Ingredion Inc
Form 10-K
February 25, 2019
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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, 2018

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 INCORPORATED

(Exact Name of Registrant as Specified in Its Charter)

Delaware (State or Other Jurisdiction of Incorporation or Organization)	22-3514823 (I.R.S. Employer Identification No.)
5 Westbrook Corporate Center, Westchester, Illinois (Address of Principal Executive Offices)	60154 (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	Name of Each Exchange on Which Registered
Common Stock, $.01 par value per share	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

Note – Checking the box above will not relieve any registrant required to file reports pursuant to Section 13 or 15(d) of the Exchange Act from their obligations under those Sections.

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 if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of Registrant’s knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

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 $110.70 on June 30, 2018, and, for the purpose of this calculation only, the assumption that all of the Registrant's directors and executive officers are affiliates) was approximately $7,812,000,000.

The number of shares outstanding of the Registrant's Common Stock, par value $0.01 per share, as of February 14, 2019, was 66,667,462.

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 (the “Proxy Statement”) to be distributed in connection with its 2019 Annual Meeting of Stockholders which will be filed with the Securities and Exchange Commission within 120 days after December 31, 2018.

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INGREDION INCORPORATED

FORM 10-K

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PART I.

ITEM 1. BUSINESS

The 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, paper and corrugating, 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 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, and India. 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, paper and corrugating, pharmaceutical, textile, and personal care industries, as well as the global animal feed and corn oil 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.

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 20 plants producing a wide range of starches, sweeteners, and fruit and vegetable concentrates.

Our South America segment includes operations in Brazil, Colombia, and Ecuador and the Southern Cone of South America. 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.

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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 ten 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 three 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 45 percent, 44 percent, and 46 percent of our net sales for 2018, 2017, and 2016, 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, mouth feel, 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. In the corrugating industry, starches and specialty starches are used to produce high quality adhesives for the production of shipping containers, display board, and other corrugated applications. 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.

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Sweetener Products: Our sweetener products represented approximately 36 percent of our net sales for 2018, and 37 percent our net sales for both 2017, and 2016. Sweeteners include products such as glucose syrups, high maltose syrup, high fructose corn syrup, dextrose, polyols, maltrodextrin, glucose syrup solids, and non-GMO 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 19 percent of our net sales for both 2018 and 2017, and 17 percent of our net sales for 2016. 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 29 percent of our net sales for 2018, up from 28 percent and 26 percent in 2017 and 2016, 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: Wholesome, Texture, Nutrition, Sweetness, and Beauty and Home.

Wholesome: Clean and simple specialty ingredients that consumers can identify and trust. Products include Novation clean label functional starches, value-added pulse-based ingredients, and gluten free offerings.

Texture: Specialty ingredients that provide precise food texture solutions designed to optimize the consumer experience and build back texture. Include starch systems that replace more expensive ingredients and are designed to optimize customer formulation costs, texturizers that are designed to create rich, creamy mouth feel, and products that enhance texture in healthier offerings.

Nutrition: Specialty ingredients that provide nutritional carbohydrates with benefits of digestive health and energy management. Our fibers and complementary nutritional ingredients address the leading health and wellness concerns of consumers, including digestive health, infant nutrition, weight control, and energy management.

Sweetness: Specialty ingredients that provide affordable, natural, reduced-calorie and sugar-free solutions for our customers. We have a broad portfolio of nutritive and non-nutritive sweeteners, including high potency sweeteners, and naturally based stevia sweeteners.

Beauty and Home: Nature-based materials that offer clean label ingredients for manufacturers to become more sustainable by replacing synthetic materials in personal care, home care, and other industrial segments.

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Each growth platform addresses multiple consumer trends. To demonstrate how we are positioned to address market trends and customer needs, we present our internal growth platforms externally as “Benefit Platforms.” Connecting our capabilities to key trends and customer challenges, these Benefit Platforms include products designed to provide:

Affordability: reduce formulating and production costs without compromising quality or consumer experience

Clean & Simple: replace undesirable ingredients and simplify ingredient labels to give consumers the clean, simple, and authentic products they want

Health & Nutrition: enhance nutrition benefits by fortifying or eliminating ingredients to address broad consumer health and wellness needs globally with specific solutions for all ages

Sensory Experience: deliver a fresh, distinctive, multi-sensory experience in the dimensions of texture, sweetness, and taste for food, beverage, and personal care products

Convenience & Performance: help create products for today’s on-the-go lifestyles and that meet user expectations the first time and every time, from start to finish

At the Consumer Analyst Group of New York Conference on February 19, 2019, we announced a reorganization of our specialty growth platforms. We will be shifting our focus for value creation within our specialty products portfolio into the following five new growth platforms: Starch-based Texturizers, Clean and Simple Ingredients, Plant-based proteins, Sugar Reduction and Specialty Sweeteners, and Food Systems. In addition to these five new growth platforms, we produce other specialty products primarily serving the industrial sector.

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 where there are 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.

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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 2018:

Industries Served	Total Company	North America	South America	APAC	EMEA
Food	53 %	50 %	47 %	65 %	69 %
Beverage	11	14	8	6	1
Brewing	7	8	14	3	—
Food and Beverage Ingredients	71	72	69	74	70
Animal Nutrition	10	11	15	5	8
Other	19	17	16	21	22
Total Net sales	100 %	100 %	100 %	100 %	100 %

No customer accounted for 10 percent or more of our net sales in 2018, 2017, or 2016.

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.

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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 28 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 $46 million in 2018, $43 million in 2017, and $41 million in 2016.

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, 2018, we had approximately 11,000 employees, of which approximately 2,600 were located in the U.S. Approximately 32 percent of U.S. and 37 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 2018. 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.

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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 associated with conducting studies of possible environmental remediation programs at our Chacabuco plant. We are unable to predict the outcome of these discussions; however, we 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 2018, 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 and $13 million for environmental facilities and programs in 2019 and 2020, respectively.

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.

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Executive Officers of the Registrant

Set forth below 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, unless removed by the Board.

Name	Age	Positions, Offices and Business Experience
James P. Zallie	57	President and Chief Executive Officer since January 1, 2018. Prior to that, 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 served as a director of Innophos Holdings, Inc., a leading international producer of performance-critical and nutritional specialty ingredients with applications in food, beverage, dietary supplements, pharmaceutical, oral care and industrial end markets, from September 30, 2014 to April 1, 2018. Mr. Zallie serves as a director of Northwestern Medicine, North Region, a not-for-profit organization. Mr. Zallie holds Masters degrees in food science and business administration from Rutgers University and a Bachelor of Science degree in food science from Pennsylvania State University.

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Elizabeth Adefioye	50	Senior Vice President Chief Human Resources Officer of Company since March 1, 2018. Prior to that, Ms. Adefioye served as Vice President, Human Resources, North America and Global Specialties, a position she held from September 12, 2016. Prior to that she 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. Prior thereto, Ms. Adefioye served as Vice President Human Resources Global Manufacturing and Supply of Novartis Consumer Health from February 2012 to January 2013. Prior to that she served 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	51	Senior Vice President and President, Asia-Pacific of Company 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 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's of Science degree in management from the MIT Sloan School of Management.

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Anthony P. DeLio	63	Senior Vice President, Corporate Strategy and Chief Innovation Officer since March 1, 2018. Prior to that, 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 he served 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	54	Senior Vice President and Chief Commercial & Sustainability Officer of the Company since July 17, 2018. Prior to that, 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 thereto he served as Vice President and General Manager, U.S./Canada from May 1, 2013 to December 31, 2013. Prior thereto, 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 thereto, 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 has a Bachelor's degree in chemical engineering with a minor in accounting from McGill University in Montreal, Canada.

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James D. Gray	52	Executive Vice President and Chief Financial Officer since March 1, 2017. Prior to that, 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	50	Executive Vice President, Global Specialties, and President, North America since February 5, 2018. Prior to that, 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 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 thereto, 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.
Pierre Perez y Landazuri	50	Senior Vice President and President, EMEA since January 1, 2018. Prior to that, 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 thereto he served as Vice President & General Manager, Asia-Pacific from June 2011 to December 2013 and 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.

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Stephen K. Latreille	52	Vice President and Corporate Controller since April 1, 2016. Prior to that 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, from December 1994 to December 28, 2012. Kraft Foods was spun off from Mondelez International on October 1, 2012. He served as Senior Director, Finance and Strategy, North America Customer Service and Logistics from April 1, 2009 to December 28, 2012. Mr. Latreille served as Senior Director, Investor Relations from June 18, 2007 to March 31, 2009. Prior to that, he held several positions of increasing responsibility with Kraft Foods, including Business Unit Finance Director. Prior to his time with Kraft Foods, Mr. Latreille held positions of increasing responsibility with 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 entity. Mr. Latreille holds a Bachelor's degree in accounting from Michigan State University and a Master of Business Administration degree from Northwestern University. He is a member of the American Institute of Certified Public Accountants.
Ernesto Peres Pousada, Jr.	51	Senior Vice President and President, South America since January 1, 2018. Prior to that Mr. Pousada served as Senior Vice President and President, South America of the Company's subsidiary, Ingredion Brasil Ingredientes Industriais Ltda., from February 1, 2016 to December 31, 2017. Prior to that Mr. Pousada was employed by Suzano Papel e Celulose, a Brazilian pulp and paper manufacturer, from November 3, 2004 to January 31, 2016. He most recently served as Chief Operating Officer from December 1, 2007 to January 31, 2016. Prior to that Mr. Pousada served as Pulp Project Officer from November 3, 2004 to November 30, 2007. Before joining Suzano Papel e Celulose, Mr. Pousada was employed by The Dow Chemical Company from January 1990 to December 2004 in various positions in Brazil, the U.S. and Switzerland. Mr. Pousada holds a Bachelor's degree in mechanical engineering from Instituto Mauá de Tecnologia in Brazil and a specialization in business administration from Fundação Instituto de Administração, also in Brazil.

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Robert J. Stefansic	57	Senior Vice President, Operating Excellence, Information Technology and Chief Supply Chain Officer since September 17, 2018. Prior to that, he served as Senior Vice President, Operating Excellence, Sustainability, Information Technology and Chief Supply Chain Officer since March 1, 2017. Prior to that Mr. Stefansic served 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. Prior to that, he served 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 degree in chemical engineering and a Master’s degree in business administration from the University of South Carolina.

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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. Please read the cautionary notice regarding forward-looking statements in Item 7 below.

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 (USMCA negotiation, Brexit, border taxes, etc.), 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 53 percent of our 2018 sales were made to companies engaged in the food industry and approximately 11 percent were made to companies in the beverage industry. Additionally, sales to the animal nutrition and brewing industry represented approximately 10 percent and approximately 7 percent, respectively, of our 2018 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.

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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 impaired 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.

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. 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., there are competitors, several of which are 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. Competition in markets in which we compete is largely based on price, quality and product availability.

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.

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Energy costs represent approximately 11 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. Additionally, we produce and sell ethanol and enter into swap contracts to hedge price risk associated with fluctuations in market prices of ethanol. We are unable to directly hedge price risk related to co-product sales; however, we occasionally enter into hedges of soybean oil (a competing product to our animal feed and corn oil) in order to mitigate the price risk of animal feed and corn oil sales. 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 (corn, soybean oil, or ethanol) and the derivative contract price. These hedging instruments are subject to fluctuations in value; however, changes in the value of the underlying exposures we are hedging generally offset such fluctuations. The fluctuations in the fair value of these hedging instruments may 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. Outside of North America, sales of finished products under long-term, firm-priced supply contracts are not material. We also use over-the-counter natural gas swaps to hedge portions of our natural gas costs, primarily in our North America operations.

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 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.

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. Ingredion has built a strong presence around the world and in some of the largest and fastest-growing markets. This positions our

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Company for long-term, profitable growth in a number of local, regional, and global market environments, while balancing potential risk, which is mitigated by the Company's ability to move production or growth projects to other sites within the company’s portfolio.

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, 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 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, particularly in South America.

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

Approximately 32 percent of our U.S. and 37 percent of our non-U.S. employees are 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.

If the economies of any countries in which we sell or manufacture products or purchase raw materials are affected by natural disasters such as earthquakes, floods, or severe weather; war, acts of war, or terrorism; or the outbreak of a pandemic; it could result in asset write-offs, decreased sales and overall reduced cash flows.

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.

Due to cross-border disputes, our operations could be adversely affected by actions taken by the governments of countries in which we conduct business.

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

We have $1.3 billion of total intangible assets at December 31, 2018, consisting of $791 million of goodwill and $460 million of other intangible assets. Additionally, we have $2.3 billion of long-lived assets at December 31, 2018.

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. Based on the results of the annual assessment, we concluded that as of July 1, 2018, it was more likely than not that the fair value of our reporting units was greater than their carrying values. 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.

Even though it was determined that there were no goodwill or long-lived asset impairments as of July 1, 2018, 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, 2019.

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 be different than our interpretation. 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 non-productive 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

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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.

The payment of 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

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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:

North America	South America	Asia Pacific	EMEA
Cardinal, Ontario, Canada	Baradero, Argentina	Lane Cove, Australia	Hamburg, Germany
London, Ontario, Canada	Chacabuco, Argentina	Guangzhou, China	Cornwala, Pakistan
San Juan del Rio, Queretaro, Mexico	Balsa Nova, Brazil	Shandong Province, China	Faisalabad, Pakistan
Guadalajara, Jalisco, Mexico	Cabo, Brazil	Shanghai, China	Mehran, Pakistan
Mexico City, Edo, Mexico	Mogi-Guacu, Brazil	Icheon, South Korea	Goole, United Kingdom
Oxnard, California, U.S.(a)	Rio de Janeiro, Brazil	Incheon, South Korea	
Stockton, California, U.S.(b)	Barranquilla, Colombia	Ban Kao Dien, Thailand	
Idaho Falls, Idaho, U.S.	Cali, Colombia	Kalasin, Thailand	
Bedford Park, Illinois, U.S.	Lima, Peru	Sikhiu, Thailand	
Mapleton, Illinois, U.S.		Banglen, Thailand	
Indianapolis, Indiana, U.S.			
Cedar Rapids, Iowa, U.S.			
Belcamp, Maryland, U.S.			
North Kansas City, Missouri, U.S.			
Winston-Salem, North Carolina, U.S.			
Salem, Oregon, U.S.			
Berwick, Pennsylvania, U.S.			
Charleston, South Carolina, U.S.			
Richland, Washington, U.S.			
Plover, Wisconsin, U.S.			

(a) Facility is leased.
(b) Ceased manufacturing at this facility in Q4 2018

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 $350 million in 2018. We believe these capital expenditures will allow us to operate efficient facilities for the foreseeable future. We currently anticipate that capital expenditures and mechanical stores purchases for 2019 will approximate $330 to $360 million.

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ITEM 3. LEGAL PROCEEDINGS

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.

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PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Shares of our common stock are traded on the New York Stock Exchange under the ticker symbol "INGR." The number of holders of record of our common stock was 3,911 at January 31, 2019.

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 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 2018.

(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, 2018	248	97.17	248	9,855 shares
November 1 – November 30, 2018	4,000	105.67	4,000	5,855 shares
December 1 – December 31, 2018	—	—	—	5,855 shares
Total	4,248	105.17	4,248	

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

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 4.0 million shares of its common stock having an approximate value of $423 million on that date. At the end of the program, the Company and JPM will settle any difference between the initial price and average daily volume-weighted average price ("VWAP") less the agreed upon discount during the term of the agreement. On February 5, 2019 the Company was notified that JPM finalized the ASR with a resulting VWAP of $98.04, which was less than initially paid. The Company elected to settle 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 4.0 million shares of common stock to $392 million.

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ITEM 6. SELECTED FINANCIAL DATA

Selected financial data is provided below.

(in millions, except per share amounts)	2018		2017		2016 (a)		2015 (b)		2014	
Summary of operations:										
Net sales	$ 5,841		$ 5,832		$ 5,704		$ 5,621		$ 5,668	
Net income attributable to Ingredion	443	(c)	519	(d)	485	(e)	402	(f)	355	(g)
Net earnings per common share of Ingredion:										
Basic	6.25	(c)	7.21	(d)	6.70	(e)	5.62	(f)	4.82	(g)
Diluted	6.17	(c)	7.06	(d)	6.55	(e)	5.51	(f)	4.74	(g)
Cash dividends declared per common share of Ingredion	2.45		2.20		1.90		1.74		1.68	
Balance sheet data:										
Working capital	$ 1,192		$ 1,458		$ 1,274		$ 1,208		$ 1,423	
Property, plant and equipment, net	2,198		2,217		2,116		1,989		2,073	
Total assets	5,728		6,080		5,782		5,074		5,085	
Long-term debt	1,931		1,744		1,850		1,819		1,798	
Total debt	2,100		1,864		1,956		1,838		1,821	
Total equity (h)	$ 2,408		$ 2,917		$ 2,595		$ 2,180		$ 2,207	
Shares outstanding, year end	66.5		72.0		72.4		71.6		71.3	
Additional data:										
Depreciation and amortization	$ 247		$ 209		$ 196		$ 194		$ 195	
Mechanical stores expense	57		57		57		57		56	
Capital expenditures and mechanical stores purchases	350		314		284		280		276	

(a) Includes TIC Gums Incorporated at December 31, 2016 for balance sheet data only.

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

(c) 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.

(d) 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.

(e) 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.

(f) 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.

(g) Includes a $33 million impairment charge to write-off goodwill at our Southern Cone of South America reporting unit and after-tax costs of $1 million related to the then-pending Penford acquisition.

(h) Includes non-controlling interests.

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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 capital employed and financial leverage to monitor our progress toward achieving our strategic business objectives (see section entitled "Key Financial Performance Metrics").

The financial results of 2018 for operating income, net income and diluted earnings per common share declined from 2017. Operating income declined in 2018 from 2017 primarily due to lower operating results in our North America and Asia Pacific segments, partially offset by operating income growth in South America and EMEA. Lower sweetener demand, commodity margin pressures, higher production and supply chain costs in North America, higher raw material costs in Asia-Pacific, and unfavorable currency translation were the main drivers of the operating income decline.

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 forth 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. Additionally, the Board of Directors authorized the cessation of wet-milling at the Stockton, California plant and the establishment of a shipping distribution station at that facility, as part of the Cost Smart cost of sales program.

Our Cost Smart program and other initiatives resulted in restructuring charges in 2018. During the year ended December 31, 2018, we recorded $64 million of pre-tax restructuring charges. We 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 plan, 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. In addition, we recorded $11 million of restructuring charges 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 prior year abandonment of certain assets of our leaf extraction process in Brazil.

Our cash provided by operating activities decreased to $703 million for the year ended December 31, 2018, from $769 million in the prior year primarily due to lower current year net earnings. Our cash used for financing activities

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increased during the year ended December 31, 2018, primarily due to the repurchase of 5.8 million shares of our outstanding common stock of which 4.0 million shares were repurchased in the fourth quarter pursuant to a Variable Timing Accelerated Share Repurchase ("ASR") program.

Looking ahead, we anticipate that our operating income will remain flat to slightly favorable in 2019 compared to 2018, with the first half unfavorable due to higher anticipated corn costs and unfavorable currency translation relative to 2018. In North America, we expect operating income to remain flat with the first half lower due to current market values of corn and lower co-product values. In South America, we expect operating income to improve over the prior year driven by sales volume growth. We expect modest operating income growth in Asia Pacific weighted toward the latter half of the year given anticipated higher raw material costs and unfavorable foreign exchange in the first half of the year. We also expect modest operating income growth in EMEA in 2019 weighted toward the latter half of the year given unfavorable foreign exchange and higher raw material costs.

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.

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 exceeded 100 percent as of June 30, 2018. As a result, the Company adopted highly inflationary accounting as of July 1, 2018 for its Argentina affiliate in accordance with U.S. Generally Accepted Accounting Principles ("GAAP"). Under highly inflationary accounting, Argentina'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 Shandong Huanong Specialty Corn Development Co., Ltd. ("Shandong Huanong"), TIC Gums Incorporated ("TIC Gums") and Sun Flour Industry Co., Ltd. ("Sun Flour") on November 29, 2016, December 29, 2016, 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 absent the impact of the acquisitions and the results of the acquired businesses, where appropriate, to provide a more comparable and meaningful analysis.

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2018 Compared to 2017 – Consolidated

(in millions)	Year Ended December 31, 2018	2017	Favorable (Unfavorable) Variance	Favorable (Unfavorable) Percentage	
Net sales before shipping and handling costs	$ 6,289	$ 6,244	$ 45	1	%
Less: shipping and handling costs	448	412	(36)	(9)	%
Net sales	5,841	5,832	9	—	%
Cost of sales	4,473	4,360	(113)	(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 net after-tax 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 Tax Cuts and Jobs Act ("TCJA") and recognized an incremental $3 million of tax expense related to the TCJA.

Our results for 2017 included $47 million of one-time net after-tax 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 net after-tax 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 remained relatively flat 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 2 percent were offset by unfavorable currency translation of 3 percent.

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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 23 percent and 25 percent the years ended December 31, 2018, and 2017, respectively. The gross profit margin decrease primarily reflects higher raw material costs and manufacturing expenses.

Operating expenses. Our decrease in operating expenses of 1% 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 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 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:

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(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	$ 3,511	$ 3,529	$ (18)	(1) %
Operating income	545	654	(109)	(17) %

Net sales. Our decrease in net sales of 1 percent for the year ended December 31, 2018, as compared to the year ended December 31, 2017, was driven by a 1 percent decrease in price/product mix due to higher freight costs. Volume growth for specialty and Mexico was primarily offset by volume declines for sweeteners in U.S./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 U.S./Canada sweetener demand, and commodity margin pressures.

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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	$ 943	$ 1,007	$ (64)	(6)	%
Operating income	99	81	18	22	%

Net sales. Our decrease in net sales of 6 percent for the year ended December 31, 2018, as compared to the year ended December 31, 2017, 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	$ 803	$ 740	$ 63	9	%
Operating income	104	115	(11)	(10)	%

Net sales. Our increase in net sales of 9 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 3 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	$ 584	$ 556	$ 28	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.

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2017 Compared to 2016 – Consolidated

(in millions)	Year Ended December 31, 2017	2016	Favorable (Unfavorable) Variance	Favorable (Unfavorable) Percentage	
Net sales before shipping and handling costs	$ 6,244	$ 6,082	$ 162	3	%
Less: shipping and handling costs	412	378	(34)	(9)	%
Net sales	5,832	5,704	128	2	%
Cost of sales	4,360	4,303	(57)	(1)	%
Gross profit	1,472	1,401	71	5	%
Operating expenses	616	580	(36)	(6)	%
Other income, net	(18)	(4)	14	350	%
Restructuring/impairment charges	38	19	(19)	(100)	%
Operating income	836	806	30	4	%
Financing costs, net	73	66	(7)	(11)	%
Other, non-operating income	(6)	(2)	4	200	%
Income before income taxes	769	742	27	4	%
Provision for income taxes	237	246	9	4	%
Net income	532	496	36	7	%
Less: Net income attributable to non-controlling interests	13	11	(2)	(18)	%
Net income attributable to Ingredion	$ 519	$ 485	$ 34	7	%

Net Income attributable to Ingredion. Net income attributable to Ingredion for 2017 increased to $519 million from $485 million in 2016. Our results for 2017 included $47 million of one-time net after-tax 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 net after-tax results also included a net $23 million charge to the provision for income taxes related to the enactment of the Tax Cuts and Jobs Act ("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.

Our results for 2016 included $43 million of net after-tax costs, primarily driven by a $27 million charge for the U.S.-Canada income tax settlement and related after-tax reserve and restructuring costs of $14 million. These restructuring charges consisted of employee-related severance charges and other costs associated with the execution of global IT outsourcing contracts, severance-related costs attributable to optimization initiatives in North America and South America, and additional charges pertaining to our 2015 Port Colborne plant sale. Our net after-tax costs also included $2 million associated with the integration of acquired operations.

Net sales. Our increase in net sales of 2 percent for the year ended December 31, 2017 as compared to the year ended December 31, 2016, was driven by volume growth of 3 percent, which was comprised of 2 percent growth from recent acquisitions and 1 percent increase in organic volume growth, and favorable currency translation of 1 percent reflecting a stronger Brazilian real. The increase was partially offset by a 2 percent decrease in price/product mix.

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Cost of sales. Cost of sales for 2017 increased 1 percent to $4.4 billion from $4.3 billion in 2016 primarily driven by higher net sales volume, partially offset by lower net raw material cost. Gross corn costs per ton for 2017 decreased approximately 2 percent from 2016 driven by lower market prices for corn. Our gross profit margin was 25 percent for the year ended December 31, 2017, and 2016. The gross profit margin remained flat reflecting favorable currency translation offset by higher input costs as a result of the temporary manufacturing interruption in Argentina.

Operating expenses. Our increase in operating expenses of 6 percent for the year ended December 31, 2017, as compared to the year ended December 31, 2016, was driven by the incremental operating expenses of acquired operations. Operating expenses, as a percentage of gross profit, was 42 percent and 41 percent for the years ended December 31, 2017 and 2016, respectively.

Other income, net. Our change in other income, net for the year ended December 31, 2017, as compared to the year ended December 31, 2016, was as follows:

	Year Ended December 31,		Favorable (Unfavorable)
(in millions)	2017	2016	Variance
Insurance settlement	$ 9	$ —	$ 9
Value-added tax recovery	6	5	1
Other	3	(1)	4
Other income, net	$ 18	$ 4	$ 14

Financing costs, net. Our financing costs, net for the year ended December 31, 2017 increased $7 million from the year ended December 31, 2016, due to an increase in interest expense, driven by increased short-term borrowings with higher interest rates and unfavorable currency translation.

Provision for income taxes. Our effective income tax rates for the years ended December 31, 2017 and 2016 were 30.8 percent and 33.1 percent, respectively.

The 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 our effective tax rate are a reduction in the U.S. corporate tax rate from 35 percent to 21 percent and the imposition of a U.S. tax on our global intangible low-taxed income (“GILTI”). The TCJA also provided for a one-time transition tax on the deemed repatriation of cumulative foreign earnings as of December 31, 2017, and eliminates the tax on dividends from our foreign subsidiaries by allowing a 100 percent dividends received deduction.

On December 22, 2017, 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.

We calculated what we believed to be a reasonable estimate of the impact of the TCJA in accordance with SAB 118 and our understanding of the TCJA, including published guidance as of the date of the filing of our 2017 annual report on Form 10-K, and we recorded $23 million of provisional income tax expense in the fourth quarter of 2017, the period in which the TCJA was enacted. (See Note 9 of the Notes to the Consolidated Financial Statements for additional information.)

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The provisional amount recorded in 2017 of $23 million was composed of the following four items:

(in millions)	
One-time transition tax	$ 21
Remeasurement of deferred tax assets and liabilities	(38)
Net impact of provision for taxes on unremitted earnings	33
Other items, net	7
Net impact of the TCJA on our 2017 income tax expense	$ 23

Additionally, we 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, we 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, we 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 we paid $63 million to the Internal Revenue Service to settle the U.S. federal portion of the accrued liability. As a result of that agreement, we were entitled to a tax affected 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.

We use the U.S. dollar as the functional currency for our subsidiaries in Mexico. Because of the increase in the value of the Mexican peso versus the U.S. dollar in 2017, the Mexican tax provision includes decreased tax expense of approximately $4 million, or 0.5 percentage points on the effective tax rate. In 2016, a decline in the value of the Mexican peso versus the U.S. dollar increased tax expense by $18 million, or 2.4 percentage points on the effective tax rate. These impacts are 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 2017, we increased the valuation allowance on the net deferred tax assets in Argentina. As a result, we recorded a valuation allowance in the amount of $16 million, or 2.0 percentage points on the effective tax rate, compared to $7 million and or 1.0 percentage points on the effective tax rate in 2016. Additionally in 2017, distributions were repatriated from foreign affiliates resulting in the reversal of $4 million or 0.5 percentage points on the effective tax rate.

During 2016, our foreign tax credits increased in the amount of $22 million, or 3.0 percentage points on the effective tax rate. In addition, we accrued taxes on unremitted earnings of foreign subsidiaries in the amount of $4 million, or 0.5 percentage points on effective tax rate, and had net favorable reversals of previously unrecognized tax benefits of $2 million, or 0.3 percentage points on effective tax rate.

Without the impact of the items described above, our effective tax rate would have been approximately 28.1 percent and 28.3 percent for 2017 and 2016, respectively.

Net income attributable to non-controlling interests. Net income attributable to non-controlling interests for the year ended December 31, 2017, increased $2 million from the year ended December 31, 2016, due to improved net income at our non-wholly-owned operation in Pakistan

2017 Compared to 2016 – North America

(in millions)	Year Ended December 31, 2017	2016	Favorable (Unfavorable) Variance	Favorable (Unfavorable) Percentage
Net sales to unaffiliated customers	$ 3,529	$ 3,447	$ 82	2 %
Operating income	654	606	48	8 %

Net sales. Our increase in net sales of 2 percent for the year ended December 31, 2017, as compared to the year ended December 31, 2016, was driven by volume growth of 3 percent primarily from the TIC Gums acquisition, and was partially offset by a 1 percent decrease in price/product mix driven by lower raw material costs.

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Operating income. Our increase in operating income of $48 million for the year ended December 31, 2017, as compared to the year ended December 31, 2016, was primarily driven by net margin improvement from favorable raw material costs compared to the prior period and organic and acquisition-related volume growth, in addition to operational efficiencies and partially offset by a decrease in price/product mix.

2017 Compared to 2016 – South America

(in millions)	Year Ended December 31, 2017	2016	Favorable (Unfavorable) Variance	Favorable (Unfavorable) Percentage
Net sales to unaffiliated customers	$ 1,007	$ 1,010	$ (3)	— %
Operating income	81	90	(9)	(10) %

Net sales. Net sales remained relatively flat for the year ended December 31, 2017, as compared to the year ended December 31, 2016, as a 3 percent favorable currency translation primarily reflecting a stronger Brazilian real was offset by a 3 percent decrease in price/product mix.

Operating income. Our decrease in operating income of $9 million for the year ended December 31, 2017, as compared to the year ended December 31, 2016, was primarily driven by unfavorable price/product mix and difficult macroeconomic conditions in the region and interruption of manufacturing activities resulting in temporary higher operating costs in Argentina during the second quarter of 2017. This decrease was partially offset by a net margin improvement from favorable raw material costs and a favorable currency translation primarily reflecting a stronger Brazilian real and Argentine peso.

2017 Compared to 2016 – Asia Pacific

(in millions)	Year Ended December 31, 2017	2016	Favorable (Unfavorable) Variance	Favorable (Unfavorable) Percentage
Net sales to unaffiliated customers	$ 740	$ 709	$ 31	4 %
Operating income	115	113	2	2 %

Net sales. Our increase in net sales of 4 percent for the year ended December 31, 2017, as compared to the year ended December 31, 2016, was driven by organic volume growth of 8 percent and favorable currency translation of 2 percent primarily reflecting a stronger Korean won, partially offset by a 6 percent decrease in price/product mix due to core customer mix diversification.

Operating income. Our increase in operating income of $2 million for the year ended December 31, 2017, as compared to the year ended December 31, 2016, was driven by volume growth, improved operational efficiencies, and favorable currency translation primarily reflecting a stronger Korean won, partially offset by a decrease in price/product mix due to core customer mix diversification.

2017 Compared to 2016 – EMEA

(in millions)	Year Ended December 31, 2017	2016	Favorable (Unfavorable) Variance	Favorable (Unfavorable) Percentage
Net sales to unaffiliated customers	$ 556	$ 538	$ 18	3 %
Operating income	114	107	7	7 %

Net sales. Our increase in net sales of 3 percent for the year ended December 31, 2017, as compared to the year ended December 31, 2016, was driven by a 2 percent increase in price/product mix and organic volume growth of 1 percent.

Operating income. Our increase in operating income of $7 million for the year ended December 31, 2017, as compared to the year ended December 31, 2016, was driven by favorable price/product mix and volume growth, partially offset by increased operational costs.

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Liquidity and Capital Resources

At December 31, 2018, our total assets were $5.7 billion, as compared to $6.1 billion at December 31, 2017. The decrease was driven principally by higher cash usage for common stock repurchases of $657 million during the current year and by unfavorable exchange rate movement. Total equity decreased to $2.4 billion at December 31, 2018, from $2.9 billion at December 31, 2017. This decrease primarily reflects an increase in treasury stock due to common stock repurchases, partially offset by our current year earnings.

On August 18, 2017, we entered into a Term Loan Credit Agreement ("Term Loan") to establish a senior unsecured term loan credit facility. Under the Term Loan, we were allowed three borrowings in an amount of up to $500 million total. The Term Loan matures 18 months from the date of the final borrowing. We initiated all three borrowings under the Term Loan in 2017 totaling $420 million, due April 25, 2019. The proceeds were used to refinance $300 million of 1.8 percent senior notes due September 25, 2017, and pay down borrowings outstanding on the revolving credit facility. We paid down $25 million of the Term Loan in December 2017 and paid an additional $230 million towards the Term Loan during 2018. All payments were made with cash on-hand. As of December 31, 2018, the remaining Term Loan balance is $165 million. This borrowing is included in the long-term debt as we have the ability and intent to refinance it on a long-term basis prior to the April 25, 2019 maturity date. See also Note 7 of the Consolidated Financial Statements for additional information.

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 that would have matured on October 22, 2017. See also Note 7 of the Consolidated Financial Statements for additional information.

Subject to certain terms and conditions, we may increase the amount of the revolving 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 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 limitations on liens, incurrence of subsidiary debt and mergers. We must also comply with a leverage ratio covenant and an interest coverage ratio covenant. 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. We met all covenant requirements as of December 31, 2018. As of December 31, 2018, there were $418 million in borrowings outstanding under the Revolving Credit Agreement, with an additional $582 million available for use under the Revolving Credit Agreement as of the end of the year. In addition, we have a number of short-term credit facilities consisting of operating lines of credit outside of the U.S.

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As of December 31, 2018, we had a total debt outstanding of $2.1 billion. As of December 31, 2018, our total debt consisted of the following:

(in millions)	
3.2% senior notes due October 1, 2026	$ 496
4.625% senior notes due November 1, 2020	399
6.625% senior notes due April 15, 2037	254
5.62% senior notes due March 25, 2020	200
Term loan credit agreement due April 25, 2019	165
Revolving credit facility	418
Fair value adjustment related to hedged fixed rate debt instruments	(1)
Long-term debt	1,931
Short-term borrowings	169
Total debt	$ 2,100

We, as the parent company, guarantee certain obligations of our consolidated subsidiaries. As of December 31, 2018, 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 on our bank lines and to raise funds in the capital markets. In addition to borrowing availability under our Revolving Credit Agreement, we also have approximately $507 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 4.8 percent and 4.0 percent for 2018 and 2017, respectively.

Net Cash Flows

A summary of operating cash flows is shown below:

(in millions)	2018	2017	2016
Net income	$ 454	$ 532	$ 496
Depreciation and amortization	247	209	196

Mechanical stores expense	57	57	57
Charge for fair value mark-up of acquired inventory	—	9	—
Deferred income taxes	(23)	67	(5)
Changes in working capital	(118)	(121)	(8)
Other	86	16	35
Cash provided by operations	$ 703	$ 769	$ 771

Cash provided by operations was $703 million in 2018, as compared with $769 million in 2017. The decrease in 2018 is primarily due to lower current year net earnings and the change in deferred income tax provision versus the prior year. Cash provided by operations in 2017 remained relatively flat in comparison to 2016. The increase in 2017 net earnings over 2016 was offset by an increase of cash outflow in working capital primarily due to the outflow in accounts payable and accrued liabilities for the $63 million payment made to the IRS in the third quarter of 2017 to complete the double taxation settlement between the U.S. and Canada.

To manage price risk related to corn purchases in North America, we use derivative instruments (corn futures and options contracts) to lock in our corn costs associated with firm-priced customer sales contracts. We are unable to directly hedge price risk related to co-product sales; however, we occasionally enter into hedges of soybean oil (a competing product to our animal feed and corn oil) in order to mitigate the price risk of animal feed and corn oil sales. Additionally, we enter into futures contracts to hedge price risk associated with fluctuations in market prices of ethanol. As the market price of these commodities fluctuate, our derivative instruments change in value and we fund any unrealized losses or

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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:

(in millions)	2018	2017	2016
Payments for acquisitions	$ —	$ (17)	$ (407)
Capital expenditures and mechanical stores purchases	(350)	(314)	(284)
Payments on debt	(738)	(1,240)	(874)
Proceeds from borrowings	987	1,144	1,000
Dividends paid (including to non-controlling interests)	(182)	(165)	(141)
Repurchases of common stock	(657)	(123)	(8)

On December 15, 2018, our board of directors declared a quarterly cash dividend of $0.625 per share of common stock. This dividend was paid on January 25, 2019, to stockholders of record at the close of business on January 2, 2019.

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 repurchased 4 million shares of our outstanding common stock pursuant to an ASR agreement at an upfront cost of $455 million. At the end of the ASR program, we will settle any difference between the initial price and VWAP less the agree upon discount during the term of the agreement either by receiving cash or additional shares, or by paying cash or delivering additional shares, depending on the final settlement price. We received notification of settlement of the ASR from the bank on February 5, 2019 with a final average share price of $98.04. This price resulted in a final cost of $392 million to repurchase the 4.0 million shares. We elected to receive the $63 million difference in cash, with final settlement occurring on February 6, 2019.

We currently anticipate that capital expenditures and mechanical stores purchases for 2019 will be approximately $330 million to $360 million.

In 2017, we repurchased 1 million common shares in open market transactions at a cost of $123 million. Additionally in March 2017, we completed our acquisition of Sun Flour in Thailand for $18 million. As of December 31, 2017, we paid $16 million in cash and recorded $2 million in accrued liabilities for the final deferred payment due to the previous owner.

During 2016, we acquired TIC Gums, a U.S.-based company that provides advanced texture systems to the food and beverage industry. We funded the $396 million acquisition with cash and short-term borrowings. Additionally, we completed our acquisition of Shandong Huanong in China for $12 million in cash.

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.

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 $311 million of our total cash and cash equivalents and short-term investments of $334 million at December 31, 2018, were held by our operations outside of the U.S. We expect that available cash balances and credit facilities in the U.S., along with cash generated from operations and access to debt markets, will be sufficient to meet our operating and other cash needs for the foreseeable future.

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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 clear 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. We also enter into futures contracts to hedge price risk associated with fluctuations in the market price of ethanol. We are unable to directly hedge price risk related to co-product sales; however, we occasionally enter into hedges of soybean oil (a competing product to our corn oil) in order to mitigate the price risk of corn oil sales. Unrealized gains and losses associated with marking our commodities-based derivative instruments to market are recorded as a component of other comprehensive income ("OCI"). At December 31, 2018, our accumulated other comprehensive loss account ("AOCI") included $2 million of losses (net of income taxes of $2 million) related to these derivative instruments. It is anticipated that $1 million of these losses (net of an insignificant amount of income taxes) will be reclassified into earnings during the next 12 months. We expect the 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. We primarily use derivative financial instruments such as foreign currency forward contracts, swaps and options to manage our foreign currency transactional exchange risk. At December 31, 2018, we had foreign currency forward sales contracts with an aggregate notional amount of $621 million and foreign currency forward purchase contracts that are designated as fair value hedges with an aggregate notional amount of $165 million that hedged transactional exposures. The fair value of these derivative instruments is an asset of $5 million at December 31, 2018.

We also have foreign currency derivative instruments that hedge certain foreign currency transactional exposures and are designated as cash flow hedges. As of December 31, 2018, the amount included in AOCI related to these hedges was not significant.

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, 2018.

As of December 31, 2018, our AOCI account included $2 million of losses (net of income taxes of $1 million) 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 losses (net of income taxes of $1 million) will be reclassified into earnings during the next 12 months.

As of December 31, 2018, we have an interest rate swap agreement that effectively converts the interest rates on $200 million of our $400 million of 4.625 percent 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 obligation attributable to changes in interest rates and account for it as a fair value hedge. The fair value of this interest rate swap agreement was a $1 million loss at December 31, 2018,

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and is reflected in the Consolidated Balance Sheets within other non-current liabilities, 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, 2018. 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	$ 1,931	$ 165	$ 1,016	$ —	$ 750
Interest on long-term debt	7	510	84	89	65	272
Operating lease obligations	8	213	53	84	49	27
Pension and other postretirement obligations	10	123	5	14	16	88
Purchase obligations (a)		925	294	256	197	178
Total (b)		$ 3,702	$ 601	$ 1,459	$ 327	$ 1,315

(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 $30 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 metrics to monitor our progress towards achieving our long-term strategic business objectives. These metrics relate to our return on capital employed (“ROCE”) and our financial leverage, each of which is tracked on an ongoing basis. We assess whether we are achieving an adequate return on invested capital by measuring our ROCE against our cost of capital. 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 below include certain information (including Capital Employed, Adjusted Operating Income, Adjusted EBITDA, and Net Debt) that is not calculated in accordance with GAAP. Management uses non-GAAP financial measures internally for strategic decision-making, forecasting future results and evaluating current performance. By disclosing non-GAAP financial measures, management intends to provide a more meaningful, 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, provide 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.

Non-GAAP financial measures are not prepared in accordance with GAAP; therefore, the information is not necessarily comparable to other companies. A reconciliation of non-GAAP historical financial measures to the most comparable GAAP measure is provided in the tables below.

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Our calculations of these key financial metrics for 2018 with comparisons to the prior year are as follows:

Return on Capital Employed (dollars in millions)	2018	2017
Total equity *	$ 2,917	$ 2,595
Add:		
Cumulative translation adjustment *	951	1,008
Share-based payments subject to redemption*	36	30
Total debt *	1,864	1,956
Less:		
Cash and cash equivalents *	(595)	(512)
Capital employed * (a)	5,173	5,077
Operating income	703	836
Adjusted for:		
Impairment/restructuring charges	64	38
Acquisition/integration costs	—	4
Charge for fair value mark-up of acquired inventory	—	9
Insurance settlement	—	(9)
Adjusted operating income	767	878
Income taxes (at effective tax rates of 25.8% and 28.6%, respectively)**	(198)	(251)
Adjusted operating income, net of tax (b)	$ 569	$ 627
Return on Capital Employed (b ÷ a)	11.0%	12.3%

* Balance sheet amounts used in computing capital employed represent beginning of period balances.

** The effective income tax rate for 2018 and 2017 excludes the impacts of impairment/restructuring charges, acquisition and integration related costs, sale of acquiree inventory that was adjusted to fair value at the acquisition date, income tax reform, and an insurance settlement. Including these items, our effective income tax rate for 2018 and 2017 was 26.9 percent and 30.8 percent, respectively. Listed below is a schedule that reconciles our effective income tax rate under GAAP to the adjusted income tax rate:

	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
As reported	$ 621	$ 167	26.9%	$ 769	$ 237	30.8%
Add back (deduct):						
Income tax settlement	—	—		—	10	
Impairment/restructuring charges	64	13		38	7	

Acquisition/integration costs	—	—		4	1	
Charge for fair value mark-up of acquired inventory	—	—		9	3	
Insurance settlement	—	—		(9)	(3)	
Income tax reform	—	(3)		—	(23)	
Adjusted non-GAAP	$ 685	$ 177	25.8%	$ 811	$ 232	28.6%

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Net Debt to Adjusted EBITDA ratio (dollars in millions)	2018	2017
Short-term debt	$ 169	$ 120
Long-term debt	1,931	1,744
Less: Cash and cash equivalents	(327)	(595)
Short-term investments	(7)	(9)
Total net debt (a)	1,766	1,260
Net income attributable to Ingredion	443	519
Add back:		
Restructuring/impairment charges (i)	30	38
Acquisition/integration costs	—	4
Charge for fair value mark-up of acquired inventory	—	9
Insurance settlement	—	(9)
Net income attributable to non-controlling interest	11	13
Provision for income taxes	167	237
Financing costs, net of interest income of $9 and $11, respectively	86	73
Depreciation and amortization	247	209
Adjusted EBITDA (b)	$ 984	$ 1,093
Net Debt to Adjusted EBITDA ratio (a ÷ b)	1.8	1.2

(i) 2018 restructuring / impairment charge is 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 within in Depreciation and amortization above, and to include in restructuring / impairment charge would include the charge twice. See Note 5 for reconciliation to the $64 million restructuring charges recorded in 2018.

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

Commentary on Key Financial Performance Metrics: 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, 2018, we had achieved all of our established objectives for the above metrics, except for the net debt to capitalization percentage. 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 set out below 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.

ROCE — Our long-term objective is to maintain a ROCE in excess of 10.0 percent. In determining this performance metric, the negative cumulative translation adjustment is added back to total equity to calculate returns based on our original investment costs. Our ROCE for 2018 decreased to 11.0 percent from 12.3 percent in 2017, reflecting lower 2018 adjusted operating income, net of tax.

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Net Debt to Adjusted EBITDA ratio — Our long-term objective is to maintain a ratio of net debt to adjusted EBITDA of less than 2.25. This ratio was 1.7 as of December 31, 2018, up from 1.2 last year and remains below our target. The increase primarily reflects a greater amount of net debt and weaker EBITDA results in 2018.

Net Debt to Capitalization percentage — 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, 2018, our Net Debt to Capitalization percentage was 40.1 percent, up from 28.6 percent a year ago, primarily reflecting our increase of net debt in 2018 and reduction of equity due to the repurchase of 4 million shares of common stock pursuant to an ASR agreement in the fourth quarter of 2018.

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 Sun Flour in 2017 was accounted for in accordance with ASC Topic 805, Business Combinations, as amended. 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, 2018, were $2.2 billion and $282 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 2018.

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, 2018, 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.

Goodwill and Indefinite-Lived Intangible Assets: 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. In addition, we have certain indefinite-lived intangible assets in the form of trade names and trademarks. The carrying value of goodwill and indefinite-lived intangible assets at December 31, 2018, was $791 million and $178 million, respectively, compared to $803 million and $178 million a year ago.

We perform our goodwill and indefinite-lived intangible asset impairment tests annually as of July 1, or more frequently if an event occurs or circumstances change that would more likely than not reduce the fair value of a reporting unit below its carrying value. 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 not more likely than not that the fair value of a reporting unit is less 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, 2018, it was more likely than not that the fair value of our reporting units was greater than their carrying value. 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.

In performing the annual qualitative impairment assessment for other indefinite-lived intangible assets, we considered various factors in determining if it was more likely than not that the fair values of these indefinite-lived intangible assets were greater than their carrying values. We evaluated net sales attributable to these intangible assets as compared to original projections and evaluated future projections of net sales related to these assets. In addition, we considered market and industry conditions in the reporting units in which these intangible assets reside noting no significant changes that would result in a failed Step One impairment test as described in ASC Topic 350. Based on the results of this qualitative assessment as of July 1, 2018, we concluded that it was more likely than not that the fair values of these indefinite-lived intangible assets were greater than their carrying values.

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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 $31 million and $34 million at December 31, 2018 and 2017, respectively. The decrease in the valuation allowance from 2018 to 2017 is primarily attributable to the devaluation of the Argentina Peso and deferred tax rate re-measurement 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. We had been pursuing relief from double taxation under the U.S.-Canada tax treaty for the years 2004-2013. During the fourth quarter of 2016, a tentative settlement was reached between the U.S. and Canada and, consequently, we established a net reserve of $24 million, including interest thereon, recorded as a $70 million liability and a $46 million benefit. 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 were entitled to deduct a foreign exchange loss of $10 million on our 2017 U.S. federal income tax return due to the foreign exchange loss deduction. Our liability for unrecognized tax benefits, excluding interest and penalties at December 31, 2018 and 2017 was $30 million and $39 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 certain 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

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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 $6 million in 2018 and $4 million in 2017.

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 for December 31, 2018 and 2017 was 4.38 percent and 3.70 percent, respectively. The weighted average discount rate used to determine our obligations under non-U.S. pension plans for December 31, 2018 and 2017 was 4.33 percent and 4.02 percent, respectively. The weighted average discount rate used to determine our obligations under our postretirement plans for December 31, 2018 and 2017 was 5.24 percent and 4.92 percent, respectively.

A one percentage point decrease in the discount rates at December 31, 2018, would have increased the accumulated benefit obligation and projected benefit obligation by the following amounts (millions):

U.S. Pension Plans	
Accumulated benefit obligation	$ 43
Projected benefit obligation	44
Non-U.S. Pension Plans	
Accumulated benefit obligation	$ 25
Projected benefit obligation	28
Postretirement Plans	
Accumulated benefit obligation	$ 7

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 2019 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 2019 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, 2018, the health care cost trend rate assumptions for the next year for the U.S., Canada, and Brazil plans were 6.30 percent, 5.92 percent and 7.90 percent, respectively.

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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, 2018, are as follows:

(in millions)	2018
One-percentage point increase in trend rates:	
Increase in service cost and interest cost components	$ 1
Increase in year-end benefit obligations	5
One-percentage point decrease in trend rates:	
Decrease in service cost and interest cost components	1
Decrease in year-end benefit obligations	7

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

New Accounting Standards

In February 2016, the FASB issued ASU No. 2016-02, Leases (Topic 842), which supersedes Topic 840, Leases. This Update increases the transparency and comparability of organizations by recognizing lease assets and lease liabilities on the balance sheet for leases longer than 12 months and disclosing key information about leasing arrangements. The recognition, measurement and presentation of expenses and cash flows arising from a lease by a lessee have not significantly changed. The FASB also issued ASU 2018-11 to provide further updates and clarification to this Update. This Update is effective for annual periods beginning after December 15, 2018. The Company will conclude its evaluation on the new guidance in the first quarter of 2019. The Company expects the impact to the Company's Consolidated Balance Sheet to be material. The Company is in the process of analyzing existing leases, practical expedients, and deploying its implementation strategy. The Company is also in the process of updating its controls and systems, and is still finalizing the new disclosures required in 2019. The Company will adopt ASU 2016-02 at the beginning of its 2019 fiscal year.

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. 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.

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. We competed our assessment of these updates, including potential changes to existing hedging arrangements, and have determined the adoption of the guidance will not have a material impact on our 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. We are assessing the impact of this new standard; however the adoption of the guidance in this Update is not expected to have a material impact on our Consolidated Financial Statements.

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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 other things, 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,” “outlo “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 the effects of global economic conditions, including, particularly, economic, currency and political conditions in South America and economic and political conditions in Europe, and their impact on our sales volumes and pricing of our products, our ability to collect our receivables from customers and our ability to raise funds at reasonable rates; fluctuations in worldwide markets for corn and other commodities, and the associated risks of hedging against such fluctuations; fluctuations in the markets and prices for our co-products, particularly corn oil; fluctuations in aggregate industry supply and market demand; the behavior of financial markets, including foreign currency fluctuations and fluctuations in interest and exchange rates; volatility and turmoil in the capital markets; the commercial and consumer credit environment; general political, economic, business, market and weather conditions in the various geographic regions and countries in which we buy our raw materials or manufacture or sell our products; future financial performance of major industries which we serve, including, without limitation, the food, beverage, paper and corrugated, and brewing industries; energy costs and availability; freight and shipping costs; and changes in regulatory controls regarding quotas; tariffs, duties, taxes and income tax rates, particularly United States tax reform enacted in 2017; operating difficulties; availability of raw materials, including potato starch, tapioca, gum Arabic, and the specific varieties of corn upon which some of our products are based; our ability to develop or acquire new products and services at rates or of qualities sufficient to meet expectations; energy issues in Pakistan; boiler reliability; our ability to effectively integrate and operate acquired businesses; our ability to achieve budgets and to realize expected synergies; our ability to achieve expected savings under our Cost Smart program; our ability to complete planned maintenance and investment projects successfully and on budget; labor disputes; genetic and biotechnology issues; changing consumption preferences including those relating to high fructose corn syrup; increased competitive and/or customer pressure in the corn-refining industry; and the outbreak or continuation of serious communicable disease or hostilities including acts of terrorism.

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 subsequent reports on Forms 10-Q and 8-K.

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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, 2018, approximately 55 percent or $1.2 billion of our total debt are fixed-rate debt and 45 percent or approximately $952 million of our total debt is 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, 2018. A hypothetical increase of 1 percentage point in the weighted average floating interest rate would increase our annual interest expense by approximately $5 million. See Note 7 of the Notes to the Consolidated Financial Statements entitled "Financing Arrangements" for further information.

At December 31, 2018 and 2017, the carrying and fair values of long-term debt were as follows:

(in millions)	2018 Carrying amount	Fair value	2017 Carrying amount	Fair value
3.2% senior notes due October 1, 2026	$ 496	$ 462	$ 496	$ 492
4.625% senior notes, due November 1, 2020	399	409	398	421
6.625% senior notes, due April 15, 2037	254	295	254	325
5.62% senior notes, due March 25, 2020	200	205	200	212
Term loan credit agreement due April 25, 2019	165	165	395	395
U.S. revolving credit facility	418	418	—	—
Fair value adjustment related to hedged fixed rate debt instruments	(1)	—	1	—
Total long-term debt	$ 1,931	$ 1,954	$ 1,744	$ 1,845

A hypothetical change of 1 percentage point in interest rates would change the fair value of our fixed rate debt at December 31, 2018, by approximately $74 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 percent 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, 2018, and is reflected in the Consolidated Balance Sheets within non-current liabilities, 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 11 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

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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, 2018, we had outstanding futures and option contracts that hedged the forecasted purchase of approximately 85 million bushels of corn. We are unable to directly hedge price risk related to co-product sales; however, we occasionally enter into hedges of soybean oil (a competing product to corn oil) in order to mitigate the price risk of corn oil sales. At December 31, 2018, we had no outstanding futures or options contracts for soybean oil. We also had outstanding swap and option contracts that hedged the forecasted purchase of approximately 28 million mmbtu's of natural gas at December 31, 2018. Additionally at December 31, 2018, we had no outstanding ethanol futures contracts. Based on our overall commodity hedge position at December 31, 2018, 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 $26 million, net of income tax benefit. It should be noted that 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, 2018, 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 $2 million. At December 31, 2018, our accumulated other comprehensive loss account included in the equity section of our Consolidated Balance Sheets 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 $1.3 billion at December 31, 2018. 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 $150 million.

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ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Ingredion Incorporated

Index to Consolidated Financial Statements and Supplementary Data

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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, 2018 and 2017, the related consolidated statements of income, comprehensive income, equity and redeemable equity, and cash flows for each of the years in the three-year period ended December 31, 2018, 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, 2018, 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, 2018 and 2017, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2018, 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, 2018 based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

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

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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.

/s/ KPMG LLP

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

Chicago, Illinois
February 25, 2019

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Ingredion Incorporated (“Ingredion”)

Consolidated Statements of Income

(in millions, except per share amounts)	Year Ended December 31, 2018	2017	2016
Net sales before shipping and handling costs	$ 6,289	$ 6,244	$ 6,082
Less: shipping and handling costs	448	412	378
Net sales	5,841	5,832	5,704
Cost of sales	4,473	4,360	4,303
Gross profit	1,368	1,472	1,401
Operating expenses	611	616	580
Other income, net	(10)	(18)	(4)
Restructuring/impairment charges	64	38	19
Operating income	703	836	806
Financing costs, net	86	73	66
Other, non-operating income	(4)	(6)	(2)
Income before income taxes	621	769	742
Provision for income taxes	167	237	246
Net income	454	532	496
Less: Net income attributable to non-controlling interests	11	13	11
Net income attributable to Ingredion	$ 443	$ 519	$ 485
Weighted average common shares outstanding:			
Basic	70.9	72.0	72.3
Diluted	71.8	73.5	74.1
Earnings per common share of Ingredion:			
Basic	$ 6.25	$ 7.21	$ 6.70
Diluted	6.17	7.06	6.55

See the Notes to the Consolidated Financial Statements.

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Ingredion Incorporated ("Ingredion")

Consolidated Statements of Comprehensive Income (Loss)

(in millions)	2018	2017	2016
Net income	$ 454	$ 532	$ 496
Other comprehensive income:			
Gains (losses) on cash flow hedges, net of income tax effect of $2, $6, and $6, respectively	6	(10)	(11)
Losses on cash flow hedges reclassified to earnings, net of income tax effect of $2, $2, and $16, respectively	4	4	33
Actuarial (losses) gains on pension and other postretirement obligations, settlements and plan amendments, net of income tax effect of $5 , $2, and $4, respectively	(15)	6	(10)
(Gains) losses related to pension and other postretirement obligations reclassified to earnings, net of income tax effect of $ — , $1, and $ — , respectively	—	(1)	1
Unrealized gains on investments, net of income tax effect of $ — , $1, and $ —, respectively	—	2	1
Currency translation adjustment	(129)	57	7
Comprehensive income	320	590	517
Less: Comprehensive income attributable to non-controlling interests	3	13	12
Comprehensive income attributable to Ingredion	$ 317	$ 577	$ 505

See the Notes to the Consolidated Financial Statements.

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Ingredion Incorporated ("Ingredion")

Consolidated Balance Sheets

As of
December
31,