1, 2018. Prior to assuming her current position, Ms. Adefioye served as Vice President, Human Resources, North America and Global Specialties, a position she held from September 12, 2016. She previously served as Vice President Human Resources Americas of Janssen Pharmaceutical, a subsidiary of Johnson & Johnson, with responsibilities for the strategic talent agenda, employee engagement and organizational capabilities efforts with respect to more than 5,000 employees from June 2015 to September 2016. From February 2013 to June 2015, she served as Worldwide Vice President Human Resources, Cardiovascular and Specialty Solutions of Johnson & Johnson Medical Devices Sector. Ms. Adefioye served as Vice President Human Resources Global Manufacturing and Supply of Novartis Consumer Health from February 2012 to January 2013, and as Vice President, Human Resources, North America of Novartis Consumer Health from September 2008 to January 2012. Ms. Adefioye served as Region Head, Human Resources Emerging Markets of Novartis OTC, from January 2007 to September 2008. Previously, she served as Regional Human Resources Director – Central and Eastern Europe, Greece & Israel of Medtronic plc. from February 2001 to December 2006. She served as Senior Human Resources Manager of Bristol-Myers Squibb UK from January 2000 to January 2001. Ms. Adefioye holds a bachelor's degree in chemistry from Lagos State University in Lagos, Nigeria and a postgraduate diploma in human resources management from the

University of Westminster in London, England, United Kingdom. She also received a diploma in building leadership capability from Glasgow Caledonian University in Glasgow, Scotland, United Kingdom. Ms. Adefioye served as a Fellow of the Chartered Institute of Personnel Development and is a member of the Society for Human Resources Management.

Valdirene Bastos-Licht – 52
Senior Vice President and President, Asia-Pacific since March 1, 2018. Ms. Bastos-Licht served as Senior Vice President, Asia-Pacific of Solvay SA's Euro Novecare operation, from August 2012 to February 2018. Solvay is a Belgian leader in the specialty chemical industry. The Euro Novecare operation provides chemicals for home and personal care, agriculture, coatings, oil and gas, and industrial applications. Prior to that, she served as Vice President and General Manager – Brazil of Cardinal Health Nuclear Pharmacy – Brazil from August 2011 to August 2012. Ms. Bastos-Licht began her career with BASF, a producer of chemicals and related products, where she spent 21 years in various positions of increasing complexity in IT, operational and strategic supply chain and global strategic and operational marketing, most recently serving as Vice President, General Manager Care Chemicals Division – South America. Ms. Bastos-Licht holds both a bachelor's and a licensing degree in mathematics from Fundacao Santo Andre in Brazil and a Master of Science degree in management from the MIT Sloan School of Management.

Janet M. Bawcom – 55
Senior Vice President, General Counsel, Corporate Secretary And Chief Compliance Officer since April 15, 2019. Prior to assuming her current position, Ms. Bawcom served as Senior Vice President, Corporate, Securities & Finance Counsel and Assistant Secretary for Dell Technologies Inc. During her 20-year career at Dell, Ms. Bawcom held numerous senior-level legal positions and had responsibility for M&A, board governance, corporate securities, public reporting and capital markets. Prior to joining Dell, she was in private legal practice in Dallas, Texas. Ms. Bawcom holds a bachelor's degree in business administration from the University of Oklahoma and a Juris Doctor degree from Southern Methodist University, where she also served on the board of editors of The Journal of Air Law and Commerce. Ms. Bawcom is a member of the Board of Advisors for the University of Oklahoma Price College of Business.

Anthony P. DeLio – 63
Senior Vice President, Corporate Strategy and Chief Innovation Officer since March 1, 2018. Prior to assuming his current position, Mr. DeLio served as Senior Vice President and Chief Innovation Officer from January 1, 2014 to February 28, 2018. Mr. DeLio served as Vice President, Global Innovation from November 4, 2010 to December 31, 2013, and as Vice President, Global Innovation for National Starch (acquired by Ingredion October 1, 2010) from January 1, 2009 to November 3, 2010. Mr. DeLio served as Vice President and General Manager, North America, of National Starch from February 26, 2006 to December 31, 2008. Prior to that, he served as Associate Vice Chancellor of Research at the University of Illinois at Urbana-Champaign from August 2004 to February 2006. Previously, Mr. DeLio served as Corporate Vice President of Marketing and External Relations of ADM, one of the world's largest processors of oilseeds, corn, wheat, cocoa and other agricultural commodities and a leading manufacturer of protein meal, vegetable oil, corn sweeteners, flour, biodiesel, ethanol and other value-added food and feed ingredients, from October 2002 to October 2003. Prior to that, Mr. DeLio was President of the Protein Specialties and Nutraceutical Divisions of ADM from September 2000 to October 2002 and President of the Nutraceutical Division of ADM from June 1999 to September 2001. He held various senior product development positions with Mars, Inc. from 1980 to May 1999. Mr. DeLio holds a Bachelor of Science degree in chemical engineering from Rensselaer Polytechnic Institute.

Larry Fernandes – 55
Senior Vice President and Chief Commercial & Sustainability Officer of the Company since July 17, 2018. Prior to assuming his current position, Mr. Fernandes served as Senior Vice President and Chief Commercial Officer since March 1, 2018. Prior thereto, Mr. Fernandes served as President and General Director, Mexico, from January 1, 2014 to February 28, 2018. Prior to that, he served as Vice President and General Manager, U.S./Canada from May 1, 2013 to December 31, 2013. Prior to that, Mr. Fernandes was Vice President, Global Beverage and General Manager, Sweetener and Industrial Solutions, U.S./Canada from November 1, 2011 to April 30, 2013. Prior to that, he served as Vice President Food and Beverage Markets from October 1, 2009 to October 31, 2011. Prior thereto, he served in several roles of increasing responsibility in the Commercial organization from May 7, 1990 to September 30, 2009. Prior to joining Ingredion, Mr. Fernandes worked at QuakerChem Canada Ltd. as a Technical Sales Manager. Mr. Fernandes was a member of the executive board of Nueva Vision para el Desarrollo Agroalimentario de Mexico A.C. (Mexican representation of a New Vision for Agriculture, a global initiative of the World Economic Forum) and a member of the executive board of IDAQUIM (representing Corn Refining in Mexico). Mr. Fernandes was also a member of the board of directors of the Corn Refiners Association (CRA) and the board of directors of the International Stevia Council (ISC). Mr. Fernandes holds a bachelor's degree in chemical engineering with a minor in accounting from McGill University in Montreal, Canada.

James D. Gray – 53
Executive Vice President and Chief Financial Officer since March 1, 2017. Prior to assuming his current position, he served as Vice President, Corporate Finance and Planning, from April 1, 2016 to February 28, 2017. Mr. Gray previously served as Vice President, Finance, North America from January 6, 2014 when he joined the Company to March 31, 2016. Prior to that, Mr. Gray was employed by PepsiCo, Inc. from December 1, 2004 to January 3, 2014. He served as Chief Financial Officer, Gatorade division and Vice President Finance of PepsiCo, Inc. from August 16, 2010 to January 3, 2014. Prior to that Mr. Gray served as Vice President Finance PepsiCo Beverages North America from December 1, 2004 to August 14, 2010. Mr. Gray holds a bachelor's degree in business administration from the University of California, Berkeley, and a master's degree from the Kellogg School of Management, Northwestern University.

Jorgen Kokke – 51
Executive Vice President, Global Specialties, and President, North America since February 5, 2018. Prior to assuming his current position, Mr. Kokke previously served as Senior Vice President and President, Asia-Pacific and EMEA from January 1, 2016 to February 4, 2018. Previously, Mr. Kokke served as Senior Vice President and President, Asia-Pacific from September 16, 2014 to December 31, 2015, and as Vice President and General Manager, Asia-Pacific from January 6, 2014 to September 15, 2014. Prior to that, Mr. Kokke served as Vice President and General Manager, EMEA since joining National Starch (acquired by Ingredion October 1, 2010) on March 1, 2009. Prior to that, he served as a Vice President of CSM NV, a global food ingredients supplier, where he had responsibility for the global Purac Food & Nutrition business from 2006 to 2009, Prior to that, Mr. Kokke was Director of Strategy and Business Development at CSM NV. Prior to that, he held a variety of roles of increasing responsibility in sales, business development, marketing and general management in Unilever's Loders Croklaan Group. Mr. Kokke holds a master's degree in economics from the University of Amsterdam.

Stephen K. Latreille – 53
Vice President and Corporate Controller since April 1, 2016. Prior to assuming his current position, Mr. Latreille served as Vice President, Corporate Finance, from August 5, 2014 to March 31, 2016. From August 26, 2014 to November 18, 2014, Mr. Latreille also led the Company's Investor Relations and Corporate Communications function on an interim basis. He previously served as Director, Corporate Finance and Planning from March 4, 2013, when he joined the Company, to August 4, 2014. Prior to that, Mr. Latreille was employed by Kraft Foods, Inc., then the world's second largest food company, for over 18 years. He held several positions of increasing responsibility while at Kraft Foods. Prior to his time with Kraft Foods, Mr. Latreille held several positions at Rand McNally & Company, a leading provider of maps, navigation and travel content, and Price Waterhouse, one of the world's largest accounting firms. Mr. Latreille is a member of the advisory board of the Department of Finance, Broad College of Business, Michigan State University and of Ladder Up, a not-for-profit organization that provides free financial services in Illinois. Mr. Latreille holds a bachelor's degree in accounting from Michigan State University and a Master of Business Administration degree from the Kellogg School of Management at Northwestern University. He is a member of the American Institute of Certified Public Accountants.

Pierre Perez y Landazuri – 51
Senior Vice President and President, EMEA since January 1, 2018. Prior to assuming his current position, Mr. Perez y Landazuri served as Vice President and General Manager, EMEA for the Company's subsidiary, Ingredion Germany GmbH, from April 15, 2016 to December 31, 2017. Before joining Ingredion, Mr. Perez y Landazuri was employed by CP Kelco, a global producer of specialty hydrocolloid ingredients from September 2000 to March 2016. He most recently served as Vice President, Asia-Pacific from January 2014 to March 2016 in Shanghai, China and Singapore. Prior to that, he served as Vice President & General Manager, Asia-Pacific from June 2011 to December 2013 and as Marketing & Strategy Director from January 2010 to May 2011 in Shanghai. Prior to that, Mr. Perez y Landazuri held a number of marketing, sales and product management roles at CP Kelco in Paris, France. Early in his career, he was employed by Rohm and Haas, BASF and Hercules in sales, marketing and engineering positions. Mr. Perez y Landazuri holds a master's degree in chemical process engineering from ENSCP Graduate School of Chemistry (now Chimie ParisTech) in Paris, France.

Robert J. Stefansic – 58
Senior Vice President, Operating Excellence, Information Technology and Chief Supply Chain Officer since September 17, 2018. Prior to assuming his current position, he served as Senior Vice President, Operating Excellence, Sustainability, Information Technology and Chief Supply Chain Officer since March 1, 2017, and as Senior Vice President, Operational Excellence, Sustainability and Chief Supply Chain Officer from May 28, 2014 to February 28, 2017. From January 1, 2014 to May 27, 2014, Mr. Stefansic served as Senior Vice President, Operational Excellence and Environmental, Health, Safety & Sustainability. Prior to that, Mr. Stefansic served as Vice President, Operational Excellence and

Environmental, Health, Safety and Sustainability from August 1, 2011 to December 31, 2013. He previously served as Vice President, Global Manufacturing Network Optimization and Environmental, Health, Safety and Sustainability of National Starch, and subsequently Ingredion, from November 1, 2010 to July 31, 2011. Prior to that, he served as Vice President, Global Operations of National Starch, from November 1, 2006 to October 31, 2010, and as Vice President, North America Manufacturing of National Starch from December 13, 2004 to October 31, 2006. Prior to joining National Starch, he held positions of increasing responsibility with The Valspar Corporation, General Chemical Corporation and Allied Signal Corporation. Mr. Stefansic holds a bachelor's degree in chemical engineering and a master's degree in business administration from the University of South Carolina.

Item 1A. Risk Factors

Our business and assets are subject to varying degrees of risk and uncertainty. The following are factors that we believe could cause our actual results to differ materially from expected and historical results. Additional risks that are currently unknown to us may also impair our business or adversely affect our financial condition or results of operations. In addition, forward-looking statements within the meaning of the federal securities laws that are contained in this Form 10-K or in our other filings or statements may be subject to the risks described below as well as other risks and uncertainties. See the cautionary notice regarding forward-looking statements in Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations.

Changes in consumer preferences and perceptions may lessen the demand for our products, which could reduce our sales and profitability and harm our business.

Food products are often affected by changes in consumer tastes, national, regional and local economic conditions and demographic trends. For instance, changes in prevailing health or dietary preferences causing consumers to avoid food products containing sweetener products, including high fructose corn syrup, in favor of foods that are perceived as being more healthy, could reduce our sales and profitability, and such reductions could be material. Increasing concern among consumers, public health professionals and government agencies about the potential health concerns associated with obesity and inactive lifestyles (reflected, for instance, in taxes designed to combat obesity, which have been imposed recently in North America) represent a significant challenge to some of our customers, including those engaged in the food and soft drink industries.

Current economic conditions may adversely impact demand for our products, reduce access to credit and cause our customers and others with whom we do business to suffer financial hardship, all of which could adversely impact our business, results of operations, financial condition, and cash flows.

Economic conditions in South America, the European Union, and many other countries and regions in which we do business have experienced various levels of weakness over the last few years, and may remain challenging for the foreseeable future. General business and economic conditions that could affect us include barriers to trade (including as a result of Brexit, tariffs, duties, and border taxes, among other factors), the strength of the economies in which we operate, unemployment, inflation, and fluctuations in debt markets. While currently these conditions have not impaired our ability to access credit markets and finance our operations, there can be no assurance that there will not be a further deterioration in the financial markets.

There could be a number of other effects from these economic developments on our business, including reduced consumer demand for products, pressure to extend our customers' payment terms, insolvency of our customers resulting in increased provisions for credit losses, decreased customer demand, including order delays or cancellations, and counterparty failures negatively impacting our operations.

In connection with our defined benefit pension plans, adverse changes in investment returns earned on pension assets and discount rates used to calculate pension and related liabilities or changes in required pension funding levels may have an unfavorable impact on future pension expenses and cash flows.

In addition, volatile worldwide economic conditions and market instability may make it difficult for us, our customers, and our suppliers to accurately forecast future product demand trends, which could cause us to produce excess products that could increase our inventory carrying costs. Alternatively, this forecasting difficulty could cause a shortage of products that could result in an inability to satisfy demand for our products.

Our reliance on certain industries for a significant portion of our sales could have a material adverse effect on our business.

Approximately 54 percent of our 2019 sales were made to companies engaged in the food industry and approximately 10 percent were made to companies in the beverage industry. Additionally, sales to the animal nutrition and brewing industry represented approximately 9 percent and approximately 8 percent, respectively, of our 2019 net sales. If our food customers, beverage customers, animal feed customers, or brewing industry customers were to substantially decrease their purchases, our business might be materially adversely affected.

The uncertainty of acceptance of products developed through biotechnology could affect our profitability.

The commercial success of agricultural products developed through biotechnology, including genetically modified corn, depends in part on public acceptance of their development, cultivation, distribution and consumption. Public attitudes can be influenced by claims that genetically modified products are unsafe for consumption or that they pose unknown risks to the environment, even if such claims are not based on scientific studies. These public attitudes can influence regulatory and legislative decisions about biotechnology. The sale of our products, which may contain genetically modified corn, could be delayed or impeded because of adverse public perception regarding the safety of our products and the potential effects of these products on human health, the environment, and animals.

Our future growth could be negatively impacted if we fail to introduce sufficient new products and services.

While we do not believe that any individual patent or trademark is material to our business, a portion of our growth comes from innovation in products, processes, and services. We cannot guarantee that our research and development efforts will result in new products and services at a rate or of a quality sufficient to meet expectations.

Government policies and regulations could adversely affect our operating results.

Our operating results could be affected by changes in trade, monetary and fiscal policies, laws and regulations, and other activities of the U.S. and foreign governments, agencies, and similar organizations. These conditions include but are not limited to changes in a country's or region's economic or political conditions, modification or termination of trade agreements or treaties promoting free trade, creation of new trade agreements or treaties, trade regulations affecting production, pricing and marketing of products, local labor conditions and regulations, reduced protection of intellectual property rights, changes in the regulatory or legal environment, restrictions on currency exchange activities, currency exchange rate fluctuations, burdensome taxes and tariffs, and other trade barriers. International risks and uncertainties, including changing social and economic conditions as well as terrorism, political hostilities, and war, could limit our ability to transact business in these markets and could adversely affect our revenues and operating results.

Our operations could be adversely affected by actions taken in connection with cross-border disputes by the governments of countries in which we conduct business.

We operate in a highly competitive environment and it may be difficult to preserve operating margins and maintain market share.

We operate in a highly competitive environment. Competition in markets in which we compete is largely based on price, quality, and product availability. Many of our products compete with virtually identical or similar products manufactured by other companies in the starch and sweetener industry. In the U.S., our competitors include divisions of larger enterprises that have greater financial resources than we do. Some of these competitors, unlike us, have vertically integrated their corn refining and other operations. Many of our products also compete with products made from raw materials other than corn, including cane and beet sugar. Fluctuation in prices of these competing products may affect prices of, and profits derived from, our products. In addition, government programs supporting sugar prices indirectly impact the price of corn sweeteners, especially high fructose corn syrup. Furthermore, co-products such as corn oil and gluten meal compete with products of the corn dry milling industry and with soybean oil, soybean meal, and other products, the price of some of which may be affected by government programs such as tariffs or quotas.

Due to market volatility, we cannot assure that we can adequately pass potential increases in the cost of corn and other raw materials on to customers through product price increases or purchase quantities of corn and other raw materials at prices sufficient to sustain or increase our profitability.

The price and availability of corn and other raw materials is influenced by economic and industry conditions, including supply and demand factors such as crop disease and severe weather conditions, such as drought, floods, or frost, that are difficult to anticipate and which we cannot control.

Raw material and energy price fluctuations, and supply interruptions and shortages could adversely affect our results of operations.

Our finished products are made primarily from corn. Purchased corn and other raw material costs account for between 40 percent and 65 percent of finished product costs. Some of our products are based upon specific varieties of corn that are produced in significantly less volumes than yellow dent corn. These specialty grains are higher-cost due to their more limited supply and require planning cycles of up to three years in order for us to receive our desired amounts of specialty corn. We also manufacture certain starch-based products from potatoes. Our current potato starch requirements constitute a material portion of the total available North American supply. It is possible that,

in the long term, continued growth in demand for potato starch-based ingredients and new product development could result in capacity constraints. Also, we utilize tapioca in the manufacturing of starch products primarily in Thailand, as well as pulses, gum, rice and other raw materials around the world. A significant supply disruption or sharp increase in any of these raw material prices that we are unable to recover through pricing increases to our customers could have an adverse impact on our growth and profitability.

Energy costs represent approximately 9 percent of our finished product costs. We use energy primarily to create steam required for our production processes and to dry products. We consume coal, natural gas, electricity, wood, and fuel oil to generate energy.

The market prices for our raw materials may vary considerably depending on supply and demand, world economies, trade agreements and tariffs, and other factors. We purchase these commodities based on our anticipated usage and future outlook for these costs. We cannot assure that we will be able to purchase these commodities at prices that we can adequately pass on to customers to sustain or increase profitability.

In North America, we sell a large portion of our finished products derived from corn at firm prices established in supply contracts typically lasting for periods of up to one year. In order to minimize the effect of volatility in the cost of corn related to these firm-priced supply contracts, we enter into corn futures and options contracts, or take other hedging positions in the corn futures market. These derivative contracts typically mature within one year. At expiration, we settle the derivative contracts at a net amount equal to the difference between the then-current price of the commodity and the derivative contract price. The fluctuations in the fair value of these hedging instruments may adversely affect our cash flow. We fund any unrealized losses or receive cash for any unrealized gains on futures contracts on a daily basis. While the corn futures contracts or hedging positions are intended to minimize the effect of volatility of corn costs on operating profits, the hedging activity can result in losses, some of which may be material.

An inability to contain costs could adversely affect our future profitability and growth.

Our future profitability and growth depends on our ability to contain operating costs and per unit product costs and to maintain and implement effective cost control programs, while at the same time maintaining competitive pricing and superior quality products, customer service, and support. Our ability to maintain a competitive cost structure depends on continued containment of manufacturing, delivery, freight, and administrative costs, as well as the implementation of cost-effective purchasing programs for raw materials, energy, and related manufacturing requirements.

If we are unable to contain our operating costs and maintain the productivity and reliability of our production facilities, our profitability and growth could be adversely affected.

Increased interest rates could increase our borrowing costs.

We may issue debt securities to finance acquisitions, capital expenditures, and working capital, or for other general corporate purposes. An increase in interest rates in the general economy could result in an increase in our borrowing costs for these financings, as well as under any existing debt that bears interest at an unhedged floating rate.

Climate change and future costs of environmental compliance may be material.

Our business could be affected in the future by national and global regulation or taxation of greenhouse gas emissions, as well as the potential effects of climate change. Changes in precipitation extremes, droughts and water availability have the potential to impact Ingredion's agricultural supply as well as the availability of water for our manufacturing operations. Globally, a number of countries have instituted or are considering climate change legislation and regulations. Ingredion continues to assess the impact of climate change, regulatory pressures and changing consumer behaviors on our business strategy. It is difficult at this time to estimate the likelihood of passage or predict the potential impact of any additional legislation. Potential consequences could include increased energy, transportation, and raw materials costs, and we may be required to make additional investments in our facilities and equipment.

We may not successfully identify and complete acquisitions or strategic alliances on favorable terms or achieve anticipated synergies relating to any acquisitions or alliances, and such acquisitions could result in unforeseen operating difficulties and expenditures and require significant management resources.

We regularly review potential acquisitions of complementary businesses, technologies, services, or products, as well as potential strategic alliances. We may be unable to find suitable acquisition candidates or appropriate partners with which to form partnerships or strategic alliances. Even if we identify appropriate acquisition or alliance candidates, we may be unable to complete such acquisitions or alliances on favorable terms, if at all. In addition, the process of integrating an acquired business, technology, service, or product into our existing business and operations may result in unforeseen operating difficulties and expenditures. Integration of an acquired company also may require significant management resources that otherwise would be available for ongoing development of our

business. Moreover, we may not realize the anticipated benefits of any acquisition or strategic alliance, and such transactions may not generate anticipated financial results. Future acquisitions could also require us to issue equity securities, incur debt, assume contingent liabilities, or amortize expenses related to intangible assets, any of which could harm our business.

Operating difficulties at our manufacturing plants could adversely affect our operating results.

Producing starches and sweeteners through corn refining is a capital intensive industry. We have 44 plants and have preventive maintenance and de-bottlenecking programs designed to maintain and improve grind capacity and facility reliability. If we encounter operating difficulties at a plant for an extended period of time or start-up problems with any capital improvement projects, we may not be able to meet a portion of sales order commitments and could incur significantly higher operating expenses, both of which could adversely affect our operating results. We also use boilers to generate steam required in our production processes. An event that impaired the operation of a boiler for an extended period of time could have a significant adverse effect on the operations of any plant in which such event occurred.

Also, we are subject to risks related to such matters as product safety and quality; compliance with environmental, health and safety and food safety regulations; and customer product liability claims. The liabilities that could result from these risks may not always be covered by, or could exceed the limits of, our insurance coverage related to product liability and food safety matters. In addition, negative publicity caused by product liability and food safety matters may damage our reputation. The occurrence of any of the matters described above could adversely affect our revenues and operating results.

We operate a multinational business subject to the economic, political, and other risks inherent in operating in foreign countries and with foreign currencies.

We have operated in foreign countries and with foreign currencies for many years. Our results are subject to foreign currency exchange fluctuations. Our operations are subject to political, economic, and other risks. There has been and continues to be significant political uncertainty in some countries in which we operate. Economic changes, terrorist activity, and political unrest may result in business interruption or decreased demand for our products. Protectionist trade measures and import and export licensing requirements could also adversely affect our results of operations. Our success will depend in part on our ability to manage continued global political and economic uncertainty.

We primarily sell products derived from world commodities. Historically, we have been able to adjust local prices relatively quickly to offset the effect of local currency devaluations versus the U.S. dollar, although we cannot guarantee our ability to do this in the future. For example, due to pricing controls on many consumer products imposed in the recent past by the Argentine government, it takes longer than it had previously taken to achieve pricing improvement in response to currency devaluations versus the U.S. dollar in that country. The anticipated strength in the U.S. dollar may continue to provide some challenges, as it could take an extended period of time to fully recapture the impact of foreign currency devaluations versus the U.S. dollar, particularly in South America.

We may hedge transactions that are denominated in a currency other than the currency of the operating unit entering into the underlying transaction. We are subject to the risks normally attendant to such hedging activities.

Our information technology systems, processes, and sites may suffer interruptions, security breaches, or failures which may affect our ability to conduct our business.

Our operations rely on certain key information technology systems, which are dependent on services provided by third parties, provide critical data connectivity, information, and services for internal and external users. These interactions include, but are not limited to: ordering and managing materials from suppliers, risk management activities, converting raw materials to finished products, inventory management, shipping products to customers, processing transactions, summarizing and reporting results of operations, human resources benefits and payroll management, complying with regulatory, legal and tax requirements, and other processes necessary to manage our business. Increased information technology security and social engineering threats and more sophisticated computer crime, including advanced persistent threats, pose potential risks to the security of our information technology systems, networks and services, as well as the confidentiality, availability and integrity of our third-party and employee data. We have put in place security measures to protect ourselves against cyber-based attacks and disaster recovery plans for our critical systems. However, if our information technology systems are breached, damaged, or cease to function properly due to any number of causes, such as catastrophic events, power outages, security breaches, or cyber-based attacks, and if our disaster recovery plans do not effectively mitigate the risks on a timely basis, we may encounter significant disruptions that could interrupt our ability to manage our operations, cause loss of valuable data and actual or threatened legal actions, and cause us to suffer damage to our reputation, all of which may adversely impact our revenues, operating results, and financial condition. Our recent malware incident which lasted

from October 2019 to December 2019 is one example of this type of risk, although this particular incident did not result in any material impact to our revenues, operating results, or financial condition.

The costs to address the foregoing security problems and security vulnerabilities before or after a cyber incident could be significant. Remediation efforts may not be successful and could result in interruptions, delays or cessation of service and loss of existing or potential customers that may impede our sales, manufacturing or other critical functions. Breaches of our security measures and the unapproved dissemination of proprietary information or sensitive or confidential data about us or our customers or other third parties could expose us, our customers or other third parties affected to a risk of loss or misuse of this information, result in regulatory enforcement, litigation and potential liability for us, damage our brand and reputation or otherwise harm our business. We rely in certain limited capacities on third-party data management providers and other vendors whose possible security problems and security vulnerabilities may have similar effects on us.

Our profitability could be negatively impacted if we fail to maintain satisfactory labor relations.

As of December 31, 2019, approximately 31 percent of our U.S. employees and 36 percent of our non-U.S. employees were members of unions. Strikes, lockouts, or other work stoppages or slowdowns involving our unionized employees could have a material adverse effect on us.

Natural disasters, war, acts and threats of terrorism, pandemics, and other significant events could negatively impact our business.

The economies of any countries in which we sell or manufacture products or purchase raw materials could be affected by natural disasters. Such natural disasters could include, among others, earthquakes, floods, or severe weather; war, acts of war, or terrorism; or the outbreak of an epidemic or pandemic; such as the ongoing coronavirus outbreak emanating from China at the beginning of 2020. Any such natural disaster could result in asset write-offs, decreased sales and overall reduced cash flows.

The recognition of impairment charges on goodwill or long-lived assets could adversely impact our future financial position and results of operations.

We have $1.2 billion of total intangible assets as of December 31, 2019, consisting of $801 million of goodwill and $437 million of other intangible assets, which constitute 13 percent and 7 percent, respectively, of our total assets as of such date. Additionally, we have $2.6 billion of long-lived assets, or 44 percent of our total assets, as of December 31, 2019.

We perform an annual impairment assessment for goodwill and our indefinite-lived intangible assets, and as necessary, for other long-lived assets. If the results of such assessments were to show that the fair value of these assets were less than the carrying values, we could be required to recognize a charge for impairment of goodwill or long-lived assets, and the amount of the impairment charge could be material. We continue to monitor our reporting units in struggling economies and recent acquisitions for challenges in these businesses that may negatively impact the fair value of these reporting units.

The future occurrence of a potential indicator of impairment, such as a significant adverse change in the business climate that would require a change in our assumptions or strategic decisions made in response to economic or competitive conditions, could require us to perform an assessment prior to the next required assessment date of July 1, 2020.

Changes in our tax rates or exposure to additional income tax liabilities could impact our profitability.

We are subject to income taxes in the U.S. and in various other foreign jurisdictions. Our effective tax rates could be adversely affected by changes in the mix of earnings by jurisdiction, changes in tax laws, or tax rates changes in the valuation of deferred tax assets and liabilities and material adjustments from tax audits.

The Tax Cuts and Jobs Act ("TCJA"), which was enacted in December 2017, significantly altered existing U.S. tax law and includes numerous and complex provisions that substantially affect our business. The U.S. Treasury Department and the Internal Revenue Service continue to interpret and issue guidance on provisions of the TCJA that could differ from the way in which we interpret some of the provisions. Consequently, we may make adjustments to our provision for income taxes based on differences in interpretation in the periods in which guidance is issued.

Significant changes in the tax laws of the U.S. and numerous foreign jurisdictions in which we do business could result from the base erosion and profit shifting ("BEPS") project undertaken by the Organization for Economic Cooperation and Development ("OECD"). An OECD-led coalition of 44 countries is contemplating changes to long-standing international tax norms that determine each country's right to tax cross-border transactions. These contemplated changes, as adopted by countries in which we do business, could increase tax uncertainty and the risk of double taxation, thereby adversely affecting our provision for income taxes.

The recoverability of our deferred tax assets, which are predominantly in Brazil, Canada, Germany, Mexico, and the U.S., is dependent upon our ability to generate future taxable income in these jurisdictions. In addition, the amount of income taxes we pay is subject to ongoing audits in various jurisdictions and a material assessment by a governing tax authority could affect our profitability and cash flows.

We may not have access to the funds required for future growth and expansion.

We may need additional funds to grow and expand our operations. We expect to fund our capital expenditures from operating cash flow to the extent we are able to do so. If our operating cash flow is insufficient to fund our capital expenditures, we may either reduce our capital expenditures or utilize our general credit facilities. For further strategic growth through mergers or acquisitions, we may also seek to generate additional liquidity through the sale of debt or equity securities in private or public markets or through the sale of assets. We cannot provide any assurance that our cash flows from operations will be sufficient to fund anticipated capital expenditures or that we will be able to obtain additional funds from financial markets or from the sale of assets at terms favorable to us. If we are unable to generate sufficient cash flows or raise sufficient additional funds to cover our capital expenditures or other strategic growth opportunities, we may not be able to achieve our desired operating efficiencies and expansion plans, which may adversely impact our competitiveness and, therefore, our results of operations. Our working capital requirements, including margin requirements on open positions on futures exchanges, are directly affected by the price of corn and other agricultural commodities, which may fluctuate significantly and change quickly.

Volatility in the stock market, fluctuations in quarterly operating results, and other factors could adversely affect the market price of our common stock.

The market price for our common stock may be significantly affected by factors such as our announcement of new products or services or such announcements by our competitors; technological innovation by us, our competitors or other vendors; quarterly variations in our operating results or the operating results of our competitors; general conditions in our or our customers' markets; and changes in earnings estimates by analysts or reported results that vary materially from such estimates. In addition, the stock market has experienced significant price fluctuations that have affected the market prices of equity securities of many companies that have been unrelated to the operating performance of any individual company.

No assurance can be given that we will continue to pay dividends, or as to the amount of any dividend we pay.

The payment of dividends, as well as the amount of any dividends, is at the discretion of our Board of Directors and will be subject to our financial results and the availability of statutory surplus funds to pay dividends.

Our profitability may be affected by other factors beyond our control.

Our operating income and ability to increase profitability depend to a large extent upon our ability to price finished products at a level that will cover manufacturing and raw material costs and provide an acceptable profit margin. Our ability to maintain appropriate price levels is determined by a number of factors largely beyond our control, such as aggregate industry supply and market demand, which may vary from time to time, and the economic conditions of the geographic regions in which we conduct our operations.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

We own or lease (as noted below), directly and through our consolidated subsidiaries, 44 manufacturing facilities. In addition, we lease our corporate headquarters in Westchester, Illinois and our research and development facility in Bridgewater, New Jersey.

The following list details the locations of our manufacturing facilities within each of our four reportable business segments as of February 1, 2020:

North America

Cardinal, Ontario, Canada
London, Ontario, Canada
San Juan del Rio, Queretaro, Mexico
Guadalajara, Jalisco, Mexico
Mexico City, Edo, Mexico
Oxnard, California, U.S.(a)
Idaho Falls, Idaho, U.S.
Bedford Park, Illinois, U.S.
Mapleton, Illinois, U.S.
Indianapolis, Indiana, U.S.
Cedar Rapids, Iowa, U.S.
Fort Fairfield, Maine, U.S.
Belcamp, Maryland, U.S.
North Kansas City, Missouri, U.S.
Winston-Salem, North Carolina, U.S.
Grand Forks, North Dakota, U.S.
Salem, Oregon, U.S.
Berwick, Pennsylvania, U.S.
Charleston, South Carolina, U.S.
Richland, Washington, U.S.
Moses Lake, Washington, U.S.
Plover, Wisconsin, U.S.

South America

Baradero, Argentina
Chacabuco, Argentina
Balsa Nova, Brazil
Cabo, Brazil
Mogi-Guacu, Brazil
Rio de Janeiro, Brazil
Barranquilla, Colombia
Cali, Colombia
Lima, Peru

Asia-Pacific

Shandong Province, China
Shanghai, China
Icheon, South Korea
Incheon, South Korea
Ban Kao Dien, Thailand
Kalasin, Thailand
Sikhiu, Thailand
Banglen, Thailand (a)

EMEA

Hamburg, Germany
Cornwala, Pakistan
Faisalabad, Pakistan
Mehran, Pakistan
Goole, United Kingdom (b)

(a) Facility is leased.
(b) Facility is partially owned and partially leased.

We believe our manufacturing facilities are sufficient to meet our current production needs. We have preventive maintenance and de-bottlenecking programs designed to further improve grind capacity and facility reliability.

We have electricity co-generation facilities at our plants in London, Ontario, Canada; Cardinal, Ontario, Canada; Bedford Park, Illinois, U.S.; Winston-Salem, North Carolina, U.S.; San Juan del Rio and Mexico City, Mexico; Cali, Colombia; Cornwala, Pakistan; and Balsa Nova and Mogi-Guacu, Brazil, that provide electricity at a lower cost than is available from third parties. We generally own and operate these co-generation facilities, except for the facilities at our Mexico City, Mexico; and Balsa Nova and Mogi-Guacu, Brazil locations, which are owned by, and operated pursuant to co-generation agreements with third parties.

In recent years, we have made significant capital expenditures to update, expand and improve our facilities, spending $328 million in 2019. We believe these capital expenditures will allow us to operate efficient facilities for the foreseeable future.

Item 3. Legal Proceedings

The Company's subsidiary, National Starch and Chemical (Thailand) Co. Ltd., self-reported to the Rayong Provincial Department of Industry of the Ministry of Industry (the "DIW") an administrative error in registering one of its waste transporters in Thailand. The DIW notified National Starch and Chemical (Thailand) Co. Ltd. of failure to comply with Section 8 (5) of the Factory Act in connection with the waste transporter and, in May 2019, imposed fines on a per shipment basis totaling THB 3,330,000, or approximately $107,000. There was no assertion by the DIW or the Ministry of Industry that any harm had been caused to the environment. The fines were paid in May 2019 and this administrative error is not expected to reoccur.

We are currently subject to claims and suits arising in the ordinary course of business, including labor matters, certain environmental proceedings, and other commercial claims. We also routinely receive inquiries from regulators and other government authorities relating to various aspects of our business, including with respect to compliance with laws and regulations relating to the environment, and at any given time, we have matters at various stages of resolution with the applicable governmental authorities. The outcomes of these matters are not within our complete control and may not be known for prolonged periods of time. We do not believe that the results of currently known legal proceedings and inquires will be material to us. There can be no assurance, however, that such claims, suits or investigations or those arising in the future, whether taken individually or in the aggregate, will not have a material adverse effect on our financial condition or results of operations.

Item 4. Mine Safety Disclosures

Not applicable.

Item 5. Market For Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Trading: Shares of our common stock are traded on the New York Stock Exchange under the ticker symbol "INGR."

Holders: The number of holders of record of our common stock was 3,633 at January 31, 2020.

Dividends: We have a history of paying quarterly dividends. The amount and timing of the dividend payment, if any, is based on a number of factors including estimated earnings, financial position and cash flow. The payment of a dividend, as well as the amount of any dividend, is solely at the discretion of our Board of Directors. Future dividend payments will be subject to our financial results and the availability of funds and statutory surplus to pay dividends.

Issuer Purchases of Equity Securities: The following table summarizes information with respect to our purchases of our common stock during the fourth quarter of 2019.

(shares in thousands)	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Maximum Number (or Approximate Dollar Value) of Shares That May Yet be Purchased Under the Plans or Programs at End of Period
October 1 – October 31, 2019	—	—	—	5,855 shares
November 1 – November 30, 2019	—	—	—	5,855 shares
December 1 – December 31, 2019	—	—	—	5,855 shares
Total	—	—	—	

On December 12, 2014, the Board of Directors authorized a stock repurchase program permitting us to purchase up to 5.0 million of our outstanding shares of common stock from January 1, 2015, through December 31, 2019. On October 22, 2018, the Board of Directors authorized a new stock repurchase program permitting us to purchase up to an additional 8.0 million of our outstanding shares of common stock from November 5, 2018 through December 31, 2023. At December 31, 2019, we have 5.9 million shares available for repurchase under the stock repurchase programs.

Item 6. Selected Financial Data

Selected financial data is provided below.

(in millions, except per share amounts)	2019[a]	2018	2017	2016[b]	2015[c]
Summary of operations:					
Net sales[j]	$6,209	$6,289	$6,244	$6,022	$5,958
Net income attributable to Ingredion	413[d]	443[e]	519[f]	485[g]	402[h]
Net earnings per common share of Ingredion:					
Basic	6.17[d]	6.25[e]	7.21[f]	6.70[g]	5.62[h]
Diluted	6.13[d]	6.17[e]	7.06[f]	6.55[g]	5.51[h]
Cash dividends declared per common share of Ingredion	2.51	2.45	2.20	1.90	1.74
Balance sheet data:					
Working capital	$1,193	$1,192	$1,458	$1,274	$1,208
Property, plant and equipment, net	2,306	2,198	2,217	2,116	1,989
Total assets	6,040	5,728	6,080	5,782	5,074
Long-term debt	1,766	1,931	1,744	1,850	1,819
Total debt	1,848	2,100	1,864	1,956	1,838
Total equity[i]	$2,741	$2,408	$2,917	$2,595	$2,180
Shares outstanding, year end	66.8	66.5	72.0	72.4	71.6
Additional data:					
Depreciation and amortization	$ 220	$ 247	$ 209	$ 196	$ 194
Mechanical stores expense	57	57	57	57	57
Capital expenditures and mechanical stores purchases	328	350	314	284	280

[a] Includes Western Polymer LLC ("Western Polymer") from March 1, 2019 forward.

[b] Includes TIC Gums Incorporated at December 31, 2016 for balance sheet data only.

[c] Includes Penford Corporation ("Penford") from March 11, 2015 forward and Kerr Concentrates, Inc. ("Kerr") from August 3, 2015 forward.

[d] Includes after-tax restructuring expenses of $44 million, including $22 million of net restructuring related expenses as part of the Cost Smart Cost of sales program and $22 million of employee-related and other costs, including professional services, associated with our Cost Smart SG&A program. Additionally, includes after-tax income of $11 million, related to other matters and $2 million of after-tax acquisition/integration expenses.

[e] Includes after-tax restructuring charges of $51 million consisting of costs associated with the Cost Smart Cost of sales program in relation to the cessation of wet-milling at the Stockton, California plant, employee-related severance and other costs in relation to the Cost Smart SG&A program, other costs related to the North America Finance Transformation initiative, and other costs related to abandonment of certain assets related to our leaf extraction process in Brazil. Additionally, includes after-tax charge of $3 million to the provision for income taxes related to the enactment of the TCJA in December 2017.

[f] Includes after-tax restructuring charges of $31 million consisting of employee-related severance and other costs associated with the restructuring in Argentina, restructuring charges related to the abandonment of certain assets related to our leaf extraction process in Brazil, employee-related severance and other costs associated with the Finance Transformation initiative, and other restructuring charges including employee-related severance costs in North America and a refinement of estimates for prior year restructuring activities. Additionally, includes after-tax charge of $23 million to the provision for income taxes related to the enactment of the TCJA in December 2017, $6 million related to the flow-through of costs primarily associated with the sale of TIC Gums inventory that was adjusted to fair value at the acquisition date in accordance with business combination accounting rules, and $3 million associated with the integration of acquired operations, partially offset by a tax benefit of $10 million due to deductible foreign exchange loss resulting from the tax settlement between the U.S. and Canada, and a $6 million after-tax gain from an insurance settlement primarily related to capital reconstruction.

[g] Includes after-tax restructuring charges of $14 million consisting of employee severance-related charges and other costs associated with the execution of global IT outsourcing contracts, severance-related costs attributable to our optimization initiatives in North America and South America, and additional charges pertaining to our 2015 Port Colborne plant sale. Additionally, includes after-tax costs of $2 million associated with the integration of acquired operations and $27 million associated with an income tax matter.

[h] Includes after-tax charges for impaired assets and restructuring costs of $18 million, after-tax costs of $7 million relating to the acquisition and integration of both Penford and Kerr, after-tax costs of $6 million relating to the sale of Penford and Kerr inventory that was adjusted to fair value at the respective acquisition dates in accordance with business combination accounting rules, after-tax costs of $4 million relating to a litigation settlement and an after-tax gain from the sale of a plant of $9 million.

[i] Includes non-controlling interest.

[j] During the three months ended December 31, 2019, the Company changed its presentation of net sales. The change is applied retrospectively to all periods presented. For the year ended December 31, 2016, Net sales was previously reported as $5,704 million and adjusted as $6,022 million. For the year ended December 31, 2015, Net sales was reported as $5,621 million and adjusted as $5,958 million. See Note 2 of the Notes to the Consolidated Financial Statements.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

Overview

We are a major supplier of high-quality food and industrial ingredient solutions to customers around the world. We have 44 manufacturing plants located in North America, South America, Asia-Pacific and Europe, the Middle East and Africa ("EMEA"), and we manage and operate our businesses at a regional level. We believe this approach provides us with a unique understanding of the cultures and product requirements in each of the geographic markets in which we operate, bringing added value to our customers. Our ingredients are used by customers in the food, beverage, brewing, and animal feed industries, among others.

Our growth strategy is centered on delivering value-added ingredient solutions for our customers. The foundation of our strategy is operating excellence, which includes our focus on safety, quality and continuous improvement. We see growth opportunities in three areas: first, we are working to expand our current business through organic growth; second, we are focused on broadening our ingredient portfolio with on-trend products through internal and external business development; finally, we look for growth from geographic expansion as we pursue extension of our reach to new locations. The ultimate goal of these strategies and actions is to deliver increased shareholder value.

Critical success factors in our business include managing our significant manufacturing costs, including costs for corn, other raw materials, and utilities. In addition, due to our global operations we are exposed to fluctuations in foreign currency exchange rates. We use derivative financial instruments, when appropriate, for the purpose of minimizing the risks and costs associated with fluctuations in certain raw material and energy costs, foreign exchange rates, and interest rates. Also, the capital intensive nature of our business requires that we generate significant cash flow over time in order to selectively reinvest in our operations and grow organically, as well as through strategic acquisitions and alliances. We utilize certain key financial metrics relating to return on invested capital and financial leverage to monitor our progress toward achieving our strategic business objectives (see section entitled "Key Financial Performance Metrics").

The financial results of 2019 for operating income, net income and diluted earnings per common share declined from 2018. Operating income declined in 2019 from 2018 primarily due to lower operating results in all segments. The main drivers of the operating income decline were commodity margin pressures, higher production and supply chain costs, and unfavorable currency translation.

In July 2018, we announced a $125 million savings target for our Cost Smart program, designed to improve profitability, further streamline our global business, and deliver increased value to shareholders. We set Cost Smart savings targets to include an anticipated $75 million in cost of sales savings, including freight, and $50 million in anticipated SG&A savings by year end 2021.

Our Cost Smart program and other initiatives resulted in restructuring charges in 2019. During the year ended December 31, 2019, we recorded $57 million of pre-tax restructuring charges. We recorded $29 million for our Cost Smart Cost of sales program. We recorded $15 million of restructuring charges in relation to the closure of the Lane Cove, Australia production facility, consisting of $10 million of accelerated depreciation, $4 million of employee-related severance, and $1 million of other costs. We expect to incur additional expense of $10 million to $12 million in 2020 in relation to the closure, excluding potential proceeds from the sale of land and equipment. Additionally, during the year ended December 31, 2019, we recorded $3 million of employee-related expenses primarily related to the South America operations restructuring. Finally, we recorded $11 million of other costs, including professional services, during the year ended December 31, 2019, primarily in North America including other costs of $2 million in relation to the prior year cessation of wet-milling at the Stockton, California plant. We do not expect to incur any additional costs in relation to the cessation of wet-milling at the Stockton, California plant. We recorded pre-tax restructuring charges of $28 million for the year ended December 31, 2019 for the Cost Smart SG&A program. These costs include $15 million, of other costs, including professional services, and $13 million of employee-related severance for the year ended December 31, 2019. These charges were recorded primarily in the Company's North America and South America operations, and include $2 million of other costs associated with the Finance Transformation initiative in Latin America for the year ended December 31, 2019. The Company expects to continue to incur additional charges in 2020 related to the Cost Smart SG&A program, however, it does not expect to incur any additional restructuring costs related to its Finance Transformation initiative.

Our cash provided by operating activities decreased to $680 million for the year ended December 31, 2019, from $703 million in the prior year primarily due to lower current year net earnings. Our cash used for financing activities decreased during the year ended December 31, 2019, compared to the prior year, primarily due to the repurchase of 5.8 million shares of our outstanding common stock in 2018 offset by our debt repayments in 2019.

As previously announced on October 15, 2019 and November 19, 2019, we detected suspicious activity affecting several servers within certain data centers on our network. Immediately, we took steps to identify and contain the situation, which included engaging a third-party consultant. We assessed the impact of the incident and did not identify any impact to our financial reporting systems nor any material impacts to our Key Financial Performance Metrics discussed below. We incurred immaterial costs to perform these necessary remediation efforts during the three months ended December 31, 2019. We are not aware of any evidence that any customer, supplier, or employee data has been improperly accessed, misused or transferred by any third party. The remediation work related to this incident was completed in December 2019.

We currently expect that our available cash balances, future cash flow from operations, access to debt markets, and borrowing capacity under our credit facilities will provide us with sufficient liquidity to fund our anticipated capital expenditures, dividends, and other investing and financing activities for the foreseeable future. Our future cash flow needs will depend on many factors, including our rate of revenue growth, the timing and extent of our expansion into new markets, the timing of introductions of new products, potential acquisitions of complementary businesses and technologies, continuing market acceptance of our new products, and general economic and market conditions. We may need to raise additional capital or incur indebtedness to fund our needs for less predictable strategic initiatives, such as acquisitions.

Results of Operations

We have significant operations in four reporting segments: North America, South America, Asia-Pacific and EMEA. For most of our foreign subsidiaries, the local foreign currency is the functional currency. Accordingly, revenues and expenses denominated in the functional currencies of these subsidiaries are translated into U.S. dollars at the applicable average exchange rates for the period. Fluctuations in foreign currency exchange rates affect the U.S. dollar amounts of our foreign subsidiaries' revenues and expenses. In the second quarter of 2018, the Argentine peso rapidly devalued relative to the U.S. dollar, which along with increased inflation, resulted in a three-year cumulative inflation in that country which exceeded 100 percent as of June 30, 2018. As a result, we adopted highly inflationary accounting as of July 1, 2018, for our Argentina affiliate in accordance with U.S. Generally Accepted Accounting Principles ("GAAP"). Under highly inflationary accounting, our affiliate's functional currency becomes the U.S. dollar, and its income statement and balance sheet will be measured in U.S. dollars using both current and historical rates of exchange. The effect of changes in exchange rates on Argentine peso-denominated monetary assets and liabilities will be reflected in earnings in Financing costs. The impact of all foreign currency exchange rate changes, where significant, is provided below.

We acquired Western Polymer LLC ("Western Polymer") and Sun Flour Industry Co., Ltd. ("Sun Flour") on March 1, 2019, and March 9, 2017, respectively. The results of the acquired businesses are included in our consolidated financial results from the respective acquisition dates forward. While we identify fluctuations due to the acquisitions, our discussion below also addresses results of operations excluding the impact of the acquisitions and the results of the acquired businesses, where appropriate, to provide a more comparable and meaningful analysis.

2019 Compared to 2018 – Consolidated

(in millions) Year Ended December 31,	2019	2018	Favorable (Unfavorable) Variance	Favorable (Unfavorable) Percentage
Net sales	$6,209	$6,289	$(80)	(1)%
Cost of sales	4,897	4,921	24	— %
Gross profit	1,312	1,368	(56)	(4)%
Operating expenses	610	611	1	— %
Other income, net	(19)	(10)	9	90 %
Restructuring/impairment charges	57	64	7	11 %
Operating income	664	703	(39)	(6)%
Financing costs, net	81	86	5	6 %
Other, non-operating expense/ (income), net	1	(4)	(5)	(125)%
Income before income taxes	582	621	(39)	(6)%
Provision for income taxes	158	167	9	5 %
Net income	424	454	(30)	(7)%
Less: Net income attributable to non-controlling interests	11	11	—	— %
Net income attributable to Ingredion	$ 413	$ 443	$(30)	(7)%

Net Income attributable to Ingredion: Net income attributable to Ingredion for 2019 decreased to $413 million from $443 million in 2018. Our results for 2019 included $35 million of one-time after-tax net costs, driven primarily by after-tax restructuring costs of $44 million. The restructuring charges consist of costs associated with our Cost Smart Cost of sales program and our Cost Smart SG&A program (see Note 5 of the Notes to the Consolidated Financial Statements for additional information).

Our results for 2018 included $54 million of one-time after-tax net costs, driven primarily by after-tax restructuring costs of $51 million. The restructuring charges consist of costs associated with our Cost Smart Cost of sales program in relation to the cessation of wet-milling at the Stockton, California plant, costs related to the Cost Smart SG&A program, including employee-related severance and other costs for restructuring projects in the South America, Asia-Pacific, and North America segments, costs related to the Latin America and North America Finance Transformation initiatives, and costs related to the cessation of our leaf extraction process in Brazil. During the year ended December 31, 2018, we adjusted our provisional amounts related to enactment of the Tax Cuts and Jobs Act ("TCJA") and recognized an incremental $3 million of tax expense related to the TCJA.

Net sales: Net sales were slightly down for the year ended December 31, 2019 as compared to the year ended December 31, 2018. Changes in foreign currency exchange rates and volume reduction due to the cessation of Stockton wet milling were partially offset by favorable price/product mix.

Cost of sales: Cost of sales for year ended December 31, 2019 were flat when compared to the year ended December 31, 2018 primarily due to higher net corn costs. Our gross profit margin was 21 percent and

22 percent for the years ended December 31, 2019, and 2018, respectively. The gross profit margin decrease primarily reflected higher raw material costs.

Operating expenses: Operating expenses were flat when comparing the year ended December 31, 2019, to the year ended December 31, 2018. This was primarily driven by lower selling costs, offset by higher general administrative costs. Operating expenses, as a percentage of gross profit, were 46 percent for the year ended December 31, 2019, as compared to 45 percent for the year ended December 31, 2018.

Other income, net: Our change in other income, net for the year ended December 31, 2019, as compared to the year ended December 31, 2018, was as follows:

(in millions) Year Ended December 31,	2019	2018	Favorable (Unfavorable) Variance
Brazil tax matter	$22	$ —	$22
Value-added tax recovery	—	5	(5)
Other	(3)	5	(8)
Other income, net	$19	$10	$ 9

In January 2019, the Company's Brazilian subsidiary received a favorable decision from the Federal Court of Appeals in Sao Paulo, Brazil, related to certain indirect taxes collected in prior years. As a result of the decision, the Company expects to be entitled to indirect tax credits against its Brazilian federal tax payments in 2020 and future years. The Company finalized its calculation of the amount of the credits and interest due from the favorable decision, concluding that the Company could be entitled to approximately $86 million of credits spanning a period from 2005 to 2018. The Department of Federal Revenue of Brazil, however, issued an Internal Ruling in which it charged that the Company is entitled to only $22 million of the calculated indirect tax credits and interest for the period from 2005 to 2014. The Brazil National Treasury has filed a motion for clarification with the Brazilian Supreme Court, asking the Court, among other things, to modify the lower court's decision to approve the Internal Ruling, which could impact the decision in favor of the Company. Due to the uncertainty arising from the issuance of the Internal Ruling, the Company recorded $22 million of credits in 2019 in accordance with ASC 450, *Contingencies*. The $22 million of future tax credits, which was recorded in the Consolidated Income Statement in Other income, resulted in additional deferred income taxes of $8 million. The income taxes will be paid as and when the tax credits are utilized. The Company continues to monitor the pending decisions within the Brazilian courts that may result in changes to the calculations and the timing of the recording of any additional gains and receipt of the benefits.

Financing costs, net: Our financing costs, net for the year ended December 31, 2019 decreased $5 million from the year ended December 31, 2018, driven by a reduction in foreign currency losses, partly offset by higher interest expense.

Provision for income taxes: Our effective income tax rates for the years ended December 31, 2019 and 2018 were 27.1 percent and 26.9 percent, respectively.

The increase in the effective tax rate was primarily driven by a reduction in the excess tax benefit related to share-based payment awards. This was offset by the revaluation of the Mexican Peso versus the U.S. dollar which impacted the U.S. dollar denominated balances held in Mexico compared to the devaluation of the Mexican Peso versus the U.S. dollar, in the prior year. Additionally, the effective tax rate was reduced from the prior year due to relatively lower valuation allowances on Argentine net operating losses.

Net income attributable to non-controlling interests: Net income attributable to non-controlling interests for the year ended December 31, 2019, was flat when compared to the year ended December 31, 2018.

2019 Compared to 2018 – North America

(in millions) Year Ended December 31,	2019	2018	Favorable (Unfavorable) Variance	Favorable (Unfavorable) Percentage
Net sales to unaffiliated customers	$3,834	$3,857	$(23)	(1)%
Operating income	522	545	(23)	(4)%

Net sales: Our decrease in net sales of 1 percent for the year ended December 31, 2019, as compared to the year ended December 31, 2018, was driven by a 2 percent decrease in volume, offset by a 1 percent improvement in price/product mix.

Operating income: Our operating income decreased $23 million for the year ended December 31, 2019, as compared to the year ended December 31, 2018, due to higher net cost of corn and production costs, which were partially offset by favorable pricing.

2019 Compared to 2018 – South America

(in millions) Year Ended December 31,	2019	2018	Favorable (Unfavorable) Variance	Favorable (Unfavorable) Percentage
Net sales to unaffiliated customers	$960	$988	$(28)	(3)%
Operating income	96	99	(3)	(3)%

Net sales: Our decrease in net sales of 3 percent for the year ended December 31, 2019, as compared to the year ended December 31, 2018, was driven by currency devaluations of 20 percent in Argentina and Brazil, partly offset by a 15 percent increase in price/product mix and 2 percent increase in volume.

Operating income: Our decrease in operating income of $3 million for the year ended December 31, 2019, as compared to the year ended December 31, 2018, was primarily driven by foreign exchange impacts and higher net corn costs, which were partially offset by favorable pricing actions.

2019 Compared to 2018 – Asia-Pacific

(in millions) Year Ended December 31,	2019	2018	Favorable (Unfavorable) Variance	Favorable (Unfavorable) Percentage
Net sales to unaffiliated customers	$823	$837	$(14)	(2)%
Operating income	87	104	(17)	(16)%

Net sales: Our decrease in net sales of 2 percent for the year ended December 31, 2019, as compared to the year ended December 31, 2018, was driven by unfavorable currency translation.

Operating income: Our decrease in operating income of $17 million for the year ended December 31, 2019, as compared to the year ended December 31, 2018, was driven by higher regional input costs, increased net corn cost in Australia, and foreign exchange impacts.

2019 Compared to 2018 – EMEA

(in millions) Year Ended December 31,	2019	2018	Favorable (Unfavorable) Variance	Favorable (Unfavorable) Percentage
Net sales to unaffiliated customers	$592	$607	$(15)	(2)%
Operating income	99	116	(17)	(15)%

Net sales: Our decrease in net sales of 2 percent for the year ended December 31, 2019, as compared to the year ended December 31, 2018, was driven unfavorable foreign exchange of 11 percent, offset by volume growth of 2 percent and improved price/product mix of 7 percent.

Operating income: Our decrease in operating income of $17 million for the year ended December 31, 2019, as compared to the year ended December 31, 2018, was driven by higher raw material costs and unfavorable foreign exchange impacts, driven primarily by the Pakistan rupee, which was partially offset by improved price mix.

2018 Compared to 2017 – Consolidated

(in millions) Year Ended December 31,	2018	2017	Favorable (Unfavorable) Variance	Favorable (Unfavorable) Percentage
Net sales	$6,289	$6,244	$ 45	1 %
Cost of sales	4,921	4,772	(149)	(3)%
Gross profit	1,368	1,472	(104)	(7)%
Operating expenses	611	616	5	1 %
Other income, net	(10)	(18)	(8)	(44)%
Restructuring/impairment charges	64	38	(26)	(68)%
Operating income	703	836	(133)	(16)%
Financing costs, net	86	73	(13)	(18)%
Other, non-operating income	(4)	(6)	(2)	(33)%
Income before income taxes	621	769	(148)	(19)%
Provision for income taxes	167	237	70	30 %
Net income	454	532	(78)	(15)%
Less: Net income attributable to non-controlling interests	11	13	2	15 %
Net income attributable to Ingredion	$ 443	$ 519	$ (76)	(15)%

Net Income attributable to Ingredion: Net income attributable to Ingredion for 2018 decreased to $443 million from $519 million in 2017. Our results for 2018 included $54 million of one-time after-tax net costs, driven primarily by after-tax restructuring costs of $51 million. The restructuring charges consist of costs associated with our Cost Smart Cost of sales program in relation to the cessation of wet-milling at the Stockton, California plant, costs related to the Cost Smart SG&A program, including employee-related severance and other costs for restructuring projects in the South America, Asia-Pacific, and North America segments, costs related to the Latin America and North America Finance Transformation initiatives, and costs related to the cessation of our leaf extraction process in Brazil (see Note 5 of the Notes to the Consolidated Financial Statements for additional information). During the year ended December 31, 2018, we adjusted our provisional amounts related enactment of the TCJA and recognized an incremental $3 million of tax expense related to the TCJA.

Our results for 2017 included $47 million of one-time after-tax net costs, driven primarily by restructuring costs of $31 million. The restructuring charges consisted of costs associated with the restructuring in Argentina, charges related to the abandonment of certain assets related to our leaf extraction process in Brazil, costs associated with the Finance Transformation initiative, and other pre-tax restructuring charges including employee-related severance costs in North America and a refinement of estimates for prior year restructuring activities (see Note 5 of the Notes to the Consolidated Financial Statements for additional information). Our after-tax net results also included a net $23 million charge to the provision for income taxes related to the enactment of the TCJA in December 2017, a $6 million charge relating to the flow-through of costs primarily associated with the sale of TIC Gums inventory that was adjusted to fair value at the acquisition date in accordance with business combination accounting rules, and a $3 million charge associated with the integration of acquired operations, partially offset by a tax benefit of $10 million due to a deductible foreign exchange loss resulting from the tax settlement between the U.S. and Canada and a $6 million gain from an insurance settlement primarily related to capital reconstruction.

Net sales: Net sales increased 1 percent for the year ended December 31, 2018, as compared to the year ended December 31, 2017. Volume growth of 1 percent driven by specialty products and favorable price/product mix of 3 percent were offset by unfavorable currency translation of 3 percent.

Cost of sales: Cost of sales for 2018 increased 3 percent to $4.5 billion from $4.4 billion in 2017 primarily due to higher raw material and manufacturing expenses. Our gross profit margin was 22 percent and 24 percent for the years ended December 31, 2018, and 2017, respectively. The gross profit margin decrease primarily reflected higher raw material costs and manufacturing expenses.

Operating expenses: Our decrease in operating expenses of 1 percent for the year ended December 31, 2018, as compared to the year ended December 31, 2017, was primarily driven by lower general administrative costs, partially offset by higher selling and research and development expenses. Operating expenses, as a percentage of gross profit, were 45 percent for the year ended December 31, 2018, as compared to 42 percent for the year ended December 31, 2017.

Other income, net: Our change in other income, net for the year ended December 31, 2018, as compared to the year ended December 31, 2017, was as follows:

(in millions) Year Ended December 31,	2018	2017	Favorable (Unfavorable) Variance
Insurance settlement	$ —	$ 9	$(9)
Value-added tax recovery	5	6	(1)
Other	5	3	2
Other income, net	$10	$18	$(8)

Financing costs, net: Our financing costs, net for the year ended December 31, 2018 increased $13 million from the year ended December 31, 2017, primarily driven by unfavorable currency translation, including the impact of highly inflationary accounting related to Argentina.

Provision for income taxes: Our effective income tax rates for the years ended December 31, 2018 and 2017 were 26.9 percent and 30.8 percent, respectively.

The TCJA introduced numerous changes in the U.S. federal tax laws. Changes that have a significant impact on our effective tax rate are a reduction in the U.S. corporate tax rate from 35 percent to 21 percent, the imposition of a U.S. tax on our global intangible low-taxed income ("GILTI") and the foreign-derived intangible income ("FDII") deduction. The TCJA also provided for a one-time transition tax on the deemed repatriation of cumulative foreign earnings as of December 31, 2017, and eliminated the tax on dividends from our foreign subsidiaries by allowing a 100-percent dividends received deduction.

On December 22, 2017, Staff Accounting Bulletin No. 118 ("SAB 118") was issued to provide guidance on the application of GAAP to situations in which the registrant does not have all the necessary information available, prepared or analyzed (including computations) in sufficient detail to complete the accounting for the income tax effects of the TCJA.

In the fourth quarter of 2017, we calculated a provisional impact of the TCJA in accordance with SAB 118 and our understanding of the TCJA, including published guidance as of December 31, 2017. During the third and fourth quarter of 2018, we recorded $2 million and $1 million, respectively, of net incremental tax expense as we finalized our TCJA expense based on additional guidance from federal and state regulatory agencies. (See Note 9 of the Notes to the Consolidated Financial Statements for additional information.) The following table summarizes the provisional and final net tax expense impact of the TCJA:

(in millions)	Provisional 2017 TCJA Impact	Final 2017 TCJA Impact
One-time transition tax	$ 21	$ 25
Remeasurement of deferred tax assets and liabilities	(38)	(38)
Net impact of provision for taxes on unremitted earnings	33	35
Other items, net	7	4
Net impact of the TCJA	$ 23	$ 26

Additionally, we had been pursuing relief from double taxation under the U.S.-Canada tax treaty for the years 2004 through 2013. In the third quarter of 2017, the two countries finalized the agreement, which eliminated the double taxation, and we paid $63 million to the U.S. Internal Revenue Service to settle the liability. As a result of that agreement, we were entitled to a net tax benefit of $10 million primarily due to a foreign exchange loss deduction on our 2017 U.S. federal income tax return, or 1.3 percentage points on the effective tax rate. As a result of the final settlement, we received refunds totaling $42 million from Canadian revenue agencies and recorded $2 million, or 0.3 percentage points on the effective tax rate, of interest through tax expense in 2018.

We use the U.S. dollar as the functional currency for our subsidiaries in Mexico. In 2017, a decline in value of the Mexican peso versus the U.S. dollar increased tax expense by $4 million or 0.5 percentage points on the effective tax rate. This impact was largely associated with foreign currency translation gains and losses for local tax purposes on net-U.S.-dollar-monetary assets held in Mexico for which there was no corresponding gain or loss in pre-tax income.

During 2018, we increased the valuation allowance on the net deferred tax assets in Argentina by $6 million, or 1.0 percentage points on the effective tax rate, compared to $16 million, or 2.0 percentage points on the effective tax rate in 2017.

Without the impact of the items described above, our effective tax rate would have been approximately 25.1 percent and 28.1 percent for 2018 and 2017, respectively. The remaining year-over-year decrease in the effective income tax rate is primarily attributable to the impact of U.S. tax reform.

Net income attributable to non-controlling interests: Net income attributable to non-controlling interests for the year ended December 31, 2018, decreased $2 million from the year ended December 31, 2017, primarily due to unfavorable currency translation at our non-wholly-owned operation in Pakistan.

2018 Compared to 2017 – North America

(in millions) Year Ended December 31,	2018	2017	Favorable (Unfavorable) Variance	Favorable (Unfavorable) Percentage
Net sales to unaffiliated customers	$3,857	$3,843	$ 14	— %
Operating income	545	654	(109)	(17)%

Net sales: Net sales remained relatively flat for the year ended December 31, 2018, as compared to the year ended December 31, 2017. Volume growth for specialty and Mexico was primarily offset by volume declines for sweeteners in the U.S. and Canada.

Operating income: Our decrease in operating income of $109 million for the year ended December 31, 2018, as compared to the year ended December 31, 2017, was driven by higher production and supply chain costs, lower sweetener demand in the U.S. and Canada, and commodity margin pressures.

2018 Compared to 2017 – South America

(in millions) Year Ended December 31,	2018	2017	Favorable (Unfavorable) Variance	Favorable (Unfavorable) Percentage
Net sales to unaffiliated customers	$988	$1,052	$(64)	(6)%
Operating income	99	81	18	22 %

Net sales: Net sales remained relatively flat for the year ended December 31, 2018, as compared to the year ended December 31, 2017. The decrease was driven by currency devaluations of 19% in Argentina and Brazil, partly offset by a 13% increase in price/product mix from price increases used to offset higher raw material costs and foreign currency fluctuations.

Operating income: Our increase in operating income of $18 million for the year ended December 31, 2018, as compared to the year ended December 31, 2017, was primarily driven by improved operational efficiencies and the lapping of the 2017 Argentina manufacturing optimization project, partially offset by unfavorable currency translation reflecting a weaker Brazilian real and Argentine peso.

2018 Compared to 2017 – Asia-Pacific

(in millions) Year Ended December 31,	2018	2017	Favorable (Unfavorable) Variance	Favorable (Unfavorable) Percentage
Net sales to unaffiliated customers	$837	$772	$ 65	8 %
Operating income	104	115	(11)	(10)%

Net sales: Our increase in net sales of 8 percent for the year ended December 31, 2018, as compared to the year ended December 31, 2017, was driven by volume growth of 3 percent, favorable currency translation of 3 percent, and a 2 percent increase in price/product mix due to favorable pricing to offset higher tapioca costs.

Operating income: Our decrease in operating income of $11 million for the year ended December 31, 2018, as compared to the year ended December 31, 2017, was driven by a delay in the pass-through of higher tapioca costs, partially offset by specialty volume growth.

2018 Compared to 2017 – EMEA

(in millions) Year Ended December 31,	2018	2017	Favorable (Unfavorable) Variance	Favorable (Unfavorable) Percentage
Net sales to unaffiliated customers	$607	$577	$30	5%
Operating income	116	114	2	2%

Net sales: Our increase in net sales of 5 percent for the year ended December 31, 2018, as compared to the year ended December 31, 2017, was driven by volume growth of 6 percent, a 3 percent increase in price/product mix, partially offset by unfavorable currency translation of 4 percent.

Operating income: Our increase in operating income of $2 million for the year ended December 31, 2018, as compared to the year ended December 31, 2017, was driven by specialty and core volume growth and improved price/product mix, partly offset by unfavorable currency translation in Pakistan and higher raw material costs.

Liquidity and Capital Resources

At December 31, 2019, our total assets were $6.0 billion, as compared to $5.7 billion at December 31, 2018. The increase was driven principally by continued capital investment in growth platforms. Total equity increased to $2.7 billion at December 31, 2019, from $2.4 billion at December 31, 2018. This increase primarily reflects our current year earnings.

On April 12, 2019, we amended and restated the Term Loan Credit Agreement that was set to mature on April 25, 2019 ("Term Loan") of $165 million to establish a 24-month senior unsecured term loan credit facility in an amount up to $500 million that matures on April 12, 2021. We used the $500 million of borrowings under the new facility to pay down the amounts outstanding under our revolving credit facility described below and to pay off the Term Loan balance.

All borrowings under the amended term loan credit agreement for the new facility ("Amended Term Loan Credit Agreement") will bear interest at a variable annual rate based on the London Interbank Offered Rate ("LIBOR") or a base rate, at our election, subject to the terms and conditions thereof, plus, in each case, an applicable margin.

We are required to pay a fee on the unused availability under the Amended Term Loan Credit Agreement. The Amended Term Loan Credit Agreement contains customary representations, warranties, covenants and events of default, including covenants restricting the incurrence of liens, the incurrence of indebtedness by our subsidiaries and certain fundamental changes involving the Company and our subsidiaries, subject to certain exceptions in each case. We must also maintain a specified consolidated leverage ratio and consolidated interest coverage ratio. As of December 31, 2019, we were in compliance with these financial covenants. The occurrence of an event of default under the Amended Term Loan Credit Agreement could result in all loans and other obligations being declared due and payable and the term loan credit facility being terminated.

On October 11, 2016, we entered into a five-year, senior, unsecured $1 billion revolving credit agreement (the "Revolving Credit Agreement") that replaced our previously existing $1 billion senior unsecured revolving credit facility.

Subject to certain terms and conditions, we may increase the amount of the revolving credit facility under the Revolving Credit Agreement by up to $500 million in the aggregate. We may also obtain up to two one-year extensions of the maturity date of the Revolving Credit Agreement at our request and subject to the agreement of our lenders. All committed pro rata borrowings under the revolving credit facility will bear interest at a variable annual rate based on either the LIBOR or base rate, at our election, subject to the terms and conditions thereof, plus, in each case, an applicable margin based on our leverage ratio (as reported in the financial statements delivered pursuant to the Revolving Credit Agreement) or our credit rating. Subject to specified conditions, we may designate one or more of our subsidiaries as additional borrowers under the Revolving Credit Agreement provided that we guarantee all borrowings and other obligations of any such subsidiaries thereunder.

The Revolving Credit Agreement contains customary representations, warranties, covenants, events of default and other terms and conditions, including covenants restricting liens, subsidiary debt and mergers, subject to certain exceptions in each case. We must also comply with a leverage ratio covenant and an interest coverage ratio covenant. As of December 31, 2019, we were in compliance with these financial covenants. The occurrence of an event of default under the Revolving Credit Agreement could result in all loans and other obligations under the agreement being declared due and payable and the revolving credit facility being terminated. As of December 31, 2019, there were $10 million in borrowings outstanding under the Revolving Credit Agreement, with an additional $990 million available for use under the Revolving Credit Agreement as of the end of the year. In addition to the credit facilities described above, we have a number of short-term credit facilities consisting of operating lines of credit outside of the U.S.

As of December 31, 2019, we had total debt outstanding of $1.8 billion. As of December 31, 2019, our total debt consisted of the following:

(in millions)	
3.2% senior notes due October 1, 2026	$ 497
4.625% senior notes due November 1, 2020	400
6.625% senior notes due April 15, 2037	253
5.62% senior notes due March 25, 2020	200
Term loan credit agreement due April 12, 2021	405
Revolving credit facility	10
Fair value adjustment related to hedged fixed rate debt instruments	1
Long-term debt	1,766
Short-term borrowings	82
Total debt	$1,848

The Company's long-term debt matures as follows: $600 million in 2020, $500 million in 2026, and $250 million in 2037. The Company's Term Loan of $405 million matures in 2021. The Company's long-term debt as of December 31, 2019 includes the 5.62% senior notes due March 25, 2020 and 4.625% senior notes due November 1, 2020. The Company has the ability and intent to refinance such senior notes on a long-term basis using the revolving credit facility or other sources prior to the maturity date.

We, as the parent company, guarantee certain obligations of our consolidated subsidiaries. As of December 31, 2019, such guarantees aggregated $57 million. We believe that such consolidated subsidiaries will meet their financial obligations as they become due.

Historically, the principal source of our liquidity has been our internally generated cash flow, which we supplement as necessary with our ability to borrow under our credit facilities and to raise funds in the capital markets. In addition to borrowing availability under our Revolving Credit Agreement, we also have approximately $585 million of unused operating lines of credit in the various foreign countries in which we operate.

The weighted average interest rate on our total indebtedness was approximately 4.3 percent and 4.8 percent for 2019 and 2018, respectively.

Net Cash Flows

A summary of operating cash flows for 2019, 2018, and 2017 is shown below:

(in millions)	2019	2018	2017
Net income	$424	$ 454	$ 532
Depreciation and amortization	220	247	209
Mechanical stores expense	57	57	57
Charge for fair value mark-up of acquired inventory	—	—	9
Deferred income taxes	3	(23)	67
Changes in working capital	(54)	(118)	(121)
Other	30	86	16
Cash provided by operations	$680	$ 703	$ 769

Cash provided by operations was $680 million in 2019, as compared with $703 million in 2018. The decrease in 2019 was primarily due to lower current year net earnings versus the prior year. Cash provided by operations in 2018 decreased compared to 2017 primarily due to lower net earnings in 2018 and the change in deferred income tax provision.

To manage price risk related to corn purchases, we use derivative instruments, consisting of corn futures and options contracts, to lock in our corn costs associated with firm-priced customer sales contracts. As the market price of these commodities fluctuate, our derivative instruments change in value and we fund any unrealized losses or receive cash for any unrealized gains related to outstanding commodity futures and option contracts. We plan to continue to use derivative instruments to hedge such price risk and, accordingly, we will be required to make cash deposits to or be entitled to receive cash from our margin accounts depending on the movement in the market price of the underlying commodities.

Listed below are our primary investing and financing activities for 2019, 2018, and 2017:

(in millions)	2019	2018	2017
Capital expenditures and mechanical stores purchases	$ (328)	$(350)	$ (314)
Payments for acquisitions, net of cash acquired	(42)	—	(17)
Payments on debt	(1,465)	(738)	(1,240)
Proceeds from borrowings	1,209	987	1,144
Dividends paid (including to non-controlling interests)	(174)	(182)	(165)
Repurchases of common stock	63	(657)	(123)

On December 27, 2019, our board of directors declared a quarterly cash dividend of $0.63 per share of common stock. This dividend was paid on January 27, 2020, to stockholders of record at the close of business on January 2, 2020.

We paid $328 million of capital expenditures and mechanical stores purchases to update, expand and improve our facilities in 2019. In April 2019, we acquired Western Polymer for $42 million.

We paid $657 million during 2018 to repurchase common stock. We purchased 1.8 million shares of our common stock in open market transactions for $202 million during the second, third and fourth quarters of 2018. Additionally on November 5, 2018, we entered into a Variable Timing Accelerated Share Repurchase ("ASR") program with JPMorgan ("JPM"). Under the ASR program, we paid $455 million on November 5, 2018 and acquired 4 million shares of our common stock having an approximate value of $423 million on that date. On February 5, 2019, we settled the difference between the initial price and average daily volume-weighted average price ("VWAP") less the agreed upon discount during the term of the agreement. The final VWAP was $98.04 per share, which was less than originally paid. We settled the difference in cash, resulting in JPM returning $63 million of the upfront payment to us on February 6, 2019 as an inflow to cash from financing activities, and lowering the total cost of repurchasing the 4 million shares of common stock to $392 million.

We have not provided foreign withholding taxes, state income taxes, and federal and state taxes on foreign currency gains/losses on accumulated undistributed earnings of certain foreign subsidiaries because these earnings are considered to be permanently reinvested. It is not practicable to determine the amount of the unrecognized deferred tax liability related to the undistributed earnings. We do not anticipate the need to repatriate funds to the U.S. to satisfy domestic liquidity needs arising in the ordinary course of business, including liquidity needs associated with our domestic debt service requirements. Approximately $248 million of our total cash and cash equivalents and short-term investments of $264 million at December 31, 2019, were held by our operations outside of the U.S.

Hedging and Financial Risk

Hedging: We are exposed to market risk stemming from changes in commodity prices (primarily corn and natural gas), foreign-currency exchange rates, and interest rates. In the normal course of business, we actively manage our exposure to these market risks by entering into various hedging transactions, authorized under established policies that place controls on these activities. These transactions utilize exchange-traded derivatives or over-the-counter derivatives with investment grade counterparties. Our hedging transactions may include, but are not limited to, a variety of derivative financial instruments such as commodity-related futures, options and swap contracts, forward currency-related contracts and options, interest rate swap agreements, and Treasury lock agreements ("T-Locks"). See Note 6 of the Notes to the Consolidated Financial Statements for additional information.

Commodity Price Risk: Our principal use of derivative financial instruments is to manage commodity price risk in North America relating to anticipated purchases of corn and natural gas to be used in our manufacturing process. We periodically enter into futures, options and swap contracts for a portion of our anticipated corn and natural gas usage, generally over the following 12 to 24 months, in order to hedge price risk associated with fluctuations in market prices. Unrealized gains and losses associated with marking our commodities-based cash flow hedge derivative instruments to market are recorded as a component of other comprehensive income ("OCI"). As of December 31, 2019, our Accumulated other comprehensive loss account ("AOCI") included $11 million of net losses (net of income tax benefit of $5 million) related to these derivative instruments. It is anticipated that $9 million of net losses (net of income tax benefit of $3 million) will be reclassified into earnings during the next 12 months. We expect the net losses to be offset by changes in the underlying commodities costs.

Foreign Currency Exchange Risk: Due to our global operations, including operations in many emerging markets, we are exposed to fluctuations in foreign-currency exchange rates. As a result, we have exposure to translational foreign-exchange risk when our foreign operations' results are translated to U.S. dollars and to transactional foreign-exchange risk when transactions not denominated in the functional currency of the operating unit are revalued into U.S. dollars. We primarily use derivative financial instruments such as foreign-currency forward contracts, swaps and options to manage our foreign currency transactional exchange risk. We enter into foreign-currency derivative instruments that are designated as both cash flow hedging instruments as well as instruments not designated as hedging instruments as defined by *ASC 815, Derivatives and Hedging*. As of December 31, 2019, we had foreign currency forward sales contracts with an aggregate notional amount of $621 million and foreign currency forward purchase contracts with an aggregate notional amount of $356 million not designated as hedging instruments.

As of December 31, 2019, we had foreign-currency forward sales contracts with an aggregate notional amount of $374 million and foreign-currency forward purchase contracts with an aggregate notional amount of $541 million designated as cash flow hedging instruments. The amount included in AOCI relating to these hedges at December 31, 2019, was $3 million of net gains (net of income tax expense of $1 million). It is anticipated that $3 million of net gains (net of income tax expense of $1 million) will be reclassified into earnings during the next 12 months.

We have significant operations in Argentina. In the second quarter of 2018, the Argentine peso rapidly devalued relative to the U.S. dollar, which along with increased inflation, indicated that the three-year cumulative inflation in that country exceeded 100 percent as of June 30, 2018. As a result, we elected to adopt highly inflationary accounting as of July 1, 2018 for our affiliate, Ingredion Argentina S.A. Under highly inflationary accounting, our affiliate's functional currency is the U.S. dollar, and its income statement and balance sheet are measured in U.S. dollars using both current and historical rates of exchange. The effect of changes in exchange rates on Argentine-peso-denominated monetary assets and liabilities is reflected in earnings in financing costs.

Interest Rate Risk: We occasionally use interest rate swaps and T-Locks to hedge our exposure to interest rate changes, to reduce the volatility of our financing costs, or to achieve a desired proportion of fixed versus floating rate debt, based on current and projected market conditions. We did not have any T-Locks outstanding as of December 31, 2019.

As of December 31, 2019, our AOCI account included $1 million of net losses (net of an insignificant amount of income tax benefit) related to settled T-Locks. These deferred losses are being amortized to financing costs over the terms of the senior notes with which they are associated. It is anticipated that $1 million of these net losses (net of an insignificant amount of income tax benefit) will be reclassified into earnings during the next 12 months.

As of December 31, 2019, we have an interest rate swap agreement that effectively converts the interest rates on $200 million of our $400 million of 4.625% senior notes due November 1, 2020, to variable rates. This swap agreement calls for us to receive interest at the fixed coupon rate of the notes and to pay interest at a variable rate based on the six-month U.S. dollar LIBOR plus a spread. We have designated this interest rate swap agreement as a hedge of the changes in fair value of the underlying debt obligation attributable to changes in interest rates and account for it as a fair value hedge. The fair value of the interest rate swap agreement was a $1 million loss at December 31, 2019, and is reflected in the Consolidated Balance Sheet within Other assets, with an offsetting amount recorded in Long-term debt to adjust the carrying amount of the hedged debt obligations.

Contractual Obligations and Off-Balance Sheet Arrangements

The table below summarizes our significant contractual obligations as of December 31, 2019. Information included in the table is cross-referenced to the Notes to the Consolidated Financial Statements elsewhere in this report, as applicable.

		Payments due by period				
Contractual Obligations (in millions)	Note reference	Total	Less than 1 year	2 – 3 years	4 – 5 years	More than 5 years
Long-term debt	7	$1,766	$ 600	$416	$ —	$ 750
Interest on long-term debt	7	444	75	65	65	239
Operating lease obligations	8	189	49	69	38	33
Pension and other postretirement obligations	10	134	7	15	15	97
Purchase obligations [a]		882	288	261	132	201
Total [b]		$3,415	$1,019	$826	$250	$1,320

[a] The purchase obligations relate principally to raw material and power supply sourcing agreements, including take or pay contracts, which help to provide us with adequate power and raw material supply at certain of our facilities.

[b] The above table does not reflect unrecognized income tax benefits of $22 million, the timing of which is uncertain. See Note 9 of the Notes to the Consolidated Financial Statements for additional information with respect to unrecognized income tax benefits.

Key Financial Performance Metrics

We use certain key financial performance metrics to monitor our progress towards achieving our long-term strategic business objectives. These metrics relate to our ability to drive profitability, create value for shareholders, and monitor our financial leverage. We assess whether we are achieving our profitability and value creation objectives by measuring our Adjusted Return on Invested Capital ("Adjusted ROIC"). We monitor our financial leverage by regularly reviewing our ratio of net debt to adjusted earnings before interest, taxes, depreciation and

amortization ("Net Debt to Adjusted EBITDA") and our Net Debt to Capitalization percentage to assure that we are properly financed. We believe these metrics provide valuable managerial information to help us run our business and are useful to investors.

The metrics Adjusted ROIC and Net Debt to Adjusted EBITDA include certain information (Adjusted Operating Income, net of tax and Adjusted EBITDA, respectively) that is not calculated in accordance with GAAP. We also have presented below the most comparable metrics calculated using components determined in accordance with GAAP. Management uses these non-GAAP financial measures internally for strategic decision-making, forecasting future results, and evaluating current performance. Management believes that the non-GAAP financial metrics provide a more consistent comparison of our operating results and trends for the periods presented. These non-GAAP financial measures are used in addition to and in conjunction with results presented in accordance with GAAP and reflect an additional way of viewing aspects of our operations that, when viewed with our GAAP results, provides a more complete understanding of factors and trends affecting our business. These non-GAAP measures should be considered as a supplement to, and not as a substitute for, or superior to, the corresponding measures calculated in accordance with GAAP.

In accordance with our long-term objectives, we set certain objectives relating to these key financial performance metrics that we strive to meet. As of December 31, 2019, we achieved all of our established objectives identified as described below. However, no assurance can be given that we will continue to meet our financial performance metric targets. See Item 1A. Risk Factors and Item 7A. Quantitative and Qualitative Disclosures About Market Risk. The objectives reflect our current aspirations in light of our present plans and existing circumstances. We may change these objectives from time to time in the future to address new opportunities or changing circumstances as appropriate to meet our long-term needs and those of our shareholders.

A reconciliation of non-GAAP historical financial measures to the most comparable GAAP measure is provided in the tables below.

Adjusted ROIC: Adjusted ROIC is a financial performance metric ratio not defined under GAAP, and it should be considered in addition to, and not as a substitute for, GAAP financial measures. The Company defines Adjusted ROIC as Adjusted operating income, net of tax, divided by Average current year and prior year Total net debt and equity. Similarly named measures may not be defined and calculated by other companies in the same manner. The Company believes Adjusted ROIC is meaningful to investors as it focuses on profitability and value-creating potential, taking into account the amount of capital invested. The most comparable measure calculated using components determined in accordance with GAAP is Return on Invested Capital, which the Company defines as Net income, divided by Average current year and prior year Total net debt and equity. The calculations for Return on Invested Capital and Adjusted ROIC are provided in the table below.

Return on Invested Capital

(dollars in millions)	2019	2018
Net income (a)	$ 424	$ 454
Adjusted for:		
Provision for income taxes (iii)	158	167
Other, non-operating expense (income), net	1	(4)
Financing cost, net	81	86
Restructuring/impairment charges (i)	57	64
Acquisition/integration costs	3	—
Other matters (ii)	(19)	—
Income taxes (at effective rates of 26.3% and 25.8%, respectively) (iii)	(185)	(198)
Adjusted operating income, net of tax (b)	520	569
Short-term debt	82	169
Long-term debt	1,766	1,931
Less: Cash and cash equivalents	(264)	(327)
Short-term investments	(4)	(7)
Total net debt	1,580	1,766
Total equity and Share-based payments subject to redemption	2,772	2,445
Total net debt and equity	$4,352	$4,211
Average current and prior year Total net debt and equity (c)	$4,282	$4,212
Return on Invested Capital (a ÷ c)	9.7 %	10.8 %
Adjusted Return on Invested Capital (b ÷ c)	12.1 %	13.5 %

(i) During the year ended December 31, 2019, the Company recorded $57 million of pre-tax restructuring/impairment charges. During the year ended December 31, 2019, the Company recorded $57 million of pre-tax restructuring charges, including $29 million of net restructuring related expenses as part of the Cost Smart cost of sales program and $28 million of employee-related and other costs, including professional services, associated with our Cost Smart SG&A program. During the year ended December 31, 2018, we recorded $64 million of pre-tax restructuring/impairment charges. During the year ended December 31, 2018, we recorded $64 million of pre-tax restructuring charges consisting of $49 million of restructuring expenses as part of the Cost Smart cost of sales program, $11 million of restructuring charges related to the Cost Smart SG&A program, and $4 million of restructuring charges related to other projects.

(ii) During the year ended December 31, 2019, we recorded a $22 million pre-tax benefit for the favorable judgement received by Ingredion from the Federal Court of Appeals in Brazil related to certain indirect taxes collected in prior years. As a result of the decision, the Company expects to be entitled to credits against its Brazilian federal tax payments in 2020 and future years. The benefit recorded represents the Company's current estimate of the credits and interest due from the favorable decision in accordance with ASC 450, Contingencies. This benefit was offset by other adjusted charges during the period.

(iii) The effective income tax rate for the years ended December 31, 2019 and 2018 was 27.1 percent and 26.1 percent, respectively. For purposes of this calculation we exclude the provision for income taxes from the calculation and subsequently add back income taxes for adjusted operating income using the adjusted effective income tax rate. The adjusted effective income tax rate is calculated by removing the tax impact for the identified adjusted items below.

	Year Ended December 31, 2019			Year Ended December 31, 2018		
(dollars in millions)	Income before Income Taxes	Provision for Income Taxes	Effective Income Tax Rate	Income before Income Taxes	Provision for Income Taxes	Effective Income Tax Rate
As reported	$582	$158	27.1%	$621	$167	26.9%
Add back (deduct):						
Impairment/restructuring charges	57	13		64	13	
Acquisition/integration costs	3	1		—	—	
Insurance settlement	—	—		—	(3)	
Other matters	(19)	(8)		—	—	
Adjusted non-GAAP	$623	$164	26.3%	$685	$177	25.8%

Our long-term objective is to maintain an Adjusted ROIC in excess of 12 percent. For the year ended December 31, 2019, we achieved an Adjusted ROIC of 12.1 percent as compared to 13.5 percent as of December 31, 2018. The decrease in Adjusted ROIC percentage is primarily a result of lower adjusted operating income, net of tax in 2019.

Net Debt to Adjusted EBITDA: Net Debt to Adjusted EBITDA is a financial performance ratio that is not defined under GAAP, and it should be considered in addition to, and not as a substitute for, GAAP financial measures. The Company defines this measure as Short-term and Long-term debt less Cash and cash equivalents and Short-term investments, divided by Adjusted EBITDA. Similarly named measures may not be defined and calculated by other companies in the same manner. The Company believes Total net debt to Adjusted EBITDA is meaningful to investors as it focuses on the Company's leverage on a comparable EBITDA basis, and helps investors better understand the time required to pay back the Company's outstanding debt. The most comparable ratio calculated using components determined in accordance with GAAP is Total net debt to Income before income taxes, calculated as Short-term and Long-term debt less Cash and cash equivalents and Short-term investments, divided by Income before income taxes. The calculations for the ratio of Total net debt to Income before income taxes and for the ratio of Total net debt to Adjusted EBITDA are provided in the table below.

Net Debt to Adjusted EBITDA Ratio

(dollars in millions)	2019	2018
Short-term debt	$ 82	$ 169
Long-term debt	1,766	1,931
Less: Cash and cash equivalents	(264)	(327)
Short-term investments	(4)	(7)
Total net debt (a)	1,580	1,766
Income before income taxes (b)	582	621
Adjusted for:		
Depreciation and amortization	220	247
Financing cost, net	81	86
Restructuring/impairment [i]	44	30
Acquisition/integration costs	3	—
Other matters [ii]	(19)	—
Adjusted EBITDA (c)	$ 911	$ 984
Net Debt to Income before income tax ratio (a ÷ b)	2.7	2.8
Net Debt to Adjusted EBITDA ratio (a ÷ c)	1.7	1.8

[i] 2019 Restructuring/impairment charges are reduced by $13 million to exclude the accelerated depreciation primarily related to the Lane Cove, Australia production facility closure. 2018 Restructuring/impairment charges are reduced above by $34 million to exclude the accelerated depreciation from cessation of wet-milling at the Stockton, California plant. The accelerated depreciation is included in Depreciation and amortization above, and to include in restructuring/impairment charge would include the charge twice. See Note 5 for reconciliation to the $57 million and $64 million restructuring charges recorded in 2018 and 2019, respectively.

[ii] During the year ended December 31, 2019, we recorded a $22 million pre-tax benefit for the favorable judgement received by Ingredion from the Federal Court of Appeals in Brazil related to certain indirect taxes collected in prior years. As a result of the decision, the Company expects to be entitled to credits against its Brazilian federal tax payments in 2020 and future years. The benefit recorded represents the Company's current estimate of the credits and interest due from the favorable decision in accordance with ASC 450, Contingencies. This benefit was offset by other adjusted charges during the period.

Our long-term objective is to maintain a ratio of Net Debt to Adjusted EBITDA of less than 2.25. As of December 31, 2019, the ratio was 1.7, which is a decrease from 1.8 as of December 31, 2018. The decrease primarily reflects our reduction of net debt in 2019.

Net Debt to Capitalization percentage: The Company defines Net Debt to Capitalization percentage as Total net debt, defined as Short-term and Long-term debt less Cash and cash equivalents and Short-term investments, divided by Total net debt and capital, defined as the sum of Deferred income tax liabilities, Share-based payments subject to redemption, Total equity, and Total net debt. The calculations for Net Debt to Capitalization percentage are provided in the table below.

Net Debt to Capitalization percentage

(dollars in millions)	2019	2018
Short-term debt	$ 82	$ 169
Long-term debt	1,766	1,931
Less: Cash and cash equivalents	(264)	(327)
Short-term investments	(4)	(7)
Total net debt (a)	1,580	1,766
Deferred income tax liabilities	195	189
Share-based payments subject to redemption	31	37
Total equity	2,741	2,408
Total capital	2,967	2,634
Total net debt and capital (b)	$4,547	$4,400
Net Debt to Capitalization percentage (a ÷ b)	34.7%	40.1%

Our long-term objective is to maintain a Net Debt to Capitalization percentage in the range of 32 to 35 percent. As of December 31, 2019, our Net Debt to Capitalization percentage was 34.7 percent, down from 40.1 percent as of December 31, 2018, primarily reflecting our reduction of Total net debt in 2019.

Critical Accounting Policies and Estimates

Our consolidated financial statements have been prepared in accordance with GAAP. The preparation of these financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements, as well as the reported amounts of revenues and expenses during the reporting period. Actual results may differ from these estimates under different assumptions and conditions.

We have identified below the most critical accounting policies upon which the financial statements are based and that involve our most complex and subjective decisions and assessments. Our senior management has discussed the development, selection and disclosure of these policies with members of the Audit Committee of our Board of Directors. These accounting policies are provided in the Notes to the Consolidated Financial Statements. The discussion that follows should be read in conjunction with the consolidated financial statements and related notes included elsewhere in this Annual Report on Form 10-K.

Business Combinations: Our acquisition of Western Polymer in 2019 was accounted for in accordance with Accounting Standards Codification ("ASC") Topic 805, *Business Combinations*. In purchase accounting, identifiable assets acquired and liabilities assumed, are recognized at their estimated fair values at the acquisition date, and any remaining purchase price is recorded as goodwill. In determining the fair values of assets acquired and liabilities assumed, we make significant estimates and assumptions, particularly with respect to long-lived tangible and intangible assets. Critical estimates used in valuing tangible and intangible assets include, but are not limited to, future expected cash flows, discount rates, market prices and asset lives. Although our estimates of fair value are based upon assumptions believed to be reasonable, actual results may differ. See Note 3 of the Notes to the Consolidated Financial Statements for more information related to our acquisitions.

Property, Plant and Equipment and Definite-Lived Intangible Assets: We have substantial investments in property, plant and equipment ("PP&E") and definite-lived intangible assets. For PP&E, we recognize the cost of depreciable assets in operations over the estimated useful life of the assets and evaluate the recoverability of these assets whenever events or changes in circumstances indicate that the carrying value of the assets may not be recoverable. For definite-lived intangible assets, we recognize the cost of these amortizable assets in operations over their estimated useful life and evaluate the recoverability of the assets whenever events or changes in circumstances indicate that the carrying value of the assets may not be recoverable. The carrying values of PP&E and definite-lived intangible assets at December 31, 2019, were $2.3 billion and $259 million, respectively.

In assessing the recoverability of the carrying value of PP&E and definite-lived intangible assets, we may have to make projections regarding future cash flows. In developing these projections, we make a variety of important assumptions and estimates that have a significant impact on our assessments of whether the carrying values of PP&E and definite-lived intangible assets should be adjusted to reflect impairment. Among these are assumptions and estimates about the future growth and profitability of the related business unit or asset group, anticipated future economic, regulatory and political conditions in the business unit's or asset group's market and estimates of terminal or disposal values. No impairment charges for PP&E or definite-lived intangible assets were recorded in 2019.

Through our continual assessment to optimize our operations, we address whether there is a need for additional consolidation of manufacturing facilities or to redeploy assets to areas where we can expect to achieve a higher return on our investment. This review may result in the closing or selling of certain of our manufacturing facilities. The closing or selling of any of the facilities could have a significant negative impact on the results of operations in the year that the closing or selling of a facility occurs.

Even though it was determined that there was no long-lived asset impairment as of December 31, 2019, the future occurrence of a potential indicator of impairment, such as a significant adverse change in the business climate that would require a change in our assumptions or strategic decisions made in response to economic or competitive conditions, could require us to perform tests of recoverability in the future.

Indefinite-Lived Intangible Assets and Goodwill: We have certain indefinite-lived intangible assets in the form of trade names and trademarks. Our methodology for allocating the purchase price of acquisitions is based on established valuation techniques that reflect the consideration of a number of factors, including valuations performed by third-party appraisers when appropriate. Goodwill is measured as the excess of the cost of an acquired business over the fair value assigned to identifiable assets acquired and liabilities assumed. We have identified several reporting units for which cash flows are determinable and to which goodwill may be allocated. Goodwill is either assigned to a specific reporting unit or allocated between reporting units based on the relative excess fair value of each reporting unit. The carrying value of indefinite-lived intangible assets and goodwill at December 31, 2019, was $178 million and $801 million, respectively, compared to $178 million and $791 million, respectively, a year ago.

We assess indefinite-lived intangible assets and goodwill for impairment annually (or more frequently if impairment indicators arise). We perform this annual impairment assessment as of July 1 each year. In testing indefinite-lived intangible assets for impairment, we first assess qualitative factors to determine whether it is more-likely-than-not that the fair value of an indefinite-lived intangible asset is impaired. After assessing the qualitative factors, if the we determine that it is more-likely-than-not that the fair value of an indefinite-lived intangible asset is greater than its carrying amount, then we would not be required to compute the fair value of the indefinite-lived intangible asset. In the event the qualitative assessment leads us to conclude otherwise, then we would be required to determine the fair value of the indefinite-lived intangible assets and perform a quantitative impairment test in accordance with ASC subtopic 350-30. In performing the qualitative analysis, we consider various factors including net sales derived from these intangibles and certain market and industry conditions. Based on the results of our assessment, we concluded that as of July 1, 2019, there were no impairments in our indefinite-lived intangible assets.

In testing goodwill for impairment, we first assess qualitative factors in determining whether it is more-likely-than-not that the fair value of a reporting unit is less than its carrying amount. After assessing the qualitative factors, if we determine that it is

more-likely-than-not that the fair value of a reporting unit is greater than its carrying amount, then we do not perform the two-step impairment test. If we conclude otherwise, then we perform the first step of the two-step impairment test as described in ASC Topic 350. In the first step ("Step One"), the fair value of the reporting unit is compared to its carrying value. If the fair value of the reporting unit exceeds the carrying value of its net assets, goodwill is not considered impaired and no further testing is required. If the carrying value of the net assets exceeds the fair value of the reporting unit, a second step ("Step Two") of the impairment assessment is performed in order to determine the implied fair value of a reporting unit's goodwill.

In performing our impairment tests for goodwill, management makes certain estimates and judgments. These estimates and judgments include the identification of reporting units and the determination of fair values of reporting units, which management estimates using both discounted cash flow analyses and an analysis of market multiples. Significant assumptions used in the determination of fair value for reporting units include estimates for discount and long-term net sales growth rates, in addition to operating and capital expenditure requirements. We considered changes in discount rates for the reporting units based on current market interest rates and specific risk factors within each geographic region. We also evaluated qualitative factors, such as legal, regulatory, or competitive forces, in estimating the impact to the fair value of the reporting units noting no significant changes that would result in any reporting unit failing the impairment test. Changes in assumptions concerning projected results or other underlying assumptions could have a significant impact on the fair value of the reporting units in the future. Based on the results of the annual assessment, we concluded that as of July 1, 2019, there were no impairments in our reporting units.

Income Taxes: We recognize the expected future tax consequences of temporary differences between book and tax bases of assets and liabilities and provide a valuation allowance when deferred tax assets are not more likely than not to be realized. We have considered forecasted earnings, future taxable income, the mix of earnings in the jurisdictions in which we operate, and prudent and feasible tax planning strategies in determining the need for a valuation allowance. In the event we were to determine that we would not be able to realize all or part of our deferred tax assets in the future, we would increase the valuation allowance and make a corresponding charge to earnings in the period in which we make such determination. Likewise, if we later determine that we are more likely than not to realize the deferred tax assets, we would reverse the applicable portion of the previously provided valuation allowance. We had a valuation allowance of $29 million and $31 million at December 31, 2019, and 2018, respectively. The decrease in the valuation allowance from 2019 to 2018 is primarily attributable to the devaluation of the Argentina Peso offset by an increased allowance on the net deferred tax assets (including net operating losses) in Argentina.

We are regularly audited by various taxing authorities, and sometimes these audits result in proposed assessments where the ultimate resolution may result in us owing additional taxes. We establish reserves when, despite our belief that our tax return positions are appropriate and supportable under local tax law, we believe there is uncertainty with respect to certain positions and we may not succeed in realizing the tax benefits. We evaluate these unrecognized tax benefits and related reserves each quarter and adjust the reserves and the related interest and penalties in light of changing facts and circumstances regarding the probability of realizing tax benefits, such as the settlement of a tax audit or the expiration of a statute of limitations. We believe the estimates and assumptions used to support our evaluation of tax benefit realization are reasonable. However, final determinations of prior-year tax liabilities, either by settlement with tax authorities or expiration of statutes of limitations, could be materially different than estimates reflected in assets and liabilities and historical income tax provisions. The outcome of these final determinations could have a material effect on our income tax provision, net income, or cash flows in the period in which that determination is made. We believe our tax positions comply with applicable tax law and that we have adequately provided for any known tax contingencies. Our liability for unrecognized tax benefits, excluding interest and penalties at December 31, 2019 and 2018 was $22 million and $30 million, respectively.

No foreign withholding taxes, state income taxes, and federal and state taxes on foreign currency gains and losses have been provided on approximately $3.0 billion of undistributed earnings of foreign earnings that are considered indefinitely reinvested. If future events, including changes in tax law, material changes in estimates of cash, working capital, and long-term investment requirements, necessitate that these earnings be distributed, an additional provision for income taxes may apply, which could materially affect our future effective tax rate and cash flows.

Retirement Benefits: We and our subsidiaries sponsor noncontributory defined benefit pension plans (qualified and non-qualified) covering a substantial portion of employees in the U.S. and Canada, and certain employees in other foreign countries. We also provide healthcare and life insurance benefits for retired employees in the U.S., Canada, and Brazil. In order to measure the expense and obligations associated with these benefits, our management must make a variety of estimates and assumptions including discount rates, expected

long-term rates of return, rate of compensation increases, employee turnover rates, retirement rates, mortality rates and other factors. We review our actuarial assumptions on an annual basis as of December 31 (or more frequently if a significant event requiring remeasurement occurs) and modify our assumptions based on current rates and trends when it is appropriate to do so. The effects of modifications are recognized immediately on the balance sheet, but are generally amortized into operating earnings over future periods, with the deferred amount recorded in accumulated other comprehensive income. We believe the assumptions utilized in recording our obligations under our plans, which are based on our experience, market conditions, and input from our actuaries, are reasonable. We use third-party specialists to assist management in evaluating our assumptions and estimates, as well as to appropriately measure the costs and obligations associated with our retirement benefit plans. Had we used different estimates and assumptions with respect to these plans, our retirement benefit obligations and related expense could vary from the actual amounts recorded, and such differences could be material. Additionally, adverse changes in investment returns earned on pension assets and discount rates used to calculate pension and postretirement benefit related liabilities or changes in required funding levels may have an unfavorable impact on future expense and cash flow. Net periodic pension and postretirement benefit cost for all of our plans was $10 million in 2019 and $6 million in 2018.

We determine our assumption for the discount rate used to measure year-end pension and postretirement obligations based on high-quality fixed-income investments that match the duration of the expected benefit payments, which has been benchmarked using a long-term, high-quality AA corporate bond index. We use a full yield curve approach in the estimation of the service and interest cost components of benefit cost by applying the specific spot rates along the yield curve used in the determination of the benefit obligation to the relevant projected cash flows. The weighted average discount rate used to determine our obligations under U.S. pension plans as of December 31, 2019 and 2018 was 3.34 percent and 4.38 percent, respectively. The weighted average discount rate used to determine our obligations under non-U.S. pension plans as of December 31, 2019 and 2018 was 3.55 percent and 4.33 percent, respectively. The weighted average discount rate used to determine our obligations under our postretirement plans as of December 31, 2019 and 2018 was 4.18 percent and 5.24 percent, respectively.

A one percentage point decrease in the discount rates at December 31, 2019, would have increased the accumulated benefit obligation and projected benefit obligation by the following amounts (millions):

U.S. Pension Plans	
Accumulated benefit obligation	$49
Projected benefit obligation	50
Non-U.S. Pension Plans	
Accumulated benefit obligation	$31
Projected benefit obligation	34
Postretirement Plans	
Accumulated benefit obligation	$ 9

We changed our investment approach and related asset allocation for the U.S. and Canada plans during 2016 to a liability-driven investment approach by which a higher proportion of investments will be in interest-rate sensitive investments (fixed income) under an active-management approach as compared to the prior passive investment strategy. The approach seeks to protect the current funded status of the plans from market volatility with a greater asset allocation to interest-rate sensitive assets. The greater allocation to interest-rate sensitive assets is expected to reduce volatility in plan funded status by more closely matching movements in asset values to changes in liabilities.

Our current investment policy for our pension plans is to balance risk and return through diversified portfolios of actively-managed equity index instruments, fixed income index securities, and short-term investments. Maturities for fixed income securities are managed such that sufficient liquidity exists to meet near-term benefit payment obligations. The asset allocation is reviewed regularly and portfolio investments are rebalanced to the targeted allocation when considered appropriate or to raise sufficient liquidity when necessary to meet near-term benefit payment obligations. For 2020 net periodic pension cost, we assumed an expected long-term rate of return on assets, which is based on the fair value of plan assets, of 5.30 percent for U.S. plans and approximately 3.86 percent for Canadian plans. In developing the expected long-term rate of return assumption on plan assets, which consist mainly of U.S. and Canadian debt and equity securities, management evaluated historical rates of return achieved on plan assets and the asset allocation of the plans, input from our independent actuaries and investment consultants, and historical trends in long-term inflation rates. Projected return estimates made by such consultants are based upon broad equity and bond indices. We also maintain several funded pension plans in other international locations. The expected returns on plan assets for these plans are determined based on each plan's investment approach and asset allocations. A hypothetical 25 basis point decrease in the expected long-term rate of return assumption would increase 2020 net periodic pension cost for the U.S. and Canada plans by less than $1 million each.

Healthcare cost trend rates are used in valuing our postretirement benefit obligations and are established based upon actual health care cost trends and consultation with actuaries and benefit providers. At December 31, 2019, the health care cost trend rate assumptions for the next year for the U.S., Canada, and Brazil plans were 6.00 percent, 5.83 percent and 7.38 percent, respectively.

The sensitivities of service cost and interest cost and year-end benefit obligations to changes in healthcare cost trend rates (both initial and ultimate rates) for the postretirement benefit plans as of December 31, 2019, are as follows:

(in millions)	2019
One-percentage point increase in trend rates:	
Increase in service cost and interest cost components	$—
Increase in year-end benefit obligations	6
One-percentage point decrease in trend rates:	
Decrease in service cost and interest cost components	—
Decrease in year-end benefit obligations	5

See Note 10 of the Notes to the Consolidated Financial Statements for more information related to our benefit plans.

New Accounting Standards

In January 2017, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2017-04, *Intangibles – Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment*. This Update simplifies the subsequent measurement of goodwill as the Update eliminates Step 2 from the goodwill impairment test. Instead, under the Update, an entity should perform its annual, or interim, goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount. An entity should then recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit's fair value, with the loss recognized not to exceed the total amount of goodwill allocated to that reporting unit. This Update is effective for annual periods beginning after December 15, 2019, with early adoption permitted. We will adopt ASU 2017-04 at the beginning of our 2020 fiscal year and the Update will not have a material impact on our Consolidated Financial Statements upon adoption.

In June 2016, the FASB issued ASU No. 2016-13, *Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*, which requires us to measure and recognize expected credit losses for financial assets held and not accounted for at fair value through net income. This Update is effective for annual periods beginning after December 15, 2019, with early adoption permitted. We will adopt ASU 2016-13 at the beginning of our 2020 fiscal year and the Update will not have a material impact on our Consolidated Financial Statements upon adoption.

Forward-Looking Statements

This Form 10-K contains or may contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. The Company intends these forward-looking statements to be covered by the safe harbor provisions for such statements.

Forward-looking statements include, among others, any statements regarding the Company's prospects or future financial condition, earnings, revenues, tax rates, capital expenditures, cash flows, expenses or other financial items, any statements concerning the Company's prospects or future operations, including management's plans or strategies and objectives therefor, and any assumptions, expectations or beliefs underlying the foregoing.

These statements can sometimes be identified by the use of forward looking words such as "may," "will," "should," "anticipate," "assume," "believe," "plan," "project," "estimate," "expect," "intend," "continue," "pro forma," "forecast," "outlook," "propels," "opportunities," "potential," "provisional," or other similar expressions or the negative thereof. All statements other than statements of historical facts in this report or referred to in or incorporated by reference into this report are "forward-looking statements."

These statements are based on current circumstances or expectations, but are subject to certain inherent risks and uncertainties, many of which are difficult to predict and are beyond our control. Although we believe our expectations reflected in these forward-looking statements are based on reasonable assumptions, investors are cautioned that no assurance can be given that our expectations will prove correct.

Actual results and developments may differ materially from the expectations expressed in or implied by these statements, based on various factors, including changing consumption preferences relating to high fructose corn syrup and other raw materials; the effects of global economic conditions and the general political, economic, business, and market conditions that affect customers and consumers in the various geographic regions and countries in which we buy our raw materials or manufacture or sell our products, including, particularly, economic, currency and political conditions in South America and economic and political conditions in Europe, and the impact these factors may have on our sales volumes, the pricing of our products and our ability to collect our receivables from customers; future financial performance of major industries which we serve and from which we derive a significant portion of our sales, including, without limitation, the food, beverage, paper and corrugated, and brewing industries; the uncertainty of acceptance of products developed through genetic modification and biotechnology; our ability to develop or acquire new products and services at rates or of qualities sufficient to meet expectations; changes in government policy, law or regulations and

costs of legal compliance, including with respect to environmental compliance; increased competitive and/or customer pressure in the corn-refining industry and related industries, including with respect to the markets and prices for our primary products and our co-products, particularly corn oil; the availability of raw materials, including potato starch, tapioca, gum Arabic and the specific varieties of corn upon which some of our products are based, and our ability to pass along potential increases in the cost of corn or other raw materials to customers; energy costs and availability, including energy issues in Pakistan; our ability to contain costs, achieve budgets and realize expected synergies, including with respect to our ability to complete planned maintenance and investment projects on time and on budget, achieving expected savings under our Cost Smart program as well as with respect to freight and shipping costs; the behavior of financial and capital markets, including with respect to foreign currency fluctuations, fluctuations in interest and exchange rates and market volatility and the associated risks of hedging against such fluctuations; our ability to successfully identify and complete acquisitions or strategic alliances on favorable terms as well as our ability to successfully integrate acquired businesses or implement and maintain strategic alliances and achieve anticipated synergies with respect to all of the foregoing; operating difficulties and security breaches with respect to information technology systems, processes and sites, as well as boiler reliability; our ability to maintain satisfactory labor relations; the impact that weather, natural disasters, war or similar acts of hostility, acts and threats of terrorism, the outbreak or continuation of pandemics and other significant events could have on our business; tariffs, quotas, duties, taxes and income tax rates, particularly United States tax reform enacted in 2017; and our ability to raise funds at reasonable rates.

Our forward-looking statements speak only as of the date on which they are made and we do not undertake any obligation to update any forward-looking statement to reflect events or circumstances after the date of the statement as a result of new information or future events or developments. If we do update or correct one or more of these statements, investors and others should not conclude that we will make additional updates or corrections. For a further description of these and other risks, see Item 1A. Risk Factors above and our subsequent reports on Form 10-Q and Form 8-K.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Interest Rate Exposure: We are exposed to interest rate risk on our variable rate debt and price risk on our fixed rate debt. As of December 31, 2019, approximately 62 percent or $1.2 billion of our total debt is fixed rate debt and 38 percent or approximately $697 million of our total debt is variable rate debt subject to changes in short-term rates, which could affect our interest costs. We assess market risk based on changes in interest rates utilizing a sensitivity analysis that measures the potential change in earnings, fair values and cash flows based on a hypothetical 1 percentage point change in interest rates at December 31, 2019. A hypothetical increase of 1 percentage point in the weighted average floating interest rate would increase our annual interest expense by approximately $3 million. See Note 7 of the Notes to the Consolidated Financial Statements for further information.

At December 31, 2019 and 2018, the carrying and fair values of long-term debt were as follows:

(in millions)	2019 Carrying amount	2019 Fair value	2018 Carrying amount	2018 Fair value
3.2% senior notes due October 1, 2026	$ 497	$ 491	$ 496	$ 462
4.625% senior notes, due November 1, 2020	400	399	399	409
6.625% senior notes, due April 15, 2037	253	246	254	295
5.62% senior notes, due March 25, 2020	200	200	200	205
Term loan credit agreement due April 25, 2019	—	—	165	165
Term loan credit agreement due April 12, 2021	405	405	—	—
U.S. revolving credit facility	10	10	418	418
Fair value adjustment related to hedged fixed rate debt instruments	1	—	(1)	—
Total long-term debt	$1,766	$1,751	$1,931	$1,954

A hypothetical change of 1 percentage point in interest rates would change the fair value of our fixed rate debt at December 31, 2019, by approximately $71 million. Since we have no current plans to repurchase our outstanding fixed rate instruments before their maturities, the impact of market interest rate fluctuations on our long-term debt is not expected to have a significant effect on our consolidated financial statements.

We have an interest rate swap agreement that effectively converts the interest rates on $200 million of our $400 million 4.625% senior notes due November 1, 2020, to variable rates. This swap agreement calls for us to receive interest at the fixed coupon rate of the respective notes and to pay interest at a variable rate based on the six-month U.S. dollar LIBOR rate plus a spread. We have designated this interest rate swap agreement as a hedge of the changes in fair value of the underlying debt obligations attributable to changes in interest rates and account for it as a fair value hedge. The fair value of the interest rate swap agreements was a $1 million loss at December 31, 2019, and is reflected in the Consolidated Balance Sheet within Other assets, with an offsetting amount recorded in long-term debt to adjust the carrying amount of the hedged debt obligations.

Raw Material, Energy, and Other Commodity Exposure: Our finished products are made primarily from corn. In North America, we sell a large portion of finished products at firm prices established in supply contracts typically lasting for periods of up to one year. In order to minimize the effect of volatility in the cost of corn related to these firm-priced supply contracts, we enter into corn futures contracts or take other hedging positions in the corn futures market. These contracts typically mature within one year. At expiration, we settle the derivative contracts at a net amount equal to the difference between the then-current price of corn and the futures contract price. While these hedging instruments are subject to fluctuations in value, changes in the value of the underlying exposures we are hedging generally offset such fluctuations. While the corn futures contracts or other hedging positions are intended to minimize the volatility of corn costs on operating profits, occasionally the hedging activity can result in losses, some of which may be material. Outside of North America, sales of finished products under long-term, firm-priced supply contracts are not material.

Energy costs represent approximately 9 percent of our cost of sales. The primary use of energy is to create steam in the production process and to dry product. We consume coal, natural gas, electricity, wood, and fuel oil to generate energy. The market prices for these commodities vary depending on supply and demand, world economies and other factors. We purchase these commodities based on our anticipated usage and the future outlook for these costs. We cannot assure that we will be able to purchase these commodities at prices that we can adequately pass on to customers to sustain or increase profitability. We use derivative financial instruments, such as over-the-counter natural gas swaps, to hedge portions of our natural gas costs generally over the following 12 to 24 months, primarily in our North American operations.

At December 31, 2019, we had outstanding futures and option contracts that hedged the forecasted purchase of approximately 98 million bushels of corn. We also had outstanding swap and option contracts that hedged the forecasted purchase of approximately 30 million mmbtu's of natural gas at December 31, 2019. Based on our overall commodity hedge position at December 31, 2019, a hypothetical 10 percent decline in market prices applied to the fair value of the instruments would result in a charge to other comprehensive income of approximately $1 million, net of income tax benefit. Any change in the fair value of the contracts, real or hypothetical, would be substantially offset by an inverse change in the value of the underlying hedged item.

Foreign Currencies: Due to our global operations, we are exposed to fluctuations in foreign currency exchange rates. As a result, we have exposure to translational foreign exchange risk when our foreign operation results are translated to U.S. dollars and to transactional foreign exchange risk when transactions not denominated in the functional currency of the operating unit are revalued.

We selectively use derivative instruments such as forward contracts, currency swaps and options to manage transactional foreign exchange risk. Based on our overall foreign currency transactional exposure at December 31, 2019, we estimate that a hypothetical 10 percent decline in the value of the U.S. dollar would have resulted in a transactional foreign exchange gain of approximately $4 million. At December 31, 2019, our accumulated other comprehensive loss account included in the equity section of our Consolidated Balance Sheet includes a cumulative translation loss of approximately $1.1 billion. The aggregate net assets of our foreign subsidiaries where the local currency is the functional currency approximated $1.4 billion at December 31, 2019. A hypothetical 10 percent decline in the value of the U.S. dollar relative to foreign currencies would have resulted in a reduction to our cumulative translation loss and a credit to other comprehensive income of approximately $157 million.

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
Ingredion Incorporated:

Opinions on the Consolidated Financial Statements and Internal Control Over Financial Reporting

We have audited the accompanying consolidated balance sheets of Ingredion Incorporated and subsidiaries (the Company) as of December 31, 2019 and 2018, the related consolidated statements of income, comprehensive income (loss), equity and redeemable equity, and cash flows for each of the years in the three-year period ended December 31, 2019, and the related notes (collectively, the consolidated financial statements). We also have audited the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2019, in conformity with U.S. generally accepted accounting principles. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019 based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

Change in Accounting Principle

As discussed in Note 2 to the consolidated financial statements, the Company has changed its method of accounting for leases effective January 1, 2019 due to the adoption of Accounting Standards Update 2016-02, *Leases (Topic 842)*, and its subsequent amendments.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's consolidated financial statements and an opinion on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgment. The communication of a critical audit matter does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Evaluation of the pension and other postretirement employee benefit obligations (OPEB)

As discussed in Note 10 to the consolidated financial statements, the Company's estimated pension benefit obligations totaled $641 million as of December 31, 2019. The Company's OPEB includes plans in the US, Brazil and Canada, which are fully unfunded liabilities. As of December 31, 2019, the Company had a net liability of $69 million related to the Company's other postretirement benefit plans. The pension and OPEB obligations are measured at the actuarial present value of the vested benefits to which employees are currently entitled based on the employee's expected date of separation or retirement. The determination of the Company's pension and OPEB obligations is dependent, in part, on the selection of certain estimates and actuarial assumptions, including discount rates.

We identified the evaluation of the pension and OPEB obligations to be a critical audit matter. Significant auditor judgment was required to evaluate the actuarial models and methodology used by the Company to determine the obligations and to evaluate the discount rates used. Small changes in the discount rates would impact the measurement of the pension and OPEB obligations.

The primary procedures we performed to address this critical audit matter included the following. We tested certain internal controls over the Company's pension and OPEB obligations process, including controls related to the assessment of the actuarial models and the development of the discount rates. We involved an actuarial professional with specialized skill and knowledge, who assisted in:

- understanding and assessing the actuarial models and methodology used by the Company to determine the obligations;
- the evaluation of the Company's discount rates, by assessing changes in the discount rates from the prior year and comparing it to the change in published indices, and evaluating the discount rates based on the pattern of cash flows; and
- the evaluation of the selected yield curve, the consistency of the yield curve with the prior year, and the spot rates, to further assess the discount rates.

/s/ KPMG LLP

We have served as the Company's auditor since 1997.

Chicago, IL

February 19, 2020

Consolidated Statements of Income

(in millions, except per share amounts)	Year Ended December 31, 2019	2018	2017
Net sales	$6,209	$6,289	$6,244
Cost of sales	4,897	4,921	4,772
Gross profit	1,312	1,368	1,472
Operating expenses	610	611	616
Other income, net	(19)	(10)	(18)
Restructuring/impairment charges	57	64	38
Operating income	664	703	836
Financing costs, net	81	86	73
Other, non-operating expense (income), net	1	(4)	(6)
Income before income taxes	582	621	769
Provision for income taxes	158	167	237
Net income	424	454	532
Less: Net income attributable to non-controlling interests	11	11	13
Net income attributable to Ingredion	$ 413	$ 443	$ 519
Weighted average common shares outstanding:			
Basic	66.9	70.9	72.0
Diluted	67.4	71.8	73.5
Earnings per common share of Ingredion:			
Basic	$ 6.17	$ 6.25	$ 7.21
Diluted	6.13	6.17	7.06

See the Notes to the Consolidated Financial Statements.

Consolidated Statements of Comprehensive Income (Loss)

(in millions)	2019	2018	2017
Net income	$424	$ 454	$532
Other comprehensive income:			
(Losses) gains on cash flow hedges, net of income tax effect of $5, $2, and $6, respectively	(14)	6	(10)
Losses on cash flow hedges reclassified to earnings, net of income tax effect of $4, $2, and $2, respectively	10	4	4
Actuarial gains (losses) on pension and other postretirement obligations, settlements and plan amendments, net of income tax effect of $2, $5, and $2, respectively	9	(15)	6
Gains related to pension and other postretirement obligations reclassified to earnings, net of income tax effect of $ — , $ — , and $1, respectively	—	—	(1)
Unrealized gains on investments, net of income tax effect of $ — , $ — , and $1, respectively	—	—	2
Currency translation adjustment	(9)	(129)	57
Comprehensive income	420	320	590
Less: Comprehensive income attributable to non-controlling interests	9	3	13
Comprehensive income attributable to Ingredion	$411	$ 317	$577

See the Notes to the Consolidated Financial Statements.

Consolidated Balance Sheets

(in millions, except share and per share amounts)	As of December 31, 2019	2018
Assets		
Current assets:		
Cash and cash equivalents	$ 264	$ 327
Short-term investments	4	7
Accounts receivable, net	977	951
Inventories	861	824
Prepaid expenses	54	29
Total current assets	2,160	2,138
Property, plant and equipment, net of accumulated depreciation of $3,056 and $2,915, respectively	2,306	2,198
Goodwill	801	791
Other intangible assets, net of accumulated amortization of $197 and $167, respectively	437	460
Operating lease assets	151	—
Deferred income tax assets	13	10
Other assets	172	131
Total assets	$ 6,040	$ 5,728
Liabilities and equity		
Current liabilities:		
Short-term borrowings	$82	$169
Accounts payable	504	452
Accrued liabilities	381	325
Total current liabilities	967	946
Non-current liabilities	220	217
Long-term debt	1,766	1,931
Non-current operating lease liabilities	120	—
Deferred income tax liabilities	195	189
Share-based payments subject to redemption	31	37
Ingredion stockholders' equity:		
Preferred stock — authorized 25,000,000 shares — $0.01 par value, none issued	—	—
Common stock — authorized 200,000,000 shares — $0.01 par value, 77,810,875 issued at December 31, 2019 and 2018, respectively	1	1
Additional paid-in capital	1,137	1,096
Less: Treasury stock (common stock: 10,993,388 and 11,284,681 shares at December 31, 2019 and 2018, respectively) at cost	(1,040)	(1,091)
Accumulated other comprehensive loss	(1,158)	(1,154)
Retained earnings	3,780	3,536
Total Ingredion stockholders' equity	2,720	2,388
Non-controlling interests	21	20
Total equity	2,741	2,408
Total liabilities and equity	$ 6,040	$ 5,728

See the Notes to the Consolidated Financial Statements.

Consolidated Statements of Equity and Redeemable Equity

(in millions)	Total Equity: Preferred Stock	Common Stock	Additional Paid-In Capital	Treasury Stock	Accumulated Other Comprehensive Loss	Retained Earnings	Non-Controlling Interests	Share-based Payments Subject to Redemption
Balance, December 31, 2016	$—	$1	$1,149	$ (413)	$(1,071)	$2,899	$ 30	$30
Net income attributable to Ingredion						519		
Net income attributable to non-controlling interests							13	
Dividends declared						(159)	(15)	
Repurchases of common stock				(123)				
Share-based compensation, net of issuance			(11)	42				6
Other comprehensive income (loss)					58		(2)	
Balance, December 31, 2017	—	1	1,138	(494)	(1,013)	3,259	26	36
Net income attributable to Ingredion						443		
Net income attributable to non-controlling interests							11	
Dividends declared						(173)	(9)	
Repurchases of common stock			(33)	(624)				
Share-based compensation, net of issuance			(5)	27				1
Other comprehensive loss					(134)		(7)	
Other			(4)		(7)	7	(1)	
Balance, December 31, 2018	—	1	1,096	(1,091)	(1,154)	3,536	20	37
Net income attributable to Ingredion						413		
Net income attributable to non-controlling interests							11	
Dividends declared						(169)	(8)	
Repurchases of common stock, net			32	31				
Share-based compensation, net of issuance			9	20				(6)
Other comprehensive loss					(4)		(2)	
Balance, December 31, 2019	$—	$1	$1,137	$(1,040)	$(1,158)	$3,780	$ 21	$31

See the Notes to the Consolidated Financial Statements.

Consolidated Statements of Cash Flows

(in millions)	Year Ended December 31, 2019	2018	2017
Cash provided by operating activities			
Net income	$ 424	$ 454	$ 532
Non-cash charges to net income:			
Depreciation and amortization	220	247	209
Mechanical stores expense	57	57	57
Deferred income taxes	3	(23)	67
Charge for fair value markup of acquired inventory	—	—	9
Other	33	39	39
Changes in working capital:			
Accounts receivable and prepaid expenses	(61)	(70)	(44)
Inventories	(43)	(50)	(34)
Accounts payable and accrued liabilities	51	(3)	(49)
Margin accounts	(1)	5	6
Other	(3)	47	(23)
Cash provided by operating activities	680	703	769
Cash used for investing activities			
Capital expenditures and mechanical stores purchases	(328)	(350)	(314)
Payments for acquisitions, net of cash acquired of $4, $ — , and $ — , respectively	(42)	—	(17)
Investment in non-consolidated affiliates	(10)	(15)	—
Short-term investments	3	1	(3)
Proceeds from disposal of plants and properties	2	1	8
Other	1	2	—
Cash used for investing activities	(374)	(361)	(326)
Cash used for financing activities			
Proceeds from borrowings	1,209	987	1,144
Payments on debt	(1,465)	(738)	(1,240)
Repurchases of common stock, net	63	(657)	(123)
Issuances of common stock for share-based compensation, net of settlements	3	1	9
Dividends paid, including to non-controlling interests	(174)	(182)	(165)
Cash used for financing activities	(364)	(589)	(375)
Effects of foreign exchange rate changes on cash	(5)	(21)	15
(Decrease) increase in cash and cash equivalents	(63)	(268)	83
Cash and cash equivalents, beginning of period	327	595	512
Cash and cash equivalents, end of period	$ 264	$ 327	$ 595

See the Notes to the Consolidated Financial Statements.

Note 1. Description of the Business

Ingredion Incorporated (individually and together with its consolidated subsidiaries, "the Company") was founded in 1906 and became an independent and public company as of December 31, 1997. The Company primarily manufactures and sells sweeteners, starches, nutrition ingredients, and biomaterial solutions derived from the wet milling and processing of corn and other starch-based materials to a wide range of industries, both domestically and internationally.

Note 2. Summary of Significant Accounting Policies

Basis of presentation: The consolidated financial statements consist of the accounts of the Company, including all significant subsidiaries. Intercompany accounts and transactions are eliminated in consolidation.

The preparation of the accompanying consolidated financial statements in conformity with U.S. Generally Accepted Accounting Principles ("GAAP") requires management to make estimates and assumptions about future events. These estimates and the underlying assumptions affect the amounts of assets and liabilities reported, disclosures about contingent assets and liabilities, and reported amounts of revenues and expenses. Such estimates include the value of purchase consideration, valuation of accounts receivable, inventories, goodwill, intangible assets and other long-lived assets, legal contingencies, guarantee obligations, and assumptions used in the calculation of income taxes, and pension and other postretirement benefits, among others. These estimates and assumptions are based on management's best estimates and judgment. Management evaluates its estimates and assumptions on an ongoing basis using historical experience and other factors, including the current economic environment, which management believes to be reasonable under the circumstances. Management will adjust such estimates and assumptions when facts and circumstances dictate. Foreign currency devaluations, corn price volatility, access to credit markets, and adverse changes in the global economic environment have combined to increase the uncertainty inherent in such estimates and assumptions. As future events and their effects cannot be determined with precision, actual results could differ significantly from these estimates. Changes in these estimates will be reflected in the financial statements in future periods.

Assets and liabilities of foreign subsidiaries, other than those whose functional currency is the U.S. dollar, are translated at current exchange rates with the related translation adjustments reported in equity as a component of accumulated other comprehensive income (loss). Income statement accounts are translated at the average exchange rate during the period. However, significant non-recurring items related to a specific event are recognized at the exchange rate on the date of the significant event. The U.S. dollar is the functional currency for the Company's subsidiaries in Mexico and as of July 1, 2018, in Argentina. In the second quarter of 2018, the Argentine peso rapidly devalued relative to the U.S. dollar, which along with increased inflation, resulted in a three-year cumulative inflation that exceeded 100 percent, as of June 30, 2018. As a result, the Company elected to adopt highly inflationary accounting as of July 1, 2018, for its Argentina affiliate in accordance with GAAP. Under highly inflationary accounting, the Argentina affiliate's functional currency becomes the U.S. dollar. For foreign subsidiaries where the U.S. dollar is the functional currency, monetary assets and liabilities are translated at current exchange rates with the related adjustment included in net income. Non-monetary assets and liabilities are translated at historical exchange rates.

Cash and cash equivalents: Cash equivalents consist of all instruments purchased with an original maturity of three months or less, and which have virtually no risk of loss in value.

Accounts receivable, net: Accounts receivable, net, consist of trade and other receivables carried at approximate fair value, net of an allowance for doubtful accounts based on specific identification of material amounts at risk and a general reserve based on historical collection experience.

Inventories: Inventories are stated at the lower of cost or net realizable value. Costs are predominantly determined using the weighted average method.

Investments: Investments are included in Other assets in the Consolidated Balance Sheets. The Company holds equity and cost method investments, and marketable securities as of December 31, 2019. Investments in which the Company is able to exercise significant influence, but do not represent a controlling interest, are accounted for under the equity method; such investments are carried at cost, adjusted to reflect the Company's proportionate share of income or loss, less dividends received. Investments in the common stock of affiliated companies over which the Company does not exercise significant influence are accounted for under the cost method. The marketable securities are carried at fair value with unrealized gains and losses recorded to Other income, net in accordance with Accounting Standards Codification ("ASC") 825.

Leases: The Company leases rail cars, office space, and certain machinery and equipment. The Company determines if an arrangement is a lease at inception of the agreement and classifies its leases based on the terms of the related lease agreement and the criteria contained in Financial Accounting Standards Board ("FASB") ASC Topic 842, *Leases*, and related interpretations. See also Note 8 of the Notes to the Consolidated Financial Statements for additional information.

Property, plant and equipment and depreciation: Property, plant and equipment ("PP&E") are stated at cost less accumulated depreciation. Depreciation is generally computed on the straight-line basis over the estimated useful lives of depreciable assets, which range from 25 to 50 years for buildings and from two to 25 years for all other assets. Where permitted by law, accelerated depreciation methods are used for tax purposes. The Company recognized depreciation expense of $191 million, $217 million, and $179 million for the years ended December 31, 2019, 2018, and 2017, respectively. The Company reviews the recoverability of the net book value of PP&E for impairment whenever events or changes in circumstances indicate that the carrying value of an asset may not be recoverable. If this review indicates that the carrying values will not be recovered, the carrying values would be reduced to fair value and an impairment loss would be recognized. As required under GAAP, the impairment analysis for long-lived assets occurs before the goodwill impairment assessment described below. No PP&E impairment was recognized in the year ended December 31, 2019 related to the Company's annual impairment testing.

The following table summarizes the Company's PP&E and accumulated depreciation for the periods presented:

	As of December 31,	
(in millions)	2019	2018
Property, plant and equipment:		
Land	$ 202	$ 199
Buildings	748	715
Machinery and equipment	4,412	4,199
Property, plant and equipment, at cost	5,362	5,113
Accumulated depreciation	(3,056)	(2,915)
Property, plant and equipment, net	$ 2,306	$ 2,198

Goodwill and other intangible assets: Goodwill ($801 million and $791 million at December 31, 2019 and 2018, respectively) represents the excess of the cost of an acquired entity over the fair value assigned to identifiable assets acquired and liabilities assumed. The Company also has other intangible assets of $437 million and $460 million at December 31, 2019 and 2018, respectively. The original carrying value of goodwill and accumulated impairment charges by reportable business segment at December 31, 2019 was as follows:

(in millions)	North America	South America	Asia Pacific	EMEA	Total
Goodwill before impairment charges	$601	$ 59	$ 228	$70	$ 958
Accumulated impairment charges	(1)	(33)	(121)	—	(155)
Balance at January 1, 2018	600	26	107	70	803
Acquisitions	—	—	—	—	—
Currency translation	—	(4)	(3)	(5)	(12)
Balance at December 31, 2018	600	22	104	65	791
Acquisitions	7	—	—	—	7
Currency translation	—	(1)	4	—	3
Balance at December 31, 2019	$607	$ 21	$ 108	$65	$ 801

The following table summarizes the Company's other intangible assets for the periods presented:

	As of December 31, 2019			
(in millions)	Gross	Accumulated Amortization	Net	Weighted Average Useful Life (years)
Trademarks/tradenames (indefinite-lived)	$178	$ —	$178	—
Customer relationships	333	(93)	240	20
Technology	103	(91)	12	9
Other	20	(13)	7	15
Total other intangible assets	$634	$(197)	$437	17

	As of December 31, 2018			
(in millions)	Gross	Accumulated Amortization	Net	Weighted Average Useful Life (years)
Trademarks/tradenames (indefinite-lived)	$178	$ —	$178	—
Customer relationships	325	(77)	248	20
Technology	103	(80)	23	9
Other	21	(10)	11	16
Total other intangible assets	$627	$(167)	$460	18

Definite-lived intangible assets are stated at cost less accumulated amortization. Amortization is computed on the straight-line basis over the estimated useful lives of definite-lived intangible assets. Amortization expense related to intangible assets was $29 million, $30 million, and $30 million for the years ended December 31, 2019, 2018, and 2017, respectively. The Company reviews the recoverability of the net book value of definite-lived intangible assets for impairment whenever events or changes in circumstances indicate that the carrying value of an asset may not be recoverable. If this review indicates that the carrying values will not be recovered, the carrying values would be reduced to fair value and an impairment loss would be recognized.

Based on acquisitions completed through December 31, 2019, intangible asset amortization expense for the next five years is shown below.

(in millions)	Amortization Expense
Year	
2020	$ 28
2021	20
2022	19
2023	19
2024	19
Balance thereafter	154

The Company assesses indefinite-lived intangible assets and goodwill for impairment annually (or more frequently if impairment indicators arise). The Company has chosen to perform this annual impairment assessment as of July 1 of each year.

In testing indefinite-lived intangible assets for impairment, the Company first assesses qualitative factors to determine whether it is more-likely-than-not that the fair value of an indefinite-lived intangible asset is impaired. After assessing the qualitative factors, if the Company determines that it is more-likely-than-not that the fair value of an indefinite-lived intangible asset is greater than its carrying amount, then it would not be required to compute the fair value of the indefinite-lived intangible asset. In the event the qualitative assessment leads the Company to conclude otherwise, then it would be required to determine the fair value of the indefinite-lived intangible assets and perform a quantitative impairment test in accordance with ASC Topic 350-30, *General Intangibles Other than Goodwill*. In performing the qualitative analysis, the Company considers various factors including net sales derived from these intangibles and certain market and industry conditions. Based on the results of its assessment, the Company concluded that as of July 1, 2019, there were no impairments in its indefinite-lived intangible assets.

In testing goodwill for impairment, the Company first assesses qualitative factors in determining whether it is more-likely-than-not that the fair value of a reporting unit is less than its carrying amount. After assessing the qualitative factors, if the Company determines that it is more-likely-than-not that the fair value of a reporting unit is greater than its carrying amount then the Company does not perform the two-step impairment test. If the Company concludes otherwise, then it performs the first step of the two-step impairment test as described in ASC Topic 350. In the first step ("Step One"), the fair value of the reporting unit is compared to its carrying value. If the fair value of the reporting unit exceeds the carrying value of its net assets, goodwill is not considered impaired and no further testing is required. If the carrying value of the net assets exceeds the fair value of the reporting unit, a second step ("Step Two") of the impairment assessment is performed in order to determine the implied fair value of a reporting unit's goodwill. Determining the implied fair value of goodwill requires a valuation of the reporting unit's tangible and intangible assets and liabilities in a manner similar to the allocation of purchase price in a business combination. If the carrying value of the reporting unit's goodwill exceeds the implied fair value of its goodwill, goodwill is deemed impaired and is written down to the extent of the difference. Based on the results of the annual assessment, the Company concluded that as of July 1, 2019, there were no impairments in its reporting units.

Revenue recognition: The Company accounts for revenue in accordance with ASC Topic 606, *Revenue from Contracts with Customers*, which is more fully described in Note 4 of the Notes to the Consolidated Financial Statements.

Hedging instruments: Derivative financial instruments used by the Company consist of commodity futures and option contracts, forward currency contracts and options, interest rate swap agreements and Treasury lock agreements ("T-Locks"). See also Note 6 of the Notes to the Consolidated Financial Statements for additional information.

On the date a derivative contract is entered into, the Company designates the derivative as a hedge of variable cash flows to be paid related certain forecasted transactions ("a cash flow hedge"), as a hedge of the fair value of certain firm commitments ("a fair value hedge"), or as a non-designated hedging instrument as defined by ASC 815, *Derivatives and Hedging*. This process includes linking all derivatives that are designated as cash flow or fair value hedges to specific assets and liabilities on the Consolidated Balance Sheets, or to specific firm commitments or forecasted transactions. These hedges are accounted for using ASC Topic 815. For all hedging relationships, the Company documents the hedging relationships and its risk-management objective and strategy for undertaking the hedge transactions, the hedging instrument, the hedged item, the nature of the risk being hedged, how the hedging instrument's effectiveness in offsetting the hedged risk will be assessed and a description of the method of measuring ineffectiveness. The Company also formally assesses both, at the hedge's inception and on an ongoing basis, whether the derivatives that are used in hedging transactions are highly effective in offsetting changes in cash flows or fair values of hedged items. When it is determined that a derivative is not highly effective as a hedge or has ceased to be a highly effective hedge, the Company discontinues hedge accounting prospectively.

The Company discontinues hedge accounting prospectively when it is determined that the derivative is no longer effective in offsetting changes in the cash flows or fair value of the hedged item, the derivative is de-designated as a hedging instrument because it is unlikely that a forecasted transaction will occur, or management determines that designation of the derivative as a hedging instrument is no longer appropriate. When hedge accounting is discontinued, the Company continues to carry the derivative on the Consolidated Balance Sheets at its fair value, and gains and losses that were included in AOCI are recognized in earnings in the same line item affected by the hedged transaction and in the same period or periods during which the hedged transaction affects earnings, or in the month a hedge is determined to be ineffective.

Share-based compensation: The Company has a stock incentive plan that provides for share-based employee compensation, including the granting of stock options, shares of restricted stock, restricted stock units, and performance shares to certain key employees. Compensation expense is recognized in the Consolidated Statements of Income for the Company's share-based employee compensation plan. The plan is more fully described in Note 11 of the Notes to the Consolidated Financial Statements.

Earnings per common share: Basic earnings per common share ("EPS") is computed by dividing net income attributable to the Company by the weighted average number of shares outstanding. Diluted EPS is calculated using the treasury stock method, computed by dividing net income attributable to the Company by the weighted average number of shares outstanding, including the dilutive effect of outstanding stock options and other instruments associated with long-term incentive compensation plans.

Risks and uncertainties: The Company operates domestically and internationally. In each country, the business and assets are subject to varying degrees of risk and uncertainty. The Company insures its business and assets in each country against insurable risks in a manner that it deems appropriate. Because of this geographic dispersion, the Company believes that a loss from non-insurable events in any one country would not have a material adverse effect on the Company's operations as a whole. Additionally, the Company believes there is no significant concentration of risk with any single customer or supplier whose failure or non-performance would materially affect the Company's results.

Recently Adopted Accounting Standards

ASU No. 2016-02, Leases (Topic 842)

In February 2016, the FASB issued Accounting Standards Update ("ASU") No. 2016-02, *Leases (Topic 842)*, which supersedes Topic 840, *Leases*. The Company adopted this updated standard as of January 1, 2019, using the modified retrospective approach and the effective date as its date of initial application. The Company elected the package of three practical expedients permitted under the transition guidance, which among other things allowed the Company to carry forward the historical lease classification of existing leases and to not reassess expired contracts for leases. The practical expedient for hindsight to determine lease term was not elected by the Company. The standard resulted in the initial recognition of $170 million of total operating lease liabilities and $161 million of operating lease assets on the Consolidated Balance Sheet on January 1, 2019. The standard did not materially impact the Consolidated Statement of Income or Consolidated Statement of Cash Flows. The disclosures required by the recently adopted accounting standard are included in Note 8 of the Notes to the Consolidated Financial Statements.

ASU No. 2017-12 and ASU 2018-16, Derivatives and Hedging (Topic 815)

In August 2017, the FASB issued ASU No. 2017-12, *Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities*. This Update modifies accounting guidance for hedge accounting by making more hedge strategies eligible for hedge accounting, amending presentation and disclosure requirements, and changing how companies assess ineffectiveness. The intent is to simplify the application of hedge accounting and increase transparency of information about an entity's risk management activities. The amended guidance is effective for annual periods beginning after December 15, 2018, with early adoption permitted. The Company completed its assessment of these updates adopted on January 1, 2019, including potential changes to existing hedging arrangements, and determined the adoption of the guidance did not have a material impact on the Company's Consolidated Financial Statements.

In October 2018, the FASB issued ASU 2018-16, *Derivatives and Hedging (Topic 815): Inclusion of the Secured Overnight Financing Rate (SOFR) Overnight Index Swap (OIS) Rate as Benchmark Interest Rate for Hedge Accounting Purposes*. This Update permits use of the OIS rate based on the SOFR as a U.S. benchmark interest rate for hedge accounting purposes. The guidance should be adopted on a prospective basis. This Update is effective for fiscal years beginning after December 15, 2018, with early adoption permitted. The Update did not have a material impact on the Company's Consolidated Financial Statements.

New Accounting Standards

In January 2017, the FASB issued ASU No. 2017-04, *Intangibles – Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment*. This Update simplifies the subsequent measurement of goodwill as the Update eliminates Step 2 from the goodwill impairment test. Under the Update, an entity will continue to perform its annual, or interim, goodwill impairment test to determine if the fair value of a reporting unit is greater than its carrying amount. An entity should then recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit's fair value using the results of its Step 1 assessment, with the loss recognized not to exceed the total amount of goodwill allocated to that reporting unit. This Update is effective for annual periods beginning after December 15, 2019, with early adoption permitted. The Company will adopt ASU 2017-04 at the beginning of its 2020 fiscal year and the Update will not have a material impact on the Company's Consolidated Financial Statements upon adoption.

In June 2016, the FASB issued ASU No. 2016-13, *Financial Instruments – Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*, which requires us to measure and recognize expected credit losses for financial assets held and not accounted for at fair value through net income. This Update is effective for annual periods beginning after December 15, 2019, with early adoption permitted. The Company will adopt ASU 2016-13 at the beginning of its 2020 fiscal year and the Update will not have a material impact on the Company's Consolidated Financial Statements upon adoption.

Presentation of Net Sales

During the three months ended December 31, 2019, the Company changed its presentation of shipping and handling costs. These costs were previously included as a reduction to Net sales in the Consolidated Statements of Income. The Company is now presenting these expenses within Cost of sales in the Consolidated Statements of Income. The change in presentation was applied retrospectively to all periods presented in the Consolidated Statements of Income. The change in presentation had no effect on Gross profit, Operating income, Net income, or earnings per share. The Consolidated Balance Sheets, Consolidated Statements of Comprehensive Income, Consolidated Statements of Equity and Redeemable Equity, and Consolidated Statements of Cash Flows are not affected by this change in presentation. Total shipping and handling costs in for the year ended December 31, 2019 were $466 million.

The effect of the adjustment is as follows:

	2018		2017	
(in millions)	As Reported	As Adjusted	As Reported	As Adjusted
Consolidated Statements of Income:				
Net sales before shipping and handling costs	$6,289	$ —	$6,244	$ —
Less: shipping and handling costs	448	—	412	—
Net sales	5,841	6,289	5,832	6,244
Cost of sales	4,473	4,921	4,360	4,772
Gross profit	$1,368	$1,368	$1,472	$1,472

	For the Year Ended December 31, 2019					
	First Fiscal Quarter		Second Fiscal Quarter		Third Fiscal Quarter	
(in millions)	As Reported	As Adjusted	As Reported	As Adjusted	As Reported	As Adjusted
Net sales before shipping and handling costs	$1,536	$ —	$1,550	$ —	$1,574	$ —
Less: shipping and handling costs	116	—	116	—	117	—
Net sales	1,420	1,536	1,434	1,550	1,457	1,574
Cost of sales	1,104	1,220	1,105	1,221	1,113	1,230
Gross profit	$ 316	$ 316	$ 329	$ 329	$ 344	$ 344

	For the Year Ended December 31, 2018							
	First Fiscal Quarter		Second Fiscal Quarter		Third Fiscal Quarter		Fourth Fiscal Quarter	
(in millions)	As Reported	As Adjusted	As Reported	As Adjusted	As Reported	As Adjusted	As Reported	As Adjusted
Net sales before shipping and handling costs	$1,581	$ —	$1,608	$ —	$1,563	$ —	$1,537	$ —
Less: shipping and handling costs	112	—	112	—	113	—	111	—
Net sales	1,469	1,581	1,496	1,608	1,450	1,563	1,426	1,537
Cost of sales	1,115	1,227	1,136	1,248	1,116	1,229	1,106	1,217
Gross profit	$ 354	$ 354	$ 360	$ 360	$ 334	$ 334	$ 320	$ 320

	2018		2017	
(in millions)	As Reported	As Adjusted	As Reported	As Adjusted
Net sales to unaffiliated customers:				
North America	$3,511	$3,857	$3,529	$3,843
South America	943	988	1,007	1,052
Asia-Pacific	803	837	740	772
EMEA	584	607	556	577
Total	$5,841	$6,289	$5,832	$6,244

Note 3. Acquisitions

On March 1, 2019, the Company completed its acquisition of Western Polymer LLC ("Western Polymer"), a privately-held, U.S.-based company headquartered in Moses Lake, Washington, that produces native and modified potato starches for industrial and food applications for $42 million, net of cash acquired of $4 million. The acquisition will expand the Company's potato starch manufacturing capacity, enhance processing capabilities, and broaden its higher-value specialty ingredients business and customer base. The results of the acquired operation are included in the Company's consolidated results from the acquisition date forward within the North America business segment.

A preliminary allocation of the purchase price to the assets acquired and liabilities assumed was made based on available information and incorporating management's best estimates. The assets acquired and liabilities assumed in the transaction are generally recorded at their estimated acquisition date fair values, while transaction costs associated with the acquisition are expensed as incurred. As of December 31, 2019, $13 million of goodwill and intangible assets, and $29 million of net tangible assets have preliminarily been recorded. Goodwill represents the amount by which the purchase price exceeds the estimated fair value of the net assets acquired. Goodwill and intangible assets are open to be finalized as of December 31, 2019 pending finalization of tax matters. The goodwill results from synergies and other operational benefits expected to be derived from the acquisition. The goodwill related to Western Polymer is tax-deductible due to the structure of the acquisition.

Pro-forma results of operations for the acquisition made in the year ended December 31, 2019 have not been presented as the effect of the acquisition would not be material to the Company's results of operations for any periods presented.

The Company incurred $3 million, $ — , and $4 million of pre-tax acquisition and integration costs in the years ended December 31, 2019, 2018, and 2017, respectively, associated with its acquisitions.

Note 4. Revenue Recognition

The Company applies the provisions of ASC 606-10, *Revenue from Contracts with Customers*. The Company recognizes revenue under the core principle to depict the transfer of products to customers in an amount reflecting the consideration the Company expects to receive. In order to achieve that core principle, the Company applies the following five-step approach: (1) identify the contract with a customer, (2) identify the performance obligations in the contract, (3) determine the transaction price, (4) allocate the transaction price to the performance obligations in the contract, and (5) recognize revenue when a performance obligation is satisfied.

The Company identified customer purchase orders, which in some cases are governed by a master sales agreement, as the contracts with its customers. For each contract, the Company considers the transfer of products, each of which is distinct, to be the identified performance obligation. In determining the transaction price for the performance obligation, the Company evaluates whether the price is subject to adjustment to determine the consideration to which the Company expects to be entitled. The pricing model can be fixed or variable within the contract. The variable pricing model is based on historical commodity pricing and is determinable prior to completion of the performance obligation. Additionally, the Company has certain sales adjustments for volume incentive discounts and other discount arrangements that reduce the transaction price. The reduction of transaction price is estimated using the expected value method based on an analysis of historical volume incentives or discounts, over a period of time considered adequate to account for current pricing and business trends. Historically, actual volume incentives and discounts relative to those estimated and included when determining the transaction price have not materially differed. Volume incentives and discounts are accrued at the satisfaction of the performance obligation and accounted for in Accounts payable and Accrued liabilities in the Consolidated Balance Sheets. These amounts are not significant as of December 31, 2019, and 2018. The product price as specified in the contract, net of any discounts, is considered the standalone selling price as it is an observable input which depicts the price as if sold to a similar customer in similar circumstances. Payment is received shortly after the performance obligation is satisfied; therefore, the Company has elected the practical expedient under ASC 606-10-32-18 to not assess whether a contract has a significant financing component.

Revenue is recognized when the Company's performance obligation is satisfied and control is transferred to the customer, which occurs at a point in time, either upon delivery to an agreed upon location or to the customer. Further, in determining whether control has transferred, the Company considers if there is a present right to payment and legal title, along with risks and rewards of ownership having transferred to the customer.

Shipping and handling activities related to contracts with customers represent fulfillment costs and are recorded in Cost of sales. Taxes assessed by governmental authorities and collected from customers are accounted for on a net basis and excluded from net sales. The Company applies a practical expedient to expense costs to obtain a contract as incurred as most contracts are one year or less. These costs primarily include the Company's internal sales force compensation. Under the terms of these programs, these are generally earned and the costs are recognized at the time the revenue is recognized.

From time to time the Company may enter into long-term contracts with its customers. Historically, the contracts entered into by the Company do not result in significant contract assets or liabilities. Any such arrangements are accounted for in Other assets or Accrued liabilities in the Consolidated Balance Sheets. There were no significant contract assets or liabilities as of December 31, 2019, and 2018.

The Company is principally engaged in the production and sale of starches and sweeteners for a wide range of industries, and is managed geographically on a regional basis. The Company's operations are classified into four reportable business segments: North America, South America, Asia-Pacific and Europe, Middle East and Africa ("EMEA"). The nature, amount, timing and uncertainty of the Company's Net sales are managed by the Company primarily based on its geographic segments. Each region's product sales are unique to each region and have unique risks.

(in millions)	2019	2018	2017
Net sales to unaffiliated customers:			
North America	$3,834	$3,857	$3,843
South America	960	988	1,052
Asia-Pacific	823	837	772
EMEA	592	607	577
Total	$6,209	$6,289	$6,244

Note 5. Restructuring and Impairment Charges

In the year ended December 31, 2019, the Company recorded $57 million of pre-tax restructuring charges. Pre-tax restructuring charges of $28 million were recorded for the year ended December 31, 2019 for the Cost Smart SG&A program. These costs include $15 million, of other costs, including professional services, and $13 million of employee-related severance for the year ended December 31, 2019. These charges were recorded primarily in the Company's North America and South America operations, and include $2 million of other costs associated with the Finance Transformation initiative in Latin America for the year ended December 31, 2019. The Company expects to continue to incur additional charges in 2020 related to the Cost Smart SG&A program.

Additionally, for the year ended December 31, 2019, the Company recorded $29 million for its Cost Smart Cost of sales program. During the year ended December 31, 2019, the Company recorded $15 million of restructuring charges in relation to the closure of the Lane Cove, Australia production facility, consisting of $10 million of accelerated depreciation, $4 million of employee-related severance, and $1 million of other costs. The Company expects to incur additional expense of $10 million to $12 million in 2020 in relation to the closure, excluding potential proceeds from the sale of land and equipment. Additionally, during the year ended December 31, 2019, the Company recorded $3 million of employee-related expenses primarily related to South America operations restructuring. The Company also recorded $11 million of other costs, including professional services, during the year ended December 31, 2019, primarily in North America including other costs of $2 million in relation to the prior year cessation of wet-milling at the Stockton, California plant. The Company does not expect to incur any additional costs in relation to the cessation of wet-milling at the Stockton, California plant.

In the year ended December 31, 2018, the Company recorded $64 million of pre-tax restructuring charges. During the second quarter of 2018, the Company introduced its Cost Smart program, designed to improve profitability, further streamline its global business and deliver increased value to shareholders through anticipated savings in cost of sales, including freight, and SG&A. For the year ended December 31, 2018, the Company recorded $49 million of restructuring expenses as part of the Cost Smart Cost of sales program in relation to the cessation of wet-milling at the Stockton, California plant, consisting of $34 million of accelerated depreciation, $8 million of mechanical stores, $3 million of employee-related severance and $4 million of other costs.

As part of its Cost Smart SG&A program, during the third quarter of 2018, the Company announced a Finance Transformation initiative in Latin America to strengthen organizational capabilities and drive efficiencies to support the growth strategy of the Company. The Company recorded $4 million of employee-related severance and other costs for the year ended December 31, 2018, in relation to this initiative. In addition, restructuring expenses of $7 million ($6 million employee-related severance and $1 million of consulting costs) were recorded as part of the Cost Smart SG&A program for the year ended December 31, 2018 in the South America, Asia-Pacific, and North America segments.

Additionally, for the year ended December 31, 2018, the Company recorded $3 million of other restructuring costs associated with the North America Finance Transformation initiative as well as $1 million of other restructuring costs related to the leaf extraction process in Brazil.

A summary of the Company's severance accrual at December 31, 2019, is as follows (in millions):

Balance in severance accrual as of December 31, 2018	$ 10
Cost Smart Cost of sales and SG&A	20
Payments made to terminated employees	(16)
Foreign exchange translation	1
Balance in severance accrual as of December 31, 2019	$ 15

Of the $15 million severance accrual at December 31, 2019, $14 million is expected to be paid within the next 12 months.

The Company assesses goodwill and other indefinite-lived intangible assets for impairment annually, or more frequently if impairment indicators arise. No goodwill or indefinite-lived intangible asset impairment was recognized in the years ended December 31, 2019, 2018, or 2017 related to the Company's annual impairment testing.

Note 6. Financial Instruments, Derivatives and Hedging Activities

The Company is exposed to market risk stemming from changes in commodity prices (primarily corn and natural gas), foreign currency exchange rates and interest rates. In the normal course of business, the Company actively manages its exposure to these market risks by

entering into various hedging transactions, authorized under established policies that place controls on these activities. These transactions utilize exchange-traded derivatives or over-the-counter derivatives with investment grade counterparties. Derivative financial instruments currently used by the Company consist of commodity-related futures, options, and swap contracts, foreign currency-related forward contracts, and interest rate swaps.

Commodity price hedging: The Company's principal use of derivative financial instruments is to manage commodity price risk relating to anticipated purchases of corn and natural gas to be used in the manufacturing process, generally over the next 12 to 24 months. The Company maintains a commodity-price risk management strategy that uses derivative instruments to minimize significant, unanticipated earnings fluctuations caused by commodity-price volatility. To manage price risk related to corn purchases primarily in North America, the Company uses corn futures and option contracts that trade on regulated commodity exchanges to lock-in corn costs associated with fixed-priced customer sales contracts. The Company also uses over-the-counter natural gas swaps in North America to hedge a portion of its natural gas usage. These derivative financial instruments limit the impact that volatility resulting from fluctuations in market prices will have on corn and natural gas purchases. The Company's natural gas derivatives and the majority of its corn derivatives have been designated as cash flow hedging instruments.

The Company enters into certain corn derivative instruments that are not designated as hedging instruments as defined by ASC 815, *Derivatives and Hedging*. Therefore, the realized and unrealized gains and losses from these instruments are recognized in cost of sales during each accounting period. These derivative instruments also mitigate commodity price risk related to anticipated purchases of corn.

For commodity hedges designated as cash flow hedges, unrealized gains and losses associated with marking the commodity hedging contracts to market (fair value) are recorded as a component of other comprehensive income ("OCI") and included in the equity section of the Consolidated Balance Sheets as part of AOCI. These amounts are subsequently reclassified into earnings in the same line item affected by the hedged transaction and in the same period or periods during which the hedged transaction affects earnings, or in the month a hedge is determined to be ineffective. The Company assesses the effectiveness of a commodity hedge contract based on changes in the contract's fair value. The changes in the market value of such contracts have historically been, and are expected to continue to be, highly effective at offsetting changes in the price of the hedged items. Gains and losses from cash flow hedging instruments reclassified from AOCI to earnings are reported as Cash provided by operating activities on the Consolidated Statements of Cash Flows.

As of December 31, 2019, the Company had outstanding futures and option contracts that hedged the forecasted purchase of approximately 98 million bushels of corn. The Company had outstanding swap and option contracts that hedged the forecasted purchase of approximately 30 million mmbtu's of natural gas at December 31, 2019.

Foreign currency hedging: Due to the its global operations, including operations in many emerging markets, the Company is exposed to fluctuations in foreign currency exchange rates. As a result, the Company has exposure to translational foreign-exchange risk when the results of its foreign operations are translated to U.S. dollars and to transactional foreign-exchange risk when transactions not denominated in the functional currency are revalued. The Company's foreign-exchange risk management strategy uses derivative financial instruments such as foreign currency forward contracts, swaps and options to manage its transactional foreign exchange risk. The Company enters into foreign currency derivative instruments that are designated as both cash flow hedging instruments as well as instruments not designated as hedging instruments as defined by ASC 815, *Derivatives and Hedging*, in order to mitigate transactional foreign-exchange risk. Gains and losses from derivative financial instruments not designated as hedging instruments are marked to market in earnings during each accounting period.

The notional value of the Company's foreign currency derivatives not designated as hedging instruments included forward sales contracts of $621 million as of both December 31, 2019 and 2018. The notional value of the Company's foreign currency derivatives not designated as hedging instruments also included purchase contracts with notional value of $356 million and $165 million as of December 31, 2019 and 2018, respectively.

The notional value of the Company's foreign currency cash flow hedging instruments included forward sales contracts of $374 million and $345 million as well as forward purchase contracts of $541 million and $275 million as of December 31, 2019, and 2018, respectively.

Interest rate hedging: The Company assesses its exposure to variability in interest rates by identifying and monitoring changes in interest rates that may adversely impact future cash flows and the fair value of existing debt instruments, and by evaluating hedging opportunities. The Company's risk management strategy is to monitor interest rate risk attributable to both the Company's outstanding and forecasted debt obligations as well as the Company's offsetting hedge positions. Derivative financial instruments that have been used by the Company to manage its interest rate risk consist of interest rate swaps and T-Locks.

The Company has an interest rate swap agreement that converts the interest rates on $200 million of its $400 million of 4.625% senior notes due November 1, 2020, to variable rates. This swap agreement

calls for the Company to receive interest at the fixed coupon rate of the respective notes and to pay interest at a variable rate based on the six-month U.S. dollar London Interbank Offered Rate ("LIBOR") plus a spread. The Company has designated this interest rate swap agreement as a hedge of the changes in fair value of the underlying debt obligations attributable to changes in interest rates and accounts for it as a fair value hedging instrument. The change in fair value of an interest rate swap designated as a hedging instrument that effectively offsets the variability in the fair value of outstanding debt obligations is reported in earnings. This amount offsets the gain or loss (the change in fair value) of the hedged debt instrument that is attributable to changes in interest rates (the hedged risk), which is also recognized in earnings.

The Company periodically enters into T-Locks to hedge its exposure to interest rate changes. The T-Locks are designated as hedges of the variability in cash flows associated with future interest payments caused by market fluctuations in the benchmark interest rate until the fixed interest rate is established, and are accounted for as cash flow hedges. Accordingly, changes in the fair value of the T-Locks are recorded to AOCI until the consummation of the underlying debt offering, at which time any realized gain (loss) is amortized to earnings over the life of the debt. The Company did not have any T-Locks outstanding as of December 31, 2019, or 2018.

The derivative instruments designated as cash flow hedges included in AOCI as of December 31, 2019 and 2018 are reflected below:

Derivatives in Cash Flow Hedging Relationships (in millions)	Amount of Gains (Losses) included in AOCI as of December 31, 2019	2018
Commodity contracts, net of income tax effect of $5 and $2, respectively	$(11)	$(2)
Foreign currency contracts, net of income tax effect of $1 and $ — , respectively	3	—
Interest rate contracts, net of income tax effect of $ — and $1, respectively	(1)	(2)
Total	$ (9)	$(4)

The fair value and balance sheet location of the Company's derivative instruments, presented gross in the Consolidated Balance Sheets, are reflected below:

	Fair Value of Hedging Instruments as of December 31, 2019							
	Designated Hedging Instruments (in millions)				Non-Designated Hedging Instruments (in millions)			
Balance Sheet Location	Commodity Contracts	Foreign Currency Contracts	Interest Rate Contracts	Total	Commodity Contracts	Foreign Currency Contracts	Interest Rate Contracts	Total
Accounts receivable, net	$ 5	$ 7	$—	$12	$2	$ 4	$—	$ 6
Other assets	1	3	1	5	—	1	—	1
Assets	6	10	1	17	2	5	—	7
Accounts payable and accrued liabilities	13	4	—	17	1	8	—	9
Non-current liabilities	4	4	—	8	—	2	—	2
Liabilities	17	8	—	25	1	10	—	11
Net (Liabilities)/Assets	$(11)	$ 2	$ 1	$ (8)	$1	$ (5)	$—	$ (4)

	Fair Value of Hedging Instruments as of December 31, 2018							
	Designated Hedging Instruments (in millions)				Non-Designated Hedging Instruments (in millions)			
Balance Sheet Location	Commodity Contracts	Foreign Currency Contracts	Interest Rate Contracts	Total	Commodity Contracts	Foreign Currency Contracts	Interest Rate Contracts	Total
Accounts receivable, net	$ 5	$1	$ —	$ 6	$—	$16	$—	$16
Other assets	1	—	—	1	—	1	—	1
Assets	6	1	—	7	—	17	—	17
Accounts payable and accrued liabilities	6	—	—	6	3	9	—	12
Non-current liabilities	3	—	1	4	—	4	—	4
Liabilities	9	—	1	10	3	13	—	16
Net (Liabilities)/Assets	$(3)	$1	$(1)	$(3)	$(3)	$ 4	$—	$ 1

Additional information pertaining to the Company's fair value hedges is presented below:

Line item in the statement of financial position in which the hedged item is included (in millions)	Carrying Amount of the Hedged Assets/(Liabilities)		Cumulative Amount of Fair Value Hedging Adjustment Included in the Carrying Amount of Hedged Assets/(Liabilities)	
Balance sheet date as of	December 31, 2019	December 31, 2018	December 31, 2019	December 31, 2018
Interest Rate Contracts: Long-Term Debt	$(201)	$(199)	$(1)	$1

Additional information relating to the Company's derivative instruments is presented below:

Derivatives in Cash Flow Hedging Relationships (in millions)	Gains (Losses) Recognized in OCI on Derivatives			Income Statement Location	Gains (Losses) Reclassified from AOCI into Income		
	2019	2018	2017		2019	2018	2017
Commodity contracts	$(24)	$8	$(22)	*Cost of sales*	$(12)	$(6)	$(5)
Foreign currency contracts	5	—	6	*Net sales/cost of sales*	—	1	1
Interest rate contracts	—	—	—	*Financing costs, net*	(2)	(1)	(2)
Total	$(19)	$8	$(16)		$(14)	$(6)	$(6)

Derivatives in Fair Value Hedging Relationships (in millions)	Income Statement Location of Derivatives Designated as Hedging Instruments	Gains (Losses) Recognized in Income			Income Statement Location of Hedged Items	Gains (Losses) Recognized in Income		
		2019	2018	2017		2019	2018	2017
Interest rate contracts	Financing costs, net	$2	$(2)	$(2)	*Financing costs, net*	$(2)	$2	$2

As of December 31, 2019, AOCI included $7 million of net losses (net of income taxes of $2 million) on T-Locks, foreign currency hedges, and commodities-related derivative instruments designated as cash flow hedges that are expected to be reclassified into earnings during the next 12 months. Cash flow hedges discontinued during the years ended December 31, 2019 or 2018 were not significant.

Fair Value Measurements: Presented below are the fair values of the Company's financial instruments and derivatives for the periods presented:

(in millions)	As of December 31, 2019 Total	Level 1[a]	Level 2[b]	Level 3[c]	As of December 31, 2018 Total	Level 1[a]	Level 2[b]	Level 3[c]
Available for sale securities	$ 13	$13	$ —	$—	$ 11	$11	$ —	$—
Derivative assets	24	7	17	—	24	4	20	—
Derivative liabilities	36	5	31	—	26	6	20	—
Long-term debt	1,751	—	1,751	—	1,954	—	1,954	—

[a] Level 1 inputs consist of quoted prices (unadjusted) in active markets for identical assets or liabilities.

[b] Level 2 inputs are inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly for substantially the full term of the financial instrument. Level 2 inputs are based on quoted prices for similar assets or liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active, or inputs other than quoted prices that are observable for the asset or liability or can be derived principally from or corroborated by observable market data.

[c] Level 3 inputs are unobservable inputs for the asset or liability. Unobservable inputs shall be used to measure fair value to the extent that observable inputs are not available, thereby allowing for situations in which there is little, if any, market activity for the asset or liability at the measurement date.

The carrying values of cash equivalents, short-term investments, accounts receivable, accounts payable, and short-term borrowings approximate fair values. Commodity futures, options, and swap contracts are recognized at fair value. Foreign currency forward contracts, swaps, and options are also recognized at fair value. The fair value of the Company's Long-term debt is estimated based on quotations of major securities dealers who are market makers in the securities.

Note 7. Financing Arrangements

The Company had total debt outstanding of $1.8 billion and $2.1 billion at December 31, 2019 and 2018, respectively. Short-term borrowings at December 31, 2019 and 2018 consist primarily of amounts outstanding under various unsecured local country operating lines of credit.

On April 12, 2019, the Company amended and restated the Term Loan Credit Agreement that was set to mature on April 25, 2019 ("Term Loan") of $165 million to establish a 24-month senior unsecured term loan credit facility in an amount up to $500 million that matures on April 12, 2021. The Company used the $500 million of borrowings under the new facility to pay down amounts outstanding under its revolving credit facility and to pay off the Term Loan balance.

All borrowings under the amended term loan credit agreement for the new facility ("Amended Term Loan Credit Agreement") bear interest at a variable annual rate based on LIBOR or a base rate, at the Company's election, subject to the terms and conditions thereof, plus, in each case, an applicable margin. The Company is required to pay a fee on the unused availability under the Amended Term Loan Credit Agreement. The Amended Term Loan Credit Agreement contains

customary representations, warranties, covenants and events of default, including covenants restricting the incurrence of liens, the incurrence of indebtedness by the Company's subsidiaries and certain fundamental changes involving the Company and its subsidiaries, subject to certain exceptions in each case. The Company must also maintain a specified consolidated leverage ratio and consolidated interest coverage ratio. As of December 31, 2019, the Company was in compliance with these financial covenants. The occurrence of an event of default under the Amended Term Loan Credit Agreement could result in all loans and other obligations being declared due and payable and the term loan credit facility being terminated.

On October 11, 2016, the Company entered into a new five-year, senior, unsecured $1 billion revolving credit agreement (the "Revolving Credit Agreement") that replaced its previously existing $1 billion senior unsecured revolving credit facility.

Subject to certain terms and conditions, the Company may increase the amount of the revolving credit facility under the Revolving Credit Agreement by up to $500 million in the aggregate. The Company may also obtain up to two one-year extensions of the maturity date of the Revolving Credit Agreement at its requests and subject to the agreement of the lenders. All committed pro rata borrowings under the revolving credit facility bear interest at a variable annual rate based on the LIBOR or base rate, at the Company's election, subject to the terms and conditions thereof, plus, in each case, an applicable margin based on the Company's leverage ratio (as reported in the financial statements delivered pursuant to the Revolving Credit Agreement) or the Company's credit rating. Subject to specified conditions, the Company may designate one or more of its subsidiaries as additional borrowers under the Revolving Credit Agreement provided that the Company guarantees all borrowings and other obligations of any such subsidiaries thereunder.

The Revolving Credit Agreement contains customary representations, warranties, covenants, events of default, terms and conditions, including covenants restricting on liens, subsidiary debt and mergers, subject to certain exceptions in each case. The Company must also comply with a leverage ratio covenant and an interest coverage ratio covenant. As of December 31, 2019, the Company was in compliance with these financial covenants. The occurrence of an event of default under the Revolving Credit Agreement could result in all loans and other obligations under the agreement being declared due and payable and the revolving credit facility being terminated.

As of December 31, 2019, there were $10 million in borrowings outstanding under the Revolving Credit Agreement. In addition to borrowing availability under its Revolving Credit Agreement, the Company has approximately $585 million of unused operating lines of credit in the various foreign countries in which it operates.

Presented below are the Company's debt carrying amounts, net of related discounts, premiums, and debt issuance costs, and fair values as of December 31, 2019 and 2018:

	December 31, 2019		December 31, 2018	
(in millions)	Carrying Amount	Fair Value	Carrying Amount	Fair Value
3.2% senior notes due October 1, 2026	$ 497	$ 491	$ 496	$ 462
4.625% senior notes due November 1, 2020	400	399	399	409
6.625% senior notes due April 15, 2037	253	246	254	295
5.62% senior notes due March 25, 2020	200	200	200	205
Term loan credit agreement due April 25, 2019	—	—	165	165
Term loan credit agreement due April 12, 2021	405	405	—	—
Revolving credit facility	10	10	418	418
Fair value adjustment related to hedged fixed rate debt instrument	1	—	(1)	—
Long-term debt	1,766	1,751	1,931	1,954
Short-term borrowings	82	82	169	169
Total debt	$1,848	$1,833	$2,100	$2,123

The Company's long-term debt matures as follows: $600 million in 2020, $500 million in 2026, and $250 million in 2037. The Company's Term Loan of $405 million matures in 2021. The Company's long-term debt as of December 31, 2019 includes the 5.62% senior notes due March 25, 2020 and 4.625% senior notes due November 1, 2020. The Company has the ability and intent to refinance such senior notes on a long-term basis using the revolving credit facility or other sources prior to the maturity date.

The Company guarantees certain obligations of its consolidated subsidiaries. The amount of the obligations guaranteed aggregated $57 million at December 31, 2019 and 2018.

Note 8. Leases

The Company determines if an arrangement is a lease at inception of the agreement. Operating leases are included in operating lease assets, and current and non-current operating lease liabilities in the Company's Consolidated Balance Sheets. Lease assets represent the Company's right to use an underlying asset for the lease term and lease liabilities represent its obligation to make lease payments arising from the lease. Lease assets and liabilities are recognized at commencement date based on the present value of lease payments over the lease term. As most of the Company's leases do not provide an implicit rate, the Company uses an incremental borrowing rate based on the information available at commencement date in determining the present value of lease payments. The operating lease asset value includes in its calculation any prepaid lease payments made and any lease incentives received from the arrangement as a reduction of the asset. The Company's lease terms may include options to extend or terminate the lease, and the impact of these options are included in the lease liability and lease asset calculations when the exercise of the

option is at the Company's sole discretion and it is reasonably certain that the Company will exercise that option. The Company will not separate lease and non-lease components for its leases when it is impracticable to separate the two, such as leases with variable payment arrangements. Leases with an initial term of 12 months or less are not recorded on the balance sheet.

The Company has operating leases for certain rail cars, office space, warehouses, and machinery and equipment. The commencement date used for the calculation of the lease obligations recorded is the latter of the commencement date of the new standard (January 1, 2019) or the lease start date. Certain of the leases have options to extend the life of the lease, which are included in the liability calculation when the option is at the sole discretion of the Company and it is reasonably certain that the Company will exercise the option. The Company has certain leases that have variable payments based solely on output or usage of the leased asset. These variable operating lease assets are excluded from the Company's balance sheet presentation and expensed as incurred. The Company currently has no finance leases.

Lease expense for lease payments is recognized on a straight-line basis over the lease term. The components of lease expense were as follows:

Lease Cost (in millions)	Year Ended December 31, 2019
Operating lease cost	$55
Variable operating lease cost	24
Short term lease cost	3
Lease cost	$82

The following is a reconciliation of future undiscounted cash flows to the operating lease liabilities and the related operating lease assets as presented on the Company's Consolidated Balance Sheet as of December 31, 2019.

Operating Leases (in millions)	As of December 31, 2019
2020	$ 49
2021	39
2022	30
2023	23
2024	15
Thereafter	33
Total future lease payments	189
Less imputed interest	28
Present value of future lease payments	161
Less current lease liabilities	41
Non-current operating lease liabilities	$120
Operating lease assets	$151

Additional information related to the Company's operating leases is listed below. The standard resulted in the initial recognition of $170 million of total operating lease liabilities. The right-of-use assets obtained in exchange for lease liabilities for the year ended December 31, 2019 includes the initial recognition of $161 million of operating lease assets as part of the adoption of the new lease standard.

Other Information (in millions)	Year Ended December 31, 2019
Cash paid for amounts included in the measurement of lease liabilities:	
Operating cash flows from operating leases	$ 55
Right-of-use assets obtained in exchange for lease liabilities:	
Operating leases	$212
	As of December 31, 2019
Weighted average remaining lease term:	
Operating leases	5.5 years
Weighted average discount rate:	
Operating leases	5.7%

As the Company has not restated prior-year information for its adoption of *ASC Topic 842*, the following presents its future minimum lease payments for operating leases under *ASC Topic 840* on December 31, 2018:

Operating Leases (in millions)	As of December 31, 2018
2019	$ 53
2020	44
2021	40
2022	27
2023	22
Thereafter	27
Total future lease payments	$213

Note 9. Income Taxes

The components of income before income taxes and the provision for income taxes are shown below:

(in millions)	2019	2018	2017
Income before income taxes:			
U.S.	$ 74	$121	$226
Foreign	508	500	543
Total income before income taxes	582	621	769
Provision for income taxes:			
Current tax (benefit) expense:			
U.S. federal	6	17	(13)
State and local	2	1	4
Foreign	147	172	179
Total current tax expense	155	190	170
Deferred tax expense (benefit):			
U.S. federal	(8)	(14)	77
State and local	—	(2)	4
Foreign	11	(7)	(14)
Total deferred tax expense (benefit)	3	(23)	67
Total provision for income taxes	$158	$167	$237

Deferred income taxes are provided for the tax effects of temporary differences between the financial reporting basis and tax basis of assets and liabilities. Significant temporary differences as of December 31, 2019 and 2018 are summarized as follows:

(in millions)	2019	2018
Deferred tax assets attributable to:		
Employee benefit accruals	$ 23	$ 20
Pensions and postretirement plans	22	23
Lease liabilities	39	—
Derivative contracts	2	1
Net operating loss carryforwards	24	26
Foreign tax credit carryforwards	1	1
Gross deferred tax assets	111	71
Valuation allowances	(29)	(31)
Net deferred tax assets	82	40
Deferred tax liabilities attributable to:		
Property, plant and equipment	175	177
Identified intangibles	41	39
Right-of-use lease assets	37	—
Other	11	3
Gross deferred tax liabilities	264	219
Net deferred tax liabilities	$182	$179

Of the $24 million of tax-effected net operating loss carryforwards as of December 31, 2019, approximately $9 million are for state loss carryforwards and approximately $15 million are for foreign loss carryforwards. Of the $26 million of tax-effected net operating loss carryforwards as of December 31, 2018, approximately $11 million are for state loss carryforwards and approximately $15 million are for foreign loss carryforward. Income tax accounting requires that a valuation allowance be established when it is more likely than not that all or a portion of a deferred tax asset will not be realized. In making this assessment, management considers the level of historical taxable income, scheduled reversal of deferred tax liabilities, tax planning strategies, tax carryovers and projected future taxable income. As of December 31, 2019, the Company maintained valuation allowances of $9 million for state loss carryforwards, $4 million for state credits, $1 million for state section 163(j) limitations, $1 million for foreign tax credits and $13 million for foreign loss carryforwards all of which management has determined will more likely than not expire prior to realization. As of December 31, 2018, the Company maintains valuation allowances of $11 million for state loss carryforwards, $3 million for state credits and $14 million for foreign loss carryforwards all of which management has determined will more likely than not expire prior to realization. In addition, the Company maintains valuation allowances on foreign subsidiaries' net deferred tax assets of $1 million and $3 million, for the years ended December 31, 2019 and 2018, respectively.

A reconciliation of the U.S. federal statutory tax rate to the Company's effective tax rate follows:

	2019	2018	2017
Provision for tax at U.S. statutory rate	21.0 %	21.0 %	35.0 %
Tax rate difference on foreign income	5.8	5.3	(5.6)
Net impact of tax benefit of intercompany financings	(1.2)	(0.8)	(0.8)
Net impact of global intangible low-taxed income ("GILTI")	1.2	1.0	—
Net impact of U.S. foreign tax credits	1.0	0.5	0.3
Net impact of U.S.-Canada tax settlement	—	0.3	(1.3)
Net impact of valuation allowance in Argentina	0.3	1.0	2.0
Net impact of transition tax	—	0.6	2.7
Net impact of U.S. deferred tax remeasurement	—	—	(4.9)
Net impact of provision for taxes on unremitted earnings	—	0.3	4.3
Other items, net	(1.0)	(2.3)	(0.9)
Provision at effective tax rate	27.1 %	26.9 %	30.8 %

The Company has significant operations in Mexico, Pakistan and Colombia where the 2019 statutory tax rates are 30 percent, 29 percent and 33 percent, respectively. In addition, the Company's subsidiary in Brazil has a statutory tax rate of 34 percent before local incentives that vary each year.

The Tax Cuts and Jobs Act ("TCJA") was enacted on December 22, 2017. The TCJA introduced numerous changes in the U.S. federal tax laws. Changes that have a significant impact on the Company's effective tax rate are a reduction in the U.S. corporate tax rate from 35 percent to 21 percent, the imposition of a U.S. tax on global intangible low-taxed income ("GILTI") and the foreign-derived intangible income ("FDII") deduction. The TCJA also provided for a one-time transition tax on the deemed repatriation of cumulative foreign earnings as of December 31, 2017 and eliminated the tax on dividends from foreign subsidiaries by allowing a 100-percent dividends received deduction.

On December 22, 2017, Staff Accounting Bulletin No. 118 ("SAB 118") was issued to provide guidance on the application of GAAP to situations in which the registrant does not have all the necessary information available, prepared or analyzed (including computations) in sufficient detail to complete the accounting for the income tax effects of the TCJA.

In the fourth quarter of 2017, the Company calculated a provisional impact of the TCJA in accordance with SAB 118 and its understanding of the TCJA, including published guidance as of December 31, 2017. During the third and fourth quarter of 2018, the Company recorded $2 million and $1 million, respectively, of net incremental tax expense, as the Company finalized its TCJA expense based on additional

guidance from federal and state regulatory agencies. The following table summarizes the provisional and final impact of the TCJA:

(in millions)	Provisional 2017 TCJA Impact	Final 2017 TCJA Impact
One-time transition tax	$ 21	$ 25
Remeasurement of deferred tax assets and liabilities	(38)	(38)
Net impact of provision for taxes on unremitted earnings	33	35
Other items, net	7	4
Net impact of the TCJA	$ 23	$ 26

Pro-forma results related to TCJA have not been presented, as the effect would not be material to the Company's results for the periods presented.

Under a provision in the TCJA, all of the undistributed earnings of the Company's foreign subsidiaries were deemed to be repatriated at December 31, 2017 and were subjected to a transition tax. As a result, a provisional transition tax liability of $21 million, or 2.7 percentage points on the effective tax rate, was recorded in income from continuing operations in the fourth quarter of 2017. During the third quarter of 2018, the Company finalized the transition tax analysis and recorded an incremental $4 million liability, or 0.6 percentage points on the effective tax rate.

As a result of the reduction in the U.S. corporate tax rate, the Company recorded a tax benefit of $38 million, or 4.9 percentage points on the effective tax rate, due to the remeasurement of its U.S. net deferred tax liabilities, in the fourth quarter of 2017.

Due to a change in the U.S. tax treatment of dividends received from foreign subsidiaries, in the fourth quarter of 2017, the Company recorded a provisional tax liability of $33 million, or 4.3 percentage points on the effective tax rate, for foreign dividend withholding and state income taxes payable upon the distribution of unremitted earnings from certain foreign subsidiaries from which it expected to receive cash distributions in 2018 and beyond. During the second half of 2018, the Company finalized the provision for taxes on unremitted earnings and recorded an additional $2 million liability, or 0.3 percentage points on the effective rate.

The net impact of the TCJA on the Company's 2017 tax expense included a provisional tax liability of $7 million, or 0.9 percentage points on the effective tax rate (included in other items, net), for the difference in its 2017 tax expense as calculated with and without the changes triggered by the TCJA. During the second half of 2018, the Company finalized other items, net and recorded a net $3 million benefit, or 0.4 percentage points on the effective tax rate.

In the fourth quarter of 2018, the Company made an accounting election to treat taxes due on future U.S. inclusions in taxable income related to GILTI as a current-period expense when incurred (the "period cost method").

The Company had been pursuing relief from double taxation under the U.S.-Canada tax treaty for the years 2004 through 2013. During the fourth quarter of 2016, a tentative settlement was reached between the U.S. and Canada and, consequently, the Company established a net reserve of $24 million, including interest thereon, recorded as a $70 million cost and a $46 million benefit, or 3.2 percentage points on the effective tax rate. In addition, as a result of the settlement, for the years 2014 through 2016, the Company had established a net reserve of $7 million, or 1.0 percentage points on the effective tax rate in 2016. In the third quarter of 2017, the two countries finalized the agreement, which eliminated the double taxation, and the Company paid $63 million to the U.S. Internal Revenue Service to settle the liability. As a result of that agreement, the Company was entitled to a net tax benefit of $10 million primarily due to a foreign exchange loss deduction on its 2017 U.S. federal income tax return, or 1.3 percentage points on the effective tax rate. As a result of the final settlement, the Company received refunds totaling $42 million from Canadian revenue agencies and recorded $2 million, or 0.3 percentage points on the effective tax rate, of interest and penalties through tax expense in 2018.

During 2019, the Company increased the valuation allowance on the net deferred tax assets in Argentina. As a result, the Company recorded a valuation allowance in the amount of $2 million, or 0.3 percentage points on the effective tax rate, compared to $6 million, or 1.0 percentage points on the effective tax rate, and $16 million, or 2.0 percentage points on the effective tax rate in 2018 and 2017, respectively.

As of December 31, 2017, for U.S. tax purposes all of the undistributed earnings and profits of the Company's foreign subsidiaries were deemed to be repatriated and subjected to a transition tax. In addition, during 2017 and 2018 the Company recorded a liability of $33 million and $2 million, respectively, for foreign withholding and state income taxes on certain unremitted earnings from foreign subsidiaries. However, the Company has not provided for foreign withholding taxes, state income taxes and federal and state taxes on foreign currency gains/losses on distributions of approximately $3.0 billion of unremitted earnings of the Company's foreign subsidiaries as such amounts are considered permanently reinvested. It is not practicable to estimate the additional income taxes, including applicable foreign withholding taxes that would be due upon the repatriation of these earnings.

A reconciliation of the beginning and ending amounts of unrecognized tax benefits, excluding interest and penalties, for 2019 and 2018 is as follows:

(in millions)	2019	2018
Balance at January 1	$30	$39
Additions for tax positions related to prior years	—	—
Reductions for tax positions related to prior years	—	(2)
Additions based on tax positions related to the current year	—	—
Settlements	—	—
Reductions related to a lapse in the statute of limitations	(8)	(7)
Balance at December 31	$22	$30

Of the $22 million of unrecognized tax benefits as of December 31, 2019, $5 million represents the amount that, if recognized, could affect the effective tax rate in future periods. The remaining $17 million includes an offset of $15 million for an income tax receivable and $1 million of federal benefit created as part of the U.S.-Canada tax settlement described previously. The remaining benefit is a $1 million foreign tax credit.

The Company accounts for interest and penalties related to income tax matters within the provision for income taxes. The Company has accrued $2 million of interest expense related to the unrecognized tax benefits as of December 31, 2019. The accrued interest expense was $2 million as of December 31, 2018.

The Company is subject to U.S. federal income tax as well as income tax in multiple states and non-U.S. jurisdictions. The U.S. federal tax returns are subject to audit for the years 2016 through 2019. In general, the Company's foreign subsidiaries remain subject to audit for years 2013 and later.

It is also reasonably possible that the total amount of unrecognized tax benefits including interest and penalties will increase or decrease within 12 months of December 31, 2019. The Company believes it is reasonably possible approximately $9 million of unrecognized tax benefits may be recognized within 12 months of December 31, 2019 as a result of a lapse of the statute of limitations, of which $2 million, could affect the effective tax rate. The Company has classified none of the unrecognized tax benefits as current because they are not expected to be resolved within the next 12 months.

Note 10. Benefit Plans

The Company and its subsidiaries sponsor noncontributory defined benefit pension plans (qualified and non-qualified) covering a substantial portion of employees in the U.S. and Canada, and certain employees in other foreign countries. Plans for most salaried employees provide pay-related benefits based on years of service. Plans for hourly employees generally provide benefits based on flat dollar amounts and years of service. The Company's general funding policy is to make contributions to the plans in amounts that comply with minimum funding requirements and are within the limits of deductibility under current tax regulations. Certain foreign countries allow income tax deductions without regard to contribution levels, and the Company's policy in those countries is to make contributions required by the terms of the applicable plan.

Included in the Company's pension obligation are nonqualified supplemental retirement plans for certain key employees. Benefits provided under these plans are unfunded and payments to plan participants are made directly by the Company.

The Company also provides healthcare and/or life insurance benefits for retired employees in the U.S., Canada, and Brazil. Healthcare benefits for retirees outside of the U.S., Canada, and Brazil are generally covered through local government plans.

Pension Obligation and Funded Status: The changes in pension benefit obligations and plan assets during the years ended December 31, 2019 and 2018, as well as the funded status and the amounts recognized in the Company's Consolidated Balance Sheets related to the Company's pension plans at December 31, 2019, and 2018, were as follows:

	U.S. Plans		Non-U.S. Plans	
(in millions)	2019	2018	2019	2018
Benefit obligation				
At January 1	$357	$393	$223	$248
Service cost	5	6	3	3
Interest cost	14	13	10	10
Benefits paid	(28)	(26)	(11)	(12)
Actuarial loss (gain)	39	(27)	24	(8)
Curtailment/settlement/ amendments	—	(2)	(2)	—
Foreign currency translation	—	—	7	(18)
Benefit obligation at December 31	$387	$357	$254	$223
Fair value of plan assets				
At January 1	$353	$404	$207	$235
Actual return on plan assets	82	(25)	24	—
Employer contributions	1	2	7	4
Benefits paid	(28)	(26)	(11)	(12)
Plan settlements	—	(2)	(3)	—
Foreign currency translation	—	—	7	(20)
Fair value of plan assets at December 31	$408	$353	$231	$207
Funded status	$ 21	$ (4)	$ (23)	$ (16)

Amounts recognized in the Consolidated Balance Sheets as of December 31, 2019 and 2018, were as follows:

	U.S. Plans		Non-U.S. Plans	
(in millions)	2019	2018	2019	2018
Non-current asset	$ 32	$ 7	$ 31	$ 32
Current liabilities	(1)	(1)	(2)	(1)
Non-current liabilities	(10)	(10)	(52)	(47)
Net asset (liability) recognized	$ 21	$ (4)	$(23)	$(16)

Amounts recognized in accumulated other comprehensive loss, excluding tax effects, that have not yet been recognized as components of net periodic benefit cost at December 31, 2019 and 2018, were as follows:

	U.S. Plans		Non-U.S. Plans	
(in millions)	2019	2018	2019	2018
Net actuarial loss	$15	$40	$62	$57
Transition obligation	—	—	1	1
Prior service credit	(6)	(6)	—	(1)
Net amount recognized	$ 9	$34	$63	$57

The decrease in the net amount recognized in accumulated comprehensive loss at December 31, 2019, for the U.S. plans as compared to December 31, 2018, is mainly due to the actual return on

assets exceeding the expected return on assets. This is partially offset by the effect of the decrease in discount rates used to measure the Company's obligations under its U.S. pension plans.

The increase in the net amount recognized in accumulated comprehensive loss at December 31, 2019, for the Non-U.S. plans, as compared to December 31, 2018, is mainly due to the decrease in discount rates used to measure the Company's obligations under its Non-U.S. pension plans. This is partially offset by the actual return on assets exceeding the expected return on assets.

The accumulated benefit obligation for all defined benefit pension plans was $601 million and $543 million at December 31, 2019 and 2018, respectively.

Information about plan obligations and assets for plans with an accumulated benefit obligation in excess of plan assets is as follows:

	U.S. Plans		Non-U.S. Plans	
(in millions)	2019	2018	2019	2018
Projected benefit obligation	$11	$11	$56	$49
Accumulated benefit obligation	10	9	45	41
Fair value of plan assets	—	—	2	2

All U.S. plans and most non-U.S. plans value the vested benefit obligation based on the actuarial present value of the vested benefits to which employees are currently entitled based on employees' expected date of separation or retirement.

Components of net periodic benefit cost consist of the following for the years ended December 31, 2019, 2018, and 2017:

	Year Ended December 31,					
	U.S. Plans			Non-U.S. Plans		
(in millions)	2019	2018	2017	2019	2018	2017
Service cost	$ 5	$ 6	$ 6	$ 3	$ 3	$ 3
Interest cost	14	13	13	10	10	11
Expected return on plan assets	(18)	(21)	(21)	(8)	(9)	(10)
Amortization of actuarial loss	1	—	—	2	2	2
Amortization of prior service credit	(1)	—	(1)	—	—	—
Net periodic benefit cost	$ 1	$ (2)	$ (3)	$ 7	$ 6	$ 6

The service cost component of net periodic benefit cost is presented within either cost of sales or operating expenses on the Consolidated Statements of Income. The interest cost, expected return on plan assets, amortization of actuarial loss, amortization of prior service credit and settlement loss components of net periodic benefit cost are presented as other, non-operating income on the Consolidated Statements of Income.

For the U.S. plans, the Company estimates that net periodic benefit cost for the year ending December 31, 2020 will include approximately $1 million relating to the amortization of the prior service credit included in accumulated other comprehensive loss as of December 31, 2019.

For the non-U.S. plans, the Company estimates that net periodic benefit cost for the year ending December 31, 2020 will include approximately $2 million relating to the amortization of its accumulated actuarial loss.

Actuarial gains and losses in excess of 10 percent of the greater of the projected benefit obligation or the market-related value of plan assets are recognized as a component of net periodic benefit cost over the average remaining service period of a plan's active employees for active defined benefit pension plans and over the average remaining life of a plan's active employees for frozen defined benefit pension plans.

Total amounts recorded in other comprehensive income and net periodic benefit cost was as follows:

	U.S. Plans			Non-U.S. Plans		
(in millions, pre-tax)	2019	2018	2017	2019	2018	2017
Net actuarial (gain) loss	$(25)	$19	$(7)	$ 7	$ 4	$(3)
Prior service cost	—	—	—	1	—	—
Amortization of actuarial loss	(1)	—	—	(2)	(2)	(2)
Amortization of prior service credit	1	—	1	—	—	—
Total recorded in other comprehensive income	(25)	19	(6)	6	2	(5)
Net periodic benefit cost	1	(2)	(3)	7	6	6
Total recorded in other comprehensive income and net periodic benefit cost	$(24)	$17	$(9)	$13	$ 8	$ 1

The following weighted average assumptions were used to determine the Company's obligations under the pension plans:

	U.S. Plans		Non-U.S. Plans	
	2019	2018	2019	2018
Discount rate	3.34%	4.38%	3.55%	4.33%
Rate of compensation increase	4.21	4.31	3.75	3.63

The following weighted average assumptions were used to determine the Company's net periodic benefit cost for the pension plans:

	U.S. Plans			Non-U.S. Plans		
	2019	2018	2017	2019	2018	2017
Discount rate	4.38%	3.70%	4.30%	4.33%	4.02%	4.34%
Expected long-term return on plan assets	5.30	5.30	5.75	4.37	4.31	5.29
Rate of compensation increase	4.31	4.42	4.54	3.63	3.58	3.62

For the year ended December 31, 2019, the Company assumed an expected long-term rate of return on assets of 5.30 percent for U.S. plans and approximately 3.86 percent for Canadian plans. In developing the expected long-term rate of return assumption on plan assets, which consist mainly of U.S. and Canadian debt and equity securities, management evaluated historical rates of return achieved on plan assets and the asset allocation of the plans, input from the Company's independent actuaries and investment consultants, and historical trends in long-term inflation rates. Projected return estimates made by such consultants are based upon broad equity and bond indices.

The discount rate reflects a rate of return on high-quality fixed income investments that match the duration of the expected benefit payments. The Company has typically used returns on long-term,

high-quality corporate AA bonds as a benchmark in establishing this assumption. The Company elects to use a full yield curve approach in the estimation of these components of benefit cost by applying the specific spot rates along the yield curve used in the determination of the benefit obligation to the relevant projected cash flows.

Plan Assets: The Company's investment policy for its pension plans is to balance risk and return through diversified portfolios of fixed income securities, equity instruments, and short-term investments. Maturities for fixed income securities are managed such that sufficient liquidity exists to meet near-term benefit payment obligations. For U.S. pension plans, the weighted average target range allocation of assets was 15-25 percent in equities and 75-85 percent in fixed income inclusive of other short-term investments. The asset allocation is reviewed regularly, and portfolio investments are rebalanced to the targeted allocation when considered appropriate.

The Company's weighted average asset allocation as of December 31, 2019, and 2018, for U.S. and non-U.S. pension plan assets is as follows:

	U.S. Plans		Non-U.S. Plans	
Asset Category	2019	2018	2019	2018
Equity securities	21%	19%	17%	16%
Debt securities	78	80	63	64
Cash and other	1	1	20	20
Total	100%	100%	100%	100%

The fair values of the Company's plan assets by asset category and level in the fair value hierarchy are as follows:

	Fair Value Measurements at December 31, 2019			
(in millions)	Level 1	Level 2	Level 3	Total
U.S. Plans:				
Equity index:				
U.S. [(a)]	$—	$ 43	$—	$ 43
International [(b)]	—	42	—	42
Fixed income index:				
Long bond [(c)]	—	295	—	295
Long government bond [(d)]	—	25	—	25
Cash [(e)]	—	3	—	3
Total U.S. Plans	$—	$408	$—	$408
Non-U.S. Plans:				
Equity index:				
U.S. [(a)]	$—	$ 22	$—	$ 22
International [(b)]	—	17	—	17
Fixed income index:				
Intermediate bond [(h)]	—	52	—	52
Long bond [(i)]	—	95	—	95
Other [(j)]	—	24	—	24
Cash [(e)]	2	19	—	21
Total Non-U.S. Plans	$ 2	$229	$—	$231

	Fair Value Measurements at December 31, 2018			
(in millions)	Level 1	Level 2	Level 3	Total
U.S. Plans:				
Equity index:				
U.S. [(a)]	$—	$ 33	$—	$ 33
International [(l)]	—	35	—	35
Fixed income index:				
Long bond [(c)]	—	258	—	258
Long govt bond [(d)]	—	24	—	24
Cash [(e)]	—	3	—	3
Total U.S. Plans	$—	$353	$—	$353
Non-U.S. Plans:				
Equity index:				
U.S. [(a)]	$—	$ 3	$—	$ 3
Canada [(f)]	—	13	—	13
International [(l)]	—	15	—	15
Real estate [(g)]	—	2	—	2
Fixed income index:				
Intermediate bond [(h)]	—	34	—	34
Long bond [(k)]	—	99	—	99
Other [(j)]	—	24	—	24
Cash [(e)]	2	15	—	17
Total Non-U.S. Plans	$ 2	$205	$—	$207

(a) This category consists of both passively and actively managed equity index funds that track the return of large capitalization U.S. equities.

(b) This category consists of both passively and actively managed equity index funds that track an index of returns on international developed market equities.

(c) This category consists of an actively managed fixed income index fund that invests in a diversified portfolio of fixed-income corporate securities with maturities generally exceeding 10 years.

(d) This category consists of an actively managed fixed income index fund that invests in a diversified portfolio of fixed-income U.S. treasury securities with maturities generally exceeding 10 years.

(e) This category represents cash or cash equivalents.

(f) This category consists of an actively managed equity index fund that tracks against an index of large capitalization Canadian equities.

(g) This category consists of an actively managed equity index fund that tracks against real estate investment trusts and real estate operating companies.

(h) This category consists of both passively and actively managed fixed income index funds that track the return of intermediate duration government and investment grade corporate bonds.

(i) This category consists of both passively and actively managed fixed income index funds that track the return of government bonds and investment grade corporate bonds.

(j) This category mainly consists of investment products provided by insurance companies that offer returns that are subject to a minimum guarantee and mutual funds.

(k) This category consists of both passively and actively managed fixed income index funds that track the return of government bonds, investment grade corporate bonds and hedge funds.

(l) This category consists of both passively and actively managed equity index funds that track an index of returns on international developed market equities as well as infrastructure assets.

All significant pension plan assets are held in collective trusts by the Company's U.S. and non-U.S. plans. The fair values of shares of collective trusts are based upon the net asset values of the funds reported by the fund managers based on quoted market prices of the underlying securities as of the balance sheet date and are considered to be Level 2 fair value measurements. This may produce a fair value measurement that may not be indicative of net realizable value or reflective of future fair values. Furthermore, while the Company believes its valuation methods are appropriate and consistent with those of other market participants, the use of different methodologies could result in different fair value measurements at the reporting date.

In the year ended December 31, 2019, the Company made cash contributions of $1 million and $7 million to its U.S. and non-U.S. pension plans, respectively. The Company anticipates that in the year ending December 31, 2020 it will make cash contributions of $1 million and $3 million to its U.S. and non-U.S. pension plans, respectively. Cash contributions in subsequent years will depend on a number of factors including the performance of plan assets.

The following benefit payments, which reflect anticipated future service, as appropriate, are expected to be made:

(in millions)	U.S. Plans	Non-U.S. Plans
2020	$ 20	$12
2021	21	11
2022	21	12
2023	23	13
2024	22	12
Years 2025 – 2029	120	71

The Company and certain subsidiaries also maintain defined contribution plans. The Company makes matching contributions to these plans that are subject to certain vesting requirements and are based on a percentage of employee contributions. Amounts charged to expense for defined contribution plans totaled $20 million, $21 million, and $22 million in the years ended December 31, 2019, 2018, and 2017, respectively.

Postretirement Benefit Plans: The Company's postretirement benefit plans currently are not funded. The information presented below includes plans in the U.S., Brazil, and Canada. The changes in the benefit obligations of the plans during the years ended December 31, 2019 and 2018, and the amounts recognized in the Company's Consolidated Balance Sheets at December 31, 2019, and 2018, are as follows:

(in millions)	2019	2018
Accumulated postretirement benefit obligation		
At January 1	$ 64	$ 70
Service cost	1	1
Interest cost	3	3
Plan curtailments	—	(1)
Actuarial loss (gain)	6	(2)
Benefits paid	(5)	(4)
Foreign currency translation	—	(3)
At December 31	69	64
Fair value of plan assets	—	—
Funded status	$(69)	$(64)

Amounts recognized in the Consolidated Balance Sheets consist of:

(in millions)	2019	2018
Current liabilities	$ (4)	$ (4)
Non-current liabilities	(65)	(60)
Net liability recognized	$(69)	$(64)

Amounts recognized in accumulated other comprehensive loss (income), excluding tax effects, that have not yet been recognized as components of net periodic benefit cost at December 31, 2019 and 2018, were as follows:

(in millions)	2019	2018
Net actuarial loss	$14	$ 8
Prior service credit	(2)	(4)
Net amount recognized	$12	$ 4

Components of net periodic benefit cost consisted of the following for the years ended December 31, 2019, 2018, and 2017:

	Year Ended December 31,		
(in millions)	2019	2018	2017
Service cost	$ 1	$ 1	$ 1
Interest cost	3	3	3
Amortization of prior service credit	(2)	(2)	(3)
Net periodic benefit cost	$ 2	$ 2	$ 1

The service cost component of net periodic benefit cost is presented within either cost of sales or operating expenses on the Consolidated Statements of Income. The interest cost and amortization of prior service credit components of net periodic benefit cost are presented as other, non-operating income on the Consolidated Statements of Income.

The Company estimates that postretirement benefit expense for these plans for the year ending December 31, 2020 will include approximately $2 million relating to the amortization of the prior service credit as well as approximately $1 million relating to the amortization of its accumulated actuarial loss included in accumulated other comprehensive income as of December 31, 2019.

Total amounts recorded in other comprehensive income and net periodic benefit cost was as follows:

(in millions, pre-tax)	2019	2018	2017
Net actuarial loss (gain)	$ 6	$(3)	$2
Amortization of prior service credit	2	2	3
Total recorded in other comprehensive income	8	(1)	5
Net periodic benefit cost	2	2	1
Total recorded in other comprehensive income and net periodic benefit cost	$10	$ 1	$6

The following weighted average assumptions were used to determine the Company's obligations under the postretirement plans:

	2019	2018
Discount rate	4.18%	5.24%

The following weighted average assumptions were used to determine the Company's net postretirement benefit cost:

	2019	2018	2017
Discount rate	5.49%	4.93%	5.46%

The discount rate reflects a rate of return on high-quality fixed-income investments that match the duration of expected benefit payments. The Company has typically used returns on long-term, high-quality corporate AA bonds as a benchmark in establishing this assumption.

The healthcare cost trend rates used in valuing the Company's postretirement benefit obligations are established based upon actual healthcare trends and consultation with actuaries and benefit providers. The following assumptions were used as of December 31, 2019:

	U.S.	Canada	Brazil
2019 increase in per capita cost	6.00%	5.83%	7.38%
Ultimate trend	4.50%	4.00%	7.38%
Year ultimate trend reached	2037	2040	2019

The sensitivities of service cost and interest cost and year-end benefit obligations to changes in healthcare cost trend rates for the postretirement benefit plans as of December 31, 2019, are as follows:

(in millions)	2019
One-percentage point increase in trend rates:	
Increase in service cost and interest cost components	$—
Increase in year-end benefit obligations	6
One-percentage point decrease in trend rates:	
Decrease in service cost and interest cost components	—
Decrease in year-end benefit obligations	5

The following benefit payments, which reflect anticipated future service, as appropriate, are expected to be made under the Company's postretirement benefit plans:

(in millions)	
2020	$ 4
2021	4
2022	4
2023	4
2024	4
Years 2025 – 2029	21

Multi-employer Plans: The Company participates in and contributes to one multi-employer benefit plan under the terms of collective bargaining agreements that cover certain union-represented employees and retirees in the U.S. The plan covers medical and dental benefits for active hourly employees and retirees represented by the U.S. Steel Workers Union for certain U.S. locations.

The risks of participating in this multi-employer plan are different from single-employer plans. This plan receives contributions from two or more unrelated employers pursuant to one or more collective bargaining agreements and the assets contributed by one employer may be used to fund the benefits of all employees covered within the plan.

The Company is required to make contributions to this plan as determined by the terms and conditions of the collective bargaining agreements and plan terms. For the years ended December 31, 2019, 2018, and 2017, the Company made regular contributions of $13 million, $12 million, and $13 million, respectively, to this multi-employer plan. The Company cannot currently estimate the amount of multi-employer plan contributions that will be required in the year ending December 31, 2020 and future years, but these contributions could increase due to healthcare cost trends. The collective bargaining agreements associated with this plan expire during 2020 through 2024.

Note 11. Equity

Preferred stock: The Company has authorized 25 million shares of $0.01 par value preferred stock, none of which were issued or outstanding at December 31, 2019 and 2018.

Treasury stock: On October 22, 2018, the Board of Directors authorized a new stock repurchase program permitting the Company to purchase up to 8 million of its outstanding shares of common stock from November 5, 2018 through December 31, 2023. The parameters of the Company's stock repurchase program are not established solely with reference to the dilutive impact of shares issued under the Company's stock incentive plan. However, the Company expects that, over time, share repurchases will offset the dilutive impact of shares issued under the stock incentive plan.

On November 5, 2018, the Company entered into a Variable Timing Accelerated Share Repurchase ("ASR") program with JPMorgan ("JPM"). Under the ASR program, the Company paid $455 million on November 5, 2018 and acquired 4 million shares of its common stock having an approximate value of $423 million on that date. On February 5, 2019, the Company and JPM settled the difference between the initial price and average daily volume-weighted average price ("VWAP") less the agreed upon discount during the term of the agreement. The final VWAP was $98.04 per share, which was less than originally paid. The Company settled the difference in cash, resulting in JPM returning $63 million of the upfront payment to the Company on February 6, 2019, and lowering the total cost of repurchasing the 4 million shares of common stock to $392 million. The Company adjusted Additional paid-in capital and Treasury stock by $32 million and $31 million, respectively, during the first quarter of 2019 for this inflow of cash.

In the year ended December 31, 2019, the Company did not repurchase shares of common stock. In the year ended December 31, 2018, the Company repurchased 5.8 million shares of common stock in open market transactions at a net cost of $594 million.

Set forth below is a reconciliation of common stock share activity for the years ended December 31, 2019, 2018, and 2017:

(Shares of common stock, in thousands)	Issued	Held in Treasury	Outstanding
Balance at December 31, 2016	77,811	5,397	72,414
Issuance of restricted stock units as compensation	—	(103)	103
Performance shares and other share-based awards	—	(75)	75
Stock options exercised	—	(443)	443
Purchase/acquisition of treasury stock	—	1,039	(1,039)
Balance at December 31, 2017	77,811	5,815	71,996
Issuance of restricted stock units as compensation	—	(100)	100
Performance shares and other share-based awards	—	(68)	68
Stock options exercised	—	(209)	209
Purchase/acquisition of treasury stock	—	5,847	(5,847)
Balance at December 31, 2018	77,811	11,285	66,526
Issuance of restricted stock units as compensation	—	(105)	105
Performance shares and other share-based awards	—	(5)	5
Stock options exercised	—	(182)	182
Purchase/acquisition of treasury stock	—	—	—
Balance at December 31, 2019	77,811	10,993	66,818

Share-based payments: The following table summarizes the components of the Company's share-based compensation expense for the last three years:

(in millions)	2019	2018	2017
Stock options:			
Pre-tax compensation expense	$ 3	$ 5	$ 7
Income tax benefit	—	(1)	(2)
Stock option expense, net of income taxes	3	4	5
Restricted stock units ("RSUs"):			
Pre-tax compensation expense	10	12	13
Income tax benefit	(2)	(2)	(4)
RSUs, net of income taxes	8	10	9
Performance shares and other share-based awards:			
Pre-tax compensation expense	5	4	6
Income tax benefit	—	—	(2)
Performance shares and other share-based compensation expense, net of income taxes	5	4	4
Total share-based compensation:			
Pre-tax compensation expense	18	21	26
Income tax benefit	(2)	(3)	(8)
Total share-based compensation expense, net of income taxes	$16	$18	$18

The Company has a stock incentive plan ("SIP") administered by the compensation committee of its Board of Directors that provides for the granting of stock options, restricted stock, restricted stock units, and other share-based awards to certain key employees. A maximum of 8 million shares were originally authorized for awards under the SIP. As of December 31, 2019, 2.8 million shares were available for future grants under the SIP. Shares covered by awards that expire, terminate or lapse will again be available for the grant of awards under the SIP.

Stock Options: Under the Company's SIP, stock options are granted at exercise prices that equal the market value of the underlying common stock on the date of grant. The options have a 10-year term and are exercisable upon vesting, which occurs over a three-year period at the anniversary dates of the date of grant. Compensation expense is generally recognized on a straight-line basis for all awards over the employee's vesting period or over a one-year required service period for certain retirement eligible executive level employees. The Company estimates a forfeiture rate at the time of grant and updates the estimate throughout the vesting of the stock options within the amount of compensation costs recognized in each period.

The Company granted non-qualified options to purchase 247 thousand shares and 215 thousand shares for the years ended December 31, 2019, and 2018, respectively. The fair value of each option grant was estimated using the Black-Scholes option-pricing model with the following assumptions:

For the Year Ended December 31,	2019	2018	2017
Expected life (in years)	5.5	5.5	5.5
Risk-free interest rate	2.5%	2.5%	1.9%
Expected volatility	19.7%	19.8%	22.5%
Expected dividend yield	2.7%	1.8%	1.7%

The expected life of options represents the weighted average period of time that options granted are expected to be outstanding giving consideration to vesting schedules and the Company's historical exercise patterns. The risk-free interest rate is based on the U.S. Treasury yield curve in effect at the grant date for the period corresponding to the expected life of the options. Expected volatility is based on historical volatilities of the Company's common stock. Dividend yields are based on current dividend payments.

A summary of stock option transactions for the year follows:

	Number of Options (in thousands)	Weighted Average Exercise Price per Share	Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value (in millions)
Outstanding as of December 31, 2018	2,079	$ 80.25	5.51	$42
Granted	247	91.85		
Exercised	(182)	35.40		
Cancelled	(89)	108.94		
Outstanding as of December 31, 2019	2,055	$ 84.36	5.30	$34
Exercisable as of December 31, 2019	1,626	$ 77.97	4.48	$33

For the years ended December 31, 2019, 2018 and 2017, cash received from the exercise of stock options was $6 million, $10 million, and $20 million, respectively. As of December 31, 2019, the unrecognized compensation cost related to non-vested stock options totaled $2 million, which is expected to be amortized over the weighted-average period of approximately 1.5 years.

Additional information pertaining to stock option activity is as follows:

	Year Ended December 31,		
(dollars in millions, except per share)	2019	2018	2017
Weighted average grant date fair value of stock options granted (per share)	$14.02	$24.01	$23.90
Total intrinsic value of stock options exercised	10	15	35

Restricted Stock Units: The Company has granted restricted stock units ("RSUs") to certain key employees. The RSUs are subject to cliff vesting, generally after three years provided the employee remains in the service of the Company. Compensation expense is generally recognized on a straight-line basis for all awards over the employee's vesting period or over a one-year required service period for certain retirement eligible executive level employees. The Company estimates a forfeiture rate at the time of grant and updates the estimate throughout the vesting of the RSUs within the amount of compensation costs recognized in each period. The fair value of the RSUs is determined based upon the number of shares granted and the quoted market price of the Company's common stock at the date of the grant.

The following table summarizes RSU activity for the year:

(shares in thousands)	Number of Restricted Shares	Weighted Average Fair Value per Share
Non-vested at December 31, 2018	344	$115.06
Granted	178	91.11
Vested	(137)	101.54
Cancelled	(46)	114.51
Non-vested at December 31, 2019	339	$108.02

The total fair value of RSUs that vested in the years ended December 31, 2019, 2018, and 2017 was $16 million, $15 million, and $18 million, respectively.

At December 31, 2019, the total remaining unrecognized compensation cost related to RSUs was $14 million which will be amortized on a weighted-average basis over approximately 1.8 years. Recognized compensation cost related to unvested RSUs is included in Share-based payments subject to redemption in the Consolidated Balance Sheets and totaled $23 million and $26 million at December 31, 2019 and 2018, respectively.

Performance Shares: The Company has a long-term incentive plan for senior management in the form of performance shares. Historically these performance shares vested based solely on the Company's total shareholder return as compared to the total shareholder return of its peer group over the three-year vesting period. Beginning with the performance share grants in the year ended December 31, 2019, the vesting of the performance shares will be based on two performance metrics. Fifty percent of the performance shares awarded will vest based on the Company's total shareholder return as compared to the total shareholder return of its peer group, and the remaining fifty percent will vest based on the calculation of the Company's three-year average Return on Invested Capital ("ROIC") against an established ROIC target.

For the performance shares awarded in the first quarter of 2019, based on the Company's total shareholder return, the number of shares that ultimately vest can range from zero to 200 percent of the awarded grant depending on the Company's total shareholder return as compared to the total shareholder return of its peer group. The share award vesting will be calculated at the end of the three-year period and is subject to approval by management and the Compensation Committee of the Board of Directors. Compensation expense is based on the fair value of the performance shares at the grant date, established using a Monte Carlo simulation model. The total compensation expense for these awards is amortized over a three-year graded vesting schedule.

For the performance shares awarded in the first quarter of 2019, based on ROIC, the number of shares that ultimately vest can range from zero to 200 percent of the awarded grant depending on the Company's ROIC performance against the target. The share award vesting will be calculated at the end of the three-year period and is subject to approval by management and the Compensation Committee. Compensation expense is based on the market price of the Company's common stock on the date of the grant and the final number of shares that ultimately vest. The Company will estimate the potential share vesting at least annually to adjust the compensation expense for these awards over the vesting period to reflect the Company's estimated ROIC performance versus the target. The total compensation expense for these awards is amortized over a three-year graded vesting schedule.

The Company awarded 70 thousand, 27 thousand, and 38 thousand performance shares in the years ended December 31, 2019, 2018 and 2017, respectively. The weighted average fair value of the shares granted during the years ended December 31, 2019, 2018 and 2017 was $92.57, $141.91, and $114.08, respectively.

The performance share award granted in the year ended December 31, 2016 vested in the first quarter of 2019, achieving a zero percent payout of the granted performance shares. As of December 31, 2019, the performance awards granted in the year ended December 31, 2017 are estimated to pay out at zero percent, respectively. There were three thousand shares cancelled during the year ended December 31, 2019.

As of December 31, 2019, the unrecognized compensation cost relating to these plans was $4 million, which will be amortized over the remaining requisite service periods of 1.8 years. Recognized compensation cost related to these unvested awards is included in share-based payments subject to redemption in the Consolidated Balance Sheets and totaled $9 million and $10 million at December 31, 2019 and 2018, respectively.

Other share-based awards under the SIP: Under the compensation agreement with the Board of Directors, $120,000 of a non-employee director's annual retainer and 50 percent of the additional retainers paid to the Lead Director and the Chairmen of committees of the Board of Directors are awarded in shares of common stock or, if a director elects to defer all or a portion of his or her common stock or cash compensation, in shares of restricted stock units. These restricted units cannot be transferred until a date not less than six months after the director's termination of service from the Board of Directors at which time the restricted units will be settled by delivering shares of common stock with fractional shares to be paid in cash. The compensation expense relating to this plan included in the Consolidated Statements of Income was approximately $1 million in the years ended December 31, 2019, 2018, and 2017. At December 31, 2019, there were approximately 210 thousand restricted stock units outstanding under this plan at a carrying value of approximately $13 million.

Accumulated Other Comprehensive Loss: A summary of accumulated other comprehensive income (loss) for the years ended December 31, 2017, 2018, and 2019, is presented below:

(in millions)	Cumulative Translation Adjustment	Deferred (Loss) Gain on Hedging Activities	Pension and Postretirement Adjustment	Unrealized (Loss) Gain on Investment	Accumulated Other Comprehensive Loss
Balance, December 31, 2016	$(1,008)	$ (7)	$(56)	$—	$(1,071)
Other comprehensive income (loss) before reclassification adjustments	57	(16)	8	3	52
Amount reclassified from accumulated OCI	—	6	(2)	—	4
Tax benefit (provision)	—	4	(1)	(1)	2
Net other comprehensive income (loss)	57	(6)	5	2	58
Balance, December 31, 2017	(951)	(13)	(51)	2	(1,013)
Other comprehensive (loss) income before reclassification adjustments	(129)	8	(20)	—	(141)
Amount reclassified from accumulated OCI	—	6	—	—	6
Tax (provision) benefit	—	(4)	5	—	1
Net other comprehensive (loss) income	(129)	10	(15)	—	(134)
Adoption of ASU 2016-01	—	—	—	(2)	(2)
Adoption of ASU 2018-02	—	(2)	(3)	—	(5)
Other	—	(2)	(3)	(2)	(7)
Balance, December 31, 2018	(1,080)	(5)	(69)	—	(1,154)
Other comprehensive loss before reclassification adjustments	(9)	(19)	11	—	(17)
Amount reclassified from accumulated OCI	—	14	—	—	14
Tax benefit (provision)	—	1	(2)	—	(1)
Net other comprehensive loss	(9)	(4)	9	—	(4)
Balance, December 31, 2019	$(1,089)	$ (9)	$(60)	$—	$(1,158)

Supplemental Information: The following table provides the computation of basic and diluted earnings per common share ("EPS") for the periods presented.

	2019			2018			2017		
(in millions, except per share amounts)	Net Income Available to Ingredion	Weighted Average Shares	Per Share Amount	Net Income Available to Ingredion	Weighted Average Shares	Per Share Amount	Net Income Available to Ingredion	Weighted Average Shares	Per Share Amount
Basic EPS	$413	66.9	$6.17	$443	70.9	$6.25	$519	72.0	$7.21
Effect of Dilutive Securities:									
Incremental shares from assumed exercise of dilutive stock options and vesting of dilutive RSUs and other awards		0.5			0.9			1.5	
Diluted EPS	$413	67.4	$6.13	$443	71.8	$6.17	$519	73.5	$7.06

Approximately 1.1 million, 0.5 million, and 0.3 million share-based awards of common stock were excluded in the years ended December 31, 2019, 2018, and 2017, respectively, from the calculation of the weighted average number of shares outstanding for diluted EPS because their effects were anti-dilutive.

Note 12. Segment Information

The Company is principally engaged in the production and sale of starches and sweeteners for a wide range of industries, and is managed geographically on a regional basis. The Company's operations are classified into four reportable business segments: North America, South America, Asia-Pacific, and EMEA. Its North America segment includes businesses in the U.S., Mexico, and Canada. The Company's South America segment includes businesses in Brazil, Colombia, Ecuador, and the Southern Cone of South America, which includes Argentina, Peru, Chile, and Uruguay. Its Asia-Pacific segment includes businesses in South Korea, Thailand, China, Australia, Japan, Indonesia, Singapore, the Philippines, India, Malaysia, New Zealand, and Vietnam. The Company's EMEA segment includes businesses in Pakistan, Germany, the United Kingdom, South Africa, and Kenya. Net sales by product are not presented because to do so would be impracticable.

(in millions)	2019	2018	2017
Net sales to unaffiliated customers:			
North America	$3,834	$3,857	$3,843
South America	960	988	1,052
Asia-Pacific	823	837	772
EMEA	592	607	577
Total	$6,209	$6,289	$6,244

(in millions)	2019	2018	2017
Operating income:			
North America	$522	$545	$654
South America	96	99	81
Asia-Pacific	87	104	115
EMEA	99	116	114
Corporate	(99)	(97)	(86)
Subtotal	705	767	878
Restructuring/impairment charges [a]	(57)	(64)	(38)
Acquisition/integration costs	(3)	—	(4)
Brazil tax matter [b]	22	—	—
Charge for fair value markup of acquired inventory	—	—	(9)
Insurance settlement	—	—	9
Other	(3)	—	—
Total operating income	$664	$703	$836

[a] The year ended December 31, 2019 includes $57 million of restructuring expenses, including $29 million of net restructuring related expenses as part of the Cost Smart Cost of sales program and $28 million of employee-related and other costs, including professional services, associated with the Cost Smart SG&A program. The year ended December 31, 2018 includes $49 million of restructuring expenses as part of the Cost Smart Cost of sales program in relation to the cessation of wet-milling at the Stockton, California plant, $11 million of restructuring costs related to Cost Smart SG&A program, $3 million of costs related to the North America finance transformation program, and $1 million of costs related to the leaf extraction process in Brazil. The year ended December 31, 2017 includes $17 million of employee-related severance and other costs associated with the restructuring in Argentina, $13 million of restructuring of related to the leaf extraction process in Brazil, $6 million of employee-related severance and other costs associated with the Finance Transformation initiative, and $2 million of other restructuring charges including employee-related severance costs in North America and a refinement of estimates for prior year restructuring activities.

[b] During the year ended December 31, 2019, the Company recorded a $22 million pre-tax benefit for the favorable judgement received by Ingredion from the Federal Court of Appeals in Brazil related to certain indirect taxes collected in prior years. As a result of the decision, the Company expects to be entitled to credits against its Brazilian federal tax payments in 2020 and future years. The benefit recorded represents the Company's current estimate of the credits and interest due from the favorable decision in accordance with ASC 450, Contingencies. This benefit was offset by other adjusted charges during the period.

(in millions) As of December 31,	2019	2018
Total assets:		
North America [a]	$3,924	$3,737
South America	774	711
Asia-Pacific	843	792
EMEA	499	488
Total	$6,040	$5,728

[a] For purposes of presentation, North America includes Corporate assets.

(in millions)	2019	2018	2017
Depreciation and amortization:			
North America [a]	$146	$180	$140
South America	22	24	27
Asia-Pacific	37	27	25
EMEA	15	16	17
Total	$220	$247	$209
Mechanical stores expense [b]:			
North America [a]	$ 40	$ 38	$ 37
South America	10	11	12
Asia-Pacific	4	5	5
EMEA	3	3	3
Total	$ 57	$ 57	$ 57
Capital expenditures and mechanical stores purchases:			
North America [a]	$226	$232	$180
South America	45	61	50
Asia-Pacific	40	39	51
EMEA	17	18	33
Total	$328	$350	$314

[a] For purposes of presentation, North America includes Corporate activities of depreciation, amortization, capital expenditures, and mechanical stores purchase, respectively.

[b] Represents spare parts used in the production process. Such spare parts are recorded in PP&E as part of machinery and equipment until they are utilized in the manufacturing process and expensed as a period cost.

The following table presents net sales to unaffiliated customers by country of origin for the last three years:

	Net Sales		
(in millions)	2019	2018	2017
U.S.	$2,368	$2,386	$2,423
Mexico	1,075	1,067	1,011
Brazil	479	478	534
Canada	390	404	408
Korea	270	296	285
Others	1,627	1,658	1,583
Total	$6,209	$6,289	$6,244

The following table presents long-lived assets (excluding intangible assets and deferred income taxes) by country as of December 31:

	Long-lived Assets	
(in millions)	2019	2018
U.S.	$1,239	$1,004
Mexico	343	318
Brazil	205	207
Canada	187	165
Thailand	156	137
Germany	129	129
Korea	110	110
Others	260	259
Total	$2,629	$2,329

Note 13. Commitments and Contingencies

In January 2019, the Company's Brazilian subsidiary received a favorable decision from the Federal Court of Appeals in Sao Paulo, Brazil, related to certain indirect taxes collected in prior years. As a result of the decision, the Company expects to be entitled to indirect tax credits against its Brazilian federal tax payments in 2020 and future years. The Company finalized its calculation of the amount of the credits and interest due from the favorable decision, concluding that the Company could be entitled to approximately $86 million of credits spanning a period from 2005 to 2018. The Department of Federal Revenue of Brazil, however, issued an Internal Ruling in which it charged that the Company is entitled to only $22 million of the calculated indirect tax credits and interest for the period from 2005 to 2014. The Brazil National Treasury has filed a motion for clarification with the Brazilian Supreme Court, asking the Court, among other things, to modify the lower court's decision to approve the Internal Ruling, which could impact the decision in favor of the Company. Due to the uncertainty arising from the issuance of the Internal Ruling, the Company recorded $22 million of credits in 2019 in accordance with ASC 450, *Contingencies*. The $22 million of future tax credits, which was recorded in the Consolidated Income Statement in Other income, resulted in additional deferred income taxes of $8 million. The income taxes will be paid as and when the tax credits are utilized. The Company continues to monitor the pending decisions within the Brazilian courts that may result in changes to the calculations and the timing of the recording of any additional gains and receipt of the benefits.

The Company is currently subject to claims and suits arising in the ordinary course of business, including labor matters, certain environmental proceedings, and other commercial claims. The Company also routinely receive inquiries from regulators and other government authorities relating to various aspects of its business, including with respect to compliance with laws and regulations relating to the environment, and at any given time, the Company has matters at various stages of resolution with the applicable governmental authorities. The outcomes of these matters are not within the Company's complete control and may not be known for prolonged periods of time. The Company does not believe that the results of currently known legal proceedings and inquires will be material to it. There can be no assurance, however, that such claims, suits or investigations or those arising in the future, whether taken individually or in the aggregate, will not have a material adverse effect on the Company's financial condition or results of operations.

Note 14. Supplementary Information

Consolidated Balance Sheets

(in millions)	2019	2018
Accounts receivable, net:		
Accounts receivable — trade	$830	$802
Accounts receivable — other	157	157
Allowance for doubtful accounts	(10)	(8)
Total accounts receivable, net	$977	$951
Inventories:		
Finished and in process	$565	$522
Raw materials	237	250
Manufacturing supplies	59	52
Total inventories	$861	$824
Accrued liabilities:		
Compensation-related costs	$ 93	$ 81
Income taxes payable	16	27
Current lease liabilities	41	—
Dividends payable	42	42
Accrued interest	15	15
Taxes payable other than income taxes	36	33
Other	138	127
Total accrued liabilities	$381	$325
Non-current liabilities:		
Employees' pension, indemnity, and postretirement	132	122
Other	88	95
Total non-current liabilities	$220	$217

Consolidated Statements of Income

(in millions)	2019	2018	2017
Other income, net:			
Brazil tax matter	$22	$ —	$ —
Insurance settlement	—	—	9
Value-added tax recovery	—	5	6
Other	(3)	5	3
Other income, net	$19	$10	$18

(in millions)	2019	2018	2017
Financing costs, net:			
Interest expense, net of amounts capitalized [a]	$84	$81	$ 79
Interest income	(7)	(9)	(11)
Foreign currency transaction losses	4	14	5
Financing costs, net	$81	$86	$ 73

[a] Interest capitalized amounted to $5 million, $3 million, and $4 million in the years ended December 31, 2019, 2018, and 2017, respectively.

Consolidated Statements of Cash Flow

(in millions)	2019	2018	2017
Other non-cash charges to net income:			
Share-based compensation expense	$18	$21	$26
Other	15	18	13
Total other non-cash charges to net income	$33	$39	$39

(in millions)	2019	2018	2017
Interest paid	$ 80	$ 73	$ 77
Income taxes paid	145	231	289

Quarterly Financial Data (Unaudited)

Summarized quarterly financial data is as follows:

(in millions, except per share amounts)	1st QTR[a]	2nd QTR[b]	3rd QTR[c]	4th QTR[d]
2019				
Net sales	$1,536	$1,550	$1,574	$1,549
Gross profit	316	329	344	323
Net income attributable to Ingredion	100	105	99	109
Basic earnings per common share of Ingredion	1.50	1.57	1.48	1.63
Diluted earnings per common share of Ingredion	1.48	1.56	1.47	1.61
Per share dividends declared	$0.625	$0.625	$ 0.63	$ 0.63

(in millions, except per share amounts)	1st QTR[e]	2nd QTR[f]	3rd QTR[g]	4th QTR[h]
2018				
Net sales	$1,581	$1,608	$1,563	$1,537
Gross profit	354	360	334	320
Net income attributable to Ingredion	140	114	95	94
Basic earnings per common share of Ingredion	1.94	1.59	1.33	1.38
Diluted earnings per common share of Ingredion	1.90	1.57	1.32	1.36
Per share dividends declared	$ 0.60	$ 0.60	$0.625	$0.625

[a] In the first quarter of 2019, the Company recorded $3 million in after-tax, net restructuring costs and $1 million in after-tax, net acquisition/integration costs.

[b] In the second quarter of 2019, the Company recorded $7 million in after-tax, net restructuring costs.

[c] In the third quarter of 2019, the Company recorded $22 million in after-tax, net restructuring cost and $2 million in after-tax charges for other tax matters.

[d] In the fourth quarter of 2019, the Company recorded $13 million in after-tax, other income related to other matters, $12 million in after-tax, net restructuring costs, and $1 million in after-tax, acquisition/integration costs.

[e] In the first quarter of 2018, the Company recorded $3 million in after-tax, net restructuring costs.

[f] In the second quarter of 2018, the Company recorded $5 million in after-tax, net restructuring costs and $2 million in after-tax, interest penalty related to an income tax settlement.

[g] In the third quarter of 2018, the Company recorded $27 million in after-tax, net restructuring costs, $2 million in after-tax charges for the refinement of provisional charges related to the enactment of the TCJA, and $2 million after-tax gain related to a refinement of reserve for an income tax settlement.

[h] In the fourth quarter of 2018, the Company recorded $16 million in after-tax, net restructuring costs and $1 million in after-tax charges for the refinement of provisional charges related to the enactment of the TCJA.

Item 9. Changes in and Disagreements With Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

Our management, including our Chief Executive Officer and our Chief Financial Officer, performed an evaluation of the effectiveness of our disclosure controls and procedures as of December 31, 2019. Based on that evaluation, our Chief Executive Officer and our Chief Financial Officer concluded that, as of December 31, 2019, our disclosure controls and procedures (a) are effective in providing reasonable assurance that all material information required to be filed in this report has been recorded, processed, summarized and reported within

the time periods specified in the SEC's rules and forms and (b) are designed to ensure that information required to be disclosed in the reports we file or submit under the Securities Exchange Act of 1934, as amended is accumulated and communicated to our management, including our principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure.

There have been no changes in our internal control over financial reporting during the quarter ended December 31, 2019, that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. This system of internal controls is designed to provide reasonable assurance that assets are safeguarded and transactions are properly recorded and executed in accordance with management's authorization.

Internal control over financial reporting includes those policies and procedures that:

1. Pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets.
2. Provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in conformity with accounting principles generally accepted in the U.S., and that our receipts and expenditures are being made only in accordance with authorizations of our management and directors.
3. Provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of our assets that could have a material effect on our financial statements.

Management conducted an evaluation of the effectiveness of internal control over financial reporting based on the framework of *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The scope of the assessment included all of the subsidiaries of the Company. Based on the evaluation, management concluded that our internal control over financial reporting was effective as of December 31, 2019. The effectiveness of our internal control over financial reporting has been audited by KPMG LLP, an independent registered public accounting firm, as stated in their report included in the Consolidated Financial Statements filed with this report.

Item 9B. Other Information

None.

Item 10. Directors, Executive Officers and Corporate Governance

Information required by this Item 10 is incorporated herein by reference to the Company's definitive proxy statement for the Company's 2020 Annual Meeting of Stockholders (the "Proxy Statement"), including the information in the Proxy Statement appearing under the headings "Proposal 1. Election of Directors" and "The Board and Committees." The information regarding executive officers required by Item 401 of Regulation S-K is included in Part 1 of this report under the heading "Information about our Executive Officers."

The Company has adopted a code of ethics that applies to its principal executive officer, principal financial officer, and controller. The code of ethics is posted on the Company's Internet website, which is found at www.ingredion.com. The Company intends to disclose on its website, within any period that may be required under SEC rules, any amendments to, or waivers under, a provision of its code of ethics that applies to the Company's principal executive officer, principal financial officer or controller that relates to any element of the code of ethics definition enumerated in Item 406(b) of Regulation S-K.

Item 11. Executive Compensation

Information required by this Item 11 is incorporated herein by reference to the Proxy Statement, including the information in the Proxy Statement appearing under the headings "Executive Compensation," "Compensation Committee Report," "Director Compensation" and "Compensation Committee Interlocks and Insider Participation."

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

Information required by this Item 12 is incorporated herein by reference to the Proxy Statement, including the information in the Proxy Statement appearing under the headings "Equity Compensation Plan Information as of December 31, 2019" and "Security Ownership of Certain Beneficial Owners and Management."

Item 13. Certain Relationships and Related Transactions, and Director Independence

Information required by this Item 13 is incorporated herein by reference to the Proxy Statement, including the information in the Proxy Statement appearing under the headings "Review and Approval of Transactions with Related Persons," "Certain Relationships and Related Transactions" and "Independence of Board Members."

Item 14. Principal Accounting Fees and Services

Information required by this Item 14 is incorporated herein by reference to the Proxy Statement, including the information in the Proxy Statement appearing under the heading "2019 and 2018 Audit Firm Fee Summary."

Item 15. Exhibits, Financial Statement Schedules

Item 15(a)(1) Consolidated Financial Statements

Financial Statements (see the Index to the Consolidated Financial Statements on page 52 of this report).

Item 15(a)(2) Financial Statement Schedules

All financial statement schedules have been omitted because the information either is not required or is otherwise included in the consolidated financial statements and notes thereto.

Item 15(a)(3) Exhibits

The following list of exhibits includes both exhibits submitted with this Form 10-K as filed with the SEC and those incorporated by reference from other filings.

Exhibit No.	Description
3.1	Amended and Restated Certificate of Incorporation of Ingredion Incorporated, as amended.
3.2	Amended By-Laws of the Company (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K dated December 9, 2016, filed on December 14, 2016) (File No. 1-13397).
4.1	Description of the Company's Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934.
4.2	Private Shelf Agreement, dated as of March 25, 2010, by and between Corn Products International, Inc. and Prudential Investment Management, Inc. (incorporated by reference to Exhibit 4.10 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2010, filed on May 5, 2010) (File No. 1-13397).
4.3	Amendment No. 1 to Private Shelf Agreement, dated as of February 25, 2011, by and between Corn Products International, Inc. and Prudential Investment Management, Inc. (incorporated by reference to Exhibit 4.11 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2011, filed on May 6, 2011) (File No. 1-13397).
4.4	Amendment No. 2 to Private Shelf Agreement, dated as of December 21, 2012, by and between Ingredion Incorporated and Prudential Investment Management, Inc. (incorporated by reference to Exhibit 4.4 to the Company's Annual Report on Form 10-K for the year ended December 31, 2012, filed on February 28, 2013) (File No. 1-13397).
4.5	Indenture dated as of August 18, 1999, between the Company and The Bank of New York, as Trustee (incorporated by reference to Exhibit 4.1 to the Company's Registration Statement on Form S-3, filed on September 19, 2019) (File No. 333-233854).
4.6	Fourth Supplemental Indenture dated as of April 10, 2007, between Corn Products International, Inc. and The Bank of New York Trust Company, N.A., as Trustee (incorporated by reference to Exhibit 4.4 to the Company's Current Report on Form 8 K dated April 10, 2007, filed on April 10, 2007) (File No. 1-13397).
4.7	Sixth Supplemental Indenture, dated as of September 17, 2010, between Corn Products International, Inc. and The Bank of New York Mellon Trust Company, N.A. (as successor trustee to The Bank of New York), as Trustee (incorporated by reference to Exhibit 4.2 to the Company's Current Report on Form 8-K dated September 14, 2010, filed on September 20, 2010) (File No. 1-13397).
4.8	Seventh Supplemental Indenture, dated as of September 17, 2010, between Corn Products International, Inc. and The Bank of New York Mellon Trust Company, N.A. (as successor trustee to The Bank of New York), as Trustee (incorporated by reference to Exhibit 4.3 to the Company's Current Report on Form 8-K dated September 14, 2010, filed on September 20, 2010) (File No. 1-13397).
4.9	Ninth Supplemental Indenture, dated as of September 22, 2016, between the Company and The Bank of New York Mellon Trust Company, N.A. (as successor trustee to The Bank of New York), as Trustee (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K dated September 22, 2016, filed on September 22, 2016) (File No. 1-13397).
10.1*	Stock Incentive Plan as effective February 7, 2017 (the "Stock Incentive Plan") (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K dated February 7, 2017, filed on February 14, 2017) (File No. 1-13397).
10.2*	Form of Indemnification Agreement entered into by each of the members of the Company's Board of Directors and the Company's executive officers (incorporated by reference to Exhibit 10.14 to the Company's Annual Report on Form 10-K for the year ended December 31, 1997, filed on March 31, 1998) (File No. 1-13397).
10.3*	Form of Indemnification Agreement entered into by each of the members of the Company's Board of Directors and the Company's executive officers (incorporated by reference to Exhibit 10.14 to the Company's Annual Report on Form 10-K for the year ended December 31, 1997, filed on March 31, 1998) (File No. 1-13397).
10.4*	Supplemental Executive Retirement Plan as effective July 18, 2012 (incorporated by reference to Exhibit 10.7 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2012, filed on November 2, 2012) (File No. 1-13397).
10.5*	Executive Life Insurance Plan (incorporated by reference to Exhibit 10.17 to the Company's Annual Report on Form 10-K for the year ended December 31, 1997, filed on March 31, 1998) (File No. 1-13397).
10.6*	Deferred Compensation Plan, as amended by Amendment No. 1 (incorporated by reference to Exhibit 10.21 to the Company's Annual Report on Form 10-K/A for the year ended December 31, 2001, filed on June 26, 2002) (File No. 1-13397).
10.7*	Annual Incentive Plan as effective July 18, 2012 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2012, filed on November 2, 2012) (File No. 1-13397).

10.8* Executive Life Insurance Plan, Compensation Committee Summary (incorporated by reference to Exhibit 10.14 to the Company's Annual Report on Form 10-K for the year ended December 31, 2004, filed on March 11, 2005) (File No. 1-13397).

10.9* Form of Performance Share Award Agreement for use in connection with awards under the Stock Incentive Plan (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K dated February 6, 2018, filed on February 12, 2018) (File No. 1-13397).

10.10* Form of Stock Option Award Agreement for use in connection with awards under the Stock Incentive Plan (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K dated February 6, 2018, filed on February 12, 2018) (File No. 1-13397).

10.11* Form of Restricted Stock Units Award Agreement for use in connection with awards under the Stock Incentive Plan (incorporated by reference to Exhibit 10.3 to the Company's Current Report on Form 8-K dated February 6, 2018, filed on February 12, 2018) (File No. 1-13397).

10.12* Form of Executive Severance Agreement entered into by certain executive officers of the Company (incorporated by reference to Exhibit 10.17 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2018, filed on August 3, 2018) (File No. 1-13397).

10.13* Form of Executive Severance Agreement entered into by certain executive officers of the Company (incorporated by reference to Exhibit 10.18 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2018, filed on August 3, 2018) (File No. 1-13397).

10.14 Letter of Agreement, dated as of November 10, 2016, between the Company and Jorgen Kokke (incorporated by reference to Exhibit 10.28 to the Company's Annual Report on Form 10-K for the year ended December 31, 2016, filed on February 22, 2017) (File No. 1-13397).

10.15* Letter of Agreement, dated as of December 1, 2017, between the Company and Jorgen Kokke (incorporated by reference to Exhibit 10.23 to the Company's Annual Report on Form 10-K for the year ended December 31, 2017, filed on February 21, 2018) (File No, 1-13397).

10.16* Letter of Agreement, dated as of January 11, 2018 between the Company and Elizabeth Adefioye (incorporated by reference to Exhibit 10.31 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2018, filed on May 4, 2018) (File No. 1-13397).

10.17* Revolving Credit Agreement, dated as of October 11, 2016, by and among Ingredion Incorporated, the lenders signatory thereto, any subsidiary borrowers that may become party thereto from time to time, JPMorgan Chase Bank, N.A., as Administrative Agent, Bank of America, N.A., as Syndication Agent, and Branch Banking and Trust Company, Bank of Montreal, Wells Fargo Bank, National Association, Mizuho Bank, Ltd., HSBC Bank USA, N.A., Citibank, N.A., ING Capital LLC and PNC Bank, National Association, as Co-Documentation Agents (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K dated October 11, 2016, filed on October 17, 2016) (File No. 1-13397).

10.18* Amended and Restated Term Loan Credit Agreement, dated as of April 12, 2019, among Ingredion Incorporated, the lenders party thereto, Bank of America, N.A., as Administrative Agent, and Merrill Lynch, Pierce, Fenner & Smith Incorporated, as Sole Bookrunner and Sole Lead Arranger (incorporated by reference to Exhibit 4.10 to the Company's Current Report on Form 8-K dated April 12, 2019, filed on April 18, 2019 (File No. 1-13397).

10.19* Summary of Non-Employee Director Compensation.

10.20* Letter of Agreement, dated as of January 28, 2019, between the Company and Janet M. Bawcom.

10.21* Letter of Agreement, dated as of February 1, 2019, between the Company and Janet M. Bawcom.

10.22* Relocation Expense Repayment Agreement, dated as of February 1, 2019, between the Company and Janet M. Bawcom.

21.1 Subsidiaries of the Registrant.

23.1 Consent of Independent Registered Public Accounting Firm.

24.1 Power of Attorney.

31.1 Certification of Chief Executive Officer pursuant to Rule 13a-14(a) or Rule 15d-14(a) under the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.

31.2 Certification of Chief Financial Officer pursuant to Rule 13a-14(a) or Rule 15d-14(a) under the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.

32.1 Certification of Chief Executive Officer pursuant to Rule 13a-14(b) or Rule 15d-14(b) under the Securities Exchange Act of 1934 and Section 1350 of Chapter 63 of Title 18 of the United States Code, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.

32.2 Certification of Chief Financial Officer pursuant to Rule 13a-14(b) or Rule 15d-14(b) under the Securities Exchange Act of 1934 and Section 1350 of Chapter 63 of Title 18 of the United States Code, as adopted pursuant to Section 906 of the Sarbanes Oxley Act of 2002.

101.INS XBRL Instance Document (the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document).

101.SCH Inline XBRL Taxonomy Extension Schema Document.

101.CAL Inline XBRL Taxonomy Extension Calculation Linkbase Document.

101.DEF Inline XBRL Taxonomy Extension Definition Linkbase Document.

101.LAB Inline XBRL Taxonomy Extension Label Linkbase Document.

101.PRE Inline XBRL Taxonomy Extension Presentation Linkbase Document.

104 Cover Page Interactive Data File (the cover page XBRL tags are embedded within the Inline XBRL document, which is contained in Exhibit 101).

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* Management contract or compensatory plan or arrangement required to be filed as an exhibit to this form pursuant to Item 15(b) of this report.

Item 16. Form 10-K Summary

None.

Signatures

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Ingredion Incorporated

By: /s/ James P. Zallie

James P. Zallie
President and Chief Executive Officer
Date: February 19, 2020

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant, in the capacities indicated and on the dates indicated.

Signature	Title	Date
/s/ James P. Zallie	President, Chief Executive Officer, and Director	February 19, 2020
James P. Zallie	(Principal executive officer)	
/s/ James D. Gray	Chief Financial Officer	February 19, 2020
James D. Gray	(Principal financial officer)	
/s/ Stephen K. Latreille	Controller	February 19, 2020
Stephen K. Latreille	(Principal accounting officer)	
*Luis Aranguren-Trellez	Director	February 19, 2020
Luis Aranguren-Trellez		
*David B. Fischer	Director	February 19, 2020
David B. Fischer		
*Paul Hanrahan	Director	February 19, 2020
Paul Hanrahan		
*Rhonda L. Jordan	Director	February 19, 2020
Rhonda L. Jordan		
*Gregory B. Kenny	Director	February 19, 2020
Gregory B. Kenny		
*Barbara A. Klein	Director	February 19, 2020
Barbara A. Klein		
*Victoria J. Reich	Director	February 19, 2020
Victoria J. Reich		
*Stephan B. Tanda	Director	February 19, 2020
Stephan B. Tanda		
* Jorge A. Uribe	Director	February 19, 2020
Jorge A. Uribe		
*Dwayne A. Wilson	Director	February 19, 2020
Dwayne A. Wilson		

* By: /s/ Janet M. Bawcom

Janet M. Bawcom
Attorney-in-fact

Date: February 19, 2020

Exhibit 21.1

Subsidiaries of the Registrant

The Registrant's subsidiaries as of December 31, 2019, are listed below showing the percentage of voting securities directly or indirectly owned by the Registrant. All other subsidiaries, if considered in the aggregate as a single subsidiary, would not constitute a significant subsidiary.

	Percentage of voting securities directly or indirectly owned by the Registrant[1]	State or other Jurisdiction of incorporation or organization
Arrendadora Gefemesa, S.A. de C.V.	100	Mexico
Bedford Construction Company	100	New Jersey
Brunob II B.V.	100	The Netherlands
Cali Investment LLC	100	Delaware
Colombia Millers Ltd.	100	Delaware
Corn Products Americas Holdings S.à r.l.	100	Luxembourg
Corn Products Development, Inc.	100	Delaware
Corn Products Germany GmbH	100	Germany
Corn Products Global Holding S.à r.l.	100	Luxembourg
Corn Products Inc. & Co. KG	100	Germany
Corn Products Kenya Limited	100	Kenya
Corn Products Mauritius (Pty) Ltd.	100	Mauritius
Corn Products Netherlands Holding S.à r.l.	100	Luxembourg
Corn Products Puerto Rico Inc.	100	Delaware
Corn Products Sales LLC	100	Delaware
Corn Products Southern Cone S.R.L.	100	Argentina
Crystal Car Line, Inc.	100	Illinois
HAAN Holdings Limited.	100	Hong Kong
Hispano-American Company, Inc.	100	Delaware
ICI Mauritius (Holdings) Limited	100	Mauritius
Ingredion Aceites y Especialidades, S.A. de C.V.	100	Mexico
Ingredion ANZ Pty Ltd	100	Australia
Ingredion Argentina S.R.L.	100	Argentina
Ingredion Brasil Ingredientes Industriais Ltda.	100	Brazil
Ingredion Canada Corporation	100	Nova Scotia, Canada
Ingredion Chile S.A.	100	Chile
Ingredion China Limited	100	China
Ingredion Colombia S.A.	100	Colombia
Ingredion Ecuador S.A.	100	Ecuador
Ingredion Employee Services S.à r.l.	100	Luxembourg
Ingredion Espana, S.L.U.	100	Spain
Ingredion Germany GmbH	100	Germany
Ingredion Global Business Services, S.A. de C.V.	100	Mexico
Ingredion Holding LLC	100	Delaware
Ingredion Holdings (Thailand) Co., Ltd.	100	Thailand
Ingredion India Private Limited	100	India
Ingredion Integra, S.A. de C.V.	100	Mexico
Ingredion Japan K.K.	100	Japan
Ingredion Korea Holding LLC	100	Nevada
Ingredion Korea Incorporated	100	Korea
Ingredion Malaysia Sdn. Bhd.	100	Malaysia
Ingredion Mexico, S.A. de C.V.	100	Mexico
Ingredion Peru S.A.	100	Peru
Ingredion Philippines, Inc.	100	Philippines

Ingredion Plant Based Protein Specialties (Canada), Inc.	80	British Colombia
Ingredion Shandong Limited	100	China
Ingredion Singapore Pte. Ltd.	100	Singapore
Ingredion South Africa (Proprietary) Limited	100	South Africa
Ingredion Southern Holdings, S.L.	100	Spain
Ingredion Sweetener and Starch (Thailand) Co., Ltd.	100	Thailand
Ingredion (Thailand) Co., Ltd.	100	Thailand
Ingredion UK Limited	100	England and Wales
Ingredion Uruguay S.A.	100	Uruguay
Ingredion Venezuela, C.A.	100	Venezuela
Ingredion Vietnam Company Limited	100	Vietnam
Inversiones Latinoamericanas S.A.	100	Delaware
Laing-National Limited	100	England and Wales
PT. Ingredion Indonesia	100	Indonesia
Rafhan Maize Products Co. Ltd.	71.0	Pakistan
Raymond & White River LLC	100	Indiana
Texture Innovation Company de Mexico, S. de R.L. de C.V.	100	Mexico
The Chicago, Peoria and Western Railway Company	100	Illinois
TIC Gums China	100	China

(1) With respect to certain companies, shares in the names of nominees and qualifying shares in the names of directors are included in the above percentages.

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

The Board of Directors
Ingredion Incorporated:

We consent to the incorporation by reference in the registration statements (Nos. 333-43525, 333-71573, 333-75844, 333-33100, 333-105660, 333-113746, 333-129498, 333-143516, 333-160612, 333-171310, 333-208668, 333-43479, and 333-235579) on Form S-8 and to the incorporation by reference in the registration statement (No. 333-233854) on Form S-3 of Ingredion Incorporated of our report dated February 19, 2020, with respect to the consolidated balance sheets of Ingredion Incorporated as of December 31, 2019 and 2018, the related consolidated statements of income, comprehensive income (loss), equity and redeemable equity, and cash flows for each of the years in the three-year period ended December 31, 2019, and the related notes (collectively, the consolidated financial statements), and the effectiveness of internal control over financial reporting as of December 31, 2019, which report appears in the December 31, 2019 annual report on Form 10-K of Ingredion Incorporated.

Our report refers to a change in the method of accounting for leases as of January 1, 2019 due to the adoption of Accounting Standards Codification Topic 842, Leases.

/s/ KPMG LLP
Chicago, Illinois
February 19, 2020

Exhibit 24.1

Ingredion Incorporated Power of Attorney

Form 10-K for the Fiscal Year Ended December 31, 2019

KNOW ALL MEN BY THESE PRESENTS, that I, as a director of Ingredion Incorporated, a Delaware corporation (the "Company"), do hereby constitute and appoint Janet M. Bawcom as my true and lawful attorney-in-fact and agent, for me and in my name, place and stead, to sign the Annual Report on Form 10-K of the Company for the fiscal year ended December 31, 2019, and any and all amendments thereto, and to file the same and other documents in connection therewith with the Securities and Exchange Commission, granting unto said attorney-in-fact full power and authority to do and perform each and every act and thing requisite and necessary to be done in the premises, as fully to all intents and purposes as I might or could do in person, hereby ratifying and confirming all that said attorney-in-fact may lawfully do or cause to be done by virtue thereof.

IN WITNESS WHEREOF, I have executed this instrument this 19th day of February, 2020.

/s/ Luis Aranguren-Trellez
Luis Aranguren-Trellez

/s/ David B. Fischer
David B. Fischer

/s/ Paul Hanrahan
Paul Hanrahan

/s/ Rhonda L. Jordan
Rhonda L. Jordan

/s/ Gregory B. Kenny
Gregory B. Kenny

/s/ Barbara A. Klein
Barbara A. Klein

/s/ Victoria J. Reich
Victoria J. Reich

/s/ Stephan B. Tanda
Stephan B. Tanda

/s/ Jorge A. Uribe
Jorge A. Uribe

/s/ Dwayne A. Wilson
Dwayne A. Wilson

/s/ James P. Zallie
James P. Zallie

Exhibit 31.1

Certification of Chief Executive Officer

I, James P. Zallie, certify that:

1. I have reviewed this annual report on Form 10-K of Ingredion Incorporated;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15 (f) and 15d-15(f)) for the registrant and have:
   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the Registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 19, 2020

/s/ James P. Zallie

James P. Zallie
Chairman, President and Chief Executive Officer

Exhibit 31.2

Certification of Chief Financial Officer

I, James D. Gray, certify that:

1. I have reviewed this annual report on Form 10-K of Ingredion Incorporated;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15 (f) and 15d-15(f)) for the registrant and have:
   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the Registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 19, 2020

/s/ James D. Gray

James D. Gray
Executive Vice President and Chief Financial Officer

Exhibit 32.1

Certification Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

I, James P. Zallie, the Chief Executive Officer of Ingredion Incorporated, certify that to my knowledge (i) the report on Form 10-K for the fiscal year ended December 31, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and (ii) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of Ingredion Incorporated.

/s/ James P. Zallie

James P. Zallie
Chief Executive Officer
February 19, 2020

A signed original of this written statement required by Section 906 has been provided to Ingredion Incorporated and will be retained by Ingredion Incorporated and furnished to the Securities and Exchange Commission or its staff upon request.

Exhibit 32.2

Certification Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

I, James D. Gray, the Chief Financial Officer of Ingredion Incorporated, certify that to my knowledge (i) the report on Form 10-K for the fiscal year ended December 31, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and (ii) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of Ingredion Incorporated.

/s/ James D. Gray

James D. Gray
Chief Financial Officer
February 19, 2020

A signed original of this written statement required by Section 906 has been provided to Ingredion Incorporated and will be retained by Ingredion Incorporated and furnished to the Securities and Exchange Commission or its staff upon request.

Shareholder Cumulative Total Return

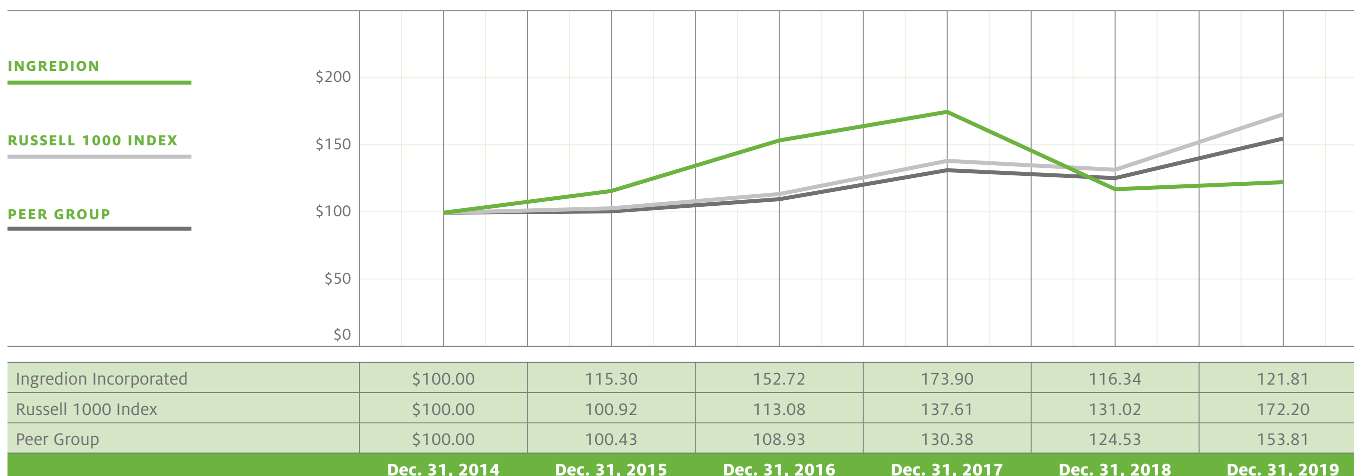
The performance graph below shows the cumulative total return to shareholders (stock price appreciation or depreciation plus reinvested dividends) during the 5-year period from December 31, 2014 to December 31, 2019, for our common stock compared to the cumulative total return during the same period for the Russell 1000 Index and our peer group. The Russell 1000 Index is a comprehensive common stock price index representing equity investments in the 1,000 larger companies measured by market capitalization of the 3,000 companies in the Russell 3000 Index. The Russell 1000 Index is value weighted and includes only publicly traded common stocks belonging to corporations domiciled in the U.S. and its territories.

Our peer group consists of the following 22 companies:

AAK AB (publ.)
Albemarle Corporation
Archer-Daniels-Midland Company
Balchem Corporation
Celanese Corporation
Crown Holdings, Inc.
Ecolab Inc.
Givaudan SA
Huntsman Corporation
Innophos Holdings, Inc.
International Flavors & Fragrances Inc.
Kerry Group plc
Koninklijke DSM N.V.
McCormick & Company, Incorporated
Novozymes A/S
Nutrien Ltd.
Sealed Air Corporation
Sensient Technologies Corporation
Symrise AG
Tate & Lyle plc
The Mosaic Company
W. R. Grace & Co.

The performance share peer group is the same as the comparator group that was used for grants of performance shares in February 2020. There were no changes versus the prior year except that Bemis Company Inc. was removed from the peer group due to its acquisition by Amcor plc on June 11, 2019. There were no changes versus the prior year in the following criteria or “filters” that were utilized in constructing this group:

- Commodity price sensitivity,
- Overseas operations,
- Basic ingredient, food additives and midstream manufacturing/inputs,
- Market capitalization between $1 billion and $50 billion,
- Select international companies in related segments and/or competitors,
- Generally capital intensive, and
- Demonstrated correlation in stock price returns to both Ingredion and the other companies in the comparator group.



	Dec. 31, 2014	Dec. 31, 2015	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2018	Dec. 31, 2019
Ingredion Incorporated	$100.00	115.30	152.72	173.90	116.34	121.81
Russell 1000 Index	$100.00	100.92	113.08	137.61	131.02	172.20
Peer Group	$100.00	100.43	108.93	130.38	124.53	153.81

Comparison of Cumulative Total Return among our Company, the Russell 1000 Index and our Peer Group
(For the period from December 31, 2014 to December 31, 2019. Source: Standard & Poor’s)

The graph assumes that:

- as of the market close on December 31, 2014, you made one-time $100 investments in our common stock and in market capital base-weighted amounts which were apportioned among all the companies whose equity securities constitute each of the other three named indices, and
- all dividends were automatically reinvested in additional shares of the same class of equity securities constituting such investments at the frequency with which dividends were paid on such securities during the applicable time frame.

Financial Performance Metrics

Unaudited

Reconciliation of Diluted Earnings Per Share ("EPS") to Non-GAAP Adjusted Diluted EPS

	Year Ended 31-Dec-19	Year Ended 31-Dec-18	Year Ended 31-Dec-17	Year Ended 31-Dec-16	Year Ended 31-Dec-15	Year Ended 31-Dec-09
Diluted earnings per share of Ingredion	$ 6.13	$6.17	$ 7.06	$6.55	$ 5.51	$0.54
Add back (deduct):						
Income tax settlement [i]	–	–	(0.14)	0.36	–	–
Impairment/restructuring charges, net of income tax benefit [ii]	0.65	0.71	0.42	0.20	0.25	1.47
Acquisition/integration costs, net of income tax benefit [iii]	0.03	–	0.04	0.03	0.10	–
Charge for fair value mark-up of acquired inventory, net of income tax benefit [iv]	–	–	0.08	–	0.09	–
Litigation settlement, net of income tax benefit [v]	–	–	–	–	0.06	–
Gain on sale of plant, net of income tax [vi]	–	–	–	–	(0.12)	–
Insurance settlement [vii]	–	–	(0.08)	–	–	–
Income tax reform [viii]	–	0.04	0.31	–	–	–
Other matters [ix]	(0.16)	–	–	–	–	–
Non-GAAP adjusted diluted earnings per common share of Ingredion	$ 6.65	$6.92	$ 7.70	$7.13	$ 5.88	$2.01

i. We had been pursuing relief from double taxation under the U.S.-Canada tax treaty for the years 2007 through 2013. During the fourth quarter of 2016, a tentative settlement was reached between the U.S. and Canada and, consequently, last year we established a net reserve of $24 million, including interest thereon, recorded as a $70 million cost and a $46 million benefit. Additionally, as a result of this settlement, we established a net reserve of $3 million for 2015. In the third quarter of 2017, the two countries finalized the agreement, which eliminated the double taxation, and we paid $63 million to the IRS to settle the liability. As a result of that agreement, we are entitled to a tax-affected benefit of $10 million due to a foreign exchange loss on our 2017 U.S. federal income tax return. The foreign exchange loss was not recognized in income before taxes.

ii. During the year ended December 31, 2019, the Company recorded $57 million of pre-tax restructuring charges, including $29 million of net restructuring related expenses as part of the Cost Smart cost of sales program and $28 million of employee-related and other costs, including professional services, associated with our Cost Smart SG&A program. During the year ended December 31, 2018, we recorded $64 million of pre-tax restructuring charges consisting of $49 million of restructuring expenses, including $34 million for accelerated depreciation, $8 million for mechanical stores write downs, $4 million for other restructuring costs, and $3 million for employee-related severance, as part of the Cost Smart cost of sales program in relation to the cessation of wet-milling at the Stockton, California plant. In addition, $11 million of restructuring charges were recorded related to the Cost Smart SG&A program, including $7 million of employee-related severance and other costs for restructuring projects in the South America, APAC, and North America segments and $4 million of costs related to the Latin America finance transformation initiative. Finally, $4 million of restructuring charges related to other projects were recorded, including $3 million of costs related to the North America finance transformation and $1 million of costs related to the leaf extraction process in Brazil. In 2017, we recorded a $38 million pre-tax restructuring charge consisting of $17 million of employee-related severance and other costs associated with the restructuring in Argentina, $13 million of restructuring charges related to the abandonment of certain assets related to our leaf extraction process in Brazil, $6 million of employee-related severance and other costs associated with the Finance Transformation initiative, and $2 million of other restructuring charges including employee-related severance costs in North America and a refinement of estimates for prior year restructuring activities. During the year ended December 31, 2016, we recorded a $4 million and $19 million pre-tax restructuring charge, respectively. In 2016, we recorded $19 million pre tax restructuring charge consisting of $11 million of employee-related severance and other costs associated with the execution of IT outsourcing contracts, $6 million of employee-related severance costs associated with the our optimization initiative in North America and South America, and $2 million of costs attributable to the Port Colborne plant sale. In 2015, the Company recorded $28 million of pre-tax impairment/restructuring costs consisting of a $10 million charge for impaired assets and $2 million of employee severance-related costs associated with our manufacturing network optimization in Brazil, $4 million of employee severance-related and other costs associated with our Port Colborne plant sale and $12 million for employee severance-related costs associated with the Penford acquisition. 2009 includes $124 million of Goodwill and Asset impairments identified and recorded.

iii. The 2017-2015 periods include costs related to the acquisition and integration of the businesses acquired from Penford and/or Kerr. Additionally, the 2016-2017 period includes costs related to the acquisitions of TIC Gums Incorporated, ShandongHuanong Specialty Corn Development Co., Ltd, and/or Sun Flour Industry Co, Ltd. The 2019 period includes costs related to the acquisition and integration of the business acquired from Western Polymer, LLC.

iv. The 2017 and 2015 periods include the flow-through of costs primarily associated with the sale of inventory that was adjusted to fair value at the acquisition dates of TIC GUMS and Penford/Kerr, in accordance with business combination accounting rules.

v. The 2015 period includes costs relating to a litigation settlement.

vi. The 2015 period includes a gain from the sale of the Port Colborne plant.

vii. During the year ended December 31, 2017, we recorded a $9 million gain from an insurance settlement primarily related to capital reconstruction.

viii. The enactment of the Tax Cuts and Jobs Act in December 2017 resulted in a one-time estimated charge of $23 million for the three months and year ended December 31, 2017. The estimated charge includes a transition tax on accumulated overseas earnings, foreign taxes on a portion of our unremitted earnings, and the remeasurement of deferred tax assets and liabilities. We adjusted our provisional amount and recognized an incremental $3 million of tax expense related to the TCJA for the year ended December 31, 2018.

ix. During the year ended December 31, 2019, we recorded a $22 million pre-tax benefit for the favorable judgement received by Ingredion from the Federal Court of Appeals in Brazil related to certain indirect taxes collected in prior years. As a result of the decision, the Company expects to be entitled to credits against its Brazilian federal tax payments in 2020 and future years. The benefit recorded represents the Company's current estimate of the credits and interest due from the favorable decision in accordance with ASC 450, Contingencies. This benefit was offset by other adjusted charges during the period.

Return on Invested Capital

(dollars in millions)	2019	2018	2017
Net income (a)	$ 424	$ 454	$ 532
Adjusted for:			
Provision for income taxes [iii]	158	167	237
Other, non-operating expense (income), net	1	(4)	(6)
Financing cost, net	81	86	73
Restructuring/impairment charges [i]	57	64	38
Acquisition/integration costs	3	—	4
Other matters [ii]	(19)	—	—
Income taxes (at effective rates of 26.3%, 25.8%, and 28.6%, respectively) [iii]	(185)	(198)	(251)
Adjusted operating income, net of tax (b)	520	569	627
Short-term debt	82	169	120
Long-term debt	1,766	1,931	1,744
Less: Cash and cash equivalents	(264)	(327)	(595)
Short-term investments	(4)	(7)	(9)
Total net debt	1,580	1,766	1,260
Total equity and Share-based payments subject to redemption	2,772	2,445	2,953
Total net debt and equity	$4,352	$4,211	$4,213
Average current and prior year Total net debt and equity (c)	$4,282	$4,212	$4,139
Return on Invested Capital (a ÷ c)	9.7%	10.8%	12.6%
Adjusted Return on Invested Capital (b ÷ c)	12.1%	13.5%	15.1%

[i] During the year ended December 31, 2019, the Company recorded $57 million of pre-tax restructuring/impairment charges. During the year ended December 31, 2019, the Company recorded $57 million of pre-tax restructuring charges, including $29 million of net restructuring related expenses as part of the Cost Smart cost of sales program and $28 million of employee-related and other costs, including professional services, associated with our Cost Smart SG&A program.

During the year ended December 31, 2018, we recorded $64 million of pre-tax restructuring/impairment charges. During the year ended December 31, 2018, we recorded $64 million of pre-tax restructuring charges consisting of $49 million of restructuring expenses as part of the Cost Smart cost of sales program, $11 million of restructuring charges related to the Cost Smart SG&A program, and $4 million of restructuring charges related to other projects.

During the year ended December 31, 2017, we recorded $38 million pre-tax restructuring/impairment charges. We recorded $17 million of employee-related severance and other costs associated with the restructuring in Argentina, $13 million of restructuring charges related to the abandonment of certain assets related to our leaf extraction process in Brazil, $6 million of employee-related severance and other costs associated with the Finance Transformation initiative, and $2 million of other restructuring charges including employee-related severance costs in North America and a refinement of estimates for prior year restructuring activities.

[ii] During the year ended December 31, 2019, we recorded a $22 million pre-tax benefit for the favorable judgement received by Ingredion from the Federal Court of Appeals in Brazil related to certain indirect taxes collected in prior years. As a result of the decision, the Company expects to be entitled to credits against its Brazilian federal tax payments in 2020 and future years. The benefit recorded represents the Company's current estimate of the credits and interest due from the favorable decision in accordance with ASC 450, Contingencies. This benefit was offset by other adjusted charges during the period.

[iii] The effective income tax rate for 2019, 2018, and 2017 was 27.1 percent, 26.1 percent, and 30.8 percent, respectively. For purposes of this calculation we exclude the provision for income taxes from the calculation and subsequently add back income taxes for adjusted operating income using the adjusted effective income tax rate. The adjusted effective income tax rate is calculated by removing the tax impact for the identified adjusted items below.

	Year Ended December 31, 2019			Year Ended December 31, 2018			Year Ended December 31, 2017		
(dollars in millions)	Income before Income Taxes	Provision for Income Taxes	Effective Income Tax Rate	Income before Income Taxes	Provision for Income Taxes	Effective Income Tax Rate	Income before Income Taxes	Provision for Income Taxes	Effective Income Tax Rate
As reported	$582	$158	27.1%	$621	$167	26.9%	$769	$237	30.8%
Add back (deduct):									
Income tax settlement	—	—		—	—		—	10	
Impairment/restructuring charges	57	13		64	13		38	7	
Acquisition/integration costs	3	1		—	—		4	1	
Income tax reform	—	—		—	(3)		—	(23)	
Other Matters	(19)	(8)		—	—		—	—	
Adjusted non-GAAP	$623	$164	26.3%	$685	$177	25.8%	$811	$232	28.6%

Net Debt to Adjusted EBITDA Ratio

(dollars in millions)	2019	2018	2017
Short-term debt	$ 82	$ 169	$ 120
Long-term debt	1,766	1,931	1,744
Less: Cash and cash equivalents	(264)	(327)	(595)
Short-term investments	(4)	(7)	(9)
Total net debt (a)	1,580	1,766	1,260
Income before income taxes (b)	582	621	769
Adjusted for:			
Depreciation and amortization	220	247	209
Financing cost, net	81	86	73
Restructuring/impairment [(i)]	44	30	38
Acquisition/integration costs	3	—	4
Charge for fair value mark-up of acquired inventory	—	—	9
Insurance Settlement	—	—	(9)
Other matters [(ii)]	(19)	—	—
Adjusted EBITDA (c)	$ 911	$984	$1,093
Net Debt to Income before income tax ratio (a ÷ b)	2.7	2.8	1.6
Net Debt to Adjusted EBITDA ratio (a ÷ c)	1.7	1.8	1.2

(i) 2019 Restructuring/impairment charges are reduced by $13 million to exclude the accelerated depreciation primarily related to the Lane Cove, Australia production facility closure. 2018 Restructuring/impairment charges are reduced above by $34 million to exclude the accelerated depreciation from cessation of wet-milling at the Stockton, California plant. The accelerated depreciation is included in Depreciation and amortization above, and to include in restructuring/impairment charge would include the charge twice. See Note 5 of the consolidated financial statements for reconciliation to the $57 million and $64 million restructuring charges recorded in 2018 and 2019, respectively.

(ii) During the year ended December 31, 2019, we recorded a $22 million pre-tax benefit for the favorable judgement received by Ingredion from the Federal Court of Appeals in Brazil related to certain indirect taxes collected in prior years. As a result of the decision, the Company expects to be entitled to credits against its Brazilian federal tax payments in 2020 and future years. The benefit recorded represents the Company's current estimate of the credits and interest due from the favorable decision in accordance with ASC 450, Contingencies. This benefit was offset by other adjusted charges during the period.

Net Debt to Capitalization Percentage

(dollars in millions)	2019	2018	2017
Short-term debt	$ 82	$ 169	$ 120
Long-term debt	1,766	1,931	1,744
Less: Cash and cash equivalents	(264)	(327)	(595)
Short-term investments	(4)	(7)	(9)
Total net debt (a)	1,580	1,766	1,260
Deferred income tax liabilities	195	189	199
Share-based payments subject to redemption	31	37	36
Total equity	2,741	2,408	2,917
Total capital	2,967	2,634	3,152
Total net debt and capital (b)	$4,547	$4,400	$4,412
Net Debt to Capitalization percentage (a ÷ b)	34.7%	40.1%	28.6%

Directors and Officers

As of April 8, 2020

Board of Directors

Luis Aranguren-Trellez [3]
Executive President
Arancia, S.A. de C.V.
Age 58; Director since 2003

David B. Fischer [1]
Former President and
Chief Executive Officer
Greif, Inc.
Age 57; Director since 2013

Paul Hanrahan [1]
Former Chief Executive Officer
Globeleq Advisors Limited
Age 62; Director since 2006

Rhonda L. Jordan [2]
Former President, Global Health
& Wellness, and Sustainability
Kraft Foods Inc.
Age 62; Director since 2013

Gregory B. Kenny * [3]
Former President and
Chief Executive Officer
General Cable Corporation
Age 67; Director since 2005

Barbara A. Klein [2]
Former Senior Vice President
and Chief Financial Officer
CDW Corporation
Age 65; Director since 2004

Victoria J. Reich [1]
Former Senior Vice President
and Chief Financial Officer
Essendant Inc.
Age 62; Director since 2013

Stephan B. Tanda [1]
President and Chief Executive
Officer of AptarGroup, Inc.
Age 54; Director since 2019

Jorge A. Uribe [2]
Former Global Productivity and
Organization Transformation Officer
The Procter & Gamble Company
Age 63; Director since 2015

Dwayne A. Wilson [3]
Former Senior Vice President
Fluor Corporation
Age 61; Director since 2010

James P. Zallie
President and Chief Executive Officer
Ingredion Incorporated
Age 58; Director since 2017

* Chairman of the Board

Committees of the Board

1 Audit Committee, Ms. Reich is Chairman.
2 Compensation Committee, Ms. Jordan is Chairman.
3 Corporate Governance and Nominating Committee, Mr. Kenny is Chairman.

Corporate Officers

James P. Zallie
President and Chief Executive Officer
Age 58; joined Company in 2010

Elizabeth Adefioye
Senior Vice President and
Chief Human Resources Officer
Age 52; joined Company in 2016

Valdirene Bastos-Licht
Senior Vice President and
President, Asia-Pacific
Age 52; joined Company in 2018

Janet M. Bawcom
Senior Vice President, General
Counsel, Corporate Secretary and
Chief Compliance Officer
Age 55; joined Company in 2019

Anthony P. DeLio
Senior Vice President, Corporate Strategy
and Chief Innovation Officer
Age 64; joined Company in 2010

Larry Fernandes
Senior Vice President and
Chief Commercial and Sustainability Officer
Age 55; joined Company in 1990

James D. Gray
Executive Vice President and
Chief Financial Officer
Age 54; joined Company in 2014

Jorgen Kokke
Executive Vice President, Global Specialties,
and President, North America
Age 51; joined Company in 2010

Stephen K. Latreille
Vice President and Corporate Controller
Age 53; joined Company in 2013

Richard O'Shanna
Vice President, Tax
Age 62; joined Company in 2009

Pierre Perez y Landazuri
Senior Vice President and
President, EMEA
Age 51; joined Company in 2016

Robert J. Stefansic
Chief Operations Officer
Age 58; joined Company in 2010

C. Kevin Wilson
Vice President and Corporate Treasurer
Age 58; joined Company in 2014

Shareholder Information

CORPORATE HEADQUARTERS
5 Westbrook Corporate Center
Westchester, IL 60154
708.551.2600
708.551.2700 fax
www.ingredion.com

STOCK EXCHANGE
The common shares of Ingredion Incorporated trade on the New York Stock Exchange under the ticker symbol INGR. Our Company is a member of the Russell 1000 Index and the S&P MidCap 400 Index.

TRANSFER AGENT, DIVIDEND DISBURSING AGENT AND REGISTRAR
Computershare 866.517.4574 or 201.680.6685 (outside the U.S.) or 888.269.5221 (hearing impaired – TTY phone)

SHAREHOLDER ASSISTANCE
Ingredion Incorporated
c/o Computershare
P.O. Box 30170
College Station, TX 77842-3170

Send overnight correspondence to:
Ingredion Incorporated
c/o Computershare
211 Quality Circle, Suite 210
College Station, TX 77845

Shareholder website:
www.computershare.com/investor

Shareholder online inquiries:
https://www-us.computershare.com/investor/contact

INVESTOR AND SHAREHOLDER CONTACT
Investor Relations Department
708.551.2592
Investor.relations@ingredion.com

COMPANY INFORMATION
Copies of the Annual Report, the Annual Report on Form 10-K and quarterly reports on Form 10-Q may be obtained, without charge, by writing to Investor Relations at the corporate headquarters address, by calling 708.551.2603, by emailing investor.relations@ingredion.com or by visiting our website at ir.ingredionincorporated.com.

ANNUAL MEETING OF SHAREHOLDERS
The 2020 Annual Meeting of Shareholders will be held on Wednesday, May 20, 2020, at 9:00 a.m. local time, at the Equity Conference Center located on the ground floor of the annex between Towers 2 and 5 of the Westbrook Corporate Center, in Westchester, IL 60154. A formal notice of that meeting, proxy statement and proxy voting card are being made available to shareholders in accordance with U.S. Securities and Exchange Commission regulations.

INDEPENDENT AUDITORS
KPMG LLP
200 East Randolph Drive
Chicago, IL 60601
312.665.1000

BOARD COMMUNICATION
Interested parties may communicate directly with any member of our Board of Directors, including the Chairman of the Board, or the non-management directors or the independent directors, as a group, by writing in care of Corporate Secretary, Ingredion Incorporated, 5 Westbrook Corporate Center, Westchester, IL 60154.

SAFE HARBOR
Certain statements in this Annual Report that are neither reported financial results nor other historical information are forward-looking statements. Such forward-looking statements are not guarantees of future performance and are subject to risks and uncertainties that could cause actual results and Company plans and objectives to differ materially from those expressed in the forward-looking statements.

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