

Ingredion Inc
Form 10-K
February 21, 2018
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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, 2017

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)

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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 and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted 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 and post such files). Yes No

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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
(Do not check if a smaller reporting company)

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 \$119.21 on June 30, 2017, and, for the purpose of this calculation only, the assumption that all of the Registrant's directors and executive officers are affiliates) was approximately \$8,486,000,000.

The number of shares outstanding of the Registrant's Common Stock, par value \$0.01 per share, as of February 16, 2018, was 72,235,558.

Documents Incorporated by Reference:

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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 2018 Annual Meeting of Stockholders which will be filed with the Securities and Exchange Commission within 120 days after December 31, 2017.

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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.

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, South Africa, and Kenya.

On March 11, 2015, we completed our acquisition of Penford Corporation (“Penford”), a manufacturer of specialty starches that was headquartered in Centennial, Colorado. The acquisition of Penford provides us with, among other things, an expanded specialty ingredient product portfolio consisting of potato starch-based offerings.

On August 3, 2015, we completed our acquisition of Kerr Concentrates, Inc. (“Kerr”), a privately-held producer of natural fruit and vegetable concentrates. Kerr serves major food and beverage companies, flavor houses, and ingredient producers from its manufacturing locations in Oregon and California. The acquisition of Kerr provides us with the opportunity to expand our product portfolio.

On November 29, 2016, we completed our acquisition of Shandong Huanong Specialty Corn Development Co., Ltd. (“Shandong Huanong”) in China. The acquisition of Shandong Huanong, located in Shandong Province, adds a second manufacturing facility to our operations in China. It produces corn starch raw material for our plant in Shanghai, which makes value-added ingredients for the food industry. We expect this acquisition to enhance our capacity in the Asia Pacific segment with a vertically integrated manufacturing base for specialty ingredients.

On December 29, 2016, we completed our acquisition of TIC Gums Incorporated (“TIC Gums”), a privately held, U.S.-based company that provided advanced texture systems to the food and beverage industry. Consistent with our strategy for new platform growth, this acquisition enhances our texture capabilities and formulation expertise and provides additional opportunities for us to provide solutions for natural, organic, and clean-label demands of our customers. TIC Gums utilizes a variety of agriculturally derived ingredients, such as acacia gum and guar gum, to form the foundation for innovative texture systems and allow for clean-label reformulation. TIC Gums operates two production facilities, one in Belcamp, Maryland, and one in Guangzhou, China. TIC Gums also maintains a research and development (“R&D”) lab within these two production facilities.

On March 9, 2017, we completed our acquisition of Sun Flour Industry Co., Ltd. (“Sun Flour”) in Thailand. The acquisition of Sun Flour adds a fourth manufacturing facility to our operations in Thailand. Sun Flour produces rice-based ingredients used primarily in the food industry. This transaction enhances our global supply chain and leverages other capital investments that we have made in Thailand to grow our specialty ingredients and service customers around the world.

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.

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We supply a broad range of customers in many diverse industries around the world, including the food, beverage, paper and corrugating, brewing, pharmaceutical, textile, and personal care industries, as well as the global animal feed and corn oil markets.

Our product line includes 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, corn is 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 sweeteners, starches 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 consolidated net sales were \$5.8 billion in 2017. In 2017, approximately 61 percent of our net sales were derived from operations in North America, while net sales from operations in South America represented 17 percent. Net sales from operations in Asia Pacific and EMEA represented approximately 12 percent and 10 percent, respectively, of our 2017 net sales. See Note 13 of the Notes to the Consolidated Financial Statements entitled “Segment Information” for additional financial information with respect to our reportable business segments.

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.

Our North America segment consists of operations in the U.S., Canada, and Mexico. The region's facilities include 20 plants producing a wide range of sweeteners, starches and fruit and vegetable concentrates.

We are the largest manufacturer of corn-based starches and sweeteners in South America, with sales in Brazil, Colombia, and Ecuador and the Southern Cone of South America. Our South America segment includes nine plants that produce regular, modified, waxy, and tapioca starches, high fructose and high maltose syrups and syrup solids, dextrins and maltodextrins, dextrose, specialty starches, caramel color, sorbitol, and vegetable adhesives.

Our Asia Pacific segment manufactures corn-based products in South Korea, Australia, and China. 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 the specialty starches through our finishing channels.

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

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 44 percent, 46 percent, and 44 percent of our net sales for 2017, 2016, and 2015, 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.

Sweetener Products: Our sweetener products represented approximately 37 percent, 37 percent, and 40 percent of our net sales for 2017, 2016, and 2015, respectively. Sweeteners include products such as glucose syrups, high maltose syrup, high fructose corn syrup, dextrose, polyols, maltodextrine, 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, 17 percent, and 16 percent of our net sales for 2017, 2016, and 2015, respectively. 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 28 percent of our net sales for 2017, up from 26 percent and 25 percent in 2016 and 2015, 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, affordability, indulgence, and sustainability. We plan to 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.

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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.

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

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 segments for 2017:

Industries Served	Total Company	North America	South America	APAC	EMEA
Food	53	% 51	% 47	% 64	% 66
Beverage	12	15	9	6	1
Animal Nutrition	10	10	14	5	8
Paper and Corrugating	10	11	8	14	5
Brewing	7	7	15	4	—
Other	8	6	7	7	20
Total	100	% 100	% 100	% 100	% 100

No customer accounted for 10 percent or more of our net sales in 2017, 2016, or 2015.

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 affiliates 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 affiliates 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 350 scientists working in 27 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 \$43 million in 2017, \$41 million in 2016, and \$43 million in 2015.

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 850 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, 2017, we had approximately 11,000 employees, of which approximately 2,600 were located in the U.S. Approximately 31 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 2017. 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 underground fuel storage tanks, 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 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 2017, we spent approximately \$16 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 \$12 million and \$9 million for environmental facilities and programs in 2018 and 2019, 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
Ilene S. Gordon	64	Executive Chairman of the Board since January 1, 2018. Prior to that, Ms. Gordon served as Chairman of the Board, President and Chief Executive Officer from May 4, 2009 to December 31, 2017. Ms. Gordon was President and Chief Executive Officer of Rio Tinto's Alcan Packaging, a multinational business unit engaged in flexible and specialty packaging, from October 2007 until she joined the Company on May 4, 2009. From December 2006 to October 2007, Ms. Gordon was a Senior Vice President of Alcan Inc. and President and Chief Executive Officer of Alcan Packaging. Alcan Packaging was acquired by Rio Tinto in October 2007. From 2004 until December 2006, Ms. Gordon served as President of Alcan Food Packaging Americas, a division of Alcan Inc. From 1999 until Alcan's December 2003 acquisition of Pechiney Group, Ms. Gordon was a Senior Vice President of Pechiney Group and President of Pechiney Plastic Packaging, Inc., a global flexible packaging business. Prior to joining Pechiney in June 1999, Ms. Gordon spent 17 years with Tenneco Inc., where she most recently served as Vice President and General Manager, heading up Tenneco's folding carton business. Ms. Gordon also serves as a director of International Paper Company, a global paper and packaging company, and Lockheed Martin Corporation, a global security and aerospace company. She served as a director of Arthur J. Gallagher & Co., an international insurance brokerage and risk management business, from 1999 to May 2013 and as a director of Essendant Inc., formerly United Stationers Inc., a wholesale distributor of business products and a provider of marketing and logistics services to resellers, from January 2000 to May 2009. Ms. Gordon also serves as a director of The Economic Club of Chicago, Northwestern Memorial Hospital and World Business Chicago. She is also a trustee of The MIT Corporation and a Vice Chair of The Conference Board. Ms. Gordon holds a Bachelor's degree in mathematics from the Massachusetts Institute of Technology (MIT) and a Master's degree in management from MIT's Sloan School of Management.

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56 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 also serves 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. He is 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 49 Elected to serve as Senior Vice President Chief Human Resources Officer of Company effective March 1, 2018. Ms. Adefioye is presently serving as Vice President, Human Resources, North America and Global Specialties, a position she has held since 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 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. While in the 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 50 Elected to serve as Senior Vice President and President, Asia-Pacific of Company effective 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 Rhodia 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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- Christine M. Castellano 52 Senior Vice President, General Counsel, Corporate Secretary and Chief Compliance Officer since April 1, 2013. Prior to that, Ms. Castellano served as Senior Vice President, General Counsel and Corporate Secretary from October 1, 2012 to March 31, 2013. Ms. Castellano previously served as Vice President International Law and Deputy General Counsel from April 28, 2011 to September 30, 2012; Associate General Counsel, South America and Europe from January 1, 2011 to April 27, 2011; Associate General International Counsel from 2004 to December 31, 2010; and Counsel U.S. and Canada from 2002 to 2004. Ms. Castellano joined CPC International, Inc., now Unilever Bestfoods (“CPC”), as Operations Attorney in September 1996 and held that position until 2002. CPC was a worldwide group of businesses, principally engaged in three major industry segments: consumer foods, baking and corn refining. Ingredion commenced operations as a spin-off of CPC’s corn refining business. Prior to joining CPC, Ms. Castellano was an income partner in the law firm McDermott Will & Emery from January 1, 1996 and had served as an associate in that firm from 1991 to December 31, 1996. She serves as a trustee of The John Marshall Law School and the Peggy Notebaert Nature Museum. She also serves as a member of the board of the Illinois Equal Justice Foundation. Ms. Castellano is a member of The Economic Club of Chicago. Ms. Castellano holds a Bachelor’s degree in political science from the University of Colorado and a Juris Doctor degree from the University of Michigan Law School.
- Anthony P. DeLio 62 Effective March 1, 2018, Mr. DeLio is elected Senior Vice President, Corporate Strategy and Chief Innovation Officer. He has served as Senior Vice President and Chief Innovation Officer since January 1, 2014. Prior to that, 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 from January 1, 2009 to November 3, 2010, when Ingredion acquired National Starch. 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.

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- Larry
Fernandes
- 53 Elected to serve as Senior Vice President and Chief Commercial Officer of the Company effective March 1, 2018. Mr. Fernandes has served as President and General Director, Mexico, since January 1, 2014. 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 is 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). Previously, Mr. Fernandes was 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.
- Diane J.
Frisch
- 63 Senior Vice President, Human Resources since October 1, 2010. Ms. Frisch previously served as Vice President, Human Resources, from May 1, 2010 to September 30, 2010. Prior to that, Ms. Frisch served as Vice President of Human Resources and Communications for the Food Americas and Global Pharmaceutical Packaging businesses of Rio Tinto’s Alcan Packaging, a multinational company engaged in flexible and specialty packaging, from January 2004 to March 30, 2010. Prior to being acquired by Alcan Packaging, Ms. Frisch served as Vice President of Human Resources for the flexible packaging business of Pechiney, S.A., an aluminum and packaging company with headquarters in Paris, France and Chicago, Illinois, from January 2001 to January 2004. Previously, she served as Vice President of Human Resources for Culligan International Company and Vice President and Director of Human Resources for Alumax Mill Products, Inc., a division of Alumax Inc. Ms. Frisch holds a Bachelor of Arts degree in psychology from Ithaca College, Ithaca, New York, and a Master of Science degree in industrial relations from the University of Wisconsin in Madison. Ms. Frisch is retiring from the Company February 28, 2018.

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- James D. Gray 51 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 49 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 in 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 Lodders Croklaan Group. Mr. Kokke holds a Master's degree in economics from the University of Amsterdam.

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- Stephen K. Latreille 51 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 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.
- Pierre Perez y Landazuri 49 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 in Paris, France.

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- Ernesto Pousada 50 Senior Vice President and President, South America since January 1, 2018. Prior to that Mr. Peres 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. Peres 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. Peres Pousada served as Pulp Project Officer from November 3, 2004 to November 30, 2007. Before joining Suzano Papel e Celulose, Mr. Peres 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. Peres 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.
- Martin Sonntag 52 Senior Vice President, Strategy and Global Business Development since November 1, 2015. Prior to that Mr. Sonntag served as Vice President and General Manager, EMEA from February 1, 2014 to October 31, 2015. Prior thereto he served as an executive investment partner and portfolio manager at ADCURAM Group AG from April 2013 to January 2014. Previously, Mr. Sonntag served as General Manager of Dow Wolff Cellulosics GmbH from July 2007 to March 2013. From October 2004 to March 2007, he served as Global Business Director for Liquid Resins & Intermediates at The Dow Chemical Company. Mr. Sonntag served as Global Product Manager for Liquid Resins & Intermediates and Global Product Marketing Manager for Intermediates from 2003 to 2005 and Global Product Manager for Liquid Resins & Intermediates and Converted Epoxy Resins from 2000 to 2003. Previously, Mr. Sonntag, who joined Dow in Stade, Germany in 1989 as a Process Design Engineer, held a variety of engineering and management positions. Mr. Sonntag holds a Bachelor’s degree in chemical engineering from the Hamburg University of Technology and is a graduate of the INSEAD Advanced Management Program. Mr. Sonntag will leave the Company on March 1, 2018, to pursue other career interests.

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Robert J. Stefansic	56	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 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 expense and cash flow.

In addition, the 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 2017 sales were made to companies engaged in the food industry and approximately 12 percent were made to companies in the beverage industry. Additionally, sales to the animal nutrition and paper and corrugating industries each represented approximately 10 percent of our 2017 net sales. Net sales to the brewing industry represented approximately 7 percent of our 2017 net sales. If our food customers, beverage customers,

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animal feed customers, paper and corrugating customers, or brewing industry customers were to substantially decrease their purchases, our business might be materially adversely affected.

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

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

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 amount 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 10 percent of our finished product costs. We use energy primarily to create steam in production processes and to dry products. We consume coal, natural gas, electricity, wood, and fuel oil to generate energy. In Pakistan, the overall economy has been slowed by severe energy shortages which both negatively impact our ability to produce sweeteners and starches, and also negatively impact the demand from our customers due to their inability to produce their end products because of the shortage of reliable energy.

The market prices for our raw materials may vary considerably depending on supply and demand, world economies, 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, 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. In the U.S., the U.S. Environmental Protection Agency (“EPA”) has adopted regulations requiring the owners and operators of certain facilities to measure and report their greenhouse gas emission. The EPA has also begun to regulate greenhouse gas emissions from certain stationary and mobile sources under the Clean Air Act. For example, the EPA has proposed rules regarding the construction and operation of coal-fired boilers. California and Ontario are also moving forward with various programs to reduce greenhouse gases. Globally, a number of countries that are parties to the Kyoto Protocol have instituted or are considering climate change legislation and regulations. Most notable is the European Union

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Greenhouse Gas Emission Trading System. It is difficult at this time to estimate the likelihood of passage or predict the potential impact of any additional legislation. Potential consequences could include increased energy, transportation, and raw materials costs and we may be required to make additional investments in our facilities and equipment.

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

We regularly review potential acquisitions of complementary businesses, technologies, services, or products, as well as potential strategic alliances. We may be unable to find suitable acquisition candidates or appropriate partners with which to form partnerships or strategic alliances. Even if we identify appropriate acquisition or alliance candidates, we may be unable to complete such acquisitions or alliances on favorable terms, if at all. In addition, the process of integrating an acquired business, technology, service, or product into our existing business and operations may result in unforeseen operating difficulties and expenditures. Integration of an acquired company also may require significant management resources that otherwise would be available for ongoing development of our business. Moreover, we may not realize the anticipated benefits of any acquisition or strategic alliance, and such transactions may not generate anticipated financial results. Future acquisitions could also require us to issue equity securities, incur debt, assume contingent liabilities, or amortize expenses related to intangible assets, any of which could harm our business.

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

Producing starches and sweeteners through corn refining is a capital intensive industry. We have 44 plants and have preventive maintenance and de-bottlenecking programs designed to maintain and improve grind capacity and facility reliability. If we encounter operating difficulties at a plant for an extended period of time or start-up problems with any capital improvement projects, we may not be able to meet a portion of sales order commitments and could incur significantly higher operating expenses, both of which could adversely affect our operating results. We also use boilers to generate steam required in our manufacturing 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 or failures which may affect our ability to conduct our business.

Our 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, 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 or tax requirements, and other processes necessary to manage our business. 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 on a timely basis, we may encounter disruptions that could interrupt our ability to manage our operations and suffer damage to our reputation, 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 31 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.

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, 2017, consisting of \$803 million of goodwill and \$493 million of other intangible assets. Additionally, we have \$2.4 billion of long-lived assets at December 31, 2017.

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

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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 October 1, 2017, 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 the business that may negatively impact the fair value of these reporting units.

Even though it was determined that there was no additional long-lived asset impairment as of October 1, 2017, 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 October 1, 2018.

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 alters existing U.S. tax law and includes numerous and complex provisions that substantially affect our business. The TCJA contains a provision that requires recognition of a liability for taxes on the deemed repatriation of our offshore earnings. In addition, the reduction in the corporate tax rate to 21 percent requires us to remeasure deferred income taxes. The provisional impact of the tax on the deemed repatriation of earnings along with the impact of the remeasurement of deferred income taxes has been recorded in income tax from continuing operations in 2017. Although we believe these estimates are reasonable, the underlying calculations are not complete and evolving analyses and interpretations could result in material adjustments to these estimates in 2018.

The TCJA also creates a new requirement that the global intangible low-taxed income (“GILTI”) of our foreign affiliates must be included currently in our U.S. taxable income beginning in 2018. The GILTI provisions are extremely complex and their application to our facts and circumstances remains unclear. The application of the GILTI provisions could materially increase our effective tax rate in 2018 and beyond.

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, if finalized and adopted by countries, would 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 the 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.	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.

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; Stockton, California, U.S.; 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 \$314 million in 2017. 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 2018 will approximate \$330 to \$360 million.

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ITEM 3. LEGAL PROCEEDINGS

We are a party to a large number of labor claims relating to our Brazilian operations. As of December 31, 2017, we have reserved an aggregate of approximately \$5 million with respect to these claims. These labor claims primarily relate to dismissals, severance, health and safety, work schedules, and salary adjustments.

We are currently subject to various other claims and suits arising in the ordinary course of business, including 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, even if unfavorable to us, 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 ("NYSE") under the ticker symbol "INGR." The number of holders of record of our common stock was 4,160 at January 31, 2018.

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.

The quarterly high and low market prices for our common stock and cash dividends declared per common share for 2016 and 2017 are shown below.

	1st QTR	2nd QTR	3rd QTR	4th QTR
2017				
Market prices				
High	\$ 128.95	\$ 124.48	\$ 125.99	\$ 142.64
Low	113.07	113.42	115.47	120.67
Per share dividends declared	0.50	0.50	0.60	0.60
2016				
Market prices				
High	\$ 108.00	\$ 129.42	\$ 140.00	\$ 137.62
Low	84.57	104.24	128.18	113.92
Per share dividends declared	0.45	0.45	0.50	0.50

Issuer Purchases of Equity Securities:

The following table summarizes information with respect to our purchases of our common stock during the fourth quarter of 2017.

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(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, 2017	—	—	—	3,702 shares
November 1 – November 30, 2017	—	—	—	3,702 shares
December 1 – December 31, 2017	—	—	—	3,750 shares
Total	—	—	—	

On December 12, 2014, the Board of Directors authorized a new stock repurchase program permitting us to purchase up to 5 million of our outstanding common shares from January 1, 2015, through December 31, 2019. At December 31, 2017, we have 3.7 million shares available for repurchase under the stock repurchase program.

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ITEM 6. SELECTED FINANCIAL DATA

Selected financial data is provided below.

(in millions, except per share amounts)	2017	2016 (a)	2015 (b)	2014	2013
Summary of operations:					
Net sales	\$ 5,832	\$ 5,704	\$ 5,621	\$ 5,668	\$ 6,328
Net income attributable to Ingredion	519 (c)	485 (d)	402 (e)	355 (f)	396
Net earnings per common share of Ingredion:					
Basic	7.21 (c)	6.70 (d)	5.62 (e)	4.82 (f)	5.14
Diluted	7.06 (c)	6.55 (d)	5.51 (e)	4.74 (f)	5.05
Cash dividends declared per common share of Ingredion	2.20	1.90	1.74	1.68	1.56
Balance sheet data:					
Working capital	1,458	1,274	1,208	1,423	1,394
Property, plant and equipment, net	2,217	2,116	1,989	2,073	2,156
Total assets	6,080	5,782	5,074	5,085	5,353
Long-term debt	1,744	1,850	1,819	1,798	1,710
Total debt	1,864	1,956	1,838	1,821	1,803
Total equity (g)	\$ 2,917	\$ 2,595	\$ 2,180	\$ 2,207	\$ 2,429
Shares outstanding, year end	72.0	72.4	71.6	71.3	74.3
Additional data:					
Depreciation and amortization	\$ 209	\$ 196	\$ 194	\$ 195	\$ 194
Capital expenditures and mechanical stores purchases	314	284	280	276	298

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

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

(c) Includes after-tax restructuring charges of \$31 million (\$0.42 per diluted common share) 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 (\$0.31 per diluted common share) to the provision for income taxes related to the enactment of the TCJA in December 2017, \$6 million (\$0.08 per diluted common share) 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 (\$0.04 per diluted common share) associated with the integration of acquired operations, partially offset by a tax benefit of \$10 million (\$0.14 per diluted common share) due to deductible foreign exchange loss resulting from the tax settlement between the U.S. and Canada, and a \$6 million (\$0.08 per

diluted common share) after-tax gain from an insurance settlement primarily related to capital reconstruction.

- (d) Includes after-tax restructuring charges of \$14 million (\$0.20 per diluted common share) 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 (\$0.03 per diluted common share) associated with the integration of acquired operations and \$27 million (\$0.36 per diluted common share) associated with an income tax matter.
- (e) Includes after-tax charges for impaired assets and restructuring costs of \$18 million (\$0.25 per diluted common share), after-tax costs of \$7 million (\$0.10 per diluted common share) relating to the acquisition and integration of both Penford and Kerr, after-tax costs of \$6 million (\$0.09 per diluted common share) 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 (\$0.06 per diluted common share) relating to a litigation settlement and an after-tax gain from the sale of a plant of \$9 million (\$0.12 per diluted common share).
- (f) Includes a \$33 million impairment charge (\$0.44 per diluted common share) to write-off goodwill at our Southern Cone of South America reporting unit and after-tax costs of \$1 million (\$0.02 per diluted common share) related to the then-pending Penford acquisition.
- (g) 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, animal feed, paper and corrugating, and brewing 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").

We had a solid year in 2017 as operating income, net income and diluted earnings per common share grew from 2016. Our earnings growth was driven principally by continued strong operating results in our North America segment. Operating income also grew in our EMEA and Asia Pacific segments, which was offset by lower earnings in our South America segment due to continued difficult macroeconomic conditions and increased costs in Argentina.

During the first quarter of 2017, we implemented an organizational restructuring effort in Argentina to achieve a more competitive cost position in the region, which resulted in a strike by the labor union and an interruption of manufacturing activities during the second quarter of 2017. We finalized a new labor agreement with the labor union

in the second quarter, ending the strike on June 1, 2017. We recorded total pre-tax employee-related severance and other costs in Argentina of \$17 million for the year ended December 31, 2017, related to the workforce reduction.

During the second quarter of 2017, we announced a Finance Transformation initiative in North America for the U.S. and Canada businesses to strengthen organizational capabilities and drive efficiencies to support our growth strategy. For the year ended December 31, 2017, we recorded pre-tax restructuring charges of \$6 million (\$3 million of severance costs and \$3 million of other costs) related to this initiative. We expect to incur between \$1 million and \$2 million of additional employee-related severance and other costs in 2018.

During the fourth quarter of 2017, we recorded \$13 million of pre-tax restructuring charges related to our leaf extraction process in Brazil. The charges consisted of \$6 million of abandonment of certain assets, \$6 million of inventory write downs and \$1 million related to other costs, including employee-related severance costs. We expect to incur \$1 million of additional other costs in 2018. Additionally, we reached an insurance settlement in North America for \$9 million primarily related to capital reconstruction.

Our cash provided by operating activities remained relatively flat at \$769 million for the year ended December 31, 2017, compared to \$771 million in the prior year. The increase in current year earnings over the prior year were offset by an increase of cash outflow in working capital primarily due to the outflow in accounts payable and accrued

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liabilities for the \$63 million payment made to the Internal Revenue Service (“IRS”) in the third quarter of 2017 to complete the double taxation settlement between the U.S. and Canada. Our cash used for financing activities increased during the year ended December 31, 2017, primarily due to the repurchase of approximately one million shares of our common stock in open market transactions for \$123 million during the first quarter of 2017. During the second and third quarters, we also refinanced a total of \$500 million of senior notes with borrowings under our revolving credit facility and a new term loan entered into during the third quarter.

On March 9, 2017, we completed our acquisition of Sun Flour Industry Co., Ltd. (“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. The acquisition of Sun Flour adds a fourth manufacturing facility to our operations in Thailand. Sun Flour produces rice-based ingredients used primarily in the food industry. This transaction enhances our global supply chain and leverages other capital investments that we have made in Thailand to grow our specialty ingredients and service customers around the world. The acquisition did not have a material impact on our financial condition, results of operations or cash flows in 2017.

Looking ahead, we anticipate that our operating income and net income will grow in 2018 compared to 2017. In North America, we expect operating income to increase driven by improved product mix and margins occurring in the latter half of the year offset by higher operating costs in Mexico. In South America, we expect operating income to improve over the prior year driven by volume recovery and favorable price mix. We intend to continue to maintain a high degree of focus on cost and network optimization during 2018 as we manage through the improving macroeconomic environment in this segment. We expect operating income growth in Asia Pacific during the latter half of the year given anticipated high tapioca costs. We also expect operating income growth in EMEA in 2018.

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. The impact of foreign currency exchange rate changes, where significant, is provided below.

We acquired Penford Corporation (“Penford”), Kerr Concentrates, Inc. (“Kerr”), Shandong Huanong Specialty Corn Development Co., Ltd. (“Shandong Huanong”), TIC Gums Incorporated (“TIC Gums”) and Sun Flour Industry Co., Ltd. (“Sun Flour”) on March 11, 2015, August 3, 2015, 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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2017 Compared to 2016 – Consolidated

(in millions)	Year Ended		Favorable	Favorable	
	December 31,		(Unfavorable)	(Unfavorable)	
	2017	2016	Variance	Percentage	
Net sales	\$ 5,832	\$ 5,704	\$ 128	2	%
Cost of sales	4,359	4,302	(57)	(1)	%
Gross profit	1,473	1,402	71	5	%
Operating expenses	611	579	(32)	(6)	%
Other income, net	(18)	(4)	14	(350)	%
Restructuring/impairment charges	38	19	(19)	(100)	%
Operating income	842	808	34	4	%
Financing costs, net	73	66	(7)	(11)	%
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.

Without the restructuring, income tax reform, fair value adjustment of inventory, acquisition-related charges, income tax settlement, and insurance settlement, our net income and diluted earnings per share would have grown 7 percent and 8 percent, respectively, from 2016. These increases primarily reflect continued strong operating results in our North America segment and, to a lesser extent, Asia Pacific and EMEA during the year, partially offset by lower earnings in our South America segment due to continued difficult macroeconomic conditions and increased costs in Argentina. The increase for the year ended December 31, 2017, was partially offset by higher net financing costs.

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

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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.

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, were 41 percent for the year ended December 31, 2017, as compared to 41 percent in the prior year.

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:

(in millions)	Year Ended		Favorable (Unfavorable) Variance
	December 31,		
	2017	2016	
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 change in 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 provides 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, Staff Accounting Bulletin No. 118 (“SAB 118”) was issued to provide guidance on the application of U.S. Generally Accepted Accounting Principles (“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 have calculated what we believe is 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 this filing, and we have recorded \$23 million of provisional income tax expense in the fourth quarter of 2017, the period in which the TCJA was enacted. The provisional amount of \$23 million is 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

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We may update our estimate in 2018 as additional information, including guidance from federal and state regulatory agencies, becomes available and we finalize our computations, which are complex and subject to interpretation. Any adjustment to these provisional tax amounts will be recorded in the quarter of 2018 in which our analysis is completed.

Under a provision in the TCJA, all of the undistributed earnings of our foreign subsidiaries were deemed to be repatriated at December 31, 2017, and were subjected to a transition tax. As a result, a provisional transition tax liability of \$21 million, or 2.7 percentage points on effective tax rate, was recorded in income from continuing operations in the fourth quarter of 2017. Although these earnings that were deemed to be repatriated are not subject to additional U.S. federal income upon distribution, these earnings could be subject to foreign withholding and state income tax upon distribution. In addition, distributions of these previously-taxed earnings could give rise to taxable exchange gain or loss in the U.S.

As a result of the reduction in the U.S. corporate tax rate, we recorded a provisional tax benefit of \$38 million, or 4.9 percentage points on the effective tax rate, due to the remeasurement of our U.S. net deferred tax liabilities.

Due to a change in the U.S. tax treatment of dividends received from foreign subsidiaries, we have recorded a provisional tax liability of \$33 million, or 4.3 percentage points on the effective tax rate, for foreign dividend withholding and state income taxes payable upon the distribution of unremitted earnings from certain foreign subsidiaries from which we expect to receive cash distributions in 2018 and beyond.

The net impact of the TCJA on our 2017 tax expense includes a provisional tax liability of \$7 million, or 0.9 percentage points on the effective tax rate (included in other items, net), for the difference in our 2017 tax expense as calculated with and without the changes triggered by the TCJA.

Because of the complexity of the new GILTI rules, we are continuing to evaluate this provision of the TCJA for the application of ASC 740. Under GAAP, we are allowed to make an accounting policy choice of either treating taxes due on future U.S. inclusions in taxable income related to GILTI as a current-period expense when incurred (the “period cost method”) or factoring such amounts into our measurement of our deferred taxes (the “deferred method”). We have not made any adjustments related to potential GILTI tax in our financial statements, as we have not made a policy decision regarding whether to record deferred taxes on GILTI.

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 are 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 is 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.

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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,		Favorable (Unfavorable) Variance	Favorable (Unfavorable) Percentage	
	2017	2016			%
Net sales to unaffiliated customers	\$ 3,529	\$ 3,447	\$ 82	2	%
Operating income	661	610	51	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.

Operating income. Our increase in operating income of \$51 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,		Favorable (Unfavorable) Variance	Favorable (Unfavorable) Percentage	
	2017	2016			%
Net sales to unaffiliated customers	\$ 1,007	\$ 1,010	\$ (3)	—	%
Operating income	80	89	(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,		Favorable (Unfavorable) Variance	Favorable (Unfavorable) Percentage	
	2017	2016			%
Net sales to unaffiliated customers	\$ 740	\$ 709	\$ 31	4	%
Operating income	112	111	1	1	%

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

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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 \$1 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,		Favorable (Unfavorable) Variance	Favorable (Unfavorable) Percentage	
	2017	2016			
Net sales to unaffiliated customers	\$ 556	\$ 538	\$ 18	3	%
Operating income	113	106	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.

2016 Compared to 2015 – Consolidated

(in millions)	Year Ended December 31,		Favorable (Unfavorable) Variance	Favorable (Unfavorable) Percentage	
	2016	2015			
Net sales	\$ 5,704	\$ 5,621	\$ 83	1	%
Cost of sales	4,302	4,379	77	2	%
Gross profit	1,402	1,242	160	13	%
Operating expenses	579	555	(24)	(4)	%
Other income, net	(4)	(1)	3	(300)	%
Restructuring/impairment charges	19	28	9	32	%
Operating income	808	660	148	22	%

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Financing costs, net	66	61	(5)	(8)	%
Income before income taxes	742	599	143	24	%
Provision for income taxes	246	187	(59)	(32)	%
Net income	496	412	84	20	%
Less: Net income attributable to non-controlling interests	11	10	(1)	(10)	%
Net income attributable to Ingredion	\$ 485	\$ 402	\$ 83	21	%

Net Income attributable to Ingredion. Net income attributable to Ingredion for 2016 increased to \$485 million from \$402 million in 2015. 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, employee-related severance 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.

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Our results for 2015 included \$26 million of net after-tax costs, primarily driven by restructuring costs of \$18 million. These restructuring charges consisted of \$11 million for impaired assets and restructuring costs in Brazil and Canada and \$7 million for after-tax employee-related severance costs associated with the Penford acquisition. Our net after-tax costs also included \$7 million associated with the acquisition and integration of both Penford and Kerr, \$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, and \$4 million relating to a litigation settlement, partially offset by an after-tax gain of \$9 million from the sale of our Port Colborne plant.

Without the income tax settlement charge, the restructuring, impairment, and acquisition-related charges, the gain from the plant sale and the litigation settlement costs, our net income and diluted earnings per share would have grown 23 percent and 21 percent, respectively, from 2015. These increases primarily reflect significantly improved operating income in North America and, to a lesser extent, in Asia Pacific and EMEA, as compared to 2015.

Net sales. Our increase in net sales of 1 percent for the year ended December 31, 2016, as compared to the year ended December 31, 2015, was driven by a price/product mix improvement of 5 percent, partially offset by unfavorable currency translation of 4 percent primarily reflecting a stronger U.S. dollar. Volume remained flat, as our 2 percent volume increase due to acquisitions was offset by an organic volume decrease of 2 percent primarily reflecting the impact of the Port Colborne plant sale.

Cost of sales. Cost of sales for 2016 decreased 2 percent to \$4.3 billion from \$4.4 billion in 2015. This reduction primarily reflects the effects of currency translation. Gross corn costs per ton for 2016 increased approximately 3 percent from 2015, driven by higher market prices for corn. Currency translation caused cost of sales for 2016 to decrease approximately 5 percent from 2015, reflecting the impact of the stronger U.S. dollar. Our gross profit margin for 2016 was 25 percent, compared to 22 percent in 2015. This increase primarily reflects significantly improved gross profit margins in North America and, to a lesser extent, in Asia Pacific and EMEA.

Operating expenses. Our increase in operating expenses of 4 percent for the year ended December 31, 2016, as compared to the year ended December 31, 2015, was primarily driven by higher compensation-related costs and incremental operating expenses of acquired operations. This increase was partially offset by favorable translation primarily reflecting a stronger U.S. dollar and weaker foreign currencies. Operating expenses represented 41 percent of gross profit in 2016, as compared to 45 percent of gross profit in 2015.

Other income, net. Our change in other income, net for the year ended December 31, 2016, as compared to the year ended December 31, 2015, was as follows:

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(in millions)	Year Ended		Favorable (Unfavorable) Variance
	December 31, 2016	2015	
Value-added tax recovery	\$ 5	\$ 4	\$ 1
Gain from sale of plant	—	10	(10)
Litigation settlement	—	(7)	7
Expense associated with tax indemnification	—	(4)	4
Other	(1)	(2)	1
Other income, net	\$ 4	\$ 1	\$ 3

Financing costs, net. Our change in financing costs, net for the year ended December 31, 2016, increased \$5 million as compared to the year ended December 31, 2015, primarily due to an increase in interest expense, driven by higher weighted average borrowing costs that more than offset the impact of reduced average debt balances, and a decrease in interest income due to lower average cash balances and short-term investment rates, partially offset by unfavorable currency translation.

Provision for income taxes. Our effective income tax rates for the years ended December 31, 2016, and 2015 were 33.1 percent and 31.2 percent, respectively.

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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. Of this amount, \$4 million pertains to 2016.

We use the U.S. dollar as the functional currency for our subsidiaries in Mexico. Because of the continued decline in the value of the Mexican peso versus the U.S. dollar, our tax provisions for 2016 and 2015 were increased by \$18 million or 2.4 percentage points and \$17 million, or 2.9 percentage points, respectively. A primary cause was foreign currency translation gains for local income tax purposes on net U.S. dollar monetary assets held in Mexico for which there is no corresponding gain in our pre-tax income.

During 2016, our foreign tax credits increased in the amount of \$22 million, or 3.0 percentage points on the effective tax rate and we had net favorable reversals of previously unrecognized tax benefits of \$2 million, or 0.3 percentage points on effective tax rate. This was partially offset by a valuation allowance on the net deferred tax assets in Argentina in the amount of \$7 million or 1.0 percentage points on the effective tax rate in 2016 and accrued taxes on unremitted earnings of foreign subsidiaries in the amount of \$4 million, or 0.5 percentage points on the effective rate in 2016.

Finally, in the second quarter of 2016, we elected to early adopt ASU No. 2016-09, related to stock compensation. The new guidance requires excess tax benefits and tax deficiencies to be recorded in the provision for income taxes when stock options are exercised or restricted shares and performance shares vest. Our 2016 tax provision includes a tax benefit of \$12 million, or 1.6 percentage points, related to the adoption of this standard.

Based on the final settlement of an audit matter, in 2015 we reversed \$4 million of the \$7 million income tax expense and other income that was recorded in 2014. As a result, our effective income tax rate for 2015 was reduced by 0.7 percentage points. Substantial portions of the sale of Port Colborne, Canada, assets resulted in favorable tax treatment that reduced the effective tax rate by approximately 0.4 percentage points. Additionally, the 2015 tax provision includes \$2 million of net favorable reversals of previously unrecognized tax benefits due to the lapsing of the statute of limitations, which reduced the effective tax rate by 0.3 percentage points.

Without the impact of the items described above, our effective tax rates for 2016 and 2015 would have been approximately 30.0 percent and 29.7 percent, respectively.

We have significant operations in the U.S., Canada, Mexico, and Pakistan where the statutory tax rates, including local income taxes are approximately 37 percent, 25 percent, 30 percent and 31 percent in 2016, respectively. In

addition, our subsidiary in Brazil has a statutory tax rate of 34 percent, before local incentives that vary each year.

Net income attributable to non-controlling interests. Net income attributable to non-controlling interests for the year ended December 31, 2016, increased \$1 million from the year ended December 31, 2015, due to improved net income at our non-wholly-owned operation in Pakistan.

2016 Compared to 2015 – North America

(in millions)	Year Ended December		Favorable (Unfavorable) Variance	Favorable (Unfavorable) Percentage	
	2016	2015			
Net sales to unaffiliated customers	\$ 3,447	\$ 3,345	\$ 102	3	%
Operating income	610	479	131	27	%

Net sales. Our increase in net sales of 3 percent for the year ended December 31, 2016, as compared to the year ended December 31, 2015, was driven by price/product mix improvement of 4 percent, partially offset by a 1 percent volume decline due to a decrease in organic volume of 4 percent driven primarily by the impact of the Port Colborne plant sale, partially offset by a 3 percent volume increase due to acquisitions.

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Operating income. Our increase in operating income of \$131 million for the year ended December 31, 2016, as compared to the year ended December 31, 2015, was primarily driven by improved product price/mix and improved operational efficiencies, partially offset by a net margin decrease from unfavorable raw material costs. Our North American results included business interruption insurance recoveries in both 2016 and 2015 relating to the reimbursement of costs in those years.

2016 Compared to 2015 – South America

(in millions)	Year Ended December 31,		Favorable	Favorable	
	2016	2015	(Unfavorable) Variance	(Unfavorable) Percentage	
Net sales to unaffiliated customers	\$ 1,010	\$ 1,013	\$ (3)	—	%
Operating income	89	101	(12)	(12)	%

Net sales. Net sales remained relatively flat for the year ended December 31, 2016, as compared to the year ended December 31, 2015, as a 17 percent unfavorable currency translation primarily reflecting a weaker Argentine peso and a 5 percent volume reduction were offset by a 22 percent increase in price/product mix.

Operating income. Our decrease in operating income of \$12 million for the year ended December 31, 2016, as compared to the year ended December 31, 2015, was primarily driven by a net margin decrease from unfavorable raw material costs, increased operational costs resulting from continuing difficult macroeconomic conditions in the region, and a volume reduction. This decrease was partially offset by an increase in price/product mix.

2016 Compared to 2015 – Asia Pacific

(in millions)	Year Ended December 31,		Favorable	Favorable	
	2016	2015	(Unfavorable) Variance	(Unfavorable) Percentage	
Net sales to unaffiliated customers	\$ 709	\$ 733	\$ (24)	(3)	%
Operating income	111	107	4	4	%

Net sales. Our decrease in net sales of 3 percent for the year ended December 31, 2016, as compared to the year ended December 31, 2015, was driven by a 5 percent decrease in price/product mix due to the pass through of lower raw material costs in pricing to our customers and a 2 percent unfavorable currency translation primarily reflecting a weaker Korean won, partially offset by organic volume growth of 4 percent.

Operating income. Our increase in operating income of \$4 million for the year ended December 31, 2016, as compared to the year ended December 31, 2015, was driven by a net margin increase from favorable raw material costs, partially offset by a decrease in price/product mix and unfavorable currency translation primarily reflecting a weaker Chinese yuan and Korean won.

2016 Compared to 2015 – EMEA

(in millions)	Year Ended December 31,		Favorable (Unfavorable) Variance	Favorable (Unfavorable) Percentage	
	2016	2015			%
Net sales to unaffiliated customers	\$ 538	\$ 530	\$ 8	2	%
Operating income	106	93	13	14	%

Net sales. Our increase in net sales of 2 percent for the year ended December 31, 2016, as compared to the year ended December 31, 2015, was driven by organic volume growth of 6 percent, partially offset by unfavorable currency translation of 3 percent primarily reflecting a weaker British pound sterling and Pakistan rupee and a 1 percent decrease in price/product mix resulting from the pass through of lower corn costs in pricing to our customers.

Operating income. Our increase in operating income of \$13 million for the year ended December 31, 2016, as compared to the year ended December 31, 2015, was driven by a net margin increase from favorable raw material costs

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and organic volume growth, partially offset by unfavorable currency translation primarily reflecting a weaker British pound sterling and Pakistan rupee.

Liquidity and Capital Resources

At December 31, 2017, our total assets were \$6.1 billion, as compared to \$5.8 billion at December 31, 2016. The increase was driven principally by our net income growth. Total equity increased to \$2.9 billion at December 31, 2017, from \$2.6 billion at December 31, 2016. This increase primarily reflects our earnings growth, partially offset by treasury stock repurchases of \$123 million during the first quarter of 2017.

On August 18, 2017, we entered into a new 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. As of October 25, 2017, we had initiated all three borrowings under the Term Loan 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. In December 2017, we paid down \$25 million of the Term Loan. On January 16, 2018, we paid an additional \$185 million towards the Term Loan. Both payments were made with cash on-hand. See also Note 7 of the Consolidated Financial Statements.

On October 11, 2016, we entered into a new 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 Notes to the Consolidated Financial Statements.

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, 2017. As of December 31, 2017, there were no borrowings outstanding under our Revolving Credit Agreement. In addition, we have a number of short-term credit facilities consisting of operating lines of credit outside of the U.S.

On September 22, 2016, we issued 3.20 percent Senior Notes due October 1, 2026, in an aggregate principal amount of \$500 million. The net proceeds from the sale of the notes of approximately \$497 million were used to repay \$350 million of term loan debt, to repay \$52 million of borrowings under our previously existing \$1 billion revolving credit facility and for general corporate purposes. See also Note 7 of the Notes to the Consolidated Financial Statements.

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As of December 31, 2017, we had a total debt outstanding of \$1.9 billion. As of December 31, 2017, 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	398
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	395
Revolving credit facility	—
Fair value adjustment related to hedged fixed rate debt instruments	1
Long-term debt	1,744
Short-term borrowings	120
Total debt	\$ 1,864

We, as the parent company, guarantee certain obligations of our consolidated subsidiaries. As of December 31, 2017, such guarantees aggregated \$56 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 \$488 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 4.0 percent for both 2017 and 2016, respectively.

Net Cash Flows

A summary of operating cash flows is shown below:

(in millions)	2017	2016	2015
Net income	\$ 532	\$ 496	\$ 412
Depreciation and amortization	209	196	194

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Mechanical stores expense	57	57	57
Write-off of impaired assets	—	—	10
Charge for fair value mark-up of acquired inventory	9	—	10
Gain on sale of plant	—	—	(10)
Deferred income taxes	67	(5)	(6)
Changes in working capital	(121)	(8)	(24)
Other	16	35	43
Cash provided by operations	\$ 769	\$ 771	\$ 686

Cash provided by operations was \$769 million in 2017, as compared with \$771 million in 2016. The increase in current year earnings over the prior year were 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. The increase in 2016 operating cash flow from the prior year primarily reflects our net income growth.

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

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price of these commodities fluctuate, our derivative instruments change in value and we fund any unrealized losses or receive cash for any unrealized gains related to outstanding commodity futures and option contracts. We plan to continue to use derivative instruments to hedge such price risk and, accordingly, we will be required to make cash deposits to or be entitled to receive cash from our margin accounts depending on the movement in the market price of the underlying commodity.

Listed below are our primary investing and financing activities:

(in millions)	2017	2016	2015
Payments for acquisitions	\$ (17)	\$ (407)	\$ (434)
Capital expenditures and mechanical stores purchases	(314)	(284)	(280)
Payments on debt	(1,240)	(874)	(1,366)
Proceeds from borrowings	1,144	1,000	1,388
Dividends paid (including to non-controlling interests)	(165)	(141)	(126)
Repurchases of common stock	(123)	—	(41)

On December 15, 2017, our board of directors declared a quarterly cash dividend of \$0.60 per share of common stock. This dividend was paid on January 25, 2018, to stockholders of record at the close of business on December 31, 2017.

In the first quarter of 2017, we repurchased 1 million common shares in open market transactions at a cost of \$123 million. There were no additional open market shares repurchased during the remainder of 2017.

We currently anticipate that capital expenditures and mechanical stores purchases for 2018 will be approximately \$330 million to \$360 million.

On March 9, 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. The acquisition of Sun Flour adds a fourth manufacturing facility to our operations in Thailand. Sun Flour produces rice-based ingredients used primarily in the food industry. This transaction enhances our global supply chain and leverages other capital investments that we have made in Thailand to grow our specialty ingredients and service customers around the world.

On December 29, 2016, we acquired TIC Gums, a U.S.-based company that provides advanced texture systems to the food and beverage industry. Consistent with our strategy for new platform growth, this acquisition enhanced our texture capabilities and formulation expertise and provided additional opportunities for us to provide solutions for

natural, organic and clean-label demands of our customers. TIC Gums utilizes a variety of agriculturally derived ingredients, such as acacia gum and guar gum, to form the foundation for innovative texture systems and allow for clean-label reformulation. TIC Gums operates two production facilities, one in Belcamp, Maryland, and one in Guangzhou, China. TIC Gums also maintains a research and development lab in each of these facilities. We funded the \$396 million acquisition with cash and short-term borrowings.

On November 29, 2016, we completed our acquisition of Shandong Huanong in China for \$12 million in cash. The acquisition of Shandong Huanong, located in Shandong Province, adds a second manufacturing facility to our operations in China. It produces starch raw material for our plant in Shanghai, which makes value-added ingredients for the food industry.

On August 3, 2015, we completed our acquisition of Kerr, a privately-held producer of natural fruit and vegetable concentrates for approximately \$102 million in cash. Kerr serves major food and beverage companies, flavor houses and ingredient producers from its manufacturing locations in Oregon and California. The acquisition of Kerr provided us with the opportunity to expand our product portfolio.

On March 11, 2015, we completed our acquisition of Penford, a manufacturer of specialty starches that was headquartered in Centennial, Colorado. The total purchase consideration for Penford was \$332 million, which included

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the extinguishment of \$93 million in debt in conjunction with the acquisition. The acquisition of Penford provides us with, among other things, an expanded specialty ingredient product portfolio consisting of potato starch-based offerings.

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 \$351 million of our total cash and cash equivalents and short-term investments of \$604 million at December 31, 2017, was 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.

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, 2017, our accumulated other comprehensive loss account (“AOCI”) included \$12 million of losses, net of income taxes of \$7 million, related to these derivative instruments. It is anticipated that \$9 million of these losses (net of income taxes of \$5 million) 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, 2017, we had foreign currency forward sales contracts with an aggregate notional amount of \$447 million and foreign currency forward purchase contracts that are designated as fair value hedges with an aggregate notional amount of \$121 million that hedged transactional exposures. The fair value of these derivative instruments is an asset of \$11 million at December 31, 2017.

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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, 2017, AOCI included \$1 million of gains, net of taxes, relating to these hedges.

We have significant operations in Argentina. We utilize the official exchange rate published by the Argentine government for re-measurement purposes. Due to exchange controls put in place by the Argentine government, a parallel market exists for exchanging Argentine pesos to U.S. dollars at rates less favorable than the official rate, although the difference in rates has decreased significantly from past levels.

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, 2017.

As of December 31, 2017, our AOCI account included \$1 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, 2017, 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 \$1 million at December 31, 2017, and is reflected in the Consolidated Balance Sheets within other assets, with an offsetting amount recorded in long-term debt to adjust the carrying amount of the hedged debt obligations.

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Contractual Obligations and Off-Balance Sheet Arrangements

The table below summarizes our significant contractual obligations as of December 31, 2017. Information included in the table is cross-referenced to the Notes to the Consolidated Financial Statements elsewhere in this report, as applicable.

Contractual Obligations (in millions)	Note reference	Payments due by period				
		Total	Less than 1 year	2 – 3 years	4 – 5 years	More than 5 years
Long-term debt	7	\$ 1,745	\$ —	\$ 995	\$ —	\$ 750
Interest on long-term debt	7	557	67	121	65	304
Operating lease obligations	8	197	45	71	45	36
Pension and other postretirement obligations	10	132	8	16	16	92
Purchase obligations (a)		1,026	265	262	239	260
Total (b)		\$ 3,657	\$ 385	\$ 1,465	\$ 365	\$ 1,442

- (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 \$39 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 2017 with comparisons to the prior year are as follows:

Return on Capital Employed (dollars in millions)	2017	2016
Total equity *	\$ 2,595	\$ 2,180
Add:		
Cumulative translation adjustment *	1,008	1,025
Share-based payments subject to redemption*	30	24
Total debt *	1,956	1,838
Less:		
Cash and cash equivalents *	(512)	(434)
Capital employed * (a)	5,077	4,633
Operating income	842	808
Adjusted for:		
Impairment/restructuring charges	38	19
Acquisition/integration costs	4	3
Charge for fair value mark-up of acquired inventory	9	—
Insurance settlement	(9)	—
Adjusted operating income	884	830
Income taxes (at effective tax rates of 28.6% and 29.4%, respectively)**	(253)	(244)
Adjusted operating income, net of tax (b)	\$ 631	\$ 586
Return on Capital Employed (b ÷ a)	12.4%	12.6%

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

** The effective income tax rate for 2017 and 2016 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 2017 and 2016 was 30.8 percent and 33.1 percent, respectively. Listed below is a schedule that reconciles our effective income tax rate under GAAP to the adjusted income tax rate:

(dollars in millions)	Year ended December 31, 2017			Year ended December 31, 2016		
	Income before Taxes	Provision for Income Taxes	Effective Income Tax Rate	Income before Taxes	Provision for Income Taxes	Effective Income Tax Rate
As reported	\$ 769	\$ 237	30.8%	\$ 742	\$ 246	33.1%
Add back (deduct):						
Income tax settlement	—	10		—	(27)	
Impairment/restructuring charges	38	7		19	5	

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Acquisition/integration costs	4	1		3	1	
Charge for fair value mark-up of acquired inventory	9	3		—	—	
Insurance settlement	(9)	(3)		—	—	
Income tax reform	—	(23)		—	—	
Adjusted non-GAAP	\$ 811	\$ 232	28.6%	\$ 764	\$ 225	29.4%

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Net Debt to Adjusted EBITDA ratio (dollars in millions)	2017	2016
Short-term debt	\$ 120	\$ 106
Long-term debt	1,744	1,850
Less: Cash and cash equivalents	(595)	(512)
Short-term investments	(9)	(4)
Total net debt (a)	1,260	1,440
Net income attributable to Ingredion	519	485
Add back:		
Impairment/restructuring charges	38	19
Acquisition/integration costs	4	3
Charge for fair value mark-up of acquired inventory	9	—
Insurance settlement	(9)	—
Net income attributable to non-controlling interest	13	11
Provision for income taxes	237	246
Financing costs, net of interest income of \$11 and \$10, respectively	73	66
Depreciation and amortization	209	196
Adjusted EBITDA (b)	\$ 1,093	\$ 1,026
Net Debt to Adjusted EBITDA ratio (a ÷ b)	1.2	1.4

Net Debt to Capitalization percentage (dollars in millions)	2017	2016
Short-term debt	\$ 120	\$ 106
Long-term debt	1,744	1,850
Less: Cash and cash equivalents	(595)	(512)
Short-term investments	(9)	(4)
Total net debt (a)	1,260	1,440
Deferred income tax liabilities	199	171
Share-based payments subject to redemption	36	30
Total equity	2,917	2,595
Total capital	3,152	2,796
Total net debt and capital (b)	\$ 4,412	\$ 4,236
Net Debt to Capitalization percentage (a ÷ b)	28.6%	34.0%

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, 2017, we had achieved all of our established objectives, except that our net debt to capitalization percentage was below our objective. 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 2017 decreased to 12.4 percent from 12.6 percent in 2016, reflecting a higher equity balance at the beginning of 2017 as a result of strong 2016 net earnings.

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 1.2 as of December 31, 2017, down from 1.4 last year and remains below our target. The decline primarily reflects our reduction of debt and continued strong EBITDA results in 2017.

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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, 2017, our Net Debt to Capitalization percentage was 28.6 percent, down from 34.0 percent a year ago, primarily reflecting our reduction of debt in 2017.

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 acquisitions in 2017 of Sun Flour and in 2016 of Shandong Huanong and TIC Gums were 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, 2017, were \$2.2 billion and \$315 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 2017.

In 2015, we announced plans to consolidate our manufacturing network in Brazil. Plants in Trombudo Central and Conchal have been closed and production has been moved to plants in Balsa Nova and Mogi Guaçu, respectively. In 2015, we recorded total pre-tax restructuring-related charges of \$12 million related to these plant closures, which included a \$10 million charge for impaired assets.

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

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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 additional long-lived asset impairment as of December 31, 2017, 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, 2017, was \$803 million and \$178 million, respectively, compared to \$784 million and \$201 million a year ago. The increase in goodwill is mainly due to the acquisition of Sun Flour in 2017, and the decrease in indefinite-lived intangible assets is mainly due changes in the purchase accounting for the acquisition of TIC Gums, which was preliminary as of December 31, 2016, and finalized during 2017. See Note 3 of the Notes to the Consolidated Financial Statements for additional information related to both acquisitions.

We perform our goodwill and indefinite-lived intangible asset impairment tests annually as of October 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 assesses qualitative factors in determining whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount. After assessing the qualitative factors, if 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 October 1, 2017, 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 the business 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 value of these indefinite-lived intangible assets was greater than their carrying value. 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

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results of this qualitative assessment as of October 1, 2017, we concluded that it was more likely than not that the fair value of these indefinite-lived intangible assets was greater than their carrying value.

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 \$34 million and \$21 million at December 31, 2017 and 2016, respectively. The increase in the valuation allowance from 2016 to 2017 is primarily attributed to a valuation allowance recorded 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 are 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, 2017 and 2016 was \$39 million and \$86 million, respectively. The decrease from 2016 to 2017 is primarily attributable to the U.S.-Canada tax settlement of \$58 million referenced above.

No foreign withholding taxes, state income taxes, and federal and state taxes on foreign currency gains and losses have been provided on approximately \$2.7 billion of undistributed earnings of certain foreign earnings that are considered to be 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

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actuaries, are reasonable. We use third-party specialists to assist management in evaluating our assumptions and estimates, as well as to appropriately measure the costs and obligations associated with our retirement benefit plans. Had we used different estimates and assumptions with respect to these plans, our retirement benefit obligations and related expense could vary from the actual amounts recorded, and such differences could be material. Additionally, adverse changes in investment returns earned on pension assets and discount rates used to calculate pension and postretirement benefit related liabilities or changes in required funding levels may have an unfavorable impact on future expense and cash flow. Net periodic pension and postretirement benefit cost for all of our plans was \$4 million in 2017 and \$8 million in 2016.

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. In 2016, we changed the method used to estimate the service and interest cost components of net periodic benefit cost for certain of our defined benefit pension and postretirement benefit plans. Historically, we estimated the service and interest cost components using a single weighted-average discount rate derived from the yield curve used to measure the benefit obligation at the beginning of the period. Beginning in 2016, we have elected to use a full yield curve approach in the estimation of these components of benefit cost by applying the specific spot rates along the yield curve used in the determination of the benefit obligation to the relevant projected cash flows. We have made this change to improve the correlation between projected benefit cash flows and the corresponding yield curve spot rates and to provide a more precise measurement of service and interest costs. This change does not affect the measurement of our total benefit obligations as the change in the service cost and interest cost is completely offset in the actuarial (gain) loss reported. The weighted average discount rate used to determine our obligations under U.S. pension plans for December 31, 2017 and 2016 was 3.70 percent and 4.30 percent, respectively. The weighted average discount rate used to determine our obligations under non-U.S. pension plans for December 31, 2017 and 2016 was 4.02 percent and 4.34 percent, respectively. The weighted average discount rate used to determine our obligations under our postretirement plans for December 31, 2017 and 2016 was 4.92 percent and 5.42 percent, respectively.

A one percentage point decrease in the discount rates at December 31, 2017, would have increased the accumulated benefit obligation and projected benefit obligation by the following amounts (millions):

U.S. Pension Plans	
Accumulated benefit obligation	\$ 52
Projected benefit obligation	53
Non-U.S. Pension Plans	
Accumulated benefit obligation	\$ 30
Projected benefit obligation	33
Postretirement Plans	
Accumulated benefit obligation	\$ 8

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 2018 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 equity and debt securities,

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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 2018 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, 2017, the health care cost trend rate assumptions for the next year for the U.S., Canada, and Brazil plans were 6.50 percent, 5.54 percent and 8.41 percent, respectively.

The sensitivities of service cost and interest cost and year-end benefit obligations to changes in healthcare cost trend rates (both initial and ultimate rates) for the postretirement benefit plans as of December 31, 2017, are as follows:

(in millions)	2017
One-percentage point increase in trend rates:	
Increase in service cost and interest cost components	\$ 1
Increase in year-end benefit obligations	7
One-percentage point decrease in trend rates:	
Decrease in service cost and interest cost components	1
Decrease in year-end benefit obligations	6

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

New Accounting Standards

In May 2014, the FASB issued ASU No. 2014-09, Revenue from Contracts with Customers (Topic 606) that introduces a new five-step revenue recognition model in which an entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. This ASU also requires disclosures sufficient to enable users to understand the nature, amount, timing, and uncertainty of revenue and cash flows arising from contracts with customers, including qualitative and quantitative disclosures about contracts with customers, significant judgments and changes in judgments, and assets recognized from the costs to obtain or fulfill a contract. The FASB has also issued additional ASUs to provide further updates and clarification to this Update, including ASU 2015-14, ASU

2016-08, ASU 2016-10, ASU 2016-12 and ASU 2016-20. This standard is effective for fiscal years beginning after December 15, 2017, including interim periods within that reporting period. We plan to adopt the standard as of the effective date. The standard will allow various transition approaches upon adoption. We plan to use the modified retrospective approach for the transition to the new standard. Based on our analysis to date, our assessment is that the adoption of the guidance in this Update is not expected to have a material impact on our revenue recognition timing or amounts, as we have not identified any material changes to the recognition of revenue for existing customer contracts.

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. This Update is effective for annual periods beginning after December 15, 2018, with early adoption permitted. We currently plan to adopt the standard as of the effective date. Adoption will require a modified retrospective approach for the transition. We expect the adoption of the guidance in this Update to have a material impact on our Consolidated Balance Sheets as operating leases will be recognized both as assets and liabilities on the Consolidated

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Balance Sheets. We are in the process of quantifying the magnitude of these changes and assessing the implementation approach for accounting for these changes.

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 March 2017, the FASB issued ASU No. 2017-07, Compensation – Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost. This Update requires an entity to change the classification of the net periodic benefit cost for pension and postretirement plans within the statement of income by eliminating the ability to net all of the components of the costs together within operating income. The Update will require the service cost component to continue to be presented within operating income, classified within either cost of sales or operating expenses depending on the employees covered within the plan. The remaining components of the net periodic benefit cost, however, must be presented in the statement of income as a non-operating income (loss) below operating income. The Update is effective for annual periods beginning after December 15, 2017, with early adoption permitted only within the first interim period for public entities. We plan to adopt this Update in 2018. When adopted, the new guidance must be applied retrospectively for all income statement periods presented. The Update will reduce our operating income and will require a new financial statement line item below operating income within the Consolidated Statements of Income for the non-operating income (loss) components. Net income within the Consolidated Statements of Income will not change upon adoption of the Update.

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 are in the process of assessing the effects of these updates including potential changes to existing hedging arrangement, as well as the implementation approach for accounting for these changes.

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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, expenses or other financial items, any statements concerning the Company's prospects or future operations, including management's plans or strategies and objectives therefor and any assumptions, expectations or beliefs underlying the foregoing.

These statements can sometimes be identified by the use of forward looking words such as "may," "will," "should," "anticipate," "assume", "believe," "plan," "project," "estimate," "expect," "intend," "continue," "pro forma," "forecast," "outlook," "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, stockholders 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, continuation or worsening of the current economic, currency and political conditions in South America and economic 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 and beverage, paper, 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 recently enacted United States tax reform; operating difficulties; availability of raw materials, including potato starch, tapioca, gum arabic, and the specific varieties of corn upon which 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 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. Factors relating to the acquisition of TIC Gums that could cause actual results and developments to differ from expectations include: the anticipated benefits of the acquisition, including synergies, may not be realized; and the integration of TIC Gum's operations with those of Ingredion which may be materially delayed or may be more costly or difficult than expected.

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, 2017, approximately 62 percent or \$1.2 billion of our total debt are fixed-rate debt and 38 percent or approximately \$714 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, 2017. A hypothetical increase of 1 percentage point in the weighted average floating interest rate would increase our annual interest expense by approximately \$7 million. See Note 7 of the Notes to the Consolidated Financial Statements entitled “Financing Arrangements” for further information.

At December 31, 2017 and 2016, the carrying and fair values of long-term debt were as follows:

(in millions)	2017		2016	
	Carrying amount	Fair value	Carrying amount	Fair value
3.2% senior notes due October 1, 2026	\$ 496	\$ 492	\$ 496	\$ 482
4.625% senior notes, due November 1, 2020	398	421	398	428
6.625% senior notes, due April 15, 2037	254	325	254	299
5.62% senior notes, due March 25, 2020	200	212	200	217
1.8% senior notes, due September 25, 2017	—	—	299	301
6.0% senior notes, due April 15, 2017	—	—	200	202
Term loan credit agreement due April 25, 2019	395	395	—	—
U.S. revolving credit facility	—	—	—	—
Fair value adjustment related to hedged fixed rate debt instruments	1	—	3	—
Total long-term debt	\$ 1,744	\$ 1,845	\$ 1,850	\$ 1,929

A hypothetical change of 1 percentage point in interest rates would change the fair value of our fixed rate debt at December 31, 2017, by approximately \$91 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 approximated \$1 million at December 31, 2017, and is reflected in the Consolidated Balance Sheets within other assets, with an offsetting amount recorded in long-term debt to adjust the carrying amount of the hedged debt obligations.

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

Energy costs represent approximately 10 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

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energy. The market prices for these commodities vary depending on supply and demand, world economies and other factors. We purchase these commodities based on our anticipated usage and the future outlook for these costs. We cannot assure that we will be able to purchase these commodities at prices that we can adequately pass on to customers to sustain or increase profitability. We use derivative financial instruments, such as over-the-counter natural gas swaps, to hedge portions of our natural gas costs generally over the following 12 to 24 months, primarily in our North American operations.

At December 31, 2017, we had outstanding futures and option contracts that hedged the forecasted purchase of approximately 92 million bushels of corn and 16 million pounds of soybean oil. 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. We also had outstanding swap and option contracts that hedged the forecasted purchase of approximately 35 million mmbtu's of natural gas at December 31, 2017. Additionally at December 31, 2017, we had outstanding ethanol futures contracts that hedged the forecasted sale of approximately 4 million gallons of ethanol. Based on our overall commodity hedge position at December 31, 2017, 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 \$30 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, 2017, 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 \$5 million. At December 31, 2017, our accumulated other comprehensive loss account included in the equity section of our Consolidated Balance Sheets includes a cumulative translation loss of approximately \$1.0 billion. The aggregate net assets of our foreign subsidiaries where the local currency is the functional currency approximated \$1.4 billion at December 31, 2017. 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 \$156 million.

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ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Ingredion Incorporated	
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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, 2017 and 2016, 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, 2017, 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, 2017, 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, 2017 and 2016, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2017, 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, 2017, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

Basis for Opinion

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

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

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

performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control Over Financial Reporting

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

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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.

The Company acquired Sun Flour Industry Co., LTD ("Sun Flour") during the first quarter of 2017, and management excluded from its assessment of the effectiveness of the Company's internal control over financial reporting as of December 31, 2017, Sun Flour's internal control over financial reporting associated with total assets of \$20 million and total net sales of less than \$1 million included in the consolidated financial statements of the Company as of and for the year ended December 31, 2017. Our audit of internal control over financial reporting of the Company also excluded an evaluation of the internal control over financial reporting of Sun Flour.

/s/ KPMG LLP

We have served as the Company's auditor since 1997

Chicago, Illinois
February 21, 2018

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Ingredion Incorporated (“Ingredion”)

Consolidated Statements of Income

(in millions, except per share amounts)	Year Ended December 31,		
	2017	2016	2015
Net sales before shipping and handling costs	\$ 6,180	\$ 6,022	\$ 5,958
Less: shipping and handling costs	348	318	337
Net sales	5,832	5,704	5,621
Cost of sales	4,359	4,302	4,379
Gross profit	1,473	1,402	1,242
Operating expenses	611	579	555
Other income, net	(18)	(4)	(1)
Restructuring/impairment charges	38	19	28
Operating income	842	808	660
Financing costs, net	73	66	61
Income before income taxes	769	742	599
Provision for income taxes	237	246	187
Net income	532	496	412
Less: Net income attributable to non-controlling interests	13	11	10
Net income attributable to Ingredion	\$ 519	\$ 485	\$ 402
Weighted average common shares outstanding:			
Basic	72.0	72.3	71.6
Diluted	73.5	74.1	73.0
Earnings per common share of Ingredion:			
Basic	\$ 7.21	\$ 6.70	\$ 5.62
Diluted	7.06	6.55	5.51

See the Notes to the Consolidated Financial Statements.

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Ingredion Incorporated (“Ingredion”)

Consolidated Statements of Comprehensive Income (Loss)

(in millions)	2017	2016	2015
Net income	\$ 532	\$ 496	\$ 412
Other comprehensive income:			
Losses on cash flow hedges, net of income tax effect of \$6, \$6, and \$19, respectively	(10)	(11)	(42)
Losses on cash flow hedges reclassified to earnings, net of income tax effect of \$2, \$16, and \$14, respectively	4	33	32
Actuarial gains (losses) on pension and other postretirement obligations, settlements and plan amendments, net of income tax effect of \$2, \$4, and \$5, respectively	6	(10)	13
(Gains) losses related to pension and other postretirement obligations reclassified to earnings, net of income tax effect of \$1, \$-, and \$-, respectively	(1)	1	1
Unrealized gains on investments, net of income tax effect of \$1, \$-, and \$-, respectively	2	1	—
Currency translation adjustment	57	7	(324)
Comprehensive income	590	517	92
Less: Comprehensive income attributable to non-controlling interests	13	12	10
Comprehensive income attributable to Ingredion	\$ 577	\$ 505	\$ 82

See the Notes to the Consolidated Financial Statements.

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Ingredion Incorporated (“Ingredion”)

Consolidated Balance Sheets

(in millions, except share and per share amounts)	As of December 31,	
	2017	2016
Assets		
Current assets:		
Cash and cash equivalents	\$ 595	\$ 512
Short-term investments	9	4
Accounts receivable, net	961	923
Inventories	823	789
Prepaid expenses	27	24
Total current assets	2,415	2,252
Property, plant and equipment:		
Land	225	183
Buildings	731	704
Machinery and equipment	4,252	4,055
Property, plant and equipment, at cost	5,208	4,942
Accumulated depreciation	(2,991)	(2,826)
Property, plant and equipment, net	2,217	2,116
Goodwill	803	784
Other intangible assets, net of accumulated amortization of \$139 and \$106, respectively	493	502
Deferred income tax assets	9	7
Other assets	143	121
Total assets	\$ 6,080	\$ 5,782
Liabilities and equity		
Current liabilities:		
Short-term borrowings	\$ 120	\$ 106
Accounts payable	493	440
Accrued liabilities	344	432
Total current liabilities	957	978
Non-current liabilities		
Long-term debt	1,744	1,850
Deferred income tax liabilities	199	171
Share-based payments subject to redemption	36	30
Ingredion stockholders' equity:		
Preferred stock — authorized 25,000,000 shares — \$0.01 par value, none issued	—	—
Common stock — authorized 200,000,000 shares — \$0.01 par value, 77,810,875 issued at December 31, 2017 and December 31, 2016, respectively	1	1

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Additional paid-in capital	1,138	1,149
Less: Treasury stock (common stock: 5,815,904 and 5,396,526 shares at December 31, 2017 and December 31, 2016, respectively) at cost	(494)	(413)
Accumulated other comprehensive loss	(1,013)	(1,071)
Retained earnings	3,259	2,899
Total Ingredion stockholders' equity	2,891	2,565
Non-controlling interests	26	30
Total equity	2,917	2,595
Total liabilities and equity	\$ 6,080	\$ 5,782

See the Notes to the Consolidated Financial Statements.

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Ingredion Incorporated (“Ingredion”)

Consolidated Statements of Equity and Redeemable Equity

(in millions)	Total Equity				Accumulated Other Comprehensive Loss	Retained Earnings	Share-based	
	Common Stock	Additional Paid-In Capital	Treasury Stock				Non- Controlling Interests	Payments Subject to Redemption
Balance, December 31, 2014	\$ 1	\$ 1,164	\$ (481)	\$ (782)	\$ 2,275	\$ 30	\$ 22	
Net income attributable to Ingredion					402			
Net income attributable to non-controlling interests						10		
Dividends declared					(125)	(4)		
Repurchases of common stock			(34)					
Share-based compensation, net of issuance		(4)	48				2	
Other comprehensive loss				(320)				
Balance, December 31, 2015	1	1,160	(467)	(1,102)	2,552	36	24	
Net income attributable to Ingredion					485			
Net income attributable to non-controlling interests						11		
Dividends declared					(138)	(7)		
Share-based compensation, net of issuance		(11)	54				6	
Other comprehensive income (loss)				31		(10)		
Balance, December 31, 2016	1	1,149	(413)	(1,071)	2,899	30	30	
Net income attributable to Ingredion					519			
Net income attributable to non-controlling interests						13		
Dividends declared					(159)	(15)		
Repurchases of common stock			(123)					
Share-based compensation, net of issuance		(11)	42				6	
Other comprehensive income (loss)				58		(2)		
Balance, December 31, 2017	\$ 1	\$ 1,138	\$ (494)	\$ (1,013)	\$ 3,259	\$ 26	\$ 36	

See the Notes to the Consolidated Financial Statements.

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Ingredion Incorporated (“Ingredion”)

Consolidated Statements of Cash Flows

(in millions)	Year Ended December 31,		
	2017	2016	2015
Cash provided by operating activities			
Net income	\$ 532	\$ 496	\$ 412
Non-cash charges to net income:			
Depreciation and amortization	209	196	194
Mechanical stores expense	57	57	57
Deferred income taxes	67	(5)	(6)
Write-off of impaired assets	—	—	10
Gain on sale of plant	—	—	(10)
Charge for fair value markup of acquired inventory	9	—	10
Other	39	44	39
Changes in working capital:			
Accounts receivable and prepaid expenses	(44)	(131)	(29)
Inventories	(34)	(19)	9
Accounts payable and accrued liabilities	(49)	127	30
Margin accounts	6	15	(34)
Other	(23)	(9)	4
Cash provided by operating activities	769	771	686
Cash used for investing activities			
Payments for acquisitions, net of cash acquired of \$-, \$4, and \$16, respectively	(17)	(407)	(434)
Capital expenditures and mechanical stores purchases	(314)	(284)	(280)
Investment in a non-consolidated affiliate	—	(2)	—
Short-term investments	(3)	1	27
Proceeds from disposal of plants and properties	8	3	38
Cash used for investing activities	(326)	(689)	(649)
Cash used for financing activities			
Proceeds from borrowings	1,144	1,000	1,388
Payments on debt	(1,240)	(874)	(1,366)
Debt issuance costs	—	(6)	—
Repurchases of common stock	(123)	(8)	(41)
Issuances of common stock for share-based compensation, net of settlements	9	29	21
Dividends paid, including to non-controlling interests	(165)	(141)	(126)
Excess tax benefit on share-based compensation	—	—	8
Cash used for financing activities	(375)	—	(116)
Effects of foreign exchange rate changes on cash	15	(4)	(67)
Increase (decrease) in cash and cash equivalents	83	78	(146)

Cash and cash equivalents, beginning of period	512	434	580
Cash and cash equivalents, end of period	\$ 595	\$ 512	\$ 434

See the Notes to the Consolidated Financial Statements.

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Ingredion Incorporated (“Ingredion”)

Notes to Consolidated Financial Statements

NOTE 1 – Description of the Business

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

NOTE 2 – Summary of Significant Accounting Policies

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

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

Assets and liabilities of foreign subsidiaries, other than those whose functional currency is the U.S. dollar, are translated at current exchange rates with the related translation adjustments reported in equity as a component of accumulated other comprehensive income (loss). The U.S. dollar is the functional currency for the Company’s Mexican subsidiary. Income statement accounts are translated at the average exchange rate during the period. However, significant non-recurring items related to a specific event are recognized at the exchange rate on the date of

the significant event. For foreign subsidiaries where the U.S. dollar is the functional currency, monetary assets and liabilities are translated at current exchange rates with the related adjustment included in net income. Non-monetary assets and liabilities are translated at historical exchange rates. Although the Company hedges the predominance of its transactional foreign exchange risk (see Note 6), the Company incurs foreign currency transaction gains and losses relating to assets and liabilities that are denominated in a currency other than the functional currency. For 2017, 2016, and 2015, the Company incurred foreign currency transaction net losses of \$5 million, \$3 million, and \$6 million, respectively. The Company's accumulated other comprehensive loss included in equity on the Consolidated Balance Sheets includes cumulative translation losses of approximately \$1 billion at both December 31, 2017 and 2016.

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

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

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

Investments: Investments in the common stock of affiliated companies over which the Company does not exercise significant influence are accounted for under the cost method. In 2016, the Company invested in SweeGen Inc., which it accounts for under the cost method and which had a carrying value of \$2 million as of both December 31, 2017 and 2016.

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Investments that enable the Company to exercise significant influence, but do not represent a controlling interest, are accounted for under the equity method; such investments are carried at cost, adjusted to reflect the Company's proportionate share of income or loss, less dividends received. The Company did not have any investments accounted for under the equity method at December 31, 2017, or 2016. The Company has equity interests in the CME Group Inc. and CBOE Holdings, Inc., which are classified as available for sale securities. The investments are carried at fair value with unrealized gains and losses recorded to other comprehensive income. The Company would recognize a loss on its investments when there is a loss in value of an investment that is other than temporary. Investments are included in other assets in the Consolidated Balance Sheets and are not significant.

Leases: The Company leases rail cars, certain machinery and equipment, and office space. The Company classifies its leases as either capital or operating based on the terms of the related lease agreement and the criteria contained in Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") Topic 840, Leases, and related interpretations.

Property, plant and equipment and depreciation: Property, plant and equipment ("PP&E") are stated at cost less accumulated depreciation. Depreciation is generally computed on the straight-line method over the estimated useful lives of depreciable assets, which range from 25 to 50 years for buildings and from two to 25 years for all other assets. Where permitted by law, accelerated depreciation methods are used for tax purposes. The Company recognized depreciation expense of \$179 million, \$171 million, and \$172 million for the years ended December 31, 2017, 2016, and 2015, respectively. The Company reviews the recoverability of the net book value of PP&E for impairment whenever events or changes in circumstances indicate that the carrying value of an asset may not be recoverable from estimated future cash flows expected to result from its use and eventual disposition. If this review indicates that the carrying values will not be recovered, the carrying values would be reduced to fair value and an impairment loss would be recognized. As required under accounting principles generally accepted in the U.S., the impairment analysis for long-lived assets occurs before the goodwill impairment assessment described below.

Goodwill and other intangible assets: Goodwill (\$803 million and \$784 million at December 31, 2017 and 2016, respectively) represents the excess of the cost of an acquired entity over the fair value assigned to identifiable assets acquired and liabilities assumed. The Company also has other intangible assets of \$493 million and \$502 million at December 31, 2017 and 2016, respectively. The carrying value of goodwill by reportable business segment at December 31, 2017 and 2016 was as follows:

(in millions)	North America	South America	Asia Pacific	EMEA	Total
Balance at December 31, 2015	\$ 424	\$ 22	\$ 86	\$ 69	\$ 601
Acquisitions	186	—	—	—	186
Currency translation	—	4	(1)	(6)	(3)
Balance at December 31, 2016	610	26	85	63	784
Acquisitions	(10)	(a)	15	—	5
Currency translation	—	—	7	7	14
Balance at December 31, 2017	\$ 600	\$ 26	\$ 107	\$ 70	\$ 803

(a) Related to TIC Gums Incorporated (“TIC Gums”) purchase price accounting adjustments

The original carrying value of goodwill by reportable business segment and accumulated impairment charges by reportable business segment at December 31, 2017 and 2016 were as follows:

	North America	South America	Asia Pacific	EMEA	Total
Goodwill before impairment charges	\$ 611	\$ 59	\$ 206	\$ 63	\$ 939
Accumulated impairment charges	(1)	(33)	(121)	—	(155)
Balance at December 31, 2016	610	26	85	63	784
Goodwill before impairment charges	601	59	228	70	958
Accumulated impairment charges	(1)	(33)	(121)	—	(155)
Balance at December 31, 2017	\$ 600	\$ 26	\$ 107	\$ 70	\$ 803

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

(in millions)	As of December 31, 2017			
	Gross	Accumulated Amortization	Net	Weighted Average Useful Life (years)
Trademarks/tradenames (indefinite-lived)	\$ 178	\$ —	\$ 178	—
Customer relationships	329	(62)	267	20
Technology	103	(68)	35	9
Other	22	(9)	13	16
Total other intangible assets	\$ 632	\$ (139)	\$ 493	18

(in millions)	As of December 31, 2016			
	Gross	Accumulated Amortization	Net	Weighted Average Useful Life (years)
Trademarks/tradenames (indefinite-lived)	\$ 143	\$ —	\$ 143	—
Customer relationships	227	(42)	185	20
Technology	100	(57)	43	10
TIC Gums intangible assets (preliminary)	117	—	117	Various
Other	21	(7)	14	16
Total other intangible assets	\$ 608	\$ (106)	\$ 502	17

For definite-lived intangible assets, the Company recognizes the cost of such amortizable assets in operations over their estimated useful lives and evaluates the recoverability of the assets whenever events or changes in circumstances indicate that the carrying value of the assets may not be recoverable. Amortization expense related to intangible assets was \$30 million in 2017, \$25 million in 2016, and \$22 million in 2015.

Based on acquisitions completed through December 31, 2017, including the purchase price allocations for Sun Flour Industry Co., Ltd. ("Sun Flour"), intangible asset amortization expense for the next five years is shown below. The amortization is subject to change based on finalization of the purchase accounting for Sun Flour.

(in millions)	Amortization Expense
Year	
2018	\$ 29
2019	29
2020	27
2021	19
2022	18

Balance thereafter 193

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

In testing goodwill for impairment, the Company first assesses qualitative factors in determining whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount. After assessing the qualitative factors, if the Company determines that it is not more likely than not that the fair value of a reporting unit is less than its carrying amount then the Company does not perform the two-step impairment test. If the Company concludes otherwise, then it performs the first step of the two-step impairment test as described in ASC Topic 350. In the first step (“Step One”), the fair value of the reporting unit is compared to its carrying value. If the fair value of the reporting unit exceeds the carrying value of its net assets, goodwill is not considered impaired and no further testing is required. If the carrying value of the net assets exceeds the fair value of the reporting unit, a second step (“Step Two”) of the impairment assessment is performed in order to determine the implied fair value of a reporting unit's goodwill. Determining the implied fair value of goodwill requires a valuation of the reporting unit's tangible and intangible assets and liabilities in a manner similar to the allocation of purchase price in a business combination. If the carrying value of the reporting unit's goodwill exceeds the implied fair value of its goodwill, goodwill is deemed impaired and is written down to the extent of the difference. Based on the results of the annual assessment, the Company concluded that as of October 1, 2017, 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

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units in struggling economies and recent acquisitions for challenges in the business that may negatively impact the fair value of these reporting units.

In testing indefinite-lived intangible assets for impairment, the Company first assesses qualitative factors to determine whether it is more likely than not that the fair value of an indefinite-lived intangible asset is impaired. After assessing the qualitative factors, if the Company determines that it is not more likely than not that the fair value of an indefinite-lived intangible asset is less than its carrying amount, then it would not be required to compute the fair value of the indefinite-lived intangible asset. In the event the qualitative assessment leads the Company to conclude otherwise, then it would be required to determine the fair value of the indefinite-lived intangible asset and perform the quantitative impairment test in accordance with ASC subtopic 350-30. In performing the qualitative analysis, the Company considers various factors including net sales derived from these intangibles and certain market and industry conditions. Based on the results of this qualitative assessment, the Company concluded that as of October 1, 2017, it was more likely than not that the fair value of the indefinite-lived intangible assets was greater than their carrying value.

Revenue recognition: The Company recognizes operating revenues at the time title to the goods and all risks of ownership transfer to the customer. This transfer is considered complete when a sales agreement is in place, delivery has occurred, pricing is fixed or determinable and collection is reasonably assured. In the case of consigned inventories, the title passes and the transfer of ownership risk occurs when the goods are used by the customer. Taxes assessed by governmental authorities and collected from customers are accounted for on a net basis and excluded from revenues.

Hedging instruments: The Company uses derivative financial instruments principally to offset exposure to market risks arising from changes in commodity prices, foreign currency exchange rates and interest rates. Derivative financial instruments used by the Company consist of commodity futures and option contracts, forward currency contracts and options, interest rate swap agreements and Treasury lock agreements (“T-Locks”). The Company enters into futures and option contracts, which are designated as hedges of specific volumes of commodities (primarily corn and natural gas) that will be purchased in a future month. These derivative financial instruments are recognized in the Consolidated Balance Sheets at fair value. The Company has also entered into interest rate swap agreements that effectively convert the interest rate on certain fixed rate debt to a variable interest rate and, on certain variable rate debt, to a fixed interest rate. The Company periodically enters into T-Locks to hedge its exposure to interest rate changes. See also Note 6 and Note 7 of the Notes to the Consolidated Financial Statements for additional information.

On the date a derivative contract is entered into, the Company designates the derivative as either a hedge of variable cash flows to be paid related to interest on variable rate debt, as a hedge of market variation in the benchmark rate for a future fixed rate debt issue, as a hedge of foreign currency cash flows associated with certain forecasted commercial transactions or loans, as a hedge of certain forecasted purchases of corn, natural gas or ethanol used in the manufacturing process (“a cash flow hedge”), or as a hedge of the fair value of certain debt obligations (“a fair value hedge”). This process includes linking all derivatives that are designated as fair value or cash flow hedges to specific assets and liabilities on the Consolidated Balance Sheets, or to specific firm commitments or forecasted transactions. For all hedging relationships, the Company documents the hedging relationships and its risk-management objective

and strategy for undertaking the hedge transactions, the hedging instrument, the hedged item, the nature of the risk being hedged, how the hedging instrument's effectiveness in offsetting the hedged risk will be assessed and a description of the method of measuring ineffectiveness. The Company also formally assesses both, at the hedge's inception and on an ongoing basis, whether the derivatives that are used in hedging transactions are highly effective in offsetting changes in cash flows or fair values of hedged items. When it is determined that a derivative is not highly effective as a hedge or has ceased to be a highly effective hedge, the Company discontinues hedge accounting prospectively.

Changes in the fair value of floating-to-fixed interest rate swaps, T-Locks, commodity futures, and option contracts or foreign currency forward contracts, swaps, and options that are highly effective and that are designated and qualify as cash flow hedges are recorded in other comprehensive income, net of applicable income taxes. Realized gains and losses associated with changes in the fair value of interest rate swaps and T-Locks are reclassified from accumulated other comprehensive income ("AOCI") to the Consolidated Statements of Income over the life of the underlying debt. Gains and losses on hedges of foreign currency cash flows associated with certain forecasted commercial transactions or loans are reclassified from AOCI to the Consolidated Statements of Income when such transactions or obligations are settled. Gains and losses on commodity hedging contracts are reclassified from AOCI to the Consolidated Statement of Income when the finished goods produced using the hedged item are sold. The maximum term over which the Company hedges exposures to the variability of cash flows for commodity price risk is generally 24 months. Changes in the fair value of a fixed-to-floating interest rate swap agreement that is highly effective and that is designated and qualifies as a

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fair value hedge, along with the loss or gain on the hedged debt obligation, are recorded in earnings. The ineffective portion of the change in fair value of a derivative instrument that qualifies as either a cash flow hedge or a fair value hedge is reported in earnings.

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

The Company uses derivative financial instruments such as foreign currency forward contracts, swaps and options to manage the transactional foreign exchange risk that is created when transactions not denominated in the functional currency of the operating unit are revalued. The changes in fair value of these derivative instruments and the offsetting changes in the value of the underlying non-functional currency denominated transactions are recorded in earnings on a monthly basis.

Share-based compensation: The Company has a stock incentive plan that provides for share-based employee compensation, including the granting of stock options, shares of restricted stock, restricted stock units, and performance shares to certain key employees. Compensation expense is recognized in the Consolidated Statements of Income for the Company's share-based employee compensation plan. The plan is more fully described in Note 12 of the Notes to the Consolidated Financial Statements.

Earnings per common share: Basic earnings per common share ("EPS") is computed by dividing net income attributable to Ingredion by the weighted average number of shares outstanding, which totaled 72.0 million for 2017, 72.3 million for 2016 and 71.6 million for 2015. Diluted EPS is calculated using the treasury stock method, computed by dividing net income attributable to Ingredion by the weighted average number of shares outstanding, including the dilutive effect of outstanding stock options and other instruments associated with long-term incentive compensation plans. The weighted average number of shares outstanding for diluted EPS calculations was 73.5 million, 74.1 million and 73.0 million for 2017, 2016, and 2015, respectively. Approximately 0.3 million, 0, and 0.3 million share-based awards of common stock were excluded in 2017, 2016, and 2015, respectively, from the calculation of the weighted average number of shares outstanding for diluted EPS because their effects were anti-dilutive.

Risks and uncertainties: The Company operates domestically and internationally. In each country, the business and assets are subject to varying degrees of risk and uncertainty. The Company insures its business and assets in each country against insurable risks in a manner that it deems appropriate. Because of this geographic dispersion, the Company believes that a loss from non-insurable events in any one country would not have a material adverse effect

on the Company's operations as a whole. Additionally, the Company believes there is no significant concentration of risk with any single customer or supplier whose failure or non-performance would materially affect the Company's results.

New accounting standards: In May 2014, the FASB issued ASU No. 2014-09, Revenue from Contracts with Customers (Topic 606) that introduces a new five-step revenue recognition model in which an entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. This ASU also requires disclosures sufficient to enable users to understand the nature, amount, timing, and uncertainty of revenue and cash flows arising from contracts with customers, including qualitative and quantitative disclosures about contracts with customers, significant judgments and changes in judgments, and assets recognized from the costs to obtain or fulfill a contract. The FASB has also issued additional ASUs to provide further updates and clarification to this Update, including ASU 2015-14, ASU 2016-08, ASU 2016-10, ASU 2016-12 and ASU 2016-20. This standard is effective for fiscal years beginning after December 15, 2017, including interim periods within that reporting period. We will adopt the standard as of the effective date, January 1, 2018. The standard will allow various transition approaches upon adoption. We plan to use the modified retrospective approach for the transition to the new standard. Based on the analysis performed by the Company to date, our assessment is that the adoption of the guidance in this Update is not expected to have a material impact on the Company's revenue recognition timing or amounts, as we have not identified any material changes to the recognition of revenue for existing customer contracts.

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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. This Update is effective for annual periods beginning after December 15, 2018, with early adoption permitted. We currently plan to adopt the standard as of the effective date. Adoption will require a modified retrospective approach for the transition. We expect the adoption of the guidance in this Update to have a material impact on our Consolidated Balance Sheets, as operating leases will be recognized both as assets and liabilities on the Consolidated Balance Sheets. We are in the process of quantifying the magnitude of these changes and assessing the implementation approach for accounting for these changes.

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 March 2017, the FASB issued ASU No. 2017-07, Compensation – Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost. This Update requires an entity to change the classification of the net periodic benefit cost for pension and postretirement plans within the statement of income by eliminating the ability to net all of the components of the costs together within operating income. The Update will require the service cost component to continue to be presented within operating income, classified within either cost of sales or operating expenses depending on the employees covered within the plan. The remaining components of the net periodic benefit cost, however, must be presented in the statement of income as a non-operating income (loss) below operating income. The Update is effective for annual periods beginning after December 15, 2017, with early adoption permitted only within the first interim period for public entities. We plan to adopt this Update in 2018. When adopted, the new guidance must be applied retrospectively for all income statement periods presented. The Update will reduce the Company's operating income and will require a new financial statement line item below operating income within the Consolidated Statements of Income for the non-operating income (loss) components. Net income within the Consolidated Statements of Income will not change upon adoption of the Update.

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 are in the process of assessing the effects of these updates including potential changes to existing hedging arrangement, as well as the implementation approach for accounting for these changes.

NOTE 3 – Acquisitions

On March 9, 2017, the Company completed its acquisition of Sun Flour in Thailand for \$18 million. As of December 31, 2017, the Company had paid \$16 million in cash and recorded \$2 million in accrued liabilities for deferred payments due to the previous owner. The Company funded the acquisition primarily with cash on-hand. The acquisition of Sun Flour adds a fourth manufacturing facility to our operations in Thailand. Sun Flour produces rice-based ingredients used primarily in the food industry. The results of the acquired operation are included in the Company's consolidated results from the acquisition date forward within the Asia Pacific business segment, and \$14 million of goodwill was allocated to that segment.

On December 29, 2016, the Company completed its acquisition of TIC Gums, a privately held, U.S.-based company that provides advanced texture systems to the food and beverage industry, for \$396 million, net of cash acquired. The acquisition adds a manufacturing facility in both the U.S. and China. The Company funded the acquisition with proceeds from borrowings under its revolving credit agreement. The results of the acquired operations are included in the

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Company's consolidated results from the respective acquisition dates forward within the North America and Asia Pacific business segments, and \$175 million and \$2 million of goodwill was allocated to those segments, respectively.

On November 29, 2016, the Company completed its acquisition of Shandong Huanong Specialty Corn Development Co., Ltd. ("Shandong Huanong") in China for \$12 million in cash. The Company funded the acquisition primarily with cash on-hand. The acquisition of Shandong Huanong, located in Shandong Province, adds second manufacturing facility to our operations in China. It produces starch raw material for our plant in Shanghai, which makes value-added ingredients for the food industry. The results of the acquired operation are included in the Company's consolidated results from the acquisition date forward within the Asia Pacific business segment.

On August 3, 2015, the Company completed its acquisition of Kerr Concentrates, Inc. ("Kerr"), a privately held producer of natural fruit and vegetable concentrates for \$102 million in cash. Kerr serves major food and beverage companies, flavor houses and ingredient producers from its manufacturing locations in Oregon and California. The acquisition of Kerr provided the Company with the opportunity to expand its product portfolio. The Company finalized the purchase price allocation during the first quarter of 2016, which did not have a significant impact on previously estimated amounts. As a result of the acquisition, \$27 million of goodwill was allocated to the North America segment.

On March 11, 2015, the Company completed its acquisition of Penford Corporation ("Penford"), a manufacturer of specialty starches that was headquartered in Centennial, Colorado. Total purchase consideration for Penford was \$332 million, which included the extinguishment of \$93 million in debt in conjunction with the acquisition. Purchase accounting for Penford was completed in 2015. The acquisition of Penford provides the Company with, among other things, an expanded specialty ingredient product portfolio consisting of potato starch-based offerings. Penford operates six manufacturing facilities in the U.S., all of which manufacture specialty starches. As a result of the acquisition, \$121 million of goodwill was allocated to the North America segment.

A preliminary allocation of the purchase price to the assets acquired and liabilities assumed was made based on available information and incorporating management's best estimates. The assets acquired and liabilities assumed for each acquisition in the transactions are generally recorded at their estimated acquisition date fair values, while transaction costs associated with the acquisitions were expensed as incurred. Goodwill and intangible assets are open to be finalized for purchase accounting for Sun Flour as of December 31, 2017.

Goodwill represents the amount by which the purchase price exceeds the estimated fair value of the net assets acquired. The goodwill of \$177 million and \$27 million for TIC Gums and Kerr, respectively, result from synergies and other operational benefits expected to be derived from the acquisitions. The goodwill related to TIC Gums, Shandong, and Kerr acquisitions is tax deductible due to the structure of the acquisitions. The goodwill related to Sun Flour is not tax deductible.

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The following table summarizes the finalized purchase price allocations for the acquisitions of TIC Gums and Kerr as of December 29, 2016, and August 3, 2015, respectively:

(in millions)	TIC Gums	Kerr
Working capital (excluding cash)	\$ 49	\$ 37
Property, plant and equipment	37	8
Other assets	—	1
Identifiable intangible assets	133	29
Goodwill	177	27
Total purchase price, net of cash	\$ 396	\$ 102

The identifiable intangible assets for the acquisition of TIC Gums and Kerr included items such as customer relationships, trade names, proprietary technology, and non-competition agreements. The fair values of these intangible assets were determined to be Level 3 under the fair value hierarchy. Level 3 inputs are unobservable inputs for an asset or liability. Unobservable inputs are used to measure fair value to the extent that observable inputs are not available, thereby allowing for fair value estimates to be made in situations in which there is little, if any, market activity for an asset or liability at the measurement date. For more information on the fair value hierarchy, see Note 6.

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The following table presents the fair values, valuation techniques, and estimated remaining useful life at the acquisition date for these Level 3 measurements (dollars in millions):

TIC Gums	Fair Value	Valuation Technique	Estimated Useful Life
Customer relationships	\$ 94	Multi-period excess earnings method	20 years
Trade names	35	Relief-from-royalty method	Indefinite
Proprietary technology	4	Relief-from-royalty method	8 years

Kerr	Fair Value	Valuation Technique	Estimated Useful Life
Customer relationships	\$ 24	Multi-period excess earnings method	15 years
Trade names	4	Relief-from-royalty method	11 years
Non-competition agreements	1	Income approach method	3 years

The fair value of customer relationships, trade names, proprietary technology, and non-competition agreements were determined through the valuation techniques described above using various judgmental assumptions such as discount rates, royalty rates, and customer attrition rates, as applicable. The fair values of property, plant and equipment associated with the acquisitions were determined to be Level 3 under the fair value hierarchy. Property, plant and equipment values were estimated using either the cost or market approach.

The acquisitions of Sun Flour and Shandong Huanong added \$21 million to goodwill and identifiable intangible assets and \$9 million to net tangible assets as of their respective acquisition dates.

Included in the results of the acquired businesses for the years ended December 31, 2017 and 2015 was an increase in pre-tax cost of sales of \$9 million and \$10 million, respectively, relating to the sale of inventory that was adjusted to fair value at the acquisition dates for each acquired business in accordance with business combination accounting rules. The fair value adjustments for the year ended December 31, 2016, were not material.

Pro-forma results of operations for the acquisitions made in 2017, 2016, and 2015 have not been presented as the effect of each acquisition individually and in aggregate would not be material to the Company's results of operations for any periods presented.

The Company incurred \$4 million, \$3 million, and \$10 million of pre-tax acquisition and integration costs in 2017, 2016, and 2015, respectively, associated with its acquisitions.

NOTE 4 – Sale of Canadian Plant

On December 15, 2015, the Company sold its manufacturing assets in Port Colborne, Ontario, Canada for \$35 million in cash. The Company recorded a pre-tax gain of \$10 million on the sale, net of the write-off of goodwill of \$2 million associated with the business. The Company also recorded pre-tax restructuring charges of \$4 million in 2015 associated with the sale of the plant as described below. Additionally, in 2016 the Company recorded pre-tax restructuring charges of \$2 million related to the Port Colborne plant sale.

NOTE 5 – Impairment and Restructuring Charges

In 2017, the Company recorded \$38 million of pre-tax restructuring charges. During the first quarter of 2017, the Company implemented an organizational restructuring effort in Argentina in order to achieve a more competitive cost position. The Company notified the local labor union of a planned reduction in workforce, which resulted in a strike by the labor union and an interruption of manufacturing activities during the second quarter of 2017. The Company finalized a new labor agreement with the labor union in the second quarter, ending the strike on June 1, 2017. For the year ended December 31, 2017, the Company recorded total pre-tax restructuring-related charges in Argentina of \$17 million for employee-related severance and other costs.

During the second quarter of 2017, the Company announced a Finance Transformation initiative in North America for the U.S. and Canada businesses to strengthen organizational capabilities and drive efficiencies to support the growth strategy of the Company. For the year ended December 31, 2017, the Company recorded pre-tax restructuring charges of \$6 million (\$3 million of severance costs and \$3 million of other costs) related to this initiative. The Company expects to incur between \$1 million and \$2 million of additional employee-related severance and other costs in 2018.

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During the fourth quarter of 2017, the Company recorded \$13 million of pre-tax restructuring charges related to its leaf extraction process in Brazil. The charges consisted of \$6 million of abandonment of certain assets, \$6 million of inventory write downs and \$1 million related to other costs, including employee-related severance costs. The Company expects to incur \$1 million of additional other costs in 2018.

Additionally for the year ended December 31, 2017, the Company recorded \$2 million of other pre-tax restructuring charges including other employee-related severance costs in North America and a refinement of estimates for prior year restructuring activities.

In 2016, the Company recorded \$19 million of restructuring charges consisting of \$11 million of employee-related severance and other costs due to the execution of global information technology outsourcing contracts, \$6 million of employee-related severance costs associated with the Company's optimization initiatives in North America and South America, and \$2 million of costs attributable to the 2015 Port Colborne plant sale.

A summary of the Company's severance accrual at December 31, 2017, is as follows (in millions):

Balance in severance accrual as of December 31, 2016	\$ 7
Restructuring charge for employee-related severance costs:	
Argentina	15
North America Finance Transformation	3
Other	3
Prior year restructuring activities	(2)
Payments made to terminated employees	(15)
Balance in severance accrual as of December 31, 2017	\$ 11

Of the \$11 million severance accrual at December 31, 2017, \$10 million is expected to be paid within the next 12 months.

The Company assesses goodwill and other indefinite-lived intangible assets for impairment annually (or more frequently if impairment indicators arise) as of October 1 of each year. No goodwill impairment was recognized in the fourth quarters of 2017, 2016, or 2015 related to the Company's annual impairment testing.

NOTE 6 – Financial Instruments, Derivatives and Hedging Activities

The Company is exposed to market risk stemming from changes in commodity prices (primarily corn and natural gas), foreign currency exchange rates and interest rates. In the normal course of business, the Company actively manages its exposure to these market risks by entering into various hedging transactions, authorized under established policies that place clear controls on these activities. These transactions utilize exchange-traded derivatives or over-the-counter derivatives with investment grade counterparties. Derivative financial instruments currently used by the Company consist of commodity-related futures, options and swap contracts, foreign currency-related forward contracts, interest rate swaps and T-Locks.

Commodity price hedging: The Company's 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 the manufacturing process, generally over the next 12 to 24 months. The Company maintains a commodity-price risk management strategy that uses derivative instruments to minimize significant, unanticipated earnings fluctuations caused by commodity-price volatility. For example, the manufacturing of the Company's products requires a significant volume of corn and natural gas. Price fluctuations in corn and natural gas cause the actual purchase price of corn and natural gas to differ from anticipated prices.

To manage price risk related to corn purchases in North America, the Company uses corn futures and options contracts that trade on regulated commodity exchanges to lock-in its corn costs associated with firm-priced customer sales contracts. The Company uses over-the-counter natural gas swaps to hedge a portion of its natural gas usage in North America. These derivative financial instruments limit the impact that volatility resulting from fluctuations in market prices will have on corn and natural gas purchases and have been designated as cash flow hedges. The Company also enters into futures contracts to hedge price risk associated with fluctuations in the market price of ethanol. Unrealized gains and losses

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associated with marking the commodity hedging contracts to market (fair value) are recorded as a component of other comprehensive income (“OCI”) and included in the equity section of the Consolidated Balance Sheets as part of AOCI. These amounts are subsequently reclassified into earnings in the same line item affected by the hedged transaction and in the same period or periods during which the hedged transaction affects earnings, or in the month a hedge is determined to be ineffective. The Company assesses the effectiveness of a commodity hedge contract based on changes in the contract’s fair value. The changes in the market value of such contracts have historically been, and are expected to continue to be, highly effective at offsetting changes in the price of the hedged items. The amounts representing the ineffectiveness of these cash flow hedges are not significant.

As of December 31, 2017, AOCI included \$12 million of losses (net of tax of \$7 million) pertaining to commodities-related derivative instruments designated as cash flow hedges. As of December 31, 2016, AOCI included an insignificant amount pertaining to commodities-related derivative instruments designated as cash flow hedges.

Interest rate hedging: The Company assesses its exposure to variability in interest rates by identifying and monitoring changes in interest rates that may adversely impact future cash flows and the fair value of existing debt instruments, and by evaluating hedging opportunities. The Company maintains risk management control systems to monitor interest rate risk attributable to both the Company’s outstanding and forecasted debt obligations as well as the Company’s offsetting hedge positions. The risk management control systems involve the use of analytical techniques, including sensitivity analysis, to estimate the expected impact of changes in interest rates on future cash flows and the fair value of the Company’s outstanding and forecasted debt instruments.

Derivative financial instruments that have been used by the Company to manage its interest rate risk consist of interest rate swaps and T-Locks. The Company periodically enters into T-Locks to hedge its exposure to interest rate changes. The T-Locks are designated as hedges of the variability in cash flows associated with future interest payments caused by market fluctuations in the benchmark interest rate until the fixed interest rate is established, and are accounted for as cash flow hedges. Accordingly, changes in the fair value of the T-Locks are recorded to AOCI until the consummation of the underlying debt offering, at which time any realized gain (loss) is amortized to earnings over the life of the debt. The Company also has interest rate swap agreements that effectively convert the interest rates on \$200 million of its \$400 million of 4.625 percent senior notes, due November 1, 2020, to variable rates. These swap agreements call for the Company to receive interest at the fixed coupon rate of the respective notes and to pay interest at a variable rate based on the six-month U.S. LIBOR rate plus a spread. The Company has designated these interest rate swap agreements as hedges of the changes in fair value of the underlying debt obligations attributable to changes in interest rates and accounts for them as fair value hedges. Changes in the fair value of interest rate swaps designated as hedging instruments that effectively offset the variability in the fair value of outstanding debt obligations are reported in earnings. These amounts offset the gain or loss (the change in fair value) of the hedged debt instrument that is attributable to changes in interest rates (the hedged risk), which is also recognized in earnings. The fair value of these interest rate swap agreements as of December 31, 2017 and 2016 was \$1 million and \$3 million, respectively, and is reflected in the Consolidated Balance Sheets within other assets, with an offsetting amount recorded in long-term debt to adjust the carrying amount of hedged debt obligations. The Company did not have any T-Locks outstanding as of December 31, 2017, or 2016. As of December 31, 2017 and 2016, AOCI included \$2 million of losses (net of income taxes of \$1 million) and \$4 million of losses (net of income taxes of \$2 million), respectively, 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.

Foreign currency hedging: Due to the Company's global operations, including operations in many emerging markets, it is exposed to fluctuations in foreign currency exchange rates. As a result, the Company has exposure to translational foreign exchange risk when the results of its foreign operations are translated to U.S. dollars and to transactional foreign exchange risk when transactions not denominated in the functional currency are revalued. The Company primarily uses derivative financial instruments such as foreign currency forward contracts, swaps and options to manage its transactional foreign exchange risk. As of December 31, 2017, the Company had foreign currency forward sales contracts that are designated as fair value hedges with an aggregate notional amount of \$447 million and foreign currency forward purchase contracts with an aggregate notional amount of \$121 million that hedged transactional exposures. As of December 31, 2016, the Company had foreign currency forward sales contracts with an aggregate notional amount of \$432 million and foreign currency forward purchase contracts with an aggregate notional amount of \$227 million that hedged transactional exposures. The fair values of these derivative instruments were assets of \$11 million and \$5 million at December 31, 2017 and 2016, respectively.

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The Company also has foreign currency derivative instruments that hedge certain foreign currency transactional exposures and are designated as cash flow hedges. As of December 31, 2017, AOCI included \$1 million of gains (net of income taxes of \$1 million) related to foreign currency derivative instruments. As of December 31, 2016, the amounts included in AOCI related to these hedges were not significant.

By using derivative financial instruments to hedge exposures, the Company exposes itself to credit risk and market risk. Credit risk is the risk that the counterparty will fail to perform under the terms of the derivative contract. When the fair value of a derivative contract is positive, the counterparty owes the Company, which creates credit risk for the Company. When the fair value of a derivative contract is negative, the Company owes the counterparty and, therefore, it does not possess credit risk. The Company minimizes the credit risk in derivative instruments by entering into over-the-counter transactions only with investment grade counterparties or by utilizing exchange-traded derivatives. Market risk is the adverse effect on the value of a financial instrument that results from a change in commodity prices, interest rates or foreign exchange rates. The market risk associated with commodity-price, interest rate or foreign exchange contracts is managed by establishing and monitoring parameters that limit the types and degree of market risk that may be undertaken.

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

Derivatives Designated as Hedging Instruments (in millions):	Fair Value of Derivative Instruments as of December 31, 2017			
	Balance Sheet Location	Fair Value	Balance Sheet Location	Fair Value
Commodity and foreign currency	Accounts receivable, net	\$ 11	Accounts payable and accrued liabilities	\$ 23
Commodity, foreign currency, and interest rate contracts	Other assets	3	Non-current liabilities	8
Total		\$ 14		\$ 31
Derivatives Designated as Hedging Instruments (in millions):	Fair Value of Derivative Instruments as of December 31, 2016			
	Balance Sheet Location	Fair Value	Balance Sheet Location	Fair Value
Commodity and foreign currency	Accounts receivable, net	\$ 31	Accounts payable and accrued liabilities	\$ 25
Commodity, foreign currency, and interest rate contracts	Other assets	8	Non-current liabilities	2
Total		\$ 39		\$ 27

As of December 31, 2017, the Company had outstanding futures and option contracts that hedged the forecasted purchase of approximately 92 million bushels of corn and 16 million pounds of soybean oil. The Company is unable to directly hedge price risk related to co-product sales; however, it occasionally enters into hedges of soybean oil (a

competing product to corn oil) in order to mitigate the price risk of corn oil sales. The Company also had outstanding swap and option contracts that hedged the forecasted purchase of approximately 35 million mmbtu's of natural gas at December 31, 2017. Additionally at December 31, 2017, the Company had outstanding ethanol futures contracts that hedged the forecasted sale of approximately 4 million gallons of ethanol.

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Additional information relating to the Company's derivative instruments is presented below (in millions, pre-tax):

	Year ended December 31, 2017		Amount of Gains
	Amount of Gains (Losses)	Location of Gains (Losses) Recognized	(Losses) Reclassified from AOCI into Income
Derivatives in Cash Flow Hedging Relationships		OCI on Derivatives	
Commodity contracts	\$ (22)	Cost of sales	\$ (5)
Foreign currency contracts	6	Net sales/Cost of sales	1
Interest rate contracts	—	Financing costs, net	(2)
Total	\$ (16)		\$ (6)
	Year ended December 31, 2016		Amount of Gains
	Amount of Gains (Losses)	Location of Gains (Losses) Recognized	(Losses) Reclassified from AOCI into Income
Derivatives in Cash Flow Hedging Relationships		OCI on Derivatives	
Commodity contracts	\$ (15)	Cost of sales	\$ (45)
Foreign currency contracts	(2)	Net sales/Cost of sales	(2)
Interest rate contracts	—	Financing costs, net	(2)
Total	\$ (17)		\$ (49)
	Year ended December 31, 2015		Amount of Gains
	Amount of Gains (Losses)	Location of Gains (Losses) Recognized	(Losses) Reclassified from AOCI into Income
Derivatives in Cash Flow Hedging Relationships		OCI on Derivatives	
Commodity contracts	\$ (61)	Cost of sales	\$ (43)
Foreign currency contracts	—	Net sales/Cost of sales	—
Interest rate contracts	—	Financing costs, net	(3)
Total	\$ (61)		\$ (46)

As of December 31, 2017, AOCI included approximately \$9 million of losses (net of income taxes of \$5 million), on commodities-related derivative instruments designated as cash flow hedges that are expected to be reclassified into earnings during the next 12 months. Transactions and events expected to occur over the next twelve months that will necessitate reclassifying these derivative losses to earnings include the sale of finished goods inventory that includes previously hedged purchases of corn, natural gas and ethanol. The Company expects the losses to be offset by changes in the underlying commodities costs. Additionally at December 31, 2017, AOCI included \$1 million of losses (net of income taxes of \$1 million) on settled T-Locks and \$1 million of gains (net of income taxes of \$1 million) related to foreign currency hedges which are expected to be reclassified into earnings during the next 12 months. Cash flow hedges discontinued during 2017 or 2016 were not significant.

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

(in millions)	As of December 31, 2017				As of December 31, 2016			
	Total	Level 1 (a)	Level 2 (b)	Level 3 (c)	Total	Level 1 (a)	Level 2 (b)	Level 3 (c)
Available for sale securities	\$ 10	\$ 10	\$ —	\$ —	\$ 7	\$ 7	\$ —	\$ —
Derivative assets	14	3	11	—	39	6	33	—
Derivative liabilities	31	11	20	—	27	11	16	—
Long-term debt	1,845	—	1,845	—	1,929	—	1,929	—

- (a) Level 1 inputs consist of quoted prices (unadjusted) in active markets for identical assets or liabilities.
- (b) Level 2 inputs are inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly for substantially the full term of the financial instrument. Level 2 inputs are based on quoted prices for similar assets or liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active, or inputs other than quoted prices that are observable for the asset or liability or can be derived principally from or corroborated by observable market data.
- (c) Level 3 inputs are unobservable inputs for the asset or liability. Unobservable inputs shall be used to measure fair value to the extent that observable inputs are not available, thereby allowing for fair value estimates to be made in situations in which there is little, if any, market activity for the asset or liability at the measurement date.

The carrying values of cash equivalents, short-term investments, accounts receivable, accounts payable, and short-term borrowings approximate fair values. Commodity futures, options, and swap contracts are recognized at fair

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value. Foreign currency forward contracts, swaps, and options are also recognized at fair value. The fair value of the Company's long-term debt is estimated based on quotations of major securities dealers who are market makers in the securities. Presented below are the carrying amounts and the fair values of the Company's long-term debt at December 31, 2017 and 2016.

(in millions)	December 31, 2017		December 31, 2016	
	Carrying Amount	Fair Value	Carrying Amount	Fair Value
3.2% senior notes due October 1, 2026	\$ 496	\$ 492	\$ 496	\$ 482
4.625% senior notes due November 1, 2020	398	421	398	428
6.625% senior notes due April 15, 2037	254	325	254	299
5.62% senior notes due March 25, 2020	200	212	200	217
1.8% senior notes due September 25, 2017	—	—	299	301
6.0% senior notes due April 15, 2017	—	—	200	202
Term loan credit agreement due April 25, 2019	395	395	—	—
Revolving credit facility	—	—	—	—
Fair value adjustment related to hedged fixed rate debt instrument	1	—	3	—
Total long-term debt	\$ 1,744	\$ 1,845	\$ 1,850	\$ 1,929

NOTE 7 – Financing Arrangements

The Company had total debt outstanding of \$1.9 billion and \$2.0 billion at December 31, 2017 and 2016, respectively. Short-term borrowings at December 31, 2017 and 2016 consist primarily of amounts outstanding under various unsecured local country operating lines of credit.

The \$200 million of 6.0 percent senior notes due April 15, 2017, were refinanced with borrowings under the revolving credit facility in April 2017.

On August 18, 2017, the Company entered into a new Term Loan Credit Agreement (“Term Loan”) to establish a senior unsecured term loan credit facility. Under the Term Loan, the Company is 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. As of October 25, 2017, the Company had initiated all three borrowings under the Term Loan 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.

All borrowings under the Term Loan facility will bear interest at a variable annual rate based on the LIBOR or base rate, at the Company's election, subject to the terms and conditions thereof, plus, in each case, an applicable margin. The Term Loan Credit Agreement contains customary representations, warranties, covenants, events of default, terms and conditions, including limitations on liens, incurrence of debt, mergers and significant asset dispositions. The Company must also comply with a leverage ratio and interest coverage ratio. The occurrence of an event of default under the Term Loan Credit Agreement could result in all loans and other obligations being declared due and payable and the term loan credit facility being terminated.

In December 2017, the Company paid down \$25 million of the Term Loan. On January 16, 2018, the Company paid an additional \$185 million towards the Term Loan. Both payments were made with cash on-hand.

On September 22, 2016, the Company issued 3.2 percent Senior Notes due October 1, 2026, in an aggregate principal amount of \$500 million. These notes are unsecured obligations of the Company and rank equally with all of the Company's other existing and future unsecured, senior indebtedness. Interest on the notes is required to be paid semi-annually in arrears on April 1 and October 1 of each year, commencing April 1, 2017. The Company may redeem these notes at its option, at any time in whole or from time to time in part, at the redemption prices set forth in the supplemental indenture pursuant to which these notes were issued. The net proceeds from the sale of the notes of approximately \$497 million were used to repay the \$350 million due under the Company's Term Loan Credit Agreement, plus accrued interest, to repay \$52 million of borrowings under the Company's previously existing \$1 billion revolving credit facility and for general corporate purposes.

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On October 11, 2016, the Company entered into a new five-year, senior, unsecured \$1 billion revolving credit agreement (the “Revolving Credit Agreement”) that replaced our previously existing \$1 billion senior unsecured revolving credit facility that would have matured on October 22, 2017.

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

The Revolving Credit Agreement contains customary representations, warranties, covenants, events of default, terms and conditions, including limitations on liens, incurrence of subsidiary debt and mergers. The Company 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.

As of December 31, 2017, there were no borrowings outstanding under the Revolving Credit Agreement. In addition to borrowing availability under its Revolving Credit Agreement, the Company has approximately \$488 million of unused operating lines of credit in the various foreign countries in which it operates.

Long-term debt, net of related discounts, premiums and debt issuance costs consists of the following at December 31:

(in millions) 2017